



Hewlett-Packard Company

TPC Benchmark™ H
Full Disclosure Report
for
HP ProLiant DL380 G6
using
Microsoft SQL Server 2008 Enterprise x64 Edition SP1
and
Windows Server 2008 Enterprise x64 Edition SP2

First Edition
August 2009

First Edition – August, 2009

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HP ProLiant DL380 G6

TPC-H Rev. 2.8.0

Report Date:
Aug 27, 2009

Total System Cost

\$54,859 USD

Composite Query per Hour Metric

51,422.4
QphH@100GB

Price / Performance

\$1.07 USD
\$/QphH@100GB

Database Size

100GB

Database Manager

Microsoft SQL Server 2008 Enterprise x64 Edition SP1

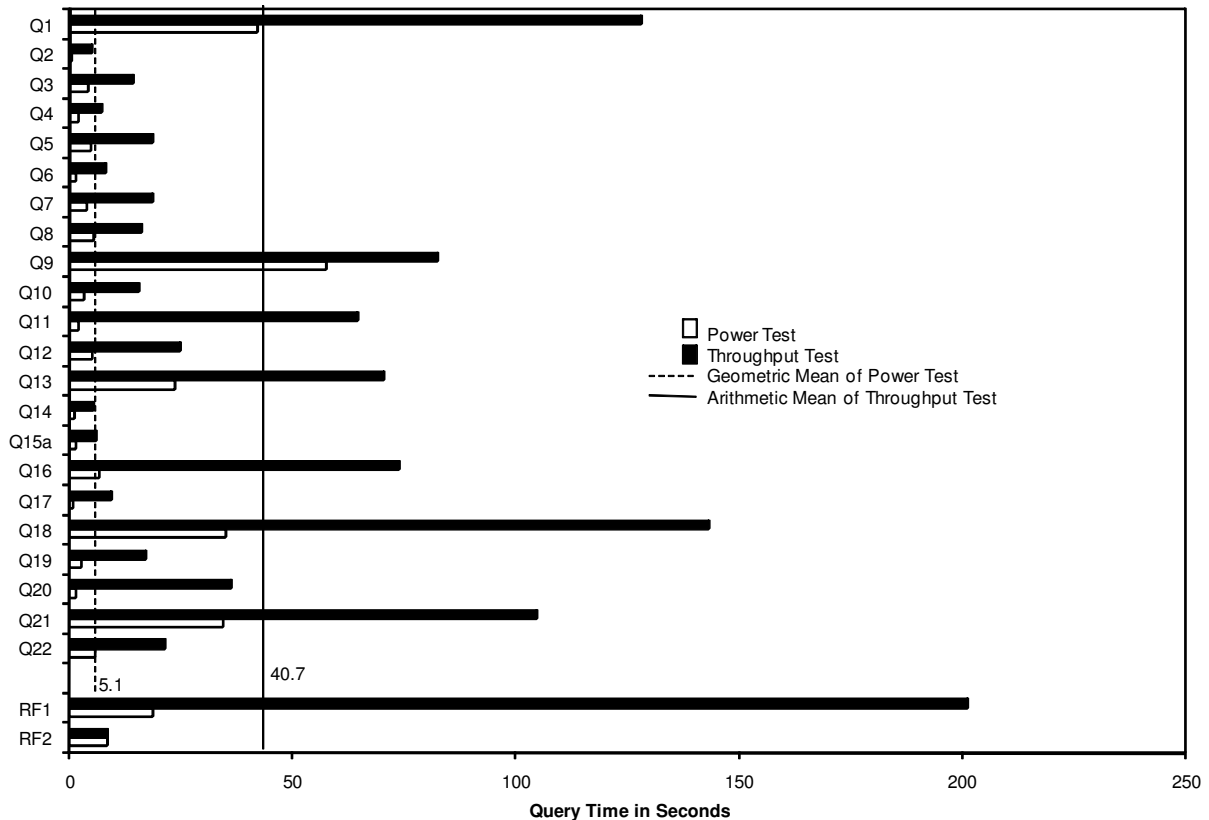
Operating System

Windows Server 2008 Enterprise Edition x64 SP2

Other Software

Availability Date

Sep 14, 2009



Database Load Time = 0:37:21

Load Included Backup: Y

Total Data Storage / Database Size = 8.64

RAID (Base tables only): N

RAID (Base tables and auxiliary data structures): Y

RAID (All): N

System Configuration:

Processors : 2x 2.93 GHz Quad Core Intel X5570
Cores : 8
Threads : 16
Memory : 144 GB
OS Disk Drives : 2x 72 GB 15K rpm SFF SAS
Network : 4x on-board GigE
Disk Controllers : 4x Smart Array P410, 1x Smart Array P411
Disks : 12x 60GB SSD SATA SFF
Total Disk Storage: 864 GB

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



HP ProLiant DL380 G6

TPC-H Rev. 2.8.0

Report Date: 27-Aug-09

Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
Server Hardware							
Brand Pricing							
HP DL380G6 CTO Chassis	494329-B21	1	1,486	1	1,486		
HP X5570 DL380 G6 FIO Kit	500094-L21	1	1,999	2	3,998		
HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21	1	990	18	17,820		
HP DL380G6 3 Slot PCI-E Riser Kit	500579-B21	1	99	1	99		
HP DL380/385G6 8SFF Cage Kit	516914-B21	1	199	1	199		
HP P411/256 FIO SA Cntrlr w/Battery	491193-B21	1	549	1	549		
HP Smart Array P410/512 BBWC Controller	462864-B21	1	649	3	1,947		
HP 72GB 15K rpm Hot Plug SAS 2.5 Dual Port Hard Drive	418371-B21	1	359	2	718		
HP LV1561w 15.6-inch Wide LCD Monitor	NJ711A8#ABA	1	110	1	110		
HP PS/2 Standard Keyboard	GY071AV#ABA	1	7	1	7		
HP PS/2 2-Button Scroll Mouse	EW344AV	1	2	1	2		
HP 3y 4h 24x7 ProLiant DL38x HW Support	U4545E	1	837	1		837	
Subtotal					26,935	837	
Storage							
HP 60GB 3G SATA 2.5in MDL	572071-B21*	1	1,549	12	18,588		
Subtotal					18,588	0	
Hardware and Maintenance Discount							
Large Purchase and Net 30 discount	14.0%	1			(\$6,373)	(\$117)	
Hardware Subtotal					39,150	720	
Software							
SQL Server 2008 Enterprise x64 Edition	810-07580	Microsoft	2	8,487	1	8,487	incl. bellow
Windows Server 2008 Enterprise Edition (x64)	P72-03195	Microsoft	2	2,357	1	2,357	incl. bellow
SQL Server 2008 Client License	359-01912	Microsoft	2	156	25	3,900	incl. bellow
Microsoft Problem Resolution Services		Microsoft	2	245	1	245	
Subtotal					14,744	245	
Total					\$53,894	\$965	

Three-Year Cost of Ownership:	\$54,859 USD
QpH @ 100GB:	51422.4
\$ / QpH @ 100GB:	\$1.07 USD

Pricing: 1=HP Direct: 800-203-6748; 2=Microsoft

Note 1 = Discount based on HP Direct guidance with large purchase and Net 30 discount. Applies to all lines with 1 in pricing column.

* = These components are not immediately orderable. See the FDR for more information.

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 the TPC at pricing@tpc.org. Thank you.



HP ProLiant DL380 G6

TPC-H Rev. 2.8.0

Report Date:
Aug 27, 2009

Numerical Quantities

Measurement Results:

Database Scale Factor	= 100
Total Data Storage / Database Size	= 8.64
Start of Database Load	= 2009-08-20 13:53:40
End of Database Load	= 2009-08-20 14:31:01
Database Load Time	= 00:37:21
Query Streams for Throughput Test	= 5
TPC-H Power	= 70,048.5
TPC-H Throughput	= 37,749.1
TPC-H Composite Query-per-Hour Metric (QphH@100GB)	= 51,422.4
Total System Price Over 3 Years	= \$54,859
TPC-H Price/ Performance Metric (\$/QphH@100GB)	= \$1.07 USD

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 1,049.0 seconds
--	-------------------

Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	820143101	8/20/2009	15:51:53	8/20/2009	15:56:27	0:04:34
Stream01	820143102	8/20/2009	15:56:28	8/20/2009	16:12:09	0:15:41
Stream02	820143103	8/20/2009	15:56:28	8/20/2009	16:10:44	0:14:16
Stream03	820143104	8/20/2009	15:56:28	8/20/2009	16:12:17	0:15:49
Stream04	820143105	8/20/2009	15:56:28	8/20/2009	16:10:44	0:14:16
Stream05	820143106	8/20/2009	15:56:28	8/20/2009	16:11:02	0:14:34
Refresh00		8/20/2009	15:51:53	8/20/2009	15:56:28	0:04:35
Refresh01		8/20/2009	16:12:17	8/20/2009	16:12:36	0:00:19
Refresh02		8/20/2009	16:12:36	8/20/2009	16:12:56	0:00:20
Refresh03		8/20/2009	16:12:56	8/20/2009	16:13:16	0:00:21
Refresh04		8/20/2009	16:13:16	8/20/2009	16:13:37	0:00:20
Refresh05		8/20/2009	16:13:37	8/20/2009	16:13:57	0:00:20



HP ProLiant DL380 G6

TPC-H Rev. 2.8.0

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TPC-H Timing Intervals (in seconds)

Query	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q08
Stream 00	42.3	0.7	4.3	2.1	5.0	1.5	4.1	5.5
Stream 01	72.1	2.8	19.2	4.1	20.0	19.1	16.8	11.5
Stream 02	125.0	5.1	17.7	8.7	13.1	5.1	17.6	15.8
Stream 03	180.9	6.4	4.0	7.4	21.2	6.2	19.0	17.1
Stream 04	129.0	7.1	19.7	6.7	16.2	5.2	21.1	18.9
Stream 05	134.0	4.4	11.4	9.6	22.9	6.7	19.8	18.2
Min Qi	72.1	2.8	4.0	4.1	13.1	5.1	16.8	11.5
Max Qi	180.9	7.1	19.7	9.6	22.9	19.1	21.1	18.9
Avg Qi	128.2	5.2	14.4	7.3	18.7	8.5	18.9	16.3
Query	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	57.5	3.3	2.1	5.2	23.6	1.3	1.5	6.7
Stream 01	92.3	11.1	83.0	37.6	62.9	4.2	6.1	155.1
Stream 02	82.4	27.1	22.1	21.9	81.4	6.1	5.4	39.4
Stream 03	80.4	14.0	188.3	8.7	52.7	6.1	6.4	30.3
Stream 04	92.8	11.0	19.6	21.3	60.0	6.7	7.2	44.6
Stream 05	65.2	15.5	11.1	35.8	96.6	5.4	6.1	100.3
Min Qi	65.2	11.0	11.1	8.7	52.7	4.2	5.4	30.3
Max Qi	92.8	27.1	188.3	37.6	96.6	6.7	7.2	155.1
Avg Qi	82.6	15.7	64.8	25.1	70.7	5.7	6.2	73.9
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	0.8	35.0	2.7	1.6	34.4	6.0	18.8	8.5
Stream 01	9.3	143.7	8.6	39.6	100.2	22.1	11.1	8.2
Stream 02	10.3	156.3	10.7	55.0	105.1	24.5	10.4	9.2
Stream 03	12.8	135.5	20.4	17.2	97.6	16.2	12.2	8.3
Stream 04	6.4	147.2	16.9	50.6	123.3	25.1	12.0	8.1
Stream 05	8.8	134.0	30.2	19.8	98.3	20.1	11.4	8.8
Min Qi	6.4	134.0	8.6	17.2	97.6	16.2	0.0	8.1
Max Qi	12.8	156.3	30.2	55.0	123.3	25.1	12.2	9.2
Avg Qi	9.5	143.3	17.4	36.4	104.9	21.6	9.2	8.5

Abstract

Overview

This report documents the methodology and results of the TPC Benchmark™ H test conducted on the HP ProLiant DL380 G6 using Microsoft SQL Server 2008 Enterprise x64 Edition SP1, in conformance with the requirements of the TPC Benchmark™ H Standard Specification, Revision 2.8.0. The operating system used for the benchmark was Microsoft Windows 2008 Enterprise x64 Edition SP2.

The benchmark results are summarized in the following table.

Hardware	Software	Total System Cost	QppH @ 100GB	QthH @ 100GB	QphH @ 100GB	\$/ QphH @ 100GB
HP ProLiant DL380 G6	Microsoft SQL Server 2008 Enterprise x64 Edition SP1, Windows Server 2008 Enterprise x64 Edition SP2	\$54,859	70048.5	37749.1	51422.4	\$1.07

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.

Standard and Executive Summary Statements

Pages ii-iv contains the Executive Summary and Numerical Quantities Summary of the benchmark results for the HP ProLiant DL380 G6.

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

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:

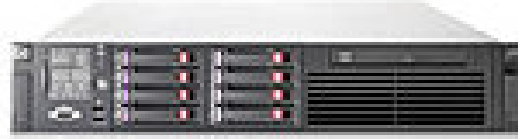
- *Number and type of processors*
- *Size of allocated memory, and any specific mapping/partitioning of memory unique to the test.*
- *Number and type of disk units (and controllers, if applicable).*
- *Number of channels or bus connections to disk units, including their protocol type.*
- *Number of 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 DL380 G6 , depicted in Figure 1.1, consisted of :

2x Intel X5570 2.93GHz quad core processors
144 GB of memory
4 x HP Smart Array P410 Controller
1 x HP Smart Array P411 Controller
2 x 72GB Pluggable SAS 2.5" 15k rpm drives
12x 60GB SSD SATA 2.5"

Figure 1.1 Benchmarked & 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 2.8.0 and QGEN version 2.8.0 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 2.8.0 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 DL380 G6.

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 six 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

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 two physical drives. The tables for the database were stored on 4 separate 80GB FusionIO ioDrive SSD disks. A backup of the database was taken.

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

1. The complete database was backed up.
2. Six 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 ioDrive was detached.
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 ioDrive was reattached and log disk was replaced with new disk 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 booted 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	1,000,000
Customer	15,000,000
Part	20,000,000
Partsupp	80,000,000
Orders	150,000,000
Lineitem	600,037,902

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 DL380 G6 with the following configuration:

- 4 x Smart Array P410 disk controller
- 1 x Smart Array P411 disk controller
- 2 x 72GB SAS 2.5" 15k rpm disk drives
- 12 x 60GB SSD SATA 2.5"

All 14 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

The external storage connected to the controller in slot 6 was disconnected after load.

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 (GB)	Contents
Embedded	A	2	1	RAID1	NTFS	68.33	OS TpchLog TempDBLog Tpch1GBLog
Slot 4		4	1	RAID0	NTFS	223.47	C:\dev\node1\ Tpch100g TempDB Tpch1GB Backup
Slot 3		4	1	RAID0	NTFS	223.47	C:\dev\node2\ Tpch100g TempDB Backup
Slot 1		4	1	RAID0	NTFS	223.47	C:\dev\node3\ Tpch100g TempDB Backup
Slot 6	A	24	1	RAID10	NTFS	1752	Flatfiles

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.

A modified DBGEN version 2.8.0 was used for database population. The modified version differs only in column order for output flatfile. The only modified file, Print.C, is included in Appendix F.8

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 37 minutes and 21 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 1/100th, rounded up.

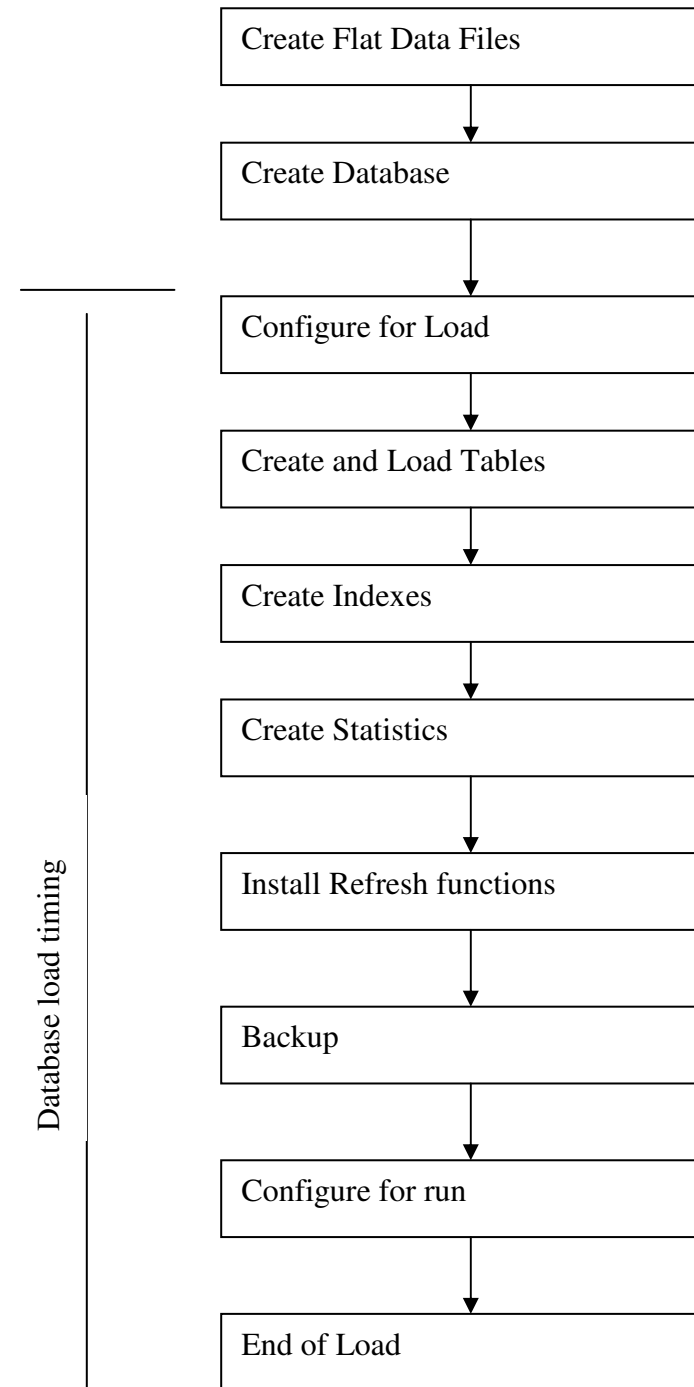
Disk Type	Number of Disks	Total Disk Space	Data Storage Ratio
60 GB	12	720 GB	8.64
72 GB	2	144 GB	

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	8/20/2009	15:51:53	8/20/2009	15:52:12
Stream00	RF2	8/20/2009	15:56:19	8/20/2009	15:56:28
Stream01	RF1	8/20/2009	16:12:17	8/20/2009	16:12:28
Stream01	RF2	8/20/2009	16:12:28	8/20/2009	16:12:36
Stream02	RF1	8/20/2009	16:12:36	8/20/2009	16:12:46
Stream02	RF2	8/20/2009	16:12:46	8/20/2009	16:12:56
Stream03	RF1	8/20/2009	16:12:56	8/20/2009	16:13:08
Stream03	RF2	8/20/2009	16:13:08	8/20/2009	16:13:16
Stream04	RF1	8/20/2009	16:13:16	8/20/2009	16:13:28
Stream04	RF2	8/20/2009	16:13:28	8/20/2009	16:13:37
Stream05	RF1	8/20/2009	16:13:37	8/20/2009	16:13:48
Stream05	RF2	8/20/2009	16:13:48	8/20/2009	16:13:57

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 @ 100GB	QthH @ 100GB	QphH @ 100GB
Run 1	70230.4	37981.9	51647.7
Run 2	70048.5	37749.1	51422.4

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.

SUT 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 64 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 64 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 five 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 indicate 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 14% 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 DL380 G6 and all other hardware is generally available at the time of publication. The system software, Microsoft Windows Server 2008 Enterprise x64 Edition SP2 and the database software, Microsoft SQL Server 2008 Standard x64 Edition SP1 are generally available at the time of publication. The 60GB SSD SATA 2.5" drive will be available September 14, 2009.

8.4 Orderability Date

For each of the components that are not orderable on the report date of the FDR, the following information must be included in the FDR:

- Name and part number of the item that is not orderable*
- The date when the component can be ordered (on or before the Availability Date)*
- The method to be used to order the component (at or below the quoted price) when that date arrives*
- The method for verifying the price*

All components are orderable on the publication date with exceptions specified in Appendix G. Price Quotations & Verification

8.5 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

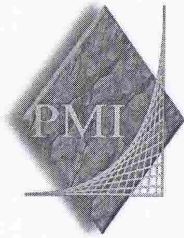
9.1 Auditors' Report

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.
PO Box 984
Klamath, CA 95548
Telephone: (707) 482-0523
Fax: (707) 482-0575

For a copy of this disclosure, go to www.tpc.org.



PERFORMANCE METRICS INC.
TPC Certified Auditors

August 26, 2009

Mr. Daniel Pol
Hewlett-Packard Company
20555 SH 249
Houston, TX 77077

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

Platform: ProLiant DL380 G6
Database Manager: Microsoft SQL Server 2008 Enterprise x64 Edition
Operating System: Windows Server 2008 Enterprise x64 Edition

CPU's	Memory	Total Disks	Qpph@ 100GB	QthH @ 100GB	QphH@100GB
2 quad core Intel @ 2.93 Ghz	144 GB	2 @ 72 GB 12 @ 60 GB	70,048.5	37,749.1	51,422.4

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 100GB using DBGEN. The version of DBGEN was 2.8.0.
- The data generated by DBGEN was successfully compared to reference data.
- 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 a standard interactive interface. The version of QGEN was 2.8.0.
- The validation of the query text against the qualification database produced compliant results.

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Page 1
email: LornaL@PerfMetrics.com

PERFORMANCE METRICS INC.
TPC Certified Auditors

- 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 successfully demonstrated and verified.
- 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 2008 Version

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

```
Microsoft SQL Server 2008 (SP1) - 10.0.2714.0 (X64)
May 14 2009 16:08:52
Copyright (c) 1988-2008 Microsoft Corporation
Enterprise Evaluation Edition (64-bit) on Windows NT 6.0
<X64> (Build 6002: Service Pack 2)
```

A.2 SQL Server 2008 Installation

The installation followed the default options.. Mixed mode authentication was used.

A.3 SQL Server 2008 Startup Parameters

```
SQLSERVER -c -x -E -T834 -T845 -T2301 -T2442
```

A.4 Microsoft SQL Server 2008 Configuration Parameters

name	minimum	maximum	config_value	run_value
access check cache bucket count	0	65536	0	0
access check cache quota	0	2147483647	0	0
Ad Hoc Distributed Queries	0	1	0	0
affinity I/O mask	-2147483648	2147483647	0	0
affinity mask	-2147483648	2147483647	65535	65535
affinity64 I/O mask	-2147483648	2147483647	0	0
affinity64 mask	-2147483648	2147483647	0	0
Agent XPs	0	1	1	1
allow updates	0	1	1	1
awe enabled	0	1	1	1
backup compression default	0	1	0	0
blocked process threshold (s)	0	86400	0	0
c2 audit mode	0	1	0	0
clr enabled	0	1	0	0
common criteria compliance enabled	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
Database Mail XPs	0	1	0	0
default full-text language	0	2147483647	1033	1033
default language	0	9999	0	0
default trace enabled	0	1	0	0
disallow results from triggers	0	1	0	0
EKM provider enabled	0	1	0	0
filestream access level	0	2	0	0
fill factor (%)	0	100	0	0

ft crawl bandwidth (max)	0	32767	100	100
ft crawl bandwidth (min)	0	32767	0	0
ft notify bandwidth (max)	0	32767	100	100
ft notify bandwidth (min)	0	32767	0	0
index create memory (KB)	704	2147483647	0	0
in-doubt xact resolution	0	2	0	0
lightweight pooling	0	1	1	1
locks	5000	2147483647	0	0
max degree of parallelism	0	64	0	0
max full-text crawl range	0	256	4	4
max server memory (MB)	16	2147483647	138000	138000
max text repl size (B)	-1	2147483647	65536	65536
max worker threads	128	32767	3200	3200
media retention	0	365	0	0
min memory per query (KB)	512	2147483647	512	512
min server memory (MB)	0	2147483647	64000	64000
nested triggers	0	1	1	1
network packet size (B)	512	32767	32767	32767
Ole Automation Procedures	0	1	0	0
open objects	0	2147483647	0	0
optimize for ad hoc workloads	0	1	0	0
PH timeout (s)	1	3600	60	60
precompute rank	0	1	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 admin connections	0	1	0	0
remote login timeout (s)	0	2147483647	0	0
remote proc trans	0	1	0	0
remote query timeout (s)	0	2147483647	0	0
Replication XPs	0	1	0	0
scan for startup procs	0	1	0	0
server trigger recursion	0	1	1	1
set working set size	0	1	0	0
show advanced options	0	1	1	1
SMO and DMO XPs	0	1	1	1
SQL Mail XPs	0	1	0	0
transform noise words	0	1	0	0
two digit year cutoff	1753	9999	2049	2049
user connections	0	32767	0	0
user options	0	32767	0	0
xp_cmdshell	0	1	0	0

A.5 Microsoft SQL Server 2008 Node Configuration

No node configuration changes were made.

A.6 Windows 2008 Configuration

The default installation of Windows 2008 Enterprise Edition was used with the following changes:
 Systems Properties -> Advanced -> Settings -> Performance Options -> Visual Effects -> Adjust for best performance
 Administrative Tools -> Local Security Policy -> Local Policies -> User Rights Assignment -> Lock pages in memory -> Add User or Group -> 'Administrator'
 Control Panel -> Power Options -> High performance
 A TCP/IP address was assigned to the system.
 Control Panel -> Windows Firewall -> Turn Windows Firewall on or off -> Off

A.7 Smart Array driver settings

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\HpCIS
Ss2]
"Type"=dword:00000001
"Start"=dword:00000000
"ErrorControl"=dword:00000001
"Tag"=dword:00000103
"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,00,48,00,70,00,43,00,49,00,53,00,53
,\
00,73,00,32,00,2e,00,73,00,79,00,73,00,00,00
"Group"="SCSI Miniport"
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\HpCIS
Ss2\Parameters]
"BusType"=dword:00000008
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\HpCIS
Ss2\Parameters\Device]
"DriverParameter"="CSMI=None;"
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\HpCIS
Ss2\Parameters\PnpInterface]
"5"=dword:00000001
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\HpCIS
Ss2\Enum]
"0"="PCI\VEN_103C&DEV_323A&SUBSYS_3245103C&REV_01\4&29
7a62c9&0&0008"
"Count"=dword:00000002
"NextInstance"=dword:00000002
"1"="PCI\VEN_103C&DEV_323A&SUBSYS_3247103C&REV_01\4&50
34fb8&0&0030"
```

A.8 System Hardware Information

System Information report written at: 08/21/09 09:40:15

System Name: FUSE

[System Summary]

Item	Value
OS Name	Microsoft® Windows Server® 2008 Enterprise
Version	6.0.6002 Service Pack 2 Build 6002
Other OS Description	Not Available
OS Manufacturer	Microsoft Corporation
System Name	FUSE
System Manufacturer	HP

System Model	ProLiant DL380 G6
System Type	x64-based PC
Processor	Intel(R) Xeon(R) CPU X5570 @ 2.93GHz, 2933 Mhz, 4 Core(s), 8 Logical Processor(s)
Processor	Intel(R) Xeon(R) CPU X5570 @ 2.93GHz, 2933 Mhz, 4 Core(s), 8 Logical Processor(s)
BIOS Version/Date	HP P62, 7/24/2009
SMBIOS Version	2.6
Windows Directory	C:\Windows
System Directory	C:\Windows\system32
Boot Device	\Device\HarddiskVolume1
Locale	United States
Hardware Abstraction Layer	Version = "6.0.6002.18005"
User Name	FUSE\Administrator
Time Zone	Central Daylight Time
Installed Physical Memory (RAM)	144 GB
Total Physical Memory	144 GB
Available Physical Memory	1.52 GB
Total Virtual Memory	140 GB
Available Virtual Memory	1.09 GB
Page File Space	0 bytes

[Hardware Resources]

[Conflicts/Sharing]

Resource	Device
I/O Port 0x00000000-0x000003AF	PCI bus
I/O Port 0x00000000-0x000003AF	Direct memory access controller

IRQ 20	Standard Universal PCI to USB Host Controller
IRQ 20	Standard Enhanced PCI to USB Host Controller

I/O Port 0x000003C0-0x000003DF	PCI bus
I/O Port 0x000003C0-0x000003DF	ATI ES1000

I/O Port 0x00000070-0x00000077	Motherboard resources
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I/O Port 0x00000070-0x00000077	System CMOS/real time clock
--------------------------------	-----------------------------

Memory Address 0xE8000000-0xEFFFFFFF	Intel(R) 82801 PCI Bridge - 244E
Memory Address 0xE8000000-0xEFFFFFFF	ATI ES1000

IRQ 22	Standard Universal PCI to USB Host Controller
IRQ 22	HP iLO Management Channel Interface Driver
IRQ 22	Standard Universal PCI to USB Host Controller

IRQ 23	Standard Universal PCI to USB Host Controller
IRQ 23	Standard Universal PCI to USB Host Controller
IRQ 23	ATI ES1000

I/O Port 0x00006000-0x00006FFF	PCI standard PCI-to-PCI bridge
--------------------------------	--------------------------------

I/O Port 0x00006000-0x00006FFF	Smart Array P410 Controller
--------------------------------	-----------------------------

Memory Address 0xF6000000-0xF7FFFFFF	PCI standard PCI-to-PCI bridge
Memory Address 0xF6000000-0xF7FFFFFF	HP NC382i DP
Virtual Bus Device	

Memory Address 0xFED00000-0xFED03FFF	PCI bus
Memory Address 0xFED00000-0xFED03FFF	PCI bus

Memory Address 0xFED00000-0xFED03FFF	High precision event timer	0x00008000-0x00008FFF	PCI standard PCI-to-PCI bridge	OK
IRQ 16	PCI standard PCI-to-PCI bridge	0x00008000-0x00008FFF	Smart Array P411 Controller	OK
IRQ 16	HP NC382i DP Virtual Bus Device	0x00006000-0x00006FFF	PCI standard PCI-to-PCI bridge	OK
IRQ 16	PCI standard PCI-to-PCI bridge	0x00006000-0x00006FFF	Smart Array P410 Controller	OK
I/O Port 0x00005000-0x00005FFF	PCI standard PCI-to-PCI bridge	0x00005000-0x00005FFF	PCI standard PCI-to-PCI bridge	OK
I/O Port 0x00005000-0x00005FFF	Smart Array P410 Controller	0x00005000-0x00005FFF	Smart Array P410 Controller	OK
Memory Address 0xA0000-0xBFFFF	PCI bus	0x00001020-0x0000103F	Standard Universal PCI to USB Host Controller	OK
Memory Address 0xA0000-0xBFFFF	ATI ES1000	0x00001040-0x0000105F	Standard Universal PCI to USB Host Controller	OK
I/O Port 0x00007000-0x00007FFF	PCI standard PCI-to-PCI bridge	0x00001060-0x0000107F	Standard Universal PCI to USB Host Controller	OK
I/O Port 0x00007000-0x00007FFF	Smart Array P410 Controller	0x00002000-0x00003FFF	Intel(R) 82801 PCI Bridge - 244E	OK
I/O Port 0x000003B0-0x000003BB	PCI bus	0x00003000-0x000030FF	ATI ES1000	OK
I/O Port 0x000003B0-0x000003BB	ATI ES1000	0x00002800-0x000028FF	HP ProLiant iLO 2 Legacy Support	Function OK
I/O Port 0x00001000-0x00008FFF	PCI bus	0x00003400-0x000034FF	HP iLO Management Channel Interface	Driver OK
I/O Port 0x00001000-0x00008FFF	Standard Universal PCI to USB Host Controller	0x00003800-0x0000381F	Standard Universal PCI to USB Host Controller	OK
I/O Port 0x00004000-0x00004FFF	PCI standard PCI-to-PCI bridge	0x00000070-0x00000077	Motherboard resources	OK
I/O Port 0x00004000-0x00004FFF	Smart Array P410i Controller	0x00000070-0x00000077	System CMOS/real time clock	OK
I/O Port 0x00008000-0x00008FFF	PCI standard PCI-to-PCI bridge	0x00000408-0x0000040F	Motherboard resources	OK
I/O Port 0x00008000-0x00008FFF	Smart Array P411 Controller	0x000004D0-0x000004D1	Motherboard resources	OK
[DMA]		0x00000020-0x0000003F	Motherboard resources	OK
Resource Device Status		0x000000A0-0x000000BF	Motherboard resources	OK
Channel 7 Direct memory access controller	OK	0x00000090-0x0000009F	Motherboard resources	OK
[Forced Hardware]		0x00000050-0x00000053	Motherboard resources	OK
Device PNP Device ID		0x00000700-0x0000071F	Motherboard resources	OK
[I/O]		0x00000880-0x000008FF	Motherboard resources	OK
Resource Device Status		0x00000900-0x0000097F	Motherboard resources	OK
0x00001000-0x00008FFF	PCI bus	0x00000010-0x0000001F	Motherboard resources	OK
0x00001000-0x00008FFF	Standard Universal PCI to USB Host Controller	0x00000C80-0x00000C83	Motherboard resources	OK
0x00000000-0x000003AF	PCI bus	0x00000CD4-0x00000CD7	Motherboard resources	OK
0x00000000-0x000003AF	Direct memory access controller	0x00000F50-0x00000F58	Motherboard resources	OK
0x000003E0-0x00000CF7	PCI bus	0x00000F00-0x00000F00	Motherboard resources	OK
0x00000D00-0x00000FFF	PCI bus	0x000000F0-0x000000F0	Motherboard resources	OK
0x000003B0-0x000003BB	PCI bus	0x00000CA0-0x00000CA1	Motherboard resources	OK
0x000003B0-0x000003BB	ATI ES1000	0x00000CA0-0x00000CA1	Motherboard resources	OK
0x000003C0-0x000003DF	PCI bus	0x00000CA4-0x00000CA5	Motherboard resources	OK
0x000003C0-0x000003DF	ATI ES1000	0x00000CA4-0x00000CA5	Motherboard resources	OK
0x00004000-0x00004FFF	PCI standard PCI-to-PCI bridge	0x000002F8-0x000002FF	Motherboard resources	OK
0x00004000-0x00004FFF	Smart Array P410i Controller	0x00000CA2-0x00000CA3	Microsoft Generic IPMI Compliant Device	OK
0x00007000-0x00007FFF	PCI standard PCI-to-PCI bridge	0x00000040-0x00000043	System timer	OK
0x00007000-0x00007FFF	Smart Array P410 Controller	0x00000080-0x0000008F	Direct memory access controller	OK

0x000000C0-0x000000DF	Direct memory access controller	OK	IRQ 132	Microsoft ACPI-Compliant System	OK
0x00000061-0x00000061	System speaker	OK	IRQ 133	Microsoft ACPI-Compliant System	OK
0x00000060-0x00000060	Standard PS/2 Keyboard	OK	IRQ 134	Microsoft ACPI-Compliant System	OK
0x00000064-0x00000064	Standard PS/2 Keyboard	OK	IRQ 135	Microsoft ACPI-Compliant System	OK
0x0000002E-0x0000002F	Extended IO Bus	OK	IRQ 136	Microsoft ACPI-Compliant System	OK
0x00000620-0x0000065F	Extended IO Bus	OK	IRQ 137	Microsoft ACPI-Compliant System	OK
0x00000680-0x0000069F	Extended IO Bus	OK	IRQ 138	Microsoft ACPI-Compliant System	OK
0x00000600-0x0000061F	Extended IO Bus	OK	IRQ 139	Microsoft ACPI-Compliant System	OK
0x00000660-0x0000067F	Extended IO Bus	OK	IRQ 140	Microsoft ACPI-Compliant System	OK
0x00000300-0x0000031F	Extended IO Bus	OK	IRQ 141	Microsoft ACPI-Compliant System	OK
0x000003F8-0x000003FF	Communications Port (COM1)	OK	IRQ 142	Microsoft ACPI-Compliant System	OK
			IRQ 143	Microsoft ACPI-Compliant System	OK
			IRQ 144	Microsoft ACPI-Compliant System	OK
			IRQ 145	Microsoft ACPI-Compliant System	OK
			IRQ 146	Microsoft ACPI-Compliant System	OK
			IRQ 147	Microsoft ACPI-Compliant System	OK
			IRQ 148	Microsoft ACPI-Compliant System	OK
			IRQ 149	Microsoft ACPI-Compliant System	OK
			IRQ 150	Microsoft ACPI-Compliant System	OK
			IRQ 151	Microsoft ACPI-Compliant System	OK
			IRQ 152	Microsoft ACPI-Compliant System	OK
			IRQ 153	Microsoft ACPI-Compliant System	OK
			IRQ 154	Microsoft ACPI-Compliant System	OK
			IRQ 155	Microsoft ACPI-Compliant System	OK
			IRQ 156	Microsoft ACPI-Compliant System	OK
			IRQ 157	Microsoft ACPI-Compliant System	OK
			IRQ 158	Microsoft ACPI-Compliant System	OK
			IRQ 159	Microsoft ACPI-Compliant System	OK
			IRQ 160	Microsoft ACPI-Compliant System	OK
			IRQ 161	Microsoft ACPI-Compliant System	OK
			IRQ 162	Microsoft ACPI-Compliant System	OK
			IRQ 163	Microsoft ACPI-Compliant System	OK
			IRQ 164	Microsoft ACPI-Compliant System	OK
			IRQ 165	Microsoft ACPI-Compliant System	OK
			IRQ 166	Microsoft ACPI-Compliant System	OK
			IRQ 167	Microsoft ACPI-Compliant System	OK
			IRQ 168	Microsoft ACPI-Compliant System	OK
			IRQ 169	Microsoft ACPI-Compliant System	OK
			IRQ 170	Microsoft ACPI-Compliant System	OK
			IRQ 171	Microsoft ACPI-Compliant System	OK
			IRQ 172	Microsoft ACPI-Compliant System	OK
			IRQ 173	Microsoft ACPI-Compliant System	OK
			IRQ 174	Microsoft ACPI-Compliant System	OK
			IRQ 175	Microsoft ACPI-Compliant System	OK
			IRQ 176	Microsoft ACPI-Compliant System	OK
			IRQ 177	Microsoft ACPI-Compliant System	OK
			IRQ 178	Microsoft ACPI-Compliant System	OK
			IRQ 179	Microsoft ACPI-Compliant System	OK
			IRQ 180	Microsoft ACPI-Compliant System	OK
			IRQ 181	Microsoft ACPI-Compliant System	OK
			IRQ 182	Microsoft ACPI-Compliant System	OK
			IRQ 183	Microsoft ACPI-Compliant System	OK
			IRQ 184	Microsoft ACPI-Compliant System	OK
			IRQ 185	Microsoft ACPI-Compliant System	OK
			IRQ 186	Microsoft ACPI-Compliant System	OK
			IRQ 187	Microsoft ACPI-Compliant System	OK
			IRQ 188	Microsoft ACPI-Compliant System	OK
			IRQ 189	Microsoft ACPI-Compliant System	OK
			IRQ 190	Microsoft ACPI-Compliant System	OK
			IRQ 4294967294	PCI standard PCI-to-PCI bridge	OK
			IRQ 4294967284	Smart Array P410i Controller	OK
			IRQ 4294967283	Smart Array P410i Controller	OK
			IRQ 4294967282	Smart Array P410i Controller	OK
			IRQ 4294967281	Smart Array P410i Controller	OK
			IRQ 4294967280	Smart Array P410i Controller	OK
			IRQ 4294967279	Smart Array P410i Controller	OK
			IRQ 4294967278	Smart Array P410i Controller	OK
			IRQ 4294967277	Smart Array P410i Controller	OK
			IRQ 4294967289	PCI standard PCI-to-PCI bridge	OK
			IRQ 4294967293	PCI standard PCI-to-PCI bridge	OK

[IRQs]

Resource	Device	Status
IRQ 81	Microsoft ACPI-Compliant System	OK
IRQ 82	Microsoft ACPI-Compliant System	OK
IRQ 83	Microsoft ACPI-Compliant System	OK
IRQ 84	Microsoft ACPI-Compliant System	OK
IRQ 85	Microsoft ACPI-Compliant System	OK
IRQ 86	Microsoft ACPI-Compliant System	OK
IRQ 87	Microsoft ACPI-Compliant System	OK
IRQ 88	Microsoft ACPI-Compliant System	OK
IRQ 89	Microsoft ACPI-Compliant System	OK
IRQ 90	Microsoft ACPI-Compliant System	OK
IRQ 91	Microsoft ACPI-Compliant System	OK
IRQ 92	Microsoft ACPI-Compliant System	OK
IRQ 93	Microsoft ACPI-Compliant System	OK
IRQ 94	Microsoft ACPI-Compliant System	OK
IRQ 95	Microsoft ACPI-Compliant System	OK
IRQ 96	Microsoft ACPI-Compliant System	OK
IRQ 97	Microsoft ACPI-Compliant System	OK
IRQ 98	Microsoft ACPI-Compliant System	OK
IRQ 99	Microsoft ACPI-Compliant System	OK
IRQ 100	Microsoft ACPI-Compliant System	OK
IRQ 101	Microsoft ACPI-Compliant System	OK
IRQ 102	Microsoft ACPI-Compliant System	OK
IRQ 103	Microsoft ACPI-Compliant System	OK
IRQ 104	Microsoft ACPI-Compliant System	OK
IRQ 105	Microsoft ACPI-Compliant System	OK
IRQ 106	Microsoft ACPI-Compliant System	OK
IRQ 107	Microsoft ACPI-Compliant System	OK
IRQ 108	Microsoft ACPI-Compliant System	OK
IRQ 109	Microsoft ACPI-Compliant System	OK
IRQ 110	Microsoft ACPI-Compliant System	OK
IRQ 111	Microsoft ACPI-Compliant System	OK
IRQ 112	Microsoft ACPI-Compliant System	OK
IRQ 113	Microsoft ACPI-Compliant System	OK
IRQ 114	Microsoft ACPI-Compliant System	OK
IRQ 115	Microsoft ACPI-Compliant System	OK
IRQ 116	Microsoft ACPI-Compliant System	OK
IRQ 117	Microsoft ACPI-Compliant System	OK
IRQ 118	Microsoft ACPI-Compliant System	OK
IRQ 119	Microsoft ACPI-Compliant System	OK
IRQ 120	Microsoft ACPI-Compliant System	OK
IRQ 121	Microsoft ACPI-Compliant System	OK
IRQ 122	Microsoft ACPI-Compliant System	OK
IRQ 123	Microsoft ACPI-Compliant System	OK
IRQ 124	Microsoft ACPI-Compliant System	OK
IRQ 125	Microsoft ACPI-Compliant System	OK
IRQ 126	Microsoft ACPI-Compliant System	OK
IRQ 127	Microsoft ACPI-Compliant System	OK
IRQ 128	Microsoft ACPI-Compliant System	OK
IRQ 129	Microsoft ACPI-Compliant System	OK
IRQ 130	Microsoft ACPI-Compliant System	OK
IRQ 131	Microsoft ACPI-Compliant System	OK

IRQ 4294967276	Smart Array P410 Controller	OK	0xFED00000-0xFED03FFF	PCI bus	OK
IRQ 4294967275	Smart Array P410 Controller	OK	0xFED00000-0xFED03FFF	PCI bus	OK
IRQ 4294967274	Smart Array P410 Controller	OK	0xFED00000-0xFED03FFF	High precision event timer	OK
IRQ 4294967273	Smart Array P410 Controller	OK			
IRQ 4294967272	Smart Array P410 Controller	OK	0xA0000-0xBFFFF	PCI bus	OK
IRQ 4294967271	Smart Array P410 Controller	OK	0xA0000-0xBFFFF	ATI ES1000	OK
IRQ 4294967270	Smart Array P410 Controller	OK	0xF9B00000-0xF9FFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 4294967269	Smart Array P410 Controller	OK			
IRQ 4294967288	PCI standard PCI-to-PCI bridge	OK	0xF9C00000-0xF9FFFFFF	Smart Array P410i Controller	OK
IRQ 4294967287	PCI standard PCI-to-PCI bridge	OK			
IRQ 4294967292	PCI standard PCI-to-PCI bridge	OK	0xF9BF0000-0xF9B0FFFF	Smart Array P410i Controller	OK
IRQ 4294967268	Smart Array P411 Controller	OK			
IRQ 4294967267	Smart Array P411 Controller	OK	0xFB300000-0xFB7FFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 4294967266	Smart Array P411 Controller	OK			
IRQ 4294967265	Smart Array P411 Controller	OK	0xFB400000-0xFB7FFFFFF	Smart Array P410 Controller	OK
IRQ 4294967264	Smart Array P411 Controller	OK			
IRQ 4294967263	Smart Array P411 Controller	OK	0xFB3F0000-0xFB3F0FFF	Smart Array P410 Controller	OK
IRQ 4294967262	Smart Array P411 Controller	OK			
IRQ 4294967261	Smart Array P411 Controller	OK	0xFBB00000-0xFBFFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 4294967291	PCI standard PCI-to-PCI bridge	OK			
IRQ 4294967260	Smart Array P410 Controller	OK	0xFBC00000-0xFBFFFFFF	Smart Array P411 Controller	OK
IRQ 4294967259	Smart Array P410 Controller	OK			
IRQ 4294967258	Smart Array P410 Controller	OK	0xFBBF0000-0xFBBF0FFF	Smart Array P411 Controller	OK
IRQ 4294967257	Smart Array P410 Controller	OK			
IRQ 4294967256	Smart Array P410 Controller	OK	0xFAB00000-0xFAFFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 4294967255	Smart Array P410 Controller	OK			
IRQ 4294967254	Smart Array P410 Controller	OK	0xFAC00000-0xFAFFFFFF	Smart Array P410 Controller	OK
IRQ 4294967253	Smart Array P410 Controller	OK			
IRQ 4294967286	PCI standard PCI-to-PCI bridge	OK	0xFABF0000-0xFABF0FFF	Smart Array P410 Controller	OK
IRQ 4294967290	PCI standard PCI-to-PCI bridge	OK			
IRQ 4294967252	Smart Array P410 Controller	OK	0xFA300000-0xFA7FFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 4294967251	Smart Array P410 Controller	OK			
IRQ 4294967250	Smart Array P410 Controller	OK	0xFA400000-0xFA7FFFFFF	Smart Array P410 Controller	OK
IRQ 4294967249	Smart Array P410 Controller	OK			
IRQ 4294967248	Smart Array P410 Controller	OK	0xFA3F0000-0xFA3F0FFF	Smart Array P410 Controller	OK
IRQ 4294967247	Smart Array P410 Controller	OK			
IRQ 4294967246	Smart Array P410 Controller	OK	0xF6000000-0xF7FFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 4294967245	Smart Array P410 Controller	OK			
IRQ 4294967285	PCI standard PCI-to-PCI bridge	OK	0xF6000000-0xF7FFFFFF	HP NC382i DP Virtual Bus Device	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK	0xF5DF0000-0xF5DF03FF	Standard Enhanced PCI to USB Host Controller	OK
IRQ 16	HP NC382i DP Virtual Bus Device	OK	0xF5E00000-0xF5FFFFFF	Intel(R) 82801 PCI Bridge - 244E	OK
IRQ 20	Standard Universal PCI to USB Host Controller	OK	0xE8000000-0xEFFFFFFF	Intel(R) 82801 PCI Bridge - 244E	OK
IRQ 20	Standard Enhanced PCI to USB Host Controller	OK	0xE8000000-0xEFFFFFFF	ATI ES1000	OK
IRQ 23	Standard Universal PCI to USB Host Controller	OK	0xF5FF0000-0xF5FFFFFF	ATI ES1000	OK
IRQ 23	Standard Universal PCI to USB Host Controller	OK	0xF5FE0000-0xF5FE01FF	HP ProLiant iLO 2 Legacy Support Function	OK
IRQ 23	ATI ES1000	OK	0xF5FD0000-0xF5FD07FF	HP iLO Management Channel Interface Driver	OK
IRQ 22	Standard Universal PCI to USB Host Controller	OK	0xF5FC0000-0xF5FC3FFF	HP iLO Management Channel Interface Driver	OK
IRQ 22	HP iLO Management Channel Interface Driver	OK	0xF5F00000-0xF5F7FFFF	HP iLO Management Channel Interface Driver	OK
IRQ 22	Standard Universal PCI to USB Host Controller	OK	0xF5EF0000-0xF5EF00FF	HP ProLiant iLO 2 Management Controller Driver	OK
IRQ 10	HP ProLiant iLO 2 Legacy Support Function	OK	0xE0000000-0xE3FFFFFF	Motherboard resources	OK
IRQ 21	HP ProLiant iLO 2 Management Controller Driver	OK	0xFE000000-0xFEBFFFFFF	Motherboard resources	OK
IRQ 0	System timer	OK			
IRQ 1	Standard PS/2 Keyboard	OK			
IRQ 12	PS/2 Compatible Mouse	OK			
IRQ 4	Communications Port (COM1)	OK			
[Memory]					
Resource	Device	Status			
0xE7000000-0xFBFFFFFF	PCI bus	OK			
			[Components]		
			[Multimedia]		

[Audio Codecs]

CODEC	Manufacturer Version Size	Description Creation Date	Status	File
c:\windows\system32\msg711.acm	Microsoft Corporation OK 6.0.6000.16386 14.00 KB (14,336 bytes) 1/19/2008 12:43 AM			
c:\windows\system32\msadp32.acm	Microsoft Corporation OK 6.0.6000.16386 22.00 KB (22,528 bytes) 1/19/2008 12:43 AM			
c:\windows\system32\msgsm32.acm	Microsoft Corporation OK 6.0.6000.16386 28.00 KB (28,672 bytes) 1/19/2008 12:43 AM			
c:\windows\system32\imaadp32.acm	Microsoft Corporation OK 6.0.6000.16386 21.00 KB (21,504 bytes) 1/19/2008 12:43 AM			

[Video Codecs]

CODEC	Manufacturer Version Size	Description Creation Date	Status	File
c:\windows\system32\iyuv_32.dll	Microsoft Corporation OK 6.0.6000.16386 52.50 KB (53,760 bytes) 1/19/2008 12:34 AM			
c:\windows\system32\msyuv.dll	Microsoft Corporation OK 6.0.6000.16386 24.50 KB (25,088 bytes) 1/19/2008 12:34 AM			
c:\windows\system32\msrle32.dll	Microsoft Corporation OK 6.0.6000.16386 15.50 KB (15,872 bytes) 1/19/2008 12:43 AM			
c:\windows\system32\msvidc32.dll	Microsoft Corporation OK 6.0.6001.18000 37.50 KB (38,400 bytes) 1/19/2008 12:43 AM			
c:\windows\system32\tsbyuv.dll	Microsoft Corporation OK 6.0.6002.18005 14.00 KB (14,336 bytes) 4/11/2009 11:11 AM			

[CD-ROM]

Item	Value

[Sound Device]

Item	Value

[Display]

Item	Value
Name	ATI ES1000
PNP Device ID	PCI\VEN_1002&DEV_515E&SUBSYS_31FB103C&REV_02\4 &15EB80B3&0&18F0
Adapter Type	Not Available, ATI Technologies Inc. compatible
Adapter Description	ATI ES1000
Adapter RAM	Not Available
Installed Drivers	Not Available
Driver Version	6.14.10.6745
INF File	oem5.inf (ati2mtag_RN50 section)
Color Planes	Not Available

Color Table Entries Not Available
 Resolution Not Available
 Bits/Pixel Not Available
 Memory Address 0xE8000000-0xEFFFFFFF
 I/O Port 0x00003000-0x000030FF
 Memory Address 0xF5FF0000-0xF5FFFFFF
 IRQ Channel IRQ 23
 I/O Port 0x000003B0-0x000003BB
 I/O Port 0x000003C0-0x000003DF
 Memory Address 0xA0000-0xBFFFF
 Driver c:\windows\system32\drivers\ati2mtag.sys (6.14.10.6745, 2.11 MB (2,210,816 bytes), 6/26/2009 7:10 PM)

[Infrared]

Item	Value

[Input]

[Keyboard]

Item	Value
Description	USB Human Interface Device
Name	Enhanced (101- or 102-key)
Layout	00000409
PNP Device ID	USB\VID_03F0&PID_1027&MI_00\7&596F79B&0&0000
Number of Function Keys	12
Driver	c:\windows\system32\drivers\hidusb.sys (6.0.6002.18005, 15.50 KB (15,872 bytes), 4/11/2009 11:10 AM)
Description	Standard PS/2 Keyboard
Name	Enhanced (101- or 102-key)
Layout	00000409
PNP Device ID	ACPI\PNP0303\4&99BC81B&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 (6.0.6001.18000, 62.50 KB (64,000 bytes), 1/19/2008 12:28 AM)

[Pointing Device]

Item	Value
Hardware Type	USB Human Interface Device
Number of Buttons	0
Status	OK
PNP Device ID	USB\VID_03F0&PID_1027&MI_01\7&596F79B&0&0001
Power Management Supported	No
Double Click Threshold	Not Available
Handedness	Not Available
Driver	c:\windows\system32\drivers\hidusb.sys (6.0.6002.18005, 15.50 KB (15,872 bytes), 4/11/2009 11:10 AM)
Hardware Type	PS/2 Compatible Mouse
Number of Buttons	0
Status	OK
PNP Device ID	ACPI\PNP0F13\4&99BC81B&0
Power Management Supported	No
Double Click Threshold	Not Available
Handedness	Not Available
IRQ Channel	IRQ 12
Driver	c:\windows\system32\drivers\i8042prt.sys (6.0.6001.18000, 62.50 KB (64,000 bytes), 1/19/2008 12:28 AM)

[Modem]

Item Value

[Network]

[Adapter]

Item Value

Name [00000000] WAN Miniport (SSTP)
 Adapter Type Not Available
 Product Type WAN Miniport (SSTP)
 Installed Yes
 PNP Device ID ROOTMS_SSTPMINIORT\0000
 Last Reset 8/20/2009 3:41 PM
 Index 0
 Service Name RasSstp
 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\rassstp.sys (6.0.6002.18005, 76.50 KB (78,336 bytes), 4/11/2009 11:12 AM)

Name [00000001] WAN Miniport (L2TP)
 Adapter Type Not Available
 Product Type WAN Miniport (L2TP)
 Installed Yes
 PNP Device ID ROOTMS_L2TPMINIORT\0000
 Last Reset 8/20/2009 3:41 PM
 Index 1
 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 (6.0.6002.18005, 122.00 KB (124,928 bytes), 4/11/2009 11:12 AM)

Name [00000002] WAN Miniport (PPTP)
 Adapter Type Wide Area Network (WAN)
 Product Type WAN Miniport (PPTP)
 Installed Yes
 PNP Device ID ROOTMS_PPTPMINIORT\0000
 Last Reset 8/20/2009 3:41 PM
 Index 2
 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\rasptp.sys (6.0.6002.18005, 96.50 KB (98,816 bytes), 4/11/2009 11:12 AM)

Name [00000003] WAN Miniport (PPPOE)

Adapter Type Wide Area Network (WAN)
 Product Type WAN Miniport (PPPOE)
 Installed Yes
 PNP Device ID ROOTMS_PPPOEMINIORT\0000
 Last Reset 8/20/2009 3:41 PM
 Index 3
 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\rasppoe.sys (6.0.6002.18005, 49.00 KB (50,176 bytes), 4/11/2009 11:11 AM)

Name [00000004] WAN Miniport (IPv6)
 Adapter Type Not Available
 Product Type WAN Miniport (IPv6)
 Installed Yes
 PNP Device ID ROOTMS_NDISWANIPV6\0000
 Last Reset 8/20/2009 3:41 PM
 Index 4
 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 (6.0.6002.18005, 165.50 KB (169,472 bytes), 4/11/2009 11:11 AM)

Name [00000005] WAN Miniport (Network Monitor)
 Adapter Type Not Available
 Product Type WAN Miniport (Network Monitor)
 Installed Yes
 PNP Device ID ROOTMS_NDISWANBH\0000
 Last Reset 8/20/2009 3:41 PM
 Index 5
 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 (6.0.6002.18005, 165.50 KB (169,472 bytes), 4/11/2009 11:11 AM)

Name [00000006] Broadcom NetXtreme Gigabit Ethernet
 Adapter Type Not Available
 Product Type Broadcom NetXtreme Gigabit Ethernet
 Installed Yes
 PNP Device ID Not Available
 Last Reset 8/20/2009 3:41 PM
 Index 6
 Service Name b57nd60a
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled Yes
 DHCP Server Not Available
 DHCP Lease Expires Not Available

DHCP Lease Obtained Not Available
 MAC Address Not Available

Name [00000007] HP NC382i DP Multifunction Gigabit Server Adapter

Adapter Type Ethernet 802.3
 Product Type HP NC382i DP Multifunction Gigabit Server Adapter

Installed Yes
 PNP Device ID B06BDRVL2ND&PCI_163914E4&SUBSYS_7055103C&REV_20\5&6FB4662&0&20050200
 Last Reset 8/20/2009 3:41 PM
 Index 7
 Service Name l2nd
 IP Address 130.168.250.84, fe80::fcee:9957:a58c:8d73
 IP Subnet 255.255.0.0, 64
 Default IP Gateway Not Available
 DHCP Enabled Yes
 DHCP Server 130.168.253.2
 DHCP Lease Expires 8/22/2009 3:41 AM
 DHCP Lease Obtained 8/21/2009 3:41 AM
 MAC Address 00:23:7D:E1:5A:0A
 Driver c:\windows\system32\drivers\bxnd60a.sys (4.8.5.0, 78.37 KB (80,248 bytes), 7/14/2009 3:30 PM)

Name [00000008] WAN Miniport (IP)
 Adapter Type Not Available
 Product Type WAN Miniport (IP)
 Installed Yes
 PNP Device ID ROOTMS_NDISWANIP\0000
 Last Reset 8/20/2009 3:41 PM
 Index 8
 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 (6.0.6002.18005, 165.50 KB (169,472 bytes), 4/11/2009 11:11 AM)

Name [00000009] Broadcom NetXtreme Gigabit Ethernet
 Adapter Type Not Available
 Product Type Broadcom NetXtreme Gigabit Ethernet
 Installed Yes
 PNP Device ID Not Available
 Last Reset 8/20/2009 3:41 PM
 Index 9
 Service Name b57nd60a
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled Yes
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available

Name [00000010] Microsoft ISATAP Adapter
 Adapter Type Tunnel
 Product Type Microsoft ISATAP Adapter
 Installed Yes
 PNP Device ID ROOT*ISATAP\0000
 Last Reset 8/20/2009 3:41 PM
 Index 10
 Service Name tunnel

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\tunnel.sys (6.0.6001.18000, 27.50 KB (28,160 bytes), 1/19/2008 12:36 AM)

Name [00000011] RAS Async Adapter
 Adapter Type Wide Area Network (WAN)
 Product Type RAS Async Adapter
 Installed Yes
 PNP Device ID SW{EEAB7790-C514-11D1-B42B-00805FC1270E}\ASYNCMAC
 Last Reset 8/20/2009 3:41 PM
 Index 11
 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 20:41:53:59:4E:FF
 Driver c:\windows\system32\drivers\asyncmac.sys (6.0.6001.18000, 21.50 KB (22,016 bytes), 1/19/2008 12:37 AM)

Name [00000012] Microsoft 6to4 Adapter
 Adapter Type Tunnel
 Product Type Microsoft 6to4 Adapter
 Installed Yes
 PNP Device ID ROOT*6TO4MP\0000
 Last Reset 8/20/2009 3:41 PM
 Index 12
 Service Name tunnel
 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\tunnel.sys (6.0.6001.18000, 27.50 KB (28,160 bytes), 1/19/2008 12:36 AM)

Name [00000013] HP NC382i DP Multifunction Gigabit Server Adapter
 Adapter Type Not Available
 Product Type HP NC382i DP Multifunction Gigabit Server Adapter

Installed Yes
 PNP Device ID Not Available
 Last Reset 8/20/2009 3:41 PM
 Index 13
 Service Name l2nd
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled Yes
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available

Name	[00000015] HP NC382i DP Multifunction Gigabit Server Adapter	Supports Disconnect Data	No
Adapter Type	Not Available	Supports Encryption	No
Product Type	HP NC382i DP Multifunction Gigabit Server Adapter	Supports Expedited Data	No
Installed	Yes	Supports Graceful Closing	No
PNP Device ID	Not Available	Supports Guaranteed Bandwidth	No
Last Reset	8/20/2009 3:41 PM	Supports Multicasting	Yes
Index	15	Name	MSAFD Tcpip [TCP/IPv6]
Service Name	l2nd	Connectionless Service	No
IP Address	Not Available	Guarantees Delivery	Yes
IP Subnet	Not Available	Guarantees Sequencing	Yes
Default IP Gateway	Not Available	Maximum Address Size	28 bytes
DHCP Enabled	Yes	Maximum Message Size	0 bytes
DHCP Server	Not Available	Message Oriented	No
DHCP Lease Expires	Not Available	Minimum Address Size	28 bytes
DHCP Lease Obtained	Not Available	Pseudo Stream Oriented	No
MAC Address	Not Available	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 Tcpip [UDP/IPv6]
		Connectionless Service	Yes
		Guarantees Delivery	No
		Guarantees Sequencing	No
		Maximum Address Size	28 bytes
		Maximum Message Size	63.99 KB (65,527 bytes)
		Message Oriented	Yes
		Minimum Address Size	28 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 TCPv6 Service Provider
		Connectionless Service	No
		Guarantees Delivery	Yes
		Guarantees Sequencing	Yes
		Maximum Address Size	28 bytes
		Maximum Message Size	0 bytes
		Message Oriented	No
		Minimum Address Size	28 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	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	Yes
		Supports Connect Data	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 RSVP UDPv6 Service Provider
 Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 28 bytes
 Maximum Message Size 63.99 KB (65,527 bytes)
 Message Oriented Yes
 Minimum Address Size 28 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 UDP Service Provider
 Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 16 bytes
 Maximum Message Size 63.99 KB (65,527 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

[WinSock]

Item	Value
File	c:\windows\syswow64\wsock32.dll
Size	15.00 KB (15,360 bytes)
Version	6.0.6001.18000

File	c:\windows\system32\wsock32.dll
Size	18.00 KB (18,432 bytes)
Version	6.0.6001.18000

[Ports]

[Serial]

Item	Value
Name	Communications Port (COM1)
Status	OK
PNP Device ID	ACPI\PNP0501\0
Maximum Input Buffer Size	0
Maximum Output Buffer Size	No
Settable Baud Rate	Yes
Settable Data Bits	Yes

Settable Flow Control	Yes
Settable Parity	Yes
Settable Parity Check	Yes
Settable Stop Bits	Yes
Settable RLSB	Yes
Supports RLSB	Yes
Supports 16 Bit Mode	No
Supports Special Characters	No
Baud Rate	9600
Bits/Byte	8
Stop Bits	1
Parity	None
Busy	No
Abort Read/Write on Error	No
Binary Mode Enabled	Yes
Continue XMIT on XOff	No
CTS Outflow Control	No
Discard NULL Bytes	No
DSR Outflow Control	0
DSR Sensitivity	0
DTR Flow Control Type	Enable
EOF Character	0
Error Replace Character	0
Error Replacement Enabled	No
Event Character	0
Parity Check Enabled	No
RTS Flow Control Type	Enable
XOff Character	19
XOffXMIT Threshold	512
XOn Character	17
XOnXMIT Threshold	2048
XOnXOff InFlow Control	0
XOnXOff OutFlow Control	0
IRQ Channel	IRQ 4
I/O Port	0x000003F8-0x000003FF
Driver	c:\windows\system32\drivers\serial.sys (6.0.6001.18000, 92.00 KB (94,208 bytes), 1/19/2008 12:28 AM)

[Parallel]

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

[Storage]

[Drives]

Item	Value
Drive	C:
Description	Local Fixed Disk
Compressed	No
File System	NTFS
Size	68.33 GB (73,369,907,200 bytes)
Free Space	23.77 GB (25,520,459,776 bytes)
Volume Name	
Volume Serial Number	940AE384

[Disks]

Item	Value
Description	Disk drive
Manufacturer	(Standard disk drives)
Model	HP LOGICAL VOLUME SCSI Disk Device
Bytes/Sector	512
Media Loaded	Yes
Media Type	Fixed hard disk
Partitions	1
SCSI Bus	0
SCSI Logical Unit	0

SCSI Port 1
 SCSI Target ID 4
 Sectors/Track 32
 Size 223.47 GB (239,950,479,360 bytes)
 Total Cylinders 57,433
 Total Sectors 468,653,280
 Total Tracks 14,645,415
 Tracks/Cylinder 255
 Partition Disk #1, Partition #0
 Partition Size 223.47 GB (239,947,743,232 bytes)
 Partition Starting Offset 1,048,576 bytes

Description Disk drive
 Manufacturer (Standard disk drives)
 Model HP LOGICAL VOLUME SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 0
 SCSI Target ID 4
 Sectors/Track 32
 Size 68.33 GB (73,372,631,040 bytes)
 Total Cylinders 17,562
 Total Sectors 143,305,920
 Total Tracks 4,478,310
 Tracks/Cylinder 255
 Partition Disk #0, Partition #0
 Partition Size 68.33 GB (73,369,911,296 bytes)
 Partition Starting Offset 1,048,576 bytes

Description Disk drive
 Manufacturer (Standard disk drives)
 Model HP LOGICAL VOLUME SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 4
 SCSI Target ID 4
 Sectors/Track 32
 Size 223.47 GB (239,950,479,360 bytes)
 Total Cylinders 57,433
 Total Sectors 468,653,280
 Total Tracks 14,645,415
 Tracks/Cylinder 255
 Partition Disk #3, Partition #0
 Partition Size 223.47 GB (239,947,743,232 bytes)
 Partition Starting Offset 1,048,576 bytes

Description Disk drive
 Manufacturer (Standard disk drives)
 Model HP LOGICAL VOLUME SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 3
 SCSI Target ID 4
 Sectors/Track 32
 Size 223.47 GB (239,950,479,360 bytes)
 Total Cylinders 57,433
 Total Sectors 468,653,280
 Total Tracks 14,645,415

Tracks/Cylinder 255
 Partition Disk #2, Partition #0
 Partition Size 223.47 GB (239,947,743,232 bytes)
 Partition Starting Offset 1,048,576 bytes

[SCSI]

Item Value
 Name Smart Array P410i Controller
 Manufacturer Hewlett-Packard Company
 Status OK
 PNP Device ID
 PCIIVEN_103C&DEV_323A&SUBSYS_3245103C&REV_01V4
 &297A62C9&0&0008
 Memory Address 0xF9C00000-0xF9FFFFFF
 Memory Address 0xF9BF0000-0xF9BFFFFF
 I/O Port 0x00004000-0x00004FFF
 IRQ Channel IRQ 4294967284
 IRQ Channel IRQ 4294967283
 IRQ Channel IRQ 4294967282
 IRQ Channel IRQ 4294967281
 IRQ Channel IRQ 4294967280
 IRQ Channel IRQ 4294967279
 IRQ Channel IRQ 4294967278
 IRQ Channel IRQ 4294967277
 Driver c:\windows\system32\drivers\hpciss2.sys (6.14.0.64, 83.54 KB (85,544 bytes), 6/26/2009 7:10 PM)

Name Smart Array P410 Controller
 Manufacturer Hewlett-Packard Company
 Status OK
 PNP Device ID
 PCIIVEN_103C&DEV_323A&SUBSYS_3243103C&REV_01V4
 &2C5B5D67&0&0018
 Memory Address 0xFB400000-0xFB7FFFFFFF
 Memory Address 0xFB3F0000-0xFB3FFFFF
 I/O Port 0x00007000-0x00007FFF
 IRQ Channel IRQ 4294967276
 IRQ Channel IRQ 4294967275
 IRQ Channel IRQ 4294967274
 IRQ Channel IRQ 4294967273
 IRQ Channel IRQ 4294967272
 IRQ Channel IRQ 4294967271
 IRQ Channel IRQ 4294967270
 IRQ Channel IRQ 4294967269
 Driver c:\windows\system32\drivers\hpciss2.sys (6.14.0.64, 83.54 KB (85,544 bytes), 6/26/2009 7:10 PM)

Name Smart Array P411 Controller
 Manufacturer Hewlett-Packard Company
 Status OK
 PNP Device ID
 PCIIVEN_103C&DEV_323A&SUBSYS_3247103C&REV_01V4
 &5034FB8&0&0030
 Memory Address 0xFBC00000-0xFBFFFFFFF
 Memory Address 0xFBBF0000-0xFBBFFFFF
 I/O Port 0x00008000-0x00008FFF
 IRQ Channel IRQ 4294967268
 IRQ Channel IRQ 4294967267
 IRQ Channel IRQ 4294967266
 IRQ Channel IRQ 4294967265
 IRQ Channel IRQ 4294967264
 IRQ Channel IRQ 4294967263
 IRQ Channel IRQ 4294967262
 IRQ Channel IRQ 4294967261
 Driver c:\windows\system32\drivers\hpciss2.sys (6.14.0.64, 83.54 KB (85,544 bytes), 6/26/2009 7:10 PM)

Name Smart Array P410 Controller
 Manufacturer Hewlett-Packard Company

Status OK
 PNP Device ID
 PCIIVEN_103C&DEV_323A&SUBSYS_3243103C&REV_014
 &370D11C1&0&0038
 Memory Address 0xFAC00000-0xFAFFFFFF
 Memory Address 0xFABF0000-0xFABF0FFF
 I/O Port 0x00006000-0x00006FFF
 IRQ Channel IRQ 4294967260
 IRQ Channel IRQ 4294967259
 IRQ Channel IRQ 4294967258
 IRQ Channel IRQ 4294967257
 IRQ Channel IRQ 4294967256
 IRQ Channel IRQ 4294967255
 IRQ Channel IRQ 4294967254
 IRQ Channel IRQ 4294967253
 Driver c:\windows\system32\drivers\hpciss2.sys (6.14.0.64, 83.54 KB
 (85,544 bytes), 6/26/2009 7:10 PM)

Name Smart Array P410 Controller
 Manufacturer Hewlett-Packard Company
 Status OK
 PNP Device ID
 PCIIVEN_103C&DEV_323A&SUBSYS_3243103C&REV_014
 &14BDCE4F&0&0048
 Memory Address 0xFA400000-0xFA7FFFFFFF
 Memory Address 0xFA3F0000-0xFA3F0FFF
 I/O Port 0x00005000-0x00005FFF
 IRQ Channel IRQ 4294967252
 IRQ Channel IRQ 4294967251
 IRQ Channel IRQ 4294967250
 IRQ Channel IRQ 4294967249
 IRQ Channel IRQ 4294967248
 IRQ Channel IRQ 4294967247
 IRQ Channel IRQ 4294967246
 IRQ Channel IRQ 4294967245
 Driver c:\windows\system32\drivers\hpciss2.sys (6.14.0.64, 83.54 KB
 (85,544 bytes), 6/26/2009 7:10 PM)

Name Microsoft iSCSI Initiator
 Manufacturer Microsoft
 Status OK
 PNP Device ID ROOT\ISCSIPRT\0000
 Driver c:\windows\system32\drivers\msiscsi.sys (6.0.6002.18005,
 210.48 KB (215,528 bytes), 4/11/2009 11:11 AM)

[IDE]

Item Value

[Printing]

Name Driver Port Name Server Name
 Microsoft XPS Document Writer Microsoft XPS Document Writer XPSPort:

[Problem Devices]

Device PNP Device ID Error Code

[USB]

Device PNP Device ID
 Standard Universal PCI to USB Host Controller
 PCIIVEN_8086&DEV_3A34&SUBSYS_330D103C&REV_003
 &21436425&0&E8
 Standard Universal PCI to USB Host Controller
 PCIIVEN_8086&DEV_3A35&SUBSYS_330D103C&REV_003
 &21436425&0&E9

Standard Universal PCI to USB Host Controller
 PCIIVEN_8086&DEV_3A36&SUBSYS_330D103C&REV_003
 &21436425&0&EA
 Standard Universal PCI to USB Host Controller
 PCIIVEN_8086&DEV_3A39&SUBSYS_330D103C&REV_003
 &21436425&0&EB
 Standard Enhanced PCI to USB Host Controller
 PCIIVEN_8086&DEV_3A3A&SUBSYS_330D103C&REV_00
 3&21436425&0&EF
 Standard Universal PCI to USB Host Controller
 PCIIVEN_103C&DEV_3300&SUBSYS_3305103C&REV_004
 &15EB80B3&0&24F0

[Software Environment]

[System Drivers]

Name	Description	File	Type	Started	Start
Mode	State	Status	Error Control	Accept	Pause
acpi	Microsoft ACPI Driver	c:\windows\system32\drivers\acpi.sys	Kernel Driver	Yes	Boot
	Yes	Running	OK	Critical	No
adp94xx	adp94xx	c:\windows\system32\drivers\adp94xx.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Normal	No
adpahci	adpahci	c:\windows\system32\drivers\adpahci.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Normal	No
adpu160m	adpu160m	c:\windows\system32\drivers\adpu160m.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Normal	No
adpu320	adpu320	c:\windows\system32\drivers\adpu320.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Normal	No
afd	Ancillary Function Driver for Winsock	c:\windows\system32\drivers\afd.sys	Kernel Driver	Yes	System
	Yes	Running	OK	Normal	No
agp440	Intel AGP Bus Filter	c:\windows\system32\drivers\agp440.sys	Kernel Driver	No	Manual
	No	Stopped	OK	Normal	No
aic78xx	aic78xx	c:\windows\system32\drivers\djsvs.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Normal	No
aliide	aliide	c:\windows\system32\drivers\aliide.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Critical	No
amdide	amdide	c:\windows\system32\drivers\amdide.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Critical	No
amdK8	AMD K8 Processor Driver	c:\windows\system32\drivers\amdK8.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Normal	No
arc	arc	c:\windows\system32\drivers\arc.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Normal	No
arcsas	arcsas	c:\windows\system32\drivers\arcsas.sys	Kernel Driver	No	Disabled
	No	Stopped	OK	Normal	No
asyncmac	RAS Asynchronous Media Driver	c:\windows\system32\drivers\asyncmac.sys	Kernel Driver	Yes	Manual
	Yes	Running	OK	Normal	No

atapi	IDE Channel Kernel Driver Critical	Yes No	Boot	Running	OK		
ati2mtag Driver	ati2mtag Yes Manual Running OK	Kernel Ignore No					
b06bdrv	HP Virtual Bus Device c:\windows\system32\drivers\bxvbda.sys	Kernel Driver	Yes	Boot	Running	OK	Normal No
b57nd60a	Broadcom NetXtreme Gigabit Ethernet - NDIS 6.0 c:\windows\system32\drivers\b57nd60a.sys	Kernel Driver	No	Manual	Stopped	OK	Normal No
blbdrive Driver	blbdrive No Disabled Stopped	Kernel Normal No					
bowser System Driver	Bowser c:\windows\system32\drivers\bowser.sys	File Normal	Yes	Manual	Running	OK	
brfiltlo	Brother USB Mass-Storage Lower Filter Driver c:\windows\system32\drivers\brfiltlo.sys	Kernel Driver	No	Manual	Stopped	OK	Normal No
brfiltup	Brother USB Mass-Storage Upper Filter Driver c:\windows\system32\drivers\brfiltup.sys	Kernel Driver	No	Manual	Stopped	OK	Normal No
brserid	Brother MFC Serial Port Interface Driver (WDM) c:\windows\system32\drivers\brserid.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal No
brserwdm	Brother WDM Serial driver c:\windows\system32\drivers\brserwdm.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal No
brusbmdm	Brother MFC USB Fax Only Modem c:\windows\system32\drivers\brusbmdm.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal No
brusbser	Brother MFC USB Serial WDM Driver c:\windows\system32\drivers\brusbser.sys	Kernel Driver	No	Manual	Stopped	OK	Normal No
cdfs	CD/DVD File System Reader c:\windows\system32\drivers\cdfs.sys	File System Driver	No	Disabled	Stopped	OK	Normal No
cdrom	CD-ROM Driver c:\windows\system32\drivers\cdrom.sys	Kernel Driver	Yes	Boot	Running	OK	System Stopped OK
circlass	Consumer IR Devices c:\windows\system32\drivers\circlass.sys	Kernel Driver	Normal	No	No		
clfs Driver	Common Log (CLFS) c:\windows\system32\clfs.sys	Kernel	Yes	Boot	Running	OK	Critical No
cmdide Driver	cmdide c:\windows\system32\drivers\cmdide.sys	Kernel	No	Disabled	Stopped	OK	Critical No
compbatt	Microsoft Composite Battery Driver c:\windows\system32\drivers\compbatt.sys	Kernel Driver	No	Disabled	Stopped	OK	Critical No
cpqcdrv	HP iLO Management Channel Interface Driver c:\windows\system32\drivers\cpqcdrv.sys	Kernel Driver	Yes	Manual	Running	OK	Normal No
crdisk	Crdisk Filter Driver c:\windows\system32\drivers\crdisk.sys	Kernel Driver	Yes	Boot	Running	OK	
csc	Offline Files Driver c:\windows\system32\drivers\csc.sys	Kernel Driver	Normal	No	No		Disabled Stopped OK
dfsc	DFS Namespace Client Driver c:\windows\system32\drivers\dfsc.sys	File System Driver	Yes	System	Running	OK	Normal No
disk	Disk Driver c:\windows\system32\drivers\disk.sys	Kernel Driver	Yes	Boot	Running	OK	
dxgkrnl	LDDM Graphics Subsystem c:\windows\system32\drivers\dxgkrnl.sys	Kernel Driver	No	Manual	Stopped	OK	Ignore No
e1g60	Intel(R) PRO/1000 NDIS 6 Adapter Driver c:\windows\system32\drivers\e1g6032e.sys	Kernel Driver	No	Manual	Stopped	OK	Normal No
elxstor Driver	elxstor c:\windows\system32\drivers\elxstor.sys	Kernel	No	Disabled	Stopped	OK	Normal No
errdev	Microsoft Hardware Error Device Driver c:\windows\system32\drivers\errdev.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal No
exfat	exFAT File System Driver c:\windows\system32\drivers\exfat.sys	File System Driver	No	Manual	Stopped	OK	Normal No
fastfat	FAT12/16/32 File System Driver c:\windows\system32\drivers\fastfat.sys	File System Driver	No	Manual	Stopped	OK	Normal No
fdc	Floppy Disk Controller Driver c:\windows\system32\drivers\fdc.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal No
fileinfo	File Information FS MiniFilter c:\windows\system32\drivers\fileinfo.sys	File System Driver	No	Manual	Stopped	OK	Normal No
filetrace System Driver	FileTrace c:\windows\system32\drivers\filetrace.sys	File	No	No			Manual Stopped OK
fiodrive	Fusion ioDrive Device Driver c:\windows\system32\drivers\fiodrive.sys	Kernel Driver	Yes	Boot	Running	OK	Normal No
flpydisk	Floppy Disk Driver c:\windows\system32\drivers\flpydisk.sys	Kernel Driver	Normal	No	No		Disabled Stopped OK
fltmgr System Driver	FltMgr c:\windows\system32\drivers\fltmgr.sys	File	Yes	Boot	Running	OK	Critical
gap30kx	Microsoft Generic AGPv3.0 Filter for K8 Processor Platforms c:\windows\system32\drivers\gap30kx.sys	Kernel Driver	No	Manual	Stopped	OK	Normal No
hdaudbus	Microsoft UAA Bus Driver for High Definition Audio c:\windows\system32\drivers\hdaudbus.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal No
hidbth	Microsoft Bluetooth HID Miniport c:\windows\system32\drivers\hidbth.sys	Kernel Driver	No	Disabled	Stopped	OK	Ignore No

hidir	Microsoft Infrared HID Driver c:\windows\system32\drivers\hidir.sys	Kernel Driver	No	Disabled	Stopped	OK	Ignore	No
hidusb	Microsoft HID Class Driver c:\windows\system32\drivers\hidusb.sys	Kernel Driver	Yes	Manual	Running	OK	Ignore	No
hpcisss Driver	HpCISSs c:\windows\system32\drivers\hpcisss.sys	Kernel	Yes	Boot	Running	OK	Normal	No
hpcisss2 Driver	HpCISSs2 c:\windows\system32\drivers\hpcisss2.sys	Kernel	Yes	Boot	Running	OK	Normal	No
hpqilo2 Driver	hpqilo2 c:\windows\system32\drivers\hpqilo2.sys	Kernel	Yes	Manual	Running	OK	Normal	No
http Driver	HTTP c:\windows\system32\drivers\http.sys	Kernel	Yes	Manual	Running	OK	Normal	No
i2omp Driver	i2omp c:\windows\system32\drivers\i2omp.sys	Kernel	No	Disabled	Stopped	OK	Normal	No
i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver c:\windows\system32\drivers\i8042prt.sys	Kernel Driver	Yes	System	Running	OK	Normal	No
iastorv	Intel RAID Controller Vista c:\windows\system32\drivers\iastorv.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
iirsp Driver	iirsp c:\windows\system32\drivers\iirsp.sys	Kernel	No	Disabled	Stopped	OK	Normal	No
intelide Driver	intelide c:\windows\system32\drivers\intelide.sys	Kernel	No	Disabled	Stopped	OK	Critical	No
intelppm	Intel Processor Driver c:\windows\system32\drivers\intelppm.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
ioatdma	Intel(R) QuickData Technology Device c:\windows\system32\drivers\iqatdma.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
ipfilterdriver	IP Traffic Filter Driver c:\windows\system32\drivers\ipfltdrv.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
ipmidrv Driver	IPMIDRV c:\windows\system32\drivers\ipmidrv.sys	Kernel	Yes	Manual	Running	OK	Normal	No
ipnat	IP Network Address Translator c:\windows\system32\drivers\ipnat.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
irenum	IR Bus Enumerator c:\windows\system32\drivers\irenum.sys	Kernel Driver	Ignore	No	No	Manual	Stopped	OK
isapnp	PnP ISA/EISA Bus Driver c:\windows\system32\drivers\isapnp.sys	Kernel Driver	No	Disabled	Stopped	OK	Critical	No
iscsiprt	iScsiPort Driver c:\windows\system32\drivers\msiscsi.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
iteatapi	ITEATAPI_Service_Install c:\windows\system32\drivers\iteatapi.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
iteraid	ITERAID_Service_Install c:\windows\system32\drivers\iteraid.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
kbdclass	Keyboard Class Driver c:\windows\system32\drivers\kbdclass.sys	Kernel Driver	Yes	System	Running	OK	Normal	No
kbdhid	Keyboard HID Driver c:\windows\system32\drivers\kbdhid.sys	Kernel Driver	Yes	System	Running	OK	Ignore	No
ksecdd Driver	KSecDD c:\windows\system32\drivers\ksecdd.sys	Kernel	Yes	Boot	Running	OK	Critical	No
ksthunk	Kernel Streaming Thunks c:\windows\system32\drivers\ksthunk.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
l2nd	HP NC370 Multifunction Gigabit Server Adapter c:\windows\system32\drivers\l2nd60a.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
lltdio	Link-Layer Topology Discovery Mapper I/O Driver c:\windows\system32\drivers\lltdio.sys	Kernel Driver	Yes	Auto	Running	OK	Normal	No
lsi_fc Driver	LSI_FC c:\windows\system32\drivers\lsi_fc.sys	Kernel	No	Disabled	Stopped	OK	Normal	No
lsi_sas Driver	LSI_SAS c:\windows\system32\drivers\lsi_sas.sys	Kernel	No	Disabled	Stopped	OK	Normal	No
lsi_scsi Driver	LSI_SCSI c:\windows\system32\drivers\lsi_scsi.sys	Kernel	No	Disabled	Stopped	OK	Normal	No
luafv	UAC File Virtualization c:\windows\system32\drivers\luafv.sys	File System Driver	Yes	Auto	Running	OK	Normal	No
megasas Driver	megasas c:\windows\system32\drivers\megasas.sys	Kernel	No	Disabled	Stopped	OK	Normal	No
megasr Driver	MegaSR c:\windows\system32\drivers\megasr.sys	Kernel	No	Disabled	Stopped	OK	Normal	No
modem Driver	Modem c:\windows\system32\drivers\modem.sys	Kernel	No	Manual	Stopped	OK	Ignore	No
monitor	Microsoft Monitor Class Function Driver Service c:\windows\system32\drivers\monitor.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
mouclass	Mouse Class Driver c:\windows\system32\drivers\mouclass.sys	Kernel Driver	Yes	System	Running	OK	Normal	No
mouhid	Mouse HID Driver c:\windows\system32\drivers\mouhid.sys	Kernel Driver	Yes	Manual	Running	OK	Ignore	No
mountmgr	Mount Point Manager c:\windows\system32\drivers\mountmgr.sys	Kernel Driver	Yes	Boot	Running	OK	Critical	No
mpio	Microsoft Multi-Path Bus Driver c:\windows\system32\drivers\mpio.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
mpsdrv	Windows Firewall Authorization Driver c:\windows\system32\drivers\mpsdrv.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No

mraid35x Driver	Mraid35x No	c:\windows\system32\drivers\mraid35x.sys	Kernel No	Disabled	Stopped	OK	Normal	No
mrx smb	SMB MiniRedirector Wrapper and Engine	c:\windows\system32\drivers\mrx smb.sys	File System Driver	Yes	Manual	Running	OK	Normal
mrx smb10	SMB 1.x MiniRedirector	c:\windows\system32\drivers\mrx smb10.sys	File System Driver	Yes	Manual	Running	OK	Normal
mrx smb20	SMB 2.0 MiniRedirector	c:\windows\system32\drivers\mrx smb20.sys	File System Driver	Yes	Manual	Running	OK	Normal
msahci Driver	msahci	c:\windows\system32\drivers\msahci.sys	Kernel No	Disabled	Stopped	OK	Critical	No
msdsm	Microsoft Multi-Path Device Specific Module	c:\windows\system32\drivers\msdsm.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal
msfs System Driver	Msfs	c:\windows\system32\drivers\msfs.sys	File No	Yes	System	Running	OK	Normal
msisadrv	ISA/EISA Class Driver	c:\windows\system32\drivers\msisadrv.sys	Kernel Driver	Yes	Boot	Running	OK	Critical
msrpc Driver	MsRPC	c:\windows\system32\drivers\msrpc.sys	Kernel No	Manual	Stopped	OK	Normal	No
mssmbios	Microsoft System Management BIOS Driver	c:\windows\system32\drivers\mssmbios.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
mup System Driver	Mup	c:\windows\system32\drivers\mup.sys	File No	Yes	Boot	Running	OK	Normal
ndis	NDIS System Driver	c:\windows\system32\drivers\ndis.sys	Kernel Driver	Yes	Boot	Running	OK	Critical
ndistapi	Remote Access NDIS TAPI Driver	c:\windows\system32\drivers\ndistapi.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
ndisuio	NDIS Usermode I/O Protocol	c:\windows\system32\drivers\ndisuio.sys	Kernel Driver	No	Manual	Stopped	OK	Normal
ndiswan	Remote Access NDIS WAN Driver	c:\windows\system32\drivers\ndiswan.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
ndproxy	NDIS Proxy	c:\windows\system32\drivers\ndproxy.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
netbios	NetBIOS Interface	c:\windows\system32\drivers\netbios.sys	File System Driver	Yes	System	Running	OK	Normal
netbt Driver	NETBT	c:\windows\system32\drivers\netbt.sys	Kernel Yes	System	Running	OK	Normal	No
nfd960 Driver	nfd960	c:\windows\system32\drivers\nfd960.sys	Kernel No	Disabled	Stopped	OK	Normal	No
npfs System Driver	Npfs	c:\windows\system32\drivers\npfs.sys	File No	Yes	System	Running	OK	Normal
nsiproxy	NSI proxy service	c:\windows\system32\drivers\nsiproxy.sys	Kernel Driver	Yes	System	Running	OK	Normal
ntfs System Driver	Ntfs	c:\windows\system32\drivers\ntfs.sys	File No	Yes	Manual	Running	OK	Normal
null Driver	Null	c:\windows\system32\drivers\null.sys	Kernel Yes	System	Running	OK	Normal	No
nvraid	NVIDIA nForce RAID Driver	c:\windows\system32\drivers\nvraid.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal
nvstor Driver	nvstor	c:\windows\system32\drivers\nvstor.sys	Kernel No	Disabled	Stopped	OK	Critical	No
nv_agp	NVIDIA nForce AGP Bus Filter	c:\windows\system32\drivers\nv_agp.sys	Kernel Driver	No	Manual	Stopped	OK	Normal
ohci1394	NEC FireWarden OHCI Compliant IEEE 1394 Host Controller	c:\windows\system32\drivers\ohci1394.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal
parport	Parallel port driver	c:\windows\system32\drivers\parport.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal
partmgr	Partition Manager	c:\windows\system32\drivers\partmgr.sys	Kernel Driver	Yes	Boot	Running	OK	Critical
pci	PCI Bus Driver	c:\windows\system32\drivers\pci.sys	Kernel Driver	Yes	Boot	Running	OK	Critical
pciide Driver	pciide	c:\windows\system32\drivers\pciide.sys	Kernel Yes	Boot	Running	OK	Critical	No
pcmcia Driver	pcmcia	c:\windows\system32\drivers\pcmcia.sys	Kernel No	Disabled	Stopped	OK	Normal	No
peauth Driver	PEAUTH	c:\windows\system32\drivers\peauth.sys	Kernel Yes	Auto	Running	OK	Normal	No
pptpminiport	WAN Miniport (PPTP)	c:\windows\system32\drivers\rasppptp.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
processor	Processor Driver	c:\windows\system32\drivers\processr.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal
psched	QoS Packet Scheduler	c:\windows\system32\drivers\pacer.sys	Kernel Driver	Yes	System	Running	OK	Normal
ql2300	QLogic Fibre Channel Miniport Driver	c:\windows\system32\drivers\ql2300.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal
ql40xx	QLogic iSCSI Miniport Driver	c:\windows\system32\drivers\ql40xx.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal
rasacd	Remote Access Auto Connection Driver	c:\windows\system32\drivers\rasacd.sys	Kernel Driver	Yes	System	Running	OK	Normal
rasl2tp	WAN Miniport (L2TP)	c:\windows\system32\drivers\rasl2tp.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
rasppoe	Remote Access PPPOE Driver	c:\windows\system32\drivers\rasppoe.sys	Kernel Driver					

	Yes	Manual	Running	OK	Normal	No		No	Disabled	Stopped	OK	Normal	No	
	Yes							No						
rasstp	WAN Miniport (SSTP)							sisraid2	SiSRaid2	c:\windows\system32\drivers\sisraid2.sys	Kernel Driver			
	Yes	Manual	Running	OK	Normal	No		No	Disabled	Stopped	OK	Normal	No	
	Yes							No						
rdbss	Redirected Buffering Sub System							sisraid4	SiSRaid4	c:\windows\system32\drivers\sisraid4.sys	Kernel Driver			
	Yes	System	Running	OK	Normal	No		No	Disabled	Stopped	OK	Normal	No	
	Yes							smb	Message-oriented TCP/IP and TCP/IPv6 Protocol (SMB session)					
rdpcdd	RDPCDD	c:\windows\system32\drivers\rdpcdd.sys	Kernel Driver						Yes	System	Running	OK	Normal	No
Driver	Yes	System	Running	OK	Ignore	No			Yes					
	Yes							spldr	Security Processor Loader Driver					
rdpdr	Terminal Server Device Redirector Driver									c:\windows\system32\drivers\spldr.sys	Kernel Driver			
	Yes	Manual	Running	OK	Normal	No			Yes	Boot	Running	OK	Critical	No
	Yes								Yes					
rdpencdd	RDP Encoder Mirror Driver							srv	srv	c:\windows\system32\drivers\srv.sys	File System Driver			
	Yes	System	Running	OK	Ignore	No			Yes	Manual	Running	OK	Normal	
	Yes								No	Yes				
rdpwd	RDP Winstation Driver							srv2	srv2	c:\windows\system32\drivers\srv2.sys	File System Driver			
	Yes	Manual	Running	OK	Ignore	No			Yes	Manual	Running	OK	Normal	
	Yes								No	Yes				
rsfx0103	RsFx0103 Driver							srvnet	srvnet	c:\windows\system32\drivers\srvnet.sys	File System Driver			
	File System Driver	No	Disabled	Stopped	OK				Yes	Manual	Running	OK	Normal	
	Normal	No	No						No	Yes				
rspndr	Link-Layer Topology Discovery Responder							storflt	Disk VMBUS Acceleration Filter Driver					
	Yes	Auto	Running	OK	Normal	No			Yes	Boot	Running	OK	Normal	No
	Yes								Yes					
s3cap	Microsoft Emulated S3 Device Cap Driver							storvsc	storvsc	c:\windows\system32\drivers\storvsc.sys	Kernel Driver			
	No	Disabled	Stopped	OK	Normal	No			No	Disabled	Stopped	OK	Normal	No
	No								No					
sacdrv	sacdrv	c:\windows\system32\drivers\sacdrv.sys	Kernel Driver					storvsp	Microsoft Virtual Disk Server Driver					
Driver	No	Boot	Stopped	OK	Ignore	No			c:\windows\system32\drivers\storvsp.sys	Kernel Driver				
	No								No	Disabled	Stopped	OK	Normal	No
	No								No					
sbp2port	SBP-2 Transport/Protocol Bus Driver							swenum	Software Bus Driver					
	Yes	Auto	Running	OK	Normal	No			Kernel Driver	Yes	Manual	Running	OK	
	No	Disabled	Stopped	OK	Normal	No			Normal	No	Yes			
	No								Normal	No	Yes			
secdrv	Security Driver							symc8xx	Symc8xx	c:\windows\system32\drivers\symc8xx.sys	Kernel Driver			
	Kernel Driver	Yes	Auto	Running	OK				No	Disabled	Stopped	OK	Normal	No
	Normal	No	Yes						No					
serenum	Serenum Filter Driver							sym_hi	Sym_hi	c:\windows\system32\drivers\sym_hi.sys	Kernel Driver			
	Kernel Driver	Yes	Manual	Running	OK				No	Disabled	Stopped	OK	Normal	No
	Normal	No	Yes						No					
serial	Serial port driver							sym_u3	Sym_u3	c:\windows\system32\drivers\sym_u3.sys	Kernel Driver			
	Kernel Driver	Yes	System	Running	OK				No	Disabled	Stopped	OK	Normal	No
	Ignore	No	Yes						No					
sermouse	Serial Mouse Driver							tcpip	TCP/IP Protocol Driver					
	Kernel Driver	No	Disabled	Stopped	OK				c:\windows\system32\drivers\tcpip.sys	Kernel Driver				
	Normal	No	No						Yes	Boot	Running	OK	Normal	No
	Yes								Yes					
sffdisk	SFF Storage Class Driver							tcpip6	Microsoft IPv6 Protocol Driver					
	No	Disabled	Stopped	OK	Normal	No			c:\windows\system32\drivers\tcpip6.sys	Kernel Driver				
	No								No	Manual	Stopped	OK	Normal	No
	No								No					
sffp_mmc	SFF Storage Protocol Driver for MMC							tcpipreg	TCP/IP Registry Compatibility					
	No	Manual	Stopped	OK	Normal	No			c:\windows\system32\drivers\tcpipreg.sys	Kernel Driver				
	No								Yes	Auto	Running	OK	Normal	No
	No								Yes					
sffp_sd	SFF Storage Protocol Driver for SDBus							tdpipe	TDPIPE	c:\windows\system32\drivers\tdpipe.sys	Kernel Driver			
	No	Manual	Stopped	OK	Normal	No			No	Manual	Stopped	OK	Normal	No
	No								No					
sfloppy	High-Capacity Floppy Disk Drive							tdtcp	TDTCP	c:\windows\system32\drivers\tdtcp.sys	Kernel Driver			
	Kernel Driver								Yes	Manual	Running	OK	Normal	No
									Yes					
								tdx	NetIO Legacy TDI Support Driver					
									c:\windows\system32\drivers\tdx.sys	Kernel Driver				
									Yes	System	Running	OK	Normal	No
									Yes					

termdd	Terminal Device Driver c:\windows\system32\drivers\termdd.sys	Kernel Driver	Yes	System	Running	OK	Normal	No
tssecsrv	Terminal Services Security Filter Driver c:\windows\system32\drivers\tssecsrv.sys	Kernel Driver	Yes	Manual	Running	OK	Ignore	No
tunnel	Microsoft IPv6 Tunnel Miniport Adapter Driver c:\windows\system32\drivers\tunnel.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
uagp35	Microsoft AGPv3.5 Filter c:\windows\system32\drivers\uagp35.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
udfs	udfs c:\windows\system32\drivers\udfs.sys	File System Driver	No	No	Disabled	Stopped	OK	Normal
uliagpkx	Uli AGP Bus Filter c:\windows\system32\drivers\uliagpkx.sys	Kernel Driver	No	No	Manual	Stopped	OK	Normal
uliahci	uliahci c:\windows\system32\drivers\uliahci.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal
ulsata	UISata c:\windows\system32\drivers\ulsata.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal
ulsata2	ulsata2 c:\windows\system32\drivers\ulsata2.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal
umbus	UMBus Enumerator Driver c:\windows\system32\drivers\umbus.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
umpass	Microsoft UMPass Driver c:\windows\system32\drivers\umpass.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal
usbccgp	Microsoft USB Generic Parent Driver c:\windows\system32\drivers\usbccgp.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
usbcir	eHome Infrared Receiver (USBCIR) c:\windows\system32\drivers\usbcir.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal
usbehci	Microsoft USB 2.0 Enhanced Host Controller Miniport Driver c:\windows\system32\drivers\usbehci.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
usbhub	Microsoft USB Standard Hub Driver c:\windows\system32\drivers\usbhub.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
usbohci	Microsoft USB Open Host Controller Miniport Driver c:\windows\system32\drivers\usbohci.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal
usbprint	Microsoft USB PRINTER Class c:\windows\system32\drivers\usbprint.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal
usbstor	USB Mass Storage Driver c:\windows\system32\drivers\usbstor.sys	Kernel Driver	No	No	Manual	Stopped	OK	Normal
usbuhci	Microsoft USB Universal Host Controller Miniport Driver c:\windows\system32\drivers\usbuhci.sys	Kernel Driver						

	Yes	Manual	Running	OK	Normal	No			
vga Driver	Yes								
	vga	c:\windows\system32\drivers\vgapnp.sys	Kernel Driver	No	Manual	Stopped	OK	Ignore	No
vgasave Driver	VgaSave	c:\windows\system32\drivers\vgasave.sys	Kernel Driver	Yes	System	Running	OK	Ignore	No
viaide Driver	viaide	c:\windows\system32\drivers\viaide.sys	Kernel Driver	No	Disabled	Stopped	OK	Critical	No
vid	Virtualization Infrastructure Driver c:\windows\system32\drivers\vid.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal	No
vmbus Driver	VMBus	c:\windows\system32\drivers\vmbus.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
volmgr	Volume Manager Driver c:\windows\system32\drivers\volmgr.sys	Kernel Driver	Yes	Boot	Running	OK	Critical	No	No
volmgrx	Dynamic Volume Manager c:\windows\system32\drivers\volmgrx.sys	Kernel Driver	Yes	Boot	Running	OK	Critical	No	No
volsnap	Storage volumes c:\windows\system32\drivers\volsnap.sys	Kernel Driver	Yes	Boot	Running	OK	Critical	No	No
vsmraid Driver	vsmraid	c:\windows\system32\drivers\vsmraid.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
wacompen	Wacom Serial Pen HID Driver c:\windows\system32\drivers\wacompen.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal	No
wanarp	Remote Access IP ARP Driver c:\windows\system32\drivers\wanarp.sys	Kernel Driver	No	No	Manual	Stopped	OK	Normal	No
wanarpv6	Remote Access IPv6 ARP Driver c:\windows\system32\drivers\wanarpv6.sys	Kernel Driver	Yes	System	Running	OK	Normal	No	No
wd	Microsoft Watchdog Timer Driver c:\windows\system32\drivers\wd.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal	No
wdf01000	Kernel Mode Driver Frameworks service c:\windows\system32\drivers\wdf01000.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No	No
wmiacpi	Microsoft Windows Management Interface for ACPI c:\windows\system32\drivers\wmiacpi.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal	No
ws2ifsl	Winsock IFS driver c:\windows\system32\drivers\ws2ifsl.sys	Kernel Driver	No	No	Disabled	Stopped	OK	Normal	No
[Signed Drivers]									
Device Name	Signed Driver Date	Device Class	Manufacturer	Driver Version	INF Name Driver				
Generic volume	Yes	VOLUME 6.0.6002.18005	Microsoft	6/21/2006	volume.inf Not Available				
STORAGE\VOLUME1&19F7E59C&0&SIGNATURE5EB60A									
F10FFSET10000LENGTH37DE000000									

Generic volume	Yes	VOLUME 6.0.6002.18005	6/21/2006	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&19F7E59C&0&SIGNATURE5EB60A	FOFFSET100000LENGTH37DE000000	Generic volume	Yes	VOLUME 6.0.6002.18005	6/21/2006	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&19F7E59C&0&SIGNATURED5F45B	3BOFFSET100000LENGTH37DE000000	Generic volume	Yes	VOLUME 6.0.6002.18005	6/21/2006	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&19F7E59C&0&SIGNATURE4B1CD8	2DOFFSET100000LENGTH115300000	Volume Manager	Yes	SYSTEM 6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	ROOT\VOLMGR\0000	UMBus Enumerator	Yes	SYSTEM 6.0.6001.18000	6/21/2006	Microsoft	umbus.inf	Not Available	UMB\UMB\1&841921D&0&TSBUS	UMBus Root Bus Enumerator	Yes	SYSTEM 6.0.6001.18000	6/21/2006	Microsoft	umbus.inf	Not Available	ROOT\UMBUS\0000	Microsoft System Management BIOS Driver	Yes	SYSTEM 6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	ROOT\SYSTEM\0002	RAS Async Adapter	Yes	NET 6.0.6002.18005	6/21/2006	Microsoft	netrasa.inf	Not Available	SW\{EEAB7790-C514-11D1-B42B-00805FC1270E}\ASYNCMAC	Plug and Play Software Device Enumerator	Yes	SYSTEM 6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	ROOT\SYSTEM\0000	Terminal Server Mouse Driver	Yes	SYSTEM 6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	ROOT\TRDP_MOUSE\0000	Terminal Server Keyboard Driver	Yes	SYSTEM 6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	ROOT\TRDP_KBD\0000	Terminal Server Device Redirector	Yes	SYSTEM 6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	ROOT\TRDPDR\0000	WAN Miniport (SSTP)	Yes	NET 6.0.6002.18005	6/21/2006	Microsoft	netstpa.inf	Not Available	ROOT\MS_SSTP\MINIPORT\0000	WAN Miniport (PPTP)	Yes	NET 6.0.6002.18005	6/21/2006	Microsoft	netrasa.inf	Not Available	ROOT\MS_PPTP\MINIPORT\0000	WAN Miniport (PPPOE)	Yes	NET 6.0.6002.18005	6/21/2006	Microsoft	netrasa.inf	Not Available	ROOT\MS_PPPOE\MINIPORT\0000	WAN Miniport (IPv6)	Yes	NET 6.0.6002.18005	6/21/2006	Microsoft	netrasa.inf	Not Available	ROOT\MS_NDISWANIPV6\0000	WAN Miniport (IP)	Yes	NET 6.0.6002.18005	6/21/2006	Microsoft	netrasa.inf	Not Available	ROOT\MS_NDISWANIP\0000	WAN Miniport (Network Monitor)	Yes	NET 6.0.6002.18005	6/21/2006	Microsoft	netrasa.inf	Not Available	ROOT\MS_NDISWANBH\0000	WAN Miniport (L2TP)	Yes	NET 6.0.6002.18005	6/21/2006	Microsoft	netrasa.inf	Not Available	ROOT\MS_L2TP\MINIPORT\0000	Kernel Mode Driver Frameworks service	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Remote Access IPv6 ARP Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Storage volumes	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Dynamic Volume Manager	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	VgaSave	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Terminal Services Security Filter Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	NetIO Legacy TDI Support Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	TDTCP	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	TCP/IP Registry Compatibility	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	TCP/IP Protocol Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Disk VMBUS Acceleration Filter Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Security Processor Loader Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Message-oriented TCP/IP and TCP/IPv6 Protocol (SMB session)	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Security Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Link-Layer Topology Discovery Responder	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	RDP Winstation Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	RDP Encoder Mirror Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	RDPCCDD	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Remote Access Auto Connection Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
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	Not Available	Not Available	Not Available
QoS Packet Scheduler	Available	Not Available	LEGACYDRIVER Not Available
PEAUTH	Not Available	LEGACYDRIVER Not Available	Not Available
pciide	Not Available	LEGACYDRIVER Not Available	Not Available
Null	Not Available	LEGACYDRIVER Not Available	Not Available
NSI proxy service	Not Available	LEGACYDRIVER Not Available	Not Available
NETBT	Not Available	LEGACYDRIVER Not Available	Not Available
NDProxy	Not Available	LEGACYDRIVER Not Available	Not Available
NDIS System Driver	Not Available	LEGACYDRIVER Not Available	Not Available
ISA/EISA Class Driver	Not Available	LEGACYDRIVER Not Available	Not Available
Windows Firewall Authorization Driver	Not Available	LEGACYDRIVER Not Available	Not Available
Mount Point Manager	Not Available	LEGACYDRIVER Not Available	Not Available
Link-Layer Topology Discovery Mapper I/O Driver	Not Available	LEGACYDRIVER Not Available	Not Available
KSecDD	Not Available	LEGACYDRIVER Not Available	Not Available
HTTP	Not Available	LEGACYDRIVER Not Available	Not Available
HpCISSs	Not Available	LEGACYDRIVER Not Available	Not Available
Fusion ioDrive Device Driver	Not Available	LEGACYDRIVER Not Available	Not Available
Credisk Filter Driver	Not Available	LEGACYDRIVER Not Available	Not Available
Common Log (CLFS)	Not Available	LEGACYDRIVER Not Available	Not Available

IDE Channel	Not Available	LEGACYDRIVER	Not Available
Ancilliary Function Driver for Winsock	Not Available	LEGACYDRIVER	Not Available
Microsoft iSCSI Initiator	6.0.6002.18005	6/21/2006	Microsoft iscsi.inf Not Available
ACPI Fixed Feature Button	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
ACPI Thermal Zone	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
System CMOS/real time clock	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
Communications Port	6/21/2006	Yes	PORTS 6.0.6001.18000 (Standard port types) msports.inf Not Available
Extended IO Bus	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
PS/2 Compatible Mouse	6/21/2006	Yes	MOUSE 6.0.6001.18000 (Standard system devices) machine.inf
Standard PS/2 Keyboard	6.0.6002.18005	6/21/2006	Yes KEYBOARD (Standard keyboards) keyboard.inf Not Available
System speaker	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
Direct memory access controller	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
High precision event timer	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
System timer	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
Microsoft Generic IPMI Compliant Device	6.0.6002.18005	6/21/2006	Microsoft ipmidrv.inf Not Available
Motherboard resources	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
PCI standard ISA bridge	6/21/2006	Yes	SYSTEM 6.0.6002.18005 (Standard system devices) machine.inf
HP ProLiant iLO 2 Management Controller Driver	1.11.1.0	5/20/2009	Not Available
HID-compliant mouse	6/21/2006	Yes	MOUSE 6.0.6001.18000 (Standard system devices) machine.inf
USB Human Interface Device	6.1.6002.18005	6/21/2006	Yes HIDCLASS (Standard system devices) input.inf Not Available

HID Keyboard Device Yes KEYBOARD
6.0.6002.18005 6/21/2006 (Standard keyboards)
keyboard.inf Not Available
HID\VID_03F0&PID_1027&MI_00\8&28E0FD3&0&0000

USB Human Interface Device Yes HIDCLASS
6.1.6002.18005 6/21/2006 (Standard system devices)
input.inf Not Available
USB\VID_03F0&PID_1027&MI_00\7&596F79B&0&0000

USB Composite Device Yes USB 6.0.6002.18005
6/21/2006 (Standard USB Host Controller) usb.inf Not
Available USB\VID_03F0&PID_1027\6&125E8E38&0&1

Generic USB Hub Yes USB 6.0.6002.18005
6/21/2006 (Generic USB Hub) usb.inf Not Available
USB\VID_03F0&PID_1327\6&125E8E38&0&2

USB Root Hub Yes USB 6.0.6002.18005
6/21/2006 (Standard USB Host Controller) usbport.inf Not
Available USB\ROOT_HUB\5&340E2E29&0

Standard Universal PCI to USB Host Controller Yes USB
6.0.6002.18005 6/21/2006 (Standard USB Host Controller)
usbport.inf Not Available
PCIVEN_103C&DEV_3300&SUBSYS_3305103C&REV_00\4
&15EB80B3&0&24F0

HP iLO Management Channel Interface Driver No
MULTIFUNCTION 1.14.0.0 10/16/2008 Hewlett-
Packard Company oem4.inf Not Available
PCIVEN_0E11&DEV_B204&SUBSYS_3305103C&REV_03\4
&15EB80B3&0&22F0

HP ProLiant iLO 2 Legacy Support Function No
MULTIFUNCTION 1.11.1.0 5/20/2009 Hewlett-Packard
Company oem7.inf Not Available
PCIVEN_0E11&DEV_B203&SUBSYS_3305103C&REV_03\4
&15EB80B3&0&20F0

Generic Non-PnP Monitor Yes MONITOR
6.0.6001.18000 6/21/2006 (Standard monitor types)
monitor.inf Not Available
DISPLAY\DEFAULT_MONITOR\5&2EE658E4&0&10000000
&01&03

Generic PnP Monitor Yes MONITOR 6.0.6001.18000
6/21/2006 (Standard monitor types) monitor.inf
Not Available
DISPLAY\AVO0000\5&2EE658E4&0&10000081&01&03

ATI ES1000 No DISPLAY 8.240.50.3000
1/21/2008 ATI Technologies Inc. oem5.inf Not
Available
PCIVEN_1002&DEV_515E&SUBSYS_31FB103C&REV_02\4
&15EB80B3&0&18F0

Intel(R) 82801 PCI Bridge - 244E Yes SYSTEM
6.0.6002.18005 6/21/2006 Intel machine.inf
Not Available
PCIVEN_8086&DEV_244E&SUBSYS_330D103C&REV_90\3
&21436425&0&F0

USB Root Hub Yes USB 6.0.6002.18005
6/21/2006 (Standard USB Host Controller) usbport.inf Not
Available USB\ROOT_HUB\20\4&2E56CC53&0

Standard Enhanced PCI to USB Host Controller Yes USB
6.0.6002.18005 6/21/2006 (Standard USB Host Controller)
usbport.inf Not Available
PCIVEN_8086&DEV_3A3A&SUBSYS_330D103C&REV_00\3
&21436425&0&EF

USB Root Hub Yes USB 6.0.6002.18005
6/21/2006 (Standard USB Host Controller) usbport.inf Not
Available USB\ROOT_HUB\4&18E22B7&0

Standard Universal PCI to USB Host Controller Yes USB
6.0.6002.18005 6/21/2006 (Standard USB Host Controller)
usbport.inf Not Available
PCIVEN_8086&DEV_3A39&SUBSYS_330D103C&REV_00\3
&21436425&0&EB

USB Root Hub Yes USB 6.0.6002.18005
6/21/2006 (Standard USB Host Controller) usbport.inf Not
Available USB\ROOT_HUB\4&1A1FBB6F&0

Standard Universal PCI to USB Host Controller Yes USB
6.0.6002.18005 6/21/2006 (Standard USB Host Controller)
usbport.inf Not Available
PCIVEN_8086&DEV_3A36&SUBSYS_330D103C&REV_00\3
&21436425&0&EA

USB Root Hub Yes USB 6.0.6002.18005
6/21/2006 (Standard USB Host Controller) usbport.inf Not
Available USB\ROOT_HUB\4&23B0C36D&0

Standard Universal PCI to USB Host Controller Yes USB
6.0.6002.18005 6/21/2006 (Standard USB Host Controller)
usbport.inf Not Available
PCIVEN_8086&DEV_3A35&SUBSYS_330D103C&REV_00\3
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USB Root Hub Yes USB 6.0.6002.18005
6/21/2006 (Standard USB Host Controller) usbport.inf Not
Available USB\ROOT_HUB\4&39200BE0&0

Standard Universal PCI to USB Host Controller Yes USB
6.0.6002.18005 6/21/2006 (Standard USB Host Controller)
usbport.inf Not Available
PCIVEN_8086&DEV_3A34&SUBSYS_330D103C&REV_00\3
&21436425&0&E8

PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIVEN_8086&DEV_3A44&SUBSYS_330D103C&REV_00\3
&21436425&0&E2

HP NC382i DP Multifunction Gigabit Server Adapter No NET
4.8.5.0 1/28/2009 Hewlett-Packard Company oem8.inf
Not Available
B06BDR_VL2ND&PCI_163914E4&SUBSYS_7055103C&REV
_20\5&6FB4662&0&20050200

HP NC382i DP Virtual Bus Device No SYSTEM 4.6.112.0
3/11/2009 Hewlett-Packard Company oem11.inf Not
Available
PCIVEN_14E4&DEV_1639&SUBSYS_7055103C&REV_20\4
&2B129C0&0&00E0

PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIVEN_8086&DEV_3A40&SUBSYS_330D103C&REV_00\3
&21436425&0&E0

PCI standard host CPU bridge No SYSTEM 7.1.0.0 7/8/2008
Hewlett-Packard Company oem3.inf Not Available
PCIVEN_8086&DEV_3423&SUBSYS_000B003C&REV_13\3
&21436425&0&A2

PCI standard host CPU bridge No SYSTEM 7.1.0.0 7/8/2008
Hewlett-Packard Company oem3.inf Not Available
PCIVEN_8086&DEV_3422&SUBSYS_000B003C&REV_13\3
&21436425&0&A1

PCI standard host CPU bridge No SYSTEM 7.1.0.0 7/8/2008
Hewlett-Packard Company oem3.inf Not Available
PCIVEN_8086&DEV_342E&SUBSYS_000B003C&REV_13\3
&21436425&0&A0

PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIVEN_8086&DEV_3439&SUBSYS_00000000&REV_13\3
&21436425&0&74

PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIVEN_8086&DEV_341F&SUBSYS_00000000&REV_13\3
&21436425&0&73

PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available

PCIIVEN_8086&DEV_341E&SUBSYS_00000000&REV_133
&21436425&0&72
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_341D&SUBSYS_00000000&REV_133
&21436425&0&71
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_341C&SUBSYS_00000000&REV_133
&21436425&0&70
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_341A&SUBSYS_00000000&REV_133
&21436425&0&6E
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_3419&SUBSYS_00000000&REV_133
&21436425&0&6D
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_3418&SUBSYS_00000000&REV_133
&21436425&0&6C
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_343D&SUBSYS_00000000&REV_133
&21436425&0&6B
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_343C&SUBSYS_00000000&REV_133
&21436425&0&6A
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_343B&SUBSYS_00000000&REV_133
&21436425&0&69
PCI standard host CPU bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_343A&SUBSYS_00000000&REV_133
&21436425&0&68
PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_3411&SUBSYS_330B103C&REV_133
&21436425&0&50
Disk drive Yes DISKDRIVE 6.0.6002.18005
6/21/2006 (Standard disk drives) disk.inf Not Available
SCSNDISK&VEN_HP&PROD_LOGICAL_VOLUME5&23F8
C1A0&0&000400
HP Virtual LUN Yes SYSTEM 6.0.6001.18000
6/21/2006 Compaq scsidev.inf Not Available
SCSNOTHER&VEN_COMPAQ&PROD_SCSI_COMMUNICA
TEV5&23F8C1A0&0&000000
Smart Array P410 Controller No SCSIADAPTER 6.14.0.64
1/7/2009 Hewlett-Packard Company oem6.inf Not
Available
PCIIVEN_103C&DEV_323A&SUBSYS_3243103C&REV_014
&14BDCE4F&0&0048
PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
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PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_340F&SUBSYS_330B103C&REV_133
&21436425&0&40
Disk drive Yes DISKDRIVE 6.0.6002.18005
6/21/2006 (Standard disk drives) disk.inf Not Available
SCSNDISK&VEN_HP&PROD_LOGICAL_VOLUME5&676F
8F8&0&000400
HP Virtual LUN Yes SYSTEM 6.0.6001.18000
6/21/2006 Compaq scsidev.inf Not Available
SCSNOTHER&VEN_COMPAQ&PROD_SCSI_COMMUNICA
TEV5&676F8F8&0&000000
Smart Array P410 Controller No SCSIADAPTER 6.14.0.64
1/7/2009 Hewlett-Packard Company oem6.inf Not
Available
PCIIVEN_103C&DEV_323A&SUBSYS_3243103C&REV_014
&370D11C1&0&0038
PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_340E&SUBSYS_330B103C&REV_133
&21436425&0&38
HP Virtual LUN Yes SYSTEM 6.0.6001.18000
6/21/2006 Compaq scsidev.inf Not Available
SCSNOTHER&VEN_COMPAQ&PROD_SCSI_COMMUNICA
TEV5&152CA29A&0&000000
Smart Array P411 Controller No SCSIADAPTER 6.14.0.64
1/7/2009 Hewlett-Packard Company oem6.inf Not
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PCIIVEN_103C&DEV_323A&SUBSYS_3247103C&REV_014
&5034FB8&0&0030
PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_340D&SUBSYS_330B103C&REV_133
&21436425&0&30
PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
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&21436425&0&28
PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_340B&SUBSYS_330B103C&REV_133
&21436425&0&20
Disk drive Yes DISKDRIVE 6.0.6002.18005
6/21/2006 (Standard disk drives) disk.inf Not Available
SCSNDISK&VEN_HP&PROD_LOGICAL_VOLUME5&10D9
0DB&0&000400
HP Virtual LUN Yes SYSTEM 6.0.6001.18000
6/21/2006 Compaq scsidev.inf Not Available
SCSNOTHER&VEN_COMPAQ&PROD_SCSI_COMMUNICA
TEV5&10D90DB&0&000000
Smart Array P410 Controller No SCSIADAPTER 6.14.0.64
1/7/2009 Hewlett-Packard Company oem6.inf Not
Available
PCIIVEN_103C&DEV_323A&SUBSYS_3243103C&REV_014
&2C5B5D67&0&0018
PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_340A&SUBSYS_330B103C&REV_133
&21436425&0&18
PCI standard PCI-to-PCI bridge Yes SYSTEM 6.0.6002.18005
6/21/2006 (Standard system devices) machine.inf
Not Available
PCIIVEN_8086&DEV_3409&SUBSYS_330B103C&REV_133
&21436425&0&10

Disk drive	Yes	DISKDRIVE	6.0.6002.18005	6/21/2006	(Standard disk drives)	disk.inf	Not Available	SCSNDISK&VEN_HP&PROD_LOGICAL_VOLUME5&16F75118&0&000400
HP Virtual LUN	Yes	SYSTEM	6.0.6001.18000	6/21/2006	Compaq	scsidev.inf	Not Available	SCSIOTHER&VEN_COMPAQ&PROD SCSI COMMUNICA TE5&16F75118&0&000000
Smart Array P410i Controller	No	SCSIADAPTER	6.14.0.64	1/7/2009	Hewlett-Packard Company	oem6.inf	Not Available	
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	PCIIVEN_103C&DEV_323A&SUBSYS_3245103C&REV_014 &297A62C9&0&0008
PCI standard host CPU bridge	Yes	SYSTEM	6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	PCIIVEN_8086&DEV_3408&SUBSYS_330B103C&REV_133 &21436425&0&08
PCI bus system devices)	Yes	SYSTEM	6.0.6002.18005	6/21/2006	(Standard system devices)	machine.inf	Not Available	PCIIVEN_8086&DEV_3406&SUBSYS_330B103C&REV_133 &21436425&0&00
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\15
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\14
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\13
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\12
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\11
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\10
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\9
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\8
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\7
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\6
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\5
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\4
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\3
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\2
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\1
Intel Processor	Yes	PROCESSOR	6.0.6001.18000	6/21/2006	Intel	cpu.inf	Not Available	ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_26\0
Microsoft ACPI-Compliant System	Yes	SYSTEM	6.0.6002.18005	6/21/2006	Microsoft	acpi.inf	Not Available	ACPI\HALPNP\0C08\0
ACPI x64-based PC	Yes	COMPUTER	6.0.6002.18005	6/21/2006	(Standard computers)	hal.inf	Not Available	ROOT\ACPI_HAL\0000
Microsoft ISATAP Adapter	Yes	NET	6.0.6002.18005	6/21/2006	Microsoft	nettnun.inf	Not Available	ROOT*\ISATAP\0000
Microsoft 6to4 Adapter	Yes	NET	6.0.6002.18005	6/21/2006	Microsoft	nettnun.inf	Not Available	ROOT*\6TO4MP\0000
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	HTREEROOT\0
Not Available	Yes	Not Available	2:6.0,2:5.2,2:5.1,2:5.0	Not Available	Not Available	Not Available	Not Available	Microsoft XPS
Document Writer								
[Environment Variables]								
Variable	Value	User Name						
ComSpec	%SystemRoot%\system32\cmd.exe	<SYSTEM>						
FP_NO_HOST_CHECK	NO	<SYSTEM>						
OS	Windows_NT	<SYSTEM>						
Path	%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem;%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\;C:\Program Files (x86)\Microsoft SQL Server\100\Tools\Binn\;C:\Program Files\Microsoft SQL Server\100\Tools\Binn\;C:\Program Files\Microsoft SQL Server\100\Tools\Binn\;C:\Program Files (x86)\Microsoft SQL Server\100\Tools\Binn\VSShell\Common7\IDE\;C:\Program Files (x86)\Microsoft SQL Server\100\Tools\Binn\<SYSTEM>							
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC	<SYSTEM>						
PROCESSOR_ARCHITECTURE	AMD64	<SYSTEM>						
TEMP	%SystemRoot%\TEMP	<SYSTEM>						
TMP	%SystemRoot%\TEMP	<SYSTEM>						
USERNAME	SYSTEM	<SYSTEM>						
windir	%SystemRoot%	<SYSTEM>						
NUMBER_OF_PROCESSORS	16	<SYSTEM>						
PROCESSOR_LEVEL	6	<SYSTEM>						
PROCESSOR_IDENTIFIER	Intel64 Family 6 Model 26 Stepping 5, GenuineIntel	<SYSTEM>						
PROCESSOR_REVISION	1a05	<SYSTEM>						

```
TRACE_FORMAT_SEARCH_PATH
  \\winseqfe\release\Windows6.0\lh_sp2rtm\6002.18005.090410-
1830\amd64fre\symbols.pri\TraceFormat <SYSTEM>
DFSTRACINGON FALSE <SYSTEM>
TEMP %USERPROFILE%\AppData\Local\Temp NT
AUTHORITY\SYSTEM
TMP %USERPROFILE%\AppData\Local\Temp NT
AUTHORITY\SYSTEM
TEMP %USERPROFILE%\AppData\Local\Temp NT
AUTHORITY\LOCAL SERVICE
TMP %USERPROFILE%\AppData\Local\Temp NT
AUTHORITY\LOCAL SERVICE
TEMP %USERPROFILE%\AppData\Local\Temp NT
AUTHORITY\NETWORK SERVICE
TMP %USERPROFILE%\AppData\Local\Temp NT
AUTHORITY\NETWORK SERVICE
TEMP %USERPROFILE%\AppData\Local\Temp FUSE\Administrator
TMP %USERPROFILE%\AppData\Local\Temp FUSE\Administrator
```

[Print Jobs]

Document Size	Owner	Notify	Status	Time Submitted
	Start Time	Until Time	Elapsed Time	Pages Printed
	Job ID	Priority	Parameters	Driver
	Host Print Queue		Data Type	Name

[Network Connections]

Local Name	Remote Name	Type	Status	User
Not Available	\\depot\mnt	Disk	Current Connection	
	americas\polda			

[Running Tasks]

Name	Path	Process ID	Priority	Min Working Set	Max Working Set
		Start Time	Version	Size	File Date
system idle process		Not Available		0	0
Available	Not Available	Not Available	Not Available	Not Available	Not Available
system	Not Available	4	8	Not Available	Not Available
smss.exe	Not Available	504	11	200	1380
	8/20/2009 3:41 PM	Not Available		Not Available	
csrss.exe	c:\windows\system32\csrss.exe	580	13	200	1380
(7,680 bytes)	1/18/2008 11:59 PM	8/20/2009 3:41 PM	6.0.6001.18000	7.50 KB	
wininit.exec	c:\windows\system32\wininit.exe	628	13	200	1380
KB (123,904 bytes)	1/19/2008 12:17 AM	8/20/2009 3:41 PM	6.0.6001.18000	121.00	
csrss.exe	c:\windows\system32\csrss.exe	640	13	200	1380
(7,680 bytes)	1/18/2008 11:59 PM	8/20/2009 3:41 PM	6.0.6001.18000	7.50 KB	
winlogon.exe	c:\windows\system32\winlogon.exe			680	
	13	200	1380	8/20/2009 3:41 PM	
	6.0.6002.18005		396.00 KB (405,504 bytes)		
	4/11/2009 11:11 AM				
services.exe	c:\windows\system32\services.exe			700	
	9	200	1380	8/20/2009 3:41 PM	
	6.0.6002.18005		375.50 KB (384,512 bytes)		
	4/11/2009 11:11 AM				
lsass.exe	c:\windows\system32\lsass.exe	720	9	200	1380
(11,264 bytes)	1/19/2008 12:16 AM	8/20/2009 3:41 PM	6.0.6001.18000	11.00 KB	

```
ism.exe c:\windows\system32\ism.exe 728 8 200
1380 8/20/2009 3:41 PM 6.0.6001.18000 258.50
KB (264,704 bytes) 1/19/2008 12:43 AM
svchost.exe c:\windows\system32\svchost.exe 888
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
svchost.exe c:\windows\system32\svchost.exe 948
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
logonui.exe c:\windows\system32\logonui.exe 1016
13 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 20.50 KB (20,992 bytes)
1/19/2008 12:17 AM
svchost.exe c:\windows\system32\svchost.exe 288
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
svchost.exe c:\windows\system32\svchost.exe 416
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
svchost.exe c:\windows\system32\svchost.exe 516
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
slsvc.exe c:\windows\system32\slsvc.exe 524 8 200
1380 8/20/2009 3:41 PM 6.0.6002.18005 2.46 MB
(2,582,016 bytes) 4/11/2009 11:12 AM
svchost.exe c:\windows\system32\svchost.exe 620
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
svchost.exe c:\windows\system32\svchost.exe 692
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
svchost.exe c:\windows\system32\svchost.exe 1192
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
spoolsv.exe c:\windows\system32\spoolsv.exe 1532
8 200 1380 8/20/2009 3:41 PM
6.0.6002.18005 262.00 KB (268,288 bytes)
4/11/2009 11:11 AM
svchost.exe c:\windows\system32\svchost.exe 1616
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
svchost.exe c:\windows\system32\svchost.exe 1628
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
sysdown.exe c:\windows\system32\sysdown.exe 1736
8 200 1380 8/20/2009 3:41 PM 1.2.0.0
17.54 KB (17,960 bytes) 6/26/2009 7:11 PM
svchost.exe c:\windows\system32\svchost.exe 1756
8 200 1380 8/20/2009 3:41 PM
6.0.6001.18000 27.00 KB (27,648 bytes)
1/19/2008 12:02 AM
taskeng.exe c:\windows\system32\taskeng.exe 2184
6 200 1380 8/20/2009 3:41 PM
6.0.6002.18005 259.00 KB (265,216 bytes)
4/11/2009 11:11 AM
msdtc.exe c:\windows\system32\msdtc.exe 2616 8 200
1380 8/20/2009 3:43 PM 2001.12.6931.18000 104.00
KB (106,496 bytes) 1/19/2008 12:27 AM
```

csrss.exe	c:\windows\system32\csrss.exe	2968	13	200	kernel32	6.0.6002.18005	1.16 MB (1,217,536 bytes)
(7,680 bytes)	1380	8/20/2009 3:48 PM	6.0.6001.18000	7.50 KB	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\kernel32.dll
winlogon.exe	c:\windows\system32\winlogon.exe	2992			gdi32	6.0.6002.18005	380.50 KB (389,632 bytes)
13	200	1380	8/20/2009 3:48 PM		4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\gdi32.dll
	6.0.6002.18005	396.00 KB (405,504 bytes)			advapi32	6.0.6002.18005	1.02 MB (1,065,472 bytes)
	4/11/2009 11:11 AM				4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\advapi32.dll
taskeng.exe	c:\windows\system32\taskeng.exe	2088			rpcrt4	6.0.6002.18005	1.25 MB (1,305,600 bytes)
8	200	1380	8/20/2009 3:49 PM		4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\rpcrt4.dll
	6.0.6002.18005	259.00 KB (265,216 bytes)			lpk	6.0.6001.18000	32.00 KB (32,768 bytes)
	4/11/2009 11:11 AM				1/19/2008 12:08 AM	Microsoft Corporation	c:\windows\system32\lpk.dll
rdpclip.exe	c:\windows\system32\rdpclip.exe	2384	8	200	usp10	1.626.6002.18005	607.00 KB (621,568 bytes)
1380	8/20/2009 3:49 PM	6.0.6002.18005	187.00		4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\usp10.dll
KB (191,488 bytes)	4/11/2009 11:13 AM				msvrt	7.0.6002.18005	606.50 KB (621,056 bytes)
explorer.exe	c:\windows\explorer.exe	2400	8		4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\msvrt.dll
200	1380	8/20/2009 3:49 PM	6.0.6002.18005		sxs	6.0.6001.18000	560.50 KB (573,952 bytes)
2.94 MB (3,079,168 bytes)	4/11/2009 11:11 AM				1/19/2008 12:00 AM	Microsoft Corporation	c:\windows\system32\sxs.dll
sqlservr.exe	c:\program files\microsoft sql				wininit	6.0.6001.18000	121.00 KB (123,904 bytes)
server\mssql10.mssqlserver\mssql\binn\sqlservr.exe	2544	13			1/19/2008 12:17 AM	Microsoft Corporation	c:\windows\system32\wininit.exe
200	1380	8/20/2009 3:49 PM	2007.100.2714.0		userenv	6.0.6002.18005	134.00 KB (137,216 bytes)
54.96 MB (57,629,016 bytes)	5/15/2009 7:38 PM				4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\userenv.dll
logon.scr	c:\windows\syswow64\logon.scr	836	4	200	secur32	6.0.6002.18005	92.50 KB (94,720 bytes)
1380	8/20/2009 3:51 PM	6.0.6001.18000	5.45 MB		4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\secur32.dll
(5,714,432 bytes)	1/18/2008 11:46 PM				imm32	6.0.6002.18005	160.00 KB (163,840 bytes)
cmd.exe	c:\windows\system32\cmd.exe	4836	8	200	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\imm32.dll
1380	8/20/2009 10:15 PM	6.0.6001.18000	354.50		msctf	6.0.6002.18005	1,016.50 KB (1,040,896 bytes)
KB (363,008 bytes)	1/19/2008 12:05 AM				4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\msctf.dll
svchost.exe	c:\windows\system32\svchost.exe	3348			apphelp	6.0.6002.18005	196.00 KB (200,704 bytes)
8	200	1380	8/21/2009 9:37 AM		4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\apphelp.dll
	6.0.6001.18000	27.00 KB (27,648 bytes)			ws2_32	6.0.6002.18005	258.50 KB (264,704 bytes)
	1/19/2008 12:02 AM				4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\ws2_32.dll
msinfo32.exe	c:\windows\syswow64\msinfo32.exe	2688			nsi	6.0.6001.18000	11.00 KB (11,264 bytes)
8	200	1380	8/21/2009 9:39 AM		1/19/2008 12:36 AM	Microsoft Corporation	c:\windows\system32\nsi.dll
	6.0.6002.18005	398.50 KB (408,064 bytes)			msocket	6.0.6002.18005	297.00 KB (304,128 bytes)
	4/11/2009 11:12 AM				4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\msocket.dll
wmiprvse.exe	c:\windows\system32\wbem\wmiprvse.exe	188			wshtcpip	6.0.6001.18000	12.50 KB (12,800 bytes)
8	200	1380	8/21/2009 9:39 AM		1/19/2008 12:36 AM	Microsoft Corporation	c:\windows\system32\wshtcpip.dll
	6.0.6002.18005	343.50 KB (351,744 bytes)			wship6	6.0.6001.18000	11.00 KB (11,264 bytes)
	4/11/2009 11:11 AM				1/19/2008 12:36 AM	Microsoft Corporation	c:\windows\system32\wship6.dll
wmiprvse.exe	c:\windows\syswow64\wbem\wmiprvse.exe	2612			crypt32	6.0.6002.18005	1.20 MB (1,259,520 bytes)
8	200	1380	8/21/2009 9:39 AM		4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\crypt32.dll
	6.0.6002.18005	241.50 KB (247,296 bytes)			msasn1	6.0.6001.18000	79.00 KB (80,896 bytes)
	4/11/2009 11:11 AM				1/19/2008 12:57 AM	Microsoft Corporation	c:\windows\system32\msasn1.dll
wmiprvse.exe	c:\windows\syswow64\wbem\wmiprvse.exe	3492			credssp	6.0.6001.18000	18.00 KB (18,432 bytes)
8	200	1380	8/21/2009 9:39 AM		1/19/2008 12:16 AM	Microsoft Corporation	c:\windows\system32\credssp.dll
	6.0.6002.18005	241.50 KB (247,296 bytes)			schannel	6.0.6002.18005	327.50 KB (335,360 bytes)
	4/11/2009 11:11 AM				4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\schannel.dll
[Loaded Modules]							
Name	Version	Size	File Date	Manufacturer	Path		
csrss	6.0.6001.18000	7.50 KB (7,680 bytes)	1/18/2008 11:59 PM	Microsoft Corporation	c:\windows\system32\csrss.exe		
ntdll	6.0.6002.18005	1.51 MB (1,582,792 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\ntdll.dll		
csrssrv	6.0.6001.18000	83.50 KB (85,504 bytes)	1/18/2008 11:59 PM	Microsoft Corporation	c:\windows\system32\csrssrv.dll		
basesrv	6.0.6001.18000	78.50 KB (80,384 bytes)	1/18/2008 11:59 PM	Microsoft Corporation	c:\windows\system32\basesrv.dll		
winsrv	6.0.6002.18005	440.00 KB (450,560 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\winsrv.dll		
user32	6.0.6002.18005	801.00 KB (820,224 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\user32.dll		

netapi32	6.0.6002.18005	633.00 KB (648,192 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\netapi32.dll
psapi	6.0.6001.18000	16.50 KB (16,896 bytes)	1/19/2008 12:40 AM	Microsoft Corporation	c:\windows\system32\psapi.dll
winlogon	6.0.6002.18005	396.00 KB (405,504 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\winlogon.exe
winsta	6.0.6001.18000	200.50 KB (205,312 bytes)	1/19/2008 12:43 AM	Microsoft Corporation	c:\windows\system32\winsta.dll
ntmarta	6.0.6002.18005	155.50 KB (159,232 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\ntmarta.dll
wldap32	6.0.6002.18005	321.00 KB (328,704 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wldap32.dll
samlib	6.0.6002.18005	97.00 KB (99,328 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\samlib.dll
ole32	6.0.6002.18005	1.83 MB (1,915,392 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\ole32.dll
shsvcs	6.0.6002.18005	294.50 KB (301,568 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\shsvcs.dll
services	6.0.6002.18005	375.50 KB (384,512 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\services.exe
scsvr	6.0.6002.18005	390.00 KB (399,360 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\scsvr.dll
authz	6.0.6002.18005	140.00 KB (143,360 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\authz.dll
ncobjapi	6.0.6001.18000	68.50 KB (70,144 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\ncobjapi.dll
lsass	6.0.6001.18000	11.00 KB (11,264 bytes)	1/19/2008 12:16 AM	Microsoft Corporation	c:\windows\system32\lsass.exe
lsasrv	6.0.6002.18005	1.61 MB (1,688,064 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\lsasrv.dll
samsrv	6.0.6002.18005	656.00 KB (671,744 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\samsrv.dll
cryptdll	6.0.6001.18000	63.50 KB (65,024 bytes)	1/19/2008 12:15 AM	Microsoft Corporation	c:\windows\system32\cryptdll.dll
dnsapi	6.0.6002.18005	216.50 KB (221,696 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\dnsapi.dll
ntdsapi	6.0.6001.18000	143.00 KB (146,432 bytes)	1/19/2008 12:20 AM	Microsoft Corporation	c:\windows\system32\ntdsapi.dll
feclnt	6.0.6002.18005	67.00 KB (68,608 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\feclnt.dll
mpr	6.0.6002.18005	83.00 KB (84,992 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\mpr.dll
slc	6.0.6002.18005	148.00 KB (151,552 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\slc.dll
sysntfy	6.0.6000.16386	21.00 KB (21,504 bytes)	1/19/2008 12:17 AM	Microsoft Corporation	c:\windows\system32\sysntfy.dll
wevtapi	6.0.6002.18005	385.00 KB (394,240 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wevtapi.dll
iphlpapi	6.0.6002.18005	124.00 KB (126,976 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\iphlpapi.dll
dhcpcsvc	6.0.6002.18005	262.00 KB (268,288 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\dhcpcsvc.dll
winnsi	6.0.6001.18000	21.50 KB (22,016 bytes)	1/19/2008 12:36 AM	Microsoft Corporation	c:\windows\system32\winnsi.dll
dhcpcsvc6	6.0.6002.18005	159.50 KB (163,328 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\dhcpcsvc6.dll
cngaudit	6.0.6000.16386	14.50 KB (14,848 bytes)	1/19/2008 12:15 AM	Microsoft Corporation	c:\windows\system32\cngaudit.dll
ncrypt	6.0.6002.18005	248.00 KB (253,952 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\ncrypt.dll
bcrypt	6.0.6002.18005	299.50 KB (306,688 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\bcrypt.dll
msprvs	6.0.6000.16386	2.00 KB (2,048 bytes)	1/19/2008 12:16 AM	Microsoft Corporation	c:\windows\system32\msprvs.dll
kerberos	6.0.6002.18005	639.50 KB (654,848 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\kerberos.dll
msv1_0	6.0.6002.18005	259.50 KB (265,728 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\msv1_0.dll
netlogon	6.0.6002.18005	700.50 KB (717,312 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\netlogon.dll
winbrand	6.0.6001.18000	851.00 KB (871,424 bytes)	1/19/2008 12:02 AM	Microsoft Corporation	c:\windows\system32\winbrand.dll
wdigest	6.0.6001.18000	193.00 KB (197,632 bytes)	1/19/2008 12:16 AM	Microsoft Corporation	c:\windows\system32\wdigest.dll
rsaenh	6.0.6002.18005	282.98 KB (289,768 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\rsaenh.dll
tspkg	6.0.6001.18000	77.00 KB (78,848 bytes)	1/19/2008 12:16 AM	Microsoft Corporation	c:\windows\system32\tspkg.dll
gpapi	6.0.6002.18005	82.50 KB (84,480 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\gpapi.dll
setupapi	6.0.6002.18005	1.84 MB (1,925,120 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\setupapi.dll
oleaut32	6.0.6002.18005	827.50 KB (847,360 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\oleaut32.dll
scecli	6.0.6002.18005	230.00 KB (235,520 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\scecli.dll
rassfm	6.0.6001.18000	25.50 KB (26,112 bytes)	1/19/2008 7:51 AM	Microsoft Corporation	c:\windows\system32\rassfm.dll
dssenh	6.0.6001.18000	197.55 KB (202,296 bytes)	1/19/2008 12:18 AM	Microsoft Corporation	c:\windows\system32\dssenh.dll
cryptnet	6.0.6001.18000	127.00 KB (130,048 bytes)	1/19/2008 12:15 AM	Microsoft Corporation	c:\windows\system32\cryptnet.dll

sensapi	6.0.6001.18000	12.50 KB (12,800 bytes)	1/19/2008 12:27 AM	Microsoft Corporation	c:\windows\system32\sensapi.dll
shlwapi	6.0.6002.18005	445.00 KB (455,680 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\shlwapi.dll
comctl32	6.10.6002.18005	1.96 MB (2,050,048 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.common-controls_6595b64144ccf1df_6.0.6002.18005_none_1509f8bef40ee4da\comctl32.dll
lsm	6.0.6001.18000	258.50 KB (264,704 bytes)	1/19/2008 12:43 AM	Microsoft Corporation	c:\windows\system32\lsm.exe
wmsgapi	6.0.6000.16386	14.00 KB (14,336 bytes)	1/19/2008 12:17 AM	Microsoft Corporation	c:\windows\system32\wmsgapi.dll
clbcatq	2001.12.6931.18000	597.00 KB (611,328 bytes)	1/19/2008 12:28 AM	Microsoft Corporation	c:\windows\system32\clbcatq.dll
lsmproxy	6.0.6001.18000	43.50 KB (44,544 bytes)	1/19/2008 12:42 AM	Microsoft Corporation	c:\windows\system32\lsmproxy.dll
svchost	6.0.6001.18000	27.00 KB (27,648 bytes)	1/19/2008 12:02 AM	Microsoft Corporation	c:\windows\system32\svchost.exe
umpnpmgr	6.0.6002.18005	306.00 KB (313,344 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\umpnpmgr.dll
powrprof	6.0.6002.18005	120.50 KB (123,392 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\powrprof.dll
rpcss	6.0.6002.18005	703.00 KB (719,872 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\rpcss.dll
FirewallAPI	6.0.6001.18000	685.00 KB (701,440 bytes)	1/19/2008 12:35 AM	Microsoft Corporation	c:\windows\system32\firewallapi.dll
version	6.0.6002.18005	26.50 KB (27,136 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\version.dll
wtsapi32	6.0.6001.18000	30.50 KB (31,232 bytes)	1/19/2008 12:42 AM	Microsoft Corporation	c:\windows\system32\wtsapi32.dll
cabinet	6.0.6001.18000	91.00 KB (93,184 bytes)	1/19/2008 12:23 AM	Microsoft Corporation	c:\windows\system32\cabinet.dll
fwpuclnt	6.0.6002.18005	761.50 KB (779,776 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\fwpuclnt.dll
logonui	6.0.6001.18000	20.50 KB (20,992 bytes)	1/19/2008 12:17 AM	Microsoft Corporation	c:\windows\system32\logonui.exe
authui	6.0.6002.18005	2.17 MB (2,272,256 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\authui.dll
msimg32	6.0.6001.18000	8.00 KB (8,192 bytes)	1/19/2008 12:07 AM	Microsoft Corporation	c:\windows\system32\msimg32.dll
uxtheme	6.0.6001.18000	310.00 KB (317,440 bytes)	1/19/2008 12:21 AM	Microsoft Corporation	c:\windows\system32\uxtheme.dll
gdiplus	5.2.6002.18005	2.09 MB (2,192,384 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.gdiplus_6595b64144ccf1df_1.0.6002.18005_none_56a37cbfb59b8501\gdiplus.dll
duser	6.0.6001.18000	244.50 KB (250,368 bytes)	1/19/2008 12:09 AM	Microsoft Corporation	c:\windows\system32\duser.dll
xmllite	1.2.1009.0	176.00 KB (180,224 bytes)	1/19/2008 1:13 AM	Microsoft Corporation	c:\windows\system32\xmllite.dll
smartcardcredentialprovider	6.0.6002.18005	157.50 KB (161,280 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\smartcardcredentialprovider.dll
raslap	6.0.6002.18005	380.50 KB (389,632 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\raslap.dll
rasapi32	6.0.6002.18005	329.50 KB (337,408 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\rasapi32.dll
rasman	6.0.6001.18000	90.50 KB (92,672 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\rasman.dll
tapi32	6.0.6000.16386	238.00 KB (243,712 bytes)	1/19/2008 1:13 AM	Microsoft Corporation	c:\windows\system32\tapi32.dll
rtutils	6.0.6002.18005	49.50 KB (50,688 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\rtutils.dll
winmm	6.0.6002.18005	207.00 KB (211,968 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\winmm.dll
oleacc	4.2.5406.0	300.50 KB (307,712 bytes)	1/19/2008 12:08 AM	Microsoft Corporation	c:\windows\system32\oleacc.dll
shell32	6.0.6002.18005	12.30 MB (12,897,792 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\shell32.dll
winscard	6.0.6002.18005	186.00 KB (190,464 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\winscard.dll
shgina	6.0.6001.18000	82.50 KB (84,480 bytes)	1/19/2008 12:22 AM	Microsoft Corporation	c:\windows\system32\shgina.dll
shacct	6.0.6001.18000	96.00 KB (98,304 bytes)	1/19/2008 12:22 AM	Microsoft Corporation	c:\windows\system32\shacct.dll
propsys	7.0.6002.18005	901.50 KB (923,136 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\propsys.dll
hid	6.0.6001.18000	28.50 KB (29,184 bytes)	1/19/2008 12:33 AM	Microsoft Corporation	c:\windows\system32\hid.dll
wintrust	6.0.6001.18000	213.00 KB (218,112 bytes)	1/19/2008 12:15 AM	Microsoft Corporation	c:\windows\system32\wintrust.dll
imagehlp	6.0.6001.18000	72.50 KB (74,240 bytes)	1/19/2008 12:40 AM	Microsoft Corporation	c:\windows\system32\imagehlp.dll
wevtvsc	6.0.6002.18005	1.42 MB (1,491,968 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\wevtvsc.dll
lmhsvc	6.0.6001.18000	23.50 KB (24,064 bytes)	1/19/2008 12:36 AM	Microsoft Corporation	c:\windows\system32\lmhsvc.dll
gpsvc	6.0.6002.18005	702.50 KB (719,360 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\gpsvc.dll
nlaapi	6.0.6001.18000	60.00 KB (61,440 bytes)	1/19/2008 12:36 AM	Microsoft Corporation	c:\windows\system32\nlaapi.dll
wbemprox	6.0.6002.18005	42.50 KB (43,520 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemprox.dll
wbemcomn	6.0.6001.18000	516.00 KB (528,384 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\wbemcomn.dll

wbemsvc	6.0.6002.18005	121.00 KB (123,904 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemsvc.dll
fastprox	6.0.6002.18005	870.50 KB (891,392 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wbem\fastprox.dll
profsvc	6.0.6002.18005	174.00 KB (178,176 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\profsvc.dll
atl	3.5.2284.0	85.50 KB (87,552 bytes)	1/19/2008 1:09 AM	Microsoft Corporation	c:\windows\system32\atl.dll
sens	6.0.6001.18000	60.50 KB (61,952 bytes)	1/19/2008 12:27 AM	Microsoft Corporation	c:\windows\system32\sens.dll
schedsvc	6.0.6002.18005	824.00 KB (843,776 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\schedsvc.dll
ktmw32	6.0.6001.18000	14.50 KB (14,848 bytes)	1/18/2008 11:52 PM	Microsoft Corporation	c:\windows\system32\ktmw32.dll
comctl32	5.82.6001.18000	619.00 KB (633,856 bytes)	1/19/2008 3:48 AM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.common-controls_6595b64144ccf1df_5.82.6001.18000_none_40ba501d3c2b20ff\comctl32.dll
taskcomp	6.0.6002.18005	400.00 KB (409,600 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\taskcomp.dll
aelupsvc	6.0.6000.16386	26.00 KB (26,624 bytes)	1/18/2008 11:52 PM	Microsoft Corporation	c:\windows\system32\aelupsvc.dll
ikeext	6.0.6002.18005	444.00 KB (454,656 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\ikeext.dll
seclogon	6.0.6001.18000	28.00 KB (28,672 bytes)	1/19/2008 12:18 AM	Microsoft Corporation	c:\windows\system32\seclogon.dll
wmisvc	6.0.6002.18005	216.50 KB (221,696 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\wbem\wmisvc.dll
srvsvc	6.0.6002.18005	172.50 KB (176,640 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\srvsvc.dll
iphlpvc	6.0.6002.18005	218.50 KB (223,744 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\iphlpvc.dll
sqmapi	6.0.6001.18000	172.00 KB (176,128 bytes)	1/19/2008 12:11 AM	Microsoft Corporation	c:\windows\system32\sqmapi.dll
sscore	6.0.6000.16386	12.00 KB (12,288 bytes)	1/19/2008 12:18 AM	Microsoft Corporation	c:\windows\system32\sscore.dll
clusapi	6.0.6001.18000	237.50 KB (243,200 bytes)	1/19/2008 12:05 AM	Microsoft Corporation	c:\windows\system32\clusapi.dll
activeds	6.0.6001.18000	259.50 KB (265,728 bytes)	1/19/2008 12:19 AM	Microsoft Corporation	c:\windows\system32\activeds.dll
adslrpc	6.0.6002.18005	226.50 KB (231,936 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\adslrpc.dll
credui	6.0.6002.18005	186.50 KB (190,976 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\credui.dll
resutils	6.0.6001.18000	76.00 KB (77,824 bytes)	1/19/2008 12:04 AM	Microsoft Corporation	c:\windows\system32\resutils.dll
winhttp	6.0.6002.18005	429.50 KB (439,808 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\winhttp.dll
vssapi	6.0.6002.18005	1.43 MB (1,495,040 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\vssapi.dll
vsstrace	6.0.6001.18000	90.00 KB (92,160 bytes)	1/19/2008 12:29 AM	Microsoft Corporation	c:\windows\system32\vsstrace.dll
wbemcore	6.0.6002.18005	1.12 MB (1,172,992 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemcore.dll
esscli	6.0.6001.18000	418.00 KB (428,032 bytes)	1/19/2008 12:12 AM	Microsoft Corporation	c:\windows\system32\wbem\esscli.dll
wmiutils	6.0.6001.18000	128.50 KB (131,584 bytes)	1/19/2008 12:12 AM	Microsoft Corporation	c:\windows\system32\wbem\wmiutils.dll
repdrvfs	6.0.6001.18000	372.50 KB (381,440 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\wbem\repdrvfs.dll
wmiprvsd	6.0.6002.18005	687.00 KB (703,488 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wbem\wmiprvsd.dll
wbemess	6.0.6001.18000	501.00 KB (513,024 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemess.dll
napinsp	6.0.6001.18000	61.50 KB (62,976 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\napinsp.dll
winmr	6.0.6001.18000	27.00 KB (27,648 bytes)	1/19/2008 12:19 AM	Microsoft Corporation	c:\windows\system32\winmr.dll
rasadhlp	6.0.6001.18000	13.00 KB (13,312 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\rasadhlp.dll
TSCChannel	6.0.6000.16386	18.50 KB (18,944 bytes)	1/19/2008 12:12 AM	Microsoft Corporation	c:\windows\system32\tschannel.dll
certprop	6.0.6002.18005	48.50 KB (49,664 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\certprop.dll
sessenv	6.0.6001.18000	73.00 KB (74,752 bytes)	1/19/2008 12:43 AM	Microsoft Corporation	c:\windows\system32\sessenv.dll
ncprov	6.0.6001.18000	77.50 KB (79,360 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\wbem\ncprov.dll
qmgr	7.0.6002.18005	1.03 MB (1,081,856 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\qmgr.dll
shfolder	6.0.6001.18000	10.00 KB (10,240 bytes)	1/19/2008 12:22 AM	Microsoft Corporation	c:\windows\system32\shfolder.dll
bitsperf	7.0.6000.16386	22.50 KB (23,040 bytes)	1/19/2008 12:11 AM	Microsoft Corporation	c:\windows\system32\bitsperf.dll
bitsigd	7.0.6002.18005	45.50 KB (46,592 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\bitsigd.dll
appmgmts	6.0.6001.18000	191.00 KB (195,584 bytes)	1/19/2008 7:51 AM	Microsoft Corporation	c:\windows\system32\appmgmts.dll
rasmans	6.0.6002.18005	302.50 KB (309,760 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\rasmans.dll
rastapi	6.0.6002.18005	79.50 KB (81,408 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\rastapi.dll

wbemcons	6.0.6001.18000	69.50 KB (71,168 bytes)	1/19/2008 12:12 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemcons.dll
rasppp	6.0.6002.18005	299.00 KB (306,176 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\rasppp.dll
mprapi	6.0.6002.18005	126.50 KB (129,536 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\mprapi.dll
rasqec	6.0.6001.18000	72.00 KB (73,728 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\rasqec.dll
qutil	6.0.6001.18000	97.00 KB (99,328 bytes)	1/19/2008 12:34 AM	Microsoft Corporation	c:\windows\system32\qutil.dll
raschap	6.0.6002.18005	289.00 KB (295,936 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\raschap.dll
rastls	6.0.6002.18005	274.50 KB (281,088 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\rastls.dll
cryptui	6.0.6002.18005	1,011.50 KB (1,035,776 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\cryptui.dll
slsvc	6.0.6002.18005	2.46 MB (2,582,016 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\slsvc.exe
es	2001.12.6932.18005	353.50 KB (361,984 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\es.dll
nsisvc	6.0.6001.18000	24.00 KB (24,576 bytes)	1/19/2008 12:36 AM	Microsoft Corporation	c:\windows\system32\nsisvc.dll
wkssvc	6.0.6001.18000	198.00 KB (202,752 bytes)	1/19/2008 12:18 AM	Microsoft Corporation	c:\windows\system32\wkssvc.dll
fdrespub	6.0.6000.16386	32.50 KB (33,280 bytes)	1/19/2008 12:06 AM	Microsoft Corporation	c:\windows\system32\fdrespub.dll
wsdapi	6.0.6002.18005	431.50 KB (441,856 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wsdapi.dll
httppapi	6.0.6001.18000	32.50 KB (33,280 bytes)	1/19/2008 12:35 AM	Microsoft Corporation	c:\windows\system32\httppapi.dll
fundisc	6.0.6002.18005	170.00 KB (174,080 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\fundisc.dll
w32time	6.0.6002.18005	364.00 KB (372,736 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\w32time.dll
msxml3	8.100.5000.0	1.72 MB (1,804,288 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\msxml3.dll
netprofm	6.0.6001.18000	297.00 KB (304,128 bytes)	1/19/2008 12:38 AM	Microsoft Corporation	c:\windows\system32\netprofm.dll
npmproxy	6.0.6000.16386	31.50 KB (32,256 bytes)	1/19/2008 12:38 AM	Microsoft Corporation	c:\windows\system32\npmproxy.dll
sluinothify	6.0.6002.18005	71.50 KB (73,216 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\sluinothify.dll
slcext	6.0.6002.18005	693.50 KB (710,144 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\slcext.dll
urlmon	7.0.6002.18005	1.35 MB (1,419,264 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\urlmon.dll
iertutil	7.0.6002.18005	367.00 KB (375,808 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\iertutil.dll
fdphost	6.0.6001.18000	15.00 KB (15,360 bytes)	1/19/2008 12:06 AM	Microsoft Corporation	c:\windows\system32\fdphost.dll
fdwsd	6.0.6002.18005	79.50 KB (81,408 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\fdwsd.dll
mlang	6.0.6001.18000	232.50 KB (238,080 bytes)	1/19/2008 12:22 AM	Microsoft Corporation	c:\windows\system32\mlang.dll
fdssdp	6.0.6002.18005	82.00 KB (83,968 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\fdssdp.dll
ssdpapi	6.0.6000.16386	49.00 KB (50,176 bytes)	1/19/2008 12:38 AM	Microsoft Corporation	c:\windows\system32\ssdpapi.dll
fdproxy	6.0.6002.18005	64.00 KB (65,536 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\fdproxy.dll
actxprxy	6.0.6001.18000	979.00 KB (1,002,496 bytes)	1/19/2008 1:13 AM	Microsoft Corporation	c:\windows\system32\actxprxy.dll
sstpsvc	6.0.6001.18000	138.00 KB (141,312 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\sstpsvc.dll
normaliz	6.0.6000.16386	3.00 KB (3,072 bytes)	1/18/2008 11:59 PM	Microsoft Corporation	c:\windows\system32\normaliz.dll
dnssrslvr	6.0.6002.18005	115.00 KB (117,760 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\dnssrslvr.dll
cryptsvc	6.0.6002.18005	163.00 KB (166,912 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\cryptsvc.dll
nlasvc	6.0.6001.18000	201.50 KB (206,336 bytes)	1/19/2008 12:36 AM	Microsoft Corporation	c:\windows\system32\nlasvc.dll
ncsi	6.0.6001.18000	106.50 KB (109,056 bytes)	1/19/2008 12:35 AM	Microsoft Corporation	c:\windows\system32\ncsi.dll
cfgmgr32	6.0.6001.18000	17.50 KB (17,920 bytes)	1/18/2008 11:59 PM	Microsoft Corporation	c:\windows\system32\cfgmgr32.dll
termsrv	6.0.6002.18005	534.50 KB (547,328 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\termsrv.dll
icaapi	6.0.6000.16386	20.00 KB (20,480 bytes)	1/19/2008 12:42 AM	Microsoft Corporation	c:\windows\system32\icaapi.dll
regapi	6.0.6002.18005	87.00 KB (89,088 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\regapi.dll
rdpwsx	6.0.6002.18005	115.00 KB (117,760 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\rdpwsx.dll
mstlsapi	6.0.6002.18005	136.00 KB (139,264 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\mstlsapi.dll
esent	6.0.6002.18005	2.39 MB (2,506,752 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\esent.dll
msdtckrm	2001.12.6931.18000	386.00 KB (395,264 bytes)	1/19/2008 12:27 AM	Microsoft Corporation	c:\windows\system32\msdtckrm.dll
wsmsvc	6.0.6002.18005	1.04 MB (1,092,096 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wsmsvc.dll

wsmprov	6.0.6001.18000	71.50 KB (73,216 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\wsmprov.dll
winrmsgr	6.0.6001.18000	294.00 KB (301,056 bytes)	1/19/2008 12:14 AM	Microsoft Corporation	c:\windows\system32\winrmsgr.dll
wsmres	6.0.6001.18000	13.00 KB (13,312 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\wsmres.dll
wevtfwd	6.0.6001.18000	104.50 KB (107,008 bytes)	1/19/2008 12:12 AM	Microsoft Corporation	c:\windows\system32\wevtfwd.dll
bfe	6.0.6002.18005	447.50 KB (458,240 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\bfe.dll
mpssvc	6.0.6002.18005	589.00 KB (603,136 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\mpssvc.dll
wfapigp	6.0.6001.18000	20.00 KB (20,480 bytes)	1/19/2008 12:35 AM	Microsoft Corporation	c:\windows\system32\wfapigp.dll
dps	6.0.6001.18000	136.00 KB (139,264 bytes)	1/19/2008 12:03 AM	Microsoft Corporation	c:\windows\system32\dps.dll
wdi	6.0.6001.18000	80.00 KB (81,920 bytes)	1/19/2008 12:03 AM	Microsoft Corporation	c:\windows\system32\wdi.dll
taskschd	6.0.6001.18000	640.50 KB (655,872 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\taskschd.dll
spoolsv	6.0.6002.18005	262.00 KB (268,288 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\spoolsv.exe
spoolss	6.0.6002.18005	232.50 KB (238,080 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\spoolss.dll
localspl	6.0.6002.18005	752.00 KB (770,048 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\localspl.dll
sfc	6.0.6000.16386	6.00 KB (6,144 bytes)	1/18/2008 11:59 PM	Microsoft Corporation	c:\windows\system32\sfc.dll
winspool	6.0.6002.18005	334.00 KB (342,016 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\winspool.drv
tcpmon	6.0.6002.18005	165.00 KB (168,960 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\tcpmon.dll
snmpapi	6.0.6000.16386	27.00 KB (27,648 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\snmpapi.dll
wsnmp32	6.0.6002.18005	60.50 KB (61,952 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wsnmp32.dll
msxml6	6.20.5000.0	1.65 MB (1,733,120 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\msxml6.dll
tcpmib	6.0.6000.16386	33.50 KB (34,304 bytes)	1/19/2008 1:11 AM	Microsoft Corporation	c:\windows\system32\tcpmib.dll
mgmtapi	6.0.6000.16386	22.00 KB (22,528 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\mgmtapi.dll
usbmon	6.0.6001.18000	43.00 KB (44,032 bytes)	1/19/2008 1:11 AM	Microsoft Corporation	c:\windows\system32\usbmon.dll
wls0wndh	6.0.6000.16386	9.50 KB (9,728 bytes)	1/19/2008 12:17 AM	Microsoft Corporation	c:\windows\system32\wls0wndh.dll
wsdmon	6.0.6002.18005	209.00 KB (214,016 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wsdmon.dll
win32spl	6.0.6002.18005	645.00 KB (660,480 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\win32spl.dll
netrap	6.0.6001.18000	21.00 KB (21,504 bytes)	1/19/2008 12:18 AM	Microsoft Corporation	c:\windows\system32\netrap.dll
printcom	6.0.6001.18000	43.50 KB (44,544 bytes)	1/19/2008 1:10 AM	Microsoft Corporation	c:\windows\system32\printcom.dll
ipsecsvc	6.0.6002.18005	521.00 KB (533,504 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\ipsecsvc.dll
fwremotesvr	6.0.6002.18005	49.00 KB (50,176 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\fwremotesvr.dll
regsvc	6.0.6002.18005	202.00 KB (206,848 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\regsvc.dll
sysdown	1.2.0.0	17.54 KB (17,960 bytes)	6/26/2009 7:11 PM	Hewlett-Packard Company	c:\windows\system32\sysdown.exe
trkwks	6.0.6001.18000	114.50 KB (117,248 bytes)	1/19/2008 12:27 AM	Microsoft Corporation	c:\windows\system32\trkwks.dll
umrpd	6.0.6002.18005	247.00 KB (252,928 bytes)	4/11/2009 11:13 AM	Microsoft Corporation	c:\windows\system32\umrpd.dll
umb	6.0.6001.18000	58.50 KB (59,904 bytes)	1/19/2008 12:06 AM	Microsoft Corporation	c:\windows\system32\umb.dll
printui	6.0.6002.18005	957.50 KB (980,480 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\printui.dll
puiapi	6.0.6001.18000	185.50 KB (189,952 bytes)	1/19/2008 1:12 AM	Microsoft Corporation	c:\windows\system32\puiapi.dll
radardt	6.0.6000.16386	77.50 KB (79,360 bytes)	1/19/2008 7:52 AM	Microsoft Corporation	c:\windows\system32\radardt.dll
netman	6.0.6001.18000	340.00 KB (348,160 bytes)	1/19/2008 12:35 AM	Microsoft Corporation	c:\windows\system32\netman.dll
netshell	6.0.6002.18005	3.19 MB (3,341,312 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\netshell.dll
rasdlg	6.0.6002.18005	890.50 KB (911,872 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\rasdlg.dll
taskeng	6.0.6002.18005	259.00 KB (265,216 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\taskeng.exe
dimsjob	6.0.6001.18000	43.00 KB (44,032 bytes)	1/19/2008 12:18 AM	Microsoft Corporation	c:\windows\system32\dimsjob.dll
pautoenr	6.0.6000.16386	46.00 KB (47,104 bytes)	1/19/2008 12:18 AM	Microsoft Corporation	c:\windows\system32\pautoenr.dll
certcli	6.0.6002.18005	437.00 KB (447,488 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\certcli.dll
certenroll	6.0.6002.18005	1.58 MB (1,658,368 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\certenroll.dll
wininet	7.0.6002.18005	990.50 KB (1,014,272 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wininet.dll

msdtc 2001.12.6931.18000 104.00 KB (106,496 bytes)
1/19/2008 12:27 AM Microsoft Corporation
c:\windows\system32\msdtc.exe

msdtctm 2001.12.6932.18005 1.43 MB (1,499,136 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\msdtctm.dll

msdtcprx 2001.12.6932.18005 710.50 KB (727,552 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\msdtcprx.dll

mtxclu 2001.12.6932.18005 353.50 KB (361,984 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\mtxclu.dll

msdtclog 2001.12.6931.18000 113.00 KB (115,712 bytes)
1/19/2008 12:27 AM Microsoft Corporation
c:\windows\system32\msdtclog.dll

xolehlp 2001.12.6931.18000 47.00 KB (48,128 bytes)
1/19/2008 12:27 AM Microsoft Corporation
c:\windows\system32\xolehlp.dll

comres 2001.12.6931.18000 1.23 MB (1,291,264 bytes)
1/19/2008 12:27 AM Microsoft Corporation
c:\windows\system32\comres.dll

msdtcVSPres 2001.12.6931.18000 20.50 KB (20,992 bytes)
1/19/2008 12:27 AM Microsoft Corporation
c:\windows\system32\msdtcvspres.dll

mtxoci 2001.12.6931.18000 148.00 KB (151,552 bytes)
1/19/2008 12:27 AM Microsoft Corporation
c:\windows\system32\mtxoci.dll

msctfmonitor 6.0.6002.18005 25.50 KB (26,112 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\msctfmonitor.dll

msutb 6.0.6002.18005 222.50 KB (227,840 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\msutb.dll

dwmapi 6.0.6001.18000 38.50 KB (39,424 bytes)
1/19/2008 12:10 AM Microsoft Corporation
c:\windows\system32\dwmapi.dll

PlaySndSrv 6.0.6000.16386 74.50 KB (76,288 bytes)
1/19/2008 12:43 AM Microsoft Corporation
c:\windows\system32\playsndsrv.dll

mmdevapi 6.0.6002.18005 199.00 KB (203,776 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\mmdevapi.dll

qagent 6.0.6001.18000 245.00 KB (250,880 bytes)
1/19/2008 12:35 AM Microsoft Corporation
c:\windows\system32\qagent.dll

rdpclip 6.0.6002.18005 187.00 KB (191,488 bytes)
4/11/2009 11:13 AM Microsoft Corporation
c:\windows\system32\rdpclip.exe

explorer 6.0.6002.18005 2.94 MB (3,079,168 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\explorer.exe

shdocvw 6.0.6002.18005 1.14 MB (1,195,520 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\shdocvw.dll

browseui 6.0.6002.18005 1.57 MB (1,650,688 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\browseui.dll

windowscodecs 6.0.6002.18005 822.00 KB (841,728 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\windowscodecs.dll

ehstorshell 5.2.3790.1830 121.00 KB (123,904 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\ehstorshell.dll

iconcodeservice 6.0.6000.16386 12.50 KB (12,800 bytes)
1/19/2008 7:51 AM Microsoft Corporation
c:\windows\system32\iconcodeservice.dll

timedate 6.0.6002.18005 860.50 KB (881,152 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\timedate.cpl

ieframe 7.0.6002.18005 6.68 MB (7,005,184 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\ieframe.dll

networkexplorer 6.0.6002.18005 2.14 MB (2,247,168 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\networkexplorer.dll

cscapi 6.0.6002.18005 37.50 KB (38,400 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\cscapi.dll

ExplorerFrame 6.0.6001.18000 39.00 KB (39,936 bytes)
1/19/2008 12:21 AM Microsoft Corporation
c:\windows\system32\explorerframe.dll

msilcfg 4.0.6000.16386 19.50 KB (19,968 bytes)
1/19/2008 12:14 AM Microsoft Corporation
c:\windows\system32\msilcfg.dll

msi 4.5.6002.18005 2.96 MB (3,108,864 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\msi.dll

stobject 6.0.6002.18005 731.00 KB (748,544 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\stobject.dll

batmeter 6.0.6001.18000 727.50 KB (744,960 bytes)
1/19/2008 12:23 AM Microsoft Corporation
c:\windows\system32\batmeter.dll

sndvolso 6.0.6002.18005 173.50 KB (177,664 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\sndvolso.dll

pnidui 6.0.6002.18005 1.93 MB (2,024,960 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\pnidui.dll

wlanutil 6.0.6000.16386 10.00 KB (10,240 bytes)
1/19/2008 12:34 AM Microsoft Corporation
c:\windows\system32\wlanutil.dll

cscui 6.0.6002.18005 657.00 KB (672,768 bytes)
4/11/2009 11:13 AM Microsoft Corporation
c:\windows\system32\cscui.dll

cscdll 6.0.6002.18005 28.00 KB (28,672 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\cscdll.dll

srchadmin 7.0.6002.18005 339.50 KB (347,648 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\srchadmin.dll

webcheck 7.0.6002.18005 284.00 KB (290,816 bytes)
4/11/2009 11:11 AM Microsoft Corporation
c:\windows\system32\webcheck.dll

bthprops 6.0.6002.18005 652.50 KB (668,160 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\bthprops.cpl

twext 6.0.6002.18005 114.00 KB (116,736 bytes)
4/11/2009 11:13 AM Microsoft Corporation
c:\windows\system32\twext.dll

ntshrui 6.0.6001.18000 347.00 KB (355,328 bytes)
1/19/2008 12:24 AM Microsoft Corporation
c:\windows\system32\ntshrui.dll

thumbcache 6.0.6001.18000 102.00 KB (104,448 bytes)
1/19/2008 12:22 AM Microsoft Corporation
c:\windows\system32\thumbcache.dll

ehstorapi 6.0.6002.18005 128.00 KB (131,072 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\ehstorapi.dll

zipfldr 6.0.6002.18005 378.00 KB (387,072 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\zipfldr.dll

networkitemfactory 6.0.6002.18005 51.00 KB (52,224 bytes)
4/11/2009 11:12 AM Microsoft Corporation
c:\windows\system32\networkitemfactory.dll

dtsh 6.0.6000.16386 33.00 KB (33,792 bytes)
1/19/2008 12:35 AM Microsoft Corporation
c:\windows\system32\dtsh.dll

fdwnet	6.0.6001.18000	27.00 KB (27,648 bytes)	1/19/2008 12:06 AM	Microsoft Corporation	c:\windows\system32\fdwnet.dll
cscobj	6.0.6002.18005	211.50 KB (216,576 bytes)	4/11/2009 11:13 AM	Microsoft Corporation	c:\windows\system32\cscobj.dll
sendmail	6.0.6001.18000	74.50 KB (76,288 bytes)	1/19/2008 12:22 AM	Microsoft Corporation	c:\windows\system32\sendmail.dll
mydocs	6.0.6002.18005	140.00 KB (143,360 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\mydocs.dll
drprov	6.0.6001.18000	23.50 KB (24,064 bytes)	1/19/2008 12:43 AM	Microsoft Corporation	c:\windows\system32\drprov.dll
ntlanman	6.0.6001.18000	116.00 KB (118,784 bytes)	1/19/2008 12:14 AM	Microsoft Corporation	c:\windows\system32\ntlanman.dll
mmcshext	6.0.6001.18000	124.50 KB (127,488 bytes)	1/19/2008 12:11 AM	Microsoft Corporation	c:\windows\system32\mmcshext.dll
hhsetup	6.0.6000.16386	52.00 KB (53,248 bytes)	1/19/2008 12:57 AM	Microsoft Corporation	c:\windows\system32\hhsetup.dll
sqlservr	2007.100.2714.0	54.96 MB (57,629,016 bytes)	5/15/2009 7:38 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql10.mssqlserver\mssql\binn\sqlservr.exe
msvcr80	8.0.50727.4016	783.83 KB (802,640 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.vc80.crt_1fc8b3b9a1e18e3b_8.0.50727.4016_none_88dc01492fb256de\msvcr80.dll
msvcp80	8.0.50727.4016	1.02 MB (1,068,368 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.vc80.crt_1fc8b3b9a1e18e3b_8.0.50727.4016_none_88dc01492fb256de\msvcp80.dll
sqlos	2007.100.2531.0	14.85 KB (15,208 bytes)	3/30/2009 4:01 AM	Microsoft Corporation	c:\program files\microsoft sql server\mssql10.mssqlserver\mssql\binn\sqlos.dll
pdh	6.0.6002.18005	300.50 KB (307,712 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\pdh.dll
opends60	2007.100.1600.22	23.52 KB (24,088 bytes)	7/10/2008 5:46 AM	Microsoft Corporation	c:\program files\microsoft sql server\mssql10.mssqlserver\mssql\binn\opends60.dll
batchparser	2007.100.1600.22	170.52 KB (174,616 bytes)	7/10/2008 5:38 AM	Microsoft Corporation	c:\program files\microsoft sql server\mssql10.mssqlserver\mssql\binn\batchparser.dll
instapi10	2007.100.1600.22	42.52 KB (43,544 bytes)	7/10/2008 4:39 AM	Microsoft Corporation	c:\program files\microsoft sql server\100\shared\instapi10.dll
sqllevn70	2007.100.2531.0	1.99 MB (2,086,760 bytes)	3/30/2009 3:27 AM	Microsoft Corporation	c:\program files\microsoft sql server\mssql10.mssqlserver\mssql\binn\resources\1033\sqllevn70.rll
mscoree	2.0.50727.4016	393.83 KB (403,280 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\mscoree.dll
security	6.0.6000.16386	5.50 KB (5,632 bytes)	1/19/2008 12:16 AM	Microsoft Corporation	c:\windows\system32\security.dll
sqlncli10	2007.100.2531.0	3.01 MB (3,156,840 bytes)	3/30/2009 4:01 AM	Microsoft Corporation	c:\windows\system32\sqlncli10.dll
comdlg32	6.0.6002.18005	537.00 KB (549,888 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\comdlg32.dll
sqlnclir10	2007.100.1600.22	224.02 KB (229,400 bytes)	7/10/2008 4:58 AM	Microsoft Corporation	c:\windows\system32\1033\sqlnclir10.rll
logon	6.0.6001.18000	5.45 MB (5,714,432 bytes)	1/18/2008 11:46 PM	Microsoft Corporation	c:\windows\syswow64\logon.scr
wow64	6.0.6002.18005	229.00 KB (234,496 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wow64.dll
wow64win	6.0.6002.18005	294.50 KB (301,568 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wow64win.dll
wow64cpu	6.0.6002.18005	17.00 KB (17,408 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wow64cpu.dll
cmd	6.0.6001.18000	354.50 KB (363,008 bytes)	1/19/2008 12:05 AM	Microsoft Corporation	c:\windows\system32\cmd.exe
tapisrv	6.0.6002.18005	311.50 KB (318,976 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\tapisrv.dll
unimdm	6.0.6002.18005	312.50 KB (320,000 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\unimdm.tsp
uniplat	6.0.6001.18000	21.00 KB (21,504 bytes)	1/19/2008 12:38 AM	Microsoft Corporation	c:\windows\system32\uniplat.dll
kmddsp	6.0.6000.16386	45.50 KB (46,592 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\kmddsp.tsp
ndptsp	6.0.6000.16386	58.00 KB (59,392 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\ndptsp.tsp
hidphone	6.0.6000.16386	38.50 KB (39,424 bytes)	1/19/2008 1:13 AM	Microsoft Corporation	c:\windows\system32\hidphone.tsp
msinfo32	6.0.6002.18005	398.50 KB (408,064 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\syswow64\msinfo32.exe
wmiprvse	6.0.6002.18005	343.50 KB (351,744 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wbem\wmiprvse.exe
cimwin32	6.0.6002.18005	1.99 MB (2,082,816 bytes)	4/11/2009 11:12 AM	Microsoft Corporation	c:\windows\system32\wbem\cimwin32.dll
framedynos	6.0.6001.18000	275.00 KB (281,600 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\framedynos.dll
wmi	6.0.6001.18000	5.50 KB (5,632 bytes)	1/19/2008 1:13 AM	Microsoft Corporation	c:\windows\system32\wmi.dll
ntevt	6.0.6002.18005	251.00 KB (257,024 bytes)	4/11/2009 11:11 AM	Microsoft Corporation	c:\windows\system32\wbem\ntevt.dll
provthrd	6.0.6001.18000	327.50 KB (335,360 bytes)	1/19/2008 12:13 AM	Microsoft Corporation	c:\windows\system32\provthrd.dll
msvcirt	7.0.6000.16386	78.50 KB (80,384 bytes)	1/18/2008 11:52 PM	Microsoft Corporation	c:\windows\system32\msvcirt.dll
wsock32	6.0.6001.18000	18.00 KB (18,432 bytes)	1/19/2008 12:37 AM	Microsoft Corporation	c:\windows\system32\wsock32.dll
unidrvui	0.3.6002.18005	863.00 KB (883,712 bytes)	1/19/2008 3:38 AM	Microsoft Corporation	c:\windows\system32\pool\drivers\x643\unidrvui.dll

wmiprvse 6.0.6002.18005 241.50 KB (247,296 bytes)
 4/11/2009 11:11 AM Microsoft Corporation
 c:\windows\system32\wbem\wmiprvse.exe

[Services]

Display Name	Name	State	Start Mode	Service Type
Path	Error Control		Start Name	Tag ID
Application Experience	AeLookupSvc	Running	Auto	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
netsh	Normal localSystem	0		
Application Layer Gateway Service	ALG	Stopped	Manual	Share Process
Own Process	c:\windows\system32\alg.exe	Normal		
NT AUTHORITY\LocalService	0			
Application Information Process	Appinfo	Stopped	Manual	Share Process
c:\windows\system32\svchost.exe	-k netsh	Normal		
LocalSystem	0			
Application Management Process	AppMgmt	Running	Manual	Share Process
c:\windows\system32\svchost.exe	-k netsh	Normal		
LocalSystem	0			
Windows Audio Endpoint Builder	AudioEndpointBuilder	Stopped	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
localsystemnetworkrestricted	Normal	LocalSystem	0	
Windows Audio	AudioSrv	Stopped	Manual	Share Process
c:\windows\system32\svchost.exe	-k			
localsystemnetworkrestricted	Normal	NT AUTHORITY\LocalService	0	
Base Filtering Engine BFE	Running	Auto	Share Process	Share Process
c:\windows\system32\svchost.exe	-k local			
Normal	NT AUTHORITY\LocalService	0		
Background Intelligent Transfer Service	BITS	Running	Auto	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
netsh	Normal	LocalSystem	0	
Computer Browser	Browser	Stopped	Disabled	Share Process
c:\windows\system32\svchost.exe	-k netsh	Normal		
LocalSystem	0			
Certificate Propagation	CertPropSvc	Running	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
netsh	Normal	LocalSystem	0	
Microsoft .NET Framework NGEN v2.0.50727_X86	clr_optimization_v2.0.50727_32	Stopped	Manual	Own Process
c:\windows\microsoft.net\framework\v2.0.50727\mscorsvw.exe	Ignore	LocalSystem	0	
Microsoft .NET Framework NGEN v2.0.50727_X64	clr_optimization_v2.0.50727_64	Stopped	Manual	Own Process
c:\windows\microsoft.net\framework64\v2.0.50727\mscorsvw.exe	Ignore	LocalSystem	0	
COM+ System Application	COMSysApp	Stopped	Manual	Own Process
c:\windows\system32\dlh.exe	/processid:{02d4b3f1-fd88-11d1-960d-00805fc79235}	Normal		
LocalSystem	0			
Cryptographic Services	CryptSvc	Running	Auto	Share Process
c:\windows\system32\svchost.exe	-k network	Normal		
NT Authority\NetworkService	0			
Offline Files	CscService	Stopped	Disabled	Share Process
c:\windows\system32\svchost.exe	-k			
localsystemnetworkrestricted	Normal	LocalSystem	0	
DCOM Server Process Launcher	DcomLaunch	Running	Auto	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
dcomlaunch	Normal	LocalSystem	0	
DHCP Client	Dhcp	Running	Auto	Share Process
c:\windows\system32\svchost.exe	-k			
localsystemnetworkrestricted	Normal	NT Authority\LocalService	0	

DNS Client	Dnscache	Running	Auto	Share Process
c:\windows\system32\svchost.exe	-k network	Normal		
NT AUTHORITY\NetworkService	0			
Wired AutoConfig	dot3svc	Stopped	Manual	Share Process
c:\windows\system32\svchost.exe	-k			
localsystemnetworkrestricted	Normal	LocalSystem	0	
Diagnostic Policy Service	DPS	Running	Auto	Share Process
c:\windows\system32\svchost.exe	-k local	Normal		
NT AUTHORITY\LocalService	0			
Extensible Authentication Protocol	EapHost	Stopped	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
netsh	Normal	LocalSystem	0	
Windows Event Log	EventLog	Running	Auto	Share Process
c:\windows\system32\svchost.exe	-k			
localsystemnetworkrestricted	Normal	NT AUTHORITY\LocalService	0	
COM+ Event System	EventSystem	Running	Auto	Share Process
c:\windows\system32\svchost.exe	-k local	Normal		
NT AUTHORITY\LocalService	0			
Microsoft Fibre Channel Platform Registration Service	FCRegSvc	Stopped	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
localsystemnetworkrestricted	Normal	NT AUTHORITY\LocalService	0	
Function Discovery Provider Host	fdPHost	Running	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
localservice	Normal	NT AUTHORITY\LocalService	0	
Function Discovery Resource Publication	FDResPub	Running	Auto	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
localservice	Normal	NT AUTHORITY\LocalService	0	
Windows Presentation Foundation Font Cache 3.0.0.0	FontCache3.0.0.0	Stopped	Manual	Own Process
c:\windows\microsoft.net\framework64\v3.0\wpf\presentationfont	cache.exe	Normal	NT Authority\LocalService	0
Group Policy Client	gpsvc	Running	Auto	Own Process
c:\windows\system32\svchost.exe	-k gpsvc	Normal		
LocalSystem	0			
Human Interface Device Access	hidserv	Stopped	Manual	Share Process
c:\windows\system32\svchost.exe	-k			
localsystemnetworkrestricted	Normal	LocalSystem	0	
Health Key and Certificate Management	hkmsvc	Stopped	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
netsh	Normal	LocalSystem	0	
Windows CardSpace	idsvc	Stopped	Manual	Share Process
"c:\windows\microsoft.net\framework64\v3.0\windows	communication	foundation\infocard.exe"	Normal	LocalSystem
0				
IKE and AuthIP IPsec Keying Modules	IKEEXT	Running	Auto	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
netsh	Normal	LocalSystem	0	
PnP-X IP Bus Enumerator	IPBusEnum	Stopped	Disabled	Share Process
Share Process	c:\windows\system32\svchost.exe	-k		
localsystemnetworkrestricted	Normal	LocalSystem	0	
IP Helper	iphlpvc	Running	Auto	Share Process
c:\windows\system32\svchost.exe	-k netsh	Normal		
LocalSystem	0			
CNG Key Isolation	KeyIso	Stopped	Manual	Share Process
c:\windows\system32\lsass.exe	Normal	LocalSystem	0	
KtmRm for Distributed Transaction Coordinator	KtmRm	Running	Auto	Share Process
Share Process	c:\windows\system32\svchost.exe	-k network	Normal	
NT AUTHORITY\NetworkService	0			

Server	LanmanServer	Running	Auto	Share Process		Plug and Play	PlugPlay	Running	Auto	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	0		Normal	LocalSystem	c:\windows\system32\svchost.exe -k dcomlaunch	LocalSystem	0		Normal	
Workstation Process	LanmanWorkstation	Running	Auto	Share		IPsec Policy Agent	PolicyAgent		Running	Auto	Share
	c:\windows\system32\svchost.exe -k localservice	0		Normal	NT AUTHORITY\LocalService	c:\windows\system32\svchost.exe -k networkservice\networkrestricted	Normal		NT Authority\NetworkService	0	
Link-Layer Topology Discovery Mapper	ltdsvc	Stopped	Manual			User Profile Service	ProfSvc	Running	Auto	Share Process	
Share Process	c:\windows\system32\svchost.exe -k localservice	0		Normal	NT AUTHORITY\LocalService	c:\windows\system32\svchost.exe -k netsvcs	LocalSystem	0		Normal	
TCP/IP NetBIOS Helper Process	lmhosts	Running	Auto	Share		Protected Storage	ProtectedStorage		Stopped	Manual	Share
	c:\windows\system32\svchost.exe -k localservice\networkrestricted	0		Normal	NT AUTHORITY\LocalService	c:\windows\system32\sass.exe	Normal		LocalSystem	0	
Multimedia Class Scheduler Process	MMCSS	Stopped	Manual	Share		Remote Access Auto Connection Manager	RasAuto		Stopped	Manual	
	c:\windows\system32\svchost.exe -k netsvcs	0		Normal	LocalSystem	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	localSystem	0	
Windows Firewall	MpsSvc	Running	Auto	Share Process		Remote Access Connection Manager	RasMan	Running	Manual		
	c:\windows\system32\svchost.exe -k localservice\network	0		Normal	NT Authority\LocalService	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	localSystem	0	
Distributed Transaction Coordinator	MSDTC	Running	Auto			Routing and Remote Access	RemoteAccess		Stopped	Disabled	
Own Process	c:\windows\system32\msdtc.exe	0		Normal	NT AUTHORITY\NetworkService	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	localSystem	0	
Microsoft iSCSI Initiator Service	MSiSCSI	Stopped	Manual	Share		Remote Registry	RemoteRegistry	Running	Auto	Share	
Process	c:\windows\system32\svchost.exe -k netsvcs	0		Normal	LocalSystem	c:\windows\system32\svchost.exe -k regsvc	Normal		NT AUTHORITY\LocalService	0	
Windows Installer	msiserver	Stopped	Manual	Own Process		Remote Procedure Call (RPC) Locator	RpcLocator		Stopped		
	c:\windows\system32\msiexec /v	0		Normal	LocalSystem	Manual	Own Process		Normal	NT AUTHORITY\NetworkService	0
SQL Server (MSSQLSERVER)	MSSQLSERVER	Stopped	Manual			Remote Procedure Call (RPC) Process	RpcSs	Running	Auto	Share	
Own Process	"c:\program files\microsoft sql server\mssql10.mssqlserver\mssql\binn\sqlservr.exe" -smssqlserver	0		Normal	LocalSystem	c:\windows\system32\svchost.exe -k rpsvc	Normal		NT AUTHORITY\NetworkService	0	
SQL Active Directory Helper Service	MSSQLServerADHelper100	Stopped	Disabled	Own Process		Resultant Set of Policy Provider	RSOPProv	Stopped	Manual	Share	
	c:\program files\microsoft sql server\100\shared\sqladhlp.exe"	0		Normal	NT AUTHORITY\NETWORK SERVICE	c:\windows\system32\rsopprov.exe	Normal		LocalSystem	0	
Network Access Protection Agent	napagent	Stopped	Manual			Special Administration Console Helper	sacsrv	Stopped	Manual		
Share Process	c:\windows\system32\svchost.exe -k networkservice	0		Normal	NT AUTHORITY\NetworkService	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Netlogon	Netlogon	Stopped	Manual	Share Process		Security Accounts Manager	SamSs	Running	Auto	Share	
	c:\windows\system32\lsass.exe	0		Normal	LocalSystem	c:\windows\system32\lsass.exe	Normal		LocalSystem	0	
Network Connections	Netman	Running	Manual	Share Process		Smart Card	SCardSvr	Stopped	Manual	Share Process	
	c:\windows\system32\svchost.exe -k localsystem\networkrestricted	0		Normal	LocalSystem	c:\windows\system32\svchost.exe -k localservice	Normal		NT AUTHORITY\LocalService	0	
Network List Service	netprofm	Running	Auto	Share Process		Task Scheduler	Schedule	Running	Auto	Share Process	
	c:\windows\system32\svchost.exe -k localservice	0		Normal	NT AUTHORITY\LocalService	c:\windows\system32\svchost.exe -k netsvcs	LocalSystem	0		Normal	
Net.Tcp Port Sharing Service	NetTcpPortSharing	Stopped	Disabled			Smart Card Removal Policy	SCPPolicySvc		Stopped	Manual	
	"c:\windows\microsoft.net\framework64\v3.0\windows communication foundation\smshost.exe"	0		Normal	NT AUTHORITY\LocalService	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Network Location Awareness	NlaSvc	Running	Auto	Share		Secondary Logon	seclogon	Running	Auto	Share Process	
Process	c:\windows\system32\svchost.exe -k networkservice	0		Normal	NT AUTHORITY\NetworkService	c:\windows\system32\svchost.exe -k netsvcs	LocalSystem	0		Normal	
Network Store Interface Service	nsi	Running	Auto	Share		System Event Notification Service	SENS	Running	Auto		
Process	c:\windows\system32\svchost.exe -k localservice	0		Normal	NT Authority\LocalService	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Performance Counter DLL Host	PerfHost	Stopped	Manual	Own		Terminal Services Configuration	SessionEnv		Running	Manual	
Process	c:\windows\syswow64\perfhst.exe	0		Normal	NT AUTHORITY\LocalService	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	localSystem	0	
Performance Logs & Alerts	pla	Stopped	Manual	Share		Internet Connection Sharing (ICS)	SharedAccess		Stopped		
Process	c:\windows\system32\svchost.exe -k localservice\network	0		Normal	NT AUTHORITY\LocalService	Disabled	Share Process		c:\windows\system32\svchost.exe -k netsvcs	Normal	
	Normal	NT AUTHORITY\LocalService	0		LocalSystem	Shell Hardware Detection	ShellHWDetection	Running	Auto		
	Normal	NT AUTHORITY\LocalService	0		LocalSystem	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Ignore	LocalSystem	0	
	Normal	NT AUTHORITY\LocalService	0		LocalSystem	Software Licensing	slsvc	Running	Auto	Own Process	
	Normal	NT AUTHORITY\LocalService	0		LocalSystem	c:\windows\system32\slsvc.exe	Normal		NT AUTHORITY\NetworkService	0	

SL UI Notification Service	SLUINotify	Running	Manual		UPnP Device Host	upnphost	Stopped	Disabled	Share Process
Share Process	c:\windows\system32\svchost.exe -k				c:\windows\system32\svchost.exe -k	localservice	Normal		
localservice	Normal	NT AUTHORITY\LocalService	0		NT AUTHORITY\LocalService	0			
SNMP Trap	SNMPTRAP	Stopped	Manual	Own	Desktop Window Manager Session Manager	UxSms	Stopped	Disabled	
Process	c:\windows\system32\snmptrap.exe		Normal	NT	Share Process	c:\windows\system32\svchost.exe -k			
AUTHORITY\LocalService	0				localsystemnetworkrestricted	Normal	localSystem	0	
Print Spooler	Spooler	Running	Auto	Own Process	Virtual Disk	vds	Stopped	Manual	Own Process
c:\windows\system32\spoolsv.exe				Normal	c:\windows\system32\vds.exe	Normal	LocalSystem	0	
LocalSystem	0				Volume Shadow Copy	VSS	Stopped	Manual	Own
SQL Server Browser	SQLBrowser	Stopped	Disabled	Own	Process	c:\windows\system32\vssvc.exe	Normal	LocalSystem	0
Process	"c:\program files (x86)\microsoft sql server\90\shared\sqlbrowser.exe"	Normal	NT AUTHORITY\LOCAL	SERVICE	0				
SQL Server Agent (MSSQLSERVER)	SQLSERVERAGENT	Stopped	Manual	Own Process	Windows Time	W32Time	Running	Auto	Share Process
files\microsoft sql server\mssql10.mssqlserver\mssql\bin\sqlagent.exe" -i				"c:\program	c:\windows\system32\svchost.exe -k	localservice	Normal		
mssqlserver	Normal	LocalSystem	0		NT AUTHORITY\LocalService	0			
SQL Server VSS Writer	SQLWriter	Stopped	Disabled	Own	Windows Color System	WcsPlugInService	Stopped	Manual	
Process	"c:\program files\microsoft sql server\90\shared\sqlwriter.exe"	Normal	LocalSystem	0	Share Process	c:\windows\system32\svchost.exe -k			
SSDP Discovery	SSDPSRV	Stopped	Disabled	Share Process	wcssvc	Normal	NT AUTHORITY\LocalService	0	
c:\windows\system32\svchost.exe -k	localservice	Normal			Diagnostic Service Host	WdiServiceHost	Stopped	Manual	
NT AUTHORITY\LocalService	0				Share Process	c:\windows\system32\svchost.exe -k			
Secure Socket Tunneling Protocol Service	SstpSvc	Running	Manual		wdisvc	Normal	NT AUTHORITY\LocalService	0	
Share Process	c:\windows\system32\svchost.exe -k				Diagnostic System Host	WdiSystemHost	Running	Manual	
localservice	Normal	NT Authority\LocalService	0		Share Process	c:\windows\system32\svchost.exe -k			
Microsoft Software Shadow Copy Provider	swprv	Stopped	Manual		localsystemnetworkrestricted	Normal	LocalSystem	0	
Own Process	c:\windows\system32\svchost.exe -k	swprv			Windows Event Collector	Weccsvc	Stopped	Manual	Share
Normal	LocalSystem	0			Process	c:\windows\system32\svchost.exe -k	networkservice	Normal	
HP ProLiant System Shutdown Service	sysdown	Running	Auto		c:\windows\system32\svchost.exe -k	networkservice	0		
Own Process	c:\windows\system32\sysdown.exe				Problem Reports and Solutions Control Panel Support	werctrlsupport	Stopped	Manual	Share Process
Normal	LocalSystem	0			c:\windows\system32\svchost.exe -k	netsvcs	Normal		
Superfetch SysMain	Stopped	Disabled	Share Process		localSystem	0			
c:\windows\system32\svchost.exe -k					Windows Error Reporting Service	WerSvc	Stopped	Disabled	
localsystemnetworkrestricted	Ignore	LocalSystem	0		Share Process	c:\windows\system32\svchost.exe -k			
Telephony TapiSrv	Running	Manual	Own Process		wersvcgroup	Ignore	localSystem	0	
c:\windows\system32\svchost.exe -k	tapisrv	Normal			WinHTTP Web Proxy Auto-Discovery Service				
AUTHORITY\NetworkService	0				WinHttpAutoProxySvc	Stopped	Manual	Share	
TPM Base Services	TBS	Stopped	Auto	Share Process	Process	c:\windows\system32\svchost.exe -k	localservice	Normal	
c:\windows\system32\svchost.exe -k	localservice	Normal			NT AUTHORITY\LocalService	0			
NT AUTHORITY\LocalService	0				Windows Management Instrumentation	Winmgmt	Running	Auto	
Terminal Services	TermService	Running	Auto	Share	Share Process	c:\windows\system32\svchost.exe -k	netsvcs	Ignore	localSystem
Process	c:\windows\system32\svchost.exe -k	networkservice	Normal		Windows Remote Management (WS-Management)	WinRM	Running		
NT Authority\NetworkService	0				Auto	Share Process			
Themes	Themes	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k	networkservice	Normal		
c:\windows\system32\svchost.exe -k	netsvcs	Normal			NT AUTHORITY\NetworkService	0			
LocalSystem	0				WMI Performance Adapter	wmiApSrv	Stopped	Manual	Own
Thread Ordering Server	THREADORDER	Stopped	Manual		Process	c:\windows\system32\wbem\wmiapsrv.exe	Normal		
Share Process	c:\windows\system32\svchost.exe -k				localSystem	0			
localservice	Normal	NT AUTHORITY\LocalService	0		Portable Device Enumerator Service	WPDBusEnum	Stopped		
Distributed Link Tracking Client	TrkWks	Running	Auto	Share	Manual	Share Process			
Process	c:\windows\system32\svchost.exe -k				c:\windows\system32\svchost.exe -k				
localsystemnetworkrestricted	Normal	LocalSystem	0		localsystemnetworkrestricted	Normal	LocalSystem	0	
Windows Modules Installer	TrustedInstaller	Stopped	Manual		Windows Update	wuauclt	Stopped	Disabled	Share Process
Own Process	c:\windows\servicing\trustedinstaller.exe				c:\windows\system32\svchost.exe -k	netsvcs	Normal		
Normal	LocalSystem	0			LocalSystem	0			
Interactive Services Detection	UI0Detect	Stopped	Manual	Own	Windows Driver Foundation - User-mode Driver Framework	wudfsvc	Stopped	Manual	Share Process
Process	c:\windows\system32\ui0detect.exe		Normal		Share Process	c:\windows\system32\svchost.exe -k			
LocalSystem	0				localsystemnetworkrestricted	Normal	LocalSystem	0	
Terminal Services UserMode Port Redirector	UmRdpService	Running	Manual	Share Process					
c:\windows\system32\svchost.exe -k					[Program Groups]				
localsystemnetworkrestricted	Normal	LocalSystem	0		Group Name	Name	User Name		
					Start Menu\Default	Start Menu	Default		
					Start Menu\Programs	Default	Start Menu\Programs	Default	

Start Menu\Programs\Accessories Default:Start
 Menu\Programs\Accessories Default
 Start Menu\Programs\Accessories\Accessibility Default:Start
 Menu\Programs\Accessories\Accessibility Default
 Start Menu\Programs\Accessories\System Tools Default:Start
 Menu\Programs\Accessories\System Tools Default
 Start Menu\Programs\Maintenance Default:Start
 Menu\Programs\Maintenance Default
 Start MenuPublic:Start Menu Public
 Start Menu\Programs Public:Start Menu\Programs Public
 Start Menu\Programs\Accessories Public:Start
 Menu\Programs\Accessories Public
 Start Menu\Programs\Accessories\Accessibility Public:Start
 Menu\Programs\Accessories\Accessibility Public
 Start Menu\Programs\Accessories\System Tools Public:Start
 Menu\Programs\Accessories\System Tools Public
 Start Menu\Programs\Administrative Tools Public:Start
 Menu\Programs\Administrative Tools Public
 Start Menu\Programs\Administrative Tools\Terminal Services
 Public:Start Menu\Programs\Administrative Tools\Terminal
 Services Public
 Start Menu\Programs\Extras and Upgrades Public:Start
 Menu\Programs\Extras and Upgrades Public
 Start Menu\Programs\Fusion-io Public:Start Menu\Programs\Fusion-io
 Public
 Start Menu\Programs\Fusion-io\ioManager Public:Start
 Menu\Programs\Fusion-io\ioManager Public
 Start Menu\Programs\HP System Tools Public:Start Menu\Programs\HP
 System Tools Public
 Start Menu\Programs\HP System Tools\HP Array Configuration Utility
 Public:Start Menu\Programs\HP System Tools\HP Array
 Configuration Utility Public
 Start Menu\Programs\HP System Tools\HP Array Diagnostic Utility
 Public:Start Menu\Programs\HP System Tools\HP Array
 Diagnostic Utility Public
 Start Menu\Programs\Maintenance Public:Start
 Menu\Programs\Maintenance Public
 Start Menu\Programs\Microsoft SQL Server 2008 Public:Start
 Menu\Programs\Microsoft SQL Server 2008Public
 Start Menu\Programs\Microsoft SQL Server 2008\Analysis Services
 Public:Start Menu\Programs\Microsoft SQL Server
 2008\Analysis Services Public
 Start Menu\Programs\Microsoft SQL Server 2008\Configuration Tools
 Public:Start Menu\Programs\Microsoft SQL Server
 2008\Configuration Tools Public
 Start Menu\Programs\Microsoft SQL Server 2008\Documentation and
 Tutorials Public:Start Menu\Programs\Microsoft SQL Server
 2008\Documentation and Tutorials Public

Start Menu\Programs\Microsoft SQL Server 2008\Integration Services
 Public:Start Menu\Programs\Microsoft SQL Server
 2008\Integration Services Public
 Start Menu\Programs\Microsoft SQL Server 2008\Performance Tools
 Public:Start Menu\Programs\Microsoft SQL Server
 2008\Performance Tools Public
 Start Menu\Programs\Startup Public:Start Menu\Programs\Startup
 Public
 Start Menu\Programs\Windows PowerShell 1.0 Public:Start
 Menu\Programs\Windows PowerShell 1.0 Public
 Start Menu\FUSE\Administrator:Start Menu FUSE\Administrator
 Start Menu\Programs FUSE\Administrator:Start Menu\Programs
 FUSE\Administrator
 Start Menu\Programs\Accessories FUSE\Administrator:Start
 Menu\Programs\Accessories FUSE\Administrator
 Start Menu\Programs\Accessories\Accessibility FUSE\Administrator:Start
 Menu\Programs\Accessories\Accessibility FUSE\Administrator
 Start Menu\Programs\Accessories\System Tools FUSE\Administrator:Start
 Menu\Programs\Accessories\System Tools FUSE\Administrator
 Tools FUSE\Administrator
 Start Menu\Programs\Administrative Tools FUSE\Administrator:Start
 Menu\Programs\Administrative Tools FUSE\Administrator
 Start Menu\Programs\Maintenance FUSE\Administrator:Start
 Menu\Programs\Maintenance FUSE\Administrator
 Start Menu\Programs\Startup FUSE\Administrator:Start
 Menu\Programs\Startup FUSE\Administrator
 Start Menu\Programs\StepMasterFUSE\Administrator:Start
 Menu\Programs\StepMaster FUSE\Administrator
 [Startup Programs]
 Program Command User Name Location
 [OLE Registration]
 Object Local Server
 WordPad Document "%programfiles%\windows
 nt\accessories\wordpad.exe"
 Package Not Available
 [Windows Error Reporting]
 Time Type Details

Appendix B: Database Build Scripts

B.1 CreateDatabase.sql

```
--
-- File:  CREATEDATABASE.SQL
--        Microsoft TPC-H Benchmark Kit Ver. 2.7.0-1005
--        Copyright Microsoft, 2006 - 2009
--
--        Drop the existing database
--
if exists (select name from sysdatabases where name = 'tpch100g')
    drop database tpch100g

CREATE DATABASE tpch100g
ON PRIMARY
(
    NAME = tpch100g_root,
    FILENAME = 'C:\tpch100g_root.mdf',
    SIZE = 10MB,
    FILEGROWTH = 10MB),

FILEGROUP DATA_FG
(
    NAME = tpch100g_data1,
    FILENAME = 'c:\dev\node1\tpch100g_data1.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data2,
    FILENAME = 'c:\dev\node2\tpch100g_data2.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data3,
    FILENAME = 'c:\dev\node3\tpch100g_data3.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data4,
    FILENAME = 'c:\dev\node1\tpch100g_data4.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data5,
    FILENAME = 'c:\dev\node2\tpch100g_data5.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data6,
    FILENAME = 'c:\dev\node3\tpch100g_data6.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data7,
    FILENAME = 'c:\dev\node1\tpch100g_data7.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data8,
    FILENAME = 'c:\dev\node2\tpch100g_data8.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data9,
    FILENAME = 'c:\dev\node3\tpch100g_data9.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data10,
    FILENAME = 'c:\dev\node1\tpch100g_data10.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data11,
```

```
FILENAME = 'c:\dev\node2\tpch100g_data11.mdf',
SIZE = 5500MB,
FILEGROWTH = 10),
(
    NAME = tpch100g_data12,
    FILENAME = 'c:\dev\node3\tpch100g_data12.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data13,
    FILENAME = 'c:\dev\node1\tpch100g_data13.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data14,
    FILENAME = 'c:\dev\node2\tpch100g_data14.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data15,
    FILENAME = 'c:\dev\node3\tpch100g_data15.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data16,
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(
    NAME = tpch100g_data17,
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    NAME = tpch100g_data18,
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(
    NAME = tpch100g_data20,
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    FILEGROWTH = 10),
(
    NAME = tpch100g_data21,
    FILENAME = 'c:\dev\node3\tpch100g_data21.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data22,
    FILENAME = 'c:\dev\node1\tpch100g_data22.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data23,
    FILENAME = 'c:\dev\node2\tpch100g_data23.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data24,
    FILENAME = 'c:\dev\node3\tpch100g_data24.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data25,
    FILENAME = 'c:\dev\node1\tpch100g_data25.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data26,
    FILENAME = 'c:\dev\node2\tpch100g_data26.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data27,
    FILENAME = 'c:\dev\node3\tpch100g_data27.mdf',
    SIZE = 5500MB,
```

```

FILEGROWTH = 10),
(
    NAME = tpch100g_data28,
    FILENAME = 'c:\dev\node1\tpch100g_data28.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data29,
    FILENAME = 'c:\dev\node2\tpch100g_data29.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data30,
    FILENAME = 'c:\dev\node3\tpch100g_data30.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data31,
    FILENAME = 'c:\dev\node1\tpch100g_data31.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_data32,
    FILENAME = 'c:\dev\node2\tpch100g_data32.mdf',
    SIZE = 5500MB,
    FILEGROWTH = 10),
FILEGROUP LOAD_FG
(
    NAME = tpch100g_load1,
    FILENAME = 'z:\load\tpch100g_load1.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load2,
    FILENAME = 'z:\load\tpch100g_load2.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load3,
    FILENAME = 'z:\load\tpch100g_load3.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load4,
    FILENAME = 'z:\load\tpch100g_load4.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load5,
    FILENAME = 'z:\load\tpch100g_load5.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load6,
    FILENAME = 'z:\load\tpch100g_load6.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load7,
    FILENAME = 'z:\load\tpch100g_load7.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load8,
    FILENAME = 'z:\load\tpch100g_load8.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load9,
    FILENAME = 'z:\load\tpch100g_load9.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load10,
    FILENAME = 'z:\load\tpch100g_load10.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load11,
    FILENAME = 'z:\load\tpch100g_load11.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load12,
    FILENAME = 'z:\load\tpch100g_load12.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),

```

```

(
    NAME = tpch100g_load13,
    FILENAME = 'z:\load\tpch100g_load13.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load14,
    FILENAME = 'z:\load\tpch100g_load14.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load15,
    FILENAME = 'z:\load\tpch100g_load15.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10),
(
    NAME = tpch100g_load16,
    FILENAME = 'z:\load\tpch100g_load16.mdf',
    SIZE = 11000MB,
    FILEGROWTH = 10)
LOG ON
(
    NAME = tpch100g_Log1,
    FILENAME = 'C:\tpch100g_Log1.mdf',
    SIZE = 20000MB,
    FILEGROWTH = 0MB)

```

B.2 CreateTables.sql

```

-- File: CREATETABLES.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.7.0-1005
-- Copyright Microsoft, 2006 - 2009
--

```

```

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 float not null,
P_COMMENT varchar(23) not null)
on LOAD_FG

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 float not null,
S_COMMENT varchar(101) not null)
on LOAD_FG

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

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    float          not null,
        C_MKTSEGMENT char(10)     not null,
        C_COMMENT    varchar(117)  not null)
on LOAD_FG

create table ORDERS
(O_ORDERKEY    bigint          not null,
 O_CUSTKEY     int             not null,
 O_ORDERSTATUS char(1)        not null,
 O_TOTALPRICE  float          not null,
 O_ORDERDATE   date           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 LOAD_FG

create table LINEITEM
(L_ORDERKEY    bigint          not null,
 L_PARTKEY     int             not null,
 L_SUPPKEY     int             not null,
 L_LINENUMBER  int             not null,
 L_QUANTITY    float          not null,
 L_EXTENDEDPRICE float        not null,
 L_DISCOUNT   float          not null,
 L_TAX         float          not null,
 L_RETURNFLAG  char(1)        not null,
 L_LINESTATUS  char(1)        not null,
 L_SHIPDATE    date           not null,
 L_COMMITDATE  date           not null,
 L_RECEIPTDATE date           not null,
 L_SHIPINSTRUCT char(25)     not null,
 L_SHIPMODE    char(10)       not null,
 L_COMMENT     varchar(44)    not null)
on LOAD_FG

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 LOAD_FG

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

```

B.3 CreateIndexes_1.sql

```

-- File: CREATECLUSTEREDINDEXES.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.7.0-1005
-- Copyright Microsoft, 2006 - 2009
--

ALTER TABLE NATION ADD CONSTRAINT PK_N_NATIONKEY
PRIMARY KEY (N_NATIONKEY)
ON DATA_FG

ALTER TABLE REGION ADD CONSTRAINT PK_R_REGIONKEY
PRIMARY KEY (R_REGIONKEY)
ON DATA_FG

CREATE INDEX N_REGIONKEY_IDX ON NATION(N_REGIONKEY)
WITH (fillfactor=100, SORT_IN_TEMPDB=ON, MAXDOP=16)

```

```

ON DATA_FG

ALTER TABLE PART ADD CONSTRAINT PK_P_PARTKEY
PRIMARY KEY (P_PARTKEY)
WITH (MAXDOP=16)
ON DATA_FG

ALTER TABLE SUPPLIER ADD CONSTRAINT PK_S_SUPPKEY
PRIMARY KEY (S_SUPPKEY)
WITH (MAXDOP=16)
ON DATA_FG

CREATE INDEX S_NATIONKEY_IDX ON
SUPPLIER(S_NATIONKEY)
WITH (FILLFACTOR=100, SORT_IN_TEMPDB=ON, MAXDOP=16)
ON DATA_FG

ALTER TABLE CUSTOMER ADD CONSTRAINT PK_C_CUSTKEY
PRIMARY KEY (C_CUSTKEY)
WITH (MAXDOP=16)
ON DATA_FG

ALTER TABLE PARTSUPP ADD CONSTRAINT
PK_PS_PARTKEY_PS_SUPPKEY PRIMARY KEY (PS_PARTKEY,
PS_SUPPKEY)
WITH (MAXDOP=16)
ON DATA_FG

CREATE CLUSTERED INDEX O_ORDERDATE_CLUIDX ON
ORDERS(O_ORDERDATE)
WITH (FILLFACTOR=95, SORT_IN_TEMPDB=ON, MAXDOP=16)
ON DATA_FG

ALTER TABLE ORDERS ADD CONSTRAINT PK_O_ORDERKEY
PRIMARY KEY (O_ORDERKEY)
WITH (FILLFACTOR = 95, MAXDOP=16)
ON DATA_FG

```

B.4 CreateIndexes_2.sql

```

-- File: CREATEINDEXESSTREAM2.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.7.0-1005-1004
-- Copyright Microsoft, 2006 - 2009
--

CREATE INDEX PS_SUPPKEY_IDX ON PARTSUPP(PS_SUPPKEY)
WITH( FILLFACTOR=100, SORT_IN_TEMPDB=ON, MAXDOP=16)
ON DATA_FG

CREATE CLUSTERED INDEX L_SHIPDATE_CLUIDX ON
LINEITEM(L_SHIPDATE)
WITH ( FILLFACTOR=95, SORT_IN_TEMPDB=ON, MAXDOP=16)
ON DATA_FG

CREATE INDEX L_ORDERKEY_IDX ON LINEITEM(L_ORDERKEY)
WITH ( FILLFACTOR=95, SORT_IN_TEMPDB=ON, MAXDOP=16)
ON DATA_FG

CREATE INDEX L_PARTKEY_IDX ON LINEITEM(L_PARTKEY)
WITH (FILLFACTOR=95, SORT_IN_TEMPDB=ON, MAXDOP=16)
ON DATA_FG

```

B.5 CreateFK.sql

```

--
-- File: CREATERFK.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.7.0-1005

```

```

--      Copyright Microsoft, 2006 - 2009
--

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_S_NATIONKEY' )
    ALTER TABLE SUPPLIER ADD CONSTRAINT
    FK_S_NATIONKEY
    FOREIGN KEY (S_NATIONKEY) REFERENCES
    NATION(N_NATIONKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_PS_PARTKEY' )
    ALTER TABLE PARTSUPP ADD CONSTRAINT FK_PS_PARTKEY
    FOREIGN KEY (PS_PARTKEY) REFERENCES
    PART(P_PARTKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_PS_SUPPKEY' )
    ALTER TABLE PARTSUPP ADD CONSTRAINT FK_PS_SUPPKEY
    FOREIGN KEY (PS_SUPPKEY) REFERENCES
    SUPPLIER(S_SUPPKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_C_NATIONKEY' )
    ALTER TABLE CUSTOMER ADD CONSTRAINT
    FK_C_NATIONKEY
    FOREIGN KEY (C_NATIONKEY) REFERENCES
    NATION(N_NATIONKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_O_CUSTKEY' )
    ALTER TABLE ORDERS ADD CONSTRAINT FK_O_CUSTKEY
    FOREIGN KEY (O_CUSTKEY) REFERENCES
    CUSTOMER(C_CUSTKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_N_REGIONKEY' )
    ALTER TABLE NATION ADD CONSTRAINT FK_N_REGIONKEY
    FOREIGN KEY (N_REGIONKEY) REFERENCES
    REGION(R_REGIONKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_L_ORDERKEY' )
    ALTER TABLE LINEITEM ADD CONSTRAINT FK_L_ORDERKEY
    FOREIGN KEY (L_ORDERKEY) REFERENCES
    ORDERS(O_ORDERKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_L_PARTKEY' )
    ALTER TABLE LINEITEM ADD CONSTRAINT FK_L_PARTKEY
    FOREIGN KEY (L_PARTKEY) REFERENCES
    PART(P_PARTKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_L_SUPPKEY' )
    ALTER TABLE LINEITEM ADD CONSTRAINT FK_L_SUPPKEY
    FOREIGN KEY (L_SUPPKEY) REFERENCES
    SUPPLIER(S_SUPPKEY)
GO

IF NOT EXISTS ( SELECT name FROM sysobjects WHERE name =
'FK_L_PARTKEY_SUPPKEY' )

```

```

    ALTER TABLE LINEITEM ADD CONSTRAINT
    FK_L_PARTKEY_SUPPKEY
    FOREIGN KEY (L_PARTKEY,L_SUPPKEY) REFERENCES
    PARTSUPP(PS_PARTKEY, PS_SUPPKEY)
GO

```

B.6 BackupDatabase.sql

```

backup database tpch100g to
disk='c:\dev\node1\hp_backup1.bak',
disk='c:\dev\node2\hp_backup2.bak',
disk='c:\dev\node3\hp_backup3.bak',
disk='c:\dev\node1\hp_backup4.bak',
disk='c:\dev\node2\hp_backup5.bak',
disk='c:\dev\node3\hp_backup6.bak',
disk='c:\dev\node1\hp_backup7.bak',
disk='c:\dev\node2\hp_backup8.bak',
disk='c:\dev\node3\hp_backup9.bak'
with init,format, maxtransfersize=1048576,
BUFFERCOUNT=1000,stats=1

```

B.7 RestoreDatabase.sql

```

restore database tpch100g from
disk='c:\dev\node1\hp_backup1.bak',
disk='c:\dev\node2\hp_backup2.bak',
disk='c:\dev\node3\hp_backup3.bak',
disk='c:\dev\node1\hp_backup4.bak',
disk='c:\dev\node2\hp_backup5.bak',
disk='c:\dev\node3\hp_backup6.bak',
disk='c:\dev\node1\hp_backup7.bak',
disk='c:\dev\node2\hp_backup8.bak',
disk='c:\dev\node3\hp_backup9.bak'
with stats=1, maxtransfersize=1048576, BUFFERCOUNT=1000, replace

```

B.8 MoveTempDB.sql

```

-- File: MOVE_RESIZE_TEMPDB.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.7.0-1005
-- Copyright Microsoft, 2006 - 2009

```

```

ALTER DATABASE tempdb
    MODIFY FILE (NAME='tempdev',
    FILENAME='C:\dev\node1\TempDB.mdf')
GO

```

```

ALTER DATABASE tempdb
    MODIFY FILE (NAME='templog', FILENAME='c:\templog.ldf')
GO

```

```

ALTER DATABASE tempdb
    MODIFY FILE (NAME='tempdev',
    FILENAME='C:\dev\node1\TempDB.mdf', SIZE=27000MB,
    FILEGROWTH=10)
GO

```

```
ALTER DATABASE tempdb
  MODIFY FILE (NAME='templog', FILENAME='C:\templog.ldf',
  SIZE=5000MB, FILEGROWTH=10)
GO
```

```
ALTER DATABASE tempdb
  ADD FILE (NAME='tempdev_1',
  FILENAME='c:\dev\node2\TempDB_1.mdf', SIZE=27000MB,
  FILEGROWTH=10)
GO
```

```
ALTER DATABASE tempdb
  ADD FILE (NAME='tempdev_2',
  FILENAME='c:\dev\node3\TempDB_2.mdf', SIZE=27000MB,
  FILEGROWTH=10)
GO
```

B.9 DelLoadFg.sql

```
alter database tpch100g remove file tpch100g_load1
alter database tpch100g remove file tpch100g_load2
alter database tpch100g remove file tpch100g_load3
alter database tpch100g remove file tpch100g_load4
alter database tpch100g remove file tpch100g_load5
alter database tpch100g remove file tpch100g_load6
alter database tpch100g remove file tpch100g_load7
alter database tpch100g remove file tpch100g_load8
alter database tpch100g remove file tpch100g_load9
alter database tpch100g remove file tpch100g_load10
alter database tpch100g remove file tpch100g_load11
alter database tpch100g remove file tpch100g_load12
alter database tpch100g remove file tpch100g_load13
alter database tpch100g remove file tpch100g_load14
alter database tpch100g remove file tpch100g_load15
alter database tpch100g remove file tpch100g_load16
alter database tpch100g remove filegroup LOAD_FG
```

Appendix C: Query Text and Output

C.1 Qualification Queries and Output

Qualification Query 1

-- using default substitutions

/* TPC_H Query 1 - Pricing Summary Report */

```
SELECT L_RETURNFLAG,
       L_LINESTATUS,
       SUM(L_QUANTITY)
         AS SUM_QTY,
       SUM(L_EXTENDEDPRICE)
         AS SUM_BASE_PRICE,
       SUM(L_EXTENDEDPRICE*(1-L_DISCOUNT))
         AS SUM_DISC_PRICE,
       SUM(L_EXTENDEDPRICE*(1-L_DISCOUNT)*(1+L_TAX))
         AS SUM_CHARGE,
       AVG(L_QUANTITY)
         AS AVG_QTY,
       AVG(L_EXTENDEDPRICE)
         AS AVG_PRICE,
       AVG(L_DISCOUNT)
         AS AVG_DISC,
       COUNT_BIG(*)
         AS COUNT_ORDER
FROM   LINEITEM
WHERE  L_SHIPDATE <= dateadd(dd, 90, cast('1998-12-01' as
date))
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      37734107.000000    56586554400.730301
53758257134.870041    55909065222.827415    25.522006
38273.129735         0.049985         1478493
N      F      991417.000000         1487504710.380000
1413082168.054097    1469649223.194375    25.516472
38284.467761         0.050009         38854
N      O      74476040.000000    111701729697.739110
106118230307.605260    110367043872.498210    25.502227
38249.117989         0.049997         2920374
R      F      37719753.000000    56568041380.899857
53741292684.604156    55889619119.832260    25.505794
38250.854626         0.050009         1478870
```

(4 row(s) affected)

Qualification Query 2

-- using default substitutions

/* TPC_H Query 2 - Minimum Cost Supplier */

```
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
= PS_SUPPKEY AND
= N_NATIONKEY AND
= R_REGIONKEY AND
= '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
-----
9938.530000 Supplier#000005359 UNITED KINGDOM
185358 Manufacturer#4 QKuHYh,vZGiwu2FWEJoLDx04
33-429-790-6131 blithely silent pinto beans are furiously. slyly final deposits
acros
9937.840000 Supplier#000005969 ROMANIA
108438 Manufacturer#1
ANDENSOSmk,miq23Xfb5RWt6dvUcvt6Qa 29-520-692-3537
carefully slow deposits use furiously. slyly ironic platelets above the ironic
9936.220000 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
9923.770000 Supplier#000002324 GERMANY
29821 Manufacturer#4 y3OD9UywSTok 17-
779-299-1839 quickly express packages breach quiet pinto beans. requ
```

9871.220000 Supplier#000006373 GERMANY
 43868 Manufacturer#5 J8fcXW5TqM 17-813-
 485-8637 never silent deposits integrate furiously blit
 9870.780000 Supplier#000001286 GERMANY
 81285 Manufacturer#2
 YKA,E2fjiVd7eUrzp2Ef8j1QxGo2DFnosaTEH 17-516-924-4574 final
 theodolites cajole slyly special,
 9870.780000 Supplier#000001286 GERMANY
 181285 Manufacturer#4
 YKA,E2fjiVd7eUrzp2Ef8j1QxGo2DFnosaTEH 17-516-924-4574 final
 theodolites cajole slyly special,
 9852.520000 Supplier#000008973 RUSSIA 18972
 Manufacturer#2 t5L67YdBYH6o,Vz24jpDyQ9 32-188-
 594-7038 quickly regular instructions wake-- carefully unusual braids into
 the expres
 9847.830000 Supplier#000008097 RUSSIA 130557
 Manufacturer#2 xMe97bpE69NzdwLoX 32-375-640-
 3593 slyly regular dependencies sleep slyly furiously express dep
 9847.570000 Supplier#000006345 FRANCE 86344
 Manufacturer#1 VSt3rzK3qG698u6ld8HhOByvrTcSTSvQIDQDag
 16-886-766-7945 silent pinto beans should have to snooze carefully along
 the final reques
 9847.570000 Supplier#000006345 FRANCE
 173827 Manufacturer#2
 VSt3rzK3qG698u6ld8HhOByvrTcSTSvQIDQDag 16-886-766-7945 silent
 pinto beans should have to snooze carefully along the final reques
 9836.930000 Supplier#000007342 RUSSIA 4841
 Manufacturer#4 JOIK7C1,7xrEZSSow 32-399-414-
 5385 final accounts haggle. bold accounts are furiously dugouts. furiously
 silent asymptotes are slyly

..... additional rows deleted

7887.080000 Supplier#000009792 GERMANY
 164759 Manufacturer#3 Y28ITVeYriT3kiGdV2K8fSZ
 V2UqT5H1Otz 17-988-938-4296 pending, ironic packages sleep among
 the carefully ironic accounts. quickly final accounts
 7871.500000 Supplier#000007206 RUSSIA 104695
 Manufacturer#1 3w fNcNrvmvJJE95sgWZzvW 32-432-
 452-7731 furiously dogged pinto beans cajole. bold, express notornis until
 the slyly pending
 7852.450000 Supplier#000005864 RUSSIA 8363
 Manufacturer#4 WCNfBPZcSXh3h,c 32-454-883-
 3821 blithely regular deposits
 7850.660000 Supplier#000001518 UNITED KINGDOM
 86501 Manufacturer#1 ONda3YJiHKJOC 33-
 730-383-3892 furiously final accounts wake carefully idle requests. even
 dolphins wake acc
 7843.520000 Supplier#000006683 FRANCE 11680
 Manufacturer#4 2Z0JGkiv01Y0oCFwUGfviIbhZCdy 16-464-
 517-8943 carefully bold accounts doub

(100 row(s) affected)

Qualification Query 3

-- using default substitutions

/* TPC_H Query 3 - Shipping Priority */

```
SELECT TOP 10
  L_ORDERKEY,
  SUM(L_EXTENDEDPRICE*(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 406181.011100 1995-03-05 00:00:00.000 0
3459808 405838.698900 1995-03-04 00:00:00.000 0
492164 390324.061000 1995-02-19 00:00:00.000 0
1188320 384537.935900 1995-03-09 00:00:00.000 0
2435712 378673.055800 1995-02-26 00:00:00.000 0
4878020 378376.795200 1995-03-12 00:00:00.000 0
5521732 375153.921500 1995-03-13 00:00:00.000 0
2628192 373133.309400 1995-02-22 00:00:00.000 0
993600 371407.459500 1995-03-05 00:00:00.000 0
2300070 367371.145200 1995-03-13 00:00:00.000 0
```

(10 row(s) affected)

Qualification Query 4

-- using default substitutions

/* TPC_H Query 4 - Order Priority Checking */

```
SELECT O_ORDERPRIORITY,
       COUNT(*) AS ORDER_COUNT
FROM ORDERS
WHERE O_ORDERDATE >= '1993-07-01' AND
      O_ORDERDATE < dateadd(mm, 3, cast('1993-07-01' as
date)) 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 row(s) affected)

Qualification Query 5

-- using default substitutions

/* TPC_H Query 5 - Local Supplier Volume */

```
SELECT N_NAME,
       SUM(L_EXTENDEDPRI*(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(YY, 1, cast ('1994-01-01' as
```

```
date))
GROUP BY N_NAME
ORDER BY REVENUE DESC
```

N_NAME	REVENUE
INDONESIA	55502041.169700
VIETNAM	55295086.996700
CHINA	53724494.256600
INDIA	52035512.000200
JAPAN	45410175.695400

(5 row(s) affected)

Qualification Query 6

-- using default substitutions

/* TPC_H Query 6 - Forecasting Revenue Change */

```
SELECT SUM(L_EXTENDEDPRI*L_DISCOUNT) AS
REVENUE
FROM   LINEITEM
WHERE  L_SHIPDATE   >= '1994-01-01' AND
       L_SHIPDATE   < dateadd (yy, 1, cast('1994-01-01' as
date)) AND
       L_DISCOUNT  BETWEEN 0.06 - 0.01 AND 0.06 + 0.01
AND
       L_QUANTITY    < 24
```

```
REVENUE
-----
123141078.228300
```

(1 row(s) affected)

Qualification Query 7

-- using default substitutions

/* TPC_H Query 7 - Volume Shipping */

```
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(yy,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
           N1.N_NATIONKEY  AND
           S_NATIONKEY     =
           N2.N_NATIONKEY  AND
           C_NATIONKEY     =
           ( 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'
)
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	54639732.733600
FRANCE	GERMANY	1996	54633083.307600
GERMANY	FRANCE	1995	52531746.669700
GERMANY	FRANCE	1996	52520549.022400

(4 row(s) affected)

Qualification Query 8

-- using default substitutions

/* TPC_H Query 8 - National Market Share */

```
SELECT O_YEAR,
       SUM(CASE WHEN NATION = 'BRAZIL'
                THEN VOLUME
                ELSE 0
                END) / SUM(VOLUME) AS
MKT_SHARE
FROM   ( SELECT datepart(yy,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
ANODIZED STEEL'
P_TYPE = 'ECONOMY
) AS ALL_NATIONS
GROUP BY O_YEAR
ORDER BY O_YEAR
O_YEAR MKT_SHARE
-----
1995 0.034436
1996 0.041486
(2 row(s) affected)

```

Qualification Query 9

-- using default substitutions

/* TPC_H Query 9 - Product Type Profit Measure */

```

SELECT NATION,
O_YEAR,
SUM(AMOUNT) AS SUM_PROFIT
FROM (
SELECT N_NAME
AS NATION,
datepart(yy, O_ORDERDATE)
AS O_YEAR,
L_EXTENDEDPRI*(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 31342867.234500
ALGERIA 1997 57138193.023300
ALGERIA 1996 56140140.133000
ALGERIA 1995 53051469.653400
ALGERIA 1994 53867582.128600
ALGERIA 1993 54942718.132400
ALGERIA 1992 54628034.712700
ARGENTINA 1998 30211185.708100
ARGENTINA 1997 50805741.752300
ARGENTINA 1996 51923746.575500
ARGENTINA 1995 49298625.766600
ARGENTINA 1994 50835610.109500
ARGENTINA 1993 51646079.177500
ARGENTINA 1992 50410314.994800
BRAZIL 1998 27217924.383200
BRAZIL 1997 48378669.198900
BRAZIL 1996 50482870.357200
BRAZIL 1995 47623383.634900
BRAZIL 1994 47840165.725600
BRAZIL 1993 49054694.035100
BRAZIL 1992 48667639.084200
CANADA 1998 30379833.768500
CANADA 1997 50465052.311400
CANADA 1996 52560501.390400
CANADA 1995 52375332.809200
CANADA 1994 52600364.658700

```

..... additional rows deleted

```

UNITED STATES 1993 48029946.801400
UNITED STATES 1992 48671944.498300
VIETNAM 1998 30442736.059400
VIETNAM 1997 50309179.794200
VIETNAM 1996 50488161.410000
VIETNAM 1995 49658284.612500
VIETNAM 1994 50596057.260700
VIETNAM 1993 50953919.151900
VIETNAM 1992 49613838.315100

```

(175 row(s) affected)

Qualification Query 10

-- using default substitutions

/* TPC_H Query 10 - Returned Item Reporting */

```

SELECT TOP 20
C_CUSTKEY,
C_NAME,
SUM(L_EXTENDEDPRI*(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, cast('1993-10-01' as date
))
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
C_COMMENT
-----
-----

```

```

57040 Customer#000057040 734235.245500 632.870000
JAPAN Eioyzjf4pp 22-895-641-3466
requests sleep blithely about the furiously i
143347 Customer#000143347 721002.694800 2557.470000
EGYPT 1aReFYv,Kw4 14-742-935-3718
fluffily bold excuses haggle finally after the u
60838 Customer#000060838 679127.307700 2454.770000
BRAZIL 64EaJ5vMAHWJIBOXJklpNc2RJIWE 12-913-
494-9813 furiously even pinto beans integrate under the ruthless foxes;
ironic, even dolphins across the slyl
101998 Customer#000101998 637029.566700 3790.890000
UNITED KINGDOM 01e9CILnNtfOQYmZj 33-593-
865-6378 accounts doze blithely! enticing, final deposits sleep blithely
special accounts. slyly express accounts pla
125341 Customer#000125341 633508.086000 4983.510000
GERMANY S29ODD6bceU8QSuueJznkNaK 17-582-
695-5962 quickly express requests wake quickly blithely
25501 Customer#000025501 620269.784900 7725.040000
ETHIOPIA W556MXuoiaYCCZamJI,Rn0B4ACUGdkQ8DZ
15-874-808-6793 quickly special requests sleep evenly among the special
deposits. special deposi
115831 Customer#000115831 596423.867200 5098.100000
FRANCE rFeBbEEyk dl ne7zV5fDrmiq1oK09wV7pxqCgIc 16-
715-386-3788 carefully bold excuses sleep alongside of the thinly idle
84223 Customer#000084223 594998.023900 528.650000
UNITED KINGDOM nAVZCS6BaWap rM27N 2qBnc5WBauxbA
33-442-824-8191 pending, final ideas haggle final requests. unusual, regular
asymptotes affix according to the even foxes.
54289 Customer#000054289 585603.391800 5583.020000
IRAN vXCxoCsU0Bad5JQI ,oobkZ 20-834-292-
4707 express requests sublata blithely regular requests. regular, even ideas
solve.
39922 Customer#000039922 584878.113400 7321.110000
GERMANY Zgy4s5012GKN4pLDPBU8m342glw6R 17-
147-757-8036 even pinto beans haggle. slyly bold accounts inte
6226 Customer#000006226 576783.760600 2230.090000
UNITED KINGDOM 8gPu8,NPGkfyQQOhcIYUGPIBwC,ybP5g,

```

```

33-657-701-3391 quickly final requests against the regular instructions wake
blithely final instructions. pa
922 Customer#000000922 576767.533300 3869.250000
GERMANY Az9RFaut7NkPnc5zSD2PwHgVwr4jRzq 17-
945-916-9648 boldly final requests cajole blith
147946 Customer#000147946 576455.132000 2030.130000
ALGERIA iANyZHjqhyy7AjahOpTrYyhJ 10-886-956-
3143 furiously even accounts are blithely above the furiousl
115640 Customer#000115640 569341.193300 6436.100000
ARGENTINA Vtgfia9ql 7EpHgecU1X 11-411-543-
4901 final instructions are slyly according to the
73606 Customer#000073606 568656.857800 1785.670000
JAPAN xuR0Tro5yChDfOCrjkd2ol 22-437-653-
6966 furiously bold orbits about the furiously busy requests wake across the
furiously quiet theodolites. d
110246 Customer#000110246 566842.981500 7763.350000
VIETNAM 7KzflgX MDOq7sOkI 31-943-426-
9837 dolphins sleep blithely among the slyly final
142549 Customer#000142549 563537.236800 5085.990000
INDONESIA ChqEoK43OysjdHbtKCP6dKqjNyvvi9 19-
955-562-2398 regular, unusual dependencies boost slyly; ironic attainments
nag fluffily into the unusual packages?
146149 Customer#000146149 557254.986500 1791.550000
ROMANIA s87fvzFQpU 29-744-164-6487
silent, unusual requests detect quickly slyly regul
52528 Customer#000052528 556397.350900 551.790000
ARGENTINA NFztyTOR10UOJ 11-208-192-
3205 unusual requests detect. slyly dogged theodolites use slyly. deposit
23431 Customer#000023431 554269.536000 3381.860000
ROMANIA HgiV0phqhaIa9aydNoIlb 29-915-458-
2654 instructions nag quickly. furiously bold accounts cajol

```

(20 row(s) affected)

Qualification Query 11

-- using default substitutions

/* TPC_H Query 11 - Important Stock Identification */

```

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 17538456.860000
166726 16503353.920000
191287 16474801.970000
161758 16101755.540000
34452 15983844.720000
139035 15907078.340000
9403 15451755.620000
154358 15212937.880000
38823 15064802.860000
85606 15053957.150000
33354 14408297.400000
154747 14407580.680000
82865 14235489.780000
76094 14094247.040000
222 13937777.740000
121271 13908336.000000
55221 13716120.470000
22819 13666434.280000
76281 13646853.680000
85298 13581154.930000
85158 13554904.000000
139684 13535538.720000
31034 13498025.250000

```

... additional rows deleted ...

```

122819 7888881.020000
154731 7888301.330000
101674 7879324.600000
51968 7879102.210000
72073 7877736.110000
5182 7874521.730000

```

(1048 row(s) affected)

Qualification Query 12

-- using default substitutions

/* TPC_H Query 12 - Shipping Modes and Order Priority */

```

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,cast ('1994-01-01' as date))
GROUP BY L_SHIPMODE
ORDER BY L_SHIPMODE

L_SHIPMODE HIGH_LINE_COUNT LOW_LINE_COUNT

```

```

-----
MAIL 6202 9324
SHIP 6200 9262

```

(2 row(s) affected)

Qualification Query 13

-- using default substitutions

/* TPC_H Query 13 - Customer Distribution */

```

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 row(s) affected)

Qualification Query 14

-- using default substitutions

/* TPC_H Query 14 - Promotion Effect */

```
SELECT 100.00 * SUM ( CASE WHEN P_TYPE
LIKE 'PROMO%%' THEN
L_EXTENDEDPRI*(1-L_DISCOUNT) ELSE 0
END) /
SUM(L_EXTENDEDPRI*(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, cast ('1995-09-01' as
date))
```

```
PROMO_REVENUE
-----
16.380779
```

(1 row(s) affected)

Qualification Query 15

-- using default substitutions

/* TPC_H Query 15 - Create View for Top Supplier Query */

```
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, cast ('1996-01-01' as
date))
GROUP BY L_SUPPKEY
GO
```

/* TPC_H Query 15 - Top Supplier */

```
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 1772627.208700
```

(1 row(s) affected)

Qualification Query 16

-- using default substitutions

/* TPC_H Query 16 - Parts/Supplier Relationship */

```
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
Brand#21 MEDIUM ANODIZED COPPER 3 24
Brand#22 SMALL BRUSHED NICKEL 3 24
Brand#22 SMALL BURNISHED BRASS 19 24
Brand#25 MEDIUM BURNISHED COPPER 36 24
Brand#31 PROMO POLISHED COPPER 36 24
Brand#33 LARGE POLISHED TIN 23 24
Brand#33 PROMO POLISHED STEEL 14 24
```

.... Additional rows deleted

```

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 row(s) affected)

Qualification Query 17

-- using default substitutions

/* TPC_H Query 17 - Small-Quantity-Order Revenue */

```

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

348406.054286

(1 row(s) affected)

Qualification Query 18

-- using default substitutions

/* TPC_H Query 18 - Large Volume Customer */

```

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
O_ORDERKEY = L_ORDERKEY
GROUP BY
C_NAME,
C_CUSTKEY,
O_ORDERKEY,
O_ORDERDATE,

```

```

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 544089.090000 323.000000
Customer#000144617 144617 3043270 1997-02-12
00:00:00.000 530604.440000 317.000000
Customer#000013940 13940 2232932 1997-04-13
00:00:00.000 522720.610000 304.000000
Customer#000066790 66790 2199712 1996-09-30
00:00:00.000 515531.820000 327.000000
Customer#000046435 46435 4745607 1997-07-03
00:00:00.000 508047.990000 309.000000
Customer#000015272 15272 3883783 1993-07-28
00:00:00.000 500241.330000 302.000000
Customer#000146608 146608 3342468 1994-06-12
00:00:00.000 499794.580000 303.000000
Customer#000096103 96103 5984582 1992-03-16
00:00:00.000 494398.790000 312.000000
Customer#000024341 24341 1474818 1992-11-15
00:00:00.000 491348.260000 302.000000
Customer#000137446 137446 5489475 1997-05-23
00:00:00.000 487763.250000 311.000000
Customer#000107590 107590 4267751 1994-11-04
00:00:00.000 485141.380000 301.000000
Customer#000050008 50008 2366755 1996-12-09
00:00:00.000 483891.260000 302.000000
Customer#000015619 15619 3767271 1996-08-07
00:00:00.000 480083.960000 318.000000
Customer#000077260 77260 1436544 1992-09-12
00:00:00.000 479499.430000 307.000000
Customer#000109379 109379 5746311 1996-10-10
00:00:00.000 478064.110000 302.000000
Customer#000054602 54602 5832321 1997-02-09
00:00:00.000 471220.080000 307.000000
Customer#000105995 105995 2096705 1994-07-03
00:00:00.000 469692.580000 307.000000
Customer#000148885 148885 2942469 1992-05-31
00:00:00.000 469630.440000 313.000000
Customer#000114586 114586 551136 1993-05-19
00:00:00.000 469605.590000 308.000000
Customer#000105260 105260 5296167 1996-09-06
00:00:00.000 469360.570000 303.000000
Customer#000147197 147197 1263015 1997-02-02
00:00:00.000 467149.670000 320.000000
Customer#000064483 64483 2745894 1996-07-04
00:00:00.000 466991.350000 304.000000
Customer#000136573 136573 2761378 1996-05-31
00:00:00.000 461282.730000 301.000000
Customer#000016384 16384 502886 1994-04-12
00:00:00.000 458378.920000 312.000000
Customer#000117919 117919 2869152 1996-06-20
00:00:00.000 456815.920000 317.000000
Customer#000012251 12251 735366 1993-11-24
00:00:00.000 455107.260000 309.000000
Customer#000120098 120098 1971680 1995-06-14
00:00:00.000 453451.230000 308.000000
Customer#000066098 66098 5007490 1992-08-07
00:00:00.000 453436.160000 304.000000
Customer#000117076 117076 4290656 1997-02-05
00:00:00.000 449545.850000 301.000000
Customer#000129379 129379 4720454 1997-06-07
00:00:00.000 448665.790000 303.000000
Customer#000126865 126865 4702759 1994-11-07
00:00:00.000 447606.650000 320.000000

```

Customer#000088876	88876	983201	1993-12-30
00:00:00.000	446717.460000	304.000000	
Customer#000036619	36619	4806726	1995-01-17
00:00:00.000	446704.090000	328.000000	
Customer#000141823	141823	2806245	1996-12-29
00:00:00.000	446269.120000	310.000000	
Customer#000053029	53029	2662214	1993-08-13
00:00:00.000	446144.490000	302.000000	
Customer#000018188	18188	3037414	1995-01-25
00:00:00.000	443807.220000	308.000000	
Customer#000066533	66533	29158	1995-10-21
00:00:00.000	443576.500000	305.000000	
Customer#000037729	37729	4134341	1995-06-29
00:00:00.000	441082.970000	309.000000	
Customer#000003566	3566	2329187	1998-01-04
00:00:00.000	439803.360000	304.000000	
Customer#000045538	45538	4527553	1994-05-22
00:00:00.000	436275.310000	305.000000	
Customer#000081581	81581	4739650	1995-11-04
00:00:00.000	435405.900000	305.000000	
Customer#000119989	119989	1544643	1997-09-20
00:00:00.000	434568.250000	320.000000	
Customer#000003680	3680	3861123	1998-07-03
00:00:00.000	433525.970000	301.000000	
Customer#000113131	113131	967334	1995-12-15
00:00:00.000	432957.750000	301.000000	
Customer#000141098	141098	565574	1995-09-24
00:00:00.000	430986.690000	301.000000	
Customer#000093392	93392	5200102	1997-01-22
00:00:00.000	425487.510000	304.000000	
Customer#000015631	15631	1845057	1994-05-12
00:00:00.000	419879.590000	302.000000	
Customer#000112987	112987	4439686	1996-09-17
00:00:00.000	418161.490000	305.000000	
Customer#000012599	12599	4259524	1998-02-12
00:00:00.000	415200.610000	304.000000	
Customer#000105410	105410	4478371	1996-03-05
00:00:00.000	412754.510000	302.000000	
Customer#000149842	149842	5156581	1994-05-30
00:00:00.000	411329.350000	302.000000	
Customer#000010129	10129	5849444	1994-03-21
00:00:00.000	409129.850000	309.000000	
Customer#000069904	69904	1742403	1996-10-19
00:00:00.000	408513.000000	305.000000	
Customer#000017746	17746	6882	1997-04-09
00:00:00.000	408446.930000	303.000000	
Customer#000013072	13072	1481925	1998-03-15
00:00:00.000	399195.470000	301.000000	
Customer#000082441	82441	857959	1994-02-07
00:00:00.000	382579.740000	305.000000	
Customer#000088703	88703	2995076	1994-01-30
00:00:00.000	363812.120000	302.000000	

(57 row(s) affected)

Qualification Query 19

-- using default substitutions

/* TPC_H Query 19 - Discounted Revenue */

```
SELECT SUM(L_EXTENDEDPRICE* (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

3083843.057800

(1 row(s) affected)

Qualification Query 20

-- using default substitutions

/* TPC_H Query 20 - Potential Part Promotion */

```

SELECT S_NAME,
       S_ADDRESS
FROM   SUPPLIER,
       NATION
WHERE  S_SUPPKEY      IN      (
       PS_SUPPKEY
       PARTSUPP
       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,cast('1994-01-01' as date))
       )
       ) AND
       S_NATIONKEY = N_NATIONKEY AND
       N_NAME      = 'CANADA'
ORDER BY S_NAME
S_NAME      S_ADDRESS
-----
Supplier#000000020 iybAE,RmTymrZVYafZva2SH,j
Supplier#000000091 YV45D7TkfdQanOOZ7q9QxkyGUapU1oOWU6q3
Supplier#000000197 YC2Acon6kjY3zj3Fbxs2k4Vdf7X0cd2F
Supplier#000000226 83qOdU2EYRdPQAQhEtn GRZEd
Supplier#000000285 Br7e1nnt1yxrw6lmgpJ7YdhFDjuBf
Supplier#000000378 FfbhyCxWvcPrO8ltp9
Supplier#000000402 i9Sw4DoyMhzhKXCH9By,AYSgmD
Supplier#000000530 QqwCMwobKY OcmLyfRXlagA8ukENJv,
Supplier#000000688 D fw5ocppmZpYBBIPi718hCihLDZ5KhKX
Supplier#000000710 f19YPvOyb QoYwjKC,oPycpGfieBAcwKJo
Supplier#000000736 l6i2nMwVuovfKnuVgaSGK2rDy65DIAFLegIL7
Supplier#000000761 zLSLeIQUj2XrvTTFnv7WAcYZGvvMTx882d4
Supplier#000000884 bnhEShejaS
Supplier#000000887 urEaTejH5POADP2ARf
Supplier#000000935 ij98czM 2KzWe7dDToxB8sq0UfCdvrx
Supplier#000000975 ,AC e,tBpNwKb5xMUzeohxIRn, hdZJo73gFQF8y
Supplier#000001263 rQWr6nf8ZhB2TAiIDlvo5Io
... additional rows deleted ....
Supplier#000009812 APFRMy3lCbgFga53n5t9DxzFPQPgnjrGt32
Supplier#000009862 rJzweWeN58
Supplier#000009868 ROjGgx5gvtkmnUUoeyy7v
Supplier#000009869 ucLqxzrpBTRMewGSM29t0rNTM30g1Tu3Xgg3mKag
Supplier#000009899 7XdpaHrzr1t,UQFZE
Supplier#000009974 7wJ,J5DKcxSU4Kp1cQLpbcAvB5AsvKT

```

(204 row(s) affected)

Qualification Query 21

-- using default substitutions

/* TPC_H Query 21 - Suppliers Who Kept Orders Waiting */

```

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#00000262 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
... additional rows deleted ....
Supplier#000000811 12
Supplier#000000821 12

```

Supplier#000001337 12
 Supplier#000001916 12
 Supplier#000001925 12
 Supplier#000002039 12
 Supplier#000002357 12
 Supplier#000002483 12

(100 row(s) affected)

Qualification Query 22

-- using default substitutions

/* TPC_H Query 22 - Global Sales Opportunity */

```

SELECT  CNTRYCODE,
        COUNT(*)          AS NUMCUST,
        SUM(C_ACCTBAL) AS TOTACCTBAL
FROM    (
  SELECT  SUBSTRING(C_PHONE,1,2) AS
  CNTRYCODE,
        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 CNTRYCODE
ORDER BY CNTRYCODE

```

CNTRYCODE	NUMCUST	TOTACCTBAL
13	888	6737713.990000
17	861	6460573.720000
18	964	7236687.400000
23	892	6701457.950000
29	948	7158866.630000
30	909	6808436.130000
31	922	6806670.180000

(7 row(s) affected)

Appendix D: Seeds and Query Substitution Parameters

Stream0 Seed : 820143101

14	1993-09-01					
2	4	TIN	AMERICA			
9	chiffon					
20	plum	1997-01-01	GERMANY			
6	1995-01-01	0.02	25			
17	Brand#24	WRAP CAN				
18	315					
8	ROMANIA	EUROPE	STANDARD BRUSHED			
STEEL						
21	UNITED STATES					
13	express	packages				
3	FURNITURE	1995-03-07				
22	17	18	20	26	27	12
	32					
16	Brand#12	ECONOMY POLISHED	48	4		
	50	24	18	28	33	35
4	1994-01-01					
11	BRAZIL	0.0000010000				
15	1993-10-01					
1	88					
10	1993-03-01					
19	Brand#54	Brand#52	Brand#13	7	17	25
5	AFRICA	1995-01-01				
7	ARGENTINA	ROMANIA				
12	FOB	SHIP	1993-01-01			

Stream1 Seed : 820143102

21	PERU					
3	MACHINERY	1995-03-23				
18	312					
5	AMERICA	1995-01-01				
11	MOROCCO	0.0000010000				
7	CHINA	IRAQ				
6	1995-01-01	0.07	24			
20	burnished	1996-01-01	VIETNAM			
17	Brand#21	SM CASE				
12	MAIL	SHIP	1994-01-01			
16	Brand#42	STANDARD BRUSHED	45	28		
	35	44	30	20	10	16
15	1996-05-01					
13	express	packages				
10	1993-12-01					
2	42	COPPER	EUROPE			
8	IRAQ	MIDDLE EAST	STANDARD PLATED			
COPPER						
14	1994-01-01					
19	Brand#11	Brand#45	Brand#12	2	18	22
9	blue					
22	34	31	19	21	15	17
	33					
1	96					
4	1996-08-01					

Stream2 Seed : 820143103

6	1995-01-01	0.05	24			
17	Brand#23	SM JAR				
14	1994-04-01					
16	Brand#32	LARGE BURNISHED	48	17		
	35	24	13	8	36	6
19	Brand#13	Brand#23	Brand#52	8	19	29
10	1994-10-01					
9	aquamarine					
2	30	STEEL	AMERICA			
15	1994-01-01					
8	CANADA	AMERICA	STANDARD ANODIZED			
COPPER						
5	ASIA	1995-01-01				
22	21	13	20	24	12	14
	19					
12	TRUCK	REG AIR	1994-01-01			
7	IRAN	CANADA				
13	special	requests				
18	314					
1	104					
4	1994-05-01					
20	metallic	1994-01-01	IRAQ			
3	BUILDING	1995-03-09				
11	CANADA	0.0000010000				
21	INDONESIA					

Stream3 Seed : 820143104

8	SAUDI ARABIA	MIDDLE EAST	PROMO			
POLISHED COPPER						
5	EUROPE	1995-01-01				
4	1996-12-01					
6	1995-01-01	0.02	25			
17	Brand#25	SM CAN				
7	BRAZIL	SAUDI ARABIA				
1	112					
18	315					
22	11	18	12	19	34	32
	29					
14	1994-07-01					
9	violet					
10	1993-07-01					
15	1996-08-01					
11	MOZAMBIQUE	0.0000010000				
20	wheat	1993-01-01	ARGENTINA			
2	18	NICKEL	MIDDLE EAST			
21	ARGENTINA					
19	Brand#15	Brand#11	Brand#51	3	20	25
13	special	requests				
16	Brand#12	PROMO PLATED	8	49	1	
	3	34	44	13	2	
12	AIR	REG AIR	1994-01-01			
3	MACHINERY	1995-03-25				

Stream4 Seed : 820143105

5	MIDDLE EAST	1996-01-01				
21	CHINA					
14	1994-10-01					
19	Brand#22	Brand#44	Brand#45	8	10	21
15	1994-05-01					
17	Brand#22	LG CASE				
12	REG AIR	RAIL	1994-01-01			
6	1996-01-01		0.08		24	
4	1994-09-01					
9	spring					
8	JAPAN	ASIA	PROMO	BURNISHED	COPPER	
16	Brand#42	SMALL	BRUSHED	12	20	8
	7	42	15	13	26	
11	EGYPT	0.0000010000				
2	5	TIN	AMERICA			
10	1994-04-01					
18	313					
1	120					
13	special	requests				
7	ROMANIA		JAPAN			
22	26	14	33	20	29	16
	11					
3	BUILDING		1995-03-11			
20	honeydew	1996-01-01		MOZAMBIQUE		

Stream5 Seed : 820143106

21	IRAN					
15	1996-12-01					
4	1997-04-01					
6	1996-01-01		0.05		24	
7	IRAQ	EGYPT				
16	Brand#32	ECONOMY	ANODIZED		42	11
	18	12	16	39	1	14
19	Brand#25	Brand#32	Brand#44	3	11	28
18	314					
14	1995-02-01					
22	13	24	22	23	17	30
	25					
11	PERU	0.0000010000				
13	special	requests				
3	HOUSEHOLD		1995-03-27			
1	67					
2	43	COPPER	MIDDLE EAST			
5	AFRICA	1996-01-01				
8	EGYPT	MIDDLE EAST		ECONOMY	BRUSHED	
	COPPER					
20	saddle	1995-01-01		ETHIOPIA		
12	SHIP	REG AIR	1995-01-01			
17	Brand#24	LG JAR				
10	1995-01-01					
9	seashell					

Appendix E: Refresh Function Source Code

E.1 CreateRF1Proc.sql

```
-- File:  CREATERF1PROC.SQL
--      Microsoft TPC-H Benchmark Kit Ver. 2.7.0-1005
--      Copyright Microsoft, 2006 - 2009
--
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
    @current_execution INTEGER, @insert_sets INTEGER,
    @parallel_executions INTEGER, @total_executions INTEGER
AS
BEGIN
    DECLARE @startdate DATE
    DECLARE @enddate DATE
    DECLARE @edate DATE
    DECLARE @rangeStart INTEGER
    DECLARE @rangeSize INTEGER
    DECLARE @range INTEGER

    DECLARE @success INTEGER
    DECLARE @index INTEGER
    DECLARE @div INTEGER
    DECLARE @mod INTEGER
    DECLARE @skip INTEGER
    DECLARE @i INTEGER
    DECLARE @rangeSum INTEGER
    DECLARE @totRangeSize INTEGER
    DECLARE @stmt NCHAR(1000)
    DECLARE @orderSql NCHAR(1000)
    DECLARE @liSql NCHAR(1000)

    DECLARE @ErrorMessage NVARCHAR(4000)
    DECLARE @ErrorNumber INT
    DECLARE @ErrorSeverity INT
    DECLARE @ErrorState INT
    DECLARE @ErrorLine INT
    DECLARE @ErrorProcedure NVARCHAR(200)

    SET @skip = @total_executions/@parallel_executions
    SET @div = (@current_execution - 1)/@parallel_executions
    SET @mod = (@current_execution - 1) - @div * @parallel_executions
    SET @index = @mod*@skip + @div + 1

    --
    -- Get the range for this execution
    --
    SET @stmt = N'SELECT @sdate = dateadd(day,-1,min(O_ORDERDATE)),
    @edate = max(O_ORDERDATE)
    FROM NEWORDERS'
    EXEC sp_executesql @stmt,N'@sdate DATE output, @edate DATE
    output',@startdate output, @enddate output

    --SELECT 'CurrExec:'+cast(@current_execution as varchar(200))
    +','+cast(scheduler_id as varchar(200)) as [sched] from
    sys.dm_exec_requests where session_id=@@spid

    IF (@total_executions > @parallel_executions)
        BEGIN
            SET @div = (@index-1)/@skip
            SET @mod = (@index-1) - @div * @skip

            --SET @rangeSize = datediff(day, @startdate,
            @enddate)/@parallel_executions + 1
            SET @rangeSize = ((@div+1) * datediff(day, @startdate,
            @enddate))/@parallel_executions - (@div * datediff(day, @startdate,
            @enddate))/@parallel_executions

            --SET @rangeStart = @div * @rangeSize
            SET @rangeStart = (@div * datediff(day, @startdate,
            @enddate))/@parallel_executions
            SET @rangeStart = @rangeStart + (@rangeSize * @mod)/@skip

            SET @totRangeSize = ((@mod + 1) * @rangeSize)/@skip -
            (@mod * @rangeSize)/@skip
            SET @rangeSize = @totRangeSize

            IF (@rangeSize < 0)
                SET @rangeSize = 0
            IF (@insert_sets <= 0)
                SET @insert_sets = 1
            END
        ELSE
            BEGIN
                SET @rangeSize = (@current_execution * datediff(day,
                @startdate, @enddate))/@total_executions - ((@current_execution-1) *
                datediff(day, @startdate, @enddate))/@total_executions
                SET @rangeStart = ((@current_execution-1) * datediff(day,
                @startdate, @enddate))/@total_executions
                END

            SET @startdate = dateadd(day, @rangeStart, @startdate)
            IF (@index < @total_executions)
                SET @enddate = dateadd(day, @rangeSize, @startdate)

            SET @range = datediff(day, @startdate, @enddate) / @insert_sets

            --
            -- This handles the case when the max-min/insert_sets is less than 1
            --
            IF @range = 0
                SET @range = 1

            --
            -- Generate the two insert statements
            --
            SET @edate = dateadd(day, @range, @startdate)
            SET @orderSql = N'INSERT INTO ORDERS (O_ORDERKEY,
            O_CUSTKEY, O_ORDERSTATUS, O_TOTALPRICE,
            O_ORDERDATE,
            O_ORDERPRIORITY, O_CLERK, O_SHIPPRIORITY, O_COMMENT)
            (SELECT O_ORDERKEY, O_CUSTKEY,
            O_ORDERSTATUS, O_TOTALPRICE,
            O_ORDERDATE,
            O_ORDERPRIORITY, O_CLERK, O_SHIPPRIORITY, O_COMMENT
            FROM NEWORDERS
            WHERE O_ORDERDATE > @startdate
            AND O_ORDERDATE <= @edate)
            option (loop join,MaxDop 1)'
        END
    END
```

```

SET @liSql = N'INSERT INTO LINEITEM
(L_ORDERKEY,L_PARTKEY,L_SUPPKEY,L_LINENUMBER,L_QUAN
TITY,
                L_EXTENDEDPRICE,
L_DISCOUNT, L_TAX, L_RETURNFLAG, L_LINESTATUS,
                L_SHIPDATE,
L_COMMITDATE, L_RECEIPTDATE, L_SHIPINSTRUCT,
L_SHIPMODE, L_COMMENT)
(SELECT
L_ORDERKEY,L_PARTKEY,L_SUPPKEY,L_LINENUMBER,L_QUAN
TITY,
                L_EXTENDEDPRICE,
L_DISCOUNT, L_TAX, L_RETURNFLAG, L_LINESTATUS,
                L_SHIPDATE,
L_COMMITDATE, L_RECEIPTDATE, L_SHIPINSTRUCT,
L_SHIPMODE, L_COMMENT
FROM NEWLINEITEM, NEWORDERS
WHERE L_ORDERKEY =
O_ORDERKEY AND O_ORDERDATE > @startdate AND
O_ORDERDATE
<= @edate)
                option (loop join,MaxDop 1)'

--
-- Loop through the order keys inserting sets into the
-- ORDERS and LINTEITEM tables
--
WHILE @startdate < @enddate
    BEGIN
    --
    -- Insert into ORDERS and LINEITEM tables
    --
    INSERT_TRANS:
    SET @success = 1
    BEGIN TRANSACTION

        BEGIN TRY
            EXEC sp_executesql @orderSql, N'@startdate DATE,
@edate DATE', @startdate, @edate
            EXEC sp_executesql @liSql, N'@startdate DATE,
@edate DATE', @startdate, @edate
        END TRY
        BEGIN CATCH
            SET @success = 0
            IF (error_number() = 1205) -- deadlock victim
                BEGIN
                PRINT 'Insert deadlock - restarting RF1'
                IF (@@trancount>0)
                    ROLLBACK TRANSACTION
                END
            ELSE
                BEGIN -- not a
                PRINT ERROR_MESSAGE()
                SELECT @ErrorMessage =
                    @ErrorSeverity =
                    @ErrorState = ERROR_STATE(),
                    @ErrorLine = ERROR_LINE(),
                    @ErrorProcedure =
ISNULL(ERROR_PROCEDURE(), '-');
                SELECT @ErrorMessage = N'Error %d,
Level %d, State %d, Procedure %s, Line %d, ' +
                    'Message: '+ ERROR_MESSAGE();
                IF (@@trancount>0)
                    ROLLBACK TRANSACTION
                RAISERROR
                (

```

```

                @ErrorMessage,
                @ErrorSeverity,
                1,
                @ErrorNumber, -- parameter:
original error number.
                @ErrorSeverity, -- parameter:
original error severity.
                @ErrorState, -- parameter: original
error state.
                @ErrorProcedure, -- parameter:
original error procedure name.
                @ErrorLine -- parameter: original
error line number.
            );
        END
    END CATCH

    IF (@success = 0) -- deadlock - redo
        the inserts
        GOTO INSERT_TRANS

    COMMIT TRANSACTION

    SET @startdate = @edate
    SET @edate = dateadd(day, @range, @edate)

    IF (@edate > @enddate)
        SET @edate = @enddate

    END
END
GO

```

E.2 CreateRF2Proc.sql

```

-- File: CREATERF2PROC.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.7.0-1005
-- Copyright Microsoft, 2006 - 2009
--
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
    @current_execution INTEGER, @delete_sets INTEGER,
    @parallel_executions INTEGER, @total_executions INTEGER
AS
BEGIN
    DECLARE @startdate DATE
    DECLARE @enddate DATE
    DECLARE @edate DATE
    DECLARE @rangeStart INTEGER
    DECLARE @rangeSize INTEGER
    DECLARE @range INTEGER

    declare @success INTEGER
    declare @index INTEGER
    declare @div INTEGER
    declare @mod INTEGER
    declare @skip INTEGER
    declare @i INTEGER

```

```

declare @rangeSum INTEGER
declare @totRangeSize INTEGER
declare @sql NCHAR(1000)
declare @orderSql NCHAR(1000)
declare @liSql NCHAR(1000)

DECLARE @ErrorMessage NVARCHAR(4000)
DECLARE @ErrorNumber INT
DECLARE @ErrorSeverity INT
DECLARE @ErrorState INT
DECLARE @ErrorLine INT
DECLARE @ErrorProcedure NVARCHAR(200)

SET @skip = @total_executions/@parallel_executions
SET @div = floor((@current_execution-1)/@parallel_executions)
SET @mod = (@current_execution - 1) - @div * @parallel_executions
SET @index = @mod*@skip + @div + 1

SET @sql = N'SELECT @sdate = dateadd(day,-1,min(O_ORDERDATE)),
@edate = max(O_ORDERDATE)
FROM MOD_OLDORDERS'
EXEC sp_executesql @sql,N'@sdate DATE output, @edate DATE
output',@startdate output, @enddate output

--SELECT 'CurrExec:'+cast(@current_execution as varchar(200))
+','+cast(scheduler_id as varchar(200)) as [sched] from
sys.dm_exec_requests where session_id=@@spid

IF (@total_executions > @parallel_executions)
BEGIN
SET @div = (@index-1)/@skip
SET @mod = (@index-1) - @div * @skip

--SET @rangeSize = datediff(day, @startdate,
@enddate)/@parallel_executions + 1
SET @rangeSize = ((@div+1) * datediff(day, @startdate,
@enddate))/@parallel_executions - (@div * datediff(day, @startdate,
@enddate))/@parallel_executions

--SET @rangeStart = @div * @rangeSize
SET @rangeStart = (@div * datediff(day, @startdate,
@enddate))/@parallel_executions
SET @rangeStart = @rangeStart + (@rangeSize * @mod)/@skip

SET @totRangeSize = ((@mod + 1) * @rangeSize)/@skip -
(@mod * @rangeSize)/@skip
SET @rangeSize = @totRangeSize

IF (@rangeSize < 0)
SET @rangeSize = 0
IF (@delete_sets <= 0)
SET @delete_sets = 1
END
ELSE
BEGIN
SET @rangeSize = (@current_execution * datediff(day,
@startdate, @enddate))/@total_executions - ((@current_execution-1) *
datediff(day, @startdate, @enddate))/@total_executions
SET @rangeStart = (((@current_execution-1) * datediff(day,
@startdate, @enddate))/@total_executions
END

SET @startdate = dateadd(day, @rangeStart, @startdate)
IF (@index < @total_executions)
SET @enddate = dateadd(day, @rangeSize, @startdate)

SET @range = datediff(day, @startdate, @enddate) / @delete_sets

--
-- This handles the case when the max-min/delete_sets is less than 1

```

```

--
IF @range = 0
SET @range = 1

--
-- Loop through the order keys deleting sets from orders
-- and lineitem tables
--
SET @edate = dateadd(day, @range, @startdate)
SET @liSql = N'DELETE FROM LINEITEM WHERE L_ORDERKEY in
(SELECT O_ORDERKEY FROM
MOD_OLDORDERS
WHERE O_ORDERDATE > @startdate
AND O_ORDERDATE <= @edate)
option (loop join,MaxDop 1)'
SET @orderSql = N'DELETE FROM ORDERS WHERE O_ORDERKEY
in
(SELECT O_ORDERKEY FROM
MOD_OLDORDERS
WHERE O_ORDERDATE > @startdate
AND O_ORDERDATE <= @edate)
option (loop join,MaxDop 1)'

WHILE @startdate < @enddate
BEGIN

DELETE_TRANS:
SET @success = 1
BEGIN TRANSACTION

BEGIN TRY
EXEC sp_executesql @liSql, N'@startdate DATE,
@edate DATE', @startdate, @edate
EXEC sp_executesql @orderSql, N'@startdate DATE,
@edate DATE', @startdate, @edate
END TRY
BEGIN CATCH
SET @success = 0
IF (error_number() = 1205) -- deadlock victim
BEGIN
PRINT 'Delete deadlock - restarting RF2'
IF (@@trancount>0)
ROLLBACK TRANSACTION
END
ELSE
BEGIN -- not a
deadlock
PRINT ERROR_MESSAGE()
SELECT @ErrorNumber =
ERROR_NUMBER(),
@ErrorSeverity =
ERROR_SEVERITY(),
@ErrorState = ERROR_STATE(),
@ErrorLine = ERROR_LINE(),
@ErrorProcedure =
ISNULL(ERROR_PROCEDURE(), '-');
SELECT @ErrorMessage = N'Error %d,
Level %d, State %d, Procedure %s, Line %d, '+
'Message: '+ ERROR_MESSAGE();
IF (@@trancount>0)
ROLLBACK TRANSACTION
RAISERROR
(
@ErrorMessage,
@ErrorSeverity,
1,
@ErrorNumber, -- parameter:
original error number.

```

original error severity.	@ErrorSeverity, -- parameter:	GOTO DELETE_TRANS
error state.	@ErrorState, -- parameter: original	COMMIT TRANSACTION
original error procedure name.	@ErrorProcedure, -- parameter:	SET @startdate = @edate
error line number.	@ErrorLine -- parameter: original	SET @edate = dateadd(day, @range, @edate)
);	IF (@edate > @enddate)
	END	SET @edate = @enddate
END CATCH		END
IF (@success = 0)	-- deadlock - redo	END
the inserts		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=tpch100g

set HOMEDRIVE=C:
set HOMEDIR=%HP_TPCH_KIT%Setup
set OUTPUTDRIVE=C:
set OUTPUTDIR=%HP_TPCH_KIT%Output
set SCALEFACTOR=100
set DBGEN_SEGMENTS=16
set DBGEN_PARALLELISM=16
set FLATFILEDRIVE=z:
set FLATFILEDIR=HP_Flatfiles\
set FLATFILESUBDIR=\
set RF1_PARALLELISM=64
set RF2_PARALLELISM=64
set UPDATEDRIVE=C:
set UPATEDIR=%HP_UF_Flatfiles
set UPDATE_SETS=20

set DoDBGEN=FALSE
set DoDBCREATE=TRUE
set DoBULKINSERT=TRUE
set DoCREATEINDEX=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%%UPATEDIR% goto :ERROR_EXIT

echo Finding next output directory in
%OUTPUTDRIVE%%OUTPUTDIR%
set OUTPUTNUMBER=1
:OUTPUTLOOP
if NOT EXIST
%HOMEDRIVE%%OUTPUTDIR%\%OUTPUTNUMBER% goto
:OUTPUTLOOPEND
set /a OUTPUTNUMBER=%OUTPUTNUMBER%+1
goto :OUTPUTLOOP
:OUTPUTLOOPEND
set
OUTPUTPATH=%OUTPUTDRIVE%%OUTPUTDIR%\%OUTPUTNUM
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 /l %%i in (1,1,%DBGEN_SEGMENTS%) do copy dists.dss
%FLATFILEDRIVE%\%FLATFILEDIR%%\%i%\FLATFILESUBDIR%
copy dists.dss %UPDATEDRIVE%%UPATEDIR%
rem for /l %%i in
(1,%DBGEN_PARALLELISM%,%DBGEN_SEGMENTS%) do call
:DBGEN_ITERATE %%i

echo Starting DBGEN of Update Files
%UPDATEDRIVE%
cd %UPATEDIR%
%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 /l %%i in (%FIRST%,1,%LAST%) do start cmd /C Setup DBGEN %%i
semaphore -wait DBGEN -count %DBGEN_PARALLELISM%
goto :EOF

:DBGEN
%FLATFILEDRIVE%
cd \%FLATFILEDIR%\%2%\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

sqlcmd -E -Q"if exists (select * from sysdatabases where
name='%DB%')drop database %DB%" -o
%OUTPUTPATH%\DropDatabase.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -i %DB%\CreateDatabase.sql -o
%OUTPUTPATH%\CreateDatabase.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -Q"sp_dboption %DB%,trunc. log on chkpt.,TRUE" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -Q"sp_dboption %DB%,auto create statistics,'OFF'" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
```

```

sqlcmd -E -Q"sp_dboption %DB%,auto update statistics,'OFF'" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -Q"alter database %DB% set PAGE_VERIFY NONE" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -Q"alter database tempdb set PAGE_VERIFY NONE" -b
if ERRORLEVEL 1 goto :ERROR_EXIT

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

sqlcmd -E -Q"sp_dboption %DB%,trunc',TRUE" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -Q"sp_dboption %DB%,select into',TRUE" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -Q"sp_dboption %DB%,torn',FALSE" -b
if ERRORLEVEL 1 goto :ERROR_EXIT

echo Dropping and Re-Creating Tables
sqlcmd -E -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
sqlcmd -E -d%DB% -Q"create table LOADTIMES(STEP
char(35),TIMESTAMP datetime)" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('LOAD
begin',getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('Create Tables
begin',getdate())" -1 300
if ERRORLEVEL 1 goto :ERROR_EXIT
for %%i in (REGION NATION SUPPLIER PARTSUPP PART
CUSTOMER ORDERS LINEITEM) do sqlcmd -E -d%DB% -Q"drop table
%%i" -o %OUTPUTPATH%\Drop_Table_%%i.out
sqlcmd -E -d%DB% -i%DB%\CreateTables.sql -o
%OUTPUTPATH%\CreateTables.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('Create Tables
end',getdate())" -1 300
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
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('Nation/Region
insert begin',getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -Q"bulk insert NATION from
'%FLATFILEDRIVE%\%FLATFILEDIR%1%FLATFILESUBDIR%\Natio
n.tbl' with (FieldTerminator = '|', RowTerminator = '\n',tablock)" -o
%OUTPUTPATH%\BulkInsert_Nation.out -b -1 300
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -Q"bulk insert REGION from
'%FLATFILEDRIVE%\%FLATFILEDIR%1%FLATFILESUBDIR%\Regio
n.tbl' with (FieldTerminator = '|', RowTerminator = '\n',tablock)" -o
%OUTPUTPATH%\BulkInsert_Region.out -b -1 300
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('Nation/Region
insert end',getdate())" -b -1 300
if ERRORLEVEL 1 goto :ERROR_EXIT
goto :CREATEINDEX

:BULKINSERTi

```

```

echo Starting bulk inserts for %1
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('%1 bulk insert
begin',getdate())" -1 300
for /l %%j in (1,1,%DBGEN_PARALLELISM%) do start cmd /C Setup
BULKINSERTn %1 %%j
semaphore -wait %1 -count %DBGEN_PARALLELISM%
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('%1
end',getdate())" -b -1 300
if ERRORLEVEL 1 goto :ERROR_EXIT
goto :EOF

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

:BULKINSERTn2
sqlcmd -E -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 -1 300
goto :EOF

:CREATEINDEX
if NOT '%DoCREATEINDEX%' == 'TRUE' goto :CLEANUP
rem
rem Create Indexes
rem

echo %TIME% Starting create indexes
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('Create indexes
begin',getdate())" -b -1 300
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -i %DB%\CreateIndexes_1.sql -o
%OUTPUTPATH%\CreateIndexes_1.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -i %DB%\CreateFK.sql -o
%OUTPUTPATH%\CreateFK.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -i %DB%\CreateIndexes_2.sql -o
%OUTPUTPATH%\CreateIndexes_2.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
echo Starting create indexes
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('Create indexes
end',getdate())" -b -1 300
if ERRORLEVEL 1 goto :ERROR_EXIT
echo %TIME% Done creating indexes indexes

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

echo Setting Cleanup Options

sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('Cleanup
start',getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -Q"sp_createstats @fullscan = 'fullscan'" -o
%OUTPUTPATH%\CreateStats.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -I -E -d%DB% -Q"alter database %DB% set
date_correlation_optimization ON" -o
%OUTPUTPATH%\DateCorrelation.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT

```



```

sqlcmd -E -d%DB% -Q"sp_dboption '%DB%',auto create statistics,'OFF'" -
o %OUTPUTPATH%\AutoCreateStats.out
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -d%DB% -Q"sp_dboption '%DB%',auto update statistics,'OFF'" -
o %OUTPUTPATH%\AutoUpdateStats.out
if ERRORLEVEL 1 goto :ERROR_EXIT
rem sqlcmd -E -d%DB% -Q"sp_indexoption 'LINEITEM',
'disallowpagelocks', 'FALSE'" -o
%OUTPUTPATH%\DisallowPageLocksLINEITEM.out -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT
rem sqlcmd -E -d%DB% -Q"sp_indexoption 'ORDERS', 'disallowpagelocks',
'FALSE'" -o %OUTPUTPATH%\DisallowPageLocksOrders.out -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -I -d%DB% -i CreateRF1Proc.sql -o
%OUTPUTPATH%\CreateRF1Proc.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -I -d%DB% -i CreateRF2Proc.sql -o
%OUTPUTPATH%\CreateRF2Proc.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
rem sqlcmd -E -d%DB% -Q"exec sp_tableoption 'NATION','pintable',1" -o
%OUTPUTPATH%\pinNATION.out -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT
rem sqlcmd -E -d%DB% -Q"exec sp_tableoption 'REGION','pintable',1" -o
%OUTPUTPATH%\pinREGION.out -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT
rem
rem sqlcmd -E -d%DB% -Q"exec sp_tableoption 'SUPPLIER','pintable',1" -o
%OUTPUTPATH%\pinSUPPLIER.out -b
rem if ERRORLEVEL 1 goto :ERROR_EXIT
rem sqlcmd -E -Q"sp_dboption %DB%',torn',FALSE" -b
>%OUTPUTPATH%\dboptionTornOFF.out
rem if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -Q"sp_dboption %DB%',trunc',FALSE" -b
>%OUTPUTPATH%\dboptionTrunOFF.out
if ERRORLEVEL 1 goto :ERROR_EXIT
rem sqlcmd -E -Q"sp_dboption %DB%',select',FALSE" -b
>%OUTPUTPATH%\dboptionSelOFF.out
rem if ERRORLEVEL 1 goto :ERROR_EXIT

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

:ENDSTATS

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

```

```

sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('LOAD
end',getdate())"
sqlcmd -E -d%DB% -Q"select TIMESTAMP from LOADTIMES where
STEP='LOAD end'" -o %OUTPUTPATH%\LoadEND.out
bcp %DB%..LOADTIMES out %OUTPUTPATH%\LOADTIMES.bcp -T -
n
sqlcmd -E -d%DB% -Q"select * from LOADTIMES" -o
%OUTPUTPATH%\LoadTimes.out
echo Last step is to run Francois' dbtables-ms.sql script
sqlcmd -E -d%DB% -i dbtables-ms.sql -o %OUTPUTPATH%\dbtables-
ms.out
sqlcmd -E -d%DB% -i SetupReport.sql -o
%OUTPUTPATH%\SetupReport.out
sqlcmd -E -I -e -w300 -i RI-test-sf100.sql -o %OUTPUTPATH%\RI-test-
sf100.out
rem echo Optional step to check database validity
rem sqlcmd -E -dtpch300g -Q"dbcc checkdb('tpch300g') with
PHYSICAL_ONLY" -o %OUTPUTPATH%\CheckDb.out
rem echo Optional, and very expensive, step to check LINEITEM and
ORDERS validity
rem sqlcmd -E -dtpch300g -Q"dbcc checktable('LINEITEM')" -o
%OUTPUTPATH%\CheckLINEITEM.out
rem sqlcmd -E -dtpch300g -Q"dbcc checktable('ORDERS')" -o
%OUTPUTPATH%\CheckORDERS.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=tpch100g
set HOMEDRIVE=C:
set HOMEDIR=\HP_TPCH_KIT\Run
set OUTPUTDRIVE=C:
set OUTPUTDIR=\HP_TPCH_KIT\Output
set UPDATEDRIVE=C:
set UPDATEDIR=\HP_UF_Flatfiles
set UPDATESSET=1
set UPDATESEGMENTS=64
set SEED=726121811
set SCALEFACTOR=100
set STREAMS=5

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' == 'RF1_LOAD' goto RF1_LOAD
if '%1' == 'RF2' goto RF2
if '%1' == 'RF2_LOAD' goto RF2_LOAD
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
%OUTPUTDRIVE%%OUTPUTDIR%\%OUTPUTNUMBER% goto
:OUTPUTLOOPEND
set /a OUTPUTNUMBER=%OUTPUTNUMBER%+1
goto :OUTPUTLOOP
:OUTPUTLOOPEND
set
OUTPUTPATH=%OUTPUTDRIVE%%OUTPUTDIR%\%OUTPUTNUM
BER%
echo Output will be found at %OUTPUTPATH%
mkdir %OUTPUTPATH%
rem
rem Create the TIMES table
rem
sqlcmd -I -E -d%DB% -Q"if exists (select * from sysindexes where name =
'TIMES') drop table TIMES"
sqlcmd -I -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
sqlcmd -I -E -i .\Setup\%DB%\Restore.sql -b
sqlcmd -I -E -d%DB% -i .\Setup\CreateRF1Proc.sql
sqlcmd -I -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 >
%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
sqlcmd -I -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%
sqlcmd -I -E -d%DB% -Q"insert into TIMES values ('RF1',0,getdate())"
sqlcmd -I -E -d%DB% -iRF_Procs\RF1_init.sql -o
%OUTPUTPATH%\RF1_%UPDATE_SEGMENT%_init.out -b
for /l %%i in (1,1,%UPDATESEGMENTS%) do start cmd /c Run
RF1_LOAD %%i %UPDATE_SEGMENT%
semaphore -wait RF1_LOAD -count %UPDATESEGMENTS%
sqlcmd -I -E -d%DB% -iRF_Procs\RF1_index.sql -o
%OUTPUTPATH%\RF1_%UPDATE_SEGMENT%_index.out -b
for /l %%i in (1,1,%UPDATESEGMENTS%) do start cmd /C Run RF1 %%i
10 %UPDATESEGMENTS% %UPDATESEGMENTS%
%UPDATE_SEGMENT%
semaphore -wait RF1 -count %UPDATESEGMENTS%

rem
rem Execute the PowerRun Queries
rem

:STREAM0
if NOT '%DoPOWERStream0%' == 'TRUE' goto :STREAM0_DONE
echo Running Stream0
sqlcmd -I -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
sqlcmd -I -E -d%DB% -Q"insert into TIMES values ('RF2',0,getdate())"
sqlcmd -I -E -d%DB% -iRF_Procs\RF2_init.sql -o
%OUTPUTPATH%\RF2_%UPDATE_SEGMENT%_init.out -b
for /l %%i in (1,1,%UPDATESEGMENTS%) do start cmd /c Run
RF2_LOAD %%i %UPDATE_SEGMENT%
semaphore -wait RF2_LOAD -count %UPDATESEGMENTS%
sqlcmd -I -E -d%DB% -iRF_Procs\RF2_index.sql -o
%OUTPUTPATH%\RF2_%UPDATE_SEGMENT%_index.out -b
for /l %%i in (1,1,%UPDATESEGMENTS%) do start cmd /C Run RF2 %%i
10 %UPDATESEGMENTS% %UPDATESEGMENTS%
%UPDATE_SEGMENT%
semaphore -wait RF2 -count %UPDATESEGMENTS%

:POWERDONE
sqlcmd -I -E -d%DB% -Q"insert into TIMES values ('QXX',0,getdate())" -
1300

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
sqlcmd -I -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
sqlcmd -I -E -d%DB% -iStream%2.sql -o
%OUTPUTPATH%\Stream%2.out
:LOOP1
semaphore -release THROUGHPUT_QUERIES
@if ERRORLEVEL 1 goto :LOOP1
goto :EOF

:THROUGHPUT_REFRESH
if %1 neq 1 sqlcmd -I -E -d%DB% -Q"insert into TIMES values
('RF1',%1,getdate())"
set /a UPDATE_SEGMENT=%1+%UPDATESET%

sqlcmd -I -E -d%DB% -iRF_ProcsRF1_init.sql -o
%OUTPUTPATH%\RF1_%UPDATE_SEGMENT%_init.out -b
for /l %%i in (1,1,%UPDATESEGMENTS%) do start cmd /c Run
RF1_LOAD %%i %UPDATE_SEGMENT%
semaphore -wait RF1_LOAD -count %UPDATESEGMENTS%
sqlcmd -I -E -d%DB% -iRF_ProcsRF1_index.sql -o
%OUTPUTPATH%\RF1_%UPDATE_SEGMENT%_index.out -b
for /l %%i in (1,1,%UPDATESEGMENTS%) do start cmd /C Run RF1 %%i
10 %UPDATESEGMENTS% %UPDATESEGMENTS%
%UPDATE_SEGMENT%
semaphore -wait RF1 -count %UPDATESEGMENTS%

sqlcmd -I -E -d%DB% -Q"insert into TIMES values ('RF2',%1,getdate())"
sqlcmd -I -E -d%DB% -iRF_ProcsRF2_init.sql -o
%OUTPUTPATH%\RF2_%UPDATE_SEGMENT%_init.out -b
for /l %%i in (1,1,%UPDATESEGMENTS%) do start cmd /c Run
RF2_LOAD %%i %UPDATE_SEGMENT%
semaphore -wait RF2_LOAD -count %UPDATESEGMENTS%
sqlcmd -I -E -d%DB% -iRF_ProcsRF2_index.sql -o
%OUTPUTPATH%\RF2_%UPDATE_SEGMENT%_index.out -b
for /l %%i in (1,1,%UPDATESEGMENTS%) do start cmd /C Run RF2 %%i
10 %UPDATESEGMENTS% %UPDATESEGMENTS%
%UPDATE_SEGMENT%
semaphore -wait RF2 -count %UPDATESEGMENTS%

sqlcmd -I -E -d%DB% -Q"insert into TIMES values ('RFX',%1,getdate())"
goto :EOF

rem
rem Final Step -- Write out completion to Log
rem

:DONE
sqlcmd -E -d%DB% -iReport.sql -o%OUTPUTPATH%\Report.out -w120
bcp %DB%..TIMES out %OUTPUTPATH%\TIMES.bcp -T -n
osql -E -e -I -w300 -d %DB% -Q"select * from TIMES" -
o%OUTPUTPATH%\times.out
rem ----- Get SQL Configuration
sqlcmd -I -E -Q"sp_configure 'show advanced',1"
sqlcmd -I -E -Q"reconfigure with override"
sqlcmd -I -E -s, -w300 -Q"sp_configure" -
o%OUTPUTPATH%\configure.out
rem ----- Get SQL Version

sqlcmd -I -E -w300 -e -Q"select @@version" -
o%OUTPUTPATH%\sqlversion.out
sqlcmd -I -E -w300 -e -Q"sp_helpdb %DB%" -o%OUTPUTPATH%\db.out
sqlcmd -I -E -w300 -e -Q"sp_dboption %DB%" -
o%OUTPUTPATH%\dboption.out
sqlcmd -I -E -w300 -e -Q"sp_helpsort" -o%OUTPUTPATH%\sort.out
sqlcmd -I -E -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
sqlcmd -I -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\IO 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 Loading data for RF1s
rem called from RF1 and THROUGHPUT_RF1
rem

:RF1_LOAD
set "SQLTEXT=bulk insert NEWLINEITEM from
'%UPATEDRIVE%%%UPATEDIR%\Lineitem.tbl.u%3.%2' with
(FieldTerminator = '|', RowTerminator = '\n,tablock)"
OSQL -I -E -I 120 -d%DB% -Q"%SQLTEXT%" -o
%OUTPUTPATH%\RF1_load_lineitem_%2_%3.out
set "SQLTEXT=bulk insert NEWORDERS from
'%UPATEDRIVE%%%UPATEDIR%\Orders.tbl.u%3.%2' with
(FieldTerminator = '|', RowTerminator = '\n,tablock)"
OSQL -I -E -I 120 -d%DB% -Q"%SQLTEXT%" -o
%OUTPUTPATH%\RF1_load_orders_%2_%3.out
:LOOP2
semaphore -release RF1_LOAD
@if ERRORLEVEL 1 goto :LOOP2
goto :EOF

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

:RF1
OSQL -I -E -I 120 -d%DB% -Q"exec RF1 %2,%3,%4,%5" -o
%OUTPUTPATH%\RF1_%2_%6.out
:LOOP3
semaphore -release RF1
@if ERRORLEVEL 1 goto :LOOP3
goto :EOF

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

```

```

:RF2_LOAD
set "SQLTEXT=bulk insert OLDORDERS_%2 from
'%UPDATEDRIVE%%UPDATEDIR%\Delete.u%3.%2' with
(FieldTerminator = '|', RowTerminator ='|,tablock)"
sqlcmd -I -E -I 120 -d%DB% -Q"%SQLTEXT%" -o
%OUTPUTPATH%\RF2_load_orders_%2_%3.out
sqlcmd -I -E -I 120 -d%DB% -Q"insert into MOD_OLDORDERS
(O_ORDERDATE, O_ORDERKEY) (select B.O_ORDERDATE,
B.O_ORDERKEY from OLDORDERS_%2 A, ORDERS B where
A.O_ORDERKEY = B.O_ORDERKEY)" -o
%OUTPUTPATH%\RF2_insert_orders_%2_%3.out
:LOOP4
semaphore -release RF2_LOAD
@if ERRORLEVEL 1 goto :LOOP4
goto :EOF

```

```

:RF2
OSQL -I -E -I 120 -d%DB% -Q"exec RF2 %2,%3,%4,%5" -o
%OUTPUTPATH%\RF2_%2_%6.out
:LOOP5
semaphore -release RF2
@if ERRORLEVEL 1 goto :LOOP5
goto :EOF

```

```

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

```

F.3 RF1_index.sql

```

create clustered index NEWORDERS_CLUIDX
on NEWORDERS (O_ORDERDATE)
on DATA_FG

```

```

create clustered index NEWLINEITEM_CLUIDX
on NEWLINEITEM (L_ORDERKEY)
on DATA_FG

```

F.4 RF1_init.sql

```

--
-- Create tables to hold RF1 input data
--
if exists (select name from sysobjects where name = 'NEWORDERS')
drop table NEWORDERS

create table NEWORDERS (O_ORDERKEY bigint not null,
O_CUSTKEY int not null,
O_ORDERSTATUS char(1) not null,
O_TOTALPRICE float 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) on
DATA_FG

if exists (select name from sysobjects where name = 'NEWLINEITEM')
drop table NEWLINEITEM

```

```

create table NEWLINEITEM (L_ORDERKEY bigint not null,
L_PARTKEY int not null,
L_SUPPKEY int not null,
L_LINENUMBER int not null,
L_QUANTITY float not null,
L_EXTENDEDPRICE float not
null,
L_DISCOUNT float not null,
L_TAX float 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) on DATA_FG

```

F.5 RF2_index.sql

```

create clustered index MOD_OLDORDERS_CLUIDX on
MOD_OLDORDERS (O_ORDERDATE)

```

```

create index MOD_OLDORDERS_IDX on MOD_OLDORDERS
(O_ORDERKEY)

```

F.6 RF2_init.sql

```

--
-- Create the tables to hold input data for RF2
--
declare @segment integer
declare @sql nchar(1000)

if exists (select name from sysobjects where name = 'MOD_OLDORDERS')
drop table MOD_OLDORDERS
create table MOD_OLDORDERS (O_ORDERDATE datetime,
O_ORDERKEY bigint) on DATA_FG

set @segment = 1
while @segment <= $(UPDATESEGMENTS)
begin
set @sql = 'if exists (select name from sysobjects where name =
"OLDORDERS_'
+
RTRIM(CONVERT(varchar(30),@segment))+ "'')
drop table OLDORDERS_' +
RTRIM(CONVERT(varchar(30),@segment))
exec sp_executesql @sql
set @sql = 'create table OLDORDERS_' +
RTRIM(CONVERT(varchar(30),@segment))
+ '(O_ORDERKEY int) on DATA_FG'
exec sp_executesql @sql

```

```

set @segment = @segment + 1
end

```

F.7 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);
}

```

F.8 Print.C for DBGEN

```

/*
 * $Id: print.c,v 1.3 2005/10/28 02:56:22 jms Exp $
 *
 * Revision History
 * =====
 * $Log: print.c,v $
 * Revision 1.3 2005/10/28 02:56:22 jms
 * add platform-specific printf formats to allow for DSS_HUGE data type
 *
 * Revision 1.2 2005/01/03 20:08:59 jms
 * change line terminations
 *
 * Revision 1.1.1.1 2004/11/24 23:31:47 jms
 * re-establish external server
 *
 * Revision 1.4 2004/02/18 16:26:49 jms
 * 32/64 bit changes for overflow handling needed additional changes when ported
back to windows
 *
 * Revision 1.3 2004/02/18 14:05:53 jms
 * porting changes for LINUX and 64 bit RNG
 *
 * Revision 1.2 2004/01/22 05:49:29 jms
 * AIX porting (AIX 5.1)
 *
 * Revision 1.1.1.1 2003/08/07 17:58:34 jms
 * recreation after CVS crash
 *
 * Revision 1.2 2003/08/07 17:58:34 jms
 * Convery RNG to 64bit space as preparation for new large scale RNG
 *
 * Revision 1.1.1.1 2003/04/03 18:54:21 jms
 * initial checkin
 *
 */

```

```

/* generate flat files for data load */
#include <stdio.h>
#ifdef VMS
#include <sys/types.h>
#endif
#if defined(SUN)
#include <unistd.h>
#endif
#include <math.h>

#include "dss.h"
#include "dsstypes.h"
#include <string.h>

/*
 * Function Prototypes
 */
FILE *print_prep_PROTO((int table, int update));
int pr_drange_PROTO((int tbl, DSS_HUGE min, DSS_HUGE cnt, long num));

FILE *
print_prep(int table, int update)
{
    char upath[128];
    FILE *res;

    if (updates)
    {
        if (update > 0) /* updates */
            if (insert_segments)
            {
                int this_segment;

                if (strcmp(tdefs[table].name, "orders.tbl"))
                    this_segment = ++insert_orders_segment;
                else
                    this_segment = ++insert_lineitem_segment;
                sprintf(upath, "%s%c%s.u%d.%d",
                    env_config(PATH_TAG, PATH_DFLT),
                    PATH_SEP,
                    tdefs[table].name, update%10000, this_segment);
            }
            else
            {
                sprintf(upath, "%s%c%s.u%d",
                    env_config(PATH_TAG,
                    PATH_DFLT),
                    PATH_SEP,
                    tdefs[table].name,
                    update);
            }
            else /* deletes */
            if (delete_segments)
            {
                ++delete_segment;
                sprintf(upath,
                    "%s%cdelete.u%d.%d",
                    env_config(PATH_TAG, PATH_DFLT), PATH_SEP, -update%10000,
                    delete_segment);
            }
            else
            {
                sprintf(upath, "%s%cdelete.%d",
                    env_config(PATH_TAG,
                    PATH_DFLT), PATH_SEP, -update);
            }
            return(fopen(upath, "w"));
    }
}

```

```

}
res = tbl_open(table, "w");
OPEN_CHECK(res, tdefs[table].name);
return(res);
}

int
dbg_print(int format, FILE *target, void *data, int len, int sep)
{
    int dollars,
        cents;

    switch(format)
    {
        case DT_STR:
            if (columnar)
                fprintf(target, "%-*s", len, (char *)data);
            else
                fprintf(target, "%s", (char *)data);
            break;
#ifdef MVS
        case DT_VSTR:
            /* note: only used in MVS, assumes columnar output */
            fprintf(target, "%c%c%-*s",
                (len >> 8) & 0xFF, len & 0xFF, len, (char
                *)data);
            break;
#endif /* MVS */
        case DT_INT:
            if (columnar)
                fprintf(target, "%12ld", (long)data);
            else
                fprintf(target, "%ld", (long)data);
            break;
        case DT_HUGE:
            fprintf(target, HUGE_FORMAT, *(DSS_HUGE *)data);
            break;
        case DT_KEY:
            fprintf(target, "%ld", (long)data);
            break;
        case DT_MONEY:
            cents = (int)*(DSS_HUGE *)data;
            if (cents < 0)
            {
                fprintf(target, "-");
                cents = -cents;
            }
            dollars = cents / 100;
            cents %= 100;
            if (columnar)
                fprintf(target, "%12ld.%02ld", dollars, cents);
            else
                fprintf(target, "%ld.%02ld", dollars, cents);
            break;
        case DT_CHR:
            if (columnar)
                fprintf(target, "%c ", *(char *)data);
            else
                fprintf(target, "%c", *(char *)data);
            break;
    }
}

#ifdef EOL_HANDLING
if (sep)
#endif /* EOL_HANDLING */
if (!columnar)
    fprintf(target, "%c", SEPARATOR);

return(0);
}

```

```

int
pr_cust(customer_t *c, int mode)
{
static FILE *fp = NULL;

if (fp == NULL)
    fp = print_prep(CUST, 0);

PR_START(fp);
PR_HUGE(fp, &c->custkey);
if (scale <= 3000)
PR_VSTR(fp, c->name, C_NAME_LEN);
else
PR_VSTR(fp, c->name, C_NAME_LEN + 3);
PR_VSTR(fp, c->address,
(columnar)?(long)(ceil(C_ADDR_LEN * V_STR_HGH)):c->alen);
PR_HUGE(fp, &c->nation_code);
PR_STR(fp, c->phone, PHONE_LEN);
PR_MONEY(fp, &c->acctbal);
PR_STR(fp, c->mktsegment, C_MSEG_LEN);
PR_VSTR_LAST(fp, c->comment,
(columnar)?(long)(ceil(C_CMNT_LEN * V_STR_HGH)):c->clen);
PR_END(fp);

return(0);
}

/*
 * print the numbered order
 */
int
pr_order(order_t *o, int mode)
{
static FILE *fp_o = NULL;
static int last_mode = 0;

if (fp_o == NULL || mode != last_mode)
{
if (fp_o)
fclose(fp_o);
fp_o = print_prep(ORDER, mode);
last_mode = mode;
}
PR_START(fp_o);
PR_HUGE(fp_o, &o->okey);
PR_HUGE(fp_o, &o->custkey);
PR_CHR(fp_o, &o->orderstatus);
PR_MONEY(fp_o, &o->totalprice);
PR_STR(fp_o, o->odate, DATE_LEN);
PR_STR(fp_o, o->opriority, O_OPRIO_LEN);
PR_STR(fp_o, o->clerk, O_CLRK_LEN);
PR_INT(fp_o, o->spriority);
PR_VSTR_LAST(fp_o, o->comment,
(columnar)?(long)(ceil(O_CMNT_LEN * V_STR_HGH)):o->clen);
PR_END(fp_o);

return(0);
}

/*
 * print an order's lineitems
 */
int
pr_line(order_t *o, int mode)
{
static FILE *fp_l = NULL;
static int last_mode = 0;
long i;

```

```

if (fp_l == NULL || mode != last_mode)
{
if (fp_l)
fclose(fp_l);
fp_l = print_prep(LINE, mode);
last_mode = mode;
}

for (i = 0; i < o->lines; i++)
{
PR_START(fp_l);
PR_HUGE(fp_l, &o->l[i].okey);
PR_HUGE(fp_l, &o->l[i].partkey);
PR_HUGE(fp_l, &o->l[i].suppkey);
PR_HUGE(fp_l, &o->l[i].lcnt);
PR_HUGE(fp_l, &o->l[i].quantity);
PR_MONEY(fp_l, &o->l[i].eprice);
PR_MONEY(fp_l, &o->l[i].discount);
PR_MONEY(fp_l, &o->l[i].tax);
PR_CHR(fp_l, &o->l[i].rflag[0]);
PR_CHR(fp_l, &o->l[i].lstatus[0]);
PR_STR(fp_l, o->l[i].sdate, DATE_LEN);
PR_STR(fp_l, o->l[i].cdate, DATE_LEN);
PR_STR(fp_l, o->l[i].rdate, DATE_LEN);
PR_STR(fp_l, o->l[i].shipinstruct, L_INST_LEN);
PR_STR(fp_l, o->l[i].shipmode, L_SMODE_LEN);
PR_VSTR_LAST(fp_l, o->l[i].comment,
(columnar)?(long)(ceil(L_CMNT_LEN * V_STR_HGH)):o->l[i].clen);
PR_END(fp_l);
}

return(0);
}

/*
 * print the numbered order *and* its associated lineitems
 */
int
pr_order_line(order_t *o, int mode)
{
tdefs[ORDER].name = tdefs[ORDER_LINE].name;
pr_order(o, mode);
pr_line(o, mode);

return(0);
}

/*
 * print the given part
 */
int
pr_part(part_t *part, int mode)
{
static FILE *p_fp = NULL;

if (p_fp == NULL)
    p_fp = print_prep(PART, 0);

PR_START(p_fp);
PR_HUGE(p_fp, &part->partkey);
PR_VSTR(p_fp, part->name,
(columnar)?(long)P_NAME_LEN:part->nlen);
PR_STR(p_fp, part->mfg, P_MFG_LEN);
PR_STR(p_fp, part->brand, P_BRND_LEN);
PR_VSTR(p_fp, part->type,
(columnar)?(long)P_TYPE_LEN:part->tlen);
PR_HUGE(p_fp, &part->size);
PR_STR(p_fp, part->container, P_CNTR_LEN);
PR_MONEY(p_fp, &part->retailprice);
PR_VSTR_LAST(p_fp, part->comment,

```



```

        (columnar)?(long)(ceil(P_CMNT_LEN * V_STR_HGH));part->clen);
PR_END(p_fp);

return(0);
}

/*
 * print the given part's suppliers
 */
int
pr_psupp(part_t *part, int mode)
{
    static FILE *ps_fp = NULL;
    long i;

    if (ps_fp == NULL)
        ps_fp = print_prep(PSUPP, mode);

    for (i = 0; i < SUPP_PER_PART; i++)
    {
        PR_STRT(ps_fp);
        PR_HUGE(ps_fp, &part->s[i].partkey);
        PR_HUGE(ps_fp, &part->s[i].suppkey);
        PR_HUGE(ps_fp, &part->s[i].qty);
        PR_MONEY(ps_fp, &part->s[i].scost);
        PR_VSTR_LAST(ps_fp, part->s[i].comment,
            (columnar)?(long)(ceil(PS_CMNT_LEN * V_STR_HGH));part->s[i].clen);
        PR_END(ps_fp);
    }

    return(0);
}

/*
 * print the given part *and* its suppliers
 */
int
pr_part_psupp(part_t *part, int mode)
{
    tdefs[PART].name = tdefs[PART_PSUPP].name;
    pr_part(part, mode);
    pr_psupp(part, mode);

    return(0);
}

int
pr_supp(supplier_t *supp, int mode)
{
    static FILE *fp = NULL;

    if (fp == NULL)
        fp = print_prep(SUPP, mode);

    PR_STRT(fp);
    PR_HUGE(fp, &supp->suppkey);
    PR_STR(fp, supp->name, S_NAME_LEN);
    PR_VSTR(fp, supp->address,
        (columnar)?(long)(ceil(S_ADDR_LEN * V_STR_HGH));supp->alen);
    PR_HUGE(fp, &supp->nation_code);
    PR_STR(fp, supp->phone, PHONE_LEN);
    PR_MONEY(fp, &supp->acctbal);
    PR_VSTR_LAST(fp, supp->comment,
        (columnar)?(long)(ceil(S_CMNT_LEN * V_STR_HGH));supp->clen);
    PR_END(fp);

    return(0);
}

int

```

```

pr_nation(code_t *c, int mode)
{
    static FILE *fp = NULL;

    if (fp == NULL)
        fp = print_prep(NATION, mode);

    PR_STRT(fp);
    PR_HUGE(fp, &c->code);
    PR_STR(fp, c->text, NATION_LEN);
    PR_INT(fp, c->join);
    PR_VSTR_LAST(fp, c->comment,
        (columnar)?(long)(ceil(N_CMNT_LEN * V_STR_HGH));c->clen);
    PR_END(fp);

    return(0);
}

int
pr_region(code_t *c, int mode)
{
    static FILE *fp = NULL;

    if (fp == NULL)
        fp = print_prep(REGION, mode);

    PR_STRT(fp);
    PR_HUGE(fp, &c->code);
    PR_STR(fp, c->text, REGION_LEN);
    PR_VSTR_LAST(fp, c->comment,
        (columnar)?(long)(ceil(R_CMNT_LEN * V_STR_HGH));c->clen);
    PR_END(fp);

    return(0);
}

/*
 * NOTE: this routine does NOT use the BCD2_* routines. As a result,
 * it WILL fail if the keys being deleted exceed 32 bits. Since this
 * would require ~660 update iterations, this seems an acceptable
 * oversight
 */
int
pr_drange(int tbl, DSS_HUGE min, DSS_HUGE cnt, long num)
{
    static int last_num = 0;
    static FILE *dfp = NULL;
    DSS_HUGE child = -1;
    DSS_HUGE start, last, new;

    static DSS_HUGE rows_per_segment=0;
    static DSS_HUGE rows_this_segment=0;

    if (last_num != num)
    {
        if (dfp)
            fclose(dfp);
        dfp = print_prep(tbl, -num);
        if (dfp == NULL)
            return(-1);
        last_num = num;
        rows_this_segment=0;
    }

    start = MK_SPARSE(min, num/ (10000 / refresh));
    last = start - 1;
    for (child=min; cnt > 0; child++, cnt--)
    {
        new = MK_SPARSE(child, num/ (10000 / refresh));
        if (gen_rmg == 1 && new - last == 1)

```

```

{
last = new;
continue;
}
if (gen_sql)
{
fprintf(dfp,
"delete from %s where %s between %ld and %ld;\n",
tdefs[ORDER].name, "o_orderkey", start, last);
fprintf(dfp,
"delete from %s where %s between %ld and %ld;\n",
tdefs[LINE].name, "l_orderkey", start, last);
fprintf(dfp, "commit work;\n");
}
else
if (gen_rmg)
{
PR_START(dfp);
PR_HUGE(dfp, &start);
PR_HUGE(dfp, &last);
PR_END(dfp);
}
else
{
if (delete_segments)
{
if(rows_per_segment==0)

rows_per_segment = (cnt / delete_segments) + 1;

if(++rows_this_segment) > rows_per_segment)

fclose(dfp);

print_prep(tbl, -num);

NULL) return(-1);

num;

rows_this_segment=1;

PR_START(dfp);
PR_HUGE(dfp, &new);
PR_END(dfp);
}
start = new;
last = new;
}
if (gen_rmg)
{
PR_START(dfp);
PR_HUGE(dfp, &start);
PR_HUGE(dfp, &last);
PR_END(dfp);
}

return(0);
}

/*
* verify functions: routines which replace the pr_routines and generate a pseudo
checksum
* instead of generating the actual contents of the tables. Meant to allow large scale
data
* validation without requiring a large amount of storage
*/
int
vrf_cust(customer_t *c, int mode)
{
VRF_START(CUST);
VRF_INT(CUST, c->custkey);
VRF_STR(CUST, c->name);
VRF_STR(CUST, c->address);
VRF_INT(CUST, c->nation_code);
VRF_STR(CUST, c->phone);
VRF_MONEY(CUST, c->acctbal);
VRF_STR(CUST, c->mktsegment);
VRF_STR(CUST, c->comment);
VRF_END(CUST);

return(0);
}

/*
* print the numbered order
*/
int
vrf_order(order_t *o, int mode)
{
VRF_START(ORDER);
VRF_HUGE(ORDER, o->okey);
VRF_INT(ORDER, o->custkey);
VRF_CHR(ORDER, o->orderstatus);
VRF_MONEY(ORDER, o->totalprice);
VRF_STR(ORDER, o->odate);
VRF_STR(ORDER, o->opriority);
VRF_STR(ORDER, o->clerk);
VRF_INT(ORDER, o->spriority);
VRF_STR(ORDER, o->comment);
VRF_END(ORDER);

dfp = return(0);
if (dfp ==
last_num =
/*
* print an order's lineitems
*/
int
vrf_line(order_t *o, int mode)
{
int i;

for (i = 0; i < o->lines; i++)
{
VRF_START(LINE);
VRF_HUGE(LINE, o->l[i].okey);
VRF_INT(LINE, o->l[i].partkey);
VRF_INT(LINE, o->l[i].suppkey);
VRF_INT(LINE, o->l[i].lcnt);
VRF_INT(LINE, o->l[i].quantity);
VRF_MONEY(LINE, o->l[i].eprice);
VRF_MONEY(LINE, o->l[i].discount);
VRF_MONEY(LINE, o->l[i].tax);
VRF_CHR(LINE, o->l[i].rflag[0]);
VRF_CHR(LINE, o->l[i].lstatus[0]);
VRF_STR(LINE, o->l[i].sdate);
VRF_STR(LINE, o->l[i].cdate);
VRF_STR(LINE, o->l[i].rdate);
VRF_STR(LINE, o->l[i].shipinstruct);
VRF_STR(LINE, o->l[i].shipmode);
VRF_STR(LINE, o->l[i].comment);
VRF_END(LINE);
}

return(0);
}

```

```

}
/*
 * print the numbered order *and* its associated lineitems
 */
int
vrf_order_line(order_t *o, int mode)
{
    vrf_order(o, mode);
    vrf_line(o, mode);

    return(0);
}
/*
 * print the given part
 */
int
vrf_part(part_t *part, int mode)
{
    VRF_STRT(PART);
    VRF_INT(PART, part->partkey);
    VRF_STR(PART, part->name);
    VRF_STR(PART, part->mfgr);
    VRF_STR(PART, part->brand);
    VRF_STR(PART, part->type);
    VRF_INT(PART, part->size);
    VRF_STR(PART, part->container);
    VRF_MONEY(PART, part->retailprice);
    VRF_STR(PART, part->comment);
    VRF_END(PART);

    return(0);
}
/*
 * print the given part's suppliers
 */
int
vrf_psupp(part_t *part, int mode)
{
    long i;

    for (i = 0; i < SUPP_PER_PART; i++)
    {
        VRF_STRT(PSUPP);
        VRF_INT(PSUPP, part->s[i].partkey);
        VRF_INT(PSUPP, part->s[i].suppkey);
        VRF_INT(PSUPP, part->s[i].qty);
        VRF_MONEY(PSUPP, part->s[i].scost);
        VRF_STR(PSUPP, part->s[i].comment);
        VRF_END(PSUPP);
    }
}

return(0);
}
/*
 * print the given part *and* its suppliers
 */
int
vrf_part_psupp(part_t *part, int mode)
{
    vrf_part(part, mode);
    vrf_psupp(part, mode);

    return(0);
}
int
vrf_supp(supplier_t *supp, int mode)
{
    VRF_STRT(SUPP);
    VRF_INT(SUPP, supp->suppkey);
    VRF_STR(SUPP, supp->name);
    VRF_STR(SUPP, supp->address);
    VRF_INT(SUPP, supp->nation_code);
    VRF_STR(SUPP, supp->phone);
    VRF_MONEY(SUPP, supp->acctbal);
    VRF_STR(SUPP, supp->comment);
    VRF_END(SUPP);

    return(0);
}
int
vrf_nation(code_t *c, int mode)
{
    VRF_STRT(NATION);
    VRF_INT(NATION, c->code);
    VRF_STR(NATION, c->text);
    VRF_INT(NATION, c->join);
    VRF_STR(NATION, c->comment);
    VRF_END(NATION);

    return(0);
}
int
vrf_region(code_t *c, int mode)
{
    VRF_STRT(REGION);
    VRF_INT(REGION, c->code);
    VRF_STR(REGION, c->text);
    VRF_STR(REGION, c->comment);
    VRF_END(fp);

    return(0);
}
}

```

Appendix G: Price Quotations & Verification

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

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
810-07580	SQL Server 2008 Enterprise x64 Edition Server License with 25 CALs Discount Schedule: Open Program - No Level Unit Price reflects a 39% discount from the retail unit price of \$13,969.	\$8,487	1	\$8,487
359-01912	SQL Server 2008 Client License Client Access License Discount Schedule: Open Program - No Level Unit Price reflects a 4% discount from the retail unit price of \$163.	\$156	25	\$3,900
P72-03195	Windows Server 2008 Enterprise Edition (x64) Server License with 25 CALs Discount Schedule: Open Program - No Level Unit Price reflects a 41% discount from the retail unit price of \$3,999.	\$2,357	1	\$2,357
N/A	Microsoft Problem Resolution Services Professional Support (1 Incident)	\$245	1	\$245

A list of Microsoft's resellers can be found at <http://www.microsoft.com/products/info/render.aspx?view=22&type=mn&content=22/licensing>

All products listed above are currently orderable and available.

Defect support is included in the purchase price. Additional support is available from Microsoft PSS on an incident by incident basis at \$245 per call.

This quote is valid for the next 90 days.

Reference ID: PHdapo09080210000001196.

Description	Part Number	Order Date	Order Method	Price Verification
HP 60GB 3G SATA 2.5in MDL	572071-B21	9/14/2009	Note 1	Note 2

Note 1 = HP Direct : 800-203-6748.
Note 2 = These components are not immediately orderable. For price verification before order date: e-mail hp.pricing.desk@hp.com