TPC Benchmark™ C

Full Disclosure Report for

SIEMENS

Primergy 870

Using Microsoft SQL Server 7.0 Enterprise Edition

and Microsoft Windows NT 4.0 Enterprise Edition

September 24, 1998

First Edition

First Edition September 24, 1998

Siemens believes that the information in this document is accurate as of the publication date. The information in this document is subject to change without notice. We assume no responsibility for any errors that may appear in this document. The pricing information in this document is believed to accurately reflect the current prices as of the publication date. However, we provide no warranty of the pricing information in this document.

Benchmark results are highly dependent upon workload, specific application requirements, system design and implementation. Relative system performance will vary as a result of these and other factors. Therefore, TPC Benchmark™ C should not be used as a substitute for a specific customer application benchmark when critical capacity planning and/or product evaluation decisions are contemlated.

All performance data contained in this report were obtained in a rigorously controlled environment. Results obtained in other operating environments may vary significantly. We do not warrant or represent that a user can or will achieve similar performance expressed in transactions per minute (tpmC) or normalized price/performance ($/tpmC). No warranty of system performance or price/performance is expressed or implied in this report.

Preface

The Transaction Processing Performance Council (TPC), of which Siemens AG is a member, is an organization of computer companies, dedicated to the development of objective, industry-wide performance metrics in the area of transaction processing. Siemens AG is involved in this effort, participating on the council and utilizing TPC benchmarks in performance evaluation.

The TPC Benchmark™ C Standard Specification was developed by the Transaction Processing Performance Council. This benchmark exercises the system components necessary to perform tasks associated with that class of on-line transaction processing (OLTP) environments emphasizing a mixture of read-only and update intensive transactions. This is a complex OLTP application environment exercising a breadth of system components associated by such environments characterized by:

- The simultaneous execution of multiple transaction types that span a breadth of complexity
- On-line and deferred transaction execution modes
- Multiple on-line terminal sessions
- Moderate system and application execution time
- Significant disk input/output
- Transaction integrity (ACID properties)
- Non-uniform distribution of data access through primary and secondary keys
- Databases consisting of many tables with a wide variety of sizes, attributes, and relationships
- Contention on data access and update

This benchmark defines four on-line transactions and one deferred transaction, intended to emulate functions that are common to many OLTP applications. However, this benchmark does not reflect the entire range of OLTP requirements. The extent to which a customer can achieve the results reported by a vendor is highly dependent on how closely TPC-C approximates the customer application. The relative performance of systems derived from this benchmark does not necessarily hold for other workloads or environments. Extrapolations to any other environment are not recommended.

Benchmark results are highly dependent upon workload, specific application requirements, system design and implementation. Relative system performance will vary as a result of these and other factors. Therefore, TPC-C should not be used as a substitute for a specific customer application benchmarking when critical capacity planning and/or product evaluation decisions are contemplated.

The performance metric reported by TPC-C is a "business throughput" measuring the number of orders processed per minute. Multiple transactions are used to simulate the business activity of processing an order , and each transaction is subjected to a response time constraint. The performance metric for this benchmark is expressed in transactions-per-minute-C (tpmC). To be compliant with the TPC-C standard, all references to tpmC results must include the tpmC rate, the associated price-per-tpmC, and the availability date of the priced configuration.

Summary

This report documents the TPC Benchmark™ C results achieved by the Siemens AG using Microsoft SQL Server 7.0 Enterprise Edition.

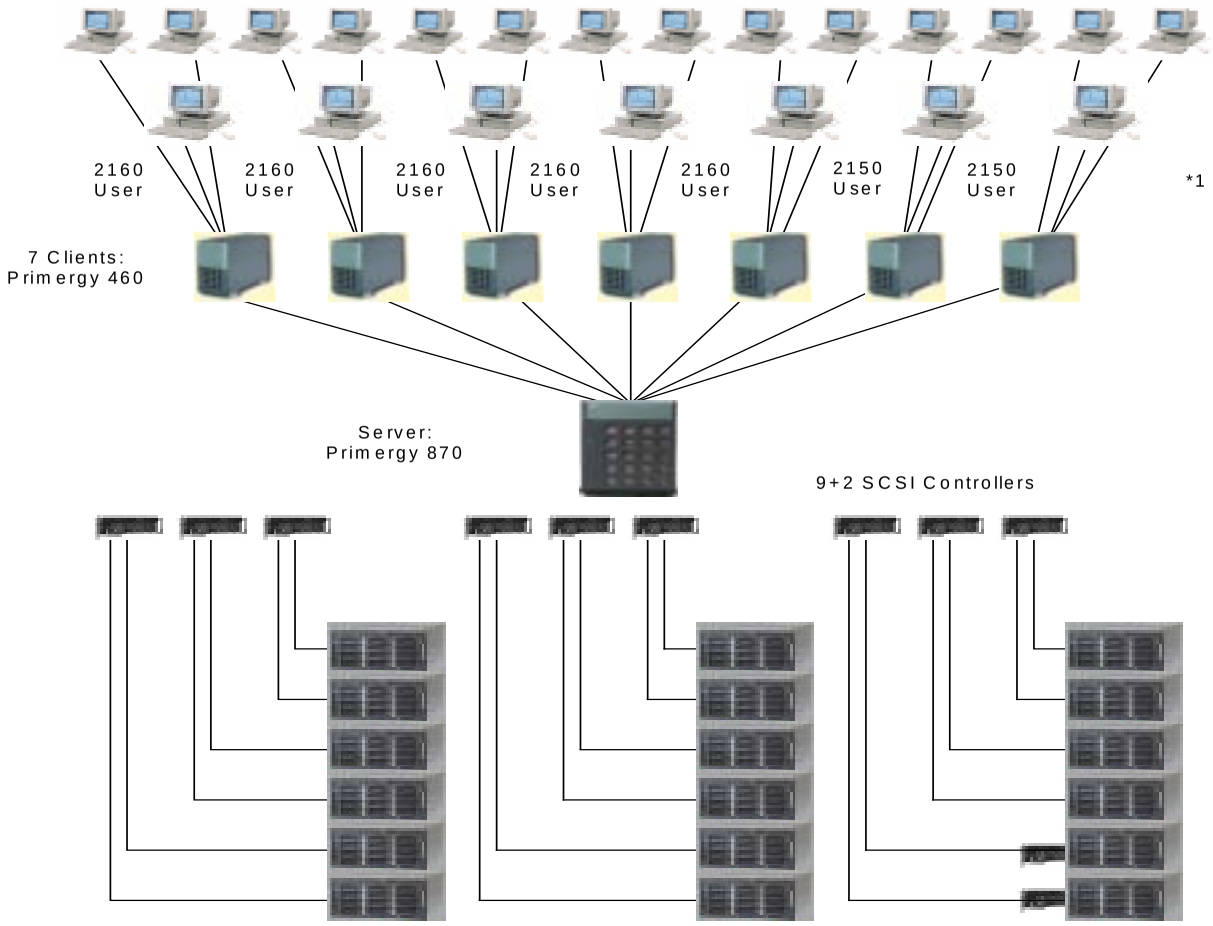
The TPC Benchmark™ C tests were run on a Primergy 870 system using the Windows NT 4.0 Enterprise Edition operating system.

The results, summarized below, show the number of TPC Benchmark™ C transactions per minute (tpmC) and the price per tpmC ($/tpmC).

Software	Hardware	tpmC	$/tpmC
Microsoft SQL Server 7.0 Enterprise Edition, Windows NT 4.0 Enterprise Edition	Siemens AG Primergy 870	18,528.97	36.90$

SIEMENS	Primergy 870 with 7 Primergy 460		TPC-C REV 3.4 EXECUTIVE SUMMARY Page 1 of 2 Report Date: September 24, 1998
Total System Cost	**TPC-C Throughput**	**Price/Performance**	**Availability Date**
$ 683,682	**18,528.97 tpmC**	**$36.90/tpmC**	**December 29, 1998**

Processors	Database Manager	Operating-System	Other Software	Number of Users
4 Intel Pentium® II Xeon 400 MHz	Microsoft SQL Server 7.0 Enterprise Edition	Microsoft Windows NT 4.0 Enterprise Edition	Microsoft Internet Information Server, openUTM version 4.0 Transaction Monitor	15,100



*1: 2160 users: users per segment: = 714, 714, 732
2150 users: users per segment = 714, 714, 722

System Components	Qty/Srv.	1 Primergy 870	Qty/Client	7 Primergy 460
Processors	4	Intel Pentium® II Xeon 400 MHz 1 MB SLC	2	Intel Pentium® II 333 MHz 512 KB SLC
Memory	4	GB	256	MB
Disk Controller	9+2	SCSI Controllers	1	SCSI Controller
Disk Drives	193	9 GB	1	2 GB
	6	18 GB		
Total GB of Storage	1	1737 GB	1	2 GB

SIEMENS	Primergy 870	TPC-C REV 3.4 EXECUTIVE SUMMARY Page 2 of 2
	Client/Server	Report Date: September 24, 1998

Description	Part Number	Brand	Third Party Pricing	Unit Price	Qty.	Extended Price	5 yr. Maint. Price
Server Hardware							
Base System	SNP:SY-K504V101-P		1	$12 505	1	$ 12 505	
Pentium II Xeon Processor 400MHZ/1MB	SNP:SY-F1824E402-P		1	$5 684	4	$ 22 736	
2. Memory Board	SNP:SY-F1825E1-P		1	$627	1	$ 627	
Memory 512MB EDO-DIMM	SNP:SY-F1549E543-P		1	$2 821	8	$ 22 568	
DAT Drive DDS-3 12GB, SE-SCSI	SNP:SY-F1730E1-P		1	$1 158	1	$ 1 158	
FP 9GB/10K LVD-SCSI, Hot Plug	SNP:SY-F1899E109-P		1	$1 200	1	$ 1 200	
Power Supply (add.)	SNP:PS-F234E1-P		1	$463	1	$ 463	
Keyboard	S26381-K271-V310		1	$25	1	$ 25	
Country Pack	SNP:SY-F1699B213-P		1	$34	1	$ 34	
Monitor MCM 1510	S26361-K494-V150		1	$219	1	$ 219	$ 206
Sum Primergy 870					Subtotal	$ 61 535	$ 14 709
RAID-Controller,3 Chan.,16Mb (incl. 10% spares)	SNP:SY-F1779E16-P		1	$1 491	11	$ 16 401	
RAID-Controller Connector Kit (incl. 10% spares)	SNP:SY-F1222E37-P		1	$48	11	$ 528	
SCSI SE-DE Converter, 3 chan. (incl. 10% spares)	SNP:SY-F1478E30-P		1	$1 032	6	$ 6 192	
					Subtotal	$ 23 121	
FP 9GB/10K LVD-SCSI, Hot Plug	SNP:SY-F1899L109-P		1	$1 215	192	$ 233 280	
FP 9GB/10K LVD-SCSI, Hot Plug (10% spares)	SNP:SY-F1899L109-P		1	$1 215	20	$ 24 300	
Primergy S40 ES 1 channel DE	SNP:SY-K538V250-P		1	$2 538	10	$ 25 380	
Primergy S40 ES 1 channel SE	SNP:SY-K538V251-P		1	$2 524	6	$ 15 144	
Primergy 502, 2-Host, 4-Chan, 64MB	S26361-K426-V592		1	$7 394	2	$ 14 788	
FP 18GB SCSI-3 WIDE-SCA, Hot Plg	S26361-F1322-E180		1	$2 063	6	$ 12 378	
Country Pack Primergy 502 (INT)	S26361-F1290-B773		1	$34	2	$ 68	
Fast Wide SCSI ext. HD-UHD 1.5m	T26139-Y2549-V1		1	$81	6	$ 486	
SCSI Connection Cable 1m	D:KB244-M1		1	$103	6	$ 618	
SCSI Connection Cable AMP/MDR 5 m	D:KB215-M5		1	$147	10	$ 1 470	
Fast Wide SCSI Cable ext., 5m	T26139-Y2549-V105		1	$81	2	$ 162	
Sum Periphery					Subtotal	$ 328 074	$ 15 950
Client Hardware							
Primergy 460, FS PII 333	S26361-K482-V314		1	$1 979	7	$ 13 853	
PII 333	S26361-F1727-E333		1	$989	7	$ 6 923	
Keyboard	S26381-K271-V310		1	$25	7	$ 175	
Country Pack	S26361-F1699-B113		1	$34	7	$ 238	
Memory 256 MB EDO DIMM	S26361-F1549-E504		1	$1 389	7	$ 9 723	
HD 2GB, SCSI-3, Hot Plug	S26361-F1724-E20		1	$474	7	$ 3 318	
SCSI Contrl. 1 channel, SE, Cable	S26361-F1038-E31		1	$80	7	$ 560	
CD-ROM 32x SCSI	S26361-F1837-E1		1	$177	7	$ 1 239	
Fast-Ether-Express-Pro/100+ Server (PCI)	SNP:SY-F1868E501-A		1	$111	28	$ 3 108	
Monitor MCM 1510	S26361-K494-V150		1	$219	7	$ 1 533	$ 1 444
Sum Primergy 460					Subtotal	$ 40 670	$ 10 213
Server Software							
Microsoft Windows NT-Server, Enterprise Edition 4.0, incl 25 CALs		Microsoft	2	$3 999	1	$ 3 999	
MS SQL-Server 7.0 Enterp.Edition unlim. License		Microsoft	2	$28 999	1	$ 28 999	
Microsoft Software Maintenance		Microsoft	2				$ 10 475.00
					Subtotal	$ 32 998	
Client Software							
Microsoft Windows NT-Server 4.0, incl. 5 CALs		Microsoft	2	$809	7	$ 5 663	
Open UTM	U11421-C10		1	$973	7	$ 6 811	$ 10 290.00
Microsoft Visual C++ Professional 5.0		Microsoft	2	$499	1	$ 499	
					Subtotal	$ 12 973	
User Connectivity							
ATI 24 PORT HUB incl. 10% spare	AT-3024SL	Allied Telesyr	3	$160	724	$ 115 840	
Fast Ethernet Switch 24*100 incl. 10% spare	AT-8124XL	Allied Telesyr	3	$1 728	3	$ 5 184	
					Subtotal	$ 121 024	
					Total	$ 620 395	$ 63 287.00
1 - Siemens, 2-Microsoft, 3-Allied Telesyn International GmbH					Five-Year Cost of Ownership		$ 683 682.00
					tpmC Rating		$ 18 528.97
					$/tpmC:		$ 36.90

Prices used in TPC bechmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing section of the TPC benchmark pricing specifications. If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.

Five-Year Cost of Ownership: $683,682
tpmC Rating: 18,528.97
$ / tpmC: 36.90

Note: The benchmark results and test methodology were audited by Francois Raab of Information Paradigm, Inc.

Numerical Quantities Summary

MQTh, computed Maximum Qualified Throughput	**18,528.97 tpmC**
% throughput difference, reported & reproducibility runs	0.08 %

Response Times (in seconds)	90th percentile	Average	Maximum
- New-Order	0.85	0.58	31.25
- Payment	0.63	0.38	30.94
- Order-Status	0.67	0.42	6.82
- Delivery (interactive portion)	0.21	0.17	30.43
- Delivery (deferred portion)	0.69	0.48	1.34
- Stock-Level	3.03	2.30	9.45
- Menu	0.21	0.17	30.93

Transaction Mix, in percent of total transactions	
- New-Order	44.74 %
- Payment	43.05 %
- Order-Status	4.07 %
- Delivery	4.06 %
- Stock-Level	4.08 %

Emulation Delay (in seconds)	Response Time	Menu
- New-Order	0.1	0.1
- Payment	0.1	0.1
- Order-Status	0.1	0.1
- Delivery (interactive)	0.1	0.1
- Stock-Level	0.1	0.1

Keying/Think Times (in seconds)	Minimum	Average	Maximum
- New-Order	18.00/0.00	18.01/12.12	19.54/122.05
- Payment	3.00/0.00	3.01/12.11	4.26/122.04
- Order-Status	2.01/0.00	2.01/10.14	3.06/101.88
- Delivery (interactive)	2.01/0.00	2.01/ 5.19	2.93/ 52.01
- Stock-Level	2.01/0.00	2.01/ 5.19	2.90/ 52.01

Test Duration and Checkpointing	
- Ramp-up time	31 minutes
- Measurement interval	29 minutes
- Number of checkpoints	1
- Checkpoint interval	29 minutes
- Transactions during measurement interval (all types)	1,200,897

Contents

Introduction

This is the Full Disclosure Report for the TPC Benchmark™ C running on the Siemens system Primergy 870. It meets the requirements of the TPC Benchmark™ C Standard Revision 3.4.

Software and Hardware Configuration

This report documents the compliance of the Siemense AG TPC Benchmark™ C tests using Microsoft SQL Server 7.0 Enterprise Edition Relational Database Management System.

The TPC Benchmark™ C tests were carried out on the Siemens system Primergy 870. Primergy 870 is a powerful Windows NT Enterprise Server that features an Intel Pentium® II Xeon 400 MHz processors manufactured by Intel.

The processor power may be upgraded by three further Intel Pentium® II Xeon 400 MHz processors with highspeed onboard local memory access. The main memory capacity of the Primergy 870 scaled from 256 MB up to 4 GB. The Primergy system family uses the Windows NT 4.0 Enterprise Edition operating system.

Full Disclosure

From Clause 8.1 of the TPC Benchmark™ C Standard Specification:

> The intent of this disclosure is for a customer to be able to replicate the results of this benchmark given the appropriate documentation and products.

Siemens believes that this full disclosure report meets the stated intention. Siemens has strived to maintain the integrity of the Specification by adhering not only to the letter of the Specification, but also to its spirit.

Report Format

*The format of this document follows Clause 8 of the TPC Benchmark™ C specification (*TPC Benchmark™ C Standard Specification*, Revision 3.4, Transaction Processing Performance Council) which describes the full disclosure report requirements for the test.*

Each section of this report begins with the specification requirement printed in *italic type*. It is followed by plain type text that explains how the test complies with the requirement. Sections which require extensive listings reference appropriate appendices.

Report organization**:**

- General Items
- Clause 1 Related Items - Logical Database Design
- Clause 2 Related Items - Transaction and Terminal Profiles
- Clause 3 Related Items - Transaction and System Properties
- Clause 4 Related Items - Scaling and Database Population
- Clause 5 Related Items - Performance Metrics and Response Time
- Clause 6 Related Items - SUT, Driver, and Communication Definition
- Clause 7 Related Items - Pricing
- Clause 8 Related Items - Audit
- Appendix A - Application Source Code
- Appendix B - Database Details
- Appendix C - Tunable Parameters and Options
- Appendix D - Pricing Details
- Appendix E - Price Quotations
- Appendix F - Attestation Letter

Additional Copies

Additional copies of this report are available upon request from Siemens AG:

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Mr. Bathe
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33106 Paderborn
Germany

1. General Items

1.1 Application Code

The application program (as defined in Clause 2.1.7) must be disclosed. This includes, but is not limited to, the code implementing the five transactions and the terminal input and output functions. [Clause 8.1.1.4]

The source code of the application program is provided in Appendix A - Application Source Code.

1.2 Benchmark Sponsor

A statement identifying the benchmark sponsor(s) and other participating companies must be provided. [Clause 8.1.1.5]

This benchmark was sponsored and executed by Siemens AG.
The benchmark was developed and engineered by Siemens AG and Microsoft Corporation. Testing took place at Siemens NT-benchmark laboratories in Paderborn, Germany.

1.3 Parameter Settings

Settings must be provided for all customer-tunable parameters and options which have been changed from the defaults found in actual products, including but not limited to:

- *Database tuning options.*
- *Recovery/commit options.*
- *Consistency/locking options.*
- *Operating system and application configuration parameters.*

[Clause 8.1.1.6]

The significant parameters and system configuration files are provided in Appendix C - Tunable Parameters and Options.

1.4 Configuration Diagrams

Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences. This includes, but is not limited to:

- *Number and type of processors.*
- *Size of allocated memory, and any specific mapping/partitioning of memory unique to the test.*
- *Number and type of disk units (and controllers, if applicable).*
- *Number of channels or bus connections to disk units, including their protocol type.*
- *Number of LAN (e.g., Ethernet) connections, including routers, workstations, terminals, etc., that were physically used in the test or are incorporated into the pricing structure (see Clause 8.1.8).*
- *Type and the run-time execution location of software components (e.g., DBMS, client processes, transaction monitors, software drivers, etc.).*

[Clause 8.1.1.7]

SUT Configuration

The Primergy 870 server system included:

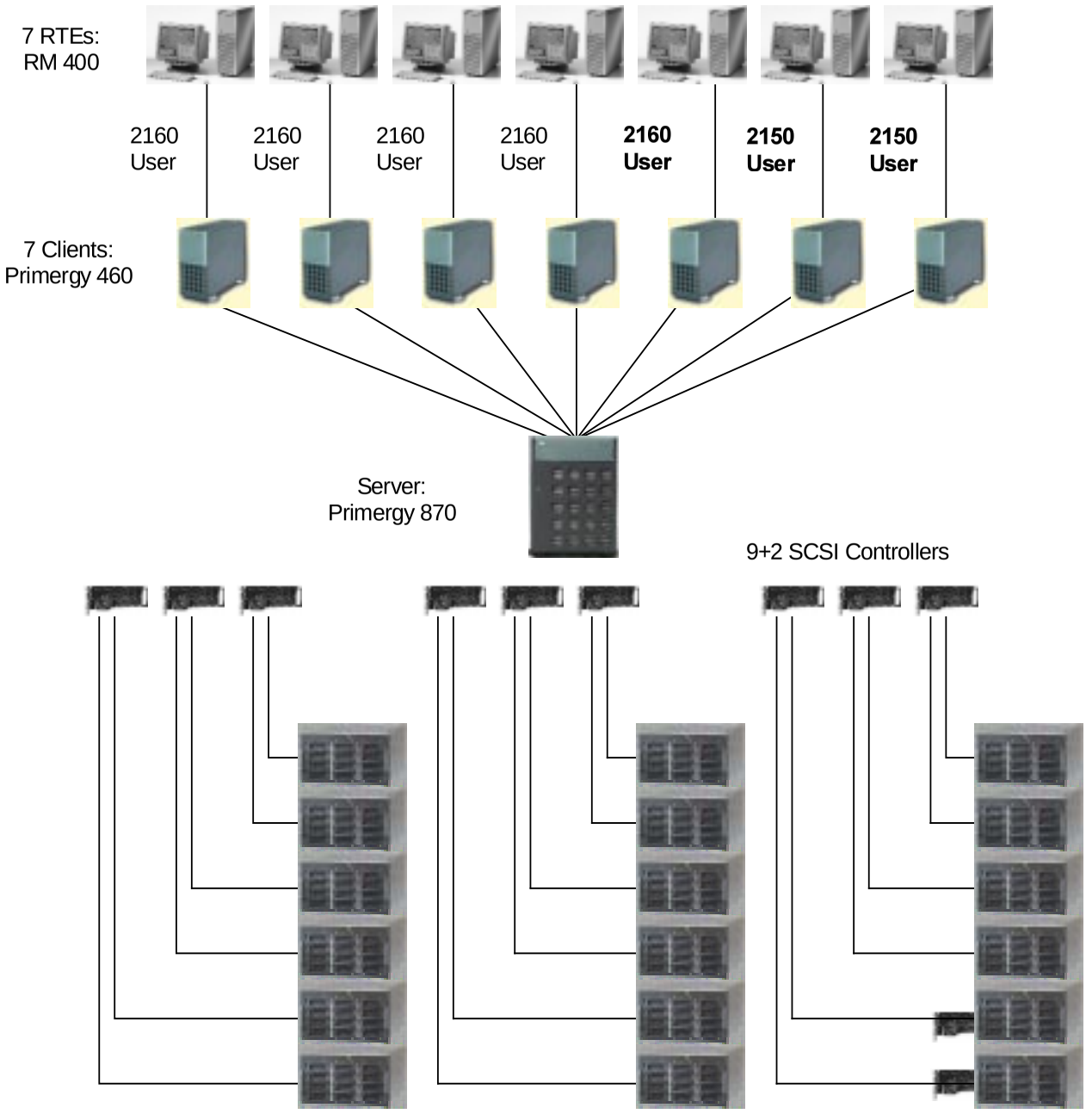
4	Intel Pentium® II Xeon 400 MHz with 1 MB Second Level Cache
4	GB memory
9+2	SCSI controllers
217(193)	disks 9 GB measured configuration (priced configuration)
6	disks 18 GB
1	LAN

The Primergy 460 client system included:

1	Intel Pentium® II 333 MHz with 512 KB Second Level Cache
256	MB memory
1	SCSI controller
1	disk 2 GB
2 (4)	LAN measured configuration (priced configuration)

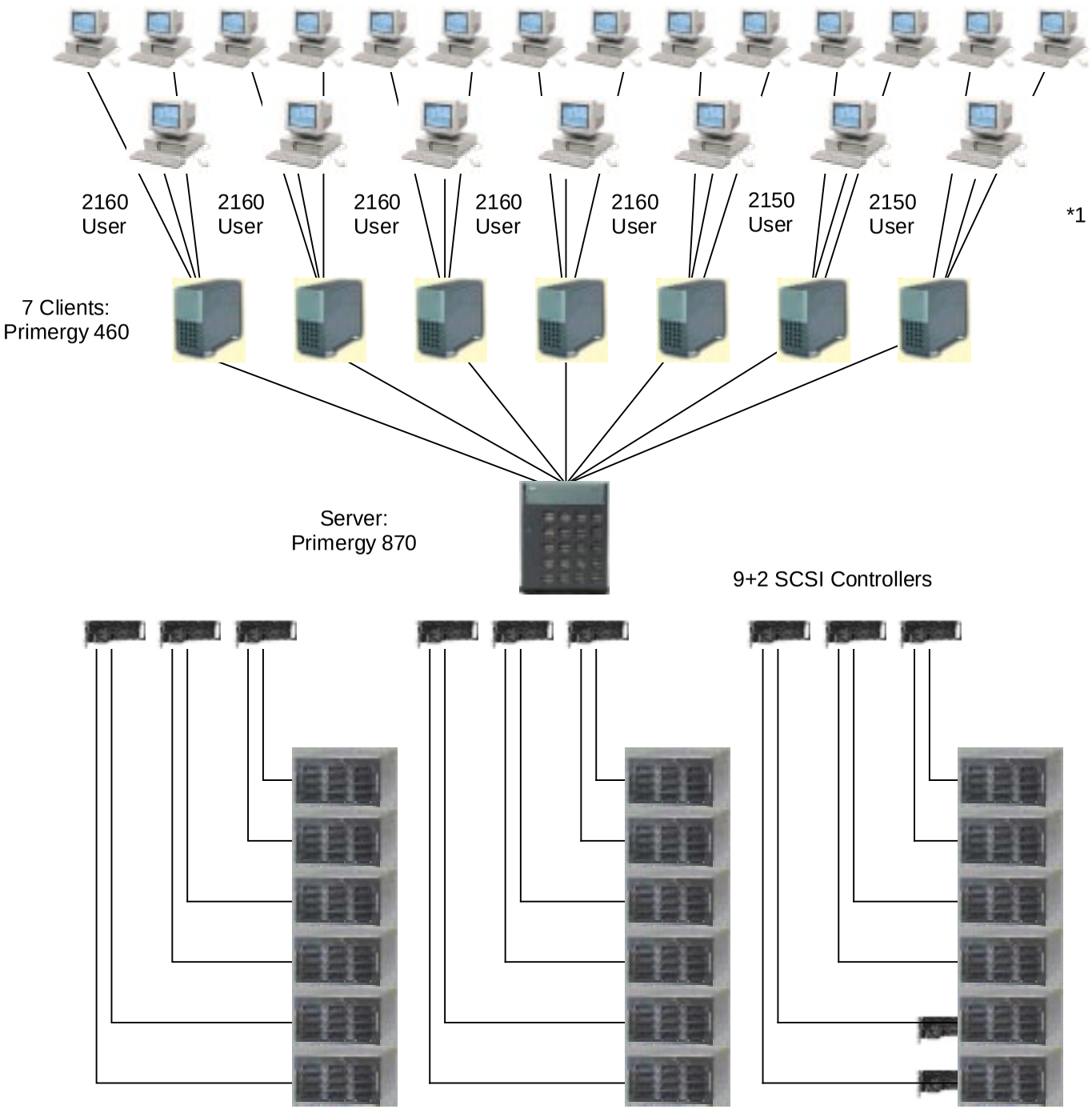
The benchmarked and priced system configurations are shown in Figure 1 and Figure 2 in accordance with Clause 8.1.1.7.

FIGURE 1: BENCHMARK SYSTEM CONFIGURATION PRIMERGY 870



16 Primergy S 40 + 2 Primergy S 40 with 24 disks for backup

FIGURE 2: PRICED SYSTEM CONFIGURATION PRIMERGY 870



*1: 2160 users: users per segment: = 714, 714, 732
2150 users: users per segment = 714, 714, 722

2. Clause 1 Related Items - Logical Database Design

2.1 Table Definitions

Listings must be provided for all table definition statements and all other statements used to set-up the database. [Clause 8.1.2.1]

The programs that defined, created, and populated the Microsoft SQL Server 7.0 Enterprise Edition database for this TPC benchmark™ C are listed in Appendix B - Database Details.

2.2 Physical Organization of Database

The physical organization of tables and indices, within the database, must be disclosed. [Clause 8.1.2.2]

FIGURE 1: PHYSICAL ORGANIZATION OF THE DATABASE

Disk #	Controller	Disktype	RAID Configuration	Drive Letter	Size MB	Filegroup or Filesystem
0	Symbios (onboard)	9 GB	-	WINNT40EE C:	2039	NTFS
				SQL D:	6613	NTFS
1	DAC960PJ #1	24 x 9 GB	RAID0	H:	12000	cs1
				Q:	6000	misc1
2	DAC960PJ #2	24 x 9 GB	RAID0	I:	12000	cs2
				R:	6000	misc2
3	DAC960PJ #3	24 x 9 GB	RAID0	J:	12000	cs3
				S:	6000	misc3
4	DAC960PJ #4	24 x 9 GB	RAID0	K:	12000	cs4
				T:	6000	misc4
5	DAC960PJ #5	24 x 9 GB	RAID0	M:	12000	cs5
				U:	6000	misc5
6	DAC960PJ #6	24 x 9 GB	RAID0	N:	12000	cs6
				V:	6000	misc6
7	DAC960PJ #6	12 x 9 GB	RAID0	BACKUP1 X:	104195	NTFS
8	DAC960PJ #7	24 x 9 GB	RAID0	O:	12000	cs7
				W:	6000	misc7
9	DAC960PJ #7	12 x 9 GB	RAID0	BACKUP2 Y:	104195	NTFS
10	DAC960PJ #8	24 x 9 GB	RAID0	P:	12000	cs8
				Z:	6000	misc8
11	DAC960PJ #9	6 x 18 GB	RAID1	L:	36000	log

Space was allocated to Microsoft SQL Server 7.0 Enterprise Edition on SUT disks according to the data in section 5.2. The size of the datafile on each disk

drive was calculated to provide even distribution on load across the disk drives. The NT Disk Administrator was used to create raw devices for data/log and NTFS partitions for dump devices. For further information see Appendix B (Disk Usage) and Figure 1 in 5.2 (Distribution of Tables and Log). No attempt was made to alter the default physical organization of the database tables and indices chosen by Microsoft SQL Server 7.0 Enterprise Edition.

2.3 Insert and Delete Operations

It must be ascertained that insert and/or delete operations to any of the tables can occur concurrently with the TPC-C transaction mix. Furthermore, any restriction in the SUT database implementation that precludes inserts beyond the limits defined in Clause 1.4.11 must be disclosed. This includes the maximum number of rows that can be inserted and the maximum key value for these new rows. [Clause 8.1.2.3]

There were no restrictions on insert and delete operations to any tables.

2.4 Database Partitioning

While there are a few restrictions placed upon horizontal or vertical partitioning of tables and rows in the TPC benchmark™ C (see Clause 1.6), any such partitioning must be disclosed. [Clause 8.1.2.4]

There was no partitioning used in this implementation.

2.5 Replication of Tables

Replication of tables, if used, must be disclosed (see Clause 1.4.6). [Clause 8.1.2.5]

Replication of tables was not used in this implementation.

2.6 Additional and/or Duplicated Attributes

Additional and/or duplicated attributes in any table must be disclosed along with a statement on the impact on performance (see Clause 1.4.7). [Clause 8.1.2.6]

No additional and/or duplicated attributes were used.

3. Clause 2 Related Items - Transaction and Terminal Profiles

3.1 Random Number Generator

The method of verification for the random number generation must be described. [Clause 8.1.3.1]

The driver code of the RM 400 RTE generates random numbers by using three C-library routines lrand48(), srand48() and drand48(), available in RELIANT-UNIX ®.

lrand48() is a member of the family of functions which generate pseudo-random numbers using the well-known linear congruential algorithm and 48-bit integer arithmetic.

The function lrand48() returns non-negative long integers uniformly distributed over the interval [0 ,2^{31}-1]. It works by generating a sequence of 48-bit integer values, X_n, according to the linear congruential formula

$$X_{n+1}=(aX_n+c) \bmod m; \quad n>0.$$

The parameter m is 2^{48}; hence 48-bit integer arithmetic is performed.

The value returned by the function lrand48() is computed by first generating the next 48-bit X_n in the sequence. Then the appropriate number of bits, according to the type of data item to be returned, are copied from the high-order (leftmost) bits of X_n and transformed into the returned value.

3.2 Input/Output Screen Layout

The actual layouts of the terminal input/output screens must be disclosed. [Clause 8.1.3.2]

The screen layout corresponded exactly to those of the TPC-C Standard Specification (specified in Clause 2.4.3, 2.5.3, 2.6.3, 2.7.3, and 2.8.3).

3.3 Configured Terminal Features

The method used to verify that the emulated terminals provide all the features described in Clause 2.2.2.4 must be explained. Although not specifically priced, the type and model of the terminals used for the demonstration in 8.1.3.3 must be disclosed and commercially available (including supporting software and maintenance). [Clause 8.1.3.3]

The Primergy 460 is commercially available. All of the requirements in clause 2.2.2.4. are supported. This was verified by manually exercising each specification on a Primergy 460.

3.4 Presentation Managers or Intelligent Terminals

Any usage of presentation managers or intelligent terminals must be explained. [Clause 8.1.3.4]

Application code running on the client machines implemented the TPC-C user interface. No presentation manager software or intelligent terminal features were used. The source code for the forms application is listed in Appendix A - Application Source Code.

3.5 Transaction Statistics

The numerical quantities which are required are listed in the following table. [Clause 8.1.3.5 to 8.1.3.11]

	Statistics	Percentage
New-Order	Home order-lines	99.00%
	Remote order-lines	1.00%
	Rolled back transactions	0.99%
	Average items per order	10.00
Payment	Home transactions	85.07%
	Remote transactions	14.93%
	Non-primary key access	60.02%
Order-Status	Non-primary key access	60.58
Delivery	Skipped transactions	0
Transaction Mix	New-Order	44.74 %
	Payment	43.05 %
	Order-Status	4.07 %
	Delivery	4.06 %
	Stock-Level	4.08 %

3.6 Queueing Mechanism

The queuing mechanism used to defer the execution of the Delivery transaction must be disclosed. [Clause 8.1.12]

The client application processes submitted delivery transactions to named pipe delivery server software running on the client machines There was a single delivery server running on each client machine. These delivery servers were responsible for processing deliveries queued to the named pipe and submitting them to the database server.
The source code is listed in Appendix A - Application Source Code.

4. Clause 3 Related Items - Transaction and System Properties

ACID Tests

The results of the ACID tests must disclosed along with a description of how the ACID requirements were met. This includes disclosing which case was followed for the execution of Isolation Test 7. [Clause 8.1.4.1]

All ACID tests were performed successfully. The following sections describe the requirements of each of the tests as described in Clause 3 and the approach used to satisfy them.

All ACID tests were performed on the Primergy 870 system using the fully scaled database, except for the test of durable media failure.
The durability test was performed on a database scaled to 15 warehouses. This test would also pass on a fully scaled database.

4.1 Atomicity

The system under test must guarantee that database transactions are atomic; the system will either perform all individual operations on the data, or will assure that no partially-completed operations leave any effects on the data. [Clause 3.2.1]

Commit Transaction

Perform the Payment transaction for a randomly selected warehouse, district, and customer (by customer number as specified in Clause 2.5.1.2) and verify that the records in the CUSTOMER, DISTRICT, and WAREHOUSE tables have been changed appropriately. [Clause 3.2.2.1]

The following steps demonstrated atomicity for completed (COMMIT) transactions:

- A row was randomly selected from the warehouse, district and customer table.
- the current balance was noted.
- A payment transaction was executed with the above identifiers and a known amount.
- The transaction was committed.
- It was verified, that the rows contain the correct updated balances.

Rollback Transaction

Perform the Payment transaction for a randomly selected warehouse, district, and customer (by customer number as specified in Clause 2.5.1.2) and substitute a ROLLBACK of the transaction for the COMMIT of the transaction. Verify that the records in the CUSTOMER, DISTRICT, and WAREHOUSE tables have NOT been changed. [Clause 3.2.2.2]

The following steps demonstrated atomicity for aborted (ROLLBACK) transactions:

- A row was randomly selected from the warehouse, district and customer table.
- the current balance was noted.
- A payment transaction was executed with the above identifiers and a known amount.
- The transaction was rolled back.
- It was verified, that the rows contain the original balances.

4.2 Consistency

Consistency is the property of the application that requires any execution of a database transaction to take the database from one consistent state to another, assuming that the database is initially in a consistent state. [Clause 3.3.1]

Consistency conditions 1 - 4 were tested by issuing queries to the database. The results of the queries verified that the database was consistent for all these tests. The tests were performed before and after the performance run on the same database that was used for the benchmark.

4.3 Isolation

Operations of concurrent transactions must yield results which are indistinguishable from the results which would be obtained by forcing each transaction to be serially executed to completion in some order.

We ran all of the seven isolation tests as described in clause 3.4.2.1 to 3.4.2.7 and additionally the two phantom protection tests. The tests were executed using shell scripts to issue queries to the database. The results of the queries verified that the required isolation had been met.

4.4 Durability

The tested system must guarantee durability: the ability to preserve the effects of committed transactions and insure database consistency after recovery from any one of the failures listed in Clause 3.5.3. [Clause 3.5]

List of single failures:

1 *Permanent irrecoverable failure of any single durable medium containing TPC-C database tables or recovery log data.*
2 *Instantaneous interruption (system crash / system hang) in processing which requires system reboot to recover.*
3 *Failure of all or part of memory (loss of contents).*

[Clause 3.5.3]

The intent of these tests is to demonstrate that all transactions whose output messages have been received at the terminal or RTE have in fact been committed in spite of any single failure from the list in Clause 3.5.3 and that all consistency conditions are still met after the database is recovered.

It is required that the system crash test(s) and the loss of memory test(s) described in Clause 3.5.3.2 and 3.5.3.3 be performed under full terminal load and a fully scaled database. The durable media failure test(s) described in Clause 3.5.3.1 may be performed on a subset of the SUT configuration and database. For the SUT subset, all multiple hardware components, such as processors and disk / controllers in the full SUT configuration, must be represented by the greater of 10% of the configuration or two of each of the multiple hardware components. The database must be scaled to at least 10% of the fully scaled database, with a minimum of two warehouses. ... Furthermore, the standard driving mechanism must be used in this test. The test sponsor must state that to the best of their knowledge, a fully scaled test would also pass all durability tests. [Clause 3.5.4]

The failure of all or part of memory test and the system crash test were combined with the loss of log disk and performed under full load and by using a fully scaled database.

The full hardware configuration of the SUT (in accordance with Clause 3.5.4) and the same test procedure was used during all durability tests, except the test for loss of data.

- The current count of the total number of orders was determined by summing up the D_NEXT_O_ID fields of all rows in the DISTRICT table before the test.
- A 35 minutes test was run (5 min. ramp up and 30 min. measurement)
- After 5 minutes in measurement a checkpoint was performed
- After checkpoint has completed, we pulled of one of the log disks. As we use hardware-mirrored diskpairs with the Mylex SCSI-controller, execution continued
- After additional 2 min we powered of the server to emulate the loss of memory. After server system reboot, SQL-Server starts with recovering the database tpcc. After completion, we computed the sum of D_NEXT_O_ID from district. Client and RTE systems were interrupted and evaluation started on the RTE. The difference of all D_NEXT_O_ID between RTE an server was 20.

The durable media failure test for loss of data disk was performed with 24 of the 192 data disks and a database scaled to 15 warehouses under the load of 150 users. We used one RTE and one client system. To the best of the test sponsor's knowledge, a fully loaded and fully scaled database would also pass this durability test.

- The database was backed up.
- The current count of the total number of orders was determined by summing up the D_NEXT_O_ID fields of all rows in the DISTRICT table before the test.
- A 35 minutes test was run (5 min. ramp up and 30 min. steady state)
- No checkpoint was performed.
- After 5 min in measurement, we pulled of one of the data disks.
- SQL-Server recognized the loss of a device. We shut down SQL-Server.
- We replaced the disk and made it online.
- We deleted the database partition to make it inaccessable.
- To dump the transaction log, we restarted the SQL-Server.
- We removed the database with dropdevice.
- We shut down SQL-Server.
- We restarted SQL-Server, no tpcc database and none of its devices were present. We recreated the database, loaded dump and load transaction log
- After completion, we computed the sum of D_NEXT_O_ID from district.
- Client and RTE systems were interrupted and evaluation started on the RTE. The difference of all D_NEXT_O_ID between RTE an server was 0.

5. Clause 4 Related Items - Scaling and Database Population

5.1 Initial Cardinality of Tables

The cardinality (e.g., the number of rows) of each table, as it existed at the start of the benchmark run (see Clause 4.2), must be disclosed. If the database was over-scaled and inactive rows of the WAREHOUSE table were deleted (see Clause 4.2.2), the cardinality of the WAREHOUSE table as initially configured and the number of rows deleted must be disclosed. [Clause 8.1.5.1]

The database for the Primergy 870 system was scaled for 1510 warehouses. In accordance with Clause 4.2, the following number of records were loaded in the specified tables:

Table	Number of Records
Warehouse	1510
District	15,100
Customer	45,300,000
History	45,300,000
Order	45,300,000
New-Order	13,590,000
Order-Line	453,000,032
Stock	151,000,000
Item	100,000

The following constant values were used during the database build and benchmark test for the NURand function:

Constant C	Value
C_LAST (build)	123
C_LAST (run)	223

5.2 Distribution of Tables and Log

The distribution of tables and logs across all media must be explicitly depicted for the tested and priced systems. [Clause 8.1.5.2]

FIGURE 1: LOGICAL ORGANIZATION OF THE DATABASE

	device	raw size	use
D:	MSSQL70_tpcc_root	10 MB	root
L:	MSSQL70_tpcc_log	45 000 MB	Log
Q:	MSSQL70_misc1	5 470 MB	Warehouse,District,Item,New Order,History,Order,Orderline
R:	MSSQL70_misc2	5 470 MB	Warehouse,District,Item,New Order,History,Order,Orderline
S:	MSSQL70_misc3	5 470 MB	Warehouse,District,Item,New Order,History,Order,Orderline
T:	MSSQL70_misc4	5 470 MB	Warehouse,District,Item,New Order,History,Order,Orderline
U:	MSSQL70_misc5	5 470 MB	Warehouse,District,Item,New Order,History,Order,Orderline
V:	MSSQL70_misc6	5 470 MB	Warehouse,District,Item,New Order,History,Order,Orderline
W:	MSSQL70_misc7	5 470 MB	Warehouse,District,Item,New Order,History,Order,Orderline
Z:	MSSQL70_misc8	5 470 MB	Warehouse,District,Item,New Order,History,Order,Orderline
H:	MSSQL70_cs1	11 370 MB	Stock,Customer
I:	MSSQL70_cs2	11 370 MB	Stock,Customer
J:	MSSQL70_cs3	11 370 MB	Stock,Customer
K:	MSSQL70_cs4	11 370 MB	Stock,Customer
M:	MSSQL70_cs5	11 370 MB	Stock,Customer
N:	MSSQL70_cs6	11 370 MB	Stock,Customer
O:	MSSQL70_cs7	11 370 MB	Stock,Customer
P:	MSSQL70_cs8	11 370 MB	Stock,Customer

5.3 Database Model, Interface, and Access Language

A statement must be provided that describes:

1. The data model implemented by the DBMS used (e.g., relational, network, hierarchical)

2. The database interface (e.g., embedded, call level) and access language (e.g., SQL, DL/1, COBOL read/write) used to implement the TPC-C transactions. If more than one interface/access language is used to implement TPC-C, each interface / access language must be described and a list of which interface/access language is used with which transaction type must be disclosed.

[Clause 8.1.5.3]

Microsoft SQL Server 7.0 Enterprise Edition is a Relational DataBase Management System. The interface used was Microsoft SQL Server 7.0 Enterprise Edition stored procedures accessed with Remote Procedure Calls embedded in C code.

5.4 Database Partitions/Replications Mapping

The mapping of database partitions/replications must be explicitly described. [Clause 8.1.5.4]

There was no partitioning and/or replication used in this implementation.

5.5 180 day space Calculation

Details of the 180-day space computations along with proof that the database is configured to subtain 8 hours of growth for the dynamic tables (Order, Order-Line, and History) must be disclosed (see Clause 4.2.3). [Clause 8.1.5.5]

Calculations of space requirements in the priced configurations for the 180-day period are provided in Appendix D - Pricing Details.

6. Clause 5 Related Items - Performance Metrics and Response Time

6.1 Measured tpmC

Measured tpmC must be reported. [Clause 8.1.6.1]

During the 29 minutes measurement period on the Primergy 870 the throughput measured was 18,528.97 tpmC.

6.2 Response Times

Ninetieth percentile, maximum and average response times must be reported for all transaction types as well as for the Menu response time. [Clause 8.1.6.2]

Type	Average	Maximum	90 Percentile
New-Order	0.58	31.25	0.85
Payment	0.38	30.94	0.63
Order-Status	0.42	6.82	0.67
Interactive Delivery	0.17	30.43	0.21
Deferred Delivery	0.48	1.34	0.69
Stock-Level	2.30	9.45	3.03
Menu	0.17	30.93	0.21

6.3 Keying and Think Times

The minimum, the average, and the maximum keying and think times must be reported for each transaction type. [Clause 8.1.6.3]

Keying Times			
Type	**Average**	**Maximum**	**Minimum**
New-Order	18.01	19.54	18.00
Payment	3.01	4.26	3.00
Order-Status	2.01	3.06	2.01
Delivery	2.01	2.93	2.01
Stock-Level	2.01	2.90	2.01

Think Times			
Type	**Average**	**Maximum**	**Minimum**
New-Order	12.12	122.05	0.00
Payment	12.11	122.04	0.00
Order-Status	10.14	101.88	0.00
Delivery	5.19	52.01	0.00
Stock-Level	5.19	52.01	0.00

6.4 Graphs

Response Time frequency distribution curves (see Clause 5.6.1) must be reported for each transaction type. [Clause 8.1.6.4]

The performance curve for response times versus throughput (see Clause 5.6.2) must be reported for the New-Order transaction. [Clause 8.1.6.5]

Think Time frequency distribution curves (see Clause 5.6.3) must be reported for each transaction type. [Clause 8.1.6.6]

Keying Time frequency distribution curves (see Clause 5.6.4) must be reported for each transaction type. [Clause 8.1.6.7]

A graph of throughput versus elapsed time (see Clause 5.6.5) must be reported for the New-Order transaction. [Clause 8.1.6.8]

FIGURE 1: NEW-ORDER RESPONSE TIME DISTRIBUTION

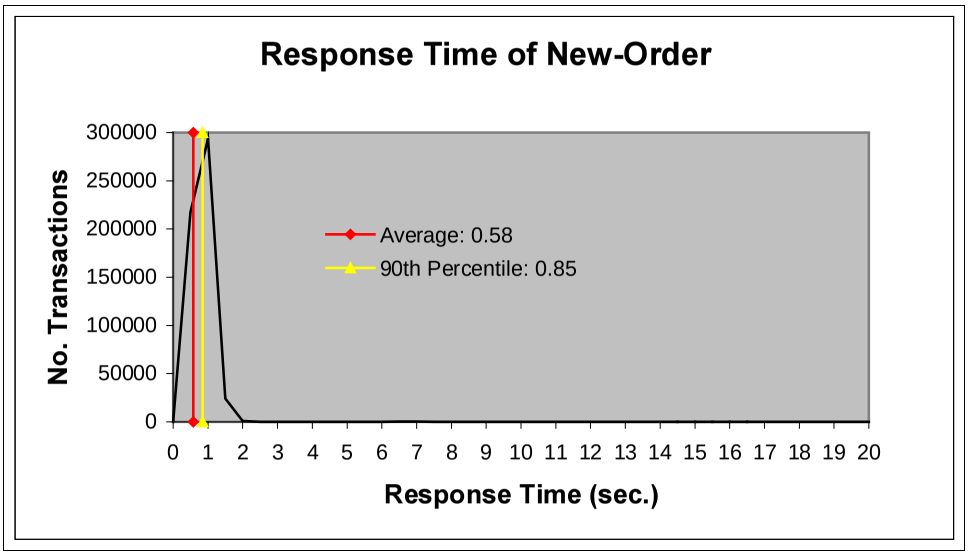


FIGURE 2: PAYMENT RESPONSE TIME DISTRIBUTION

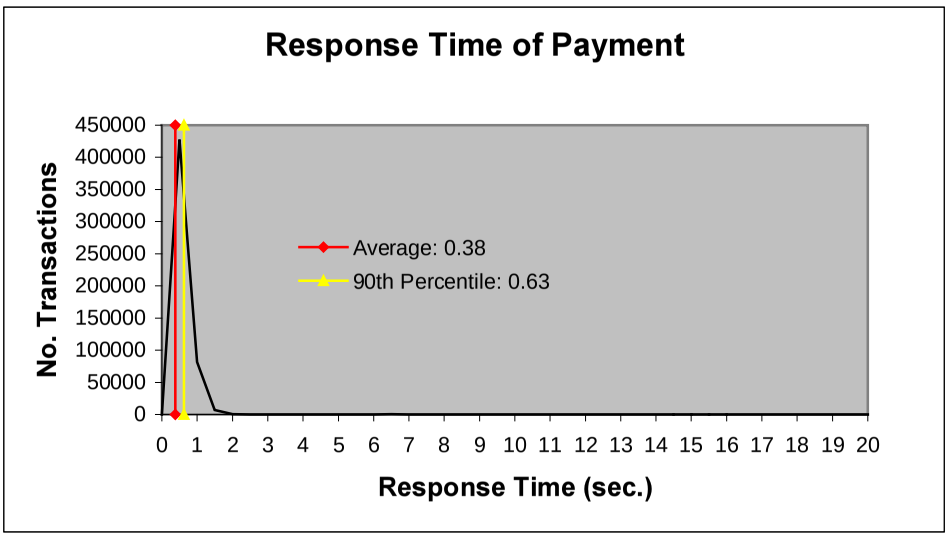


FIGURE 3: ORDER-STATUS RESPONSE TIME DISTRIBUTION

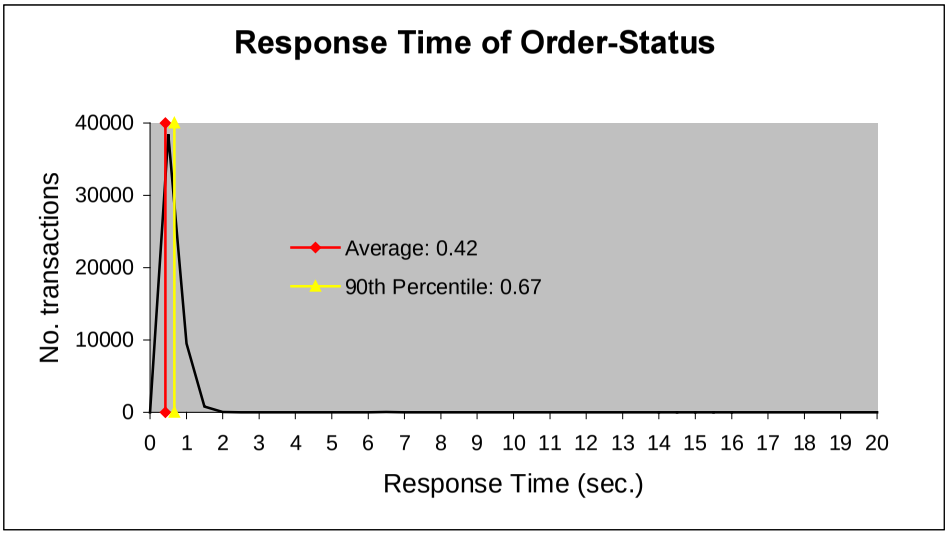


FIGURE 4: DELIVERY RESPONSE TIME DISTRIBUTION

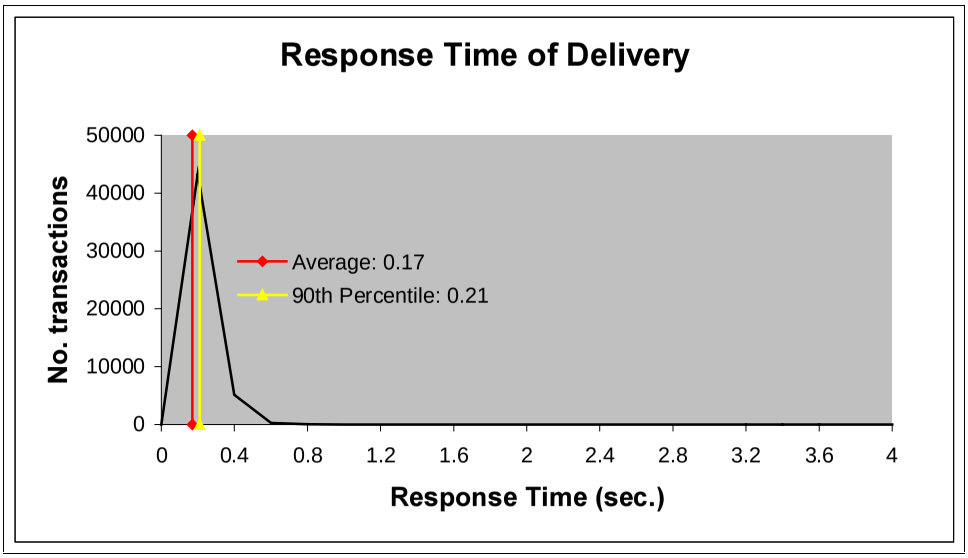


FIGURE 5: STOCK-LEVEL RESPONSE TIME DISTRIBUTION

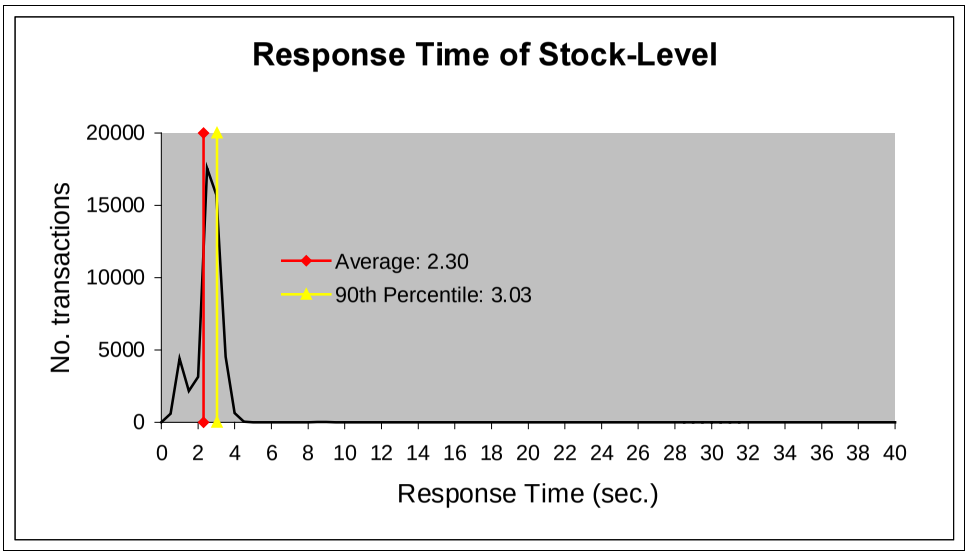


FIGURE 1: RESPONSE TIME VERSUS THROUGHPUT

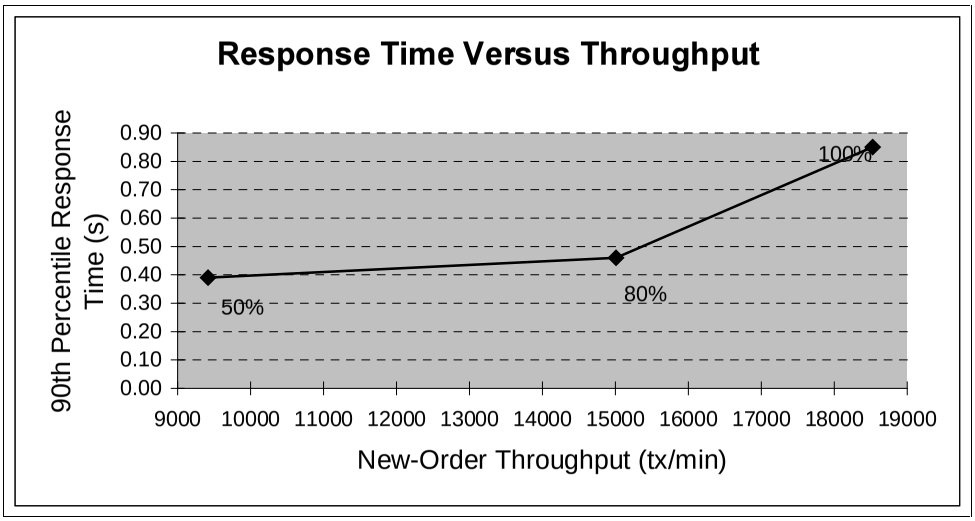


FIGURE 1: NEW-ORDER THINK TIME DISTRIBUTION

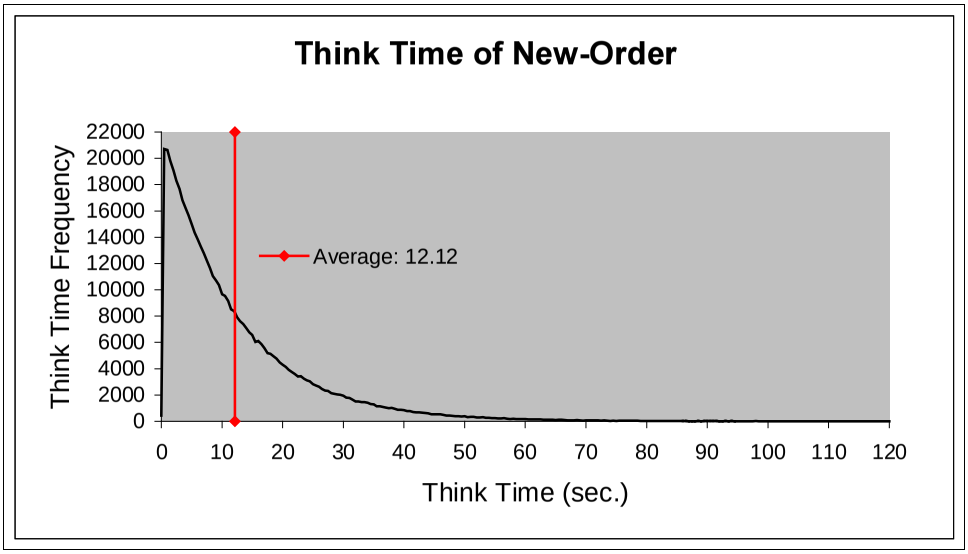
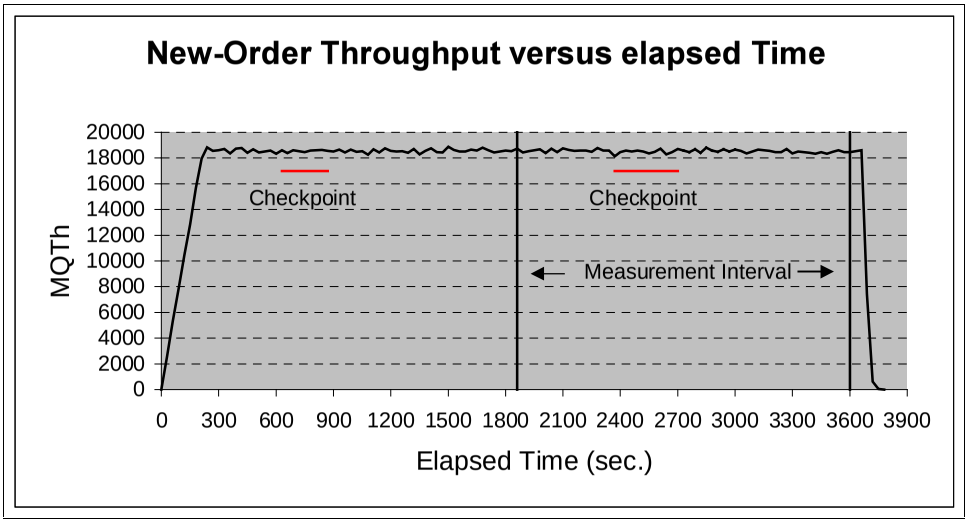


FIGURE 1: THROUGHPUT VERSUS ELAPSED TIME



6.5 Steady State Determination

The method used to determine that the SUT had reached a steady state prior to commencing the measurement interval (see Clause 5.5) must be described. [Clause 8.1.6.9]

In all test runs, steady state was achieved before the measurement period began. Steady state was determined to occur based on a visual inspection of tpmC versus time (see graph in section 6.4).

The graph in section 6.4 illustrates that the measurement period was within the steady state period for the run. One checkpoint occurred during the measurement period.

6.6 Work Performed

A description of how the work normally performed during a sustained test (for example checkpointing, writing redo/undo log records, etc.), actually occurred during the measurement interval must be reported. [Clause 8.1.6.10]

The RTE generated the required input data to choose a transaction from the menu. This data was timestamped and captured in RTE log files before being transmitted. There was one log file for each user. The input screen for the requested transaction was returned and it was also captured and timestamped in the RTE log files. The difference between these two timestamps was the menu response time.

The RTE generated the required input data for the chosen transaction. It waited to complete the minimum required key time before transmitting the input screen. The transmission was timestamped and captured in RTE log files. The return of the screen with the required response data was timestamped and captured in the RTE log files. The difference between these two timestamps was the response time for that transaction.

The RTE then waited the required think time interval before repeating the process starting at selecting a transaction from the menu.

The RTE transmissions were sent to Internet Information Server running on the client machines through Ethernet LANs. Internet Information Server handled all screen I/O as well as all requests to the database on the server. Internet Information Server communicated with the database server over openUTM which was used as transaction monitor. The frontend program (openUTM client) handled all incoming requests on the client system while the backend program (openUTM server) forwarded all requests to the database on the server system. The front-end programs communicated with the back-end programs through openUTM calls. openUTM routes the transaction and balances the load according to the options defined in the openUTM configuration file listed in Appendix C.

All database operations like update, select, delete and insert are performed by one of the TPC-C back end programs. The TPC-C backend program commits the transaction after all the corresponding operations are done.

Modified database buffers are migrated to disk a least-recently-used basis independent of transaction commits. In addition, every block modification is protected by log records. Asynchronously the log buffers are flushed to a log file on disk either when the transaction is committed or when the log buffer's fill state reaches it's limit. The log buffer's always flushed by a commit before it become full.

To perform checkpoints at specific intervals, we set SQL server recovery interval to the maximum allowable value and wrote a script to schedule multiple checkpoints at specific intervals. By setting the trace flag #3502, SQL Server logged the checkpoint beginning and ending time in the ERRORLOG file. The script included a wait time between each checkpoint equal to the measurement interval which was 29 minutes. The checkpoint script was started manually after the RTE had all users logged in and sending transactions.

At each checkpoint, Microsoft SQL Server wrote to disk all memory pages that had been updated but not yet physically written to disk. Upon completion of the checkpoint, Microsoft SQL Server wrote a special record to the recovery log to indicate that all disk operations had been satisfied to this point.

6.7 Reproducibility

A description of the method used to determine the reproducibility of the measurement results must be reported. [Clause 8.1.6.11]

The Primergy 870 system test was run twice to ensure the reproducibility of the results. The reproducibility test run under exactly the same conditions as the reported test. All tests conform to the TPC rules.

The tpmC result from the reproducibility test was within 0.08% of the reported tpmC.

In the following, both results are shown to document the reproducibility:

	tpmC
reported test	18,528.97
reproducibility test	18,514.34

6.8 Duration of Measurement

A statement of the duration of the measurement interval for the reported Maximum Qualified Throughput (tpmC) must be included. [Clause 8.1.6.12]

The measurement interval of the Primergy 870 system test was 29 minutes. This measurement interval corresponds to the amount of time from the beginning of one checkpoint to the beginning of the next (which, actually, is less than the amount of time it takes to fill a log file).

6.9 Regulation of Transaction Mix

The method of regulation of the transaction mix (e.g., card decks or weighted random distribution) must be described. If weighted distribution is used and the RTE adjusts the weights associated with each transaction type, the maximum adjustments to the weight from the initial value must be disclosed. [Clause 8.1.6.13]

The transaction mix was regulated by weighted random distribution. The chosen weights meet the required minimum percentages of the mix which are described in Clause 5.2.3 of the Standard Specifications. During the measurement interval the weights were controlled and if necessary adjusted by the RTE. The adjustments did not exceed the allowed limit of 5%.

6.10 Transaction Mix

The percentage of the total mix for each transaction type must be disclosed. [Clause 8.1.6.14]

	Percentage
New-Order	44.74 %
Payment	43.05 %
Order-Status	4.07 %
Delivery	4.06 %
Stock-Level	4.08 %

6.11 Transaction Statistics

The percentage of New-Order transactions rolled back as a result of invalid item number must be disclosed. [Clause 8.1.6.15]

The average number of order-lines entered per New-Order transaction must be disclosed. [Clause 8.1.6.16]

The percentage of remote order-lines entered per New-Order transaction must be disclosed. [Clause 8.1.6.17]

The percentage of remote Payment transactions must be disclosed. [Clause 8.1.6.18]

The percentage of customer selections by customer last name in the Payment and Order-Status transactions must be disclosed. [Clause 8.1.6.19]

The percentage of Delivery transactions skipped due to there being fewer than necessary orders in the New-Order table must be disclosed. [Clause 8.1.6.20]

The numerical quantities which are required in Clause 8.1.6.15 to 8.1.6.20 are already listed in a table above (see section 3.5).

6.12 Checkpoint Statistics

The number of checkpoints in the Measurement Interval, the time in seconds from the start of the Measurement Interval to the first checkpoint and the Checkpoint Interval must be disclosed. [Clause 8.1.6.21]

There was one checkpoint before and one during the measurement interval. The second checkpoint occurred 500 seconds after the start of the measurement interval. The checkpoint interval was set to 1740 seconds. The duration of the checkpoint during measurement was 5:43 minutes.

7. Clause 6 Related Items - SUT, Driver, and Communication Definition

7.1 RTE Inputs

If the RTE is commercially available, then its inputs must be specified. Otherwise, a description must be supplied of what inputs (e.g., scripts) to the RTE had been used. [Clause 8.1.7.1]

The driver used for the TPC Benchmark™ C test is a propietary driver.

The proprietary driver resided on an external Driver System and performed the following functions during the benchmark:

- Emulates a user entering input data on a Web-Browser by generating and sending HTML-Pages to the SUT,
- Emulates a Web-Browser displaying output messages by receiving response messages from the SUT,
- Emulates a Web-Browser delay time,
- Records response times,
- Performs conversion and/or multiplexing into the communications protocol used by the communications interface between the driver and the SUT, and
- Performs statistical accounting.

The proprietary driver performs only those functions stated in Clause 6.4.2. The driver does not perform any special functions to enhance the performance.

7.2 Functionality and Performance of Emulated Components

It must be demonstrated that the functionality and performance of the components being emulated in the Driver System are equivalent to that of the priced system. The results of the test described in Clause 6.6.3.4 must be disclosed. [Clause 8.1.7.2]

The Driver System consisted of a RM400. This driver was attached to the client machine through an Ethernet LAN. Since this is exactly the same connectivity as configured in the priced system, no component was emulated. Therefore, the test described in Clause 6.6.3.4 was not required.

7.3 Functional Diagrams of the Benchmarked and Proposed Configuration

A complete functional diagram of both the benchmark configuration and the configuration of the proposed (target) system must be disclosed. A detailed list of all software and hardware functionality being performed on the Driver System, and its interface to the SUT must be disclosed (see Clause 6.6.3.6). [Clause 8.1.7.3]

Figure 1 and Figure 2 in section 1.4 show the functional diagrams of the benchmark configuration and the priced configuration.

7.4 Network Configurations of the Tested and Proposed Services

The network configurations of both the tested services and the proposed (target) services which are being represented and a thorough explanation of exactly which parts of the proposed configuration are being replaced with the Driver System must be disclosed (see Clause 6.6.4). [Clause 8.1.7.4]

Figure 1 and Figure 2 in section 1.4 also show the network setup of both configurations. The driver replaces the workstations.

In the tested configuration one standard ethernet LAN segments was used to connect the server with the clients and 7 standard ethernet LAN segments were used to connect the clients with the 7 RTE systems.

In the priced configuration 21 standard ethernet LAN segments were used to connect 15,100 workstations. Each client has 714 users connected with ethernet segment 1 and 2 and 732 (total users: 2160) or 722 (total users: 2150) with the third segment.

7.5 Network Bandwidth

The bandwidth of the network(s) used in the tested / priced configuration must be disclosed. [Clause 8.1.7.5]

The Ethernet used in the local area network (LAN) between the emulated user system and the front-end system complies with the IEEE 802.3 standard and it's bandwith is 10 Mbps. Between front-end and SUT the bandwidth is 100 Mbps.

7.6 Operator Intervention

If the configuration requires operator intervention (see Clause 6.6.6), the mechanism and the frequency of this intervention must be disclosed. [Clause 8.1.7.6]

The Primergy 870 requires no operator intervention to sustain the reported throughput.

8. Clause 7 Related Items - Pricing

8.1 System Pricing

A detailed list of hardware and software used in the priced system must be reported. Each separately orderable item must have vendor part number, description, and release/revision level, and either general availability status or committed delivery date. If package-pricing is used, vendor part number of the package and a description uniquely identifying each of the components of the package must be disclosed. Pricing source(s) and effective date(s) of price(s) must also be reported. [Clause 8.1.8.1]

The total 5-year price of the entire configuration must be reported, including: hardware, software, and maintenance charges. Separate component pricing is recommended. The basis of all discounts used must be disclosed. [Clause 8..1.8.2]

The details of the hardware and software are reported in the summary in front of this report. The spreadsheet used to determine the 5-year price and the speadsheet used to describe the priced configuration can be found in Appendix D - Pricing Details.

8.2 Availability Dates

The committed delivery date for general availability (availability date) of products used in the price calculations must be reported. When the priced system includes products with different availability dates, the reported availability date for the priced system must be the date at which all components are committed to be available. [Clause 8.1.8.3]

All hardware and software components used in the price calculations of the Primergy 870 system will be generally available from Siemens AG as of December 29, 1998.

8.3 Throughput and Price/Performance

A statement of the measured tpmC, as well as the respective calculations for 5-year pricing, price/performance (price/tpmC), and the availability date must be included. [Clause 8.1.8.4]

Primergy 870 system was measured at 18,528.97 tpmC with Microsoft SQL Server 7.0 Enterprise Edition with a 5-year system price of $683,682. The respective price/performance for the Primergy 870 is $36.90/tpmC. The priced Primergy 870 will be available as of December 29, 1998.

8.4 Country Specific Pricing

Additional Clause 7 related items may be included in the Full Disclosure Report for each country specific priced configuration. Country specifiv pricing is subject to Clause 7.1.7 [Clause 8.1.8.5]

The system is being priced for the United States of America.

8.5 Usage Pricing

For any usage pricing, the sponsor must diclose:

- *Usage level at which the component was priced.*
- *A statement of the company policy allowing such pricing.*

[Clause 8.1.8.6]

The component pricing based on usage is shown below:

- One Microsoft Windows NT Server 4.0 license (includes 5 client access licenses)
- One Microsoft Windows NT Server, Enterprise Edition 4.0 license (includes 25 client access licenses)
- One Microsoft SQL Server, Enterprice Edition 7.0 license (includes unlimited user license)
- One Microsoft SQL Workstation (includes programmers toolkit)
- Microsoft Visual C++ 32-bit edition

9. Clause 8 Related Items - Audit

The auditor's name, address, phone number, and a copy of the auditor's attestation letter indicating compliance must be included in the Full Disclosure Report.

A review of the pricing model is required to ensure that all components required are priced (see Clause 9.2.8). The auditor is not required to review the final Full Disclosure Report or the final pricing prior to issuing the attestation letter. [Clause 8.1.9]

The benchmark test of the Primergy 870 system with Microsoft SQL Server 7.0 Enterprise Edition was independently audited by:

Francois Raab, a TPC certified auditor with Information Paradigm, Inc. of Colorado Springs, CO.

The attestation letter is included in Appendix F.

Requests for this TPC-C Full Disclosure Report should be sent to:

Transaction Processing Performance Council
c/o Shanley Public Relations
777 North First Street, Suite 6000
San Jose, CA 95112-6311

or

SIEMENS OEC ES ST 4
Entry Server Performance Lab
Mr. Bathe
Heinz-Nixdorf-Ring 1
33106 Paderborn
Germany

Appendix A - Application Source Code

Include Files

```
/*      FILE:           DELISRV.H
 *                      Microsoft TPC-C Kit Ver. 3.00.000
 *                      Audited 08/23/96, By Francois Raab
 *
 *                      Copyright Microsoft, 1996
 *
 *      PURPOSE:        Header file for delivery service executable
 *      Author:         Philip Durr
 *                      philipdu@Microsoft.com
 */

#define AVAILABLE               0
        //queue array element available
#define WRITE_LOCKED   1
        //queue array element is being written to
#define READ_LOCKED             2
        //queue array element is begin read
#define INUSE                   4
        //queue array element has information stored in it

#define CTRL_C                  3
        //<Ctrl> C, exit key code

#define DEFCLPACKSIZE                                   4096    //default
DB Library SQL Connection pack size

#define ERR_SUCCESS                                             0
        //Success, no error.
#define ERR_CANNOT_CREATE_THREAD                1000    //Cannot create
thread.
#define ERR_DBGETDATA_FAILED                    1001    //Get data failed.
#define ERR_REGISTRY_NOT_SETUP                  1002    //Registry not
setup for tpcc.
#define ERR_CANNOT_ACCESS_DELIVERY_FN 1003      //Cannot access
ReadDelivery cache.
#define ERR_CANNOT_ACCESS_REGISTRY              1004    //Cannot access
registry key TPCC.
#define ERR_CANNOT_CREATE_RESULTS_FILE          1005    //Cannot create
results file.
#define ERR_CANNOT_OPEN_PIPE                    1006    //Cannot open
delivery pipe.
#define ERR_READ_PIPE                                   1007    //Error
reading pipe
#define ERR_INSUFFICIENT_MEMORY                         1008
        //insufficient memory

typedef struct _DELIVERY_TRANSACTION
{
        SYSTEMTIME      queue;                  //time delivery
transaction queued
        short           w_id;                   //delivery warehouse
        short           o_carrier_id;  //carrier id
} DELIVERY_TRANSACTION;

typedef DELIVERY_TRANSACTION *LPDELIVERY_TRANSACTION;       //pointer
to delivery transaction queue

typedef struct _DELIVERY_PACKET
{
        BOOL                                    bInUse;
        //entry current in use
        OVERLAPPED                              ov;
        //pipe io overlapped structure
        DELIVERY_TRANSACTION   trans;                   //delivery
transaction information
} DELIVERY_PACKET, *LPDELIVERY_PACKET;

typedef struct _SERRORMSG
{
        int             iError;                 //error mesage id
        char    szMsg[80];              //error message
} SERRORMSG;

//delivery transaction structure
typedef struct DELIVERY
{
        short           w_id;                   //warehouse id
        short           o_carrier_id;  //carrier id
        int                     spid;                   //db library spid
        long            o_id[10];               //returned delivery
transaction ids
        DBPROCESS       *dbproc;                //db library DBPROCESS
pointer
        SYSTEMTIME      queue;                  //delivery transaction
queue time
        SYSTEMTIME      trans_end;              //delivery transaction
finished time
```

```
} DELIVERY;

typedef DELIVERY *LPDELIVERY; //pointer to delivery structure

//function prototypes
void                    main(int argc, char *argv[]);
static  void    cls(void);
static  int             RunDelivery(void);
static  void    QuitStatus(void);
static  void    AnimateWait1(void);
static  void    AnimateWait(void);
static  int             Init(void);
static  void    Restore(void);
static  void    ErrorMessage(int iError);
static  BOOL    GetParameters(int argc, char *argv[]);
static  void    PrintParameters(void);
static  void    PrintHeader(void);
static  int             ReadRegistrySettings(void);
static  void    CheckKey(void *ptr);
static  void    DeliveryHandler( void *ptr );
static  void    DeliveryThread( void *ptr );
static  int             err_handler(DBPROCESS *dbproc, int severity, int
dberr, int oserr, char *dberrstr, char *oserrstr);
static  int             msg_handler(DBPROCESS *dbproc, DBINT msgno, int
msgstate, int severity, char *msgtext);
static  BOOL    SQLOpenConnection(DBPROCESS **dbproc, char *server, char
*database, char *user, char *password, int *spid);
static  void    WriteLog(LPDELIVERY pDelivery);
static  void    CalculateElapsedTime(int *pElapsed, LPSYSTEMTIME
lpBegin, LPSYSTEMTIME lpEnd);
static  int             SQLDelivery(DELIVERY *pDelivery);
static  BOOL    SQLDetectDeadlock(DBPROCESS *dbproc);
static  BOOL    ReadDeliveryInfo(short *w_id, short *o_carrier_id);
static  BOOL    PostDeliveryInfo(short w_id, short o_carrier_id);
static  int             OpenLogFile(void);


#ifndef ERROR_H_INCLUDED
#define ERROR_H_INCLUDED
// extern TERM Term;
// error message structure used in ErrorMessage API
typedef struct _SERRORMSG
{
        int iError;             // error id of message
        char szMsg[80];         // message to sent to browser
} SERRORMSG;
void WriteZString( EXTENSION_CONTROL_BLOCK *pECB, char *szStr);
void WINAPI ErrorMessage( EXTENSION_CONTROL_BLOCK *pECB, int iError,
int iErrorType, char *szMsg, int iTermId, int iSyncId);

#define ERR_BAD_ITEM_ID                         1               // expected
abort record in txnRecord
#define ERR_TYPE_DELIVERY_POST          2               // expected
delivery post failed
#define ERR_TYPE_WEBDLL                         3               // tpcc web
generated error
#define ERR_TYPE_SQL                    4               // sql server
generated error
#define ERR_TYPE_DBLIB                  5               // dblib generated
error
#define ERR_TYPE_ODBC                   6               // odbc generated
error
#define ERR_TYPE_SOCKET                         7               // error on
communication socket client rte only
#define ERR_TYPE_DEADLOCK               8               // dblib and odbc
only deadlock condition
#define ERR_SUCCESS                             1000    //" Success, no
error.
#define ERR_COMMAND_UNDEFINED 1001      //" Command undefined.
#define ERR_NOT_IMPLEMENTED_YET         1002    //" Not Implemented Yet.
#define ERR_CANNOT_INIT_TERMINAL                1003    //" Cannot
initialize client connection.
#define ERR_OUT_OF_MEMORY                               1004    //"
insufficient memory.
#define ERR_NEW_ORDER_NOT_PROCESSED             1005    //" Cannot process
new Order form.
#define ERR_PAYMENT_NOT_PROCESSED               1006    //" Cannot process
payment form.
#define ERR_NO_SERVER_SPECIFIED                         1007    //" No
Server name specified.
#define ERR_ORDER_STATUS_NOT_PROCESSED          1008    //" Cannot process
order status form.
#define ERR_W_ID_INVALID                                1009    //" Invalid
Warehouse ID.
#define ERR_CAN_NOT_SET_MAX_CONNECTIONS         1010    //" Insufficient
memory to allocate # connections.
#define ERR_NOSUCH_CUSTOMER                             1011    //" No such
customer.
#define ERR_D_ID_INVALID                                1012    //" Invalid
District ID Must be 1 to 10.
#define ERR_MAX_CONNECT_PARAM                   1013    //" Max client
connections exceeded, run install to increase.
#define ERR_INVALID_SYNC_CONNECTION             1014    //" Invalid
Terminal Sync ID.
#define ERR_INVALID_TERMID                              1015    //" Invalid
Terminal ID.
#define ERR_PAYMENT_INVALID_CUSTOMER  1016      //" Payment Form, No such
Customer.
#define ERR_SQL_OPEN_CONNECTION                         1017    //"
SQLOpenConnection API  Failed.
#define ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY 1018 //" Stock Level
missing Threshold key "TT*".
#define ERR_STOCKLEVEL_THRESHOLD_INVALID                1019 //" Stock
Level Threshold invalid data type range = 1 - 99.
#define ERR_STOCKLEVEL_THRESHOLD_RANGE          1020    //" Stock Level
Threshold out of range, range must be 1 - 99.
```

```
#define ERR_STOCKLEVEL_NOT_PROCESSED 1021    //" Stock Level not
processed.
#define ERR_NEWORDER_FORM_MISSING_DID 1022    //" New Order missing
District key "DID*".
#define ERR_NEWORDER_DISTRICT_INVALID 1023    //" New Order District ID
Invalid range 1 - 10.
#define ERR_NEWORDER_DISTRICT_RANGE          1024    //" New Order
District ID out of Range. Range = 1 - 10.
#define ERR_NEWORDER_CUSTOMER_KEY            1025    //" New Order
missing Customer key "CID*".
#define ERR_NEWORDER_CUSTOMER_INVALID 1026    //" New Order customer id
invalid data type, range = 1 to 3000.
#define ERR_NEWORDER_CUSTOMER_RANGE          1027    //" New Order
customer id out of range, range = 1 to 3000.
#define ERR_NEWORDER_MISSING_IID_KEY 1028    //" New Order missing Item
Id key "IID*".
#define ERR_NEWORDER_ITEM_BLANK_LINES 1029    //" New Order blank order
lines all orders must be continuous.
#define ERR_NEWORDER_ITEMID_INVALID          1030    //" New Order Item
Id is wrong data type, must be numeric.
#define ERR_NEWORDER_MISSING_SUPPW_KEY       1031    //" New Order
missing Supp_W key "SP##*".
#define ERR_NEWORDER_SUPPW_INVALID           1032    //" New Order
Supp_W invalid data type must be numeric.
#define ERR_NEWORDER_MISSING_QTY_KEY 1033    //" New Order Missing Qty
key "Qty##*".
#define ERR_NEWORDER_QTY_INVALID             1034    //" New Order Qty
invalid must be numeric range 1 - 99.
#define ERR_NEWORDER_SUPPW_RANGE             1035    //" New Order
Supp_W value out of range range = 1 - Max Warehouses.
#define ERR_NEWORDER_ITEMID_RANGE            1036    //" New Order Item
Id is out of range. Range = 1 to 999999.
#define ERR_NEWORDER_QTY_RANGE                       1037    //" New
Order Qty is out of range. Range = 1 to 99.
#define ERR_PAYMENT_DISTRICT_INVALID 1038    //" Payment District   ID
is invalid must be 1 - 10.
#define ERR_NEWORDER_SUPPW_WITHOUT_ITEMID    1039 //" New Order Supp_W
field entered without a corrisponding Item_Id.
#define ERR_NEWORDER_QTY_WITHOUT_ITEMID              1040 //" New Order
Qty entered without a corrisponding Item_Id.
#define ERR_NEWORDER_NOITEMS_ENTERED 1041    //" New Order Blank Items
between items, items must be continuous.
#define ERR_PAYMENT_MISSING_DID_KEY          1042    //" Payment
missing District Key "DID*".
#define ERR_PAYMENT_DISTRICT_RANGE           1043    //" Payment
District Out of range, range = 1 - 10.
#define ERR_PAYMENT_MISSING_CID_KEY          1044    //" Payment
missing Customer Key "CID*".
#define ERR_PAYMENT_CUSTOMER_INVALID 1045    //" Payment Customer data
type invalid, must be numeric.
#define ERR_PAYMENT_MISSING_CLT                      1046    //" Payment
missing Customer Last Name Key "CLT*".
#define ERR_PAYMENT_LAST_NAME_TO_LONG 1047    //" Payment Customer last
name longer than 16 characters.
#define ERR_PAYMENT_CUSTOMER_RANGE           1048    //" Payment
Customer ID out of range, must be 1 to 3000.
#define ERR_PAYMENT_CID_AND_CLT                      1049    //" Payment
Customer ID and Last Name entered must be one or other.
#define ERR_PAYMENT_MISSING_CDI_KEY          1050    //" Payment
missing Customer district key "CDI*".
#define ERR_PAYMENT_CDI_INVALID                      1051    //" Payment
Customer district invalid must be numeric.
#define ERR_PAYMENT_CDI_RANGE                1052    //" Payment
Customer district out of range must be 1 - 10.
#define ERR_PAYMENT_MISSING_CWI_KEY          1053    //" Payment
missing Customer Warehouse key "CWI*".
#define ERR_PAYMENT_CWI_INVALID                      1054    //" Payment
Customer Warehouse invalid must be numeric.
#define ERR_PAYMENT_CWI_RANGE                1055    //" Payment
Customer Warehouse out of range, 1 to Max Warehouses.
#define ERR_PAYMENT_MISSING_HAM_KEY          1056    //" Payment
missing Amount key "HAM*".
#define ERR_PAYMENT_HAM_INVALID                      1057    //" Payment
Amount invalid data type must be numeric.
#define ERR_PAYMENT_HAM_RANGE                1058    //" Payment Amount
out of range, 0 - 9999.99.
#define ERR_ORDERSTATUS_MISSING_DID_KEY      1059    //" Order Status
missing District key "DID*".
#define ERR_ORDERSTATUS_DID_INVALID          1060    //" Order Status
District invalid, value must be numeric 1 - 10.
#define ERR_ORDERSTATUS_DID_RANGE            1061    //" Order Status
District out of range must be 1 - 10.
#define ERR_ORDERSTATUS_MISSING_CID_KEY      1062    //" Order Status
missing Customer key "CID*".
#define ERR_ORDERSTATUS_MISSING_CLT_KEY      1063    //" Order Status
missing Customer Last Name key "CLT*".
#define ERR_ORDERSTATUS_CLT_RANGE            1064    //" Order Status
Customer last name longer than 16 characters.
#define ERR_ORDERSTATUS_CID_INVALID          1065    //" Order Status
Customer ID invalid, range must be numeric 1 - 3000.
#define ERR_ORDERSTATUS_CID_RANGE            1066    //" Order Status
Customer ID out of range must be 1 - 3000.
#define ERR_ORDERSTATUS_CID_AND_CLT          1067    //" Order Status
Customer ID and LastName entered must be only one."
#define ERR_DELIVERY_MISSING_OCD_KEY 1068    //" Delivery missing
Carrier ID key \" OCD*\".
#define ERR_DELIVERY_CARRIER_INVALID 1069    //" Delivery Carrier ID
invalid must be numeric 1 - 10.
#define ERR_DELIVERY_CARRIER_ID_RANGE 1070    //" Delivery Carrier ID
out of range must be 1 - 10.
#define ERR_PAYMENT_MISSING_CLT_KEY          1071    //" Payment
missing Customer Last Name key "CLT*".
#endif
```

```
/********
*
* Copyright (c) 1995 Process Software Corporation
*
* Copyright (c) 1995 Microsoft Corporation
*
*
* Module Name : HttpExt. h
*
* Abstract :
*
* This module contains the structure definitions and prototypes for the
* version 1.0 HTTP Server Extension interface.
*
******************/
#ifndef _HTTPEXT_H_
#define _HTTPEXT_H_
#include <windows.h>
#ifdef __cplusplus
extern "C" {
#endif
#define HSE_VERSION_MAJOR 1 // major version of this spec
#define HSE_VERSION_MINOR 0 // minor version of this spec
#define HSE_LOG_BUFFER_LEN 80
#define HSE_MAX_EXT_DLL_NAME_LEN 256
typedef LPVOID HCONN;
// the following are the status codes returned by the Extension DLL
#define HSE_STATUS_SUCCESS 1
#define HSE_STATUS_SUCCESS_AND_KEEP_CONN 2
#define HSE_STATUS_PENDING 3
#define HSE_STATUS_ERROR 4
// The following are the values to request services with the
ServerSupportFunction.
// Values from 0 to 1000 are reserved for future versions of the
interface
#define HSE_REQ_BASE 0
#define HSE_REQ_SEND_URL_REDIRECT_RESP ( HSE_REQ_BASE + 1 )
#define HSE_REQ_SEND_URL ( HSE_REQ_BASE + 2 )
#define HSE_REQ_SEND_RESPONSE_HEADER ( HSE_REQ_BASE + 3 )
#define HSE_REQ_DONE_WITH_SESSION ( HSE_REQ_BASE + 4 )
#define HSE_REQ_END_RESERVED 1000
//
// These are Microsoft specific extensions
//
#define HSE_REQ_MAP_URL_TO_PATH (HSE_REQ_END_RESERVED + 1)
#define HSE_REQ_GET_SSPI_INFO (HSE_REQ_END_RESERVED + 2)
//
// passed to GetExtensionVersion
//
typedef struct _HSE_VERSION_INFO {
    DWORD dwExtensionVersion;
    CHAR lpszExtensionDesc[HSE_MAX_EXT_DLL_NAME_LEN];
} HSE_VERSION_INFO, *LPHSE_VERSION_INFO;
//
// passed to extension procedure on a new request
//
typedef struct _EXTENSION_CONTROL_BLOCK {
    DWORD cbSize; // size of this struct.
    DWORD dwVersion; // version info of this spec
    HCONN ConnID; // Context number not to be modified!
    DWORD dwHttpStatusCode; // HTTP Status code
    CHAR lpszLogData[ HSE_LOG_BUFFER_LEN];// null terminated log info
specific to this Extension DLL
    LPSTR lpszMethod; // REQUEST_METHOD
    LPSTR lpszQueryString; // QUERY_STRING
    LPSTR lpszPathInfo; // PATH_INFO
    LPSTR lpszPathTranslated; // PATH_TRANSLATED
    DWORD cbTotalBytes; // Total bytes indicated from client
    DWORD cbAvailable; // Available number  of bytes
    LPBYTE lpbData; // pointer to cbAvailable bytes
    LPSTR lpszContentType; // Content type of client data
    BOOL (WINAPI * GetServerVariable) ( HCONN hConn,
        LPSTR
        lpszVariableName,
        LPVOID lpvBuffer,
        LPDWORD
        lpdwSize );
    BOOL (WINAPI * WriteClient) ( HCONN ConnID,
        LPVOID Buffer,
        LPDWORD lpdwBytes,
        DWORD dwReserved );
    BOOL (WINAPI * ReadClient) ( HCONN ConnID,
        LPVOID lpvBuffer,
        LPDWORD lpdwSize );
    BOOL (WINAPI * ServerSupportFunction)( HCONN hConn,
        DWORD
        dwHSERRequest,
        LPVOID
        lpvBuffer,
        LPDWORD
        lpdwSize,
        LPDWORD
        lpdwDataType );
} EXTENSION_CONTROL_BLOCK, *LPEXTENSION_CONTROL_BLOCK;
//
// these are the prototypes that must be exported from the extension
DLL
//
BOOL WINAPI GetExtensionVersion( HSE_VERSION_INFO *pVer );
DWORD WINAPI HttpExtensionProc( EXTENSION_CONTROL_BLOCK *pECB );
// the following type declarations is for the server side
typedef BOOL (WINAPI * PFN_GETEXTENSIONVERSION)( HSE_VERSION_INFO *pVer
);
typedef DWORD (WINAPI * PFN_HTTPEXTENSIONPROC )(
EXTENSION_CONTROL_BLOCK *pECB );
#ifdef __cplusplus
```

```
}
#endif
#endif // end definition _HTTPEXT_H_

#ifndef PIPE_ROUTINES_H_INCLUDED
#define PIPE_ROUTINES_H_INCLUDED

#ifdef _DEBUG
__inline void __cdecl Trace(PSTR pFormat, ...)
{
 va_list Parameter ;

 va_start(Parameter, pFormat) ;

 vfprintf(stderr, pFormat, Parameter) ;
}
#else
__inline void __cdecl Trace(PSTR pFormat, ...) {}
#endif

#define UTM_MEM_SPACE  "SniUtmPipeMem"
#define UTM_MEM_EVENT  "SniUtmEvent"

typedef struct
{
 HANDLE  evIisReq ;
 HANDLE  evUtmAck ;
 HANDLE   hThread ;          // Handle of the UTM-Service-Thread ;
 DWORD   dwProId ;           // Id of process who handles the IIS-
Requests
} UTM_HANDLES ;


typedef struct
{
 DWORD  dwMaxConnections ;       // Max. Connections
 long    lConnections ;          // Current Connections
 DWORD  dwCpp ;                  // Connections per Process

 DWORD  dwMaxTransferLen ;       // Size for the transfer buffer IIS <-
-> UTM-Client

 DWORD  dwPIdMasterUtm ;         // Process Id from the first (Master-)
UTM-Client
 HANDLE evTerminate ;
 HANDLE smBreak ;

 UTM_HANDLES UtmHandles[] ;
} UTM_SHARED_MEM ;


typedef struct
{
 HANDLE  evRDav ;                // RDav = Read data available  (UTM-
View)
 HANDLE  evWDav ;                // WDav = Write data available (UTM-
View)
 HANDLE  hStop ;                 // Stop received

 DWORD   dwMaxTransferLen ;

 LPBYTE  lpBuffer ;
 LPDWORD lpLen ;
} SM_PIPE ;


HANDLE DuplicateUtmHandle(HANDLE hSrc, DWORD dwProId) ;
BOOL OpenClientPipe(SM_PIPE *pPipe, DWORD dwId, UTM_SHARED_MEM
*lpUtmMem) ;
BOOL OpenServerPipe(SM_PIPE *pPipe, DWORD dwId, LPSECURITY_ATTRIBUTES
lpEventAttributes, UTM_SHARED_MEM *lpUtmMem) ;
BOOL ReadPipe(SM_PIPE *pPipe, void *Buffer, DWORD BufSize, DWORD
*pnRead) ;
BOOL WritePipe(SM_PIPE *pPipe,void *Buffer, DWORD BytesToWrite, DWORD
*pnWritten) ;

#endif

//{{NO_DEPENDENCIES}}
// Microsoft Developer Studio generated include file.
// Used by TPCC.rc
//

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE        101
#define _APS_NEXT_COMMAND_VALUE         40001
#define _APS_NEXT_CONTROL_VALUE         1000
#define _APS_NEXT_SYMED_VALUE           101
#endif
#endif

// this structure allows the EXTENSION CONTROL BLOCK to be passed to
the msg and error handlers.
typedef struct _ECBINFO
{
       int iTermId;   // terminal id
       int iSyncId;   // browser sync id
       BOOL bDeadlock;        // deadlock condition flag
       BOOL bFailed;  // cleared before sql transaction, set in    err
handlers if an error occurs
       EXTENSION_CONTROL_BLOCK *pECB;       // inetsrv current
connection structure information
} ECBINFO, *PECBINFO;
```

```
BOOL SQLOpenConnection(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
                                        DBPROCESS **dbproc, char
*server, char *database,
                                        char *user, char
*password, char *app, int *spid);
BOOL SQLCloseConnection(EXTENSION_CONTROL_BLOCK *pECB, DBPROCESS
*dbproc);
BOOL SQLStockLevel(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
                                        DBPROCESS *dbproc,
STOCK_LEVEL_DATA *pStockLevel,
                                        short deadlock_retry);
int SQLNewOrder(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
                                        DBPROCESS *dbproc,
NEW_ORDER_DATA *pNewOrder,
                                        short deadlock_retry);
int SQLPayment(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int iSyncId,
                                        DBPROCESS *dbproc,
PAYMENT_DATA *pPayment,
                                        short deadlock_retry);
int SQLOrderStatus(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
                                        DBPROCESS *dbproc,
ORDER_STATUS_DATA *pOrderStatus,
                                        short deadlock_retry);

BOOL SQLInit(void);
void SQLCleanup(void);
BOOL SQLThreadAttach(void);
BOOL SQLThreadDetach(void);
PECBINFO SQLGetECB(PDBPROCESS p);

#ifndef TPCC_H_INCLUDED
#define TPCC_H_INCLUDED
extern char szErrorLogPath[];

#ifdef UTM_SERVER
typedef char EXTENSION_CONTROL_BLOCK;
extern EXTENSION_CONTROL_BLOCK *gpECB;
typedef struct
{
    struct
    {
        char szBuffer[4096];
    } pClientData[1];
} TERM;
extern TERM Term;
#else // UTM_CLIENT
#include "httpext.h"
#include "tpcc_org.h"
#endif
#endif

/* FILE: TPCC. H
* Microsoft TPC-C Kit Ver. 3.00.001
* Audited 08/ 23/ 96, By Francois Raab
*
* Copyright Microsoft, 1996
*
* PURPOSE: Header file for ISAPI TPCC. DLL, defines structures and
functions used in the isapi tpcc. dll.
* Author: Philip Durr
* philipdu@ Microsoft. com
*/
// VERSION RESOURCE DEFINES
#define _APS_NEXT_RESOURCE_VALUE     101
#define _APS_NEXT_COMMAND_VALUE              40001
#define _APS_NEXT_CONTROL_VALUE              1000
#define _APS_NEXT_SYMED_VALUE        01
// note that the welcome form must be processed first as terminal ids
assigned here, once the
// terminal id is assigned then the forms can be processed in any
order.
#define WELCOME_FORM          1      // beginning form no term id
assigned, form id
#define MAIN_MENU_FORM        2      // term id assigned main menu
form id
#define NEW_ORDER_FORM        3      // new order form id
#define PAYMENT_FORM          4      // payment form id
#define DELIVERY_FORM         5      // delivery form id
#define ORDER_STATUS_FORM     6      // order status id
#define STOCK_LEVEL_FORM      7      // stock level form id
// This macro is used to prevent the compiler error unused formal
parameter
#define UNUSEDPARAM(x) (x = x)
// This structure is used for posting delivery transactions
typedef struct _DELIVERY_TRANSACTION
{
       SYSTEMTIME     queue;                // time delivery
transaction queued
       short          w_id;                 // delivery warehouse
       short          o_carrier_id;  // carrier id
} DELIVERY_TRANSACTION;

#ifdef USE_ODBC
typedef struct _DBPROCESS
{
       HDBC    hdbc;
       HSTMT   hstmt;
       int            pid;
       void    *uPtr;
} DBPROCESS, *PDBPROCESS;
// dblib error message return values
#define INT_EXIT              0
```

```
#define INT_CONTINUE  1
#define INT_CANCEL            2
#endif

// This structure defines the data necessary to keep distinct for each
terminal or client connection.
typedef struct _CLIENTDATA
{
       int     inUse;          // in use flag allows client entries to
be reused
       int     w_id;           // warehouse id assigned at welcome form
       int     d_id;           // district id assigned at welcome form
       PDBPROCESS dbproc;      // dblib connection pointer
       int     spid;           // spid assigned from dblib
       int     iSyncId;        // syncronization id
       int     iTickCount;     // time of last access;
       int     iTermId;        // terminal id of http stream connection
       char    szBuffer[4096];         // form buffer each HTML form is
built for a client in here
       NEW_ORDER_DATA                  newOrderData;  // new order form
data
       PAYMENT_DATA            paymentData;   // payment form data
       ORDER_STATUS_DATA       orderStatusData;// order status form data
       DELIVERY_DATA           deliveryData;  // delivery form data
       STOCK_LEVEL_DATA        stockLevelData; // stock level form data
} CLIENTDATA;
typedef CLIENTDATA *PCLIENTDATA;// pointer to client structure
// This structure is used to define the operational  interface for
terminal id support
typedef struct _TERM
{
       int     iAvailable;             // total allocated terminal array
entries
       int     iNext;                  // next available terminal array
element
       int     iMasterSyncId; // syncronization id
       BOOL    bInit;                  // structure has been initialized
flag
       CLIENTDATA *pClientData;// pointer to allocated client data
       void    (*Init)(void); // API to initialize this structure
       int     (*Allocate)(void);// API to allocate a new terminal
entry array id returned
       void    (*Restore)(void);// API to free terminal data
       int     (*Add)(EXTENSION_CONTROL_BLOCK *pECB, char
*pQueryString);// API to add a terminal id to array, this context will
       // be passed from the browser to the tpcc. dll in the
       // TERMID= key in the HTTP string.
       void (*Delete)(EXTENSION_CONTROL_BLOCK *pECB, int id);
       // API to free resources used by a terminal array entry
} TERM;
typedef TERM *PTERM;// pointer to terminal structure type
// function prototypes
```

```
BOOL APIENTRY DllMain(HANDLE hModule, DWORD ul_reason_for_call, LPVOID
lpReserved);
static void DeliveryDisconnect(void *ptr);
BOOL ProcessQueryString(EXTENSION_CONTROL_BLOCK *pECB, int *pCmd, int
*pFormId, int *pTermId, int *pSyncId);
void NewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId);
void PaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId);
void DeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId);
void OrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId);
void StockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId);
void Exitcmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId);
void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId);
void BeginCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId);
void ProcessCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId);
void ClearCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId);
void MenuCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId);
void NumberOfConnectionsCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId,
int iTermId, int iSyncId);
static void h_printf(EXTENSION_CONTROL_BLOCK *pECB, char *format, ...);
static BOOL GetKeyValue(char *pQueryString, char *pKey, char *pValue,
int iMax);
static void TermInit(void);
static void TermRestore(void);
static int TermAllocate(void);
static int TermAdd(EXTENSION_CONTROL_BLOCK *pECB, char *pQueryString);
static void TermDelete(EXTENSION_CONTROL_BLOCK *pECB, int id);
BOOL Init(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int iSyncId, char
*szServer, char *szUser, char *szPassword, char *szDatabase);
BOOL Close(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int iSyncId);
static void FormatString(char *szDest, char *szPic, char *szSrc);
static char *MakeStockLevelForm(int iTermId, int iSyncId, BOOL bInput);
static char *MakeMainMenuForm(int iTermId, int iSyncId);
static char *MakeWelcomeForm(void);
static char *MakeNewOrderForm(int iTermId, int iSyncId, BOOL bInput,
BOOL bValid);
static char *MakePaymentForm(int iTermId, int iSyncId, BOOL bInput);
static char *MakeOrderStatusForm(int iTermId, int iSyncId, BOOL
bInput);
static char *MakeDeliveryForm(int iTermId, int iSyncId, BOOL bInput,
BOOL bSuccess);
static void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId);
```

```
static void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId);
static void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId);
static void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId);
static void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId);
static int GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA
*pNewOrderData);
static int GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA
*pPaymentData);
static int GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA
*pOrderStatusData);
static BOOL ReadRegistrySettings(void);
static BOOL PostDeliveryInfo(short w_id, short o_carrier_id);
static BOOL IsNumeric(char *ptr);
static void FormatHTMLString(char *szBuff, char *szStr, int iLen);
extern char szErrorLogPath[ 256];
extern EXTENSION_CONTROL_BLOCK *gpECB;


/*  FILE:       TRANS.H
 *              Microsoft TPC-C Kit Ver. 3.00.000
 *              Audited 08/23/96    By Francois Raab
 *  PURPOSE:    Header file for ISAPI TPCC.DLL, defines structures and
functions used in the isapi tpcc.dll.
 *
 *              Copyright Microsoft inc. 1996, All Rights Reserved
 *
 *  Author:     PhilipDu, from tpcc.h by DamienL
 *              DamienL@Microsoft.com
 *              philipdu@Microsoft.com
 */
#ifndef _INC_TRANS

    #define _INC_TRANS

    #ifdef USE_ODBC
        #ifndef TIMESTAMP_STRUCT
            #include <sqltypes.h>
            #include <sql.h>
            #include <sqlext.h>
        #endif
    #else
        #ifndef _INC_SQLFRONT
            #define DBNTWIN32
            #include <sqlfront.h>
            #include <sqldb.h>
        #endif
    #endif

    #ifndef DBINT
        typedef long DBINT;
    #endif

#define DEFCLPACKSIZE               1024
#define DEADLOCKWAIT                10

// String length constants
#define SERVER_NAME_LEN            20
#define DATABASE_NAME_LEN          20
#define USER_NAME_LEN              20
#define PASSWORD_LEN               20
#define TABLE_NAME_LEN             20
#define I_DATA_LEN                 50
#define I_NAME_LEN                 24
#define BRAND_LEN                   1
#define LAST_NAME_LEN              16
#define W_NAME_LEN                 10
#define ADDRESS_LEN                20
#define STATE_LEN                   2
#define ZIP_LEN                     9
#define S_DIST_LEN                 24
#define S_DATA_LEN                 50
#define D_NAME_LEN                 10
#define FIRST_NAME_LEN             16
#define MIDDLE_NAME_LEN             2
#define PHONE_LEN                  16
#define DATETIME_LEN               30
#define CREDIT_LEN                  2
#define C_DATA_LEN                250
#define H_DATA_LEN                 24
#define DIST_INFO_LEN              24
#define MAX_OL_NEW_ORDER_ITEMS     15
#define MAX_OL_ORDER_STATUS_ITEMS  15
#define STATUS_LEN                 25
#define OL_DIST_INFO_LEN           24

// transaction structures

typedef struct
{
    short               ol_supply_w_id;
    long                ol_i_id;
    char                ol_i_name[I_NAME_LEN+1];
    short               ol_quantity;
    char                ol_brand_generic[BRAND_LEN+1];
    double              ol_i_price;
    double              ol_amount;
    short               ol_stock;
    short               num_warehouses;
} OL_NEW_ORDER_DATA;

typedef struct
{
```

```
    short               w_id;
    short               d_id;
    long                c_id;
    short               o_ol_cnt;
    char                c_last[LAST_NAME_LEN+1];
    char                c_credit[CREDIT_LEN+1];
    double              c_discount;
    double              w_tax;
    double              d_tax;
    long                o_id;
    short               o_commit_flag;
#ifdef USE_ODBC
    TIMESTAMP_STRUCT    o_entry_d;
#else
    DBDATEREC           o_entry_d;
#endif
    short               o_all_local;
    double              total_amount;
    long                num_deadlocks;
    char                execution_status[STATUS_LEN];
    OL_NEW_ORDER_DATA Ol[MAX_OL_NEW_ORDER_ITEMS];
} NEW_ORDER_DATA;

typedef struct
{
    short                w_id;
    short                d_id;
    long                 c_id;
    short                c_d_id;
    short                c_w_id;
    double               h_amount;
#ifdef USE_ODBC
    TIMESTAMP_STRUCT     h_date;
#else
    DBDATEREC            h_date;
#endif
    char                 w_street_1[ADDRESS_LEN+1];
    char                 w_street_2[ADDRESS_LEN+1];
    char                 w_city[ADDRESS_LEN+1];
    char                 w_state[STATE_LEN+1];
    char                 w_zip[ZIP_LEN+1];
    char                 d_street_1[ADDRESS_LEN+1];
    char                 d_street_2[ADDRESS_LEN+1];
    char                 d_city[ADDRESS_LEN+1];
    char                 d_state[STATE_LEN+1];
    char                 d_zip[ZIP_LEN+1];
    char                 c_first[FIRST_NAME_LEN+1];
    char                 c_middle[MIDDLE_NAME_LEN + 1];
    char                 c_last[LAST_NAME_LEN+1];
    char                 c_street_1[ADDRESS_LEN+1];
    char                 c_street_2[ADDRESS_LEN+1];
    char                 c_city[ADDRESS_LEN+1];
    char                 c_state[STATE_LEN+1];
    char                 c_zip[ZIP_LEN+1];
    char                 c_phone[PHONE_LEN+1];
#ifdef USE_ODBC
    TIMESTAMP_STRUCT     c_since;
#else
    DBDATEREC            c_since;
#endif
    char                 c_credit[CREDIT_LEN+1];
    double               c_credit_lim;
    double               c_discount;
    double               c_balance;
    char                 c_data[200+1];
    long                 num_deadlocks;
    char                 execution_status[STATUS_LEN];
} PAYMENT_DATA;

typedef struct
{
    long                ol_i_id;
    short               ol_supply_w_id;
    short               ol_quantity;
    double              ol_amount;
#ifdef USE_ODBC
    TIMESTAMP_STRUCT    ol_delivery_d;
#else
    DBDATEREC           ol_delivery_d;
#endif
} OL_ORDER_STATUS_DATA;

typedef struct
{
    short                w_id;
    short                d_id;
    long                 c_id;
    char                 c_first[FIRST_NAME_LEN+1];
    char                 c_middle[MIDDLE_NAME_LEN+1];
    char                 c_last[LAST_NAME_LEN+1];
    double               c_balance;
    long                 o_id;
#ifdef USE_ODBC
    TIMESTAMP_STRUCT     o_entry_d;
#else
    DBDATEREC            o_entry_d;
#endif
    short                o_carrier_id;
    OL_ORDER_STATUS_DATA
OlOrderStatusData[MAX_OL_ORDER_STATUS_ITEMS];
    short                o_ol_cnt;
    long                 num_deadlocks;
    char                 execution_status[STATUS_LEN];
} ORDER_STATUS_DATA;

typedef struct
```

```
    {
        long                o_id;
    } DEL_ITEM;

    typedef struct
    {
        short               w_id;
        short               o_carrier_id;
        SYSTEMTIME          queue_time;
        long                num_deadlocks;
        DEL_ITEM            DelItems[10];
        char                execution_status[STATUS_LEN];
    } DELIVERY_DATA;

    typedef struct
    {
        short               w_id;
        short               d_id;
        short               thresh_hold;
        long                low_stock;
        long                num_deadlocks;
        char                execution_status[STATUS_LEN];
    } STOCK_LEVEL_DATA;

#endif

#ifndef TPCC_UTIL_H
#define TPCC_UTIL_H
void UtilStrCpy(char *pDest, char *pSrc, int n);
BOOL IsValidTermId(int TermId);
#endif


#ifndef UTM_H_INCLUDED
#define UTM_H_INCLUDED

#ifdef USE_UPIC_CALL
extern int upic_disable(void);
extern int upic_init(void);
extern int upic_call(DWORD dwId, char *service, char *sendbuff, int
sendlen,
                     char *recbuff, int *reclen);
#endif
#define LogFile stderr

#define SERVICE_CHARS 32
typedef union
```

Shared Source Code

```
#include <windows.h>
```

```
{
    NEW_ORDER_DATA      NewOrderData;
    PAYMENT_DATA        PaymentData;
    ORDER_STATUS_DATA   OrderStatusData;
    DELIVERY_DATA       DeliveryData;
    STOCK_LEVEL_DATA    StockLevelData;
    char                ErrorMsg[400];  // ack!!
} TRANS_DATA;

typedef struct
{
    int TermId;
    int SyncId;
    int bDeadlock;
    int bFailed;
    short DeadlockRetry;
    int Error;
    int Return;
    // Note: Trans must be last
    TRANS_DATA Trans;
} UTM_DATA;

typedef struct
{
    char Service[SERVICE_CHARS];
    // Note: Data must be last
    UTM_DATA Data;
} UTM_MSG;

// macros to compute the size of various bits of UTM_MSG. It is
// not enough to just add up the fields because of possible alignment
// issues
#define MSG_HEADER_SIZE(p)((DWORD)(((char *)&(p) ->Data. Trans) -
((char *)(p))))
#define NEW_ORDER_SIZE(p) ((MSG_HEADER_SIZE((p)) +
sizeof(NEW_ORDER_DATA))
#define PAYMENT_SIZE(p) ((MSG_HEADER_SIZE((p)) + sizeof(PAYMENT_DATA))
#define ORDER_STATUS_SIZE(p) ((MSG_HEADER_SIZE((p)) +
sizeof(ORDER_STATUS_DATA))
#define DELIVERY_SIZE(p) ((MSG_HEADER_SIZE((p)) +
sizeof(DELIVERY_DATA))
#define STOCK_LEVEL_SIZE(p) ((MSG_HEADER_SIZE((p)) +
sizeof(STOCK_LEVEL_DATA))
#endif



#include <string.h>
#include <stdio.h>
#include "trans.h"
#include "tpcc.h"
#include "util.h"
#include "error.h"
```

```
char    ErrorMsgBuffer[400] ;

/* FUNCTION: void ErrorMessage(EXTENSION_CONTROL_BLOCK *pECB, int
iError, int iErrorType, char *szMsg)
*
* PURPOSE: This function displays an error message in the client
browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* intiErrorid of error message
* intiErrorTypeerror type, ERR_TYPE_SQL, ERR_TYPE_DBLIB, or
ERR_TYPE_WEBDLL
* intiTermIdterminal id from browser
* intiSyncidsync id from browser
* char *szMsgoptional error message string used with ERR_TYPE_SQL and
* ERR_TYPE_DBLIB
*
* RETURNS: None
*
* COMMENTS: If the error type is ERR_TYPE_WEBDLL the szmsg parameter
may be NULL because it
* is ignored.If the error type is ERR_TYPE_SQL or ERR_TYPE_DBLIB then
the szMsg
* parameter contains the text of the error message, so the szMsg
parameter cannot
* be NULL.
*
*/
void WINAPI ErrorMessage(EXTENSION_CONTROL_BLOCK *pECB, int iError, int
iErrorType,
                                        char *szMsg, int iTermId,
int iSyncId)
{
        int i;
        static SERRORMSG errorMsgs[] =
        {
        {ERR_SUCCESS,"Success, no error."},
        {ERR_COMMAND_UNDEFINED,"Command undefined."},
        {ERR_NOT_IMPLEMENTED_YET,"Not Implemented Yet."},
        {ERR_CANNOT_INIT_TERMINAL,"Cannot initialize client
connection."},
        {ERR_OUT_OF_MEMORY,"insufficient memory."},
        {ERR_NEW_ORDER_NOT_PROCESSED,"Cannot process new Order form."},
        {ERR_PAYMENT_NOT_PROCESSED,"Cannot process payment form."},
        {ERR_NO_SERVER_SPECIFIED,"No Server name specified."},
        {ERR_ORDER_STATUS_NOT_PROCESSED,"Cannot process order status
form."},
        {ERR_W_ID_INVALID,"Invalid Warehouse ID."},
        {ERR_CAN_NOT_SET_MAX_CONNECTIONS,"Insufficient memory to
allocate # connections."},
        {ERR_NOSUCH_CUSTOMER,"No such customer."},
        {ERR_D_ID_INVALID,"Invalid District ID Must be 1 to 10."},
        {ERR_MAX_CONNECT_PARAM,"Max client connections exceeded, run
install to increase."},
        {ERR_INVALID_SYNC_CONNECTION,"Invalid Terminal Sync ID."},
        {ERR_INVALID_TERMID,"Invalid Terminal ID."},
        {ERR_PAYMENT_INVALID_CUSTOMER,"Payment Form, No such
Customer."},
        {ERR_SQL_OPEN_CONNECTION,"SQLOpenConnection API Failed."},
        {ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,"Stock Level missing
Threshold key \"TT*\"."},
        {ERR_STOCKLEVEL_THRESHOLD_INVALID,"Stock Level Threshold
invalid data type range = 1 - 99."},
        {ERR_STOCKLEVEL_THRESHOLD_RANGE,"Stock Level Threshold out of
range, range must be 1 - 99."},
        {ERR_STOCKLEVEL_NOT_PROCESSED,"Stock Level not processed."},
        {ERR_NEWORDER_FORM_MISSING_DID,"New Order missing District key
\"DID*\"."},
        {ERR_NEWORDER_DISTRICT_INVALID,"New Order District ID Invalid
range 1 - 10."},
        {ERR_NEWORDER_DISTRICT_RANGE,"New Order District ID out of
Range.Range = 1 - 10."},
        {ERR_NEWORDER_CUSTOMER_KEY,"New Order missing Customer key
\"CID*\"."},
        {ERR_NEWORDER_CUSTOMER_INVALID,"New Order customer id invalid
data type, range = 1 to 3000."},
        {ERR_NEWORDER_CUSTOMER_RANGE,"New Order customer id out of
range, range = 1 to 3000."},
        {ERR_NEWORDER_MISSING_IID_KEY,"New Order missing Item Id key
\"IID*\"."},
        {ERR_NEWORDER_ITEM_BLANK_LINES,"New Order blank order lines all
orders must be continuous."},
        {ERR_NEWORDER_ITEMID_INVALID,"New Order Item Id is wrong data
type, must be numeric."},
        {ERR_NEWORDER_MISSING_SUPPW_KEY,"New Order missing Supp_W key
\"SP##*\"."},
        {ERR_NEWORDER_SUPPW_INVALID,"New Order Supp_W invalid data type
must be numeric."},
        {ERR_NEWORDER_MISSING_QTY_KEY,"New Order Missing Qty key
\"Qty##*\"."},
        {ERR_NEWORDER_QTY_INVALID,"New Order Qty invalid must be
numeric range 1 - 99."},
        {ERR_NEWORDER_SUPPW_RANGE,"New Order Supp_W value out of range
range = 1 - Max Warehouses."},
        {ERR_NEWORDER_ITEMID_RANGE,"New Order Item Id is out of
range.Range = 1 to 999999."},
        {ERR_NEWORDER_QTY_RANGE,"New Order Qty is out of range. Range =
1 to 99."},
        {ERR_PAYMENT_DISTRICT_INVALID,"Payment District ID is invalid
must be 1 - 10."},
        {ERR_NEWORDER_SUPPW_WITHOUT_ITEMID,"New Order Supp_W field
entered without a corrisponding Item_Id."},
        {ERR_NEWORDER_QTY_WITHOUT_ITEMID,"New Order Qty entered without
a corrisponding Item_Id."},
```

```
        {ERR_NEWORDER_NOITEMS_ENTERED,"New Order Blank Items between
items, items must be continuous."},
        {ERR_PAYMENT_MISSING_DID_KEY,"Payment missing District Key
\"DID*\"."},
        {ERR_PAYMENT_DISTRICT_RANGE,"Payment District Out of range,
range = 1 - 10."},
        {ERR_PAYMENT_MISSING_CID_KEY,"Payment missing Customer Key
\"CID*\"."},
        {ERR_PAYMENT_CUSTOMER_INVALID,"Payment Customer data type
invalid, must be numeric."},
        {ERR_PAYMENT_MISSING_CLT,"Payment missing Customer Last Name
Key \"CLT*\"."},
        {ERR_PAYMENT_LAST_NAME_TO_LONG,"Payment Customer last name
longer than 16 characters."},
        {ERR_PAYMENT_CUSTOMER_RANGE,"Payment Customer ID out of range,
must be 1 to 3000."},
        {ERR_PAYMENT_CID_AND_CLT,"Payment Customer ID and Last Name
entered must be one or other."},
        {ERR_PAYMENT_MISSING_CDI_KEY,"Payment missing Customer district
key \"CDI*\"."},
        {ERR_PAYMENT_CDI_INVALID,"Payment Customer district invalid
must be numeric."},
        {ERR_PAYMENT_CDI_RANGE,"Payment Customer district out of range
must be 1 - 10."},
        {ERR_PAYMENT_MISSING_CWI_KEY,"Payment missing Customer
Warehouse key \"CWI*\"."},
        {ERR_PAYMENT_CWI_INVALID,"Payment Customer Warehouse invalid
must be numeric."},
        {ERR_PAYMENT_CWI_RANGE,"Payment Customer Warehouse out of
range, 1 to Max Warehouses."},
        {ERR_PAYMENT_MISSING_HAM_KEY,"Payment missing Amount key
\"HAM*\"."},
        {ERR_PAYMENT_HAM_INVALID,"Payment Amount invalid data type must
be numeric."},
        {ERR_PAYMENT_HAM_RANGE,"Payment Amount out of range, 0 -
9999.99."},
        {ERR_ORDERSTATUS_MISSING_DID_KEY,"Order Status missing District
key \"DID*\"."},
        {ERR_ORDERSTATUS_DID_INVALID,"Order Status District invalid,
value must be numeric 1 - 10."},
        {ERR_ORDERSTATUS_DID_RANGE,"Order Status District out of range
must be 1 - 10."},
        {ERR_ORDERSTATUS_MISSING_CID_KEY,"Order Status missing Customer
key \"CID*\"."},
        {ERR_ORDERSTATUS_MISSING_CLT_KEY,"Order Status missing Customer
Last Name key \"CLT*\"."},
        {ERR_ORDERSTATUS_CLT_RANGE,"Order Status Customer last name
longer than 16 characters."},
        {ERR_ORDERSTATUS_CID_INVALID,"Order Status Customer ID invalid,
range must be numeric 1 - 3000."},
        {ERR_ORDERSTATUS_CID_RANGE,"Order Status Customer ID out of
range must be 1 - 3000."},
        {ERR_ORDERSTATUS_CID_AND_CLT,"Order Status Customer ID and
LastName entered must be only one."},
        {ERR_DELIVERY_MISSING_OCD_KEY,"Delivery missing Carrier     ID
key \"OCD*\"."},
        {ERR_DELIVERY_CARRIER_INVALID,"Delivery Carrier ID invalid must
be numeric 1 - 10."},
        {ERR_DELIVERY_CARRIER_ID_RANGE,"Delivery Carrier ID out of
range must be 1 - 10."},
        {ERR_PAYMENT_MISSING_CLT_KEY,"Payment missing Customer Last
Name key \"CLT*\"."},
        {0,""}
        };

        static char szNoMsg[] = "";
        char *szForm;

        if (!szMsg )
                szMsg = szNoMsg;
/*      if (iTermId > 0 && IsValidTermId(iTermId) )
                szForm = Term.pClientData[iTermId].szBuffer;
                // if termid valid use common terminal static buffer.
        else
                szForm = Term.pClientData[0].szBuffer; */

    szForm = ErrorMsgBuffer ;

                // else term id invalid so use common terminal static
buffer.
        switch(iErrorType)
        {
                case ERR_TYPE_WEBDLL:
                        for(i= 0; errorMsgs[i].szMsg[0]; i++)
                        {
                                if (iError == errorMsgs[i].iError)
                                break;
                        }
                        if (!errorMsgs[i].szMsg[0] )
                                i = 1;
                        strcpy(szForm,"<HTML><HEAD><TITLE> Welcome To
TPC-C</TITLE></HEAD><BODY><FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">");
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"STATUSID\"VALUE=\"%d\">", iErrorType);
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"TERMID\"VALUE=\"%d\">", iTermId);
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"SYNCID\"VALUE=\"%d\">", iSyncId);
                        wsprintf(szForm+ strlen(szForm), "Error:
TPCCWEB(%d):%s", iError, errorMsgs[i].szMsg);
                        strcat(szForm, "</FORM><BODY></HTML>");
                        WriteZString(pECB, szForm);
                break;
                case ERR_TYPE_SQL:
```

```
                        strcpy(szForm,"<HTML><HEAD><TITLE> Welcome To
TPC-C</TITLE></HEAD><BODY><FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">");
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"STATUSID\"VALUE=\"%d\">", iErrorType);
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"TERMID\"VALUE=\"%d\">", iTermId);
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"SYNCID\"VALUE=\"%d\">", iSyncId);
                        /* SQL 7.0 may send long error messages - cut at
char 110 */
                        szMsg[110] = '\0';
                        wsprintf(szForm+ strlen(szForm), "Error:
SQLSVR(%d):%s", iError, szMsg);
                        strcat(szForm, "</FORM><BODY></HTML>");
                        WriteZString(pECB, szForm);
                break;
                case ERR_TYPE_DBLIB:
                        strcpy(szForm,"<HTML><HEAD><TITLE> Welcome To
TPC-C</TITLE></HEAD><BODY><FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">");
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"STATUSID\"VALUE=\"%d\">", iErrorType);
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"TERMID\"VALUE=\"%d\">", iTermId);
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"SYNCID\"VALUE=\"%d\">", iSyncId);
                        wsprintf(szForm+ strlen(szForm), "Error:
DBLIB(%d): %s",iError, szMsg);
                        strcat(szForm, "</FORM><BODY></HTML>");
                        WriteZString(pECB, szForm);
                break;
                case ERR_TYPE_ODBC:
                        strcpy(szForm,"<HTML><HEAD><TITLE> Welcome To
TPC-C</TITLE></HEAD><BODY><FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">");
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"STATUSID\"VALUE=\"%d\">", iErrorType);
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"TERMID\"VALUE=\"%d\">", iTermId);
                        wsprintf(szForm+ strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"SYNCID\"VALUE=\"%d\">", iSyncId);
                        wsprintf(szForm+ strlen(szForm), "Error:
ODBC(%d): %s",iError, szMsg);
                        strcat(szForm, "</FORM><BODY></HTML>");
                        WriteZString(pECB, szForm);
                break;
        }
        return;
}

#include <windows.h>
#include <stdio.h>
#include "pipe_routines.h"
#include "trans.h"
#include "utm.h"

const char *SERVER_PIPE_PATH = "\\\\.\\pipe\\tpcc_pipe.%d";
const char *CLIENT_PIPE_PATH = "\\\\.\\pipe\\tpcc_pipe.%d";



HANDLE DuplicateUtmHandle(HANDLE hSrc, DWORD dwProId)
{
        HANDLE hPro = OpenProcess(PROCESS_DUP_HANDLE, FALSE, dwProId)
;
        HANDLE hDup = NULL ;

        if(hPro)
        {
                if(DuplicateHandle(hPro, hSrc, GetCurrentProcess(),
&hDup, 0, FALSE, DUPLICATE_SAME_ACCESS) == FALSE)
                {
                        Trace( "0x%x: Can not duplicate Handle\n",
GetLastError()) ;
                        CloseHandle(hPro) ;
                }
        }
        else Trace( "0x%x: Can not open Process 0x%x\n",
GetLastError(), dwProId) ;

        return(hDup) ;
}


BOOL OpenClientPipe(SM_PIPE *pPipe, DWORD dwId, UTM_SHARED_MEM
*lpUtmMem)
{
        UTM_HANDLES UtmHandles = lpUtmMem->UtmHandles[dwId] ;

        if((pPipe->evRDav = DuplicateUtmHandle(UtmHandles.evUtmAck,
UtmHandles.dwProId)) &&
                (pPipe->evWDav = DuplicateUtmHandle(UtmHandles.evIisReq,
UtmHandles.dwProId)) &&
                (pPipe->hStop  = DuplicateUtmHandle(UtmHandles.hThread,
UtmHandles.dwProId))   )
        {
                 pPipe->dwMaxTransferLen = lpUtmMem->dwMaxTransferLen ;
                 pPipe->lpLen = (LPDWORD)((LPBYTE) (&lpUtmMem-
>UtmHandles[lpUtmMem->dwMaxConnections]) + dwId*(lpUtmMem-
>dwMaxTransferLen+sizeof(DWORD))) ;
                pPipe->lpBuffer = ((LPBYTE) pPipe->lpLen) +
sizeof(DWORD) ;
                return(TRUE) ;
        }

        return(FALSE) ;
}
```

```
HANDLE CreatePipeEvent(LPSECURITY_ATTRIBUTES lpEventAttributes)
{
        HANDLE hEvent = CreateEvent(lpEventAttributes, FALSE, FALSE,
NULL) ;

        if(!hEvent)
                        Trace( "0x%x: Can not create pipe
event\n", GetLastError) ;

        return(hEvent) ;
}



BOOL OpenServerPipe(SM_PIPE *pPipe, DWORD dwId, LPSECURITY_ATTRIBUTES
lpEventAttributes, UTM_SHARED_MEM *lpUtmMem)
{
        UTM_HANDLES UtmHandles ;


        if((UtmHandles.evIisReq = CreatePipeEvent(lpEventAttributes))
&&
               (UtmHandles.evUtmAck =
CreatePipeEvent(lpEventAttributes))   )
        {
                UtmHandles.hThread =
DuplicateUtmHandle(GetCurrentThread(), GetCurrentProcessId()) ;
                UtmHandles.dwProId = GetCurrentProcessId() ;

                lpUtmMem->UtmHandles[dwId] = UtmHandles ;

                pPipe->evRDav           = UtmHandles.evIisReq ;
                pPipe->evWDav           = UtmHandles.evUtmAck ;
                pPipe->hStop            = DuplicateUtmHandle(lpUtmMem-
>evTerminate, lpUtmMem->dwPIdMasterUtm) ;
                pPipe->dwMaxTransferLen = lpUtmMem->dwMaxTransferLen ;
                pPipe->lpLen            = (LPDWORD)((LPBYTE)
(&lpUtmMem->UtmHandles[lpUtmMem->dwMaxConnections]) + dwId*(lpUtmMem-
>dwMaxTransferLen+sizeof(DWORD))) ;
                pPipe->lpBuffer               = ((LPBYTE) pPipe-
>lpLen) + sizeof(DWORD) ;

                return(TRUE) ;
        }

        return(FALSE) ;
}


BOOL ReadPipe(SM_PIPE *pPipe, void *Buffer, DWORD BufSize, DWORD
*pnRead)
{
        HANDLE Objects[2] = { pPipe->evRDav, pPipe->hStop } ;

        switch(WaitForMultipleObjects(pPipe->hStop ? 2 : 1, Objects,
FALSE, INFINITE))
        {
         case WAIT_OBJECT_0:   // Data is available

                if(*pPipe->lpLen > BufSize)        // Destination
buffer too small?
                {
                        Trace( "ReadPipe: buffer too small.Size
was %d, left=%d\n",
                                                                BufSize,
*pPipe->lpLen-BufSize);
                        break ;
                }

                *pnRead = *pPipe->lpLen ;
                CopyMemory(Buffer, pPipe->lpBuffer, *pPipe->lpLen) ;

                return(TRUE) ;

         case WAIT_OBJECT_0+1:

                Trace( "ReadPipe: Stop received\n");
                break ;

         default:

                Trace( "ReadPipe: Unexpected Wait-State 0x%x\n",
GetLastError());
                break ;
        }

        *pnRead = 0 ;
        return(FALSE) ;
}



BOOL WritePipe(SM_PIPE *pPipe, void *Buffer, DWORD BytesToWrite, DWORD
*pnWritten)
{
        if(BytesToWrite > pPipe->dwMaxTransferLen)
        {
                Trace( "WritePipe: buffer too small.Size was %d,
left=%d\n", pPipe->dwMaxTransferLen,


               BytesToWrite-*pPipe->lpLen);
                *pnWritten = 0 ;
                return(FALSE) ;
        }
```

```
        *pnWritten = *pPipe->lpLen = BytesToWrite ;
        CopyMemory(pPipe->lpBuffer, Buffer, BytesToWrite) ;

        SetEvent(pPipe->evWDav) ;

        return(TRUE) ;
}

#include <windows.h>
#include <string.h>
#include "util.h"
/* FUNCTION: void UtilStrCpy( char * pDest, char * pSrc, int n)
*
* PURPOSE: This function copies n characters from string pSrc to pDst
and places a
* null character at the end of the destination string.
*
* ARGUMENTS: char* pDestdestination string pointer
* char* pSrcsource string pointer
* intnnumber of characters to copy
*
* RETURNS: None
*
* COMMENTS: Unlike strncpy this function ensures that the result string
is
* always null terminated.
*
*/

void UtilStrCpy( char *pDest, char *pSrc, int n)
{
       strncpy( pDest, pSrc, n);
       pDest[n] = '\0';
       return;
}
```

TPCC-DLL Source Code

```
/*      FILE:           DELISRV.C
 *                              Microsoft TPC-C Kit Ver. 3.00.000
 *                              Audited 08/23/96, By Francois Raab
 *
 *                              Copyright Microsoft, 1996
 *
 *      PURPOSE:        Delivery TPC-C transaction executable
 *      Author:         Philip Durr
 *                              philipdu@Microsoft.com
 */

#include <windows.h>
#include <process.h>
#include <stdio.h>
#include <stdarg.h>
#include <malloc.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include  <io.h>
#include <conio.h>
#include <ctype.h>

#define DBNTWIN32
#include <sqlfront.h>
#include <sqldb.h>

#include "delisrv.h"

char                                    szServer[32];
       //SQL server name
char                                    szDatabase[32];
              //tpcc database name
char                                    szUser[32];
              //user name
char                                    szPassword[32];
              //user password
int                                             iNumThreads            =
4;            //number of threads to create
int                                             iDelayMs               =
1000;         //delay between delivery queue checks
int                                             iDeadlockRetry = 3;
       //number of read check retries.
int                                             iQSlotts               =
3000;         //delivery transaction queues

FILE                                    *fpLog;
              //pointer to log file
CRITICAL_SECTION              WriteLogCriticalSection;      //critical
section for delivery write log
CRITICAL_SECTION              DeliveryCriticalSection;      //critical
section for delivery transactions cache
static  LPTSTR                lpszPipeName =
TEXT("\\\\.\\pipe\\DELISRV"); //delivery pipe name

HANDLE                                  hPipe          =
INVALID_HANDLE_VALUE;  //delivery pipe handle
HANDLE                                  hComPort       =
INVALID_HANDLE_VALUE;  //delivery pipe completion port handle.
```

```
BOOL                                    bDone;
                        //delivery executable termination request flag
BOOL                                    bFlush;
                        //Flush delivery log info when written.

LPDELIVERY_PACKET               pDeliveryCache;

int                                             versionMS = 3;
                        //delivery executable version number.
int                                             versionMM = 0;
                        //formatted as MS.MM.LS, 1.00.005
int                                             versionLS = 2;

/* FUNCTION: int main(int argc, char *argv[])
 *
 * PURPOSE:    This function is the beginning execution point for the
delivery executable.
 *
 * ARGUMENTS:  int             argc    number of command line arguments
passed to delivery
 *                             char    *argv[] array of command line
argument pointers
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

void main(int argc, char *argv[])
{
        int     iError;

        if ( GetParameters(argc, argv) )
        {
                PrintParameters();
                return;
        }

        if ( (iError=Init()) )
        {
                ErrorMessage(iError);
                Restore();
                return;
        }

        if ( (iError = RunDelivery()) != ERR_SUCCESS )
                ErrorMessage(iError);

        Restore();

        return;
}
```

```
/* FUNCTION: void cls(void)
 *
 * PURPOSE:    This function clears the console window
 *
 * ARGUMENTS:  None
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

static void cls(void)
{
        HANDLE  hConsole;
        COORD   coordScreen = { 0, 0 };                         //here's
where we'll home the cursor
        DWORD   cCharsWritten;
        CONSOLE_SCREEN_BUFFER_INFO    csbi;          //to get buffer
info
        DWORD                                           dwConSize;
        //number of character cells in the current buffer

        hConsole = GetStdHandle(STD_OUTPUT_HANDLE);

        //get the number of character cells in the current buffer

        GetConsoleScreenBufferInfo( hConsole, &csbi );
        dwConSize = csbi.dwSize.X * csbi.dwSize.Y;

        //fill the entire screen with blanks
        FillConsoleOutputCharacter( hConsole, (TCHAR) ' ', dwConSize,
coordScreen, &cCharsWritten );
        GetConsoleScreenBufferInfo( hConsole, &csbi );

        //now set the buffer's attributes accordingly
        FillConsoleOutputAttribute( hConsole,
csbi.wAttributes,dwConSize, coordScreen, &cCharsWritten );

        //put the cursor at (0, 0)
        SetConsoleCursorPosition( hConsole, coordScreen );

        return;
}

/* FUNCTION: int RunDelivery(void)
 *
 * PURPOSE:    This function executes the main delivery executable
loop.
 *
 * ARGUMENTS:  None
 *
```

```
 * RETURNS:            int     ERR_CANNOT_OPEN_PIPE          cannot open
named pipe
 *                                    ERR_CANNOT_CREATE_THREAD
       cannot create required threads
 *                                    ERR_SUCCESS
               successfull no error
 *
 *
 * COMMENTS:   None
 *
 */

static int RunDelivery(void)
{
       SECURITY_ATTRIBUTES    sa;
       int                                    i;

       cls();

       PrintHeader();

       printf("\n<Starting Delivery Service with %d Threads.>\n",
iNumThreads);
       printf("\nPress <Ctrl>C to exit.\n");

       bDone = FALSE;
       _beginthread( CheckKey, 0, NULL );

       printf("\nWaiting for delivery pipe: ");

       while( !bDone )
       {
              AnimateWait1();
              if ( WaitNamedPipe(lpszPipeName,
NMPWAIT_USE_DEFAULT_WAIT) )
              {
                     sa.nLength                              =
sizeof(sa);
                     sa.lpSecurityDescriptor       = NULL;
                     sa.bInheritHandle             = TRUE;

                     hPipe = CreateFile(lpszPipeName, GENERIC_READ |
GENERIC_WRITE, FILE_SHARE_READ | FILE_SHARE_WRITE, NULL, OPEN_EXISTING,
                            FILE_FLAG_OVERLAPPED, NULL);
                     if ( hPipe  == INVALID_HANDLE_VALUE )
                            return ERR_CANNOT_OPEN_PIPE;
                     hComPort = CreateIoCompletionPort(hPipe, NULL,
0, 256);
                     break;
              }
              Sleep(100);
       }

       if ( !bDone )
       {
              if ( _beginthread( DeliveryHandler, 0, NULL ) == -1 )
                     return ERR_CANNOT_CREATE_THREAD;

              for(i=0; i<iNumThreads; i++)
              {
                     if ( _beginthread( DeliveryThread, 0, NULL ) ==
-1 )
                            return ERR_CANNOT_CREATE_THREAD;
              }

              printf(" \nRunning : ");

              while( !bDone )
                     AnimateWait();
       }

       return ERR_SUCCESS;
}

/* FUNCTION: void AnimateWait1(void)
 *
 * PURPOSE:    This function provides a visual indicator that the
delivery executable is waiting for
 *                     the delivery pipe to appear.
 *
 * ARGUMENTS:  None
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

static void AnimateWait1(void)
{
       const static char szStr[] = "+-|*";
       static char *ptr = (char *)szStr;

       printf("%c\x8", *ptr);
       ptr = (*(ptr+1)) ? ptr + 1 : (char *)szStr;
       Sleep(100);

       return;
}

/* FUNCTION: void AnimateWait(void)
 *
 * PURPOSE:    This function provides a visual indicator that the
delivery executable is waiting for
 *                     and processing transactions.
 *
```

```
 * ARGUMENTS:  None
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

static void AnimateWait(void)
{
        const static char szStr[] = "/-\\|/-\\|";
        static char *ptr = (char *)szStr;

        printf("%c\x8", *ptr);
        ptr = (*(ptr+1)) ? ptr + 1 : (char *)szStr;
        Sleep(100);

        return;
}


/* FUNCTION: int Init(void)
 *
 * PURPOSE:    This function prepares the delivery executable for
processing.
 *
 * ARGUMENTS:  None
 *
 * RETURNS:            int     iError          Error code if
unsuccessfull
 *                                     ERR_SUCCESS     No error
successfull code
 *
 *
 * COMMENTS:   None
 *
 */

static int Init(void)
{
        int     iError;

        InitializeCriticalSection(&WriteLogCriticalSection);
        InitializeCriticalSection(&DeliveryCriticalSection);

        fpLog   = NULL;

        if ( !(pDeliveryCache = malloc(sizeof(DELIVERY_PACKET) *
iQSlotts)) )
                return ERR_INSUFFICIENT_MEMORY;

        memset(pDeliveryCache, 0, sizeof(DELIVERY_PACKET) * iQSlotts);

        if ( (iError = ReadRegistrySettings()) )
                return iError;

        if ( (iError=OpenLogFile()) )
                return iError;

        //initialize db library for use
        dbinit();

        // install Db Library error and message handlers
        dbmsghandle((DBMSGHANDLE_PROC)msg_handler);
        dberrhandle((DBERRHANDLE_PROC)err_handler);

        return ERR_SUCCESS;
}

/* FUNCTION: void Restore(void)
 *
 * PURPOSE:    This function cleans up allocated objects to allow for
termination of the
 *                      delivery executable.
 *
 * ARGUMENTS:  None
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

static void Restore(void)
{
        int     iret, l, d;

        DeleteCriticalSection(&WriteLogCriticalSection);
        DeleteCriticalSection(&DeliveryCriticalSection);

        l = 1;
        iret = WriteFile(hPipe, &l, 1, &d, NULL);

        if ( hPipe  != INVALID_HANDLE_VALUE )
                iret = CloseHandle(hPipe);

        if ( fpLog )
                fclose(fpLog);

        fpLog = NULL;

        dbexit();

        return;
}
```

```
/* FUNCTION: void ErrorMessage(int iError)
 *
 * PURPOSE:    This function displays an error message in the delivery
executable's console window.
 *
 * ARGUMENTS:  int            iError  error id to be displayed
 *
 * RETURNS:           None
 *
 * COMMENTS:   None
 *
 */

static void ErrorMessage(int iError)
{
        int i;

        static SERRORMSG errorMsgs[] =
        {
                {       ERR_SUCCESS,
                "Success, no error."
                },
                {       ERR_CANNOT_CREATE_THREAD,
        "Cannot create thread."
                },
                {       ERR_DBGETDATA_FAILED,
        "Get data failed."
                },
                {       ERR_REGISTRY_NOT_SETUP,
                "Registry not setup for tpcc."
                },
                {       ERR_CANNOT_ACCESS_DELIVERY_FN,
        "Cannot access ReadDelivery cache."                         },
                {       ERR_CANNOT_ACCESS_REGISTRY,
        "Cannot access registry key TPCC."                          },
                {       ERR_CANNOT_CREATE_RESULTS_FILE,
        "Cannot create results file."                               },
                {       ERR_CANNOT_OPEN_PIPE,
        "Cannot open delivery pipe."                                },
                {       ERR_READ_PIPE,
                "Reading Delivery Pipe."
                },
                {       ERR_INSUFFICIENT_MEMORY,
        "Insufficient memory."
        },
                {       0,
                        ""
                                                        }
        };

        for(i=0; errorMsgs[i].szMsg[0]; i++)
        {
                if ( iError == errorMsgs[i].iError )
                {
                        printf("\nError(%d): %s", iError,
errorMsgs[i].szMsg);
                        if ( fpLog )
                        {

        EnterCriticalSection(&WriteLogCriticalSection);
                                fprintf(fpLog, "*Error(%d): %s\r\n",
iError, errorMsgs[i].szMsg);
                                if ( bFlush )
                                        fflush(fpLog);

        LeaveCriticalSection(&WriteLogCriticalSection);
                        }
                        return;
                }
        }

        printf("Error(%d): Unknown Error.");
        EnterCriticalSection(&WriteLogCriticalSection);
        fprintf(fpLog, "*Error(%d): Unknown Error.\r\n", iError);
        if ( bFlush )
                fflush(fpLog);
        LeaveCriticalSection(&WriteLogCriticalSection);

        return;
}

/* FUNCTION: BOOL GetParameters(int argc, char *argv[])
 *
 * PURPOSE:    This function parses the command line passed in to the
delivery executable, initializing
 *                     and filling in global variable parameters.
 *
 * ARGUMENTS:  int            argc    number of command line arguments
passed to delivery
 *                            char    *argv[] array of command line
argument pointers
 *
 * RETURNS:           BOOL    FALSE   parameter read successfull
 *                                    TRUE    user has requested
parameter information screen be displayed.
 *
 * COMMENTS:   None
 *
 */

static BOOL GetParameters(int argc, char *argv[])
{
        int i;


        szServer[0]           = 0;
```

```
        szPassword[0]  = 0;
        bFlush                  = FALSE;
        strcpy(szDatabase, "tpcc");
        strcpy(szUser, "sa");

        for(i=0; i<argc; i++)
        {
                if ( argv[i][0] == '-' || argv[i][0] == '/' )
                {
                        switch(argv[i][1])
                        {
                                case 'S':
                                case 's':
                                        strcpy(szServer, argv[i]+2);
                                        break;
                                case 'D':
                                case 'd':
                                        strcpy(szDatabase, argv[i]+2);
                                        break;
                                case 'U':
                                case 'u':
                                        strcpy(szUser, argv[i]+2);
                                        break;
                                case 'P':
                                case 'p':
                                        strcpy(szPassword, argv[i]+2);
                                        break;
                                case 'F':
                                case 'f':
                                        bFlush = TRUE; //turn on delilog
flush when written.
                                        break;
                                case '?':
                                        return TRUE;
                        }
                }
        }
        return FALSE;
}

/* FUNCTION: void PrintParameters(void)
 *
 * PURPOSE:    This function displays the supported command line flags.
 *
 * ARGUMENTS:  None
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

static void PrintParameters(void)
{
        PrintHeader();
        printf("DELISRV:\n\n");
        printf("Parameter
Default\n");
        printf("-------------------------------------------------------
---------------\n");
        printf("-S Server
\n");
        printf("-D Database
tpcc   \n");
        printf("-U Username
sa     \n");
        printf("-P Password
\n");
        printf("-F Flush output to delilog file when written.
OFF    \n");
        printf("-? This help screen\n\n");
        printf("Note:  Command line switches are NOT case
sensitive.\n");

        return;
}

/* FUNCTION: void PrintHeader(void)
 *
 * PURPOSE:    This function displays the delivery executable's banner
information.
 *
 * ARGUMENTS:  None
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

static void PrintHeader(void)
{
        printf("*********************************************\n");
        printf("*                                           *\n");
        printf("*  Microsoft SQL Server 6.5                 *\n");
        printf("*                                           *\n");
        printf("*  HTML TPC-C BENCHMARK KIT: Delivery Server    *\n");
        printf("*  Version %d.%2.2d.%3.3d
*\n", versionMS, versionMM, versionLS);
        printf("*                                           *\n");
        printf("*********************************************\n\n")
;

        return;
}
```

```
/* FUNCTION: int ReadRegistrySettings(void)
 *
 * PURPOSE:    This function reads the system registry filling in
required key parameters.
 *
 * ARGUMENTS:  None
 *
 * RETURNS:           int     ERR_REGISTRY_NOT_SETUP        registry
not setup tpcc.exe needs to be run
 *
                        to setup registry.
 *                                      ERR_SUCCESS
                Reqistry read Successfull, no error
 *
 *
 * COMMENTS:   None
 */

static int ReadRegistrySettings(void)
{
        HKEY    hKey;
        DWORD   size;
        DWORD   type;
        char    szTmp[256];

        if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SOFTWARE\\Microsoft\\TPCC", 0, KEY_READ, &hKey) != ERROR_SUCCESS )
                return ERR_REGISTRY_NOT_SETUP;

        size = sizeof(szTmp);

        iNumThreads = 4;
        if ( RegQueryValueEx(hKey, "NumberOfDeliveryThreads", 0, &type,
szTmp, &size) == ERROR_SUCCESS )
                iNumThreads = atoi(szTmp);
                if ( !iNumThreads )
                        iNumThreads = 4;

        iDelayMs = 1000;
        if ( RegQueryValueEx(hKey, "BackoffDelay", 0, &type, szTmp,
&size) == ERROR_SUCCESS )
                iDelayMs = atoi(szTmp);
                if ( !iDelayMs )
                        iDelayMs = 1000;

        iDeadlockRetry = 3;
        if ( RegQueryValueEx(hKey, "DeadlockRetry", 0, &type, szTmp,
&size) == ERROR_SUCCESS )
                iDeadlockRetry = atoi(szTmp);
        if ( !iDeadlockRetry )
                iDeadlockRetry = 3;

        iQSlotts = 3000;
        size = sizeof(szTmp);
        if ( RegQueryValueEx(hKey, "QueueSlotts", 0, &type, szTmp,
&size) == ERROR_SUCCESS )
                iQSlotts = atoi(szTmp);
                if ( !iQSlotts )
                        iQSlotts = 3000;

        RegCloseKey(hKey);

        return ERR_SUCCESS;
}

/* FUNCTION: void CheckKey(void *ptr)
 *
 * PURPOSE:    This function checks for a key press on the delivery
executable's console. If the
 *                      key press is a Ctrl C then the execution
termination flag variable bDone is set to
 *                      TRUE which will start the termination of the
delivery executable.
 *
 * ARGUMENTS:  void    *ptr    dummy argument passed in though thread
manager, unused NULL.
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

static void CheckKey(void *ptr)
{
        while( _getch() != CTRL_C)
                ;
        bDone = TRUE;

        return;
}

/* FUNCTION: void DeliveryHandler( void *ptr )
 *
 * PURPOSE:    This function is executed in it's own thread what it
does is to check for delivery
 *                      postings in the delivery named pipe. If any are
present then it pulls them off and
 *                      places them in the next available delivery queue
array element.
 *
 * ARGUMENTS:  void    *ptr    dummy argument passed in though thread
manager, unused NULL.
 *
 * RETURNS:            None
 *
```

```
 * COMMENTS:   None
 *
 */

static void DeliveryHandler( void *ptr )
{
        int     i;
        int     size;
        int     iError;

        while( !bDone )
        {
                for(i=0; i<iQSlotts; i++)
                {
                        if ( !pDeliveryCache[i].bInUse )
                                break;
                }
                if ( i < iQSlotts )
                {
                        EnterCriticalSection(&DeliveryCriticalSection);
                        pDeliveryCache[i].bInUse = TRUE;
                        LeaveCriticalSection(&DeliveryCriticalSection);
                }
                else
                {
                        EnterCriticalSection(&DeliveryCriticalSection);
                        if ( !(pDeliveryCache =
(LPDELIVERY_PACKET)realloc(pDeliveryCache, sizeof(DELIVERY_PACKET) *
(iQSlotts+512))) )
                        {
                                ErrorMessage(ERR_INSUFFICIENT_MEMORY);

        LeaveCriticalSection(&DeliveryCriticalSection);
                                return;
                        }
                        for(i=iQSlotts; i<iQSlotts+512; i++)
                                pDeliveryCache[i].bInUse = FALSE;
                        i = iQSlotts;
                        pDeliveryCache[i].bInUse = TRUE;
                        LeaveCriticalSection(&DeliveryCriticalSection);
                }

                pDeliveryCache[i].ov.Offset                     = i;
                pDeliveryCache[i].ov.Internal           = 0;
                pDeliveryCache[i].ov.InternalHigh       = 0;
                pDeliveryCache[i].ov.OffsetHigh                 = 1;
                pDeliveryCache[i].ov.hEvent                     = NULL;

                while( !bDone )
                {
                        if ( ReadFile(hPipe, &pDeliveryCache[i].trans,
sizeof(DELIVERY_TRANSACTION), &size, &pDeliveryCache[i].ov) )
                                break;
                        if ( bDone )
                                break;
                        iError = GetLastError();
                        if ( iError == ERROR_IO_PENDING )
                        {
                                while( pDeliveryCache[i].ov.OffsetHigh )
                                        Sleep(10);
                                break;
                        }
                        else
                        {
                                ErrorMessage(ERR_READ_PIPE);
                                return;
                        }
                }
                Sleep(1);
        }

        return;
}

/* FUNCTION: void DeliveryThread( void *ptr )
 *
 * PURPOSE:    This function is executed inside the delivery threads.
The queue array
 *                      is continuously check and if any array elements
are in use then the
 *                      array entry is read, cleared and this function
processes it.
 *
 * ARGUMENTS:  void    *ptr    dummy argument passed in though thread
manager, unused NULL.
 *
 * RETURNS:            None
 *
 * COMMENTS:   The registry key
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\TPCC
 *                              value NumberOfDeliveryThreads controls
how many of these
 *                              functions are running. The
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\TPCC
 *                              value BackoffDelay controls the amount of
time this function waits
 *                              between checks of the delivery queue.
 *
 */

static void DeliveryThread( void *ptr )
{
        int                             size;
        int                             key;
        LPOVERLAPPED    pov;
        DELIVERY                delivery;
```

```
	int				iError;

	if ( SQLOpenConnection(&delivery.dbproc, szServer, szDatabase,
szUser, szPassword, &delivery.spid) )
		return; //error posting tbd

	//while delisrv running i.e. user has not requested termination
	while( !bDone )
	{
		if ( GetQueuedCompletionStatus(hComPort, &size, &key,
&pov, (DWORD)-1) )
		{
			pov->OffsetHigh = 0;   //clear to notify delivery
handler ok to read another entry.
			//some delivery to do so process it
			memcpy(&delivery.queue, &pDeliveryCache[pov-
>Offset].trans.queue, sizeof(SYSTEMTIME));
			delivery.w_id		=
pDeliveryCache[pov->Offset].trans.w_id;
			delivery.o_carrier_id  = pDeliveryCache[pov-
>Offset].trans.o_carrier_id;

			if ( (iError=SQLDelivery(&delivery)) )
			{
				ErrorMessage(iError);
				printf("Running : ");
				continue;
			}

			//update log
			WriteLog(&delivery);

			EnterCriticalSection(&DeliveryCriticalSection);
			pDeliveryCache[pov->Offset].bInUse = FALSE;
			LeaveCriticalSection(&DeliveryCriticalSection);
		}
	}

	return;
}

/* FUNCTION: static int err_handler(DBPROCESS *dbproc, int severity,
int dberr, int oserr, char *dberrstr, char *oserrstr)
 *
 * PURPOSE:    This function handles DB-Library errors
 *
 * ARGUMENTS:  DBPROCESS		*dbproc		DBPROCESS
id pointer
 *			int			severity
		severity of error
 *			int			dberr
		error id
 *			int			oserr
		operating system specific error code
 *			char			*dberrstr
	printable error description of dberr
 *			char			*oserrstr
	printable error description of oserr
 *
 * RETURNS:		int			INT_CONTINUE
	continue if error is SQLETIME else INT_CANCEL action
 *
 * COMMENTS:   None
 *
 */

static int err_handler(DBPROCESS *dbproc, int severity, int dberr, int
oserr, char *dberrstr, char *oserrstr)
{
	if (oserr != DBNOERR)
		printf("(%d) %s", oserr, oserrstr);

	if ((dbproc == NULL) || (DBDEAD(dbproc)))
		ExitThread((unsigned long)-1);

	return INT_CONTINUE;
}

/* FUNCTION: static int msg_handler(DBPROCESS *dbproc, DBINT msgno, int
msgstate, int severity, char *msgtext)
 *
 * PURPOSE:    This function handles DB-Library SQL Server error
messages
 *
 * ARGUMENTS:  DBPROCESS		*dbproc		DBPROCESS
id pointer
 *			DBINT			msgno
	message number
 *			int			msgstate
		message state
 *			int			severity
		message severity
 *			char			*msgtext
	printable message description
 *
 * RETURNS:		int			INT_CONTINUE
	continue if error is SQLETIME else INT_CANCEL action
 *							INT_CANCEL
		cancel operation
 *
 * COMMENTS:   This function also sets the dead lock dbproc variable if
necessary.
 *
 */
```

```
static int msg_handler(DBPROCESS *dbproc, DBINT msgno, int msgstate,
int severity, char *msgtext)
{
    if ( (msgno == 5701) || (msgno == 2528) || (msgno == 5703) ||
(msgno == 6006) )
                return INT_CONTINUE;

    // deadlock message
    if (msgno == 1205)
    {
                // set the deadlock indicator
                if (dbgetuserdata(dbproc) != NULL)
                *((BOOL *) dbgetuserdata(dbproc)) = TRUE;
                else
                printf("\nError, dbgetuserdata returned NULL.\n");

                return INT_CONTINUE;

    }

        if (msgno == 0)
                return INT_CONTINUE;
        else
                printf("SQL Server Message (%ld) : %s\n", msgno,
msgtext);
        return INT_CANCEL;
}

/* FUNCTION: BOOL SQLOpenConnection(DBPROCESS **dbproc, char *server,
char *database, char *user, char *password, int *spid)
 *
 * PURPOSE:    This function opens the sql connection for use.
 *
 * ARGUMENTS:  DBPROCESS              **dbproc       pointer to
returned DBPROCESS
 *                            char                    *server        SQL
server name
 *                            char                    *database      SQL
server database
 *                            char                    *user
        user name
 *                            char                    *password
        user password
 *                            int                             *spid
        pointer to returned spid
 *
 * RETURNS:           BOOL    FALSE   if successfull
 *                                    TRUE    if an error occurs
 *
 * COMMENTS:   None
 *
 */
```

```
static BOOL SQLOpenConnection(DBPROCESS **dbproc, char *server, char
*database, char *user, char *password, int *spid)
{
        LOGINREC   *login;

        login = dblogin();
        DBSETLUSER(login, user);
        DBSETLPWD(login,  password);

        DBSETLPACKET(login, (USHORT)DEFCLPACKSIZE);

        if ((*dbproc = dbopen(login, server )) == NULL)
                return TRUE;

        // Use the the right database
        dbuse(*dbproc, database);

        dbsetuserdata(*dbproc, malloc(sizeof(BOOL)));
        *((BOOL *)dbgetuserdata(*dbproc)) = FALSE;

        dbcmd(*dbproc, "select @@spid");

        dbsqlexec(*dbproc);
        while (dbresults(*dbproc) != NO_MORE_RESULTS)
        {
                dbbind(*dbproc, 1, SMALLBIND, (DBINT) 0, (BYTE *) spid);
                while (dbnextrow(*dbproc) != NO_MORE_ROWS);
        }
        dbcmd(*dbproc, "set nocount on");

        dbsqlexec(*dbproc);
        while (dbresults(*dbproc) != NO_MORE_RESULTS)
                while (dbnextrow(*dbproc) != NO_MORE_ROWS);

        return FALSE;
}


//queue time, end time, elapsed time, w_id, o_carrier_id, o_id1, ...
o_id10
/* FUNCTION: void WriteLog(LPDELIVERY pDelivery)
 *
 * PURPOSE:    This function writes the delivery results to the
delivery log file.
 *
 * ARGUMENTS:  LPDELIVERY     pDelivery      Pointer to delivery
information.
 *
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */
```

```
static void WriteLog(LPDELIVERY pDelivery)
{
	int elapsed;

	CalculateElapsedTime(&elapsed, &pDelivery->queue, &pDelivery-
>trans_end);

	EnterCriticalSection(&WriteLogCriticalSection);

	fprintf(fpLog,
"%2.2d/%2.2d/%2.2d,%2.2d:%2.2d:%2.2d:%3.3d,%2.2d:%2.2d:%2.2d:%3.3d,%d,%
d,%d,%d,%d,%d,%d,%d,%d,%d,%d,%d,%d\r\n",
		pDelivery->trans_end.wYear - 1900, pDelivery-
>trans_end.wMonth, pDelivery->trans_end.wDay,
		pDelivery->queue.wHour, pDelivery->queue.wMinute,
pDelivery->queue.wSecond, pDelivery->queue.wMilliseconds,
		pDelivery->trans_end.wHour, pDelivery-
>trans_end.wMinute, pDelivery->trans_end.wSecond, pDelivery-
>trans_end.wMilliseconds,
		elapsed,
		pDelivery->w_id, pDelivery->o_carrier_id,
		pDelivery->o_id[0], pDelivery->o_id[1], pDelivery-
>o_id[2], pDelivery->o_id[3],
		pDelivery->o_id[4], pDelivery->o_id[5], pDelivery-
>o_id[6], pDelivery->o_id[7],
		pDelivery->o_id[8], pDelivery->o_id[9] );

	if ( bFlush )
		fflush(fpLog);

	LeaveCriticalSection(&WriteLogCriticalSection);

	return;
}

/* FUNCTION: void CalculateElapsedTime(int *pElapsed, LPSYSTEMTIME
lpBegin, LPSYSTEMTIME lpEnd)
 *
 * PURPOSE:    This function calculates the elapsed time a delivery
transaction took.
 *
 * ARGUMENTS:  int                         *pElapsed      pointer to
int variable to receive calculated elapsed
 *
		time in milliseconds.
 *                      LPSYSTEMTIME   lpBegin        Pointer to
system time structure containing
 *
		transaction beginning time.
 *                      LPSYSTEMTIME   lpEnd          Pointer to
system time structure containing
 *
		transaction ending time.
 * RETURNS:            None
 *
 * COMMENTS:   None
 *
 */

static void CalculateElapsedTime(int *pElapsed, LPSYSTEMTIME lpBegin,
LPSYSTEMTIME lpEnd)
{
	int		beginSeconds;
	int		endSeconds;


	beginSeconds = (lpBegin->wHour * 3600000) + (lpBegin->wMinute *
60000) + (lpBegin->wSecond * 1000) + lpBegin->wMilliseconds;
	endSeconds = (lpEnd->wHour * 3600000) + (lpEnd->wMinute *
60000) + (lpEnd->wSecond * 1000) + lpEnd->wMilliseconds;
	*pElapsed = endSeconds - beginSeconds;

	//check for day boundry, this will function for 24 hour period
however it will not work over 48 hours.
	if ( *pElapsed < 0 )
		*pElapsed = *pElapsed + (24 * 60 * 60 * 1000);

	return;
}

/* FUNCTION: int SQLDelivery(DELIVERY *pDelivery)
 *
 * PURPOSE:    This function processes the delivery transaction.
 *
 * ARGUMENTS:  DELIVERY              *pDelivery             Pointer to
delivery transaction structure
 *
 * RETURNS:            int     ERR_DBGETDATA_FAILED          Delivery
get data operation failed.
 *                                  ERR_SUCCESS
		Delivery successfull, no error
 *
 *
 * COMMENTS:   None
 *
 */

static int SQLDelivery(DELIVERY *pDelivery)
{
	RETCODE rc;
	int		i;
	int		deadlock_count;
	BYTE	*pData;
```

```
	deadlock_count = 0;


	// Start new delivery
	while ( TRUE )
	{
		if (dbrpcinit(pDelivery->dbproc, "tpcc_delivery", 0) ==
SUCCEED)
		{
			dbrpcparam(pDelivery->dbproc, NULL, 0, SQLINT2,
-1, -1, (BYTE *)&pDelivery->w_id);
			dbrpcparam(pDelivery->dbproc, NULL, 0, SQLINT1,
-1, -1, (BYTE *) &pDelivery->o_carrier_id);

			if (dbrpcexec(pDelivery->dbproc) == SUCCEED)
			{
				while (((rc = dbresults(pDelivery-
>dbproc)) != NO_MORE_RESULTS) && (rc != FAIL))
				{
					while (((rc =
dbnextrow(pDelivery->dbproc)) != NO_MORE_ROWS) && (rc != FAIL))
					{
						for (i=0;i<10;i++)
						{

	if(pData=dbdata(pDelivery->dbproc, i+1))
								pDelivery-
>o_id[i] = *((DBINT *)pData);
						else
								pDelivery-
>o_id[i] = 0;
						}
					}
				}
			}
		}
		if ( !SQLDetectDeadlock(pDelivery->dbproc) )
			break;
		deadlock_count++;
		Sleep(10 * deadlock_count);
	}
	GetLocalTime(&pDelivery->trans_end);

	return ERR_SUCCESS;
}

/* FUNCTION: BOOL SQLDetectDeadlock(DBPROCESS *dbproc)
 *
 * PURPOSE:    This function is used to check for deadlock conditions.
 *
 * ARGUMENTS:  DBPROCESS              *dbproc        DBPROCESS to check
 *
 * RETURNS:            BOOL    FALSE                          No lock
condition present
 *                                                    TRUE
 *      Lock condition detected
 *
 * COMMENTS:   None
 *
 */

static BOOL SQLDetectDeadlock(DBPROCESS *dbproc)
{
	if (*((BOOL *) dbgetuserdata(dbproc)) == TRUE)
    {
		*((BOOL *) dbgetuserdata(dbproc)) = FALSE;
		return TRUE;
	}
	return FALSE;
}

/* FUNCTION: int OpenLogFile(void)
 *
 * PURPOSE:    This function opens the delivery log file for use.
 *
 * ARGUMENTS:  None
 *
 * RETURNS:            int     ERR_REGISTRY_NOT_SETUP
 *      Registry not setup.
 *                                    ERR_CANNOT_CREATE_RESULTS_FILE
 *      Cannot create results log file.
 *                                    ERR_SUCCESS
 *                    Log file successfully opened
 *
 *
 * COMMENTS:   None
 *
 */

static int OpenLogFile(void)
{
	HKEY	hKey;
	BOOL	bRc;
	BYTE	szTmp[256];
	char	szKey[256];
	char	szLogPath[256];
	DWORD	size;
	DWORD	sv;
	int		len;
	char	*ptr;

	szLogPath[0] =  0;
	bRc = TRUE;
```

```
        if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Parameters\\Virtual
Roots", 0, KEY_ALL_ACCESS, &hKey) == ERROR_SUCCESS )
        {
                sv = sizeof(szKey);
                size = sizeof(szTmp);

                if ( RegEnumValue(hKey, 0, szKey, &sv, NULL, NULL,
szTmp, &size) == ERROR_SUCCESS )
                {
                        strcpy(szLogPath, szTmp);
                        bRc = FALSE;
                }
                RegCloseKey(hKey);
        }

        if ( bRc )
                return ERR_REGISTRY_NOT_SETUP;

        if ( (ptr = strchr(szLogPath, ',')) )
                *ptr = 0;

        len = strlen(szLogPath);
        if ( szLogPath[len-1] != '\\' )
        {
                szLogPath[len] = '\\';
                szLogPath[len+1] = 0;
        }
        strcat(szLogPath, "delilog.");

        fpLog = fopen(szLogPath, "ab");

        if ( !fpLog )
                return ERR_CANNOT_CREATE_RESULTS_FILE;

        return ERR_SUCCESS;
}

/* FILE: TPCC.C
* Microsoft TPC-C Kit Ver.3.00.000
* Audited 08/23/96By Francois Raab
*
* Copyright Microsoft, 1996
*
* PURPOSE: Main module for TPCC.DLL which is an ISAPI service dll.
* Author: Philip Durr
* philipdu@ Microsoft.com
*/
#include <windows.h>
#include <process.h>
#include <stdio.h>
#include <stdarg.h>
#include <malloc.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <io.h>
#include <fcntl.h>
#include "trans.h"   // tpckit transaction header contains defination
of structures specific to TPC-C
#include "httpext.h"// ISAPI DLL information header
#include "tpcc.h"    // this dlls specific structure, value e.t.header.
#include "sqlroutines.h"// the header files for the SQL routines
#include "util.h"
#include "error.h"
#include "pipe_routines.h"

#ifdef USE_ODBC
HENVhenv;
#endif

char szServer[32]={ 0 }; // global variables used with this DLL
char szUser[32]={ 0 };
char szPassword[32]={ 0 };
char szDatabase[32]="tpcc";
BOOL bLog=FALSE;
int iThreads=5;
int iMaxWareHouses=500;
int iQSlotts=3000;
int iDelayMs=100;
int iConnectDelay=500;
short iDeadlockRetry=(short) 3;
short iMaxConnections =(short) 25;

#ifdef USE_ODBC
int bConnectionPooling = FALSE;
#endif

// allowable client command strings i.e.CMD= command
char *szCmds[] =
{
    "..NewOrder..", "..Payment..", "..Delivery..", "..Order-Status..",
"..Stock-Level..", "..Exit..",
    "Submit", "Begin", "Process", "Menu", "Clear", "Users", ""
};
// defined command string functions, called via CMD= command http
string from html client.
void (*DoCmd[])(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iId,
int iSyncId) =
{
    NewOrderForm,
    PaymentForm,
    DeliveryForm,
    OrderStatusForm,
    StockLevelForm,
```

```
    Exitcmd,
    SubmitCmd,
    BeginCmd,
    ProcessCmd,
    MenuCmd,
    ClearCmd,
    NumberOfConnectionsCmd
};
// Terminal client id structure and interface defination
TERM Term = { 0, 0, 0, FALSE, NULL, TermInit, TermAllocate,
TermRestore, TermAdd, TermDelete };
// welcome to tpc-c html form buffer, this is first form client sees.
static char *szWelcomeForm ="<HTML>"
    "<HEAD><TITLE>Welcome To TPC-C</TITLE></HEAD><BODY>"
    "Please Identify your Warehouse and District for this session.<BR>"
    "<FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">"
    "<INPUT TYPE=\"hidden\"NAME=\"STATUSID\"VALUE=\"0\">"
    "<INPUT TYPE=\"hidden\"NAME=\"FORMID\"VALUE=\"1\">"
    "<INPUT TYPE=\"hidden\"NAME=\"TERMID\"VALUE=\"-2\">"
    "<INPUT TYPE=\"hidden\"NAME=\"SYNCID\"VALUE=\"0\">"
    "Warehouse ID <INPUT NAME=\"w_id\"SIZE=4><BR>"
    "District ID <INPUT NAME=\"d_id\"SIZE=2><BR>"
    "<HR>"
    "<INPUT TYPE=\"submit\"NAME=\"CMD\"VALUE=\"Submit\">"
    "</FORM><BODY>"
    "</HTML>";
static char szTpccLogPath[256]; // path to html log file if logging
turned on in registry.
char szErrorLogPath[256]; // path to error log file.
static CRITICAL_SECTION CriticalSection;
static LPTSTR lpszPipeName=TEXT("\\\\.\\pipe\\DELISRV");
static HANDLE hDeliveryWrite=INVALID_HANDLE_VALUE;
static HANDLE hPipe=INVALID_HANDLE_VALUE;
EXTENSION_CONTROL_BLOCK *gpECB;
static int bTpccExit; // exit delivery disconnect loop as dll exiting.

extern int ThreadCount;

/* FUNCTION: BOOL APIENTRY DllMain(HANDLE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
*
* PURPOSE: This function is the entry point for the DLL this
implementation is baised on the
* fact that DLL_PROCESS_ATTACH is only called from the inet service
once.Connections
* are sent to this function as thread attachments.
*
* ARGUMENTS: HANDLEhModulemodule handle
* DWORDul_reason_for_callreason for call
* LPVOIDlpReservedreserved for future use
*
* RETURNS: BOOLFALSEerrors occured in initialization
* TRUEDLL successfully initialized
*
* COMMENTS: None
*
*/
BOOL APIENTRY DllMain(HANDLE hModule, DWORD ul_reason_for_call, LPVOID
lpReserved)
{
    static SECURITY_ATTRIBUTES sa;
    static PSECURITY_DESCRIPTOR pSD;
    int i = 0;

// Trace("maindll reason for call %d\n", (int)ul_reason_for_call);
    switch(ul_reason_for_call)
    {
    case DLL_PROCESS_ATTACH:

#ifdef _DEBUG
            {
          freopen("\\temp\\tpcc.log", "a", stderr);
          setbuf(stderr, NULL);
          Trace("logging started\n");
         }
#endif
             Trace("process attach %d\n", ThreadCount);
        if (ReadRegistrySettings())
        {
            MessageBox(NULL, "Cannot Find TPCC Key in registry (run
install.exe).", "Init", MB_OK | MB_ICONSTOP);
            return FALSE;
        }
        InitializeCriticalSection(&CriticalSection);
        (*Term.Init)();
        if (!(*Term.Allocate)())
        {
            MessageBox(NULL, "Error Trm.Allocate().", "Init", MB_OK |
MB_ICONSTOP);
            return FALSE;
        }
        for(i=Term.iNext; i<Term.iAvailable; i++)
        Term.pClientData[i].inUse = 0;
        Term.pClientData[0].inUse = 1;
        // create a security descriptor that allows anyone to access
the pipe...
        pSD = (PSECURITY_DESCRIPTOR)
malloc(SECURITY_DESCRIPTOR_MIN_LENGTH);
        if (pSD == NULL)
        {
            MessageBox(NULL, "Error
malloc(SECURITY_DESCRIPTOR_MIN_LENGTH)", "Init", MB_OK | MB_ICONSTOP);
            return FALSE;
        }
        if (!InitializeSecurityDescriptor(pSD,
SECURITY_DESCRIPTOR_REVISION))
```

```
        {
            MessageBox(NULL, "Error InitializeSecurityDescriptor()",
"Init", MB_OK | MB_ICONSTOP);
            return FALSE;
        }
        // add a NULL disc.ACL to the security descriptor.
        if (!SetSecurityDescriptorDacl(pSD, TRUE, (PACL) NULL, FALSE))
        {
            MessageBox(NULL, "Error SetSecurityDescriptorDacl().",
"Init", MB_OK | MB_ICONSTOP);
            return FALSE;
        }
        sa.nLength=sizeof(sa);
        sa.lpSecurityDescriptor=pSD;
        sa.bInheritHandle=TRUE;
        // open delivery named pipe...
        hPipe = CreateNamedPipe(lpszPipeName,
            FILE_FLAG_OVERLAPPED | PIPE_ACCESS_DUPLEX,
            PIPE_TYPE_BYTE | PIPE_READMODE_BYTE | PIPE_NOWAIT,
            1, 65535, 65535, 250, &sa);
        if (hPipe == INVALID_HANDLE_VALUE)
        {
            MessageBox(NULL, "Error CreateNamedPipe().", "Init", MB_OK
| MB_ICONSTOP);
            free(pSD);
            return FALSE;
        }
        bTpccExit = FALSE;
        if (_beginthread(DeliveryDisconnect, 0, NULL) == -1)
        {
            MessageBox(NULL, "Error _beginthread()", "Init", MB_OK |
MB_ICONSTOP);
            return FALSE;
        }
        if (!SQLInit())
            return FALSE;
    break;
    case DLL_THREAD_ATTACH:

             Trace("thread attach %d\n", ThreadCount);

         if (!SQLThreadAttach())
                          return FALSE;
    break;
    case DLL_THREAD_DETACH:

             Trace( "thread %d\n", ThreadCount);

         if (!SQLThreadDetach())
                                  return FALSE;
    break;
    case DLL_PROCESS_DETACH:

             Trace( "process detach %d\n", ThreadCount);

        if (pSD)
            free(pSD);
        bTpccExit = TRUE;
        if (hPipe)
            DisconnectNamedPipe(hPipe);
        if (hPipe != INVALID_HANDLE_VALUE)
            CloseHandle(hPipe);
        (*Term.Restore)();
        SQLCleanup();
        DeleteCriticalSection(&CriticalSection);

    break;
    }
    return TRUE;
}

/* FUNCTION: void DeliveryDisconnect(void *ptr)
*
* PURPOSE: This function handles disconnecting the server side of the
delivery pipe when the
* delivery handler application shuts down.
*
* ARGUMENTS: void* ptrvoid pointer normally NULL passed from thread
handler.
*
* RETURNS: None
*
* COMMENTS: This function runs as thread which allows the client pipe
to disconnect by
* sending a byte back though the pipe to the server i.e.this DLL.
*/
static void DeliveryDisconnect(void *ptr)
{
    int l, d;
    SECURITY_ATTRIBUTES sa;
    PSECURITY_DESCRIPTOR pSD;
    // create a security descriptor that allows anyone to access the
pipe...

    pSD = (PSECURITY_DESCRIPTOR)
malloc(SECURITY_DESCRIPTOR_MIN_LENGTH);
    InitializeSecurityDescriptor(pSD, SECURITY_DESCRIPTOR_REVISION);
    SetSecurityDescriptorDacl(pSD, TRUE, (PACL) NULL, FALSE);
    sa.nLength=sizeof(sa);
    sa.lpSecurityDescriptor=pSD;
    sa.bInheritHandle=TRUE;
    while(!bTpccExit)
    {
        if (hPipe && ReadFile(hPipe, &l, 1, &d, NULL))
        {
            DisconnectNamedPipe(hPipe);
```

```
            CloseHandle(hPipe);
            // open delivery named pipe...
            hPipe = CreateNamedPipe(lpszPipeName,
                FILE_FLAG_OVERLAPPED | PIPE_ACCESS_DUPLEX,
                PIPE_TYPE_BYTE | PIPE_READMODE_BYTE | PIPE_NOWAIT,
                1, 65535, 65535, 250, &sa);
        }
        Sleep(2000); // check for delivery application exit once every
2 seconds.
    }
    free(pSD);
    return;
}

/* FUNCTION: BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer)
*
* PURPOSE: This function is called by the inet service when the DLL is
first loaded.
*
* ARGUMENTS: HSE_VERSION_INFO* pVerpassed in structure in   which to
place expected version number.
*
* RETURNS: TRUEinet service expected return value.
*
* COMMENTS: None
*
*/
BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer)
{
    pVer->dwExtensionVersion = MAKELONG(HSE_VERSION_MINOR,
HSE_VERSION_MAJOR);
    lstrcpyn(pVer->lpszExtensionDesc, "TPC-C Server.",
HSE_MAX_EXT_DLL_NAME_LEN);
    return TRUE;
}

/* FUNCTION: DWORD WINAPI HttpExtensionProc(EXTENSION_CONTROL_BLOCK
*pECB)
*
* PURPOSE: This function is the main entry point for the TPCC DLL.The
internet service
* calls this function passing in the http string.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed
in internet
* service information.
*
* RETURNS: DWORDHSE_STATUS_SUCCESSconnection can be dropped if error
* HSE_STATUS_SUCCESS_AND_KEEP_CONNkeep connect valid comment sent
*
* COMMENTS: None
*
*/
DWORD WINAPI HttpExtensionProc(EXTENSION_CONTROL_BLOCK *pECB)
{
    int iCmd, FormId, TermId, iSyncId;
    FILE *fp;

Trace("check Http Thread %d Termid %d\n", ThreadCount,TermId);

    if (iMaxConnections == -1)
    {
        ErrorMessage(pECB, ERR_CAN_NOT_SET_MAX_CONNECTIONS,
ERR_TYPE_WEBDLL, NULL, -1, -1);
        return HSE_STATUS_SUCCESS;
    }
    // if registry setting is for html logging then show http string
passed in.
    if (bLog)
    {
        SYSTEMTIME systemTime;
        fp = fopen(szTpccLogPath, "ab");
        GetLocalTime(&systemTime);
        fprintf(fp, "* QUERY * %2.2d/%2.2d/%2.2d
%2.2d:%2.2d:%2.2d\r\n\r\n%s\r\n\r\n",
        systemTime.wYear, systemTime.wMonth, systemTime.wDay,
        systemTime.wHour, systemTime.wMinute, systemTime.wSecond, pECB-
>lpszQueryString);
        fclose(fp);
    }
    // process http query
    if (!ProcessQueryString(pECB, &iCmd, &FormId, &TermId, &iSyncId))
    {
    if (TermId < 0)
        ErrorMessage(pECB, ERR_INVALID_TERMID, ERR_TYPE_WEBDLL, NULL,
TermId, iSyncId);
    else
        ErrorMessage(pECB, ERR_COMMAND_UNDEFINED, ERR_TYPE_WEBDLL,
NULL, TermId, iSyncId);
    return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
    }
    if (TermId != 0)
    {
        if (!IsValidTermId(TermId))
        {
            ErrorMessage(pECB, ERR_INVALID_TERMID, ERR_TYPE_WEBDLL,
NULL, TermId, iSyncId);
            return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
        }
        // must have a valid syncid here since termid is valid
        if (iSyncId <1 || iSyncId != Term.pClientData[TermId].iSyncId)
        {
            ErrorMessage(pECB, ERR_INVALID_SYNC_CONNECTION,
ERR_TYPE_WEBDLL, NULL, TermId, iSyncId);
            return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
        }
```

```
    }
    // set use time
    Term.pClientData[TermId].iTickCount = GetTickCount();
    // go execute http: command
    (*DoCmd[iCmd])(pECB, FormId, TermId, iSyncId);
    // finish up and keep connection
    return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}

/* FUNCTION: static BOOL IsValidTermId(int TermId)
*
* PURPOSE: This function checks to see of the passed in terminal id is
valid.
*
* ARGUMENTS: intTermIdclient terminal id
*
* RETURNS: BOOLFALSETerminal ID Invalid
* TRUETerminal ID valid
*
* COMMENTS: None
*
*/
BOOL IsValidTermId(int TermId)
{
    return (BOOL) (TermId > 0 && TermId <= Term.iAvailable &&
Term.pClientData[TermId].inUse);
}

/* FUNCTION: BOOL ProcessQueryString(EXTENSION_CONTROL_BLOCK *pECB, int
*pCmd, int *pFormId, int *pTermId, int *pSyncId)
*
* PURPOSE: This function extracts the relevent information out of the
http command passed in from
* the browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed
in internet
* service information.
* int* pCmdreturned command id
* int* pFormIdreturned active form client browser is on
* int* pTermIdreturned client terminal id
*
* RETURNS: BOOLFALSEsuccess
* TRUEcommand passed in is invalid
*
* COMMENTS: If this is the initial connection i.e.client is at welcome
screen then
* there will not be a terminal id or current form id if this is the
case
* then the pTermid and pFormid return values are undefined.
*/
BOOL ProcessQueryString(EXTENSION_CONTROL_BLOCK *pECB, int *pCmd, int
*pFormId, int *pTermId, int *pSyncId)
{
    char *ptr;
    char szBuffer[25];
    char szTmp[25];
    char *dest = szBuffer;
    int i;

    if ((ptr = strstr(pECB->lpszQueryString, "FORMID=")))
        *pFormId = *(ptr+7) & 0x0F;
    if ((ptr = strstr(pECB->lpszQueryString, "TERMID=")))
    {
        *pTermId = atoi((ptr+7));
        if (*pTermId == 0)  // terminal id 0 used internally
            *pTermId = -1;
        if (*pTermId == -2) // login screen
            *pTermId = 0;
    }
    else
        *pTermId = 0;

    if ((ptr = strstr(pECB->lpszQueryString, "SYNCID=")))
        *pSyncId = atoi((ptr+7));
    else
        *pSyncId = 0;

    if (!(ptr = strstr(pECB->lpszQueryString, "CMD=")))
    {
        ptr = szBuffer;
        if (!stricmp(szBuffer, "Default"))
        strcpy(szBuffer, "CMD=Begin");
        switch(*pFormId)
        {
            case WELCOME_FORM:
                strcpy(szBuffer, "CMD=Submit");
                break;
            case MAIN_MENU_FORM:
                strcpy(szBuffer, "CMD=NewOrder");
                break;
            case NEW_ORDER_FORM:
            case PAYMENT_FORM:
            case DELIVERY_FORM:
            case ORDER_STATUS_FORM:
            case STOCK_LEVEL_FORM:
                if (!(*pTermId))
                    return FALSE;
                if (GetKeyValue(pECB->lpszQueryString, "PI*", szTmp,
sizeof(szTmp)))
                    strcpy(szBuffer, "CMD=Process");
                else
                {
                    strcpy(szBuffer, "CMD=");
                    strcat(szBuffer, szCmds[*pFormId -
NEW_ORDER_FORM]);
```

```
                }
                break;
            default:
                return FALSE;
        }
    }
    ptr += 4;
    while(*ptr && *ptr != '&')
    *dest++ = *ptr++;
    *dest = 0;
    for(i= 0; szCmds[i][0]; i++)
    {
        if (!strcmp(szCmds[i], szBuffer))
        {
            *pCmd = i;
            return TRUE;
        }
    }
    return FALSE;
}

/* FUNCTION: void NewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId, int iSyncId)
*
* PURPOSE: This function wraps the functionality needed for the TPC-C
New Order Form.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
*
* RETURNS: None
*
* COMMENTS: None
*
*/
void NewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId)
{
    WriteZString(pECB, MakeNewOrderForm(iTermId, iSyncId, TRUE,
FALSE));
    UNUSEDPARAM(iFormId);
    return;
}

/* FUNCTION: void PaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId, int iSyncId)
*
* PURPOSE: This function wraps the functionality needed for the TPC-C
Payment Form.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: None
*
*/
void PaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId)
{
    WriteZString(pECB, MakePaymentForm(iTermId, iSyncId, TRUE));
    UNUSEDPARAM(iFormId);
}

/* FUNCTION: void DeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId, int iSyncId)
*
* PURPOSE: This function wraps the functionality needed for the TPC-C
Delivery Form.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: None
*
*/
void DeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId)
{
    WriteZString(pECB, MakeDeliveryForm(iTermId, iSyncId, TRUE, TRUE));
    UNUSEDPARAM(iFormId);
}

/* FUNCTION: void OrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId, int iSyncId)
*
* PURPOSE: This function wraps the functionality needed for the TPC-C
Order Status Form.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling borwser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: None
```

```
*
*/
void OrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId)
{
    WriteZString(pECB, MakeOrderStatusForm(iTermId, iSyncId, TRUE));
    UNUSEDPARAM(iFormId);
}

/* FUNCTION: void StockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId, int iSyncId)
*
* PURPOSE: This function wraps the functionality needed for the TPC-C
Stock Level Form.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: None
*
*/
void StockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId)
{
    WriteZString(pECB, MakeStockLevelForm(iTermId, iSyncId, TRUE));
    return;
}

/* FUNCTION: void Exitcmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId,
int iTermId, int iSyncId)
*
* PURPOSE: This function removes a terminal id from use, the allocated
structure however remains
* valid so the next request for a new client will not require a new
memory allocation.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: None
*
*/
void Exitcmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId)
{
    (*Term.Delete)(pECB, iTermId);
    WriteZString(pECB, MakeWelcomeForm());
    UNUSEDPARAM(iFormId);
    UNUSEDPARAM(iSyncId);
    return;
}

/* FUNCTION: void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId,
int iTermId, int iSyncId)
*
* PURPOSE: This function allocated a new terminal id in the Term
structure array.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: A terminal id can be allocated but still be invalid if the
requested warehouse number
* is outside the range specified in the registry.This then will force
the client id
* to be invalid and an error message sent to the users browser.
*/
void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId)
{
    int iCurrent;

    if ((iCurrent = (*Term.Add)(pECB, pECB->lpszQueryString)) <0)
    {
        ErrorMessage(pECB, ERR_CANNOT_INIT_TERMINAL, ERR_TYPE_WEBDLL,
NULL, iCurrent, iSyncId);
        return;
    }
    if (Term.pClientData[iCurrent].w_id > iMaxWareHouses ||
Term.pClientData[iCurrent].w_id <1)
    {
        ErrorMessage(pECB, ERR_W_ID_INVALID, ERR_TYPE_WEBDLL, NULL,
iCurrent, iSyncId);
        (*Term.Delete)(pECB, iCurrent);
        return;
    }
    if (Term.pClientData[iCurrent].d_id <1 ||
Term.pClientData[iCurrent].d_id > 10)
    {
        ErrorMessage(pECB, ERR_D_ID_INVALID, ERR_TYPE_WEBDLL, NULL,
iCurrent, iSyncId);
        (*Term.Delete)(pECB, iCurrent);
        return;
    }
```

```
    WriteZString(pECB, MakeMainMenuForm(iCurrent,
Term.pClientData[iCurrent].iSyncId));
    return;
}

/* FUNCTION: void BeginCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId,
int iTermId, int iSyncId)
*
* PURPOSE: This function is the first command executed.It is executed
with the command
* CMD=Begin? Server=xxx from the http command line.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: SQL server must be specified, however the user and password
parameters are optional.
* The complete command line is CMD=
Begin&Server=server&User=sa&Psw=&.The & are used
* to separate parameters which is internet browser standard.
*/
void BeginCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId)
{
    LPSTR pQueryString;

    pQueryString = pECB->lpszQueryString;
    if (!GetKeyValue(pQueryString, "Server", szServer,
sizeof(szServer)))
    {
        ErrorMessage(pECB, ERR_NO_SERVER_SPECIFIED, ERR_TYPE_WEBDLL,
NULL, iTermId, iSyncId);
        return;
    }
    if (!GetKeyValue(pQueryString, "User", szUser, sizeof(szUser)))
        strcpy(szUser, "sa");
    if (!GetKeyValue(pQueryString, "Psw", szPassword,
sizeof(szPassword)))
        strcpy(szPassword, "");
    if (!GetKeyValue(pQueryString, "Db", szDatabase,
sizeof(szDatabase)))
        strcpy(szDatabase, "tpcc");
    WriteZString(pECB, MakeWelcomeForm());
    UNUSEDPARAM(iFormId);
    return;
}

/* FUNCTION: void ProcessCmd(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId, int iSyncId)
*
* PURPOSE: This function process the passed in http command
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: None
*
*/
void ProcessCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int
iTermId, int iSyncId)
{
    switch(iFormId)
    {
        case WELCOME_FORM:
            return;
        case MAIN_MENU_FORM:
            return;
        case NEW_ORDER_FORM:
            ProcessNewOrderForm(pECB, iTermId, iSyncId);
            return;
        case PAYMENT_FORM:
            ProcessPaymentForm(pECB, iTermId, iSyncId);
            return;
        case DELIVERY_FORM:
            ProcessDeliveryForm(pECB, iTermId, iSyncId);
            return;
        case ORDER_STATUS_FORM:
            ProcessOrderStatusForm(pECB, iTermId, iSyncId);
            return;
        case STOCK_LEVEL_FORM:
            ProcessStockLevelForm(pECB, iTermId, iSyncId);
            return;
    }
}

/* FUNCTION: void ClearCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId,
int iTermId, int iSyncId)
*
* PURPOSE: This function frees all currently logged in terminal ids.
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
```

```
* COMMENTS: Use this function with caution, it may cause unpredictable
results
* if existing browsers attempt to use the web client with out
* beginning at the login screen for each client.
*/
void ClearCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId)
{
    int i;

    EnterCriticalSection(&CriticalSection);
    for(i= 0; i<Term.iAvailable; i++)
    {
        if (Term.pClientData[i].inUse)
            (*Term.Delete)(pECB, i);
    }
    Term.iNext=0;
    Term.iAvailable=0;
    Term.iMasterSyncId=1;
    if (Term.pClientData)
        free(Term.pClientData);
    Term.pClientData=NULL;
    Term.bInit=FALSE;
    (*Term.Init)();
    if (!(*Term.Allocate)())
    {
        ErrorMessage(pECB, ERR_MAX_CONNECT_PARAM, ERR_TYPE_WEBDLL,
NULL, iTermId, iSyncId);
        return;
    }
    for(i=Term.iNext; i<Term.iAvailable; i++)
        Term.pClientData[i].inUse = 0;
    Term.pClientData[0].inUse = 1;
    LeaveCriticalSection(&CriticalSection);
    WriteZString(pECB, MakeWelcomeForm());
    return;
}

/* FUNCTION: void MenuCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId,
int iTermId, int iSyncId)
*
* PURPOSE: This function causes an exit to the main menu
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: None
*
*/
void MenuCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId, int iTermId,
int iSyncId)
{
    WriteZString(pECB, MakeMainMenuForm(iTermId, iSyncId));
    return;
}

/* FUNCTION: void NumberOfConnectionsCmd(EXTENSION_CONTROL_BLOCK *pECB,
int iFormId, int iTermId, int iSyncId)
*
* PURPOSE: This function returns to the browser the total number of
active terminal ids
*
* ARGUMENTS: intiFormIdunused
* intiTermIdid of calling browser, i.e.TERMID= from http command line
* intiSyncIdsync id of calling browser
* EXTENSION_CONTROL_BLOCK* pECBstructure pointer to passed in internet
* service information.
* RETURNS: None
*
* COMMENTS: None
*/
void NumberOfConnectionsCmd(EXTENSION_CONTROL_BLOCK *pECB, int iFormId,
int iTermId, int iSyncId)
{
    int i;
    int iTotal;

    // EnterCriticalSection(&CriticalSection);
    iTotal = 0;
    for(i=0; i<Term.iAvailable; i++)
    {
        if (Term.pClientData[i].inUse)
            iTotal++;
    }
    // LeaveCriticalSection(&CriticalSection);
    h_printf(pECB, "Total Active Connections: %d", iTotal);
    return;
}

/* FUNCTION: void WriteZString(EXTENSION_CONTROL_BLOCK *pECB, char
*szStr)
*
* PURPOSE: This function is the low level output function.It writes a
string of text back to the
* client browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* char* szStrstring to display in the client browser.
*
* RETURNS: None
*
```

```
* COMMENTS: This function assumes that the string to written to the
client browser has
* been formatted in an HTML manner.
*/
void WriteZString(EXTENSION_CONTROL_BLOCK *pECB, char *szStr)
{
    FILE *fp;
    int lpbSize;
    int iSize;
    char szHeader[128];
    char szHeader1[128];

    lpbSize = strlen(szStr)+1;
    if (bLog)
    {
        SYSTEMTIME systemTime;
        fp = fopen(szTpccLogPath, "ab");
        GetLocalTime(&systemTime);
        fprintf(fp, "* HTML PAGE * %2.2d/%2.2d/%2.2d
%2.2d:%2.2d:%2.2d\r\n\r\n%s\r\n\r\n",
            systemTime.wYear, systemTime.wMonth, systemTime.wDay,
            systemTime.wHour, systemTime.wMinute, systemTime.wSecond,
szStr);
        fclose(fp);
    }
    iSize = sprintf(szHeader, "200 Ok");
    sprintf(szHeader1, "Connection: keep-alive\r\nContent-type:
text/html\r\nContent-length: %d\r\n\r\n", lpbSize);
    (*pECB->ServerSupportFunction)(pECB->ConnID,
HSE_REQ_SEND_RESPONSE_HEADER, szHeader, &iSize, (LPDWORD) szHeader1);
    (*pECB->WriteClient)(pECB->ConnID, szStr, &lpbSize, 0);
    return;
}

/* FUNCTION: void h_printf(EXTENSION_CONTROL_BLOCK *pECB, char *format,
...)
*
* PURPOSE: This function forms a high level printf for an HTML browser
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* char* formatprintf style format string
* ...other arguments as required by printf style format string.
*
* RETURNS: None
*
* COMMENTS: This function is mainly used for developmental support.
*/
static void h_printf(EXTENSION_CONTROL_BLOCK *pECB, char *format, ...)
{
    char szBuff[512];
    char szTmp[512];
    va_list marker;

    va_start(marker, format);
    vsprintf(szTmp, format, marker);
    va_end(marker);
    wsprintf(szBuff, "<html>%s</html>", szTmp) + 1;
    WriteZString(pECB, szBuff);
    return;
}

/* FUNCTION: BOOL GetKeyValue(char *pQueryString, char *pKey, char
*pValue, int iMax)
*
* PURPOSE: This function parses a http formatted string for specific
key values.
*
* ARGUMENTS: char* pQueryStringhttp string from client browser
* char* pKeykey value to look for
* char* pValuecharacter array into which to place key's value
* intiMaxmaximum length of key value array.
*
* RETURNS: BOOLFALSEkey value not found
* TRUEkey valud found
*
*
* COMMENTS: http keys are formatted either KEY=value& or
KEY=value\0.This DLL formats
* TPC-C input fields in such a manner that the keys can be extracted in
the
* above manner.
*/
static BOOL GetKeyValue(char *pQueryString, char *pKey, char *pValue,
int iMax)
{
    char *ptr;

    if (!(ptr=strstr(pQueryString, pKey)))
        return FALSE;
    if (!(ptr=strchr(ptr, '=')))
        return FALSE;
    ptr++;
    iMax--;
    while(*ptr && *ptr != '&' && iMax)
    {
        *pValue++ = *ptr++;
        iMax--;
    }
    *pValue = 0;
    return TRUE;
}

/* FUNCTION: void TermInit(void)
*
```

```
* PURPOSE: This function initializes the client ternimal structure it
is called when the TPCC.DLL
* is first loaded by the inet service.
*
* ARGUMENTS: none
*
* RETURNS: None
*
* COMMENTS: None
*
*/
static void TermInit(void)
{
    if (Term.bInit)
    return;
    Term.iNext=0;
    Term.iMasterSyncId=1;
    Term.iAvailable=0;
    Term.pClientData=NULL;
    Term.bInit=TRUE;
    return;
}

/* FUNCTION: void TermRestore(void)
*
* PURPOSE: This function frees allocated resources associated with the
terminal structure.
*
* ARGUMENTS: none
*
* RETURNS: None
*
* COMMENTS: This function is called only with the inet
service unloads the TPCC.DLL
*
*/
static void TermRestore(void)
{
    Term.iNext=0;
    Term.iAvailable=0;
    Term.iMasterSyncId=0;
    if (Term.pClientData)
        free(Term.pClientData);
    Term.pClientData=NULL;
    Term.bInit=FALSE;
    return;
}

/* FUNCTION: int TermAllocate(void)
*
* PURPOSE: This function allocates more terminal array entries in the
Term structure.
*
* ARGUMENTS: None
*
* RETURNS: intTRUE or 1 if sucessfull
* intFALSE or 0 if terminal id cannot be allocated.
*
* COMMENTS: None
*
*/
static int TermAllocate(void)
{
    Term.iAvailable += 32;
    if (!Term.pClientData)
        Term.pClientData = (PCLIENTDATA) malloc(Term.iAvailable *
sizeof(CLIENTDATA));
    else
        Term.pClientData =
            (PCLIENTDATA) realloc(Term.pClientData, Term.iAvailable *
sizeof(CLIENTDATA));
    return (Term.pClientData) ? 1 : 0;
}

/* FUNCTION: int TermAdd(EXTENSION_CONTROL_BLOCK *pECB, char
*pQueryString)
*
* PURPOSE: This function assigns a terminal id which is used to
identify a client browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* char* pQueryStringhttp query string passed to this DLL.
*
* RETURNS: intassigned terminal id
* -1cannot assign id error occured.
*
*
* COMMENTS: if the terminal id cannot be assigned it is because of
insufficient memory or the
* SQL connection cannot be allocated.
*
*/
static int TermAdd(EXTENSION_CONTROL_BLOCK *pECB, char *pQueryString)
{
    char szTmp[32];
    int i, iCurrent, iTotalConnections, iTickCount;

    EnterCriticalSection(&CriticalSection);
    for(i=0, iTotalConnections = 0; i<Term.iAvailable; i++)
    {
        if (Term.pClientData[i].inUse)
        iTotalConnections++;
    }
    if (iTotalConnections >= iMaxConnections)
    {
```

```
        for(iCurrent = 1, i=1, iTickCount = 0x7FFFFFFF;
i<iMaxConnections; i++)
        {
            if (iTickCount > Term.pClientData[i].iTickCount)
            {
                iTickCount = Term.pClientData[i].iTickCount;
                iCurrent = i;
            }
        }
    }
    else
    {
        for(i=0; i<Term.iAvailable; i++)
        {
            if (!Term.pClientData[i].inUse)
                break;
        }
        iCurrent = i;
    }
    if (i == Term.iAvailable)
    {
        Term.iNext = Term.iAvailable;
        if (!(*Term.Allocate)())
            goto TermAddErr1;
        for(i=Term.iNext; i<Term.iAvailable; i++)
            Term.pClientData[i].inUse = 0;
        iCurrent = Term.iNext;
    }
    Term.pClientData[iCurrent].inUse = 1;
    if (!GetKeyValue(pQueryString, "w_id", szTmp, sizeof(szTmp)))
        goto TermAddErr1;
    Term.pClientData[iCurrent].w_id = (short) atoi(szTmp);
    if (!GetKeyValue(pQueryString, "d_id", szTmp, sizeof(szTmp)))
        goto TermAddErr1;
    Term.pClientData[iCurrent].d_id = atoi(szTmp);
    Term.pClientData[iCurrent].iTickCount = GetTickCount();
    Term.pClientData[iCurrent].iSyncId = Term.iMasterSyncId++;
    if (Init(pECB, iCurrent, Term.pClientData[iCurrent].iSyncId,
szServer, szUser, szPassword, szDatabase))
    {
        (*Term.Delete)(pECB, iCurrent);
        goto TermAddErr1;
    }
    LeaveCriticalSection(&CriticalSection);
    return iCurrent;
    TermAddErr1:
    LeaveCriticalSection(&CriticalSection);
    return -1; // terminal unsuccessfully added
}

/* FUNCTION: void TermDelete(EXTENSION_CONTROL_BLOCK *pECB, int id)
*
* PURPOSE: This function makes a terminal entry in the Term array
available for reuse.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* intidTerminal id of client exiting
*
* RETURNS: None
*
* COMMENTS: None
*
*/
static void TermDelete(EXTENSION_CONTROL_BLOCK *pECB, int id)
{
    if (id >= 0 && id <Term.iAvailable)
    {
        Close(pECB, id, -1);
        Term.pClientData[id].inUse = 0;
    }
    return;
}

/* FUNCTION: BOOL Init(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
*                       char *szServer, char *szUser, char *szPassword,
char *szDatabase)
*
* PURPOSE: This function initializes the sql connection for use.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* intiTermIdid of browser client that this connection is for.
* intiSyncIdsync id for this client session
* char* szServersql server name
* char* szUseruser name
* char* szPassworduser password
* char* szDatabasedatabase to use
*
* RETURNS: BOOLFALSEif successfull
* TRUEif an error occurs and connection cannot be established.
*
* COMMENTS: None
*
*/
BOOL Init(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int iSyncId, char
*szServer, char *szUser, char *szPassword, char *szDatabase)
{
    char szApp[32];
    char server[256];
    char database[256];
    char user[256];
    char password[256];
```

```
    sprintf(szApp, "TPCC:%ld", (int) iTermId);
    Term.pClientData[iTermId].dbproc = NULL;
    sprintf(szApp, "TPCC:%ld", (int) iTermId);
    Term.pClientData[iTermId].dbproc = NULL;
    strcpy(server, szServer);
    strcpy(database, szDatabase);
    strcpy(user, szUser);
    strcpy(password, szPassword);
    if (SQLOpenConnection(pECB, iTermId, iSyncId,
&Term.pClientData[iTermId].dbproc,
                          server, database, user, password, szApp,
&Term.pClientData[iTermId].spid))
    {
        ErrorMessage(pECB, ERR_SQL_OPEN_CONNECTION, ERR_TYPE_WEBDLL,
NULL, iTermId, iSyncId);
        return TRUE;
    }
    return FALSE;
}

/* FUNCTION: BOOL Close(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId)
*
* PURPOSE: This function closes the sql connection for use.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK *pECBpassed in structure pointer
from inetsrv.
* intiTermIdid of browser client that this connection is for.
* intiSyncIdsync id of client browser
*
* RETURNS: BOOL FALSE if successfull
*               TRUE if an error occurs and connection cannot be
terminated.
*
* COMMENTS: None
*
*/
static BOOL Close(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId)
{
    PECBINFO pEcbInfo;

    if (Term.pClientData[iTermId].dbproc != NULL)
    {
        if ((pEcbInfo = SQLGetECB(Term.pClientData[iTermId].dbproc)))
        {
            pEcbInfo->iTermId = -1;
            pEcbInfo->iSyncId = -1;
            free(pEcbInfo); // free up user info
        }
    return SQLCloseConnection(pECB, Term.pClientData[iTermId].dbproc);
    }
    UNUSEDPARAM(iSyncId);
}

/* FUNCTION: void FormatString(char *szDest, char *szPic, char *szSrc)
*
* PURPOSE: This function formats a character string for inclusion in
the
* HTML formatted page being constructed.
*
* ARGUMENTS: char* szDestDestination buffer where formatted string is
to be placed
* char* szPicpicture string which describes how character value is to
be
* formatted.
* char* szSrccharacter string value.
*
* RETURNS: None
*
* COMMENTS: This functions is used to format TPC-C phone and zip value
strings.
*
*/
static void FormatString(char *szDest, char *szPic, char *szSrc)
{
    while(*szPic)
    {
        if (*szPic == 'X')
        {
            if (*szSrc)
                *szDest++ = *szSrc++;
            else
                *szDest++ = ' ';
        }
        else
            *szDest++ = *szPic;
        szPic++;
    }
    *szDest = 0;
    return;
}

/* FUNCTION: char *MakeStockLevelForm(int iTermId, int iSyncId, BOOL
bInput)
*
* PURPOSE: This function constructs the Stock Level HTML page.
*
* ARGUMENTS:   int iTermIdclient browser terminal id
*              int iSyncIdclient browser sync id
*              BOOL bInputTRUE if form is being constructed for input
else FALSE
*
* RETURNS: char *A pointer to buffer inside client structure where HTML
form is built.
*
```

```
* COMMENTS: The internal client buffer is created when the terminal id
is assigned and should not
* be freed except when the client terminal id is no longer needed.
*/
static char *MakeStockLevelForm(int iTermId, int iSyncId, BOOL bInput)
{
    char *szForm;

    szForm = (char *) Term.pClientData[iTermId].szBuffer;
    Term.pClientData[iTermId].stockLevelData.w_id=(short)
Term.pClientData[iTermId].w_id;
    Term.pClientData[iTermId].stockLevelData.d_id=(short)
Term.pClientData[iTermId].d_id;
    Term.pClientData[iTermId].stockLevelData.num_deadlocks = 0;
    strcpy(szForm, "<HTML><HEAD><TITLE>TPC-C Stock
Level</TITLE></HEAD>");
    strcat(szForm, "<FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">");
    if (bInput)
        strcat(szForm, "<INPUT
TYPE=\"hidden\"NAME=\"PI*\"VALUE=\"\">");
    strcat(szForm, "<INPUT
TYPE=\"hidden\"NAME=\"STATUSID\"VALUE=\"0\">");
    wsprintf(szForm+strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"FORMID\"VALUE=\"%d\">", STOCK_LEVEL_FORM);
    wsprintf(szForm+strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"TERMID\"VALUE=\"%d\">", iTermId);
    wsprintf(szForm+strlen(szForm), "<INPUT
TYPE=\"hidden\"NAME=\"SYNCID\"VALUE=\"%d\">", iSyncId);
    strcat(szForm, "<PRE>                                    Stock-
Level<BR>");
    wsprintf(szForm+strlen(szForm), "Warehouse: %4.4d   District:
%2.2d<BR><BR>", Term.pClientData[iTermId].stockLevelData.w_id,
Term.pClientData[iTermId].stockLevelData.d_id);
    if (bInput)
    {
    strcat(szForm,"Stock Level Threshold: <INPUT NAME=\"TT*\"
SIZE=2><BR><BR>"
        "low stock:    <BR><HR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Process\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">");
    }
    else
    {
        wsprintf(szForm+strlen(szForm), "Stock Level Threshold:
%2.2d<BR><BR>", Term.pClientData[iTermId].stockLevelData.thresh_hold);
        wsprintf(szForm+strlen(szForm), "low stock:
%3.3d</PRE><BR><HR>",
Term.pClientData[iTermId].stockLevelData.low_stock);
        strcat(szForm,"<INPUT
TYPE=\"submit\"NAME=\"CMD\"VALUE=\"..NewOrder..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-
Level..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">");
    }
    strcat(szForm, "</FORM></HTML>");
    return szForm;
}

/* FUNCTION: char *MakeMainMenuForm(int iTermId, int iSyncId)
*
* PURPOSE: This function
*
* ARGUMENTS: int iTermIdclient browser terminal id
*             int iSyncIdclient browser sync id
*
* RETURNS: char *A pointer to buffer inside client structure where HTML
form is built.
*
* COMMENTS: The internal client buffer is created when the terminal id
is assigned and should not
* be freed except when the client terminal id is no longer needed.
*/
static char *MakeMainMenuForm(int iTermId, int iSyncId)
{
    char *szForm;

    szForm = (char *) Term.pClientData[iTermId].szBuffer;
    strcpy(szForm,"<HTML><HEAD><TITLE>TPC-C Main
Menu</TITLE></HEAD><BODY>"
        "Select Desired Transaction.<BR><HR>"
        "<FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">");
        strcat(szForm, "<INPUT TYPE=\"hidden\"NAME=\"STATUSID\"
VALUE=\"0\">");
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"TERMID\" VALUE=\"%d\">", iTermId);
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"SYNCID\" VALUE=\"%d\">", iSyncId);
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"%d\">", MAIN_MENU_FORM);
        strcat(szForm, "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-
Level..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
        "</FORM>"
```

```
        "</HTML>");
    return szForm;
}

/* FUNCTION: char *MakeWelcomeForm(void)
*
* PURPOSE: This function
*
* ARGUMENTS: None
*
* RETURNS: char *A pointer to the static HTML welcome form.
*
* COMMENTS: The welcome form is static.
*/
static char *MakeWelcomeForm(void)
{
    return szWelcomeForm;
}

/* FUNCTION: char *MakeNewOrderForm(int iTermId, BOOL bInput, BOOL
bValid)
*
* PURPOSE: This function
*
* ARGUMENTS:   int iTermId client browser terminal id
*              int iSyncIdclient browser sync id
*              BOOL bInputTRUE if form is being constructed for input
else FALSE
*              BOOL bValidTRUE if NeworderData valid, ELSE FALSE
effects output only
*
* RETURNS: char *A pointer to buffer inside client structure where HTML
form is built.
*
* COMMENTS: The internal client buffer is created when the terminal id
is assigned and should not
* be freed except when the client terminal id is no longer needed.
*/
static char *MakeNewOrderForm(int iTermId, int iSyncId, BOOL bInput,
BOOL bValid)
{
    char *szForm;
    char szName[146];
    char szCredit[14];
    int i;

    szForm = (char *) Term.pClientData[iTermId].szBuffer;
    Term.pClientData[iTermId].newOrderData.w_id =
Term.pClientData[iTermId].w_id;
    strcpy(szForm,"<HTML>"
        "<HEAD><TITLE>TPC-C New Order</TITLE></HEAD><BODY>"
        "<FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">");
    if (bInput)
    {
        strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"PI*\"
VALUE=\"\">");
        strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">");
    }
    else
    {
    if (bValid)
        strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">");
    else
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"STATUSID\" VALUE=\"%d\">", ERR_BAD_ITEM_ID);
    }
    wsprintf(szForm+strlen(szForm),"<INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"%d\">", NEW_ORDER_FORM);
    wsprintf(szForm+strlen(szForm),"<INPUT
TYPE=\"hidden\"NAME=\"TERMID\"VALUE=\"%d\">", iTermId);
    wsprintf(szForm+strlen(szForm),"<INPUT
TYPE=\"hidden\"NAME=\"SYNCID\"VALUE=\"%d\">", iSyncId);
    strcat(szForm, "<PRE>                                    New
Order<BR>");
    if (bInput)
    {
        wsprintf(szForm+strlen(szForm), "Warehouse: %4.4d   District:
<INPUT NAME=\"DID*\" SIZE=1>                          Date:<BR>",
Term.pClientData[iTermId].newOrderData.w_id);
       strcat(szForm, "Customer:  <INPUT NAME=\"CID*\" SIZE=4>   Name:
Credit:      %Disc:<BR>"
                       "Order Number:           Number of Lines:
W_tax:         D_tax:<BR><BR>"
                       " Supp_W  Item_Id  Item Name                 Qty
Stock  B/G  Price    Amount<BR>"
                       " <INPUT NAME=\"SP00*\" SIZE=4>  <INPUT
NAME=\"IID00*\" SIZE=6>                              <INPUT
NAME=\"Qty00*\" SIZE=1><BR>"
                       " <INPUT NAME=\"SP01*\" SIZE=4>  <INPUT
NAME=\"IID01*\" SIZE=6>                              <INPUT
NAME=\"Qty01*\" SIZE=1><BR>"
                       " <INPUT NAME=\"SP02*\" SIZE=4>  <INPUT
NAME=\"IID02*\" SIZE=6>                              <INPUT
NAME=\"Qty02*\" SIZE=1><BR>"
                       " <INPUT NAME=\"SP03*\" SIZE=4>  <INPUT
NAME=\"IID03*\" SIZE=6>                              <INPUT
NAME=\"Qty03*\" SIZE=1><BR>"
                       " <INPUT NAME=\"SP04*\" SIZE=4>  <INPUT
NAME=\"IID04*\" SIZE=6>                              <INPUT
NAME=\"Qty04*\" SIZE=1><BR>"
                       " <INPUT NAME=\"SP05*\" SIZE=4>  <INPUT
NAME=\"IID05*\" SIZE=6>                              <INPUT
NAME=\"Qty05*\" SIZE=1><BR>"
```

```
                    " <INPUT NAME=\"SP06*\" SIZE=4>  <INPUT
NAME=\"IID06*\" SIZE=6>                              <INPUT
NAME=\"Qty06*\" SIZE=1><BR>"
                    " <INPUT NAME=\"SP07*\" SIZE=4>  <INPUT
NAME=\"IID07*\" SIZE=6>                              <INPUT
NAME=\"Qty07*\" SIZE=1><BR>"
                    " <INPUT NAME=\"SP08*\" SIZE=4>  <INPUT
NAME=\"IID08*\" SIZE=6>                              <INPUT
NAME=\"Qty08*\" SIZE=1><BR>"
                    " <INPUT NAME=\"SP09*\" SIZE=4>  <INPUT
NAME=\"IID09*\" SIZE=6>                              <INPUT
NAME=\"Qty09*\" SIZE=1><BR>"
                    " <INPUT NAME=\"SP10*\" SIZE=4>  <INPUT
NAME=\"IID10*\" SIZE=6>                              <INPUT
NAME=\"Qty10*\" SIZE=1><BR>"
                    " <INPUT NAME=\"SP11*\" SIZE=4>  <INPUT
NAME=\"IID11*\" SIZE=6>                              <INPUT
NAME=\"Qty11*\" SIZE=1><BR>"
                    " <INPUT NAME=\"SP12*\" SIZE=4>  <INPUT
NAME=\"IID12*\" SIZE=6>                              <INPUT
NAME=\"Qty12*\" SIZE=1><BR>"
                    " <INPUT NAME=\"SP13*\" SIZE=4>  <INPUT
NAME=\"IID13*\" SIZE=6>                              <INPUT
NAME=\"Qty13*\" SIZE=1><BR>"
                    " <INPUT NAME=\"SP14*\" SIZE=4>  <INPUT
NAME=\"IID14*\" SIZE=6>                              <INPUT
NAME=\"Qty14*\" SIZE=1><BR>"
                    "Execution Status:
Total:<BR><HR>"
                    "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
                    "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
                    "</FORM>"
                    "</HTML>" );
    }
    else
    {
        if (bValid)
        {
              wsprintf(szForm+strlen(szForm), "Warehouse: %4.4d
District: %2.2d                        Date: %2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d <BR>",
               Term.pClientData[iTermId].newOrderData.w_id,
               Term.pClientData[iTermId].newOrderData.d_id,
               Term.pClientData[iTermId].newOrderData.o_entry_d.day,
               Term.pClientData[iTermId].newOrderData.o_entry_d.month,
               Term.pClientData[iTermId].newOrderData.o_entry_d.year,
               Term.pClientData[iTermId].newOrderData.o_entry_d.hour,

Term.pClientData[iTermId].newOrderData.o_entry_d.minute,

Term.pClientData[iTermId].newOrderData.o_entry_d.second);
        }
        else
        {
              wsprintf(szForm+strlen(szForm), "Warehouse: %4.4d
District: %2.2d                        Date:<BR>",
              Term.pClientData[iTermId].newOrderData.w_id,
              Term.pClientData[iTermId].newOrderData.d_id);
        }
        FormatHTMLString(szName,
Term.pClientData[iTermId].newOrderData.c_last, 16);
        FormatHTMLString(szCredit,
Term.pClientData[iTermId].newOrderData.c_credit, 2);
        wsprintf(szForm+strlen(szForm), "Customer:  %4.4d   Name: %s
Credit: %s   ",
            Term.pClientData[iTermId].newOrderData.c_id, szName,
szCredit);
        if (bValid)
        {
              sprintf(szForm+strlen(szForm), "%%disc: %5.2f
<BR>", Term.pClientData[iTermId].newOrderData.c_discount);
              sprintf(szForm+strlen(szForm), "Order Number: %8.8d
Number of Lines: %2.2d        W_tax: %5.2f   D_tax: %5.2f  <BR><BR>",
               Term.pClientData[iTermId].newOrderData.o_id,
               Term.pClientData[iTermId].newOrderData.o_ol_cnt,
               Term.pClientData[iTermId].newOrderData.w_tax,
               Term.pClientData[iTermId].newOrderData.d_tax);
              strcat(szForm, " Supp_W  Item_Id  Item Name
Qty  Stock  B/G  Price    Amount<BR>");
              for(i=0; i<Term.pClientData[iTermId].newOrderData.o_ol_cnt;
i++)
              {
                  FormatHTMLString(szName,
Term.pClientData[iTermId].newOrderData.Ol[i].ol_i_name, 24);
                  sprintf(szForm+strlen(szForm), "  %4.4d   %6.6d   %s
%2.2d    %3.3d    %1.1s   $%6.2f  $%7.2f  <BR>",

Term.pClientData[iTermId].newOrderData.Ol[i].ol_supply_w_id,

Term.pClientData[iTermId].newOrderData.Ol[i].ol_i_id,
                     szName,

Term.pClientData[iTermId].newOrderData.Ol[i].ol_quantity,

Term.pClientData[iTermId].newOrderData.Ol[i].ol_stock,

Term.pClientData[iTermId].newOrderData.Ol[i].ol_brand_generic,

Term.pClientData[iTermId].newOrderData.Ol[i].ol_i_price,

Term.pClientData[iTermId].newOrderData.Ol[i].ol_amount);
              }
        }
        else
```

```
        {
            strcat(szForm, "%disc:<BR>");
            sprintf(szForm+strlen(szForm), "Order Number: %8.8d  Number
of Lines:              W_tax:         D_tax:<BR><BR>",
                    Term.pClientData[iTermId].newOrderData.o_id);
            strcat(szForm, " Supp_W  Item_Id  Item Name
Qty  Stock  B/G  Price    Amount<BR>");
            i = 0;
        }
        for(; i<15; i++)
            strcat(szForm, "<BR>");
        if (bValid)
        {
            sprintf(szForm+strlen(szForm), "Execution Status: %24.24s
Total:  $%8.2f  ",

Term.pClientData[iTermId].newOrderData.execution_status,
                Term.pClientData[iTermId].newOrderData.total_amount);
        }
        else
        {
            sprintf(szForm+strlen(szForm), "Execution Status: %24.24s
Total:",

Term.pClientData[iTermId].newOrderData.execution_status);
        }
        strcat(szForm,"</PRE><HR><BR>"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-
Level..\">"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">");
        strcat(szForm, "</FORM></HTML>");
        }
    return szForm;
}

/* FUNCTION: char *MakePaymentForm(int iTermId, int iSyncId, BOOL
bInput)
*
* PURPOSE: This function
*
* ARGUMENTS: int iTermIdclient browser terminal id
*            int iSyncIdclient browser sync id
*            BOOL bInputTRUE if form is being constructed for input
else FALSE
*
* RETURNS: char *A pointer to buffer inside client structure where HTML
form is built.
*
* COMMENTS: The internal client buffer is created when the terminal id
is assigned and should not
* be freed except when the client terminal id is no longer needed.
*/
static char *MakePaymentForm(int iTermId, int iSyncId, BOOL bInput)
{
    char *szForm;
    char *ptr;
    char szTmp[64];
    char szW_Zip[26];
    char szD_Zip[26];
    char szC_Zip[26];
    char szC_Phone[26];
    char szTmpStr1[122];
    char szTmpStr2[122];
    char szTmpStr3[122];
    char szTmpStr4[122];
    int i;
    int l;
    char *szZipPic = "XXXXX-XXXX";

    szForm = (char *) Term.pClientData[iTermId].szBuffer;
    Term.pClientData[iTermId].paymentData.w_id =
Term.pClientData[iTermId].w_id;
    strcpy(szForm,"<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD><BODY>"
        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">");
    if (bInput)
        strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"PI*\"
VALUE=\"\">");
    strcat(szForm, "<INPUT TYPE=\"hidden\"NAME=\"STATUSID\"
VALUE=\"0\">");
    wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"%d\">", PAYMENT_FORM);
    wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"TERMID\" VALUE=\"%d\">", iTermId);
    wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"SYNCID\" VALUE=\"%d\">", iSyncId);
        strcat(szForm,"<PRE>
Payment<BR>");
    if (bInput)
        strcat(szForm,"Date:<BR><BR>");
    else
    {
        wsprintf(szForm+strlen(szForm), "Date: %2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d <BR><BR>",
            Term.pClientData[iTermId].paymentData.h_date.day,
            Term.pClientData[iTermId].paymentData.h_date.month,
            Term.pClientData[iTermId].paymentData.h_date.year,
            Term.pClientData[iTermId].paymentData.h_date.hour,
```

```
            Term.pClientData[iTermId].paymentData.h_date.minute,
            Term.pClientData[iTermId].paymentData.h_date.second);
    }
    wsprintf(szForm+strlen(szForm), "Warehouse: %4.4d",
Term.pClientData[iTermId].paymentData.w_id);
    if (bInput)
    {
        strcat(szForm, "                              District: <INPUT
NAME=\"DID*\" SIZE=1><BR><BR><BR><BR><BR>"
                       "Customer: <INPUT NAME=\"CID*\" SIZE=4>"
                       "Cust-Warehouse: <INPUT NAME=\"CWI*\" SIZE=4>  "
                       "Cust-District: <INPUT NAME=\"CDI*\"
SIZE=1><BR>"
                       "Name:                         <INPUT
NAME=\"CLT*\" SIZE=16>                      Since:<BR>"
                       "
Credit:<BR>"
                       "
Disc:<BR>"
                       "
Phone:<BR><BR>"
                       "Amount Paid:          $<INPUT NAME=\"HAM*\"
SIZE=7>      New Cust Balance:<BR>"
                       "Credit Limit:<BR><BR>Cust-Data:
<BR><BR><BR><BR></PRE><HR>"
                       "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\"><INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
                       "</BODY></FORM></HTML>" );
    }
    else
    {
        sprintf(szForm+strlen(szForm),       "
District: %2.2d<BR>",
               Term.pClientData[iTermId].paymentData.d_id);

        FormatHTMLString(szTmpStr1,
Term.pClientData[iTermId].paymentData.w_street_1, 20);
        FormatHTMLString(szTmpStr2,
Term.pClientData[iTermId].paymentData.d_street_1, 20);

        sprintf(szForm+strlen(szForm),"%s                      %s<BR>",
szTmpStr1, szTmpStr2);

        FormatHTMLString(szTmpStr1,
Term.pClientData[iTermId].paymentData.w_street_2, 20);
        FormatHTMLString(szTmpStr2,
Term.pClientData[iTermId].paymentData.d_street_2, 20);

        sprintf(szForm+strlen(szForm),"%s                      %s<BR>",
szTmpStr1, szTmpStr2);

        FormatString(szW_Zip, szZipPic,
Term.pClientData[iTermId].paymentData.w_zip);
        FormatString(szD_Zip, szZipPic,
Term.pClientData[iTermId].paymentData.d_zip);
        FormatHTMLString(szTmpStr1,
Term.pClientData[iTermId].paymentData.w_city, 20);
        FormatHTMLString(szTmpStr2,
Term.pClientData[iTermId].paymentData.w_state, 2);
        FormatHTMLString(szTmpStr3,
Term.pClientData[iTermId].paymentData.d_city, 20);
        FormatHTMLString(szTmpStr4,
Term.pClientData[iTermId].paymentData.d_state, 2);

        wsprintf(szForm+strlen(szForm), "%s %s %10.10s       %s %s
%10.10s<BR><BR>",
                szTmpStr1, szTmpStr2, szW_Zip, szTmpStr3, szTmpStr4,
szD_Zip);
        wsprintf(szForm+strlen(szForm), "Customer: %4.4d  Cust-
Warehouse: %4.4d  Cust-District: %2.2d<BR>",
                Term.pClientData[iTermId].paymentData.c_id,
                Term.pClientData[iTermId].paymentData.c_w_id,
                Term.pClientData[iTermId].paymentData.c_d_id);

        FormatHTMLString(szTmpStr1,
Term.pClientData[iTermId].paymentData.c_first, 16);
        FormatHTMLString(szTmpStr2,
Term.pClientData[iTermId].paymentData.c_middle, 2);
        FormatHTMLString(szTmpStr3,
Term.pClientData[iTermId].paymentData.c_last, 16);

        wsprintf(szForm+strlen(szForm), "Name:   %s %s %s     Since:
%2.2d-%2.2d-%4.4d<BR>",
                szTmpStr1, szTmpStr2, szTmpStr3,
                Term.pClientData[iTermId].paymentData.c_since.day,
                Term.pClientData[iTermId].paymentData.c_since.month,
                Term.pClientData[iTermId].paymentData.c_since.year);

        FormatHTMLString(szTmpStr1,
Term.pClientData[iTermId].paymentData.c_street_1, 20);
        FormatHTMLString(szTmpStr2,
Term.pClientData[iTermId].paymentData.c_credit, 2);

        wsprintf(szForm+strlen(szForm), "        %s
Credit: %s<BR>", szTmpStr1, szTmpStr2);

        FormatHTMLString(szTmpStr1,
Term.pClientData[iTermId].paymentData.d_street_2, 20);

        sprintf(szForm+strlen(szForm), "        %s
%%disc:  %5.2f<BR>",
                szTmpStr1,
Term.pClientData[iTermId].paymentData.c_discount);

        FormatString(szC_Zip, szZipPic,
Term.pClientData[iTermId].paymentData.c_zip);
```

```
        FormatString(szC_Phone, "XXXXXX-XXX-XXX-XXXX",
Term.pClientData[iTermId].paymentData.c_phone);
        FormatHTMLString(szTmpStr1,
Term.pClientData[iTermId].paymentData.c_city, 20);
        FormatHTMLString(szTmpStr2,
Term.pClientData[iTermId].paymentData.c_state, 2);

        wsprintf(szForm+strlen(szForm), "        %s %s %10.10s
Phone:  %-19.19s<BR><BR>",
                szTmpStr1, szTmpStr2, szC_Zip, szC_Phone );

        sprintf(szForm+strlen(szForm), "Amount Paid:          $%7.2f
New Cust Balance: $%14.2f<BR>",
                Term.pClientData[iTermId].paymentData.h_amount,
                Term.pClientData[iTermId].paymentData.c_balance);

        sprintf(szForm+strlen(szForm), "Credit Limit:
$%13.2f<BR><BR>",
                Term.pClientData[iTermId].paymentData.c_credit_lim);

    ptr = Term.pClientData[iTermId].paymentData.c_credit;
    if (*ptr == 'B' && *(ptr+1) == 'C')
    {
        ptr = Term.pClientData[iTermId].paymentData.c_data;
        l = strlen(ptr) / 50;
        for(i=0; i<4; i++, ptr += 50)
        {
            if (i <= l)
                UtilStrCpy(szTmp, ptr, 50);
            else
                szTmp[0] = 0;
            if (!i)
            {
                FormatHTMLString(szTmpStr1, szTmp, 50);
                wsprintf(szForm+strlen(szForm), "Cust-Data: %s<BR>",
szTmpStr1);
            }
            else
            {
                FormatHTMLString(szTmpStr1, szTmp, 50);
                wsprintf(szForm+strlen(szForm), "           %s<BR>",
szTmpStr1);
            }
        }
    }
    else
        strcat(szForm, "Cust-Data: <BR><BR><BR><BR>");

    strcat(szForm,"</PRE><HR><BR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-
Status..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-
Level..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
        "</BODY></FORM></HTML>");
    }
    return szForm;
}

/* FUNCTION: char *MakeOrderStatusForm(int iTermId, int iSyncId, BOOL
bInput)
*
* PURPOSE: This function
*
* ARGUMENTS:   int iTermIdclient browser terminal id
*              int iSyncIdclient browser sync id
*              BOOL bInputTRUE if form is being constructed for input
else FALSE
*
* RETURNS: char *A pointer to buffer inside client structure where HTML
form is built.
*
* COMMENTS: The internal client buffer is created when the terminal id
is assigned and should not
* be freed except when the client terminal id is no longer needed.
*/
static char *MakeOrderStatusForm(int iTermId, int iSyncId, BOOL bInput)
{
    char *szForm;
    char c_first[98];
    char c_middle[14];
    char c_last[98];
    int i;

        szForm = (char *) Term.pClientData[iTermId].szBuffer;

        Term.pClientData[iTermId].orderStatusData.w_id =
Term.pClientData[iTermId].w_id;

        strcpy(szForm,"<HTML><HEAD><TITLE>TPC-C Order-
Status</TITLE></HEAD><BODY>"
                        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">");

        if (bInput)
                strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"PI*\"
VALUE=\"\">");

        strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">");
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"%d\">", ORDER_STATUS_FORM);
```

```
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"TERMID\" VALUE=\"%d\">", iTermId);
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"SYNCID\" VALUE=\"%d\">", iSyncId);

        strcat(szForm, "<PRE>                                    Order-
Status<BR>" );
        wsprintf(szForm+strlen(szForm), "Warehouse: %4.4d   ",
Term.pClientData[iTermId].orderStatusData.w_id);

        if ( bInput )
        {
                strcat(szForm, "District: <INPUT NAME=\"DID*\"
SIZE=1><BR>"
                               "Customer: <INPUT NAME=\"CID*\" SIZE=4>
Name:                      <INPUT NAME=\"CLT*\" SIZE=23><BR>"
                               "Cust-Balance:<BR><BR>"
                               "Order-Number:            Entry-Date:
Carrier-Number:<BR>"
                               "Supply-W     Item-Id    Qty     Amount
Delivery-Date<BR></PRE>"
                               "<HR><INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\"><INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
                               "</BODY></FORM></HTML>" );
        }
        else
        {
                wsprintf(szForm+strlen(szForm), "District: %2.2d<BR>",
Term.pClientData[iTermId].orderStatusData.d_id);

                FormatHTMLString(c_first,
Term.pClientData[iTermId].orderStatusData.c_first, 16);
                FormatHTMLString(c_middle,
Term.pClientData[iTermId].orderStatusData.c_middle, 2);
                FormatHTMLString(c_last,
Term.pClientData[iTermId].orderStatusData.c_last, 16);

                wsprintf(szForm+strlen(szForm), "Customer: %4.4d   Name:
%s %s %s<BR>",
                        Term.pClientData[iTermId].orderStatusData.c_id,
c_first, c_middle, c_last);

                sprintf(szForm+strlen(szForm), "Cust-Balance:
$%9.2f<BR><BR>",

        Term.pClientData[iTermId].orderStatusData.c_balance);

                wsprintf(szForm+strlen(szForm), "Order-Number: %8.8d
Entry-Date: %2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d   Carrier-Number:
%2.2d<BR>",
                        Term.pClientData[iTermId].orderStatusData.o_id,

        Term.pClientData[iTermId].orderStatusData.o_entry_d.day,

        Term.pClientData[iTermId].orderStatusData.o_entry_d.month,

        Term.pClientData[iTermId].orderStatusData.o_entry_d.year,

        Term.pClientData[iTermId].orderStatusData.o_entry_d.hour,

        Term.pClientData[iTermId].orderStatusData.o_entry_d.minute,

        Term.pClientData[iTermId].orderStatusData.o_entry_d.second,

        Term.pClientData[iTermId].orderStatusData.o_carrier_id);
                strcat(szForm+strlen(szForm), "Supply-W     Item-Id
Qty     Amount      Delivery-Date<BR>");

                for(i=0;
i<Term.pClientData[iTermId].orderStatusData.o_ol_cnt; i++)
                {
                        sprintf(szForm+strlen(szForm), "  %4.4d
%6.6d     %2.2d     $%8.2f      %2.2d-%2.2d-%4.4d<BR>",

        Term.pClientData[iTermId].orderStatusData.OlOrderStatusData[i].
ol_supply_w_id,

        Term.pClientData[iTermId].orderStatusData.OlOrderStatusData[i].
ol_i_id,

        Term.pClientData[iTermId].orderStatusData.OlOrderStatusData[i].
ol_quantity,

        Term.pClientData[iTermId].orderStatusData.OlOrderStatusData[i].
ol_amount,

        Term.pClientData[iTermId].orderStatusData.OlOrderStatusData[i].
ol_delivery_d.day,

        Term.pClientData[iTermId].orderStatusData.OlOrderStatusData[i].
ol_delivery_d.month,

        Term.pClientData[iTermId].orderStatusData.OlOrderStatusData[i].
ol_delivery_d.year);
                }

                strcat(szForm, "<BR></PRE><HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..NewOrder..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
```

```
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                                "</BODY></FORM></HTML>" );
        }
        return szForm;
}

/* FUNCTION: char *MakeDeliveryForm(int iTermId, int iSyncId, BOOL
bInput, BOOL bSuccess)
*
* PURPOSE: This function
*
* ARGUMENTS:   int iTermIdclient browser terminal id
*              int iSyncIdclient browser sync id
*              BOOL bInputTRUE if form is being constructed for input
else FALSE
* BOOLbSuccess TRUE if Delivery succeeded else FALSE
*
* RETURNS: char *A pointer to buffer inside client structure where HTML
form is built.
*
* COMMENTS: The internal client buffer is created when the terminal id
is assigned and should not
* be freed except when the client terminal id is no longer needed.
*/
static char *MakeDeliveryForm(int iTermId, int iSyncId, BOOL bInput,
BOOL bSuccess)
{
        char    *szForm;

        szForm = (char *)Term.pClientData[iTermId].szBuffer;

        Term.pClientData[iTermId].deliveryData.w_id =
Term.pClientData[iTermId].w_id;

        strcpy( szForm,         "<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD><BODY>"
                        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">");

        if (bInput)
        {
                strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"PI*\"
VALUE=\"\">");
                strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">");
        }
        else
        {
                if (!bSuccess)
                        sprintf(szForm+strlen(szForm), "<INPUT
TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"%d\">",
ERR_TYPE_DELIVERY_POST);
                else
                        strcat(szForm, "<INPUT TYPE=\"hidden\"
NAME=\"STATUSID\" VALUE=\"0\">");
        }

        strcat(szForm, "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">");
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"%d\">", DELIVERY_FORM);
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"TERMID\" VALUE=\"%d\">", iTermId);
        wsprintf(szForm+strlen(szForm), "<INPUT TYPE=\"hidden\"
NAME=\"SYNCID\" VALUE=\"%d\">", iSyncId);

        strcat(szForm, "<PRE>
Delivery<BR>" );

        wsprintf(szForm+strlen(szForm), "Warehouse: %4.4d<BR><BR>",
Term.pClientData[iTermId].deliveryData.w_id);

        if ( bInput )
                strcat( szForm, "Carrier Number: <INPUT NAME=\"OCD*\"
SIZE=1><BR><BR>");
        else
        {
                wsprintf(szForm+strlen(szForm), "Carrier Number:
%2.2d<BR><BR>",

        Term.pClientData[iTermId].deliveryData.o_carrier_id);
        }
        if ( bInput )
        {
                strcat( szForm, "Execution Status:<BR></PRE>"
                                "<HR><INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">" );
        }
        else
        {
                wsprintf(szForm+strlen(szForm), "Execution Status:
%25.25s<BR></PRE>",

        Term.pClientData[iTermId].deliveryData.execution_status);

                strcat(szForm, "<HR><INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
```

```
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
                                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">" );
        }

        strcat( szForm,         "</BODY></FORM></HTML>" );

        return szForm;
}

/* FUNCTION: void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK* pECB,
int iTermId, int iSyncId)
*
* PURPOSE: This function gets and validates the input data from the new
order form
* filling in the required input variables.it then calls the SQLNewOrder
* transaction, constructs the output form and writes it back to client
* browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
*              int iTermIdclient browser terminal id
*              int iSyncId client browser sync id
*
* RETURNS: None
*
* COMMENTS: None
*
*/
static void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId)
{
    int iRc;
    int iError;
    PECBINFO pEcbInfo;

    memset(&Term.pClientData[iTermId].newOrderData, 0,
sizeof(NEW_ORDER_DATA));
    Term.pClientData[iTermId].newOrderData.w_id =
        Term.pClientData[iTermId].w_id;
    if ((iError=GetNewOrderData(pECB->lpszQueryString,
        &Term.pClientData[iTermId].newOrderData)) != ERR_SUCCESS)
    {
        ErrorMessage(pECB, iError, ERR_TYPE_WEBDLL, NULL, iTermId,
iSyncId);
        return;
    }
    iRc = SQLNewOrder(pECB, iTermId, iSyncId,
        Term.pClientData[iTermId].dbproc,
        &Term.pClientData[iTermId].newOrderData, iDeadlockRetry);

    #ifdef USE_ODBC
    #if (ODBCVER >= 0x0300)
    if (bConnectionPooling && iRc != -3)
    SQLDisconnect(Term.pClientData[iTermId].dbproc->hdbc);
    #endif
    #endif

    if ((pEcbInfo = SQLGetECB(Term.pClientData[iTermId].dbproc)) &&
pEcbInfo->bFailed)
        return;
    if (iRc <0)
        ErrorMessage(pECB, ERR_NEW_ORDER_NOT_PROCESSED,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
    else
        WriteZString(pECB, MakeNewOrderForm(iTermId, iSyncId, FALSE,
(BOOL) iRc));
    return;
}

/* FUNCTION: void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId)
*
* PURPOSE: This function gets and validates the input data from the
payment form
* filling in the required input variables.It then calls the SQLPayment
* transaction, constructs the output form and writes it back to client
* browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* intiTermIdclient browser terminal id
* intiSyncId client browser sync id
*
* RETURNS: None
*
* COMMENTS: None
*
*/
static void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId)
{
    int iRc;
    int iError;
    PECBINFO pEcbInfo;

    memset(&Term.pClientData[iTermId].paymentData, 0,
sizeof(PAYMENT_DATA));
    Term.pClientData[iTermId].paymentData.w_id =
        Term.pClientData[iTermId].w_id;
    if ((iError=GetPaymentData(pECB->lpszQueryString,
        &Term.pClientData[iTermId].paymentData)) != ERR_SUCCESS)
    {
        ErrorMessage(pECB, iError, ERR_TYPE_WEBDLL, NULL, iTermId,
iSyncId);
```

```
        return;
    }
    iRc = SQLPayment(pECB, iTermId, iSyncId,
        Term.pClientData[iTermId].dbproc,
        &Term.pClientData[iTermId].paymentData, iDeadlockRetry);

    #ifdef USE_ODBC
    #if (ODBCVER >= 0x0300)
    if (bConnectionPooling && iRc != -3)
    SQLDisconnect(Term.pClientData[iTermId].dbproc->hdbc);
    #endif
    #endif

    if ((pEcbInfo = SQLGetECB(Term.pClientData[iTermId].dbproc)) &&
pEcbInfo->bFailed)
        return;
    if (iRc == 0)
        ErrorMessage(pECB, ERR_PAYMENT_INVALID_CUSTOMER,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
    else if (iRc <0)
            ErrorMessage(pECB, ERR_PAYMENT_NOT_PROCESSED,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
        else
            WriteZString(pECB, MakePaymentForm(iTermId, iSyncId,
FALSE));
    return;
}

/* FUNCTION: void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB,
int iTermId, int iSyncId)
*
* PURPOSE: This function gets and validates the input data from the
Order Status
* form filling in the required input variables.It then calls the
* SQLOrderStatus transaction, constructs the output form and writes it
* back to client browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* intiTermIdclient browser terminal id
* intiSyncId client browser sync id
*
* RETURNS: None
*
* COMMENTS: None
*
*/
static void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId)
{
    int iRc;
    int iError;
    PECBINFO pEcbInfo;

    memset(&Term.pClientData[iTermId].orderStatusData, 0,
sizeof(ORDER_STATUS_DATA));
    Term.pClientData[iTermId].orderStatusData.w_id =
        Term.pClientData[iTermId].w_id;
    if ((iError=GetOrderStatusData(pECB->lpszQueryString,
        &Term.pClientData[iTermId].orderStatusData)) != ERR_SUCCESS)
    {
        ErrorMessage(pECB, iError, ERR_TYPE_WEBDLL, NULL, iTermId,
iSyncId);
        return;
    }
    iRc = SQLOrderStatus(pECB, iTermId, iSyncId,
    Term.pClientData[iTermId].dbproc,
        &Term.pClientData[iTermId].orderStatusData, iDeadlockRetry);

    #ifdef USE_ODBC
    #if (ODBCVER >= 0x0300)
    if (bConnectionPooling && iRc != -3)
    SQLDisconnect(Term.pClientData[iTermId].dbproc->hdbc);
    #endif
    #endif

    if ((pEcbInfo = SQLGetECB(Term.pClientData[iTermId].dbproc)) &&
pEcbInfo->bFailed)
        return;
    if (iRc == 0)
        ErrorMessage(pECB, ERR_NOSUCH_CUSTOMER, ERR_TYPE_WEBDLL, NULL,
iTermId, iSyncId);
    else if (iRc <0)
            ErrorMessage(pECB, ERR_ORDER_STATUS_NOT_PROCESSED,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
        else
            WriteZString(pECB, MakeOrderStatusForm(iTermId, iSyncId,
FALSE));
    return;
}

/* FUNCTION: void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB,
int iTermId, int iSyncId)
*
* PURPOSE: This function gets and validates the input data from the
delivery form
* filling in the required input variables.It then calls the
PostDeliveryInfo
* Api, The client is then informed that the transaction has been
posted.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* intiTermIdclient browser terminal id
* intiSyncIdclinet browser sync id
*
```

```
* RETURNS: None
*
* COMMENTS: None
*
*/
static void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId)
{
    char szTmp[26];
    BOOL bSuccess;

    memset(&Term.pClientData[iTermId].deliveryData, 0,
sizeof(DELIVERY_DATA));
    Term.pClientData[iTermId].deliveryData.w_id =
        Term.pClientData[iTermId].w_id;
    if (!GetKeyValue(pECB->lpszQueryString, "OCD*", szTmp,
sizeof(szTmp)))
    {
        ErrorMessage(pECB, ERR_DELIVERY_MISSING_OCD_KEY,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
        return;
    }
    if (!IsNumeric(szTmp))
    {
        ErrorMessage(pECB, ERR_DELIVERY_CARRIER_INVALID,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
        return;
    }
    Term.pClientData[iTermId].deliveryData.o_carrier_id=atoi(szTmp);
    if ( Term.pClientData[iTermId].deliveryData.o_carrier_id > 10 ||
                    Term.pClientData[iTermId].deliveryData.o_carrier_id
<1)
    {
        ErrorMessage(pECB, ERR_DELIVERY_CARRIER_ID_RANGE,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
        return;
    }
    // post delivery info
    if (PostDeliveryInfo(Term.pClientData[iTermId].deliveryData.w_id,
Term.pClientData[iTermId].deliveryData.o_carrier_id))
    {
        strcpy(Term.pClientData[iTermId].deliveryData.execution_status,
"Delivery Post Failed");
        bSuccess = FALSE;
    }
    else
    {
        strcpy(Term.pClientData[iTermId].deliveryData.execution_status,
"Delivery has been queued.");
        bSuccess = TRUE;
    }
    WriteZString(pECB, MakeDeliveryForm(iTermId, iSyncId, FALSE,
bSuccess));
    return;
}

/* FUNCTION: void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB,
int iTermId, int iSyncId)
*
* PURPOSE: This function gets and validates the input data from the
Stock Level
* form filling in the required input variables.It then calls the
* SQLStockLevel transaction, constructs the output form and writes it
* back to client browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK* pECBpassed in structure pointer
from inetsrv.
* intiTermIdclient browser terminal id
* intiSyncIdclient browser sync id
*
* RETURNS: None
*
* COMMENTS: None
*
*/
static void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId)
{
    char szTmp[26];
    int iRc;
    PECBINFO pEcbInfo;

    memset(&Term.pClientData[iTermId].stockLevelData, 0,
sizeof(STOCK_LEVEL_DATA));
    Term.pClientData[iTermId].stockLevelData.w_id =
        Term.pClientData[iTermId].w_id;
    Term.pClientData[iTermId].stockLevelData.d_id =
        Term.pClientData[iTermId].d_id;
    if (!GetKeyValue(pECB->lpszQueryString, "TT*", szTmp,
sizeof(szTmp)))
    {
        ErrorMessage(pECB, ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
        return;
    }
    if (!IsNumeric(szTmp))
    {
        ErrorMessage(pECB, ERR_STOCKLEVEL_THRESHOLD_INVALID,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
        return;
    }
    Term.pClientData[iTermId].stockLevelData.thresh_hold = atoi(szTmp);
    if (Term.pClientData[iTermId].stockLevelData.thresh_hold >= 100
                || Term.pClientData[iTermId].stockLevelData.thresh_hold
<0)
    {
```

```
        ErrorMessage(pECB, ERR_STOCKLEVEL_THRESHOLD_RANGE,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
        return;
    }
    iRc = SQLStockLevel(pECB, iTermId, iSyncId,
        Term.pClientData[iTermId].dbproc,
        &Term.pClientData[iTermId].stockLevelData, iDeadlockRetry);

    #ifdef USE_ODBC
    #if (ODBCVER >= 0x0300)
    if (bConnectionPooling && iRc != -3)
    SQLDisconnect(Term.pClientData[iTermId].dbproc->hdbc);
    #endif
    #endif

    if ((pEcbInfo = SQLGetECB(Term.pClientData[iTermId].dbproc)) &&
pEcbInfo->bFailed)
        return;
    if (iRc)
        ErrorMessage(pECB, ERR_STOCKLEVEL_NOT_PROCESSED,
ERR_TYPE_WEBDLL, NULL, iTermId, iSyncId);
    else
        WriteZString(pECB, MakeStockLevelForm(iTermId, iSyncId,
FALSE));
    return;
}

/* FUNCTION: int GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA
*pNewOrderData)
*
* PURPOSE: This function extracts and validates the new order form data
from an http command string.
*
* ARGUMENTS: LPSTRlpszQueryStringclient browser http command string
* NEW_ORDER_DATA* pNewOrderDatapointer to new order data structure
*
* RETURNS: interror code indicating reason for failure
* ERR_SUCCESSnew order input data successfully parsed
*
*
* COMMENTS: None
*
*/
static int GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA
*pNewOrderData)
{
    char szTmp[26];
    char szKey[26];
    int i;
    short items;
    BOOL bCheck;

    if (!GetKeyValue(lpszQueryString, "DID*", szTmp, sizeof(szTmp)))
        return ERR_NEWORDER_FORM_MISSING_DID;
    if (!IsNumeric(szTmp))
        return ERR_NEWORDER_DISTRICT_INVALID;
    pNewOrderData->d_id = atoi(szTmp);
    if (!GetKeyValue(lpszQueryString, "CID*", szTmp, sizeof(szTmp)))
        return ERR_NEWORDER_CUSTOMER_KEY;
    if (!IsNumeric(szTmp))
        return ERR_NEWORDER_CUSTOMER_INVALID;
    pNewOrderData->c_id = atoi(szTmp);
    bCheck = FALSE;
    for(i=0, items=0; i<15; i++)
    {
        wsprintf(szKey, "IID%2.2d*", i);
        if (!GetKeyValue(lpszQueryString, szKey, szTmp, sizeof(szTmp)))
            return ERR_NEWORDER_MISSING_IID_KEY;
        if (szTmp[0])
        {
            // if blank lines between item ids
            // SE 06/24/98 allow blank lines
            // if (bCheck)
            //    return ERR_NEWORDER_ITEM_BLANK_LINES;
            if (!IsNumeric(szTmp))
                return ERR_NEWORDER_ITEMID_INVALID;
            // pNewOrderData->Ol[i].ol_i_id = atoi(szTmp);
            pNewOrderData->Ol[items].ol_i_id = atoi(szTmp);
            wsprintf(szKey, "SP%2.2d*", i);
            if (!GetKeyValue(lpszQueryString, szKey, szTmp,
sizeof(szTmp)))
                return ERR_NEWORDER_MISSING_SUPPW_KEY;
            if (!IsNumeric(szTmp))
                return ERR_NEWORDER_SUPPW_INVALID;
            // pNewOrderData->Ol[i].ol_supply_w_id = (short)
atoi(szTmp);
            pNewOrderData->Ol[items].ol_supply_w_id = (short)
atoi(szTmp);
            wsprintf(szKey, "Qty%2.2d*", i);
            if (!GetKeyValue(lpszQueryString, szKey, szTmp,
sizeof(szTmp)))
                return ERR_NEWORDER_MISSING_QTY_KEY;
            if (!IsNumeric(szTmp))
                return ERR_NEWORDER_QTY_INVALID;
            // pNewOrderData->Ol[i].ol_quantity = atoi(szTmp);
            pNewOrderData->Ol[items].ol_quantity = atoi(szTmp);
            // items++;
            //  if (pNewOrderData->Ol[i].ol_i_id >= 1000000 ||
pNewOrderData->Ol[i].ol_i_id <1)
            //    return ERR_NEWORDER_ITEMID_RANGE;
            // if (pNewOrderData->Ol[i].ol_quantity >= 100 ||
pNewOrderData->Ol[i].ol_quantity <1)
            //    return ERR_NEWORDER_QTY_RANGE;
            if (pNewOrderData->Ol[items].ol_i_id >= 1000000 ||
pNewOrderData->Ol[items].ol_i_id <1)
                return ERR_NEWORDER_ITEMID_RANGE;
```

```
            if (pNewOrderData->Ol[items].ol_quantity >= 100 ||
pNewOrderData->Ol[items].ol_quantity <1)
                return ERR_NEWORDER_QTY_RANGE;
            items++;
        }
        else
        {
            wsprintf(szKey, "SP%2.2d*", i);
            if (!GetKeyValue(lpszQueryString, szKey, szTmp,
sizeof(szTmp)))
                return ERR_NEWORDER_MISSING_QTY_KEY;
            if (szTmp[0])
                return ERR_NEWORDER_SUPPW_WITHOUT_ITEMID;
            wsprintf(szKey, "Qty%2.2d*", i);
            if (!GetKeyValue(lpszQueryString, szKey, szTmp,
sizeof(szTmp)))
                return ERR_NEWORDER_MISSING_QTY_KEY;
            if (szTmp[0])
                return ERR_NEWORDER_QTY_WITHOUT_ITEMID;
            bCheck = TRUE;
        }
    }
    if (items == 0)
        return ERR_NEWORDER_NOITEMS_ENTERED;
    pNewOrderData->o_ol_cnt = items;
        return ERR_SUCCESS;
}

/* FUNCTION: int GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA
*pPaymentData)
*
* PURPOSE: This function extracts and validates the payment form data
from an http command string.
*
* ARGUMENTS: LPSTRlpszQueryStringclient browser http command string
* PAYMENT_DATA* pPaymentDatapointer to payment data structure
*
* RETURNS: interror code indicating reason for failure
* ERR_SUCCESSall input data successfully parsed
*
* COMMENTS: None
*
*/
static int GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA
*pPaymentData)
{
    char szTmp[26];
    char *ptr;

    if (!GetKeyValue(lpszQueryString, "DID*", szTmp, sizeof(szTmp)))
        return ERR_PAYMENT_MISSING_DID_KEY;
    if (!IsNumeric(szTmp))
        return ERR_PAYMENT_DISTRICT_INVALID;
    pPaymentData->d_id = atoi(szTmp);
    if (!GetKeyValue(lpszQueryString, "CID*", szTmp, sizeof(szTmp)))
        return ERR_PAYMENT_MISSING_CID_KEY;
    if (szTmp[0] && !IsNumeric(szTmp))
        return ERR_PAYMENT_CUSTOMER_INVALID;
    pPaymentData->c_id = atoi(szTmp);
    if (szTmp[0] == 0)
    {
        if (!GetKeyValue(lpszQueryString, "CLT*", szTmp,
sizeof(szTmp)))
            return ERR_PAYMENT_MISSING_CLT;
        _strupr(szTmp);
        strcpy(pPaymentData->c_last, szTmp);
        if (strlen(pPaymentData->c_last) > 16)
            return ERR_PAYMENT_LAST_NAME_TO_LONG;
    }
    else
    {
        if (!GetKeyValue(lpszQueryString, "CLT*", szTmp,
sizeof(szTmp)))
            return ERR_PAYMENT_MISSING_CLT_KEY;
        if (szTmp[0])
            return ERR_PAYMENT_CID_AND_CLT;
    }
    if (!GetKeyValue(lpszQueryString, "CDI*", szTmp, sizeof(szTmp)))
        return ERR_PAYMENT_MISSING_CDI_KEY;
    if (!IsNumeric(szTmp))
        return ERR_PAYMENT_CDI_INVALID;
    pPaymentData->c_d_id = atoi(szTmp);
    if (!GetKeyValue(lpszQueryString, "CWI*", szTmp, sizeof(szTmp)))
        return ERR_PAYMENT_MISSING_CWI_KEY;
    if (!IsNumeric(szTmp))
        return ERR_PAYMENT_CWI_INVALID;
    pPaymentData->c_w_id = atoi(szTmp);
    if (!GetKeyValue(lpszQueryString, "HAM*", szTmp, sizeof(szTmp)))
        return ERR_PAYMENT_MISSING_HAM_KEY;
    ptr = szTmp;
    while(*ptr)
    {
        if (*ptr == '.')
        {
            ptr++;
            if (!*ptr)
                break;
            if (*ptr <'0' || *ptr >'9')
                return ERR_PAYMENT_HAM_INVALID;
            ptr++;
            if (!*ptr)
                break;
            if (*ptr <'0' || *ptr > '9')
                return ERR_PAYMENT_HAM_INVALID;
            if (!*ptr)
                return ERR_PAYMENT_HAM_INVALID;
```

```
        }
        else if (*ptr <'0' || *ptr > '9')
                return ERR_PAYMENT_HAM_INVALID;
        ptr++;
    }
    pPaymentData->h_amount = atof(szTmp);
    if (pPaymentData->h_amount >= 10000.00 || pPaymentData->h_amount
<0)
        return ERR_PAYMENT_HAM_RANGE;
    return ERR_SUCCESS;
}

/* FUNCTION: int GetOrderStatusData(LPSTR lpszQueryString,
ORDER_STATUS_DATA *pOrderStatusData)
*
* PURPOSE: This function extracts and validates the payment form data
from an http command string.
*
* ARGUMENTS: LPSTRlpszQueryStringclient browser http command string
* ORDER_STATUS_DATA* pOrderStatusDatapointer to order status data
structure
*
* RETURNS: interror code indicating reason for failure
* ERR_SUCCESSsuccessfully parsed all required input data
*
* COMMENTS: None
*
*/
static int GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA
*pOrderStatusData)
{
    char szTmp[26];

    if (!GetKeyValue(lpszQueryString, "DID*", szTmp, sizeof(szTmp)))
        return ERR_ORDERSTATUS_MISSING_DID_KEY;
    if (!IsNumeric(szTmp))
        return ERR_ORDERSTATUS_DID_INVALID;
    pOrderStatusData->d_id = atoi(szTmp);
    if (!GetKeyValue(lpszQueryString, "CID*", szTmp, sizeof(szTmp)))
        return ERR_ORDERSTATUS_MISSING_CID_KEY;
    if (szTmp[0] == 0)
    {
        pOrderStatusData->c_id = 0;
        if (!GetKeyValue(lpszQueryString, "CLT*", szTmp,
sizeof(szTmp)))
            return ERR_ORDERSTATUS_MISSING_CLT_KEY;
        _strupr(szTmp);
        strcpy(pOrderStatusData->c_last, szTmp);
        if (strlen(pOrderStatusData->c_last) > 16)
            return ERR_ORDERSTATUS_CLT_RANGE;
    }
    else
    {
        if (!IsNumeric(szTmp))
            return ERR_ORDERSTATUS_CID_INVALID;
        pOrderStatusData->c_id = atoi(szTmp);
        if (!GetKeyValue(lpszQueryString, "CLT*", szTmp,
sizeof(szTmp)))
            return ERR_ORDERSTATUS_MISSING_CLT_KEY;
        if (szTmp[0])
            return ERR_ORDERSTATUS_CID_AND_CLT;
    }
    return ERR_SUCCESS;
}

/* FUNCTION: BOOL ReadRegistrySettings(void)
*
* PURPOSE: This function reads the NT registry for startup
parameters.There parameters are
* under the TPCC key.
*
* ARGUMENTS: None
*
* RETURNS: None
*
* COMMENTS: This function also sets up required operation  variables to
their default value
* so if registry is not setup the default values will be used.
*
*/
static BOOL ReadRegistrySettings(void)
{
    HKEY hKey;
    DWORD size;
    DWORD type;
    char szTmp[256];

    bLog=FALSE;
    iMaxWareHouses=500;
    iThreads=5;
    iQSlotts=3000;
    iDelayMs=100;
    iDeadlockRetry=(short)3;
    strcpy(szTpccLogPath, "tpcclog.");

    #ifdef USE_ODBC
    bConnectionPooling = FALSE;
    #endif

    if (RegOpenKeyEx(HKEY_LOCAL_MACHINE, "SOFTWARE\\Microsoft\\TPCC",
0, KEY_READ, &hKey) != ERROR_SUCCESS)
        return TRUE;
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "PATH", 0, &type, szTmp, &size) ==
ERROR_SUCCESS)
    {
```

```
        strcpy(szTpccLogPath, szTmp);
        strcat(szTpccLogPath, "tpcclog.");
        strcpy(szErrorLogPath, szTmp);
        strcat(szErrorLogPath, "tpccerr.");
    }
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "LOG", 0, &type, szTmp,   &size) ==
ERROR_SUCCESS)
    {
        if (!stricmp(szTmp, "ON"))
            bLog = TRUE;
    }
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "MaximumWarehouses", 0,   &type, szTmp,
&size) == ERROR_SUCCESS)
    {
        iMaxWareHouses = atoi(szTmp);
        if (iMaxWareHouses == 0)
        iMaxWareHouses = 500;
    }
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "NumberOfDeliveryThreads", 0, &type,
szTmp, &size) == ERROR_SUCCESS)
        iThreads = atoi(szTmp);
    if (!iThreads)
        iThreads = 5;
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "QueueSlotts", 0, &type, szTmp, &size) ==
ERROR_SUCCESS)
        iQSlotts = atoi(szTmp);
    if (!iQSlotts)
        iQSlotts = 3000;
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "BackoffDelay", 0, &type, szTmp, &size)
== ERROR_SUCCESS)
        iDelayMs = atoi(szTmp);
    if (!iDelayMs)
        iDelayMs = 100;
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "DeadlockRetry", 0, &type, szTmp, &size)
== ERROR_SUCCESS)
        iDeadlockRetry = (short) atoi(szTmp);
    if (!iDeadlockRetry)
        iDeadlockRetry = (short) 3;
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "MaxConnections", 0, &type, szTmp, &size)
== ERROR_SUCCESS)
        iMaxConnections = (short) atoi(szTmp);
    if (!iMaxConnections)
        iMaxConnections = (short) 25;

    #ifdef USE_ODBC
    #if (ODBCVER >= 0x0300)
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "ConnectionPooling", 0, &type, szTmp,
&size) == ERROR_SUCCESS)
    if (!stricmp(szTmp, "ON"))
    bConnectionPooling = TRUE;
    iConnectDelay = 500;
    size = sizeof(szTmp);
    if (RegQueryValueEx(hKey, "ConnectionPoolRetryTime", 0, &type,
szTmp, &size) == ERROR_SUCCESS)
    iConnectDelay = atoi(szTmp);
    if (!iConnectDelay)
    iConnectDelay = 500;
    #endif
    #endif

    RegCloseKey(hKey);
    return FALSE;
}

/* FUNCTION: BOOL PostDeliveryInfo(short w_id, short o_carrier_id)
*
* PURPOSE: This function writes the delivery information to the
delivery pipe.The information is
* sent as a long.
*
* ARGUMENTS: shortw_idwarehouse id
* shorto_carrier_idcarrier id
*
* RETURNS: BOOLFALSEdelivery information posted successfully
* TRUEerror cannot post delivery info
*
* COMMENTS: The pipe is initially created with 16K buffer size this
should allow for
* up to 4096 deliveries to be queued before an overflow condition would
* occur.The only reason that an overflow would occur is if the delivery
* application stopped listening while deliveries were being posted.
*
*/
static BOOL PostDeliveryInfo(short w_id, short o_carrier_id)
{
    DELIVERY_TRANSACTION deliveryTransaction;
    int d;
    int i;

    GetLocalTime(&deliveryTransaction.queue);
    deliveryTransaction.w_id=w_id;
    deliveryTransaction.o_carrier_id=o_carrier_id;
    for(i=0; i<4; i++)
    {
        if (WriteFile(hPipe, &deliveryTransaction,
sizeof(deliveryTransaction), &d, NULL))
            return FALSE;
        if (GetLastError() != ERROR_PIPE_BUSY)
```

```
            // ERROR_PIPE_LISTENING
            return TRUE;
    }
    return TRUE;
}

/* FUNCTION: BOOL IsNumeric(char *ptr)
*
* PURPOSE: This function determines if a string is numeric.It fails if
any characters other
* than numeric and null terminator are present.
*
* ARGUMENTS: char* ptrpointer to string to check.
*
* RETURNS: BOOLFALSEif string is not all numeric
* TRUEif string contains only numeric characters i.e.'0' - '9'
*
* COMMENTS: None
*
*/
static BOOL IsNumeric(char *ptr)
{
    if (*ptr == 0)
        return FALSE;
    while(*ptr && isdigit(*ptr))
        ptr++;
    return (!*ptr);
}

/* FUNCTION: void FormatHTMLString(char *szBuff, int iLen, char *szStr)
*
* PURPOSE: This function Handles translation of HTML specific character
field data
* when an HTML output form is generated.
*
* ARGUMENTS: char* szBuffReturned string information
* char* szStrinput string to be formatted.
* intiLenLength of returned string
*
* RETURNS: none
*
* COMMENTS: The length paramter is the absolute length of the returned
string in
* HTML characters.For example the input string > would  be returned as
* &gt; which would be counted as 1 character.If the number of input
* characters is less than the iLen parameter spaces are appended to
* the end of the string to ensure that at least iLen characters are
* returned in the szBuff parameter.
*
*/
static void FormatHTMLString(char *szBuff, char *szStr, int iLen)
{
while(iLen && *szStr)
{
    switch(*szStr)
    {
        case '>':
            *szBuff++ = '&';
            *szBuff++ = 'g';
            *szBuff++ = 't';
            *szBuff++ = ';';
            szStr++;
        break;
        case '<':
            *szBuff++ = '&';
            *szBuff++ = 'l';
            *szBuff++ = 't';
            *szBuff++ = ';';
            szStr++;
        break;
        case '&':
            *szBuff++ = '&';
            *szBuff++ = 'a';
            *szBuff++ = 'm';
            *szBuff++ = 'p';
            *szBuff++ = ';';
            szStr++;
        break;
        case '\"':
            *szBuff++ = '&';
            *szBuff++ = 'q';
            *szBuff++ = 'u';
            *szBuff++ = 'o';
            *szBuff++ = 't';
            *szBuff++ = ';';
            szStr++;
        break;
        default:
            *szBuff++ = *szStr++;
        break;
    }
    iLen--;
}
while(iLen--)
    *szBuff++ = ' ';
*szBuff = 0;
return;
}

#include <windows.h>
#include <stdio.h>
#include <string.h>

#ifdef USE_ODBC
#include <sqltypes.h>
#include <sql.h>
```

```
#include <sqlext.h>
HENV henv;
#else

#define DBNTWIN32
#include <sqlfront.h>
#include <sqldb.h>
#endif

#include "trans.h"
#include "httpext.h"
#include "tpcc.h"
#include "utm.h"
#include "sqlroutines.h"
#include "pipe_routines.h"
#include "util.h"
const int ARGSIZE= 1024;
const int PIPE_BUF_SIZE= 4096;

static CRITICAL_SECTION CriticalSection;
void WriteZString(EXTENSION_CONTROL_BLOCK *pECB, char *szStr);

typedef struct
{
        DWORD   dwId;
        SM_PIPE   Pipe;
} THREAD_DATA;

UTM_SHARED_MEM *lpUtmMem ;
HANDLE          hUtmMem ;

DWORD dwRingBufferRd ;
DWORD dwRingBufferWrt ;
DWORD *pFreePipeBuffers ;

DWORD TlsIndex;
DWORD ThreadCount= 0;


DWORD GetPipeIndex()
{
        DWORD dwIndex = pFreePipeBuffers[dwRingBufferRd++] ;

        if(dwRingBufferRd == lpUtmMem->dwMaxConnections)
         dwRingBufferRd = 0 ;

        ThreadCount++ ;

        return(dwIndex) ;
}

void PushPipeIndex(DWORD dwId)
{
        EnterCriticalSection(&CriticalSection) ;

        pFreePipeBuffers[dwRingBufferWrt++] = dwId ;

        if(dwRingBufferWrt == lpUtmMem->dwMaxConnections)
         dwRingBufferWrt = 0 ;

        ThreadCount-- ;

        LeaveCriticalSection(&CriticalSection) ;
}


void CloseClientPipe(THREAD_DATA *pData)
{
        if(pData->Pipe.evRDav)
                                                CloseHandle(pData-
>Pipe.evRDav) ;

        if(pData->Pipe.evWDav)
                                                CloseHandle(pData-
>Pipe.evWDav) ;

        if(pData->Pipe.hStop)
                                               CloseHandle(pData-
>Pipe.hStop) ;

        PushPipeIndex(pData->dwId) ;
}


BOOL SQLThreadAttach(void)
{
        THREAD_DATA *pData;

        Trace( "SQLThread attach starts\n");

        pData = (THREAD_DATA *) malloc(sizeof(THREAD_DATA));
        if (!pData)
                                return FALSE;

        memset(pData, 0, sizeof(*pData));

        EnterCriticalSection(&CriticalSection);

        if(ThreadCount >= lpUtmMem->dwMaxConnections)
        {
                Trace( "SQLThreadattach failed because all SM-Pipes
are in use\n");
                free(pData);

                LeaveCriticalSection(&CriticalSection);
                return FALSE;
```

```
        }

        pData->dwId = GetPipeIndex() ;

        LeaveCriticalSection(&CriticalSection);

        if(!OpenClientPipe(&pData->Pipe, pData->dwId, lpUtmMem))
        {
                CloseClientPipe(pData) ;

                free(pData) ;

                TlsSetValue(TlsIndex, 0) ;

                Trace( "SQLThreadattach failed for thread %d\n",
pData->dwId);

                return(FALSE) ;
        }

        TlsSetValue(TlsIndex, pData);

        return(TRUE) ;
}


BOOL SQLThreadDetach(void)
{
        THREAD_DATA *pData = TlsGetValue(TlsIndex);

        if (pData)
        {
                CloseClientPipe(pData);
                free(pData);
        }

        return TRUE;
}


BOOL SQLInit(void)
{
// Perform one time initialization.According to the comments in tpcc.c,
this will
// be called once when the DLL is loaded.We assume that is true, and
also that
// the caller has protected the call with a critical section.
        InitializeCriticalSection(&CriticalSection);

        TlsIndex = TlsAlloc();
        if (TlsIndex == 0xffffffff)
        {
                MessageBox(NULL, "TlsAlloc failed", "Init", MB_OK |
MB_ICONSTOP);
                return FALSE;
        }

        {
                HANDLE evUtmMemInit = OpenEvent(SYNCHRONIZE, FALSE,
UTM_MEM_EVENT) ;

                if(!evUtmMemInit)
                {
                        Trace("0x%x: Can not open synchronize
event\n", GetLastError()) ;

                        return(FALSE) ;
                }

                switch(WaitForSingleObject(evUtmMemInit, 5*60*1000))
                {
                        case WAIT_OBJECT_0:

                                break ;

                        case WAIT_TIMEOUT:

                                CloseHandle(evUtmMemInit) ;

                                Trace("utm_client is not
ready\n") ;
                                return(FALSE) ;

                        default:

                                CloseHandle(evUtmMemInit) ;

                                Trace("0x%x: Can not
synchronize\n") ;
                                return(FALSE) ;
                }

                CloseHandle(evUtmMemInit) ;
        }

        hUtmMem = OpenFileMapping(FILE_MAP_ALL_ACCESS, FALSE,
UTM_MEM_SPACE) ;

        if(hUtmMem == NULL)
                                                return(FALSE) ;

        lpUtmMem = MapViewOfFile(hUtmMem, FILE_MAP_ALL_ACCESS, 0, 0,
0) ;

        if(lpUtmMem)
```

```
        {
                DWORD dwI ;

                pFreePipeBuffers = malloc(lpUtmMem->dwMaxConnections *
sizeof(DWORD)) ;

                if(!pFreePipeBuffers)
                                                return(FALSE) ;

                for(dwI=0; dwI<lpUtmMem->dwMaxConnections; dwI++)

                                        pFreePipeBuffers[dwI] = dwI ;

                dwRingBufferRd = dwRingBufferWrt = 0 ;
        }
        else return(FALSE) ;

        Trace( "TlsIndex = %d\n", TlsIndex);

        return(TRUE) ;
}


void SQLCleanup(void)
{
        if(lpUtmMem)
                                UnmapViewOfFile(lpUtmMem) ;

        if(hUtmMem)
        {
                CloseHandle(hUtmMem) ;
                 hUtmMem = NULL ;
                lpUtmMem = NULL ;
        }

        TlsFree(TlsIndex);
        TlsIndex = 0xffffffff;
        DeleteCriticalSection(&CriticalSection);
}


BOOL SQLOpenConnection(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
                        DBPROCESS **dbproc, char *server, char
*database,
                        char *user, char *password, char *app, int
*spid)
{
    PECBINFO pEcbInfo;
    // set pECB data into dbproc
    pEcbInfo = (PECBINFO) malloc(sizeof(ECBINFO));
    pEcbInfo->bDeadlock = FALSE;
    pEcbInfo->pECB= pECB;
    pEcbInfo->iTermId= iTermId;
    pEcbInfo->iSyncId= iSyncId;
    *dbproc = (DBPROCESS *) pEcbInfo;
    return FALSE;
}


BOOL SQLCloseConnection(EXTENSION_CONTROL_BLOCK *pECB, DBPROCESS
*dbproc)
{
    return FALSE;
}


BOOL UTMTransaction(char *Service, EXTENSION_CONTROL_BLOCK *pECB,
                    int TermId, int SyncId, DBPROCESS *dbproc,
                    short DeadlockRetry, void *Data, long BufSize)
{
    THREAD_DATA *pData;
    UTM_MSG msg;
    DWORD nBytes;

    PECBINFO pECBInfo = (PECBINFO) dbproc;
    // forgive them them, for they know not what they do...
    // we are pessimistic here
    pECBInfo->bFailed = TRUE;
    pData = TlsGetValue(TlsIndex);
    if (pData == NULL)
    {
        if (!SQLThreadAttach())
        {
            Trace( "UTMTransaction: unable to attach\n");
            return FALSE;
        }
        pData = TlsGetValue(TlsIndex);
    }
    // fill the struct to ship to tm
    strcpy(msg.Service, Service);
    msg.Data.TermId = TermId;
    msg.Data.SyncId = SyncId;
    msg.Data.DeadlockRetry = DeadlockRetry;
    msg.Data.Error = FALSE;
    memcpy(&msg.Data.Trans, Data, BufSize);
    if (!WritePipe(&pData->Pipe, &msg, MSG_HEADER_SIZE(&msg)+ BufSize,
&nBytes))
    {
        Trace( "UTMtransaction: WritePipe Failed\n");
        return FALSE;
    }
    if (nBytes != MSG_HEADER_SIZE(&msg)+ BufSize)
    {
        Trace( "UTMtransaction: short write, size=%d, written=%d\n",
                        MSG_HEADER_SIZE(&msg)+ BufSize, nBytes);
```

```
        return FALSE;
    }
    if (!ReadPipe(&pData->Pipe, &msg, sizeof(msg), &nBytes))
    {
        Trace( "UTMtransaction: ReadPipe Failed\n");
        return FALSE;
    }
    if (msg.Data.Error)
    {
#ifdef _DEBUG
Trace( "msg.Error set, ErrorMsg=%s\n", msg.Data.Trans.ErrorMsg);
#endif
        WriteZString(pECB, msg.Data.Trans.ErrorMsg);
    }
    // patch things up so the upper levels don't know this went
    // through tm
    pECBInfo->iTermId = TermId;
    pECBInfo->iSyncId = SyncId;
    pECBInfo->bDeadlock = msg.Data.bDeadlock;
    pECBInfo->bFailed = msg.Data.bFailed;
#ifdef _DEBUG
Trace( "bFailed=%d\n", pECBInfo->bFailed);
#endif
    memcpy(Data, &msg.Data.Trans, BufSize);
    return msg.Data.Return;
}


BOOL SQLStockLevel(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
                   DBPROCESS *dbproc, STOCK_LEVEL_DATA *pStockLevel,
short deadlock_retry)
{
    long ReceiveLen = sizeof(STOCK_LEVEL_DATA);

    return UTMTransaction("STOCK_LEVEL", pECB, iTermId,
                          iSyncId, dbproc, deadlock_retry,
pStockLevel,
                          sizeof(*pStockLevel));
}


int SQLNewOrder(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
                DBPROCESS *dbproc, NEW_ORDER_DATA *pNewOrder, short
deadlock_retry)
{

    return UTMTransaction("NEW_ORDER", pECB, iTermId,
                          iSyncId, dbproc, deadlock_retry, pNewOrder,
                          sizeof(*pNewOrder));
}


int SQLPayment(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int iSyncId,
                DBPROCESS *dbproc, PAYMENT_DATA *pPayment, short
deadlock_retry)
{
    return UTMTransaction("PAYMENT", pECB, iTermId,
                          iSyncId, dbproc, deadlock_retry, pPayment,
                          sizeof(*pPayment));
}


int SQLOrderStatus(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId,
                DBPROCESS *dbproc, ORDER_STATUS_DATA *pOrderStatus,
short deadlock_retry)
{
    return UTMTransaction("ORDER_STATUS", pECB, iTermId,
                          iSyncId, dbproc, deadlock_retry,
pOrderStatus,
                          sizeof(*pOrderStatus));
}


PECBINFO SQLGetECB(PDBPROCESS p)
{
    return (PECBINFO) p;
}
```

```
LIBRARY TPCC.DLL

EXPORTS

       GetExtensionVersion    @1
       HttpExtensionProc      @2
```

```
//Microsoft Developer Studio generated resource script.
//
#include "resource.h"

#define APSTUDIO_READONLY_SYMBOLS
////////////////////////////////////////////////////////////////////////
//////
//
// Generated from the TEXTINCLUDE 2 resource.
//
#include "afxres.h"

////////////////////////////////////////////////////////////////////////
//////
#undef APSTUDIO_READONLY_SYMBOLS

////////////////////////////////////////////////////////////////////////
//////
```

```
// English (U.S.) resources

#if !defined(AFX_RESOURCE_DLL) || defined(AFX_TARG_ENU)
#ifdef _WIN32
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
#pragma code_page(1252)
#endif //_WIN32

#ifndef _MAC
/////////////////////////////////////////////////////////////////////////////
//////
//
// Version
//

VS_VERSION_INFO VERSIONINFO
 FILEVERSION 0,3,0,2
 PRODUCTVERSION 0,3,0,2
 FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
 FILEFLAGS 0x1L
#else
 FILEFLAGS 0x0L
#endif
 FILEOS 0x40004L
 FILETYPE 0x2L
 FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904b0"
        BEGIN
            VALUE "Comments", "TPC-C HTML DLL Server\0"
            VALUE "CompanyName", "Microsoft\0"
            VALUE "FileDescription", "tpcc\0"
            VALUE "FileVersion", "0, 3, 0, 2\0"
            VALUE "InternalName", "tpcc\0"
            VALUE "LegalCopyright", "Copyright © 1996\0"
            VALUE "OriginalFilename", "tpcc.dll\0"
            VALUE "ProductName", "Microsoft tpcc\0"
            VALUE "ProductVersion", "0, 3, 0, 2\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif    // !_MAC


#ifdef APSTUDIO_INVOKED
/////////////////////////////////////////////////////////////////////////////
//////
//
// TEXTINCLUDE
//

1 TEXTINCLUDE DISCARDABLE
BEGIN
    "resource.h\0"
END

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include ""afxres.h""\r\n"
    "\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "\r\n"
    "\0"
END

#endif    // APSTUDIO_INVOKED

#endif    // English (U.S.) resources
/////////////////////////////////////////////////////////////////////////////
//////



#ifndef APSTUDIO_INVOKED
/////////////////////////////////////////////////////////////////////////////
//////
//
// Generated from the TEXTINCLUDE 3 resource.
//


/////////////////////////////////////////////////////////////////////////////
//////
#endif    // not APSTUDIO_INVOKED


# Microsoft Developer Studio Generated NMAKE File, Format Version 4.10
# ** DO NOT EDIT **

# TARGTYPE "Win32 (x86) Dynamic-Link Library" 0x0102

!IF "$(CFG)" == ""
CFG=tpcc - Win32 Debug
!MESSAGE No configuration specified.  Defaulting to tpcc - Win32 Debug.
!ENDIF
```

```
!IF "$(CFG)" != "tpcc - Win32 Release" && "$(CFG)" != "tpcc - Win32
Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE on this
makefile
!MESSAGE by defining the macro CFG on the command line.  For example:
!MESSAGE
!MESSAGE NMAKE /f "tpcc.mak" CFG="tpcc - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpcc - Win32 Release" (based on "Win32 (x86) Dynamic-Link
Library")
!MESSAGE "tpcc - Win32 Debug" (based on "Win32 (x86) Dynamic-Link
Library")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF
################################################################################
#########
# Begin Project
# PROP Target_Last_Scanned "tpcc - Win32 Debug"
MTL=mktyplib.exe
CPP=cl.exe
RSC=rc.exe

!IF  "$(CFG)" == "tpcc - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "Release"
# PROP Intermediate_Dir "Release"
# PROP Target_Dir ""
OUTDIR=.\Release
INTDIR=.\Release

ALL : "$(OUTDIR)\tpcc.dll"

CLEAN :
        -@erase "$(INTDIR)\error.obj"
        -@erase "$(INTDIR)\pipe_routines.obj"
        -@erase "$(INTDIR)\tpcc.obj"
        -@erase "$(INTDIR)\TPCC.res"
        -@erase "$(INTDIR)\util.obj"
        -@erase "$(INTDIR)\utm_sql.obj"
        -@erase "$(OUTDIR)\tpcc.dll"
        -@erase "$(OUTDIR)\tpcc.exp"
        -@erase "$(OUTDIR)\tpcc.lib"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /c
# ADD CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS"
/YX /c
CPP_PROJ=/nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS"\
 /Fp"$(INTDIR)/tpcc.pch" /YX /Fo"$(INTDIR)/" /c
CPP_OBJS=.\Release/
CPP_SBRS=.\.
# ADD BASE MTL /nologo /D "NDEBUG" /win32
# ADD MTL /nologo /D "NDEBUG" /win32
MTL_PROJ=/nologo /D "NDEBUG" /win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
RSC_PROJ=/l 0x409 /fo"$(INTDIR)/TPCC.res" /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)/tpcc.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib\
 advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib\
 odbccp32.lib /nologo /subsystem:windows /dll /incremental:no\
 /pdb:"$(OUTDIR)/tpcc.pdb" /machine:I386 /def:".\TPCC.DEF"\
 /out:"$(OUTDIR)/tpcc.dll" /implib:"$(OUTDIR)/tpcc.lib"
DEF_FILE= \
        ".\TPCC.DEF"
LINK32_OBJS= \
        "$(INTDIR)\error.obj" \
        "$(INTDIR)\pipe_routines.obj" \
        "$(INTDIR)\tpcc.obj" \
        "$(INTDIR)\TPCC.res" \
        "$(INTDIR)\util.obj" \
        "$(INTDIR)\utm_sql.obj"
```

```
"$(OUTDIR)\tpcc.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "tpcc - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "Debug"
# PROP Intermediate_Dir "Debug"
# PROP Target_Dir ""
OUTDIR=.\Debug
INTDIR=.\Debug

ALL : "$(OUTDIR)\tpcc.dll"

CLEAN :
        -@erase "$(INTDIR)\error.obj"
        -@erase "$(INTDIR)\pipe_routines.obj"
        -@erase "$(INTDIR)\tpcc.obj"
        -@erase "$(INTDIR)\TPCC.res"
        -@erase "$(INTDIR)\util.obj"
        -@erase "$(INTDIR)\utm_sql.obj"
        -@erase "$(INTDIR)\vc40.idb"
        -@erase "$(INTDIR)\vc40.pdb"
        -@erase "$(OUTDIR)\tpcc.dll"
        -@erase "$(OUTDIR)\tpcc.exp"
        -@erase "$(OUTDIR)\tpcc.ilk"
        -@erase "$(OUTDIR)\tpcc.lib"
        -@erase "$(OUTDIR)\tpcc.pdb"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG"
/D "_WINDOWS" /YX /c
# ADD CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_WINDOWS" /YX /c
CPP_PROJ=/nologo /MTd /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_WINDOWS"\
 /Fp"$(INTDIR)/tpcc.pch" /YX /Fo"$(INTDIR)/" /Fd"$(INTDIR)/" /c
CPP_OBJS=.\Debug/
CPP_SBRS=.\.
# ADD BASE MTL /nologo /D "_DEBUG" /win32
# ADD MTL /nologo /D "_DEBUG" /win32
MTL_PROJ=/nologo /D "_DEBUG" /win32
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
RSC_PROJ=/l 0x409 /fo"$(INTDIR)/TPCC.res" /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)/tpcc.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib\
 advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib\
 odbccp32.lib /nologo /subsystem:windows /dll /incremental:yes\
 /pdb:"$(OUTDIR)/tpcc.pdb" /debug /machine:I386 /def:".\TPCC.DEF"\
 /out:"$(OUTDIR)/tpcc.dll" /implib:"$(OUTDIR)/tpcc.lib"
DEF_FILE= \
        ".\TPCC.DEF"
LINK32_OBJS= \
        "$(INTDIR)\error.obj" \
        "$(INTDIR)\pipe_routines.obj" \
        "$(INTDIR)\tpcc.obj" \
        "$(INTDIR)\TPCC.res" \
        "$(INTDIR)\util.obj" \
        "$(INTDIR)\utm_sql.obj"

"$(OUTDIR)\tpcc.dll" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF

.c{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<

.c{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<
```

```
.cpp{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<

################################################################################
#########
# Begin Target

# Name "tpcc - Win32 Release"
# Name "tpcc - Win32 Debug"

!IF  "$(CFG)" == "tpcc - Win32 Release"

!ELSEIF  "$(CFG)" == "tpcc - Win32 Debug"

!ENDIF

################################################################################
#########
# Begin Source File

SOURCE=.\tpcc.c
DEP_CPP_TPCC_=\
        {$(INCLUDE)}"\pipe_routines.h"\
        {$(INCLUDE)}"\sqldb.h"\
        {$(INCLUDE)}"\sqlfront.h"\
        {$(INCLUDE)}"\sqlroutines.h"\
        {$(INCLUDE)}"\tpcc.h"\
        {$(INCLUDE)}"\tpcc_org.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\util.h"\


"$(INTDIR)\tpcc.obj" : $(SOURCE) $(DEP_CPP_TPCC_) "$(INTDIR)"


# End Source File
################################################################################
#########
# Begin Source File

SOURCE="\openUTM-SRC\AUDIT\shared\error.c"
DEP_CPP_ERROR=\
        {$(INCLUDE)}"\sqldb.h"\
        {$(INCLUDE)}"\sqlfront.h"\
        {$(INCLUDE)}"\tpcc.h"\
        {$(INCLUDE)}"\tpcc_org.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\util.h"\

"$(INTDIR)\error.obj" : $(SOURCE) $(DEP_CPP_ERROR) "$(INTDIR)"
   $(CPP) $(CPP_PROJ) $(SOURCE)


# End Source File
################################################################################
#########
# Begin Source File

SOURCE="\openUTM-SRC\AUDIT\shared\pipe_routines.c"
DEP_CPP_PIPE_=\
        {$(INCLUDE)}"\pipe_routines.h"\
        {$(INCLUDE)}"\sqldb.h"\
        {$(INCLUDE)}"\sqlfront.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\utm.h"\


"$(INTDIR)\pipe_routines.obj" : $(SOURCE) $(DEP_CPP_PIPE_) "$(INTDIR)"
   $(CPP) $(CPP_PROJ) $(SOURCE)


# End Source File
################################################################################
#########
# Begin Source File

SOURCE="\openUTM-SRC\AUDIT\shared\util.c"
DEP_CPP_UTIL_=\
        {$(INCLUDE)}"\util.h"\


"$(INTDIR)\util.obj" : $(SOURCE) $(DEP_CPP_UTIL_) "$(INTDIR)"
   $(CPP) $(CPP_PROJ) $(SOURCE)


# End Source File
################################################################################
#########
# Begin Source File

SOURCE=.\utm_sql.c
DEP_CPP_UTM_S=\
        {$(INCLUDE)}"\pipe_routines.h"\
        {$(INCLUDE)}"\sqldb.h"\
        {$(INCLUDE)}"\sqlfront.h"\
        {$(INCLUDE)}"\sqlroutines.h"\
        {$(INCLUDE)}"\tpcc.h"\
        {$(INCLUDE)}"\tpcc_org.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\util.h"\
        {$(INCLUDE)}"\utm.h"\
```

```
"$(INTDIR)\utm_sql.obj" : $(SOURCE) $(DEP_CPP_UTM_S) "$(INTDIR)"


# End Source File
################################################################################
#########
# Begin Source File

SOURCE=.\TPCC.DEF

!IF  "$(CFG)" == "tpcc - Win32 Release"

!ELSEIF  "$(CFG)" == "tpcc - Win32 Debug"

!ENDIF

# End Source File
```

Client Application Source Code

```
/* link xtclt32.lib or upicw32.lib */
/*
*
* UTM Client   utm_client.c
*
* main transaction client process to start all utm threads for
* listen on tpcc-pipes and send the request to transaction server
*
* usage: utm_client <process number> [<number of threads>]
*        if the second value is not set, the default max threads per
*        process is used
*
*/
/* Johann Gebendorfer, MW TP QA, 10.9.97
   Aenderungen fuer die Umsetzung von xatmi-Aufrufen auf upic-Aufrufen
   Wird USE_UPIC_CALL definiert, dann ergeben sich folgende Aenderungen
   (wirksam durch #ifdef USE_UPIC_CALL )
    - UTMBuffer wird statt als Pointer als Array definiert
      !!!! unklar: wie gross soll der Array definiert werden !!!!
       tpalloc und tpfree entfallen
    - zusaetzliche Definition von ret_upic, upic_init, upic_call und
      upic_disable
      Die Source xattoupi.c enthaelt die Aufrufe upic_...
    - statt tpinit wird upic_init aufgerufen
      Auswertungen von tpurcode, tperrno entfallen. Stattdessen ret_upic
    - statt tpcall wird upic_call  aufgerufen
    - statt tpterm wird upic_disable aufgerufen
   DS 03.11.97
   - only upic call, no ifdef
   - no UTMBuffer, use msg.Data direct
*/
```

```
   ################################################################################
   #########
   # Begin Source File

   SOURCE=.\TPCC.RC

   "$(INTDIR)\TPCC.res" : $(SOURCE) "$(INTDIR)"
      $(RSC) $(RSC_PROJ) $(SOURCE)


   # End Source File
   # End Target
   # End Project
   ################################################################################
   #########
```

```
#define USE_UPIC_CALL
#include <windows.h>
#include <stdio.h>
#include <string.h>
#include <direct.h>
#include <process.h>
#include "xatmi.h" /* openUTM xatmi Header File */

#include "trans.h"
#include "pipe_routines.h"
#include "utm.h"

#define SERVICE_BUF_SIZE 16
#define MAX_TPP 40            // max treads per process

typedef char *EXTENSION_CONROL_BLOCK;
const int   TIMEOUT= 1000*30; // timeout in milliseconds
const int   ARGSIZE= 1024;
const char  *LOG_PATH="c:\\temp\\utm_logs\\";
const char  *LOG_NAME="client_%d.txt";

// Global variables set as parameters
extern char local_name[8];      // global for one Process

TPCLTINFO   client_info;
BOOL        bDone;      // executable termination request flag

static SECURITY_ATTRIBUTES sa;
static PSECURITY_DESCRIPTOR pSD;

static void __cdecl MainThread( void *ptr );

DWORD           dwMasterUtm = 0;
DWORD           dwAbortFlag = FALSE ;
```

```
HANDLE           hUtmMem = NULL ;
UTM_SHARED_MEM *lpUtmMem = NULL ;
HANDLE          evTerminate ;
HANDLE          evUtmMemInit ;
HANDLE          smBreak ;
DWORD           ProcessNumber ;

BOOL UTMTransaction(DWORD dwId, char *Service, void *Data)
{
        int             ret_upic;
        int             sendlen = sizeof(UTM_DATA);
        int             reclen = 0;

        Trace("about call utm-service %s\n", Service);

    if ( (ret_upic = upic_call(dwId, Service,
                                                        (char *)Data,
sendlen,
                                                        (char *)Data,
&reclen)) != 0 )
    {
        Trace( "UTMTransaction: upic_call failed, ret_upic=%d\n",
ret_upic);
        return FALSE;
    }

        Trace( "utm call retuned %d bytes\n", reclen);

    if (reclen < sendlen)
    {
        Trace( "UTMTransaction: reclen(%d) < sendlen(%d)\n",
                        reclen,sendlen );
        return FALSE;
    }
    return TRUE;
}


BOOL HandleTransactions(DWORD dwId, SM_PIPE *pPipe)
{
        UTM_MSG msg;
        DWORD nRead;

        while(ReadPipe(pPipe, &msg, sizeof(msg),&nRead))
        {
                DWORD nWritten;

                if(!UTMTransaction(dwId, msg.Service, &msg.Data))
                {
                        Trace( "UTMTransaction failed\n");
                        if (!msg.Data.Error)
                        {
                                // let front end know, that we have a
problem here
                                msg.Data.Error = TRUE;
                                strcpy
(msg.Data.Trans.ErrorMsg,"UTMTransaction failed");
                        }
                }

                if(!WritePipe(pPipe, &msg, nRead, &nWritten))
                {
                        Trace(" WritePipe Failed in
HandleTransactions()\n");
                        // can't inform front end without write !
                        return(FALSE) ;
                }

                if(nWritten != nRead)
                {
                        Trace( "HandleTransactions: nWritten(%d) !=
nRead(%d)\n", nWritten, nRead);
                }
        }

        return(TRUE) ;
}


void Abort(SM_PIPE *pPipe)
{
        dwAbortFlag = TRUE ;

        if(pPipe->evRDav)
                                        CloseHandle(pPipe->evRDav) ;

        if(pPipe->evWDav)
                                        CloseHandle(pPipe->evWDav) ;
}


/* FUNCTION: void MainThread( void *ptr )
 *
 * PURPOSE: This function is executed inside the client threads.
 *
 * ARGUMENTS:   void    *ptr    dummy argument passed in though thread
manager, unused NULL.
 *
 * RETURNS:     None
 *
 * COMMENTS:    will be identified by global int ClientNumber
 *
 */
static void __cdecl MainThread( void *ptr )
{
```

```
        SM_PIPE   Pipe;
        DWORD   dwId;      // this is the connection id
        int     ret_upic;

        dwId = (DWORD) ptr ;

        Pipe.evRDav = Pipe.evWDav = NULL ;

        if(OpenServerPipe(&Pipe, dwId, &sa, lpUtmMem) == FALSE)
        {
                Trace( "Thread %d - OpenServerPipe failed\n", dwId) ;

                Abort(&Pipe) ;

                return;
        }

        Pipe.hStop = evTerminate ;

        Trace( "Thread %d - open pipe ok\n", dwId) ;

        if ( (ret_upic = upic_init()) != 0 )
        {
                Trace("\nAbnormal termination of ret_upic\n"
                             "ret_upic: %d \n" , ret_upic );

                Abort(&Pipe) ;
                return;
        }

        InterlockedIncrement(&lpUtmMem->lConnections) ;

        if(HandleTransactions(dwId, &Pipe))
                                dwAbortFlag = TRUE ;

        if(Pipe.evRDav)
                                CloseHandle(Pipe.evRDav) ;

        if(Pipe.evWDav)
                                CloseHandle(Pipe.evWDav) ;

        (void)upic_disable();

        InterlockedDecrement(&lpUtmMem->lConnections) ;

        return ;
}


int CreatePipeMem(DWORD dwConnections)
{
        hUtmMem = CreateFileMapping((HANDLE)0xFFFFFFFF, &sa,
PAGE_READWRITE | SEC_COMMIT, 0,

dwConnections*(sizeof(UTM_MSG)+sizeof(DWORD)+sizeof(UTM_HANDLES)),
                                                                UTM_MEM_SPACE
);

        if(!hUtmMem)
        {
                Trace("0x%x: Can not create pipe-shared memory\n",
GetLastError()) ;

                return(2) ;
        }

        if(GetLastError() == ERROR_ALREADY_EXISTS)
        {
                Trace("Another process is the UTM-Master\n",
GetLastError()) ;

                return(2) ;
        }

        lpUtmMem = MapViewOfFile(hUtmMem, FILE_MAP_ALL_ACCESS, 0, 0, 0) ;

        if(!lpUtmMem)
        {
                Trace("0x%x: Can not map pipe-shared memory\n",
GetLastError()) ;

                return(0) ;
        }

        lpUtmMem->dwMaxConnections = dwConnections ;
        lpUtmMem->lConnections     = 0 ;
        lpUtmMem->dwCpp            = MAX_TPP ;
        lpUtmMem->dwMaxTransferLen = sizeof(UTM_MSG) ;
        lpUtmMem->dwPIdMasterUtm   = GetCurrentProcessId() ;
        lpUtmMem->evTerminate      = evTerminate = CreateEvent(NULL,
TRUE, FALSE, NULL) ;
        lpUtmMem->smBreak          = smBreak = CreateSemaphore(&sa, 250,
250, NULL) ;

        if(!evTerminate || !smBreak)
        {
                Trace("0x%x: Can not create termination event\n",
GetLastError()) ;

                return(0) ;
        }

        return(1) ;
}
```

```
BOOL OpenPipeMem()
{
        hUtmMem = OpenFileMapping(FILE_MAP_ALL_ACCESS, FALSE,
UTM_MEM_SPACE) ;

        if(hUtmMem == NULL)
        {
                Trace("Can not open pipe-shared memory\n",
GetLastError()) ;
                return(FALSE) ;
        }

        lpUtmMem = MapViewOfFile(hUtmMem, FILE_MAP_ALL_ACCESS, 0, 0, 0) ;

        if(lpUtmMem)
        {
                evTerminate = DuplicateUtmHandle(lpUtmMem->evTerminate,
lpUtmMem->dwPIdMasterUtm) ;

                if(evTerminate)
                {
                        smBreak = DuplicateUtmHandle(lpUtmMem->smBreak,
lpUtmMem->dwPIdMasterUtm) ;

                        if(smBreak)
                                        return(TRUE) ;

                        Trace("0x%x: Can not duplicate termination
event\n", GetLastError()) ;
                } else Trace("0x%x: Can not duplicate termination
event\n", GetLastError()) ;
        }
        else Trace("0x%x: Can not map pipe-shared memory\n",
GetLastError()) ;

        return(FALSE) ;
}



BOOL __stdcall CtrlHandler(DWORD dwCtrlType)
{
        switch(dwCtrlType)
         {
          case CTRL_C_EVENT:
          case CTRL_BREAK_EVENT:
          case CTRL_CLOSE_EVENT:
          case CTRL_SHUTDOWN_EVENT:

                    Trace("Abort in process....\n") ;
                        SetEvent(evTerminate) ;

                        return(TRUE) ;
         }

        return(FALSE) ;
}


void CleanUp()
{
        if(evTerminate)
                                        SetEvent(evTerminate) ;

        if(lpUtmMem)
        {
                while(lpUtmMem->lConnections)
                                Sleep(100) ;

                UnmapViewOfFile(lpUtmMem) ;
        }

        if(hUtmMem)
                                CloseHandle(hUtmMem) ;

        if(evTerminate)
                                CloseHandle(evTerminate) ;

        if(dwMasterUtm)
                                CloseHandle(evUtmMemInit) ;

        if(smBreak)
                                CloseHandle(smBreak) ;
}


int __cdecl main(int argc, char ** argv)
{
        int iRepeat;
        int iPipeCount ;

        if (argc != 2)
        {
                fprintf(stderr, "usage: %s <remaining number of
pipes>\n", argv[0]);
                exit(1);
        }

        iPipeCount = atoi(argv[1]);

        if(iPipeCount < 1)
        {
                fprintf(stderr, "Bad number of remaining pipes\n") ;
```

```
                exit(1) ;
        }

        ProcessNumber = iPipeCount / MAX_TPP ;

#ifdef _DEBUG
        {
         char buf[_MAX_PATH];

         strcpy(buf, LOG_PATH);
         _mkdir(LOG_PATH);
         sprintf(buf+strlen(buf), LOG_NAME, ProcessNumber);
         freopen(buf, "w", stderr);

         setbuf(stderr, NULL);
        }
#endif

        pSD = (PSECURITY_DESCRIPTOR)
malloc(SECURITY_DESCRIPTOR_MIN_LENGTH);
        if (pSD == NULL)
        {
                        MessageBox(NULL, "Error
malloc(SECURITY_DESCRIPTOR_MIN_LENGTH)", "Init", MB_OK | MB_ICONSTOP);
                        return FALSE;
        }
        if (!InitializeSecurityDescriptor(pSD,
SECURITY_DESCRIPTOR_REVISION))
        {
                        MessageBox(NULL, "Error
InitializeSecurityDescriptor()", "Init", MB_OK | MB_ICONSTOP);
                        return FALSE;
        }
        // add a NULL disc.ACL to the security descriptor.
        if (!SetSecurityDescriptorDacl(pSD, TRUE, (PACL) NULL, FALSE))
        {
                        MessageBox(NULL, "Error
SetSecurityDescriptorDacl().", "Init", MB_OK | MB_ICONSTOP);
                        return FALSE;
        }

        sa.nLength=sizeof(sa);
        sa.lpSecurityDescriptor=pSD;
        sa.bInheritHandle=TRUE;

        Trace("utmclient %d starting with remaning pipes %d (as thread
0x%x)\n",
                    ProcessNumber, iPipeCount, GetCurrentThreadId());

        // general for all threads of this process
        strcpy ( local_name, "schwarz" );
        strcpy ( client_info.cltname, "schwarz" );
        strcpy ( client_info.usrname, "" );
        strcpy ( client_info.passwd, "" );

        switch(CreatePipeMem((DWORD) iPipeCount))
        {
         case 0: // Fatal error during shared mem init.

                  CleanUp() ;
                  exit(1) ;

         case 1: // The process is the Utm-Master

                  dwMasterUtm  = 1 ;
                  evUtmMemInit = CreateEvent(&sa, TRUE, FALSE,
UTM_MEM_EVENT) ;
                  break ;

         case 2: // Another process is the Utm-Master

                  if(OpenPipeMem() == FALSE)
                  {
                       CleanUp() ;
                       exit(1) ;
                  }
        }

        if(!dwMasterUtm)
        {
                iRepeat = iPipeCount > MAX_TPP ? MAX_TPP

       : iPipeCount ;

                while(iRepeat--)
                {
                        iPipeCount-- ;

                        // Start the child thread
                        if(_beginthread(MainThread, 0, (void *)
iPipeCount) == -1 )
                        {
                                Trace( "Unable to start another thread,
number=%d\n", iPipeCount);
                                exit (1);
                        }
                }
        }

        SetConsoleCtrlHandler(CtrlHandler, TRUE) ;

        if(iPipeCount)
        {
                STARTUPINFO         StartupInfo ;
                PROCESS_INFORMATION ProcessInformation ;
                char CmdLine[_MAX_PATH+20] ;
```

```
                wsprintf(CmdLine, "%s %d", argv[0], iPipeCount) ;

                GetStartupInfo(&StartupInfo) ;

                if(CreateProcess(argv[0], CmdLine, &sa, &sa, FALSE,
                                        NORMAL_PRIORITY_CLASS,
                                        NULL, NULL, &StartupInfo,
&ProcessInformation))
                {
                        CloseHandle(ProcessInformation.hProcess) ;
                        CloseHandle(ProcessInformation.hThread) ;
                }
                else
                {
                    CleanUp() ;
                    exit(1) ;
                }
        }

        if(dwMasterUtm)
        {
                while((DWORD) lpUtmMem->lConnections != lpUtmMem-
>dwMaxConnections &&   !dwAbortFlag)
                        Sleep(100) ;

                if(!dwAbortFlag)
                        SetEvent(evUtmMemInit) ;
        }

        WaitForSingleObject(evTerminate, INFINITE) ;

        CleanUp() ;

        return(dwAbortFlag == TRUE ? 1 : 0) ;
}

#define  UPICL_WIN32
#define  UTM_ON_WIN32
#include  <windows.h>
#include  <upic.h>
#include  <stdio.h>
#include  "pipe_routines.h"
#include  "trans.h"
#include  "utm.h"

#define LogFile stderr
// #define MAX_RECLEN 4096
#define MAX_RECLEN sizeof(UTM_DATA)

char    local_name[9];       // global for one Process

extern int ProcessNumber;
```

```
/* ------------------------------------ upic_init() ------------------
-----------*/
int upic_init()
{
        long            local_name_lth;
        CM_RETCODE      return_code;

        local_name_lth = strlen(local_name);
        Enable_UTM_UPIC ( (unsigned char *)local_name, &local_name_lth,
&return_code ) ;
        if ( return_code   !=  CM_OK )
        {
                fprintf (LogFile,"*** Enable_UTM_UPIC(): error %d\n",
return_code );
        }
        return (return_code);
}

/* ------------------------------------ upic_disable() ---------------
---------------*/
int upic_disable()
{
        CM_RETCODE      return_code;
        long            local_name_lth;

        local_name_lth = strlen(local_name);
        Disable_UTM_UPIC ( (unsigned char *)local_name, &local_name_lth,
&return_code );
        return (0);
}

/* ------------------------------------ upic_call() ------------------
-----------*/
int upic_call(DWORD dwId, char *service, char *sendbuff, int sendlen, char
*recbuff, int *reclen)
{

        long                    local_name_lth=8;
        CONVERSATION_ID         upic_conv_ID1;
        CM_RETCODE              return_code;
        DATA_RECEIVED   data_rcv;
        STATUS_RECEIVED         status_rcv;
        REQUEST_TO_SEND_RECEIVED    rq_to_send_rcv;
        unsigned char   sym_dest_name[9] = "SAMPLE00";
        long                    sym_dest_name_lth = 8;
        unsigned char   tp_name[9];
        long                    tp_name_lth = 0;
        long                    requ_lth;
        long                    rcv_lth;

        switch (  service[0] )
        {
```

```
                case 'N':
                        strcpy( tp_name, "KNORDER");
                        tp_name_lth = 7;
                    break;
                case 'S':
                        strcpy( tp_name, "KSTOCKL");
                        tp_name_lth = 7;
            break;
                case 'P':
                        strcpy( tp_name, "KPAYMENT");
                        tp_name_lth = 8;
            break;
                case 'O':
                        strcpy( tp_name, "KORDERST");
                        tp_name_lth = 8;
            break;
                default :
                        Trace("unknown service %s \n",service);
                        return (-99);
        }  /* end switch (service[0] */

        sprintf(sym_dest_name, "SERV10%02d", ProcessNumber+1);

        /* Initialize_Conversation - Call */

        Initialize_Conversation ( upic_conv_ID1, sym_dest_name,
&return_code );
        if ( return_code != CM_OK )
    {
                fprintf ( LogFile,"*** Initialize_Conversation() %s: error
%d\n", sym_dest_name, return_code );
                upic_disable();
                return (return_code);
        }

        /* Set_TP_Name - Call */

    Set_TP_Name ( upic_conv_ID1 , tp_name , &tp_name_lth , &return_code );
    if ( return_code != CM_OK )
    {
                fprintf ( LogFile,"*** Set_TP_Name(): error %d\n",
return_code );
                upic_disable();
                return (return_code);
    }

    /* Allocate - Call */

        {
                 int iI = 0 ;

                 while(1)
                 {
                        Allocate ( upic_conv_ID1, &return_code );

                        if ( return_code  !=  CM_OK )
                        {
                                fprintf ( LogFile,"*** Allocate(%d):
error %d\n", dwId, return_code );

                                if(++iI == 10)
                                        return (return_code);
                                else Sleep(250) ;
                        }
                        else break ;
                 }
        }

        Send_Data (    upic_conv_ID1,
                (unsigned char *) sendbuff,
                &sendlen,
                &rq_to_send_rcv,
                &return_code
                );
        if ( return_code != CM_OK )
    {
                fprintf ( LogFile, "*** Send_Data(): error %d\n",
return_code );
                upic_disable();
                return (return_code);
        }

        /* 1. Receive - Call for Data  */
    requ_lth = MAX_RECLEN;
    Receive ( upic_conv_ID1,
                (unsigned char *) recbuff,
                &requ_lth,
                &data_rcv,
                &rcv_lth,
                &status_rcv,
                &rq_to_send_rcv,
                &return_code
                );
        if ( ( return_code  ==  CM_OK )  ||
           ( return_code  ==  CM_DEALLOCATED_NORMAL ) )
        {
                if ( data_rcv  !=  CM_NO_DATA_RECEIVED )
            *reclen = rcv_lth;
        }
        else
        {
                fprintf ( LogFile,"*** 1. Receive(): error %d\n",
return_code );
                upic_disable();
                return (return_code);
        }
```

```
        /* 2. Receive - Call for Status CM_DEALLOCATED_NORMAL */
    if (  return_code  == CM_OK )
        {
                requ_lth = 0;
                Receive ( upic_conv_ID1,
                        (unsigned char *) recbuff,
                        &requ_lth,
                        &data_rcv,
                        &rcv_lth,
                        &status_rcv,
                        &rq_to_send_rcv,
                        &return_code
                        );
                if ( return_code  !=  CM_DEALLOCATED_NORMAL  )
        {
                        fprintf ( LogFile,"*** 2. Receive(): error %d\n",
return_code );
                        upic_disable();
                        return (return_code);
                }
        }

        return (0);
}

# Microsoft Developer Studio Generated NMAKE File, Format Version 4.10
# ** DO NOT EDIT **

# TARGTYPE "Win32 (x86) Console Application" 0x0103

!IF "$(CFG)" == ""
CFG=utm_client - Win32 Debug
!MESSAGE No configuration specified.  Defaulting to utm_client - Win32
Debug.
!ENDIF

!IF "$(CFG)" != "utm_client - Win32 Release" && "$(CFG)" !=\
 "utm_client - Win32 Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE on this
makefile
!MESSAGE by defining the macro CFG on the command line.  For example:
!MESSAGE
!MESSAGE NMAKE /f "utm_client.mak" CFG="utm_client - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "utm_client - Win32 Release" (based on\
 "Win32 (x86) Console Application")
!MESSAGE "utm_client - Win32 Debug" (based on\
 "Win32 (x86) Console Application")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF
################################################################################
######
# Begin Project
# PROP Target_Last_Scanned "utm_client - Win32 Debug"
CPP=cl.exe
RSC=rc.exe

!IF  "$(CFG)" == "utm_client - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "Release"
# PROP Intermediate_Dir "Release"
# PROP Target_Dir ""
OUTDIR=.\Release
INTDIR=.\Release

ALL : "$(OUTDIR)\utm_client.exe"

CLEAN :
        -@erase "$(INTDIR)\pipe_routines.obj"
        -@erase "$(INTDIR)\utm_client.obj"
        -@erase "$(INTDIR)\XATTOUPI.OBJ"
        -@erase "$(OUTDIR)\utm_client.exe"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/YX /c
# ADD CPP /nologo /MT /W3 /GX /O2 /D "NDEBUG" /D "WIN32" /D "_CONSOLE" /YX
/c
CPP_PROJ=/nologo /MT /W3 /GX /O2 /D "NDEBUG" /D "WIN32" /D "_CONSOLE"\
 /Fp"$(INTDIR)/utm_client.pch" /YX /Fo"$(INTDIR)/" /c
CPP_OBJS=.\Release/
CPP_SBRS=.\.
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
```

```
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)/utm_client.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib upicw32.lib /nologo /subsystem:console /machine:I386
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib\
 advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib\
 odbccp32.lib upicw32.lib /nologo /subsystem:console /incremental:no\
 /pdb:"$(OUTDIR)/utm_client.pdb" /machine:I386
/out:"$(OUTDIR)/utm_client.exe"
LINK32_OBJS= \
        "$(INTDIR)\pipe_routines.obj" \
        "$(INTDIR)\utm_client.obj" \
        "$(INTDIR)\XATTOUPI.OBJ"

"$(OUTDIR)\utm_client.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "utm_client - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "Debug"
# PROP Intermediate_Dir "Debug"
# PROP Target_Dir ""
OUTDIR=.\Debug
INTDIR=.\Debug

ALL : "$(OUTDIR)\utm_client.exe"

CLEAN :
        -@erase "$(INTDIR)\pipe_routines.obj"
        -@erase "$(INTDIR)\utm_client.obj"
        -@erase "$(INTDIR)\vc40.idb"
        -@erase "$(INTDIR)\vc40.pdb"
        -@erase "$(INTDIR)\XATTOUPI.OBJ"
        -@erase "$(OUTDIR)\utm_client.exe"
        -@erase "$(OUTDIR)\utm_client.ilk"
        -@erase "$(OUTDIR)\utm_client.pdb"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /YX /c
# ADD CPP /nologo /MT /W3 /Gm /GX /Zi /Od /D "_DEBUG" /D "WIN32" /D
"_CONSOLE" /YX /c
CPP_PROJ=/nologo /MT /W3 /Gm /GX /Zi /Od /D "_DEBUG" /D "WIN32" /D
"_CONSOLE"\
 /Fp"$(INTDIR)/utm_client.pch" /YX /Fo"$(INTDIR)/" /Fd"$(INTDIR)/" /c
CPP_OBJS=.\Debug/
CPP_SBRS=.\.
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)/utm_client.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /debug /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib upicw32.lib /nologo /subsystem:console /debug /machine:I386
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib\
 advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib\
 odbccp32.lib upicw32.lib /nologo /subsystem:console /incremental:yes\
 /pdb:"$(OUTDIR)/utm_client.pdb" /debug /machine:I386\
 /out:"$(OUTDIR)/utm_client.exe"
LINK32_OBJS= \
        "$(INTDIR)\pipe_routines.obj" \
        "$(INTDIR)\utm_client.obj" \
        "$(INTDIR)\XATTOUPI.OBJ"

"$(OUTDIR)\utm_client.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF

.c{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<
```

```
.c{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<

################################################################################
######
# Begin Target

# Name "utm_client - Win32 Release"
# Name "utm_client - Win32 Debug"

!IF  "$(CFG)" == "utm_client - Win32 Release"

!ELSEIF  "$(CFG)" == "utm_client - Win32 Debug"

!ENDIF

################################################################################
######
# Begin Source File

SOURCE=.\XATTOUPI.C
DEP_CPP_XATTO=\
        {$(INCLUDE)}"\pipe_routines.h"\
        {$(INCLUDE)}"\upic.h"\


"$(INTDIR)\XATTOUPI.OBJ" : $(SOURCE) $(DEP_CPP_XATTO) "$(INTDIR)"


# End Source File
################################################################################
######
# Begin Source File
```

Server Application Source Code

```
/*  ROOT SOURCE FOR APPLICATION SERV1  */

#define KDCENTRYNAME      kcxmnt
#define KDCUTMVERS        1
#define KDCMSGFILE        msgpriv
#define KDCMSGFILENAME    {'m','s','g','p','r','i','v',' '}
#define KDCVERSION        {'4','.','0','A'}
#define KDCDEFTIME        25478
#define KDCLTHKBPRG       1
```

```
SOURCE=.\utm_client.c
DEP_CPP_UTM_C=\
        {$(INCLUDE)}"\pipe_routines.h"\
        {$(INCLUDE)}"\sqldb.h"\
        {$(INCLUDE)}"\sqlfront.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\utm.h"\
        {$(INCLUDE)}"\xatmi.h"\
        {$(INCLUDE)}"\xatmidef.h"\


"$(INTDIR)\utm_client.obj" : $(SOURCE) $(DEP_CPP_UTM_C) "$(INTDIR)"


# End Source File
################################################################################
######
# Begin Source File

SOURCE="\openUTM-SRC\AUDIT\shared\pipe_routines.c"
DEP_CPP_PIPE_=\
        {$(INCLUDE)}"\pipe_routines.h"\
        {$(INCLUDE)}"\sqldb.h"\
        {$(INCLUDE)}"\sqlfront.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\utm.h"\


"$(INTDIR)\pipe_routines.obj" : $(SOURCE) $(DEP_CPP_PIPE_) "$(INTDIR)"
   $(CPP) $(CPP_PROJ) $(SOURCE)


# End Source File
# End Target
# End Project
################################################################################
######
```

```
#define KDCLTHSPAB        1000
#define KDCLTHMPUTAREA    4096
#define KDCLTHFMIOAREA    4120
#define KDCLTHRESTART     20480
#define KDCCLEARCH        0XAF
#if defined (__STDC__) && (__STDC__ == 1)
void KCSTRMA (char *) ;
#else
void KCSTRMA () ;
#endif
#define KDCFH             0
void f_formcon ()  { KCSTRMA ("NOFORM") ; }
static  char    korrver [9] = "NONE    ";
```

```
char *  n_korrver = &korrver[0];
#define KDCSTRTEXIT       1
#define KDCSHUTEXIT       1
#define KDCINPUTFORM      0
#define KDCINPUTLINE      0
#define KDCINPUTUSER      0
#define KDCBADTACS        0
#define KDCMSGTAC         0
#define KDCSIGNON         0
#define KDCNRDB           0
#define KDCLTHTAMifx      0
#define KDCLTHTSKMifx     0
#define KDCDBTYPE         0
#define KDCLTHDBTAB       0
#define KDCADRROOTTAM     (char *)&roottam
#define KDCADRROOTTSKM    (char *)(-1)
#define KDCADRDBOPCODE    (char *)(-1)
#define KDCADRDBCONPAA    (char *)(-1)
#define KDCADRDBENTRS     (char *)(-1)
#define KDCADRDBCODING    (char *)(-1)
#define KDCADRDBCODES     (char *)(-1)
#define KDCADRTAMHDRSV    (char *)(-1)
#define KDCADRDBTRACAR    (char *)(-1)
#define KDCADRDBERRMSG    (char *)0
#define KDCADRACNT        (char *)(-1)

#include <xirtstrt.h>


static struct linksect
        {
        char *addr_kdckb;
        char *addr_kdcspab;
        int end;
        } linksect =
        {
        (char *)0, /* set by kcxrtst */
        (char *)0, /* set by kcxrtst */
        (-2)
        };

#define KDCLASTADRLSECT   (char *)(-1)

extern void KDCADM();
extern void svrinit();
extern void svrdone();
extern void KNEW_ORDER();
extern void KSTOCK_LEVEL();
extern void KPAYMENT();
extern void KORDER_STATUS();

#define KDC_BLSGEN        0
static struct sprgtabl
    {
    struct prdc1
        {
        char program_name[32];
        char *program_addr;
        } prdc1;
    struct prdc2
        {
        char program_name[32];
        char *program_addr;
        } prdc2;
    struct prdc3
        {
        char program_name[32];
        char *program_addr;
        } prdc3;
    struct prdc4
        {
        char program_name[32];
        char *program_addr;
        } prdc4;
    struct prdc5
        {
        char program_name[32];
        char *program_addr;
        } prdc5;
    struct prdc6
        {
        char program_name[32];
        char *program_addr;
        } prdc6;
    struct prdc7
        {
        char program_name[32];
        char *program_addr;
        } prdc7;
    int endmark;
    } sprgtabl =
/* struct sprgtabl {        */ {
/*  struct prdc1     {      */   {
/*   char program_name[32]; */   {'K','D','C','A','D','M',' ',' ',' ','
',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ','
',' ',' ',' ',' '},
/*   char *program_addr;    */   (char *)KDCADM,
/*   } prdc1    ;           */   },
/*  struct prdc2     {      */   {
/*   char program_name[32]; */   {'s','v','r','i','n','i','t',' ',' ','
',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ','
',' ',' ',' ',' '},
/*   char *program_addr;    */   (char *)svrinit,
/*   } prdc2    ;           */   },
/*  struct prdc3     {      */   {
```

```
/*   char program_name[32]; */   {'s','v','r','d','o','n','e',' ',' ','
','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','
','  ','  ','  ','  '},
/*   char *program_addr;    */   (char *)svrdone,
/*   } prdc3    ;           */   },
/*  struct prdc4     {      */   {
/*   char program_name[32]; */
{'K','N','E','W','_','O','R','D','E','R',' ',' ',' ',' ',' ',' ',' ','
','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  '},
/*   char *program_addr;    */   (char *)KNEW_ORDER,
/*   } prdc4    ;           */   },
/*  struct prdc5     {      */   {
/*   char program_name[32]; */
{'K','S','T','O','C','K','_','L','E','V','E','L',' ',' ',' ',' ',' ','
','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  '},
/*   char *program_addr;    */   (char *)KSTOCK_LEVEL,
/*   } prdc5    ;           */   },
/*  struct prdc6     {      */   {
/*   char program_name[32]; */   {'K','P','A','Y','M','E','N','T',' ','
','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','
','  ','  ','  ','  '},
/*   char *program_addr;    */   (char *)KPAYMENT,
/*   } prdc6    ;           */   },
/*  struct prdc7     {      */   {
/*   char program_name[32]; */
{'K','O','R','D','E','R','_','S','T','A','T','U','S',' ',' ',' ',' ','
','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  ','  '},
/*   char *program_addr;    */   (char *)KORDER_STATUS,
/*   } prdc7    ;           */   },
/* int endmark;             */ (-2)
/* } sprgtabl;              */ };

#define KDCNRPRG          7

#define KDCNRAREA         0

static short exindlst[] = {
          2
          ,          3
          ,          0
          ,          0
          ,          0
          ,          0
          ,          0
          ,          0
          ,          0
          };

#define KDCCOBCON         (void(*)())(-2)
#define KDCCOB2CON        (void(*)())(-2)

void KDCCC   ();
#define KDCCCON           KDCCC
```

```
#include <xirtend.h>

#include <xirtcc.h>
                          ((char **)(iutmhlpar->area_addr))[0],
                          ((char **)(iutmhlpar->area_addr))[1]
                          );
  }
#include <xirtcprt.h>
return;
}

#include <windows.h>
#include <stdio.h>
#include <time.h>
#include <stdarg.h>

// UTM include files
#include <xatmi.h>
#include <kcmac.h>

// Database include files
#define DBNTWIN32
#include <sqlfront.h>
#include <sqldb.h>

// include files for this project
#define UTM_SERVER
#include "trans.h"
#include "tpcc.h"
#include "sqlroutines.h"
#include "utm.h"
#include "error.h"

#ifdef _DEBUG
__inline void __cdecl Trace(PSTR pFormat, ...)
{
 va_list Parameter ;

 va_start(Parameter, pFormat) ;

 vfprintf(stderr, pFormat, Parameter) ;
}
#else
__inline void __cdecl Trace(PSTR pFormat, ...) {}
#endif

__inline void __cdecl UtilStrCpy( char *pDest, char *pSrc, int n)
{
       strncpy( pDest, pSrc, n);
       pDest[n] = '\0';
}
```

```
// defines fuer KDCS-Programm
#define SPACE " "
#define KBKOPF kb->kopf
#define KBRFLD kb->rfld
#define pb spab->call_pb

// Global variables
short   iMaxConnections= 1;
char    szErrorLogPath[]="\\inetpub\\wwwroot\\err_tpcc_utm.txt";
DBPROCESS *pdbproc;
char    *Server = NULL;;
char    *Database = "tpcc";
char    *User = "sa";
char    *Password = "";
int            spId;
UTM_DATA data;
// TERM Term;
extern char ErrorMsgBuffer[] ;

EXTENSION_CONTROL_BLOCK *gpECB = NULL;
CRITICAL_SECTION ErrorLogCriticalSection;
BOOL    SQL_CONNECTED = FALSE;

// structur for KDCS-Error
static struct s_errdaten
{
       char message[80];
    char kcrc[8];
} errdaten;
// structur for UTM-data
                                    /*  SPAB   */
static struct work
{
       struct kc_pa call_pb;
} *spab;
                                    /*  KB     */
static struct kc_ca
{
       struct ca_hdr kopf;
       struct ca_rti rfld;
       char   user[1];
} *kb;


void WriteZString(EXTENSION_CONTROL_BLOCK *pECB, char *szStr)
{
       strcpy(data.Trans.ErrorMsg, szStr);
       data.Error = 1;
}

BOOL IsValidTermId(int TermId)
{
       return FALSE;
}

/* FUNCTION: int err_handler(DBPROCESS *dbproc, int severity, int dberr,
int oserr, char *dberrstr, char *oserrstr)
 *
 * PURPOSE:    This function handles DB-Library errors
 *
 * ARGUMENTS:  DBPROCESS             *dbproc               DBPROCESS id
pointer
 *                           int                           severity
              severity of error
 *                           int                           dberr
              error id
 *                           int                           oserr
              operating system specific error code
 *                           char                  *dberrstr
       printable error description of dberr
 *                           char                  *oserrstr
       printable error description of oserr
 *
 * RETURNS:          int                           INT_CONTINUE
       continue if error is SQLETIME else INT_CANCEL action
 *
 * COMMENTS:   None
 *
 */
int err_handler(DBPROCESS *dbproc, int severity, int dberr, int oserr,
char *dberrstr, char *oserrstr)
{
       PECBINFO                            pEcbInfo;
       EXTENSION_CONTROL_BLOCK       *pECB;
       FILE                                *fp;
       SYSTEMTIME                          systemTime;
       char                                szTmp[256];
       int                                        iTermId;
       int                                        iSyncId;

       pEcbInfo = NULL;

       if ((dbproc == NULL) || (DBDEAD(dbproc)))
       {
              ErrorMessage(gpECB, -1, ERR_TYPE_DBLIB, "DBPROC is
invalid.", 0, 0);
              return INT_CANCEL;
       }

       if ( !(pEcbInfo = (PECBINFO)dbgetuserdata(dbproc)) )
       {
              pECB = gpECB;
              iTermId = 0;
              iSyncId = 0;
       }
```

```
	else
	{
		pECB = pEcbInfo->pECB;
		iTermId = pEcbInfo->iTermId;
		iSyncId = pEcbInfo->iSyncId;
	}

	if ( pEcbInfo && pEcbInfo->bFailed )
		return INT_CANCEL;

	if ( oserr != DBNOERR )
	{
		ErrorMessage(pECB, oserr, ERR_TYPE_DBLIB, oserrstr,
iTermId, iSyncId);

		if ( pEcbInfo )
			pEcbInfo->bFailed = TRUE;

		GetLocalTime(&systemTime);
		fp = fopen(szErrorLogPath, "ab");

		EnterCriticalSection(&ErrorLogCriticalSection);

		sprintf(szTmp, "Error: DBLIB(%d): %s", oserr, oserrstr);

		fprintf(fp, "%2.2d/%2.2d/%2.2d
%2.2d:%2.2d:%2.2d\r\n\r\n%s\r\n\r\n",
			systemTime.wYear, systemTime.wMonth,
systemTime.wDay,
			systemTime.wHour, systemTime.wMinute,
systemTime.wSecond,
			szTmp);
		LeaveCriticalSection(&ErrorLogCriticalSection);

		fclose(fp);
	}


	return INT_CANCEL;
}


/* FUNCTION: int msg_handler(DBPROCESS *dbproc, DBINT msgno, int
msgstate, int severity, char *msgtext)
 *
 * PURPOSE:    This function handles DB-Library SQL Server error messages
 *
 * ARGUMENTS:  DBPROCESS		*dbproc		DBPROCESS id
pointer
 *			DBINT		msgno
	message number
 *			int			msgstate
		message state
 *			int			severity
		message severity
 *			char		*msgtext
	printable message description
 *
 * RETURNS:	int			INT_CONTINUE
	continue if error is SQLETIME else INT_CANCEL action
 *							INT_CANCEL
		cancel operation
 *
 * COMMENTS:   This function also sets the dead lock dbproc variable if
necessary.
 *
 */
int msg_handler(DBPROCESS *dbproc, DBINT msgno, int msgstate, int
severity, char *msgtext)
{
	PECBINFO				pEcbInfo;
	EXTENSION_CONTROL_BLOCK	*pECB;
	FILE					*fp;
	SYSTEMTIME				systemTime;
	char					szTmp[256];
	int						iTermId;
	int						iSyncId;

	if ( !(pEcbInfo = (PECBINFO)dbgetuserdata(dbproc)) )
	{
		pECB = gpECB;
		iTermId = 0;
		iSyncId = 0;
	}
	else
	{
		pECB = pEcbInfo->pECB;
		iTermId = pEcbInfo->iTermId;
		iSyncId = pEcbInfo->iSyncId;
	}


	if ( (msgno == 5701) || (msgno == 2528) || (msgno == 5703) ||
(msgno == 6006) )
		return INT_CONTINUE;

	// deadlock message
	if (msgno == 1205)
	{
		// set the deadlock indicator
		if ( pEcbInfo )
			pEcbInfo->bDeadlock = TRUE;
		else
			ErrorMessage(pECB, -1, ERR_TYPE_SQL, "Error,
dbgetuserdata returned NULL.", iTermId, iSyncId);
		return INT_CONTINUE;
```

```
        }
        if ( pEcbInfo && pEcbInfo->bFailed )
                return INT_CANCEL;

        if (msgno == 0)
                return INT_CONTINUE;
        else
        {
                ErrorMessage(pECB, msgno, ERR_TYPE_SQL, msgtext, iTermId,
iSyncId);

                if ( pEcbInfo )
                        pEcbInfo->bFailed = TRUE;

                GetLocalTime(&systemTime);
                fp = fopen(szErrorLogPath, "ab");

                EnterCriticalSection(&ErrorLogCriticalSection);
                sprintf(szTmp, "Error: SQLSVR(%d): %s", msgno, msgtext);
                fprintf(fp, "%2.2d/%2.2d/%2.2d
%2.2d:%2.2d:%2.2d\r\n\r\n%s\r\n\r\n",
                        systemTime.wYear, systemTime.wMonth,
systemTime.wDay,
                        systemTime.wHour, systemTime.wMinute,
systemTime.wSecond,
                        szTmp);
                LeaveCriticalSection(&ErrorLogCriticalSection);

                fclose(fp);
        }

        return INT_CANCEL;
}


BOOL SQLInit(void)
{
        extern short iMaxConnections;

        dbinit();
        if ( dbgetmaxprocs() < iMaxConnections )
        {
                if ( dbsetmaxprocs( iMaxConnections) == FAIL )
                {
                        // set for fail error message when
HttpExtensionProc() is called because
                        // at this point we don't have a pECB so no way to
show error message.
                        iMaxConnections = -1;
                }
        }
        // install error and message handlers
        dbmsghandle((DBMSGHANDLE_PROC) msg_handler);
        dberrhandle((DBERRHANDLE_PROC) err_handler);

        InitializeCriticalSection(&ErrorLogCriticalSection);
        return TRUE;
}

/* FUNCTION: BOOL SQLOpenConnection(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId, DBPROCESS **dbproc, char *server, char *database,
char *user, char *password, char *app, int *spid, long *pack_size)
 *
 * PURPOSE:    This function opens the sql connection for use.
 *
 * ARGUMENTS:  EXTENSION_CONTROL_BLOCK       *pECB   passed in structure
pointer from inetsrv.
 *                           int                             iTermId
        terminal id of browser
 *                           int                             iSyncId
        sync id of browser
 *                           DBPROCESS               **dbproc
        pointer to returned DBPROCESS
 *                           char                    *server         SQL
server name
 *                           char                    *database       SQL
server database
 *                           char                    *user           user
name
 *                           char                    *password       user
password
 *                           char                    *app
        pointer to returned application array
 *                           int                             *spid
        pointer to returned spid
 *                           long                    *pack_size
        pointer to returned default pack size
 *
 * RETURNS:            BOOL    FALSE   if successfull
 *                                             TRUE    if an error occurs
 *
 * COMMENTS:   None
 *
 */


BOOL SQLOpenConnection(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId, DBPROCESS **dbproc, char *server, char *database, char *user,
char *password, char *app, int *spid)
{
        LOGINREC        *login;
        PECBINFO        pEcbInfo;

        //set local msg proc for login record
        //attach pECB record
```

```
	//this is necessary as dblib provides no way to pass user data in
a login structure. So until
	//there is an allocated dbproc we need to use a static which means
that the login attempt must
	//be serialized.

	gpECB = pECB;

	login = dblogin();
	if ( !*user )
		DBSETLUSER(login, "sa");
	else
		DBSETLUSER(login, user);

	DBSETLPWD(login,  password);
	DBSETLHOST(login, app);

	DBSETLPACKET(login, (unsigned short)DEFCLPACKSIZE);

	if ((*dbproc = dbopen(login, server )) == NULL)
		return TRUE;

	//set pECB data into dbproc
	pEcbInfo = (PECBINFO)malloc(sizeof(ECBINFO));
	pEcbInfo->bDeadlock = FALSE;
	pEcbInfo->pECB = pECB;
	pEcbInfo->iTermId = iTermId;
	pEcbInfo->iSyncId = iSyncId;
	dbsetuserdata(*dbproc, pEcbInfo);

	// Use the the right database
	dbuse(*dbproc, database);

	dbcmd(*dbproc, "select @@spid");

	dbsqlexec(*dbproc);
	while (dbresults(*dbproc) != NO_MORE_RESULTS)
	{
		dbbind(*dbproc, 1, SMALLBIND, (DBINT) 0, (BYTE *) spid);
		while (dbnextrow(*dbproc) != NO_MORE_ROWS)
			;
		}
		dbcmd(*dbproc, "set nocount on");

		dbsqlexec(*dbproc);
		while (dbresults(*dbproc) != NO_MORE_RESULTS)
		{
			while (dbnextrow(*dbproc) != NO_MORE_ROWS)
			;
		}

		//rollback transaction on abort
		dbcmd(*dbproc, "set XACT_ABORT ON");
		dbsqlexec(*dbproc);
		while (dbresults(*dbproc) != NO_MORE_RESULTS)
		{
			while (dbnextrow(*dbproc) != NO_MORE_ROWS)
			;
		}

		return FALSE;
}


int  svrinit(int argc, char *argv[])
{
	char App[1024];
	char *sysname;
	Trace("starting the UTM TPCC Server");
	if (getenv("COMPUTERNAME"))
	{
		sysname = strdup(getenv("COMPUTERNAME"));
		sprintf (App, "%s",sysname);
	}
	else
		strcpy(App, "TPCC");

	if (!SQLInit())
	{
		Trace("SQLInit failed");
		return -1;
	}
	if (getenv("SERVER"))
		Server = strdup(getenv("SERVER"));
	if (Server == NULL)
	{
		Trace("SERVER Environment variable not set");
		return -1;
	}
	if (SQLOpenConnection(NULL, 0, 0, &pdbproc, Server, Database,
User, Password, App, &spId))
	{
		Trace("SQLOpenconnection failed");
		// SQLCleanup();
		dbexit();
		return -1;
	}
    SQL_CONNECTED = TRUE;
	return 0;
}


void  svrdone(void)
{
	Trace("Shut down UTM-server");
```

```
	free(Server);
//	SQLCloseConnection(NULL, pdbproc);
	dbclose(pdbproc);
//	SQLCleanup();
	dbexit();
}

/* FUNCTION: BOOL SQLDetectDeadlock(DBPROCESS *dbproc)
 *
 * PURPOSE:    This function checks to see if a sql server deadlock
condition exists.
 *
 * ARGUMENTS:  DBPROCESS                       *dbproc
	connection db process id to check
 *
 * RETURNS:            BOOL    FALSE          no deadlock detected
 *                                            TRUE           deadlock
condition exists
 *
 * COMMENTS:   None
 *
 */

BOOL SQLDetectDeadlock(DBPROCESS *dbproc)
{
	PECBINFO	pEcbInfo;

	if ( (pEcbInfo = (PECBINFO)dbgetuserdata(dbproc)) )
	{
		if ( pEcbInfo->bDeadlock )
		{
			pEcbInfo->bDeadlock = FALSE;
			return TRUE;
		}
	}
	return FALSE;
}

/* FUNCTION: SQLStockLevel(EXTENSION_CONTROL_BLOCK   *pECB, int iTermId,
int iSyncId, DBPROCESS *dbproc, STOCK_LEVEL_DATA *pStockLevel, short
deadlock_retry)
 *
 * PURPOSE:    This function handles the stock level transaction.
 *
 * ARGUMENTS:  EXTENSION_CONTROL_BLOCK       *pECB                 passed
in structure pointer from inetsrv.
 *                           int
	iTermId                 terminal id of browser
 *                           int
	iSyncId                 sync id of browser
 *                           DBPROCESS
	*dbproc                 connection db process id
 *                           STOCK_LEVEL_DATA              *pStockLevel
	stock level input / output data structure
 *                           short
	deadlock_retry retry count if deadlocked
 *
 * RETURNS:            BOOL    FALSE          if successfull
 *                                            TRUE           if deadlocked
 *
 * COMMENTS:   None
 *
 */

BOOL SQLStockLevel(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId, DBPROCESS *dbproc, STOCK_LEVEL_DATA *pStockLevel, short
deadlock_retry)
{
	int			tryit;
	RETCODE		rc;
	char		printbuf[25];
	BYTE		*pData;
	PECBINFO	pEcbInfo;

	//update pECB and bFailed flag
	if ( (pEcbInfo = (PECBINFO)dbgetuserdata(dbproc)) )
	{
		pEcbInfo->pECB = pECB;
		pEcbInfo->bFailed = FALSE;
		pEcbInfo->iTermId = iTermId;
		pEcbInfo->iSyncId = iSyncId;
	}

	pStockLevel->num_deadlocks = 0;

	for (tryit=0; tryit < deadlock_retry; tryit++)
	{
		if (dbrpcinit(dbproc, "tpcc_stocklevel", 0) == SUCCEED)
		{
			dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1, (BYTE
*) &pStockLevel->w_id);
			dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1, (BYTE
*) &pStockLevel->d_id);
			dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1, (BYTE
*) &pStockLevel->thresh_hold);

			if (dbrpcexec(dbproc) == SUCCEED)
			{
				while (((rc = dbresults(dbproc)) !=
NO_MORE_RESULTS) && (rc != FAIL))
				{
					if (DBROWS(dbproc))
					{
						while (((rc =
dbnextrow(dbproc)) != NO_MORE_ROWS) && (rc != FAIL))
```

```
                                        {

        if(pData=dbdata(dbproc, 1))
                                                                pStockLevel-
>low_stock = *((long *) pData);
                                        }
                                    }
                                }
                        }
                }
                if (SQLDetectDeadlock(dbproc))
                {
                        pStockLevel->num_deadlocks++;
                        sprintf(printbuf,"deadlock: retry: %d",pStockLevel-
>num_deadlocks);
                        Sleep(10 * tryit);
                }
                else
                {
                        strcpy(pStockLevel->execution_status, "Transaction
commited.");
                        return FALSE;
                }
        }

        // If we reached here, it means we quit after MAX_RETRY deadlocks
        strcpy(pStockLevel->execution_status, "Hit deadlock max. ");
        return TRUE;
}

/* FUNCTION: int SQLNewOrder(EXTENSION_CONTROL_BLOCK *pECB, int iTermId,
int iSyncId, int iTermId, int iSyncId, DBPROCESS *dbproc, NEW_ORDER_DATA
*pNewOrder, short deadlock_retry)
 *
 * PURPOSE:    This function handles the new order transaction.
 *
 * ARGUMENTS:  EXTENSION_CONTROL_BLOCK       *pECB                   passed
in structure pointer from inetsrv.
 *                           int
        iTermId                 terminal id of browser
 *                           int
        iSyncId                 sync id of browser
 *                           DBPROCESS
        *dbproc                 connection db process id
 *                           NEW_ORDER_DATA                *pNewOrder
                pointer to new order structure for input/output data
 *                           short
        deadlock_retry retry count if deadlocked
 *
 * RETURNS:            int     TRUE    transaction committed
 *                                     FALSE   item number not valid
 *                                     -1              deadlock max retry
reached
 *
 *
 * COMMENTS:   None
 *
 */

int SQLNewOrder(EXTENSION_CONTROL_BLOCK      *pECB, int iTermId, int
iSyncId, DBPROCESS *dbproc, NEW_ORDER_DATA  *pNewOrder, short
deadlock_retry)
{
        RETCODE                 rc;
        int                             i;
        DBINT                   commit_flag;
        int                             tryit;
        char                    printbuf[25];
        char                    tmpbuf[30];
        DBDATETIME              datetime;
        BYTE                    *pData;
        PECBINFO                pEcbInfo;

        if ( (pEcbInfo = (PECBINFO)dbgetuserdata(dbproc)) )
        {
                pEcbInfo->pECB = pECB;
                pEcbInfo->bFailed = FALSE;
                pEcbInfo->iTermId = iTermId;
                pEcbInfo->iSyncId = iSyncId;
        }

        pNewOrder->num_deadlocks = 0;

        strcpy(tmpbuf, "tpcc_neworder");

        for (tryit=0; tryit < deadlock_retry; tryit++)
        {
                if (dbrpcinit(dbproc, tmpbuf, 0) == SUCCEED)
                {
                        dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1, (BYTE
*) &pNewOrder->w_id);
                        dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1, (BYTE
*) &pNewOrder->d_id);
                        dbrpcparam(dbproc, NULL, 0, SQLINT4, -1, -1, (BYTE
*) &pNewOrder->c_id);
                        dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1, (BYTE
*) &pNewOrder->o_ol_cnt);

                        pNewOrder->o_all_local = 1;
                        for (i = 0; i < pNewOrder->o_ol_cnt; i++)
                        {
                                if ( pNewOrder->o_all_local && pNewOrder-
>Ol[i].ol_supply_w_id != pNewOrder->w_id )
                                        pNewOrder->o_all_local = 0;
                        }
```

```
                        dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1, (BYTE
*) &pNewOrder->o_all_local);

                        for (i = 0; i < pNewOrder->o_ol_cnt; i++)
                        {
                                dbrpcparam(dbproc, NULL, 0, SQLINT4, -1, -
1, (BYTE *) &pNewOrder->Ol[i].ol_i_id);
                                dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -
1, (BYTE *) &pNewOrder->Ol[i].ol_supply_w_id);
                                dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -
1, (BYTE *) &pNewOrder->Ol[i].ol_quantity);
                        }

                        if (dbrpcexec(dbproc) == SUCCEED)
                        {
                                pNewOrder->total_amount=0;

                                // Get resutls from order line
                                for (i = 0; i<pNewOrder->o_ol_cnt; i++)
                                {
                                        if (((rc = dbresults(dbproc)) !=
NO_MORE_RESULTS) && (rc != FAIL))
                                        {
                                                if (DBROWS(dbproc) &&
(dbnumcols(dbproc) == 5))
                                                {
                                                        while
(dbnextrow(dbproc) != NO_MORE_ROWS)
                                                        {

        if(pData=dbdata(dbproc, 1))

        UtilStrCpy(pNewOrder->Ol[i].ol_i_name, pData, dbdatlen(dbproc,
1));

        if(pData=dbdata(dbproc, 2))

        pNewOrder->Ol[i].ol_stock = (*(DBSMALLINT *) pData);

        if(pData=dbdata(dbproc, 3))

        UtilStrCpy(pNewOrder->Ol[i].ol_brand_generic, pData,
dbdatlen(dbproc, 3));

        if(pData=dbdata(dbproc, 4))

        pNewOrder->Ol[i].ol_i_price = (*(DBFLT8 *) pData);


        if(pData=dbdata(dbproc, 5))


        pNewOrder->Ol[i].ol_amount = (*(DBFLT8 *) pData);
                                                                pNewOrder-
>total_amount = pNewOrder->total_amount + pNewOrder->Ol[i].ol_amount;
                                                        }
                                                }
                                        }
                                }
                                while (((rc = dbresults(dbproc)) !=
NO_MORE_RESULTS) && (rc != FAIL))
                                {
                                        if (DBROWS(dbproc) &&
(dbnumcols(dbproc) == 8))
                                        {
                                                while (((rc =
dbnextrow(dbproc)) != NO_MORE_ROWS) && (rc != FAIL))
                                                {

        if(pData=dbdata(dbproc, 1))

                                                                pNewOrder-
>w_tax = (*(DBFLT8 *) pData);




        if(pData=dbdata(dbproc, 2))

                                                                pNewOrder-
>d_tax = (*(DBFLT8 *) pData);




        if(pData=dbdata(dbproc, 3))
                                                                pNewOrder-
>o_id = (*(DBINT *) pData);

        if(pData=dbdata(dbproc, 4))

        UtilStrCpy(pNewOrder->c_last, pData, dbdatlen(dbproc, 4));

        if(pData=dbdata(dbproc, 5))
                                                                pNewOrder-
>c_discount = (*(DBFLT8 *) pData);
```

```
        if(pData=dbdata(dbproc, 6))

        UtilStrCpy(pNewOrder->c_credit, pData, dbdatlen(dbproc, 6));

        if(pData=dbdata(dbproc, 7))
                                                {
                                                        datetime =
*((DBDATETIME *) pData);

        dbdatecrack(dbproc, &pNewOrder->o_entry_d, &datetime);
                                                }

        if(pData=dbdata(dbproc, 8))commit_flag = (*(DBTINYINT *) pData);
                                            }
                                    }
                        }
                        }
                }
                if (SQLDetectDeadlock(dbproc))
                {
                        pNewOrder->num_deadlocks++;
                        sprintf(printbuf,"deadlock: retry: %d",pNewOrder-
>num_deadlocks);
                        Sleep(DEADLOCKWAIT*tryit);
                }
                else
                {
                        if (commit_flag == 1)
                        {
                                pNewOrder->total_amount = pNewOrder-
>total_amount * ((1 + pNewOrder->w_tax + pNewOrder->d_tax) * (1 -
pNewOrder->c_discount));
                                strcpy(pNewOrder-
>execution_status,"Transaction commited.");

                                return TRUE;
                        }
                        else
                        {
                                strcpy(pNewOrder->execution_status,"Item
number is not valid.");
                                return FALSE;
                        }
                }
        }

        // If we reached here, it means we quit after MAX_RETRY deadlocks
        strcpy(pNewOrder->execution_status,"Hit deadlock max.  ");

        return -1;      //      "deadlock max retry reached!"
}
```

```
/* FUNCTION: int SQLPayment(EXTENSION_CONTROL_BLOCK *pECB, int iTermId,
int iSyncId, DBPROCESS *dbproc, PAYMENT_DATA *pPayment, short
deadlock_retry)
 *
 * PURPOSE:    This function handles the payment transaction.
 *
 * ARGUMENTS:  EXTENSION_CONTROL_BLOCK       *pECB                   passed
in structure pointer from inetsrv.
 *                              int
        iTermId                 terminal id of browser
 *                              int
        iSyncId                 sync id of browser
 *                              DBPROCESS
        *dbproc                 connection db process id
 *                              PAYMENT_DATA                    *pPayment
                pointer to payment input/output data structure
 *                              short
        deadlock_retry deadlock retry count
 *
 * RETURNS:             int     TRUE            success
 *                                      -1                      max
deadlocked reached
 *
 * COMMENTS:   None
 *
 */

int SQLPayment(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int iSyncId,
DBPROCESS *dbproc, PAYMENT_DATA *pPayment, short deadlock_retry)
{
        RETCODE         rc;
        int                     tryit;
        char            printbuf[26];
        BOOL            by_name;
        DBDATETIME      datetime;
        BYTE            *pData;
        PECBINFO        pEcbInfo;

        if ( (pEcbInfo = (PECBINFO)dbgetuserdata(dbproc)) )
        {
                pEcbInfo->pECB = pECB;
                pEcbInfo->bFailed = FALSE;
                pEcbInfo->iTermId = iTermId;
                pEcbInfo->iSyncId = iSyncId;
        }

        pPayment->num_deadlocks = 0;

        if (pPayment->c_id == 0)
                by_name = TRUE;
        else
                by_name = FALSE;
```

```
	for (tryit=0; tryit < deadlock_retry; tryit++)
	{
		if (dbrpcinit(dbproc, "tpcc_payment", 0) == SUCCEED)
		{
			dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1, (BYTE
*) &pPayment->w_id);
			dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1, (BYTE
*) &pPayment->c_w_id);
			dbrpcparam(dbproc, NULL, 0, SQLFLT8, -1, -1, (BYTE
*) &pPayment->h_amount);
			dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1, (BYTE
*) &pPayment->d_id);
			dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1, (BYTE
*) &pPayment->c_d_id);
			dbrpcparam(dbproc, NULL, 0, SQLINT4, -1, -1, (BYTE
*) &pPayment->c_id);
			if (pPayment->c_id == 0)
			{
				dbrpcparam(dbproc, NULL, 0, SQLCHAR, -1,
strlen(pPayment->c_last), pPayment->c_last);
			}
		}
		if (dbrpcexec(dbproc) == SUCCEED)
		{
			while (((rc = dbresults(dbproc)) !=
NO_MORE_RESULTS) && (rc != FAIL))
			{
				if (DBROWS(dbproc) && (dbnumcols(dbproc) ==
27))
				{
					while (((rc = dbnextrow(dbproc)) !=
NO_MORE_ROWS) && (rc != FAIL))
					{
						if(pData=dbdata(dbproc, 1))
							pPayment->c_id =
*((DBINT *) pData);
						if(pData=dbdata(dbproc, 2))
							UtilStrCpy(pPayment-
>c_last, pData, dbdatlen(dbproc, 2));
						if(pData=dbdata(dbproc, 3))
						{
							datetime =
*((DBDATETIME *) pData);
							dbdatecrack(dbproc,
&pPayment->h_date, &datetime);
						}
						if(pData=dbdata(dbproc, 4))
							UtilStrCpy(pPayment-
>w_street_1, pData, dbdatlen(dbproc, 4));
						if(pData=dbdata(dbproc, 5))
							UtilStrCpy(pPayment-
>w_street_2, pData, dbdatlen(dbproc, 5));
						if(pData=dbdata(dbproc, 6))
							UtilStrCpy(pPayment-
>w_city, pData, dbdatlen(dbproc, 6));
						if(pData=dbdata(dbproc, 7))
							UtilStrCpy(pPayment-
>w_state, pData, dbdatlen(dbproc, 7));
						if(pData=dbdata(dbproc, 8))
							UtilStrCpy(pPayment-
>w_zip, pData, dbdatlen(dbproc, 8));
						if(pData=dbdata(dbproc, 9))
							UtilStrCpy(pPayment-
>d_street_1, pData, dbdatlen(dbproc, 9));
						if(pData=dbdata(dbproc, 10))
							UtilStrCpy(pPayment-
>d_street_2, pData, dbdatlen(dbproc, 10));
						if(pData=dbdata(dbproc, 11))
							UtilStrCpy(pPayment-
>d_city, pData, dbdatlen(dbproc, 11));
						if(pData=dbdata(dbproc, 12))
							UtilStrCpy(pPayment-
>d_state, pData, dbdatlen(dbproc, 12));
						if(pData=dbdata(dbproc, 13))
							UtilStrCpy(pPayment-
>d_zip, pData, dbdatlen(dbproc, 13));
						if(pData=dbdata(dbproc, 14))
							UtilStrCpy(pPayment-
>c_first, pData, dbdatlen(dbproc, 14));
						if(pData=dbdata(dbproc, 15))
							UtilStrCpy(pPayment-
>c_middle, pData, dbdatlen(dbproc, 15));
						if(pData=dbdata(dbproc, 16))
							UtilStrCpy(pPayment-
>c_street_1, pData, dbdatlen(dbproc, 16));
						if(pData=dbdata(dbproc, 17))
							UtilStrCpy(pPayment-
>c_street_2, pData, dbdatlen(dbproc, 17));
						if(pData=dbdata(dbproc, 18))
							UtilStrCpy(pPayment-
>c_city, pData, dbdatlen(dbproc, 18));
						if(pData=dbdata(dbproc, 19))
							UtilStrCpy(pPayment-
>c_state, pData, dbdatlen(dbproc, 19));
						if(pData=dbdata(dbproc, 20))
							UtilStrCpy(pPayment-
>c_zip, pData, dbdatlen(dbproc, 20));
						if(pData=dbdata(dbproc, 21))
							UtilStrCpy(pPayment-
>c_phone, pData, dbdatlen(dbproc, 21));
						if(pData=dbdata(dbproc, 22))
						{
							datetime =
*((DBDATETIME *) pData);
							dbdatecrack(dbproc,
&pPayment->c_since, &datetime);
```

```
                                        }
                                        if(pData=dbdata(dbproc, 23))
                                                UtilStrCpy(pPayment-
>c_credit, pData, dbdatlen(dbproc, 23));
                                        if(pData=dbdata(dbproc, 24))
                                                pPayment-
>c_credit_lim = (*(DBFLT8 *) pData);
                                        if(pData=dbdata(dbproc, 25))
                                                pPayment->c_discount
= (*(DBFLT8 *) pData);
                                        if(pData=dbdata(dbproc, 26))
                                                pPayment->c_balance =
(*(DBFLT8 *) pData);
                                        if(pData=dbdata(dbproc, 27))
                                                UtilStrCpy(pPayment-
>c_data, pData, dbdatlen(dbproc, 27));
                                                }
                                }
                        }
                }
                if (SQLDetectDeadlock(dbproc))
                {
                        pPayment->num_deadlocks++;
                        sprintf(printbuf,"deadlock: retry: %d",pPayment-
>num_deadlocks);
                        Sleep(DEADLOCKWAIT*tryit);
                }
                else
                {
                        if ( pPayment->c_id == 0 )
                        {
                                strcpy(pPayment->execution_status,"Invalid
Customer id,name.");
                                return 0;
                        }
                        else
                                strcpy(pPayment-
>execution_status,"Transaction commited.");
                        return TRUE;
                }
        }
        // If we reached here, it means we quit after MAX_RETRY deadlocks
        strcpy(pPayment->execution_status,"Hit deadlock max.  ");
        return -1; //"deadlock max retry reached!"
}

/* FUNCTION: int SQLOrderStatus(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, int iSyncId, DBPROCESS *dbproc, ORDER_STATUS_DATA *pOrderStatus,
short deadlock_retry)
 *
 * PURPOSE:    This function processes the Order Status transaction.
 *
 * ARGUMENTS:  EXTENSION_CONTROL_BLOCK       *pECB                   passed
in structure pointer from inetsrv.
 *                              int
       iTermId                 terminal id of browser
 *                              int
       iSyncId                 sync id of browser
 *                              DBPROCESS
       *dbproc                 connection db process id
 *                              ORDER_STATUS_DATA             *pOrderStatus
       pointer to Order Status data input/output structure
 *                              short
       deadlock_retry deadlock retry count
 *
 * RETURNS:            int     -1              max deadlock reached
 *                                     0               No orders found for
customer
 *                                     1               Transaction
successfull
 *
 * COMMENTS:   None
 *
 */

int SQLOrderStatus(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, int
iSyncId, DBPROCESS *dbproc, ORDER_STATUS_DATA *pOrderStatus, short
deadlock_retry)
{
        RETCODE         rc;
        int                     tryit;
        int                     i;
        char            printbuf[25];
        BOOL            by_name;
        DBDATETIME      datetime;
        BYTE            *pData;
        PECBINFO        pEcbInfo;

        if ( (pEcbInfo = (PECBINFO)dbgetuserdata(dbproc)) )
        {
                pEcbInfo->pECB = pECB;
                pEcbInfo->bFailed = FALSE;
                pEcbInfo->iTermId = iTermId;
                pEcbInfo->iSyncId = iSyncId;
        }

        pOrderStatus->num_deadlocks = 0;
        if (pOrderStatus->c_id == 0)
                by_name = TRUE;
        else
                by_name = FALSE;

        for (tryit=0; tryit < deadlock_retry; tryit++)
        {
                if (dbrpcinit(dbproc, "tpcc_orderstatus", 0) == SUCCEED)
```

```
		{
			dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1, (BYTE
*) &pOrderStatus->w_id);
			dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1, (BYTE
*) &pOrderStatus->d_id);
			dbrpcparam(dbproc, NULL, 0, SQLINT4, -1, -1, (BYTE
*) &pOrderStatus->c_id);
			if (pOrderStatus->c_id == 0)
			{
				dbrpcparam(dbproc, NULL, 0, SQLCHAR, -1,
strlen(pOrderStatus->c_last), pOrderStatus->c_last);
			}
		}
		if (dbrpcexec(dbproc) == SUCCEED)
		{
			while (((rc = dbresults(dbproc)) !=
NO_MORE_RESULTS) && (rc != FAIL))
			{
				if (DBROWS(dbproc) && (dbnumcols(dbproc) ==
5))
				{
					i=0;
					while (((rc = dbnextrow(dbproc)) !=
NO_MORE_ROWS) && (rc != FAIL))
					{
						if(pData=dbdata(dbproc, 1))
							pOrderStatus-
>OlOrderStatusData[i].ol_supply_w_id = (*(DBSMALLINT *) pData);
						if(pData=dbdata(dbproc, 2))
							pOrderStatus-
>OlOrderStatusData[i].ol_i_id = (*(DBINT *) pData);
						if(pData=dbdata(dbproc, 3))
							pOrderStatus-
>OlOrderStatusData[i].ol_quantity = (*(DBSMALLINT *) pData);
						if(pData=dbdata(dbproc, 4))
							pOrderStatus-
>OlOrderStatusData[i].ol_amount = (*(DBFLT8 *) pData);
						if(pData=dbdata(dbproc, 5))
						{
							datetime =
*((DBDATETIME *) pData);
							dbdatecrack(dbproc,
&pOrderStatus->OlOrderStatusData[i].ol_delivery_d, &datetime);
						}
						i++;
					}
					pOrderStatus->o_ol_cnt = i;
				}
				else if (DBROWS(dbproc) &&
(dbnumcols(dbproc) == 8))
				{
					while (((rc = dbnextrow(dbproc)) !=
NO_MORE_ROWS) && (rc != FAIL))
```

```
					{
						if(pData=dbdata(dbproc, 1))
							pOrderStatus->c_id =
(*(DBINT *) pData);
						if(pData=dbdata(dbproc, 2))
	UtilStrCpy(pOrderStatus->c_last, pData, dbdatlen(dbproc,2));
						if(pData=dbdata(dbproc, 3))
	UtilStrCpy(pOrderStatus->c_first, pData, dbdatlen(dbproc,3));
						if(pData=dbdata(dbproc, 4))
	UtilStrCpy(pOrderStatus->c_middle, pData, dbdatlen(dbproc, 4));
						if(pData=dbdata(dbproc, 5))
						{
							datetime =
*((DBDATETIME *) pData);
							dbdatecrack(dbproc,
&pOrderStatus->o_entry_d, &datetime);
						}
						if(pData=dbdata(dbproc, 6))
							pOrderStatus-
>o_carrier_id = (*(DBSMALLINT *) pData);
						if(pData=dbdata(dbproc, 7))
							pOrderStatus-
>c_balance = (*(DBFLT8 *) pData);
						if(pData=dbdata(dbproc, 8))
							pOrderStatus->o_id =
(*(DBINT *) pData);
					}
				}
				if (i==0)
					return 0; //"No orders found for
customer"
			}
		}
		if (SQLDetectDeadlock(dbproc))
		{
			pOrderStatus->num_deadlocks++;
			sprintf(printbuf,"deadlock: retry:
%d",pOrderStatus->num_deadlocks);
			Sleep(DEADLOCKWAIT*tryit);
		}
		else
		{
			if (pOrderStatus->c_id == 0 && pOrderStatus-
>c_last[0] == 0)
				strcpy(pOrderStatus-
>execution_status,"Invalid Customer id,name.");
			else
				strcpy(pOrderStatus-
>execution_status,"Transaction commited.");
			return 1;
```

```
                }
        }
        // If we reached here, it means we quit after MAX_RETRY deadlocks
        strcpy(pOrderStatus->execution_status,"Hit deadlock max.  ");
        return -1; //"deadlock max retry reached!"
}


PECBINFO SQLGetECB(PDBPROCESS p)
{
        return (PECBINFO) dbgetuserdata(p);
}


// Transact NEW_ORDER
void KNEW_ORDER(struct kc_ca *x_kb, struct work *x_spab)
{
        PECBINFO pECBInfo;
        int size;
        kb = x_kb;
        spab = x_spab;

    pb.kcop[0] = 'I';
        pb.kcop[1] = 'N';
        pb.kcop[2] = 'I';
        pb.kcop[3] = 'T';
        pb.kclcapa = 0;
        pb.kclspa  = sizeof(struct work);
        KDCS (&pb);

        // read data - length in KBRFLD.kcrlm
        pb.kcop[0] = 'M';
        pb.kcop[1] = 'G';
        pb.kcop[2] = 'E';
        pb.kcop[3] = 'T';
        pb.kcla = sizeof(data);
        pb.kcfn[0] = ' ';pb.kcfn[1] = ' '; pb.kcfn[2] = ' '; pb.kcfn[3] =
' ';
        pb.kcfn[4] = ' ';pb.kcfn[5] = ' '; pb.kcfn[6] = ' '; pb.kcfn[7] =
' ';
        KDCS( &pb, &data);

        pECBInfo = SQLGetECB(pdbproc);
    size = KBRFLD.kcrlm;

        Trace("Beginning NEW_ORDER transaction\n");

        data.Error = 0;
        data.Return = SQLNewOrder(NULL, data.TermId, data.SyncId, pdbproc,
                                                &data.Trans.NewOrderData,
data.DeadlockRetry);
        data.bDeadlock = pECBInfo->bDeadlock;
        data.bFailed = pECBInfo->bFailed;

        if (data.Error)
        {
                strcpy(data.Trans.ErrorMsg, ErrorMsgBuffer);
        }

        Trace("Finished NEWORDER transaction, bFailed=%d\n",
data.bFailed);

        pb.kcop[0] = 'M';
        pb.kcop[1] = 'P';
        pb.kcop[2] = 'U';
        pb.kcop[3] = 'T';
        pb.kcom[0] = 'N';
        pb.kcom[1] = 'T';
        pb.kcfn[0] = ' ';pb.kcfn[1] = ' '; pb.kcfn[2] = ' '; pb.kcfn[3] =
' ';
        pb.kcfn[4] = ' ';pb.kcfn[5] = ' '; pb.kcfn[6] = ' '; pb.kcfn[7] =
' ';
        pb.kcrn[0] = ' ';pb.kcrn[1] = ' '; pb.kcrn[2] = ' '; pb.kcrn[3] =
' ';
        pb.kcrn[4] = ' ';pb.kcrn[5] = ' '; pb.kcrn[6] = ' '; pb.kcrn[7] =
' ';
        pb.kcdf = 0;
        pb.kclm = size;
        KDCS(&pb, &data);

        pb.kcop[0] = 'P';
        pb.kcop[1] = 'E';
        pb.kcop[2] = 'N';
        pb.kcop[3] = 'D';
        pb.kcom[0] = 'F';
        pb.kcom[1] = 'I';
        KDCS(&pb);
}


// Transact STOCK_LEVEL
void KSTOCK_LEVEL(struct kc_ca *x_kb, struct work *x_spab)
{
        PECBINFO pECBInfo;
        int size;
        kb = x_kb;
        spab = x_spab;

    pb.kcop[0] = 'I';
        pb.kcop[1] = 'N';
        pb.kcop[2] = 'I';
        pb.kcop[3] = 'T';
        pb.kclcapa = 0;
        pb.kclspa  = sizeof(struct work);
        KDCS (&pb);

        // read data - length in KBRFLD.kcrlm
```

```
        pb.kcop[0] = 'M';
        pb.kcop[1] = 'G';
        pb.kcop[2] = 'E';
        pb.kcop[3] = 'T';
        pb.kcla = sizeof(data);
        pb.kcfn[0] = ' ';pb.kcfn[1] = ' '; pb.kcfn[2] = ' '; pb.kcfn[3] =
' ';
        pb.kcfn[4] = ' ';pb.kcfn[5] = ' '; pb.kcfn[6] = ' '; pb.kcfn[7] =
' ';
        KDCS( &pb, &data);

        pECBInfo = SQLGetECB(pdbproc);
        size = KBRFLD.kcrlm;

        Trace("Beginning STOCK_ LEVEL transaction\n");

        data.Error = 0;
        data.Return = SQLStockLevel(NULL, data.TermId, data.SyncId,
pdbproc,
                                              &data.Trans.StockLevelData,
data.DeadlockRetry);
        data.bDeadlock = pECBInfo->bDeadlock;
        data.bFailed = pECBInfo->bFailed;
        if (data.Error)
        {
                strcpy(data.Trans.ErrorMsg, ErrorMsgBuffer);
        }

        Trace("Finished STOCK_ LEVEL transaction, bFailed=%d\n",
data.bFailed);

        pb.kcop[0] = 'M';
        pb.kcop[1] = 'P';
        pb.kcop[2] = 'U';
        pb.kcop[3] = 'T';
        pb.kcom[0] = 'N';
        pb.kcom[1] = 'T';
        pb.kcfn[0] = ' ';pb.kcfn[1] = ' '; pb.kcfn[2] = ' '; pb.kcfn[3] =
' ';
        pb.kcfn[4] = ' ';pb.kcfn[5] = ' '; pb.kcfn[6] = ' '; pb.kcfn[7] =
' ';
        pb.kcrn[0] = ' ';pb.kcrn[1] = ' '; pb.kcrn[2] = ' '; pb.kcrn[3] =
' ';
        pb.kcrn[4] = ' ';pb.kcrn[5] = ' '; pb.kcrn[6] = ' '; pb.kcrn[7] =
' ';
        pb.kcdf = 0;
        pb.kclm = size;
        KDCS(&pb, &data);

        pb.kcop[0] = 'P';
        pb.kcop[1] = 'E';
        pb.kcop[2] = 'N';
        pb.kcop[3] = 'D';
        pb.kcom[0] = 'F';
        pb.kcom[1] = 'I';
        KDCS(&pb);
}


// Transact PAYMENT
void KPAYMENT(struct kc_ca *x_kb, struct work *x_spab)
{
        PECBINFO pECBInfo;
        int size;
        kb = x_kb;
    spab = x_spab;

    pb.kcop[0] = 'I';
        pb.kcop[1] = 'N';
        pb.kcop[2] = 'I';
        pb.kcop[3] = 'T';
        pb.kclcapa = 0;
        pb.kclspa  = sizeof(struct work);
        KDCS (&pb);

    // read data - length in KBRFLD.kcrlm
        pb.kcop[0] = 'M';
        pb.kcop[1] = 'G';
        pb.kcop[2] = 'E';
        pb.kcop[3] = 'T';
        pb.kcla = sizeof(data);
        pb.kcfn[0] = ' ';pb.kcfn[1] = ' '; pb.kcfn[2] = ' '; pb.kcfn[3] =
' ';
        pb.kcfn[4] = ' ';pb.kcfn[5] = ' '; pb.kcfn[6] = ' '; pb.kcfn[7] =
' ';
        KDCS( &pb, &data);

        pECBInfo = SQLGetECB(pdbproc);
        size = KBRFLD.kcrlm;

        Trace("Beginning PAYMENT transaction\n");

        data.Error = 0;
        data.Return = SQLPayment(NULL, data.TermId, data.SyncId, pdbproc,
                                                &data.Trans.PaymentData,
data.DeadlockRetry);
        data.bDeadlock = pECBInfo->bDeadlock;
        data.bFailed = pECBInfo->bFailed;
        if (data.Error)
        {
                strcpy(data.Trans.ErrorMsg, ErrorMsgBuffer);
        }

        Trace("Finished PAYMENT transaction\n");

        pb.kcop[0] = 'M';
```

```
        pb.kcop[1] = 'P';
        pb.kcop[2] = 'U';
        pb.kcop[3] = 'T';
        pb.kcom[0] = 'N';
        pb.kcom[1] = 'T';
        pb.kcfn[0] = ' ';pb.kcfn[1] = ' '; pb.kcfn[2] = ' '; pb.kcfn[3] =
' ';
        pb.kcfn[4] = ' ';pb.kcfn[5] = ' '; pb.kcfn[6] = ' '; pb.kcfn[7] =
' ';
        pb.kcrn[0] = ' ';pb.kcrn[1] = ' '; pb.kcrn[2] = ' '; pb.kcrn[3] =
' ';
        pb.kcrn[4] = ' ';pb.kcrn[5] = ' '; pb.kcrn[6] = ' '; pb.kcrn[7] =
' ';
        pb.kcdf = 0;
        pb.kclm = size;
        KDCS(&pb, &data);

        pb.kcop[0] = 'P';
        pb.kcop[1] = 'E';
        pb.kcop[2] = 'N';
        pb.kcop[3] = 'D';
        pb.kcom[0] = 'F';
        pb.kcom[1] = 'I';
        KDCS(&pb);
}


// Transact ORDER_STATUS
void KORDER_STATUS(struct kc_ca *x_kb, struct work *x_spab)
{
        PECBINFO pECBInfo;
        int size;
        kb = x_kb;
    spab = x_spab;

    pb.kcop[0] = 'I';
        pb.kcop[1] = 'N';
        pb.kcop[2] = 'I';
        pb.kcop[3] = 'T';
        pb.kclcapa = 0;
        pb.kclspa  = sizeof(struct work);
        KDCS (&pb);

        // read data - length in KBRFLD.kcrlm
        pb.kcop[0] = 'M';
        pb.kcop[1] = 'G';
        pb.kcop[2] = 'E';
        pb.kcop[3] = 'T';
        pb.kcla = sizeof(data);
        pb.kcfn[0] = ' ';pb.kcfn[1] = ' '; pb.kcfn[2] = ' '; pb.kcfn[3] =
' ';
        pb.kcfn[4] = ' ';pb.kcfn[5] = ' '; pb.kcfn[6] = ' '; pb.kcfn[7] =
' ';
        KDCS( &pb, &data);

        pECBInfo = SQLGetECB(pdbproc);
        size = KBRFLD.kcrlm;

        Trace("Beginning ORDER_ STATUS transaction, kcrlm=%d\n", size);

        data.Error = 0;
        data.Return = SQLOrderStatus(NULL, data.TermId, data.SyncId,
pdbproc,

&data.Trans.OrderStatusData, data.DeadlockRetry);
        data.bDeadlock = pECBInfo->bDeadlock;
        data.bFailed = pECBInfo->bFailed;
        if (data.Error)
        {
                strcpy(data.Trans.ErrorMsg, ErrorMsgBuffer);
        }

        Trace("Finished ORDER_ STATUS transaction\n");

        pb.kcop[0] = 'M';
        pb.kcop[1] = 'P';
        pb.kcop[2] = 'U';
        pb.kcop[3] = 'T';
        pb.kcom[0] = 'N';
        pb.kcom[1] = 'T';
        pb.kcfn[0] = ' ';pb.kcfn[1] = ' '; pb.kcfn[2] = ' '; pb.kcfn[3] =
' ';
        pb.kcfn[4] = ' ';pb.kcfn[5] = ' '; pb.kcfn[6] = ' '; pb.kcfn[7] =
' ';
        pb.kcrn[0] = ' ';pb.kcrn[1] = ' '; pb.kcrn[2] = ' '; pb.kcrn[3] =
' ';
        pb.kcrn[4] = ' ';pb.kcrn[5] = ' '; pb.kcrn[6] = ' '; pb.kcrn[7] =
' ';
        pb.kcdf = 0;
        pb.kclm = size;
        KDCS(&pb, &data);

        pb.kcop[0] = 'P';
        pb.kcop[1] = 'E';
        pb.kcop[2] = 'N';
        pb.kcop[3] = 'D';
        pb.kcom[0] = 'F';
        pb.kcom[1] = 'I';
        KDCS(&pb);
}

# Microsoft Developer Studio Generated NMAKE File, Format Version 4.10
# ** DO NOT EDIT **

# TARGTYPE "Win32 (x86) Console Application" 0x0103
```

```
!IF "$(CFG)" == ""
CFG=utm_server - Win32 Debug
!MESSAGE No configuration specified.  Defaulting to utm_server - Win32
Debug.
!ENDIF

!IF "$(CFG)" != "utm_server - Win32 Release" && "$(CFG)" !=\
 "utm_server - Win32 Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE on this
makefile
!MESSAGE by defining the macro CFG on the command line.  For example:
!MESSAGE
!MESSAGE NMAKE /f "utm_server.mak" CFG="utm_server - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "utm_server - Win32 Release" (based on\
 "Win32 (x86) Console Application")
!MESSAGE "utm_server - Win32 Debug" (based on\
 "Win32 (x86) Console Application")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF
################################################################################
#######
# Begin Project
# PROP Target_Last_Scanned "utm_server - Win32 Debug"
CPP=cl.exe
RSC=rc.exe

!IF  "$(CFG)" == "utm_server - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "Release"
# PROP Intermediate_Dir "Release"
# PROP Target_Dir ""
OUTDIR=.\Release
INTDIR=.\Release

ALL : ".\utmwork.exe"

CLEAN :
       -@erase "$(INTDIR)\error.obj"
       -@erase "$(INTDIR)\rSERV1.obj"
       -@erase "$(INTDIR)\utm_serv.obj"
       -@erase ".\utmwork.exe"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/YX /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" /YX /c
CPP_PROJ=/nologo /ML /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"\
 /Fp"$(INTDIR)/utm_server.pch" /YX /Fo"$(INTDIR)/" /c
CPP_OBJS=.\Release/
CPP_SBRS=.\.
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)/utm_server.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /machine:I386
# ADD LINK32 libwork.lib libcmt.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbc32.lib odbccp32.lib ntwdblib.lib /nologo /subsystem:console
/machine:I386 /out:"utmwork.exe"
LINK32_FLAGS=libwork.lib libcmt.lib kernel32.lib user32.lib gdi32.lib\
 winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib
oleaut32.lib\
 uuid.lib odbc32.lib odbccp32.lib ntwdblib.lib /nologo
/subsystem:console\
 /incremental:no /pdb:"$(OUTDIR)/utmwork.pdb" /machine:I386
/out:"utmwork.exe"
LINK32_OBJS= \
       "$(INTDIR)\error.obj" \
       "$(INTDIR)\rSERV1.obj" \
       "$(INTDIR)\utm_serv.obj" \
       ".\mainutm.obj" \
       ".\MSGPRIV.OBJ"

".\utmwork.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF  "$(CFG)" == "utm_server - Win32 Debug"
```

```
# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "Debug"
# PROP Intermediate_Dir "Debug"
# PROP Target_Dir ""
OUTDIR=.\Debug
INTDIR=.\Debug

ALL : ".\utmwork.exe"

CLEAN :
        -@erase "$(INTDIR)\error.obj"
        -@erase "$(INTDIR)\rSERV1.obj"
        -@erase "$(INTDIR)\utm_serv.obj"
        -@erase "$(INTDIR)\vc40.idb"
        -@erase "$(INTDIR)\vc40.pdb"
        -@erase "$(OUTDIR)\utmwork.pdb"
        -@erase ".\utmwork.exe"
        -@erase ".\utmwork.ilk"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /YX /c
# ADD CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /YX /c
CPP_PROJ=/nologo /MLd /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE"\
 /Fp"$(INTDIR)/utm_server.pch" /YX /Fo"$(INTDIR)/" /Fd"$(INTDIR)/" /c
CPP_OBJS=.\Debug/
CPP_SBRS=.\.
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)/utm_server.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /debug /machine:I386
# ADD LINK32 libwork.lib libcmt.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbc32.lib odbccp32.lib ntwdblib.lib /nologo /subsystem:console
/debug /machine:I386 /out:"utmwork.exe"
LINK32_FLAGS=libwork.lib libcmt.lib kernel32.lib user32.lib gdi32.lib\
 winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib
oleaut32.lib\
 uuid.lib odbc32.lib odbccp32.lib ntwdblib.lib /nologo
/subsystem:console\
 /incremental:yes /pdb:"$(OUTDIR)/utmwork.pdb" /debug /machine:I386\
 /out:"utmwork.exe"
LINK32_OBJS= \
        "$(INTDIR)\error.obj" \
        "$(INTDIR)\rSERV1.obj" \
        "$(INTDIR)\utm_serv.obj" \
        ".\mainutm.obj" \
        ".\MSGPRIV.OBJ"

".\utmwork.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
  $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF

.c{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_OBJS)}.obj:
   $(CPP) $(CPP_PROJ) $<

.c{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_SBRS)}.sbr:
   $(CPP) $(CPP_PROJ) $<

################################################################################
#######
# Begin Target

# Name "utm_server - Win32 Release"
# Name "utm_server - Win32 Debug"

!IF  "$(CFG)" == "utm_server - Win32 Release"

!ELSEIF  "$(CFG)" == "utm_server - Win32 Debug"

!ENDIF
```

```
################################################################################
#######
# Begin Source File

SOURCE=.\utm_serv.c

!IF  "$(CFG)" == "utm_server - Win32 Release"

DEP_CPP_UTM_S=\
        {$(INCLUDE)}"\kcapro.h"\
        {$(INCLUDE)}"\kcca.h"\
        {$(INCLUDE)}"\kcdf.h"\
        {$(INCLUDE)}"\kcmac.h"\
        {$(INCLUDE)}"\kcop.h"\
        {$(INCLUDE)}"\kcpa.h"\
        {$(INCLUDE)}"\SQLDB.H"\
        {$(INCLUDE)}"\SQLFRONT.H"\
        {$(INCLUDE)}"\sqlroutines.h"\
        {$(INCLUDE)}"\tpcc.h"\
        {$(INCLUDE)}"\tpcc_org.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\utm.h"\
        {$(INCLUDE)}"\XATMI.H"\
        {$(INCLUDE)}"\XATMIDEF.H"\


"$(INTDIR)\utm_serv.obj" : $(SOURCE) $(DEP_CPP_UTM_S) "$(INTDIR)"


!ELSEIF  "$(CFG)" == "utm_server - Win32 Debug"

DEP_CPP_UTM_S=\
        {$(INCLUDE)}"\kcapro.h"\
        {$(INCLUDE)}"\kcca.h"\
        {$(INCLUDE)}"\kcdf.h"\
        {$(INCLUDE)}"\kcmac.h"\
        {$(INCLUDE)}"\kcop.h"\
        {$(INCLUDE)}"\kcpa.h"\
        {$(INCLUDE)}"\SQLDB.H"\
        {$(INCLUDE)}"\SQLFRONT.H"\
        {$(INCLUDE)}"\sqlroutines.h"\
        {$(INCLUDE)}"\tpcc.h"\
        {$(INCLUDE)}"\tpcc_org.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\utm.h"\
        {$(INCLUDE)}"\XATMI.H"\
        {$(INCLUDE)}"\XATMIDEF.H"\


"$(INTDIR)\utm_serv.obj" : $(SOURCE) $(DEP_CPP_UTM_S) "$(INTDIR)"

!ENDIF

# End Source File
################################################################################
#######
# Begin Source File

SOURCE=.\rSERV1.c
DEP_CPP_RSERV=\
        {$(INCLUDE)}"\kcca.h"\
        {$(INCLUDE)}"\kccf.h"\
        {$(INCLUDE)}"\kcinp.h"\
        {$(INCLUDE)}"\kcpa.h"\
        {$(INCLUDE)}"\kctypdef.h"\
        {$(INCLUDE)}"\xiipc.h"\
        {$(INCLUDE)}"\xiiutmdb.h"\
        {$(INCLUDE)}"\xiiutmfo.h"\
        {$(INCLUDE)}"\xiiutmhl.h"\
        {$(INCLUDE)}"\xiletter.h"\
        {$(INCLUDE)}"\xirtcc.h"\
        {$(INCLUDE)}"\xirtcprt.h"\
        {$(INCLUDE)}"\xirtdata.h"\
        {$(INCLUDE)}"\xirtdev.h"\
        {$(INCLUDE)}"\xirtend.h"\
        {$(INCLUDE)}"\xirtstrt.h"\
        {$(INCLUDE)}"\xitam.h"\
        {$(INCLUDE)}"\xitskm.h"\


"$(INTDIR)\rSERV1.obj" : $(SOURCE) $(DEP_CPP_RSERV) "$(INTDIR)"


# End Source File
################################################################################
#######
# Begin Source File

SOURCE=.\MSGPRIV.OBJ

!IF  "$(CFG)" == "utm_server - Win32 Release"

!ELSEIF  "$(CFG)" == "utm_server - Win32 Debug"

!ENDIF

# End Source File
################################################################################
#######
# Begin Source File

SOURCE=.\mainutm.obj

!IF  "$(CFG)" == "utm_server - Win32 Release"
```

```
!ELSEIF  "$(CFG)" == "utm_server - Win32 Debug"

!ENDIF

# End Source File
################################################################################
#######
# Begin Source File

SOURCE="\openUTM-SRC\AUDIT\shared\error.c"
DEP_CPP_ERROR=\
        {$(INCLUDE)}"\SQLDB.H"\
        {$(INCLUDE)}"\SQLFRONT.H"\
        {$(INCLUDE)}"\tpcc.h"\
        {$(INCLUDE)}"\tpcc_org.h"\
        {$(INCLUDE)}"\trans.h"\
        {$(INCLUDE)}"\util.h"\


"$(INTDIR)\error.obj" : $(SOURCE) $(DEP_CPP_ERROR) "$(INTDIR)"
   $(CPP) $(CPP_PROJ) $(SOURCE)


# End Source File
# End Target
# End Project
################################################################################
#######
```

Appendix B - Database Details

```
--  File:     BACKUP.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates backup of tpcc database


declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

dump database tpcc to tpccback1, tpccback2 with init, stats = 1

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go

--  File:     CREATEDB.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates tpcc database and backup files


use master
go

--  remove any existing database and backup files

exec sp_dbremove tpcc, dropdev
exec sp_dropdevice 'tpccback1'
exec sp_dropdevice 'tpccback2'
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

--  create main database files

create database tpcc on
       (name="MSSQL70_tpcc_root",filename="D:\MSSQL7\DATA\tpcc_root.mdf",
size=10MB, FILEGROWTH=0)
log on
       (name="MSSQL70_tpcc_log",filename="L:",size=45000MB, FILEGROWTH=0)

--  create filegroups

alter database tpcc add filegroup MSSQL70_cs_fg
alter database tpcc add filegroup MSSQL70_misc_fg

--  add files to filegroups

alter database tpcc add file
       (name="MSSQL70_cs1",filename="H:",size=11370MB, FILEGROWTH=0),
       (name="MSSQL70_cs2",filename="I:",size=11370MB, FILEGROWTH=0),
       (name="MSSQL70_cs3",filename="J:",size=11370MB, FILEGROWTH=0),
       (name="MSSQL70_cs4",filename="K:",size=11370MB, FILEGROWTH=0),
       (name="MSSQL70_cs5",filename="M:",size=11370MB, FILEGROWTH=0),
       (name="MSSQL70_cs6",filename="N:",size=11370MB, FILEGROWTH=0),
       (name="MSSQL70_cs7",filename="O:",size=11370MB, FILEGROWTH=0),
       (name="MSSQL70_cs8",filename="P:",size=11370MB, FILEGROWTH=0)
to filegroup MSSQL70_cs_fg

alter database tpcc add file
       (name="MSSQL70_misc1",filename="Q:",size=5470MB, FILEGROWTH=0),
       (name="MSSQL70_misc2",filename="R:",size=5470MB, FILEGROWTH=0),
       (name="MSSQL70_misc3",filename="S:",size=5470MB, FILEGROWTH=0),
       (name="MSSQL70_misc4",filename="T:",size=5470MB, FILEGROWTH=0),
       (name="MSSQL70_misc5",filename="U:",size=5470MB, FILEGROWTH=0),
       (name="MSSQL70_misc6",filename="V:",size=5470MB, FILEGROWTH=0),
       (name="MSSQL70_misc7",filename="W:",size=5470MB, FILEGROWTH=0),
       (name="MSSQL70_misc8",filename="Z:",size=5470MB, FILEGROWTH=0)
to filegroup MSSQL70_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)
go

--  create backup devices

exec sp_addumpdevice 'disk','tpccback1','X:\tpccback1.dmp'
exec sp_addumpdevice 'disk','tpccback2','Y:\tpccback2.dmp'
go

--  File:     DBOPT1.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
```

```
--            Copyright Microsoft, 1996
--  Purpose:  Sets database options for data load


use master
go

exec sp_dboption tpcc,'select into/bulkcopy',true
exec sp_dboption tpcc,'trunc. log on chkpt.',true
go

use tpcc
go

checkpoint
go
```

```
--  File:     DBOPT2.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Resets database options after data load


use master
go

sp_dboption tpcc,'select ',false
go

sp_dboption tpcc,'trunc. ',false
go

use tpcc
go

checkpoint
go

sp_configure allow,1
go

reconfigure with override
go

/*                                            */
/* Set option values for user-defined indexes */
/*                                            */

sp_indexoption 'customer','AllowPageLocks',FALSE
go
sp_indexoption 'district','AllowPageLocks',FALSE
go
sp_indexoption 'warehouse','AllowPageLocks',FALSE
go
sp_indexoption 'stock','AllowPageLocks',FALSE
go
sp_indexoption 'order_line','AllowPageLocks',FALSE
go
sp_indexoption 'orders','AllowPageLocks',FALSE
go
sp_indexoption 'new_order','AllowRowLocks',FALSE
go
sp_indexoption 'item','AllowRowLocks',FALSE
go
sp_indexoption 'item','AllowPageLocks',FALSE
go

Print ' '
Print '******************'
Print 'Pre-specified Locking Hierarchy:'
Print '   Lockflag = 0 ==> No pre-pecified hierarchy'
Print '   Lockflag = 1 ==> Lock at Page-level then Table-level'
Print '   Lockflag = 2 ==> Lock at Row-level then Table-level'
Print '   Lockflag = 3 ==> Lock at Table-level'
Print ' '

select name,lockflags
from sysindexes
where object_id("warehouse")=id or
         object_id("district")=id or
         object_id("customer")=id or
         object_id("stock")=id or
         object_id("orders")=id or
         object_id("order_line")=id or
         object_id("history")=id or
         object_id("new_order")=id or
         object_id("item")=id
order by lockflags asc
go

sp_configure allow,0
go

reconfigure with override
go

exec sp_dboption tpcc, 'auto update statistics', FALSE
exec sp_dboption tpcc, 'auto create statistics', FALSE
go

exec sp_tableoption "district","pintable",true
exec sp_tableoption "warehouse","pintable",true
```

```
exec sp_tableoption "new_order","pintable",true
exec sp_tableoption "item","pintable",true
go

--  File:     DELIVERY.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates delivery transaction stored procedure


use tpcc
go

if exists (select name from sysobjects where name = "tpcc_delivery" )
       drop procedure tpcc_delivery
go

create proc tpcc_delivery     @w_id           smallint,

                                              @o_carrier_id   smallint
as

declare @d_id tinyint,
        @o_id int,
        @c_id int,
        @total numeric(12,2),
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

select @d_id = 0

begin tran d

    while (@d_id < 10)
    begin

        select @d_id  = @d_id + 1,
               @total = 0,
               @o_id  = 0

               select top 1 @o_id = no_o_id
               from new_order (serializable updlock)
        where no_w_id = @w_id and
                     no_d_id = @d_id
               order by no_o_id asc

        if (@@rowcount <> 0)
        begin

--  claim the order for this district

            delete new_order
            where no_w_id = @w_id and
                        no_d_id = @d_id and
                           no_o_id = @o_id

--  set carrier_id on this order (and get customer id)

            update orders
                   set o_carrier_id = @o_carrier_id,
                @c_id        = o_c_id
            where o_w_id = @w_id and
                        o_d_id = @d_id and
                           o_id   = @o_id

--  set date in all lineitems for this order (and sum amounts)

            update order_line
                   set ol_delivery_d = getdate(),
                    @total        = @total + ol_amount
            where ol_w_id = @w_id and
                  ol_d_id = @d_id and
                        ol_o_id = @o_id

--  accummulate lineitem amounts for this order into customer

                    update customer
                       set c_balance      = c_balance + @total,
                           c_delivery_cnt = c_delivery_cnt + 1

            where c_w_id = @w_id and
                        c_d_id = @d_id and
                           c_id   = @c_id

        end

        select @oid1 = case @d_id when  1  then @o_id else @oid1 end,
               @oid2 = case @d_id when  2  then @o_id else @oid2 end,
               @oid3 = case @d_id when  3  then @o_id else @oid3 end,
               @oid4 = case @d_id when  4  then @o_id else @oid4 end,
               @oid5 = case @d_id when  5  then @o_id else @oid5 end,
               @oid6 = case @d_id when  6  then @o_id else @oid6 end,
               @oid7 = case @d_id when  7  then @o_id else @oid7 end,
               @oid8 = case @d_id when  8  then @o_id else @oid8 end,
               @oid9 = case @d_id when  9  then @o_id else @oid9 end,
               @oid10 = case @d_id when 10 then @o_id else @oid10 end

    end
```

```
commit tran d

-- return delivery data to client

select @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10

go

--  File:     IDXCUSCL.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates clustered index on customer table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'customer_c1' )
       drop index customer.customer_c1

create unique clustered index customer_c1 on customer(c_w_id, c_d_id,
c_id)
       on MSSQL70_cs_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go


--  File:     IDXCUSNC.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates non-clustered index on customer table

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where  name = 'customer_nc1' )
       drop index customer.customer_nc1

create unique nonclustered index customer_nc1 on customer(c_w_id, c_d_id,
c_last, c_first, c_id)
       on MSSQL70_cs_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go



--  File:     IDXDISCL.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates clustered index on district table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'district_c1' )
       drop index district.district_c1

create unique clustered index  district_c1 on district(d_w_id, d_id)
       with fillfactor=100 on MSSQL70_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go
```

```
--  File:     IDXITMCL.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates clustered index on item table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where  name = 'item_c1' )
       drop index item.item_c1

create unique clustered index item_c1 on item(i_id)
       on MSSQL70_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go

--  File:     IDXNODCL.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates clustered index on new_order table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where  name = 'new_order_c1' )
       drop index new_order.new_order_c1

create unique clustered index new_order_c1 on new_order(no_w_id, no_d_id,
no_o_id)
       on MSSQL70_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)
go


--  File:     IDXODLCL.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates clustered index on order_line table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where  name = 'order_line_c1' )
       drop index order_line.order_line_c1

create unique clustered index order_line_c1 on order_line(ol_w_id,
ol_d_id, ol_o_id, ol_number)
       on MSSQL70_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go



--  File:     IDXORDCL.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates clustered index on orders table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where  name = 'orders_c1' )
       drop index orders.orders_c1

create unique clustered index orders_c1 on orders(o_w_id, o_d_id, o_id)
       on MSSQL70_misc_fg
```

```
select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go



--  File:     IDXORDNC.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates non-clustered index on orders table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where  name = 'orders_nc1' )
       drop index orders.orders_nc1

create index orders_nc1 on orders(o_w_id, o_d_id, o_c_id, o_id)
       on MSSQL70_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go

--  File:     IDXSTKCL.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates clustered index on stock table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where  name = 'stock_c1' )
       drop index stock.stock_c1

create unique clustered index stock_c1 on stock(s_i_id, s_w_id)
       on MSSQL70_cs_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go


--  File:     IDXWARCL.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates clustered index on warehouse table


use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'warehouse_c1' )
       drop index warehouse.warehouse_c1

create unique clustered index warehouse_c1 on warehouse(w_id)
       with fillfactor=100 on MSSQL70_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go



--  File:     NEWORD.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates new order transaction stored procedure
--
--  Modified 6/24/98 - Jamie Reding - Microsoft Corporation
--      Replaced Select of @s_quantity with Select of @li_qty to insure
--      correct data when sending line-item data to client.
--

use tpcc
go
```

```
if exists ( select name from sysobjects where name = "tpcc_neworder" )
       drop procedure tpcc_neworder
go

create proc tpcc_neworder
                                                    @w_id
smallint,
                                                    @d_id
tinyint,
                                                    @c_id           int,
                                                    @o_ol_cnt
tinyint,
                                                    @o_all_local
tinyint,
                                                    @i_id1  int = 0,
@s_w_id1 smallint = 0, @ol_qty1 smallint = 0,
                                                    @i_id2  int = 0,
@s_w_id2 smallint = 0, @ol_qty2 smallint = 0,
                                                    @i_id3  int = 0,
@s_w_id3 smallint = 0, @ol_qty3 smallint = 0,
                                                    @i_id4  int = 0,
@s_w_id4 smallint = 0, @ol_qty4 smallint = 0,
                                                    @i_id5  int = 0,
@s_w_id5 smallint = 0, @ol_qty5 smallint = 0,
                                                    @i_id6  int = 0,
@s_w_id6 smallint = 0, @ol_qty6 smallint = 0,
                                                    @i_id7  int = 0,
@s_w_id7 smallint = 0, @ol_qty7 smallint = 0,
                                                    @i_id8  int = 0,
@s_w_id8 smallint = 0, @ol_qty8 smallint = 0,
                                                    @i_id9  int = 0,
@s_w_id9 smallint = 0, @ol_qty9 smallint = 0,
                                                    @i_id10 int = 0,
@s_w_id10 smallint = 0, @ol_qty10 smallint = 0,
                                                    @i_id11 int = 0,
@s_w_id11 smallint = 0, @ol_qty11 smallint = 0,
                                                    @i_id12 int = 0,
@s_w_id12 smallint = 0, @ol_qty12 smallint = 0,
                                                    @i_id13 int = 0,
@s_w_id13 smallint = 0, @ol_qty13 smallint = 0,
                                                    @i_id14 int = 0,
@s_w_id14 smallint = 0, @ol_qty14 smallint = 0,
                                                    @i_id15 int = 0,
@s_w_id15 smallint = 0, @ol_qty15 smallint = 0


as
declare @w_tax          numeric(4,4),
        @d_tax          numeric(4,4),
        @c_last         char(16),
        @c_credit       char(2),
        @c_discount     numeric(4,4),
        @i_price        numeric(5,2),
        @i_name         char(24),
        @i_data         char(50),
        @o_entry_d      datetime,
        @remote_flag    int,
        @s_quantity     smallint,
        @s_data         char(50),
        @s_dist         char(24),
               @li_no           int,
               @o_id                    int,
               @commit_flag     tinyint,
        @li_id          int,
        @li_s_w_id      smallint,
        @li_qty         smallint,
               @ol_number               int,
               @c_id_local              int

begin

       begin transaction n

--  get district tax and next availible order id and update
--  plus initialize local variables

    update district
       set @d_tax      = d_tax,
           @o_id       = d_next_o_id,
               d_next_o_id = d_next_o_id + 1,
               @o_entry_d = getdate(),
               @li_no = 0,
               @commit_flag = 1
           where d_w_id = @w_id and
                 d_id   = @d_id

--  process orderlines

    while (@li_no < @o_ol_cnt)
       begin

        select @li_no = @li_no + 1

--  set i_id, s_w_id, and qty for this lineitem

           select @li_id = case @li_no
                   when 1 then @i_id1
                          when 2 then @i_id2
                          when 3 then @i_id3
                          when 4 then @i_id4
                          when 5 then @i_id5
                          when 6 then @i_id6
                          when 7 then @i_id7
                          when 8 then @i_id8
                          when 9 then @i_id9
```

```
                        when 10 then @i_id10
                        when 11 then @i_id11
                        when 12 then @i_id12
                        when 13 then @i_id13
                        when 14 then @i_id14
                        when 15 then @i_id15
                        end,

                        @li_s_w_id = case @li_no
                        when 1 then @s_w_id1
                        when 2 then @s_w_id2
                        when 3 then @s_w_id3
                        when 4 then @s_w_id4
                        when 5 then @s_w_id5
                        when 6 then @s_w_id6
                        when 7 then @s_w_id7
                        when 8 then @s_w_id8
                        when 9 then @s_w_id9
                        when 10 then @s_w_id10
                        when 11 then @s_w_id11
                        when 12 then @s_w_id12
                        when 13 then @s_w_id13
                        when 14 then @s_w_id14
                        when 15 then @s_w_id15
                        end,

                        @li_qty = case  @li_no
                        when 1 then @ol_qty1
                        when 2 then @ol_qty2
                        when 3 then @ol_qty3
                        when 4 then @ol_qty4
                        when 5 then @ol_qty5
                        when 6 then @ol_qty6
                        when 7 then @ol_qty7
                        when 8 then @ol_qty8
                        when 9 then @ol_qty9
                        when 10 then @ol_qty10
                        when 11 then @ol_qty11
                        when 12 then @ol_qty12
                        when 13 then @ol_qty13
                        when 14 then @ol_qty14
                        when 15 then @ol_qty15
                        end

--  get item data (no one updates item)

        select @i_price = i_price,
               @i_name  = i_name,
               @i_data  = i_data
               from item (tablock repeatableread)
               where i_id = @li_id

--  if there actually is an item with this id, go to work

               if (@@rowcount > 0)
               begin
            update stock set s_ytd        = s_ytd + @li_qty,
                             @s_quantity  = s_quantity,
                             s_quantity   = s_quantity - @li_qty +
                                 case when (s_quantity - @li_qty < 10)
then 91 else 0 end,
                             s_order_cnt  = s_order_cnt + 1,
                             s_remote_cnt = s_remote_cnt + case
                                 when (@li_s_w_id = @w_id) then 0 else 1
end,
                             @s_data      = s_data,
                             @s_dist      = case @d_id
                                               when 1  then s_dist_01
                                          when 2  then s_dist_02
                                          when 3  then s_dist_03
                                          when 4  then s_dist_04
                                          when 5  then s_dist_05
                                          when 6  then s_dist_06
                                          when 7  then s_dist_07
                                          when 8  then s_dist_08
                                          when 9  then s_dist_09
                                          when 10 then s_dist_10
                                      end
            where s_i_id = @li_id and
                           s_w_id = @li_s_w_id

--  insert order_line data (using data from item and stock)

            insert into order_line values(@o_id,
                                          @d_id,
                                          @w_id,
                                          @li_no,
                                          @li_id,
                                          @li_s_w_id,
                                          "dec 31, 1899",
                                          @li_qty,
                                          @i_price * @li_qty,
                                          @s_dist)


--  send line-item data to client

                  select @i_name,
                   @li_qty,
                   b_g = case when ( (patindex("%ORIGINAL%",@i_data) > 0)
and
                                     (patindex("%ORIGINAL%",@s_data) > 0)
)
                         then "B" else "G" end,
                   @i_price,
                   @i_price * @li_qty
```

```
        end
        else
               begin

--  no item found - triggers rollback condition

                     select "",0,"",0,0
                     select @commit_flag = 0

               end
        end

--  get customer last name, discount, and credit rating

    select @c_last     = c_last,
           @c_discount = c_discount,
           @c_credit   = c_credit,
                  @c_id_local = c_id
    from customer (repeatableread)
    where c_id   = @c_id and
          c_w_id = @w_id and
          c_d_id = @d_id

--  insert fresh row into orders table

    insert into orders values (@o_id,
                               @d_id,
                                  @w_id,
                                         @c_id_local,
                                         @o_entry_d,
                                             0,
                                             @o_ol_cnt,
                                             @o_all_local)

--  insert corresponding row into new-order table

        insert into new_order values (@o_id,
                                                                @d_id,
                                                                @w_id)

--  select warehouse tax

        select @w_tax = w_tax
        from warehouse (repeatableread)
        where w_id = @w_id

        if (@commit_flag = 1)
               commit transaction n
        else

--  all that work for nuthin!!!

               rollback transaction n

--  return order data to client

        select @w_tax,
               @d_tax,
                   @o_id,
                   @c_last,
                   @c_discount,
                   @c_credit,
                   @o_entry_d,
                   @commit_flag

end

go

--  File:     ORDSTAT.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates order status transaction stored procedure


use tpcc
go

if exists ( select name from sysobjects where name = "tpcc_orderstatus" )
        drop procedure   tpcc_orderstatus
go

create proc tpcc_orderstatus @w_id           smallint,
                                                    @d_id
        tinyint,
                                                    @c_id         int,
                                                    @c_last
        char(16) = ""

as

declare @c_balance            numeric(12,2),
        @c_first              char(16),
        @c_middle             char(2),
        @o_id                 int,
        @o_entry_d            datetime,
        @o_carrier_id  smallint,
        @cnt                  smallint

begin tran o

        if (@c_id = 0)
               begin

--  get customer id and info using last name
```

```
                select @cnt = (count(*)+1)/2
                from customer (repeatableread)
                where c_last = @c_last and
                  c_w_id = @w_id and
                  c_d_id = @d_id

                set rowcount @cnt

                select @c_id = c_id,
                          @c_balance = c_balance,
                          @c_first   = c_first,
                          @c_last    = c_last,
                          @c_middle  = c_middle
                from customer (repeatableread)
                where c_last = @c_last and
                  c_w_id = @w_id and
                  c_d_id = @d_id
                order by c_w_id, c_d_id, c_last, c_first

                set rowcount 0
                end

        else
                begin

--  get customer info if by id

                select @c_balance = c_balance,
                       @c_first   = c_first,
                       @c_middle  = c_middle,
                       @c_last    = c_last
                from customer (repeatableread)
                where c_id   = @c_id and
                      c_d_id = @d_id and
                      c_w_id = @w_id

                select @cnt = @@rowcount

                end

--  if no such customer

        if (@cnt = 0)
        begin
                raiserror("Customer not found",18,1)
                goto custnotfound
        end

--  get order info

        select @o_id = o_id,
                   @o_entry_d    = o_entry_d,
                   @o_carrier_id = o_carrier_id
        from orders (serializable)
        where o_c_id = @c_id and
           o_d_id = @d_id and
           o_w_id = @w_id
        order by o_id asc

--  select order lines for the current order

        select ol_supply_w_id,
           ol_i_id,
               ol_quantity,
               ol_amount,
               ol_delivery_d
        from order_line (repeatableread)
        where ol_o_id = @o_id and
              ol_d_id = @d_id and
              ol_w_id = @w_id

custnotfound:

commit tran o

--  return data to client

select @c_id,
          @c_last,
          @c_first,
          @c_middle,
          @o_entry_d,
          @o_carrier_id,
          @c_balance,
          @o_id

go

--  File:     PAYMENT.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates payment transaction stored procedure


use tpcc
go

if exists (select name from sysobjects where name = "tpcc_payment" )
       drop procedure tpcc_payment
go

create proc tpcc_payment @w_id           smallint,
                                              @c_w_id         smallint,
                                              @h_amount
numeric(6,2),
```

```
                                        @d_id           tinyint,
                                        @c_d_id         tinyint,
                                        @c_id           int,
                                        @c_last         char(16) =
""


as
declare  @w_street_1     char(20),
         @w_street_2     char(20),
         @w_city         char(20),
         @w_state        char(2),
         @w_zip          char(9),
         @w_name         char(10),
         @d_street_1     char(20),
         @d_street_2     char(20),
         @d_city         char(20),
         @d_state        char(2),
         @d_zip          char(9),
         @d_name         char(10),
         @c_first        char(16),
         @c_middle       char(2),
         @c_street_1     char(20),
         @c_street_2     char(20),
         @c_city         char(20),
         @c_state        char(2),
         @c_zip          char(9),
         @c_phone        char(16),
         @c_since        datetime,
         @c_credit       char(2),
         @c_credit_lim   numeric(12,2),
         @c_balance      numeric(12,2),
         @c_discount     numeric(4,4),
         @data           char(500),
         @c_data         char(500),
         @datetime       datetime,
         @w_ytd          numeric(12,2),
         @d_ytd          numeric(12,2),
         @cnt            smallint,
         @val            smallint,
         @screen_data   char(200),
                @d_id_local    tinyint,
                @w_id_local    smallint,
                @c_id_local    int

select @screen_data = ""

begin tran p

--  get payment date

        select @datetime = getdate()

        if (@c_id = 0)
        begin

--  get customer id and info using last name

                select @cnt = count(*)
                from customer (repeatableread)
                where c_last = @c_last and
                      c_w_id = @c_w_id and
                      c_d_id = @c_d_id


                select @val = (@cnt + 1) / 2
                set rowcount @val

                select @c_id = c_id
                from customer (repeatableread)
                where c_last = @c_last and
                      c_w_id = @c_w_id and
                      c_d_id = @c_d_id
                order by c_last, c_first

                set rowcount 0
        end

--  get customer info and update balances

        update customer set
                @c_balance     = c_balance = c_balance - @h_amount,
                c_payment_cnt  = c_payment_cnt + 1,
                c_ytd_payment  = c_ytd_payment + @h_amount,
                @c_first       = c_first,
                @c_middle      = c_middle,
            @c_last        = c_last,
            @c_street_1    = c_street_1,
                @c_street_2    = c_street_2,
                @c_city        = c_city,
                @c_state       = c_state,
                @c_zip         = c_zip,
                @c_phone       = c_phone,
                @c_credit      = c_credit,
                @c_credit_lim  = c_credit_lim,
                @c_discount    = c_discount,
                @c_since       = c_since,
                @data          = c_data,
                @c_id_local    = c_id
        where c_id   = @c_id and
              c_w_id = @c_w_id and
              c_d_id = @c_d_id

--  if customer has bad credit get some more info

        if (@c_credit = "BC")
```

```
        begin

--      compute new info

                select @c_data = convert(char(5),@c_id) +
                                         convert(char(4),@c_d_id) +
                                 convert(char(5),@c_w_id) +
                                 convert(char(4),@d_id) +
                                 convert(char(5),@w_id) +
                                 convert(char(19),@h_amount) +
                                 substring(@data, 1, 458)

--  update customer info

                update customer set
                       c_data = @c_data
                where c_id   = @c_id and
                          c_w_id = @c_w_id and
                       c_d_id = @c_d_id

                select @screen_data = substring (@c_data,1,200)
        end

--  get district data and update year-to-date

        update district
        set d_ytd       = d_ytd + @h_amount,
                @d_street_1 = d_street_1,
                @d_street_2 = d_street_2,
                @d_city     = d_city,
                @d_state    = d_state,
                @d_zip      = d_zip,
                @d_name     = d_name,
                @d_id_local = d_id
        where d_w_id = @w_id and
              d_id   = @d_id

--  get warehouse data and update year-to-date

        update warehouse
        set w_ytd       = w_ytd + @h_amount,
                @w_street_1 = w_street_1,
            @w_street_2 = w_street_2,
            @w_city     = w_city,
            @w_state    = w_state,
            @w_zip      = w_zip,
            @w_name     = w_name,
                @w_id_local = w_id
        where w_id = @w_id

--  create history record

        insert into history values  (@c_id_local,
                                                                        @c_d_id,
                                                                            @c_w_id,
                                                                            @d_id_local,
                                                                            @w_id_local,
                                                                            @datetime,
                                                                            @h_amount,
                                                                            @w_name + "
" + @d_name)

commit tran p

--  return data to client

select  @c_id,
                @c_last,
                @datetime,
                @w_street_1,
                @w_street_2,
                @w_city,
                @w_state,
                @w_zip,
                @d_street_1,
                @d_street_2,
                @d_city,
                @d_state,
                @d_zip,
                @c_first,
                @c_middle,
                @c_street_1,
                @c_street_2,
                @c_city,
                @c_state,
                @c_zip,
                @c_phone,
                @c_since,
                @c_credit,
                @c_credit_lim,
                @c_discount,
                @c_balance,
                @screen_data

go

--  File:     RESTORE.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Loads database backup from backup files


declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)
```

```
load database tpcc from tpccback1, tpccback2 with stats = 1

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go

--  File:     STOCKLEV.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates stock level transaction stored procedure


use tpcc
go

if exists (select name from sysobjects where name = "tpcc_stocklevel" )
       drop procedure tpcc_stocklevel
go

create proc tpcc_stocklevel   @w_id          smallint,
                                             @d_id          tinyint,
                                             @threshhold    smallint
as

       declare @o_id_low int,
                   @o_id_high int

    select @o_id_low  = (d_next_o_id - 20),
              @o_id_high = (d_next_o_id - 1)
    from district
    where d_w_id = @w_id and
                 d_id   = @d_id

    select count(distinct(s_i_id))
       from  stock, order_line
    where ol_w_id    =  @w_id and
              ol_d_id    =  @d_id and
              ol_o_id between @o_id_low and @o_id_high and
          s_w_id     =  ol_w_id and
              s_i_id     =  ol_i_id and
              s_quantity <  @threshhold

go



--  File:     TABLES.SQL
--            Microsoft TPC-C Benchmark Kit Ver. 4.00
--            Copyright Microsoft, 1996
--  Purpose:  Creates TPC-C tables


use tpcc
go

if exists ( select name from sysobjects where name = 'warehouse' )
       drop table warehouse
go
create table warehouse
(
       w_id                          smallint,
       w_name                        char(10),
       w_street_1                    char(20),
       w_street_2                    char(20),
       w_city                        char(20),
       w_state                       char(2),
       w_zip                         char(9),
       w_tax                         numeric(4,4),
       w_ytd                         numeric(12,2)
) on MSSQL70_misc_fg
go

if exists ( select name from sysobjects where name = 'district' )
       drop table district
go
create table district
(
       d_id                          tinyint,
       d_w_id                        smallint,
       d_name                        char(10),
       d_street_1                    char(20),
       d_street_2                    char(20),
       d_city                        char(20),
       d_state                       char(2),
       d_zip                         char(9),
       d_tax                         numeric(4,4),
       d_ytd                         numeric(12,2),
       d_next_o_id                   int
) on MSSQL70_misc_fg
go

if exists ( select name from sysobjects where name = 'customer' )
       drop table customer
go
create table customer
(
       c_id                          int,
       c_d_id                        tinyint,
       c_w_id                        smallint,
       c_first                       char(16),
       c_middle                      char(2),
       c_last                        char(16),
       c_street_1                    char(20),
```

```
        c_street_2                      char(20),
        c_city                          char(20),
        c_state                         char(2),
        c_zip                           char(9),
        c_phone                         char(16),
        c_since                         datetime,
        c_credit                        char(2),
        c_credit_lim            numeric(12,2),
        c_discount                      numeric(4,4),
        c_balance                       numeric(12,2),
        c_ytd_payment           numeric(12,2),
        c_payment_cnt           smallint,
        c_delivery_cnt          smallint,
        c_data                          char(500)
) on MSSQL70_cs_fg
go

if exists ( select name from sysobjects where name = 'history' )
        drop table history
go
create table history
(
        h_c_id                          int,
        h_c_d_id                        tinyint,
        h_c_w_id                        smallint,
        h_d_id                          tinyint,
        h_w_id                          smallint,
        h_date                          datetime,
        h_amount                        numeric(6,2),
        h_data                          char(24)
) on MSSQL70_misc_fg
go

if exists ( select name from sysobjects where name = 'new_order' )
        drop table new_order
go
create table new_order
(
        no_o_id                         int,
        no_d_id                         tinyint,
        no_w_id                         smallint
) on MSSQL70_misc_fg
go

if exists ( select name from sysobjects where name = 'orders' )
        drop table orders
go
create table orders
(
        o_id                            int,
        o_d_id                          tinyint,
        o_w_id                          smallint,
        o_c_id                          int,
        o_entry_d                       datetime,
        o_carrier_id            tinyint,
        o_ol_cnt                        tinyint,
        o_all_local                     tinyint
) on MSSQL70_misc_fg
go

if exists ( select name from sysobjects where name = 'order_line' )
        drop table order_line
go
create table order_line
(
        ol_o_id                         int,
        ol_d_id                         tinyint,
        ol_w_id                         smallint,
        ol_number                       tinyint,
        ol_i_id                         int,
        ol_supply_w_id          smallint,
        ol_delivery_d           datetime,
        ol_quantity                     smallint,
        ol_amount                       numeric(6,2),
        ol_dist_info            char(24)
) on MSSQL70_misc_fg
go

if exists ( select name from sysobjects where name = 'item' )
        drop table item
go
create table item
(
        i_id                            int,
        i_im_id                         int,
        i_name                          char(24),
        i_price                         numeric(5,2),
        i_data                          char(50)
) on MSSQL70_misc_fg
go

if exists ( select name from sysobjects where name = 'stock' )
        drop table stock
go
create table stock
(
        s_i_id                          int,
        s_w_id                          smallint,
        s_quantity                      smallint,
        s_dist_01                       char(24),
        s_dist_02                       char(24),
        s_dist_03                       char(24),
        s_dist_04                       char(24),
        s_dist_05                       char(24),
        s_dist_06                       char(24),
        s_dist_07                       char(24),
```

```
        s_dist_08                       char(24),
        s_dist_09                       char(24),
        s_dist_10                       char(24),
        s_ytd                           int,
        s_order_cnt                     smallint,
        s_remote_cnt            smallint,
        s_data                          char(50)
) on MSSQL70_cs_fg
go
```

Appendix C - Tunable Parameters and Options

This section discloses the Windows NT 4.0 Enterprise Edition registry parameters used on the Primergy 870 server systems.

```
Key Name:           SOFTWARE\Microsoft\MSSQLServer
Class Name:         <NO CLASS>
Last Write Time:    7/7/98 - 2:25 PM

Key Name:           SOFTWARE\Microsoft\MSSQLServer\Client
Class Name:         <NO CLASS>
Last Write Time:    8/4/98 - 2:29 PM

Key Name:           SOFTWARE\Microsoft\MSSQLServer\Client\ConnectTo
Class Name:         <NO CLASS>
Last Write Time:    8/4/98 - 3:17 PM
Value 0
  Name:             DSQUERY
  Type:             REG_SZ
  Data:             DBNMPNTW


Key Name:           SOFTWARE\Microsoft\MSSQLServer\Client\DB-Lib
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 12:08 PM
Value 0
  Name:             AutoAnsiToOem
  Type:             REG_SZ
  Data:             on


Key Name:           SOFTWARE\Microsoft\MSSQLServer\Client\TDS
Class Name:         <NO CLASS>
Last Write Time:    9/7/98 - 11:11 AM
Value 0
  Name:             <NO NAME>
  Type:             REG_SZ
  Data:             7.0

Value 1
  Name:             (local)
  Type:             REG_SZ
  Data:             7.0

Value 2
  Name:             .
  Type:             REG_SZ
  Data:             7.0

Value 3
  Name:             SPACELAB
  Type:             REG_SZ
  Data:             7.0


Key Name:           SOFTWARE\Microsoft\MSSQLServer\ClientSetup
Class Name:         <NO CLASS>
Last Write Time:    8/4/98 - 3:11 PM
Value 0
  Name:             SQLPath
  Type:             REG_SZ
  Data:             D:\MSSQL7


Key Name:           SOFTWARE\Microsoft\MSSQLServer\MSSQLServer
Class Name:         <NO CLASS>
Last Write Time:    8/4/98 - 3:11 PM
Value 0
  Name:             AuditLevel
  Type:             REG_DWORD
  Data:             0

Value 1
  Name:             BackupDirectory
  Type:             REG_SZ
  Data:             D:\MSSQL7\BACKUP

Value 2
  Name:             DefaultCompStyle
  Type:             REG_SZ
  Data:             0

Value 3
  Name:             DefaultDomain
  Type:             REG_SZ
  Data:             SPACELAB

Value 4
  Name:             DefaultLocaleID
  Type:             REG_SZ
  Data:             8200

Value 5
```

```
  Name:            DefaultLogin
  Type:            REG_SZ
  Data:            guest

Value 6
  Name:            DefaultSortID
  Type:            REG_SZ
  Data:            50

Value 7
  Name:            ListenOn
  Type:            REG_MULTI_SZ
  Data:            SSNMPN70,\\.\pipe\sql\query
                   SSMSSO70,1433


Value 8
  Name:            LoginMode
  Type:            REG_DWORD
  Data:            0

Value 9
  Name:            Map#
  Type:            REG_SZ
  Data:            -

Value 10
  Name:            Map$
  Type:            REG_SZ
  Data:

Value 11
  Name:            Map_
  Type:            REG_SZ
  Data:            \

Value 12
  Name:            ResourceMgrID
  Type:            REG_SZ
  Data:            {50F550B4-2B9C-11D2-85EE-0800060D682D}

Value 13
  Name:            RWSListenAddress
  Type:            REG_SZ
  Data:

Value 14
  Name:            SetHostName
  Type:            REG_DWORD
  Data:            0

Value 15
  Name:            Tapeloadwaittime
  Type:            REG_DWORD
  Data:            0xffffffff


Key Name:
SOFTWARE\Microsoft\MSSQLServer\MSSQLServer\CurrentVersion
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:09 PM
Value 0
  Name:            checksum
  Type:            REG_BINARY
  Data:
00000000   36 36 33 66 66 63 35 62 - 35 65 65 66 62 36 62 36
663ffc5b5eefb6b6
00000010   36 35 37 36 36 36 37 38 - 34 37 65 32 63 38 63 64
6576667847e2c8cd
00000020   31 34 61 63 37 61 62 37 - 62 35 31 62 61 36 38 30
14ac7ab7b51ba680
00000030   66 62 33 64 30 38 65 32 - 38 61 62 61 33 34 30 65
fb3d08e28aba340e
00000040   61 39 35 65 36 64 39 38 - 63 64 31 33 35 37 33 39
a95e6d98cd135739
00000050   38 61 64 30 61 35 36 37 - 32 35 63 34 31 63 32 63
8ad0a56725c41c2c
00000060   35 36 31 65 64 38 36 64 - 65 37 33 34 65 35 31 32
561ed86de734e512
00000070   35 32 37 33 30 31 66 35 - 64 36 35 65 30 36 30 35
527301f5d65e0605
00000080   66 31 33 38 35 66 00                              f1385f.

Value 1
  Name:            CurrentVersion
  Type:            REG_SZ
  Data:            7.00.549

Value 2
  Name:            RegisteredOwner
  Type:            REG_SZ
  Data:            OEC ES

Value 3
  Name:            SerialNumber
  Type:            REG_DWORD
  Data:            0x818e0040


Key Name:          SOFTWARE\Microsoft\MSSQLServer\MSSQLServer\Parameters
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:09 PM
Value 0
  Name:            SQLArg0
  Type:            REG_SZ
  Data:            -dD:\MSSQL7\data\master.mdf
```

```
Value 1
  Name:            SQLArg1
  Type:            REG_SZ
  Data:            -eD:\MSSQL7\log\ERRORLOG

Value 2
  Name:            SQLArg2
  Type:            REG_SZ
  Data:            -lD:\MSSQL7\data\mastlog.ldf


Key Name:          SOFTWARE\Microsoft\MSSQLServer\MSSQLServer\RPCNetLib
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:09 PM
Value 0
  Name:            Security
  Type:            REG_SZ
  Data:


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers\ADSDSOObject
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers\DTSPackageDSO
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:
SOFTWARE\Microsoft\MSSQLServer\Providers\Microsoft.Jet.OLEDB.4.0
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers\MSDAORA
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers\MSDASQL
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers\MSIDXS
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers\MSQLImpProv
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers\MSSEARCHSQL
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Providers\SQLOLEDB
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
```

```
Value 0
  Name:            AllowInProcess
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Replication
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 2:43 PM

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Replication\MergeReplicationProvider
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 2:43 PM

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Replication\MergeReplicationProvider\7.0
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 2:43 PM

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Replication\MergeReplicationProvider\7.0\M
sJet
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:29 PM
Value 0
  Name:            <NO NAME>
  Type:            REG_SZ
  Data:            {f159cf30-0db4-11d1-b272-00aa00b8de95}


Key Name:          SOFTWARE\Microsoft\MSSQLServer\Setup
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:09 PM
Value 0
  Name:            SourcePath
  Type:            REG_SZ
  Data:            D:\sql7_549.src\sql97srv\x86\Data

Value 1
  Name:            SQLDataRoot
  Type:            REG_SZ
  Data:            D:\MSSQL7

Value 2
  Name:            SQLPath
  Type:            REG_SZ
  Data:            D:\MSSQL7


Key Name:          SOFTWARE\Microsoft\MSSQLServer\SQL Service Manager
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            Action Verify
  Type:            REG_DWORD
  Data:            0

Value 1
  Name:            DefaultSvc
  Type:            REG_SZ
  Data:            MSSQLServer

Value 2
  Name:            Remote
  Type:            REG_DWORD
  Data:            0x1

Value 3
  Name:            Services
  Type:            REG_MULTI_SZ
  Data:            MSSQLServer
                   SQLServerAgent
                   MSDTC


Key Name:          SOFTWARE\Microsoft\MSSQLServer\SQLEW
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM

Key Name:          SOFTWARE\Microsoft\MSSQLServer\SQLEW\Replication
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            PerfmonFile
  Type:            REG_SZ
  Data:            D:\MSSQL7\BINN\REPLMON.PMC


Key Name:          SOFTWARE\Microsoft\MSSQLServer\SQLEW\Wizards
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            Web Assistant
  Type:            REG_SZ
  Data:            D:\MSSQL7\BINN\semwebwz.DLL^WebWizardEntry


Key Name:          SOFTWARE\Microsoft\MSSQLServer\SQLServerAgent
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            DownloadedMaxRows
  Type:            REG_DWORD
  Data:            0x64
```

```
Value 1
  Name:            ErrorLogFile
  Type:            REG_SZ
  Data:            D:\MSSQL7\LOG\SQLAGENT.OUT

Value 2
  Name:            ErrorLoggingLevel
  Type:            REG_DWORD
  Data:            0x3

Value 3
  Name:            JobHistoryMaxRows
  Type:            REG_DWORD
  Data:            0x3e8

Value 4
  Name:            JobHistoryMaxRowsPerJob
  Type:            REG_DWORD
  Data:            0x64

Value 5
  Name:            MailAutoStart
  Type:            REG_DWORD
  Data:            0x1

Value 6
  Name:            MSXServerName
  Type:            REG_SZ
  Data:

Value 7
  Name:            NonAlertableErrors
  Type:            REG_SZ
  Data:            1204,4002

Value 8
  Name:            RestartSQLServer
  Type:            REG_DWORD
  Data:            0x1

Value 9
  Name:            ServerHost
  Type:            REG_SZ
  Data:

Value 10
  Name:            WorkingDirectory
  Type:            REG_SZ
  Data:            D:\MSSQL7\JOBS
```

```
Key Name:
SOFTWARE\Microsoft\MSSQLServer\SQLServerAgent\Subsystems
Class Name:        <NO CLASS>
Last Write Time:   8/4/98 - 3:11 PM
Value 0
  Name:            ActiveScripting
  Type:            REG_SZ
  Data:
D:\MSSQL7\BINN\SQLATXSS.DLL,NULL,ActiveScriptStart,ActiveScriptEvent,Acti
veScriptStop,10

Value 1
  Name:            CmdExec
  Type:            REG_SZ
  Data:
D:\MSSQL7\BINN\SQLCMDSS.DLL,NULL,CmdExecStart,CmdEvent,CmdExecStop,10

Value 2
  Name:            Distribution
  Type:            REG_SZ
  Data:
D:\MSSQL7\BINN\SQLREPSS.DLL,D:\MSSQL7\BINN\DISTRIB.EXE,ReplStart,ReplEven
t,ReplStop,100

Value 3
  Name:            LogReader
  Type:            REG_SZ
  Data:
D:\MSSQL7\BINN\SQLREPSS.DLL,D:\MSSQL7\BINN\LOGREAD.EXE,ReplStart,ReplEven
t,ReplStop,25

Value 4
  Name:            Merge
  Type:            REG_SZ
  Data:
D:\MSSQL7\BINN\SQLREPSS.DLL,D:\MSSQL7\BINN\REPLMERG.EXE,ReplStart,ReplEve
nt,ReplStop,100

Value 5
  Name:            Snapshot
  Type:            REG_SZ
  Data:
D:\MSSQL7\BINN\SQLREPSS.DLL,D:\MSSQL7\BINN\SNAPSHOT.EXE,ReplStart,ReplEve
nt,ReplStop,100
```

This section discloses the Windows NT 4.0 Enterprise Edition registry parameters used on the Primergy 460 client systems.

```
Key Name:          SOFTWARE\Microsoft\TPCC
Class Name:        <NO CLASS>
Last Write Time:   9/10/98 - 12:36 PM
Value 0
  Name:            BackoffDelay
  Type:            REG_SZ
  Data:            500

Value 1
  Name:            DeadlockRetry
  Type:            REG_SZ
  Data:            3

Value 2
  Name:            LOG
  Type:            REG_SZ
  Data:            OFF

Value 3
  Name:            MaxConnections
  Type:            REG_SZ
  Data:            2200

Value 4
  Name:            MaximumWarehouses
  Type:            REG_SZ
  Data:            1500

Value 5
  Name:            NumberOfDeliveryThreads
  Type:            REG_SZ
  Data:            5

Value 6
  Name:            PATH
  Type:            REG_SZ
  Data:            C:\InetPub\wwwroot\

Value 7
  Name:            QueueSlotts
  Type:            REG_SZ
  Data:            3000

Key Name:          SYSTEM\CurrentControlSet\Services\InetInfo
Class Name:        <NO CLASS>
Last Write Time:   9/4/98 - 2:19 PM

Key Name:          SYSTEM\CurrentControlSet\Services\InetInfo\Parameters
Class Name:        <NO CLASS>
Last Write Time:   9/8/98 - 11:57 AM
Value 0
  Name:            BandwidthLevel
  Type:            REG_DWORD
  Data:            0xffffffff

Value 1
  Name:            ListenBackLog
  Type:            REG_DWORD
  Data:            0x708

Value 2
  Name:            PoolThreadsLimit
  Type:            REG_DWORD
  Data:            0x120

Value 3
  Name:            ThreadTimeout
  Type:            REG_DWORD
  Data:            0x15180


Key Name:
SYSTEM\CurrentControlSet\Services\InetInfo\Parameters\Filter
Class Name:        <NO CLASS>
Last Write Time:   9/4/98 - 2:19 PM
Value 0
  Name:            FilterType
  Type:            REG_DWORD
  Data:            0

Value 1
  Name:            NumDenySites
  Type:            REG_DWORD
  Data:            0

Value 2
  Name:            NumGrantSites
  Type:            REG_DWORD
  Data:            0


Key Name:
SYSTEM\CurrentControlSet\Services\InetInfo\Parameters\MimeMap
Class Name:        <NO CLASS>
Last Write Time:   9/4/98 - 2:19 PM
Value 0
  Name:            application/envoy,evy,,5
  Type:            REG_SZ
  Data:

Value 1
  Name:            application/mac-binhex40,hqx,,4
  Type:            REG_SZ
  Data:

Value 2
```

```
  Name:            application/msword,doc,,5
  Type:            REG_SZ
  Data:

Value 3
  Name:            application/msword,dot,,5
  Type:            REG_SZ
  Data:

Value 4
  Name:            application/octet-stream,*,,5
  Type:            REG_SZ
  Data:

Value 5
  Name:            application/octet-stream,bin,,5
  Type:            REG_SZ
  Data:

Value 6
  Name:            application/octet-stream,exe,,5
  Type:            REG_SZ
  Data:

Value 7
  Name:            application/oda,oda,,5
  Type:            REG_SZ
  Data:

Value 8
  Name:            application/pdf,pdf,,5
  Type:            REG_SZ
  Data:

Value 9
  Name:            application/postscript,ai,,5
  Type:            REG_SZ
  Data:

Value 10
  Name:            application/postscript,eps,,5
  Type:            REG_SZ
  Data:

Value 11
  Name:            application/postscript,ps,,5
  Type:            REG_SZ
  Data:

Value 12
  Name:            application/rtf,rtf,,5
  Type:            REG_SZ
  Data:

Value 13
  Name:            application/winhlp,hlp,,5
  Type:            REG_SZ
  Data:

Value 14
  Name:            application/x-bcpio,bcpio,,5
  Type:            REG_SZ
  Data:

Value 15
  Name:            application/x-cpio,cpio,,5
  Type:            REG_SZ
  Data:

Value 16
  Name:            application/x-csh,csh,,5
  Type:            REG_SZ
  Data:

Value 17
  Name:            application/x-director,dcr,,5
  Type:            REG_SZ
  Data:

Value 18
  Name:            application/x-director,dir,,5
  Type:            REG_SZ
  Data:

Value 19
  Name:            application/x-director,dxr,,5
  Type:            REG_SZ
  Data:

Value 20
  Name:            application/x-dvi,dvi,,5
  Type:            REG_SZ
  Data:

Value 21
  Name:            application/x-gtar,gtar,,9
  Type:            REG_SZ
  Data:

Value 22
  Name:            application/x-hdf,hdf,,5
  Type:            REG_SZ
  Data:

Value 23
  Name:            application/x-latex,latex,,5
```

```
  Type:             REG_SZ
  Data:

Value 24
  Name:             application/x-msaccess,mdb,,5
  Type:             REG_SZ
  Data:

Value 25
  Name:             application/x-mscardfile,crd,,5
  Type:             REG_SZ
  Data:

Value 26
  Name:             application/x-msclip,clp,,5
  Type:             REG_SZ
  Data:

Value 27
  Name:             application/x-msexcel,xla,,5
  Type:             REG_SZ
  Data:

Value 28
  Name:             application/x-msexcel,xlc,,5
  Type:             REG_SZ
  Data:

Value 29
  Name:             application/x-msexcel,xlm,,5
  Type:             REG_SZ
  Data:

Value 30
  Name:             application/x-msexcel,xls,,5
  Type:             REG_SZ
  Data:

Value 31
  Name:             application/x-msexcel,xlt,,5
  Type:             REG_SZ
  Data:

Value 32
  Name:             application/x-msexcel,xlw,,5
  Type:             REG_SZ
  Data:

Value 33
  Name:             application/x-msmediaview,m13,,5
  Type:             REG_SZ
  Data:

Value 34
  Name:             application/x-msmediaview,m14,,5
  Type:             REG_SZ
  Data:

Value 35
  Name:             application/x-msmetafile,wmf,,5
  Type:             REG_SZ
  Data:

Value 36
  Name:             application/x-msmoney,mny,,5
  Type:             REG_SZ
  Data:

Value 37
  Name:             application/x-mspowerpoint,ppt,,5
  Type:             REG_SZ
  Data:

Value 38
  Name:             application/x-msproject,mpp,,5
  Type:             REG_SZ
  Data:

Value 39
  Name:             application/x-mspublisher,pub,,5
  Type:             REG_SZ
  Data:

Value 40
  Name:             application/x-msterminal,trm,,5
  Type:             REG_SZ
  Data:

Value 41
  Name:             application/x-msworks,wks,,5
  Type:             REG_SZ
  Data:

Value 42
  Name:             application/x-mswrite,wri,,5
  Type:             REG_SZ
  Data:

Value 43
  Name:             application/x-netcdf,cdf,,5
  Type:             REG_SZ
  Data:

Value 44
  Name:             application/x-netcdf,nc,,5
  Type:             REG_SZ
```

```
  Data:

Value 45
  Name:            application/x-perfmon,pma,,5
  Type:            REG_SZ
  Data:

Value 46
  Name:            application/x-perfmon,pmc,,5
  Type:            REG_SZ
  Data:

Value 47
  Name:            application/x-perfmon,pml,,5
  Type:            REG_SZ
  Data:

Value 48
  Name:            application/x-perfmon,pmr,,5
  Type:            REG_SZ
  Data:

Value 49
  Name:            application/x-perfmon,pmw,,5
  Type:            REG_SZ
  Data:

Value 50
  Name:            application/x-sh,sh,,5
  Type:            REG_SZ
  Data:

Value 51
  Name:            application/x-shar,shar,,5
  Type:            REG_SZ
  Data:

Value 52
  Name:            application/x-sv4cpio,sv4cpio,,5
  Type:            REG_SZ
  Data:

Value 53
  Name:            application/x-sv4crc,sv4crc,,5
  Type:            REG_SZ
  Data:

Value 54
  Name:            application/x-tar,tar,,5
  Type:            REG_SZ
  Data:

Value 55
  Name:            application/x-tcl,tcl,,5
  Type:            REG_SZ
  Data:

Value 56
  Name:            application/x-tex,tex,,5
  Type:            REG_SZ
  Data:

Value 57
  Name:            application/x-texinfo,texi,,5
  Type:            REG_SZ
  Data:

Value 58
  Name:            application/x-texinfo,texinfo,,5
  Type:            REG_SZ
  Data:

Value 59
  Name:            application/x-troff,roff,,5
  Type:            REG_SZ
  Data:

Value 60
  Name:            application/x-troff,t,,5
  Type:            REG_SZ
  Data:

Value 61
  Name:            application/x-troff,tr,,5
  Type:            REG_SZ
  Data:

Value 62
  Name:            application/x-troff-man,man,,5
  Type:            REG_SZ
  Data:

Value 63
  Name:            application/x-troff-me,me,,5
  Type:            REG_SZ
  Data:

Value 64
  Name:            application/x-troff-ms,ms,,5
  Type:            REG_SZ
  Data:

Value 65
  Name:            application/x-ustar,ustar,,5
  Type:            REG_SZ
  Data:
```

```
Value 66
  Name:             application/x-wais-source,src,,7
  Type:             REG_SZ
  Data:

Value 67
  Name:             application/zip,zip,,9
  Type:             REG_SZ
  Data:

Value 68
  Name:             audio/basic,au,,<
  Type:             REG_SZ
  Data:

Value 69
  Name:             audio/basic,snd,,<
  Type:             REG_SZ
  Data:

Value 70
  Name:             audio/x-aiff,aif,,<
  Type:             REG_SZ
  Data:

Value 71
  Name:             audio/x-aiff,aifc,,<
  Type:             REG_SZ
  Data:

Value 72
  Name:             audio/x-aiff,aiff,,<
  Type:             REG_SZ
  Data:

Value 73
  Name:             audio/x-pn-realaudio,ram,,<
  Type:             REG_SZ
  Data:

Value 74
  Name:             audio/x-wav,wav,,<
  Type:             REG_SZ
  Data:

Value 75
  Name:             image/bmp,bmp,,:
  Type:             REG_SZ
  Data:

Value 76
  Name:             image/cis-cod,cod,,5
  Type:             REG_SZ
  Data:

Value 77
  Name:             image/gif,gif,,g
  Type:             REG_SZ
  Data:

Value 78
  Name:             image/ief,ief,,:
  Type:             REG_SZ
  Data:

Value 79
  Name:             image/jpeg,jpe,,:
  Type:             REG_SZ
  Data:

Value 80
  Name:             image/jpeg,jpeg,,:
  Type:             REG_SZ
  Data:

Value 81
  Name:             image/jpeg,jpg,,:
  Type:             REG_SZ
  Data:

Value 82
  Name:             image/tiff,tif,,:
  Type:             REG_SZ
  Data:

Value 83
  Name:             image/tiff,tiff,,:
  Type:             REG_SZ
  Data:

Value 84
  Name:             image/x-cmu-raster,ras,,:
  Type:             REG_SZ
  Data:

Value 85
  Name:             image/x-cmx,cmx,,5
  Type:             REG_SZ
  Data:

Value 86
  Name:             image/x-portable-anymap,pnm,,:
  Type:             REG_SZ
  Data:
```

```
Value 87
  Name:            image/x-portable-bitmap,pbm,,:
  Type:            REG_SZ
  Data:

Value 88
  Name:            image/x-portable-graymap,pgm,,:
  Type:            REG_SZ
  Data:

Value 89
  Name:            image/x-portable-pixmap,ppm,,:
  Type:            REG_SZ
  Data:

Value 90
  Name:            image/x-rgb,rgb,,:
  Type:            REG_SZ
  Data:

Value 91
  Name:            image/x-xbitmap,xbm,,:
  Type:            REG_SZ
  Data:

Value 92
  Name:            image/x-xpixmap,xpm,,:
  Type:            REG_SZ
  Data:

Value 93
  Name:            image/x-xwindowdump,xwd,,:
  Type:            REG_SZ
  Data:

Value 94
  Name:            text/html,htm,,h
  Type:            REG_SZ
  Data:

Value 95
  Name:            text/html,html,,h
  Type:            REG_SZ
  Data:

Value 96
  Name:            text/html,stm,,h
  Type:            REG_SZ
  Data:

Value 97
  Name:            text/plain,bas,,0
  Type:            REG_SZ
  Data:

Value 98
  Name:            text/plain,c,,0
  Type:            REG_SZ
  Data:

Value 99
  Name:            text/plain,h,,0
  Type:            REG_SZ
  Data:

Value 100
  Name:            text/plain,txt,,0
  Type:            REG_SZ
  Data:

Value 101
  Name:            text/richtext,rtx,,0
  Type:            REG_SZ
  Data:

Value 102
  Name:            text/tab-separated-values,tsv,,0
  Type:            REG_SZ
  Data:

Value 103
  Name:            text/x-setext,etx,,0
  Type:            REG_SZ
  Data:

Value 104
  Name:            video/mpeg,mpe,,;
  Type:            REG_SZ
  Data:

Value 105
  Name:            video/mpeg,mpeg,,;
  Type:            REG_SZ
  Data:

Value 106
  Name:            video/mpeg,mpg,,;
  Type:            REG_SZ
  Data:

Value 107
  Name:            video/quicktime,mov,,;
  Type:            REG_SZ
  Data:

Value 108
```

```
  Name:            video/quicktime,qt,,;
  Type:            REG_SZ
  Data:

Value 109
  Name:            video/x-msvideo,avi,,<
  Type:            REG_SZ
  Data:

Value 110
  Name:            video/x-sgi-movie,movie,,<
  Type:            REG_SZ
  Data:

Value 111
  Name:            x-world/x-vrml,flr,,5
  Type:            REG_SZ
  Data:

Value 112
  Name:            x-world/x-vrml,wrl,,5
  Type:            REG_SZ
  Data:

Value 113
  Name:            x-world/x-vrml,wrz,,5
  Type:            REG_SZ
  Data:

Value 114
  Name:            x-world/x-vrml,xaf,,5
  Type:            REG_SZ
  Data:

Value 115
  Name:            x-world/x-vrml,xof,,5
  Type:            REG_SZ
  Data:


Key Name:          SYSTEM\CurrentControlSet\Services\InetInfo\Performance
Class Name:        <NO CLASS>
Last Write Time:   9/4/98 - 2:19 PM
Value 0
  Name:            Close
  Type:            REG_SZ
  Data:            CloseINFOPerformanceData

Value 1
  Name:            Collect
  Type:            REG_SZ
  Data:            CollectINFOPerformanceData

Value 2
  Name:            First Counter
  Type:            REG_DWORD
  Data:            0x738

Value 3
  Name:            First Help
  Type:            REG_DWORD
  Data:            0x739

Value 4
  Name:            Last Counter
  Type:            REG_DWORD
  Data:            0x756

Value 5
  Name:            Last Help
  Type:            REG_DWORD
  Data:            0x757

Value 6
  Name:            Library
  Type:            REG_SZ
  Data:            infoctrs.DLL

Value 7
  Name:            Open
  Type:            REG_SZ
  Data:            OpenINFOPerformanceData

Key Name:          SYSTEM\CurrentControlSet\Services\W3SVC
Class Name:        <NO CLASS>
Last Write Time:   9/8/98 - 3:25 PM
Value 0
  Name:            DependOnGroup
  Type:            REG_MULTI_SZ
  Data:

Value 1
  Name:            DependOnService
  Type:            REG_MULTI_SZ
  Data:            RPCSS
                   NTLMSSP


Value 2
  Name:            DisplayName
  Type:            REG_SZ
  Data:            World Wide Web Publishing Service

Value 3
  Name:            ErrorControl
  Type:            REG_DWORD
```

```
  Data:            0

Value 4
  Name:            ImagePath
  Type:            REG_EXPAND_SZ
  Data:            C:\WINNT\System32\inetsrv\inetinfo.exe

Value 5
  Name:            ObjectName
  Type:            REG_SZ
  Data:            LocalSystem

Value 6
  Name:            Start
  Type:            REG_DWORD
  Data:            0x2

Value 7
  Name:            Type
  Type:            REG_DWORD
  Data:            0x20


Key Name:          SYSTEM\CurrentControlSet\Services\W3SVC\Enum
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            0
  Type:            REG_SZ
  Data:            Root\LEGACY_W3SVC\0000

Value 1
  Name:            Count
  Type:            REG_DWORD
  Data:            0x1

Value 2
  Name:            NextInstance
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SYSTEM\CurrentControlSet\Services\W3SVC\Parameters
Class Name:        <NO CLASS>
Last Write Time:   9/8/98 - 4:24 PM
Value 0
  Name:            AcceptExOutstanding
  Type:            REG_DWORD
  Data:            0x708

Value 1
  Name:            AccessDeniedMessage
  Type:            REG_SZ
  Data:            Error: Access is Denied.

Value 2
  Name:            AdminEmail
  Type:            REG_SZ
  Data:            Admin@corp.com

Value 3
  Name:            AdminName
  Type:            REG_SZ
  Data:            Administrator

Value 4
  Name:            AnonymousUserName
  Type:            REG_SZ
  Data:            IUSR_TUERKIS

Value 5
  Name:            Authorization
  Type:            REG_DWORD
  Data:            0x1

Value 6
  Name:            CacheExtensions
  Type:            REG_DWORD
  Data:            0x1

Value 7
  Name:            CheckForWAISDB
  Type:            REG_DWORD
  Data:            0

Value 8
  Name:            ConnectionTimeOut
  Type:            REG_DWORD
  Data:            0x1c20

Value 9
  Name:            DebugFlags
  Type:            REG_DWORD
  Data:            0x8

Value 10
  Name:            Default Load File
  Type:            REG_SZ
  Data:            Default.htm

Value 11
  Name:            Dir Browse Control
  Type:            REG_DWORD
  Data:            0x4000001e

Value 12
```

```
  Name:            Filter DLLs
  Type:            REG_SZ
  Data:            C:\WINNT\System32\inetsrv\sspifilt.dll

Value 13
  Name:            GlobalExpire
  Type:            REG_DWORD
  Data:            0xffffffff

Value 14
  Name:            InstallPath
  Type:            REG_SZ
  Data:            C:\WINNT\System32\inetsrv

Value 15
  Name:            LogFileDirectory
  Type:            REG_EXPAND_SZ
  Data:            %SystemRoot%\System32\LogFiles

Value 16
  Name:            LogFileFormat
  Type:            REG_DWORD
  Data:            0

Value 17
  Name:            LogFilePeriod
  Type:            REG_DWORD
  Data:            0x1

Value 18
  Name:            LogFileTruncateSize
  Type:            REG_DWORD
  Data:            0x1388000

Value 19
  Name:            LogSqlDataSource
  Type:            REG_SZ
  Data:            HTTPLOG

Value 20
  Name:            LogSqlPassword
  Type:            REG_SZ
  Data:            sqllog

Value 21
  Name:            LogSqlTableName
  Type:            REG_SZ
  Data:            Internetlog

Value 22
  Name:            LogSqlUserName
  Type:            REG_SZ
  Data:            InternetAdmin

Value 23
  Name:            LogType
  Type:            REG_DWORD
  Data:            0

Value 24
  Name:            MajorVersion
  Type:            REG_DWORD
  Data:            0x2

Value 25
  Name:            MaxConnections
  Type:            REG_DWORD
  Data:            0x186a0

Value 26
  Name:            MinorVersion
  Type:            REG_DWORD
  Data:            0

Value 27
  Name:            NTAuthenticationProviders
  Type:            REG_SZ
  Data:            NTLM

Value 28
  Name:            ScriptTimeout
  Type:            REG_DWORD
  Data:            0x384

Value 29
  Name:            SecurePort
  Type:            REG_DWORD
  Data:            0x1bb

Value 30
  Name:            ServerComment
  Type:            REG_SZ
  Data:

Value 31
  Name:            ServerSideIncludesEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 32
  Name:            ServerSideIncludesExtension
  Type:            REG_SZ
  Data:            .stm
```

```
Key Name:
SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map
Class Name:         <NO CLASS>
Last Write Time:    9/8/98 - 3:21 PM
Value 0
  Name:             .cri
  Type:             REG_SZ
  Data:             C:\WINNT\Crystal\ISSndIMG.dll

Value 1
  Name:             .idc
  Type:             REG_SZ
  Data:             C:\WINNT\System32\inetsrv\httpodbc.dll

Value 2
  Name:             .rpt
  Type:             REG_SZ
  Data:             C:\WINNT\Crystal\ISCrpe.dll


Key Name:
SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots
Class Name:         <NO CLASS>
Last Write Time:    9/8/98 - 4:24 PM
Value 0
  Name:             /,
  Type:             REG_SZ
  Data:             C:\InetPub\wwwroot,,5

Value 1
  Name:             /iisadmin,
  Type:             REG_SZ
  Data:             C:\WINNT\System32\inetsrv\iisadmin,,1

Value 2
  Name:             /Scripts,
  Type:             REG_SZ
  Data:             C:\InetPub\scripts,,4


Key Name:           SYSTEM\CurrentControlSet\Services\W3SVC\Performance
Class Name:         <NO CLASS>
Last Write Time:    9/4/98 - 2:19 PM
Value 0
  Name:             Close
  Type:             REG_SZ
  Data:             CloseW3PerformanceData

Value 1
  Name:             Collect
  Type:             REG_SZ
  Data:             CollectW3PerformanceData

Value 2
  Name:             First Counter
  Type:             REG_DWORD
  Data:             0x758

Value 3
  Name:             First Help
  Type:             REG_DWORD
  Data:             0x759

Value 4
  Name:             Last Counter
  Type:             REG_DWORD
  Data:             0x790

Value 5
  Name:             Last Help
  Type:             REG_DWORD
  Data:             0x791

Value 6
  Name:             Library
  Type:             REG_SZ
  Data:             w3ctrs.DLL

Value 7
  Name:             Open
  Type:             REG_SZ
  Data:             OpenW3PerformanceData


Key Name:           SYSTEM\CurrentControlSet\Services\W3SVC\Security
Class Name:         <NO CLASS>
Last Write Time:    9/4/98 - 2:19 PM
Value 0
  Name:             Security
  Type:             REG_BINARY
  Data:
00000000   01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
................
00000010   34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00  4.....
.........
00000020   ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
................
00000030   20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
................
00000040   8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
................
00000050   28 f8 14 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
(...............
00000060   00 00 00 05 20 00 00 00 - 23 02 00 00 00 00 00 00  ....
...#.......
```

```
00000070   00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
................
00000080   20 00 00 00 20 02 00 00 - 00 00 00 00 00 00 1c 00   ...
...........
00000090   ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
............ ...
000000a0   25 02 00 00 00 00 00 00 - 00 00 18 00 fd 01 02 00
%...............
000000b0   01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
............%...
000000c0   01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
................
000000d0   00 00 00 05 12 00 00 00 -                          ........
```

```
Key Name:          SYSTEM\CurrentControlSet\Services\W3SVC\W3SAMP
Class Name:        <NO CLASS>
Last Write Time:   9/4/98 - 2:19 PM

Key Name:          SOFTWARE\DataFocus
Class Name:        <NO CLASS>
Last Write Time:   9/4/98 - 2:19 PM

Key Name:          SOFTWARE\DataFocus\NuTCRACKER
Class Name:        <NO CLASS>
Last Write Time:   9/4/98 - 2:19 PM

Key Name:          SOFTWARE\DataFocus\NuTCRACKER\NuTCRACKER DLL
Class Name:        <NO CLASS>
Last Write Time:   9/4/98 - 2:19 PM
Value 0
  Name:            LogLevel
  Type:            REG_DWORD
  Data:            0x1


Key Name:          SOFTWARE\DataFocus\NuTCRACKER\NuTCRACKER Kernel
Class Name:        <NO CLASS>
Last Write Time:   9/7/98 - 8:47 AM
Value 0
  Name:            LogLevel
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Messages in the system
  Type:            REG_DWORD
  Data:            0x64

Value 2
  Name:            Semaphore Identifiers
  Type:            REG_DWORD
  Data:            0x20

Value 3
  Name:            Semaphores in the system
  Type:            REG_DWORD
  Data:            0x140
```

This section discloses the Transaction monitor tunable parameters parameters used on the Primergy 460 client system.

```
.UTM START FILEBASE=.
.UTM START TASKS=34
.UTM START ASYNTASKS=1
.UTM START TESTMODE=OFF
.UTM START MULTI-PROC-OPT=OFF
.UTM END

 MESSAGE MODULE=msgpriv
 ROOT rSERV1
 OPTION GEN=ALL,TEST=N,CHECKTNS=N
 FORMSYS TYPE=NONE
 MAX SEMARRAY=(300,50),IPCSHMKEY=30010
 MAX KAASHMKEY=3009,CACHESHMKEY=30020
 MAX KDCFILE=(.,SINGLE),USLOG=SINGLE
 MAX APPLIMODE=F
 MAX APPLINAME=SERV1
 MAX TASKS=45,ASYNTASKS=1
 MAX PGPOOLFS=1,RECBUFFS=1
 MAX RESWAIT=(300,300),TRMSGLTH=4096,CONRTIME=
 MAX PGPOOL=(2000,80,95),GSSBS=20,LSSBS=1
 MAX TERMWAIT=1200,RECBUF=(5,500)
 MAX TRACEREC=1
 MAX CACHESIZE=(200,25)
 MAX KB=0,NB=4096,SPAB=1000
 MAX BLKSIZE=2K
 MAX SYSLOG-SIZE=200
 MAX LOCALE='De_DE.646'
 MAX NET-ACCESS=MULTI-THREADED
 MAX SPIN-LOCK-IPC=1000
*MAX PGWTTIME=600,TASKS-IN-PGWT=5
 PROGRAM KDCADM  ,COMP=C
      TAC KDCAPPL ,ADMIN=Y           ,PROGRAM=KDCADM
```

```
      TAC KDCBNDL ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCDIAG ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCHELP ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCINF  ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCLOG  ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCLPAP ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCLSES ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCLTAC ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCLTERM,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCPTERM,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCPOOL ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCPROG ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCSEND ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCSLOG ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCSHUT ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCSWTCH,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCTAC  ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCTCL  ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCUSER ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCMUX  ,ADMIN=Y           ,PROGRAM=KDCADM
      TAC KDCAPPLA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCBNDLA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCDIAGA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCHELPA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCINFA ,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCLOGA ,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCLPAPA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCLSESA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCLTACA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCLTRMA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCPTRMA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCPOOLA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCPROGA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCSENDA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCSLOGA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCSHUTA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCSWCHA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCTACA ,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCTCLA ,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCUSERA,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
      TAC KDCMUXA ,ADMIN=Y,TYPE=A    ,PROGRAM=KDCADM
* START und SHUT-Exit
  PROGRAM  svrinit,COMP=C
  PROGRAM  svrdone,COMP=C
  EXIT PROGRAM=svrinit,USAGE=START
  EXIT PROGRAM=svrdone,USAGE=SHUT
**********************
*  XATMI-Programme
**********************
* PROGRAM   NEW_ORDER    ,COMP=C
* TAC       NORDER       ,PROGRAM=NEW_ORDER    ,TYPE=D
,API=(XOPEN,XATMI)
* PROGRAM   STOCK_LEVEL  ,COMP=C
* TAC       STOCKL       ,PROGRAM=STOCK_LEVEL  ,TYPE=D
,API=(XOPEN,XATMI)
* PROGRAM   PAYMENT      ,COMP=C
* TAC       PAYMENT      ,PROGRAM=PAYMENT      ,TYPE=D
,API=(XOPEN,XATMI)
* PROGRAM   ORDER_STATUS ,COMP=C
* TAC       ORDERST      ,PROGRAM=ORDER_STATUS ,TYPE=D
,API=(XOPEN,XATMI)
**********************
* KDCS-Programme
**********************
  PROGRAM   KNEW_ORDER ,COMP=C
  TAC       KNORDER  ,PROGRAM=KNEW_ORDER    ,TYPE=D  ,API=KDCS
  PROGRAM   KSTOCK_LEVEL ,COMP=C
  TAC       KSTOCKL  ,PROGRAM=KSTOCK_LEVEL  ,TYPE=D  ,API=KDCS
  PROGRAM   KPAYMENT ,COMP=C
  TAC       KPAYMENT  ,PROGRAM=KPAYMENT     ,TYPE=D  ,API=KDCS
  PROGRAM   KORDER_STATUS ,COMP=C
  TAC       KORDERST  ,PROGRAM=KORDER_STATUS,TYPE=D  ,API=KDCS
*
  TPOOL LTERM=LTP0,PTYPE=TTY,NUMBER=3,STATUS=(ON,3),TERMN=KK
**************************************
* Generierung fuer UPIC-Lokal
**************************************
* TPOOL LTERM=UPL,NUMBER=2000,PTYPE=UPIC-L,CONNECT-MODE=MULTI
**************************************
* Generierung fuer UPIC-Remote (PCMX)
**************************************
 TPOOL LTERM=UP01,NUMBER=45,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV101,CONNECT-MODE=MULTI
 TPOOL LTERM=UP02,NUMBER=45,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV102,CONNECT-MODE=MULTI
 TPOOL LTERM=UP03,NUMBER=45,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV103,CONNECT-MODE=MULTI
 TPOOL LTERM=UP04,NUMBER=45,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV104,CONNECT-MODE=MULTI
 TPOOL LTERM=UP05,NUMBER=45,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV105,CONNECT-MODE=MULTI
 TPOOL LTERM=UP06,NUMBER=45,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV106,CONNECT-MODE=MULTI
 TPOOL LTERM=UP07,NUMBER=45,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV107,CONNECT-MODE=MULTI
*TPOOL LTERM=UP08,NUMBER=65,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV108,CONNECT-MODE=MULTI
*TPOOL LTERM=UP09,NUMBER=65,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV109,CONNECT-MODE=MULTI
*TPOOL LTERM=UP10,NUMBER=65,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV110,CONNECT-MODE=MULTI
*TPOOL LTERM=UP11,NUMBER=65,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV111,CONNECT-MODE=MULTI
*TPOOL LTERM=UP12,NUMBER=65,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV112,CONNECT-MODE=MULTI
```

```
*TPOOL LTERM=UP13,NUMBER=65,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV113,CONNECT-MODE=MULTI
*TPOOL LTERM=UP14,NUMBER=65,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV114,CONNECT-MODE=MULTI
*TPOOL LTERM=UP15,NUMBER=65,PTYPE=UPIC-
R,PRONAM=*ANY,BCAMAPPL=SERV115,CONNECT-MODE=MULTI

*
  BCAMAPPL SERV101 ,LISTENER-ID=1
  BCAMAPPL SERV102 ,LISTENER-ID=2
  BCAMAPPL SERV103 ,LISTENER-ID=3
  BCAMAPPL SERV104 ,LISTENER-ID=4
  BCAMAPPL SERV105 ,LISTENER-ID=5
  BCAMAPPL SERV106 ,LISTENER-ID=6
  BCAMAPPL SERV107 ,LISTENER-ID=7
* BCAMAPPL SERV108 ,LISTENER-ID=8
* BCAMAPPL SERV109 ,LISTENER-ID=9
* BCAMAPPL SERV110 ,LISTENER-ID=10
* BCAMAPPL SERV111 ,LISTENER-ID=11
* BCAMAPPL SERV112 ,LISTENER-ID=12
* BCAMAPPL SERV113 ,LISTENER-ID=13
* BCAMAPPL SERV114 ,LISTENER-ID=14
* BCAMAPPL SERV115 ,LISTENER-ID=15
*
END
```

This section discloses the Microsoft SQL Server 7.0 Enterprise Edition parameters used on the Primergy 870 server system.

Microsoft SQL Server was started with the following command line options:

```
sqlservr -c -x -T3502

where:
-c      starts SQL Server independently of the Windows NT Service Control Manager
-x      disables the keeping of CPU time and cache-hit ratio statistics
-T3502  prints a message to the SQL Server log at start and end of each checkpoint
```

Microsoft SQL Server Stack Size:

The default stack size for Microsoft SQL Server 7.0 was changed using the EDITBIN utility:

```
editbin /STACK:131072
```

The following Microsoft SQL Server configuration parameters were used:

name	minimum	maximum	config_value	run_value
affinity mask	0	2147483647	15	15
allow updates	0	1	1	1
cost threshold for parallelism	0	32767	5	5
cursor threshold	-1	2147483647	-1	-1
default language	0	9999	0	0
default sortorder id	0	255	50	50
extended memory size (MB)	0	2147483647	0	0
fill factor (%)	0	100	0	0
index create memory (KB)	704	1600000	0	0
language in cache	3	100	3	3
lightweight pooling	0	1	1	1
locks	5000	2147483647	0	0
max async IO	1	255	255	255
max degree of parallelism	0	32	1	1
max server memory (MB)	4	2147483647	2147483647	2147483647
max text repl size (B)	0	2147483647	65536	65536
max worker threads	10	1024	300	300
media retention	0	365	0	0
min memory per query (KB)	512	2147483647	1024	1024
min server memory (MB)	0	2147483647	0	0
nested triggers	0	1	0	0
network packet size (B)	512	65535	4096	4096
open objects	0	2147483647	0	0
priority boost	0	1	1	1
query governor cost limit	0	2147483647	0	0
query wait (s)	-1	2147483647	-1	-1
recovery interval (min)	0	32767	32767	32767
remote access	0	1	1	1
remote login timeout (s)	0	2147483647	30	30
remote proc trans	0	1	0	0
remote query timeout (s)	0	2147483647	0	0
resource timeout (s)	5	2147483647	10	10
scan for startup procs	0	1	0	0
set working set size	0	1	0	0
show advanced options	0	1	1	1
spin counter	1	2147483647	10000	10000
time slice (ms)	50	1000	100	100
Unicode comparison style	0	2147483647	0	0
Unicode locale id	0	2147483647	33280	33280
user connections	0	32767	305	305
user options	0	4095	0	0

This section discloses hardware information of the Primergy 870 server system.

```
********************** NT diagnostic **********************

Microsoft Diagnostics Report For \\SPACELAB
------------------------------------------------------------------------
----

OS Version Report
------------------------------------------------------------------------
----
Microsoft (R) Windows NT (TM) Server
Version 4.0 (Build 1381: Service Pack 3) x86 Multiprocessor Free
Registered Owner: OEC ES, SNI
Product Number: 36397-OEM-0029424-01381
------------------------------------------------------------------------
----

System Report
------------------------------------------------------------------------
----
System: AT/AT COMPATIBLE
Hardware Abstraction Layer: MPS 1.4 - APIC platform
BIOS Date: 08/14/98
BIOS Version: PhoenixBIOS 4.0 Release 6.1.1

Processor list:
   0:  x86 Family 6 Model 5 Stepping 2 GenuineIntel ~400 Mhz
   1:  x86 Family 6 Model 5 Stepping 2 GenuineIntel ~400 Mhz
   2:  x86 Family 6 Model 5 Stepping 2 GenuineIntel ~400 Mhz
   3:  x86 Family 6 Model 5 Stepping 2 GenuineIntel ~400 Mhz
------------------------------------------------------------------------
----

Video Display Report
------------------------------------------------------------------------
----
BIOS Date: 05/22/96
BIOS Version: CL-GD5436/46 PCI VGA BIOS Version 1.25
              Rel. 1.06

Adapter:
   Setting: 800 x 600 x 256
            75 Hz
   Type: cirrus compatible display adapter
   String: Cirrus Logic Compatible
   Memory: 2 MB
   Chip Type: Cirrus Logic 5446
   DAC Type: Integrated RAMDAC
Driver:
   Vendor: Microsoft Corporation
   File(s): cirrus.sys, vga.dll, cirrus.dll, vga256.dll,
vga64K.dll
   Version: 4.00, 4.0.0


Drives Report
------------------------------------------------------------------------
----
C:\  (Local - NTFS) WINNT40EE Total: 0KB, Free: 0KB
   Serial Number: 35C3 - 2153
   Bytes per cluster: 512
   Sectors per cluster: 1
   Filename length: 255
D:\  (Local - NTFS) TPCC Total: 6,771,364KB, Free: 3,776,192KB
   Serial Number: 6B86 - 49A2
   Bytes per cluster: 512
   Sectors per cluster: 8
   Filename length: 255
X:\  (Local - NTFS) BACKUP1 Total: 106,695,660KB, Free:
48,541,672KB
   Serial Number: 10AC - 718B
   Bytes per cluster: 512
   Sectors per cluster: 8
   Filename length: 255
Y:\  (Local - NTFS) BACKUP2 Total: 106,695,660KB, Free:
47,905,356KB
   Serial Number: 9CBA - 487A
   Bytes per cluster: 512
   Sectors per cluster: 8
   Filename length: 255

Memory Report
------------------------------------------------------------------------
----
Handles: 2,915
Threads: 102
Processes: 15

Physical Memory (K)
   Total: 4,095,400
   Available: 871,540
   File Cache: 16,464

Kernel Memory (K)
   Total: 636,688
   Paged: 10,592
   Nonpaged: 626,096

Commit Charge (K)
   Total: 3,068,428
```

```
   Limit: 6,212,776
   Peak: 3,076,924

Pagefile Space (K)
   Total: 2,277,376
   Total in use: 6,488
   Peak: 10,052

   C:\pagefile.sys
      Total: 1,228,800
      Total in use: 3,380
      Peak: 5,152

   D:\pagefile.sys
      Total: 1,048,576
      Total in use: 3,108
      Peak: 4,900



Services Report
--------------------------------------------------------------------
----
Alerter                                    Running
(Automatic)
   C:\WINNTPCC\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      LanmanWorkstation
Computer Browser                           Stopped   (Manual)
   C:\WINNTPCC\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      LanmanWorkstation
      LanmanServer
      LmHosts
ClipBook Server                            Stopped   (Disabled)
   C:\WINNTPCC\system32\clipsrv.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
   Service Dependencies:
      NetDDE
DHCP Client (TDI)                          Stopped   (Disabled)
   C:\WINNTPCC\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      Tcpip
      Afd
      NetBT
EventLog (Event log)                       Running
(Automatic)
   C:\WINNTPCC\system32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
Server                                     Stopped   (Manual)
   C:\WINNTPCC\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Group Dependencies:
      TDI
Workstation (NetworkProvider)              Running
(Automatic)
   C:\WINNTPCC\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Group Dependencies:
      TDI
License Logging Service                    Stopped   (Manual)
   C:\WINNTPCC\System32\llssrv.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
TCP/IP NetBIOS Helper                      Stopped   (Manual)
   C:\WINNTPCC\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Group Dependencies:
      NetworkProvider
Messenger                                  Stopped   (Manual)
   C:\WINNTPCC\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      LanmanWorkstation
      NetBios
MSDTC (MS Transactions)                    Stopped   (Manual)
   C:\WINNTPCC\System32\msdtc.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
   Service Dependencies:
      RPCSS
```

```
      NTLMSSP
MSSQLServer                                Stopped   (Manual)
   D:\MSSQL7\binn\sqlservr.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
Network DDE (NetDDEGroup)                  Stopped   (Manual)
   C:\WINNTPCC\system32\netdde.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      NetDDEDSDM
Network DDE DSDM                           Stopped   (Manual)
   C:\WINNTPCC\system32\netdde.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
Net Logon (RemoteValidation)               Stopped   (Manual)
   C:\WINNTPCC\System32\lsass.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      LanmanWorkstation
      LmHosts
NT LM Security Support Provider            Stopped   (Manual)
   C:\WINNTPCC\System32\SERVICES.EXE
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
Plug and Play (PlugPlay)                   Stopped   (Manual)
   C:\WINNTPCC\system32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
Protected Storage                          Running
(Automatic)
   C:\WINNTPCC\System32\pstores.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process, Interactive
   Service Dependencies:
      RpcSs
Directory Replicator                       Stopped   (Manual)
   C:\WINNTPCC\System32\lmrepl.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
   Service Dependencies:
      LanmanWorkstation
      LanmanServer
Remote Procedure Call (RPC) Locator        Stopped   (Manual)
   C:\WINNTPCC\System32\LOCATOR.EXE
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
   Service Dependencies:
      LanmanWorkstation
      Rdr
Remote Procedure Call (RPC) Service        Running   (Manual)
   C:\WINNTPCC\system32\RpcSs.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
Schedule                                   Stopped   (Manual)
   C:\WINNTPCC\System32\AtSvc.Exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
Spooler (SpoolerGroup)                     Stopped   (Manual)
   C:\WINNTPCC\system32\spoolss.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process, Interactive
SQLServerAgent                             Stopped   (Manual)
   D:\MSSQL7\binn\sqlagent.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
   Service Dependencies:
      MSSQLServer
Telephony Service                          Stopped   (Manual)
   C:\WINNTPCC\system32\tapisrv.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
UPS                                        Stopped   (Manual)
   C:\WINNTPCC\System32\ups.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process

Drivers Report
--------------------------------------------------------------------
----
Abiosdsk (Primary disk)                    Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
AFD Networking Support Environment (TDI)   Running
(Automatic)
   C:\WINNTPCC\System32\drivers\afd.sys
```

```
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Aha154x (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Aha174x (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
aic78xx (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Always (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
ami0nt (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
amsint (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Arrow (SCSI miniport)                      Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
atapi (SCSI miniport)                      Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Atdisk (Primary disk)                      Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
ati (Video)                                Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Beep (Base)                                Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
BusLogic (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Busmouse (Pointer Port)                    Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Cdaudio (Filter)                           Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Cdfs (File system)                         Running   (Disabled)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
   Group Dependencies:
      SCSI CDROM Class
Cdrom (SCSI CDROM Class)                   Running   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Changer (Filter)                           Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
cirrus (Video)                             Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Cpqarray (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
cpqfws2e (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
dac960nt (SCSI miniport)                   Running   (Boot)
   C:\WINNTPCC\System32\drivers\dac960nt.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
dce376nt (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Delldsa (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Dell_DGX (Video)                           Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Disk (SCSI Class)                          Running   (Boot)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Diskperf (Filter)                          Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
DptScsi (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
dtc329x (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Intel EtherExpress PRO Adapter (NDIS)      Running
(Automatic)
   C:\WINNTPCC\System32\drivers\e100bnt.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
et4000 (Video)                             Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Fastfat (Boot file system)                 Running   (Disabled)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
```

```
Fd16_700 (SCSI miniport)                        Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Fd7000ex (SCSI miniport)                        Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Fd8xx (SCSI miniport)                           Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
flashpnt (SCSI miniport)                        Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Floppy (Primary disk)                           Running   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Ftdisk (Filter)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
gamdrv (SCSI Class)                             Stopped   (Disabled)
   C:\WINNTPCC\System32\drivers\gamdrv.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
i8042 Keyboard and PS/2 Mouse Port Driver (Keyboard Port) Running
(System)
   System32\DRIVERS\i8042prt.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Inport (Pointer Port)                           Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Jazzg300 (Video)                                Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Jazzg364 (Video)                                Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Jzvxl484 (Video)                                Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Keyboard Class Driver (Keyboard Class)          Running   (System)
   System32\DRIVERS\kbdclass.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
KSecDD (Base)                                   Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
macdisk (Filter)                                Running   (Boot)
   C:\WINNTPCC\System32\drivers\macdisk.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
mga (Video)                                     Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
mga_mil (Video)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
mitsumi (SCSI miniport)                         Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
mkecr5xx (SCSI miniport)                        Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Modem (Extended base)                           Stopped   (Manual)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Mouse Class Driver (Pointer Class)              Running   (System)
   System32\DRIVERS\mouclass.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Msfs (File system)                              Running   (System)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
Mup (Network)                                   Running   (Manual)
   C:\WINNTPCC\System32\drivers\mup.sys
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
Ncr53c9x (SCSI miniport)                        Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
ncr77c22 (Video)                                Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Ncrc700 (SCSI miniport)                         Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Ncrc710 (SCSI miniport)                         Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Microsoft NDIS System Driver (NDIS)             Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
NetBIOS Interface (NetBIOSGroup)                Stopped   (Manual)
   C:\WINNTPCC\System32\drivers\netbios.sys
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
   Group Dependencies:
      TDI
WINS Client(TCP/IP) (PNP_TDI)                   Running
(Automatic)
   C:\WINNTPCC\System32\drivers\netbt.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
   Service Dependencies:
      Tcpip
```

```
NetDetect                                  Stopped   (Manual)
   C:\WINNTPCC\system32\drivers\netdtect.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Npfs (File system)                         Running   (System)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
Ntfs (File system)                         Running   (Disabled)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
Null (Base)                                Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Oliscsi (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Parallel (Extended base)                   Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Service Dependencies:
      Parport
   Group Dependencies:
      Parallel arbitrator
Parport (Parallel arbitrator)              Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
ParVdm (Extended base)                     Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Service Dependencies:
      Parport
   Group Dependencies:
      Parallel arbitrator
PCIDump (PCI Configuration)                Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Pcmcia (System Bus Extender)               Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
PnP ISA Enabler Driver (Base)              Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
psidisp (Video)                            Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Ql10wnt (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
qv (Video)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Rdr (Network)                              Running   (Manual)
   C:\WINNTPCC\System32\drivers\rdr.sys
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
s3 (Video)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Scsiprnt (Extended base)                   Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Scsiscan (SCSI Class)                      Running   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Serial (Extended base)                     Running
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Sermouse (Pointer Port)                    Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Sfloppy (Primary disk)                     Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Simbad (Filter)                            Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
slcd32 (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Sparrow (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Spock (SCSI miniport)                      Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Srv (Network)                              Stopped   (Manual)
   C:\WINNTPCC\System32\drivers\srv.sys
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
symc810 (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
symc8XX (SCSI miniport)                    Running   (Boot)
```

```
   C:\WINNTPCC\system32\drivers\symc8XX.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Sysdrv (Extended Base)                      Running
(Automatic)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
T128 (SCSI miniport)                        Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
T13B (SCSI miniport)                        Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
TCP/IP Service (PNP_TDI)                    Running
(Automatic)
   C:\WINNTPCC\System32\drivers\tcpip.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
tga (Video)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
tmv1 (SCSI miniport)                        Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Ultra124 (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Ultra14f (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Ultra24f (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
v7vram (Video)                              Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
VgaSave (Video Save)                        Stopped   (System)
   C:\WINNTPCC\System32\drivers\vga.sys
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
VgaStart (Video Init)                       Stopped   (System)
   C:\WINNTPCC\System32\drivers\vga.sys
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Wd33c93 (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
wd90c24a (Video)                            Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
wdvga (Video)                               Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
weitekp9 (Video)                            Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Xga (Video)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
```

IRQ and Port Report

Devices	Vector	Level	Affinity
MPS 1.4 - APIC platform	8	8	0x0000000f
MPS 1.4 - APIC platform	0	0	0x0000000f
MPS 1.4 - APIC platform	1	1	0x0000000f
MPS 1.4 - APIC platform	2	2	0x0000000f
MPS 1.4 - APIC platform	3	3	0x0000000f
MPS 1.4 - APIC platform	4	4	0x0000000f
MPS 1.4 - APIC platform	5	5	0x0000000f
MPS 1.4 - APIC platform	6	6	0x0000000f
MPS 1.4 - APIC platform	7	7	0x0000000f
MPS 1.4 - APIC platform	8	8	0x0000000f
MPS 1.4 - APIC platform	9	9	0x0000000f
MPS 1.4 - APIC platform	10	10	0x0000000f
MPS 1.4 - APIC platform	11	11	0x0000000f
MPS 1.4 - APIC platform	12	12	0x0000000f
MPS 1.4 - APIC platform	13	13	0x0000000f
MPS 1.4 - APIC platform	14	14	0x0000000f
MPS 1.4 - APIC platform	15	15	0x0000000f
MPS 1.4 - APIC platform	16	16	0x0000000f
MPS 1.4 - APIC platform	17	17	0x0000000f
MPS 1.4 - APIC platform	18	18	0x0000000f
MPS 1.4 - APIC platform	19	19	0x0000000f
MPS 1.4 - APIC platform	20	20	0x0000000f
MPS 1.4 - APIC platform	21	21	0x0000000f
MPS 1.4 - APIC platform	22	22	0x0000000f
MPS 1.4 - APIC platform	23	23	0x0000000f
MPS 1.4 - APIC platform	24	24	0x0000000f
MPS 1.4 - APIC platform	25	25	0x0000000f
MPS 1.4 - APIC platform	26	26	0x0000000f
MPS 1.4 - APIC platform	27	27	0x0000000f
MPS 1.4 - APIC platform	28	28	0x0000000f
MPS 1.4 - APIC platform	29	29	0x0000000f
MPS 1.4 - APIC platform	30	30	0x0000000f
MPS 1.4 - APIC platform	31	31	0x0000000f
MPS 1.4 - APIC platform	32	32	0x0000000f
MPS 1.4 - APIC platform	33	33	0x0000000f
MPS 1.4 - APIC platform	34	34	0x0000000f

```
MPS 1.4 - APIC platform          35    35 0x0000000f
MPS 1.4 - APIC platform          36    36 0x0000000f
MPS 1.4 - APIC platform          37    37 0x0000000f
MPS 1.4 - APIC platform          38    38 0x0000000f
MPS 1.4 - APIC platform          39    39 0x0000000f
MPS 1.4 - APIC platform          40    40 0x0000000f
MPS 1.4 - APIC platform          41    41 0x0000000f
MPS 1.4 - APIC platform          42    42 0x0000000f
MPS 1.4 - APIC platform          43    43 0x0000000f
MPS 1.4 - APIC platform          44    44 0x0000000f
MPS 1.4 - APIC platform          45    45 0x0000000f
MPS 1.4 - APIC platform          46    46 0x0000000f
MPS 1.4 - APIC platform          47    47 0x0000000f
MPS 1.4 - APIC platform          61    61 0x0000000f
MPS 1.4 - APIC platform          65    65 0x0000000f
MPS 1.4 - APIC platform          80    80 0x0000000f
MPS 1.4 - APIC platform         193   193 0x0000000f
MPS 1.4 - APIC platform         225   225 0x0000000f
MPS 1.4 - APIC platform         253   253 0x0000000f
MPS 1.4 - APIC platform         254   254 0x0000000f
MPS 1.4 - APIC platform         255   255 0x0000000f
i8042prt                          1     1 0xffffffff
i8042prt                         12    12 0xffffffff
Serial                            4     4 0x00000000
E100B                             4     4 0x00000000
Floppy                            6     6 0x00000000
dac960nt                         48    48 0x00000000
dac960nt                         48    48 0x00000000
dac960nt                         52    52 0x00000000
dac960nt                         56    56 0x00000000
dac960nt                         60    60 0x00000000
dac960nt                         48    48 0x00000000
dac960nt                         52    52 0x00000000
dac960nt                         56    56 0x00000000
dac960nt                         60    60 0x00000000
symc8XX                           8     8 0x00000000
symc8XX                          12    12 0x00000000
------------------------------------------------------------------
----
Devices                       Physical Address  Length
------------------------------------------------------------------
----
MPS 1.4 - APIC platform         0x00000000  0x0000000010
MPS 1.4 - APIC platform         0x00000020  0x0000000002
MPS 1.4 - APIC platform         0x00000040  0x0000000004
MPS 1.4 - APIC platform         0x00000048  0x0000000004
MPS 1.4 - APIC platform         0x00000061  0x0000000001
MPS 1.4 - APIC platform         0x00000070  0x0000000002
MPS 1.4 - APIC platform         0x00000080  0x0000000010
MPS 1.4 - APIC platform         0x00000092  0x0000000001
MPS 1.4 - APIC platform         0x000000a0  0x0000000002
MPS 1.4 - APIC platform         0x000000c0  0x0000000010
MPS 1.4 - APIC platform         0x000000f0  0x0000000010
i8042prt                        0x00000060  0x0000000001
i8042prt                        0x00000064  0x0000000001
Serial                          0x000003e8  0x0000000007
E100B                           0x00003800  0x000000001c
Floppy                          0x000003f0  0x0000000006
Floppy                          0x000003f7  0x0000000001
symc8XX                         0x00003000  0x0000000100
symc8XX                         0x00003400  0x0000000100
cirrus                          0x000003b0  0x000000000c
cirrus                          0x000003c0  0x0000000020


DMA and Memory Report
------------------------------------------------------------------
----
Devices                       Channel    Port
------------------------------------------------------------------
----
Floppy                           2     0
------------------------------------------------------------------
----
Devices                       Physical Address  Length
------------------------------------------------------------------
----
MPS 1.4 - APIC platform         0xfec00000  0x00000400
MPS 1.4 - APIC platform         0xfee00000  0x00000400
E100B                           0xfa7ff000  0x0000001c
dac960nt                        0xfa500000  0x00002000
dac960nt                        0xfe400000  0x00002000
dac960nt                        0xfe402000  0x00002000
dac960nt                        0xfe404000  0x00002000
dac960nt                        0xfe406000  0x00002000
dac960nt                        0xfe800000  0x00002000
dac960nt                        0xfe802000  0x00002000
dac960nt                        0xfe804000  0x00002000
dac960nt                        0xfe806000  0x00002000
symc8XX                         0xfa202000  0x00000100
symc8XX                         0xfa200000  0x00001000
symc8XX                         0xfa202400  0x00000100
symc8XX                         0xfa201000  0x00001000
cirrus                          0x000a0000  0x00020000
cirrus                          0xfc000000  0x02000000


Environment Report
------------------------------------------------------------------
----
```

```
System Environment Variables
   ComSpec=C:\WINNTPCC\system32\cmd.exe
   NUMBER_OF_PROCESSORS=4
   OS=Windows_NT
   Os2LibPath=C:\WINNTPCC\system32\os2\dll;
   Path=C:\WINNTPCC\system32;C:\WINNTPCC;D:\MSSQL7\BINN
   PROCESSOR_ARCHITECTURE=x86
   PROCESSOR_IDENTIFIER=x86 Family 6 Model 5 Stepping 2,
GenuineIntel
   PROCESSOR_LEVEL=6
   PROCESSOR_REVISION=0502
   windir=C:\WINNTPCC



Environment Variables for Current User
   TEMP=C:\TEMP
   TMP=C:\TEMP



Network Report
------------------------------------------------------------------
----
Your Access Level: Admin & Local
Workgroup or Domain: CWIEN
Network Version: 4.0
LanRoot: CWIEN
Logged On Users: 1
Current User (1): Administrator
  Logon Domain: SPACELAB
  Logon Server: SPACELAB

Transport: NetBT_E100B1, 08-00-06-0D-68-2D, VC's: 0, Wan: Wan

Character Wait: 3,600
Collection Time: 250
Maximum Collection Count: 16
Keep Connection: 600
Maximum Commands: 5
Session Time Out: 45
Character Buffer Size: 512
Maximum Threads: 17
Lock Quota: 6,144
Lock Increment: 10
Maximum Locks: 500
Pipe Increment: 10
Maximum Pipes: 500
Cache Time Out: 40
Dormant File Limit: 45
Read Ahead Throughput: 4,294,967,295
Mailslot Buffers: 3
Server Announce Buffers: 20
Illegal Datagrams: 5
Datagram Reset Frequency: 60
Log Election Packets: False
Use Opportunistic Locking: True
Use Unlock Behind: True
Use Close Behind: True
Buffer Pipes: True
Use Lock, Read, Unlock: True
Use NT Caching: True
Use Raw Read: True
Use Raw Write: True
Use Write Raw Data: True
Use Encryption: True
Buffer Deny Write Files: True
Buffer Read Only Files: True
Force Core Creation: True
512 Byte Max Transfer: False
Bytes Received: 134,328
SMB's Received: 2,325
Paged Read Bytes Requested: 0
Non Paged Read Bytes Requested: 0
Cache Read Bytes Requested: 0
Network Read Bytes Requested: 0
Bytes Transmitted: 8,928,061
SMB's Transmitted: 2,325
Paged Read Bytes Requested: 0
Non Paged Read Bytes Requested: 8,773,750
Cache Read Bytes Requested: 0
Network Read Bytes Requested: 8,773,750
Initally Failed Operations: 0
Failed Completion Operations: 0
Read Operations: 0
Random Read Operations: 0
Read SMB's: 0
Large Read SMB's: 0
Small Read SMB's: 0
Write Operations: 143
Random Write Operations: 0
Write SMB's: 2,142
Large Write SMB's: 143
Small Write SMB's: 0
Raw Reads Denied: 0
Raw Writes Denied: 0
Network Errors: 0
Sessions: 12
Failed Sessions: 0
Reconnects: 0
Core Connects: 0
LM 2.0 Connects: 0
LM 2.x Connects: 0
```

```
Windows NT Connects: 11
Server Disconnects: 1
Hung Sessions: 0
Use Count: 5
Failed Use Count: 0
Current Commands: 0
Server File Opens: 837,580,843
Server Device Opens: 0
Server Jobs Queued: 589,824
Server Session Opens: 2
Server Sessions Timed Out: 2,147,483,736
Server Sessions Errored Out: 3
Server Password Errors: 2,147,483,776
Server Permission Errors: 4
Server System Errors: 2,147,483,856
Server Bytes Sent: 9,223,373,033,287,188,485
Server Bytes Received: 9,223,373,892,280,647,686
Server Average Response Time: 9
Server Request Buffers Needed: 2,147,484,632
Server Big Buffers Needed: 11


********************** registry **********************


Key Name:          HARDWARE
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DESCRIPTION
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DESCRIPTION\System
Class Name:        System
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Device Specific
                                        Disposition:     Undetermined
                                        Reserved1:       0x00000000
                                        Reserved2:       0x00000000
                                        Data:
00000000   80 00 ff 03 00 00 3f 00 - fe 00 01 00
......?.....

Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            AT/AT COMPATIBLE

Value 3
  Name:            SystemBiosDate
  Type:            REG_SZ
  Data:            08/14/98

Value 4
  Name:            SystemBiosVersion
  Type:            REG_MULTI_SZ
  Data:            PhoenixBIOS 4.0 Release 6.1.1
                   PhoenixBIOS 4.0 Release 6.1.1

Value 5
  Name:            VideoBiosDate
  Type:            REG_SZ
  Data:            05/22/96

Value 6
  Name:            VideoBiosVersion
  Type:            REG_MULTI_SZ
  Data:            CL-GD5436/46 PCI VGA BIOS Version 1.25
                   Rel. 1.06

                   e 6.1.1


Key Name:          HARDWARE\DESCRIPTION\System\CentralProcessor
Class Name:        Processor
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DESCRIPTION\System\CentralProcessor\0
Class Name:        Processor
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
```

```
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 01 00 00 00
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            x86 Family 6 Model 5 Stepping 2

Value 3
  Name:            Update Signature
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 20 00 00 00 -                          ....
...

Value 4
  Name:            VendorIdentifier
  Type:            REG_SZ
  Data:            GenuineIntel

Value 5
  Name:            ~MHz
  Type:            REG_DWORD
  Data:            0x190


Key Name:          HARDWARE\DESCRIPTION\System\CentralProcessor\1
Class Name:        Processor
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 01 00 00 00 02 00 00 00
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
                     Version:           0
                     Revision:          0

Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            x86 Family 6 Model 5 Stepping 2

Value 3
  Name:            Update Signature
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 20 00 00 00 -                          ....
...

Value 4
  Name:            VendorIdentifier
  Type:            REG_SZ
  Data:            GenuineIntel

Value 5
  Name:            ~MHz
  Type:            REG_DWORD
  Data:            0x190


Key Name:          HARDWARE\DESCRIPTION\System\CentralProcessor\2
Class Name:        Processor
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 02 00 00 00 04 00 00 00
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
                     Version:           0
                     Revision:          0

Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            x86 Family 6 Model 5 Stepping 2

Value 3
  Name:            Update Signature
  Type:            REG_BINARY
```

```
  Data:
00000000   00 00 00 00 20 00 00 00 -                          ....
...

Value 4
  Name:            VendorIdentifier
  Type:            REG_SZ
  Data:            GenuineIntel

Value 5
  Name:            ~MHz
  Type:            REG_DWORD
  Data:            0x190


Key Name:          HARDWARE\DESCRIPTION\System\CentralProcessor\3
Class Name:        Processor
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 03 00 00 00 08 00 00 00
.................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            x86 Family 6 Model 5 Stepping 2

Value 3
  Name:            Update Signature
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 20 00 00 00 -                          ....
...

Value 4
  Name:            VendorIdentifier
  Type:            REG_SZ
  Data:            GenuineIntel

Value 5
  Name:            ~MHz
  Type:            REG_DWORD
  Data:            0x190


Key Name:
HARDWARE\DESCRIPTION\System\FloatingPointProcessor
Class Name:        Processor
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\FloatingPointProcessor\0
Class Name:        Processor
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 01 00 00 00
.................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            x86 Family 6 Model 5 Stepping 2


Key Name:
HARDWARE\DESCRIPTION\System\FloatingPointProcessor\1
Class Name:        Processor
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 01 00 00 00 02 00 00 00
.................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
```

```
                    Version:          0
                    Revision:         0


Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             x86 Family 6 Model 5 Stepping 2


Key Name:
HARDWARE\DESCRIPTION\System\FloatingPointProcessor\2
Class Name:         Processor
Last Write Time:    9/24/98 - 2:13 PM
Value 0
  Name:             Component Information
  Type:             REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 02 00 00 00 04 00 00 00
.................

Value 1
  Name:             Configuration Data
  Type:             REG_FULL_RESOURCE_DESCRIPTOR
                      Interface Type:    Invalid
                      Bus Number:        -1
                      Version:           0
                      Revision:          0


Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             x86 Family 6 Model 5 Stepping 2


Key Name:
HARDWARE\DESCRIPTION\System\FloatingPointProcessor\3
Class Name:         Processor
Last Write Time:    9/24/98 - 2:13 PM
Value 0
  Name:             Component Information
  Type:             REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 03 00 00 00 08 00 00 00
.................

Value 1
  Name:             Configuration Data
  Type:             REG_FULL_RESOURCE_DESCRIPTOR
                      Interface Type:    Invalid
                      Bus Number:        -1
                      Version:           0
                      Revision:          0


Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             x86 Family 6 Model 5 Stepping 2


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter
Class Name:         Adapter
Last Write Time:    9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\0
Class Name:         Adapter
Last Write Time:    9/24/98 - 2:13 PM
Value 0
  Name:             Component Information
  Type:             REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
.................

Value 1
  Name:             Configuration Data
  Type:             REG_FULL_RESOURCE_DESCRIPTOR
                      Interface Type:    PCI
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Device Specific
                        Disposition:     Undetermined
                        Reserved1:       0x00000000
                        Reserved2:       0x00000000
                        Data:
00000000   02 10 0d 01                                        ....


Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\1
Class Name:         Adapter
```

```
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        1
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\10
Class Name:        Adapter
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        10
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\11
Class Name:        Adapter
```

```
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        11
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\12
Class Name:        Adapter
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        12
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\13
Class Name:        Adapter
```

```
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Internal
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Device Specific
                       Disposition:     Undetermined
                       Reserved1:       0x00000000
                       Reserved2:       0x00000000
                       Data:
00000000   24 50 6e 50 10 21 00 00 - 86 00 04 00 00 b9 a0 00
$PnP.!..........
00000010   f0 d7 a0 00 00 0f 00 00 - 00 00 00 40 00 00 04 00
...........@....
00000020   00 26 00 00 41 d0 0c 02 - 08 80 00 03 00 47 01 80
.&..A........G..
00000030   00 80 00 01 01 86 09 00 - 00 00 00 fc ff 00 00 04
................
00000040   00 79 00 79 00 79 00 36 - 00 01 41 d0 0c 01 05 00
.y.y.y.6..A.....
00000050   00 03 00 86 09 00 01 00 - 00 00 00 00 00 0a 00 86
................
00000060   09 00 60 00 00 0e 00 00 - 00 02 00 86 09 00 00 00
..`.............
00000070   00 10 00 00 00 e0 f6 79 - 00 79 00 79 00 2d 00 02
.......y.y.y.-..
00000080   41 d0 02 00 08 01 01 03 - 00 47 01 00 00 00 00 01
A........G......
00000090   10 47 01 81 00 81 00 01 - 0f 47 01 c0 00 c0 00 01
.G.......G......
000000a0   20 2a 10 01 79 00 79 00 - 79 00 25 00 03 41 d0 00
*..y.y.y.%..A..
000000b0   00 08 00 01 03 00 47 01 - 20 00 20 00 01 02 47 01
......G. . ...G.
000000c0   a0 00 a0 00 01 02 22 04 - 00 79 00 79 00 79 00 1d
......"..y.y.y..
000000d0   00 04 41 d0 01 00 08 02 - 01 03 00 47 01 40 00 40
..A........G.@.@
000000e0   00 01 04 22 01 00 79 00 - 79 00 79 00 1d 00 05 41
..."..y.y.y....A
000000f0   d0 0b 00 08 03 01 03 00 - 47 01 70 00 70 00 01 02
........G.p.p...
00000100   22 00 01 79 00 79 00 79 - 00 25 00 06 41 d0 03 03
"..y.y.y.%..A...
00000110   09 00 00 03 00 47 01 60 - 00 60 00 01 01 47 01 64
.....G.`.`...G.d
00000120   00 64 00 01 01 22 02 00 - 79 00 79 00 79 00 1d 00
.d..."..y.y.y...
00000130   07 41 d0 0c 04 0b 80 00 - 03 00 47 01 f0 00 f0 00
.A........G.....
00000140   01 10 22 00 20 79 00 79 - 00 79 00 1a 00 08 41 d0  ..".
y.y.y....A.
00000150   08 00 04 01 00 03 00 47 - 01 61 00 61 00 01 01 79
.......G.a.a...y
00000160   00 79 00 79 00 1a 00 09 - 41 d0 0a 03 06 04 00 03
.y.y....A.......
00000170   00 47 01 f8 0c f8 0c 01 - 08 79 00 79 00 79 00 2a
.G.......y.y.y.*
00000180   00 0a 41 d0 0c 02 06 01 - 00 03 00 47 01 d0 04 d0
..A........G....
00000190   04 01 02 47 01 00 10 00 - 10 01 40 47 01 40 10 40
...G......@G.@.@
000001a0   10 01 10 79 00 79 00 79 - 00 2a 00 0b 41 d0 0c 02
...y.y.y.*..A...
000001b0   08 80 00 03 00 86 09 00 - 00 00 00 c0 fe 00 00 01
................
000001c0   00 86 09 00 00 00 00 e0 - fe 00 10 00 00 79 00 79
.............y.y
000001d0   00 79 00 1e 00 0d 41 d0 - 0c 02 05 00 00 03 00 86
.y....A.........
000001e0   09 00 20 00 f8 0c 00 00 - 08 00 00 79 00 79 00 79  ..
........y.y.y
000001f0   00 18 00 0e 41 d0 0f 13 - 09 02 00 88 00 22 00 10
....A........"..
00000200   79 00 22 00 10 79 00 79 - 00 6e 00 11 41 d0 07 00
y."..y.y.n..A...
00000210   01 02 00 90 00 47 01 f0 - 03 f0 03 08 06 47 01 f7
.....G.......G..
00000220   03 f7 03 01 01 22 40 00 - 2a 04 00 79 00 30 47 01
......"@.*..y.0G.
00000230   f0 03 f0 03 08 06 47 01 - f7 03 f7 03 01 01 22 40
......G........"@
00000240   00 2a 04 00 30 47 01 70 - 03 70 03 08 06 47 01 77
.*..0G.p.p...G.w
00000250   03 77 03 01 01 22 40 00 - 2a 04 00 30 47 01 00 01
.w..."@.*..0G...
00000260   f8 0f 08 08 47 01 00 00 - 00 00 01 00 22 ff ff 2a
....G......."..*
00000270   0f 00 38 79 00 79 00
..8y.y.
```

```
Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PNP BIOS


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14
Class Name:        Adapter
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            ISA


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\DiskController
Class Name:        Controller
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\DiskController
\0
Class Name:        Controller
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   64 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
d...............

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003f0
                       Length:          0x8
                       Type:            Port

                     Partial Descriptor 1
                       Resource:        Interrupt
                       Disposition:     Undetermined
                       Vector:          6
                       Level:           6
                       Affinity:        0xffffffff
                       Type:            Latched

                     Partial Descriptor 2
                       Resource:        DMA
                       Disposition:     Undetermined
                       Channel:         2
                       Port:            0


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\DiskController
\0\DiskPeripheral
Class Name:        Peripheral
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\DiskController
\0\DiskPeripheral\0
Class Name:        Peripheral
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   60 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
`...............

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
```

```
                    Version:          0
                    Revision:         0
                    Partial Descriptor 0
                      Resource:       Device Specific
                      Disposition:    Undetermined
                      Reserved1:      0x00000000
                      Reserved2:      0x00000000
                      Data:
00000000   00 02 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
................


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            2ed1651e-bd496af7-A


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\DiskController
\0\FloppyDiskPeripheral
Class Name:        Peripheral
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\DiskController
\0\FloppyDiskPeripheral\0
Class Name:        Peripheral
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Device Specific
                       Disposition:     Undetermined
                       Reserved1:       0x00000000
                       Reserved2:       0x00000000
                       Data:
00000000   02 00 00 00 00 00 00 00 - 00 00 00 00 a0 05 00 00
................
00000010   00 00 00 00 df 02 25 02 - 12 1b ff 6c f6 0f 05 4f
......%....l...O
00000020   00                                                .



Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            FLOPPY1


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\KeyboardContro
ller
Class Name:        Controller
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\KeyboardContro
ller\0
Class Name:        Controller
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   28 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
(...............

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x00000060
                       Length:          0x1
                       Type:            Port

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x00000064
                       Length:          0x1
                       Type:            Port

                     Partial Descriptor 2
```

```
                    Resource:       Interrupt
                    Disposition:    Undetermined
                    Vector:         1
                    Level:          1
                    Affinity:       0xffffffff
                    Type:           Latched



Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\KeyboardContro
ller\0\KeyboardPeripheral
Class Name:        Peripheral
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\KeyboardContro
ller\0\KeyboardPeripheral\0
Class Name:        Peripheral
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   28 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
(...............

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Device Specific
                       Disposition:     Undetermined
                       Reserved1:       0x00000000
                       Reserved2:       0x00000000
                       Data:
00000000   00 00 00 00 04 00 20 00 -
...... .



Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCAT_ENHANCED

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\PointerControl
ler
Class Name:        Controller
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\PointerControl
ler\0
Class Name:        Controller
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   20 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Undetermined
                       Vector:          12
                       Level:           12
                       Affinity:        0xffffffff
                       Type:            Latched



Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\PointerControl
ler\0\PointerPeripheral
Class Name:        Peripheral
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\PointerControl
ler\0\PointerPeripheral\0
Class Name:        Peripheral
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
```

```
00000000   20 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            MICROSOFT PS2 MOUSE


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\SerialControll
er
Class Name:        Controller
Last Write Time:   9/24/98 - 2:13 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\14\SerialControll
er\0
Class Name:        Controller
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   78 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
x...............

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003e8
                       Length:          0x7
                       Type:            Port

                     Partial Descriptor 1
                       Resource:        Interrupt
                       Disposition:     Undetermined
                       Vector:          4
                       Level:           4
                       Affinity:        0xffffffff
                       Type:            Latched

                     Partial Descriptor 2
                       Resource:        Device Specific
                       Disposition:     Undetermined
                       Reserved1:       0x00000000
                       Reserved2:       0x00000000
                       Data:
00000000   00 00 00 00 00 20 1c 00 -
..... ..


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            COM1


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\2
Class Name:        Adapter
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        2
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3
Class Name:        Adapter
```

```
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\4
Class Name:        Adapter
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        4
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\5
Class Name:        Adapter
```

```
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        5
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\6
Class Name:        Adapter
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        6
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\7
Class Name:        Adapter
```

```
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        7
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\8
Class Name:        Adapter
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        8
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\9
Class Name:        Adapter
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        9
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:          HARDWARE\DEVICEMAP
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\KeyboardClass
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            \Device\KeyboardClass0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\Kbdclass


Key Name:          HARDWARE\DEVICEMAP\KeyboardPort
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            \Device\KeyboardPort0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\i8042prt


Key Name:          HARDWARE\DEVICEMAP\PointerClass
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            \Device\PointerClass0
```

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  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\Mouclass


Key Name:          HARDWARE\DEVICEMAP\PointerPort
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            \Device\PointerPort0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\i8042prt


Key Name:          HARDWARE\DEVICEMAP\Scsi
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            symc8XX

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x8

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0x3000


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus
0\Initiator Id 7
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus
0\Target Id 5
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus
0\Target Id 5\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            TOSHIBA CD-ROM XM-5701TA0167

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            CdRomPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            symc8XX

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0xc

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0x3400


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 1\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 1\Scsi Bus
0\Initiator Id 7
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
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```
Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 1\Scsi Bus
0\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 1\Scsi Bus
0\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SEAGATE ST39102LC       7503

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 1\Scsi Bus
0\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 1\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SDR     GEM200          2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            dac960nt

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x3c

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0xfe806000


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
0\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
1\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
```

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Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus 4
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
4\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
4\Target Id 6
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 10\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   GAM DEVICE

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            dac960nt

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x30

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0xfa500000


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
0\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
0\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SDR     GEM200          2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
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Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
1\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
1\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
1\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SDR     GEM200          1

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus 4
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
4\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
4\Target Id 6
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 2\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   GAM DEVICE

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            dac960nt
```

```
Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x30

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0xfe400000


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
0\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
0\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
1\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
1\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
1\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
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  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus 4
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
4\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
4\Target Id 6
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 3\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   GAM DEVICE

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            dac960nt

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x34

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0xfe402000


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
0\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
0\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
1\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
1\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
1\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
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```
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus 4
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
4\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
4\Target Id 6
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 4\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   GAM DEVICE

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            dac960nt

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x38

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0xfe404000


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus 0
Class Name:        <NO CLASS>
```

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Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
0\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
0\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S O3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
1\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
1\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
1\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus 4
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
4\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
```

```
Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
4\Target Id 6
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 5\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   GAM DEVICE

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            dac960nt

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x3c

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0xfe406000


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
0\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
0\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
1\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
1\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
1\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S S1        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus 2
Class Name:        <NO CLASS>
```

```
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus 4
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
4\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
4\Target Id 6
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 6\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   GAM DEVICE

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            dac960nt

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x30

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0xfe800000


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
0\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
0\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
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Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
1\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
1\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
1\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
2\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
2\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SDR     GEM200          2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
3\Target Id 1
```

```
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
3\Target Id 1\Logical Unit Id 0
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             Identifier
  Type:             REG_SZ
  Data:             MYLEX   DAC960PJ        0403

Value 1
  Name:             Type
  Type:             REG_SZ
  Data:             DiskPeripheral


Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus 4
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
4\Initiator Id 254
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
4\Target Id 6
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 7\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             Identifier
  Type:             REG_SZ
  Data:             MYLEX   GAM DEVICE

Value 1
  Name:             Type
  Type:             REG_SZ
  Data:             OtherPeripheral


Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             DMAEnabled
  Type:             REG_DWORD
  Data:             0x1

Value 1
  Name:             Driver
  Type:             REG_SZ
  Data:             dac960nt

Value 2
  Name:             Interrupt
  Type:             REG_DWORD
  Data:             0x34

Value 3
  Name:             IOAddress
  Type:             REG_DWORD
  Data:             0xfe802000


Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus 0
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
0\Initiator Id 254
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
0\Target Id 8
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             Identifier
  Type:             REG_SZ
  Data:             SNI     STM/S R3        2

Value 1
  Name:             Type
  Type:             REG_SZ
  Data:             OtherPeripheral


Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus 1
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
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Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
1\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
1\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
1\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SNI     STM/S R3        2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
2\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
2\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SDR     GEM200          1

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
3\Target Id 1
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
3\Target Id 1\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus 4
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Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
4\Initiator Id 254
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
4\Target Id 6
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 8\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             Identifier
  Type:             REG_SZ
  Data:             MYLEX   GAM DEVICE

Value 1
  Name:             Type
  Type:             REG_SZ
  Data:             OtherPeripheral


Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             DMAEnabled
  Type:             REG_DWORD
  Data:             0x1

Value 1
  Name:             Driver
  Type:             REG_SZ
  Data:             dac960nt

Value 2
  Name:             Interrupt
  Type:             REG_DWORD
  Data:             0x38

Value 3
  Name:             IOAddress
  Type:             REG_DWORD
  Data:             0xfe804000
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Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus 0
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
0\Initiator Id 254
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
0\Target Id 8
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             Identifier
  Type:             REG_SZ
  Data:             SDR     GEM200          1

Value 1
  Name:             Type
  Type:             REG_SZ
  Data:             OtherPeripheral


Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus 1
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
1\Initiator Id 254
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
1\Target Id 8
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
1\Target Id 8\Logical Unit Id 0
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             Identifier
  Type:             REG_SZ
  Data:             SDR     GEM200          1
```

```
Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus 2
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
2\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus 3
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
3\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
3\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
3\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   DAC960PJ        0403

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus 4
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
4\Initiator Id 254
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
4\Target Id 6
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 9\Scsi Bus
4\Target Id 6\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            MYLEX   GAM DEVICE

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\SERIALCOMM
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            Serial0
  Type:            REG_SZ
  Data:            COM1


Key Name:          HARDWARE\DEVICEMAP\VIDEO
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            \Device\Video0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\cirrus\Device0

Value 1
  Name:            VgaCompatible
  Type:            REG_SZ
  Data:            \Device\Video0


Key Name:          HARDWARE\OWNERMAP
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            PCI_0_2c
  Type:            REG_SZ
  Data:            \Device\ScsiPort2
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Value 1
  Name:            PCI_0_3
  Type:            REG_SZ
  Data:            \Device\Video0

Value 2
  Name:            PCI_1_1
  Type:            REG_SZ
  Data:            \Device\E100B1

Value 3
  Name:            PCI_1_2
  Type:            REG_SZ
  Data:            \Device\ScsiPort0

Value 4
  Name:            PCI_1_3
  Type:            REG_SZ
  Data:            \Device\ScsiPort1

Value 5
  Name:            PCI_3_2c
  Type:            REG_SZ
  Data:            \Device\ScsiPort3

Value 6
  Name:            PCI_3_2d
  Type:            REG_SZ
  Data:            \Device\ScsiPort4

Value 7
  Name:            PCI_3_2e
  Type:            REG_SZ
  Data:            \Device\ScsiPort5

Value 8
  Name:            PCI_3_2f
  Type:            REG_SZ
  Data:            \Device\ScsiPort6

Value 9
  Name:            PCI_8_2c
  Type:            REG_SZ
  Data:            \Device\ScsiPort7

Value 10
  Name:            PCI_8_2d
  Type:            REG_SZ
  Data:            \Device\ScsiPort8

Value 11
  Name:            PCI_8_2e
  Type:            REG_SZ
  Data:            \Device\ScsiPort9

Value 12
  Name:            PCI_8_2f
  Type:            REG_SZ
  Data:            \Device\ScsiPort10


Key Name:          HARDWARE\RESOURCEMAP
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\RESOURCEMAP\Hardware Abstraction Layer
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\RESOURCEMAP\Hardware Abstraction
Layer\MPS 1.4 - APIC platform
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            .Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          8
                       Level:           8
                       Affinity:        0x0000000f
                       Type:            Level Sensitive


                   Full Resource Descriptor 1
                     Interface Type:    Internal
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          0
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive
```

```
Partial Descriptor 1
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          1
  Level:           1
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 2
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          2
  Level:           2
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 3
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          3
  Level:           3
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 4
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          4
  Level:           4
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 5
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          5
  Level:           5
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 6
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          6
  Level:           6
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 7
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          7
  Level:           7
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 8
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          8
  Level:           8
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 9
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          9
  Level:           9
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 10
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          10
  Level:           10
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 11
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          11
  Level:           11
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 12
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          12
  Level:           12
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 13
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          13
  Level:           13
  Affinity:        0x0000000f
  Type:            Level Sensitive
```

```
Partial Descriptor 14
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          14
  Level:           14
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 15
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          15
  Level:           15
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 16
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          16
  Level:           16
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 17
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          17
  Level:           17
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 18
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          18
  Level:           18
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 19
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          19
  Level:           19
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 20
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          20
  Level:           20
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 21
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          21
  Level:           21
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 22
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          22
  Level:           22
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 23
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          23
  Level:           23
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 24
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          24
  Level:           24
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 25
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          25
  Level:           25
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 26
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          26
  Level:           26
  Affinity:        0x0000000f
  Type:            Level Sensitive
```

```
Partial Descriptor 27
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          27
  Level:           27
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 28
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          28
  Level:           28
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 29
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          29
  Level:           29
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 30
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          30
  Level:           30
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 31
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          31
  Level:           31
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 32
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          32
  Level:           32
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 33
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          33
  Level:           33
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 34
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          34
  Level:           34
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 35
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          35
  Level:           35
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 36
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          36
  Level:           36
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 37
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          37
  Level:           37
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 38
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          38
  Level:           38
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 39
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          39
  Level:           39
  Affinity:        0x0000000f
  Type:            Level Sensitive
```

```
Partial Descriptor 40
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          40
  Level:           40
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 41
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          41
  Level:           41
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 42
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          42
  Level:           42
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 43
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          43
  Level:           43
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 44
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          44
  Level:           44
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 45
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          45
  Level:           45
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 46
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          46
  Level:           46
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 47
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          47
  Level:           47
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 48
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          61
  Level:           61
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 49
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          65
  Level:           65
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 50
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          80
  Level:           80
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 51
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          193
  Level:           193
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 52
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          225
  Level:           225
  Affinity:        0x0000000f
  Type:            Level Sensitive
```

```
Partial Descriptor 53
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          253
  Level:           253
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 54
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          254
  Level:           254
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 55
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          255
  Level:           255
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 56
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000000
  Length:          0x10
  Type:            Port

Partial Descriptor 57
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000020
  Length:          0x2
  Type:            Port

Partial Descriptor 58
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000040
  Length:          0x4
  Type:            Port

Partial Descriptor 59
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000048
  Length:          0x4
  Type:            Port

Partial Descriptor 60
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000061
  Length:          0x1
  Type:            Port

Partial Descriptor 61
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000070
  Length:          0x2
  Type:            Port

Partial Descriptor 62
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000080
  Length:          0x10
  Type:            Port

Partial Descriptor 63
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000092
  Length:          0x1
  Type:            Port

Partial Descriptor 64
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000a0
  Length:          0x2
  Type:            Port

Partial Descriptor 65
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000c0
  Length:          0x10
  Type:            Port

Partial Descriptor 66
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000f0
  Length:          0x10
  Type:            Port

Partial Descriptor 67
  Resource:        Memory
```

```
    Disposition:     Driver Exclusive
    Start:           0xfec00000
    Length:          0x400
    Type:            Read / Write

  Partial Descriptor 68
    Resource:        Memory
    Disposition:     Driver Exclusive
    Start:           0xfee00000
    Length:          0x400
    Type:            Read / Write



Value 1
  Name:            .Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          209
                       Level:           28
                       Affinity:        0x0000000f
                       Type:            Level Sensitive


                   Full Resource Descriptor 1
                     Interface Type:    Internal
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          0
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          1
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 2
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          2
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 3
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          3
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 4
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          4
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 5
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          5
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 6
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          6
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 7
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          7
                       Level:           0
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 8
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
```

```
  Vector:          8
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 9
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          9
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 10
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          10
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 11
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          11
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 12
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          12
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 13
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          13
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 14
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          14
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 15
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          15
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 16
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          16
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 17
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          17
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 18
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          18
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 19
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          19
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 20
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          20
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 21
  Resource:        Interrupt
  Disposition:     Driver Exclusive
```

```
  Vector:          21
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 22
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          22
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 23
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          23
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 24
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          24
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 25
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          25
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 26
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          26
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 27
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          27
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 28
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          28
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 29
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          29
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 30
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          30
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 31
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          31
  Level:           31
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 32
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          32
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 33
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          33
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 34
  Resource:        Interrupt
  Disposition:     Driver Exclusive
```

```
  Vector:          34
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 35
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          35
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 36
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          36
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 37
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          37
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 38
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          38
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 39
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          39
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 40
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          40
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 41
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          41
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 42
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          42
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 43
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          43
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 44
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          44
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 45
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          45
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 46
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          46
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 47
  Resource:        Interrupt
  Disposition:     Driver Exclusive
```

```
  Vector:          47
  Level:           0
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 48
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          61
  Level:           1
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 49
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          65
  Level:           2
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 50
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          80
  Level:           255
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 51
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          193
  Level:           27
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 52
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          225
  Level:           29
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 53
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          253
  Level:           30
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 54
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          254
  Level:           30
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 55
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          255
  Level:           31
  Affinity:        0x0000000f
  Type:            Level Sensitive

Partial Descriptor 56
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000000
  Length:          0x10
  Type:            Port

Partial Descriptor 57
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000020
  Length:          0x2
  Type:            Port

Partial Descriptor 58
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000040
  Length:          0x4
  Type:            Port

Partial Descriptor 59
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000048
  Length:          0x4
  Type:            Port

Partial Descriptor 60
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000061
  Length:          0x1
  Type:            Port
```

```
Partial Descriptor 61
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000070
  Length:          0x2
  Type:            Port

Partial Descriptor 62
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000080
  Length:          0x10
  Type:            Port

Partial Descriptor 63
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000092
  Length:          0x1
  Type:            Port

Partial Descriptor 64
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000a0
  Length:          0x2
  Type:            Port

Partial Descriptor 65
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000c0
  Length:          0x10
  Type:            Port

Partial Descriptor 66
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000f0
  Length:          0x10
  Type:            Port

Partial Descriptor 67
  Resource:        Memory
  Disposition:     Driver Exclusive
  Start:           0xfec00000
  Length:          0x400
  Type:            Read / Write

Partial Descriptor 68
  Resource:        Memory
  Disposition:     Driver Exclusive
  Start:           0xfee00000
  Length:          0x400
  Type:            Read / Write

Key Name:          HARDWARE\RESOURCEMAP\KeyboardPort/PointerPort
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:
HARDWARE\RESOURCEMAP\KeyboardPort/PointerPort\i8042prt
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            \Device\KeyboardPort0.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Device Exclusive
                       Vector:          1
                       Level:           1
                       Affinity:        0xffffffff
                       Type:            Latched

                     Partial Descriptor 1
                       Resource:        Interrupt
                       Disposition:     Device Exclusive
                       Vector:          12
                       Level:           12
                       Affinity:        0xffffffff
                       Type:            Latched

                     Partial Descriptor 2
                       Resource:        Port
                       Disposition:     Driver Exclusive
                       Start:           0x00000060
                       Length:          0x1
                       Type:            Port

                     Partial Descriptor 3
                       Resource:        Port
                       Disposition:     Driver Exclusive
                       Start:           0x00000064
                       Length:          0x1
```

```
                    Type:           Port


Value 1
  Name:             \Device\KeyboardPort0.Translated
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    Isa
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Interrupt
                        Disposition:     Device Exclusive
                        Vector:          129
                        Level:           7
                        Affinity:        0x0000000f
                        Type:            Latched

                      Partial Descriptor 1
                        Resource:        Interrupt
                        Disposition:     Device Exclusive
                        Vector:          145
                        Level:           8
                        Affinity:        0x0000000f
                        Type:            Latched

                      Partial Descriptor 2
                        Resource:        Port
                        Disposition:     Driver Exclusive
                        Start:           0x00000060
                        Length:          0x1
                        Type:            Port

                      Partial Descriptor 3
                        Resource:        Port
                        Disposition:     Driver Exclusive
                        Start:           0x00000064
                        Length:          0x1
                        Type:            Port



Key Name:           HARDWARE\RESOURCEMAP\LOADED SERIAL DRIVER
RESOURCES
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
```

```
Key Name:           HARDWARE\RESOURCEMAP\LOADED SERIAL DRIVER
RESOURCES\Serial
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             \Device\Serial0.Raw
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    Isa
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x000003e8
                        Length:          0x7
                        Type:            Port

                      Partial Descriptor 1
                        Resource:        Interrupt
                        Disposition:     Driver Exclusive
                        Vector:          4
                        Level:           4
                        Affinity:        0x00000000
                        Type:            Latched


Value 1
  Name:             \Device\Serial0.Translated
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    Isa
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x000003e8
                        Length:          0x7
                        Type:            Port

                      Partial Descriptor 1
                        Resource:        Interrupt
                        Disposition:     Driver Exclusive
                        Vector:          177
                        Level:           10
                        Affinity:        0x0000000f
```

```
                    Type:           Latched


Key Name:           HARDWARE\RESOURCEMAP\OtherDrivers
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM

Key Name:           HARDWARE\RESOURCEMAP\OtherDrivers\E100B
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             \Device\E100B1.Raw
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    PCI
                      Bus Number:        1
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Memory
                        Disposition:     Device Exclusive
                        Start:           0xfa7ff000
                        Length:          0x1c
                        Type:            Read / Write

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x00003800
                        Length:          0x1c
                        Type:            Port

                      Partial Descriptor 2
                        Resource:        Interrupt
                        Disposition:     Shared
                        Vector:          4
                        Level:           4
                        Affinity:        0x00000000
                        Type:            Level Sensitive



Value 1
  Name:             \Device\E100B1.Translated
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    PCI
                      Bus Number:        1
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Memory
                        Disposition:     Device Exclusive
                        Start:           0xfa7ff000
                        Length:          0x1c
                        Type:            Read / Write

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x00003800
                        Length:          0x1c
                        Type:            Port

                      Partial Descriptor 2
                        Resource:        Interrupt
                        Disposition:     Shared
                        Vector:          163
                        Level:           9
                        Affinity:        0x0000000f
                        Type:            Level Sensitive



Key Name:           HARDWARE\RESOURCEMAP\OtherDrivers\Floppy
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             .Raw
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    Isa
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Port
                        Disposition:     Shared
                        Start:           0x000003f0
                        Length:          0x6
                        Type:            Port

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Shared
                        Start:           0x000003f7
                        Length:          0x1
                        Type:            Port
```

```
                  Partial Descriptor 2
                    Resource:       DMA
                    Disposition:    Shared
                    Channel:        2
                    Port:           0

                  Partial Descriptor 3
                    Resource:       Interrupt
                    Disposition:    Shared
                    Vector:         6
                    Level:          6
                    Affinity:       0x00000000
                    Type:           Latched


Value 1
  Name:             .Translated
  Type:             REG_RESOURCE_LIST
  Data:
                  Full Resource Descriptor 0
                    Interface Type:    Isa
                    Bus Number:        0
                    Version:           0
                    Revision:          0
                    Partial Descriptor 0
                      Resource:        Port
                      Disposition:     Shared
                      Start:           0x000003f0
                      Length:          0x6
                      Type:            Port

                    Partial Descriptor 1
                      Resource:        Port
                      Disposition:     Shared
                      Start:           0x000003f7
                      Length:          0x1
                      Type:            Port

                    Partial Descriptor 2
                      Resource:        DMA
                      Disposition:     Shared
                      Channel:         2
                      Port:            0

                    Partial Descriptor 3
                      Resource:        Interrupt
                      Disposition:     Shared
                      Vector:          161
                      Level:           9
                      Affinity:        0x0000000f
                      Type:            Latched


Key Name:           HARDWARE\RESOURCEMAP\ScsiAdapter
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:13 PM

Key Name:           HARDWARE\RESOURCEMAP\ScsiAdapter\dac960nt
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 2:14 PM
Value 0
  Name:             \Device\ScsiPort10.Raw
  Type:             REG_RESOURCE_LIST
  Data:
                  Full Resource Descriptor 0
                    Interface Type:    PCI
                    Bus Number:        8
                    Version:           0
                    Revision:          0
                    Partial Descriptor 0
                      Resource:        Interrupt
                      Disposition:     Shared
                      Vector:          60
                      Level:           60
                      Affinity:        0x00000000
                      Type:            Level Sensitive

                    Partial Descriptor 1
                      Resource:        Memory
                      Disposition:     Device Exclusive
                      Start:           0xfe806000
                      Length:          0x2000
                      Type:            Write Only


Value 1
  Name:             \Device\ScsiPort10.Translated
  Type:             REG_RESOURCE_LIST
  Data:
                  Full Resource Descriptor 0
                    Interface Type:    PCI
                    Bus Number:        8
                    Version:           0
                    Revision:          0
                    Partial Descriptor 0
                      Resource:        Interrupt
                      Disposition:     Shared
                      Vector:          179
                      Level:           10
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfe806000
    Length:          0x2000
    Type:            Read / Write
```

```
Value 2
  Name:            \Device\ScsiPort2.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          48
                       Level:           48
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfa500000
                       Length:          0x2000
                       Type:            Write Only
```

```
Value 3
  Name:            \Device\ScsiPort2.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          81
                       Level:           4
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfa500000
    Length:          0x2000
    Type:            Read / Write
```

```
Value 4
  Name:            \Device\ScsiPort3.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          48
                       Level:           48
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfe400000
                       Length:          0x2000
                       Type:            Write Only
```

```
Value 5
  Name:            \Device\ScsiPort3.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          178
                       Level:           10
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfe400000
    Length:          0x2000
    Type:            Read / Write
```

```
Value 6
  Name:            \Device\ScsiPort4.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          52
                       Level:           52
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfe402000
                       Length:          0x2000
                       Type:            Write Only
```

```
Value 7
  Name:            \Device\ScsiPort4.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          162
                       Level:           9
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfe402000
    Length:          0x2000
    Type:            Read / Write
```

```
Value 8
  Name:            \Device\ScsiPort5.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          56
                       Level:           56
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfe404000
                       Length:          0x2000
                       Type:            Write Only
```

```
Value 9
  Name:            \Device\ScsiPort5.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          146
                       Level:           8
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfe404000
    Length:          0x2000
    Type:            Read / Write
```

```
Value 10
  Name:            \Device\ScsiPort6.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          60
                       Level:           60
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfe406000
                       Length:          0x2000
                       Type:            Write Only
```

```
Value 11
  Name:            \Device\ScsiPort6.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        3
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          130
                       Level:           7
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfe406000
    Length:          0x2000
    Type:            Read / Write
```

```
Value 12
  Name:            \Device\ScsiPort7.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        8
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          48
                       Level:           48
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfe800000
                       Length:          0x2000
                       Type:            Write Only
```

```
Value 13
  Name:            \Device\ScsiPort7.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        8
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          114
                       Level:           6
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfe800000
    Length:          0x2000
    Type:            Read / Write
```

```
Value 14
  Name:            \Device\ScsiPort8.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        8
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          52
                       Level:           52
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfe802000
                       Length:          0x2000
                       Type:            Write Only
```

```
Value 15
  Name:            \Device\ScsiPort8.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        8
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          98
                       Level:           5
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfe802000
    Length:          0x2000
    Type:            Read / Write
```

```
Value 16
  Name:            \Device\ScsiPort9.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        8
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          56
                       Level:           56
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfe804000
                       Length:          0x2000
                       Type:            Write Only
```

```
Value 17
  Name:            \Device\ScsiPort9.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        8
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          82
                       Level:           4
```

```
    Affinity:        0x0000000f
    Type:            Level Sensitive

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfe804000
    Length:          0x2000
    Type:            Read / Write

Key Name:          HARDWARE\RESOURCEMAP\ScsiAdapter\symc8XX
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            \Device\ScsiPort0.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        1
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          8
                       Level:           8
                       Affinity:        0x00000000
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x00003000
                       Length:          0x100
                       Type:            Port

                     Partial Descriptor 2
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfa202000
                       Length:          0x100
                       Type:            Read / Write

                     Partial Descriptor 3
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfa200000
                       Length:          0x1000
                       Type:            Read / Write

Value 1
  Name:            \Device\ScsiPort0.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        1
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          113
                       Level:           6
                       Affinity:        0x0000000f
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x00003000
                       Length:          0x100
                       Type:            Port

                     Partial Descriptor 2
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfa202000
                       Length:          0x100
                       Type:            Read / Write

                     Partial Descriptor 3
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfa200000
                       Length:          0x1000
                       Type:            Read / Write

Value 2
  Name:            \Device\ScsiPort1.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        1
                     Version:           0
```

```
    Revision:          0
    Partial Descriptor 0
      Resource:        Interrupt
      Disposition:     Shared
      Vector:          12
      Level:           12
      Affinity:        0x00000000
      Type:            Level Sensitive

    Partial Descriptor 1
      Resource:        Port
      Disposition:     Device Exclusive
      Start:           0x00003400
      Length:          0x100
      Type:            Port

    Partial Descriptor 2
      Resource:        Memory
      Disposition:     Device Exclusive
      Start:           0xfa202400
      Length:          0x100
      Type:            Read / Write

    Partial Descriptor 3
      Resource:        Memory
      Disposition:     Device Exclusive
      Start:           0xfa201000
      Length:          0x1000
      Type:            Read / Write


Value 3
  Name:            \Device\ScsiPort1.Translated
  Type:            REG_RESOURCE_LIST
  Data:

    Full Resource Descriptor 0
      Interface Type:    PCI
      Bus Number:        1
      Version:           0
      Revision:          0
      Partial Descriptor 0
        Resource:        Interrupt
        Disposition:     Shared
        Vector:          97
        Level:           5
        Affinity:        0x0000000f
        Type:            Level Sensitive

      Partial Descriptor 1
        Resource:        Port
        Disposition:     Device Exclusive
        Start:           0x00003400
        Length:          0x100
        Type:            Port

      Partial Descriptor 2
        Resource:        Memory
        Disposition:     Device Exclusive
        Start:           0xfa202400
        Length:          0x100
        Type:            Read / Write

      Partial Descriptor 3
        Resource:        Memory
        Disposition:     Device Exclusive
        Start:           0xfa201000
        Length:          0x1000
        Type:            Read / Write


Key Name:          HARDWARE\RESOURCEMAP\System Resources
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM

Key Name:          HARDWARE\RESOURCEMAP\System Resources\Physical
Memory
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            .Translated
  Type:            REG_RESOURCE_LIST
  Data:

    Full Resource Descriptor 0
      Interface Type:    Internal
      Bus Number:        0
      Version:           0
      Revision:          0
      Partial Descriptor 0
        Resource:        Memory
        Disposition:     Device Exclusive
        Start:           0x00001000
        Length:          0x9c000
        Type:            Read / Write

      Partial Descriptor 1
        Resource:        Memory
        Disposition:     Device Exclusive
        Start:           0x00100000
        Length:          0xeff000
        Type:            Read / Write
```

```
    Partial Descriptor 2
      Resource:        Memory
      Disposition:     Device Exclusive
      Start:           0x01000000
      Length:          0xf9000000
      Type:            Read / Write
```

```
Key Name:          HARDWARE\RESOURCEMAP\System Resources\Reserved
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:13 PM
Value 0
  Name:            .Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Internal
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0x0009d000
                       Length:          0x3000
                       Type:            Read / Write

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0x000ea000
                       Length:          0x16000
                       Type:            Read / Write

                     Partial Descriptor 2
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0x00fff000
                       Length:          0x1000
                       Type:            Read / Write

                     Partial Descriptor 3
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfec00000
                       Length:          0x10000
                       Type:            Read / Write

                     Partial Descriptor 4
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfee00000
                       Length:          0x1000
                       Type:            Read / Write

                     Partial Descriptor 5
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfffea000
                       Length:          0x16000
                       Type:            Read / Write
```

```
Key Name:          HARDWARE\RESOURCEMAP\VIDEO
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM

Key Name:          HARDWARE\RESOURCEMAP\VIDEO\cirrus
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM
Value 0
  Name:            \Device\Video0.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003b0
                       Length:          0xc
                       Type:            Port

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003c0
                       Length:          0x20
                       Type:            Port

                     Partial Descriptor 2
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0x000a0000
                       Length:          0x20000
                       Type:            Read / Write
```

```
  Partial Descriptor 3
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfc000000
    Length:          0x2000000
    Type:            Read / Write


Value 1
  Name:              \Device\Video0.Translated
  Type:              REG_RESOURCE_LIST
  Data:
                     Full Resource Descriptor 0
                       Interface Type:    PCI
                       Bus Number:        0
                       Version:           0
                       Revision:          0
                       Partial Descriptor 0
                         Resource:        Port
                         Disposition:     Device Exclusive
                         Start:           0x000003b0
                         Length:          0xc
                         Type:            Port

                       Partial Descriptor 1
                         Resource:        Port
                         Disposition:     Device Exclusive
                         Start:           0x000003c0
                         Length:          0x20
                         Type:            Port

                       Partial Descriptor 2
                         Resource:        Memory
                         Disposition:     Device Exclusive
                         Start:           0x000a0000
                         Length:          0x20000
                         Type:            Read / Write

                       Partial Descriptor 3
                         Resource:        Memory
                         Disposition:     Device Exclusive
                         Start:           0xfc000000
                         Length:          0x2000000
                         Type:            Read / Write


Key Name:          HARDWARE\RESOURCEMAP\VIDEO\VgaSave
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM


Key Name:          HARDWARE\RESOURCEMAP\VIDEO\VgaStart
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 2:14 PM


********************** SCSI - Mylex **********************


*********************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                            Version 4.71
*
*********************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #1    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 3

     Pack  0 : [0:0]  [1:0]  [0:1]  [1:1]  [0:2]  [1:2]  [0:3]
[1:3]
     Pack  1 : [0:4]  [1:4]  [0:5]  [1:5]  [0:10]  [1:10]  [0:11]
[1:11]
     Pack  2 : [0:12]  [1:12]  [0:13]  [1:13]  [0:14]  [1:14]
[0:15]  [1:15]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 1

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        208392  MB       0        208392  MB   Write
Thru


*********************************************************************
****
```

```
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                            Version 4.71
*

****************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #2    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 3

     Pack  0 : [0:0]  [1:0]  [0:1]  [1:1]  [0:2]  [1:2]  [0:3]
[1:3]
     Pack  1 : [0:4]  [1:4]  [0:5]  [1:5]  [0:10]  [1:10]  [0:11]
[1:11]
     Pack  2 : [0:12]  [1:12]  [0:13]  [1:13]  [0:14]  [1:14]
[0:15]  [1:15]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 1

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        208392  MB       0        208392  MB   Write
Thru



****************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                            Version 4.71
*

****************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #3    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 3

     Pack  0 : [0:0]  [1:0]  [0:1]  [1:1]  [0:2]  [1:2]  [0:3]
[1:3]
     Pack  1 : [0:4]  [1:4]  [0:5]  [1:5]  [0:10]  [1:10]  [0:11]
[1:11]
     Pack  2 : [0:12]  [1:12]  [0:13]  [1:13]  [0:14]  [1:14]
[0:15]  [1:15]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 1

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        208392  MB       0        208392  MB   Write
Thru



****************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                            Version 4.71
*

****************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #4    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 3

     Pack  0 : [0:0]  [1:0]  [0:1]  [1:1]  [0:2]  [1:2]  [0:3]
[1:3]
     Pack  1 : [0:4]  [1:4]  [0:5]  [1:5]  [0:10]  [1:10]  [0:11]
[1:11]
```

```
     Pack  2 : [0:12]  [1:12]  [0:13]  [1:13]  [0:14]  [1:14]
[0:15]  [1:15]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 1

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        208392  MB       0        208392  MB   Write
Thru



*****************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                            Version 4.71
*
*****************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #5    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 3

     Pack  0 : [0:0]  [1:0]  [0:1]  [1:1]  [0:2]  [1:2]  [0:3]
[1:3]
     Pack  1 : [0:4]  [1:4]  [0:5]  [1:5]  [0:10]  [1:10]  [0:11]
[1:11]
     Pack  2 : [0:12]  [1:12]  [0:13]  [1:13]  [0:14]  [1:14]
[0:15]  [1:15]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 1

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        208392  MB       0        208392  MB   Write
Thru


*****************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                            Version 4.71
*
*****************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #6    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 6

     Pack  0 : [0:0]  [1:0]  [0:1]  [1:1]  [0:2]  [1:2]  [0:3]
[1:3]
     Pack  1 : [0:4]  [1:4]  [0:5]  [1:5]  [0:10]  [1:10]  [0:11]
[1:11]
     Pack  2 : [0:12]  [1:12]  [0:13]  [1:13]  [0:14]  [1:14]
[0:15]  [1:15]
     Pack  3 : [2:0]  [2:1]  [2:2]  [2:3]
     Pack  4 : [2:4]  [2:5]  [2:10]  [2:11]
     Pack  5 : [2:12]  [2:13]  [2:14]  [2:15]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 2

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        208392  MB       0        208392  MB   Write
Thru
         1        104196  MB       0        104196  MB   Write
Thru



*****************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
```

```
     *                              Version 4.71
*
*****************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #7    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 6

     Pack  0 : [0:0]  [1:0]  [0:1]  [1:1]  [0:2]  [1:2]  [0:3]
[1:3]
     Pack  1 : [0:4]  [1:4]  [0:5]  [1:5]  [0:10]  [1:10]  [0:11]
[1:11]
     Pack  2 : [0:12]  [1:12]  [0:13]  [1:13]  [0:14]  [1:14]
[0:15]  [1:15]
     Pack  3 : [2:0]  [2:1]  [2:2]  [2:3]
     Pack  4 : [2:4]  [2:5]  [2:10]  [2:11]
     Pack  5 : [2:12]  [2:13]  [2:14]  [2:15]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 2

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        208392  MB       0        208392  MB   Write
Thru
         1        104196  MB       0        104196  MB   Write
Thru



*****************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                              Version 4.71
*
*****************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #8    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 3

     Pack  0 : [0:0]  [1:0]  [0:1]  [1:1]  [0:2]  [1:2]  [0:3]
[1:3]
     Pack  1 : [0:4]  [1:4]  [0:5]  [1:5]  [0:10]  [1:10]  [0:11]
[1:11]
     Pack  2 : [0:12]  [1:12]  [0:13]  [1:13]  [0:14]  [1:14]
[0:15]  [1:15]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 1

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        208392  MB       0        208392  MB   Write
Thru



*****************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                              Version 4.71
*
*****************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     3 Channel - 15 Target  DAC960PG   #9    Firmware version 4.03


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 1

     Pack  0 : [0:0]  [0:1]
```

```
     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 1

     Sys Drv #   Phy. Size   Raid Level   Eff. Size   Write Policy
     =========   =========   ==========   =========   ============
         0        104194  MB       1        52097  MB   Write Thru




**********************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                            Version 7.11
*

**********************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     4 Channel - 16 Target  DAC960SX  Firmware version 3.33-00

     Daughter Card


     PHYSICAL PACK INFORMATION :
     ===========================

     Number of Packs = 1

     Pack A : [1:0]  [1:1]  [1:2]

     SYSTEM DRIVE INFORMATION :
     ==========================

     Number of System Drives = 1
     LUN Affinity = Disabled

     # Phy. Size  Raid  Eff. Size  Cache       Packs  Status
     = =========  ====  =========  ==========  =====  ======
     0  52098 MB    0    52098 MB  Write Back  A...   Onln

     SYSTEM DRIVE AFFINITY INFORMATION :
     ===================================

     All Affinity (No LUN mapping)
```

```
PHYSICAL DRIVE INFORMATION :
============================

Chn  Tgt  Present  Type  Status   Size(MB)  Size(RAW)
===  ===  =======  ====  =======  ========  =========
 0    0   Absent    00   DEAD           0   00000000
 0    1   Absent    00   DEAD           0   00000000
 0    2   Absent    00   DEAD           0   00000000
 0    3   Absent    00   DEAD           0   00000000
 0    4   Absent    00   DEAD           0   00000000
 0    5   Absent    00   DEAD           0   00000000
 0    6   Absent    00   DEAD           0   00000000
 0    8   Absent    00   DEAD           0   00000000
 0    9   Absent    00   DEAD           0   00000000
 0    a   Absent    00   DEAD           0   00000000
 0    b   Absent    00   DEAD           0   00000000
 0    c   Absent    00   DEAD           0   00000000
 0    d   Absent    00   DEAD           0   00000000
 0    e   Absent    00   DEAD           0   00000000
 0    f   Absent    00   DEAD           0   00000000
 1    0   Present   f1   ONLINE     17366   021eb000
 1    1   Present   f1   ONLINE     17366   021eb000
 1    2   Present   f1   ONLINE     17366   021eb000
 1    3   Absent    00   DEAD           0   00000000
 1    4   Absent    00   DEAD           0   00000000
 1    5   Absent    00   DEAD           0   00000000
 1    6   Absent    00   DEAD           0   00000000
 1    8   Absent    00   DEAD           0   00000000
 1    9   Absent    00   DEAD           0   00000000
 1    a   Absent    00   DEAD           0   00000000
 1    b   Absent    00   DEAD           0   00000000
 1    c   Absent    00   DEAD           0   00000000
 1    d   Absent    00   DEAD           0   00000000
 1    e   Absent    00   DEAD           0   00000000
 1    f   Absent    00   DEAD           0   00000000
 2    0   Absent    00   DEAD           0   00000000
 2    1   Absent    00   DEAD           0   00000000
 2    2   Absent    00   DEAD           0   00000000
 2    3   Absent    00   DEAD           0   00000000
 2    4   Absent    00   DEAD           0   00000000
 2    5   Absent    00   DEAD           0   00000000
 2    6   Absent    00   DEAD           0   00000000
 2    8   Absent    00   DEAD           0   00000000
 2    9   Absent    00   DEAD           0   00000000
 2    a   Absent    00   DEAD           0   00000000
 2    b   Absent    00   DEAD           0   00000000
 2    c   Absent    00   DEAD           0   00000000
 2    d   Absent    00   DEAD           0   00000000
 2    e   Absent    00   DEAD           0   00000000
 2    f   Absent    00   DEAD           0   00000000
 3    0   Absent    00   DEAD           0   00000000
 3    1   Absent    00   DEAD           0   00000000
```

```
  3    2   Absent    00   DEAD          0    00000000
  3    3   Absent    00   DEAD          0    00000000
  3    4   Absent    00   DEAD          0    00000000
  3    5   Absent    00   DEAD          0    00000000
  3    6   Absent    00   DEAD          0    00000000
  3    8   Absent    00   DEAD          0    00000000
  3    9   Absent    00   DEAD          0    00000000
  3    a   Absent    00   DEAD          0    00000000
  3    b   Absent    00   DEAD          0    00000000
  3    c   Absent    00   DEAD          0    00000000
  3    d   Absent    00   DEAD          0    00000000
  3    e   Absent    00   DEAD          0    00000000
  3    f   Absent    00   DEAD          0    00000000

 CONTROLLER PARAMETERS :
 =======================

    Hardware

Automatic Rebuild Management     Enabled
Operational Fault Management     Enabled
Disconnect on First Command     Disabled

    Physical

Default rebuild rate                 50
Controller read ahead             Enabled
Super read ahead                 Disabled
True Verification of Data        Disabled
Stripe Size(K bytes)                  8
Installation Abort               Disabled
Reassign Restricted to 1 blk      Enabled
Write Through Verify              Enabled
RAID 5 Algorithm               Right Asym

    Disk Side Parameters

Per Channel:            0     1     2     3     4
 Data Transfer Rate - 20MHz 20MHz 20MHz 20MHz
 Command tagging    - Enabl Enabl Enabl Enabl
 Data bus width     - 16bit 16bit 16bit 16bit
Per Device:
 Elevator   -  Disab
 Coalescing -  Disab
 Que Limit  -    0
Global:
 Max IOPs       -  64
 Spin Up Option - Automatic  /  2 /  6 /  0

    Host Side

Disable Wide Operation          Disabled
Vendor Unique TUR               Disabled
Disable CC for Invalid LUN       Enabled
No Pause on ctrlr not ready     Disabled
On Queue Full give Busy         Disabled

    Serial port 0



    Active - Active

Conservative Cache              Disabled
Auto Failback                   Disabled
Force Simplex                    Enabled
Host Bus Reset Delay                   0
Ctrlr Pres/Flt Signals          Disabled
Ctrlr Pres/Flt Select                  A
Simplex no RSTCOM               Disabled

    Fibre

PCI Latency Control                Short
Frame Control                       Long
Smart Large Transfers            Enabled
Port 0                          Disabled
Port 0 ID                              0
Port 1                          Disabled
Port 1 ID                              0




*********************************************************************
****
     *        MYLEX Disk Array Controller - Configuration Utility
*
     *                            Version 7.11
*

*********************************************************************
****

     CONFIGURATION INFORMATION OF :
     ==============================

     4 Channel - 16 Target  DAC960SX  Firmware version 3.33-00

     Daughter Card


     PHYSICAL PACK INFORMATION :
     ===========================
```

```
Number of Packs = 1

Pack A : [1:0]  [1:1]  [1:2]

SYSTEM DRIVE INFORMATION :
==========================

Number of System Drives = 1
LUN Affinity = Disabled

# Phy. Size  Raid  Eff. Size  Cache       Packs  Status
= =========  ====  =========  ==========  =====  ======
0  52098 MB    0    52098 MB  Write Back  A...   Onln

SYSTEM DRIVE AFFINITY INFORMATION :
===================================

All Affinity (No LUN mapping)

PHYSICAL DRIVE INFORMATION :
============================

Chn  Tgt  Present  Type  Status   Size(MB)  Size(RAW)
===  ===  =======  ====  =======  ========  =========
 0    0   Absent    00   DEAD            0  00000000
 0    1   Absent    00   DEAD            0  00000000
 0    2   Absent    00   DEAD            0  00000000
 0    3   Absent    00   DEAD            0  00000000
 0    4   Absent    00   DEAD            0  00000000
 0    5   Absent    00   DEAD            0  00000000
 0    6   Absent    00   DEAD            0  00000000
 0    8   Absent    00   DEAD            0  00000000
 0    9   Absent    00   DEAD            0  00000000
 0    a   Absent    00   DEAD            0  00000000
 0    b   Absent    00   DEAD            0  00000000
 0    c   Absent    00   DEAD            0  00000000
 0    d   Absent    00   DEAD            0  00000000
 0    e   Absent    00   DEAD            0  00000000
 0    f   Absent    00   DEAD            0  00000000
 1    0   Present   f1   ONLINE      17366  021eb000
 1    1   Present   f1   ONLINE      17366  021eb000
 1    2   Present   f1   ONLINE      17366  021eb000
 1    3   Absent    00   DEAD            0  00000000
 1    4   Absent    00   DEAD            0  00000000
 1    5   Absent    00   DEAD            0  00000000
 1    6   Absent    00   DEAD            0  00000000
 1    8   Absent    00   DEAD            0  00000000
 1    9   Absent    00   DEAD            0  00000000
 1    a   Absent    00   DEAD            0  00000000
 1    b   Absent    00   DEAD            0  00000000
 1    c   Absent    00   DEAD            0  00000000
 1    d   Absent    00   DEAD            0  00000000
 1    e   Absent    00   DEAD            0  00000000
 1    f   Absent    00   DEAD            0  00000000
 2    0   Absent    00   DEAD            0  00000000
 2    1   Absent    00   DEAD            0  00000000
 2    2   Absent    00   DEAD            0  00000000
 2    3   Absent    00   DEAD            0  00000000
 2    4   Absent    00   DEAD            0  00000000
 2    5   Absent    00   DEAD            0  00000000
 2    6   Absent    00   DEAD            0  00000000
 2    8   Absent    00   DEAD            0  00000000
 2    9   Absent    00   DEAD            0  00000000
 2    a   Absent    00   DEAD            0  00000000
 2    b   Absent    00   DEAD            0  00000000
 2    c   Absent    00   DEAD            0  00000000
 2    d   Absent    00   DEAD            0  00000000
 2    e   Absent    00   DEAD            0  00000000
 2    f   Absent    00   DEAD            0  00000000
 3    0   Absent    00   DEAD            0  00000000
 3    1   Absent    00   DEAD            0  00000000
 3    2   Absent    00   DEAD            0  00000000
 3    3   Absent    00   DEAD            0  00000000
 3    4   Absent    00   DEAD            0  00000000
 3    5   Absent    00   DEAD            0  00000000
 3    6   Absent    00   DEAD            0  00000000
 3    8   Absent    00   DEAD            0  00000000
 3    9   Absent    00   DEAD            0  00000000
 3    a   Absent    00   DEAD            0  00000000
 3    b   Absent    00   DEAD            0  00000000
 3    c   Absent    00   DEAD            0  00000000
 3    d   Absent    00   DEAD            0  00000000
 3    e   Absent    00   DEAD            0  00000000
 3    f   Absent    00   DEAD            0  00000000

 CONTROLLER PARAMETERS :
 =======================

    Hardware

Automatic Rebuild Management     Enabled
Operational Fault Management     Enabled
Disconnect on First Command     Disabled

    Physical

Default rebuild rate                 50
Controller read ahead             Enabled
Super read ahead                 Disabled
True Verification of Data        Disabled
Stripe Size(K bytes)                  8
Installation Abort               Disabled
Reassign Restricted to 1 blk      Enabled
```

```
    Write Through Verify              Enabled
    RAID 5 Algorithm               Right Asym

        Disk Side Parameters

    Per Channel:            0     1     2     3     4
     Data Transfer Rate - 20MHz 20MHz 20MHz 20MHz
     Command tagging    - Enabl Enabl Enabl Enabl
     Data bus width     - 16bit 16bit 16bit 16bit
    Per Device:
     Elevator   -  Disab
     Coalescing -  Disab
     Que Limit  -    0
    Global:
     Max IOPs       -  64
     Spin Up Option - Automatic  /  2 /  6 /  0

        Host Side

    Disable Wide Operation          Disabled
    Vendor Unique TUR               Disabled
    Disable CC for Invalid LUN       Enabled
    No Pause on ctrlr not ready     Disabled
    On Queue Full give Busy         Disabled

        Serial port 0



        Active - Active

    Conservative Cache              Disabled
    Auto Failback                   Disabled
    Force Simplex                    Enabled
    Host Bus Reset Delay                   0
    Ctrlr Pres/Flt Signals          Disabled
    Ctrlr Pres/Flt Select                  A
    Simplex no RSTCOM               Disabled

        Fibre

    PCI Latency Control                Short
    Frame Control                       Long
    Smart Large Transfers            Enabled
    Port 0                          Disabled
    Port 0 ID                              0
    Port 1                          Disabled
    Port 1 ID                              0

********** Controller #1 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        0           208392            208392     Disabled
On Line

_____________________________________________________________________
_____________


Arrays:

Array ID              Devices
--------              -------
      A0              0-0;   1-0;   0-1;   1-1;   0-2;   1-2;
        0-3;   1-3;

      A1              0-4;   1-4;   0-5;   1-5;   0-10;  1-10;
        0-11;  1-11;

      A2              0-12;  1-12;  0-13;  1-13;  0-14;  1-14;
        0-15;  1-15;


_____________________________________________________________________
_____________

Devices:

Channel-Target      Type    Vendor    Model             Version
Size     State
--------------      ----    ------    -----             -------
----     -----
      0-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
```

```
      0-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line

********** Controller #2 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        0           208392            208392     Disabled
On Line
```

```
Arrays:

Array ID              Devices
--------              -------
      A0              0-0;   1-0;   0-1;   1-1;   0-2;   1-2;
        0-3;   1-3;

      A1              0-4;   1-4;   0-5;   1-5;   0-10;  1-10;
        0-11;  1-11;

      A2              0-12;  1-12;  0-13;  1-13;  0-14;  1-14;
        0-15;  1-15;
```

```
Devices:

Channel-Target      Type    Vendor    Model             Version
Size     State
--------------      ----    ------    -----             -------
----     -----
      0-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
```

```
      1-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line

********** Controller #3 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        0           208392            208392     Disabled
On Line

_____________________________________________________________________
_____________

Arrays:

Array ID              Devices
--------              -------
      A0              0-0;   1-0;   0-1;   1-1;   0-2;   1-2;
        0-3;   1-3;

      A1              0-4;   1-4;   0-5;   1-5;   0-10;  1-10;
        0-11;  1-11;

      A2              0-12;  1-12;  0-13;  1-13;  0-14;  1-14;
        0-15;  1-15;


_____________________________________________________________________
_____________

Devices:
```

```
Channel-Target     Type    Vendor    Model           Version
Size     State
--------------     ----    ------    -----           -------
----     -----
      0-0          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-1          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-2          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-3          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-4          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-5          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-10         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-11         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-12         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-13         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-14         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      0-15         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-0          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-1          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-2          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-3          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-4          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-5          Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-10         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-11         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-12         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-13         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-14         Disk    SEAGATE   ST39102LC       7503
8683     On Line
      1-15         Disk    SEAGATE   ST39102LC       7503
8683     On Line
```

```
********** Controller #4 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        0           208392            208392     Disabled
On Line

_____________________________________________________________________
_____________


Arrays:

Array ID              Devices
--------              -------
      A0              0-0;   1-0;   0-1;   1-1;   0-2;   1-2;
        0-3;   1-3;

      A1              0-4;   1-4;   0-5;   1-5;   0-10;  1-10;
        0-11;  1-11;

      A2              0-12;  1-12;  0-13;  1-13;  0-14;  1-14;
        0-15;  1-15;


_____________________________________________________________________
_____________

Devices:

Channel-Target      Type    Vendor    Model             Version
Size     State
--------------      ----    ------    -----             -------
----     -----
      0-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line

********** Controller #5 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        0           208392            208392     Disabled
On Line

_____________________________________________________________________
_____________
```

```
Arrays:

Array ID              Devices
--------              -------
      A0              0-0;   1-0;   0-1;   1-1;   0-2;   1-2;
        0-3;   1-3;

      A1              0-4;   1-4;   0-5;   1-5;   0-10;  1-10;
        0-11;  1-11;

      A2              0-12;  1-12;  0-13;  1-13;  0-14;  1-14;
        0-15;  1-15;
```

```
Devices:

Channel-Target      Type    Vendor    Model             Version
Size     State
--------------      ----    ------    -----             -------
----     -----
      0-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line

********** Controller #6 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        0           208392            208392     Disabled
On Line
     1        0           104196            104196     Disabled
On Line
```

```
Arrays:

Array ID              Devices
--------              -------
      A0              0-0;   1-0;   0-1;   1-1;   0-2;   1-2;
        0-3;   1-3;

      A1              0-4;   1-4;   0-5;   1-5;   0-10;  1-10;
        0-11;  1-11;

      A2              0-12;  1-12;  0-13;  1-13;  0-14;  1-14;
        0-15;  1-15;

      A3              2-0;   2-1;   2-2;   2-3;
```

```
      A4                2-4;    2-5;    2-10;   2-11;

      A5                2-12;   2-13;   2-14;   2-15;
```

```
Devices:

Channel-Target      Type    Vendor    Model             Version
Size     State
--------------      ----    ------    -----             -------
----     -----
      0-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      2-0           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-1           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-2           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-3           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-4           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-5           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-10          Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-11          Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-12          Disk    SEAGATE   ST19101WC         7502
8683     On Line
      2-13          Disk    SEAGATE   ST19101WC         7502
8683     On Line
      2-14          Disk    SEAGATE   ST19101WC         7502
8683     On Line
      2-15          Disk    SEAGATE   ST19101WC         7502
8683     On Line

********** Controller #7 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        0           208392            208392     Disabled
On Line
     1        0           104196            104196     Disabled
On Line
```

```
Arrays:

Array ID              Devices
--------              -------
      A0              0-0;   1-0;   0-1;   1-1;   0-2;   1-2;
        0-3;   1-3;

      A1              0-4;   1-4;   0-5;   1-5;   0-10;  1-10;
        0-11;  1-11;

      A2              0-12;  1-12;  0-13;  1-13;  0-14;  1-14;
        0-15;  1-15;

      A3              2-0;   2-1;   2-2;   2-3;

      A4              2-4;   2-5;   2-10;  2-11;

      A5              2-12;  2-13;  2-14;  2-15;
```

```
Devices:

Channel-Target      Type    Vendor    Model             Version
Size     State
--------------      ----    ------    -----             -------
----     -----
      0-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      2-0           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-1           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-2           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-3           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-4           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-5           Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-10          Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-11          Disk    SEAGATE   ST19171W          B501
8683     On Line
      2-12          Disk    SEAGATE   ST19101WC         7502
8683     On Line
      2-13          Disk    SEAGATE   ST19101WC         7502
8683     On Line
      2-14          Disk    SEAGATE   ST19101WC         7502
8683     On Line
      2-15          Disk    SEAGATE   ST19101WC         7502
8683     On Line
```

```
********** Controller #8 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        0           208392            208392     Disabled
On Line

_____________________________________________________________________
_____________

Arrays:

Array ID              Devices
--------              -------
      A0              0-0;   1-0;   0-1;   1-1;   0-2;   1-2;
        0-3;   1-3;

      A1              0-4;   1-4;   0-5;   1-5;   0-10;  1-10;
        0-11;  1-11;

      A2              0-12;  1-12;  0-13;  1-13;  0-14;  1-14;
        0-15;  1-15;


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_____________

Devices:

Channel-Target      Type    Vendor    Model             Version
Size     State
--------------      ----    ------    -----             -------
----     -----
      0-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      0-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-0           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-1           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-2           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-3           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-4           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-5           Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-10          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-11          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-12          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-13          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-14          Disk    SEAGATE   ST39102LC         7503
8683     On Line
      1-15          Disk    SEAGATE   ST39102LC         7503
8683     On Line

********** Controller #9 **********

Logical Drives:

Device     Raid     Logical Size     Physical Size     Write Back
State
------     ----     ------------     -------------     ----------
-----
     0        1            52097            104194     Disabled
On Line

_____________________________________________________________________
_____________
```

```
Arrays:

Array ID              Devices
--------              -------
      A0              0-0;    0-1;


_____________________________________________________________________
_____________

Devices:

Channel-Target      Type    Vendor    Model             Version
Size     State
--------------      ----    ------    -----             -------
----     -----
      0-0           Disk    MYLEX     DAC960SX 52098B0  1333
52098     On Line
      0-1           Disk    MYLEX     DAC960SX 52098B0  1333
52098     On Line
```

This section discloses hardware information of the Primergy 460 client system.

```
********************** NT diagnostic **********************


Microsoft Diagnostics Report For \\OLIV
----------------------------------------------------------------------
----

OS Version Report
----------------------------------------------------------------------
----
Microsoft (R) Windows NT (TM) Server
Version 4.0 (Build 1381: Service Pack 3) x86 Multiprocessor Free
Registered Owner: OEC ES, SNI
Product Number: 50382-049-1234567-15940
----------------------------------------------------------------------
----

System Report
----------------------------------------------------------------------
----
System: AT/AT COMPATIBLE
Hardware Abstraction Layer: MPS 1.4 - APIC platform
BIOS Date: 06/04/98
BIOS Version: PhoenixBIOS  Version 4.05  Rev.

Processor list:
   0:  x86 Family 6 Model 5 Stepping 1 GenuineIntel ~332 Mhz
   1:  x86 Family 6 Model 5 Stepping 1 GenuineIntel ~332 Mhz
----------------------------------------------------------------------
----

Video Display Report
----------------------------------------------------------------------
----
BIOS Date: 05/21/97
BIOS Version: CL-GD5446 PCI VGA BIOS Version 1.33
              Rel. 1.00

Adapter:
   Setting: 800 x 600 x 256
            72 Hz
   Type: cirrus compatible display adapter
   String: Cirrus Logic Compatible
   Memory: 1 MB
   Chip Type: Cirrus Logic 5446
   DAC Type: Integrated RAMDAC
Driver:
   Vendor: Microsoft Corporation
   File(s): cirrus.sys, vga.dll, cirrus.dll, vga256.dll,
vga64K.dll
   Version: 4.00, 4.0.0


Drives Report
----------------------------------------------------------------------
----
C:\  (Local - NTFS)  Total: 0KB, Free: 0KB
   Serial Number: 35ED - 25FB
   Bytes per cluster: 512
   Sectors per cluster: 1
   Filename length: 255

Memory Report
----------------------------------------------------------------------
----
Handles: 6,727
Threads: 115
Processes: 14

Physical Memory (K)
   Total: 261,552
   Available: 208,452
   File Cache: 16,560

Kernel Memory (K)
```

```
   Total: 18,296
   Paged: 12,028
   Nonpaged: 6,268

Commit Charge (K)
   Total: 36,568
   Limit: 767,364
   Peak: 38,308

Pagefile Space (K)
   Total: 524,288
   Total in use: 0
   Peak: 0

   C:\pagefile.sys
      Total: 524,288
      Total in use: 0
      Peak: 0



Services Report
-----------------------------------------------------------------
----
Alerter                                    Stopped   (Manual)
   C:\WINNT\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      LanmanWorkstation
Computer Browser                           Running
(Automatic)
   C:\WINNT\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      LanmanWorkstation
      LanmanServer
      LmHosts
ClipBook Server                            Stopped   (Manual)
   C:\WINNT\system32\clipsrv.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
   Service Dependencies:
      NetDDE
DHCP Client (TDI)                          Stopped   (Disabled)
   C:\WINNT\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
      Service Flags: Shared Process
      Service Dependencies:
         Tcpip
         Afd
         NetBT
EventLog (Event log)                       Running
(Automatic)
   C:\WINNT\system32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
Server                                     Running
(Automatic)
   C:\WINNT\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Group Dependencies:
      TDI
Workstation (NetworkProvider)              Running
(Automatic)
   C:\WINNT\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Group Dependencies:
      TDI
License Logging Service                    Stopped   (Manual)
   C:\WINNT\System32\llssrv.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
TCP/IP NetBIOS Helper                      Running
(Automatic)
   C:\WINNT\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Group Dependencies:
      NetworkProvider
Messenger                                  Stopped   (Manual)
   C:\WINNT\System32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      LanmanWorkstation
      NetBios
Network DDE (NetDDEGroup)                  Stopped   (Manual)
   C:\WINNT\system32\netdde.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
```

```
   Service Flags: Shared Process
   Service Dependencies:
      NetDDEDSDM
Network DDE DSDM                          Stopped   (Manual)
   C:\WINNT\system32\netdde.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
Net Logon (RemoteValidation)              Stopped   (Manual)
   C:\WINNT\System32\lsass.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
   Service Dependencies:
      LanmanWorkstation
      LmHosts
NT LM Security Support Provider           Running   (Manual)
   C:\WINNT\System32\SERVICES.EXE
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
NuTCRACKER Kernel                         Running
(Automatic)
   C:\WINNT\System32\nutkserv.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
Plug and Play (PlugPlay)                  Stopped   (Manual)
   C:\WINNT\system32\services.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Shared Process
Protected Storage                         Running
(Automatic)
   C:\WINNT\System32\pstores.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process, Interactive
   Service Dependencies:
      RpcSs
Directory Replicator                      Stopped   (Manual)
   C:\WINNT\System32\lmrepl.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
   Service Dependencies:
      LanmanWorkstation
      LanmanServer
Remote Procedure Call (RPC) Locator       Stopped   (Manual)
   C:\WINNT\System32\LOCATOR.EXE
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
   Service Dependencies:
      LanmanWorkstation
      Rdr
Remote Procedure Call (RPC) Service       Running
(Automatic)
   C:\WINNT\system32\RpcSs.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
Schedule                                  Stopped   (Manual)
   C:\WINNT\System32\AtSvc.Exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
Spooler (SpoolerGroup)                    Stopped   (Disabled)
   C:\WINNT\system32\spoolss.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process, Interactive
Telephony Service                         Stopped   (Manual)
   C:\WINNT\system32\tapisrv.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
UPS                                       Stopped   (Manual)
   C:\WINNT\System32\ups.exe
   Service Account Name: LocalSystem
   Error Severity: Normal
   Service Flags: Own Process
World Wide Web Publishing Service         Running
(Automatic)
   C:\WINNT\System32\inetsrv\inetinfo.exe
   Service Account Name: LocalSystem
   Error Severity: Ignore
   Service Flags: Shared Process
   Service Dependencies:
      RPCSS
      NTLMSSP


Drivers Report
--------------------------------------------------------------------
----
Abiosdsk (Primary disk)                   Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
AFD Networking Support Environment (TDI)  Running
(Automatic)
   C:\WINNT\System32\drivers\afd.sys
   Error Severity: Normal
```

```
   Service Flags: Kernel Driver, Shared Process
Aha154x (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Aha174x (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
aic78xx (SCSI miniport)                    Running   (Boot)
   C:\WINNT\System32\DRIVERS\aic78xx.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Always (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
ami0nt (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
amsint (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Arrow (SCSI miniport)                      Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
atapi (SCSI miniport)                      Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Atdisk (Primary disk)                      Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
ati (Video)                                Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Beep (Base)                                Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
BusLogic (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Busmouse (Pointer Port)                    Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Cdaudio (Filter)                           Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Cdfs (File system)                         Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
   Group Dependencies:
      SCSI CDROM Class
Cdrom (SCSI CDROM Class)                   Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Changer (Filter)                           Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
cirrus (Video)                             Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Cpqarray (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
cpqfws2e (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
dac960nt (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
dce376nt (SCSI miniport)                   Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Delldsa (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Dell_DGX (Video)                           Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Disk (SCSI Class)                          Running   (Boot)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Diskperf (Filter)                          Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
DptScsi (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
dtc329x (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Intel EtherExpress PRO Adapter (NDIS)      Running
(Automatic)
   C:\WINNT\System32\drivers\e100bnt.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
et4000 (Video)                             Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Fastfat (Boot file system)                 Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
Fd16_700 (SCSI miniport)                   Stopped   (Disabled)
```

```
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Fd7000ex (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Fd8xx (SCSI miniport)                       Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
flashpnt (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Floppy (Primary disk)                       Running   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Ftdisk (Filter)                             Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
i8042 Keyboard and PS/2 Mouse Port Driver (Keyboard Port) Running
(System)
   System32\DRIVERS\i8042prt.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Inport (Pointer Port)                       Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Jazzg300 (Video)                            Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Jazzg364 (Video)                            Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Jzvxl484 (Video)                            Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Keyboard Class Driver (Keyboard Class)      Running   (System)
   System32\DRIVERS\kbdclass.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
KSecDD (Base)                               Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
mga (Video)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
mga_mil (Video)                             Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
mitsumi (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
mkecr5xx (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Modem (Extended base)                       Stopped   (Manual)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Mouse Class Driver (Pointer Class)          Running   (System)
   System32\DRIVERS\mouclass.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Msfs (File system)                          Running   (System)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
Mup (Network)                               Running   (Manual)
   C:\WINNT\System32\drivers\mup.sys
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
Ncr53c9x (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
ncr77c22 (Video)                            Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Ncrc700 (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Ncrc710 (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Microsoft NDIS System Driver (NDIS)         Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
NetBIOS Interface (NetBIOSGroup)            Stopped   (Manual)
   C:\WINNT\System32\drivers\netbios.sys
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
   Group Dependencies:
      TDI
WINS Client(TCP/IP) (PNP_TDI)               Running
(Automatic)
   C:\WINNT\System32\drivers\netbt.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
   Service Dependencies:
      Tcpip
NetDetect                                   Stopped   (Manual)
   C:\WINNT\system32\drivers\netdtect.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Npfs (File system)                          Running   (System)
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
Ntfs (File system)                          Running   (Disabled)
   Error Severity: Normal
```

```
   Service Flags: File System Driver, Shared Process
Null (Base)                                Running   (System)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Oliscsi (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Parallel (Extended base)                   Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Service Dependencies:
      Parport
   Group Dependencies:
      Parallel arbitrator
Parport (Parallel arbitrator)              Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
ParVdm (Extended base)                     Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Service Dependencies:
      Parport
   Group Dependencies:
      Parallel arbitrator
PCIDump (PCI Configuration)                Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Pcmcia (System Bus Extender)               Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
PnP ISA Enabler Driver (Base)              Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
psidisp (Video)                            Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Ql10wnt (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
qv (Video)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Rdr (Network)                              Running   (Manual)
   C:\WINNT\System32\drivers\rdr.sys
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
s3 (Video)                                 Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Scsiprnt (Extended base)                   Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Scsiscan (SCSI Class)                      Running   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Serial (Extended base)                     Stopped
(Automatic)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Sermouse (Pointer Port)                    Stopped   (Disabled)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
Sfloppy (Primary disk)                     Stopped   (System)
   Error Severity: Ignore
   Service Flags: Kernel Driver, Shared Process
   Group Dependencies:
      SCSI miniport
Simbad (Filter)                            Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
slcd32 (SCSI miniport)                     Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Sparrow (SCSI miniport)                    Stopped   (Disabled)
   C:\WINNT\System32\DRIVERS\sparrow.sys
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Spock (SCSI miniport)                      Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
Srv (Network)                              Running   (Manual)
   C:\WINNT\System32\drivers\srv.sys
   Error Severity: Normal
   Service Flags: File System Driver, Shared Process
symc810 (SCSI miniport)                    Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
T128 (SCSI miniport)                       Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
T13B (SCSI miniport)                       Stopped   (Disabled)
   Error Severity: Normal
   Service Flags: Kernel Driver, Shared Process
TCP/IP Service (PNP_TDI)                   Running
(Automatic)
   C:\WINNT\System32\drivers\tcpip.sys
```

```
   Error Severity: Normal                                                MPS 1.4 - APIC platform           8     8 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform           0     0 0x00000003
tga (Video)                                 Stopped   (Disabled)        MPS 1.4 - APIC platform           1     1 0x00000003
   Error Severity: Ignore                                                MPS 1.4 - APIC platform           2     2 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform           3     3 0x00000003
tmv1 (SCSI miniport)                        Stopped   (Disabled)        MPS 1.4 - APIC platform           4     4 0x00000003
   Error Severity: Normal                                                MPS 1.4 - APIC platform           5     5 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform           6     6 0x00000003
Ultra124 (SCSI miniport)                    Stopped   (Disabled)        MPS 1.4 - APIC platform           7     7 0x00000003
   Error Severity: Normal                                                MPS 1.4 - APIC platform           8     8 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform           9     9 0x00000003
Ultra14f (SCSI miniport)                    Stopped   (Disabled)        MPS 1.4 - APIC platform          10    10 0x00000003
   Error Severity: Normal                                                MPS 1.4 - APIC platform          11    11 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          12    12 0x00000003
Ultra24f (SCSI miniport)                    Stopped   (Disabled)        MPS 1.4 - APIC platform          13    13 0x00000003
   Error Severity: Normal                                                MPS 1.4 - APIC platform          14    14 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          15    15 0x00000003
v7vram (Video)                              Stopped   (Disabled)        MPS 1.4 - APIC platform          16    16 0x00000003
   Error Severity: Ignore                                                MPS 1.4 - APIC platform          17    17 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          18    18 0x00000003
VgaSave (Video Save)                        Stopped   (System)          MPS 1.4 - APIC platform          19    19 0x00000003
   C:\WINNT\System32\drivers\vga.sys                                     MPS 1.4 - APIC platform          20    20 0x00000003
   Error Severity: Ignore                                                MPS 1.4 - APIC platform          21    21 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          22    22 0x00000003
VgaStart (Video Init)                       Stopped   (System)          MPS 1.4 - APIC platform          23    23 0x00000003
   C:\WINNT\System32\drivers\vga.sys                                     MPS 1.4 - APIC platform          24    24 0x00000003
   Error Severity: Ignore                                                MPS 1.4 - APIC platform          25    25 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          26    26 0x00000003
Wd33c93 (SCSI miniport)                     Stopped   (Disabled)        MPS 1.4 - APIC platform          27    27 0x00000003
   Error Severity: Normal                                                MPS 1.4 - APIC platform          28    28 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          29    29 0x00000003
wd90c24a (Video)                            Stopped   (Disabled)        MPS 1.4 - APIC platform          30    30 0x00000003
   Error Severity: Ignore                                                MPS 1.4 - APIC platform          31    31 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          32    32 0x00000003
wdvga (Video)                               Stopped   (Disabled)        MPS 1.4 - APIC platform          33    33 0x00000003
   Error Severity: Ignore                                                MPS 1.4 - APIC platform          34    34 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          35    35 0x00000003
weitekp9 (Video)                            Stopped   (Disabled)        MPS 1.4 - APIC platform          36    36 0x00000003
   Error Severity: Ignore                                                MPS 1.4 - APIC platform          37    37 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          38    38 0x00000003
Xga (Video)                                 Stopped   (Disabled)        MPS 1.4 - APIC platform          39    39 0x00000003
   Error Severity: Ignore                                                MPS 1.4 - APIC platform          40    40 0x00000003
   Service Flags: Kernel Driver, Shared Process                          MPS 1.4 - APIC platform          41    41 0x00000003
                                                                         MPS 1.4 - APIC platform          42    42 0x00000003
                                                                         MPS 1.4 - APIC platform          43    43 0x00000003
                                                                         MPS 1.4 - APIC platform          44    44 0x00000003
IRQ and Port Report                                                      MPS 1.4 - APIC platform          45    45 0x00000003
-------------------------------------------------------------------      MPS 1.4 - APIC platform          46    46 0x00000003
----                                                                     MPS 1.4 - APIC platform          47    47 0x00000003
Devices                       Vector Level  Affinity                     MPS 1.4 - APIC platform          61    61 0x00000003
-------------------------------------------------------------------      MPS 1.4 - APIC platform          65    65 0x00000003
----                                                                     MPS 1.4 - APIC platform          80    80 0x00000003
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MPS 1.4 - APIC platform          193   193 0x00000003
MPS 1.4 - APIC platform          225   225 0x00000003
MPS 1.4 - APIC platform          253   253 0x00000003
MPS 1.4 - APIC platform          254   254 0x00000003
MPS 1.4 - APIC platform          255   255 0x00000003
i8042prt                           1     1 0xffffffff
i8042prt                          12    12 0xffffffff
E100B                             11    11 0x00000000
E100B                             10    10 0x00000000
E100B                             15    15 0x00000000
E100B                              7     7 0x00000000
Floppy                             6     6 0x00000000
aic78xx                            9     9 0x00000000
------------------------------------------------------------------
----
Devices                        Physical Address  Length
------------------------------------------------------------------
----
MPS 1.4 - APIC platform         0x00000000  0x0000000010
MPS 1.4 - APIC platform         0x00000020  0x0000000002
MPS 1.4 - APIC platform         0x00000040  0x0000000004
MPS 1.4 - APIC platform         0x00000048  0x0000000004
MPS 1.4 - APIC platform         0x00000061  0x0000000001
MPS 1.4 - APIC platform         0x00000070  0x0000000002
MPS 1.4 - APIC platform         0x00000080  0x0000000010
MPS 1.4 - APIC platform         0x00000092  0x0000000001
MPS 1.4 - APIC platform         0x000000a0  0x0000000002
MPS 1.4 - APIC platform         0x000000c0  0x0000000010
MPS 1.4 - APIC platform         0x000000f0  0x0000000010
i8042prt                        0x00000060  0x0000000001
i8042prt                        0x00000064  0x0000000001
E100B                           0x0000e400  0x000000001c
E100B                           0x0000f800  0x000000001c
E100B                           0x0000d800  0x000000001c
E100B                           0x0000e000  0x000000001c
Floppy                          0x000003f0  0x0000000006
Floppy                          0x000003f7  0x0000000001
aic78xx                         0x0000e800  0x0000000100
cirrus                          0x000003b0  0x000000000c
cirrus                          0x000003c0  0x0000000020


DMA and Memory Report
------------------------------------------------------------------
----
Devices                          Channel    Port
------------------------------------------------------------------
----
Floppy                             2     0
------------------------------------------------------------------
----
```

```
Devices                          Physical Address  Length
------------------------------------------------------------------
----
MPS 1.4 - APIC platform          0xfec00000  0x00000400
MPS 1.4 - APIC platform          0xfee00000  0x00000400
E100B                            0xfe7fe000  0x0000001c
E100B                            0xfecff000  0x0000001c
E100B                            0xfe7fc000  0x0000001c
E100B                            0xfe7fd000  0x0000001c
aic78xx                          0xfebfe000  0x00001000
cirrus                           0x000a0000  0x00020000
cirrus                           0xfd000000  0x01000000



Environment Report
------------------------------------------------------------------
----


System Environment Variables
   ComSpec=C:\WINNT\system32\cmd.exe
   NUMBER_OF_PROCESSORS=2
   NUT_DEFAULT_WIN32_FAULT=1
   NUT_HEAP_RESERVE=0
   NUT_SUFFIXED_SEARCHING=0
   OS=Windows_NT
   Os2LibPath=C:\WINNT\system32\os2\dll;

Path=C:\WINNT\system32;C:\WINNT;C:\PROGRA~1\COMMON~1\System;;C:\MS
SQL\BINN
   PROCESSOR_ARCHITECTURE=x86
   PROCESSOR_IDENTIFIER=x86 Family 6 Model 5 Stepping 1,
GenuineIntel
   PROCESSOR_LEVEL=6
   PROCESSOR_REVISION=0501
   UTM_MAIN_KILL_TIME=1
   UTM_NET_SELECT_TIME=100
   UTM_OSS_SHM_BASE=0x00000000
   UTMPATH=C:\openUTM-Server
   windir=C:\WINNT


Environment Variables for Current User
   Path=C:\openUTM-Server\ex;C:\openUTM-Server\xatmi\ex
   SERVER=spacelab
   TEMP=C:\TEMP
   TMP=C:\TEMP
   UPICLOGX=c:\openUTM-SRC\utm_client1\trace
   UPICPATH=c:\openUTM-SRC\utm_client1
```

```
   UPICTRACEX=-SX -dc:\openUTM-SRC\utm_client1\trace
   UTM_NET_COMMON_WAIT=1
   XTCLTTR=
   XTLCF=c:\openUTM-SRC\utm_client1\xatmilcf
   XTPATH=c:\openUTM-SRC\utm_client1\trace
   XTSVRTR=



Network Report
------------------------------------------------------------------------
----
Your Access Level: Admin & Local
Workgroup or Domain: CWIEN
Network Version: 4.0
LanRoot: CWIEN
Logged On Users: 1
Current User (1): Administrator
  Logon Domain: OLIV
  Logon Server: OLIV

Transport: NetBT_E100B2, 00-A0-C9-DE-82-47, VC's: 0, Wan: Wan
Transport: NetBT_E100B1, 00-A0-C9-AB-32-4B, VC's: 0, Wan: Wan
Transport: NetBT_E100B4, 00-A0-C9-DC-AF-58, VC's: 0, Wan: Wan
Transport: NetBT_E100B3, 00-A0-C9-DE-84-67, VC's: 0, Wan: Wan

Character Wait: 3,600
Collection Time: 250
Maximum Collection Count: 16
Keep Connection: 600
Maximum Commands: 5
Session Time Out: 45
Character Buffer Size: 512
Maximum Threads: 17
Lock Quota: 6,144
Lock Increment: 10
Maximum Locks: 500
Pipe Increment: 10
Maximum Pipes: 500
Cache Time Out: 40
Dormant File Limit: 45
Read Ahead Throughput: 4,294,967,295
Mailslot Buffers: 3
Server Announce Buffers: 20
Illegal Datagrams: 5
Datagram Reset Frequency: 60
Log Election Packets: False
Use Opportunistic Locking: True
Use Unlock Behind: True
Use Close Behind: True
Buffer Pipes: True
Use Lock, Read, Unlock: True
Use NT Caching: True
Use Raw Read: True
Use Raw Write: True
Use Write Raw Data: True
Use Encryption: True
Buffer Deny Write Files: True
Buffer Read Only Files: True
Force Core Creation: True
512 Byte Max Transfer: False
Bytes Received: 253
SMB's Received: 3
Paged Read Bytes Requested: 0
Non Paged Read Bytes Requested: 0
Cache Read Bytes Requested: 0
Network Read Bytes Requested: 0
Bytes Transmitted: 473
SMB's Transmitted: 3
Paged Read Bytes Requested: 0
Non Paged Read Bytes Requested: 13,776
Cache Read Bytes Requested: 0
Network Read Bytes Requested: 0
Initally Failed Operations: 0
Failed Completion Operations: 0
Read Operations: 0
Random Read Operations: 0
Read SMB's: 0
Large Read SMB's: 0
Small Read SMB's: 0
Write Operations: 287
Random Write Operations: 0
Write SMB's: 0
Large Write SMB's: 0
Small Write SMB's: 0
Raw Reads Denied: 0
Raw Writes Denied: 0
Network Errors: 0
Sessions: 1
Failed Sessions: 0
Reconnects: 0
Core Connects: 0
LM 2.0 Connects: 0
LM 2.x Connects: 0
Windows NT Connects: 1
Server Disconnects: 0
Hung Sessions: 0
Use Count: 0
Failed Use Count: 0
Current Commands: 0
Server File Opens: 0
Server Device Opens: 0
Server Jobs Queued: 0
Server Session Opens: 0
```

```
Server Sessions Timed Out: 0
Server Sessions Errored Out: 0
Server Password Errors: 0
Server Permission Errors: 0
Server System Errors: 0
Server Bytes Sent: 253
Server Bytes Received: 473
Server Average Response Time: 0
Server Request Buffers Needed: 0
Server Big Buffers Needed: 0


********************** registry ***********************


Key Name:          HARDWARE
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\DESCRIPTION
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\DESCRIPTION\System
Class Name:        System
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Device Specific
                       Disposition:     Undetermined
                       Reserved1:       0x00000000
                       Reserved2:       0x00000000
                       Data:
00000000   80 00 06 01 00 00 3f 00 - fe 00 01 00
......?.....


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            AT/AT COMPATIBLE

Value 3
  Name:            SystemBiosDate
  Type:            REG_SZ
  Data:            06/04/98

Value 4
  Name:            SystemBiosVersion
  Type:            REG_MULTI_SZ
  Data:            PhoenixBIOS  Version 4.05  Rev. 1.05.992
                   PhoenixBIOS  Version 4.05  Rev. 1.05.992
                   PhoenixBIOS  Version 4.05  Rev. 1.05.992

Value 5
  Name:            VideoBiosDate
  Type:            REG_SZ
  Data:            05/21/97

Value 6
  Name:            VideoBiosVersion
  Type:            REG_MULTI_SZ
  Data:            CL-GD5446 PCI VGA BIOS Version 1.33
                   Rel. 1.00

                     Version 4.05  Rev. 1.05.992
                   PhoenixBIOS  Version 4.05  Rev. 1.05.992


Key Name:          HARDWARE\DESCRIPTION\System\CentralProcessor
Class Name:        Processor
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\DESCRIPTION\System\CentralProcessor\0
Class Name:        Processor
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 01 00 00 00
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
```

```
                    Version:          0
                    Revision:         0


Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             x86 Family 6 Model 5 Stepping 1

Value 3
  Name:             Update Signature
  Type:             REG_BINARY
  Data:
00000000   00 00 00 00 29 00 00 00 -
....)...

Value 4
  Name:             VendorIdentifier
  Type:             REG_SZ
  Data:             GenuineIntel

Value 5
  Name:             ~MHz
  Type:             REG_DWORD
  Data:             0x14c


Key Name:           HARDWARE\DESCRIPTION\System\CentralProcessor\1
Class Name:         Processor
Last Write Time:    9/24/98 - 3:06 PM
Value 0
  Name:             Component Information
  Type:             REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 01 00 00 00 02 00 00 00
................

Value 1
  Name:             Configuration Data
  Type:             REG_FULL_RESOURCE_DESCRIPTOR
                      Interface Type:    Invalid
                      Bus Number:        -1
                      Version:           0
                      Revision:          0


Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             x86 Family 6 Model 5 Stepping 1

Value 3
  Name:             Update Signature
  Type:             REG_BINARY
  Data:
00000000   00 00 00 00 29 00 00 00 -
....)...

Value 4
  Name:             VendorIdentifier
  Type:             REG_SZ
  Data:             GenuineIntel

Value 5
  Name:             ~MHz
  Type:             REG_DWORD
  Data:             0x14c


Key Name:
HARDWARE\DESCRIPTION\System\FloatingPointProcessor
Class Name:         Processor
Last Write Time:    9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\FloatingPointProcessor\0
Class Name:         Processor
Last Write Time:    9/24/98 - 3:06 PM
Value 0
  Name:             Component Information
  Type:             REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 01 00 00 00
................

Value 1
  Name:             Configuration Data
  Type:             REG_FULL_RESOURCE_DESCRIPTOR
                      Interface Type:    Invalid
                      Bus Number:        -1
                      Version:           0
                      Revision:          0


Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             x86 Family 6 Model 5 Stepping 1


Key Name:
HARDWARE\DESCRIPTION\System\FloatingPointProcessor\1
Class Name:         Processor
Last Write Time:    9/24/98 - 3:06 PM
```

```
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 01 00 00 00 02 00 00 00
.................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Invalid
                     Bus Number:        -1
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            x86 Family 6 Model 5 Stepping 1


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter
Class Name:        Adapter
Last Write Time:   9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\0
Class Name:        Adapter
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
.................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Device Specific
                       Disposition:     Undetermined
                       Reserved1:       0x00000000
                       Reserved2:       0x00000000
                       Data:
00000000   02 10 02 11                                      ....

Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\1
Class Name:        Adapter
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
.................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    PCI
                     Bus Number:        1
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCI


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\2
Class Name:        Adapter
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
.................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Internal
                     Bus Number:        0
                     Version:           0
```

```
                    Revision:          0
                    Partial Descriptor 0
                      Resource:        Device Specific
                      Disposition:     Undetermined
                      Reserved1:       0x00000000
                      Reserved2:       0x00000000
                      Data:
00000000   24 50 6e 50 10 21 00 00 - 3a 00 00 00 00 cd 57 00
$PnP.!..:.....W.
00000010   f0 ea 57 00 00 0f 00 00 - 00 00 00 00 f0 00 00 0f
..W.............
00000020   00 66 00 00 41 d0 0a 03 - 06 04 00 03 00 47 01 f8
.f..A........G..
00000030   0c f8 0c 00 08 47 01 e6 - 00 e6 00 00 01 47 01 b2
.....G.......G..
00000040   00 b2 00 00 02 47 01 80 - 00 80 00 00 01 47 01 d0
.....G.......G..
00000050   04 d0 04 00 02 47 01 00 - 08 00 08 00 80 47 01 80
.....G.......G..
00000060   08 80 08 00 80 47 01 87 - 0c 87 0c 00 01 47 01 88
.....G.......G..
00000070   0c 88 0c 00 08 86 09 00 - 00 00 00 fe ff 00 00 02
................
00000080   00 79 00 79 00 79 00 4e - 00 01 41 d0 05 01 07 00
.y.y.y.N..A.....
00000090   02 80 00 47 01 00 00 00 - 00 00 00 22 00 00 79 00
...G.......".y.
000000a0   30 47 01 f8 03 f8 03 00 - 08 22 10 00 30 47 01 f8
0G.......".0G..
000000b0   02 f8 02 00 08 22 08 00 - 30 47 01 e8 03 e8 03 00
.....".0G......
000000c0   08 22 10 00 30 47 01 e8 - 02 e8 02 00 08 22 08 00
."..0G.......".
000000d0   38 79 00 79 00 4e 00 02 - 41 d0 05 01 07 00 02 80
8y.y.N..A.......
000000e0   00 47 01 00 00 00 00 00 - 00 22 00 00 79 00 30 47
.G.......".y.0G
000000f0   01 f8 03 f8 03 00 08 22 - 10 00 30 47 01 f8 02 f8
.......".0G....
00000100   02 00 08 22 08 00 30 47 - 01 e8 03 e8 03 00 08 22
..."..0G.......
00000110   10 00 30 47 01 e8 02 e8 - 02 00 08 22 08 00 38 79
..0G.......".8y
00000120   00 79 00 62 00 03 41 d0 - 04 00 07 01 00 80 00 47
.y.b..A........G
00000130   01 00 00 00 00 00 00 47 - 01 00 00 00 00 00 00 22
.......G.......
00000140   00 00 79 00 30 47 01 78 - 03 78 03 00 08 47 01 78
..y.0G.x.x...G.x
00000150   07 78 07 00 03 22 80 00 - 30 47 01 78 02 78 02 00
.x..."..0G.x.x..
00000160   08 47 01 78 06 78 06 00 - 03 22 20 00 30 47 01 bc
.G.x.x..." .0G..
00000170   03 bc 03 00 04 47 01 bc - 07 bc 07 00 03 22 80 00
.....G........"..
00000180   38 79 00 79 00 3e 00 04 - 41 d0 07 00 01 02 00 10
8y.y.>..A.......
00000190   00 2a 04 00 47 01 f0 03 - f0 03 00 06 47 01 f7 03
.*..G.......G...
000001a0   f7 03 00 01 22 40 00 79 - 00 2a 04 00 47 01 f0 03
...."@.y.*..G...
000001b0   f0 03 00 06 47 01 f7 03 - f7 03 00 01 22 40 00 79
....G........"@.y
000001c0   00 79 00 1e 00 05 41 d0 - 0c 02 08 80 00 03 00 86
.y....A.........
000001d0   09 00 00 00 00 e0 fe 00 - 10 00 00 79 00 79 00 79
...........y.y.y
000001e0   00 36 00 06 41 d0 0c 01 - 05 00 00 03 00 81 09 00
.6..A...........
000001f0   01 00 00 00 00 00 00 00 - 0a 81 09 00 60 00 0e 00
............`...
00000200   0e 00 00 00 02 86 09 00 - 00 00 00 10 00 00 00 f0
................
00000210   0f 79 00 79 00 79 00 2d - 00 07 41 d0 02 00 08 01
.y.y.y.-..A.....
00000220   01 03 00 47 01 00 00 00 - 00 00 10 47 01 81 00 81
...G.......G....
00000230   00 00 0f 47 01 c0 00 c0 - 00 00 20 2a 10 00 79 00
...G...... *..y.
00000240   79 00 79 00 25 00 08 41 - d0 00 00 08 00 01 03 00
y.y.%..A........
00000250   47 01 20 00 20 00 00 02 - 47 01 a0 00 a0 00 00 02  G. .
...G.......
00000260   22 04 00 79 00 79 00 79 - 00 1d 00 09 41 d0 01 00
"..y.y.y....A...
00000270   08 02 01 03 00 47 01 40 - 00 40 00 00 04 22 01 00
.....G.@.@...".."
00000280   79 00 79 00 79 00 1d 00 - 0a 41 d0 0b 00 08 03 01
y.y.y....A......
00000290   03 00 47 01 70 00 70 00 - 00 02 22 00 01 79 00 79
..G.p.p..."..y.y
000002a0   00 79 00 25 00 0b 41 d0 - 03 03 09 00 00 03 00 47
.y.%..A........G
000002b0   01 60 00 60 00 00 01 47 - 01 64 00 64 00 00 01 22
.`.`...G.d.d..."
000002c0   02 00 79 00 79 00 79 00 - 1d 00 0c 41 d0 0c 04 0b
..y.y.y....A....
000002d0   80 00 03 00 47 01 f0 00 - f0 00 00 10 22 00 20 79
....G.......". y
000002e0   00 79 00 79 00 1a 00 0d - 41 d0 08 00 04 01 00 03
.y.y....A.......
000002f0   00 47 01 61 00 61 00 00 - 01 79 00 79 00 79 00 15
.G.a.a...y.y.y..
```

```
00000300   00 0e 41 d0 0f 13 09 02 - 00 03 00 22 00 10 79 00
..A........"..y.
00000310   79 00 79 00                                       y.y.



Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PNP BIOS


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3
Class Name:        Adapter
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            ISA


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\DiskController
Class Name:        Controller
Last Write Time:   9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\DiskController\
0
Class Name:        Controller
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   64 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
d...............

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003f0
                       Length:          0x8
                       Type:            Port

                     Partial Descriptor 1
                       Resource:        Interrupt
                       Disposition:     Undetermined
                       Vector:          6
                       Level:           6
                       Affinity:        0xffffffff
                       Type:            Latched

                     Partial Descriptor 2
                       Resource:        DMA
                       Disposition:     Undetermined
                       Channel:         2
                       Port:            0


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\DiskController\
0\DiskPeripheral
Class Name:        Peripheral
Last Write Time:   9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\DiskController\
0\DiskPeripheral\0
Class Name:        Peripheral
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   60 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
`...............
```

```
Value 1
  Name:             Configuration Data
  Type:             REG_FULL_RESOURCE_DESCRIPTOR
                      Interface Type:    Isa
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Device Specific
                        Disposition:     Undetermined
                        Reserved1:       0x00000000
                        Reserved2:       0x00000000
                        Data:
00000000   00 02 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
................


Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             f5a4e188-126259c0-A


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\DiskController\
0\FloppyDiskPeripheral
Class Name:         Peripheral
Last Write Time:    9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\DiskController\
0\FloppyDiskPeripheral\0
Class Name:         Peripheral
Last Write Time:    9/24/98 - 3:06 PM
Value 0
  Name:             Component Information
  Type:             REG_BINARY
  Data:
00000000   00 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:             Configuration Data
  Type:             REG_FULL_RESOURCE_DESCRIPTOR
                      Interface Type:    Isa
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Device Specific
                        Disposition:     Undetermined
                        Reserved1:       0x00000000
                        Reserved2:       0x00000000
                        Data:
00000000   02 00 00 00 00 00 00 00 - 00 00 00 00 a0 05 00 00
................
00000010   00 00 00 00 af 02 25 02 - 12 1b ff 6c f6 0f 08 4f
......%....l...O
00000020   00                                                .



Value 2
  Name:             Identifier
  Type:             REG_SZ
  Data:             FLOPPY1


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\KeyboardControl
ler
Class Name:         Controller
Last Write Time:    9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\KeyboardControl
ler\0
Class Name:         Controller
Last Write Time:    9/24/98 - 3:06 PM
Value 0
  Name:             Component Information
  Type:             REG_BINARY
  Data:
00000000   28 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
(...............

Value 1
  Name:             Configuration Data
  Type:             REG_FULL_RESOURCE_DESCRIPTOR
                      Interface Type:    Isa
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x00000060
                        Length:          0x1
                        Type:            Port

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Device Exclusive
```

```
                    Start:          0x00000064
                    Length:         0x1
                    Type:           Port

                  Partial Descriptor 2
                    Resource:       Interrupt
                    Disposition:    Undetermined
                    Vector:         1
                    Level:          1
                    Affinity:       0xffffffff
                    Type:           Latched



Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\KeyboardControl
ler\0\KeyboardPeripheral
Class Name:        Peripheral
Last Write Time:   9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\KeyboardControl
ler\0\KeyboardPeripheral\0
Class Name:        Peripheral
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   28 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
(...............

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Device Specific
                       Disposition:     Undetermined
                       Reserved1:       0x00000000
                       Reserved2:       0x00000000
                       Data:
00000000   00 00 00 00 04 00 20 00 -
...... .



Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            PCAT_ENHANCED


Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\PointerControll
er
Class Name:        Controller
Last Write Time:   9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\PointerControll
er\0
Class Name:        Controller
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   20 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Undetermined
                       Vector:          12
                       Level:           12
                       Affinity:        0xffffffff
                       Type:            Latched



Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\PointerControll
er\0\PointerPeripheral
Class Name:        Peripheral
Last Write Time:   9/24/98 - 3:06 PM

Key Name:
HARDWARE\DESCRIPTION\System\MultifunctionAdapter\3\PointerControll
er\0\PointerPeripheral\0
Class Name:        Peripheral
Last Write Time:   9/24/98 - 3:06 PM
```

```
Value 0
  Name:            Component Information
  Type:            REG_BINARY
  Data:
00000000   20 00 00 00 00 00 00 00 - 00 00 00 00 ff ff ff ff
................

Value 1
  Name:            Configuration Data
  Type:            REG_FULL_RESOURCE_DESCRIPTOR
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0


Value 2
  Name:            Identifier
  Type:            REG_SZ
  Data:            LOGITECH PS2 MOUSE


Key Name:          HARDWARE\DEVICEMAP
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\DEVICEMAP\KeyboardClass
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            \Device\KeyboardClass0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\Kbdclass


Key Name:          HARDWARE\DEVICEMAP\KeyboardPort
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            \Device\KeyboardPort0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\i8042prt


Key Name:          HARDWARE\DEVICEMAP\PointerClass
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            \Device\PointerClass0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\Mouclass


Key Name:          HARDWARE\DEVICEMAP\PointerPort
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            \Device\PointerPort0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\i8042prt


Key Name:          HARDWARE\DEVICEMAP\Scsi
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            DMAEnabled
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Driver
  Type:            REG_SZ
  Data:            aic78xx

Value 2
  Name:            Interrupt
  Type:            REG_DWORD
  Data:            0x9

Value 3
  Name:            IOAddress
  Type:            REG_DWORD
  Data:            0xe800


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus
0\Initiator Id 7
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
```

```
Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus
0\Target Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus
0\Target Id 0\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            IBM     DCAS-32160W     S65A

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            DiskPeripheral


Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus
0\Target Id 8
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\DEVICEMAP\Scsi\Scsi Port 0\Scsi Bus
0\Target Id 8\Logical Unit Id 0
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            Identifier
  Type:            REG_SZ
  Data:            SDR     GEM200          2

Value 1
  Name:            Type
  Type:            REG_SZ
  Data:            OtherPeripheral


Key Name:          HARDWARE\DEVICEMAP\VIDEO
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            \Device\Video0
  Type:            REG_SZ
  Data:
\REGISTRY\Machine\System\ControlSet001\Services\cirrus\Device0

Value 1
  Name:            VgaCompatible
  Type:            REG_SZ
  Data:            \Device\Video0


Key Name:          HARDWARE\OWNERMAP
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:07 PM
Value 0
  Name:            PCI_0_e
  Type:            REG_SZ
  Data:            \Device\E100B1

Value 1
  Name:            PCI_1_0
  Type:            REG_SZ
  Data:            \Device\Video0

Value 2
  Name:            PCI_1_1
  Type:            REG_SZ
  Data:            \Device\ScsiPort0

Value 3
  Name:            PCI_1_8
  Type:            REG_SZ
  Data:            \Device\E100B2

Value 4
  Name:            PCI_1_9
  Type:            REG_SZ
  Data:            \Device\E100B3

Value 5
  Name:            PCI_1_a
  Type:            REG_SZ
  Data:            \Device\E100B4


Key Name:          HARDWARE\RESOURCEMAP
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\RESOURCEMAP\Hardware Abstraction Layer
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\RESOURCEMAP\Hardware Abstraction
Layer\MPS 1.4 - APIC platform
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            .Raw
  Type:            REG_RESOURCE_LIST
```

```
Data:
                Full Resource Descriptor 0
                  Interface Type:    Isa
                  Bus Number:        0
                  Version:           0
                  Revision:          0
                  Partial Descriptor 0
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          8
                    Level:           8
                    Affinity:        0x00000003
                    Type:            Level Sensitive


                Full Resource Descriptor 1
                  Interface Type:    Internal
                  Bus Number:        0
                  Version:           0
                  Revision:          0
                  Partial Descriptor 0
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          0
                    Level:           0
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 1
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          1
                    Level:           1
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 2
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          2
                    Level:           2
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 3
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          3
                    Level:           3
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 4
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          4
                    Level:           4
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 5
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          5
                    Level:           5
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 6
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          6
                    Level:           6
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 7
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          7
                    Level:           7
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 8
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          8
                    Level:           8
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 9
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          9
                    Level:           9
                    Affinity:        0x00000003
                    Type:            Level Sensitive

                  Partial Descriptor 10
                    Resource:        Interrupt
                    Disposition:     Driver Exclusive
                    Vector:          10
```

```
  Level:           10
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 11
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          11
  Level:           11
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 12
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          12
  Level:           12
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 13
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          13
  Level:           13
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 14
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          14
  Level:           14
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 15
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          15
  Level:           15
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 16
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          16
  Level:           16
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 17
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          17
  Level:           17
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 18
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          18
  Level:           18
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 19
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          19
  Level:           19
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 20
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          20
  Level:           20
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 21
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          21
  Level:           21
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 22
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          22
  Level:           22
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 23
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          23
```

```
  Level:           23
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 24
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          24
  Level:           24
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 25
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          25
  Level:           25
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 26
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          26
  Level:           26
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 27
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          27
  Level:           27
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 28
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          28
  Level:           28
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 29
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          29
  Level:           29
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 30
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          30
  Level:           30
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 31
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          31
  Level:           31
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 32
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          32
  Level:           32
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 33
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          33
  Level:           33
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 34
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          34
  Level:           34
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 35
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          35
  Level:           35
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 36
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          36
```

```
  Level:           36
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 37
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          37
  Level:           37
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 38
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          38
  Level:           38
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 39
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          39
  Level:           39
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 40
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          40
  Level:           40
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 41
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          41
  Level:           41
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 42
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          42
  Level:           42
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 43
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          43
  Level:           43
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 44
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          44
  Level:           44
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 45
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          45
  Level:           45
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 46
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          46
  Level:           46
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 47
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          47
  Level:           47
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 48
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          61
  Level:           61
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 49
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          65
```

```
  Level:          65
  Affinity:       0x00000003
  Type:           Level Sensitive

Partial Descriptor 50
  Resource:       Interrupt
  Disposition:    Driver Exclusive
  Vector:         80
  Level:          80
  Affinity:       0x00000003
  Type:           Level Sensitive

Partial Descriptor 51
  Resource:       Interrupt
  Disposition:    Driver Exclusive
  Vector:         193
  Level:          193
  Affinity:       0x00000003
  Type:           Level Sensitive

Partial Descriptor 52
  Resource:       Interrupt
  Disposition:    Driver Exclusive
  Vector:         225
  Level:          225
  Affinity:       0x00000003
  Type:           Level Sensitive

Partial Descriptor 53
  Resource:       Interrupt
  Disposition:    Driver Exclusive
  Vector:         253
  Level:          253
  Affinity:       0x00000003
  Type:           Level Sensitive

Partial Descriptor 54
  Resource:       Interrupt
  Disposition:    Driver Exclusive
  Vector:         254
  Level:          254
  Affinity:       0x00000003
  Type:           Level Sensitive

Partial Descriptor 55
  Resource:       Interrupt
  Disposition:    Driver Exclusive
  Vector:         255
  Level:          255
  Affinity:       0x00000003
  Type:           Level Sensitive

Partial Descriptor 56
  Resource:       Port
  Disposition:    Driver Exclusive
  Start:          0x00000000
  Length:         0x10
  Type:           Port

Partial Descriptor 57
  Resource:       Port
  Disposition:    Driver Exclusive
  Start:          0x00000020
  Length:         0x2
  Type:           Port

Partial Descriptor 58
  Resource:       Port
  Disposition:    Driver Exclusive
  Start:          0x00000040
  Length:         0x4
  Type:           Port

Partial Descriptor 59
  Resource:       Port
  Disposition:    Driver Exclusive
  Start:          0x00000048
  Length:         0x4
  Type:           Port

Partial Descriptor 60
  Resource:       Port
  Disposition:    Driver Exclusive
  Start:          0x00000061
  Length:         0x1
  Type:           Port

Partial Descriptor 61
  Resource:       Port
  Disposition:    Driver Exclusive
  Start:          0x00000070
  Length:         0x2
  Type:           Port

Partial Descriptor 62
  Resource:       Port
  Disposition:    Driver Exclusive
  Start:          0x00000080
  Length:         0x10
  Type:           Port

Partial Descriptor 63
  Resource:       Port
  Disposition:    Driver Exclusive
```

```
    Start:           0x00000092
    Length:          0x1
    Type:            Port

  Partial Descriptor 64
    Resource:        Port
    Disposition:     Driver Exclusive
    Start:           0x000000a0
    Length:          0x2
    Type:            Port

  Partial Descriptor 65
    Resource:        Port
    Disposition:     Driver Exclusive
    Start:           0x000000c0
    Length:          0x10
    Type:            Port

  Partial Descriptor 66
    Resource:        Port
    Disposition:     Driver Exclusive
    Start:           0x000000f0
    Length:          0x10
    Type:            Port

  Partial Descriptor 67
    Resource:        Memory
    Disposition:     Driver Exclusive
    Start:           0xfec00000
    Length:          0x400
    Type:            Read / Write

  Partial Descriptor 68
    Resource:        Memory
    Disposition:     Driver Exclusive
    Start:           0xfee00000
    Length:          0x400
    Type:            Read / Write



Value 1
  Name:            .Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          209
                       Level:           28
                       Affinity:        0x00000003
                       Type:            Level Sensitive


                   Full Resource Descriptor 1
                     Interface Type:    Internal
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          0
                       Level:           0
                       Affinity:        0x00000003
                       Type:            Level Sensitive

                     Partial Descriptor 1
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          1
                       Level:           0
                       Affinity:        0x00000003
                       Type:            Level Sensitive

                     Partial Descriptor 2
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          2
                       Level:           0
                       Affinity:        0x00000003
                       Type:            Level Sensitive

                     Partial Descriptor 3
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          3
                       Level:           0
                       Affinity:        0x00000003
                       Type:            Level Sensitive

                     Partial Descriptor 4
                       Resource:        Interrupt
                       Disposition:     Driver Exclusive
                       Vector:          4
                       Level:           0
                       Affinity:        0x00000003
                       Type:            Level Sensitive
```

```
Partial Descriptor 5
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          5
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 6
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          6
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 7
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          7
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 8
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          8
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 9
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          9
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 10
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          10
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 11
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          11
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 12
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          12
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 13
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          13
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 14
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          14
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 15
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          15
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 16
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          16
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 17
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          17
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive
```

```
Partial Descriptor 18
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          18
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 19
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          19
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 20
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          20
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 21
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          21
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 22
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          22
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 23
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          23
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 24
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          24
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 25
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          25
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 26
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          26
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 27
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          27
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 28
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          28
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 29
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          29
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 30
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          30
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive
```

```
Partial Descriptor 31
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          31
  Level:           31
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 32
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          32
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 33
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          33
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 34
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          34
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 35
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          35
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 36
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          36
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 37
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          37
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 38
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          38
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 39
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          39
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 40
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          40
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 41
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          41
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 42
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          42
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 43
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          43
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive
```

```
Partial Descriptor 44
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          44
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 45
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          45
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 46
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          46
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 47
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          47
  Level:           0
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 48
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          61
  Level:           1
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 49
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          65
  Level:           2
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 50
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          80
  Level:           255
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 51
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          193
  Level:           27
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 52
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          225
  Level:           29
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 53
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          253
  Level:           30
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 54
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          254
  Level:           30
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 55
  Resource:        Interrupt
  Disposition:     Driver Exclusive
  Vector:          255
  Level:           31
  Affinity:        0x00000003
  Type:            Level Sensitive

Partial Descriptor 56
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000000
  Length:          0x10
  Type:            Port

Partial Descriptor 57
```

```
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000020
  Length:          0x2
  Type:            Port

Partial Descriptor 58
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000040
  Length:          0x4
  Type:            Port

Partial Descriptor 59
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000048
  Length:          0x4
  Type:            Port

Partial Descriptor 60
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000061
  Length:          0x1
  Type:            Port

Partial Descriptor 61
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000070
  Length:          0x2
  Type:            Port

Partial Descriptor 62
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000080
  Length:          0x10
  Type:            Port

Partial Descriptor 63
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x00000092
  Length:          0x1
  Type:            Port

Partial Descriptor 64
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000a0
  Length:          0x2
  Type:            Port

Partial Descriptor 65
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000c0
  Length:          0x10
  Type:            Port

Partial Descriptor 66
  Resource:        Port
  Disposition:     Driver Exclusive
  Start:           0x000000f0
  Length:          0x10
  Type:            Port

Partial Descriptor 67
  Resource:        Memory
  Disposition:     Driver Exclusive
  Start:           0xfec00000
  Length:          0x400
  Type:            Read / Write

Partial Descriptor 68
  Resource:        Memory
  Disposition:     Driver Exclusive
  Start:           0xfee00000
  Length:          0x400
  Type:            Read / Write

Key Name:          HARDWARE\RESOURCEMAP\KeyboardPort/PointerPort
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:
HARDWARE\RESOURCEMAP\KeyboardPort/PointerPort\i8042prt
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            \Device\KeyboardPort0.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
```

```
    Resource:        Interrupt
    Disposition:     Device Exclusive
    Vector:          1
    Level:           1
    Affinity:        0xffffffff
    Type:            Latched

  Partial Descriptor 1
    Resource:        Interrupt
    Disposition:     Device Exclusive
    Vector:          12
    Level:           12
    Affinity:        0xffffffff
    Type:            Latched

  Partial Descriptor 2
    Resource:        Port
    Disposition:     Driver Exclusive
    Start:           0x00000060
    Length:          0x1
    Type:            Port

  Partial Descriptor 3
    Resource:        Port
    Disposition:     Driver Exclusive
    Start:           0x00000064
    Length:          0x1
    Type:            Port
```

```
Value 1
  Name:            \Device\KeyboardPort0.Translated
  Type:            REG_RESOURCE_LIST
  Data:

                   Full Resource Descriptor 0
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Interrupt
                       Disposition:     Device Exclusive
                       Vector:          97
                       Level:           5
                       Affinity:        0x00000003
                       Type:            Latched

                     Partial Descriptor 1
                       Resource:        Interrupt
                       Disposition:     Device Exclusive
                       Vector:          113
                       Level:           6
                       Affinity:        0x00000003
                       Type:            Latched

                     Partial Descriptor 2
                       Resource:        Port
                       Disposition:     Driver Exclusive
                       Start:           0x00000060
                       Length:          0x1
                       Type:            Port

                     Partial Descriptor 3
                       Resource:        Port
                       Disposition:     Driver Exclusive
                       Start:           0x00000064
                       Length:          0x1
                       Type:            Port
```

```
Key Name:          HARDWARE\RESOURCEMAP\OtherDrivers
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\RESOURCEMAP\OtherDrivers\E100B
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:07 PM
Value 0
  Name:            \Device\E100B1.Raw
  Type:            REG_RESOURCE_LIST
  Data:

                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfecff000
                       Length:          0x1c
                       Type:            Read / Write

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x0000f800
                       Length:          0x1c
                       Type:            Port

                     Partial Descriptor 2
```

```
    Resource:        Interrupt
    Disposition:     Shared
    Vector:          10
    Level:           10
    Affinity:        0x00000000
    Type:            Level Sensitive

Value 1
  Name:              \Device\E100B1.Translated
  Type:              REG_RESOURCE_LIST
  Data:
                     Full Resource Descriptor 0
                       Interface Type:    PCI
                       Bus Number:        0
                       Version:           0
                       Revision:          0
                       Partial Descriptor 0
                         Resource:        Memory
                         Disposition:     Device Exclusive
                         Start:           0xfecff000
                         Length:          0x1c
                         Type:            Read / Write

                       Partial Descriptor 1
                         Resource:        Port
                         Disposition:     Device Exclusive
                         Start:           0x0000f800
                         Length:          0x1c
                         Type:            Port

                       Partial Descriptor 2
                         Resource:        Interrupt
                         Disposition:     Shared
                         Vector:          162
                         Level:           9
                         Affinity:        0x00000003
                         Type:            Level Sensitive

Value 2
  Name:              \Device\E100B2.Raw
  Type:              REG_RESOURCE_LIST
  Data:
                     Full Resource Descriptor 0
                       Interface Type:    PCI
                       Bus Number:        1
                       Version:           0
                       Revision:          0
                       Partial Descriptor 0
                         Resource:        Memory
                         Disposition:     Device Exclusive
                         Start:           0xfe7fe000
                         Length:          0x1c
                         Type:            Read / Write

                       Partial Descriptor 1
                         Resource:        Port
                         Disposition:     Device Exclusive
                         Start:           0x0000e400
                         Length:          0x1c
                         Type:            Port

                       Partial Descriptor 2
                         Resource:        Interrupt
                         Disposition:     Shared
                         Vector:          11
                         Level:           11
                         Affinity:        0x00000000
                         Type:            Level Sensitive

Value 3
  Name:              \Device\E100B2.Translated
  Type:              REG_RESOURCE_LIST
  Data:
                     Full Resource Descriptor 0
                       Interface Type:    PCI
                       Bus Number:        1
                       Version:           0
                       Revision:          0
                       Partial Descriptor 0
                         Resource:        Memory
                         Disposition:     Device Exclusive
                         Start:           0xfe7fe000
                         Length:          0x1c
                         Type:            Read / Write

                       Partial Descriptor 1
                         Resource:        Port
                         Disposition:     Device Exclusive
                         Start:           0x0000e400
                         Length:          0x1c
                         Type:            Port

                       Partial Descriptor 2
                         Resource:        Interrupt
                         Disposition:     Shared
                         Vector:          178
                         Level:           10
                         Affinity:        0x00000003
```

```
                    Type:           Level Sensitive

Value 4
  Name:             \Device\E100B3.Raw
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    PCI
                      Bus Number:        1
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Memory
                        Disposition:     Device Exclusive
                        Start:           0xfe7fd000
                        Length:          0x1c
                        Type:            Read / Write

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x0000e000
                        Length:          0x1c
                        Type:            Port

                      Partial Descriptor 2
                        Resource:        Interrupt
                        Disposition:     Shared
                        Vector:          7
                        Level:           7
                        Affinity:        0x00000000
                        Type:            Level Sensitive

Value 5
  Name:             \Device\E100B3.Translated
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    PCI
                      Bus Number:        1
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Memory
                        Disposition:     Device Exclusive
                        Start:           0xfe7fd000
                        Length:          0x1c
                        Type:            Read / Write

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x0000e000
                        Length:          0x1c
                        Type:            Port

                      Partial Descriptor 2
                        Resource:        Interrupt
                        Disposition:     Shared
                        Vector:          130
                        Level:           7
                        Affinity:        0x00000003
                        Type:            Level Sensitive

Value 6
  Name:             \Device\E100B4.Raw
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    PCI
                      Bus Number:        1
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Memory
                        Disposition:     Device Exclusive
                        Start:           0xfe7fc000
                        Length:          0x1c
                        Type:            Read / Write

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x0000d800
                        Length:          0x1c
                        Type:            Port

                      Partial Descriptor 2
                        Resource:        Interrupt
                        Disposition:     Shared
                        Vector:          15
                        Level:           15
                        Affinity:        0x00000000
                        Type:            Level Sensitive

Value 7
```

```
  Name:            \Device\E100B4.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        1
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfe7fc000
                       Length:          0x1c
                       Type:            Read / Write

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x0000d800
                       Length:          0x1c
                       Type:            Port

                     Partial Descriptor 2
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          146
                       Level:           8
                       Affinity:        0x00000003
                       Type:            Level Sensitive

Key Name:          HARDWARE\RESOURCEMAP\OtherDrivers\Floppy
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            .Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Shared
                       Start:           0x000003f0
                       Length:          0x6
                       Type:            Port
                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Shared
                       Start:           0x000003f7
                       Length:          0x1
                       Type:            Port

                     Partial Descriptor 2
                       Resource:        DMA
                       Disposition:     Shared
                       Channel:         2
                       Port:            0

                     Partial Descriptor 3
                       Resource:        Interrupt
                       Disposition:     Shared
                       Vector:          6
                       Level:           6
                       Affinity:        0x00000000
                       Type:            Latched

Value 1
  Name:            .Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Isa
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Shared
                       Start:           0x000003f0
                       Length:          0x6
                       Type:            Port

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Shared
                       Start:           0x000003f7
                       Length:          0x1
                       Type:            Port

                     Partial Descriptor 2
                       Resource:        DMA
                       Disposition:     Shared
                       Channel:         2
                       Port:            0
```

```
                    Partial Descriptor 3
                      Resource:        Interrupt
                      Disposition:     Shared
                      Vector:          129
                      Level:           7
                      Affinity:        0x00000003
                      Type:            Latched



Key Name:           HARDWARE\RESOURCEMAP\ScsiAdapter
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 3:06 PM

Key Name:           HARDWARE\RESOURCEMAP\ScsiAdapter\aic78xx
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 3:06 PM
Value 0
  Name:             \Device\ScsiPort0.Raw
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    PCI
                      Bus Number:        1
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Interrupt
                        Disposition:     Shared
                        Vector:          9
                        Level:           9
                        Affinity:        0x00000000
                        Type:            Level Sensitive

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x0000e800
                        Length:          0x100
                        Type:            Port

                      Partial Descriptor 2
                        Resource:        Memory
                        Disposition:     Device Exclusive
                        Start:           0xfebfe000
                        Length:          0x1000
                        Type:            Read / Write

Value 1
  Name:             \Device\ScsiPort0.Translated
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    PCI
                      Bus Number:        1
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Interrupt
                        Disposition:     Shared
                        Vector:          81
                        Level:           4
                        Affinity:        0x00000003
                        Type:            Level Sensitive

                      Partial Descriptor 1
                        Resource:        Port
                        Disposition:     Device Exclusive
                        Start:           0x0000e800
                        Length:          0x100
                        Type:            Port

                      Partial Descriptor 2
                        Resource:        Memory
                        Disposition:     Device Exclusive
                        Start:           0xfebfe000
                        Length:          0x1000
                        Type:            Read / Write



Key Name:           HARDWARE\RESOURCEMAP\System Resources
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 3:06 PM

Key Name:           HARDWARE\RESOURCEMAP\System Resources\Physical
Memory
Class Name:         <NO CLASS>
Last Write Time:    9/24/98 - 3:06 PM
Value 0
  Name:             .Translated
  Type:             REG_RESOURCE_LIST
  Data:
                    Full Resource Descriptor 0
                      Interface Type:    Internal
                      Bus Number:        0
                      Version:           0
                      Revision:          0
                      Partial Descriptor 0
                        Resource:        Memory
```

```
    Disposition:     Device Exclusive
    Start:           0x00001000
    Length:          0x9e000
    Type:            Read / Write

  Partial Descriptor 1
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0x00100000
    Length:          0xeff000
    Type:            Read / Write

  Partial Descriptor 2
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0x01000000
    Length:          0xf000000
    Type:            Read / Write
```

```
Key Name:          HARDWARE\RESOURCEMAP\System Resources\Reserved
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            .Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    Internal
                     Bus Number:        0
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0x0009f000
                       Length:          0x1000
                       Type:            Read / Write

                     Partial Descriptor 1
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0x000e0000
                       Length:          0x20000
                       Type:            Read / Write

                     Partial Descriptor 2
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0x00fff000
                       Length:          0x1000
                       Type:            Read / Write

                     Partial Descriptor 3
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfec00000
                       Length:          0x2000
                       Type:            Read / Write

                     Partial Descriptor 4
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfee00000
                       Length:          0x1000
                       Type:            Read / Write
```

```
Key Name:          HARDWARE\RESOURCEMAP\VIDEO
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\RESOURCEMAP\VIDEO\cirrus
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
Value 0
  Name:            \Device\Video0.Raw
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        1
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003b0
                       Length:          0xc
                       Type:            Port

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003c0
                       Length:          0x20
                       Type:            Port

                     Partial Descriptor 2
                       Resource:        Memory
```

```
    Disposition:     Device Exclusive
    Start:           0x000a0000
    Length:          0x20000
    Type:            Read / Write

  Partial Descriptor 3
    Resource:        Memory
    Disposition:     Device Exclusive
    Start:           0xfd000000
    Length:          0x1000000
    Type:            Read / Write
```

```
Key Name:          HARDWARE\RESOURCEMAP\VIDEO\VgaSave
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM

Key Name:          HARDWARE\RESOURCEMAP\VIDEO\VgaStart
Class Name:        <NO CLASS>
Last Write Time:   9/24/98 - 3:06 PM
```

```
Value 1
  Name:            \Device\Video0.Translated
  Type:            REG_RESOURCE_LIST
  Data:
                   Full Resource Descriptor 0
                     Interface Type:    PCI
                     Bus Number:        1
                     Version:           0
                     Revision:          0
                     Partial Descriptor 0
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003b0
                       Length:          0xc
                       Type:            Port

                     Partial Descriptor 1
                       Resource:        Port
                       Disposition:     Device Exclusive
                       Start:           0x000003c0
                       Length:          0x20
                       Type:            Port

                     Partial Descriptor 2
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0x000a0000
                       Length:          0x20000
                       Type:            Read / Write

                     Partial Descriptor 3
                       Resource:        Memory
                       Disposition:     Device Exclusive
                       Start:           0xfd000000
                       Length:          0x1000000
                       Type:            Read / Write
```

Appendix D - Pricing Details

This appendix contains the calculations used to determine the number of disk drives and the number of LAN segments necessary in the priced configuration and the spreadsheet used to determine the price/performance figure.

180 Day Space Calculation

The following worksheet was used to calculate the 180 day space of the system. Note: Numbers are in 2K pages unless otherwise specified

Note : Numbers are in KBytes unless otherwise specified							
Warehouses	1510	**tpmC**	18528.97	**tpmC/W**	12.27		
Table	**Rows**	**Data**	**Index**	**5% Space**	**8H Space**	**Total Space**	
Warehouse	1 510	168	32	10		210	
District	15 100	1 856	72	96		2 024	
Item	100 000	9 528	96	221		9 845	
New-order	13 590 000	214 864	584		120 800	336 248	
History	45 300 000	2 516 744	0		494 121	3 010 865	
Orders	45 300 000	1 388 512	767 016		423 202	2 578 730	
Customer	45 300 000	32 945 456	2 115 752	806 408		35 867 616	
Order-line	453 000 032	28 312 504	70 504		5 572 534	33 955 542	
Stock	151 000 000	48 320 000	108 312	1 113 851		49 542 163	
Totals		113 709 632	3 062 368	1 920 587	6 610 657	125 303 244	
Segment	**LogDev Cnt.**	**Seg. Size**	**Needed**	**Overhead**		**Not Needed**	
misc	8	44 810 240	40 292 400	402 924		4 114 916	
customer/stock	8	93 143 040	86 263 877	862 639		6 016 524	
Totals		137 953 280	126 556 277	1 265 563		10 131 441	
Dynamic space	31 347 880	Sum of Data for Order, Order-Line and History (excluding free extents)					
Static space	88 610 269	Data + Index + 5% Space + Overhead - Dynamic space					
Free space	7 863 690	Total Seg. Size - Dynamic Space - Static Space - Not Needed					
Daily growth	6 154 638	(Dynamic space/W * 62.5)* tpmC					
Daily spread	-1 368 267	Free space - 1.5 * Daily growth (zero if negative)					
180 day (KB)	1 196 445 063	Static space + 180 (daily growth + daily spread)					
180 day (GB)	1 141.02	Excludes OS, Paging and RDBMS Logs					
Log size (MB)	45 000	Total size of log file					
% Log used	12.3353	% of log file used during entire run					
Total N-O Txn	1095848	Total count of N-O transactions during entire run					
Log per N-O txn	5.1869	K per New-Order transaction					
8 Hour Log (GB)	44.00						
Disk Capacity	**MB**	**GB**	**disks needed**	**disks priced**			
9 GB 10000 rpm	8 676	8.47					
180 day (GB)		1 141.02	134.67	192			
Disk Capacity	**MB**	**GB**	**disks needed**	**disks priced**			
18 GB 10000 rpm	17 366	16.96					
8 Hour Log (RAID 1)		44.00	2.59	3+3			

Price/Performance Spreadsheet *The following detailed worksheet was used to calculate the price/performance of the system.*

Description	Part Number	Brand	Third Party Pricing	Unit Price	Qty.	Extended Price	5 yr. Maint. Price
Server Hardware							
Base System	SNP:SY-K504V101-P		1	$12 505	1	$ 12 505	
Pentium II Xeon Processor 400MHZ/1MB	SNP:SY-F1824E402-P		1	$5 684	4	$ 22 736	
2. Memory Board	SNP:SY-F1825E1-P		1	$627	1	$ 627	
Memory 512MB EDO-DIMM	SNP:SY-F1549E543-P		1	$2 821	8	$ 22 568	
DAT Drive DDS-3 12GB, SE-SCSI	SNP:SY-F1730E1-P		1	$1 158	1	$ 1 158	
FP 9GB/10K LVD-SCSI, Hot Plug	SNP:SY-F1899E109-P		1	$1 200	1	$ 1 200	
Power Supply (add.)	SNP:PS-F234E1-P		1	$463	1	$ 463	
Keyboard	S26381-K271-V310		1	$25	1	$ 25	
Country Pack	SNP:SY-F1699B213-P		1	$34	1	$ 34	
Monitor MCM 1510	S26361-K494-V150		1	$219	1	$ 219	$ 206
Sum Primergy 870					Subtotal	$ 61 535	$ 14 709
RAID-Controller,3 Chan.,16Mb (incl. 10% spares)	SNP:SY-F1779E16-P		1	$1 491	11	$ 16 401	
RAID-Controller Connector Kit (incl. 10% spares)	SNP:SY-F1222E37-P		1	$48	11	$ 528	
SCSI SE-DE Converter, 3 chan. (incl. 10% spares)	SNP:SY-F1478E30-P		1	$1 032	6	$ 6 192	
					Subtotal	$ 23 121	
FP 9GB/10K LVD-SCSI, Hot Plug	SNP:SY-F1899L109-P		1	$1 215	192	$ 233 280	
FP 9GB/10K LVD-SCSI, Hot Plug (10% spares)	SNP:SY-F1899L109-P		1	$1 215	20	$ 24 300	
Primergy S40 ES 1 channel DE	SNP:SY-K538V250-P		1	$2 538	10	$ 25 380	
Primergy S40 ES 1 channel SE	SNP:SY-K538V251-P		1	$2 524	6	$ 15 144	
Primergy 502, 2-Host, 4-Chan, 64MB	S26361-K426-V592		1	$7 394	2	$ 14 788	
FP 18GB SCSI-3 WIDE-SCA, Hot Plg	S26361-F1322-E180		1	$2 063	6	$ 12 378	
Country Pack Primergy 502 (INT)	S26361-F1290-B773		1	$34	2	$ 68	
Fast Wide SCSI ext. HD-UHD 1.5m	T26139-Y2549-V1		1	$81	6	$ 486	
SCSI Connection Cable 1m	D:KB244-M1		1	$103	6	$ 618	
SCSI Connection Cable AMP/MDR 5 m	D:KB215-M5		1	$147	10	$ 1 470	
Fast Wide SCSI Cable ext., 5m	T26139-Y2549-V105		1	$81	2	$ 162	
Sum Periphery					Subtotal	$ 328 074	$ 15 950
Client Hardware							
Primergy 460, FS PII 333	S26361-K482-V314		1	$1 979	7	$ 13 853	
PII 333	S26361-F1727-E333		1	$989	7	$ 6 923	
Keyboard	S26381-K271-V310		1	$25	7	$ 175	
Country Pack	S26361-F1699-B113		1	$34	7	$ 238	
Memory 256 MB EDO DIMM	S26361-F1549-E504		1	$1 389	7	$ 9 723	
HD 2GB, SCSI-3, Hot Plug	S26361-F1724-E20		1	$474	7	$ 3 318	
SCSI Contrl. 1 channel, SE, Cable	S26361-F1038-E31		1	$80	7	$ 560	
CD-ROM 32x SCSI	S26361-F1837-E1		1	$177	7	$ 1 239	
Fast-Ether-Express-Pro/100+ Server (PCI)	SNP:SY-F1868E501-A		1	$111	28	$ 3 108	
Monitor MCM 1510	S26361-K494-V150		1	$219	7	$ 1 533	$ 1 444
Sum Primergy 460					Subtotal	$ 40 670	$ 10 213
Server Software							
Microsoft Windows NT-Server, Enterprise Edition 4.0, incl 25 CALs		Microsoft	2	$3 999	1	$ 3 999	
MS SQL-Server 7.0 Enterp.Edition unlim. License		Microsoft	2	$28 999	1	$ 28 999	
Microsoft Software Maintenance		Microsoft	2				$ 10 475.00
					Subtotal	$ 32 998	
Client Software							
Microsoft Windows NT-Server 4.0, incl. 5 CALs		Microsoft	2	$809	7	$ 5 663	
Open UTM	U11421-C10		1	$973	7	$ 6 811	$ 10 290.00
Microsoft Visual C++ Professional 5.0		Microsoft	2	$499	1	$ 499	
					Subtotal	$ 12 973	
User Connectivity							
ATI 24 PORT HUB incl. 10% spare	AT-3024SL	Allied Telesyr	3	$160	724	$ 115 840	
Fast Ethernet Switch 24*100 incl. 10% spare	AT-8124XL	Allied Telesyr	3	$1 728	3	$ 5 184	
					Subtotal	$ 121 024	
					Total	$ 620 395	$ 63 287.00
1 - Siemens, 2-Microsoft, 3-Allied Telesyn International GmbH					Five-Year Cost of Ownership		$ 683 682.00
					tpmC Rating		$ 18 528.97
					$/tpmC:		$ 36.90

Appendix E - Price Quotations

25-SEP 12:54 FR VON:OEC ES DS PDB ++49/5251 8*15149 AN:+49 052518 28578 SEITE:02
+49-8161-990622 ALLIED TELESYN 25/09/98 12:05 S.001

Siemens Nixdorf Informationssysteme AG
OEC ES ST4
Allied Telesyn International GmbH · Gute Änger 13 · D 85356 Freising
Herr Seidel
Heinz-Nixdorf-Ring 1

33094 Paderborn

Freising,d.24.9.1998

Angebot

Allied Telesyn GmbH is pleased to confirm that the following product is available to all SNI customers for the listed USD price list.

Product	Description	Price
AT-3024SL	Multiport Repeater 1*AUI/1*BNC 24 Port RJ45 shilded, unmanaged, Slimeline	160 $ on purchase of mind.700 St.
AT-8124XL	Fast Ethernet Switch 24*10/100 Ports,Vlan	1728,- $

This quote is valid for the next 60 days.

Best regards

Allied Telesyn GmbH

Bettina Rudolph
International Key Accounts

Allied Telesyn International GmbH
Postfach 270222 · D 13472 Berlin · Tel. (+49 30) 43 59 00-0 · Fax (+49-30) 43 57 06 50 (–Allied), (+49-30) 4 32 61 63
Geschäftsstelle Süd: Gute Änger 13 · D 85356 Freising · Tel. (149-8161) 99 06 0 · Fax (+49-8161) 99 06-22
Geschäftsführer: Lothar Bahn · Dr. Francesco Strumezzi · Sitz: Berlin · HRB 36522 · Amtsgericht Charlottenburg · USt-ID-Nr.: DE 136609004
Bankverbindung: Berliner Bank AG · BLZ 100 20000 · DM-Kto.-Nr. 176 817 6600 · US$-Kto.-Nr. 176 817 6601
Bank of America · BLZ 500109 00 · DM-Kto.-Nr. 13 91 20 15 · US$-Kto.-Nr. 15 91 2023

One Microsoft Way
Redmond, WA 98052-6399
Fax 425 936 7329
http://www.microsoft.com/

Microsoft

September 15, 1998

Mr. Franz-Josef Bathe
Siemens Nixdorf Informationssysteme AG
Heinz-Nixdorf-Ring 1
D-33106 Paderborn
Germany

Via FAX # 011-49-5251-815149

Dear Mr. Bathe,

Microsoft has received your request for permission to disclose results of TPC-C benchmarks conducted by SNI with the following system and Microsoft SQL Server, Enterprise Edition 7.0:

SNI Primergy 870, 4-processor, Pentium II Xeon-based, 400 MHz
Test results: 18400 tpmC @ $33/tpmC approximately

Microsoft hereby grants SNI permission to disclose these results and acknowledges that SNI has formally requested permission to do so in accordance with the license agreement for Microsoft SQL Server software.

Best Regards,

Sid Arora
Product Manager, Microsoft SQL Server
Applications Marketing

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399
Fax 425 936 7329
http://www.microsoft.com/

Microsoft

September 15, 1998

Mr. Franz-Josef Bathe
Siemens Nixdorf Informationssysteme AG
Heinz-Nixdorf-Ring 1
D-33106 Paderborn
Germany

Via FAX # 011-49-5251-815149

Dear Mr. Bathe,

Here is the information you requested regarding US pricing of certain Microsoft products:

Microsoft SQL Server, Enterprise Edition 7.0, unlimited user license	$28999
Microsoft Windows NT Server, Enterprise Edition 4.0, incl 25 CALs	$3999
Windows NT Server 4.0, incl 5 CALs	$809
Visual C++ Professional 5.0	$499
5-yr maintenance for above software @ $2095/yr	$10475

The prices quoted above are valid for the next 60 days. Please let me know if I can be of any further assistance.

Sincerely,

Sid Arora
Product Manager, Microsoft SQL Server
Applications Marketing

Appendix F - Attestation Letter

Information Paradigm

TPC TRANSACTION PROCESSING PERFORMANCE COUNCIL

Certified Auditor

Sponsor: Ingo Schulte
Manager Benchmark Center
Siemens Nixdorf
Heinz-Nixdorf-Ring 1
D-33106 Paderborn, Germany

September 28, 1998

I remotely verified the TPC Benchmark™ C performance of the following Client Server configuration:

Platform: Siemens Primergy 870 c/s
Operating system: Microsoft Windows NT 4.0 Enterprise Edition
Database Manager: Microsoft SQL Server 7.0 Enterprise Edition
Transaction Manager: OpenUTM Version 4.0

The results were:

CPU's Speed	Memory	Disks	NewOrder 90% Response Time	tpmC
Server: Siemens Primergy 870				
4 x Pentium II Xeon (400 Mhz)	4.0 GB (1 MB L2 cache per processor)	193 x 9 GB 6 x 18 GB	.85 Seconds	18,528.97
Seven Clients: Siemens Primergy 460 (Specification for each)				
2 x Pentium II (333 Mhz)	256 MB	1 x 2 GB	n/a	n/a

In my opinion, these performance results were produced in compliance with the TPC requirements for Revision 3.4 of the benchmark. The following verification items were given special attention:

- The transactions were correctly implemented

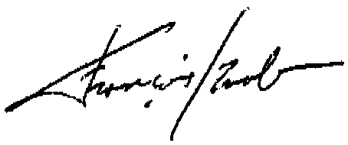
28-SEP-1998 15:14 Siemens Nixdorf DEC ES EP +49 5251 822109 S.01/02

- The transaction cycle times included the required keying and think times
- The reported response times were correctly measured.
- At least 90% of all delivery transactions met the 80 Second completion time limit
- All 90% response times were under the specified maximums
- The measurement interval was representative of steady state conditions
- The reported measurement interval was 29 minutes.
- One checkpoint was taken during the measurement interval
- Measurement repeatability was verified
- The 180 day storage requirement was correctly computed
- The system pricing was verified for major components and maintenance

Additional Audit Notes:

None

Respectfully Yours,



François Raab
President

Primergy 870