



# Hewlett-Packard Company

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TPC Benchmark™ H  
Full Disclosure Report  
for  
HP ProLiant DL760G2 8P  
using  
Microsoft SQL Server 2000 Enterprise Edition  
and  
Windows Server 2003, Enterprise Server

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**First Edition**  
**May 2003**

First Edition – May, 2003

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

All performance data contained in this report was obtained in a rigorously controlled environment. Results obtained in other operating environments may vary significantly. No warranty of system performance or price/performance is expressed or implied in this report.

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# HP ProLiant DL760G2 8P

TPC-H Rev. 2.0.1

Report Date:  
May 28, 2003

Total System Cost

**\$235,058**

Composite Query per Hour Metric

**3334.8**

QphH@300GB

Price / Performance

**\$71**

\$ / QphH@300GB

Database Size

**300GB**

Database Manager

**Microsoft SQL Server 2000 Enterprise Edition**

Operating System

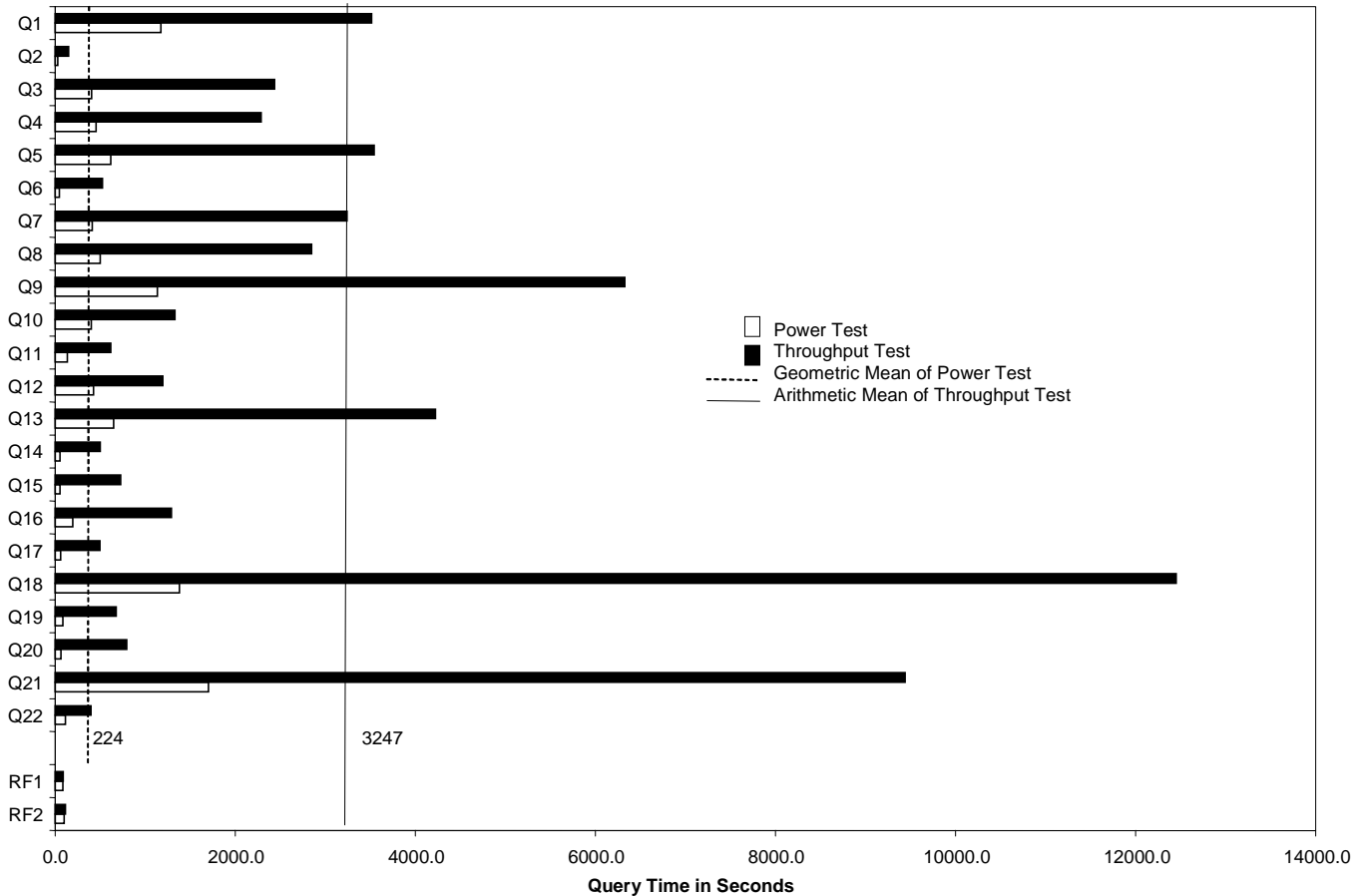
**Windows Server 2003, Enterprise Server**

Other Software

**Visual C++ .Net Standard**

Availability Date

**May 28, 2003**



Database Load Time = 13:02:34

Load Included Backup: Y

Total Data Storage / Database Size = 11.04

RAID (Base tables only): N

RAID (Base tables and auxiliary data structures): N

RAID (All): N

**System Configuration:**

**Processors :** 8 x Intel Xeon MP 2.0 GHz with 2MB L2 cache  
**Memory :** 16 GB memory  
**Disk Controllers :** 10x Smart Array 5304  
**Disks :** 196 x 18.2 GB 15K RPM drives  
**Total Disk Storage:** 3312.4 GB

Note: Database Size includes only raw data (e.g., no temp, index, redundant storage space, etc).

**HP ProLiant DL760 G2 8P**

TPC-H Rev. 2.0.1

Report Date:

May 28, 2003

Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price
<b>Server Hardware</b>						
<b>Brand Pricing</b>						
ProLiant DL760 G2 X2.0-2M 4P 4G - 4GB addressable RAM, 1GB redundant RAM - integrated Smart Array 5i controller	171206-B21	1	47,999	1	47,999	
X2.0-2M 4P DL760 G2	287520-B21	1	28,399	1	28,399	
512 REG PC133	236853-B21	1	499	22	10,978	
Monitor 15" S5500	261602-169	1	139	1	139	
Scroll Mouse-Carbon	231947-B21	1	5	1	5	
PS/2 Easy Access Internet Keyboard	265977-001	1	12	1	12	
Rack Model 9142 (42U - Opal) - Flat Pallet	120663-B21	1	1,321	2	2,642	
Rack Sidewall Kit	120670-B21	1	207	1	207	
18.2 GB Hot-Plug Wide U320 15K 1"	286775-B22	1	399	2	798	
UPS T1500 XR	204155-002	1	621	1	621	
Servers 700 Series CarePaq, 3yr 7x24, 4hr resp. (FM-HE724-3)	401784-002	1	3,390	1		3,390
<b>Subtotal</b>					<b>91,800</b>	<b>3,390</b>
<b>Storage</b>						
Smart Array 5304/128	158939-B21	1	2,052	10	20,520	
StorageWorks Enclosure Model 4354R - Rack-mountable	190211-001	1	3,523	13	45,799	
StorageWorks Enclosure Model 4314R - Rack-mountable	190209-001	1	2,955	1	2,955	
18.2 GB Hot-Plug Wide U320 15K 1"	286775-B22	1	399	196	78,204	
18.2 GB Hot-Plug Wide U320 15K 1" (10% spare)	286775-B22	1	399	20	7,980	
CarePaq 43xx Enclosure, 3yr, 7x24, 4hr resp. (FM-4E724-36)	171242-002	1	157	14		2,198
<b>Subtotal</b>					<b>155,458</b>	<b>2,198</b>
<b>Hardware and Maintenance Discount</b>						
Large Purchase and Net 30 discount	16.0%	1			(\$39,561)	(\$894)
<b>Hardware Subtotal</b>					<b>207,697</b>	<b>4,694</b>
<b>Software</b>						
Microsoft SQL Server 2000 Enterprise Edition	810-00652	Microsoft	2	5,549	1	5,549
Database Server Support Package	RO-PRORS-16U-01	Microsoft	2	1,950	3	5,850
Microsoft SQL Server 2000 Client Licenses	359-00532	Microsoft	2	146	60	included
Windows Server 2003, Enterprise Server	P72-00264	Microsoft	2	2,399	1	included
Visual C++ .Net Standard	254-00170	Microsoft	2	109	1	included
<b>Subtotal</b>					<b>16,817</b>	<b>5,850</b>
<b>Total</b>					<b>\$224,514</b>	<b>\$10,544</b>
<b>3-Year Cost of Ownership:</b>						<b>\$235,058</b>
<b>QpH Rating:</b>						<b>3334.8</b>
<b>\$/QpH@300GB:</b>						<b>\$71</b>
Pricing: 1=HP; 2= Microsoft						
Note: The benchmark results and test methodology were audited by Lorna Livingtree of Performance Metrics						

**Audited by: Lorna Livingtree of Performance Metrics Inc.**

Prices used in TPC benchmarks 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 sections of the TPC benchmark specifications. If you find that the stated prices are not available according to these terms, please inform at [pricing@tpc.org](mailto:pricing@tpc.org). Thank you.



**HP ProLiant DL760G2 8P**

TPC-H Rev. 2.0.1

Report Date:

**May 28, 2003**

## Numerical Quantities

### Measurement Results:

Database Scale Factor	= 300
Total Data Storage / Database Size	= 11.04
Start of Database Load	= 2003-04-23 09:57:51
End of Database Load	= 2003-04-23 23:00:25
Database Load Time	= 13:02:34
Query Streams for Throughput Test	= 6
TPC-H Power	= 4818.3
TPC-H Throughput	= 2308.1
TPC-H Composite Query-per-Hour Metric (QphH@300GB)	= 3334.8
Total System Price Over 3 Years	= \$235,058
TPC-H Price/ Performance Metric (\$/QphH@300GB)	= \$71

### Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 61765 seconds
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### Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	423230025	4/25/2003	9:26:47	4/25/2003	12:18:06	2:51:19
Stream01	423230026	4/25/2003	12:18:07	4/26/2003	3:26:44	15:08:37
Stream02	423230027	4/25/2003	12:18:07	4/26/2003	5:07:04	16:48:57
Stream03	423230028	4/25/2003	12:18:07	4/26/2003	4:54:24	16:36:17
Stream04	423230029	4/25/2003	12:18:07	4/26/2003	4:47:40	16:29:33
Stream05	423230030	4/25/2003	12:18:07	4/26/2003	4:59:38	16:41:31
Stream06	423230031	4/25/2003	12:18:07	4/26/2003	4:54:39	16:36:32
Refresh00		4/25/2003	9:26:47	4/25/2003	12:18:06	2:51:19
Refresh01		4/26/2003	5:07:04	4/26/2003	5:10:12	0:03:08
Refresh02		4/26/2003	5:10:12	4/26/2003	5:13:40	0:03:27
Refresh03		4/26/2003	5:13:40	4/26/2003	5:17:06	0:03:26
Refresh04		4/26/2003	5:17:07	4/26/2003	5:20:32	0:03:26
Refresh05		4/26/2003	5:20:32	4/26/2003	5:24:06	0:03:33
Refresh06		4/26/2003	5:24:06	4/26/2003	5:27:32	0:03:25



# HP ProLiant DL760G2 8P

TPC-H Rev. 2.0.1

Report Date:  
May 28, 2003

## TPC-H Timing Intervals (in seconds)

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 00	1172.9	26.4	404.8	454.8	618.5	47.6	414.4	501.8
Stream 01	3167.7	153.5	2318.8	2288.9	3542.8	508.7	2860.5	2806.5
Stream 02	4063.0	214.3	2132.0	2113.8	2717.8	74.8	3087.8	3028.8
Stream 03	2811.2	260.0	1091.5	3793.9	4145.8	596.3	3331.8	3191.3
Stream 04	4095.5	72.6	2291.0	2501.9	3096.0	572.9	3777.0	3011.6
Stream 05	2926.0	75.0	3158.7	1286.9	3904.3	721.2	3436.8	2707.0
Stream 06	4014.1	128.8	3628.0	1730.8	3856.1	690.5	2947.6	2328.0
Min Qi	2811.2	72.6	1091.5	1286.9	2717.8	74.8	2860.5	2328.0
Max Qi	4095.5	260.0	3628.0	3793.9	4145.8	721.2	3777.0	3191.3
Avg Qi	3512.9	150.7	2436.7	2286.0	3543.8	527.4	3240.3	2845.5
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	1134.7	402.4	134.1	424.8	648.4	55.1	54.5	195.4
Stream 01	6438.8	1250.9	533.6	855.7	3293.2	320.0	380.5	729.2
Stream 02	7484.8	1153.1	635.5	1303.9	4053.0	1023.2	985.1	2228.2
Stream 03	5978.7	1236.1	895.8	1262.5	4837.0	486.0	393.6	861.0
Stream 04	5566.5	1282.4	533.8	1597.3	4683.9	260.5	449.6	985.0
Stream 05	5438.8	1628.0	583.6	1054.1	3375.0	323.2	497.8	1779.2
Stream 06	7048.2	1418.9	527.8	1089.8	5109.1	596.7	1662.5	1170.6
Min Qi	5438.8	1153.1	527.8	855.7	3293.2	260.5	380.5	729.2
Max Qi	7484.8	1628.0	895.8	1597.3	5109.1	1023.2	1662.5	2228.2
Avg Qi	6326.0	1328.2	618.4	1193.9	4225.2	501.6	728.2	1292.2
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	60.2	1379.8	85.7	63.1	1700.4	113.4	85.8	100.8
Stream 01	484.0	12020.8	307.4	274.0	9577.8	405.2	77.0	111.0
Stream 02	644.4	14265.9	992.4	791.5	6588.3	956.0	92.2	115.2
Stream 03	456.2	9209.4	826.7	1027.8	12801.2	283.4	91.7	114.8
Stream 04	569.8	14713.0	155.3	254.0	8651.0	253.0	91.7	114.0
Stream 05	506.1	14211.3	1078.7	1076.9	10061.4	261.3	94.3	119.2
Stream 06	320.2	10297.3	697.6	1342.2	8960.8	227.5	92.5	113.5
Min Qi	320.2	9209.4	155.3	254.0	6588.3	227.5	77.0	111.0
Max Qi	644.4	14713.0	1078.7	1342.2	12801.2	956.0	94.3	119.2
Avg Qi	496.8	12453.0	676.4	794.4	9440.1	397.7	89.9	114.6

# Abstract

## Overview

This report documents the methodology and results of the TPC Benchmark™ H test conducted on the HP ProLiant DL760G2 using Microsoft SQL Server 2000 Enterprise Edition SP3, in conformance with the requirements of the TPC Benchmark™ H Standard Specification, Revision 2.0.1. The operating system used for the benchmark was Microsoft Windows 2003 Enterprise Server.

The benchmark results are summarized in the following table.

<b>Hardware</b>	<b>Software</b>	<b>Total System Cost</b>	<b>QppH @ 300GB</b>	<b>QthH @ 300GB</b>	<b>QphH @ 300GB</b>	<b>\$ / QphH @ 300GB</b>
<b>HP ProLiant DL760G2 8P</b>	<b>Microsoft SQL Server 2000 SP3 Windows Server 2003, Enterprise Server</b>	<b>\$235,058</b>	<b>4818.3</b>	<b>2308.1</b>	<b>3334.8</b>	<b>\$ 71</b>

The TPC Benchmark™ H was developed by the Transaction Processing Performance Council (TPC). The TPC was founded to define transaction processing benchmarks and to disseminate objective, verifiable performance data to the industry.

Requests for this TPC Benchmark H Full Disclosure Report should be sent to:

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777 North First Street, Suite 600  
San Jose, CA 95112 USA  
Telephone: (408) 295-8894  
Fax: (408) 295-9768

or

Hewlett-Packard Company  
Database Performance Engineering  
P.O. Box 692000  
Houston, TX 77269-2000

## Standard and Executive Summary Statements

Pages ii-iv contains the Executive Summary and Numerical Quantities Summary of the benchmark results for the HP ProLiant DL760G2.

## Auditor

The benchmark configuration, environment and methodology used to produce and validate the test results, and the pricing model used to calculate the cost per QppH and QthH were audited by Lorna Livingtree of Performance Metrics, Inc. to verify compliance with the relevant TPC specifications. The auditor's letter of attestation is attached in Section 9.1 "Auditors' Report."

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# 1.0 General Items

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## 1.1 Test Sponsor

*A statement identifying the benchmark sponsor(s) and other participating companies must be provided.*

This benchmark was sponsored by Hewlett-Packard Company. The benchmark was developed and engineered by Hewlett-Packard Company. Testing took place at HP benchmarking laboratories in Houston, Texas.

## 1.2 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 by not limited to:*

- *Database Tuning Options*
- *Optimizer/Query execution options*
- *Query processing tool/language configuration parameters*
- *Recovery/commit options*
- *Consistency/locking options*
- *Operating system and configuration parameters*
- *Configuration parameters and options for any other software component incorporated into the pricing structure*
- *Compiler optimization options*

*This requirement can be satisfied by providing a full list of all parameters and options, as long as all those which have been modified from their default values have been clearly identified and these parameters and options are only set once.*

Appendix A, "Tunable Parameters," contains a list of all database parameters and operating system parameters.

## 1.3 Configuration Items

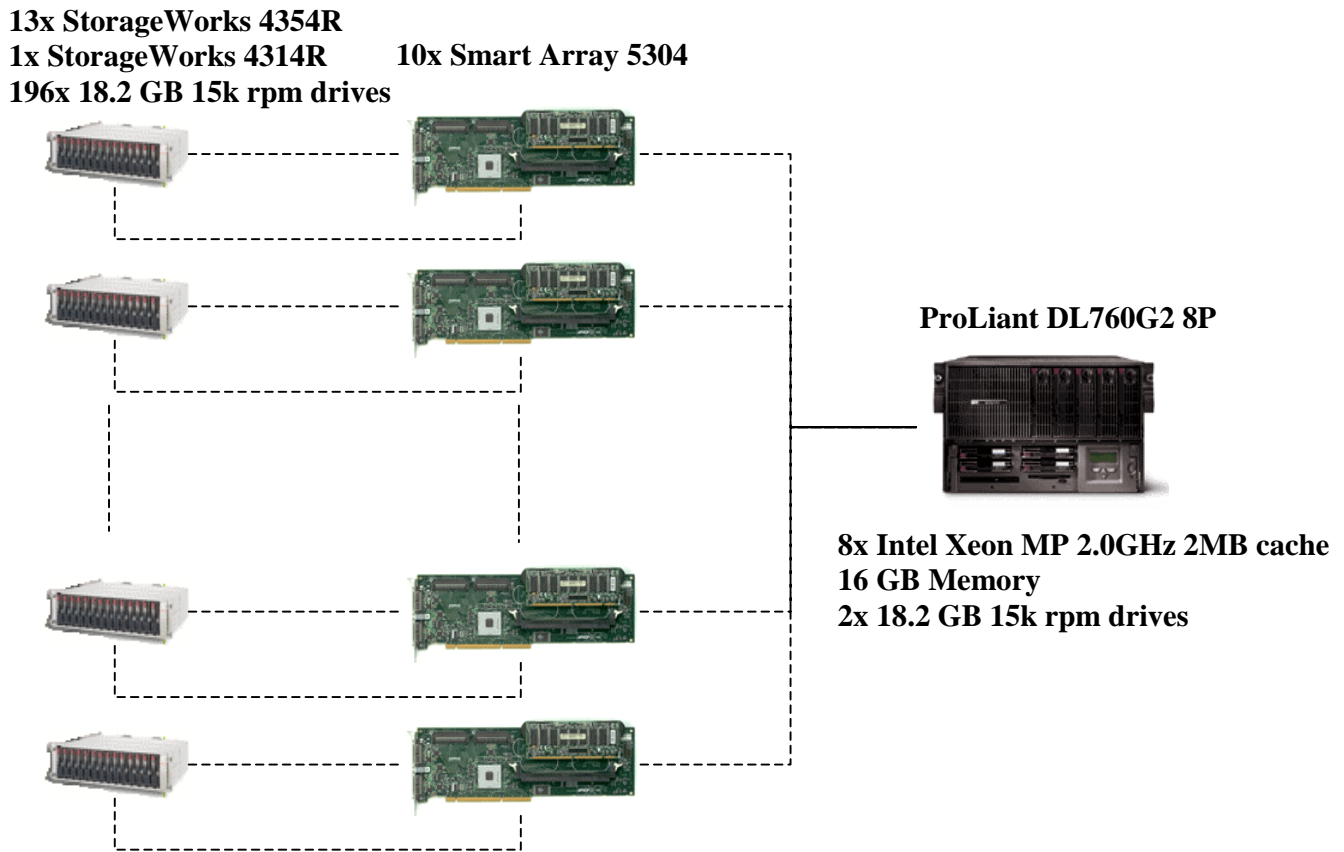
*Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences. This includes, but is not limited to:*

- *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.*
- *Type and the run-time execution location of software components (e.g., DBMS, query processing tools/languages, middle-ware components, software drivers, etc.).*

The server System Under Test (SUT), a HP ProLiant DL760G2 8P , depicted in Figure 1.1, consisted of :

- 8x Intel Xeon MP 2.0GHz with 2MB L2 Cache
- 16 GB of memory
- 10 x HP 5304 Array Controllers
- 13 x StorageWorks Enclosure 4354R
- 1 x StorageWorks Enclosure 4314R
- 198 x 18.2GB Pluggable Ultra320 15K rpm 1” height drives

**Figure 1.1 Benchmarked and priced configuration**



# 2.0 Clause 1: 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 test and qualification databases. (8.1.2.1)*

Appendix B, "Database Build Scripts," contains the table definitions and the program used to load the database.

## 2.2 Physical Organization of Database

*The physical organization of tables and indices, within the test and qualification databases, must be disclosed. If the column ordering of any table is different from that specified in Clause 1.4, it must be noted.*

Appendix B, "Database Build Scripts," contains the DDL for the index definitions.

## 2.3 Horizontal Partitioning

*Horizontal partitioning of tables and rows in the test and qualification databases (see Clause 1.5.4) must be disclosed.*

Horizontal partitioning was not used

## 2.4 Replication

*Any replication of physical objects must be disclosed and must conform to the requirements of Clause 1.5.6.*

No replication was used.

## 3.0 Clause 2: Queries and Refresh Functions Related Items

---

### 3.1 Query Language

*The query language used to implement the queries must be identified.*

SQL was the query language used.

### 3.2 Random Number Generation

*The method of verification for the random number generation must be described unless the supplied DBGEN and QGEN were used.*

The TPC-supplied DBGEN version 1.3.0 and QGEN version 1.3.0 were used to generate all database populations.

### 3.3 Substitution Parameters Generation

*The method used to generate values for substitution parameters must be disclosed. If QGEN is not used for this purpose, then the source code of any non-commercial tool used must be disclosed. If QGEN is used, the version number, release number, modification number and patch level of QGEN must be disclosed.*

The supplied QGEN version 1.3.0 was used to generate the substitution parameters.

### 3.4 Query Text and Output Data from Database

*The executable query text used for query validation must be disclosed along with the corresponding output data generated during the execution of the query text against the qualification database. If minor modifications (see Clause 2.2.3) have been applied to any functional query definitions or approved variants in order to obtain executable query text, these modifications must be disclosed and justified. The justification for a particular minor query modification can apply collectively to all queries for which it has been used. The output data for the power and throughput tests must be made available electronically upon request..*

Appendix C contains the query text and query output. The following modifications were used:

- In Q1, Q4, Q5, Q6, Q10, Q12, Q14, Q15 and Q20, the “dateadd” function is used to perform date arithmetic.
- In Q7, Q8 and Q9, the “datepart” function is used to extract part of a date (e.g., “YY”).
- In Q2, Q3, Q10, Q18 and Q21, the “top” function is used to restrict the number of output rows.
- The word GO is used as a command delimiter.

### 3.5 Query Substitution Parameters and Seeds Used

*All the query substitution parameters used during the performance test must be disclosed in tabular format, along with the seeds used to generate these parameters.*

Appendix D contains the seed and query substitution parameters used.

### **3.6 Isolation Level**

*The isolation level used to run the queries must be disclosed. If the isolation level does not map closely to one of the isolation levels defined in Clause 3.4, additional descriptive detail must be provided.*

The queries and transactions were run with isolation level 1.

### **3.7 Refresh Functions**

*The details of how the refresh functions were implemented must be disclosed (including source code of any non-commercial program used).*

Appendix E contains the source code for the refresh functions.

# 4.0 Clause 3: Database System Properties

## 4.1 Atomicity Requirements

*The results of the ACID tests must be disclosed along with a description of how the ACID requirements were met. This includes disclosing the code written to implement the ACID Transaction and Query.*

All ACID tests were conducted according to specification. The Atomicity, Isolation, Consistency and Durability tests were performed on the HP ProLiant DL760G2.

### 4.1.1 Atomicity of the Completed Transactions

*Perform the ACID Transaction for a randomly selected set of input data and verify that the appropriate rows have been changed in the ORDER, LINEITEM, and HISTORY tables.*

The following steps were performed to verify the Atomicity of completed transactions.

1. The total price from the ORDER table and the extended price from the LINEITEM table were retrieved for a randomly selected order key.
2. The ACID Transaction was performed using the order key from step 1.
3. The ACID Transaction committed.
4. The total price from the ORDER table and the extended price from the LINEITEM table were retrieved for the same order key. It was verified that the appropriate rows had been changed.

### 4.1.2 Atomicity of Aborted Transactions

*Perform the ACID transaction for a randomly selected set of input data, submitting a ROLLBACK of the transaction for the COMMIT of the transaction. Verify that the appropriate rows have not been changed in the ORDER, LINEITEM, and HISTORY tables.*

The following steps were performed to verify the Atomicity of the aborted ACID transaction:

1. The total price from the ORDER table and the extended price from the LINEITEM table were retrieved for a randomly selected order key.
2. The ACID Transaction was performed using the order key from step 1. The transaction was stopped prior to the commit.
3. The ACID Transaction was ROLLED BACK. .
4. The total price from the ORDER table and the extended price from the LINEITEM table were retrieved for the same order key used in steps 1 and 2. It was verified that the appropriate rows had not been changed.

## 4.2 Consistency Requirements

*Consistency is the property of the application that requires any execution of transactions to take the database from one consistent state to another.*

*A consistent state for the TPC-H database is defined to exist when:*

$$O\_TOTALPRICE = SUM(L\_EXTENDEDPRICE - L\_DISCOUNT) * (1 + L\_TAX)$$

*For each ORDER and LINEITEM defined by (O\_ORDERKEY = L\_ORDERKEY)*

### 4.2.1 Consistency Tests

*Verify that ORDER and LINEITEM tables are initially consistent as defined in Clause 3.3.2.1, based upon a random sample of at least 10 distinct values of O\_ORDERKEY.*

The following steps were performed to verify consistency:

1. The consistency of the ORDER and LINEITEM tables was verified based on a sample of O\_ORDERKEYs.
2. One hundred ACID Transactions were submitted from each of 7 execution streams.



3. The consistency of the ORDER and LINEITEM tables was reverified.

## 4.3 Isolation Requirements

*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.*

### 4.3.1 Isolation Test 1 - Read-Write Conflict with Commit

*Demonstrate isolation for the read-write conflict of a read-write transaction and a read-only transaction when the read-write transaction is committed.*

The following steps were performed to satisfy the test of isolation for a read-only and a read-write committed transaction:

1. An ACID Transaction was started for a randomly selected O\_KEY, L\_KEY and DELTA. The ACID Transaction was suspended prior to Commit.
2. An ACID query was started for the same O\_KEY used in step 1. The ACID query blocked and did not see any uncommitted changes made by the ACID Transaction.
3. The ACID Transaction was resumed and committed.
4. The ACID query completed. It returned the data as committed by the ACID Transaction.

### 4.3.2 Isolation Test 2 - Read-Write Conflict with Rollback

*Demonstrate isolation for the read-write conflict of a read-write transaction and a read-only transaction when the read-write transaction is rolled back.*

The following steps were performed to satisfy the test of isolation for read-only and a rolled back read-write transaction:

1. An ACID transaction was started for a randomly selected O\_KEY, L\_KEY and DELTA. The ACID Transaction was suspended prior to Rollback.
2. An ACID query was started for the same O\_KEY used in step 1. The ACID query did not see any uncommitted changes made by the ACID Transaction.
3. The ACID Transaction was ROLLED BACK.
4. The ACID query completed.

### 4.3.3 Isolation Test 3 - Write-Write Conflict with Commit

*Demonstrate isolation for the write-write conflict of two update transactions when the first transaction is committed.*

The following steps were performed to verify isolation of two update transactions:

1. An ACID Transaction T1 was started for a randomly selected O\_KEY, L\_KEY and DELTA. The ACID transaction T1 was suspended prior to Commit.
2. Another ACID Transaction T2 was started using the same O\_KEY and L\_KEY and a randomly selected DELTA.
3. T2 waited.
4. The ACID transaction T1 was allowed to Commit and T2 completed.
5. It was verified that:

$$T2.L\_EXTENDEDPRICE = T1.L\_EXTENDEDPRICE + (DELTA1*(T1.L\_EXTENDEDPRICE/T1.L\_QUANTITY))$$

### 4.3.4 Isolation Test 4 - Write-Write Conflict with Rollback

*Demonstrate isolation for the write-write conflict of two update transactions when the first transaction is rolled back.*

The following steps were performed to verify the isolation of two update transactions after the first one is rolled back:

1. An ACID Transaction T1 was started for a randomly selected O\_KEY, L\_KEY and DELTA. The ACID Transaction T1 was suspended prior to Rollback.

2. Another ACID Transaction T2 was started using the same O\_KEY and L\_KEY used in step 1 and a randomly selected DELTA.
3. T2 waited.
4. T1 was allowed to ROLLBACK and T2 completed.
5. It was verified that T2.L\_EXTENDEDPRICE = T1.L\_EXTENDEDPRICE.

#### 4.3.5 Isolation Test 5 – Concurrent Read and Write Transactions on Different Tables

*Demonstrate the ability of read and write transactions affecting different database tables to make progress concurrently.*

The following steps were performed:

1. An ACID Transaction T1 for a randomly selected O\_KEY, L\_KEY and DELTA. The ACID Transaction T1 was suspended prior to Commit.
2. Another ACID Transaction T2 was started using random values for PS\_PARTKEY and PS\_SUPPKEY.
3. T2 completed.
4. T1 completed and the appropriate rows in the ORDER, LINEITEM and HISTORY tables were changed.

#### 4.3.6 Isolation Test 6 – Update Transactions During Continuous Read-Only Query Stream

*Demonstrate the continuous submission of arbitrary (read-only) queries against one or more tables of the database does not indefinitely delay update transactions affecting those tables from making progress.*

The following steps were performed:

1. An ACID Transaction T1 was started, executing Q1 against the qualification database. The substitution parameter was chosen from the interval [0..2159] so that the query ran for a sufficient amount of time.
2. Before T1 completed, an ACID Transaction T2 was started using randomly selected values of O\_KEY, L\_KEY and DELTA.
3. T2 completed before T1 completed.
4. It was verified that the appropriate rows in the ORDER, LINEITEM and HISTORY tables were changed.

## 4.4 Durability Requirements

*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 3.5.2.*

#### 4.4.1 Permanent Unrecoverable Failure of Any Durable Medium and Loss of System Power

*Guarantee the database and committed updates are preserved across a permanent irrecoverable failure of any single durable medium containing TPC-H database tables or recovery log tables.*

The database log was stored on a RAID-1 protected array of 8 physical drives. The tables for the database were stored on 26 RAID-0 arrays each containing 7 physical drives. A backup of the database was taken. The backup was spread across 26 RAID-5 arrays.

The tests were conducted on the qualification database. The steps performed are shown below:

1. The complete database was backed up.
2. 7 streams of ACID transactions were started. Each stream executed a minimum of 100 transactions.
3. While the test was running, one of the disks from the database RAID-1 log was removed.
4. After it was determined that the test would still run with the loss of a log disk, one physical drive of a RAID-0 data volume was removed.
5. A checkpoint was issued to force a failure.
6. The six streams of ACID transactions failed and recorded their number of committed transaction in success files.
7. The database log was dumped to disk.
8. The database and log disks were replaced with new disks and RAID rebuild process started.
9. When log RAID rebuild process finished a database restore was done.
10. A command was issued causing the database to run through its roll-forward recovery.
11. The counts in the success files and the HISTORY table count were compared and were found to match.

#### **4.4.2 System Crash**

*Guarantee the database and committed updates are preserved across an instantaneous interruption (system crash/system hang) in processing which requires the system to reboot to recover.*

1. Six streams of ACID transactions were started. Each stream executed a minimum of 100 transactions.
2. While the streams of ACID transactions were running, the system was powered off.
3. When power was restored, the system rebooted and the database was restarted.
4. The database went through a recovery period.
5. The success file and the HISTORY table counts were compared and were found to match.

#### **4.4.3 Memory Failure**

*Guarantee the database and committed updates are preserved across failure of all or part of memory (loss of contents).*

See section 4.4.2

# 5.0 Clause 4: Scaling and Database Population

## 5.1 Initial Cardinality of Tables

The cardinality (e.g., the number of rows) of each table of the test database, as it existed at the completion of the database load (see clause 4.2.5) must be disclosed.

Table 5.1 lists the TPC Benchmark H defined tables and the row count for each table as they existed upon completion of the build.

**Table 5. 1: Initial Number of Rows**

Table Name	Row Count
Region	5
Nation	25
Supplier	3,000,000
Customer	45,000,000
Part	60,000,000
Partsupp	240,000,000
Orders	450,000,000
Lineitem	1,799,989,091

## 5.2 Distribution of Tables and Logs Across Media

The distribution of tables and logs across all media must be explicitly described for the tested and priced systems.

Microsoft SQL Server was configured on a HP ProLiant DL760 with the following configuration:

- 10 x Smart Array 5304 disk controllers
- 13 x StorageWorks Enclosure 4354R
- 1 x StorageWorks Enclosure 4314R
- 196 x 18.2GB 15k rpm external disk drives
- 2 x 18.2GB 15k rpm internal disk drives

All 196 disks were used to hold table data, indexes, database log and the temporary database (TempDB).

A detailed description of distribution of database filegroups and log can be found in Table 5.2.1

**Table 5.2.1: SMART Array Controller Disk Array to Logical Drive Mapping**

SMART Array Controller	SMART Logical Drive Array Letter	Number of Physical Drives in SMART LDA	SMART Logical Drive Number	SMART Fault Tolerance	Disk Format	Size (MB)	Contents
Slot 1	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 1	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 2	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 2	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 3	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 3	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 4	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 4	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID0	RAW	4000	Tpch1G
Slot 5	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 5	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 5	C	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 6	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 6	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg

Slot 6	C	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 7	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 7	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 7	C	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 9	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 9	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 9	C	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 10	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 10	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 10	C	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 11	A	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
			4	RAID5	NTFS	47000	Flatfiles
Slot 11	B	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 11	C	7	1	RAID0	RAW	24000	Tpch300g
			2	RAID0	RAW	16000	TempDB
			3	RAID5	NTFS	23000	LoadFg
Slot 0	A	2	1	RAID1	NTFS	18000	OS
Slot 0	B	8	1	RAID1	RAW	40000	Tpch300Log
			2	RAID1	RAW	1000	Tpch1gLog
Slot 0	C	6	1	RAID0	RAW	30000	TempLog

### 5.3 Mapping of Database Partitions/Replications

*The mapping of database partitions/replications must be explicitly described.*

Database partitioning/replication was not used..

## 5.4 Implementation of RAID

*Implementations may use some form of RAID to ensure high availability. If used for data, auxiliary storage (e.g. indexes) or temporary space, the level of RAID used must be disclosed for each device.*

RAID 0 was used for database filegroups and tempdb, and RAID 1 for database recovery logs.

## 5.5 DBGEN Modifications

*The version number, release number, modification number, and patch level of DBGEN must be disclosed. Any modifications to the DBGEN (see Clause 4.2.1) source code must be disclosed. In the event that a program other than DBGEN was used to populate the database, it must be disclosed in its entirety.*

The standard distribution DBGEN version 1.3.0 was used for database population. No modifications were made.

## 5.6 Database Load time

*The database load time for the test database (see clause 4.3) must be disclosed.*

The database load time was 13 hours 2 minutes 34 seconds.

## 5.7 Data Storage Ratio

*The data storage ratio must be disclosed. It is computed by dividing the total data storage of the priced configuration (expressed in GB) by the size chosen for the test database as defined in 4.1.3.1. The ratio must be reported to the nearest 1/100<sup>th</sup>, rounded up.*

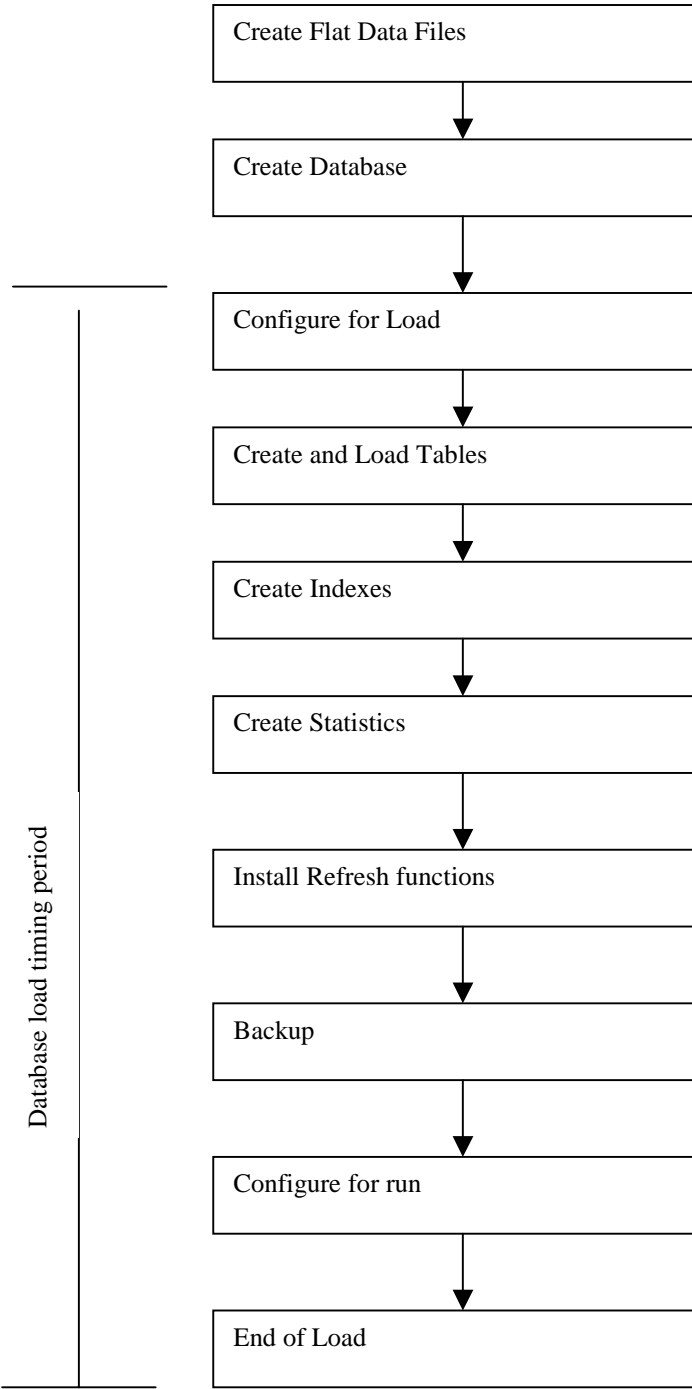
Disk Type	Number of Disks	Space per Disk	Total Disk Space	Data Storage Ratio
18.2 GB 15k rpm Ultra320 SCSI	196	16.9 GB	3,312.4 GB	11.04

## 5.8 Database Load Mechanism Details and Illustration

*The details of the database load must be disclosed, including a block diagram illustrating the overall process. Disclosure of the load procedure includes all steps, scripts, input and configuration files required to completely reproduce the test and qualification databases.*

Flat files for each of the tables were created using DBGEN.  
The tables were loaded as depicted in Figure 5-8.

Figure 5.8: Block Diagram of Database Load Process





## ***6.0 Clause 5: Performance Metrics and Execution Rules Related Items***

### **6.1 Steps in the Power Test**

*The details of the steps followed to implement the power test (e.g., system boot, database restart, etc.) must be disclosed.*

The following steps were used to implement the power test:

1. The system was rebooted
2. RF1 Refresh Transaction
3. Stream 00 Execution
4. RF2 Refresh Transaction.

### **6.2 Timing Intervals for Each Query and Refresh Function**

*The timing intervals (see Clause 5.3.6) for each query of the measured set and for both refresh functions must be reported for the power test.*

The timing intervals for each query and both refresh functions are given in the Numerical Quantities Summary earlier in the executive summary.

### **6.3 Number of Streams for The Throughput Test**

*The number of execution streams used for the throughput test must be disclosed.*

Five streams were used for the Throughput Test.

### **6.4 Start and End Date/Times for Each Query Stream**

*The start time and finish time for each query execution stream must be reported for the throughput test.*

The Numerical Quantities Summary contains the start and stop times for the query execution streams run on the system reported.

### **6.5 Total Elapsed Time for the Measurement Interval**

*The total elapsed time of the measurement interval(see Clause 5.3.5) must be reported for the throughput test.*

The Numerical Quantities Summary contains the timing intervals for the throughput test run on the system reported.

### **6.6 Refresh Function Start Date/Time and Finish Date/Time**

*Start and finish time for each update function in the update stream must be reported for the throughput test.*

Stream ID	RF	Start Date	Start time	Stop Date	Stop Time
Stream00	RF1	4/25/2003	9:26:46	4/25/2003	9:28:12
Stream00	RF2	4/25/2003	12:16:25	4/25/2003	12:18:06
Stream01	RF1	4/26/2003	5:07:04	4/26/2003	5:08:21
Stream01	RF2	4/26/2003	5:08:21	4/26/2003	5:10:12
Stream02	RF1	4/26/2003	5:10:12	4/26/2003	5:11:44
Stream02	RF2	4/26/2003	5:11:44	4/26/2003	5:13:39
Stream03	RF1	4/26/2003	5:13:39	4/26/2003	5:15:11
Stream03	RF2	4/26/2003	5:15:11	4/26/2003	5:17:06
Stream04	RF1	4/26/2003	5:17:06	4/26/2003	5:18:38
Stream04	RF2	4/26/2003	5:18:38	4/26/2003	5:20:32
Stream05	RF1	4/26/2003	5:20:32	4/26/2003	5:22:06
Stream05	RF2	4/26/2003	5:22:06	4/26/2003	5:24:06
Stream06	RF1	4/26/2003	5:24:06	4/26/2003	5:25:38
Stream06	RF2	4/26/2003	5:25:38	4/26/2003	5:27:32

## 6.7 Timing Intervals for Each Query and Each Refresh Function for Each Stream

*The timing intervals (see Clause 5.3.6) for each query of each stream and for each update function must be reported for the throughput test.*

The timing intervals for each query and each update function are given in the Numerical Quantities Summary earlier in the executive summary.

## 6.8 Performance Metrics

*The computed performance metrics, related numerical quantities and the price performance metric must be reported.*

The Numerical Quantities Summary contains the performance metrics, related numerical quantities, and the price/performance metric for the system reported.

## 6.9 The Performance Metric and Numerical Quantities from Both Runs

*A description of the method used to determine the reproducibility of the measurement results must be reported. This must include the performance metrics (QppH and QthH) from the reproducibility runs.*

Performance results from the first two executions of the TPC-H benchmark indicated the following difference for the metric points:

Run	QppH @ 300GB	QthH @ 300GB	QphH @ 300GB
Run 1	4814.7	2357.1	3368.8
Run 2	4818.2	2308.1	3334.8

## 6.11 System Activity Between Tests

*Any activity on the SUT that takes place between the conclusion of Run1 and the beginning of Run2 must be disclosed.*

SQL Server was restarted between runs.

# 7.0 Clause 6: SUT and Driver Implementation

## Related Items

### 7.1 Driver

*A detailed description of how the driver performs its functions must be supplied, including any related source code or scripts. This description should allow an independent reconstruction of the driver.*

Two scripts were used. The first one was used to create and load the database, while the second was used to run the Power and Throughput tests. These scripts are in Appendix F. A C program, semaphore.c, was used for coordination of parallel processes..

### 7.2 Implementation Specific Layer (ISL)

*If an implementation-specific layer is used, then a detailed description of how it performs its functions must be supplied, including any related source code or scripts. This description should allow an independent reconstruction of the implementation-specific layer.*

A command script was used to control and track the execution of queries. The scripts are contained in Appendix F. Qgen was used to generate the query streams, along with the appropriate substitution values.

The following steps are performed, to accomplish the Power and Throughput Runs:

#### 1. Power Run

- Execute sixteen concurrent RF1 processes, each of which will apply a segment of an update set generated by dbgen.
- Each process submits multiple transactions, where a transaction spans a set of orders and their associated line items.
- Execute the Stream0 queries, in the prescribed order.
- Execute sixteen concurrent RF2 processes, each of which will apply a segment of an update set generated by dbgen. Each thread submits multiple transactions, where a transaction spans a set of orders and their associated line items.

#### 2. Throughput Run

- Execute 6 concurrent query streams. Each stream executes queries in the prescribed order for the appropriate Stream Id (1-5). Upon completion of each stream, a semaphore is set to indication completion.
- Execute five consecutive RF1/RF2 transactions, against ascending Update sets produced by dbgen. The first RF1 waits on a semaphore prior to beginning its insert operations.

Each step is timed by the script. The timing information is stored in the database for later analysis. The inputs and outputs of steps are stored in text files for later analysis.

### 7.3 Profile-Directed Optimization

*If profile-directed optimization as described in Clause 5.2.9 is used, such used must be disclosed.*

Profile-directed optimization was not used.

# 8.0 Clause 7: Pricing Related Items

## 8.1 Hardware and Software Used

*A detailed list of hardware and software used in the priced system must be reported. Each 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, contents of the package must be disclosed. Pricing source(s) and effective date(s) of price(s) must also be reported.*

A detailed list of all hardware and software, including the 3-year price, is provided in the Executive Summary at the front of this report. The price quotations are included in Appendix G, at the end of this document.

## 8.2 Total 3 Year Price

*The total 3-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.*

A detailed list of all hardware and software, including the 3-year price, is provided in the Executive Summary at the front of this report. The price quotations are included in Appendix G, at the end of this document. As a large purchase, this purchase qualifies for a 16% discount from Hewlett-Packard Company.

## 8.3 Availability Date

*The committed delivery date for general availability of products used in the price calculations must be reported. When the priced system includes products with different availability dates, the availability date reported on the executive summary must be the date by which all components are committed to being available. The full disclosure report must report availability dates individually for at least each of the categories for which a pricing subtotal must be provided.*

The HP ProLiant DL760G2, system memory, additional processors, disk controllers and hard drives are available at the time of publication. All other hardware is generally available at the time of publication.

The system software, Microsoft Windows Server 2003, Enterprise Server, and database software, Microsoft SQL Server 2000 Enterprise Edition is generally available at the time of publication. Service Pack 3 for Microsoft SQL Server 2000 is generally available at the time of publication.

## 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-specific pricing is subject to Clause 7.1.7.*

The configuration is priced for the United States of America.

# 9.0 Clause 9: Related Items

## 9.1 Auditors' Report

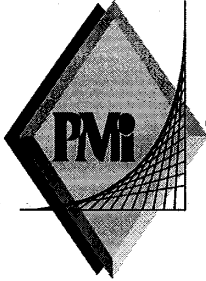
*The auditor's agency name, address, phone number, and Attestation letter with a brief audit summary report indicating compliance must be included in the full disclosure report. A statement should be included specifying who to contact in order to obtain further information regarding the audit process.*

This implementation of the TPC Benchmark H was audited by Lorna Livingtree of Performance Metrics. Further information regarding the audit process may be obtained from:

Performance Metrics, Inc.  
137 Yankton St., Suite 101  
Folsom, CA 95630  
(phone) (916) 985-1131  
(fax) (916) 985-1185  
e-mail: lorna@perfmtrics.com

Requests for this TPC Benchmark H 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 USA  
Telephone: (408) 295-8894  
Fax: (408) 295-9768



**PERFORMANCE METRICS INC.**  
**TPC Certified Auditors**

May 20, 2003

Mr. Daniel Pol  
Hewlett-Packard  
Database Performance Lab  
20555 SH 249  
Houston, TX 77070

I have verified the TPC Benchmark™ H 300 for the following configuration:

Platform: Proliant DL760G2 8P  
Database Manager: Microsoft SQL Server 2000 Enterprise Edition  
Operating System: Microsoft Windows Server 2003, Enterprise Server

CPU's	Memory	Total Disks	QppH@300GB	QthH@300GB	QphH@300GB
8 Intel Xeon MP @ 2 Ghz	16 GB	198 @ 18GB,15Krpm	<b>4,818.3</b>	<b>2,308.1</b>	<b>3,334.8</b>

In my opinion, these performance results were produced in compliance with the TPC requirements for the benchmark. The following attributes of the benchmark were given special attention:

- The database tables were defined with the proper columns, layout and sizes.
- The tested database was correctly scaled and populated for 300GB using DBGEN. The version of DBGEN was 1.3.0.
- The qualification database layout was identical to the tested database except for the size of the files.
- The query text was verified to use only compliant variants and minor modifications.
- The executable query text was generated by QGEN and submitted through Microsoft's standard OSQL interactive interface. The version of QGEN was 1.3.0.
- The validation of the query text against the qualification database produced compliant results.

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**TPC Certified Auditors**

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- The refresh functions were properly implemented and executed the correct number of inserts and deletes.
- The load timing was properly measured and reported.
- The execution times were correctly measured and reported.
- The performance metrics were correctly computed and reported.
- The repeatability of the measurement was verified.
- The ACID properties were tested and verified.
- Sufficient mirrored log space was present on the tested system.
- The system pricing was checked for major components and maintenance.
- The executive summary pages of the FDR were verified for accuracy.

Auditor's Notes:

None.

Sincerely,



Lorna Livingtree  
Auditor

# Appendix A: Tunable Parameters

- Note: These are the settings used during the power test. The settings altered for the load are documented in Appendix B.

## A.1 Microsoft SQL Server 2000 Version

The following text was output was generated by executing the select @@version command:

```
Microsoft SQL Server 2000 - 8.00.761 (Intel X86)
Feb 27 2003 12:09:37
Copyright (c) 1988-2003 Microsoft Corporation
Enterprise Edition on Windows NT 5.2 (Build 3790: )
```

## A.2 SQL Server 2000 Installation

Microsoft SQL Server 2000 was installed on the SUT. All default options were selected during the install except:

- Database Server Enterprise Edition was installed.
- “Custom installation” was selected. The SQL Server
- Development tools were not installed.
- Binary Sort Order was used. (Collation Settings>SQL Collation>Binary)
- Services Accounts > Customized > SQL Server > Use Local System Account Authentication Mode > Mixed > Blank Password
- Microsoft SQL Server 2000 Service Pack 3 was installed using the default settings during installation.

## A.3 SQL Server 2000 Startup Parameters

```
SQLSERVER -x -c -g100
```

Where :

- x Disable the Keeping of CPU time and cache-hit ratio statistics.
- c Start SQL Server independently of Windows NT Service Control Manager
- g Reserve 100MB for non-buffer pool allocations.

## A.4 Microsoft SQL Server 2000 Configuration Parameters

name	,minimum	,maximum	,config_value	,run_value
affinity mask	,-2147483648,	2147483647,	65535,	65535
allow updates	, 0,	1,	1,	1
awe enabled	, 0,	1,	1,	1
c2 audit mode	, 0,	1,	0,	0
cost threshold for parallelism	, 0,	32767,	0,	0
Cross DB Ownership Chaining	, 0,	1,	0,	0
cursor threshold	,-1,	2147483647,	-1,	-1
default full-text language	, 0,	2147483647,	1033,	1033
default language	, 0,	9999,	0,	0
fill factor (%)	, 0,	100,	0,	0
index create memory (KB)	, 704,	2147483647,	0,	0
lightweight pooling	, 0,	1,	1,	1
locks	, 5000,	2147483647,	0,	0

max degree of parallelism	, 0,	32,	16,	16
max server memory (MB)	, 4,	2147483647,	2147483647,	2147483647
max text repl size (B)	, 0,	2147483647,	65536,	65536
max worker threads	, 32,	32767,	1800,	1800
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,	1,	1
network packet size (B)	, 512,	65536,	32768,	32768
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,	20,	20
remote proc trans	, 0,	1,	0,	0
remote query timeout (s)	, 0,	2147483647,	600,	600
scan for startup procs	, 0,	1,	0,	0
set working set size	, 0,	1,	0,	0
show advanced options	, 0,	1,	1,	1
two digit year cutoff	, 1753,	9999,	2049,	2049
user connections	, 0,	32767,	0,	0
user options	, 0,	32767,	0,	0

## A.5 Windows .Net Configuration

The default installation of Windows 2003 Enterprise Server Build 3718 was used. All default options were selected during the install except:

- A TCP/IP address was configured on the system.

Updated installation to optimize performance for applications. (System Properties > Advanced > Performance Options > Programs)

Boot.ini parameters:

- /3GB - Give SQL Server access to 3GB memory
- /PAE - Allow the system to use addresses above 4GB

## A.6 HP SMART Array Controller Cache Settings and registry entries

The HP SMART Array Controller cache settings for all drives was configured for the cache ratio of 0% read / 100% write .

The HP SMART Array Controller cache was enabled for all drives.

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpcqiss
b]
"Type"=dword:00000001
"Start"=dword:00000000
"ErrorControl"=dword:00000001
"Tag"=dword:00000102
"ImagePath"=hex(2):73,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,
44,00,\
```



```

52,00,49,00,56,00,45,00,52,00,53,00,5c,00,68,00,70,00,71,00,63,00,69,00,73
.\
00,73,00,62,00,2e,00,73,00,79,00,73,00,00,00
"DisplayName"="Smart Array Controllers Non-Miniport Bus Driver"
"Group"="port"

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpcqiss
b\Parameters]
"CompletionMode"=dword:00000001

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpcqiss
b\Security]
"Security"=hex:01,00,14,80,90,00,00,00,9c,00,00,00,14,00,00,00,30,00,00,0
0,02,\

00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,\

00,00,02,00,60,00,04,00,00,00,00,00,14,00,fd,01,02,00,01,01,00,00,00,00,00
.\

05,12,00,00,00,00,00,18,00,ff,01,0f,00,01,02,00,00,00,00,00,05,20,00,00,00,\

20,02,00,00,00,00,14,00,8d,01,02,00,01,01,00,00,00,00,00,05,0b,00,00,00,00
.\

00,18,00,fd,01,02,00,01,02,00,00,00,00,00,05,20,00,00,00,23,02,00,00,01,01
.\

00,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpcqiss
b\Enum]
"0"="Root\LEGACY_HPQCISB\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001

```

## A.7 System Hardware Information

System Information report written at: 05/09/03 10:31:35  
 System Name: PHOENIX  
 [System Summary]

Item	Value
OS Name	Microsoft(R) Windows(R) Server 2003, Enterprise Edition
Version	5.2.3790 Build 3790
OS Manufacturer	Microsoft Corporation
System Name	PHOENIX
System Manufacturer	HP
System Model	ProLiant DL760 G2
System Type	X86-based PC
Processor	x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor	x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor	x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor	x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor	x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor	x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz

```

Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
Processor x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz
BIOS Version/Date HP P44-03/28/2003, 3/28/2003
SMBIOS Version 2.3
Windows Directory C:\WINDOWS
System Directory C:\WINDOWS\system32
Boot Device \Device\HarddiskVolume80
Locale United States
Hardware Abstraction Layer Version = "5.2.3790.0 (srv03_rtm.030324-
2048)"
User Name PHOENIX\Administrator
Time Zone Central America Standard Time
Total Physical Memory 16,388.00 MB
Available Physical Memory 389.09 MB
Total Virtual Memory 35.37 GB
Available Virtual Memory 4.77 GB
Page File Space 19.62 GB
Page File C:\pagefile.sys

[Hardware Resources]

[Conflicts/Sharing]

Resource Device
I/O Port 0x00000000-0x000017FF PCI bus
I/O Port 0x00000000-0x000017FF Direct memory access controller

I/O Port 0x000003C0-0x000003DF PCI bus
I/O Port 0x000003C0-0x000003DF Standard VGA Graphics
Adapter

IRQ 11 ServerWorks (RCC) PCI to USB Open Host Controller
IRQ 11 Compaq PCI Hotplug Controller
IRQ 11 Compaq PCI Hotplug Controller
IRQ 11 Compaq PCI Hotplug Controller
IRQ 11 Compaq PCI Hotplug Controller
IRQ 11 Compaq PCI Hotplug Controller
IRQ 11 Compaq PCI Hotplug Controller
IRQ 11 Compaq PCI Hotplug Controller

I/O Port 0x00006000-0x00006FFF PCI bus
I/O Port 0x00006000-0x00006FFF Smart Array 5300 Controller
(Non-Miniport)

I/O Port 0x00003000-0x00003FFF PCI bus
I/O Port 0x00003000-0x00003FFF Smart Array 5300 Controller
(Non-Miniport)

I/O Port 0x00005000-0x00005FFF PCI bus
I/O Port 0x00005000-0x00005FFF Smart Array 5300 Controller
(Non-Miniport)

```

I/O Port 0x00001800-0x00002FFF	PCI bus	0x00000C00-0x00000CD7	Motherboard resources	OK
I/O Port 0x00001800-0x00002FFF Management Controller	Compaq Advanced System	0x00001000-0x0000107F	Motherboard resources	OK
Memory Address 0xA0000-0xBFFFF	PCI bus	0x00001080-0x000010FF	Motherboard resources	OK
Memory Address 0xA0000-0xBFFFF Adapter	Standard VGA Graphics	0x00000040-0x00000043	System timer	OK
I/O Port 0x00007000-0x00007FFF	PCI bus	0x00000080-0x0000008F	Direct memory access controller	OK
I/O Port 0x00007000-0x00007FFF (Non-Miniport)	Smart Array 5300 Controller	0x000000C0-0x000000DF	Direct memory access controller	OK
I/O Port 0x000003B0-0x000003BB	PCI bus	0x0000040B-0x0000040B	Direct memory access controller	OK
I/O Port 0x000003B0-0x000003BB Adapter	Standard VGA Graphics	0x000004D6-0x000004D6	Direct memory access controller	OK
I/O Port 0x00008000-0x00008FFF	PCI bus	0x00000061-0x00000061	System speaker	OK
I/O Port 0x00008000-0x00008FFF (Non-Miniport)	Smart Array 5300 Controller	0x000003F2-0x000003F5	Standard floppy disk controller	OK
		0x000003F7-0x000003F7	Standard floppy disk controller	OK
[DMA]		0x00000060-0x00000060	Standard 101/102-Key or Microsoft	OK
Resource Device Status		0x00000064-0x00000064	Standard 101/102-Key or Microsoft	OK
Channel 7 Direct memory access controller	OK	0x00002C20-0x00002C2F	CSB5 IDE Controller	OK
Channel 2 Standard floppy disk controller	OK	0x000001F0-0x000001F7	Primary IDE Channel	OK
		0x000003F6-0x000003F6	Primary IDE Channel	OK
[Forced Hardware]		0x00000170-0x00000177	Secondary IDE Channel	OK
Device PNP Device ID		0x00000376-0x00000376	Secondary IDE Channel	OK
[I/O]		0x00000A79-0x00000A79	ISAPNP Read Data Port	OK
Resource Device Status		0x00000279-0x00000279	ISAPNP Read Data Port	OK
0x00000000-0x000017FF	PCI bus OK	0x00000274-0x00000277	ISAPNP Read Data Port	OK
0x00000000-0x000017FF	Direct memory access controller OK	0x00000020-0x00000021	Programmable interrupt controller	OK
0x000003B0-0x000003BB	PCI bus OK	0x000000A0-0x000000A1	Programmable interrupt controller	OK
0x000003B0-0x000003BB	Standard VGA Graphics Adapter OK	0x000004D0-0x000004D1	Programmable interrupt controller	OK
0x000003C0-0x000003DF	PCI bus OK	0x00003000-0x00003FFF	PCI bus OK	
0x000003C0-0x000003DF	Standard VGA Graphics Adapter OK	0x00003000-0x00003FFF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00001800-0x00002FFF	PCI bus OK	0x00003400-0x000034FF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00001800-0x00002FFF Controller OK	Compaq Advanced System Management	0x00005000-0x00005FFF	PCI bus OK	
0x00002000-0x000020FF	Smart Array 5300 Controller (Non-Miniport) OK	0x00005000-0x00005FFF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00002400-0x000024FF	Standard VGA Graphics Adapter OK	0x00006000-0x00006FFF	PCI bus OK	
0x00002800-0x000028FF	Compaq Smart Array 5i Controller	0x00006000-0x00006FFF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00002800-0x000028FF OK		0x00006400-0x000064FF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00000F50-0x00000F58	Motherboard resources	0x00007000-0x00007FFF	PCI bus OK	
0x00000F57-0x00000F57	Motherboard resources	0x00007000-0x00007FFF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00000700-0x0000076F	Motherboard resources	0x00007400-0x000074FF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00000900-0x0000095F	Motherboard resources	0x00008000-0x00008FFF	PCI bus OK	
0x00000800-0x0000081F	Motherboard resources	0x00008000-0x00008FFF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00000010-0x0000001F	Motherboard resources	0x00008400-0x000084FF	Smart Array 5300 Controller (Non-Miniport) OK	
0x00000022-0x0000002F	Motherboard resources			
0x00000070-0x00000073	Motherboard resources			
0x00000092-0x00000092	Motherboard resources			
		[IRQs]		
		Resource Device Status		

IRQ 9	Microsoft ACPI-Compliant System	OK	0xF5F40000-0xF5F407FF	hp Memory Host Controller	OK
IRQ 47	Smart Array 5300 Controller (Non-Miniport)	OK	0xF5F30000-0xF5F30FFF	Compaq PCI Hotplug Controller	OK
IRQ 5	Compaq Advanced System Management Controller	OK	0xFEC00000-0xFFFFFFFF	Advanced programmable interrupt controller	OK
IRQ 40	Compaq Smart Array 5i Controller	OK	0xF5900000-0xF5DFFFFFF	PCI bus	OK
IRQ 0	System timer	OK	0xF5DC0000-0xF5DFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 6	Standard floppy disk controller	OK	0xF5C00000-0xF5CFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 12	PS/2 Compatible Mouse	OK	0xF5BC0000-0xF5BFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK	0xF5A00000-0xF5AFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 14	Primary IDE Channel	OK	0xF59F0000-0xF59F0FFF	Compaq PCI Hotplug Controller	OK
IRQ 11	ServerWorks (RCC) PCI to USB Open Host Controller	OK	0xF5600000-0xF58FFFFFF	PCI bus	OK
IRQ 11	Compaq PCI Hotplug Controller	OK	0xF58C0000-0xF58FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 11	Compaq PCI Hotplug Controller	OK	0xF5700000-0xF57FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 11	Compaq PCI Hotplug Controller	OK	0xF56F0000-0xF56FFFFFF	Compaq NC7770 Gigabit Server Adapter	OK
IRQ 11	Compaq PCI Hotplug Controller	OK	0xF56E0000-0xF56E0FFF	Compaq PCI Hotplug Controller	OK
IRQ 39	hp Memory Host Controller	OK	0xF5100000-0xF55FFFFFF	PCI bus	OK
IRQ 32	hp Memory Host Controller	OK	0xF55C0000-0xF55FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 38	hp Memory Host Controller	OK	0xF5400000-0xF54FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 45	Smart Array 5300 Controller (Non-Miniport)	OK	0xF53C0000-0xF53FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 43	Smart Array 5300 Controller (Non-Miniport)	OK	0xF5200000-0xF52FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 19	Smart Array 5300 Controller (Non-Miniport)	OK	0xF51F0000-0xF51F0FFF	Compaq PCI Hotplug Controller	OK
IRQ 17	Compaq NC7770 Gigabit Server Adapter	OK	0xF4C00000-0xF50FFFFFF	PCI bus	OK
IRQ 23	Smart Array 5300 Controller (Non-Miniport)	OK	0xF50C0000-0xF50FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 21	Smart Array 5300 Controller (Non-Miniport)	OK	0xF4F00000-0xF4FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 27	Smart Array 5300 Controller (Non-Miniport)	OK	0xF4EC0000-0xF4EFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 25	Smart Array 5300 Controller (Non-Miniport)	OK	0xF4D00000-0xF4DFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
IRQ 31	Smart Array 5300 Controller (Non-Miniport)	OK	0xF4CF0000-0xF4CF0FFF	Compaq PCI Hotplug Controller	OK
IRQ 29	Smart Array 5300 Controller (Non-Miniport)	OK	0xF4700000-0xF4BFFFFFF	PCI bus	OK
			0xF4BC0000-0xF4BFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
			0xF4A00000-0xF4AFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
			0xF49C0000-0xF49FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
			0xF4800000-0xF48FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK
			0xF47F0000-0xF47F0FFF	Compaq PCI Hotplug Controller	OK
				[Components]	
				[Multimedia]	
				[Audio Codecs]	
[Memory]					
Resource	Device	Status			
0xA0000-0xBFFFF	PCI bus	OK			
0xA0000-0xBFFFF	Standard VGA Graphics Adapter	OK			
0xF5E00000-0xF7FFFFFF	PCI bus	OK			
0xF7FC0000-0xF7FFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK			
0xF7E00000-0xF7EFFFFFF	Smart Array 5300 Controller (Non-Miniport)	OK			
0xF7DF0000-0xF7DF00FF	Compaq Advanced System Management Controller	OK			
0xF6000000-0xF6FFFFFF	Standard VGA Graphics Adapter	OK			
0xF5FF0000-0xF5FF0FFF	Standard VGA Graphics Adapter	OK			
0xF5F80000-0xF5FBFFFF	Compaq Smart Array 5i Controller	OK			
0xF5EF0000-0xF5EF3FFF	Compaq Smart Array 5i Controller	OK			
0xC0000-0xDFFFF	Motherboard resources	OK			
0xF5F70000-0xF5F70FFF	ServerWorks (RCC) PCI to USB Open Host Controller	OK			
0xF5F60000-0xF5F607FF	hp Memory Host Controller	OK			
0xF5F50000-0xF5F507FF	hp Memory Host Controller	OK			

CODEC	Manufacturer	Description	Status	File
Version	Size	Creation Date		
c:\windows\system32\sl_anet.acm	Sipro Lab Telecom Inc.	Sipro Lab Telecom Audio Codec OK	OK	C:\WINDOWS\system32\SL_ANET.ACM 3.02 84.00 KB (86,016 bytes) 3/25/2003 12:00 AM
c:\windows\system32\msaud32.acm	Microsoft Corporation	Windows Media Audio Codec OK	OK	C:\WINDOWS\system32\MSAUD32.ACM 8.00.00.4487 288.00 KB (294,912 bytes) 3/25/2003 12:00 AM
c:\windows\system32\l3codeca.acm	Fraunhofer Institut Integrierte Schaltungen IIS	Fraunhofer IIS MPEG Layer-3 Codec OK	OK	C:\WINDOWS\system32\L3CODECA.ACM 1, 9, 0, 0305 284.00 KB (290,816 bytes) 3/25/2003 12:00 AM
c:\windows\system32\msg723.acm	Microsoft Corporation	MSG723.acm OK	OK	C:\WINDOWS\system32\MSG723.ACM 4.4.4000 116.00 KB (118,784 bytes) 4/18/2003 2:20 PM
c:\windows\system32\tssoft32.acm	DSP GROUP, INC.	TSSOFT32.ACM OK	OK	C:\WINDOWS\system32\TSSOFT32.ACM 1.01 9.50 KB (9,728 bytes) 3/25/2003 12:00 AM
c:\windows\system32\imaadp32.acm	Microsoft Corporation	IMAADP32.ACM OK	OK	C:\WINDOWS\system32\IMAADP32.ACM 5.2.3790.0 (srv03_rtm.030324-2048) 15.50 KB (15,872 bytes) 3/25/2003 12:00 AM
c:\windows\system32\msadp32.acm	Microsoft Corporation	MSADP32.ACM OK	OK	C:\WINDOWS\system32\MSADP32.ACM 5.2.3790.0 (srv03_rtm.030324-2048) 14.50 KB (14,848 bytes) 3/25/2003 12:00 AM
c:\windows\system32\msg711.acm	Microsoft Corporation	MSG711.ACM OK	OK	C:\WINDOWS\system32\MSG711.ACM 5.2.3790.0 (srv03_rtm.030324-2048) 10.00 KB (10,240 bytes) 3/25/2003 12:00 AM
c:\windows\system32\msgsm32.acm	Microsoft Corporation	MSGSM32.ACM OK	OK	C:\WINDOWS\system32\MSGSM32.ACM 5.2.3790.0 (srv03_rtm.030324-2048) 20.50 KB (20,992 bytes) 3/25/2003 12:00 AM

[Video Codecs]

CODEC	Manufacturer	Description	Status	File
Version	Size	Creation Date		
c:\windows\system32\msh261.drv	Microsoft Corporation	MSH261.DRV OK	OK	C:\WINDOWS\system32\MSH261.DRV 4.4.4000 180.00 KB (184,320 bytes) 4/18/2003 2:20 PM
c:\windows\system32\iyuv_32.dll	Microsoft Corporation	IYUV_32.DLL OK	OK	C:\WINDOWS\system32\IYUV_32.DLL 5.2.3790.0 (srv03_rtm.030324-2048) 45.00 KB (46,080 bytes) 3/24/2003 7:49 PM
c:\windows\system32\msyuv.dll	Microsoft Corporation	MSYUV.DLL OK	OK	C:\WINDOWS\system32\MSYUV.DLL 5.2.3790.0 (srv03_rtm.030324-2048) 16.50 KB (16,896 bytes) 3/24/2003 7:49 PM
c:\windows\system32\msvidc32.dll	Microsoft Corporation	MSVIDC32.DLL OK	OK	C:\WINDOWS\system32\MSVIDC32.DLL 5.2.3790.0 (srv03_rtm.030324-2048) 26.50 KB (27,136 bytes) 3/25/2003 12:00 AM
c:\windows\system32\msh263.drv	Microsoft Corporation	MSH263.DRV OK	OK	C:\WINDOWS\system32\MSH263.DRV 4.4.4000 284.00 KB (290,816 bytes) 3/24/2003 7:46 PM
c:\windows\system32\msrle32.dll	Microsoft Corporation	MSRLE32.DLL OK	OK	C:\WINDOWS\system32\MSRLE32.DLL 5.2.3790.0 (srv03_rtm.030324-2048) 10.50 KB (10,752 bytes) 3/25/2003 12:00 AM

c:\windows\system32\tsbyuv.dll Microsoft Corporation  
 OK C:\WINDOWS\system32\TSBYUV.DLL  
 5.2.3790.0 (srv03\_rtm.030324-2048) 8.00 KB (8,192 bytes) 3/24/2003 7:50 PM

[CD-ROM]

Item	Value
Drive	D:
Description	CD-ROM Drive
Media Loaded	No
Media Type	CD-ROM
Name	COMPAQ CD-224E
Manufacturer	(Standard CD-ROM drives)
Status	OK
Transfer Rate	Not Available
SCSI Target ID	0
PNP Device ID	IDE\CDROMCOMPAQ_CD-224E_____A.8D____\5&FB0C83D&0&0.0.0

Driver c:\windows\system32\drivers\cdrom.sys (5.2.3790.0 (srv03\_rtm.030324-2048), 49.50 KB (50,688 bytes), 3/25/2003 12:00 AM)

[Sound Device]

Item	Value
Adapter Type	ATI MACH64, (Standard display types) compatible
Adapter Description	Standard VGA Graphics Adapter
Adapter RAM	7.94 MB (8,323,072 bytes)
Installed Drivers	vga.dll,framebuf.dll,vga256.dll,vga64k.dll
Driver Version	5.2.3790.0
INF File	display.inf (vga section)
Color Planes	1
Color Table Entries	65536
Resolution	800 x 600 x 1 hertz
Bits/Pixel	16
Memory Address	0xF6000000-0xF6FFFFFF
I/O Port	0x00002400-0x000024FF
Memory Address	0xF5FF0000-0xF5FF0FFF
I/O Port	0x000003B0-0x000003BF
I/O Port	0x000003C0-0x000003DF
Memory Address	0xA0000-0xBFFFF
Driver	c:\windows\system32\drivers\vgapnp.sys (5.2.3790.0 (srv03_rtm.030324-2048), 23.00 KB (23,552 bytes), 4/22/2003 9:30 AM)

[Infrared]

Item	Value
Adapter Type	ATI MACH64, (Standard display types) compatible

[Input]

[Keyboard]

Item	Value
Description	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
Name	Enhanced (101- or 102-key)

Layout 00000409  
 PNP Device ID ACPI\PNP0303\4&35118DFF&0  
 Number of Function Keys 12  
 I/O Port 0x00000060-0x00000060  
 I/O Port 0x00000064-0x00000064  
 IRQ Channel IRQ 1  
 Driver c:\windows\system32\drivers\i8042prt.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 68.50 KB (70,144 bytes), 3/25/2003 12:00 AM)

[Pointing Device]

Item Value  
 Hardware Type PS/2 Compatible Mouse  
 Number of Buttons 2  
 Status OK  
 PNP Device ID ACPI\PNP0F13\4&35118DFF&0  
 Power Management Supported No  
 Double Click Threshold 6  
 Handedness Right Handed Operation  
 IRQ Channel IRQ 12  
 Driver c:\windows\system32\drivers\i8042prt.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 68.50 KB (70,144 bytes), 3/25/2003 12:00 AM)

[Modem]

Item Value

[Network]

[Adapter]

Item Value  
 Name [00000001] Compaq NC7770 Gigabit Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Type Compaq NC7770 Gigabit Server Adapter  
 Installed Yes  
 PNP Device ID  
 PCI\VEN\_14E4&DEV\_1645&SUBSYS\_007C0E11&REV\_15\3  
 &1070020&0&10  
 Last Reset 5/8/2003 5:10 PM  
 Index 1  
 Service Name q57w2k  
 IP Address 130.168.253.22  
 IP Subnet 255.255.0.0  
 Default IP Gateway Not Available  
 DHCP Enabled Yes  
 DHCP Server 130.168.253.2  
 DHCP Lease Expires 5/10/2003 5:11 AM  
 DHCP Lease Obtained 5/9/2003 5:11 AM  
 MAC Address 00:08:02:ED:28:DC  
 Memory Address 0xF56F0000-0xF56FFFFF  
 IRQ Channel IRQ 17  
 Driver c:\windows\system32\drivers\q57xp32.sys (2.77.0.0 built by:  
 WinDDK, 133.13 KB (136,320 bytes), 4/18/2003 2:52 PM)

Name [00000002] RAS Async Adapter  
 Adapter Type Not Available  
 Product Type RAS Async Adapter  
 Installed Yes  
 PNP Device ID Not Available  
 Last Reset 5/8/2003 5:10 PM  
 Index 2  
 Service Name AsyncMac  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available

DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available

Name [00000003] WAN Miniport (L2TP)  
 Adapter Type Not Available  
 Product Type WAN Miniport (L2TP)  
 Installed Yes  
 PNP Device ID ROOT\MS\_L2TPMINIPOINT\0000  
 Last Reset 5/8/2003 5:10 PM  
 Index 3  
 Service Name Rasl2tp  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver c:\windows\system32\drivers\rasl2tp.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 77.00 KB (78,848 bytes), 3/25/2003 12:00 AM)

Name [00000004] WAN Miniport (PPTP)  
 Adapter Type Wide Area Network (WAN)  
 Product Type WAN Miniport (PPTP)  
 Installed Yes  
 PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
 Last Reset 5/8/2003 5:10 PM  
 Index 4  
 Service Name PptpMiniport  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 50:50:54:50:30:30  
 Driver c:\windows\system32\drivers\raspptp.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 70.50 KB (72,192 bytes), 3/25/2003 12:00 AM)

Name [00000005] WAN Miniport (PPPOE)  
 Adapter Type Wide Area Network (WAN)  
 Product Type WAN Miniport (PPPOE)  
 Installed Yes  
 PNP Device ID ROOT\MS\_PPPOEMINIPOINT\0000  
 Last Reset 5/8/2003 5:10 PM  
 Index 5  
 Service Name RasPppoe  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 33:50:6F:45:30:30  
 Driver c:\windows\system32\drivers\raspppoe.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 38.00 KB (38,912 bytes), 3/25/2003 12:00 AM)

Name [00000006] Direct Parallel  
 Adapter Type Not Available  
 Product Type Direct Parallel  
 Installed Yes

PNP Device ID ROOT\MS\_PTMINIPORT\0000  
 Last Reset 5/8/2003 5:10 PM  
 Index 6  
 Service Name Raspti  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver c:\windows\system32\drivers\raspti.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 18.50 KB (18,944 bytes), 3/25/2003 12:00 AM)

Name [00000007] WAN Miniport (IP)  
 Adapter Type Not Available  
 Product Type WAN Miniport (IP)  
 Installed Yes  
 PNP Device ID ROOT\MS\_NDISWANIP\0000  
 Last Reset 5/8/2003 5:10 PM  
 Index 7  
 Service Name NdisWan  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver c:\windows\system32\drivers\ndiswan.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 96.50 KB (98,816 bytes), 3/25/2003 12:00 AM)

[Protocol]

Item Value  
 Name MSAFD Tcpi [TCP/IP]  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 16 bytes  
 Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 16 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data Yes  
 Supports Graceful Closing Yes  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD Tcpi [UDP/IP]  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 16 bytes  
 Maximum Message Size 63.93 KB (65,467 bytes)  
 Message Oriented Yes  
 Minimum Address Size 16 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No

Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting Yes

Name RSVP UDP Service Provider  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 16 bytes  
 Maximum Message Size 63.93 KB (65,467 bytes)  
 Message Oriented Yes  
 Minimum Address Size 16 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption Yes  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting Yes

Name RSVP TCP Service Provider  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 16 bytes  
 Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 16 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption Yes  
 Supports Expedited Data Yes  
 Supports Graceful Closing Yes  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS [\Device\NetBT\_Tcpi\_{E9EECD3-2FA6-45D9-9F32-9BD0FB7A69CE}] SEQPACKET 0  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS [\Device\NetBT\_Tcpi\_{E9EECD3-2FA6-45D9-9F32-9BD0FB7A69CE}] DATAGRAM 0  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No

Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{5ABE8395-828C-4719-B4AA-D42098041721}] SEQPACKET 1  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{5ABE8395-828C-4719-B4AA-D42098041721}] DATAGRAM 1  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{5B35BB2B-E81B-40CA-B7F9-21758EE085C2}] SEQPACKET 2  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{5B35BB2B-E81B-40CA-B7F9-21758EE085C2}] DATAGRAM 2  
 Connectionless Service Yes  
 Guarantees Delivery No

Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

[WinSock]

Item	Value
File	c:\windows\system32\winsock.dll
Size	2.80 KB (2,864 bytes)
Version	3.10
File	c:\windows\system32\wssock32.dll
Size	22.00 KB (22,528 bytes)
Version	5.2.3790.0 (srv03_rtm.030324-2048)

[Ports]

[Serial]

Item	Value
------	-------

[Parallel]

Item	Value
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[Storage]

[Drives]

Item	Value
Drive A:	
Description	3 1/2 Inch Floppy Drive
Drive C:	
Description	Local Fixed Disk
Compressed	No
File System	NTFS
Size	16.95 GB (18,198,999,040 bytes)
Free Space	10.80 GB (11,596,537,856 bytes)
Volume Name	
Volume Serial Number	64E412A6
Drive D:	
Description	CD-ROM Disc
Drive Z:	
Description	Local Fixed Disk
Compressed	No
File System	NTFS
Size	458.01 GB (491,782,139,904 bytes)
Free Space	123.14 GB (132,220,030,976 bytes)
Volume Name	New Volume
Volume Serial Number	44CEFCEA

[Disks]

Item Value  
 Description \\.\PHYSICALDRIVE50  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #50, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE51  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #51, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE52  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #52, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE53  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #53, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE54  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #54, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE55  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #55, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE56  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63



Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #56, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE57  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)

Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #57, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE58  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)

Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #58, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE59  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)

Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #59, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)

Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE0  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63

Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #0, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE1  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63

Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #1, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE2  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63

Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #2, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE3  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #3, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE4  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #4, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE5  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #5, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE6  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63

Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #6, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE7  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #7, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE8  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #8, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE9  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #9, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)

Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE60  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #60, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE61  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #61, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE62  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #62, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE63  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #63, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE64  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #64, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE65  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #65, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE66  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63

Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #66, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE75  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #75, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE76  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #76, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE77  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #77, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)

Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE78  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #78, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE79  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #79, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE80  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #80, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE81  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #81, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE10  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #10, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE11  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #11, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE12  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63

Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #12, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE13  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #13, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE14  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #14, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE15  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #15, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)

Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE16  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #16, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE17  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #17, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE18  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #18, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE19  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #19, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE67  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #67, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE68  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #68, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE69  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63

Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #69, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE70  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded No  
 Media Type Fixed hard disk  
 Partitions Not Available  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255

Description \\.\PHYSICALDRIVE71  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded No  
 Media Type Fixed hard disk  
 Partitions Not Available  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255

Description \\.\PHYSICALDRIVE72  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #72, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE73  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512

Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #73, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE74  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded No  
 Media Type Fixed hard disk  
 Partitions Not Available  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 3.90 GB (4,186,667,520 bytes)  
 Total Cylinders 509  
 Total Sectors 8,177,085  
 Total Tracks 129,795  
 Tracks/Cylinder 255

Description \\.\PHYSICALDRIVE30  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #30, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE31  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039

Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #31, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE32  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #32, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE33  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #33, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE34  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #34, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE35  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #35, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE36  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #36, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE37  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #37, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE38  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1



SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #38, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE39  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #39, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE40  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #40, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE41  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039

Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #41, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE42  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #42, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE43  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #43, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE44  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #44, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE45  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #45, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE46  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #46, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE47  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #47, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE48  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #48, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE49  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #49, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE82  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #82, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE83  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039

Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #83, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE84  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #84, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE85  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #85, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE86  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #86, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE87  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #87, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE88  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #88, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE20  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #20, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE21  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #21, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE22  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #22, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE23  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #23, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE24  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039

Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #24, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE25  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #25, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE26  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 23.43 GB (25,161,131,520 bytes)  
 Total Cylinders 3,059  
 Total Sectors 49,142,835  
 Total Tracks 780,045  
 Tracks/Cylinder 255  
 Partition Disk #26, Partition #0  
 Partition Size 23.43 GB (25,161,099,264 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE27  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 15.62 GB (16,771,345,920 bytes)  
 Total Cylinders 2,039  
 Total Sectors 32,756,535  
 Total Tracks 519,945  
 Tracks/Cylinder 255  
 Partition Disk #27, Partition #0  
 Partition Size 15.62 GB (16,771,313,664 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE28  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 22.45 GB (24,108,295,680 bytes)  
 Total Cylinders 2,931  
 Total Sectors 47,086,515  
 Total Tracks 747,405  
 Tracks/Cylinder 255  
 Partition Disk #28, Partition #0  
 Partition Size 22.45 GB (24,108,263,424 bytes)  
 Partition Starting Offset 32,256 bytes

Description \\.\PHYSICALDRIVE29  
 Manufacturer Not Available  
 Model Not Available  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus Not Available  
 SCSI Logical Unit Not Available  
 SCSI Port Not Available  
 SCSI Target ID Not Available  
 Sectors/Track 63  
 Size 45.80 GB (49,178,949,120 bytes)  
 Total Cylinders 5,979  
 Total Sectors 96,052,635  
 Total Tracks 1,524,645  
 Tracks/Cylinder 255  
 Partition Disk #29, Partition #0  
 Partition Size 45.80 GB (49,178,916,864 bytes)  
 Partition Starting Offset 32,256 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model COMPAQ LOGICAL VOLUME SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus 4  
 SCSI Logical Unit 0  
 SCSI Port 2  
 SCSI Target ID 0  
 Sectors/Track 32  
 Size 16.95 GB (18,203,197,440 bytes)  
 Total Cylinders 4,357  
 Total Sectors 35,553,120  
 Total Tracks 1,111,035  
 Tracks/Cylinder 255  
 Partition Disk #89, Partition #0  
 Partition Size 16.95 GB (18,199,003,136 bytes)  
 Partition Starting Offset 16,384 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model COMPAQ LOGICAL VOLUME SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1

SCSI Bus 4  
 SCSI Logical Unit 0  
 SCSI Port 2  
 SCSI Target ID 1  
 Sectors/Track 32  
 Size 39.06 GB (41,942,138,880 bytes)  
 Total Cylinders 10,039  
 Total Sectors 81,918,240  
 Total Tracks 2,559,945  
 Tracks/Cylinder 255  
 Partition Disk #90, Partition #0  
 Partition Size 39.06 GB (41,937,944,576 bytes)  
 Partition Starting Offset 16,384 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model COMPAQ LOGICAL VOLUME SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus 4  
 SCSI Logical Unit 0  
 SCSI Port 2  
 SCSI Target ID 2  
 Sectors/Track 32  
 Size 1,000.08 MB (1,048,657,920 bytes)  
 Total Cylinders 251  
 Total Sectors 2,048,160  
 Total Tracks 64,005  
 Tracks/Cylinder 255  
 Partition Disk #91, Partition #0  
 Partition Size 996.08 MB (1,044,463,616 bytes)  
 Partition Starting Offset 16,384 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model COMPAQ LOGICAL VOLUME SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus 4  
 SCSI Logical Unit 0  
 SCSI Port 2  
 SCSI Target ID 3  
 Sectors/Track 32  
 Size 29.30 GB (31,455,559,680 bytes)  
 Total Cylinders 7,529  
 Total Sectors 61,436,640  
 Total Tracks 1,919,895  
 Tracks/Cylinder 255  
 Partition Disk #92, Partition #0  
 Partition Size 29.29 GB (31,451,365,376 bytes)  
 Partition Starting Offset 16,384 bytes

[SCSI]

Item	Value
Name	Smart Array 5300 Controller (Non-Miniport)
Manufacturer	Hewlett-Packard
Status	OK
PNP Device ID	PCI\VEN_0E11&DEV_B060&SUBSYS_40700E11&REV_02\3&267A616A&0&08
Memory Address	0xF7FC0000-0xF7FFFFFF
Memory Address	0xF7E00000-0xF7EFFFFF
I/O Port	0x00002000-0x000020FF
IRQ Channel	IRQ 47

Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Compaq Smart Array 5i Controller  
Manufacturer Compaq  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B178&SUBSYS\_40800E11&REV\_01\3  
&267A616A&0&70  
Memory Address 0xF5F80000-0xF5FBFFFF  
I/O Port 0x00002800-0x000028FF  
Memory Address 0xF5EF0000-0xF5EF3FFF  
IRQ Channel IRQ 40  
Driver c:\windows\system32\drivers\cpqcissm.sys (5.8.74.1 built by: Microsoft, 13.00 KB (13,312 bytes), 3/25/2003 12:00 AM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&13C0B0C5&0&08  
Memory Address 0xF5DC0000-0xF5DFFFFF  
Memory Address 0xF5C00000-0xF5CFFFFF  
I/O Port 0x00003000-0x00003FFF  
IRQ Channel IRQ 45  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&13C0B0C5&0&10  
Memory Address 0xF5BC0000-0xF5BFFFFF  
Memory Address 0xF5A00000-0xF5AFFFFF  
I/O Port 0x00003400-0x000034FF  
IRQ Channel IRQ 43  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&1070020&0&08  
Memory Address 0xF58C0000-0xF58FFFFF  
Memory Address 0xF5700000-0xF57FFFFF  
I/O Port 0x00005000-0x00005FFF  
IRQ Channel IRQ 19  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&29E81982&0&08  
Memory Address 0xF55C0000-0xF55FFFFF  
Memory Address 0xF5400000-0xF54FFFFF  
I/O Port 0x00006000-0x00006FFF  
IRQ Channel IRQ 23  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard

Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&29E81982&0&10  
Memory Address 0xF53C0000-0xF53FFFFF  
Memory Address 0xF5200000-0xF52FFFFF  
I/O Port 0x00006400-0x000064FF  
IRQ Channel IRQ 21  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&172E68DD&0&08  
Memory Address 0xF50C0000-0xF50FFFFF  
Memory Address 0xF4F00000-0xF4FFFFF  
I/O Port 0x00007000-0x00007FFF  
IRQ Channel IRQ 27  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&172E68DD&0&10  
Memory Address 0xF4EC0000-0xF4EFFFFF  
Memory Address 0xF4D00000-0xF4DFFFFF  
I/O Port 0x00007400-0x000074FF  
IRQ Channel IRQ 25  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&474B838&0&08  
Memory Address 0xF4BC0000-0xF4BFFFFF  
Memory Address 0xF4A00000-0xF4AFFFFF  
I/O Port 0x00008000-0x00008FFF  
IRQ Channel IRQ 31  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

Name Smart Array 5300 Controller (Non-Miniport)  
Manufacturer Hewlett-Packard  
Status OK  
PNP Device ID  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3  
&474B838&0&10  
Memory Address 0xF49C0000-0xF49FFFFF  
Memory Address 0xF4800000-0xF48FFFFF  
I/O Port 0x00008400-0x000084FF  
IRQ Channel IRQ 29  
Driver c:\windows\system32\drivers\hpqcissb.sys (5.6.2.32 built by: WinDDK, 38.00 KB (38,912 bytes), 4/18/2003 2:51 PM)

[IDE]  
Item Value  
Name CSB5 IDE Controller  
Manufacturer ServerWorks  
Status OK

PNP Device ID  
 PCI\VEN\_1166&DEV\_0212&SUBSYS\_02121166&REV\_93\3  
 &267A616A&0&79  
 I/O Port 0x00002C20-0x00002C2F  
 Driver c:\windows\system32\drivers\pciide.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 5.50 KB (5,632 bytes), 3/25/2003 12:00 AM)

Name Primary IDE Channel  
 Manufacturer (Standard IDE ATA/ATAPI controllers)  
 Status OK  
 PNP Device ID PCIIDE\IDECHANNEL\4&1024D5C6&0&0

I/O Port 0x000001F0-0x000001F7  
 I/O Port 0x000003F6-0x000003F6  
 IRQ Channel IRQ 14  
 Driver c:\windows\system32\drivers\ataapi.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 89.00 KB (91,136 bytes), 3/25/2003 12:00 AM)

Name Secondary IDE Channel  
 Manufacturer (Standard IDE ATA/ATAPI controllers)  
 Status OK  
 PNP Device ID PCIIDE\IDECHANNEL\4&1024D5C6&0&1

I/O Port 0x00000170-0x00000177  
 I/O Port 0x00000376-0x00000376  
 Driver c:\windows\system32\drivers\ataapi.sys (5.2.3790.0  
 (srv03\_rtm.030324-2048), 89.00 KB (91,136 bytes), 3/25/2003 12:00 AM)

[Printing]

Name Driver Port Name Server Name

[Problem Devices]

Device PNP Device ID Error Code

[USB]

Device PNP Device ID  
 ServerWorks (RCC) PCI to USB Open Host Controller  
 PCI\VEN\_1166&DEV\_0220&SUBSYS\_02201166&REV\_05\3  
 &267A616A&0&7A  
 USB Root Hub USB\ROOT\_HUB\4&AF5358C&0

[Software Environment]

[System Drivers]

Name	Description	File	Type	Started	Start
Mode	State	Status	Error Control	Accept	Pause
abiosdsk	Abiosdsk	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Ignore	No
acpi	Microsoft ACPI Driver				
	c:\windows\system32\drivers\acpi.sys		Kernel Driver		
	Yes	Boot	Running	OK	Normal
	Yes				No
acpiec	ACPIEC	c:\windows\system32\drivers\acpiec.sys	Kernel		
Driver	No	Disabled	Stopped	OK	Normal
	No				No
adpu160m	adpu160m	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Normal	No

adpu320	adpu320	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Normal	No
afent	afent	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Normal	No
afd	AFD Networking Support Environment				
	c:\windows\system32\drivers\afd.sys		Kernel Driver		
	Yes	Auto	Running	OK	Normal
	Yes				No
aha154x	Aha154x	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Normal	No
aic78u2	aic78u2	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Normal	No
aic78xx	aic78xx	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Normal	No
aliide	AliIde	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Normal	No
asynmac	RAS Asynchronous Media Driver				
	c:\windows\system32\drivers\asynmac.sys		Kernel Driver		
	No	Manual	Stopped	OK	Normal
	No				No
atapi	Standard IDE/ESDI Hard Disk Controller				
	c:\windows\system32\drivers\ataapi.sys		Kernel Driver		
	Yes	Boot	Running	OK	Normal
	Yes				No
atdisk	Atdisk	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Ignore	No
ati2mpad	ati2mpad	c:\windows\system32\drivers\ati2mpad.sys	Kernel		
Driver	No	Manual	Stopped	OK	Ignore
	No				No
atmarpc	ATM ARP Client Protocol				
	c:\windows\system32\drivers\atmarpc.sys		Kernel Driver		
	No	Manual	Stopped	OK	Normal
	No				No
audstub	Audio Stub Driver	c:\windows\system32\drivers\audstub.sys	Kernel Driver		
	Yes	Yes	Manual	Running	OK
	Normal	No	Yes		
b57w2k	BCM5701 Gigabit Ethernet				
	c:\windows\system32\drivers\b57xp32.sys		Kernel Driver		
	No	Manual	Stopped	OK	Normal
	No				No
beep	Beep	c:\windows\system32\drivers\beep.sys	Kernel		
Driver	Yes	System	Running	OK	Normal
	Yes				No
cbidf2k	cbidf2k	c:\windows\system32\drivers\cbidf2k.sys	Kernel		
Driver	No	Disabled	Stopped	OK	Normal
	No				No
cd20xrnt	cd20xrnt	Not Available	Kernel Driver	No	No
	Disabled	Stopped	OK	Normal	No
cdfs	Cdfs	c:\windows\system32\drivers\cdfs.sys	File		
System Driver	Yes	Disabled	Running	OK	Normal
	No	Yes			
cdrom	CD-ROM Driver	c:\windows\system32\drivers\cdrom.sys	Kernel Driver		
	Yes	System	Running	OK	
	Normal	No	Yes		
changer	Changer	Not Available	Kernel Driver	No	No
	System	Stopped	OK	Ignore	No
clusdisk	Cluster Disk Driver	c:\windows\system32\drivers\clusdisk.sys	Kernel Driver		
	Normal	No	No	Disabled	Stopped
	Normal	No	No	OK	

cmdide	CmdIde	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No	hpn	hpn	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No		
cpqarray	Cpqarray	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No	hpqcissb	Smart Array Controllers Non-Miniport Bus Driver c:\windows\system32\drivers\hpqcissb.sys					Kernel Driver Normal	No No	
cpqarray2	cpqarray2	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No	hpqcissd	Smart Array Controllers Non-Miniport Disk Driver c:\windows\system32\drivers\hpqcissd.sys					Kernel Driver Normal	No No	
cpqcissm Driver	cpqcissm	c:\windows\system32\drivers\cpqcissm.sys	Yes Boot	Running OK	Kernel Normal	No No	hpt3xx	hpt3xx	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No		
cpqfcalm	cpqfcalm	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No	http Driver	HTTP	c:\windows\system32\drivers\http.sys			Kernel Normal	No No		
cpqmhp	hp ProLiant Hot Plug Memory Driver c:\windows\system32\drivers\cpqmhp.sys			Yes Manual	Running OK	Kernel Driver Normal	No No	i2omgmt	i2omgmt	Not Available System	Stopped OK	Kernel Driver Normal	No No		
crcdisk	CRC Disk Filter Driver c:\windows\system32\drivers\crcdisk.sys			Yes Boot	Running OK	Kernel Driver Normal	No No	i2omp	i2omp	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No		
dac960nt	dac960nt	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No	i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver c:\windows\system32\drivers\i8042prt.sys					Kernel Driver Normal	No No	
dellcerc	dellcerc	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No	iirsp	iirsp	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No		
dfsdriver System Driver	DfsDriver	c:\windows\system32\drivers\dfs.sys		Yes Boot	Running OK	File Normal	imapi	CD-Burning Filter Driver c:\windows\system32\drivers\imapi.sys					Kernel Driver Normal	No No	
disk	Disk Driver	c:\windows\system32\drivers\disk.sys		Yes Boot	Running OK	Kernel Driver Normal	intelide	IntellIde	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No		
dmboot Driver	dmboot	c:\windows\system32\drivers\dmboot.sys		Yes Disabled	Running OK	Kernel Normal	ipfilterdriver	IP Traffic Filter Driver c:\windows\system32\drivers\ipfltdrv.sys					Kernel Driver Normal	No No	
dmio	Logical Disk Manager Driver c:\windows\system32\drivers\dmio.sys			Yes Boot	Running OK	Kernel Driver Normal	ipinip	IP in IP Tunnel Driver c:\windows\system32\drivers\ipinip.sys					Kernel Driver Normal	No No	
dmload Driver	dmload	c:\windows\system32\drivers\dmload.sys		Yes Boot	Running OK	Kernel Normal	ipnat	IP Network Address Translator c:\windows\system32\drivers\ipnat.sys					Kernel Driver Normal	No No	
dpti2o	dpti2o	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No	ipsec	IPSEC driver			c:\windows\system32\drivers\ipsec.sys		Kernel Driver Normal	Yes System	Running OK
fastfat System Driver	Fastfat	c:\windows\system32\drivers\fastfat.sys		No No	Disabled Stopped	File Normal	ipsraidn	ipsraidn	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No		
fdc	Floppy Disk Controller Driver c:\windows\system32\drivers\fdc.sys			Yes Manual	Running OK	Kernel Driver Normal	isapnp	PnP ISA/EISA Bus Driver c:\windows\system32\drivers\isapnp.sys					Kernel Driver Critical	No No	
fips Driver	Fips	c:\windows\system32\drivers\fips.sys		Yes System	Running OK	Kernel Normal	kbdclass	Keyboard Class Driver c:\windows\system32\drivers\kbdclass.sys					Kernel Driver Normal	No No	
flpydisk	Floppy Disk Driver c:\windows\system32\drivers\flpydisk.sys			Yes Manual	Running OK	Kernel Driver Normal	ksecdd Driver	KSecDD			c:\windows\system32\drivers\ksecdd.sys		Kernel Normal	Yes System	Running OK
ftdisk	Volume Manager Driver c:\windows\system32\drivers\ftdisk.sys			Yes Boot	Running OK	Kernel Driver Normal	lp6nds35	lp6nds35	Not Available Disabled	Stopped OK	Kernel Driver Normal	No No	No No		
gpc	Generic Packet Classifier c:\windows\system32\drivers\msgpc.sys			Yes Manual	Running OK	Kernel Driver Normal									



mnmdd Driver	mnmdd Yes Yes	c:\windows\system32\drivers\mnmdd.sys System Running OK	Kernel Ignore No	partmgr Partition Manager Kernel Driver	c:\windows\system32\drivers\partmgr.sys Yes Boot Running OK	Kernel Normal No Yes	No
modem Driver	Modem No No	c:\windows\system32\drivers\modem.sys Manual Stopped OK	Kernel Ignore No	pci PCI Bus Driver Kernel Driver	c:\windows\system32\drivers\pci.sys Yes Boot Running OK	Critical No Yes	OK
mouclass	Mouse Class Driver Kernel Driver	c:\windows\system32\drivers\mouclass.sys Yes System Running OK	Kernel Running OK	pciide Driver	PCIIde c:\windows\system32\drivers\pciide.sys Yes Boot Running OK	Kernel Normal No	No
mountmgr	Mount Point Manager c:\windows\system32\drivers\mountmgr.sys	Kernel Driver Yes Boot Running OK	Kernel Normal No	pcmcia Driver	Pcmcia c:\windows\system32\drivers\pcmcia.sys No Disabled Stopped OK	Kernel Normal No	No
mraid35x	mraid35x	Not Available Disabled Stopped OK	Kernel Driver Normal No	pdcomp	PDCOMP Not Available Manual Stopped OK	Kernel Driver Ignore No	No No
mrxdav	WebDav Client Redirector c:\windows\system32\drivers\mrxdav.sys	File System Driver No Manual Stopped OK	File System Normal No	pdframe	PDFFRAME No Manual Stopped OK	Kernel Driver Ignore No	No
mrxsmbr	MRXSMB c:\windows\system32\drivers\mrxsmbr.sys	File System Driver Yes System Running OK	File Normal	pdreli	PDRELI Not Available Manual Stopped OK	Kernel Driver Ignore No	No
msfs System Driver	Msfs No Yes	c:\windows\system32\drivers\msfs.sys Yes System Running OK	File Normal	pdiframe	PDRFRAME No Manual Stopped OK	Kernel Driver Ignore No	No
mup System Driver	Mup No Yes	c:\windows\system32\drivers\mup.sys Yes Boot Running OK	File Normal	perc2	perc2 Not Available Disabled Stopped OK	Kernel Driver Normal No	No No
ndis	NDIS System Driver Kernel Driver	c:\windows\system32\drivers\ndis.sys Yes Boot Running OK	Kernel Running OK	perc2hib	perc2hib Not Available Disabled Stopped OK	Kernel Driver Normal No	No
ndistapi	Remote Access NDIS TAPI Driver c:\windows\system32\drivers\ndistapi.sys	Kernel Driver Yes Manual Running OK	Kernel Normal No	pptpminiport	WAN Miniport (PPTP) c:\windows\system32\drivers\rasppptp.sys	Kernel Driver Yes Manual Running OK	Normal No
ndisuio	NDIS Usermode I/O Protocol c:\windows\system32\drivers\ndisuio.sys	Kernel Driver Yes Manual Running OK	Kernel Normal No	processor	Processor Driver Kernel Driver	c:\windows\system32\drivers\processr.sys Yes Manual Running OK	Normal No
ndiswan	Remote Access NDIS WAN Driver c:\windows\system32\drivers\ndiswan.sys	Kernel Driver Yes Manual Running OK	Kernel Normal No	ptilink	Direct Parallel Link Driver c:\windows\system32\drivers\ptilink.sys	Kernel Driver Yes Manual Running OK	Normal No
ndproxy	NDIS Proxy Kernel Driver	c:\windows\system32\drivers\ndproxy.sys Yes Manual Running OK	Kernel Running OK	q57w2k	Compaq NC7770 Gigabit Server Adapter c:\windows\system32\drivers\q57xp32.sys	Kernel Driver Yes Manual Running OK	Normal No
netbios	NetBIOS Interface File System Driver	c:\windows\system32\drivers\netbios.sys Yes System Running OK	File System Normal No	q11080	q11080 Not Available Disabled Stopped OK	Kernel Driver Normal No	No No
netbt	NetBios over Tcpip Kernel Driver	c:\windows\system32\drivers\netbt.sys Yes System Running OK	Kernel Running OK	q110wnt	Q110wnt Not Available Disabled Stopped OK	Kernel Driver Normal No	No No
nfrd960	nfrd960	Not Available Disabled Stopped OK	Kernel Driver Normal No	q112160	q112160 Not Available Disabled Stopped OK	Kernel Driver Normal No	No No
npfs System Driver	Npfs No Yes	c:\windows\system32\drivers\npfs.sys Yes System Running OK	File Normal	q11240	q11240 Not Available Disabled Stopped OK	Kernel Driver Normal No	No No
ntfs System Driver	Ntfs No Yes	c:\windows\system32\drivers\ntfs.sys Yes Disabled Running OK	File Normal	q11280	q11280 Not Available Disabled Stopped OK	Kernel Driver Normal No	No No
null Driver	Null Yes Yes	c:\windows\system32\drivers\null.sys System Running OK	Kernel Normal No	q12100	q12100 Not Available Disabled Stopped OK	Kernel Driver Normal No	No No
parport Driver	Parport No No	c:\windows\system32\drivers\parport.sys Manual Stopped OK	Kernel Ignore No	q12200	q12200 Not Available Disabled Stopped OK	Kernel Driver Normal No	No No
				q12300	q12300 Not Available Disabled Stopped OK	Kernel Driver Normal No	No No

rasacd	Remote Access Auto Connection Driver	c:\windows\system32\drivers\rasacd.sys	Kernel Driver	Normal	No
	Yes	System	Running	OK	
rasl2tp	WAN Miniport (L2TP)	c:\windows\system32\drivers\rasl2tp.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
rasppoe	Remote Access PPPOE Driver	c:\windows\system32\drivers\rasppoe.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
raspti	Direct Parallel Kernel Driver	c:\windows\system32\drivers\raspti.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
rdbss	Rdbss System Driver	c:\windows\system32\drivers\rdbss.sys	File	Normal	No
	Yes	System	Running	OK	
rdpcdd	RDPCDD Driver	c:\windows\system32\drivers\rdpcdd.sys	Kernel Driver	Ignore	No
	Yes	System	Running	OK	
rdpdr	Terminal Server Device Redirector Driver	c:\windows\system32\drivers\rdpdr.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
rdpwd	RDPWD Driver	c:\windows\system32\drivers\rdpwd.sys	Kernel Driver	Ignore	No
	Yes	Manual	Running	OK	
redbook	Digital CD Audio Playback Filter Driver	c:\windows\system32\drivers\redbook.sys	Kernel Driver	Normal	No
	Yes	System	Running	OK	
secdrv	Secdrv Driver	c:\windows\system32\drivers\secdrv.sys	Kernel Driver	Normal	No
	No	Manual	Stopped	OK	
serial	Serial Driver	c:\windows\system32\drivers\serial.sys	Kernel Driver	Ignore	No
	No	Auto	Stopped	OK	
sfloppy	Sfloppy Driver	c:\windows\system32\drivers\sfloppy.sys	Kernel Driver	Ignore	No
	No	System	Stopped	OK	
simbad	Simbad	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
sparrow	Sparrow	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
srv	Srv System Driver	c:\windows\system32\drivers\srv.sys	File	Normal	No
	Yes	Manual	Running	OK	
startdss	startdss Driver	c:\windows\system32\drivers\startdss.sys	Kernel Driver	Normal	No
	No	Disabled	Stopped	OK	
swenum	Software Bus Driver	c:\windows\system32\drivers\swenum.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
symc810	symc810	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
symc8xx	symc8xx	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
symmpi	symmpi	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
sym_hi	sym_hi	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		

sym_u3	sym_u3	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
tcpip	TCP/IP Protocol Driver	c:\windows\system32\drivers\tcpip.sys	Kernel Driver	Normal	No
	Yes	System	Running	OK	
tdpipe	TDPIPE Driver	c:\windows\system32\drivers\tdpipe.sys	Kernel Driver	Ignore	No
	No	Manual	Stopped	OK	
tdtcp	TDTCP Driver	c:\windows\system32\drivers\tdtcp.sys	Kernel Driver	Ignore	No
	Yes	Manual	Running	OK	
termdd	Terminal Device Driver	c:\windows\system32\drivers\termdd.sys	Kernel Driver	Normal	No
	Yes	System	Running	OK	
toside	TosIde	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
udfs	Udfs System Driver	c:\windows\system32\drivers\udfs.sys	File	Normal	No
	No	Disabled	Stopped	OK	
ultra	ultra	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
update	Microcode Update Driver	c:\windows\system32\drivers\update.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
usbhub	USB2 Enabled Hub	c:\windows\system32\drivers\usbhub.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
usbohci	Microsoft USB Open Host Controller Miniport Driver	c:\windows\system32\drivers\usbohci.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
vga	vga Driver	c:\windows\system32\drivers\vgapnp.sys	Kernel Driver	Ignore	No
	Yes	Manual	Running	OK	
vgasave	VGA Display Controller.	c:\windows\system32\drivers\vga.sys	Kernel Driver	Ignore	No
	No	System	Stopped	OK	
viaide	Vialde	Not Available	Kernel Driver	Normal	No
	Disabled	Stopped	OK		
volsnap	Storage volumes	c:\windows\system32\drivers\volsnap.sys	Kernel Driver	Normal	No
	Yes	Boot	Running	OK	
wanarp	Remote Access IP ARP Driver	c:\windows\system32\drivers\wanarp.sys	Kernel Driver	Normal	No
	Yes	Manual	Running	OK	
wdica	WDICA	Not Available	Kernel Driver	Ignore	No
	Manual	Stopped	OK		
wlbs	Network Load Balancing	c:\windows\system32\drivers\wlbs.sys	Kernel Driver	Normal	No
	No	Manual	Stopped	OK	
[Signed Drivers]					
Device Name		Signed	Device Class	Driver Version	
Name		Driver Date	Manufacturer	INF Name Driver	
Device ID					
Not Available	Not Available	Not Available	Not Available	Not Available	
Available	Not Available	Not Available	Not Available	Not Available	
Not Available		HTREE\ROOT\0			



SCSI\OTHER&VEN_COMPAQ&PROD_SCSI_COMMUNICA TE&REV_CISS\4&37E0A253&0&000	ServerWorks (RCC) PCI to USB Open Host Controller	Yes	USB	5.2.3790.0 10/1/2002	ServerWorks (RCC)	usbport.inf	Not Available
Disk drive Yes	DISKDRIVE	5.2.3790.0	10/1/2002	(Standard disk drives)	disk.inf	Not Available	
SCSI\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME& REV_2.38\4&37E0A253&0&400	USB Root Hub	Yes	USB	5.2.3790.0 10/1/2002	(Standard USB Host Controller)	usbport.inf	Not Available
Disk drive Yes	DISKDRIVE	5.2.3790.0	10/1/2002	(Standard disk drives)	disk.inf	Not Available	
SCSI\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME& REV_2.38\4&37E0A253&0&410	Serverworks Champion CSB5 - SouthBridge 5 LPC	Yes	SYSTEM	5.2.3790.0 10/1/2002	ServerWorks (RCC)	machine.inf	Not Available
Disk drive Yes	DISKDRIVE	5.2.3790.0	10/1/2002	(Standard disk drives)	disk.inf	Not Available	
SCSI\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME& REV_2.38\4&37E0A253&0&420	ISAPNP Read Data Port	Yes	SYSTEM	5.2.3790.0 10/1/2002	(Standard system devices)	machine.inf	Not Available
Disk drive Yes	DISKDRIVE	5.2.3790.0	10/1/2002	(Standard disk drives)	disk.inf	Not Available	
SCSI\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME& REV_2.38\4&37E0A253&0&430	hp Memory Host Controller	No	SYSTEM	1.0.1108.3 11/8/2002	Compaq Information Technologies Group, L.P.	oem0.inf	Not Available
ServerWorks Champion CSB5 - SouthBridge 5	oem0.inf	Not Available			PCI\VEN_0E11&DEV_B200&SUBSYS_00010E11&REV_03\3	&267A616A&0&80	
5.2.3790.0 10/1/2002	ServerWorks (RCC)	machine.inf	Not Available		PCI\VEN_1166&DEV_0201&SUBSYS_00000000&REV_93\3	&267A616A&0&78	
Motherboard resources	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available
System timer	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available
Direct memory access controller	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available
System speaker	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available
Extended IO Bus	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available
Standard floppy disk controller	Yes	FDC	5.2.3790.0	10/1/2002	(Standard floppy disk controllers)	fdc.inf	Not Available
Floppy disk drive	Yes	FLOPPYDISK	5.2.3790.0	10/1/2002	(Standard floppy disk drives)	fpydisk.inf	Not Available
PS/2 Compatible Mouse	Yes	MOUSE	5.2.3790.0	10/1/2002	Microsoft	msmouse.inf	Not Available
Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	Yes	KEYBOARD	5.2.3790.0	10/1/2002	(Standard keyboards)	keyboard.inf	Not Available
CSB5 IDE Controller	Yes	HDC	5.2.3790.0	10/1/2002	ServerWorks	mshdc.inf	Not Available
Primary IDE Channel	Yes	HDC	5.2.3790.0	10/1/2002	(Standard IDE ATA/ATAPI controllers)	mshdc.inf	Not Available
CD-ROM Drive	Yes	CDROM	5.2.3790.0	10/1/2002	(Standard CD-ROM drives)	cdrom.inf	Not Available
Secondary IDE Channel	Yes	HDC	5.2.3790.0	10/1/2002	(Standard IDE ATA/ATAPI controllers)	mshdc.inf	Not Available

Advanced programmable interrupt controller	Yes	SYSTEM			Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
5.2.3790.0 10/1/2002 (Standard system devices)					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
machine.inf	Not Available				HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0200004000000000				
ACPI\PNP0003\3&267A616A&0					Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
Programmable interrupt controller	Yes	SYSTEM			4/8/2003 Hewlett-Packard		oem3.inf Not Available		
5.2.3790.0 10/1/2002 (Standard system devices)					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0300004000000000				
machine.inf	Not Available				Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
ACPI\PNP0000\3&267A616A&0					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
PCI bus	Yes	SYSTEM	5.2.3790.0 10/1/2002 (Standard system devices)		HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0400004000000000				
machine.inf	Not Available		ACPI\PNP0A03\1		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0500004000000000				
Smart Array 5300 Controller (Non-Miniport)		No			Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
SCSIADAPTER	5.6.59.32	4/8/2003	Hewlett-Packard		4/8/2003 Hewlett-Packard		oem3.inf Not Available		
oem2.inf	Not Available				HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0600004000000000				
PCI\VEN_0E11&DEV_B060&SUBSYS_40700E11&REV_02\3&13C0B0C5&0&08					Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0700004000000000				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0000040000000000					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0800004000000000				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0100004000000000					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0900004000000000				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0200004000000000					Compaq PCI Hotplug Controller				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		10/1/2002 Compaq	machine.inf	Not Available		
4/8/2003 Hewlett-Packard					PCI\VEN_0E11&DEV_A0F7&SUBSYS_A2FE0E11&REV_14\3&13C0B0C5&0&F0				
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0300004000000000					PCI bus	Yes	SYSTEM	5.2.3790.0 10/1/2002 (Standard system devices)	machine.inf
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Not Available			ACPI\PNP0A03\2	
4/8/2003 Hewlett-Packard									
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0400004000000000					Smart Array 5300 Controller (Non-Miniport)		No		
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		SCSIADAPTER	5.6.59.32	4/8/2003	Hewlett-Packard	
4/8/2003 Hewlett-Packard					oem2.inf	Not Available			
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0500004000000000					PCI\VEN_0E11&DEV_B060&SUBSYS_40700E11&REV_02\3&1070020&0&08				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0600004000000000					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&33332AB6&0&0000040000000000				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0700004000000000					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&33332AB6&0&0100004000000000				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0800004000000000					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&33332AB6&0&0200004000000000				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&2D73AEC0&0&0900004000000000					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&33332AB6&0&0300004000000000				
Smart Array 5300 Controller (Non-Miniport)		No			Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
SCSIADAPTER	5.6.59.32	4/8/2003	Hewlett-Packard		4/8/2003 Hewlett-Packard		oem3.inf Not Available		
oem2.inf	Not Available				HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&33332AB6&0&0400004000000000				
PCI\VEN_0E11&DEV_B060&SUBSYS_40700E11&REV_02\3&13C0B0C5&0&10					Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0000040000000000				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0000040000000000					HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&33332AB6&0&0500004000000000				
Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32		Smart Array Logical Volume	No	DISKDRIVE	5.6.56.32	
4/8/2003 Hewlett-Packard					4/8/2003 Hewlett-Packard		oem3.inf Not Available		
HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLUME\4&E6AAC0F&0&0100004000000000					Smart Array Logical Volume				
					No	DISKDRIVE	5.6.56.32		
					4/8/2003 Hewlett-Packard		oem3.inf Not Available		

HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&33332AB6&0&0600004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&33332AB6&0&0700004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&33332AB6&0&0800004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&33332AB6&0&0900004000000000  
Compaq NC7770 Gigabit Server Adapter No NET 2.77.0.0  
6/26/2002 Compaq oem1.inf Not Available  
PCI\VEN\_14E4&DEV\_1645&SUBSYS\_007C0E11&REV\_15\3&1070020&0&10  
Compaq PCI Hotplug Controller Yes SYSTEM 5.2.3790.0  
10/1/2002 Compaq machine.inf Not Available  
PCI\VEN\_0E11&DEV\_A0F7&SUBSYS\_A2FE0E11&REV\_14\3&1070020&0&F0  
PCI bus Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0A03\3

Smart Array 5300 Controller (Non-Miniport) No  
SCSIADAPTER 5.6.59.32 4/8/2003 Hewlett-Packard  
oem2.inf Not Available  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3&29E81982&0&08  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0000004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0100004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0200004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0300004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0400004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0500004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0600004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0700004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0800004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&38EB4840&0&0900004000000000

Smart Array 5300 Controller (Non-Miniport) No  
SCSIADAPTER 5.6.59.32 4/8/2003 Hewlett-Packard  
oem2.inf Not Available  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3&29E81982&0&10  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0000004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0100004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0200004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0300004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0400004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0500004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0600004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0700004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0800004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1C5980EA&0&0900004000000000  
Compaq PCI Hotplug Controller Yes SYSTEM 5.2.3790.0  
10/1/2002 Compaq machine.inf Not Available  
PCI\VEN\_0E11&DEV\_A0F7&SUBSYS\_A2FE0E11&REV\_14\3&29E81982&0&F0  
PCI bus Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0A03\4

Smart Array 5300 Controller (Non-Miniport) No  
SCSIADAPTER 5.6.59.32 4/8/2003 Hewlett-Packard  
oem2.inf Not Available  
PCI\VEN\_0E11&DEV\_B060&SUBSYS\_40700E11&REV\_02\3&172E68DD&0&08  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1F72F2BD&0&0000004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1F72F2BD&0&0100004000000000  
Smart Array Logical Volume No DISKDRIVE 5.6.56.32  
4/8/2003 Hewlett-Packard oem3.inf Not Available  
HPQCISS\DISK&VEN\_COMPAQ&PROD\_LOGICAL\_VOLUMES\4&1F72F2BD&0&0200004000000000

Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&1F72F2BD&0&0300004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&27F87BD9&0&0100004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&1F72F2BD&0&0500004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&27F87BD9&0&0200004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&1F72F2BD&0&0600004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&27F87BD9&0&0300004000000000
Smart Array 5300 Controller (Non-Miniport) No SCSIADAPTER 5.6.59.32 4/8/2003 Hewlett-Packard oem2.inf Not Available PCI\VEN_0E11&DEV_B060&SUBSYS_40700E11&REV_02\3 &172E68DD&0&10	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&27F87BD9&0&0500004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&2E12B67&0&0000004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&27F87BD9&0&0600004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&2E12B67&0&0100004000000000	Smart Array 5300 Controller (Non-Miniport) No SCSIADAPTER 5.6.59.32 4/8/2003 Hewlett-Packard oem2.inf Not Available PCI\VEN_0E11&DEV_B060&SUBSYS_40700E11&REV_02\3 &474B838&0&10
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&2E12B67&0&0200004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&62E2361&0&0000004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&2E12B67&0&0300004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&62E2361&0&0100004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&2E12B67&0&0400004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&62E2361&0&0200004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&2E12B67&0&0500004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&62E2361&0&0300004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&2E12B67&0&0600004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&62E2361&0&0400004000000000
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&2E12B67&0&0700004000000000	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&62E2361&0&0500004000000000
Compaq PCI Hotplug Controller Yes SYSTEM 5.2.3790.0 10/1/2002 Compaq machine.inf Not Available PCI\VEN_0E11&DEV_A0F7&SUBSYS_A2FE0E11&REV_14\3 &172E68DD&0&F0	Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&62E2361&0&0600004000000000
PCI bus Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0A03\5	Compaq PCI Hotplug Controller Yes SYSTEM 5.2.3790.0 10/1/2002 Compaq machine.inf Not Available PCI\VEN_0E11&DEV_A0F7&SUBSYS_A2FE0E11&REV_14\3 &474B838&0&F0
Smart Array 5300 Controller (Non-Miniport) No SCSIADAPTER 5.6.59.32 4/8/2003 Hewlett-Packard oem2.inf Not Available PCI\VEN_0E11&DEV_B060&SUBSYS_40700E11&REV_02\3 &474B838&0&08	ACPI Thermal Zone Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\THERMALZONE\THM1
Smart Array Logical Volume No DISKDRIVE 5.6.56.32 4/8/2003 Hewlett-Packard oem3.inf Not Available HPQCISS\DISK&VEN_COMPAQ&PROD_LOGICAL_VOLU ME\4&27F87BD9&0&0000004000000000	ACPI Fixed Feature Button Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\FIXEDBUTTON\2&DABA3FF&0

Logical Disk Manager system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard machine.inf Not Available
ROOT\DMIO\0000					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&3735C57B&0&LDM#{2937966E-843B-44EA-AD04-EA3A2B7FBC28}					
Volume Manager system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard machine.inf Not Available
ROOT\FTDISK\0000					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D2286640FFSET7E00LENGTH5DBB7E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D2286630FFSET7E00LENGTH3E7A5F000					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D2286620FFSET7E00LENGTH59CF6E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D2286610FFSET7E00LENGTH5DBB7E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D2286600FFSET7E00LENGTH3E7A5F000					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22866FOFFSET7E00LENGTH59CF6E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22866EOFFSET7E00LENGTH5DBB7E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22866DOFFSET7E00LENGTH5DBB7E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22866COFFSET7E00LENGTH3E7A5F000					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22866BOFFSET7E00LENGTH59CF6E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22866AOFFSET7E00LENGTH5DBB7E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D228669OFFSET7E00LENGTH3E7A5F000					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D228668OFFSET7E00LENGTH59CF6E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE77086EE7DOFFSET7E00LENGTH5DBB7E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D228646OFFSET7E00LENGTH3E7A5F000					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D228645OFFSET7E00LENGTH59CF6E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE77086EE7FOFFSET7E00LENGTH5DBB7E800					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D228644OFFSET7E00LENGTH3E7A5F000					
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D228655OFFSET7E00LENGTH59CF6E800					





STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22862	CRC Disk Filter Driver	Not Available	LEGACYDRIVER
DOFFSET7E00LENGTH5DBB7E800	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_CRCDISK\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22862	dmboot	Not Available	LEGACYDRIVER Not Available
COFFSET7E00LENGTH3E7A5F000	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_DMBOOT\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22862	dmload	Not Available	LEGACYDRIVER Not Available
BOFFSET7E00LENGTH59CF6E800	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_DMLOAD\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22862	Fips	Not Available	LEGACYDRIVER Not Available
AOFFSET7E00LENGTH5DBB7E800	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_FIPS\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22862	Generic Packet Classifier	Not Available	LEGACYDRIVER
9OFFSET7E00LENGTH3E7A5F000	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_GPC\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22862	IPSEC driver	Not Available	LEGACYDRIVER Not Available
8OFFSET7E00LENGTH59CF6E800	Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_IPSEC\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	ksecdd	Not Available	LEGACYDRIVER Not Available
6OFFSET7E00LENGTH5DBB7E800	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_KSECDD\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	mmdd	Not Available	LEGACYDRIVER Not Available
5OFFSET7E00LENGTH3E7A5F000	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_MNMDD\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	mountmgr	Not Available	LEGACYDRIVER Not Available
4OFFSET7E00LENGTH59CF6E800	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_MOUNTMGR\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	NDIS System Driver	Not Available	LEGACYDRIVER Not Available
3OFFSET7E00LENGTH5DBB7E800	Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_NDIS\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	Remote Access NDIS TAPI Driver	Not Available	LEGACYDRIVER Not Available
2OFFSET7E00LENGTH3E7A5F000	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_NDISTAPI\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	NDIS Usermode I/O Protocol	Not Available	LEGACYDRIVER
1OFFSET7E00LENGTH59CF6E800	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_NDISUIO\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	NDProxy	Not Available	LEGACYDRIVER Not Available
2OFFSET4000LENGTH43CBEC000	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_NDPROXY\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATUREEE56364C	NetBios over Tcpip	Not Available	LEGACYDRIVER Not Available
5OFFSET4000LENGTH9C3B24000	Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_NETBT\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE3C21711	Null	Not Available	LEGACYDRIVER Not Available
5OFFSET4000LENGTH9C3B24000	Not Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_NULL\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	Partition Manager	Not Available	LEGACYDRIVER Not Available
FOFFSET4000LENGTH3E414000	Available	Not Available	Not Available
Generic volume Yes VOLUME 5.2.3790.0 10/1/2002 Microsoft	Not Available	Not Available	Not Available
volume.inf Not Available	ROOT\LEGACY_PARTMGR\0000		
STORAGE\VOLUME\1&30A96598&0&SIGNATURE1D22861	Remote Access Auto Connection Driver	Not Available	LEGACYDRIVER Not Available
E0FFSET4000LENGTH752A5C000	Not Available	Not Available	Not Available
AFD Networking Support Environment	Not Available	Not Available	Not Available
LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available
ROOT\LEGACY_AFD\0000	RDPCDD	Not Available	LEGACYDRIVER Not Available
Beep	Not Available	LEGACYDRIVER	Not Available
Not Available	Not Available	Not Available	Not Available
Not Available	ROOT\LEGACY_BEEP\0000		
	RDPWD	Not Available	LEGACYDRIVER Not Available
	Not Available	Not Available	Not Available
	Not Available	Not Available	Not Available
	ROOT\LEGACY_RDPWD\0000		

sacdrv	Not Available Not Available Not Available	LEGACYDRIVER Not Available ROOT\LEGACY_SACDRV\0000	Not Available Not Available Not Available
startdss	Not Available Not Available Not Available	LEGACYDRIVER Not Available ROOT\LEGACY_STARTDSS\0000	Not Available Not Available Not Available
TCP/IP Protocol Driver	Not Available Not Available Not Available	LEGACYDRIVER Not Available ROOT\LEGACY_TCPIP\0000	LEGACYDRIVER Not Available Not Available
TDTCP	Not Available Not Available Not Available	LEGACYDRIVER Not Available ROOT\LEGACY_TDTCP\0000	Not Available Not Available Not Available
volsnap	Not Available Not Available Not Available	LEGACYDRIVER Not Available ROOT\LEGACY_VOLSNAP\0000	Not Available Not Available Not Available
Remote Access IP ARP Driver	Not Available Not Available Not Available	LEGACYDRIVER Not Available ROOT\LEGACY_WANARP\0000	LEGACYDRIVER Not Available Not Available
Audio Coders	Yes wave.inf	MEDIA 5.2.3790.0	10/1/2002 (Standard system devices) Not Available
Legacy Audio Drivers	Yes wave.inf	MEDIA 5.2.3790.0	10/1/2002 (Standard system devices) Not Available
Media Control Devices	Yes 10/1/2002 (Standard system devices)	MEDIA 5.2.3790.0	wave.inf Not Available
Legacy Video Capture Devices	Yes 10/1/2002 (Standard system devices)	MEDIA 5.2.3790.0	wave.inf Not Available
Video Coders	Yes wave.inf	MEDIA 5.2.3790.0	10/1/2002 (Standard system devices) Not Available
WAN Miniport (L2TP)	Yes 10/1/2002 Microsoft	NET netrasa.inf	5.2.3790.0 Not Available
WAN Miniport (IP)	Yes netrasa.inf	NET 5.2.3790.0	10/1/2002 Microsoft Not Available
WAN Miniport (PPPOE)	Yes 10/1/2002 Microsoft	NET netrasa.inf	5.2.3790.0 Not Available
WAN Miniport (PPTP)	Yes 10/1/2002 Microsoft	NET netrasa.inf	5.2.3790.0 Not Available
Direct Parallel	Yes netrasa.inf	NET 5.2.3790.0	10/1/2002 Microsoft Not Available
Terminal Server Device Redirector	Yes 5.2.3790.0	SYSTEM 10/1/2002 (Standard system devices)	machine.inf Not Available
Terminal Server Keyboard Driver	Yes 5.2.3790.0	SYSTEM 10/1/2002 (Standard system devices)	machine.inf Not Available
Terminal Server Mouse Driver	Yes 10/1/2002 (Standard system devices)	SYSTEM 5.2.3790.0	machine.inf Not Available
Plug and Play Software Device Enumerator	Yes 5.2.3790.0	SYSTEM 10/1/2002 (Standard system devices)	machine.inf Not Available

Microcode Update Device	Yes	SYSTEM	5.2.3790.0
10/1/2002 (Standard system devices)			machine.inf
Not Available		ROOT\SYSTEM\0001	
[Environment Variables]			
Variable	Value	User Name	
ComSpec	%SystemRoot%\system32\cmd.exe		<SYSTEM>
Path	%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem;C:\Program Files\Microsoft SQL Server\80\Tools\BINN		
windir	%SystemRoot%	<SYSTEM>	
OS	Windows_NT	<SYSTEM>	
PROCESSOR_ARCHITECTURE	x86		<SYSTEM>
PROCESSOR_LEVEL	15		<SYSTEM>
PROCESSOR_IDENTIFIER	x86 Family 15 Model 2 Stepping 2,		
GenuineIntel		<SYSTEM>	
PROCESSOR_REVISION	0202		<SYSTEM>
NUMBER_OF_PROCESSORS	16		<SYSTEM>
ClusterLogC:\WINDOWS\Cluster\cluster.log			<SYSTEM>
PATHEXT			
	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH		<SYSTEM>
TEMP	%SystemRoot%\TEMP		<SYSTEM>
TMP	%SystemRoot%\TEMP		<SYSTEM>
TEMP	%USERPROFILE%\Local Settings\Temp	NT	
AUTHORITY\SYSTEM			
TMP	%USERPROFILE%\Local Settings\Temp	NT	
AUTHORITY\SYSTEM			
TEMP	%USERPROFILE%\Local Settings\Temp	NT	
AUTHORITY\LOCAL SERVICE			
TMP	%USERPROFILE%\Local Settings\Temp	NT	
AUTHORITY\LOCAL SERVICE			
TEMP	%USERPROFILE%\Local Settings\Temp	NT	
AUTHORITY\NETWORK SERVICE			
TMP	%USERPROFILE%\Local Settings\Temp	NT	
AUTHORITY\NETWORK SERVICE			
TEMP	%USERPROFILE%\Local Settings\Temp		
TMP	%USERPROFILE%\Local Settings\Temp		
	PHOENIX\Administrator		
TMP	%USERPROFILE%\Local Settings\Temp		
	PHOENIX\Administrator		
[Print Jobs]			
Document Size	Owner	Notify	Status
Start Time	Until Time	Elapsed Time	Time Submitted
Job ID	Priority	Parameters	Pages Printed
Host Print Queue	Driver	Data Type	Print Processor
	Queue	Name	
[Network Connections]			
Local Name	Remote Name	Type	Status
Name			User
Not Available	\\inforb\audit_fdr	Disk	Current Connection
	PHOENIX\dpol		
[Running Tasks]			
Name	Path	Process ID	Priority
Working Set	Start Time	Version	Min Working Set
system idle process	Not Available		Size
Available	Not Available	Not Available	File Date
	Not Available	Not Available	Max
system	Not Available	4	0
	Not Available	8	0
	Not Available	Not Available	1413120
	Not Available	Not Available	Not Available

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smss.exe    Not Available      476      11      204800  1413120
5/8/2003 5:11 PM  Not Available  Not Available
Not Available
csrss.exe  Not Available      524      13      Not Available
Not Available    5/8/2003 5:11 PM  Not Available
Not Available    Not Available
winlogon.exe c:\windows\system32\winlogon.exe    548
13      204800  1413120  5/8/2003 5:11 PM
5.2.3790.0 (srv03_rtm.030324-2048)  536.50 KB (549,376
bytes)  3/25/2003 12:00 AM
services.exe c:\windows\system32\services.exe    592
9      204800  1413120  5/8/2003 5:11 PM
5.2.3790.0 (srv03_rtm.030324-2048)  102.00 KB (104,448
bytes)  3/25/2003 12:00 AM
lsass.exe  c:\windows\system32\lsass.exe    604      9      204800
1413120  5/8/2003 5:11 PM  5.2.3790.0 (srv03_rtm.030324-
2048)  13.00 KB (13,312 bytes)  3/25/2003 12:00 AM
svchost.exe c:\windows\system32\svchost.exe    748
8      204800  1413120  5/8/2003 5:11 PM
5.2.3790.0 (srv03_rtm.030324-2048)  13.00 KB (13,312
bytes)  3/25/2003 12:00 AM
svchost.exe c:\windows\system32\svchost.exe    812
8      204800  1413120  5/8/2003 5:11 PM
5.2.3790.0 (srv03_rtm.030324-2048)  13.00 KB (13,312
bytes)  3/25/2003 12:00 AM
svchost.exe Not Available      956      8      Not
Available  Not Available    5/8/2003 5:11 PM  Not Available
Not Available    Not Available
svchost.exe Not Available    1024     8      Not
Available  Not Available    5/8/2003 5:11 PM  Not Available
Not Available    Not Available
svchost.exe c:\windows\system32\svchost.exe    1036
8      204800  1413120  5/8/2003 5:11 PM
5.2.3790.0 (srv03_rtm.030324-2048)  13.00 KB (13,312
bytes)  3/25/2003 12:00 AM
spoolsv.exe c:\windows\system32\spoolsv.exe    1204
8      204800  1413120  5/8/2003 5:11 PM
5.2.3790.0 (srv03_rtm.030324-2048)  55.00 KB (56,320
bytes)  3/25/2003 12:00 AM
svchost.exe c:\windows\system32\svchost.exe    1256
8      204800  1413120  5/8/2003 5:11 PM
5.2.3790.0 (srv03_rtm.030324-2048)  13.00 KB (13,312
bytes)  3/25/2003 12:00 AM
svchost.exe Not Available    1344     8      Not
Available  Not Available    5/8/2003 5:11 PM  Not Available
Not Available    Not Available
dfssvc.exe c:\windows\system32\dfssvc.exe    1604     8      204800
1413120  5/8/2003 5:11 PM  5.2.3790.0 (srv03_rtm.030324-
2048)  130.50 KB (133,632 bytes)  3/25/2003 12:00 AM
explorer.exe c:\windows\explorer.exe    1864     8
204800  1413120  5/8/2003 5:12 PM  6.00.3790.0
(srv03_rtm.030324-2048)  1,008.50 KB (1,032,704 bytes)
3/25/2003 12:00 AM
sqlservr.exe c:\program files\microsoft sql
server\mssql\bin\sqlservr.exe    1924     13      204800  1413120
5/8/2003 5:12 PM  2000.080.0761.00  7.11 MB (7,450,664
bytes)  4/18/2003 2:50 PM
wmiprvse.exe Not Available    512      8      Not
Available  Not Available    5/8/2003 5:12 PM  Not Available
Not Available    Not Available
cmd.exe     c:\windows\system32\cmd.exe    968      8      204800
1413120  5/8/2003 5:13 PM  5.2.3790.0 (srv03_rtm.030324-
2048)  374.00 KB (382,976 bytes)  3/25/2003 12:00 AM
wmiprvse.exe Not Available    1816     8      Not
Available  Not Available    5/9/2003 10:21 AM  Not Available
Not Available    Not Available
cmd.exe     c:\windows\system32\cmd.exe    1976     8      204800
1413120  5/9/2003 10:28 AM  5.2.3790.0 (srv03_rtm.030324-
2048)  374.00 KB (382,976 bytes)  3/25/2003 12:00 AM

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msinfo32.exe c:\program files\common files\microsoft
shared\msinfo\msinfo32.exe    1380     8      204800  1413120
5/9/2003 10:29 AM  5.2.3790.0 (srv03_rtm.030324-2048)
40.50 KB (41,472 bytes)  4/18/2003 2:20 PM
taskmgr.exe c:\windows\system32\taskmgr.exe    188
13      204800  1413120  5/9/2003 10:29 AM
5.2.3790.0 (srv03_rtm.030324-2048)  124.00 KB (126,976
bytes)  3/25/2003 12:00 AM

[Loaded Modules]

Name      Version  Size      File Date  Manufacturer  Path
winlogon  5.2.3790.0 (srv03_rtm.030324-2048)  536.50 KB (549,376
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\winlogon.exe
ntdll     5.2.3790.0 (srv03_rtm.030324-2048)  722.50 KB (739,840
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\ntdll.dll
kernel32  5.2.3790.0 (srv03_rtm.030324-2048)  965.00 KB (988,160
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\kernel32.dll
msvcrt    7.0.3790.0 (srv03_rtm.030324-2048)  319.50 KB (327,168
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\msvcrt.dll
advapi32  5.2.3790.0 (srv03_rtm.030324-2048)  559.50 KB (572,928
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\advapi32.dll
rpcrt4    5.2.3790.0 (srv03_rtm.030324-2048)  643.50 KB (658,944
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\rpcrt4.dll
user32    5.2.3790.0 (srv03_rtm.030324-2048)  562.00 KB (575,488
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\user32.dll
gdi32     5.2.3790.0 (srv03_rtm.030324-2048)  263.00 KB (269,312
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\gdi32.dll
userenv   5.2.3790.0 (srv03_rtm.030324-2048)  732.50 KB (750,080
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\userenv.dll
nddeapi   5.2.3790.0 (srv03_rtm.030324-2048)  16.00 KB (16,384
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\nddeapi.dll
crypt32   5.131.3790.0 (srv03_rtm.030324-2048)  598.00 KB (612,352
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\crypt32.dll
msasn1    5.2.3790.0 (srv03_rtm.030324-2048)  58.00 KB (59,392
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\msasn1.dll
secur32   5.2.3790.0 (srv03_rtm.030324-2048)  63.00 KB (64,512
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\secur32.dll
winsta    5.2.3790.0 (srv03_rtm.030324-2048)  51.00 KB (52,224
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\winsta.dll
netapi32  5.2.3790.0 (srv03_rtm.030324-2048)  317.00 KB (324,608
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\netapi32.dll
profmap   5.2.3790.0 (srv03_rtm.030324-2048)  22.00 KB (22,528
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\profmap.dll
regapi    5.2.3790.0 (srv03_rtm.030324-2048)  48.50 KB (49,664
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\regapi.dll
ws2_32    5.2.3790.0 (srv03_rtm.030324-2048)  87.50 KB (89,600
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\ws2_32.dll
ws2help   5.2.3790.0 (srv03_rtm.030324-2048)  19.50 KB (19,968
bytes)  3/25/2003 12:00 AM  Microsoft Corporation
c:\windows\system32\ws2help.dll

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psapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	21.50 KB (22,016 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\psapi.dll
version bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	17.00 KB (17,408 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\version.dll
setupapi (1,038,848 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	1,014.50 KB	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\setupapi.dll
msgina bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	1.14 MB (1,191,936 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\msgina.dll
shsvcs bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	121.50 KB (124,416 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\shsvcs.dll
shlwapi bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	281.00 KB (287,744 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\shlwapi.dll
sfc bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	4.50 KB (4,608 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\sfc.dll
sfc_os bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	133.00 KB (136,192 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\sfc_os.dll
wintrust bytes)	5.131.3790.0 (srv03_rtm.030324-2048)	161.50 KB (165,376 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\wintrust.dll
ole32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	1.13 MB (1,187,328 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\ole32.dll
imagehlp bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	142.50 KB (145,920 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\imagehlp.dll
comctl32 controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450b\comctl32.dll	6.0 (srv03_rtm.030324-2048)	907.00 KB (928,768 bytes)	4/18/2003 7:17 AM	Microsoft Corporation	c:\windows\winsxs\x86_microsoft.windows.common-controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450b\comctl32.dll
winscard bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	98.50 KB (100,864 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\winscard.dll
wtsapi32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	17.50 KB (17,920 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\wtsapi32.dll
sxs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	733.00 KB (750,592 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\sxs.dll
winmm bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	166.00 KB (169,984 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\winmm.dll
shell32 bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	7.79 MB (8,166,400 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\shell32.dll
wldap32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	158.00 KB (161,792 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\wldap32.dll
rsaenh bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	176.83 KB (181,072 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\rsaenh.dll
csdll bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	99.00 KB (101,376 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\csdll.dll
wlnotify bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	87.50 KB (89,600 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\wlnotify.dll
winspool bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	140.00 KB (143,360 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\winspool.drv
mpr bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	56.00 KB (57,344 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\mpr.dll
comctl32 controls_6595b64144ccf1df_5.82.0.0_x-ww_8a69ba05\comctl32.dll	5.82 (srv03_rtm.030324-2048)	561.00 KB (574,464 bytes)	4/18/2003 7:17 AM	Microsoft Corporation	c:\windows\winsxs\x86_microsoft.windows.common-controls_6595b64144ccf1df_5.82.0.0_x-ww_8a69ba05\comctl32.dll
uxtheme bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	196.00 KB (200,704 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\uxtheme.dll
samlib bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	49.00 KB (50,176 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\samlib.dll
cscur bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	305.00 KB (312,320 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\cscur.dll
oleaut32 Microsoft Corporation	5.2.3790.0	486.00 KB (497,664 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\oleaut32.dll
clbcatq bytes)	2001.12.4720.0 (srv03_rtm.030324-2048)	481.00 KB (492,544 bytes)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\clbcatq.dll
comres bytes)	2001.12.4720.0 (srv03_rtm.030324-2048)	778.00 KB (796,672 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\comres.dll
ntmarta bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	114.00 KB (116,736 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\ntmarta.dll
wbemprox bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	17.50 KB (17,920 bytes)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemprox.dll
wbemcomn KB (216,576 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	211.50 KB (216,576 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemcomn.dll
wbemsvcs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	42.50 KB (43,520 bytes)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemsvcs.dll
fastprox bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	443.00 KB (453,632 bytes)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\fastprox.dll
msvcp60	6.05.2144.0	388.00 KB (397,312 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\msvcp60.dll
ntdsapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	76.00 KB (77,824 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\ntdsapi.dll
dnsapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	147.50 KB (151,040 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\dnsapi.dll
services bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	102.00 KB (104,448 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\services.exe
scesrv bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	316.50 KB (324,096 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\scesrv.dll
authz bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	67.00 KB (68,608 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\authz.dll
umpnpmgr bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	121.50 KB (124,416 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\umpnpmgr.dll
ncobjapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	34.50 KB (35,328 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\ncobjapi.dll
eventlog bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	60.50 KB (61,952 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\eventlog.dll

lsass bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\lsass.exe	13.00 KB (13,312)	pstorsvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\pstorsvc.dll	24.00 KB (24,576)
lsasrv bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\lsasrv.dll	780.50 KB (799,232)	psbase bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\psbase.dll	81.00 KB (82,944)
samsrv bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\samsrv.dll	452.00 KB (462,848)	dssenh bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\dssenh.dll	131.33 KB (134,480)
cryptdll bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\cryptdll.dll	34.00 KB (34,816)	wlbsctrl bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\wlbsctrl.dll	78.00 KB (79,872)
msprivs bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\msprivs.dll	46.50 KB (47,616)	svchost bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\svchost.exe	13.00 KB (13,312)
kerberos bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\kerberos.dll	332.50 KB (340,480)	rpccss bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\rpccss.dll	276.50 KB (283,136)
msv1_0 bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\msv1_0.dll	127.00 KB (130,048)	termsrv bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 4/18/2003 2:16 PM Microsoft Corporation c:\windows\system32\termsrv.dll	216.50 KB (221,696)
netlogon bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\netlogon.dll	409.00 KB (418,816)	icaapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 4/18/2003 2:16 PM Microsoft Corporation c:\windows\system32\icaapi.dll	10.50 KB (10,752)
w32time bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\w32time.dll	216.00 KB (221,184)	mstlsapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\mstlsapi.dll	104.50 KB (107,008)
iphlpapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\iphlpapi.dll	82.50 KB (84,480)	activeds bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\activeds.dll	189.00 KB (193,536)
schannel bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\schannel.dll	149.50 KB (153,088)	adslsdp bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\adslsdp.dll	142.50 KB (145,920)
wdigest bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\wdigest.dll	61.00 KB (62,464)	credui bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\credui.dll	159.00 KB (162,816)
rassfm bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\rassfm.dll	20.50 KB (20,992)	atl bytes)	3.05.2283 83.00 KB (84,992 bytes) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\atl.dll	
kdcsvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\kdcsvc.dll	221.00 KB (226,304)	rdpwsx bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 4/18/2003 2:16 PM Microsoft Corporation c:\windows\system32\rdpwsx.dll	80.13 KB (82,056)
ntdsa bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\ntdsa.dll	1.45 MB (1,520,640)	wzcsvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 6:15 AM Microsoft Corporation c:\windows\system32\wzcsvc.dll	272.50 KB (279,040)
ntdsatq bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\ntdsatq.dll	32.00 KB (32,768)	rtutils bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\rtutils.dll	32.00 KB (32,768)
mswsock bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\mswsock.dll	254.00 KB (260,096)	wmi bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\wmi.dll	6.50 KB (6,656)
esent bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\esent.dll	1.01 MB (1,056,256)	dhcpcsvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\dhcpcsvc.dll	101.50 KB (103,936)
scecli bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\scecli.dll	179.50 KB (183,808)	rastls bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\rastls.dll	155.00 KB (158,720)
wshtcpip bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\wshtcpip.dll	18.00 KB (18,432)	cryptui bytes)	5.131.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\cryptui.dll	473.50 KB (484,864)
ipsecsvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\ipsecsvc.dll	162.50 KB (166,400)	mprapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\mprapi.dll	81.00 KB (82,944)
oakley bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\oakley.dll	325.50 KB (333,312)	rasapi32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\rasapi32.dll	227.50 KB (232,960)
winipsec bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\winipsec.dll	34.50 KB (35,328)	rasman bytes)	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 12:00 AM Microsoft Corporation c:\windows\system32\rasman.dll	56.50 KB (57,856)

tapi32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	175.00 KB (179,200)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\tapi32.dll
raschap bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	106.00 KB (108,544)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\raschap.dll
schedsvcs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	176.00 KB (180,224)	4/18/2003 2:20 PM	Microsoft Corporation	c:\windows\system32\schedsvcs.dll
msidle bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	5.50 KB (5,632)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\msidle.dll
wkssvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	125.00 KB (128,000)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\wkssvc.dll
wiarpc bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	30.00 KB (30,720)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\wiarpc.dll
cryptsvcs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	51.00 KB (52,224)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\cryptsvcs.dll
certcli bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	228.00 KB (233,472)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\certcli.dll
vssapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	528.00 KB (540,672)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\vssapi.dll
dmsrvcs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	24.00 KB (24,576)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\dmsrvcs.dll
es bytes)	2001.12.4720.0 (srv03_rtm.030324-2048)	221.50 KB (226,816)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\es.dll
pchsvcs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	31.50 KB (32,256)	4/18/2003 2:21 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\pchsvcs.dll
srsvcs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	89.00 KB (91,136)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\srsvcs.dll
sacsvcs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	12.00 KB (12,288)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\sacsvcs.dll
seclogon bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	16.50 KB (16,896)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\seclogon.dll
sens bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	35.50 KB (36,352)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\sens.dll
trkwks bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	85.00 KB (87,040)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\trkwks.dll
wmisvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	131.00 KB (134,144)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\wmisvc.dll
wuauerv bytes)	5.4.3790.0 (srv03_rtm.030324-2048)	10.50 KB (10,752)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wuauerv.dll
wuaueng bytes)	5.4.3790.0 (srv03_rtm.030324-2048)	188.50 KB (193,024)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wuaueng.dll
advpack bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	93.50 KB (95,744)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\advpack.dll
wininet bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	609.00 KB (623,616)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\wininet.dll
comsvcs bytes)	2001.12.4720.0 (srv03_rtm.030324-2048)	1.14 MB (1,199,616)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\comsvcs.dll
browser bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	70.50 KB (72,192)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\browser.dll
netrap bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	11.50 KB (11,776)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\netrap.dll
netman bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	209.00 KB (214,016)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\netman.dll
wzcsapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	24.50 KB (25,088)	3/25/2003 6:15 AM	Microsoft Corporation	c:\windows\system32\wzcsapi.dll
netshell bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	1.67 MB (1,747,456)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\netshell.dll
clusapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	56.00 KB (57,344)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\clusapi.dll
hnetcfg bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	243.50 KB (249,344)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\hnetcfg.dll
wbemcore bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	457.00 KB (467,968)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemcore.dll
esscli bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	235.50 KB (241,152)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\esscli.dll
wmiutils bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	90.50 KB (92,672)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\wmiutils.dll
repdrvfs bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	165.00 KB (168,960)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\repdrvfs.dll
wmiprivsd bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	405.50 KB (415,232)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\wmiprivsd.dll
wbemess bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	256.50 KB (262,656)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemess.dll
rasdlg bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	642.00 KB (657,408)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\rasdlg.dll
rasadhlps bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	6.50 KB (6,656)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\rasadhlps.dll
ncprov bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	43.00 KB (44,032)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\wbem\ncprov.dll
winhttp bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	327.50 KB (335,360)	4/18/2003 7:17 AM	Microsoft Corporation	c:\windows\winsxs\x86_microsoft.windows.winhttp_6595b64144
ccf1df_5.1.0.0_x-ww_e0651936\winhttp.dll					
spoolsv bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	55.00 KB (56,320)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\spoolsv.exe
spoolss bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	79.00 KB (80,896)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\spoolss.dll
localspl bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	304.50 KB (311,808)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\localspl.dll
cnbjmon (46,592 bytes)	5.2.3680.0 (Lab03_dev\skatari).020509-1043)	45.50 KB	3/24/2003 7:48 PM	Microsoft Corporation	c:\windows\system32\cnbjmon.dll
pjlmon bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	15.00 KB (15,360)	3/24/2003 7:49 PM	Microsoft Corporation	c:\windows\system32\pjlmon.dll
tcpmon bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	44.00 KB (45,056)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\tcpmon.dll

mgmtapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	14.00 KB (14,336 bytes)	c:\windows\system32\mgmtapi.dll	urlmon bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	501.50 KB (513,536 bytes)	c:\windows\system32\urlmon.dll
snmpapi bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	17.50 KB (17,920 bytes)	c:\windows\system32\snmpapi.dll	webcheck bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	261.50 KB (267,776 bytes)	c:\windows\system32\webcheck.dll
wsnmp32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	39.50 KB (40,448 bytes)	c:\windows\system32\wsnmp32.dll	stobject bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	117.50 KB (120,320 bytes)	c:\windows\system32\stobject.dll
usbmon bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	17.00 KB (17,408 bytes)	c:\windows\system32\usbmon.dll	batmeter bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	28.50 KB (29,184 bytes)	c:\windows\system32\batmeter.dll
winnr bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	15.00 KB (15,360 bytes)	c:\windows\system32\winnr.dll	powrprof bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	14.50 KB (14,848 bytes)	c:\windows\system32\powrprof.dll
wshqos bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	23.00 KB (23,552 bytes)	c:\windows\system32\wshqos.dll	printui bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	536.50 KB (549,376 bytes)	c:\windows\system32\printui.dll
win32spl bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	94.50 KB (96,768 bytes)	c:\windows\system32\win32spl.dll	cfgmgr32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	17.50 KB (17,920 bytes)	c:\windows\system32\cfgmgr32.dll
inetpp bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	71.50 KB (73,216 bytes)	c:\windows\system32\inetpp.dll	drprov bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	12.50 KB (12,800 bytes)	c:\windows\system32\drprov.dll
icmp bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	4.50 KB (4,608 bytes)	c:\windows\system32\icmp.dll	ntlanman bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	41.00 KB (41,984 bytes)	c:\windows\system32\ntlanman.dll
ersvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	22.00 KB (22,528 bytes)	c:\windows\system32\ersvc.dll	netui0 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	75.50 KB (77,312 bytes)	c:\windows\system32\netui0.dll
dfssvc bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	130.50 KB (133,632 bytes)	c:\windows\system32\dfssvc.exe	netui1 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	184.00 KB (188,416 bytes)	c:\windows\system32\netui1.dll
resutils bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	59.00 KB (60,416 bytes)	c:\windows\system32\resutils.dll	davclnt bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	23.50 KB (24,064 bytes)	c:\windows\system32\davclnt.dll
mfc42u	6.05.3014.0	960.00 KB (983,040 bytes)	c:\windows\system32\mfc42u.dll	browsecl bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	62.00 KB (63,488 bytes)	c:\windows\system32\browsecl.dll
wsock32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	22.00 KB (22,528 bytes)	c:\windows\system32\wsock32.dll	shdoclc bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	588.50 KB (602,624 bytes)	c:\windows\system32\shdoclc.dll
explorer (1,032,704 bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	1,008.50 KB (1,032,704 bytes)	c:\windows\explorer.exe	zipfldr bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	316.00 KB (323,584 bytes)	c:\windows\system32\zipfldr.dll
browseui bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	1.01 MB (1,057,280 bytes)	c:\windows\system32\browseui.dll	mydocs bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	88.00 KB (90,112 bytes)	c:\windows\system32\mydocs.dll
shdocvw bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	1.33 MB (1,393,664 bytes)	c:\windows\system32\shdocvw.dll	twext bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	66.50 KB (68,096 bytes)	c:\windows\system32\twext.dll
apphelp bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	122.00 KB (124,928 bytes)	c:\windows\system32\apphelp.dll	sqlservr	2000.080.0761.00	7.11 MB (7,450,664 bytes)	c:\program files\microsoft sql server\mssql\binn\sqlservr.exe
themeui bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	360.50 KB (369,152 bytes)	c:\windows\system32\themeui.dll	opends60	2000.080.0194.00	24.06 KB (24,639 bytes)	c:\program files\microsoft sql server\mssql\binn\opends60.dll
msimg32 bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	4.50 KB (4,608 bytes)	c:\windows\system32\msimg32.dll	ums	2000.080.0760.00	52.55 KB (53,808 bytes)	c:\program files\microsoft sql server\mssql\binn\ums.dll
actxprxy bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	95.00 KB (97,280 bytes)	c:\windows\system32\actxprxy.dll	sqlsort	2000.080.0760.00	576.56 KB (590,396 bytes)	c:\program files\microsoft sql server\mssql\binn\sqlsort.dll
linkinfo bytes)	5.2.3790.0 (srv03_rtm.030324-2048)	16.50 KB (16,896 bytes)	c:\windows\system32\linkinfo.dll	msvcirt bytes)	7.0.3790.0 (srv03_rtm.030324-2048)	50.00 KB (51,200 bytes)	c:\windows\system32\msvcirt.dll
ntshrui bytes)	6.00.3790.0 (srv03_rtm.030324-2048)	136.00 KB (139,264 bytes)	c:\windows\system32\ntshrui.dll				



sqllevn70	2000.080.0760.00	28.00 KB (28,672 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\w95scm.dll
server\mssql\binn\resources\1033\sqllevn70.rll					
xolehlp	2001.12.4720.0 (srv03_rtm.030324-2048)	8.50 KB (8,704 bytes)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\xolehlp.dll
msdtcprx	2001.12.4720.0 (srv03_rtm.030324-2048)	427.50 KB (437,760 bytes)	4/18/2003 2:16 PM	Microsoft Corporation	c:\windows\system32\msdtcprx.dll
mtxclu	2001.12.4720.0 (srv03_rtm.030324-2048)	74.50 KB (76,288 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\mtxclu.dll
ssnetlib	2000.080.0760.00	80.56 KB (82,492 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\ssnetlib.dll
ssnmpn70	2000.080.0534.00	24.56 KB (25,148 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\ssnmpn70.dll
security	5.2.3790.0 (srv03_rtm.030324-2048)	5.50 KB (5,632 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\security.dll
ssmslpcn	2000.080.0760.00	28.56 KB (29,244 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\ssmslpcn.dll
sqloledb	2000.085.1022.00 (srv03_rtm.030324-2048)	536.00 KB (548,864 bytes)	4/18/2003 2:20 PM	Microsoft Corporation	c:\program files\common files\system\ole db\sqloledb.dll
msdart	2.80.1022.0 (srv03_rtm.030324-2048)	164.00 KB (167,936 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\msdart.dll
comdlg32	6.00.3790.0 (srv03_rtm.030324-2048)	261.00 KB (267,264 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\comdlg32.dll
msdatl3	2.80.1022.0 (srv03_rtm.030324-2048)	96.00 KB (98,304 bytes)	4/18/2003 2:20 PM	Microsoft Corporation	c:\program files\common files\system\ole db\msdatl3.dll
oledb32	2.80.1022.0 (srv03_rtm.030324-2048)	500.00 KB (512,000 bytes)	4/18/2003 2:20 PM	Microsoft Corporation	c:\program files\common files\system\ole db\oledb32.dll
oledb32r	2.80.1022.0 (srv03_rtm.030324-2048)	68.00 KB (69,632 bytes)	4/18/2003 2:20 PM	Microsoft Corporation	c:\program files\common files\system\ole db\oledb32r.dll
xpstar	2000.080.0760.00	280.56 KB (287,296 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\xpstar.dll
sqlresld	2000.080.0382.00	28.56 KB (29,248 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\sqlresld.dll
sqlsvc	2000.080.0760.00	92.56 KB (94,784 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\sqlsvc.dll
odbc32	3.525.1022.0 (srv03_rtm.030324-2048)	232.00 KB (237,568 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\odbc32.dll
odbcbcsp	2000.085.1022.00 (srv03_rtm.030324-2048)	24.00 KB (24,576 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\odbcbcsp.dll
w95scm	2000.080.0760.00	48.56 KB (49,728 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	
sqlunirl	2000.080.0728.00	176.56 KB (180,800 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\sqlunirl.dll
shfolder	6.00.3790.0 (srv03_rtm.030324-2048)	23.00 KB (23,552 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\shfolder.dll
odbcint	3.525.1022.0 (srv03_rtm.030324-2048)	92.00 KB (94,208 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\odbcint.dll
sqlsvc	2000.080.0194.00	24.00 KB (24,576 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\resources\1033\sqlsvc.rll
xpstar	2000.080.0760.00	36.00 KB (36,864 bytes)	4/18/2003 2:50 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\resources\1033\xpstar.rll
cmd	5.2.3790.0 (srv03_rtm.030324-2048)	374.00 KB (382,976 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\cmd.exe
msinfo32	5.2.3790.0 (srv03_rtm.030324-2048)	40.50 KB (41,472 bytes)	4/18/2003 2:20 PM	Microsoft Corporation	c:\program files\common files\microsoft shared\msinfo\msinfo32.exe
msinfo	5.2.3790.0 (srv03_rtm.030324-2048)	358.50 KB (367,104 bytes)	4/18/2003 2:20 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\msinfo.dll
riched32	5.2.3790.0 (srv03_rtm.030324-2048)	3.50 KB (3,584 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\riched32.dll
riched20	5.31.23.1218	406.00 KB (415,744 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\riched20.dll
taskmgr	5.2.3790.0 (srv03_rtm.030324-2048)	124.00 KB (126,976 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\taskmgr.exe
vdmdbg	5.2.3790.0 (srv03_rtm.030324-2048)	25.00 KB (25,600 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\vdmdbg.dll
utildll	5.2.3790.0 (srv03_rtm.030324-2048)	27.00 KB (27,648 bytes)	3/25/2003 12:00 AM	Microsoft Corporation	c:\windows\system32\utildll.dll
[Services]					
Display Name	Name	State	Start Mode	Service Type	
Path	Error Control	Start Name	Tag ID		
Alerter	Alerter	Stopped	Disabled	Share Process	
c:\windows\system32\svchost.exe -k localservice					Normal
NT AUTHORITY\LocalService		0			
Application Layer Gateway Service		ALG	Stopped	Manual	
Own Process					
c:\windows\system32\alg.exe					Normal
NT AUTHORITY\LocalService		0			
Application Management		AppMgmt	Stopped	Manual	Share
Process					
c:\windows\system32\svchost.exe -k netsvcs					Normal
LocalSystem		0			
Windows Audio	AudioSrv	Stopped	Disabled	Share Process	
c:\windows\system32\svchost.exe -k netsvcs					Normal
LocalSystem		0			
Background Intelligent Transfer Service		BITS	Stopped	Manual	
Share Process					
c:\windows\system32\svchost.exe -k netsvcs					Normal
LocalSystem		0			
Computer Browser	Browser	Running	Auto	Share Process	
c:\windows\system32\svchost.exe -k netsvcs					Normal
LocalSystem		0			

Indexing Service	CiSvc	Stopped	Disabled	Share Process		Messenger Messenger	Stopped	Disabled	Share Process	
	c:\windows\system32\cisvc.exe		Normal	LocalSystem	0		c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
ClipBook	ClipSrv	Stopped	Disabled	Own Process		NetMeeting Remote Desktop Sharing	Stopped	Disabled	mnmsrvc	Stopped
	c:\windows\system32\clipsrv.exe		Normal	LocalSystem	0		c:\windows\system32\mnmsrvc.exe		LocalSystem	0
COM+ System Application		COMSysApp		Stopped	Manual	Distributed Transaction Coordinator	MSDTC	Stopped	Manual	
	Own Process	c:\windows\system32\dlhhost.exe					c:\windows\system32\msdtc.exe	Normal		
/processid:{02d4b3f1-fd88-11d1-960d-00805fc79235}				Normal		NT AUTHORITY\NetworkService		0		
	LocalSystem			0		Windows Installer	MSIServer	Stopped	Manual	Share Process
Cryptographic Services		CryptSvc	Running	Auto	Share		c:\windows\system32\msiexec.exe /v	Normal		
Process	c:\windows\system32\svchost.exe -k netsvcs			Normal			LocalSystem	0		
	LocalSystem			0		MSSQLSERVER	MSSQLSERVER	Stopped	Manual	Own
Distributed File System		Dfs	Running	Auto	Own	Process	c:\progra~1\microso~1\mssql\binn\sqlservr.exe			Normal
Process	c:\windows\system32\dfssvc.exe		Normal	LocalSystem	0		LocalSystem	0		
	0					MSSQLServerADHelper	MSSQLServerADHelper	Stopped		
DHCP Client	Dhcp	Running	Auto	Share Process		Manual	Own Process	c:\program files\microsoft sql		0
	c:\windows\system32\svchost.exe -k networkservice			Normal		server\80\tools\binn\sqladhlp.exe	Normal	LocalSystem		0
	NT AUTHORITY\NetworkService			0		Network DDE	NetDDE	Stopped	Disabled	Share Process
Logical Disk Manager Administrative Service		dmadmin	Stopped				c:\windows\system32\netdde.exe	Normal	LocalSystem	0
Manual	Share Process						0			
	c:\windows\system32\dmadmin.exe /com			Normal		Network DDE DSDM	NetDDEdsdm	Stopped	Disabled	Share
	LocalSystem			0		Process	c:\windows\system32\netdde.exe	Normal	LocalSystem	0
Logical Disk Managerdmserver		Running	Auto	Share Process			0			
	c:\windows\system32\svchost.exe -k netsvcs			Normal		Net Logon	Netlogon	Stopped	Manual	Share Process
	LocalSystem			0			c:\windows\system32\lsass.exe	Normal	LocalSystem	0
DNS Client	Dnscache	Running	Auto	Share Process			0			
	c:\windows\system32\svchost.exe -k networkservice			Normal		Network Connections	Netman	Running	Manual	Share Process
	NT AUTHORITY\NetworkService			0			c:\windows\system32\svchost.exe -k netsvcs	Normal		
Error Reporting Service		ERSvc	Running	Auto	Share		LocalSystem	0		
Process	c:\windows\system32\svchost.exe -k winerr			Ignore		Network Location Awareness (NLA)	Nla	Running	Manual	
	LocalSystem			0		Share Process	c:\windows\system32\svchost.exe -k			
Event Log	Eventlog	Running	Auto	Share Process		netsvcs	Normal	LocalSystem	0	
	c:\windows\system32\services.exe			Normal		File Replication	NtFrs	Stopped	Manual	Own Process
	LocalSystem			0			c:\windows\system32\ntfrs.exe	Ignore	LocalSystem	0
COM+ Event System	EventSystem		Running	Manual	Share		0			
Process	c:\windows\system32\svchost.exe -k netsvcs			Normal		NT LM Security Support Provider		NtLmSsp	Stopped	Manual
	LocalSystem			0		Share Process	c:\windows\system32\lsass.exe	Normal		
Help and Support	helpsvc	Running	Auto	Share Process			LocalSystem	0		
	c:\windows\system32\svchost.exe -k netsvcs			Normal		Removable Storage	NtmsSvc	Stopped	Manual	Share Process
	LocalSystem			0			c:\windows\system32\svchost.exe -k netsvcs	Normal		
Human Interface Device Access	HidServ	Stopped	Disabled	Share			LocalSystem	0		
Process	c:\windows\system32\svchost.exe -k netsvcs			Normal		Plug and Play	PlugPlay	Running	Auto	Share Process
	LocalSystem			0			c:\windows\system32\services.exe			Normal
HTTP SSLHTTPFilter		Stopped	Manual	Share Process			LocalSystem	0		
	c:\windows\system32\lsass.exe		Normal	LocalSystem		IPSEC Services	PolicyAgent	Running	Auto	Share
	0					Process	c:\windows\system32\lsass.exe	Normal	LocalSystem	0
IMAPI CD-Burning COM Service		ImapiService		Stopped			0			
	Disabled	Own Process				Protected Storage	ProtectedStorage	Running	Auto	Share
	Normal	LocalSystem		0		Process	c:\windows\system32\lsass.exe	Normal	LocalSystem	0
Intersite Messaging	IsmServ	Stopped	Disabled	Own Process			0			
	c:\windows\system32\ismserv.exe			Normal		Remote Access Auto Connection Manager	RasAuto	Stopped	Manual	
	LocalSystem			0		Share Process	c:\windows\system32\svchost.exe -k			
Kerberos Key Distribution Center		kdc	Stopped	Disabled		netsvcs	Normal	LocalSystem	0	
	Share Process	c:\windows\system32\lsass.exe		Normal		Remote Access Connection Manager	RasMan	Stopped	Manual	
	LocalSystem			0		Share Process	c:\windows\system32\svchost.exe -k			
Server	lanmanserver	Running	Auto	Share Process		netsvcs	Normal	LocalSystem	0	
	c:\windows\system32\svchost.exe -k netsvcs			Normal		Remote Desktop Help Session Manager	RDSSessMgr			Stopped
	LocalSystem			0		Manual	Own Process			
Workstation	lanmanworkstation	Running	Auto	Share			c:\windows\system32\sessmgr.exe			Normal
Process	c:\windows\system32\svchost.exe -k netsvcs			Normal			LocalSystem	0		
	LocalSystem			0		Routing and Remote Access	RemoteAccess	Stopped	Disabled	
License Logging	LicenseService		Stopped	Disabled	Own	Share Process	c:\windows\system32\svchost.exe -k			
Process	c:\windows\system32\llsrv.exe		Normal	NT		netsvcs	Normal	LocalSystem	0	
	0					Remote Registry	RemoteRegistry	Running	Auto	Share
AUTHORITY\NetworkService						Process	c:\windows\system32\svchost.exe -k regsvc	Normal	NT	
TCP/IP NetBIOS Helper		LmHosts	Running	Auto	Share		0			
Process	c:\windows\system32\svchost.exe -k localservice			Normal		AUTHORITY\LocalService		0		
	NT AUTHORITY\LocalService			0		Remote Procedure Call (RPC) Locator	RpcLocator			Stopped
						Manual	Own Process			

```

c:\windows\system32\locator.exe Normal NT
AUTHORITY\NetworkService 0
Remote Procedure Call (RPC) RpcSs Running Auto Share
Process c:\windows\system32\svchost -k rpcss Normal
LocalSystem 0
Resultant Set of Policy Provider RSoPProv Stopped Manual Share
Process c:\windows\system32\rsopprov.exe Normal
LocalSystem 0
Special Administration Console Helper sacsvr Running Manual
Share Process c:\windows\system32\svchost.exe -k
netsvcs Normal LocalSystem 0
Security Accounts Manager SamSs Running Auto Share
Process c:\windows\system32\lsass.exe Normal LocalSystem
0
Smart Card SCardSvr Stopped Manual Share Process
c:\windows\system32\scardsvr.exe Ignore NT
AUTHORITY\LocalService 0
Task Scheduler Schedule Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Secondary Logon seclogon Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs Ignore
LocalSystem 0
System Event Notification SENS Running Auto Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Internet Connection Firewall (ICF) / Internet Connection Sharing (ICS)
SharedAccess Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Shell Hardware Detection ShellHWDetection Running Auto
netsvcs Share Process c:\windows\system32\svchost.exe -k
Ignore LocalSystem 0
Print Spooler Spooler Running Auto Own Process
c:\windows\system32\spoolsv.exe Normal
LocalSystem 0
SQLSERVERAGENT SQLSERVERAGENT Stopped
Manual Own Process
c:\progra~1\micros~1\mssql\bin\sqlagent.exe Normal
LocalSystem 0
Windows Image Acquisition (WIA) stisvc Stopped Disabled
Share Process c:\windows\system32\svchost.exe -k
imgsvc Normal NT AUTHORITY\LocalService 0
Microsoft Software Shadow Copy Provider swprv Stopped Manual
Own Process c:\windows\system32\svchost.exe -k swprv
Normal LocalSystem 0
Performance Logs and Alerts SysmonLog Stopped Manual
Own Process c:\windows\system32\smlogsvc.exe
Normal NT Authority\NetworkService 0
Telephony TapiSrv Stopped Manual Share Process
c:\windows\system32\svchost.exe -k tapisrv Normal
LocalSystem 0
Terminal Services TermService Running Manual Share
Process c:\windows\system32\svchost.exe -k termvcs Normal
LocalSystem 0
Themes Themes Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Telnet TlntSvr Stopped Disabled Own Process
c:\windows\system32\tlntsvr.exe Normal NT
AUTHORITY\LocalService 0
Distributed Link Tracking Server TrkSvr Stopped Disabled Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Distributed Link Tracking Client TrkWks Running Auto Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Terminal Services Session Directory Tssdis Stopped Disabled
Own Process c:\windows\system32\tssdis.exe Normal
LocalSystem 0

```

```

Upload Manager uploadmgr Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Uninterruptible Power Supply UPS Stopped Manual Own
Process c:\windows\system32\ups.exe Normal NT
AUTHORITY\LocalService 0
Virtual Disk Service vds Stopped Manual Own Process
c:\windows\system32\vds.exe Normal LocalSystem
0
Volume Shadow Copy VSS Stopped Manual Own
Process c:\windows\system32\vssvc.exe Normal LocalSystem
0
Windows Time W32Time Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
WebClient WebClient Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k localservice Normal
NT AUTHORITY\LocalService 0
WinHTTP Web Proxy Auto-Discovery Service
WinHttpAutoProxySvc Stopped Manual Share
Process c:\windows\system32\svchost.exe -k localservice Normal
NT AUTHORITY\LocalService 0
Windows Management Instrumentation winmgmt Running Auto
Share Process c:\windows\system32\svchost.exe -k
netsvcs Ignore LocalSystem 0
Portable Media Serial Number Service WndmPmSN Stopped
Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Windows Management Instrumentation Driver Extensions Wmi
Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
WMI Performance Adapter WmiApSrv Stopped Manual
Own Process c:\windows\system32\wbem\wmiaprv.exe
Normal LocalSystem 0
Automatic Updates wuauerv Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Wireless Configuration WZCSVC Running Auto Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0

[Program Groups]

Group Name Name User Name
Accessories Default User:Accessories Default User
Accessories\Accessibility Default User:Accessories\Accessibility
Default User
Accessories\Entertainment Default User:Accessories\Entertainment
Default User
Startup Default User:Startup Default User
Accessories All Users:Accessories All Users
Accessories\Accessibility All Users:Accessories\Accessibility
All Users
Accessories\Communications All Users:Accessories\Communications
All Users
Accessories\Entertainment All Users:Accessories\Entertainment
All Users
Accessories\System Tools All Users:Accessories\System Tools
All Users
Administrative Tools All Users:Administrative Tools All Users
Microsoft SQL Server All Users:Microsoft SQL Server All Users
Startup All Users:Startup All Users
Accessories NT AUTHORITY\SYSTEM:Accessories NT
AUTHORITY\SYSTEM
Accessories\Accessibility NT
AUTHORITY\SYSTEM:Accessories\Accessibility NT
AUTHORITY\SYSTEM

```

Accessories\Entertainment NT  
 AUTHORITY\SYSTEM:Accessories\Entertainment NT  
 AUTHORITY\SYSTEM  
 Startup NT AUTHORITY\SYSTEM:Startup NT  
 AUTHORITY\SYSTEM  
 Accessories PHOENIX\Administrator:Accessories  
 PHOENIX\Administrator  
 Accessories\Accessibility  
 PHOENIX\Administrator:Accessories\Accessibility  
 PHOENIX\Administrator  
 Accessories\Entertainment  
 PHOENIX\Administrator:Accessories\Entertainment  
 PHOENIX\Administrator  
 Administrative Tools PHOENIX\Administrator:Administrative Tools  
 PHOENIX\Administrator  
 Startup PHOENIX\Administrator:StartupPHOENIX\Administrator

[Startup Programs]

Program	Command	User Name	Location
desktop	desktop.ini	NT AUTHORITY\SYSTEM	Startup
desktop	desktop.ini	PHOENIX\Administrator	Startup
desktop	desktop.ini	.DEFAULT	Startup
desktop	desktop.ini	All Users	Common Startup

[OLE Registration]

Object	Local Server
Sound (OLE2)	sndrec32.exe
Media Clip	mplay32.exe
Video Clip	mplay32.exe /avi
MIDI Sequence	mplay32.exe /mid
Sound	Not Available
Media Clip	Not Available
WordPad Document	"%programfiles%\windows nt\accessories\wordpad.exe"
Windows Media Services DRM Storage object	Not Available

Bitmap Image mspaint.exe

[Windows Error Reporting]

Time	Type	Details
------	------	---------

[Internet Settings]

[Internet Explorer]

[ Following are sub-categories of this main category ]

[Summary]

Item	Value
Version	6.0.3790.0
Build	63790
Application Path	C:\Program Files\Internet Explorer
Language	English (United States)
Active Printer	Not Available
Cipher Strength	128-bit
Content Advisor	Disabled
IEAK Install	No

[File Versions]

File	Version	Size	Date	Path	Company
------	---------	------	------	------	---------

actxprxy.dll	6.0.3790.0 95 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
advpack.dll	6.0.3790.0 94 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
asctrls.ocx	6.0.3790.0 90 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
browsecl.dll	6.0.3790.0 62 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
browseui.dll	6.0.3790.0 1,033 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
cdfview.dll	6.0.3790.0 144 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
comctl32.dll	5.82.3790.0	561 KB	3/25/2003	C:\WINDOWS\system32
dxtrans.dll	6.3.3790.0 198 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
dxtsmf.dll	6.3.3790.0 344 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
iecont.dll	<File Missing>	Not Available	Not Available	Not Available
iecontlc.dll	<File Missing>	Not Available	Not Available	Not Available
iedkcs32.dll	16.0.3790.0	300 KB	3/25/2003	C:\WINDOWS\system32
iepeers.dll	6.0.3790.0 230 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
iesetup.dll	6.0.3790.0 59 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
ieunit.inf	Not Available	20 KB	3/25/2003	C:\WINDOWS\system32
ieexplore.exe	6.0.3790.0 90 KB	3/25/2003	C:\Program Files\Internet Explorer	Microsoft Corporation
imgutil.dll	5.2.3790.0 35 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
inetctl.cpl	6.0.3790.0 303 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
inetcpl.dll	6.0.3790.0 109 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
inseng.dll	6.0.3790.0 72 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
mlang.dll	6.0.3790.0 570 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
msencode.dll	2002.10.4.0	112 KB	3/25/2003	C:\WINDOWS\system32
mshta.exe	6.0.3790.0 26 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
mshtml.dll	6.0.3790.0 2,848 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
mshtml.tlb	6.0.3790.0 1,319 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
mshtmlmled.dll	6.0.3790.0 444 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
mshtmlr.dll	6.0.3790.0 55 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
msident.dll	6.0.3790.0 47 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
msidntld.dll	6.0.3790.0 15 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation
msieftp.dll	6.0.3790.0 230 KB	3/25/2003	C:\WINDOWS\system32	Microsoft Corporation

msrating.dll 6.0.3790.0 132 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

mstime.dll 6.0.3790.0 491 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

occache.dll 6.0.3790.0 89 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

proctexe.ocx 6.3.3790.0 78 KB 3/25/2003 C:\WINDOWS\system32 Intel Corporation

sendmail.dll 6.0.3790.0 52 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

shdoclc.dll 6.0.3790.0 589 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

shdocvw.dll 6.0.3790.0 1,361 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

shfolder.dll 6.0.3790.0 23 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

shlwapi.dll 6.0.3790.0 281 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

tdc.ocx 1.3.0.3130 58 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

url.dll 6.0.3790.0 36 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

urlmon.dll 6.0.3790.0 502 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

webcheck.dll 6.0.3790.0 262 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

wininet.dll 6.0.3790.0 609 KB 3/25/2003 C:\WINDOWS\system32 Microsoft Corporation

[Connectivity]

Item	Value
Connection Preference	Never dial

LAN Settings

AutoConfigProxy	Not Available
AutoProxyDetectMode	Disabled
AutoConfigURL	
Proxy	Disabled
ProxyServer	
ProxyOverride	

[Cache]

[ Following are sub-categories of this main category ]  
[Summary]

Item	Value
Page Refresh Type	Automatic

Temporary Internet Files Folder C:\Documents and Settings\NetworkService\Local Settings\Temporary Internet Files

Total Disk Space	Not Available
Available Disk Space	Not Available
Maximum Cache Size	Not Available
Available Cache Size	Not Available

[List of Objects]

Program File	Status	CodeBase
No cached object information available		

[Content]

[ Following are sub-categories of this main category ]  
[Summary]

Item	Value	Disabled
Content Advisor		Disabled

[Personal Certificates]

Issued To	Issued By	Validity	Signature Algorithm
No personal certificate information available			

[Other People Certificates]

Issued To	Issued By	Validity	Signature Algorithm
No other people certificate information available			

[Publishers]

Name
No publisher information available

[Security]

Zone	Security Level
My Computer	Custom
Local intranet	Medium-low
Trusted sites	Medium
Internet	High
Restricted sites	High

## A.8 Server Registry Parameters

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\I/O System]
"CountOperations"=dword:00000000
```

# Appendix B: Database Build Scripts

## B.1 CreateDatabase.sql

```
-- CreateDatabase  
-- for use with StepMaster  
-- Uses FileGroups
```

```
Create Database tpch300g on  
Primary (name=tpch300g,  
filename='c:\dev\tpch300g.mdf',size=10mb,filegrowth=0),  
FileGroup tpch300g  
  
(name=tpch300g1,filename='c:\dev\tpch_1',size=23950mb,filegrowth=0),  
  
(name=tpch300g2,filename='c:\dev\tpch_2',size=23950mb,filegrowth=0),  
  
(name=tpch300g3,filename='c:\dev\tpch_3',size=23950mb,filegrowth=0),  
  
(name=tpch300g4,filename='c:\dev\tpch_4',size=23950mb,filegrowth=0),  
  
(name=tpch300g5,filename='c:\dev\tpch_5',size=23950mb,filegrowth=0),  
  
(name=tpch300g6,filename='c:\dev\tpch_6',size=23950mb,filegrowth=0),  
  
(name=tpch300g7,filename='c:\dev\tpch_7',size=23950mb,filegrowth=0),  
  
(name=tpch300g8,filename='c:\dev\tpch_8',size=23950mb,filegrowth=0),  
  
(name=tpch300g9,filename='c:\dev\tpch_9',size=23950mb,filegrowth=0),  
  
(name=tpch300g10,filename='c:\dev\tpch_10',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g11,filename='c:\dev\tpch_11',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g12,filename='c:\dev\tpch_12',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g13,filename='c:\dev\tpch_13',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g14,filename='c:\dev\tpch_14',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g15,filename='c:\dev\tpch_15',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g16,filename='c:\dev\tpch_16',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g17,filename='c:\dev\tpch_17',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g18,filename='c:\dev\tpch_18',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g19,filename='c:\dev\tpch_19',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g20,filename='c:\dev\tpch_20',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g21,filename='c:\dev\tpch_21',size=23950mb,filegrowth=0  
) ,
```

```
(name=tpch300g22,filename='c:\dev\tpch_22',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g23,filename='c:\dev\tpch_23',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g24,filename='c:\dev\tpch_24',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g25,filename='c:\dev\tpch_25',size=23950mb,filegrowth=0  
) ,  
  
(name=tpch300g26,filename='c:\dev\tpch_26',size=23950mb,filegrowth=0  
)  
  
Log on  
    (name=tpch300gLog,filename='c:\dev\tpchlog',size=39900mb,f  
ilegrowth=0)  
  
Alter Database tpch300g Add FileGroup LoadFg  
  
Alter Database tpch300g Add File  
    (name=LoadFg1,  
filename='c:\dev\load_1\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg2,  
filename='c:\dev\load_2\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg3,  
filename='c:\dev\load_3\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg4,  
filename='c:\dev\load_4\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg5,  
filename='c:\dev\load_5\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg6,  
filename='c:\dev\load_6\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg7,  
filename='c:\dev\load_7\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg8,  
filename='c:\dev\load_8\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg9,  
filename='c:\dev\load_9\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg10,  
filename='c:\dev\load_10\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg11,  
filename='c:\dev\load_11\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg12,  
filename='c:\dev\load_12\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg13,  
filename='c:\dev\load_13\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg14,  
filename='c:\dev\load_14\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg15,  
filename='c:\dev\load_15\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg16,  
filename='c:\dev\load_16\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg17,  
filename='c:\dev\load_17\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg18,  
filename='c:\dev\load_18\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg19,  
filename='c:\dev\load_19\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg20,  
filename='c:\dev\load_20\load.ldf',size=22900mb,filegrowth=0),  
    (name=LoadFg21,  
filename='c:\dev\load_21\load.ldf',size=22900mb,filegrowth=0),
```

```

(name=LoadFg22,
filename='c:\dev\load_22\load.ldf',size=22900mb,filegrowth=0),
(name=LoadFg23,
filename='c:\dev\load_23\load.ldf',size=22900mb,filegrowth=0),
(name=LoadFg24,
filename='c:\dev\load_24\load.ldf',size=22900mb,filegrowth=0),
(name=LoadFg25,
filename='c:\dev\load_25\load.ldf',size=22900mb,filegrowth=0),
(name=LoadFg26,
filename='c:\dev\load_26\load.ldf',size=22900mb,filegrowth=0)

```

to FileGroup LoadFg

## B.2 CreateTables.sql

```

-- CreateTables
-- Uses filegroups

--
-- BASE TABLES
--

create table PART
(P_PARTKEY int not null,
P_NAME varchar(55) not null,
P_MFGR char(25) not null,
P_BRAND char(10) not null,
P_TYPE varchar(25) not null,
P_SIZE int not null,
P_CONTAINER char(10) not null,
P_RETAILPRICE money not null,
P_COMMENT varchar(23) not null)
on LoadFg

create table SUPPLIER
(S_SUPPKEY int not null,
S_NAME char(25) not null,
S_ADDRESS varchar(40) not null,
S_NATIONKEY int not null,
S_PHONE char(15) not null,
S_ACCTBAL money not null,
S_COMMENT varchar(101) not null)
on LoadFg

create table PARTSUPP
(PS_PARTKEY int not null,
PS_SUPPKEY int not null,
PS_AVAILQTY int not null,
PS_SUPPLYCOST money not null,
PS_COMMENT varchar(199) not null)
on LoadFg

create table CUSTOMER
(C_CUSTKEY int not null,
C_NAME varchar(25) not null,
C_ADDRESS varchar(40) not null,
C_NATIONKEY int not null,
C_PHONE char(15) not null,
C_ACCTBAL money not null,
C_MKTSEGMENT char(10) not null,
C_COMMENT varchar(117) not null)
on LoadFg

create table ORDERS
(O_ORDERKEY int not null,
O_CUSTKEY int not null,
O_ORDERSTATUS char(1) not null,
O_TOTALPRICE money not null,
O_ORDERDATE smalldatetime not null,

```

```

O_ORDERPRIORITY char(15) not null,
O_CLERK char(15) not null,
O_SHIPPRIORITY int not null,
O_COMMENT varchar(79) not null)
on LoadFg

```

```

create table LINEITEM
(L_ORDERKEY int not null,
L_PARTKEY int not null,
L_SUPPKEY int not null,
L_LINENUMBER int not null,
L_QUANTITY money not null,
L_EXTENDEDPRI money not null,
L_DISCOUNT money not null,
L_TAX money not null,
L_RETURNFLAG char(1) not null,
L_LINestatus char(1) not null,
L_SHIPDATE smalldatetime not null,
L_COMMITDATE smalldatetime not null,
L_RECEIPTDATE smalldatetime not null,
L_SHIPINSTRUCT char(25) not null,
L_SHIPMODE char(10) not null,
L_COMMENT varchar(44) not null)
on LoadFg

```

```

create table NATION
(N_NATIONKEY int not null,
N_NAME char(25) not null,
N_REGIONKEY int not null,
N_COMMENT varchar(152) not null)
on LoadFg

```

```

create table REGION
(R_REGIONKEY int not null,
R_NAME char(25) not null,
R_COMMENT varchar(152) not null)
on LoadFg

```

## B.3 CreateCUSTOMERIndexes.sql

```

create unique clustered index C_KEY_CLUIDX
on CUSTOMER(C_CUSTKEY)
with SORT_IN_TEMPDB
on tpch300g
create index C_NATION_KEYIDX
on CUSTOMER(C_NATIONKEY)
with SORT_IN_TEMPDB
on tpch300g

```

## B.4 CreateLINEITEMIndexes.sql

```

create clustered index L_SHIPDATE_CLUIDX
on LINEITEM(L_SHIPDATE)
with fillfactor=95, SORT_IN_TEMPDB
on tpch300g

create index L_PARTKEY_SUPPKEY_IDX
on LINEITEM(L_PARTKEY,L_SUPPKEY)
with fillfactor=95, SORT_IN_TEMPDB
on tpch300g

create index L_ORDERKEY_IDX
on LINEITEM(L_ORDERKEY)
with fillfactor=95, SORT_IN_TEMPDB
on tpch300g

```

## B.5 CreateNATIONIndexes.sql

```
create unique clustered index N_KEY_CLUIDX
  on NATION(N_NATIONKEY)
  on tpch300g
create index N_REGIONKEY_IDX
  on NATION (N_REGIONKEY)
  on tpch300g
```

## B.6 CreateORDERSIndexes.sql

```
create clustered index O_ORDERDATE_CLUIDX
  on ORDERS (O_ORDERDATE)
  with fillfactor=95, SORT_IN_TEMPDB
  on tpch300g

create index O_CUSTKEY_IDX
  on ORDERS (O_CUSTKEY)
  with fillfactor=95, SORT_IN_TEMPDB
  on tpch300g

create unique index O_KEY_IDX
  on ORDERS(O_ORDERKEY)
  with fillfactor=95, SORT_IN_TEMPDB
  on tpch300g
```

## B.7 CreatePARTIndexes.sql

```
create unique clustered index P_KEY_CLUIDX
  on PART(P_PARTKEY)
  with SORT_IN_TEMPDB
  on tpch300g
```

## B.8 CreatePARTSUPPIndexes.sql

```
create unique clustered index PS_KEY_CLUIDX
  on PARTSUPP(PS_PARTKEY,PS_SUPPKEY)
  with SORT_IN_TEMPDB
  on tpch300g
create index PS_SUPPKEY_IDX
  on PARTSUPP (PS_SUPPKEY)
  with SORT_IN_TEMPDB
  on tpch300g
```

## B.9 CreateREGIONIndexes.sql

```
create unique clustered index R_KEY_CLUIDX
  on REGION(R_REGIONKEY)
  on tpch300g
```

## B.10 createSUPPLIERindexes.sql

```
create unique clustered index S_SUPPKEY_CLUIDX
  on SUPPLIER (S_SUPPKEY)
  with SORT_IN_TEMPDB
  on tpch300g
create index S_NATION_KEYIDX
  on SUPPLIER (S_NATIONKEY)
  with SORT_IN_TEMPDB
```

on tpch300g

## B.11 Backup.sql

```
backup database tpch300g to
disk=c:\dev\load_1\test.bak',
disk=c:\dev\load_2\test.bak',
disk=c:\dev\load_3\test.bak',
disk=c:\dev\load_4\test.bak',
disk=c:\dev\load_5\test.bak',
disk=c:\dev\load_6\test.bak',
disk=c:\dev\load_7\test.bak',
disk=c:\dev\load_8\test.bak',
disk=c:\dev\load_9\test.bak',
disk=c:\dev\load_10\test.bak',
disk=c:\dev\load_11\test.bak',
disk=c:\dev\load_12\test.bak',
disk=c:\dev\load_13\test.bak',
disk=c:\dev\load_14\test.bak',
disk=c:\dev\load_15\test.bak',
disk=c:\dev\load_16\test.bak',
disk=c:\dev\load_17\test.bak',
disk=c:\dev\load_18\test.bak',
disk=c:\dev\load_19\test.bak',
disk=c:\dev\load_20\test.bak',
disk=c:\dev\load_21\test.bak',
disk=c:\dev\load_22\test.bak',
disk=c:\dev\load_23\test.bak',
disk=c:\dev\load_24\test.bak',
disk=c:\dev\load_25\test.bak',
disk=c:\dev\load_26\test.bak'
with init,stats=10
```

## B.12 Restore.sql

```
restore database tpch100g from
disk=c:\dev\load_1\test.bak',
disk=c:\dev\load_2\test.bak',
disk=c:\dev\load_3\test.bak',
disk=c:\dev\load_4\test.bak',
disk=c:\dev\load_5\test.bak',
disk=c:\dev\load_6\test.bak',
disk=c:\dev\load_7\test.bak',
disk=c:\dev\load_8\test.bak',
disk=c:\dev\load_9\test.bak',
disk=c:\dev\load_10\test.bak',
disk=c:\dev\load_11\test.bak',
disk=c:\dev\load_12\test.bak',
disk=c:\dev\load_13\test.bak',
disk=c:\dev\load_14\test.bak',
disk=c:\dev\load_15\test.bak',
disk=c:\dev\load_16\test.bak',
disk=c:\dev\load_17\test.bak',
disk=c:\dev\load_18\test.bak',
disk=c:\dev\load_19\test.bak',
disk=c:\dev\load_20\test.bak',
disk=c:\dev\load_21\test.bak',
disk=c:\dev\load_22\test.bak',
disk=c:\dev\load_23\test.bak',
disk=c:\dev\load_24\test.bak',
disk=c:\dev\load_25\test.bak',
disk=c:\dev\load_26\test.bak'
with stats=1, replace
```



## B.13 MoveTemp.sql

```
alter database tempdb modify file
(name=tempdev,filename='c:\dev\tempdev\',size=15MB)
alter database tempdb modify file
(name=templog,filename='c:\dev\templog\',size=20MB)
```

## B.14 AddTemp.sql

```
alter database tempdb modify file
(name=tempdev, filename='c:\dev\tempdev\',size=4950mb,filegrowth=0)
alter database tempdb modify file
(name=templog, filename='c:\dev\templog\',size=5556mb,filegrowth=0)
alter database tempdb add file
(name=tempdev2,
filename='c:\dev\tempdev_2\',size=4950mb,filegrowth=0),
(name=tempdev3,
filename='c:\dev\tempdev_3\',size=4950mb,filegrowth=0),
(name=tempdev4,
filename='c:\dev\tempdev_4\',size=4950mb,filegrowth=0),
(name=tempdev5,
filename='c:\dev\tempdev_5\',size=4950mb,filegrowth=0),
(name=tempdev6,
filename='c:\dev\tempdev_6\',size=4950mb,filegrowth=0),
(name=tempdev7,
filename='c:\dev\tempdev_7\',size=4950mb,filegrowth=0),
(name=tempdev8,
filename='c:\dev\tempdev_8\',size=4950mb,filegrowth=0),
(name=tempdev9,
filename='c:\dev\tempdev_9\',size=4950mb,filegrowth=0),
(name=tempdev10,
filename='c:\dev\tempdev_10\',size=4950mb,filegrowth=0),
(name=tempdev11,
filename='c:\dev\tempdev_11\',size=4950mb,filegrowth=0),
(name=tempdev12,
filename='c:\dev\tempdev_12\',size=4950mb,filegrowth=0),
(name=tempdev13,
filename='c:\dev\tempdev_13\',size=4950mb,filegrowth=0),
(name=tempdev14,
filename='c:\dev\tempdev_14\',size=4950mb,filegrowth=0),
(name=tempdev15,
filename='c:\dev\tempdev_15\',size=4950mb,filegrowth=0),
(name=tempdev16,
filename='c:\dev\tempdev_16\',size=4950mb,filegrowth=0),
(name=tempdev17,
filename='c:\dev\tempdev_17\',size=4950mb,filegrowth=0),
(name=tempdev18,
filename='c:\dev\tempdev_18\',size=4950mb,filegrowth=0),
(name=tempdev19,
filename='c:\dev\tempdev_19\',size=4950mb,filegrowth=0),
(name=tempdev20,
filename='c:\dev\tempdev_20\',size=4950mb,filegrowth=0),
(name=tempdev21,
filename='c:\dev\tempdev_21\',size=4950mb,filegrowth=0),
(name=tempdev22,
filename='c:\dev\tempdev_22\',size=4950mb,filegrowth=0),
(name=tempdev23,
filename='c:\dev\tempdev_23\',size=4950mb,filegrowth=0),
(name=tempdev24,
filename='c:\dev\tempdev_24\',size=4950mb,filegrowth=0),
(name=tempdev25,
filename='c:\dev\tempdev_25\',size=4950mb,filegrowth=0),
(name=tempdev26,
filename='c:\dev\tempdev_26\',size=4950mb,filegrowth=0)
```

## B.15 DelLoadFg.sql

```
alter database tpch100g remove file LoadFg1
alter database tpch100g remove file LoadFg2
alter database tpch100g remove file LoadFg3
alter database tpch100g remove file LoadFg4
alter database tpch100g remove file LoadFg5
alter database tpch100g remove file LoadFg6
alter database tpch100g remove file LoadFg7
alter database tpch100g remove file LoadFg8
alter database tpch100g remove file LoadFg9
alter database tpch100g remove file LoadFg10
alter database tpch100g remove file LoadFg11
alter database tpch100g remove file LoadFg12
alter database tpch100g remove file LoadFg13
alter database tpch100g remove file LoadFg14
alter database tpch100g remove file LoadFg15
alter database tpch100g remove file LoadFg16
alter database tpch100g remove file LoadFg17
alter database tpch100g remove file LoadFg18
alter database tpch100g remove file LoadFg19
alter database tpch100g remove file LoadFg20
alter database tpch100g remove file LoadFg21
alter database tpch100g remove file LoadFg22
alter database tpch100g remove file LoadFg23
alter database tpch100g remove file LoadFg24
alter database tpch100g remove file LoadFg25
alter database tpch100g remove file LoadFg26
alter database tpch100g remove filegroup LoadFg
```

# Appendix C: Query Text and Output

## C.1 Qualification Queries and Output

### Qualification Query 1

-- using default substitutions

/\* tpch 1.sql \*/

```
SELECT
L_RETURNFLAG
,L_LINESTATUS
,SUM(L_QUANTITY) AS SUM_QTY
,SUM(L_EXTENDEDPRI) AS SUM_BASE_PRICE
,SUM(L_EXTENDEDPRI*(1-L_DISCOUNT)) AS SUM_DISC_PRICE
,SUM(L_EXTENDEDPRI*(1-L_DISCOUNT)*(1+L_TAX)) AS
SUM_CHARGE
,AVG(L_QUANTITY) AS AVG_QTY
,AVG(L_EXTENDEDPRI) AS AVG_PRICE
,AVG(L_DISCOUNT) AS AVG_DISC
,COUNT(*) AS COUNT_ORDER
FROM
LINEITEM
WHERE
L_SHIPDATE <= DATEADD(dd, -90, '1998/12/01')
GROUP BY
L_RETURNFLAG
,L_LINESTATUS
ORDER BY
L_RETURNFLAG
,L_LINESTATUS
L_RETURNFLAG L_LINESTATUS SUM_QTY
SUM_BASE_PRICE SUM_DISC_PRICE SUM_CHARGE
AVG_QTY AVG_PRICE AVG_DISC
COUNT_ORDER
```

```
-----
-----
----
A      F      37734107.0000  56586554400.7300
53758257134.8700  55909065224.7041      25.5220
38273.1297      .0499  1478493
N      F      991417.0000  1487504710.3800
1413082168.0541  1469649223.2395      25.5164      38284.4677
.0500  38854
N      O      74476040.0000  111701729697.7400
106118230307.6056  110367043876.2372      25.5022
38249.1179      .0499  2920374
R      F      37719753.0000  56568041380.9000
53741292684.6040  55889619121.7027      25.5057
38250.8546      .0500  1478870
```

(4 rows affected)

### Qualification Query 2

-- using default substitutions

/\* tpch 2.sql \*/

```
SELECT TOP 100
S_ACCTBAL
,S_NAME
,N_NAME
```

```
,P_PARTKEY
,P_MFGR
,S_ADDRESS
,S_PHONE
,S_COMMENT
FROM
PART
,SUPPLIER
,PARTSUPP
,NATION
,REGION
WHERE
P_PARTKEY = PS_PARTKEY
AND S_SUPPKEY = PS_SUPPKEY
AND P_SIZE = 15
AND P_TYPE LIKE '%BRASS'
AND S_NATIONKEY = N_NATIONKEY
AND N_REGIONKEY = R_REGIONKEY
AND R_NAME = 'EUROPE'
AND PS_SUPPLYCOST =
(
SELECT MIN(PS_SUPPLYCOST)
FROM
PARTSUPP
,SUPPLIER
,NATION
,REGION
WHERE P_PARTKEY = PS_PARTKEY
AND S_SUPPKEY = PS_SUPPKEY
AND S_NATIONKEY = N_NATIONKEY
AND N_REGIONKEY = R_REGIONKEY
AND R_NAME = 'EUROPE'
)
ORDER BY
S_ACCTBAL DESC
,N_NAME
,S_NAME
,P_PARTKEY
,S_ACCTBAL S_NAME N_NAME
P_PARTKEY P_MFGR S_ADDRESS
S_PHONE S_COMMENT
-----
-----
9938.5300 Supplier#000005359 UNITED KINGDOM
185358 Manufacturer#4 QKuHYh,vZGiwu2FWEJolDx04
33-429-790-6131 blithely silent pinto beans are furiously. slyly final deposits
acros
9937.8400 Supplier#000005969 ROMANIA
108438 Manufacturer#1
ANDENSOSmk,miq23Xfb5RWt6dvUcvt6Qa 29-520-692-3537
carefully slow deposits use furiously. slyly ironic platelets above the ironic
9936.2200 Supplier#000005250 UNITED KINGDOM
249 Manufacturer#4 B3rqp0xbSEim4Mpy2RH J 33-320-
228-2957 blithely special packages are. stealthily express deposits across the
closely final instructi
9923.7700 Supplier#000002324 GERMANY
29821 Manufacturer#4 y3OD9UywSTok 17-779-
299-1839 quickly express packages breach quiet pinto beans. requ
9871.2200 Supplier#000006373 GERMANY
43868 Manufacturer#5 J8fcXWstQM 17-813-485-
8637 never silent deposits integrate furiously blit
9870.7800 Supplier#000001286 GERMANY
81285 Manufacturer#2
YKA,E2fjVd7eUrzp2Ef8j1QxGo2DFnosATEH 17-516-924-4574 final
theodolites cajole slyly special,
```

9870.7800 Supplier#000001286 GERMANY  
 181285 Manufacturer#4  
 YKA,E2fjiVd7eUrzp2Ef8j1QxGo2DFnosaTEH 17-516-924-4574 final  
 theodolites cajole slyly special,  
 9852.5200 Supplier#000008973 RUSSIA 18972  
 Manufacturer#2 t5L67YdBYH6o,Vz24jpDyQ9 32-188-  
 594-7038 quickly regular instructions wake-- carefully unusual braids into  
 the expres  
 9847.8300 Supplier#000008097 RUSSIA 130557  
 Manufacturer#2 xMe97bpE69NzdwLoX 32-375-640-  
 3593 slyly regular dependencies sleep slyly furiously express dep  
 9847.5700 Supplier#000006345 FRANCE  
 86344 Manufacturer#1  
 VS3rzk3qG698u6ld8HhOBYvrTcStSVQIDQDag 16-886-766-7945 silent  
 pinto beans should have to snooze carefully along the final reqes  
 7914.4500 Supplier#000001013 RUSSIA 125988  
 Manufacturer#2 riRcntps4KEDtYScjpMIWeYF6mNnR 32-  
 194-698-3365 final, ironic theodolites alongside of the ironic  
  
 ..... Additional rows deleted .....

7912.9100 Supplier#000004211 GERMANY  
 159180 Manufacturer#5 2wQRVovHrm3,v03IKzfTd,1PYsFXQFFOG  
 17-266-947-7315 final requests integrate slyly above the silent, even  
 7912.9100 Supplier#000004211 GERMANY  
 184210 Manufacturer#4 2wQRVovHrm3,v03IKzfTd,1PYsFXQFFOG  
 17-266-947-7315 final requests integrate slyly above the silent, even  
 7894.5600 Supplier#000007981 GERMANY  
 85472 Manufacturer#4 NSJ96vMROAbeXP 17-963-  
 404-3760 regular, even theodolites integrate carefully. bold, special  
 theodolites are slyly fluffily iron  
 7887.0800 Supplier#000009792 GERMANY  
 164759 Manufacturer#3 Y28ITVeYriT3kiGdV2K8fSZ  
 V2UqT5H1Otz 17-988-938-4296 pending, ironic packages sleep among  
 the carefully ironic accounts. quickly final accounts  
 7871.5000 Supplier#000007206 RUSSIA 104695  
 Manufacturer#1 3w fNCnrVmvJjE95sgWZzvW 32-432-  
 452-7731 furiously dogged pinto beans cajole. bold, express notornis until  
 the slyly pending  
 7852.4500 Supplier#000005864 RUSSIA 8363  
 Manufacturer#4 WCNfBPZeSXh3h,c 32-454-883-  
 3821 blithely regular deposits  
 7850.6600 Supplier#000001518 UNITED KINGDOM  
 86501 Manufacturer#1 ONda3YJiHKJOC 33-730-  
 383-3892 furiously final accounts wake carefully idle requests. even dolphins  
 wake acc  
 7843.5200 Supplier#000006683 FRANCE  
 11680 Manufacturer#4 2Z0JGkiv01Y00oCFwUGfviIbhzCdy  
 16-464-517-8943 carefully bold accounts doub

(100 rows affected)

### Qualification Query 3

-- using default substitutions

/\* tpch 3.sql \*/

```
SELECT TOP 10
L_ORDERKEY
,SUM(L_EXTENDEDPRIE*(1-L_DISCOUNT)) AS REVENUE
,O_ORDERDATE
,O_SHIPPRIORITY
FROM
CUSTOMER
,ORDERS
,LINEITEM
WHERE
C_MKTSEGMENT = 'BUILDING'
AND C_CUSTKEY = O_CUSTKEY
```

```
AND L_ORDERKEY = O_ORDERKEY
AND O_ORDERDATE < '1995-03-15'
AND L_SHIPDATE > '1995-03-15'
GROUP BY
L_ORDERKEY
,O_ORDERDATE
,O_SHIPPRIORITY
ORDER BY
REVENUE DESC
,O_ORDERDATE
L_ORDERKEY REVENUE O_ORDERDATE
O_SHIPPRIORITY
```

2456423	406181.0111	1995-03-05 00:00:00.000	0
3459808	405838.6989	1995-03-04 00:00:00.000	0
492164	390324.0610	1995-02-19 00:00:00.000	0
1188320	384537.9359	1995-03-09 00:00:00.000	0
2435712	378673.0558	1995-02-26 00:00:00.000	0
4878020	378376.7952	1995-03-12 00:00:00.000	0
5521732	375153.9215	1995-03-13 00:00:00.000	0
2628192	373133.3094	1995-02-22 00:00:00.000	0
993600	371407.4595	1995-03-05 00:00:00.000	0
2300070	367371.1452	1995-03-13 00:00:00.000	0

(10 rows affected)

### Qualification Query 4

-- using default substitutions

/\* tpch 4.sql \*/

```
SELECT
O_ORDERPRIORITY
,COUNT(*) AS ORDER_COUNT
FROM
ORDERS
WHERE O_ORDERDATE >= '1993-07-01'
AND O_ORDERDATE < DATEADD (mm, 3, '1993-07-01')
AND EXISTS
(
SELECT *
FROM LINEITEM
WHERE L_ORDERKEY = O_ORDERKEY
AND L_COMMITDATE < L_RECEIPTDATE
)
GROUP BY
O_ORDERPRIORITY
ORDER BY
O_ORDERPRIORITY
O_ORDERPRIORITY ORDER_COUNT
```

1-URGENT	10594
2-HIGH	10476
3-MEDIUM	10410
4-NOT SPECIFIED	10556
5-LOW	10487

(5 rows affected)

### Qualification Query 5

-- using default substitutions

/\* tpch 5.sql \*/

```
SELECT
N_NAME
,SUM(L_EXTENDEDPRIE*(1-L_DISCOUNT)) AS REVENUE
FROM
```

```

CUSTOMER
,ORDERS
,LINEITEM
,SUPPLIER
,NATION
,REGION
WHERE
C_CUSTKEY = O_CUSTKEY
AND L_ORDERKEY = O_ORDERKEY
AND L_SUPPKEY = S_SUPPKEY
AND C_NATIONKEY = S_NATIONKEY
AND S_NATIONKEY = N_NATIONKEY
AND N_REGIONKEY = R_REGIONKEY
AND R_NAME = 'ASIA'
AND O_ORDERDATE >= '1994-01-01'
AND O_ORDERDATE < DATEADD(Y, 1, '1994-01-01')
GROUP BY
N_NAME
ORDER BY
REVENUE DESC
N_NAME          REVENUE
-----
INDONESIA          55502041.1697
VIETNAM           55295086.9967
CHINA             53724494.2566
INDIA            52035512.0002
JAPAN            45410175.6954

```

(5 rows affected)

### Qualification Query 6

-- using default substitutions

/\* tpch 6.sql \*/

```

SELECT
SUM(L_EXTENDEDPRI * L_DISCOUNT) AS REVENUE
FROM
LINEITEM
WHERE
L_SHIPDATE >= '1994-01-01'
AND L_SHIPDATE < dateadd (yy, 1, '1994-01-01')
AND L_DISCOUNT BETWEEN .06 - 0.01 AND .06 + 0.01
AND L_QUANTITY < 24
REVENUE
-----

```

123141078.2283

(1 row affected)

### Qualification Query 7

-- using default substitutions

/\* tpch 7.sql \*/

```

SELECT
SUPP_NATION
,CUST_NATION
,L_YEAR
,SUM(VOLUME) AS REVENUE
FROM
(
SELECT
N1.N_NAME AS SUPP_NATION
,N2.N_NAME AS CUST_NATION
,DATEPART(Y, L_SHIPDATE) AS L_YEAR
,L_EXTENDEDPRI * (1 - L_DISCOUNT) AS VOLUME
FROM

```

```

SUPPLIER
,LINEITEM
,ORDERS
,CUSTOMER
,NATION N1
,NATION N2
WHERE S_SUPPKEY = L_SUPPKEY
AND O_ORDERKEY = L_ORDERKEY
AND C_CUSTKEY = O_CUSTKEY
AND S_NATIONKEY = N1.N_NATIONKEY
AND C_NATIONKEY = N2.N_NATIONKEY
AND (
(N1.N_NAME = 'FRANCE' AND N2.N_NAME = 'GERMANY')
OR
(N1.N_NAME = 'GERMANY' AND N2.N_NAME = 'FRANCE')
)
AND L_SHIPDATE BETWEEN '1995-01-01' AND '1996-12-31'
)
AS SHIPPING
GROUP BY
SUPP_NATION
,CUST_NATION
,L_YEAR
ORDER BY
SUPP_NATION
,CUST_NATION
,L_YEAR
SUPP_NATION      CUST_NATION      L_YEAR
REVENUE
-----
FRANCE           GERMANY           1995
54639732.7336
FRANCE           GERMANY           1996
54633083.3076
GERMANY          FRANCE            1995
52531746.6697
GERMANY          FRANCE            1996
52520549.0224

```

(4 rows affected)

### Qualification Query 8

-- using default substitutions

/\* tpch 8.sql \*/

```

SELECT
O_YEAR
,SUM(CASE WHEN NATION = 'BRAZIL'
THEN VOLUME
ELSE 0
END) / SUM(VOLUME) AS MKT_SHARE
FROM
(
SELECT
DATEPART(Y, O_ORDERDATE) AS O_YEAR
,L_EXTENDEDPRI * (1 - L_DISCOUNT) AS VOLUME
,N2.N_NAME AS NATION
FROM
PART
,SUPPLIER
,LINEITEM
,ORDERS
,CUSTOMER
,NATION N1
,NATION N2
,REGION
WHERE
P_PARTKEY = L_PARTKEY

```

```

AND S_SUPPKEY = L_SUPPKEY
AND L_ORDERKEY = O_ORDERKEY
AND O_CUSTKEY = C_CUSTKEY
AND C_NATIONKEY = N1.N_NATIONKEY
AND N1.N_REGIONKEY = R_REGIONKEY
AND R_NAME = 'AMERICA'
AND S_NATIONKEY = N2.N_NATIONKEY
AND O_ORDERDATE BETWEEN '1995-01-01' AND '1996-12-31'
AND P_TYPE = 'ECONOMY ANODIZED STEEL'
) AS ALL_NATIONS
GROUP BY
O_YEAR
ORDER BY
O_YEAR
O_YEAR      MKT_SHARE
-----
1995          .0344
1996          .0414

```

(2 rows affected)

### Qualification Query 9

-- using default substitutions

/\* tpch 9.sql \*/

```

SELECT
NATION
,O_YEAR
,SUM(AMOUNT) AS SUM_PROFIT
FROM
(
SELECT
N_NAME AS NATION
,DATEPART(YY, O_ORDERDATE) AS O_YEAR
,L_EXTENDEDPRISE*(1-L_DISCOUNT)-
PS_SUPPLYCOST*L_QUANTITY AS AMOUNT
FROM
PART
,SUPPLIER
,LINEITEM
,PARTSUPP
,ORDERS
,NATION
WHERE
S_SUPPKEY = L_SUPPKEY
AND PS_SUPPKEY = L_SUPPKEY
AND PS_PARTKEY = L_PARTKEY
AND P_PARTKEY = L_PARTKEY
AND O_ORDERKEY = L_ORDERKEY
AND S_NATIONKEY = N_NATIONKEY
AND P_NAME LIKE '%green%'
)
AS PROFIT
GROUP BY
NATION
,O_YEAR
ORDER BY
NATION
,O_YEAR DESC
NATION      O_YEAR      SUM_PROFIT
-----
ALGERIA      1998      31342867.2345
ALGERIA      1997      57138193.0233
ALGERIA      1996      56140140.1330
ALGERIA      1995      53051469.6534
ALGERIA      1994      53867582.1286
ALGERIA      1993      54942718.1324
ALGERIA      1992      54628034.7127

```

```

ARGENTINA      1998      30211185.7081
UNITED STATES  1993      48029946.8014
UNITED STATES  1992      48671944.4983

```

..... Additional rows deleted .....

```

VIETNAM      1998      30442736.0594
VIETNAM      1997      50309179.7942
VIETNAM      1996      50488161.4100
VIETNAM      1995      49658284.6125
VIETNAM      1994      50596057.2607
VIETNAM      1993      50953919.1519
VIETNAM      1992      49613838.3151

```

(175 rows affected)

### Qualification Query 10

-- using default substitutions

/\* tpch 10.sql \*/

```

SELECT TOP 20
C_CUSTKEY
,C_NAME
,SUM(L_EXTENDEDPRISE*(1-L_DISCOUNT)) AS REVENUE
,C_ACCTBAL
,N_NAME
,C_ADDRESS
,C_PHONE
,C_COMMENT
FROM
CUSTOMER
,ORDERS
,LINEITEM
,NATION
WHERE
C_CUSTKEY = O_CUSTKEY
AND L_ORDERKEY = O_ORDERKEY
AND O_ORDERDATE >= '1993-10-01'
AND O_ORDERDATE < DATEADD(MM, 3, '1993-10-01')
AND L_RETURNFLAG = 'R'
AND C_NATIONKEY = N_NATIONKEY
GROUP BY
C_CUSTKEY
,C_NAME
,C_ACCTBAL
,C_PHONE
,N_NAME
,C_ADDRESS
,C_COMMENT
ORDER BY
REVENUE DESC
C_CUSTKEY  C_NAME      REVENUE      C_ACCTBAL
N_NAME      C_ADDRESS      C_PHONE
-----
---
57040 Customer#000057040      734235.2455      632.8700
JAPAN      Eioyjf4pp      22-895-641-3466
requests sleep blithely about the furiously i
143347 Customer#000143347      721002.6948      2557.4700
EGYPT      IaReFYv,Kw4      14-742-935-3718
fluffily bold excuses haggle finally after the u
60838 Customer#000060838      679127.3077      2454.7700
BRAZIL      64EaJ5vMAHWJIBOXJklpNc2RjWE      12-913-
494-9813 furiously even pinto beans integrate under the ruthless foxes;
ironic, even dolphins across the slyl

```

101998 Customer#000101998 637029.5667 3790.8900  
 UNITED KINGDOM 01e9CILnNtfOQYmZj 33-593-  
 865-6378 accounts doze blithely! enticing, final deposits sleep blithely  
 special accounts. slyly express accounts pla  
 125341 Customer#000125341 633508.0860 4983.5100  
 GERMANY S29ODD6bceU8QSuuEJznkNaK 17-582-  
 695-5962 quickly express requests wake quickly blithely  
 25501 Customer#000025501 620269.7849 7725.0400  
 ETHIOPIA W556MXuoiaYCCZamJI,Rn0B4ACUGdkQ8DZ  
 15-874-808-6793 quickly special requests sleep evenly among the special  
 deposits. special deposi  
 115831 Customer#000115831 596423.8672 5098.1000  
 FRANCE rFeBbEEyk dl ne7zV5fDrmiq1oK09wV7pxqCgIc 16-  
 715-386-3788 carefully bold excuses sleep alongside of the thinly idle  
 84223 Customer#000084223 594998.0239 528.6500  
 UNITED KINGDOM nAVZCs6BaWap rrM27N 2qBnze5WBauxbA  
 33-442-824-8191 pending, final ideas haggle final requests. unusual, regular  
 asymptotes affix according to the even foxes.  
 54289 Customer#000054289 585603.3918 5583.0200  
 IRAN vXCxoCsU0Bad5JQI ,oobkZ 20-834-292-  
 4707 express requests sublate blithely regular requests. regular, even ideas  
 solve.  
 39922 Customer#000039922 584878.1134 7321.1100  
 GERMANY Zgy4s5012GKN4pLDPBU8m342glw6R 17-  
 147-757-8036 even pinto beans haggle. slyly bold accounts inte  
 6226 Customer#000006226 576783.7606 2230.0900  
 UNITED KINGDOM 8gPu8,NPGkfyQQ0hcIYUGPIBWc,ybP5g,  
 33-657-701-3391 quickly final requests against the regular instructions wake  
 blithely final instructions. pa  
 922 Customer#000000922 576767.5333 3869.2500  
 GERMANY Az9RFaut7NkPnc5zSD2PwHgVwr4jRzq 17-  
 945-916-9648 boldly final requests cajole blith  
 147946 Customer#000147946 576455.1320 2030.1300  
 ALGERIA iANyZHjqhy7Ajah0pTrYyhJ 10-886-956-  
 3143 furiously even accounts are blithely above the furiousl  
 115640 Customer#000115640 569341.1933 6436.1000  
 ARGENTINA Vtgifia9qI 7EpHgecU1X 11-411-543-  
 4901 final instructions are slyly according to the  
 73606 Customer#000073606 568656.8578 1785.6700  
 JAPAN xuR0Tro5yChDfOCrjkd2ol 22-437-653-  
 6966 furiously bold orbits about the furiously busy requests wake across the  
 furiously quiet theodolites. d  
 110246 Customer#000110246 566842.9815 7763.3500  
 VIETNAM 7KzflgX MDOq7sOkI 31-943-426-  
 9837 dolphins sleep blithely among the slyly final  
 142549 Customer#000142549 563537.2368 5085.9900  
 INDONESIA ChqEoK43OysjdHbtKCp6dKqjNyvvi9 19-  
 955-562-2398 regular, unusual dependencies boost slyly; ironic attainments  
 nag fluffily into the unusual packages?  
 146149 Customer#000146149 557254.9865 1791.5500  
 ROMANIA s87fvzFQpU 29-744-164-6487  
 silent, unusual requests detect quickly slyly regul  
 52528 Customer#000052528 556397.3509 551.7900  
 ARGENTINA NFztyTOR10UOJ 11-208-192-  
 3205 unusual requests detect. slyly dogged theodolites use slyly. deposit  
 23431 Customer#000023431 554269.5360 3381.8600  
 ROMANIA HgiVOpqhala9aydNoIlb 29-915-458-  
 2654 instructions nag quickly. furiously bold accounts cajol

(20 rows affected)

### Qualification Query 11

-- using default substitutions

/\* tpch 11.sql \*/

```
SELECT
PS_PARTKEY
,SUM(PS_SUPPLYCOST*PS_AVAILQTY) AS VALUE
```

```
FROM
PARTSUPP
,SUPPLIER
,NATION
WHERE
PS_SUPPKEY = S_SUPPKEY
AND S_NATIONKEY = N_NATIONKEY
AND N_NAME = 'GERMANY'
GROUP BY
PS_PARTKEY
HAVING
SUM(PS_SUPPLYCOST*PS_AVAILQTY) >
(
SELECT
SUM(PS_SUPPLYCOST*PS_AVAILQTY) * 0.0001000000
FROM PARTSUPP
,SUPPLIER
,NATION
WHERE PS_SUPPKEY = S_SUPPKEY
AND S_NATIONKEY = N_NATIONKEY
AND N_NAME = 'GERMANY'
)
ORDER BY
VALUE DESC
PS_PARTKEY VALUE
-----
129760 17538456.8600
166726 16503353.9200
191287 16474801.9700
161758 16101755.5400
34452 15983844.7200
139035 15907078.3400
9403 15451755.6200
154358 15212937.8800
38823 15064802.8600
85606 15053957.1500
33354 14408297.4000
154747 14407580.6800
82865 14235489.7800
76094 14094247.0400
```

..... Additional rows deleted .....

```
171154 7896814.5000
79373 7896186.0000
113808 7893353.8800
27901 7892952.0000
128820 7892882.7200
25891 7890511.2000
122819 7888881.0200
154731 7888301.3300
101674 7879324.6000
51968 7879102.2100
72073 7877736.1100
5182 7874521.7300
```

(1048 rows affected)

### Qualification Query 12

-- using default substitutions

/\* tpch 12.sql \*/

```
SELECT
L_SHIPMODE
,SUM(CASE
WHEN O_ORDERPRIORITY = '1-URGENT'
OR O_ORDERPRIORITY = '2-HIGH'
THEN 1
```

```

ELSE 0
END) AS HIGH_LINE_COUNT,
SUM(CASE
WHEN O_ORDERPRIORITY <> '1-URGENT'
AND O_ORDERPRIORITY <> '2-HIGH'
THEN 1
ELSE 0
END) AS LOW_LINE_COUNT
FROM
ORDERS
,LINEITEM
WHERE
O_ORDERKEY = L_ORDERKEY
AND L_SHIPMODE IN ('MAIL','SHIP')
AND L_COMMITDATE < L_RECEIPTDATE
AND L_SHIPDATE < L_COMMITDATE
AND L_RECEIPTDATE >= '1994-01-01'
AND L_RECEIPTDATE < dateadd(YY, 1, '1994-01-01')
GROUP BY
L_SHIPMODE
ORDER BY
L_SHIPMODE
L_SHIPMODE HIGH_LINE_COUNT LOW_LINE_COUNT
-----
MAIL          6202      9324
SHIP          6200      9262

```

(2 rows affected)

### Qualification Query 13

-- using default substitutions

/\* tpch 13.sql \*/

```

SELECT
C_COUNT
,COUNT(*) AS CUSTDIST
FROM
(
SELECT
C_CUSTKEY
,COUNT(O_ORDERKEY)
FROM
CUSTOMER LEFT OUTER JOIN ORDERS ON
C_CUSTKEY = O_CUSTKEY
AND O_COMMENT NOT LIKE '%special%requests%'
GROUP BY
C_CUSTKEY
) AS C_ORDERS (C_CUSTKEY, C_COUNT)
GROUP BY
C_COUNT
ORDER BY
CUSTDIST DESC
,C_COUNT DESC
C_COUNT  CUSTDIST
-----

```

```

0      50004
9      6641
10     6566
11     6058
8      5949
12     5553
13     4989
19     4748
7      4707
18     4625
15     4552
17     4530
14     4484

```

```

20     4461
16     4323
21     4217
22     3730
6      3334
23     3129
24     2622
25     2079
5      1972
26     1593
27     1185
4      1033
28     869
29     559
3      398
30     373
31     235
2      144
32     128
33     71
34     48
35     33
1      23
36     17
37     7
40     4
38     4
39     2
41     1

```

(42 rows affected)

### Qualification Query 14

-- using default substitutions

/\* tpch 14.sql \*/

```

SELECT
100.00 * SUM (CASE
WHEN P_TYPE LIKE 'PROMO%' THEN L_EXTENDEDPRICE*(1-
L_DISCOUNT)
ELSE 0 END
) / SUM(L_EXTENDEDPRICE*(1-L_DISCOUNT)) AS
PROMO_REVENUE
FROM
LINEITEM
,PART
WHERE
L_PARTKEY = P_PARTKEY
AND L_SHIPDATE >= '1995-09-01'
AND L_SHIPDATE < DATEADD(MM, 1, '1995-09-01')
PROMO_REVENUE
-----

```

16.380778626395540

(1 row affected)

### Qualification Query 15

-- using default substitutions

/\* tpch 15.sql \*/

```

if exists (select * from sysindexes where name = 'REVENUE0')
drop view REVENUE0

```

```

CREATE VIEW REVENUE0 (SUPPLIER_NO, TOTAL_REVENUE) AS
SELECT
L_SUPPKEY

```

```

,SUM(L_EXTENDEDPRI * (1 - L_DISCOUNT))
FROM
LINEITEM
WHERE
L_SHIPDATE >= '1996-01-01'
AND L_SHIPDATE < DATEADD(MM, 3, '1996-01-01')
GROUP BY
L_SUPPKEY

```

```

SELECT
S_SUPPKEY
,S_NAME
,S_ADDRESS
,S_PHONE
,TOTAL_REVENUE
FROM
SUPPLIER
,REVENUE0
WHERE
S_SUPPKEY = SUPPLIER_NO
AND TOTAL_REVENUE = (
SELECT
MAX(TOTAL_REVENUE)
FROM
REVENUE0
)
ORDER BY
S_SUPPKEY

```

```

DROP VIEW REVENUE0
S_SUPPKEY S_NAME S_ADDRESS
S_PHONE TOTAL_REVENUE
-----

```

```

8449 Supplier#000008449 Wp34zim9qYFbVctdW
20-469-856-8873 1772627.2087

```

(1 row affected)

### Qualification Query 16

-- using default substitutions

/\* tpch 16.sql \*/

```

SELECT
P_BRAND
,P_TYPE
,P_SIZE
,COUNT(DISTINCT PS_SUPPKEY) AS SUPPLIER_CNT
FROM
PARTSUPP
,PART
WHERE
P_PARTKEY = PS_PARTKEY
AND P_BRAND <> 'Brand#45'
AND P_TYPE NOT LIKE 'MEDIUM POLISHED%'
AND P_SIZE IN (49, 14, 23, 45, 19, 3, 36, 9)
AND PS_SUPPKEY NOT IN
(SELECT S_SUPPKEY
FROM SUPPLIER
WHERE S_COMMENT LIKE '%Customer%Complaints%'
)
GROUP BY
P_BRAND
,P_TYPE
,P_SIZE
ORDER BY
SUPPLIER_CNT DESC
,P_BRAND

```

```

,P_TYPE
,P_SIZE
P_BRAND P_TYPE P_SIZE SUPPLIER_CNT
-----
Brand#41 MEDIUM BRUSHED TIN 3 28
Brand#54 STANDARD BRUSHED COPPER 14 27
Brand#11 STANDARD BRUSHED TIN 23 24
Brand#11 STANDARD BURNISHED BRASS 36 24
Brand#15 MEDIUM ANODIZED NICKEL 3 24
Brand#15 SMALL ANODIZED BRASS 45 24
Brand#15 SMALL BURNISHED NICKEL 19 24

```

..... Additional rows deleted .....

```

Brand#32 STANDARD ANODIZED COPPER 23 3
Brand#33 SMALL ANODIZED BRASS 9 3
Brand#35 MEDIUM ANODIZED TIN 19 3
Brand#51 SMALL PLATED BRASS 23 3
Brand#52 MEDIUM BRUSHED BRASS 45 3
Brand#53 MEDIUM BRUSHED TIN 45 3
Brand#54 ECONOMY POLISHED BRASS 9 3
Brand#55 PROMO PLATED BRASS 19 3
Brand#55 STANDARD PLATED TIN 49 3

```

(18314 rows affected)

### Qualification Query 17

-- using default substitutions

/\* tpch 17.sql \*/

```

SELECT
SUM(L_EXTENDEDPRI)/7.0 AS AVG_YEARLY
FROM
LINEITEM
,PART
WHERE
P_PARTKEY = L_PARTKEY
AND P_BRAND = 'Brand#23'
AND P_CONTAINER = 'MED BOX'
AND L_QUANTITY <
(
SELECT
0.2 * AVG(L_QUANTITY)
FROM LINEITEM
WHERE L_PARTKEY = P_PARTKEY
)
AVG_YEARLY
-----
348406.0542857

```

(1 row affected)

### Qualification Query 18

-- using default substitutions

/\* tpch 18.sql \*/

```

SELECT TOP 100
C_NAME
,C_CUSTKEY
,O_ORDERKEY
,O_ORDERDATE
,O_TOTALPRICE
,SUM(L_QUANTITY)
FROM
CUSTOMER
,ORDERS

```



```

.LINEITEM
WHERE
O_ORDERKEY IN
(
SELECT
L_ORDERKEY
FROM
LINEITEM
GROUP BY
L_ORDERKEY HAVING
SUM(L_QUANTITY) > 300
)
AND C_CUSTKEY = O_CUSTKEY
AND O_ORDERKEY = L_ORDERKEY
GROUP BY
C_NAME
,C_CUSTKEY
,O_ORDERKEY
,O_ORDERDATE
,O_TOTALPRICE
ORDER BY
O_TOTALPRICE DESC
,O_ORDERDATE
C_NAME      C_CUSTKEY  O_ORDERKEY  O_ORDERDATE
O_TOTALPRICE

```

```

-----
Customer#000128120      128120   4722021  1994-04-07 00:00:00.000
544089.0900      323.0000
Customer#000093392      93392    5200102  1997-01-22 00:00:00.000
425487.5100      304.0000
Customer#000015631      15631    1845057  1994-05-12 00:00:00.000
419879.5900      302.0000
Customer#000112987      112987   4439686  1996-09-17 00:00:00.000
418161.4900      305.0000

```

.... Additional rows deleted ....

```

Customer#000012599      12599    4259524  1998-02-12 00:00:00.000
415200.6100      304.0000
Customer#000105410      105410   4478371  1996-03-05 00:00:00.000
412754.5100      302.0000
Customer#000149842      149842   5156581  1994-05-30 00:00:00.000
411329.3500      302.0000
Customer#000010129      10129    5849444  1994-03-21 00:00:00.000
409129.8500      309.0000
Customer#000069904      69904    1742403  1996-10-19 00:00:00.000
408513.0000      305.0000
Customer#000017746      17746    6882    1997-04-09 00:00:00.000
408446.9300      303.0000
Customer#000013072      13072    1481925  1998-03-15 00:00:00.000
399195.4700      301.0000
Customer#000082441      82441    857959   1994-02-07 00:00:00.000
382579.7400      305.0000
Customer#000088703      88703    2995076  1994-01-30 00:00:00.000
363812.1200      302.0000

```

(57 rows affected)

### Qualification Query 19

-- using default substitutions

```
/* tpch 19.sql */
```

```

SELECT
SUM(L_EXTENDEDPRI* (1 - L_DISCOUNT)) AS REVENUE
FROM
LINEITEM

```

```

,PART
WHERE
(
P_PARTKEY = L_PARTKEY
AND P_BRAND = 'Brand#12'
AND P_CONTAINER IN ('SM CASE', 'SM BOX', 'SM PACK', 'SM PKG')
AND L_QUANTITY >= 1 AND L_QUANTITY <= 1 + 10
AND P_SIZE BETWEEN 1 AND 5
AND L_SHIPMODE IN ('AIR', 'AIR REG')
AND L_SHIPINSTRUCT = 'DELIVER IN PERSON'
)
OR
(
P_PARTKEY = L_PARTKEY
AND P_BRAND = 'Brand#23'
AND P_CONTAINER IN ('MED BAG', 'MED BOX', 'MED PKG', 'MED
PACK')
AND L_QUANTITY >= 10 AND L_QUANTITY <= 10 + 10
AND P_SIZE BETWEEN 1 AND 10
AND L_SHIPMODE IN ('AIR', 'AIR REG')
AND L_SHIPINSTRUCT = 'DELIVER IN PERSON'
)
OR
(
P_PARTKEY = L_PARTKEY
AND P_BRAND = 'Brand#34'
AND P_CONTAINER IN ('LG CASE', 'LG BOX', 'LG PACK', 'LG PKG')
AND L_QUANTITY >= 20 AND L_QUANTITY <= 20 + 10
AND P_SIZE BETWEEN 1 AND 15
AND L_SHIPMODE IN ('AIR', 'AIR REG')
AND L_SHIPINSTRUCT = 'DELIVER IN PERSON'
)
REVENUE

```

```

-----
3083843.0578

```

(1 row affected)

### Qualification Query 20

-- using default substitutions

```
/* tpch 20.sql */
```

```

SELECT
S_NAME
,S_ADDRESS
FROM
SUPPLIER
,NATION
WHERE
S_SUPPKEY IN
(
SELECT
PS_SUPPKEY
FROM
PARTSUPP
WHERE
PS_PARTKEY IN
(
SELECT
P_PARTKEY
FROM
PART
WHERE
P_NAME LIKE 'forest%'
)
AND PS_AVAILQTY >
(

```

```

SELECT
0.5 * SUM(L_QUANTITY)
FROM
LINEITEM
WHERE
L_PARTKEY = PS_PARTKEY
AND L_SUPPKEY = PS_SUPPKEY
AND L_SHIPDATE >= '1994-01-01'
AND L_SHIPDATE < DATEADD(YY,1,'1994-01-01')
)
)
AND S_NATIONKEY = N_NATIONKEY
AND N_NAME = 'CANADA'
ORDER BY
S_NAME
S_NAME          S_ADDRESS
-----
Supplier#00000020    iybAE,RmTymrZVYaFZva2SH,j
Supplier#00000091
YV45D7TkfdQanOOZ7q9QxkyGUapU1oOWU6q3
Supplier#000000197    YC2Acon6kjY3zj3Fbxs2k4Vdf7X0cd2F
Supplier#000000226    83qOdU2EYRdPQAQhEtn GRZEd
Supplier#000009601    51m637bO,Rw5DnHWFUvLacRx9
Supplier#000009709    rRnCbHYgDgl9PZYnyWKVYSUW0vKg
Supplier#000009753    wLhVEcRmd7PkJF4FBnGK7Z
.... Additional rows deleted ...

Supplier#000009796    z,y4Idmr15DOvPUqYG
Supplier#000009799    4wNjXGa4OKW1
Supplier#000009811    E3iuyq7UnZxU7oPZle2Gu6
Supplier#000009812    APFRMy3lCbGfGa53n5t9DxzFPQPgnjrGt32
Supplier#000009862    rJzweWeN58
Supplier#000009868    ROjGgx5gvtkmnUUoeyy7v
Supplier#000009869
ucLqxzrpBTRMewGSM29t0rNTM30g1Tu3Xgg3mKag
Supplier#000009899    7XdpaHrzr1t,UQFZE
Supplier#000009974    7wJ,J5DKcxSU4Kp1cQLpbcAvB5AsvKT

```

(204 rows affected)

### Qualification Query 21

-- using default substitutions

/\* tpch 21.sql \*/

```

SELECT TOP 100
S_NAME
,COUNT(*) AS NUMWAIT
FROM
SUPPLIER
,LINEITEM L1
,ORDERS
,NATION
WHERE
S_SUPPKEY = L1.L_SUPPKEY
AND O_ORDERKEY = L1.L_ORDERKEY
AND O_ORDERSTATUS = 'F'
AND L1.L_RECEIPTDATE > L1.L_COMMITDATE
AND EXISTS
(
SELECT
*
FROM
LINEITEM L2
WHERE
L2.L_ORDERKEY = L1.L_ORDERKEY
AND L2.L_SUPPKEY <> L1.L_SUPPKEY

```

```

)
AND NOT EXISTS
(
SELECT
*
FROM
LINEITEM L3
WHERE
L3.L_ORDERKEY = L1.L_ORDERKEY
AND L3.L_SUPPKEY <> L1.L_SUPPKEY
AND L3.L_RECEIPTDATE > L3.L_COMMITDATE
)
AND S_NATIONKEY = N_NATIONKEY
AND N_NAME = 'SAUDI ARABIA'
GROUP BY
S_NAME
ORDER BY
NUMWAIT DESC
,S_NAME
S_NAME          NUMWAIT
-----
Supplier#000002829    20
Supplier#000005808    18
Supplier#000000262    17
Supplier#000000496    17
Supplier#000002160    17
Supplier#000002301    17
Supplier#000002540    17
Supplier#000003063    17
Supplier#000005178    17
Supplier#000008331    17
Supplier#000002005    16
Supplier#000002095    16
Supplier#000005799    16
Supplier#000005842    16
Supplier#000006450    16
Supplier#000006939    16
Supplier#000009200    16
Supplier#000009727    16
Supplier#000000486    15
Supplier#000000565    15
Supplier#000001046    15
Supplier#000001047    15
Supplier#000001161    15

```

... Additional rows deleted ...

```

Supplier#000001336    15
Supplier#000001435    15
Supplier#000003075    15
Supplier#000003335    15
Supplier#000005649    15
Supplier#000006027    15
Supplier#000006795    15
Supplier#000006800    15
Supplier#000006824    15
Supplier#000007131    15
Supplier#000000821    12
Supplier#000001337    12
Supplier#000001916    12
Supplier#000001925    12
Supplier#000002039    12
Supplier#000002357    12
Supplier#000002483    12

```

(100 rows affected)

## Qualification Query 22

-- using default substitutions

/\* tpch 22.sql \*/

```
SELECT
CENTRYCODE
,COUNT(*) AS NUMCUST
,SUM(C_ACCTBAL) AS TOTACCTBAL
FROM
(
SELECT
SUBSTRING(C_PHONE,1,2) AS CENTRYCODE
,C_ACCTBAL
FROM
CUSTOMER
WHERE
SUBSTRING(C_PHONE,1,2) IN
('13', '31', '23', '29', '30', '18', '17')
AND C_ACCTBAL > (
SELECT
AVG(C_ACCTBAL)
FROM
CUSTOMER
WHERE
C_ACCTBAL > 0.00
AND SUBSTRING(C_PHONE,1,2) IN
('13', '31', '23', '29', '30', '18', '17')
)
AND NOT EXISTS (
SELECT
*
FROM
ORDERS
WHERE
O_CUSTKEY = C_CUSTKEY
)
) AS CUSTSALE
GROUP BY
CENTRYCODE
ORDER BY
CENTRYCODE
CENTRYCODE NUMCUST  TOTACCTBAL
-----
13          888      6737713.9900
17          861      6460573.7200
18          964      7236687.4000
23          892      6701457.9500
29          948      7158866.6300
30          909      6808436.1300
31          922      6806670.1800
```

(7 rows affected)

# Appendix D: Seeds and Query Substitution Parameters

## Stream0 Seed : 222024240

14	1993-10-01						
2	21	TIN	AMERICA				
9	plum						
20	indian	1994-01-01	GERMANY				
6	1993-01-01	0.02	25				
17	Brand#33	WRAP BAG					
18	313						
8	SAUDI ARABIA	MIDDLE EAST	ECONOMY				
	BURNISHED BRASS						
21	ETHIOPIA						
13	special	packages					
3	MACHINERY	1995-03-07					
22	14	11	15	27	12	16	
	29						
16	Brand#43	MEDIUM POLISHED	32	21			
	30	14	47	3	31	29	
4	1994-02-01						
11	CANADA	0.0000003333					
15	1993-05-01						
1	82						
10	1994-10-01						
19	Brand#53	Brand#22	Brand#52	8	10	28	
5	MIDDLE EAST	1993-01-01					
7	BRAZIL	SAUDI ARABIA					
12	AIR	REG AIR	1993-01-01				

## Stream1 Seed : 222024241

21	RUSSIA						
3	BUILDING	1995-03-23					
18	315						
5	AFRICA	1993-01-01					
11	MOZAMBIQUE	0.0000003333					
7	ROMANIA	JAPAN					
6	1993-01-01	0.08	25				
20	sandy	1997-01-01	VIETNAM				
17	Brand#35	WRAP PACK					
12	REG AIR	AIR	1993-01-01				
16	Brand#23	PROMO ANODIZED	47	29	14		
	6	43	9	18	45		
15	1995-12-01						
13	special	packages					
10	1993-07-01						
2	8	STEEL	EUROPE				
8	JAPAN	ASIA	LARGE BRUSHED BRASS				
14	1994-01-01						
19	Brand#55	Brand#55	Brand#51	3	11	24	
9	orchid						
22	31	23	27	33	18	30	
	25						
1	90						
4	1996-09-01						

## Stream2 Seed : 222024242

6	1993-01-01	0.05	24				
17	Brand#32	WRAP DRUM					
14	1994-04-01						
16	Brand#53	SMALL BURNISHED	50	8			
	30	9	40	33	39	38	
19	Brand#52	Brand#33	Brand#45	8	12	20	
10	1994-04-01						
9	misty						
2	46	BRASS	AMERICA				
15	1993-09-01						
8	EGYPT	MIDDLE EAST	LARGE PLATED BRASS				
5	AMERICA	1993-01-01					
22	16	15	32	11	13	30	
	21						
12	SHIP	AIR	1994-01-01				
7	IRAQ	EGYPT					
13	pending	packages					
18	312						
1	98						
4	1994-05-01						
20	deep	1995-01-01	IRAQ				
3	HOUSEHOLD	1995-03-09					
11	EGYPT	0.0000003333					
21	KENYA						

## Stream3 Seed : 222024243

8	VIETNAM	ASIA	LARGE ANODIZED STEEL				
5	ASIA	1994-01-01					
4	1996-12-01						
6	1994-01-01	0.03	25				
17	Brand#34	SM BAG					
7	CANADA	VIETNAM					
1	106						
18	314						
22	11	27	29	23	13	28	
	14						
14	1994-07-01						
9	magenta						
10	1995-01-01						
15	1996-04-01						
11	PERU	0.0000003333					
20	pale	1994-01-01	ARGENTINA				
2	34	NICKEL	MIDDLE EAST				
21	GERMANY						
19	Brand#14	Brand#21	Brand#44	3	13	27	
13	pending	requests					
16	Brand#43	LARGE POLISHED	3	33	50		
	15	9	39	25	10		
12	MAIL	RAIL	1994-01-01				
3	AUTOMOBILE	1995-03-26					

**Stream4 Seed : 222024244**

5 EUROPE 1994-01-01  
 21 UNITED STATES  
 14 1994-11-01  
 19 Brand#11 Brand#54 Brand#44 9 14 24  
 15 1993-12-01  
 17 Brand#35 SM PACK  
 12 TRUCK RAIL 1994-01-01  
 6 1994-01-01 0.08 25  
 4 1994-09-01  
 9 lavender  
 8 JORDAN MIDDLE EAST MEDIUM POLISHED STEEL  
 16 Brand#23 PROMO BRUSHED 7 4 28  
 11 33 1 5 30  
 11 ETHIOPIA 0.0000003333  
 2 22 TIN AMERICA  
 10 1993-11-01  
 18 315  
 1 114  
 13 pending requests  
 7 SAUDI ARABIA JORDAN  
 22 25 34 15 29 19 27  
 31  
 3 HOUSEHOLD 1995-03-11  
 20 blanched 1997-01-01 MOROCCO

**Stream6 Seed : 222024245**

10 1993-05-01  
 3 FURNITURE 1995-03-13  
 15 1994-04-01  
 13 pending requests  
 6 1994-01-01 0.03 25  
 8 RUSSIA EUROPE SMALL BRUSHED STEEL  
 9 frosted  
 7 EGYPT RUSSIA  
 4 1995-01-01  
 11 FRANCE 0.0000003333

**Stream5 Seed : 222024245**

21 MOZAMBIQUE  
 15 1996-07-01  
 4 1997-04-01  
 6 1994-01-01 0.05 24  
 7 JAPAN ETHIOPIA  
 16 Brand#53 MEDIUM BURNISHED 10 9  
 33 7 39 8 40 24  
 19 Brand#13 Brand#42 Brand#33 4 15 20  
 18 313  
 14 1995-02-01  
 22 10 14 30 18 12 16  
 17  
 11 CHINA 0.0000003333  
 13 pending requests  
 3 AUTOMOBILE 1995-03-28  
 1 61  
 2 10 COPPER MIDDLE EAST  
 5 MIDDLE EAST 1994-01-01  
 8 ETHIOPIA AFRICA MEDIUM BURNISHED  
 STEEL  
 20 lime 1996-01-01 ETHIOPIA  
 12 RAIL FOB 1997-01-01  
 17 Brand#32 SM DRUM  
 10 1994-08-01  
 9 honeydew  
  
 22 12 22 29 31 24 28  
 15  
 18 315  
 12 AIR RAIL 1995-01-01  
 1 69  
 5 AMERICA 1994-01-01  
 16 Brand#43 ECONOMY PLATED 13 11  
 48 41 15 16 44 29  
 2 47 BRASS ASIA  
 14 1995-05-01  
 19 Brand#25 Brand#25 Brand#32 9 16 27  
 20 steel 1994-01-01 SAUDI ARABIA  
 17 Brand#34 LG BAG  
 21 INDIA

# Appendix E: Refresh Function Source Code

## E.1 CreateRF1Proc.sql

```
-- CreateRF1Proc.sql

if exists (select name from sysobjects where name = 'RF1')
    drop procedure RF1
GO

--
-- Create a stored RefreshInsert procedure which will catch the deadlock
-- victim abort and restart the insert transaction.
--
CREATE PROCEDURE RF1
@flatfiledir CHAR(40), @updateset INTEGER, @segment INTEGER,
@scalefactor INTEGER
AS
BEGIN

DECLARE @min_orderkey INTEGER
DECLARE @max_orderkey INTEGER
DECLARE @range INTEGER
DECLARE @max_set INTEGER
DECLARE @SQLstring NVARCHAR(255)
DECLARE @insert_sets INTEGER

set @insert_sets= @scalefactor

--
-- Create the insert tables
--
create table #NEWORDERS (
    O_ORDERKEY int not null,
    O_CUSTKEY int not null,
    O_ORDERSTATUS char(1) not null,
    O_TOTALPRICE money not null,
    O_ORDERDATE datetime not null,
    O_ORDERPRIORITY char(15) not null,
    O_CLERK char(15) not null,
    O_SHIPPRIORITY int not null,
    O_COMMENT varchar(79) not null
)
create table #NEWLINEITEM(
    L_ORDERKEY int not null,
    L_PARTKEY int not null,
    L_SUPPKEY int not null,
    L_LINENUMBER int not null,
    L_QUANTITY money not null,
    L_EXTENDEDPRICE money not null,
    L_DISCOUNT money not null,
    L_TAX money not null,
    L_RETURNFLAG char(1) not null,
    L_LINESTATUS char(1) not null,
    L_SHIPDATE datetime not null,
    L_COMMITDATE datetime not null,
    L_RECEIPTDATE datetime not null,
    L_SHIPINSTRUCT char(25) not null,
    L_SHIPMODE char(10) not null,
    L_COMMENT varchar(44) not null
)

create unique clustered index NEWORDERS on #NEWORDERS
(O_ORDERKEY)
```

```
create clustered index NEWLINEITEM on #NEWLINEITEM
(L_ORDERKEY)

--
-- Generate an SQL statement inserting the current updateset value into
-- the command. Next execute the statement to bulk load the new lineitem
-- insert values.
--
SET @SQLstring="bulk insert #NEWLINEITEM from "
+ RTRIM(convert(CHAR,@flatfiledir)) + "\Lineitem.tbl.u"
+ RTRIM(Convert(char,@updateset)) + "."
+ RTRIM(convert(char,@segment))
+ "" with
(FieldTerminator='|',RowTerminator='\n',order(L_ORDERKEY),codepage='
RAW',TABLOCK)"
EXEC sp_executesql @SQLstring

--
-- Generate an SQL statement inserting the current updateset value into
-- the command. Next execute the statement to bulk load the new order
-- insert values.
--
SET @SQLstring="bulk insert #NEWORDERS from "
+ RTRIM(convert(CHAR,@flatfiledir)) + "\Orders.tbl.u"
+ RTRIM(Convert(char,@updateset)) + "."
+ RTRIM(convert(char,@segment))
+ "" with
(FieldTerminator='|',RowTerminator='\n',order(O_ORDERKEY),CODEPA
GE='RAW',TABLOCK)"

EXEC sp_executesql @SQLstring

--
-- Obtain minimum and maximum order key and compute the range of each
-- set to be inserted into the ORDERS and LINEITEM tables.
--
SELECT
@min_orderkey=MIN(O_ORDERKEY),@max_orderkey=MAX(O_ORDE
RKEY) FROM #NEWORDERS
SET @range = (@max_orderkey - @min_orderkey) / @insert_sets

--
-- This handles the case when the max-min/insert_sets is less than 1
--
IF @range = 0
-- BEGIN
    SET @range = (@max_orderkey - @min_orderkey) / 1
-- END

--
-- Loop through the order keys only inserting a sets into the
-- ORDERS and LINTeITEM tables
--
SET @max_set = @min_orderkey - 1
WHILE @max_set < @max_orderkey
BEGIN
--
-- Set the range from min_orderkey to max_set
--
SET @max_set = @min_orderkey + @range
if @max_set > @max_orderkey
    SET @max_set = @max_orderkey + 1

--
-- Insert into ORDERS and LINEITEM tables
--
```

```

INSERT_TRANS:
begin transaction
insert into ORDERS SELECT * FROM #NEWORDERS
WHERE O_ORDERKEY >= @min_orderkey AND
O_ORDERKEY < @max_set
insert into LINEITEM SELECT * FROM #NEWLINITEM
WHERE L_ORDERKEY >= @min_orderkey AND L_ORDERKEY
< @max_set
commit transaction

--
-- If deadlock victim abort then restart the transaction
--
if (@@error = 1205)
BEGIN
print 'Insert deadlock - restarting RF1 transaction'
rollback transaction
GOTO INSERT_TRANS
END

--
-- Move min_orderkey to start of next insert set
--
SET @min_orderkey = @max_set
END

END

GO

```

## E.2 CreateRF2Proc.sql

```

-- CreateRF2Proc.sql

if exists (select name from sysobjects where name = 'RF2')
drop procedure RF2
GO

--
-- Create a stored Refresh Delete procedure which will catch the deadlock
-- victim abort and restart the delete transaction.
--
CREATE PROCEDURE RF2
@flatfiledir CHAR(40), @updateset INTEGER, @segment INTEGER,
@scalefactor INTEGER
AS
BEGIN

DECLARE @min_orderkey INTEGER
DECLARE @max_orderkey INTEGER
DECLARE @range INTEGER
DECLARE @max_set INTEGER
DECLARE @SQLstring NVARCHAR(255)
DECLARE @delete_sets INTEGER

set @delete_sets=@scalefactor

create table #OLDORDERS (O_ORDERKEY int)
create unique clustered index OLDORDERS
on #OLDORDERS (O_ORDERKEY)
with sorted_data

--
-- Generate an SQL statement inserting the current updateset value into
-- the command. Next execute the statement to bulk load the old order
-- delete values
--
SET @SQLstring="bulk insert #OLDORDERS from ""

```

```

+ RTRIM(convert(CHAR,@flatfiledir)) + "\Delete.u"
+ RTRIM(Convert(char,@updateset)) + "."
+ RTRIM(convert(char,@segment))
+ "" with (order(O_ORDERKEY),codepage='RAW',TABLOCK)"
EXEC sp_executesql @SQLstring

--
-- Obtain minimum and maximum order key and compute the
-- range of each delete set
--
SELECT
@min_orderkey=MIN(O_ORDERKEY),@max_orderkey=MAX(O_ORDE
RKEY) FROM #OLDORDERS
SET @range = (@max_orderkey - @min_orderkey) / @delete_sets

--
-- This handles the case when the max-min/delete_sets is less than 1
--
IF @range = 0
-- BEGIN
SET @range = (@max_orderkey - @min_orderkey) / 1
-- END

--
-- Loop through the order keys only deleting sets from orders
-- and lineitem tables
--
SET @max_set = @min_orderkey - 1
WHILE @max_set < @max_orderkey
BEGIN
--
-- Set the range from min_orderkey to max_set
--
SET @max_set = @min_orderkey + @range
if @max_set > @max_orderkey
SET @max_set = @max_orderkey + 1

--
-- Delete from ORDERS and LINEITEM table
--
DELETE_TRANS:
begin transaction
delete from ORDERS where O_ORDERKEY in
(select * from #OLDORDERS WHERE O_ORDERKEY >=
@min_orderkey AND O_ORDERKEY < @max_set)
delete from LINEITEM where L_ORDERKEY in
(select * from #OLDORDERS WHERE O_ORDERKEY >=
@min_orderkey AND O_ORDERKEY < @max_set)

commit transaction

--
-- If deadlock victim abort then restart the transaction
--
if (@@error = 1205)
BEGIN
print 'Delete deadlock - restarting RF2 transaction'
rollback transaction
GOTO DELETE_TRANS
END

--
-- Move min_orderkey to start of next delete set
--
SET @min_orderkey = @max_set

END
END

GO

```

# Appendix F: Implementation Specific Layer and Source Code

## F.1 Setup.cmd

```
echo off

rem
rem Modify the following parameters for your configuration
rem

set DB=tpch300g
rem
rem set sql's 'sa' user password here
rem
set PW=

set HOMEDRIVE=C:
set HOMEDIR=%HP_TPCH_KIT%Setup
set OUTPUTDRIVE=c:
set OUTPUTDIR=%HP_TPCH_KIT%\Output
set SCALEFACTOR=300
set DBGEN_SEGMENTS=32
set DBGEN_PARALLELISM=16
set FLATFILEDRIVE=z:
set FLATFILEDIR=Flatfiles\
set FLATFILESUBDIR=\
set RF1_PARALLELISM=128
set RF2_PARALLELISM=128
set UPDATEDRIVE=z:
set UPDATEDIR=%UF_Flatfiles
set UPDATE_SETS=21

set DoDBGEN=FALSE
set DoDBCREATE=TRUE
set DoBULKINSERT=TRUE
set DoCLEANUP=TRUE
set DoBACKUP=TRUE
set DoENDSTATS=TRUE

%HOMEDRIVE%
cd %HOMEDIR%

if '%1' == 'DBGEN' goto :DBGEN
if '%1' == 'BULKINSERTn' goto :BULKINSERTn

echo Checking for existence of HOMEDIR and OUTPUTDIR
if NOT EXIST %HOMEDRIVE%%HOMEDIR% goto :ERROR_EXIT
if NOT EXIST %OUTPUTDRIVE%%OUTPUTDIR% goto :ERROR_EXIT
if NOT EXIST %UPDATEDRIVE%%UPDATEDIR% goto :ERROR_EXIT

echo Finding next output directory in
%OUTPUTDRIVE%%OUTPUTDIR%
set OUTPUTNUMBER=1
:OUTPUTLOOP
if NOT EXIST
%HOMEDRIVE%%HOMEDIR%\%OUTPUTDRIVE%%OUTPUTDIR%\%OUTPUTNUMBER% goto
:OUTPUTLOOPEND
set /a OUTPUTNUMBER=%OUTPUTNUMBER%+1
goto :OUTPUTLOOP
:OUTPUTLOOPEND

set
OUTPUTPATH=%OUTPUTDRIVE%%OUTPUTDIR%\%OUTPUTNUMBER%
BER%
echo Output will be found at %OUTPUTPATH%
mkdir %OUTPUTPATH%

if NOT '%DoDBGEN%' == 'TRUE' goto :DBCREATE

rem
rem DBGEN invokes dbgen.exe in parallel
rem

echo Starting DBGEN of FlatFiles
for /1 %i in (1,1,%DBGEN_SEGMENTS%) do copy dists.dss
%FLATFILEDRIVE%\%FLATFILEDIR%\%i%\FLATFILESUBDIR%
Copy dists.dss %UPDATEDRIVE%%UPDATEDIR%
for /1 %i in (1,%DBGEN_PARALLELISM%,%DBGEN_SEGMENTS%)
do call :DBGEN_ITERATE %i

echo Starting DBGEN of Update Files
%UPDATEDRIVE%
%UPDATEDIR%
%HOMEDRIVE%\%HOMEDIR%\dbgen -U %UPDATE_SETS% -s
%SCALEFACTOR% -qf -C %UPDATE_SETS% -i
%RF1_PARALLELISM% -d %RF2_PARALLELISM%
2>%OUTPUTPATH%\dbgen_Update.out
%HOMEDRIVE%
cd %HOMEDIR%
goto :DBCREATE

:DBGEN_ITERATE
set FIRST=%1
set /a LAST=%FIRST%+%DBGEN_PARALLELISM%-1
echo DBGening sets %FIRST% through %LAST%
for /1 %i in (%FIRST%,1,%LAST%) do start cmd /C Setup DBGEN %i
semaphore -wait DBGEN -count %DBGEN_PARALLELISM%
goto :EOF

:DBGEN
%FLATFILEDRIVE%
cd %FLATFILEDRIVE%\%FLATFILESUBDIR%
%HOMEDRIVE%\%HOMEDIR%\dbgen -qf -s%SCALEFACTOR% -
C%DBGEN_SEGMENTS% -S%2 2>%OUTPUTPATH%\dbgen_%2%.out
%HOMEDRIVE%
cd %HOMEDIR%
semaphore -release DBGEN
goto :EOF

:DBCREATE
if NOT '%DoDBCREATE%' == 'TRUE' goto :BULKINSERT
rem
rem DBCREATE invokes the file %DBNAME%\CreateDatabase.sql
rem
echo Starting database creation

osql -Usa -P%PW% -Q"if exists (select * from sysdatabases where
name='%DB%')drop database %DB%" -o
%OUTPUTPATH%\DropDatabase.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -i %DB%\CreateDatabase.sql -o
%OUTPUTPATH%\CreateDatabase.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
```



```

rem osql -Usa -P%PW% -Q"sp_dboption %DB%,trunc',TRUE" -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT
rem osql -Usa -P%PW% -Q"sp_dboption %DB%,'select into',TRUE" -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT
rem osql -Usa -P%PW% -Q"sp_dboption %DB%,'torn',FALSE" -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT

:BULKINSERT
if NOT '%DoBULKINSERT%' == 'TRUE' goto :CLEANUP
rem
rem BULKINSERT starts a process per %DBGEN_PARALLELISM%
rem Each process inserts one or more segments
rem

osql -Usa -P%PW% -Q"sp_dboption %DB%,'trunc',TRUE" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -Q"sp_dboption %DB%,'select into',TRUE" -b
if ERRORLEVEL 1 goto :ERROR_EXIT

echo Dropping and Re-Creating Tables
osql -Usa -P%PW% -d%DB% -Q"if exists (select * from sysobjects where
name = 'LOADTIMES') drop table LOADTIMES" -b -o
%OUTPUTPATH%\Drop_Loadtimes.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"create table LOADTIMES(STEP
char(35),TIMESTAMP datetime)" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('LOAD
begin',getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('Create
Tables begin',getdate())" -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
for %%i in (REGION NATION SUPPLIER PARTSUPP PART
CUSTOMER ORDERS LINEITEM) do osql -Usa -P%PW% -d%DB% -
Q"drop table %%i" -o %OUTPUTPATH%\Drop_Table_%%i.out
osql -Usa -P%PW% -d%DB% -i%DB%\CreateTables.sql -o
%OUTPUTPATH%\CreateTables.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('Create
Tables end',getdate())" -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT

echo Starting bulk inserts
for %%i in (LINEITEM ORDERS CUSTOMER PART PARTSUPP
SUPPLIER) do call :BULKINSERTi %%i
echo for NATION and REGION
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values
('Nation/Region insert begin',getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"bulk insert NATION from
'%FLATFILEDRIVE%\%FLATFILEDIR%\%FLATFILESUBDIR%\Natio
n.tbl' with (FieldTerminator = '|', RowTerminator = '\n',tablock)" -o
%OUTPUTPATH%\BulkInsert_Nation.out -b -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -i%DB%\CreateNATIONIndexes.sql -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"bulk insert REGION from
'%FLATFILEDRIVE%\%FLATFILEDIR%\%FLATFILESUBDIR%\Regio
n.tbl' with (FieldTerminator = '|', RowTerminator = '\n',tablock)" -o
%OUTPUTPATH%\BulkInsert_Region.out -b -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -i%DB%\CreateREGIONIndexes.sql -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values
('Nation/Region insert end',getdate())" -b -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
goto :CLEANUP

:BULKINSERTi

```

```

echo Starting bulk inserts for %1
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('%1 bulk
insert begin',getdate())" -l 300
for /1 %%j in (1,1,%DBGEN_PARALLELISM%) do start cmd /C Setup
BULKINSERTn %1 %%j
semaphore -wait %1 -count %DBGEN_PARALLELISM%
echo Starting create indexes for %1
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('%1
create index begin',getdate())" -b -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -i %DB%\Create%1Indexes.sql -o
%OUTPUTPATH%\Create%1Indexes.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('%1
end',getdate())" -b -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
goto :EOF

:BULKINSERTn
for /1 %%k in
(%3,%DBGEN_PARALLELISM%,%DBGEN_SEGMENTS%) do call
:BULKINSERTn2 BULKINSERTn2 %2 %%k
semaphore -release %2
goto :EOF

:BULKINSERTn2
osql -Usa -P%PW% -d%DB% -Q"bulk insert %2 from
'%FLATFILEDRIVE%\%FLATFILEDIR%\%3%FLATFILESUBDIR%\%2.
tbl.%3' with (FieldTerminator = '|', RowTerminator = '\n',tablock)" -o
%OUTPUTPATH%\BulkInsert_%2_%3.out -b -l 300
goto :EOF

:CLEANUP
if NOT '%DoCLEANUP%' == 'TRUE' goto :BACKUP
rem
rem CLEANUP sets statistics and lock options
rem

echo Setting Cleanup Options

osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('Cleanup
start',getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"sp_createstats" -o
%OUTPUTPATH%\CreateStats.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"update statistics
LINEITEM(L_SUPPKEY) WITH FULLSCAN, NORECOMPUTE" -o
%OUTPUTPATH%\SUPPKEYStats.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"update statistics
LINEITEM(L_ORDERKEY_IDX) WITH FULLSCAN, NORECOMPUTE"
-o %OUTPUTPATH%\ORDERKEYStats.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"update statistics ORDERS(O_KEY_IDX)
WITH FULLSCAN, NORECOMPUTE" -o
%OUTPUTPATH%\KEYStats.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"sp_dboption '%DB%',auto create
statistics',OFF" -o %OUTPUTPATH%\AutoCreateStats.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"sp_dboption '%DB%',auto update
statistics',OFF" -o %OUTPUTPATH%\AutoUpdateStats.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"sp_indexoption 'LINEITEM',
'disallowpagelocks', 'FALSE'" -o
%OUTPUTPATH%\DisAllowPageLocksLINEITEM.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT

```

```

osql -Usa -P%PW% -d%DB% -Q"sp_indexoption 'ORDERS',
'disallowpagelocks', 'FALSE'" -o
%OUTPUTPATH%\DisallowPageLocksOrders.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"sp_indexoption 'LINEITEM',
'disallowrowlocks', 'FALSE'" -o
%OUTPUTPATH%\DisallowrowLocksLINEITEM.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"sp_indexoption 'ORDERS',
'disallowrowlocks', 'FALSE'" -o
%OUTPUTPATH%\DisallowrowLocksOrders.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"sp_dboption '%DB%', 'torn page
detection', 'FALSE'" -o %OUTPUTPATH%\TornPage.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -i CreateRF1Proc.sql -o
%OUTPUTPATH%\CreateRF1Proc.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -i CreateRF2Proc.sql -o
%OUTPUTPATH%\CreateRF2Proc.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"exec sp_tableoption
'NATION', 'pintable', 1" -o %OUTPUTPATH%\pinNATION.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"exec sp_tableoption
'REGION', 'pintable', 1" -o %OUTPUTPATH%\pinREGION.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
rem
rem osql -Usa -P%PW% -d%DB% -Q"exec sp_tableoption
'SUPPLIER', 'pintable', 1" -o %OUTPUTPATH%\pinSUPPLIER.out -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT

osql -Usa -P%PW% -Q"sp_dboption %DB%', 'trunc', 'FALSE" -b
>%OUTPUTPATH%\dboptionTrunOFF.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -Q"sp_dboption %DB%', 'select', 'FALSE" -b
>%OUTPUTPATH%\dboptionSelOFF.out
if ERRORLEVEL 1 goto :ERROR_EXIT

osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('Cleanup
end', getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT

:BACKUP
rem
rem BACKUP is the final step, using a script
rem

if NOT '%DoBACKUP%' == 'TRUE' goto :ENDSTATS

echo Starting Backup
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('Backup
start', getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
echo Deleting LoadFg filegroup
osql -Usa -P%PW% -d%DB% -i %DB%\DelLoadFG.sql -o
%OUTPUTPATH%\DelLoadFG.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -i %DB%\Backup.sql -o
%OUTPUTPATH%\Backup.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('Backup
end', getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT

:ENDSTATS

if NOT '%DoENDSTATS%' == 'TRUE' goto :EOF

```

```

osql -Usa -P%PW% -d%DB% -Q"insert into LOADTIMES values ('LOAD
end', getdate())"
osql -Usa -P%PW% -d%DB% -Q"select TIMESTAMP from LOADTIMES
where STEP='LOAD end'" -o %OUTPUTPATH%\LoadEND.out
bcp %DB%..LOADTIMES out %OUTPUTPATH%\LOADTIMES.bcp -Usa
-P%PW% -n
echo Last step is to run Francois' dbtables-ms.sql script
osql -Usa -P%PW% -d%DB% -i dbtables-ms.sql -o
%OUTPUTPATH%\dbtables-ms.out
osql -Usa -P%PW% -d%DB% -i SetupReport.sql -o
%OUTPUTPATH%\SetupReport.out
echo Done! Check for output in %OUTPUTPATH%
goto :EOF

```

```

:ERROR_EXIT
echo Setup aborted due to errors
echo Check output in %OUTPUTPATH%
exit /B

```

## F.2 Run.cmd

```

echo off

rem
rem Modify the following parameters for your configuration
rem
rem This version pulls the Update Files from
rem %UPDATEDRIVE% <segment> %UPDATEDIR%
rem

set DB=tpch300g
set HOMEDRIVE=C:
set HOMEDIR=\HP_TPCH_KIT\Run
set OUTPUTDRIVE=C:
set OUTPUTDIR=\HP_TPCH_KIT\Output
set UPDATEDRIVE=Z:
set UPDATEDIR=\ZF_Flatfiles
set UPDATESSET=8
set UPDATESEGMENTS=128
set SEED=423230025
set SCALEFACTOR=300
set STREAMS=6

set DoRESTORE=FALSE
set DoSETUP=TRUE
set DoPOWER=TRUE
set DoPOWERRefresh=TRUE
set DoPOWERStream0=TRUE
set DoTHROUGHPUT=TRUE

%HOMEDRIVE%
cd %HOMEDIR%

if '%1' == 'RF1' goto RF1
if '%1' == 'RF2' goto RF2
if '%1' == 'THROUGHPUT_STREAM' goto :THROUGHPUT_STREAM

echo Checking for existence of HOMEDIR and OUTPUTDIR
if NOT EXIST %HOMEDRIVE%\%HOMEDIR% goto :ERROR_EXIT
if NOT EXIST %OUTPUTDRIVE%\%OUTPUTDIR% goto :ERROR_EXIT

set OUTPUTNUMBER=1
:OUTPUTLOOP
if NOT EXIST
%HOMEDRIVE%\%OUTPUTDIR%\%OUTPUTNUMBER% goto
:OUTPUTLOOPEND
set /a OUTPUTNUMBER=%OUTPUTNUMBER%+1

```

```

goto :OUTPUTLOOP
:OUTPUTLOOPEND
set
OUTPUTPATH=%OUTPUTDRIVE%%OUTPUTDIR%\%OUTPUTNUMBER%
echo Output will be found at %OUTPUTPATH%
mkdir %OUTPUTPATH%
rem
rem Create the TIMES table
rem
osql -E -d%DB% -Q"if exists (select * from sysindexes where name =
'TIMES') drop table TIMES"
osql -E -d%DB% -Q"create table TIMES(QUERY char(5),STREAM
int,START datetime)"

if NOT '%DoRESTORE%' == 'TRUE' goto :SETUP

rem
rem Use the Restore.sql script in SETUP
rem

echo Starting Restore
osql -E -i ..\Setup\%DB%\Restore.sql -b
osql -E -d%DB% -i ..\Setup\CreateRF1Proc.sql
osql -E -d%DB% -i ..\Setup\CreateRF2Proc.sql
if ERRORLEVEL 1 goto :ERROR_EXIT

:SETUP
if NOT '%DoSETUP%' == 'TRUE' goto :POWER

rem
rem Create the Power and five Throughput Streams
rem

echo QGening the Power and Throughput Streams
pushd templates
for /l %%i in (0,1,%STREAMS%) do call :SETUP1 %%i
for /l %%i in (1,1,%STREAMS%) do echo insert into TIMES values
('QXX',%%i,getdate())>> %HOMEDIR%\Stream%%i.sql
for /l %%i in (1,1,%STREAMS%) do echo go>>
%HOMEDIR%\Stream%%i.sql
for /l %%i in (0,1,%STREAMS%) do copy %HOMEDIR%\Stream%%i.sql
%OUTPUTPATH%
popd
goto :SETUP2

:SETUP1
echo Qgening using seed %SEED%
%HOMEDIR%\qgen -s %SCALEFACTOR% -r %SEED% -p%1 -l
seed_%1.txt > %HOMEDIR%\Stream%1.sql
set /a SEED=%SEED% + 1
goto :EOF

:SETUP2

rem
rem Begin POWER run
rem

rem
rem Execute the RF1 Transaction set in parallel
rem

:POWER
if NOT '%DoPOWER%' == 'TRUE' goto :THROUGHPUT
osql -E -d%DB% -Q"truncate table TIMES"
echo Beginning Power Run
if NOT '%DoPOWERRefresh%' == 'TRUE' goto :STREAM0

```

```

echo Running the RF1s
set /a UPDATE_SEGMENT=%1+%UPDATESET%
osql -E -d%DB% -Q"insert into TIMES values ('RF1',0,getdate())"
for /l %%i in (1,1,%UPDATESEGMENTS%) do start /HIGH cmd /C Run
RF1 %UPDATE_SEGMENT% %%i
semaphore -wait RF1 -count %UPDATESEGMENTS%

rem
rem Execute the PowerRun Queries
rem

:STREAM0
if NOT '%DoPOWERStream0%' == 'TRUE' goto :STREAM0_DONE
echo Running Stream0
osql -E -d%DB% -iStream0.sql -o %OUTPUTPATH%\Stream0.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
:STREAM0_DONE

rem
rem Execute the RF2 Transaction set in Parallel
rem

if NOT '%DoPOWERRefresh%' == 'TRUE' goto :POWERDONE
echo Running the RF2s
osql -E -d%DB% -Q"insert into TIMES values ('RF2',0,getdate())"
for /l %%i in (1,1,%UPDATESEGMENTS%) do start /abovenormal cmd /C
Run RF2 %UPDATE_SEGMENT% %%i
semaphore -wait RF2 -count %UPDATESEGMENTS%

:POWERDONE
osql -E -d%DB% -Q"insert into TIMES values ('QXX',0,getdate())" -I300

rem
rem Execute the THROUGHPUT Run
rem

:THROUGHPUT
if NOT '%DoTHROUGHPUT%' == 'TRUE' goto :DONE
echo Running the Throughput Streams

for /l %%i in (1,1,%STREAMS%) do start /abovenormal cmd /C Run
THROUGHPUT_STREAM %%i
osql -E -d%DB% -Q"insert into TIMES values ('RF1',1,getdate())"
semaphore -wait THROUGHPUT_QUERIES -count %STREAMS%

for /l %%j in (1,1,%STREAMS%) do call :THROUGHPUT_REFRESH
%%j
goto :DONE

:THROUGHPUT_STREAM
osql -E -d%DB% -iStream%2.sql -o %OUTPUTPATH%\Stream%2.out
semaphore -release THROUGHPUT_QUERIES
goto :EOF

:THROUGHPUT_REFRESH
if %1 neq 1 osql -E -d%DB% -Q"insert into TIMES values
('RF1',%1,getdate())"
set /a UPDATE_SEGMENT=%1+%UPDATESET%
for /l %%i in (1,1,%UPDATESEGMENTS%) do start /abovenormal cmd /C
Run RF1 %UPDATE_SEGMENT% %%i
semaphore -wait RF1 -count %UPDATESEGMENTS%
osql -E -d%DB% -Q"insert into TIMES values ('RF2',%1,getdate())"
for /l %%i in (1,1,%UPDATESEGMENTS%) do start /abovenormal cmd /C
Run RF2 %UPDATE_SEGMENT% %%i
semaphore -wait RF2 -count %UPDATESEGMENTS%
osql -E -d%DB% -Q"insert into TIMES values ('RFX',%1,getdate())"
goto :EOF

rem

```

```

rem Final Step -- Write out completion to Log
rem

:DONE
osql -E -d%DB% -iReport.sql -o%OUTPUTPATH%\Report.out -w120
bcp %DB%..TIMES out %OUTPUTPATH%\TIMES.bcp -Usa -P -n
rem ----- Get SQL Configuration
osql -E -Q"sp_configure 'show advanced',1"
osql -E -Q"reconfigure with override"
osql -E -n -s, -w300 -Q"sp_configure" -o%OUTPUTPATH%\configure.out
rem ----- Get SQL Version
osql -E -n -w300 -e -Q"select @@version" -
o%OUTPUTPATH%\sqlversion.out
osql -E -n -w300 -e -Q"sp_helpdb %DB%" -o%OUTPUTPATH%\db.out
osql -E -n -w300 -e -Q"sp_dboption %DB%" -
o%OUTPUTPATH%\dboption.out
osql -E -n -w300 -e -Q"sp_helpsort" -o%OUTPUTPATH%\sort.out
osql -E -n -w300 -e -d%DB% -ilocking.sql -
o%OUTPUTPATH%\locking.out
rem ----- Get query plans
@echo set showplan_all on >%OUTPUTPATH%\stream.sql
@echo go >>%OUTPUTPATH%\stream.sql
type stream0.sql >>%OUTPUTPATH%\stream.sql
osql -E -d%DB% -n -w3000 -i%OUTPUTPATH%\stream.sql -
o%OUTPUTPATH%\plans.out

rem ----- Get Boot.ini
TYPE c:\boot.ini >%OUTPUTPATH%\boot.ini
reg query "HKLM\SYSTEM\CurrentControlSet\Control\Session
Manager\I/O System" /s >%OUTPUTPATH%\session.reg
reg query
"HKLM\SYSTEM\CurrentControlSet\Services\hpqcissb\Parameters" /s
>%OUTPUTPATH%\array.reg
reg query "HKLM\SYSTEM\CurrentControlSet\Control\PriorityControl" /s
>%OUTPUTPATH%\priority.reg

echo Done! Output can be found at %OUTPUTPATH%
goto :EOF

rem
rem Subroutine for Executing RF1s
rem called from RF1 and THROUGHPUT_RF1
rem

:RF1
rem osql -E -I 120 -d%DB% -Q"exec RF1
'%UPDATEDRIVE%%UPDATEDIR%',%2,%3,%SCALEFACTOR%" -o
%OUTPUTPATH%\RF1_%2_%3.out
osql -E -I 120 -d%DB% -Q"exec RF1
'%UPDATEDRIVE%%UPDATEDIR%',%2,%3,100" -o
%OUTPUTPATH%\RF1_%2_%3.out
semaphore -release RF1
goto :EOF

rem
rem Subroutine for Executing RF2s
rem called from RF2 and THROUGHPUT_RF2
rem

:RF2
rem osql -E -I 120 -d%DB% -Q"exec RF2
'%UPDATEDRIVE%%UPDATEDIR%',%2,%3,%SCALEFACTOR%" -o
%OUTPUTPATH%\RF2_%2_%3.out
osql -E -I 120 -d%DB% -Q"exec RF2
'%UPDATEDRIVE%%UPDATEDIR%',%2,%3,100" -o
%OUTPUTPATH%\RF2_%2_%3.out
semaphore -release RF2

```

```

goto :EOF

:ERROR_EXIT
echo Run aborted due to error
echo Check output in %OUTPUTPATH%
exit /B

```

## F.3 Semaphore.cpp

```

#define _WIN32_WINNT 0x0400
#include <windows.h>
#include <string.h>
#include <iostream.h>
#include <stdlib.h>
#include <stdio.h>
#include <assert.h>
void main(int argc, char **argv)
{
typedef enum { eUnknown, eWait, eSignal, eRelease, eWaitList,
eWaitGroup } OPERATION;
OPERATION eOP = eUnknown;
int iCount;
int i;
HANDLE hSemaphore;
HANDLE *pHandles;
SYSTEMTIME Time;
if (argc < 3)
goto usage;
if (_stricmp(argv[1], "-wait") == 0)
eOP = eWait;
else if (_stricmp(argv[1], "-signal") == 0)
eOP = eSignal;
else if (_stricmp(argv[1], "-release") == 0)
eOP = eRelease;
else if (_stricmp(argv[1], "-waitlist") == 0)
eOP = eWaitList;
else if (_stricmp(argv[1], "-waitgroup") == 0)
eOP = eWaitGroup;
else goto usage;
if ((eOP == eWait) || (eOP == eRelease))
{
// argv[2] is the semaphore name
// if -count option specified, then there must be exactly 5 args
if ((argc == 5) && (_stricmp(argv[3], "-count") == 0))
{
iCount = atoi(argv[4]);
if (iCount < 1)
goto usage;
}
// check that
else if (argc != 3)
goto usage;
else
iCount = 1;
}
else if (eOP == eWaitGroup)
{
if ((argc != 5) || (_stricmp(argv[3], "-count") != 0))
goto usage;
iCount = atoi(argv[4]);
if (iCount < 1)
goto usage;
}
else
// eWaitList or eSignal
iCount = argc - 2;
}

```

```

if (eOP == eWait)
{
    printf( "semaphore name = %s\n", argv[2] );
    printf( "semaphore count = %d\n", iCount );
    hSemaphore = CreateSemaphore( NULL, 0, 2000000000,
    argv[2] );
    if (hSemaphore == NULL)
    {
        DWORD dwError = GetLastError();
        cout << "ERROR* CreateSemaphore returned "
        << dwError << endl;
        exit(EXIT_FAILURE);
    }
    for (i=0; i<iCount; i++)
    {
        WaitForSingleObject( hSemaphore, INFINITE );
        GetLocalTime( &Time );
        printf( "%4.4d-%2.2d-%2.2d %2.2d:%2.2d:%2.2d
        -released\n",
        Time.wYear, Time.wMonth,
        Time.wDay, Time.wHour, Time.wMinute, Time.wSecond );
    }
    CloseHandle( hSemaphore );
}
else if ((eOP == eWaitGroup) || (eOP == eWaitList))
{
    char **szEventNames;
    szEventNames = new char*[iCount];
    char szTmp[128];
    printf( "event-list = " );
    for (i=0; i<iCount; i++)
    {
        if (eOP == eWaitGroup)
        {
            wsprintf( szTmp, "%s.%d", argv[2],
            i+1 );
            szEventNames[i] = new
            char[strlen(szTmp)+1];
            strcpy( szEventNames[i], szTmp );
        }
        else
        {
            szEventNames[i] = new
            char[strlen(argv[i+2])+1];
            strcpy( szEventNames[i], argv[i+2] );
        }
        printf( " %s", szEventNames[i] );
    }
    printf( "\n" );
    pHandles = new HANDLE[iCount-1];
    for (i=0; i<iCount; i++)
    {
        pHandles[i] = CreateEvent( NULL, TRUE /*
        manual reset */, FALSE /* initially non-signaled */, szEventNames[i] );
        if (pHandles[i] == NULL)
        {
            DWORD dwError = GetLastError();
            cout << "ERROR* CreateEvent
            returned " << dwError << endl;
            exit(EXIT_FAILURE);
        }
    }
    for (i=iCount; i>0;i--)
    {
        int idx = WaitForMultipleObjects( i, pHandles,
        FALSE /* wait for all */, INFINITE ) - WAIT_OBJECT_0;
        GetLocalTime( &Time );
        printf( "%4.4d-%2.2d-%2.2d %2.2d:%2.2d:%2.2d
        - signaled: %s\n",
        Time.wYear, Time.wMonth,

```

```

Time.wDay, Time.wHour, Time.wMinute, Time.wSecond, szEventNames[idx] );
        HANDLE hTmp = pHandles[idx];
        pHandles[idx] = pHandles[i-1];
        pHandles[i-1] = hTmp;
        char* szTmp = szEventNames[idx];
        szEventNames[idx] = szEventNames[i-1];
        szEventNames[i-1] = szTmp;
    }
    for (i=0; i<iCount; i++)
    CloseHandle( pHandles[i] );
}
else if (eOP == eRelease)
{
    hSemaphore = OpenSemaphore(
    SEMAPHORE_MODIFY_STATE, FALSE, argv[2] );
    if (hSemaphore == NULL)
    {
        DWORD dwError = GetLastError();
        cout << "ERROR* OpenSemaphore returned "
        << dwError << endl;
        exit(EXIT_FAILURE);
    }
    if (!ReleaseSemaphore( hSemaphore, iCount, NULL ))
    {
        DWORD dwError = GetLastError();
        cout << "ERROR* ReleaseSemaphore returned
        " << dwError << endl;
        exit(EXIT_FAILURE);
    }
    CloseHandle( hSemaphore );
}
else if (eOP == eSignal)
{
    for (i=0; i<iCount; i++)
    {
        HANDLE hHandle = OpenEvent(
        EVENT_MODIFY_STATE, FALSE, argv[i+2] );
        if (hHandle == NULL)
        {
            DWORD dwError = GetLastError();
            cout << "ERROR* OpenEvent
            returned " << dwError << endl;
            exit(EXIT_FAILURE);
        }
        SetEvent( hHandle );
        CloseHandle( hHandle );
    }
    exit(EXIT_SUCCESS);
    // syntax was bad; show usage and quit
    usage:
    printf(
    "Semaphore Utility - Ver. 1.2 - 26-Jul-99\n"
    "Copyright (C) Microsoft Corp 1999. All rights reserved.\n\n"
    "usage: \n"
    " semaphore { -wait | -release } <semaphore-name> [ -count
    <count> ] \n"
    " semaphore { -waitlist | -signal } <event-list> \n"
    " semaphore -waitgroup <event-prefix> -count <count>\n"
    "\n"
    " <semaphore-name> == alpha-numeric identifier \n"
    " <count> == integer > 0; default value = 1 \n"
    " <event-list> == { <event-name> ... } \n"
    " <event-name> == alpha-numeric identifier \n"
    " <event-prefix> == alpha-numeric identifier \n"
    "\n"
    "There are two modes to choose from: a semaphore or a list
    of events. \n"
    "\n"
    "Semaphore mode: \n"

```

"A semaphore is a single identifier with an associated count. Each time \n"  
"the semaphore is released, the count is decremented by one (or the amount \n"  
"specified). When the count reaches zero, the waiter completes. If there \n"  
"are multiple waiters on the same semaphore, each release releases only \n"  
"the number of waiters specified in count.\n"  
"\n"  
"List of Events: \n"  
"A list of events (alpha-numeric tags) is specified for the waiter. The \n"  
"waiter doesn't complete until all of the events have been signaled. A \n"  
"}  
}

"given event may be signaled more than once. There are two ways to define \n"  
"the list of events, either explicitly (-waitlist) by naming all of them or \n"  
"implicitly (-waitgroup) with a prefix and a count. Using the -waitgroup \n"  
"option, you provide an alpha-numeric tag which is used as the prefix for a \n"  
"group of events. The event names are generated by concatenating the prefix \n"  
"with \"<n>\", where <n> is 1 to the specified count. \n"  
");  
exit(EXIT\_FAILURE);  
}

# *Appendix G: Price Quotations*

May 9, 2003

Hewlett-Packard  
Company  
Daniel Pol  
20555 SH 249  
Houston, TX 77070

Mr. Pol:

Here is the information you requested regarding pricing for several Microsoft products to be used in conjunction with your TPC-H benchmark testing.

All pricing shown is in US Dollars (\$).

Part Number	Description	Unit Price	Quantity	Price
810-00652	<b>SQL Server 2000 Enterprise Edition</b> <i>Server license only - No CALs</i> <i>Discount Schedule: Open Program - No Level</i> <i>Unit Price reflects a 26% discount from the retail unit price of \$7,499.</i>	\$5,549	1	\$5,549
359-00532	<b>SQL Server 2000 Client License</b> <i>Discount Schedule: Open Program - No Level</i> <i>Unit Price reflects a 18% discount from the retail unit price of \$179.</i>	\$146	60	\$8,760
P72-00264	<b>Windows Server 2003, Enterprise Server</b> <i>Server license only - No CALs</i> <i>Discount Schedule: Open Program - No Level</i> <i>Unit Price reflects a 40% discount from the retail unit price of \$3,999.</i>	\$2,399	1	\$2,399
659-00844	<b>Visual Studio Professional</b> <i>No discounts applied</i>	\$1,079	1	\$1,079
PRO-PRORS-16U-01	<b>Database Server Support Package</b> <i>1 Year Term</i>	\$1,950	3	\$5,850

Some products may not be currently orderable but will be available through Microsoft's normal distribution channels by April 2, 2003.

This quote is valid for the next 90 days.

If we can be of any further assistance, please contact Jamie Reding at (425) 703-0510 or [jamiere@microsoft.com](mailto:jamiere@microsoft.com).



Microsoft Corporation  
One Microsoft Way  
Redmond, WA 98052-6399

Tel 425 882 8080  
Fax 425 936 7329  
<http://www.microsoft.com/>

**Microsoft**

February 28, 2003

Hewlett-Packard  
Company  
Daniel Pol  
20555 SH 249  
Houston, TX 77070

Mr. Pol:

Here is the information you requested regarding pricing for several Microsoft products to be used in conjunction with your TPC-H benchmark testing.

All pricing shown is in US Dollars (\$).

Part Number	Description	Unit Price	Quantity	Price
254-00170	<b>Visual C++ Standard</b> <i>No discounts applied</i>	\$109	1	\$109

All products are currently orderable through Microsoft's normal distribution channels.

This quote is valid for the next 90 days.

If we can be of any further assistance, please contact Jamie Reding at (425) 703-0510 or [jamiere@microsoft.com](mailto:jamiere@microsoft.com).

Reference ID: PCjare0328026807

Please include this Reference ID in any correspondence regarding this price quote.