



# Hewlett-Packard Company

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TPC Benchmark™ H  
Full Disclosure Report  
for  
HP ProLiant DL580 G7  
using  
Microsoft SQL Server 2008 R2 Enterprise Edition  
and  
Windows Server 2008 R2 Enterprise Edition

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**Third Edition**  
**September, 2010**

Third Edition – September, 2010

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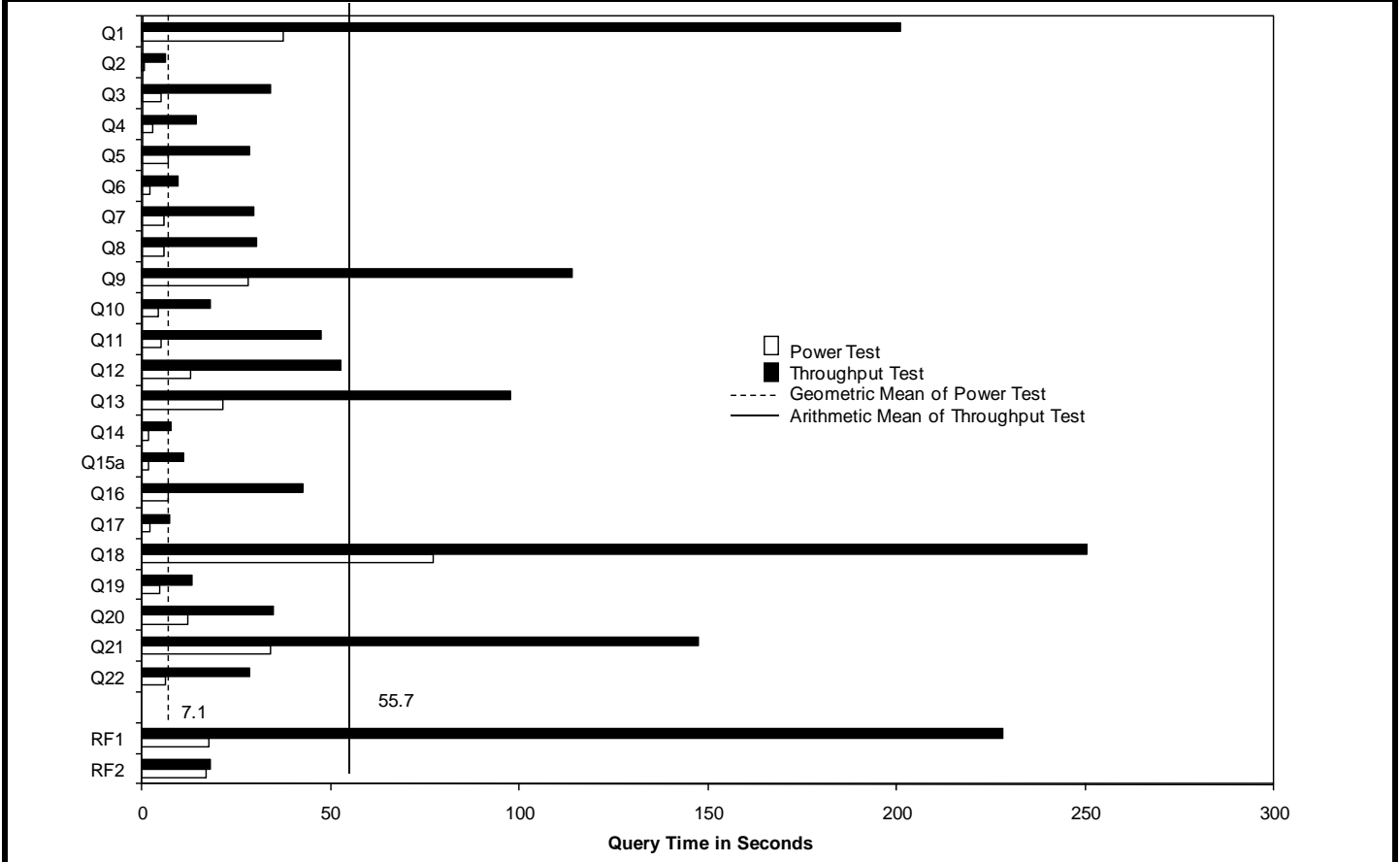


# HP ProLiant DL580 G7

TPC-H Rev. 2.11.0  
 TPC-Energy Rev. 1.2.0

Report Date:  
**Sep 14, 2010**

Total System Cost		Composite Query per Hour Metric		Price / Performance		TPC-Energy Metric	
<b>\$78,687 USD</b>		<b>121,345.6</b> QphH@300GB		<b>\$0.65 USD</b> \$/QphH@300GB		<b>10.33</b> Watts/KQphH@300GB	
Database Size	Database Manager	Operating System	Other Software		Availability Date		
<b>300GB</b>	<b>Microsoft SQL Server 2008 R2 Enterprise Edition</b>	<b>Windows Server 2008 R2 Enterprise Edition</b>			<b>Sep 14, 2010</b>		



Database Load Time = 7:51:44	Storage Redundancy Levels			
Load Included Backup: Y	Base Tables	0	DBMS Temporary Space	0
Total Storage / Database Size = 6.97	Auxiliary Data Structures	1	OS and DBMS Software	1
Memory/Database size = 213 %				

### System Configuration:

**Processors :** 4x 2.27 GHz 8 Core Intel X7560  
**Cores :** 32  
**Threads :** 64  
**Memory :** 640 GB  
**Network :** 4x on-board GigE  
**Disk Controllers :** 1x Smart Array P410i  
**Disks :** 2x HP 146 GB SFF SAS, 6x HP 300 GB SFF SAS  
**Total Disk Storage:** 2092 GB

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



HP ProLiant DL580 G7

TPC-H Rev. 2.11.0

Report Date: 14-Sep-10

Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price
<b>Server Hardware</b>						
		<b>Brand Pricing</b>				
HP DL580R07 CTO Chassis	588857-B21	HP	4,697	1	4,697	
HP DL580G7 X7560 FIO 2P Kit	588143-L21	HP	10,000	1	10,000	
HP DL580 G7 Intel Xeon X7560 Processor Kit	588143-B21	HP	4,999	2	9,998	
HP 16GB 1x16GB PC3-8500 Registered Memory Kit	500666-B21	HP	1,199	16	19,184	
HP 8GB 1x8GB PC3-10600 Registered Memory Kit	500662-B21	HP	469	48	22,512	
HP DL580G7 Memory Board	588141-B21	HP	200	6	1,200	
HP 1GB Flash Backed Cache	534562-B21	HP	529	1	529	
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port	512547-B21	HP	439	2	878	
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port	507127-B21	HP	499	6	2,994	
HP 1200W 12V Hot Plug AC Power Supply	500172-B21	HP	349	2	698	
HP LE1851w 18.5-Inch wide Monitor	NK033AA#ABA	HP	159	1	159	
HP PS/2 Keyboard And Mouse Bundle	RC464AA#ABA	HP	39	1	39	
HP 3y 4h 24x7 ProLiant DL58x HW Support	U4608E	HP	1,309	1		1,309
<b>Subtotal</b>					<b>72,888</b>	<b>1,309</b>
<b>Hardware and Maintenance Discount</b>						
Large Purchase and Net 30 discount	14.0%	HP	1		(\$10,204)	(\$183)
<b>Hardware Subtotal</b>					<b>62,684</b>	<b>1,126</b>
<b>Software</b>						
SQL Server 2008 R2 Enterprise Edition with 25 CALs	810-08553	Microsoft	2	8,318	1	8,318 incl. bellow
Windows Server 2008 R2 Enterprise Edition	P72-04217	Microsoft	2	2,310	1	2,310 incl. bellow
SQL Server 2008 R2 Client Access License	359-05354	Microsoft	2	114	35	3,990 incl. bellow
Microsoft Problem Resolution Services		Microsoft	2	259	1	259
<b>Subtotal</b>					<b>14,618</b>	<b>259</b>
<b>Total</b>					<b>\$77,302</b>	<b>\$1,385</b>

<b>Three-Year Cost of Ownership:</b>	<b>\$78,687 USD</b>
<b>QphH @ 300GB:</b>	<b>121345.6</b>
<b>\$ / QphH @ 300GB:</b>	<b>\$0.65 USD</b>

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

Note 1 = Discount based on HP Direct guidance with large purchase and Net30 discount. Applies to all lines with 1 in pricing column.

Audited by: Francois Raab of InfoSizing, Inc. (www.sizing.com)

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



## HP ProLiant DL580 G7

TPC-H Rev. 2.11.0

Report Date:  
Sep 14, 2010

### Numerical Quantities

#### Measurement Results:

Database Scale Factor	= 300
Total Data Storage / Database Size	= 6.97
Start of Database Load	= 2010-08-31 15:00:23
End of Database Load	= 2010-08-31 22:52:07
Database Load Time	= 07:51:44
Query Streams for Throughput Test	= 6
TPC-H Power	= 152,453.1
TPC-H Throughput	= 96,585.4
TPC-H Composite Query-per-Hour Metric (QphH@300GB)	= 121,345.6
Total System Price Over 3 Years	= \$78,687
TPC-H Price/ Performance Metric (\$/QphH@300GB)	= \$0.65 USD

#### Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 1476.0 seconds
----------------------------------------------	------------------

#### Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	831225207	9/1/2010	0:23:56	9/1/2010	0:29:13	0:05:17
Stream01	831225208	9/1/2010	0:29:14	9/1/2010	0:48:32	0:19:17
Stream02	831225209	9/1/2010	0:29:14	9/1/2010	0:50:00	0:20:46
Stream03	831225210	9/1/2010	0:29:14	9/1/2010	0:49:30	0:20:16
Stream04	831225211	9/1/2010	0:29:14	9/1/2010	0:50:00	0:20:46
Stream05	831225212	9/1/2010	0:29:14	9/1/2010	0:49:42	0:20:28
Stream06	831225213	9/1/2010	0:29:14	9/1/2010	0:50:11	0:20:57
Refresh00		9/1/2010	0:23:56	9/1/2010	0:29:14	0:05:18
Refresh01		9/1/2010	0:29:14	9/1/2010	0:50:48	0:21:34
Refresh02		9/1/2010	0:50:48	9/1/2010	0:51:23	0:00:35
Refresh03		9/1/2010	0:51:24	9/1/2010	0:52:00	0:00:36
Refresh04		9/1/2010	0:52:00	9/1/2010	0:52:37	0:00:37
Refresh05		9/1/2010	0:52:37	9/1/2010	0:53:13	0:00:36
Refresh06		9/1/2010	0:53:13	9/1/2010	0:53:50	0:00:37



# HP ProLiant DL580 G7

TPC-H Rev. 2.11.0

Report Date:  
Sep 14, 2010

## TPC-H Timing Intervals (in seconds)

Query	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q08
Stream 00	37.2	0.6	5.1	2.7	6.7	2.0	5.6	5.7
Stream 01	158.7	6.5	40.9	13.2	30.6	6.9	28.6	24.2
Stream 02	208.3	6.4	34.7	11.6	30.1	9.1	29.7	33.9
Stream 03	200.8	6.6	30.8	13.2	30.4	10.1	31.6	31.8
Stream 04	217.7	4.4	34.1	15.8	26.9	11.3	25.1	27.0
Stream 05	209.3	6.2	25.0	14.5	26.4	9.3	28.5	35.1
Stream 06	211.7	6.2	39.6	17.0	26.1	10.0	34.0	29.9
Min Qi	158.7	4.4	25.0	11.6	26.1	6.9	25.1	24.2
Max Qi	217.7	6.6	40.9	17.0	30.6	11.3	34.0	35.1
Avg Qi	201.1	6.1	34.2	14.2	28.4	9.5	29.6	30.3
Query	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	28.0	4.1	5.1	12.8	21.2	1.7	1.8	6.8
Stream 01	108.6	16.4	24.3	50.2	94.9	7.3	12.8	44.0
Stream 02	118.2	20.7	55.0	64.5	87.5	8.5	11.5	44.1
Stream 03	112.3	21.0	59.8	57.2	88.3	7.3	10.9	35.4
Stream 04	121.9	18.5	21.6	65.3	93.3	9.4	10.3	42.7
Stream 05	100.2	12.1	59.9	29.0	104.5	6.7	11.2	39.8
Stream 06	123.4	19.0	64.5	49.3	116.2	6.9	9.8	50.4
Min Qi	100.2	12.1	21.6	29.0	87.5	6.7	9.8	35.4
Max Qi	123.4	21.0	64.5	65.3	116.2	9.4	12.8	50.4
Avg Qi	114.1	18.0	47.5	52.6	97.5	7.7	11.1	42.7
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	2.2	77.3	4.6	12.1	34.0	6.1	17.7	16.9
Stream 01	6.5	250.6	12.5	13.7	177.3	28.9	20.7	17.8
Stream 02	9.1	252.3	14.5	43.5	119.1	34.1	17.9	17.3
Stream 03	8.9	236.0	11.9	26.6	160.9	24.8	18.3	17.6
Stream 04	4.9	260.1	13.6	36.6	160.2	25.6	19.2	18.1
Stream 05	4.8	254.3	14.9	28.1	183.7	24.9	18.2	18.2
Stream 06	8.3	249.0	12.4	59.5	82.6	31.4	18.6	18.4
Min Qi	4.8	236.0	11.9	13.7	82.6	24.8	17.9	17.3
Max Qi	9.1	260.1	14.9	59.5	183.7	34.1	20.7	18.4
Avg Qi	7.1	250.4	13.3	34.7	147.3	28.3	18.8	17.9

<b>HP ProLiant DL580 G7</b>		<b>Energy Summary</b>		TPC-H Rev. 2.11.0 TPC-Energy Rev. 1.2.0
				Report Date: <b>Sep 14, 2010</b>
Total System Cost		Composite Query per Hour Metric		Price / Performance
<b>\$78,687 USD</b>		<b>121,345.6</b> QphH@300GB		<b>\$0.65 USD</b> \$/QphH@300GB
Database Size		Database Manager	Operating System	TPC-Energy Metric
<b>300GB</b>		<b>Microsoft SQL Server 2008 R2 Enterprise Edition</b>	<b>Windows Server 2008 R2 Enterprise Edition</b>	<b>10.33</b> Watts/KQphH@300GB
			Other Software	Availability Date
				<b>Sep 14, 2010</b>

Numerical Quantities For Reported Energy Configuration:

REC Idle Power: **941.0 Watts**  
Average Power of REC: **1,253.5 Watts**

Subsystem Reporting:

Secondary (subsystem) Metrics are not reported. Comparisons to other TPC-Energy Results must not reference subsystem energy information.

Lowest ambient temperature at air inlet: **21.31 Degrees Celsius**

Items in Priced Configuration not in the Reported Energy Configuration

Items in the Reported Energy Configuration not in the Measured Energy Configuration

HP LE1851w 18.5-inch wide Monitor

- P/N NK033AA#ABA
- vendor max wattage specification (name plate) – 28.0 Watts

# Abstract

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## Overview

This report documents the methodology and results of the TPC Benchmark™ H test conducted on the HP ProLiant DL580 G7 using Microsoft SQL Server 2008 R2 Enterprise Edition, in conformance with the requirements of the TPC Benchmark™ H Standard Specification, Revision 2.11.0. The operating system used for the benchmark was Microsoft Windows 2008 R2 Enterprise Edition.

The benchmark results are summarized in the following table.

Hardware	Software	Total System Cost	QppH @ 300GB	QthH @ 300GB	QphH @ 300GB	\$/QphH @ 300GB
HP ProLiant DL580 G7	Microsoft SQL Server 2008 R2 Enterprise Edition, Windows Server 2008 R2 Enterprise Edition	\$78,687	152,453.1	96,585.4	121,345.6	\$0.65

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 DL580 G7.

## 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 Francois Raab of InfoSizing 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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# Clause 0: General Items

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## 0.1 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.

## 0.2 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 but 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.

## 0.3 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 DL580 G7 , depicted in Figure 1.1, consisted of :

4x Intel X7560 2.27GHz 8 core processors

640 GB of memory

1 x HP Smart Array P410i Controller

2 x 146GB 2.5" SAS drives

6 x 300GB 2.5" SAS drives

**Figure 0.1 Benchmarked & Priced configuration**



# ***Clause 1: Logical Database Design***

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## **1.1 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.

## **1.2 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.

## **1.3 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

## **1.4 Replication**

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

No replication was used.

# Clause 2: Queries and Refresh Functions Related Items

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## 2.1 Query Language

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

SQL was the query language used.

## 2.2 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 2.11.0 and QGEN version 2.11.0 were used to generate all database populations.

## 2.3 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 2.11.0 was used to generate the substitution parameters.

## 2.4 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.

## 2.5 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.

## 2.6 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.

## 2.7 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.



# Clause 3: Database System Properties

---

## 3.1 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 DL580 G7.

### 3.1.1 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.

### 3.1.2 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.

## 3.2 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)*

### 3.2.1 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.

### 3.3 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.*

#### 3.3.1 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.

#### 3.3.2 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.

#### 3.3.3 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:

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

#### 3.3.4 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.

### 3.3.5 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.

### 3.3.6 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.

## 3.4 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.*

### 3.4.1 Permanent Unrecoverable Failure of Any Durable Medium

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

All OS and database logs were stored on a RAID-1 protected array of 2 physical drives. The database files were stored on a RAID-0 array of 6 physical drives. A backup of the database was taken and stored on a RAID-5 array of 6 physical drives. The tests were conducted on the qualification database. The steps performed are shown below:

1. The complete database was backed up to the RAID-5 array.
2. The consistency of the ORDERS and LINEITEM tables were verified.
3. 7 streams of ACID transactions were started. Each stream executed a minimum of 100 transactions.
4. A checkpoint was issued.
5. While the test was running, one of the disks from the database RAID-0 was removed.
6. A checkpoint was issued to force a failure.

7. The 7 streams of ACID transactions failed and recorded their number of committed transaction in success files.
8. The database log was dumped to disk.
9. A new database drive was attached.
10. A database restore from back up was done.
11. A command was issued causing the database to run through its roll-forward recovery.
12. The success file and the HISTORY table counts were compared and were found to match.
13. The consistency of the ORDERS and LINEITEM tables were verified.

The durability test of the log drive configuration was conducted with the system crash test (see steps #2-3 in section 3.4.2).

### **3.4.2 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. The consistency of the ORDERS and LINEITEM tables were verified.
2. 7 streams of ACID transactions were started. Each stream executed a minimum of 100 transactions.
3. While the test was running, one of the disks from the database RAID-1 was removed.
4. After it was determined that the test would still run with the loss of a log disk, the SUT was powered off.
5. When the power was restored, the system booted and the database was restarted.
6. The database went through a recovery period.
7. The success file and the HISTORY table counts were compared and were found to match.
8. The consistency of the ORDERS and LINEITEM tables were verified.

### **3.4.3 Memory Failure**

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

See section 3.4.2

# Clause 4: Scaling and Database Population

---

## 4.1 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 4.1 lists the TPC Benchmark H defined tables and the row count for each table as they existed upon completion of the build.

**Table 4.1: Initial Number of Rows**

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

## 4.2 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 DL580 G7 with the following configuration:

- 1 x HP Smart Array P410i Controller
- 2 x 146GB SFF SAS drivers
- 6 x 300GB SFF SAS drivers

The 6 x 300GB disks were used to hold the table data, indexes and the temporary database (TempDB). The 2 x 146GB disks were used to hold the database log.

A detailed description of distribution of database filegroups and log can be found in Table 4.2.1

**Table 4.2.1: 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	30	C:\OS
Embedded	B	2	2	RAID1	NTFS	106	E:\TpchLog TempLog Tpch1GBLog
Embedded	C	6	3	RAID5	NTFS	599	F:\Backup
Embedded	D	6	4	RAID0	NTFS	956	F:\Tpch300g TempDB Tpch1g Flatfiles

### 4.3 Mapping of Database Partitions/Replications

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

Database partitioning/replication was not used.

### 4.4 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 1 was used for database recovery logs and OS. RAID 5 was used for database backups. RAID 0 was used for database filegroups and tempdb.

### 4.5 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.*

DBGEN version 2.11.0 was used for database population.

### 4.6 Database Load time

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

The database load time was 7 hours 51 minutes and 44 seconds.

## 4.7 Data Storage Ratio

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

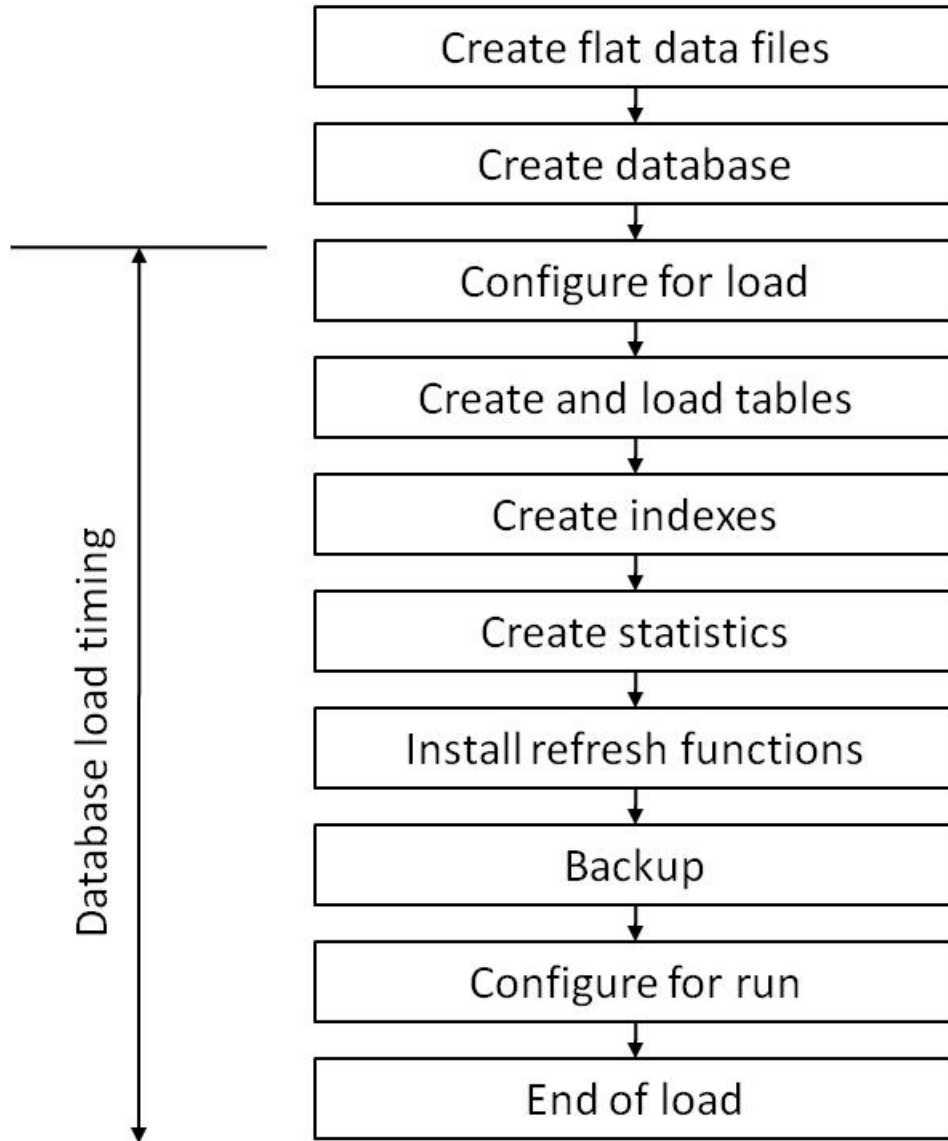
Disk Type	Number of Disks	Total Disk Space	Data Storage Ratio
146 GB	2	292 GB	6.97
300 GB	6	1800 GB	

## 4.8 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 4.8.

Figure 4.8: Block Diagram of Database Load Process





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

---

## **5.1 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. RF1 Refresh Transaction
2. Stream 00 Execution
3. RF2 Refresh Transaction.

## **5.2 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.

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

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

6 streams were used for the Throughput Test.

## **5.4 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.

## **5.5 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.

## **5.6 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	9/1/2010	0:23:56	9/1/2010	0:24:14
Stream00	RF2	9/1/2010	0:28:57	9/1/2010	0:29:14
Stream01	RF1	9/1/2010	0:29:14	9/1/2010	0:29:14
Stream01	RF2	9/1/2010	0:50:30	9/1/2010	0:50:48
Stream02	RF1	9/1/2010	0:50:48	9/1/2010	0:51:06
Stream02	RF2	9/1/2010	0:51:06	9/1/2010	0:51:23
Stream03	RF1	9/1/2010	0:51:24	9/1/2010	0:51:42
Stream03	RF2	9/1/2010	0:51:42	9/1/2010	0:52:00
Stream04	RF1	9/1/2010	0:52:00	9/1/2010	0:52:19
Stream04	RF2	9/1/2010	0:52:19	9/1/2010	0:52:37
Stream05	RF1	9/1/2010	0:52:37	9/1/2010	0:52:55
Stream05	RF2	9/1/2010	0:52:55	9/1/2010	0:53:13
Stream06	RF1	9/1/2010	0:53:13	9/1/2010	0:53:32
Stream06	RF2	9/1/2010	0:53:32	9/1/2010	0:53:50

## 5.7 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.

## 5.8 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.

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

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

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

Run	QppH @ 300GB	QthH @ 300GB	QphH @ 300GB
Run 1	153,974.3	98,945.0	123,430.1
Run 2	152,453.1	96,585.4	121,345.6

## 5.10 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.*

The SUT was left idle for 10 minutes for TPC-Energy idle time measurements and the shortest power run query was repeated to confirm proper response time during idle state.

# Clause 6: SUT and Driver Implementation

## Related Items

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### 6.1 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.

### 6.2 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 48 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 48 concurrent RF2 processes, each of which will apply a segment of an update set generated by dbgen. Each thread submits multiple transactions, where a transaction spans a set of orders and their associated line items.

#### 2. Throughput Run

- Execute 6 concurrent query streams. Each stream executes queries in the prescribed order for the appropriate Stream Id (1-5). Upon completion of each stream, a semaphore is set to 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.

### 6.3 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.

# Clause 7: Pricing Related Items

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## 7.1 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.

## 7.2 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.

## 7.3 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 DL580 G7 and all other hardware is generally available at the time of publication. The system software, Microsoft Windows Server 2008 R2 Enterprise Edition and the database software, Microsoft SQL Server 2008 R2 Enterprise Edition are generally available at the time of publication.

## 7.4 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.

## 7.5 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.

# Clause 8: Full Disclosure

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## 8.1 Supporting Files Index Table

*An index for all files included in the supporting files archive as required by Clauses 8.3.2 8.3.8 must be provided in the report.*

Clause	Description	Pathname
Clause 1	OS and database tunable parameters	SupportingFiles/Clause1/Parameters
Clause 2	Query substitution parameters	SupportingFiles/Clause2/QueryParameters
	Qualification queries output	SupportingFiles/Clause2/QualificationOutput
Clause 3	ACID test scripts & results	SupportingFiles/Clause3/ACID
Clause 4	Database load scripts	SupportingFiles/Clause4/TestDB_Load
	Qualification database load scripts	SupportingFiles/Clause4/QualDB_Load
Clause 5	No supporting files	
Clause 6	Implementation Specific layer source code	SupportingFiles/Clause6/ImplementationCode
	Query and refresh output	SupportingFiles/Clause6/RunOutput
Clause 7	No supporting files	
Clause 8	RF function source code	SupportingFiles/Clause8/RF_source

# ***Clause 9: Audit 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 Francois Raab of Infosizing. Further information regarding the audit process may be obtained from:

InfoSizing  
125 West Monroe Street  
Colorado Springs, CO 80907  
Telephone: (719) 473-7555  
Fax: (719) 473-7554

For a copy of this disclosure, go to [www.tpc.org](http://www.tpc.org).

Benchmark Sponsor: John Ellyson  
 Senior Performance Engineer  
 Hewlett-Packard Company  
 11445 Compaq Center Dr.  
 Houston, TX 77070

September 12, 2010

I verified the TPC Benchmark™ H performance of the following configuration:

Platform: **HP ProLiant DL580 G7**  
 Database Manager: **Microsoft SQL Server 2008 R2 Enterprise Edition**  
 Operating System: **Microsoft Windows Server 2008 R2 Enterprise Edition**

The results were:

CPU (Speed)	Memory	Disks	QphH@300GB
<b>HP ProLiant DL580 G7</b>			
4 x Intel Xeon X7560 (2.27GHz, 8-core)	24MB L3 640GB Main	6 x 300GB SFF SAS 2 x 146GB SFF SAS	<b>121,345.6</b>

In my opinion, this performance result was produced in compliance with the TPC’s requirements for the benchmark.

The following verification items were given special attention:

- The database records were defined with the proper layout and size
- The database population was generated using DBGEN
- The database was properly scaled to 300GB and populated accordingly
- The compliance of the database auxiliary data structures was verified



- The database load time was correctly measured and reported
- The required ACID properties were verified and met
- The query input variables were generated by QGEN
- The query text was produced using minor modifications and no query variant
- The execution of the queries against the SF1 database produced compliant answers
- A compliant implementation specific layer was used to drive the tests
- The throughput tests involved 6 query streams
- The ratio between the longest and the shortest query was such that no query timings were adjusted
- The execution times for queries and refresh functions were correctly measured and reported
- The repeatability of the measured results was verified
- The measurement of the TPC-Energy metrics was verified
- The system pricing was verified for major components and maintenance
- The major pages from the FDR were verified for accuracy

Additional Audit Notes:

None.

Respectfully Yours,



François Raab  
President

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# 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 R2 Version

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

```
Microsoft SQL Server 2008 R2 (RTM) - 10.50.1600.1 (X64)
Apr 2 2010 15:48:46
Copyright (c) Microsoft Corporation
Enterprise Evaluation Edition (64-bit) on Windows NT 6.1
<X64> (Build 7600: )
```

## A.2. SQL Server 2008 R2 Installation

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

## A.3. SQL Server 2008 Startup Parameters

```
SQLSERVER -c -x -E -T834 -T836 -T2301
```

## A.4. Microsoft SQL Server 2008 R2 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,	0,	0
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,	0,	0
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,	1,	1
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
in-doubt xact resolution	, 0,	2,	0,	0
index create memory (KB)	, 704,	2147483647,	0,	0
lightweight pooling	, 0,	1,	1,	1
locks	, 5000,	2147483647,	0,	0
max degree of parallelism	, 0,	1024,	0,	0
max full-text crawl range	, 0,	256,	4,	4
max server memory (MB)	, 16,	2147483647,	600000,	600000
max text repl size (B)	, -1,	2147483647,	65536,	65536
max worker threads	, 128,	32767,	4096,	4096
media retention	, 0,	365,	0,	0
min memory per query (KB)	, 512,	2147483647,	512,	512
min server memory (MB)	, 0,	2147483647,	500000,	500000
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,	0,	0
query governor cost limit	, 0,	2147483647,	0,	0
query wait (s)	, -1,	2147483647,	2147483647,	2147483647
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,	20,	20
remote proc trans	, 0,	1,	0,	0
remote query timeout (s)	, 0,	2147483647,	600,	600
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,	512,	512
xp_cmdshell	, 0,	1,	0,	0

## A.5. Microsoft SQL Server 2008 R2 Node Configuration

No node configuration changes were made.

## A.6. Windows 2008 R2 Configuration

The default installation of Windows 2008 R2 Enterprise Edition was used with the following changes:

Administrative Tools -> Local Security Policy -> Local Policies -> User Rights Assignment -> Lock pages in memory -> Add User or Group -> 'Administrators'

Control Panel -> Power Options -> High performance

Control Panel -> Power Options -> High performance -> Change plan settings -> Change advanced power settings -> Hard disk -> Turn off hard disk after -> 0

Control Panel -> Power Options -> High performance -> Change plan settings -> Change advanced power settings -> Display -> Turn off display after -> 0

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

Key Name:

HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\services\HpCISSs2

Class Name: <NO CLASS>

Last Write Time: 9/8/2010 - 3:02 PM

Value 0

Name: Type  
Type: REG\_DWORD  
Data: 0x1

Value 1

Name: Start  
Type: REG\_DWORD  
Data: 0

Value 2

Name: ErrorControl  
Type: REG\_DWORD  
Data: 0x1

Value 3

Name: Tag  
Type: REG\_DWORD  
Data: 0x103

Value 4

Name: ImagePath  
Type: REG\_EXPAND\_SZ  
Data: system32\DRIVERS\HpCISSs2.sys

Value 5

Name: Group  
Type: REG\_SZ  
Data: SCSI Miniport

Key Name:

HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\services\HpCISSs2\Parameters

Class Name: <NO CLASS>

Last Write Time: 8/29/2010 - 6:10 PM

Value 0

Name: BusType  
Type: REG\_DWORD

Data: 0x8

Key Name:

HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\services\HpCISSs2\Parameters\Device

Class Name: <NO CLASS>

Last Write Time: 8/29/2010 - 6:10 PM

Value 0

Name: DriverParameter  
Type: REG\_SZ  
Data: CSMI=None;

Key Name:

HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\services\HpCISSs2\Parameters\PnpInterface

Class Name: <NO CLASS>

Last Write Time: 8/29/2010 - 6:10 PM

Value 0

Name: 5  
Type: REG\_DWORD  
Data: 0x1

Key Name:

HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\services\HpCISSs2\Enum

Class Name: <NO CLASS>

Last Write Time: 9/8/2010 - 3:02 PM

Value 0

Name: 0  
Type: REG\_SZ  
Data:

PCI\VEN\_103C&DEV\_323A&SUBSYS\_3245103C&REV\_01\4&190029e3&0&00E0

Value 1

Name: Count  
Type: REG\_DWORD  
Data: 0x1

Value 2

Name: NextInstance  
Type: REG\_DWORD  
Data: 0x1

## A.8. System Hardware Information

System Information report written at: 09/09/10 17:50:20

System Name: WIN-BTCTMNRQJH3

[System Summary]

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

OS Name	Microsoft Windows Server 2008 R2 Enterprise
---------	---------------------------------------------

Version	6.1.7600 Build 7600
---------	---------------------

Other OS Description	Not Available
----------------------	---------------

OS Manufacturer	Microsoft Corporation
-----------------	-----------------------

System Name	WIN-BTCTMNRQJH3
-------------	-----------------

System Manufacturer	Hewlett-Packard
---------------------	-----------------

System Model	ProLiant DL580 G7
--------------	-------------------

System Type	x64-based PC
-------------	--------------

Processor	Intel(R) Xeon(R) CPU X7560 @ 2.27GHz, 2264 Mhz, 8 Core(s), 16 Logical Processor(s)
-----------	------------------------------------------------------------------------------------

Processor Intel(R) Xeon(R) CPU X7560 @ 2.27GHz, 2264 Mhz, 8 Core(s), 16 Logical Processor(s)  
 Processor Intel(R) Xeon(R) CPU X7560 @ 2.27GHz, 2264 Mhz, 8 Core(s), 16 Logical Processor(s)  
 Processor Intel(R) Xeon(R) CPU X7560 @ 2.27GHz, 2264 Mhz, 8 Core(s), 16 Logical Processor(s)  
 BIOS Version/Date Hewlett-Packard P65, 8/25/2010  
 SMBIOS Version 2.6  
 Windows Directory C:\Windows  
 System Directory C:\Windows\system32  
 Boot Device \Device\HarddiskVolume1  
 Locale United States  
 Hardware Abstraction Layer Version = "6.1.7600.16385"  
 User Name Not Available  
 Time Zone Central Daylight Time  
 Installed Physical Memory (RAM) 640 GB  
 Total Physical Memory 640 GB  
 Available Physical Memory 613 GB  
 Total Virtual Memory 640 GB  
 Available Virtual Memory 613 GB  
 Page File Space 0 bytes

[Hardware Resources]

[Conflicts/Sharing]

Resource	Device
I/O Port 0x00000000-0x0000000F	Direct memory access controller
I/O Port 0x00000000-0x0000000F	PCI bus
IRQ 20	Intel(R) ICH10 Family USB Universal Host Controller - 3A34
IRQ 20	Intel(R) ICH10 Family USB Enhanced Host Controller - 3A3A
I/O Port 0x000003C0-0x000003DF	Standard VGA Graphics Adapter
I/O Port 0x000003C0-0x000003DF	PCI bus
I/O Port 0x00000070-0x00000071	System CMOS/real time clock
I/O Port 0x00000070-0x00000071	Motherboard resources
I/O Port 0x00002000-0x000020FF	Standard VGA Graphics Adapter
I/O Port 0x00002000-0x000020FF	Intel(R) 82801 PCI Bridge - 244E
Memory Address 0xE8000000-0xEFFFFFFF	Standard VGA Graphics Adapter
Memory Address 0xE8000000-0xEFFFFFFF	Intel(R) 82801 PCI Bridge - 244E
IRQ 23	Intel(R) ICH10 Family USB Universal Host Controller - 3A35
IRQ 23	Intel(R) ICH10 Family USB Universal Host Controller - 3A39
I/O Port 0x00003000-0x00003FFF	Intel(R) ICH10 Family PCI Express Root Port 5 - 3A48
I/O Port 0x00003000-0x00003FFF	HP ProLiant iLO 3 Management Controller (CORE)
Memory Address 0xFED00000-0xFED003FF	High precision event timer
Memory Address 0xFED00000-0xFED003FF	PCI bus

IRQ 16	Intel(R) ICH10 Family PCI Express Root Port 5 - 3A48
IRQ 16	HP ProLiant iLO 3 Management Controller (CORE)
IRQ 16	Intel(R) ICH10 Family PCI Express Root Port 1 - 3A40
Memory Address 0xD0000000-0xFBFFFFFF	PCI bus
Memory Address 0xD0000000-0xFBFFFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #3
Memory Address 0xD0000000-0xFBFFFFFF	Intel(R) 5520/5500/X58 I/O Hub PCI Express Root Port 3 - 340A
IRQ 17	Standard Universal PCI to USB Host Controller
IRQ 17	HP ProLiant iLO 3 Management Controller (CHIF)
Memory Address 0xE0800000-0xE0AFFFFFF	Intel(R) ICH10 Family PCI Express Root Port 5 - 3A48
Memory Address 0xE0800000-0xE0AFFFFFF	HP ProLiant iLO 3 Management Controller (CORE)
Memory Address 0xA0000-0xBFFFF	Standard VGA Graphics Adapter
Memory Address 0xA0000-0xBFFFF	PCI bus
I/O Port 0x00001000-0x0000101F	Intel(R) ICH10 Family USB Universal Host Controller - 3A34
I/O Port 0x00001000-0x0000101F	PCI bus
I/O Port 0x000003B0-0x000003BB	Standard VGA Graphics Adapter
I/O Port 0x000003B0-0x000003BB	PCI bus
[DMA]	
Resource	Device Status
Channel 7	Direct memory access controller OK
[Forced Hardware]	
Device	PNP Device ID
[I/O]	
Resource	Device Status
0x00003000-0x00003FFF	Intel(R) ICH10 Family PCI Express Root Port 5 - 3A48 OK
0x00003000-0x00003FFF	HP ProLiant iLO 3 Management Controller (CORE) OK
0x00002000-0x000020FF	Standard VGA Graphics Adapter OK
0x00002000-0x000020FF	Intel(R) 82801 PCI Bridge - 244E OK
0x000003B0-0x000003BB	Standard VGA Graphics Adapter OK
0x000003B0-0x000003BB	PCI bus OK
0x000003C0-0x000003DF	Standard VGA Graphics Adapter OK
0x000003C0-0x000003DF	PCI bus OK
0x00000CA2-0x00000CA3	Microsoft Generic IPMI Compliant Device OK
0x00000040-0x00000043	System timer OK
0x00001000-0x0000101F	Intel(R) ICH10 Family USB Universal Host Controller - 3A34 OK
0x00001000-0x0000101F	PCI bus OK
0x00000000-0x0000000F	Direct memory access controller OK
0x00000000-0x0000000F	PCI bus OK
0x00000080-0x0000008F	Direct memory access controller OK

0x000000C0-0x000000DF	Direct memory access controller	OK	[IRQs]
0x00000060-0x00000060	Standard PS/2 Keyboard	OK	Resource Device Status IRQ 4294967268 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter OK
0x00000064-0x00000064	Standard PS/2 Keyboard	OK	IRQ 4294967267 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter OK
0x00003C00-0x00003C1F	Standard Universal PCI to USB Host Controller	OK	IRQ 4294967266 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter OK
0x00001020-0x0000103F	Intel(R) ICH10 Family USB Universal Host Controller - 3A35	OK	IRQ 4294967265 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter OK
0x000003F8-0x000003FF	Communications Port (COM1)	OK	IRQ 4294967264 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter OK
0x00000061-0x00000061	System speaker	OK	IRQ 4294967263 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter OK
0x0000002E-0x0000002F	Extended IO Bus	OK	IRQ 4294967262 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter OK
0x00000620-0x0000065F	Extended IO Bus	OK	IRQ 4294967261 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter OK
0x00000680-0x0000069F	Extended IO Bus	OK	IRQ 4294967260 Intel(R) 5520/X58 I/O Hub PCI Express Root Port 5 - 340C OK
0x00000600-0x0000061F	Extended IO Bus	OK	IRQ 16 Intel(R) ICH10 Family PCI Express Root Port 5 - 3A48 OK
0x00000660-0x0000067F	Extended IO Bus	OK	IRQ 16 HP ProLiant iLO 3 Management Controller (CORE) OK
0x00000300-0x0000031F	Extended IO Bus	OK	IRQ 16 Intel(R) ICH10 Family PCI Express Root Port 1 - 3A40 OK
0x00003400-0x000034FF	HP ProLiant iLO 3 Management Controller (CORE)	OK	IRQ 4294967276 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2 OK
0x00001040-0x0000105F	Intel(R) ICH10 Family USB Universal Host Controller - 3A36	OK	IRQ 4294967275 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2 OK
0x000003E0-0x00000CF7	PCI bus	OK	IRQ 4294967274 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2 OK
0x00000D00-0x00000FFF	PCI bus	OK	IRQ 4294967273 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2 OK
0x00000070-0x00000071	System CMOS/real time clock	OK	IRQ 4294967272 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2 OK
0x00000070-0x00000071	Motherboard resources	OK	IRQ 4294967271 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2 OK
0x00003800-0x000038FF	HP ProLiant iLO 3 Management Controller (CHIF)	OK	IRQ 4294967270 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2 OK
0x00000408-0x0000040F	Motherboard resources	OK	IRQ 4294967269 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2 OK
0x000004D0-0x000004D1	Motherboard resources	OK	IRQ 4294967289 Intel(R) 5520/X58 I/O Hub PCI Express Root Port 6 - 340D OK
0x00000020-0x0000003F	Motherboard resources	OK	IRQ 0 System timer OK
0x000000A0-0x000000BF	Motherboard resources	OK	IRQ 4294967284 Smart Array P410i Controller OK
0x00000090-0x0000009F	Motherboard resources	OK	IRQ 4294967283 Smart Array P410i Controller OK
0x00000050-0x00000053	Motherboard resources	OK	IRQ 4294967282 Smart Array P410i Controller OK
0x00000700-0x0000071F	Motherboard resources	OK	IRQ 4294967281 Smart Array P410i Controller OK
0x00000880-0x000008FF	Motherboard resources	OK	IRQ 4294967280 Smart Array P410i Controller OK
0x00000900-0x0000097F	Motherboard resources	OK	IRQ 4294967279 Smart Array P410i Controller OK
0x00000010-0x0000001F	Motherboard resources	OK	IRQ 4294967278 Smart Array P410i Controller OK
0x00000CD0-0x00000CD3	Motherboard resources	OK	IRQ 4294967288 Intel(R) 5520/5500/X58 I/O Hub PCI Express Root Port 7 - 340E OK
0x00000CD4-0x00000CD7	Motherboard resources	OK	IRQ 20 Intel(R) ICH10 Family USB Universal Host Controller - 3A34 OK
0x00000F50-0x00000F58	Motherboard resources	OK	IRQ 20 Intel(R) ICH10 Family USB Enhanced Host Controller - 3A3A OK
0x000000F0-0x000000F0	Motherboard resources	OK	IRQ 1 Standard PS/2 Keyboard OK
0x00000CA0-0x00000CA1	Motherboard resources	OK	IRQ 17 Standard Universal PCI to USB Host Controller OK
0x00000CA4-0x00000CA5	Motherboard resources	OK	IRQ 17 HP ProLiant iLO 3 Management Controller (CHIF) OK
0x000002F8-0x000002FF	Motherboard resources	OK	IRQ 4294967287 Intel(R) 5520/5500/X58 I/O Hub PCI Express Root Port 8 - 340F OK
0x00001060-0x0000107F	Intel(R) ICH10 Family USB Universal Host Controller - 3A39	OK	IRQ 23 Intel(R) ICH10 Family USB Universal Host Controller - 3A35 OK
0x00004000-0x00004FFF	Intel(R) ICH10 Family PCI Express Root Port 1 - 3A40	OK	

IRQ 23	Intel(R) ICH10 Family USB Universal Host Controller - 3A39	OK	IRQ 119	Microsoft ACPI-Compliant System	OK
IRQ 4	Communications Port (COM1)	OK	IRQ 120	Microsoft ACPI-Compliant System	OK
IRQ 4294967293	Intel(R) 5520/5500/X58 I/O Hub PCI Express Root	OK	IRQ 121	Microsoft ACPI-Compliant System	OK
Port 1 - 3408	OK		IRQ 122	Microsoft ACPI-Compliant System	OK
IRQ 4294967286	Intel(R) 5520/5500/X58 I/O Hub PCI Express Root	OK	IRQ 123	Microsoft ACPI-Compliant System	OK
Port 9 - 3410	OK		IRQ 124	Microsoft ACPI-Compliant System	OK
IRQ 22	Intel(R) ICH10 Family USB Universal Host Controller - 3A36	OK	IRQ 125	Microsoft ACPI-Compliant System	OK
IRQ 4294967292	Intel(R) 5520/5500/X58 I/O Hub PCI Express Root	OK	IRQ 126	Microsoft ACPI-Compliant System	OK
Port 2 - 3409	OK		IRQ 127	Microsoft ACPI-Compliant System	OK
IRQ 4294967285	Intel(R) 5520/5500/X58 I/O Hub PCI Express Root	OK	IRQ 128	Microsoft ACPI-Compliant System	OK
Port 10 - 3411	OK		IRQ 129	Microsoft ACPI-Compliant System	OK
IRQ 12	PS/2 Compatible Mouse	OK	IRQ 130	Microsoft ACPI-Compliant System	OK
IRQ 4294967252	HP NC375i Integrated Quad Port Multifunction	OK	IRQ 131	Microsoft ACPI-Compliant System	OK
Gigabit Server Adapter #3	OK		IRQ 132	Microsoft ACPI-Compliant System	OK
IRQ 4294967251	HP NC375i Integrated Quad Port Multifunction	OK	IRQ 133	Microsoft ACPI-Compliant System	OK
Gigabit Server Adapter #3	OK		IRQ 134	Microsoft ACPI-Compliant System	OK
IRQ 4294967250	HP NC375i Integrated Quad Port Multifunction	OK	IRQ 135	Microsoft ACPI-Compliant System	OK
Gigabit Server Adapter #3	OK		IRQ 136	Microsoft ACPI-Compliant System	OK
IRQ 4294967249	HP NC375i Integrated Quad Port Multifunction	OK	IRQ 137	Microsoft ACPI-Compliant System	OK
Gigabit Server Adapter #3	OK		IRQ 138	Microsoft ACPI-Compliant System	OK
IRQ 4294967248	HP NC375i Integrated Quad Port Multifunction	OK	IRQ 139	Microsoft ACPI-Compliant System	OK
Gigabit Server Adapter #3	OK		IRQ 140	Microsoft ACPI-Compliant System	OK
IRQ 4294967247	HP NC375i Integrated Quad Port Multifunction	OK	IRQ 141	Microsoft ACPI-Compliant System	OK
Gigabit Server Adapter #3	OK		IRQ 142	Microsoft ACPI-Compliant System	OK
IRQ 4294967246	HP NC375i Integrated Quad Port Multifunction	OK	IRQ 143	Microsoft ACPI-Compliant System	OK
Gigabit Server Adapter #3	OK		IRQ 144	Microsoft ACPI-Compliant System	OK
IRQ 4294967245	HP NC375i Integrated Quad Port Multifunction	OK	IRQ 145	Microsoft ACPI-Compliant System	OK
Gigabit Server Adapter #3	OK		IRQ 146	Microsoft ACPI-Compliant System	OK
IRQ 4294967294	Intel(R) 5520/5500/X58 I/O Hub PCI Express Root	OK	IRQ 147	Microsoft ACPI-Compliant System	OK
Port 3 - 340A	OK		IRQ 148	Microsoft ACPI-Compliant System	OK
IRQ 81	Microsoft ACPI-Compliant System	OK	IRQ 149	Microsoft ACPI-Compliant System	OK
IRQ 82	Microsoft ACPI-Compliant System	OK	IRQ 150	Microsoft ACPI-Compliant System	OK
IRQ 83	Microsoft ACPI-Compliant System	OK	IRQ 151	Microsoft ACPI-Compliant System	OK
IRQ 84	Microsoft ACPI-Compliant System	OK	IRQ 152	Microsoft ACPI-Compliant System	OK
IRQ 85	Microsoft ACPI-Compliant System	OK	IRQ 153	Microsoft ACPI-Compliant System	OK
IRQ 86	Microsoft ACPI-Compliant System	OK	IRQ 154	Microsoft ACPI-Compliant System	OK
IRQ 87	Microsoft ACPI-Compliant System	OK	IRQ 155	Microsoft ACPI-Compliant System	OK
IRQ 88	Microsoft ACPI-Compliant System	OK	IRQ 156	Microsoft ACPI-Compliant System	OK
IRQ 89	Microsoft ACPI-Compliant System	OK	IRQ 157	Microsoft ACPI-Compliant System	OK
IRQ 90	Microsoft ACPI-Compliant System	OK	IRQ 158	Microsoft ACPI-Compliant System	OK
IRQ 91	Microsoft ACPI-Compliant System	OK	IRQ 159	Microsoft ACPI-Compliant System	OK
IRQ 92	Microsoft ACPI-Compliant System	OK	IRQ 160	Microsoft ACPI-Compliant System	OK
IRQ 93	Microsoft ACPI-Compliant System	OK	IRQ 161	Microsoft ACPI-Compliant System	OK
IRQ 94	Microsoft ACPI-Compliant System	OK	IRQ 162	Microsoft ACPI-Compliant System	OK
IRQ 95	Microsoft ACPI-Compliant System	OK	IRQ 163	Microsoft ACPI-Compliant System	OK
IRQ 96	Microsoft ACPI-Compliant System	OK	IRQ 164	Microsoft ACPI-Compliant System	OK
IRQ 97	Microsoft ACPI-Compliant System	OK	IRQ 165	Microsoft ACPI-Compliant System	OK
IRQ 98	Microsoft ACPI-Compliant System	OK	IRQ 166	Microsoft ACPI-Compliant System	OK
IRQ 99	Microsoft ACPI-Compliant System	OK	IRQ 167	Microsoft ACPI-Compliant System	OK
IRQ 100	Microsoft ACPI-Compliant System	OK	IRQ 168	Microsoft ACPI-Compliant System	OK
IRQ 101	Microsoft ACPI-Compliant System	OK	IRQ 169	Microsoft ACPI-Compliant System	OK
IRQ 102	Microsoft ACPI-Compliant System	OK	IRQ 170	Microsoft ACPI-Compliant System	OK
IRQ 103	Microsoft ACPI-Compliant System	OK	IRQ 171	Microsoft ACPI-Compliant System	OK
IRQ 104	Microsoft ACPI-Compliant System	OK	IRQ 172	Microsoft ACPI-Compliant System	OK
IRQ 105	Microsoft ACPI-Compliant System	OK	IRQ 173	Microsoft ACPI-Compliant System	OK
IRQ 106	Microsoft ACPI-Compliant System	OK	IRQ 174	Microsoft ACPI-Compliant System	OK
IRQ 107	Microsoft ACPI-Compliant System	OK	IRQ 175	Microsoft ACPI-Compliant System	OK
IRQ 108	Microsoft ACPI-Compliant System	OK	IRQ 176	Microsoft ACPI-Compliant System	OK
IRQ 109	Microsoft ACPI-Compliant System	OK	IRQ 177	Microsoft ACPI-Compliant System	OK
IRQ 110	Microsoft ACPI-Compliant System	OK	IRQ 178	Microsoft ACPI-Compliant System	OK
IRQ 111	Microsoft ACPI-Compliant System	OK	IRQ 179	Microsoft ACPI-Compliant System	OK
IRQ 112	Microsoft ACPI-Compliant System	OK	IRQ 180	Microsoft ACPI-Compliant System	OK
IRQ 113	Microsoft ACPI-Compliant System	OK	IRQ 181	Microsoft ACPI-Compliant System	OK
IRQ 114	Microsoft ACPI-Compliant System	OK	IRQ 182	Microsoft ACPI-Compliant System	OK
IRQ 115	Microsoft ACPI-Compliant System	OK	IRQ 183	Microsoft ACPI-Compliant System	OK
IRQ 116	Microsoft ACPI-Compliant System	OK	IRQ 184	Microsoft ACPI-Compliant System	OK
IRQ 117	Microsoft ACPI-Compliant System	OK	IRQ 185	Microsoft ACPI-Compliant System	OK
IRQ 118	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 4294967260 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4 OK  
 IRQ 4294967259 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4 OK  
 IRQ 4294967258 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4 OK  
 IRQ 4294967257 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4 OK  
 IRQ 4294967256 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4 OK  
 IRQ 4294967255 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4 OK  
 IRQ 4294967254 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4 OK  
 IRQ 4294967253 HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4 OK  
 IRQ 4294967291 Intel(R) 5520/X58 I/O Hub PCI Express Root Port 4 - 340B OK

[Memory]

Resource	Device	Status
0xD0800000-0xD09FFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter	OK
0xDA000000-0xDBFFFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter	OK
0xE0800000-0xE0AFFFFF	Intel(R) ICH10 Family PCI Express Root Port 5 - 3A48	OK
0xE0800000-0xE0AFFFFF	HP ProLiant iLO 3 Management Controller (CORE)	OK
0xE8000000-0xEFFFFFFF	Standard VGA Graphics Adapter	OK
0xE8000000-0xEFFFFFFF	Intel(R) 82801 PCI Bridge - 244E	OK
0xE0B10000-0xE0B1FFFF	Standard VGA Graphics Adapter	OK
0xA0000-0xBFFFF	Standard VGA Graphics Adapter	OK
0xA0000-0xBFFFF	PCI bus	OK
0xD0C00000-0xD0DFFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2	OK
0xDE000000-0xDFFFFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #2	OK
0xE0400000-0xE07FFFFF	Smart Array P410i Controller	OK
0xE0002000-0xE0002FFF	Smart Array P410i Controller	OK
0xE0B00000-0xE0BFFFFFFF	Intel(R) 82801 PCI Bridge - 244E	OK
0xFED00000-0xFED003FF	High precision event timer	OK
0xFED00000-0xFED003FF	PCI bus	OK
0xD0000000-0xFBFFFFFFF	PCI bus	OK
0xD0000000-0xFBFFFFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #3	OK
0xD0000000-0xFBFFFFFFF	Intel(R) 5520/5500/X58 I/O Hub PCI Express Root Port 3 - 340A	OK
0xFED40000-0xFED44FFF	PCI bus	OK
0xE0802C00-0xE0802CFF	HP ProLiant iLO 3 Management Controller (CHIF)	OK
0xE0900000-0xE09FFFFF	HP ProLiant iLO 3 Management Controller (CHIF)	OK
0xE0A80000-0xE0AFFFFF	HP ProLiant iLO 3 Management Controller (CHIF)	OK
0xE0808000-0xE080FFFF	HP ProLiant iLO 3 Management Controller (CHIF)	OK
0xE0818000-0xE081FFFF	HP ProLiant iLO 3 Management Controller (CHIF)	OK

Resource	Device	Status
0xC0000000-0xCFFFFFFF	Motherboard resources	OK
0xFE000000-0xFEFFFFFFF	Motherboard resources	OK
0xD2000000-0xD3FFFFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #3	OK
0xE0C00000-0xE0C003FF	Intel(R) ICH10 Family USB Enhanced Host Controller - 3A3A	OK
0xD0400000-0xD05FFFFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4	OK
0xD6000000-0xD7FFFFFFF	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter #4	OK
0xE0000000-0xE07FFFFF	Intel(R) ICH10 Family PCI Express Root Port 1 - 3A40	OK

[Components]

[Multimedia]

[Audio Codecs]

CODEC	Manufacturer	Description	Status	File
	Version	Size	Creation Date	
c:\windows\system32\msg711.acm	Microsoft Corporation			
	OK			C:\Windows\system32\MSG711.ACM
	6.1.7600.16385	14.50 KB (14,848 bytes)		
	7/13/2009 7:18 PM			
c:\windows\system32\imaadp32.acm	Microsoft Corporation			
	OK			C:\Windows\system32\IMAADP32.ACM
	6.1.7600.16385	21.50 KB (22,016 bytes)		
	7/13/2009 7:18 PM			
c:\windows\system32\msgsm32.acm	Microsoft Corporation			
	OK			C:\Windows\system32\MSGSM32.ACM
	6.1.7600.16385	28.50 KB (29,184 bytes)		
	7/13/2009 7:18 PM			
c:\windows\system32\msadp32.acm	Microsoft Corporation			
	OK			C:\Windows\system32\MSADP32.ACM
	6.1.7600.16385	23.50 KB (24,064 bytes)		
	7/13/2009 7:18 PM			

[Video Codecs]

CODEC	Manufacturer	Description	Status	File
	Version	Size	Creation Date	
c:\windows\system32\msrle32.dll	Microsoft Corporation			
	OK			C:\Windows\system32\MSRLE32.DLL
	6.1.7600.16385	15.50 KB (15,872 bytes)		
	7/13/2009 7:18 PM			
c:\windows\system32\msvidc32.dll	Microsoft Corporation			
	OK			C:\Windows\system32\MSVIDC32.DLL
	6.1.7600.16385	37.50 KB (38,400 bytes)		
	7/13/2009 7:18 PM			
c:\windows\system32\msyuv.dll	Microsoft Corporation			
	OK			C:\Windows\system32\MSYUV.DLL
	6.1.7600.16385	24.00 KB (24,576 bytes)		
	7/13/2009 7:06 PM			
c:\windows\system32\iyuv_32.dll	Microsoft Corporation			
	OK			C:\Windows\system32\IYUV_32.DLL
	6.1.7600.16385	52.50 KB (53,760 bytes)		
	7/13/2009 7:06 PM			
c:\windows\system32\tsbyuv.dll	Microsoft Corporation			
	OK			C:\Windows\system32\TSBYUV.DLL
	6.1.7600.16385	14.00 KB (14,336 bytes)		
	7/13/2009 7:06 PM			

[CD-ROM]

Item Value

[Sound Device]

Item Value

[Display]

Item Value

Name Standard VGA Graphics Adapter
PNP Device ID PCI\VEN\_1002&DEV\_515E&SUBSYS\_31FB103C&REV\_02\4
&637F70&0&18F0
Adapter Type Not Available, (Standard display types) compatible

Adapter Description Standard VGA Graphics Adapter
Adapter RAM Not Available
Installed Drivers Not Available
Driver Version 6.1.7600.16385
INF File display.inf (vga section)
Color Planes Not Available
Color Table Entries Not Available
Resolution Not Available
Bits/Pixel Not Available
Memory Address 0xE8000000-0xEFFFFFFF
I/O Port 0x00002000-0x000020FF
Memory Address 0xE0B10000-0xE0B1FFFF
I/O Port 0x000003B0-0x000003BB
I/O Port 0x000003C0-0x000003DF
Memory Address 0xA0000-0xBFFFF
Driver c:\windows\system32\drivers\vgapnp.sys (6.1.7600.16385, 28.50
KB (29,184 bytes), 7/13/2009 6:38 PM)

[Infrared]

Item Value

[Input]

[Keyboard]

Item Value

Description Standard PS/2 Keyboard
Name Enhanced (101- or 102-key)
Layout 00000409
PNP Device ID ACPI\PNP0303\4&CB33808&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 (6.1.7600.16385,
103.00 KB (105,472 bytes), 7/13/2009 6:19 PM)

Description USB Input Device
Name Enhanced (101- or 102-key)
Layout 00000409
PNP Device ID USB\VID\_03F0&PID\_7029&MI\_00\7&5D475ED&0&0000

Number of Function Keys 12
Driver c:\windows\system32\drivers\hidusb.sys (6.1.7600.16385, 29.50
KB (30,208 bytes), 7/13/2009 7:06 PM)

[Pointing Device]

Item Value

Hardware Type USB Input Device

Number of Buttons 0

Status OK

PNP Device ID

USB\VID\_03F0&PID\_7029&MI\_01\7&5D475ED&0&0001

Power Management Supported No

Double Click Threshold Not Available

Handedness Not Available

Driver c:\windows\system32\drivers\hidusb.sys (6.1.7600.16385, 29.50
KB (30,208 bytes), 7/13/2009 7:06 PM)

Hardware Type PS/2 Compatible Mouse

Number of Buttons 0

Status OK

PNP Device ID ACPI\PNP0F13\4&CB33808&0

Power Management Supported No

Double Click Threshold Not Available

Handedness Not Available

IRQ Channel IRQ 12

Driver c:\windows\system32\drivers\i8042prt.sys (6.1.7600.16385,
103.00 KB (105,472 bytes), 7/13/2009 6:19 PM)

[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 ROOT\MS\_SSTPMINIPOINT\0000

Last Reset 9/8/2010 3:02 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 (6.1.7600.16385, 82.00
KB (83,968 bytes), 7/13/2009 7:10 PM)

Name [00000001] WAN Miniport (IKEv2)

Adapter Type Not Available

Product Type WAN Miniport (IKEv2)

Installed Yes

PNP Device ID ROOT\MS\_AGILEVPMINIPOINT\0000

Last Reset 9/8/2010 3:02 PM

Index 1

Service Name RasAgileVpn

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\agilevpn.sys (6.1.7600.16385,
59.00 KB (60,416 bytes), 7/13/2009 7:10 PM)



Name [00000002] WAN Miniport (L2TP)  
Adapter Type Not Available  
Product Type WAN Miniport (L2TP)  
Installed Yes  
PNP Device ID ROOT\MS\_L2TPMINIPOINT\0000  
Last Reset 9/8/2010 3:02 PM  
Index 2  
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 (6.1.7600.16385, 127.00 KB (130,048 bytes), 7/13/2009 7:10 PM)

Name [00000003] WAN Miniport (PPTP)  
Adapter Type Not Available  
Product Type WAN Miniport (PPTP)  
Installed Yes  
PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
Last Reset 9/8/2010 3:02 PM  
Index 3  
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 Not Available  
Driver c:\windows\system32\drivers\raspptp.sys (6.1.7600.16385, 109.00 KB (111,616 bytes), 7/13/2009 7:10 PM)

Name [00000004] WAN Miniport (PPPOE)  
Adapter Type Not Available  
Product Type WAN Miniport (PPPOE)  
Installed Yes  
PNP Device ID ROOT\MS\_PPPOEMINIPOINT\0000  
Last Reset 9/8/2010 3:02 PM  
Index 4  
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 Not Available  
Driver c:\windows\system32\drivers\rasppoe.sys (6.1.7600.16385, 90.50 KB (92,672 bytes), 7/13/2009 7:10 PM)

Name [00000005] WAN Miniport (IPv6)  
Adapter Type Not Available  
Product Type WAN Miniport (IPv6)  
Installed Yes  
PNP Device ID ROOT\MS\_NDISWANIPV6\0000  
Last Reset 9/8/2010 3:02 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 (6.1.7600.16385, 160.50 KB (164,352 bytes), 7/13/2009 7:10 PM)

Name [00000006] WAN Miniport (Network Monitor)  
Adapter Type Not Available  
Product Type WAN Miniport (Network Monitor)  
Installed Yes  
PNP Device ID ROOT\MS\_NDISWANBH\0000  
Last Reset 9/8/2010 3:02 PM  
Index 6  
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 (6.1.7600.16385, 160.50 KB (164,352 bytes), 7/13/2009 7:10 PM)

Name [00000007] HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter  
Adapter Type Ethernet 802.3  
Product Type HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter  
Installed Yes  
PNP Device ID PCI\VEN\_4040&DEV\_0100&SUBSYS\_705A103C&REV\_42\4 &B68A0E2&0&0218  
Last Reset 9/8/2010 3:02 PM  
Index 7  
Service Name NXND6HP  
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 00:26:55:1B:9E:86  
Memory Address 0xD0800000-0xD09FFFFFF  
Memory Address 0xDA000000-0xDBFFFFFF  
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\hpnd6x64.sys (4.0.526.13779, 371.97 KB (380,896 bytes), 8/29/2010 6:51 PM)

Name [00000008] Microsoft ISATAP Adapter  
Adapter Type Tunnel  
Product Type Microsoft ISATAP Adapter  
Installed Yes  
PNP Device ID ROOT\\*\ISATAP\0000  
Last Reset 9/8/2010 3:02 PM  
Index 8  
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 (6.1.7600.16385, 122.50 KB (125,440 bytes), 7/13/2009 7:09 PM)

Name [00000009] WAN Miniport (IP)  
Adapter Type Not Available  
Product Type WAN Miniport (IP)  
Installed Yes  
PNP Device ID ROOT\MS\_NDISWANIP\0000  
Last Reset 9/8/2010 3:02 PM  
Index 9  
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 (6.1.7600.16385, 160.50 KB (164,352 bytes), 7/13/2009 7:10 PM)

Name [00000010] HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter  
Adapter Type Ethernet 802.3  
Product Type HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter  
Installed Yes  
PNP Device ID PCI\VEN\_4040&DEV\_0100&SUBSYS\_705A103C&REV\_42\4 &B68A0E2&0&0318  
Last Reset 9/8/2010 3:02 PM  
Index 10  
Service Name NXND6HP  
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 00:26:55:1B:9E:87  
Memory Address 0xD0C00000-0xD0DFFFFFFF  
Memory Address 0xDE000000-0xDFFFFFFF  
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\hpnd6x64.sys (4.0.526.13779, 371.97 KB (380,896 bytes), 8/29/2010 6:51 PM)

Name [00000011] RAS Async Adapter  
Adapter Type Not Available  
Product Type RAS Async Adapter  
Installed Yes  
PNP Device ID Not Available  
Last Reset 9/8/2010 3:02 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 Not Available

Name [00000012] Microsoft ISATAP Adapter  
Adapter Type Tunnel  
Product Type Microsoft ISATAP Adapter  
Installed Yes  
PNP Device ID ROOT\\*ISATAP\0001  
Last Reset 9/8/2010 3:02 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 (6.1.7600.16385, 122.50 KB (125,440 bytes), 7/13/2009 7:09 PM)

Name [00000013] HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter  
Adapter Type Ethernet 802.3  
Product Type HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter  
Installed Yes  
PNP Device ID PCI\VEN\_4040&DEV\_0100&SUBSYS\_705A103C&REV\_42\4 &B68A0E2&0&0018  
Last Reset 9/8/2010 3:02 PM  
Index 13  
Service Name NXND6HP  
IP Address 130.168.212.150, fe80::dcc:1c7:a9f7:4f45  
IP Subnet 255.255.0.0, 64  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:26:55:1B:9E:84  
Memory Address 0xD0000000-0xFBFFFFFFF  
Memory Address 0xD2000000-0xD3FFFFFFF  
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\hpnd6x64.sys (4.0.526.13779, 371.97 KB (380,896 bytes), 8/29/2010 6:51 PM)

Name [00000014] Microsoft ISATAP Adapter  
Adapter Type Tunnel  
Product Type Microsoft ISATAP Adapter  
Installed Yes  
PNP Device ID ROOT\\*ISATAP\0002  
Last Reset 9/8/2010 3:02 PM  
Index 14  
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 (6.1.7600.16385, 122.50 KB (125,440 bytes), 7/13/2009 7:09 PM)

Name [00000015] HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Type HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter  
 Installed Yes  
 PNP Device ID PCI\VEN\_4040&DEV\_0100&SUBSYS\_705A103C&REV\_42\4 &B68A0E2&0&0118  
 Last Reset 9/8/2010 3:02 PM  
 Index 15  
 Service Name NXND6HP  
 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 00:26:55:1B:9E:85  
 Memory Address 0xD0400000-0xD05FFFFF  
 Memory Address 0xD6000000-0xD7FFFFFFF  
 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\hpn6x64.sys (4.0.526.13779, 371.97 KB (380,896 bytes), 8/29/2010 6:51 PM)

Name [00000016] Microsoft ISATAP Adapter  
 Adapter Type Tunnel  
 Product Type Microsoft ISATAP Adapter  
 Installed Yes  
 PNP Device ID ROOT\\*ISATAP\0003  
 Last Reset 9/8/2010 3:02 PM  
 Index 16  
 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 (6.1.7600.16385, 122.50 KB (125,440 bytes), 7/13/2009 7:09 PM)

Name [00000017] Microsoft 6to4 Adapter  
 Adapter Type Tunnel  
 Product Type Microsoft 6to4 Adapter  
 Installed Yes  
 PNP Device ID ROOT\\*6TO4MP\0000  
 Last Reset 9/8/2010 3:02 PM  
 Index 17  
 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 (6.1.7600.16385, 122.50 KB (125,440 bytes), 7/13/2009 7:09 PM)

[Protocol]

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

Name	MSAFD Tcpip [UDP/IP]
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	No
Supports Expedited Data	No
Supports Graceful Closing	No
Supports Guaranteed Bandwidth	No
Supports Multicasting	Yes

Name	MSAFD Tcpip [TCP/IPv6]
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	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 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\wssock32.dll  
 Size 15.00 KB (15,360 bytes)  
 Version 6.1.7600.16385

File c:\windows\system32\wssock32.dll  
 Size 18.00 KB (18,432 bytes)  
 Version 6.1.7600.16385

[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 RLSD Yes  
 Supports RLSD 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 (6.1.7600.16385, 92.00 KB (94,208 bytes), 7/13/2009 7:00 PM)

[Parallel]

Item Value

[Storage]

[Drives]

Item Value

Drive C:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 29.90 GB (32,104,247,296 bytes)  
 Free Space 19.14 GB (20,550,328,320 bytes)  
 Volume Name  
 Volume Serial Number 9ADADE3B

Drive E:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 106.70 GB (114,564,263,936 bytes)  
 Free Space 67.44 GB (72,412,991,488 bytes)  
 Volume Name Log  
 Volume Serial Number 76A07FA1

Drive F:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 956.19 GB (1,026,697,457,664 bytes)  
 Free Space 561.15 GB (602,525,528,064 bytes)  
 Volume Name Database  
 Volume Serial Number 7683980B

Drive G:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 600.00 GB (644,242,993,152 bytes)  
 Free Space 145.47 GB (156,199,370,752 bytes)  
 Volume Name Backup  
 Volume Serial Number FC8D225C

Drive Z:  
 Description Network Connection  
 Provider Name \\depot\mnt

[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 2

SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 0  
 SCSI Target ID 4  
 Sectors/Track 32  
 Size 30.00 GB (32,211,763,200 bytes)  
 Total Cylinders 7,710  
 Total Sectors 62,913,600  
 Total Tracks 1,966,050  
 Tracks/Cylinder 255  
 Partition Disk #0, Partition #0  
 Partition Size 100.00 MB (104,857,600 bytes)  
 Partition Starting Offset 1,048,576 bytes  
 Partition Disk #0, Partition #1  
 Partition Size 29.90 GB (32,104,251,392 bytes)  
 Partition Starting Offset 105,906,176 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 5  
 Sectors/Track 32  
 Size 106.70 GB (114,566,922,240 bytes)  
 Total Cylinders 27,422  
 Total Sectors 223,763,520  
 Total Tracks 6,992,610  
 Tracks/Cylinder 255  
 Partition Disk #1, Partition #0  
 Partition Size 106.70 GB (114,564,268,032 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 6  
 Sectors/Track 32  
 Size 600.00 GB (644,243,619,840 bytes)  
 Total Cylinders 154,202  
 Total Sectors 1,258,288,320  
 Total Tracks 39,321,510  
 Tracks/Cylinder 255  
 Partition Disk #2, Partition #0  
 Partition Size 600.00 GB (644,242,997,248 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 7

Sectors/Track 32  
 Size 956.19 GB (1,026,698,772,480 bytes)  
 Total Cylinders 245,744  
 Total Sectors 2,005,271,040  
 Total Tracks 62,664,720  
 Tracks/Cylinder 255  
 Partition Disk #3, Partition #0  
 Partition Size 956.19 GB (1,026,699,868,160 bytes)  
 Partition Starting Offset 0 bytes

[SCSI]

Item Value  
 Name Smart Array P410i Controller  
 Manufacturer Hewlett-Packard Company  
 Status OK  
 PNP Device ID  
 PCI\VEN\_103C&DEV\_323A&SUBSYS\_3245103C&REV\_01\4  
 &190029E3&0&00E0  
 Memory Address 0xE0400000-0xE07FFFFF  
 Memory Address 0xE0002000-0xE0002FFF  
 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\hpcisss2.sys (6.20.0.64, 153.10 KB  
 (156,776 bytes), 8/29/2010 6:10 PM)

[IDE]

Item Value

[Printing]

Name	Driver	Port Name	Server Name
Microsoft XPS Document Writer (redirected 1)			Microsoft XPS
Document Writer	TS011	Not Available	
Fax (redirected 1)	Microsoft Shared Fax Driver	TS010	Not Available
CCM74 B&W - HP LaserJet M4345 mfp PCL6 (redirected 1)	HP LaserJet M4345 mfp PCL6	TS009	Not Available
Microsoft XPS Document Writer	Microsoft XPS Document Writer	XPSPort:	Not Available

[Problem Devices]

Device	PNP Device ID	Error Code

[USB]

Device PNP Device ID  
 Intel(R) ICH10 Family USB Universal Host Controller - 3A34  
 PCI\VEN\_8086&DEV\_3A34&SUBSYS\_330D103C&REV\_00\3  
 &11583659&0&E8  
 Standard Universal PCI to USB Host Controller  
 PCI\VEN\_103C&DEV\_3300&SUBSYS\_3309103C&REV\_01\4  
 &A2E0978&0&04E4  
 Intel(R) ICH10 Family USB Universal Host Controller - 3A35  
 PCI\VEN\_8086&DEV\_3A35&SUBSYS\_330D103C&REV\_00\3  
 &11583659&0&E9  
 Intel(R) ICH10 Family USB Universal Host Controller - 3A36  
 PCI\VEN\_8086&DEV\_3A36&SUBSYS\_330D103C&REV\_00\3  
 &11583659&0&EA  
 Intel(R) ICH10 Family USB Universal Host Controller - 3A39  
 PCI\VEN\_8086&DEV\_3A39&SUBSYS\_330D103C&REV\_00\3  
 &11583659&0&EB

Intel(R) ICH10 Family USB Enhanced Host Controller - 3A3A  
 PCI\VEN\_8086&DEV\_3A3A&SUBSYS\_330D103C&REV\_00\3  
 &11583659&0&EF

[Software Environment]

[System Drivers]

Name Mode	Description State Status	File Error Control	Type	Started	Start
	Accept Stop				
1394ohci	1394 OHCI Compliant Host Controller				
	c:\windows\system32\drivers\1394ohci.sys	Kernel Driver			
	No Manual Stopped OK			Normal	No
acpi	Microsoft ACPI Driver				
	c:\windows\system32\drivers\acpi.sys	Kernel Driver			
	Yes Boot Running OK			Critical	No
	Yes				
acpipmi	ACPI Power Meter Driver				
	c:\windows\system32\drivers\acpipmi.sys	Kernel Driver			
	Yes Manual Running OK			Normal	No
	Yes				
adp94xx Driver	adp94xx	c:\windows\system32\drivers\adp94xx.sys	Kernel Driver		
	No Manual Stopped OK			Normal	No
adpahci Driver	adpahci	c:\windows\system32\drivers\adpahci.sys	Kernel Driver		
	No Manual Stopped OK			Normal	No
	No				
adpu320 Driver	adpu320	c:\windows\system32\drivers\adpu320.sys	Kernel Driver		
	No Manual Stopped OK			Normal	No
	No				
afd	Ancillary Function Driver for Winsock				
	c:\windows\system32\drivers\afd.sys	Kernel Driver			
	Yes System Running OK			Normal	No
	Yes				
agp440	Intel AGP Bus Filter	c:\windows\system32\drivers\agp440.sys	Kernel Driver		
	Kernel Driver	No Manual Stopped OK			
	Normal No No				
aliide Driver	aliide	c:\windows\system32\drivers\aliide.sys	Kernel Driver		
	No Manual Stopped OK			Critical	No
	No				
amdide Driver	amdide	c:\windows\system32\drivers\amdide.sys	Kernel Driver		
	No Manual Stopped OK			Critical	No
	No				
amdk8	AMD K8 Processor Driver				
	c:\windows\system32\drivers\amdk8.sys	Kernel Driver			
	No Manual Stopped OK			Normal	No
	No				
amdppm	AMD Processor Driver				
	c:\windows\system32\drivers\amdppm.sys	Kernel Driver			
	No Manual Stopped OK			Normal	No
	No				
amdsata Driver	amdsata	c:\windows\system32\drivers\amdsata.sys	Kernel Driver		
	No Manual Stopped OK			Normal	No
	No				
amdsbs Driver	amdsbs	c:\windows\system32\drivers\amdsbs.sys	Kernel Driver		
	No Manual Stopped OK			Normal	No
	No				
amdxtata Driver	amdxtata	c:\windows\system32\drivers\amdxtata.sys	Kernel Driver		
	Yes Boot Running OK			Normal	No
	Yes				
appid	AppID Driver	c:\windows\system32\drivers\appid.sys	Kernel Driver		
	Kernel Driver	No Manual Stopped OK			
	Normal No No				
arc Driver	arc	c:\windows\system32\drivers\arc.sys	Kernel Driver		
	No Manual Stopped OK			Normal	No
	No				



	No	Manual	Stopped	OK	Normal	No
hdaudbus	Microsoft UAA Bus Driver for High Definition Audio					
	c:\windows\system32\drivers\hdaudbus.sys	Kernel Driver				
	No	Manual	Stopped	OK	Normal	No
hidbatt	HID UPS Battery Driver					
	c:\windows\system32\drivers\hidbatt.sys	Kernel Driver				
	No	Manual	Stopped	OK	Normal	No
hidusb	Microsoft HID Class Driver					
	c:\windows\system32\drivers\hidusb.sys	Kernel Driver				
	Yes	Manual	Running	OK	Ignore	No
hpciss2	HpCISSs2 c:\windows\system32\drivers\hpciss2.sys					
Driver	Yes	Boot	Running	OK	Normal	No
	Yes					
hpqilo3chif	HP ProLiant Management Controller Driver (CHIF)					
	c:\windows\system32\drivers\hpqilo3chif.sys	Kernel Driver				
Driver	Yes	Manual	Running	OK	Normal	No
	Yes					
hpqilo3core	HP ProLiant Management Controller Driver (CORE)					
	c:\windows\system32\drivers\hpqilo3core.sys	Kernel Driver				
Driver	Yes	Manual	Running	OK	Normal	No
	Yes					
hpqilo3whea	HP ProLiant Management Controller Driver (WHEA)					
	c:\windows\system32\drivers\hpqilo3whea.sys	Kernel Driver				
Driver	Yes	Boot	Running	OK	Normal	No
	Yes					
hpsamd	HpSAMD c:\windows\system32\drivers\hpsamd.sys					
Driver	Yes	Boot	Running	OK	Normal	No
	Yes					
http	HTTP c:\windows\system32\drivers\http.sys					
Driver	Yes	Manual	Running	OK	Normal	No
	Yes					
hwpolicy	Hardware Policy Driver					
	c:\windows\system32\drivers\hwpolicy.sys	Kernel Driver				
	Yes	Boot	Running	OK	Normal	No
	Yes					
i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver					
	c:\windows\system32\drivers\i8042prt.sys	Kernel Driver				
	Yes	Manual	Running	OK	Normal	No
	Yes					
iastorv	iaStorV c:\windows\system32\drivers\iastorv.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					
iirsp	iirsp c:\windows\system32\drivers\iirsp.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					
intelide	intelide c:\windows\system32\drivers\intelide.sys					
Driver	No	Manual	Stopped	OK	Critical	No
	No					
intelppm	Intel Processor Driver c:\windows\system32\drivers\intelppm.sys					
	Kernel Driver	Yes	Manual	Running	OK	
	Normal	No	Yes			
ioatdma	Intel(R) QuickData Technology Device					
	c:\windows\system32\drivers\qd260x64.sys	Kernel Driver				
	No	Manual	Stopped	OK	Normal	No
	No					
ipfilterdriver	IP Traffic Filter Driver					
	c:\windows\system32\drivers\ipfltdrv.sys	Kernel Driver				
	No	Manual	Stopped	OK	Normal	No
	No					
ipmidrv	IPMIDRV c:\windows\system32\drivers\ipmidrv.sys					
Driver	Yes	Manual	Running	OK	Normal	No
	Yes					
ipnat	IP Network Address Translator					
	c:\windows\system32\drivers\ipnat.sys	Kernel Driver				
	No	Manual	Stopped	OK	Normal	No
	No					

isapnp	isapnp	c:\windows\system32\drivers\isapnp.sys	Kernel Driver			
	No	Manual	Stopped	OK	Critical	No
	No					
iscsiprt	iScsiPort Driver c:\windows\system32\drivers\msiscsi.sys					
	Kernel Driver	No	Manual	Stopped	OK	
	Normal	No	No			
kbdclass	Keyboard Class Driver c:\windows\system32\drivers\kbdclass.sys					
	Kernel Driver	Yes	Manual	Running	OK	Normal
	Yes					No
	Yes					
kbdhid	Keyboard HID Driver c:\windows\system32\drivers\kbdhid.sys					
	Kernel Driver	Yes	Manual	Running	OK	
	Ignore	No	Yes			
ksecdd	KSecDD c:\windows\system32\drivers\ksecdd.sys					
Driver	Yes	Boot	Running	OK	Critical	No
	Yes					
ksecpkg	KSecPkg c:\windows\system32\drivers\ksecpkg.sys					
Driver	Yes	Boot	Running	OK	Critical	No
	Yes					
ksthunk	Kernel Streaming Thunks c:\windows\system32\drivers\ksthunk.sys					
	Kernel Driver	No	Manual	Stopped	OK	Normal
	No					No
	No					
lltdio	Link-Layer Topology Discovery Mapper I/O Driver c:\windows\system32\drivers\lltdio.sys					
	Kernel Driver	Yes	Auto	Running	OK	Normal
	Yes					No
	Yes					
lsi_fc	LSI_FC c:\windows\system32\drivers\lsi_fc.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					
lsi_sas	LSI_SAS c:\windows\system32\drivers\lsi_sas.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					
lsi_sas2	LSI_SAS2 c:\windows\system32\drivers\lsi_sas2.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					
lsi_scsi	LSI_SCSI c:\windows\system32\drivers\lsi_scsi.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					
luafv	UAC File Virtualization c:\windows\system32\drivers\luafv.sys					
	File System Driver	Yes	Auto	Running	OK	Normal
	Yes					No
	Yes					
megasas	megasas c:\windows\system32\drivers\megasas.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					
megasr	MegaSR c:\windows\system32\drivers\megasr.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					
modem	Modem c:\windows\system32\drivers\modem.sys					
Driver	No	Manual	Stopped	OK	Ignore	No
	No					
monitor	Microsoft Monitor Class Function Driver Service c:\windows\system32\drivers\monitor.sys					
	Kernel Driver	Yes	Manual	Running	OK	Normal
	Yes					No
	Yes					
mouclass	Mouse Class Driver c:\windows\system32\drivers\mouclass.sys					
	Kernel Driver	Yes	Manual	Running	OK	
	Normal	No	Yes			
	Yes					
mouhid	Mouse HID Driver c:\windows\system32\drivers\mouhid.sys					
	Kernel Driver	Yes	Manual	Running	OK	
	Ignore	No	Yes			
	Yes					
mountmgr	Mount Point Manager c:\windows\system32\drivers\mountmgr.sys					
	Kernel Driver	Yes	Boot	Running	OK	Critical
	Yes					No
	Yes					
mpio	mpio c:\windows\system32\drivers\mpio.sys					
Driver	No	Manual	Stopped	OK	Normal	No
	No					



mpsdrv	Windows Firewall Authorization Driver c:\windows\system32\drivers\mpsdrv.sys Yes Manual Running OK	Kernel Driver Normal No
mrxsmb	SMB MiniRedirector Wrapper and Engine c:\windows\system32\drivers\mrxsmb.sys Yes Manual Running OK	File System Driver Normal No
mrxsmb10	SMB 1.x MiniRedirector c:\windows\system32\drivers\mrxsmb10.sys Yes Manual Running OK	File System Driver Normal No
mrxsmb20	SMB 2.0 MiniRedirector c:\windows\system32\drivers\mrxsmb20.sys Yes Manual Running OK	File System Driver Normal No
msahci Driver	msahci No Manual Stopped OK	c:\windows\system32\drivers\msahci.sys Kernel Critical No
msdsm Driver	msdsm No Manual Stopped OK	c:\windows\system32\drivers\msdsm.sys Kernel Normal No
msfs System Driver	Msfs No Yes System Running OK	c:\windows\system32\drivers\msfs.sys File Normal
mshidkmdf Driver	Pass-through HID to KMDF Filter Driver c:\windows\system32\drivers\mshidkmdf.sys No Manual Stopped OK	Kernel Ignore No
msisadv Driver	msisadv Yes Boot Running OK	c:\windows\system32\drivers\msisadv.sys Kernel Critical No
msrpc Driver	MsRPC No Manual Stopped OK	c:\windows\system32\drivers\msrpc.sys Kernel Normal No
mssmbios	Microsoft System Management BIOS Driver c:\windows\system32\drivers\mssmbios.sys Yes System Running OK	Kernel Driver Normal No
mtconfig	Microsoft Input Configuration Driver c:\windows\system32\drivers\mtconfig.sys No Manual Stopped OK	Kernel Driver Normal No
mup System Driver	Mup No Yes Boot Running OK	c:\windows\system32\drivers\mup.sys File Normal
ndis	NDIS System Driver Kernel Driver Critical No Yes	c:\windows\system32\drivers\ndis.sys Yes Boot Running OK
ndiscap	NDIS Capture LightWeight Filter c:\windows\system32\drivers\ndiscap.sys No Manual Stopped OK	Kernel Driver Normal No
ndistapi	Remote Access NDIS TAPI Driver c:\windows\system32\drivers\ndistapi.sys Yes Manual Running OK	Kernel Driver Normal No
ndisuio	NDIS Usermode I/O Protocol c:\windows\system32\drivers\ndisuio.sys No Manual Stopped OK	Kernel Driver Normal No
ndiswan	Remote Access NDIS WAN Driver c:\windows\system32\drivers\ndiswan.sys Yes Manual Running OK	Kernel Driver Normal No
ndproxy	NDIS Proxy Kernel Driver Normal No Yes	c:\windows\system32\drivers\ndproxy.sys Yes Manual Running OK
netbios	NetBIOS Interface File System Driver Normal No Yes	c:\windows\system32\drivers\netbios.sys Yes System Running OK
netbt Driver	NetBT Yes System Running OK	c:\windows\system32\drivers\netbt.sys Kernel Normal No
nfrd960 Driver	nfrd960 No Manual Stopped OK	c:\windows\system32\drivers\nfrd960.sys Kernel Normal No
npfs System Driver	Npfs No Yes System Running OK	c:\windows\system32\drivers\npfs.sys File Normal
nsiproxy	NSI proxy service driver. c:\windows\system32\drivers\nsiproxy.sys Yes System Running OK	Kernel Driver Normal No
ntfs System Driver	Ntfs No Yes Manual Running OK	c:\windows\system32\drivers\ntfs.sys File Normal
null Driver	Null Yes System Running OK	c:\windows\system32\drivers\null.sys Kernel Normal No
nvraid Driver	nvraid No Manual Stopped OK	c:\windows\system32\drivers\nvraid.sys Kernel Normal No
nvstor Driver	nvstor No Manual Stopped OK	c:\windows\system32\drivers\nvstor.sys Kernel Critical No
nv_agp	NVIDIA nForce AGP Bus Filter c:\windows\system32\drivers\nv_agp.sys No Manual Stopped OK	Kernel Driver Normal No
nxnd6hp	HP Multifunctions 1/10 Gigabit Server Adapter c:\windows\system32\drivers\hpnd6x64.sys Yes Manual Running OK	Kernel Driver Normal No
ohci1394	1394 OHCI Compliant Host Controller (Legacy) c:\windows\system32\drivers\ohci1394.sys No Manual Stopped OK	Kernel Driver Normal No
parport	Parallel port driver Kernel Driver Ignore No No	c:\windows\system32\drivers\parport.sys No Manual Stopped OK
partmgr	Partition Manager Kernel Driver Critical No Yes	c:\windows\system32\drivers\partmgr.sys Yes Boot Running OK
pci	PCI Bus Driver Kernel Driver Critical No Yes	c:\windows\system32\drivers\pci.sys Yes Boot Running OK
pciide Driver	pciide No Manual Stopped OK	c:\windows\system32\drivers\pciide.sys Kernel Critical No
pcmcia Driver	pcmcia No Manual Stopped OK	c:\windows\system32\drivers\pcmcia.sys Kernel Normal No
pcw	Performance Counters for Windows Driver c:\windows\system32\drivers\pcw.sys Yes Boot Running OK	Kernel Driver Normal No
peauth Driver	PEAUTH Yes Auto Running OK	c:\windows\system32\drivers\peauth.sys Kernel Normal No
pptpminiport	WAN Miniport (PPTP) c:\windows\system32\drivers\raspptp.sys Yes Manual Running OK	Kernel Driver Normal No
processor	Processor Driver Kernel Driver Normal No No	c:\windows\system32\drivers\processr.sys No Manual Stopped OK

psched	QoS Packet Scheduler	c:\windows\system32\drivers\pacer.sys	Kernel Driver	Yes	System	Running	OK	Normal	No
ql2300 Driver	ql2300	c:\windows\system32\drivers\ql2300.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
ql40xx Driver	ql40xx	c:\windows\system32\drivers\ql40xx.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
rasacd	Remote Access Auto Connection Driver	c:\windows\system32\drivers\rasacd.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
rasagilevpn	WAN Miniport (IKEv2)	c:\windows\system32\drivers\agilevpn.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
rasl2tp	WAN Miniport (L2TP)	c:\windows\system32\drivers\rasl2tp.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
rasppoe	Remote Access PPPOE Driver	c:\windows\system32\drivers\rasppoe.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
rasstp	WAN Miniport (SSTP)	c:\windows\system32\drivers\rasstp.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
rdbs	Redirected Buffering Sub System	c:\windows\system32\drivers\rdbs.sys	File System Driver	Yes	System	Running	OK	Normal	No
rdpbu	Remote Desktop Device Redirector Bus Driver	c:\windows\system32\drivers\rdpbu.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
rdpcdd Driver	RDPCDD	c:\windows\system32\drivers\rdpcdd.sys	Kernel Driver	Yes	System	Running	OK	Ignore	No
rdpdr	Terminal Server Device Redirector Driver	c:\windows\system32\drivers\rdpdr.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
rdpencdd	RDP Encoder Mirror Driver	c:\windows\system32\drivers\rdpencdd.sys	Kernel Driver	Yes	System	Running	OK	Ignore	No
rdprefmp	Reflector Display Driver used to gain access to graphics data	c:\windows\system32\drivers\rdprefmp.sys	Kernel Driver	Yes	System	Running	OK	Ignore	No
rdpwd	RDP Winstation Driver	c:\windows\system32\drivers\rdpwd.sys	Kernel Driver	Yes	Manual	Running	OK	Ignore	No
rsfx0150	RsFx0150 Driver	c:\windows\system32\drivers\rsfx0150.sys	File System Driver	No	Disabled	Stopped	OK	Normal	No
rspndr	Link-Layer Topology Discovery Responder	c:\windows\system32\drivers\rspndr.sys	Kernel Driver	Yes	Auto	Running	OK	Normal	No
s3cap Driver	s3cap	c:\windows\system32\drivers\vm3cap.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
sacdrv Driver	sacdrv	c:\windows\system32\drivers\sacdrv.sys	Kernel Driver	No	Boot	Stopped	OK	Ignore	No
sbp2port Driver	sbp2port	c:\windows\system32\drivers\sbp2port.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
scfilter	Smart card PnP Class Filter Driver	c:\windows\system32\drivers\scfilter.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
secdrv	Security Driver	c:\windows\system32\drivers\secdrv.sys	Kernel Driver	Yes	Auto	Running	OK	Normal	No
serenum	Serenum Filter Driver	c:\windows\system32\drivers\serenum.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
serial	Serial port driver	c:\windows\system32\drivers\serial.sys	Kernel Driver	Yes	System	Running	OK	Ignore	No
sermouse	Serial Mouse Driver	c:\windows\system32\drivers\sermouse.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
sffdisk	SFF Storage Class Driver	c:\windows\system32\drivers\sffdisk.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
sffp_mmc	SFF Storage Protocol Driver for MMC	c:\windows\system32\drivers\sffp_mmc.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
sffp_sd	SFF Storage Protocol Driver for SDBus	c:\windows\system32\drivers\sffp_sd.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
sfloppy	High-Capacity Floppy Disk Drive	c:\windows\system32\drivers\sfloppy.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
sisraid2 Driver	SiSRaid2	c:\windows\system32\drivers\sisraid2.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
sisraid4 Driver	SiSRaid4	c:\windows\system32\drivers\sisraid4.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
smb	Message-oriented TCP/IP and TCP/IPV6 Protocol (SMB session)	c:\windows\system32\drivers\smb.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
spldr	Security Processor Loader Driver	c:\windows\system32\drivers\spldr.sys	Kernel Driver	Yes	Boot	Running	OK	Critical	No
srv	Server SMB 1.xxx Driver	c:\windows\system32\drivers\srv.sys	File System Driver	Yes	Manual	Running	OK	Normal	No
srv2	Server SMB 2.xxx Driver	c:\windows\system32\drivers\srv2.sys	File System Driver	Yes	Manual	Running	OK	Normal	No
srvnet System Driver	srvnet	c:\windows\system32\drivers\srvnet.sys	File System Driver	Yes	Manual	Running	OK	Normal	No
stexstor Driver	stexstor	c:\windows\system32\drivers\stexstor.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No
storflt	Disk Virtual Machine Bus Acceleration Filter Driver	c:\windows\system32\drivers\vmstorflt.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No
storvsc Driver	storvsc	c:\windows\system32\drivers\storvsc.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No

storvsp Driver	storvsp No No	c:\windows\system32\drivers\storvsp.sys	Kernel Normal No	Manual Stopped OK	OK	Normal No	
swenum	Software Bus Driver Kernel Driver Normal	c:\windows\system32\drivers\swenum.sys	Kernel Driver Normal	Yes Manual Running	OK	Normal No	
tcpip	TCP/IP Protocol Driver	c:\windows\system32\drivers\tcpip.sys	Kernel Driver	Yes Boot Running	OK	Normal No	
tcpip6	Microsoft IPv6 Protocol Driver	c:\windows\system32\drivers\tcpip.sys	Kernel Driver	No Manual Stopped	OK	Normal No	
tcpipreg	TCP/IP Registry Compatibility	c:\windows\system32\drivers\tcpipreg.sys	Kernel Driver	Yes Auto Running	OK	Normal No	
tdpipe Driver	TDPIPE No	c:\windows\system32\drivers\tdpipe.sys	Kernel Normal	No Manual Stopped	OK	Normal No	
tdtcp Driver	TDTCP Yes	c:\windows\system32\drivers\tdtcp.sys	Kernel Normal	Yes Manual Running	OK	Normal No	
tdx	NetIO Legacy TDI Support Driver	c:\windows\system32\drivers\tdx.sys	Kernel Driver	Yes System Running	OK	Normal No	
termdd	Terminal Device Driver	c:\windows\system32\drivers\termdd.sys	Kernel Driver	Yes System Running	OK	Normal No	
tssecsrv	Remote Desktop Services Security Filter Driver	c:\windows\system32\drivers\tssecsrv.sys	Kernel Driver	Yes Manual Running	OK	Ignore No	
tunnel	Microsoft 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 System Driver	udfs No	c:\windows\system32\drivers\udfs.sys	File Normal	No No Disabled	Stopped OK	Normal	
uliagpkx	Uli AGP Bus Filter	c:\windows\system32\drivers\uliagpkx.sys	Kernel Driver	Normal No No	Manual Stopped OK	OK	
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 Manual Stopped	OK	Normal No	
usbccgp	Microsoft USB Generic Parent Driver	c:\windows\system32\drivers\usbccgp.sys	Kernel Driver	Yes Manual Running	OK	Normal No	
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	
usbhcci	Microsoft USB Open Host Controller Miniport Driver	c:\windows\system32\drivers\usbhcci.sys	Kernel Driver	No Manual Stopped	OK	Normal No	
usbprint	Microsoft USB PRINTER Class	c:\windows\system32\drivers\usbprint.sys	Kernel Driver	No Manual Stopped	OK	Normal No	
usbstor	USB Mass Storage Driver	c:\windows\system32\drivers\usbstor.sys	Kernel Driver	No Manual Stopped	OK	Normal No	
usbuhci	Microsoft USB Universal Host Controller Miniport Driver	c:\windows\system32\drivers\usbuhci.sys	Kernel Driver	Yes Manual Running	OK	Normal No	
vdrvroot	Microsoft Virtual Drive Enumerator Driver	c:\windows\system32\drivers\vdrvroot.sys	Kernel Driver	Yes Boot Running	OK	Critical No	
vga Driver	vga Yes	c:\windows\system32\drivers\vgapnp.sys	Kernel Ignore	Yes Manual Running	OK	Ignore No	
vgasave Driver	VgaSave Yes	c:\windows\system32\drivers\vga.sys	Kernel Ignore	Yes System Running	OK	Ignore No	
vhdmp Driver	vhdmp No	c:\windows\system32\drivers\vhdmp.sys	Kernel Normal	No Manual Stopped	OK	Normal No	
viaide Driver	viaide No	c:\windows\system32\drivers\viaide.sys	Kernel Critical	No Manual Stopped	OK	Critical No	
vid Driver	Vid No	c:\windows\system32\drivers\vid.sys	Kernel Normal	No Manual Stopped	OK	Normal No	
vmbus	Virtual Machine Bus	c:\windows\system32\drivers\vmbus.sys	Kernel Driver	Normal No No	Manual Stopped OK	OK	
vmbushid	VMBusHID	c:\windows\system32\drivers\vmbushid.sys	Kernel Driver	Ignore No No	Manual Stopped OK	OK	
volmgr	Volume Manager Driver	c:\windows\system32\drivers\volmgr.sys	Kernel Driver	Yes Boot Running	OK	Critical No	
volmgrx	Dynamic Volume Manager	c:\windows\system32\drivers\volmgrx.sys	Kernel Driver	Yes Boot Running	OK	Critical No	
volsnap	Storage volumes	c:\windows\system32\drivers\volsnap.sys	Kernel Driver	Critical No Yes	Yes Boot Running	OK	
vsmraid Driver	vsmraid No	c:\windows\system32\drivers\vsmraid.sys	Kernel Normal	No Manual Stopped	OK	Normal No	
wacompen	Wacom Serial Pen HID Driver	c:\windows\system32\drivers\wacompen.sys	Kernel Driver	No Manual Stopped	OK	Normal No	
wanarp	Remote Access IP ARP Driver	c:\windows\system32\drivers\wanarp.sys	Kernel Driver	No Manual Stopped	OK	Normal No	
wanarpv6	Remote Access IPv6 ARP Driver	c:\windows\system32\drivers\wanarp.sys	Kernel Driver	Yes System Running	OK	Normal No	
wd Driver	Wd No	c:\windows\system32\drivers\wd.sys	Kernel Normal	No Manual Stopped	OK	Normal No	

```
wdf01000 Kernel Mode Driver Frameworks service
c:\windows\system32\drivers\wdf01000.sys Kernel Driver
Yes Boot Running OK Normal No
Yes
wfpwfp WFP Lightweight Filter
c:\windows\system32\drivers\wfpwfp.sys Kernel Driver
Yes System Running OK Normal No
Yes
wimmount WIMMount
c:\windows\system32\drivers\wimmount.sys File System Driver
No Manual Stopped OK Normal No
No
wmiacpi Microsoft Windows Management Interface for ACPI
c:\windows\system32\drivers\wmiacpi.sys Kernel Driver
No Manual Stopped OK Normal No
No
ws2ifsl Winsock IFS Driver c:\windows\system32\drivers\ws2ifsl.sys
Kernel Driver No Disabled Stopped OK
Normal No No
wudfpf User Mode Driver Frameworks Platform Driver
c:\windows\system32\drivers\wudfpf.sys Kernel Driver
No Manual Stopped OK Normal No
No
```

[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%\Syst
em32\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\DTS\Binn\;C:\Program Files (x86)\Microsoft SQL
Server\100\Tools\Binn\VSShell\Common7\IDE\;C:\Program Files
(x86)\Microsoft SQL Server\100\DTS\Binn\ <SYSTEM>
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MS
C <SYSTEM>
PROCESSOR_ARCHITECTURE AMD64 <SYSTEM>
TEMP %SystemRoot%\TEMP <SYSTEM>
TMP %SystemRoot%\TEMP <SYSTEM>
USERNAME SYSTEM <SYSTEM>
windir %SystemRoot% <SYSTEM>
PSModulePath
%SystemRoot%\system32\WindowsPowerShell\v1.0\Modules\
<SYSTEM>
NUMBER_OF_PROCESSORS 64 <SYSTEM>
PROCESSOR_LEVEL 6 <SYSTEM>
PROCESSOR_IDENTIFIER Intel64 Family 6 Model 46 Stepping 6,
GenuineIntel <SYSTEM>
PROCESSOR_REVISION 2e06 <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 WIN-
BTCTMNRQJH3\Administrator
```

```
TMP %USERPROFILE%\AppData\Local\Temp WIN-
BTCTMNRQJH3\Administrator
```

[Print Jobs]

Document	Size	Owner	Notify	Status	Time Submitted

[Network Connections]

Local Name	Remote Name	Type	Status	User
Z:	\\depot\mnt americas\jellyson	Disk	Current Connection	

[Running Tasks]

Name	Path	Process ID	Priority	Min Working Set	Max Working Set
system idle process		Not Available		0	Not Available
system		Not Available	4	8	Not Available
smss.exe		Not Available	716	11	200 1380
csrss.exe	c:\windows\system32\csrss.exe	1380	9/8/2010 3:02 PM	816 13	200 7.50 KB
csrss.exe	c:\windows\system32\csrss.exe	1380	9/8/2010 3:03 PM	868 13	200 7.50 KB
wininit.exe	c:\windows\system32\wininit.exe	1380	9/8/2010 3:03 PM	876 13	200 126.00 KB (129,024 bytes)
services.exe	c:\windows\system32\services.exe	9	200 1380	9/8/2010 3:03 PM	920 321.00 KB (328,704 bytes)
lsass.exe	c:\windows\system32\lsass.exe	1380	9/8/2010 3:03 PM	928 9	200 30.50 KB (31,232 bytes)
lsm.exe	c:\windows\system32\lsm.exe	1380	9/8/2010 3:03 PM	936 8	200 325.50 KB (333,312 bytes)
winlogon.exe	c:\windows\system32\winlogon.exe	13	200 1380	9/8/2010 3:03 PM	992 380.00 KB (389,120 bytes)
svchost.exe	c:\windows\system32\svchost.exe	8	200 1380	9/8/2010 3:03 PM	832 26.50 KB (27,136 bytes)
svchost.exe	c:\windows\system32\svchost.exe	8	200 1380	9/8/2010 3:03 PM	932 26.50 KB (27,136 bytes)
svchost.exe	c:\windows\system32\svchost.exe	8	200 1380	9/8/2010 3:03 PM	1116 26.50 KB (27,136 bytes)
svchost.exe	c:\windows\system32\svchost.exe	8	200 1380	9/8/2010 3:03 PM	1168 26.50 KB (27,136 bytes)

svchost.exe	c:\windows\system32\svchost.exe	1224	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	26.50 KB (27,136 bytes)	7/13/2009 6:31 PM
svchost.exe	c:\windows\system32\svchost.exe	1288	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	26.50 KB (27,136 bytes)	7/13/2009 6:31 PM
svchost.exe	c:\windows\system32\svchost.exe	1328	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	26.50 KB (27,136 bytes)	7/13/2009 6:31 PM
svchost.exe	c:\windows\system32\svchost.exe	1448	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	26.50 KB (27,136 bytes)	7/13/2009 6:31 PM
spoolsv.exe	c:\windows\system32\spoolsv.exe	1576	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	545.00 KB (558,080 bytes)	7/13/2009 7:39 PM
proliantmonitor.exe	c:\program files\hewlett-packard\ilo3\service\proliantmonitor.exe	1648	8	200	1380	9/8/2010 3:03 PM	3.1.0.0	261.60 KB (267,880 bytes)	5/26/2010 6:27 PM
svchost.exe	c:\windows\system32\svchost.exe	1684	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	26.50 KB (27,136 bytes)	7/13/2009 6:31 PM
sqlwriter.exe	c:\program files\microsoft sql server\90\shared\sqlwriter.exe	1744	8	200	1380	9/8/2010 3:03 PM	2009.100.1600.1	142.84 KB (146,272 bytes)	4/3/2010 1:00 PM
taskhost.exe	c:\windows\system32\taskhost.exe	1496	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	67.50 KB (69,120 bytes)	7/13/2009 6:31 PM
dwm.exe	c:\windows\system32\dwm.exe	2128	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	117.50 KB (120,320 bytes)	7/13/2009 6:37 PM
explorer.exe	c:\windows\explorer.exe	2260	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	2.74 MB (2,868,224 bytes)	7/13/2009 6:56 PM
svchost.exe	c:\windows\system32\svchost.exe	3212	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	26.50 KB (27,136 bytes)	7/13/2009 6:31 PM
svchost.exe	c:\windows\system32\svchost.exe	3336	8	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	26.50 KB (27,136 bytes)	7/13/2009 6:31 PM
taskmgr.exe	c:\windows\system32\taskmgr.exe	1412	13	200	1380	9/8/2010 3:03 PM	6.1.7600.16385	251.00 KB (257,024 bytes)	7/13/2009 6:31 PM
msdtc.exe	c:\windows\system32\msdtc.exe	2376	8	200	1380	9/8/2010 3:05 PM	2001.12.8530.16385	138.50 KB (141,824 bytes)	7/13/2009 6:59 PM
sppsvc.exe	c:\windows\system32\sppsvc.exe	576	8	200	1380	9/8/2010 3:05 PM	6.1.7600.16385	3.36 MB (3,524,608 bytes)	7/13/2009 8:05 PM
cmd.exe	c:\windows\system32\cmd.exe	3240	8	200	1380	9/8/2010 3:11 PM	6.1.7600.16385	336.50 KB (344,576 bytes)	7/13/2009 6:34 PM
conhost.exe	c:\windows\system32\conhost.exe	788	8	200	1380	9/8/2010 3:11 PM	6.1.7600.16385	330.50 KB (338,432 bytes)	7/13/2009 6:38 PM
csrss.exe	c:\windows\system32\csrss.exe	972	13	200	1380	9/8/2010 3:35 PM	6.1.7600.16385	7.50 KB (7,680 bytes)	7/13/2009 6:19 PM
winlogon.exe	c:\windows\system32\winlogon.exe	1588	13	200	1380	9/8/2010 3:35 PM	6.1.7600.16385	380.00 KB (389,120 bytes)	7/13/2009 6:52 PM
logonui.exe	c:\windows\system32\logonui.exe	1220	13	200	1380	9/8/2010 3:35 PM	6.1.7600.16385	27.00 KB (27,648 bytes)	7/13/2009 6:52 PM
rdpclip.exe	c:\windows\system32\rdpclip.exe	3872	8	200	1380	9/8/2010 3:35 PM	6.1.7600.16385	204.50 KB (209,408 bytes)	7/13/2009 7:17 PM
cmd.exe	c:\windows\system32\cmd.exe	548	8	200	1380	9/8/2010 3:37 PM	6.1.7600.16385	336.50 KB (344,576 bytes)	7/13/2009 6:34 PM
conhost.exe	c:\windows\system32\conhost.exe	3836	8	200	1380	9/8/2010 3:37 PM	6.1.7600.16385	330.50 KB (338,432 bytes)	7/13/2009 6:38 PM
msinfo32.exe	c:\windows\system32\msinfo32.exe	2252	8	200	1380	9/9/2010 5:49 PM	6.1.7600.16385	370.00 KB (378,880 bytes)	7/13/2009 6:31 PM
wmiprvse.exe	c:\windows\system32\wbem\wmiprvse.exe	3716	8	200	1380	9/9/2010 5:49 PM	6.1.7600.16385	360.00 KB (368,640 bytes)	7/13/2009 6:47 PM
wmiprvse.exe	c:\windows\system32\wbem\wmiprvse.exe	3660	8	200	1380	9/9/2010 5:49 PM	6.1.7600.16385	360.00 KB (368,640 bytes)	7/13/2009 6:47 PM
ieexplore.exe	c:\program files (x86)\internet explorer\ieexplore.exe	1668	8	200	1380	9/9/2010 5:49 PM	8.0.7600.16385	657.27 KB (673,048 bytes)	7/13/2009 6:43 PM
ieexplore.exe	c:\program files (x86)\internet explorer\ieexplore.exe	1780	8	200	1380	9/9/2010 5:49 PM	8.0.7600.16385	657.27 KB (673,048 bytes)	7/13/2009 6:43 PM
hpacubin.exe	c:\program files (x86)\compaq\cpqacuxe\bin\hpacubin.exe	440	8	200	1380	9/9/2010 5:49 PM	8.50.5.0	295.00 KB (302,080 bytes)	4/26/2010 6:22 PM
printisolationhost.exe	c:\windows\system32\printisolationhost.exe	1788	8	200	1380	9/9/2010 5:49 PM	6.1.7600.16385	18.50 KB (18,944 bytes)	7/13/2009 7:39 PM
[Loaded Modules]									
Name	Version	Size	File Date	Manufacturer	Path				
csrss	6.1.7600.16385	7.50 KB (7,680 bytes)	7/13/2009 6:19 PM	Microsoft Corporation	c:\windows\system32\csrss.exe				
ntdll	6.1.7600.16385	1.66 MB (1,736,792 bytes)	7/13/2009 6:22 PM	Microsoft Corporation	c:\windows\system32\ntdll.dll				
csrssrv	6.1.7600.16385	42.50 KB (43,520 bytes)	7/13/2009 6:19 PM	Microsoft Corporation	c:\windows\system32\csrssrv.dll				
basesrv	6.1.7600.16385	51.50 KB (52,736 bytes)	7/13/2009 6:18 PM	Microsoft Corporation	c:\windows\system32\basesrv.dll				
winsrv	6.1.7600.16385	209.00 KB (214,016 bytes)	7/13/2009 6:38 PM	Microsoft Corporation	c:\windows\system32\winsrv.dll				
user32	6.1.7600.16385	985.00 KB (1,008,640 bytes)	7/13/2009 6:38 PM	Microsoft Corporation	c:\windows\system32\user32.dll				

gdi32	6.1.7600.16385	395.00 KB (404,480 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\gdi32.dll
kernel32	6.1.7600.16385	1.11 MB (1,162,240 bytes)	7/13/2009 6:28 PM	Microsoft Corporation	c:\windows\system32\kernel32.dll
kernelbase	6.1.7600.16385	411.50 KB (421,376 bytes)	7/13/2009 6:20 PM	Microsoft Corporation	c:\windows\system32\kernelbase.dll
lpk	6.1.7600.16385	41.00 KB (41,984 bytes)	7/13/2009 6:38 PM	Microsoft Corporation	c:\windows\system32\lpk.dll
usp10	1.626.7600.16385	782.50 KB (801,280 bytes)	7/13/2009 6:38 PM	Microsoft Corporation	c:\windows\system32\usp10.dll
msvcrt	7.0.7600.16385	620.00 KB (634,880 bytes)	7/13/2009 6:19 PM	Microsoft Corporation	c:\windows\system32\msvcrt.dll
sxssrv	6.1.7600.16385	31.00 KB (31,744 bytes)	7/13/2009 6:26 PM	Microsoft Corporation	c:\windows\system32\sxssrv.dll
sxs	6.1.7600.16385	569.50 KB (583,168 bytes)	7/13/2009 6:27 PM	Microsoft Corporation	c:\windows\system32\sxs.dll
rpcrt4	6.1.7600.16385	1.17 MB (1,221,632 bytes)	7/13/2009 6:23 PM	Microsoft Corporation	c:\windows\system32\rpcrt4.dll
cryptbase	6.1.7600.16385	43.00 KB (44,032 bytes)	7/13/2009 6:20 PM	Microsoft Corporation	c:\windows\system32\cryptbase.dll
wininit	6.1.7600.16385	126.00 KB (129,024 bytes)	7/13/2009 6:52 PM	Microsoft Corporation	c:\windows\system32\wininit.exe
sechost	6.1.7600.16385	111.00 KB (113,664 bytes)	7/13/2009 6:20 PM	Microsoft Corporation	c:\windows\system32\sechost.dll
profapi	6.1.7600.16385	43.00 KB (44,032 bytes)	7/13/2009 6:20 PM	Microsoft Corporation	c:\windows\system32\profapi.dll
imm32	6.1.7600.16385	163.50 KB (167,424 bytes)	7/13/2009 6:38 PM	Microsoft Corporation	c:\windows\system32\imm32.dll
msctf	6.1.7600.16385	1.02 MB (1,067,008 bytes)	7/13/2009 6:40 PM	Microsoft Corporation	c:\windows\system32\msctf.dll
rpcrtremote	6.1.7600.16385	63.50 KB (65,024 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\rpcrtremote.dll
apphelp	6.1.7600.16385	330.50 KB (338,432 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\apphelp.dll
ws2_32	6.1.7600.16385	289.50 KB (296,448 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\ws2_32.dll
nsi	6.1.7600.16385	13.50 KB (13,824 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\nsi.dll
mswsock	6.1.7600.16385	312.50 KB (320,000 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\mswsock.dll
wshtcpip	6.1.7600.16385	13.00 KB (13,312 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\wshtcpip.dll
wship6	6.1.7600.16385	13.50 KB (13,824 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\wship6.dll
secur32	6.1.7600.16385	27.50 KB (28,160 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\secur32.dll
sspicli	6.1.7600.16385	133.00 KB (136,192 bytes)	7/13/2009 6:20 PM	Microsoft Corporation	c:\windows\system32\sspicli.dll
credssp	6.1.7600.16385	20.00 KB (20,480 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\credssp.dll
advapi32	6.1.7600.16385	856.50 KB (877,056 bytes)	7/13/2009 7:41 PM	Microsoft Corporation	c:\windows\system32\advapi32.dll
services	6.1.7600.16385	321.00 KB (328,704 bytes)	7/13/2009 6:19 PM	Microsoft Corporation	c:\windows\system32\services.exe
scext	6.1.7600.16385	87.00 KB (89,088 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\scext.dll
scesrv	6.1.7600.16385	396.50 KB (406,016 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\scesrv.dll
srvcli	6.1.7600.16385	124.50 KB (127,488 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\srvcli.dll
authz	6.1.7600.16385	173.50 KB (177,664 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\authz.dll
ubpm	6.1.7600.16385	209.00 KB (214,016 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\ubpm.dll
wtsapi32	6.1.7600.16385	53.00 KB (54,272 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\wtsapi32.dll
winsta	6.1.7600.16385	228.00 KB (233,472 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\winsta.dll
lsass	6.1.7600.16385	30.50 KB (31,232 bytes)	7/13/2009 6:20 PM	Microsoft Corporation	c:\windows\system32\lsass.exe
sspisrv	6.1.7600.16385	28.00 KB (28,672 bytes)	7/13/2009 6:20 PM	Microsoft Corporation	c:\windows\system32\sspisrv.dll
lsasrv	6.1.7600.16385	1.38 MB (1,446,912 bytes)	7/13/2009 6:51 PM	Microsoft Corporation	c:\windows\system32\lsasrv.dll
samsrv	6.1.7600.16385	740.00 KB (757,760 bytes)	7/13/2009 6:54 PM	Microsoft Corporation	c:\windows\system32\samsrv.dll
cryptdll	6.1.7600.16385	64.50 KB (66,048 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\cryptdll.dll
msasn1	6.1.7600.16385	43.00 KB (44,032 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\msasn1.dll
wevtapi	6.1.7600.16385	418.00 KB (428,032 bytes)	7/13/2009 6:46 PM	Microsoft Corporation	c:\windows\system32\wevtapi.dll
engaudit	6.1.7600.16385	18.50 KB (18,944 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\engaudit.dll
ncrypt	6.1.7600.16385	300.00 KB (307,200 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\ncrypt.dll
bcrypt	6.1.7600.16385	121.00 KB (123,904 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\bcrypt.dll
msprivs	6.1.7600.16385	2.00 KB (2,048 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\msprivs.dll
netjoin	6.1.7600.16385	184.50 KB (188,928 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\netjoin.dll

negoexts	6.1.7600.16385	114.50 KB (117,248 bytes)	dssenh	6.1.7600.16385	186.41 KB (190,880 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 6:53 PM	Microsoft Corporation
		c:\windows\system32\negoexts.dll			c:\windows\system32\dssenh.dll
kerberos	6.1.7600.16385	697.50 KB (714,240 bytes)	gpapi	6.1.7600.16385	94.50 KB (96,768 bytes)
	7/13/2009 6:51 PM	Microsoft Corporation		7/13/2009 6:54 PM	Microsoft Corporation
		c:\windows\system32\kerberos.dll			c:\windows\system32\gpapi.dll
cryptsp	6.1.7600.16385	78.00 KB (79,872 bytes)	cryptnet	6.1.7600.16385	135.50 KB (138,752 bytes)
	7/13/2009 6:53 PM	Microsoft Corporation		7/13/2009 6:49 PM	Microsoft Corporation
		c:\windows\system32\cryptsp.dll			c:\windows\system32\cryptnet.dll
msv1_0	6.1.7600.16385	304.00 KB (311,296 bytes)	wldap32	6.1.7600.16385	304.50 KB (311,808 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 6:54 PM	Microsoft Corporation
		c:\windows\system32\msv1_0.dll			c:\windows\system32\wldap32.dll
netlogon	6.1.7600.16385	676.50 KB (692,736 bytes)	dhcpcsvc	6.1.7600.16385	85.00 KB (87,040 bytes)
	7/13/2009 6:53 PM	Microsoft Corporation		7/13/2009 6:21 PM	Microsoft Corporation
		c:\windows\system32\netlogon.dll			c:\windows\system32\dhcpcsvc.dll
dnsapi	6.1.7600.16385	348.00 KB (356,352 bytes)	dhcpcsvc6	6.1.7600.16385	53.00 KB (54,272 bytes)
	7/13/2009 6:21 PM	Microsoft Corporation		7/13/2009 6:21 PM	Microsoft Corporation
		c:\windows\system32\dnsapi.dll			c:\windows\system32\dhcpcsvc6.dll
logoncli	6.1.7600.16385	182.00 KB (186,368 bytes)	lsm	6.1.7600.16385	325.50 KB (333,312 bytes)
	7/13/2009 6:53 PM	Microsoft Corporation		7/13/2009 7:17 PM	Microsoft Corporation
		c:\windows\system32\logoncli.dll			c:\windows\system32\lsm.exe
schannel	6.1.7600.16385	340.50 KB (348,672 bytes)	sysntfy	6.1.7600.16385	22.50 KB (23,040 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 6:52 PM	Microsoft Corporation
		c:\windows\system32\schannel.dll			c:\windows\system32\sysntfy.dll
crypt32	6.1.7600.16385	1.39 MB (1,454,592 bytes)	wmsgapi	6.1.7600.16385	14.50 KB (14,848 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 6:52 PM	Microsoft Corporation
		c:\windows\system32\crypt32.dll			c:\windows\system32\wmsgapi.dll
wdigest	6.1.7600.16385	205.50 KB (210,432 bytes)	pcwum	6.1.7600.16385	36.00 KB (36,864 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 6:19 PM	Microsoft Corporation
		c:\windows\system32\wdigest.dll			c:\windows\system32\pcwum.dll
rsaenh	6.1.7600.16385	274.66 KB (281,256 bytes)	ole32	6.1.7600.16385	1.99 MB (2,084,352 bytes)
	7/13/2009 6:53 PM	Microsoft Corporation		7/13/2009 7:02 PM	Microsoft Corporation
		c:\windows\system32\rsaenh.dll			c:\windows\system32\ole32.dll
tspkg	6.1.7600.16385	84.00 KB (86,016 bytes)	ntmarta	6.1.7600.16385	158.50 KB (162,304 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 6:50 PM	Microsoft Corporation
		c:\windows\system32\tspkg.dll			c:\windows\system32\ntmarta.dll
pku2u	6.1.7600.16385	235.00 KB (240,640 bytes)	clbcatq	2001.12.8530.16385	593.50 KB (607,744 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 7:00 PM	Microsoft Corporation
		c:\windows\system32\pku2u.dll			c:\windows\system32\clbcatq.dll
bcryptprimitives	6.1.7600.16385	291.32 KB (298,312 bytes)	oleaut32	6.1.7600.16385	841.00 KB (861,184 bytes)
	7/13/2009 6:49 PM	Microsoft Corporation		7/13/2009 6:59 PM	Microsoft Corporation
		c:\windows\system32\bcryptprimitives.dll			c:\windows\system32\oleaut32.dll
efslsaext	6.1.7600.16385	55.50 KB (56,832 bytes)	lsmproxy	6.1.7600.16385	47.50 KB (48,640 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 7:17 PM	Microsoft Corporation
		c:\windows\system32\efslsaext.dll			c:\windows\system32\lsmproxy.dll
scecli	6.1.7600.16385	227.00 KB (232,448 bytes)	winlogon	6.1.7600.16385	380.00 KB (389,120 bytes)
	7/13/2009 6:49 PM	Microsoft Corporation		7/13/2009 6:52 PM	Microsoft Corporation
		c:\windows\system32\scecli.dll			c:\windows\system32\winlogon.exe
rassfm	6.1.7600.16385	28.50 KB (29,184 bytes)	uxinit	6.1.7600.16385	24.50 KB (25,088 bytes)
	7/13/2009 7:10 PM	Microsoft Corporation		7/13/2009 6:54 PM	Microsoft Corporation
		c:\windows\system32\rassfm.dll			c:\windows\system32\uxinit.dll
iphlpapi	6.1.7600.16385	142.50 KB (145,920 bytes)	slc	6.1.7600.16385	30.00 KB (30,720 bytes)
	7/13/2009 6:21 PM	Microsoft Corporation		7/13/2009 6:51 PM	Microsoft Corporation
		c:\windows\system32\iphlpapi.dll			c:\windows\system32\slc.dll
winnsi	6.1.7600.16385	25.50 KB (26,112 bytes)	mpr	6.1.7600.16385	79.00 KB (80,896 bytes)
	7/13/2009 6:21 PM	Microsoft Corporation		7/13/2009 7:10 PM	Microsoft Corporation
		c:\windows\system32\winnsi.dll			c:\windows\system32\mpr.dll
netutils	6.1.7600.16385	28.00 KB (28,672 bytes)	uxtheme	6.1.7600.16385	324.50 KB (332,288 bytes)
	7/13/2009 6:53 PM	Microsoft Corporation		7/13/2009 6:55 PM	Microsoft Corporation
		c:\windows\system32\netutils.dll			c:\windows\system32\uxtheme.dll
userenv	6.1.7600.16385	104.50 KB (107,008 bytes)	svchost	6.1.7600.16385	26.50 KB (27,136 bytes)
	7/13/2009 6:50 PM	Microsoft Corporation		7/13/2009 6:31 PM	Microsoft Corporation
		c:\windows\system32\userenv.dll			c:\windows\system32\svchost.exe
samcli	6.1.7600.16385	65.50 KB (67,072 bytes)	umpnpgm	6.1.7600.16385	395.00 KB (404,480 bytes)
	7/13/2009 6:53 PM	Microsoft Corporation		7/13/2009 6:27 PM	Microsoft Corporation
		c:\windows\system32\samcli.dll			c:\windows\system32\umpnpgm.dll
samlib	6.1.7600.16385	104.50 KB (107,008 bytes)	spinf	6.1.7600.16385	103.00 KB (105,472 bytes)
	7/13/2009 6:53 PM	Microsoft Corporation		7/13/2009 6:26 PM	Microsoft Corporation
		c:\windows\system32\samlib.dll			c:\windows\system32\spinf.dll

devrtl	6.1.7600.16385	57.00 KB (58,368 bytes)	7/13/2009 6:26 PM	Microsoft Corporation	c:\windows\system32\devrtl.dll
umpo	6.1.7600.16385	160.00 KB (163,840 bytes)	7/13/2009 6:27 PM	Microsoft Corporation	c:\windows\system32\umpo.dll
setupapi	6.1.7600.16385	1.81 MB (1,899,520 bytes)	7/13/2009 6:27 PM	Microsoft Corporation	c:\windows\system32\setupapi.dll
cfgmgr32	6.1.7600.16385	202.50 KB (207,360 bytes)	7/13/2009 6:26 PM	Microsoft Corporation	c:\windows\system32\cfgmgr32.dll
devobj	6.1.7600.16385	91.00 KB (93,184 bytes)	7/13/2009 6:26 PM	Microsoft Corporation	c:\windows\system32\devobj.dll
rpcss	6.1.7600.16385	497.50 KB (509,440 bytes)	7/13/2009 7:00 PM	Microsoft Corporation	c:\windows\system32\rpcss.dll
wmidcprv	6.1.7600.16385	187.00 KB (191,488 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\wmidcprv.dll
fastprox	6.1.7600.16385	888.00 KB (909,312 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\fastprox.dll
wbemcomn	6.1.7600.16385	517.50 KB (529,920 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbemcomn.dll
ntdsapi	6.1.7600.16385	148.50 KB (152,064 bytes)	7/13/2009 6:54 PM	Microsoft Corporation	c:\windows\system32\ntdsapi.dll
wbemprox	6.1.7600.16385	42.50 KB (43,520 bytes)	7/13/2009 6:46 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemprox.dll
wbemsvc	6.1.7600.16385	63.00 KB (64,512 bytes)	7/13/2009 6:46 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemsvc.dll
wmiutils	6.1.7600.16385	134.00 KB (137,216 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\wmiutils.dll
wintrust	6.1.7600.16385	215.00 KB (220,160 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\wintrust.dll
rpcepmap	6.1.7600.16385	65.50 KB (67,072 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\rpcepmap.dll
firewallapi	6.1.7600.16385	730.50 KB (748,032 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\firewallapi.dll
version	6.1.7600.16385	28.50 KB (29,184 bytes)	7/13/2009 6:57 PM	Microsoft Corporation	c:\windows\system32\version.dll
fwpuclnt	6.1.7600.16385	316.50 KB (324,096 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\fwpuclnt.dll
wevtvc	6.1.7600.16385	1.57 MB (1,646,080 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\wevtvc.dll
lmhsvc	6.1.7600.16385	23.00 KB (23,552 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\lmhsvc.dll
nrpsrv	6.1.7600.16385	14.50 KB (14,848 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\nrpsrv.dll
dhcpcore	6.1.7600.16385	307.00 KB (314,368 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\dhcpcore.dll
dhcpcore6	6.1.7600.16385	219.00 KB (224,256 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\dhcpcore6.dll
nlaapi	6.1.7600.16385	68.50 KB (70,144 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\nlaapi.dll
rasadhlp	6.1.7600.16385	16.00 KB (16,384 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\rasadhlp.dll
winmr	6.1.7600.16385	28.00 KB (28,672 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\winmr.dll
napinsp	6.1.7600.16385	66.50 KB (68,096 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\napinsp.dll
gpsvc	6.1.7600.16385	758.00 KB (776,192 bytes)	7/13/2009 6:54 PM	Microsoft Corporation	c:\windows\system32\gpsvc.dll
profsvc	6.1.7600.16385	203.50 KB (208,384 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\profsvc.dll
shlwapi	6.1.7600.16385	439.00 KB (449,536 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\shlwapi.dll
atl	3.5.2284.0	88.50 KB (90,624 bytes)	7/13/2009 7:34 PM	Microsoft Corporation	c:\windows\system32\atl.dll
dsrole	6.1.7600.16385	32.00 KB (32,768 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\dsrole.dll
sens	6.1.7600.16385	63.00 KB (64,512 bytes)	7/13/2009 6:34 PM	Microsoft Corporation	c:\windows\system32\sens.dll
shsvcs	6.1.7600.16385	361.00 KB (369,664 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\shsvcs.dll
schedsvc	6.1.7600.16385	1.05 MB (1,104,384 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\schedsvc.dll
shell32	6.1.7600.16385	13.51 MB (14,161,920 bytes)	7/13/2009 7:04 PM	Microsoft Corporation	c:\windows\system32\shell32.dll
netapi32	6.1.7600.16385	71.00 KB (72,704 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\netapi32.dll
wkscli	6.1.7600.16385	70.00 KB (71,680 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\wkscli.dll
ktmw32	6.1.7600.16385	22.50 KB (23,040 bytes)	7/13/2009 6:19 PM	Microsoft Corporation	c:\windows\system32\ktmw32.dll
xmllite	1.3.1000.0	195.00 KB (199,680 bytes)	7/13/2009 7:41 PM	Microsoft Corporation	c:\windows\system32\xmllite.dll
taskcomp	6.1.7600.16385	462.50 KB (473,600 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\taskcomp.dll
comctl32	6.10.7600.16385	1.94 MB (2,030,080 bytes)	7/13/2009 6:56 PM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft_windows_common-controls_6595b64144ccf1df_6.0.7600.16385_none_fa645303170382f6\comctl32.dll
propsys	7.0.7600.16385	1.16 MB (1,212,416 bytes)	7/13/2009 6:56 PM	Microsoft Corporation	c:\windows\system32\propsys.dll
ikeext	6.1.7600.16385	826.00 KB (845,824 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\ikeext.dll
wmisvc	6.1.7600.16385	237.00 KB (242,688 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\wmisvc.dll



vssapi	6.1.7600.16385	1.66 MB (1,745,408 bytes)	7/13/2009 6:38 PM	Microsoft Corporation	c:\windows\system32\vssapi.dll
vsstrace	6.1.7600.16385	95.00 KB (76,800 bytes)	7/13/2009 6:36 PM	Microsoft Corporation	c:\windows\system32\vsstrace.dll
iphlpvc	6.1.7600.16385	552.50 KB (565,760 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\iphlpvc.dll
rtutils	6.1.7600.16385	50.50 KB (51,712 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\rtutils.dll
sqmapi	6.1.7600.16385	229.50 KB (235,008 bytes)	7/13/2009 6:40 PM	Microsoft Corporation	c:\windows\system32\sqmapi.dll
wdscore	6.1.7600.16385	265.00 KB (271,360 bytes)	7/13/2009 6:28 PM	Microsoft Corporation	c:\windows\system32\wdscore.dll
srsvvc	6.1.7600.16385	230.00 KB (235,520 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\srsvvc.dll
browser	6.1.7600.16385	133.00 KB (136,192 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\browser.dll
sscore	6.1.7600.16385	13.00 KB (13,312 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\sscore.dll
clusapi	6.1.7600.16385	307.00 KB (314,368 bytes)	7/13/2009 6:34 PM	Microsoft Corporation	c:\windows\system32\clusapi.dll
resutils	6.1.7600.16385	84.00 KB (86,016 bytes)	7/13/2009 6:34 PM	Microsoft Corporation	c:\windows\system32\resutils.dll
wbemcore	6.1.7600.16385	1.16 MB (1,220,096 bytes)	7/13/2009 6:48 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemcore.dll
esscli	6.1.7600.16385	430.00 KB (440,320 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\esscli.dll
netprofm	6.1.7600.16385	449.00 KB (459,776 bytes)	7/13/2009 7:12 PM	Microsoft Corporation	c:\windows\system32\netprofm.dll
nci	6.1.7600.16385	87.50 KB (89,600 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\nci.dll
repdrvfs	6.1.7600.16385	441.00 KB (451,584 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\repdrvfs.dll
wmiprvsd	6.1.7600.16385	732.50 KB (750,080 bytes)	7/13/2009 6:48 PM	Microsoft Corporation	c:\windows\system32\wbem\wmiprvsd.dll
ncobjapi	6.1.7600.16385	67.50 KB (69,120 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\ncobjapi.dll
wbemess	6.1.7600.16385	494.00 KB (505,856 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemess.dll
npmproxy	6.1.7600.16385	31.00 KB (31,744 bytes)	7/13/2009 7:12 PM	Microsoft Corporation	c:\windows\system32\npmproxy.dll
certprop	6.1.7600.16385	78.50 KB (80,384 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\certprop.dll
winscard	6.1.7600.16385	212.50 KB (217,600 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\winscard.dll
sessenv	6.1.7600.16385	102.50 KB (104,960 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\sessenv.dll
ncprov	6.1.7600.16385	76.50 KB (78,336 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\ncprov.dll
wuaueng	7.3.7600.16385	2.31 MB (2,418,176 bytes)	7/13/2009 7:36 PM	Microsoft Corporation	c:\windows\system32\wuaueng.dll
esent	6.1.7600.16385	2.45 MB (2,565,120 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\esent.dll
winspool	6.1.7600.16385	431.50 KB (441,856 bytes)	7/13/2009 7:39 PM	Microsoft Corporation	c:\windows\system32\winspool.drv
winhttp	6.1.7600.16385	428.50 KB (438,784 bytes)	7/13/2009 7:11 PM	Microsoft Corporation	c:\windows\system32\winhttp.dll
webio	6.1.7600.16385	385.50 KB (394,752 bytes)	7/13/2009 7:11 PM	Microsoft Corporation	c:\windows\system32\webio.dll
cabinet	6.1.7600.16385	92.00 KB (94,208 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\cabinet.dll
mspatcha	6.1.7600.16385	45.50 KB (46,592 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\msppatcha.dll
psapi	6.1.7600.16385	9.00 KB (9,216 bytes)	7/13/2009 6:26 PM	Microsoft Corporation	c:\windows\system32\psapi.dll
wer	6.1.7600.16385	473.00 KB (484,352 bytes)	7/13/2009 6:41 PM	Microsoft Corporation	c:\windows\system32\wer.dll
rasapi32	6.1.7600.16385	375.50 KB (384,512 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\rasapi32.dll
rasman	6.1.7600.16385	98.00 KB (100,352 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\rasman.dll
es	2001.12.8530.16385	393.50 KB (402,944 bytes)	7/13/2009 7:00 PM	Microsoft Corporation	c:\windows\system32\es.dll
aelupsvc	6.1.7600.16385	70.50 KB (72,192 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\aelupsvc.dll
nsisvc	6.1.7600.16385	25.00 KB (25,600 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\nsisvc.dll
sppuinotify	6.1.7600.16385	64.00 KB (65,536 bytes)	7/13/2009 6:52 PM	Microsoft Corporation	c:\windows\system32\sppuinotify.dll
urlmon	8.0.7600.16385	1.42 MB (1,492,480 bytes)	7/13/2009 7:01 PM	Microsoft Corporation	c:\windows\system32\urlmon.dll
iertutil	8.0.7600.16385	2.33 MB (2,440,704 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\iertutil.dll
sppc	6.1.7600.16385	142.50 KB (145,920 bytes)	7/13/2009 8:04 PM	Microsoft Corporation	c:\windows\system32\sppc.dll
sppcomapi	6.1.7600.16385	226.50 KB (231,936 bytes)	7/13/2009 6:51 PM	Microsoft Corporation	c:\windows\system32\sppcomapi.dll
sppcext	6.1.7600.16385	1.15 MB (1,203,712 bytes)	7/13/2009 6:52 PM	Microsoft Corporation	c:\windows\system32\sppcext.dll
tapi32	6.1.7600.16385	243.00 KB (248,832 bytes)	7/13/2009 7:41 PM	Microsoft Corporation	c:\windows\system32\tapi32.dll
msi	5.0.7600.16385	3.06 MB (3,211,776 bytes)	7/13/2009 6:51 PM	Microsoft Corporation	c:\windows\system32\msi.dll

slwga	6.1.7600.16385	14.50 KB (14,848 bytes)	7/13/2009 6:52 PM	Microsoft Corporation	c:\windows\system32\slwga.dll
cryptui	6.1.7600.16385	1.02 MB (1,065,984 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\cryptui.dll
uxsms	6.1.7600.16385	38.00 KB (38,912 bytes)	7/13/2009 6:37 PM	Microsoft Corporation	c:\windows\system32\uxsms.dll
trkwns	6.1.7600.16385	117.00 KB (119,808 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\trkwns.dll
umrpd	6.1.7600.16385	190.50 KB (195,072 bytes)	7/13/2009 7:18 PM	Microsoft Corporation	c:\windows\system32\umrpd.dll
umb	6.1.7600.16385	58.50 KB (59,904 bytes)	7/13/2009 6:35 PM	Microsoft Corporation	c:\windows\system32\umb.dll
printui	6.1.7600.16385	1.00 MB (1,049,600 bytes)	7/13/2009 7:40 PM	Microsoft Corporation	c:\windows\system32\printui.dll
puiapi	6.1.7600.16385	190.00 KB (194,560 bytes)	7/13/2009 7:40 PM	Microsoft Corporation	c:\windows\system32\puiapi.dll
netman	6.1.7600.16385	352.00 KB (360,448 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\netman.dll
netshell	6.1.7600.16385	2.53 MB (2,651,136 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\netshell.dll
rasdlg	6.1.7600.16385	840.50 KB (860,672 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\rasdlg.dll
mprapi	6.1.7600.16385	215.50 KB (220,672 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\mprapi.dll
netcfgx	6.1.7600.16385	505.00 KB (517,120 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\netcfgx.dll
hnetcfg	6.1.7600.16385	414.50 KB (424,448 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\hnetcfg.dll
dnssrslvr	6.1.7600.16385	178.00 KB (182,272 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\dnssrslvr.dll
dnsexst	6.1.7600.16385	8.00 KB (8,192 bytes)	7/13/2009 7:12 PM	Microsoft Corporation	c:\windows\system32\dnsexst.dll
wkssvc	6.1.7600.16385	116.00 KB (118,784 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\wkssvc.dll
cryptsvc	6.1.7600.16385	171.00 KB (175,104 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\cryptsvc.dll
nlascv	6.1.7600.16385	295.00 KB (302,080 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\nlascv.dll
ncsi	6.1.7600.16385	204.50 KB (209,408 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\ncsi.dll
ssdpapi	6.1.7600.16385	50.00 KB (51,200 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\ssdpapi.dll
wsmsvc	6.1.7600.16385	1.93 MB (2,018,816 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\wsmsvc.dll
httpapi	6.1.7600.16385	44.00 KB (45,056 bytes)	7/13/2009 6:21 PM	Microsoft Corporation	c:\windows\system32\httpapi.dll
wevtfwd	6.1.7600.16385	114.00 KB (116,736 bytes)	7/13/2009 6:46 PM	Microsoft Corporation	c:\windows\system32\wevtfwd.dll
bfe	6.1.7600.16385	687.00 KB (703,488 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\bfe.dll
mpssvc	6.1.7600.16385	805.50 KB (824,832 bytes)	7/13/2009 7:09 PM	Microsoft Corporation	c:\windows\system32\mpssvc.dll
wfapiip	6.1.7600.16385	22.00 KB (22,528 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\wfapiip.dll
dps	6.1.7600.16385	159.00 KB (162,816 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\dps.dll
taskschd	6.1.7600.16385	1.11 MB (1,168,896 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\taskschd.dll
wdi	6.1.7600.16385	88.50 KB (90,624 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\wdi.dll
radarbt	6.1.7600.16385	95.50 KB (97,792 bytes)	7/13/2009 6:32 PM	Microsoft Corporation	c:\windows\system32\radarbt.dll
wdiasqmmodule	6.1.7600.16385	35.00 KB (35,840 bytes)	7/13/2009 6:40 PM	Microsoft Corporation	c:\windows\system32\wdiasqmmodule.dll
spoolsv	6.1.7600.16385	545.00 KB (558,080 bytes)	7/13/2009 7:39 PM	Microsoft Corporation	c:\windows\system32\spoolsv.exe
powrprof	6.1.7600.16385	163.50 KB (167,424 bytes)	7/13/2009 6:27 PM	Microsoft Corporation	c:\windows\system32\powrprof.dll
localspl	6.1.7600.16385	932.50 KB (954,880 bytes)	7/13/2009 7:40 PM	Microsoft Corporation	c:\windows\system32\localspl.dll
spoolss	6.1.7600.16385	56.50 KB (57,856 bytes)	7/13/2009 7:39 PM	Microsoft Corporation	c:\windows\system32\spoolss.dll
printisolationproxy	6.1.7600.16385	47.00 KB (48,128 bytes)	7/13/2009 7:39 PM	Microsoft Corporation	c:\windows\system32\printisolationproxy.dll
tcpmon	6.1.7600.16385	190.50 KB (195,072 bytes)	7/13/2009 7:39 PM	Microsoft Corporation	c:\windows\system32\tcpmon.dll
snmpapi	6.1.7600.16385	27.00 KB (27,648 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\snmpapi.dll
wsnmp32	6.1.7600.16385	65.50 KB (67,072 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\wsnmp32.dll
msxml6	6.30.7600.16385	1.91 MB (1,999,360 bytes)	7/13/2009 7:43 PM	Microsoft Corporation	c:\windows\system32\msxml6.dll
usbmon	6.1.7600.16385	44.00 KB (45,056 bytes)	7/13/2009 7:39 PM	Microsoft Corporation	c:\windows\system32\usbmon.dll
wls0wndh	6.1.7600.16385	10.50 KB (10,752 bytes)	7/13/2009 6:52 PM	Microsoft Corporation	c:\windows\system32\wls0wndh.dll
wsdmon	6.1.7600.16385	219.50 KB (224,768 bytes)	7/13/2009 7:39 PM	Microsoft Corporation	c:\windows\system32\wsdmon.dll
wsdapi	6.1.7600.16385	571.50 KB (585,216 bytes)	7/13/2009 6:36 PM	Microsoft Corporation	c:\windows\system32\wsdapi.dll
webservicess	6.1.7600.16385	1.11 MB (1,159,168 bytes)	7/13/2009 7:01 PM	Microsoft Corporation	c:\windows\system32\webservicess.dll

fundisc	6.1.7600.16385	190.00 KB (194,560 bytes)	7/13/2009 6:35 PM	Microsoft Corporation	c:\windows\system32\fundisc.dll
fdpnp	6.1.7600.16385	50.00 KB (51,200 bytes)	7/13/2009 6:35 PM	Microsoft Corporation	c:\windows\system32\fdpnp.dll
winprint	6.1.7600.16385	38.50 KB (39,424 bytes)	7/13/2009 7:39 PM	Microsoft Corporation	c:\windows\system32\spool\prtprocs\x64\winprint.dll
hpzppwn7	0.3.7071.0	99.00 KB (101,376 bytes)	8/29/2010 7:00 PM	Hewlett-Packard Corporation	c:\windows\system32\spool\prtprocs\x64\hpzppwn7.dll
win32spl	6.1.7600.16385	728.50 KB (745,984 bytes)	7/13/2009 7:40 PM	Microsoft Corporation	c:\windows\system32\win32spl.dll
cscapi	6.1.7600.16385	45.00 KB (46,080 bytes)	7/13/2009 6:24 PM	Microsoft Corporation	c:\windows\system32\cscapi.dll
mscms	6.1.7600.16385	611.00 KB (625,664 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\mscms.dll
icm32	6.1.7600.16385	245.00 KB (250,880 bytes)	7/13/2009 6:38 PM	Microsoft Corporation	c:\windows\system32\icm32.dll
unidrvui	0.3.7600.16385	863.50 KB (884,224 bytes)	7/13/2009 8:18 PM	Microsoft Corporation	c:\windows\system32\spool\drivers\x64\3\unidrvui.dll
fxsui	6.1.7600.16385	156.50 KB (160,256 bytes)	7/13/2009 7:36 PM	Microsoft Corporation	c:\windows\system32\spool\drivers\x64\3\fxsui.dll
fxswzrd	6.1.7600.16385	153.00 KB (156,672 bytes)	7/13/2009 7:36 PM	Microsoft Corporation	c:\windows\system32\spool\drivers\x64\3\fxswzrd.dll
fxstiff	6.1.7600.16385	424.00 KB (434,176 bytes)	7/13/2009 7:35 PM	Microsoft Corporation	c:\windows\system32\spool\drivers\x64\3\fxstiff.dll
fxsres	6.1.7600.16385	6.26 MB (6,565,888 bytes)	7/13/2009 8:19 PM	Microsoft Corporation	c:\windows\system32\spool\drivers\x64\3\fxsres.dll
fxsapi	6.1.7600.16385	608.50 KB (623,104 bytes)	7/13/2009 7:35 PM	Microsoft Corporation	c:\windows\system32\spool\drivers\x64\3\fxsapi.dll
fxsdrv	0.3.7600.16385	371.00 KB (379,904 bytes)	7/13/2009 7:36 PM	Microsoft Corporation	c:\windows\system32\spool\drivers\x64\3\fxsdrv.dll
mxdwdui	0.3.7600.16385	215.50 KB (220,672 bytes)	7/13/2009 8:19 PM	Microsoft Corporation	c:\windows\system32\spool\drivers\x64\3\mxdwdui.dll
ProLiantMonitor	3.1.0.0	261.60 KB (267,880 bytes)	5/26/2010 6:27 PM	Hewlett-Packard Company	c:\program files\hewlett-packard\ilo 3\service\proliantmonitor.exe
regsvc	6.1.7600.16385	155.50 KB (159,232 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\regsvc.dll
sqlwriter	2009.100.1600.1	142.84 KB (146,272 bytes)	4/3/2010 1:00 PM	Microsoft Corporation	c:\program files\microsoft sql server\90\shared\sqlwriter.exe
msvcr80	8.0.50727.4927	783.81 KB (802,624 bytes)	7/13/2009 3:37 PM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.vc80.crt_1fc8b3b9a1e18e3b_8.0.50727.4927_none_88dce9872fb18caf\msvcr80.dll
sqlwvss	2009.100.1600.1	420.84 KB (430,944 bytes)	4/3/2010 12:57 PM	Microsoft Corporation	c:\program files\microsoft sql server\90\shared\sqlwvss.dll
msvcp80	8.0.50727.4927	1.02 MB (1,068,352 bytes)	7/13/2009 3:37 PM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.vc80.crt_1fc8b3b9a1e18e3b_8.0.50727.4927_none_88dce9872fb18caf\msvcp80.dll
taskhost	6.1.7600.16385	67.50 KB (69,120 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\taskhost.exe
msctfmonitor	6.1.7600.16385	27.50 KB (28,160 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\msctfmonitor.dll
msutb	6.1.7600.16385	230.00 KB (235,520 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\msutb.dll
dimsjob	6.1.7600.16385	39.50 KB (40,448 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\dimsjob.dll
dwm	6.1.7600.16385	117.50 KB (120,320 bytes)	7/13/2009 6:37 PM	Microsoft Corporation	c:\windows\system32\dwm.exe
dwmredir	6.1.7600.16385	125.50 KB (128,512 bytes)	7/13/2009 6:37 PM	Microsoft Corporation	c:\windows\system32\dwmredir.dll
dwmcore	6.1.7600.16385	1.56 MB (1,634,304 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\dwmcore.dll
windowcodescs	6.1.7600.16385	1.13 MB (1,189,888 bytes)	7/13/2009 6:42 PM	Microsoft Corporation	c:\windows\system32>windowcodescs.dll
d3d10_1	6.1.7600.16385	192.50 KB (197,120 bytes)	7/13/2009 6:41 PM	Microsoft Corporation	c:\windows\system32\d3d10_1.dll
d3d10_1core	6.1.7600.16385	311.50 KB (318,976 bytes)	7/13/2009 6:41 PM	Microsoft Corporation	c:\windows\system32\d3d10_1core.dll
dxgi	6.1.7600.16385	643.00 KB (658,432 bytes)	7/13/2009 6:41 PM	Microsoft Corporation	c:\windows\system32\dxgi.dll
dwmapi	6.1.7600.16385	80.50 KB (82,432 bytes)	7/13/2009 6:37 PM	Microsoft Corporation	c:\windows\system32\dwmapi.dll
explorer	6.1.7600.16385	2.74 MB (2,868,224 bytes)	7/13/2009 6:56 PM	Microsoft Corporation	c:\windows\explorer.exe
explorerframe	6.1.7600.16385	1.78 MB (1,863,680 bytes)	7/13/2009 6:57 PM	Microsoft Corporation	c:\windows\system32\explorerframe.dll
duser	6.1.7600.16385	254.50 KB (260,608 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\duser.dll
dui70	6.1.7600.16385	954.00 KB (976,896 bytes)	7/13/2009 6:41 PM	Microsoft Corporation	c:\windows\system32\dui70.dll
gdiplus	6.1.7600.16385	2.06 MB (2,165,248 bytes)	7/13/2009 6:40 PM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.gdiplus_6595b64144ccf1df_1.1.7600.16385_none_2b4f45e87195fcc4\gdiplus.dll
ehstorshell	6.1.7600.16385	198.50 KB (203,264 bytes)	7/13/2009 7:00 PM	Microsoft Corporation	c:\windows\system32\ehstorshell.dll
ntshrui	6.1.7600.16385	498.00 KB (509,952 bytes)	7/13/2009 6:57 PM	Microsoft Corporation	c:\windows\system32\ntshrui.dll
iconcodesservice	6.1.7600.16385	14.00 KB (14,336 bytes)	7/13/2009 6:37 PM	Microsoft Corporation	c:\windows\system32\iconcodesservice.dll
sndvolso	6.1.7600.16385	220.00 KB (225,280 bytes)	7/13/2009 7:19 PM	Microsoft Corporation	c:\windows\system32\sndvolso.dll
hid	6.1.7600.16385	29.50 KB (30,208 bytes)	7/13/2009 7:06 PM	Microsoft Corporation	c:\windows\system32\hid.dll
mmdevapi	6.1.7600.16385	277.50 KB (284,160 bytes)	7/13/2009 7:18 PM	Microsoft Corporation	c:\windows\system32\mmdevapi.dll

timedate	6.1.7600.16385	503.00 KB (515,072 bytes)	7/13/2009 6:56 PM	Microsoft Corporation	c:\windows\system32\timedate.cpl
winbrand	6.1.7600.16385	16.00 KB (16,384 bytes)	7/13/2009 6:30 PM	Microsoft Corporation	c:\windows\system32\winbrand.dll
actxprxy	6.1.7600.16385	936.50 KB (958,976 bytes)	7/13/2009 7:41 PM	Microsoft Corporation	c:\windows\system32\actxprxy.dll
shdocvw	6.1.7600.16385	191.50 KB (196,096 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\shdocvw.dll
linkinfo	6.1.7600.16385	29.00 KB (29,696 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\linkinfo.dll
msls31	3.10.349.0	217.00 KB (222,208 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\msls31.dll
authui	6.1.7600.16385	1.84 MB (1,926,144 bytes)	7/13/2009 6:58 PM	Microsoft Corporation	c:\windows\system32\authui.dll
winmm	6.1.7600.16385	212.50 KB (217,600 bytes)	7/13/2009 7:18 PM	Microsoft Corporation	c:\windows\system32\winmm.dll
stobject	6.1.7600.16385	250.00 KB (256,000 bytes)	7/13/2009 6:56 PM	Microsoft Corporation	c:\windows\system32\stobject.dll
batmeter	6.1.7600.16385	730.50 KB (748,032 bytes)	7/13/2009 6:56 PM	Microsoft Corporation	c:\windows\system32\batmeter.dll
prnfldr	6.1.7600.16385	407.00 KB (416,768 bytes)	7/13/2009 7:40 PM	Microsoft Corporation	c:\windows\system32\prnfldr.dll
dxp	6.1.7600.16385	449.00 KB (459,776 bytes)	7/13/2009 7:21 PM	Microsoft Corporation	c:\windows\system32\dxp.dll
syncreg	2007.94.7600.16385	72.00 KB (73,728 bytes)	7/13/2009 7:22 PM	Microsoft Corporation	c:\windows\system32\syncreg.dll
pnidui	6.1.7600.16385	1.72 MB (1,807,872 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\pnidui.dll
qutil	6.1.7600.16385	105.00 KB (107,520 bytes)	7/13/2009 7:07 PM	Microsoft Corporation	c:\windows\system32\qutil.dll
actioncenter	6.1.7600.16385	762.50 KB (780,800 bytes)	7/13/2009 6:56 PM	Microsoft Corporation	c:\windows\system32\actioncenter.dll
imapi2	6.1.7600.16385	493.50 KB (505,344 bytes)	7/13/2009 7:01 PM	Microsoft Corporation	c:\windows\system32\imapi2.dll
hgcppl	6.1.7600.16385	324.50 KB (332,288 bytes)	7/13/2009 6:57 PM	Microsoft Corporation	c:\windows\system32\hgcppl.dll
qagent	6.1.7600.16385	259.00 KB (265,216 bytes)	7/13/2009 7:07 PM	Microsoft Corporation	c:\windows\system32\qagent.dll
ieproxy	8.0.7600.16385	438.00 KB (448,512 bytes)	7/13/2009 6:58 PM	Microsoft Corporation	c:\program files\internet explorer\ieproxy.dll
werconcppl	6.1.7600.16385	1.22 MB (1,280,512 bytes)	7/13/2009 6:41 PM	Microsoft Corporation	c:\windows\system32\werconcppl.dll
framedynos	6.1.7600.16385	288.50 KB (295,424 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\framedynos.dll
werclpsupport	6.1.7600.16385	82.50 KB (84,480 bytes)	7/13/2009 6:40 PM	Microsoft Corporation	c:\windows\system32\werclpsupport.dll
hcproviders	6.1.7600.16385	30.50 KB (31,232 bytes)	7/13/2009 6:56 PM	Microsoft Corporation	c:\windows\system32\hcproviders.dll
ieframe	8.0.7600.16385	11.78 MB (12,352,000 bytes)	7/13/2009 7:16 PM	Microsoft Corporation	c:\windows\system32\ieframe.dll
oleacc	7.0.0.0	324.00 KB (331,776 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\oleacc.dll
mlang	6.1.7600.16385	221.50 KB (226,816 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\mlang.dll
wininet	8.0.7600.16385	1.14 MB (1,193,472 bytes)	7/13/2009 7:00 PM	Microsoft Corporation	c:\windows\system32\wininet.dll
normaliz	6.1.7600.16385	2.50 KB (2,560 bytes)	7/13/2009 6:26 PM	Microsoft Corporation	c:\windows\system32\normaliz.dll
drprov	6.1.7600.16385	24.00 KB (24,576 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\drprov.dll
ntlanman	6.1.7600.16385	126.50 KB (129,536 bytes)	7/13/2009 6:48 PM	Microsoft Corporation	c:\windows\system32\ntlanman.dll
ehstorapi	6.1.7600.16385	141.50 KB (144,896 bytes)	7/13/2009 7:00 PM	Microsoft Corporation	c:\windows\system32\ehstorapi.dll
networkexplorer	6.1.7600.16385	1.60 MB (1,672,704 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\networkexplorer.dll
structuredquery	7.0.7600.16385	472.50 KB (483,840 bytes)	7/13/2009 7:29 PM	Microsoft Corporation	c:\windows\system32\structuredquery.dll
msftedit	5.41.21.2509	781.00 KB (799,744 bytes)	7/13/2009 6:39 PM	Microsoft Corporation	c:\windows\system32\msftedit.dll
netplwiz	6.1.7600.16385	188.50 KB (193,024 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\netplwiz.dll
credui	6.1.7600.16385	213.00 KB (218,112 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\credui.dll
thumbcache	6.1.7600.16385	110.50 KB (113,152 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\thumbcache.dll
photometadadatahandler	6.1.7600.16385	411.00 KB (420,864 bytes)	7/13/2009 7:25 PM	Microsoft Corporation	c:\windows\system32\photometadadatahandler.dll
searchfolder	6.1.7600.16385	845.00 KB (865,280 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\searchfolder.dll
twext	6.1.7600.16385	168.50 KB (172,544 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\twext.dll
acppage	6.1.7600.16385	52.00 KB (53,248 bytes)	7/13/2009 6:40 PM	Microsoft Corporation	c:\windows\system32\acppage.dll
sfc	6.1.7600.16385	3.00 KB (3,072 bytes)	7/13/2009 6:25 PM	Microsoft Corporation	c:\windows\system32\sfc.dll
sfc_os	6.1.7600.16385	44.00 KB (45,056 bytes)	7/13/2009 6:26 PM	Microsoft Corporation	c:\windows\system32\sfc_os.dll
termsrv	6.1.7600.16385	690.00 KB (706,560 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\termsrv.dll
icaapi	6.1.7600.16385	22.00 KB (22,528 bytes)	7/13/2009 7:16 PM	Microsoft Corporation	c:\windows\system32\icaapi.dll

regapi	6.1.7600.16385	92.50 KB (94,720 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\regapi.dll
tlscsp	6.1.7600.16385	72.00 KB (73,728 bytes)	7/13/2009 7:16 PM	Microsoft Corporation	c:\windows\system32\tlscsp.dll
rdpcorekmts	6.1.7600.16385	146.00 KB (149,504 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\rdpcorekmts.dll
rdpwsx	6.1.7600.16385	74.50 KB (76,288 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\rdpwsx.dll
ipsecsvc	6.1.7600.16385	488.50 KB (500,224 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\ipsecsvc.dll
fwremotesvr	6.1.7600.16385	74.00 KB (75,776 bytes)	7/13/2009 7:08 PM	Microsoft Corporation	c:\windows\system32\fwremotesvr.dll
taskmgr	6.1.7600.16385	251.00 KB (257,024 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\taskmgr.exe
util.dll	6.1.7600.16385	34.00 KB (34,816 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\util.dll
browcli	6.1.7600.16385	57.00 KB (58,368 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\browcli.dll
msdtc	2001.12.8530.16385	138.50 KB (141,824 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\msdtc.exe
msdtctm	2001.12.8530.16385	1.44 MB (1,509,888 bytes)	7/13/2009 7:00 PM	Microsoft Corporation	c:\windows\system32\msdtctm.dll
msdtcprx	2001.12.8530.16385	728.00 KB (745,472 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\msdtcprx.dll
mtxclu	2001.12.8530.16385	364.00 KB (372,736 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\mtxclu.dll
msdtclog	2001.12.8530.16385	122.00 KB (124,928 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\msdtclog.dll
xolehlp	2001.12.8530.16385	58.00 KB (59,392 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\xolehlp.dll
comres	2001.12.8530.16385	1.24 MB (1,297,408 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\comres.dll
msdtcvsp1res	2001.12.8530.16385	21.00 KB (21,504 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\msdtcvsp1res.dll
mtxoci	2001.12.8530.16385	153.00 KB (156,672 bytes)	7/13/2009 6:59 PM	Microsoft Corporation	c:\windows\system32\mtxoci.dll
sppsvc	6.1.7600.16385	3.36 MB (3,524,608 bytes)	7/13/2009 8:05 PM	Microsoft Corporation	c:\windows\system32\sppsvc.exe
sppwinob	6.1.7600.16385	409.00 KB (418,816 bytes)	7/13/2009 6:51 PM	Microsoft Corporation	c:\windows\system32\sppwinob.dll
sppobj	6.1.7600.16385	1.03 MB (1,082,880 bytes)	7/13/2009 6:52 PM	Microsoft Corporation	c:\windows\system32\sppobj.dll
cmd	6.1.7600.16385	336.50 KB (344,576 bytes)	7/13/2009 6:34 PM	Microsoft Corporation	c:\windows\system32\cmd.exe
conhost	6.1.7600.16385	330.50 KB (338,432 bytes)	7/13/2009 6:38 PM	Microsoft Corporation	c:\windows\system32\conhost.exe
logonui	6.1.7600.16385	27.00 KB (27,648 bytes)	7/13/2009 6:52 PM	Microsoft Corporation	c:\windows\system32\logonui.exe
vaultcredprovider	6.1.7600.16385	78.50 KB (80,384 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\vaultcredprovider.dll
smartcardcredentialprovider	6.1.7600.16385	185.50 KB (189,952 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\smartcardcredentialprovider.dll
certcredprovider	6.1.7600.16385	126.00 KB (129,024 bytes)	7/13/2009 6:49 PM	Microsoft Corporation	c:\windows\system32\certcredprovider.dll
raslap	6.1.7600.16385	396.00 KB (405,504 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\raslap.dll
rdpclip	6.1.7600.16385	204.50 KB (209,408 bytes)	7/13/2009 7:17 PM	Microsoft Corporation	c:\windows\system32\rdpclip.exe
msinfo32	6.1.7600.16385	370.00 KB (378,880 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\msinfo32.exe
mfc42u	6.6.8063.0	1.29 MB (1,357,312 bytes)	7/13/2009 7:35 PM	Microsoft Corporation	c:\windows\system32\mfc42u.dll
odbc32	6.1.7600.16385	696.00 KB (712,704 bytes)	7/13/2009 7:29 PM	Microsoft Corporation	c:\windows\system32\odbc32.dll
comdlg32	6.1.7600.16385	581.50 KB (595,456 bytes)	7/13/2009 6:55 PM	Microsoft Corporation	c:\windows\system32\comdlg32.dll
odbcint	6.1.7600.16385	224.00 KB (229,376 bytes)	7/13/2009 7:28 PM	Microsoft Corporation	c:\windows\system32\odbcint.dll
wmiprvse	6.1.7600.16385	360.00 KB (368,640 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\wmiprvse.exe
cimwin32	6.1.7600.16385	1.96 MB (2,055,168 bytes)	7/13/2009 6:48 PM	Microsoft Corporation	c:\windows\system32\wbem\cimwin32.dll
security	6.1.7600.16385	5.00 KB (5,120 bytes)	7/13/2009 6:50 PM	Microsoft Corporation	c:\windows\system32\security.dll
schedcli	6.1.7600.16385	23.50 KB (24,064 bytes)	7/13/2009 6:53 PM	Microsoft Corporation	c:\windows\system32\schedcli.dll
wmi	6.1.7600.16385	5.00 KB (5,120 bytes)	7/13/2009 7:41 PM	Microsoft Corporation	c:\windows\system32\wmi.dll
ntevt	6.1.7600.16385	260.00 KB (266,240 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\wbem\ntevt.dll
provthrd	6.1.7600.16385	300.00 KB (307,200 bytes)	7/13/2009 6:47 PM	Microsoft Corporation	c:\windows\system32\provthrd.dll
msvcirt	7.0.7600.16385	76.50 KB (78,336 bytes)	7/13/2009 6:18 PM	Microsoft Corporation	c:\windows\system32\msvcirt.dll
wsock32	6.1.7600.16385	18.00 KB (18,432 bytes)	7/13/2009 7:10 PM	Microsoft Corporation	c:\windows\system32\wsock32.dll
wmiperfclass	6.1.7600.16385	133.00 KB (136,192 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\wbem\wmiperfclass.dll
pdh	6.1.7600.16385	293.00 KB (300,032 bytes)	7/13/2009 6:31 PM	Microsoft Corporation	c:\windows\system32\pdh.dll
ieexplore	8.0.7600.16385	657.27 KB (673,048 bytes)	7/13/2009 6:43 PM	Microsoft Corporation	c:\program files (x86)\internet explorer\ieexplore.exe

wow64 6.1.7600.16385 237.50 KB (243,200 bytes)  
 7/13/2009 6:26 PM Microsoft Corporation  
 c:\windows\system32\wow64.dll  
 wow64win6.1.7600.16385 353.50 KB (361,984 bytes)  
 7/13/2009 6:38 PM Microsoft Corporation  
 c:\windows\system32\wow64win.dll  
 wow64cpu6.1.7600.16385 13.00 KB (13,312 bytes)  
 7/13/2009 6:26 PM Microsoft Corporation  
 c:\windows\system32\wow64cpu.dll  
 hpacubin 8.50.5.0 295.00 KB (302,080 bytes) 4/26/2010 6:22 PM  
 Hewlett-Packard Company c:\program files  
 (x86)\compaq\cpqacuxe\bin\hpacubin.exe  
 printisolationhost 6.1.7600.16385 18.50 KB (18,944 bytes)  
 7/13/2009 7:39 PM Microsoft Corporation  
 c:\windows\system32\printisolationhost.exe

[Services]

Display Name	Name	State	Start Mode	Service Type
Path	Error Control	Start Name	Tag ID	
Application Experience	AeLookupSvc	Running	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe -k			
netsvcs	Normal localSystem		0	
Application Layer Gateway Service	ALG	Stopped	Manual	Own Process
Own Process	c:\windows\system32\alg.exe		Normal	NT AUTHORITY\LocalService 0
Application Identity	AppIDSvc	Stopped	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe -k			
localserviceandnoimpersonation	Normal	NT Authority\LocalService		0
Application Information	Appinfo	Stopped	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe -k		Normal	LocalSystem 0
Application Management	AppMgmt	Stopped	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe -k		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
Share Process	c:\windows\system32\svchost.exe -k			
localservicenetworkrestricted	Normal	NT AUTHORITY\LocalService		0
Base Filtering Engine	BFE	Running	Auto	Share Process
Share Process	c:\windows\system32\svchost.exe -k		Normal	NT AUTHORITY\LocalService 0
Background Intelligent Transfer Service	BITS	Stopped	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe -k			
netsvcs	Normal LocalSystem		0	
Computer Browser	Browser	Stopped	Disabled	Share Process
Share Process	c:\windows\system32\svchost.exe -k		Normal	LocalSystem 0
Certificate Propagation	CertPropSvc	Running	Manual	Share Process
Share Process	c:\windows\system32\svchost.exe -k			
netsvcs	Normal LocalSystem		0	
Microsoft .NET Framework NGEN v2.0.50727_X86	clr_optimization_v2.0.50727_32	Stopped	Manual	Own Process
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
Own Process	c:\windows\microsoft.net\framework64\v2.0.50727\mscorsvw.exe		Ignore	LocalSystem 0
COM+ System Application	COMSysApp	Stopped	Manual	Own Process
Own Process	c:\windows\system32\dlhhost.exe			

```

/processid:{02d4b3f1-fd88-11d1-960d-00805fc79235} Normal
LocalSystem 0
HP ProLiant Remote IML Service CpqRmc3Running Auto
Share Process "c:\program files\hewlett-packard\ilo
3\service\proliantmonitor.exe" Normal LocalSystem 0
Cryptographic Services CryptSvc Running Auto Share
Process c:\windows\system32\svchost.exe -k networkservice Normal
NT Authority\NetworkService 0
DCOM Server Process Launcher DcomLaunch Running Auto
Share Process c:\windows\system32\svchost.exe -k
dcomlaunch Normal LocalSystem 0
Disk Defragmenter defragsvc Stopped Manual Own Process
c:\windows\system32\svchost.exe -k defragsvc Normal
localSystem 0
DHCP Client Dhcp Running Auto Share Process
c:\windows\system32\svchost.exe -k
localservicenetworkrestricted Normal NT Authority\LocalService
0
DNS Client Dnscache Running Auto Share Process
c:\windows\system32\svchost.exe -k networkservice 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 localservicenetwork
Normal NT AUTHORITY\LocalService 0
Extensible Authentication Protocol EapHost Stopped Manual
Share Process c:\windows\system32\svchost.exe -k
netsvcs Normal localSystem 0
Encrypting File System (EFS) EFS Stopped Manual Share
Process c:\windows\system32\lsass.exe Normal LocalSystem
0
Windows Event Log eventlog Running Auto Share Process
c:\windows\system32\svchost.exe -k
localservicenetworkrestricted Normal NT AUTHORITY\LocalService
0
COM+ Event System EventSystem Running Auto Share
Process c:\windows\system32\svchost.exe -k localservice Normal
NT AUTHORITY\LocalService 0
Microsoft Fibre Channel Platform Registration Service FCRegSvc Stopped
Manual Share Process
c:\windows\system32\svchost.exe -k
localservicenetworkrestricted Normal NT AUTHORITY\LocalService
0
Function Discovery Provider Host fdPHost Stopped Manual
Share Process c:\windows\system32\svchost.exe -k
localservice Normal NT AUTHORITY\LocalService 0
Function Discovery Resource Publication FDResPub Stopped Manual
Share Process c:\windows\system32\svchost.exe -k
localserviceandnoimpersonation Normal NT AUTHORITY\LocalService
0
Windows Font Cache Service FontCache Stopped Manual Share
Process c:\windows\system32\svchost.exe -k
localserviceandnoimpersonation 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 Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Human Interface Device Access hidserv Stopped Manual Share
Process c:\windows\system32\svchost.exe -k
localsystemnetworkrestricted Normal LocalSystem 0

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Health Key and Certificate Management	hkmsvc	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
netsvcs	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	c:\windows\system32\svchost.exe -k
netsvcs	Normal	LocalSystem	0		
PnP-X IP Bus Enumerator	IPBusEnum	Stopped	Disabled	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
netsvcs	Normal	LocalSystem	0		
CNG Key Isolation	KeyIso	Stopped	Manual	Share Process	c:\windows\system32\lsass.exe
0	Normal	LocalSystem	0		
KtmRm for Distributed Transaction Coordinator	KtmRm	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
networkserviceandnoimpersonation	Normal	NT			
AUTHORITY\NetworkService	0				
Server	LanmanServer	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
netsvcs	Normal	LocalSystem	0		
Workstation	LanmanWorkstation	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
Process	NT AUTHORITY\NetworkService	0			
Link-Layer Topology Discovery Mapper	ltdsvc	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
localservice	Normal	NT AUTHORITY\LocalService	0		
TCP/IP NetBIOS Helper	lmhosts	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
localservicenetworkrestricted	Normal	NT AUTHORITY\LocalService	0		
Multimedia Class Scheduler	MMCSS	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
netsvcs	Normal	LocalSystem	0		
Windows Firewall	MpsSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
localservicenetworkrestricted	Normal	NT Authority\LocalService	0		
Distributed Transaction Coordinator	MSDTC	Running	Auto	Own Process	c:\windows\system32\msdtc.exe
Normal	NT AUTHORITY\NetworkService	0			
Microsoft iSCSI Initiator Service	MSiSCSI	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
netsvcs	Normal	LocalSystem	0		
Windows Installer	msiserver	Stopped	Manual	Own Process	c:\windows\system32\msiexec.exe /v
LocalSystem	0				
SQL Server (MSSQLSERVER)	MSSQLSERVER	Stopped	Manual	Own Process	"c:\program files\microsoft sql server\mssql10_50.mssqlserver\mssql\binn\sqlservr.exe" -smssqlserver
Normal	LocalSystem	0			
SQL Active Directory Helper Service	MSSQLServerADHelper100	Stopped	Disabled	Own Process	"c:\program files\microsoft sql server\100\shared\sqladhlp.exe"
AUTHORITY\NETWORKSERVICE	0				
Network Access Protection Agent	napagent	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
networkservice	Normal	NT AUTHORITY\NetworkService	0		
Netlogon	Netlogon	Stopped	Manual	Share Process	c:\windows\system32\lsass.exe
0	Normal	LocalSystem	0		
Network Connections	Netman	Running	Manual	Share Process	c:\windows\system32\svchost.exe -k
localsystemnetworkrestricted	Normal	LocalSystem	0		
Network List Service	netprofm	Running	Manual	Share Process	c:\windows\system32\svchost.exe -k
localservice	Normal	NT AUTHORITY\LocalService	0		
Net.Tcp Port Sharing Service	NetTcpPortSharing	Stopped	Disabled	Share Process	"c:\windows\microsoft.net\framework64\v3.0\windows
communication foundation\smsvchost.exe"	Normal	NT			
AUTHORITY\LocalService	0				
Network Location Awareness	NlaSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
networkservice	Normal	NT AUTHORITY\NetworkService	0		
Network Store Interface Service	nsi	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
localservice	Normal	NT Authority\LocalService	0		
Performance Counter DLL Host	PerfHost	Stopped	Manual	Own Process	c:\windows\syswow64\perfhost.exe
AUTHORITY\LocalService	0				
Performance Logs & Alerts	pla	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
localservicenetworkrestricted	Normal	NT AUTHORITY\LocalService	0		
Plug and Play	PlugPlay	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
dcomlaunch	Normal	LocalSystem	0		
IPsec Policy Agent	PolicyAgent	Running	Manual	Share Process	c:\windows\system32\svchost.exe -k
networkservicenetworkrestricted	Normal	NT Authority\NetworkService	0		
Power	Power	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
dcomlaunch	Normal	LocalSystem	0		
User Profile Service	ProfSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
netsvcs	Normal	LocalSystem	0		
HP ProLiant Health Monitor Service	ProLiantMonitor	Running	Auto	Share Process	"c:\program files\hewlett-packard\ilo 3\service\proliantmonitor.exe"
Normal	LocalSystem	0			
Protected Storage	ProtectedStorage	Stopped	Manual	Share Process	c:\windows\system32\lsass.exe
0	Normal	LocalSystem	0		
Remote Access Auto Connection Manager	RasAuto	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
netsvcs	Normal	localSystem	0		
Remote Access Connection Manager	RasMan	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k
netsvcs	Normal	localSystem	0		
Routing and Remote Access	RemoteAccess	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k
netsvcs	Normal	localSystem	0		
Remote Registry	RemoteRegistry	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
regsvc	Normal	NT AUTHORITY\LocalService	0		
RPC Endpoint Mapper	RpcEptMapper	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
rpess	Normal	NT AUTHORITY\NetworkService	0		
Remote Procedure Call (RPC) Locator	RpcLocator	Stopped	Manual	Own Process	c:\windows\system32\locator.exe
AUTHORITY\NetworkService	0				
Remote Procedure Call (RPC)	RpcSs	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k
rpess	Normal	NT AUTHORITY\NetworkService	0		
Resultant Set of Policy Provider	RSOPProv	Stopped	Manual	Share Process	c:\windows\system32\rsopprov.exe
LocalSystem	0				

Special Administration Console Helper	sacsvr	Stopped	Manual		3\service\proliantmonitor.exe"	Normal	LocalSystem	0	
Share Process	c:\windows\system32\svchost.exe -k								
netsvcs	Normal	LocalSystem	0		Telephony TapiSrv	Stopped	Manual	Own Process	
Security Accounts Manager	SamSs	Running	Auto	Share	c:\windows\system32\svchost.exe -k tapisrv	Normal	NT		
Process	c:\windows\system32\lsass.exe	Normal	LocalSystem	0	AUTHORITY\NetworkService	0			
Smart Card	SCardSvr	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k				
localserviceandnoimpersonation	Normal	NT AUTHORITY\LocalService	0		localserviceandnoimpersonation	Normal	NT AUTHORITY\LocalService	0	
Task Scheduler	Schedule	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal			
LocalSystem	0				Remote Desktop Services	TermService	Running	Manual	
Smart Card Removal Policy	SCPolicySvc	Stopped	Manual		Share Process	c:\windows\system32\svchost.exe -k			
Share Process	c:\windows\system32\svchost.exe -k				termsvcs	Normal	NT Authority\NetworkService	0	
netsvcs	Normal	LocalSystem	0		Thread Ordering Server	THREADORDER	Stopped	Manual	
Secondary Logon	seclogon	Stopped	Manual	Share Process	Share Process	c:\windows\system32\svchost.exe -k			
LocalSystem	0				localservice	Normal	NT AUTHORITY\LocalService	0	
System Event Notification Service	SENS	Running	Auto		Distributed Link Tracking Client	TrkWks	Running	Auto	Share
Share Process	c:\windows\system32\svchost.exe -k				Process	c:\windows\system32\svchost.exe -k			
netsvcs	Normal	LocalSystem	0		localsystemnetworkrestricted	Normal	LocalSystem	0	
Remote Desktop Configuration	SessionEnv	Running	Manual		Windows Modules Installer	TrustedInstaller	Stopped	Manual	
Share Process	c:\windows\system32\svchost.exe -k				Own Process	c:\windows\servicing\trustedinstaller.exe			
netsvcs	Normal	LocalSystem	0		Normal	LocalSystem	0		
Internet Connection Sharing (ICS)	SharedAccess	Stopped			Interactive Services Detection	UI0Detect	Stopped	Manual	Own
Disabled	Share Process				Process	c:\windows\system32\ui0detect.exe		Normal	
LocalSystem	0				LocalSystem	0			
Shell Hardware Detection	ShellHWDetection	Running	Auto		Remote Desktop Services UserMode Port Redirector	UmRdpService			
Share Process	c:\windows\system32\svchost.exe -k				Running	Manual	Share Process		
netsvcs	Ignore	LocalSystem	0		c:\windows\system32\svchost.exe -k				
SNMP Trap	SNMPTRAP	Stopped	Manual	Own	localsystemnetworkrestricted	Normal	LocalSystem	0	
Process	c:\windows\system32\snmptrap.exe	Normal	NT		UPnP Device Host	upnphost	Stopped	Disabled	Share Process
AUTHORITY\LocalService	0				c:\windows\system32\svchost.exe -k				
Print Spooler	Spooler	Running	Auto	Own Process	localserviceandnoimpersonation	Normal	NT AUTHORITY\LocalService	0	
c:\windows\system32\spoolsv.exe		Normal			0				
LocalSystem	0				Desktop Window Manager Session ManagerUxSms	Running	Auto		
Software Protection	sppsvc	Running	Auto	Own Process	Share Process	c:\windows\system32\svchost.exe -k			
c:\windows\system32\sppsvc.exe	Normal	NT			localsystemnetworkrestricted	Normal	LocalSystem	0	
AUTHORITY\NetworkService	0				Credential Manager	VaultSvc	Stopped	Manual	Share Process
SPP Notification Service	sppuotify	Running	Manual		c:\windows\system32\lsass.exe	Normal	LocalSystem	0	
Share Process	c:\windows\system32\svchost.exe -k				0				
localservice	Normal	NT AUTHORITY\LocalService	0		Virtual Disk	vds	Stopped	Manual	Own Process
					c:\windows\system32\vds.exe	Normal	LocalSystem	0	
					0				
SQL Server Browser	SQLBrowser	Stopped	Disabled	Own	Volume Shadow Copy	VSS	Stopped	Manual	Own
Process	"c:\program files (x86)\microsoft sql server\90\shared\sqlbrowser.exe"	Normal	NT		Process	c:\windows\system32\vssvc.exe	Normal	LocalSystem	0
AUTHORITY\LOCALSERVICE	0				0				
SQL Server Agent (MSSQLSERVER)	SQLSERVERAGENT	Stopped	Manual	Own Process	Windows Time	W32Time	Stopped	Manual	Share Process
files\microsoft sql server\mssql10_50.mssqlserver\mssql\bin\sqlagent.exe"					c:\windows\system32\svchost.exe -k localservice	Normal			
i mssqlserver	Normal	LocalSystem	0		NT AUTHORITY\LocalService	0			
SQL Server VSS Writer	SQLWriter	Running	Auto	Own	Windows Color System	WcsPlugInService	Stopped	Manual	
Process	"c:\program files\microsoft sql server\90\shared\sqlwriter.exe"				Share Process	c:\windows\system32\svchost.exe -k			
Normal	LocalSystem	0			wcssvc	Normal	NT AUTHORITY\LocalService	0	
SSDP Discovery	SSDPSRV	Stopped	Disabled	Share Process	Diagnostic Service Host	WdiServiceHost	Stopped	Manual	
c:\windows\system32\svchost.exe -k					Share Process	c:\windows\system32\svchost.exe -k			
localserviceandnoimpersonation	Normal	NT AUTHORITY\LocalService	0		localservice	Normal	NT AUTHORITY\LocalService	0	
0					Diagnostic System Host	WdiSystemHost	Stopped	Manual	
Secure Socket Tunneling Protocol Service	SstpSvc	Stopped	Manual		Share Process	c:\windows\system32\svchost.exe -k			
Share Process	c:\windows\system32\svchost.exe -k				localsystemnetworkrestricted	Normal	LocalSystem	0	
localservice	Normal	NT Authority\LocalService	0		Windows Event Collector	Weccsvc	Stopped	Manual	Share
					Process	c:\windows\system32\svchost.exe -k networkservice		Normal	
Microsoft Software Shadow Copy Provider	swprv	Stopped	Manual		NT AUTHORITY\NetworkService	0			
Own Process	c:\windows\system32\svchost.exe -k swprv				Problem Reports and Solutions Control Panel Support	wercplsupport			
Normal	LocalSystem	0			Stopped	Manual	Share Process		
HP ProLiant System Shutdown Service	sysdown	Running	Auto		c:\windows\system32\svchost.exe -k netsvcs	Normal			
Share Process	"c:\program files\hewlett-packard\ilo				localSystem	0			



Windows Error Reporting Service	WerSvc	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k	0	Start Menu\Programs\Microsoft SQL Server 2008	Public:Start
wersvcgroup	Ignore	localSystem					Menu\Programs\Microsoft SQL Server 2008	Public
WinHTTP Web Proxy Auto-Discovery Service	WinHttpAutoProxySvc	Stopped	Manual	Share	c:\windows\system32\svchost.exe -k localservice	0	Start Menu\Programs\Microsoft SQL Server 2008\Configuration Tools	Public:Start
Process	NT AUTHORITY\LocalService			Normal			Public:Start	Menu\Programs\Microsoft SQL Server 2008 R2
Windows Management Instrumentation	Winmgmt	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k	0	Start Menu\Programs\Microsoft SQL Server 2008 R2\Analysis Services	Public:Start
netsvcs	Ignore	localSystem					Public:Start	Menu\Programs\Microsoft SQL Server 2008 R2\Analysis Services
Windows Remote Management (WS-Management)	WinRM	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k networkservice	0	Start Menu\Programs\Microsoft SQL Server 2008 R2\Configuration Tools	Public:Start
Process	NT AUTHORITY\NetworkService			Normal			Public:Start	Menu\Programs\Microsoft SQL Server 2008 R2\Documentation and
WMI Performance Adapter	wmiApSrv	Stopped	Manual	Own	c:\windows\system32\wbem\wmiapsrv.exe	0	Tutorials	Public:Start
Process	localSystem			Normal			Public:Start	Menu\Programs\Microsoft SQL Server 2008 R2\Documentation and
Portable Device Enumerator Service	WPDBusEnum	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k	0	Start Menu\Programs\Microsoft SQL Server 2008 R2\Integration Services	Public:Start
localsystemnetworkrestricted	Normal	LocalSystem					Public:Start	Menu\Programs\Microsoft SQL Server 2008 R2\Integration Services
Windows Update	wuauerv	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	0	Start Menu\Programs\Microsoft SQL Server 2008 R2\Performance Tools	Public:Start
Process	LocalSystem			Normal			Public:Start	Menu\Programs\Startup
Windows Driver Foundation - User-mode Driver Framework	wudfsvc	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k	0	Start Menu\Programs\Startup	Public:Start
localsystemnetworkrestricted	Normal	LocalSystem					Public:Start	Menu\Programs\Startup
[Program Groups]								
Group Name	Name	User Name						
Start MenuDefault	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\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\Accessories\Windows PowerShell	Public	Start Menu\Programs\Accessories\Windows PowerShell	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\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\Maintenance	Public	Start Menu\Programs\Maintenance	Public					
Start Menu\Programs\Maintenance	Public	Start Menu\Programs\Maintenance	Public					
[Startup Programs]								
Program	Command	User Name						
[OLE Registration]								
Object	Local Server							
WordPad Document	"%programfiles%\windows							
Paintbrush Picture	%systemroot%\system32\mspaint.exe							
Package	Not Available							
Microsoft PenInputPanel Control	Not Available							
[Windows Error Reporting]								
Time	Type	Details						
9/3/2010 3:19 PM	Application Error	Faulting application name: SMRunOnly.exe, version: 2.5.0.5, time stamp: 0x496ccff0&#x000d;&#x000a;Faulting module name: ExecuteDll.dll,						

version: 1.0.0.1, time stamp: 0x3ee54a72&#x000d;&#x000a;Exception code: 0xc0000005&#x000d;&#x000a;Fault offset: 0x00001468&#x000d;&#x000a;Faulting process id: 0x10e4&#x000d;&#x000a;Faulting application start time: 0x01cb4b7b66ba381a&#x000d;&#x000a;Faulting application path: C:\MSTPCH.2.8.0-1006\StepMaster\SMRunOnly.exe&#x000d;&#x000a;Faulting module path: C:\Program Files (x86)\StepMaster\ExecuteDll.dll&#x000d;&#x000a;Report Id: a65d0554-b76e-11df-be2f-0026551b9e87

9/3/2010 3:18 PM Application Error Faulting application name: SMRunOnly.exe, version: 2.5.0.5, time stamp: 0x496ccff0&#x000d;&#x000a;Faulting module name: ExecuteDll.dll, version: 1.0.0.1, time stamp: 0x3ee54a72&#x000d;&#x000a;Exception code: 0xc0000005&#x000d;&#x000a;Fault offset: 0x00001468&#x000d;&#x000a;Faulting process id: 0x11ec&#x000d;&#x000a;Faulting application start time: 0x01cb4b7b2fd93e89&#x000d;&#x000a;Faulting application path: C:\MSTPCH.2.8.0-1006\StepMaster\SMRunOnly.exe&#x000d;&#x000a;Faulting module path: C:\Program Files (x86)\StepMaster\ExecuteDll.dll&#x000d;&#x000a;Report Id: 73b71de0-b76e-11df-be2f-0026551b9e87

9/3/2010 3:01 PM Application Error Faulting application name: SMRunOnly.exe, version: 2.5.0.5, time stamp: 0x496ccff0&#x000d;&#x000a;Faulting module name: ExecuteDll.dll, version: 1.0.0.1, time stamp: 0x3ee54a72&#x000d;&#x000a;Exception code: 0xc0000005&#x000d;&#x000a;Fault offset: 0x00001468&#x000d;&#x000a;Faulting process id: 0xf58&#x000d;&#x000a;Faulting application start time: 0x01cb4b7b2fd93e89&#x000d;&#x000a;Faulting application path: C:\MSTPCH.2.8.0-1006\StepMaster\SMRunOnly.exe&#x000d;&#x000a;Faulting module path: C:\Program Files (x86)\StepMaster\ExecuteDll.dll&#x000d;&#x000a;Report Id: 19bd9f15-b76c-11df-be2f-0026551b9e87

9/3/2010 3:19 PM Windows Error Reporting Fault bucket , type 0&#x000d;&#x000a;Event Name: APPCRASH&#x000d;&#x000a;Response: Not available&#x000d;&#x000a;Cab Id: 0&#x000d;&#x000a;&#x000d;&#x000a;Problem signature:&#x000d;&#x000a;P1: SMRunOnly.exe&#x000d;&#x000a;P2: 2.5.0.5&#x000d;&#x000a;P3: 496ccff0&#x000d;&#x000a;P4: ExecuteDll.dll&#x000d;&#x000a;P5: 1.0.0.1&#x000d;&#x000a;P6: 3ee54a72&#x000d;&#x000a;P7: c0000005&#x000d;&#x000a;P8: 00001468&#x000d;&#x000a;P9: &#x000d;&#x000a;P10: &#x000d;&#x000a;&#x000d;&#x000a;Attached files:&#x000d;&#x000a;&#x000d;&#x000a;These files may be available here:&#x000d;&#x000a;C:\Users\Administrator\AppData\Local\Microsoft\Windows\WER\ReportArchive\AppCrash\_SMRunOnly.exe\_6a8359b83d5ab9c5b86d2a41bb31eded41385b0\_1da9334f&#x000d;&#x000a;&#x000d;&#x000a;Analysis symbol: &#x000d;&#x000a;Rechecking for solution: 0&#x000d;&#x000a;Report Id: a65d0554-b76e-11df-be2f-0026551b9e87&#x000d;&#x000a;Report Status: 0

9/3/2010 3:18 PM Windows Error Reporting Fault bucket , type 0&#x000d;&#x000a;Event Name: APPCRASH&#x000d;&#x000a;Response: Not available&#x000d;&#x000a;Cab Id: 0&#x000d;&#x000a;&#x000d;&#x000a;Problem signature:&#x000d;&#x000a;P1: SMRunOnly.exe&#x000d;&#x000a;P2: 2.5.0.5&#x000d;&#x000a;P3: 496ccff0&#x000d;&#x000a;P4: ExecuteDll.dll&#x000d;&#x000a;P5: 1.0.0.1&#x000d;&#x000a;P6: 3ee54a72&#x000d;&#x000a;P7: c0000005&#x000d;&#x000a;P8: 00001468&#x000d;&#x000a;P9: &#x000d;&#x000a;P10: &#x000d;&#x000a;&#x000d;&#x000a;Attached files:&#x000d;&#x000a;&#x000d;&#x000a;These files may be available here:&#x000d;&#x000a;C:\Users\Administrator\AppData\Local\Microsoft\Windows\WER\ReportArchive\AppCrash\_SMRunOnly.exe\_6a8359b83d5ab9c5b86d2a41bb31eded41385b0\_1c77e781&#x000d;&#x000a;&#x000d;&#x000a;Analysis symbol: &#x000d;&#x000a;Rechecking for solution: 0&#x000d;&#x000a;Report Id: 73b71de0-b76e-11df-be2f-0026551b9e87&#x000d;&#x000a;Report Status: 0

9/3/2010 3:01 PM Windows Error Reporting Fault bucket , type 0&#x000d;&#x000a;Event Name: APPCRASH&#x000d;&#x000a;Response: Not available&#x000d;&#x000a;Cab Id: 0&#x000d;&#x000a;&#x000d;&#x000a;Problem signature:&#x000d;&#x000a;P1: SMRunOnly.exe&#x000d;&#x000a;P2: 2.5.0.5&#x000d;&#x000a;P3: 496ccff0&#x000d;&#x000a;P4: ExecuteDll.dll&#x000d;&#x000a;P5: 1.0.0.1&#x000d;&#x000a;P6: 3ee54a72&#x000d;&#x000a;P7: c0000005&#x000d;&#x000a;P8: 00001468&#x000d;&#x000a;P9: &#x000d;&#x000a;P10: &#x000d;&#x000a;&#x000d;&#x000a;Attached files:&#x000d;&#x000a;&#x000d;&#x000a;These files may be available here:&#x000d;&#x000a;C:\Users\Administrator\AppData\Local\Microsoft\Windows\WER\ReportArchive\AppCrash\_SMRunOnly.exe\_6a8359b83d5ab9c5b86d2a41bb31eded41385b0\_09c48101&#x000d;&#x000a;&#x000d;&#x000a;Analysis symbol: &#x000d;&#x000a;Rechecking for solution: 0&#x000d;&#x000a;Report Id: 19bd9f15-b76c-11df-be2f-0026551b9e87&#x000d;&#x000a;Report Status: 0

8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&#x000d;&#x000a;Event Name: PnPRequestAdditionalSoftware&#x000d;&#x000a;Response: Not available&#x000d;&#x000a;Cab Id: 0&#x000d;&#x000a;&#x000d;&#x000a;Problem signature:&#x000d;&#x000a;P1: x64&#x000d;&#x000a;P2: USB\VID\_03F0&#x000d;&#x000a;PID\_7029&#x000d;&#x000a;MI\_00&#x000d;&#x000a;P3: 6.1.0.0&#x000d;&#x000a;P4: 0409&#x000d;&#x000a;P5: input.inf&#x000d;&#x000a;P6: \*&#x000d;&#x000a;P7: &#x000d;&#x000a;P8: &#x000d;&#x000a;P9: &#x000d;&#x000a;P10: &#x000d;&#x000a;&#x000d;&#x000a;Attached files:&#x000d;&#x000a;&#x000d;&#x000a;These files may be available here:&#x000d;&#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical\_x64\_b4a1263d9c6e8451f572570e99e2ec7b09e1f27\_cab\_0336186f&#x000d;&#x000a;&#x000d;&#x000a;Analysis symbol: &#x000d;&#x000a;Rechecking for solution: 0&#x000d;&#x000a;Report Id: 9bd63c2f-b3bf-11df-8a70-ceebfc64327b&#x000d;&#x000a;Report Status: 6

8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&#x000d;&#x000a;Event Name: PnPRequestAdditionalSoftware&#x000d;&#x000a;Response: Not available&#x000d;&#x000a;Cab Id: 0&#x000d;&#x000a;&#x000d;&#x000a;Problem signature:&#x000d;&#x000a;P1: x64&#x000d;&#x000a;P2: USB\VID\_03F0&#x000d;&#x000a;PID\_7029&#x000d;&#x000a;MI\_01&#x000d;&#x000a;P3: 6.1.0.0&#x000d;&#x000a;P4: 0409&#x000d;&#x000a;P5: input.inf&#x000d;&#x000a;P6: \*&#x000d;&#x000a;P7: &#x000d;&#x000a;P8: &#x000d;&#x000a;P9: &#x000d;&#x000a;P10: &#x000d;&#x000a;&#x000d;&#x000a;Attached files:&#x000d;&#x000a;&#x000d;&#x000a;These files may be available here:&#x000d;&#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical\_x64\_885b928beb14477d25e28b48e3f8b6e01477ca\_cab\_0ff6119c&#x000d;&#x000a;&#x000d;&#x000a;Analysis symbol: &#x000d;&#x000a;Rechecking for solution: 0&#x000d;&#x000a;Report Id: 9acba210-b3bf-11df-8a70-ceebfc64327b&#x000d;&#x000a;Report Status: 6

8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&#x000d;&#x000a;Event Name: PnPDriverNotFound&#x000d;&#x000a;Response: Not available&#x000d;&#x000a;Cab Id: 0&#x000d;&#x000a;&#x000d;&#x000a;Problem signature:&#x000d;&#x000a;P1: x64&#x000d;&#x000a;P2: PCI\VEN\_4040&#x000d;&#x000a;DEV\_0100&#x000d;&#x000a;SUBSYS\_705A103C&#x000d;&#x000a;REV\_42&#x000d;&#x000a;P3: &#x000d;&#x000a;P4: &#x000d;&#x000a;P5: &#x000d;&#x000a;P6: &#x000d;&#x000a;P7: &#x000d;&#x000a;P8: &#x000d;&#x000a;P9: &#x000d;&#x000a;P10: &#x000d;&#x000a;&#x000d;&#x000a;Attached files:&#x000d;&#x000a;&#x000d;&#x000a;These files may be available here:&#x000d;&#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical\_x64\_b16a6418e4e8619beedd64eae6c4d90fc961f\_0e21e5eb&#x000d;&#x000a;&#x000d;&#x000a;Analysis symbol: &#x000d;&#x000a;Rechecking for solution: 0&#x000d;&#x000a;Report Id: &#x000d;&#x000a;

<p>941e860b-b3bf-11df-8a70-ceebfc64327b&amp;#x000d;&amp;#x000a;Report Status: 6</p> <p>8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&amp;#x000d;&amp;#x000a;Event Name: PnPDriverNotFound&amp;#x000d;&amp;#x000a;Response: Not available&amp;#x000d;&amp;#x000a;Cab Id: 0&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Problem signature:&amp;#x000d;&amp;#x000a;P1: x64&amp;#x000d;&amp;#x000a;P2: PCI\VEN_103C&amp;DEV_3307&amp;SUBSYS_3309103C&amp;REV_04&amp;#x000d;&amp;#x000a;P3: &amp;#x000d;&amp;#x000a;P4: &amp;#x000d;&amp;#x000a;P5: &amp;#x000d;&amp;#x000a;P6: &amp;#x000d;&amp;#x000a;P7: &amp;#x000d;&amp;#x000a;P8: &amp;#x000d;&amp;#x000a;P9: &amp;#x000d;&amp;#x000a;P10: &amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Attached files:&amp;#x000d;&amp;#x000a;C:\Windows\Temp\DMIE465.tmp.log.xml&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;These files may be available here:&amp;#x000d;&amp;#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical_x64_87486cf7b1074d7ca6414194e5447eda145380_cab_0f91e474&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Analysis symbol: &amp;#x000d;&amp;#x000a;Rechecking for solution: 0&amp;#x000d;&amp;#x000a;Report Id: 93e56505-b3bf-11df-8a70-ceebfc64327b&amp;#x000d;&amp;#x000a;Report Status: 6</p>	<p>8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&amp;#x000d;&amp;#x000a;Event Name: PnPDriverNotFound&amp;#x000d;&amp;#x000a;Response: Not available&amp;#x000d;&amp;#x000a;Cab Id: 0&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Problem signature:&amp;#x000d;&amp;#x000a;P1: x64&amp;#x000d;&amp;#x000a;P2: PCI\VEN_4040&amp;DEV_0100&amp;SUBSYS_705A103C&amp;REV_42&amp;#x000d;&amp;#x000a;P3: &amp;#x000d;&amp;#x000a;P4: &amp;#x000d;&amp;#x000a;P5: &amp;#x000d;&amp;#x000a;P6: &amp;#x000d;&amp;#x000a;P7: &amp;#x000d;&amp;#x000a;P8: &amp;#x000d;&amp;#x000a;P9: &amp;#x000d;&amp;#x000a;P10: &amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Attached files:&amp;#x000d;&amp;#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical_x64_b16a6418e4e8619beedd64eae6c4ad90fc961f_0c25d538&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Analysis symbol: &amp;#x000d;&amp;#x000a;Rechecking for solution: 0&amp;#x000d;&amp;#x000a;Report Id: 91924d00-b3bf-11df-8a70-ceebfc64327b&amp;#x000d;&amp;#x000a;Report Status: 6</p>
<p>8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&amp;#x000d;&amp;#x000a;Event Name: PnPDriverNotFound&amp;#x000d;&amp;#x000a;Response: Not available&amp;#x000d;&amp;#x000a;Cab Id: 0&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Problem signature:&amp;#x000d;&amp;#x000a;P1: x64&amp;#x000d;&amp;#x000a;P2: PCI\VEN_103C&amp;DEV_3306&amp;SUBSYS_3309103C&amp;REV_04&amp;#x000d;&amp;#x000a;P3: &amp;#x000d;&amp;#x000a;P4: &amp;#x000d;&amp;#x000a;P5: &amp;#x000d;&amp;#x000a;P6: &amp;#x000d;&amp;#x000a;P7: &amp;#x000d;&amp;#x000a;P8: &amp;#x000d;&amp;#x000a;P9: &amp;#x000d;&amp;#x000a;P10: &amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Attached files:&amp;#x000d;&amp;#x000a;C:\Windows\Temp\DMIE3C9.tmp.log.xml&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;These files may be available here:&amp;#x000d;&amp;#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical_x64_489f5b92c7689fed4eb9eb63f32fade4a97676_cab_0f31e3d8&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Analysis symbol: &amp;#x000d;&amp;#x000a;Rechecking for solution: 0&amp;#x000d;&amp;#x000a;Report Id: 93cd9742-b3bf-11df-8a70-ceebfc64327b&amp;#x000d;&amp;#x000a;Report Status: 6</p>	<p>8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&amp;#x000d;&amp;#x000a;Event Name: PnPDriverNotFound&amp;#x000d;&amp;#x000a;Response: Not available&amp;#x000d;&amp;#x000a;Cab Id: 0&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Problem signature:&amp;#x000d;&amp;#x000a;P1: x64&amp;#x000d;&amp;#x000a;P2: PCI\VEN_4040&amp;DEV_0100&amp;SUBSYS_705A103C&amp;REV_42&amp;#x000d;&amp;#x000a;P3: &amp;#x000d;&amp;#x000a;P4: &amp;#x000d;&amp;#x000a;P5: &amp;#x000d;&amp;#x000a;P6: &amp;#x000d;&amp;#x000a;P7: &amp;#x000d;&amp;#x000a;P8: &amp;#x000d;&amp;#x000a;P9: &amp;#x000d;&amp;#x000a;P10: &amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Attached files:&amp;#x000d;&amp;#x000a;C:\Windows\Temp\DMI4172.tmp.log.xml&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;These files may be available here:&amp;#x000d;&amp;#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical_x64_b16a6418e4e8619beedd64eae6c4ad90fc961f_cab_0bf941b0&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Analysis symbol: &amp;#x000d;&amp;#x000a;Rechecking for solution: 0&amp;#x000d;&amp;#x000a;Report Id: 7b0aa6c8-b3bf-11df-8a70-ceebfc64327b&amp;#x000d;&amp;#x000a;Report Status: 6</p>
<p>8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&amp;#x000d;&amp;#x000a;Event Name: PnPDriverNotFound&amp;#x000d;&amp;#x000a;Response: Not available&amp;#x000d;&amp;#x000a;Cab Id: 0&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Problem signature:&amp;#x000d;&amp;#x000a;P1: x64&amp;#x000d;&amp;#x000a;P2: PCI\VEN_4040&amp;DEV_0100&amp;SUBSYS_705A103C&amp;REV_42&amp;#x000d;&amp;#x000a;P3: &amp;#x000d;&amp;#x000a;P4: &amp;#x000d;&amp;#x000a;P5: &amp;#x000d;&amp;#x000a;P6: &amp;#x000d;&amp;#x000a;P7: &amp;#x000d;&amp;#x000a;P8: &amp;#x000d;&amp;#x000a;P9: &amp;#x000d;&amp;#x000a;P10: &amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Attached files:&amp;#x000d;&amp;#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical_x64_b16a6418e4e8619beedd64eae6c4ad90fc961f_0df9d844&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Analysis symbol: &amp;#x000d;&amp;#x000a;Rechecking for solution: 0&amp;#x000d;&amp;#x000a;Report Id: 920951ce-b3bf-11df-8a70-ceebfc64327b&amp;#x000d;&amp;#x000a;Report Status: 6</p>	<p>8/29/2010 10:48 PM Windows Error Reporting Fault bucket , type 0&amp;#x000d;&amp;#x000a;Event Name: PnPGenericDriverFound&amp;#x000d;&amp;#x000a;Response: Not available&amp;#x000d;&amp;#x000a;Cab Id: 0&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Problem signature:&amp;#x000d;&amp;#x000a;P1: x64&amp;#x000d;&amp;#x000a;P2: PCI\VEN_1002&amp;DEV_515E&amp;SUBSYS_31FB103C&amp;REV_02&amp;#x000d;&amp;#x000a;P3: &amp;#x000d;&amp;#x000a;P4: &amp;#x000d;&amp;#x000a;P5: &amp;#x000d;&amp;#x000a;P6: &amp;#x000d;&amp;#x000a;P7: &amp;#x000d;&amp;#x000a;P8: &amp;#x000d;&amp;#x000a;P9: &amp;#x000d;&amp;#x000a;P10: &amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Attached files:&amp;#x000d;&amp;#x000a;C:\ProgramData\Microsoft\Windows\WER\Report Queue\NonCritical_x64_c5ce18a1b32ff35336f0e43b5d80ab481dbb3d3_cab_0b753b79&amp;#x000d;&amp;#x000a;&amp;#x000d;&amp;#x000a;Analysis symbol: &amp;#x000d;&amp;#x000a;Rechecking for solution: 0&amp;#x000d;&amp;#x000a;Report Id: 7a1a3bcd-b3bf-11df-8a70-ceebfc64327b&amp;#x000d;&amp;#x000a;Report Status: 6</p>

# Appendix B: Database Build Scripts

## B.1. CreateDatabase.sql

```
Create Database tpch300g on
Primary (name=tpch300g,
filename='f:\dev\tpch300g.mdf',size=10mb,filegrowth=0),
FileGroup DATA_FG

(name=tpch300g1,filename='f:\dev\tpch_1\tpch1.ldf',size=119800mb,filegr
owth=0),

(name=tpch300g2,filename='f:\dev\tpch_2\tpch2.ldf',size=119800mb,filegr
owth=0),

(name=tpch300g3,filename='f:\dev\tpch_3\tpch3.ldf',size=119800mb,filegr
owth=0),

(name=tpch300g4,filename='f:\dev\tpch_4\tpch4.ldf',size=119800mb,filegr
owth=0),
FileGroup LOAD_FG
(name=tpch1,
filename='g:\dev\tpch_1\load1.ldf',size=114000mb,filegrowth=0),
(name=tpch2,
filename='g:\dev\tpch_2\load2.ldf',size=114000mb,filegrowth=0),
(name=tpch3,
filename='g:\dev\tpch_3\load3.ldf',size=114000mb,filegrowth=0),
(name=tpch4,
filename='g:\dev\tpch_4\load4.ldf',size=114000mb,filegrowth=0)

Log on
(name=tpch300gLog,filename='E:\tpch300g_Log1.mdf',size=40
000mb,filegrowth=100)
```

## B.2. CreateTables.sql

```
-- File: CREATETABLES.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.8.0-1006
-- Copyright Microsoft, 2008
--

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_EXTENDEDPRI 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. 2.8.0-1006
-- Copyright Microsoft, 2008
--

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. 2.8.0-1006-1004
-- Copyright Microsoft, 2008
--

CREATE INDEX PS_SUPPKEY_IDX ON PARTSUPP(PS_SUPPKEY)
WITH( FILLFACTOR=100, SORT_IN_TEMPDB=OFF,
MAXDOP=32)
ON DATA_FG

CREATE CLUSTERED INDEX L_SHIPDATE_CLUIDX ON
LINEITEM(L_SHIPDATE)
```

```
WITH ( FILLFACTOR=95, SORT_IN_TEMPDB=OFF, MAXDOP=32)
ON DATA_FG

CREATE INDEX L_ORDERKEY_IDX ON LINEITEM(L_ORDERKEY)
WITH ( FILLFACTOR=95, SORT_IN_TEMPDB=OFF, MAXDOP=32)
ON DATA_FG

CREATE INDEX L_PARTKEY_IDX ON LINEITEM(L_PARTKEY)
WITH (FILLFACTOR=95, SORT_IN_TEMPDB=OFF, MAXDOP=32)
ON DATA_FG
```

### B.5. CreateFK.sql

```
--
-- File: CREATERFK.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.8.0-1006
-- Copyright Microsoft, 2008
--

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 tpch300g to
disk='g:\backup\backup1.bak',
disk='g:\backup\backup2.bak',
disk='g:\backup\backup3.bak',
disk='g:\backup\backup4.bak',
disk='g:\backup\backup5.bak',
disk='g:\backup\backup6.bak',
disk='g:\backup\backup7.bak',
disk='g:\backup\backup8.bak',
disk='g:\backup\backup9.bak',
disk='g:\backup\backup10.bak',
disk='g:\backup\backup11.bak',
disk='g:\backup\backup12.bak',
disk='g:\backup\backup13.bak',
disk='g:\backup\backup14.bak',
disk='g:\backup\backup15.bak',
disk='g:\backup\backup16.bak'
with init,stats=1

```

## B.7. RestoreDatabase.sql

```

restore database tpch300g from
disk='g:\backup\backup1.bak',
disk='g:\backup\backup2.bak',
disk='g:\backup\backup3.bak',
disk='g:\backup\backup4.bak',
disk='g:\backup\backup5.bak',
disk='g:\backup\backup6.bak',
disk='g:\backup\backup7.bak',
disk='g:\backup\backup8.bak',
disk='g:\backup\backup9.bak',
disk='g:\backup\backup10.bak',
disk='g:\backup\backup11.bak',
disk='g:\backup\backup12.bak',
disk='g:\backup\backup13.bak',
disk='g:\backup\backup14.bak',

```

```

disk='g:\backup\backup15.bak',
disk='g:\backup\backup16.bak'
with stats=1, replace

```

## B.8. MoveTempDB.sql

```

-- File: MOVETEMPDB.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.06-1002
-- Copyright Microsoft, 2008

```

```

alter database tempdb modify file
(name='tempdev',filename='f:\dev\tpch_1\tempdb1.mdf')
alter database tempdb modify file
(name=tempdev,
filename='f:\dev\tpch_1\tempdb1.mdf',size=880MB,filegrowth=400MB)
alter database tempdb modify file
(name='templog',filename='F:\templog.ldf')

```

## B.9. ResizeTempDB.sql

```

-- File: RESIZETEMPDB.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 2.06-1002
-- Copyright Microsoft, 2008

```

```

alter database tempdb add file
(name=tempdev2,
filename='f:\dev\tpch_2\tempdb2.mdf',size=880MB,filegrowth=400MB),
(name=tempdev3,
filename='f:\dev\tpch_3\tempdb3.mdf',size=880MB,filegrowth=400MB),
(name=tempdev4,
filename='f:\dev\tpch_4\tempdb4.mdf',size=880MB,filegrowth=400MB)

```

## B.10. DelLoadFg.sql

```

alter database tpch300g remove file tpch1
alter database tpch300g remove file tpch2
alter database tpch300g remove file tpch3
alter database tpch300g remove file tpch4
alter database tpch300g remove filegroup LOAD_FG

```

# Appendix C: Query Text and Output

## Qualification Queries and Output

### C.1. 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_EXTENDEDPRI)
         AS SUM_BASE_PRICE,
       SUM(L_EXTENDEDPRI*(1-L_DISCOUNT))
         AS SUM_DISC_PRICE,
       SUM(L_EXTENDEDPRI*(1-L_DISCOUNT)*(1+L_TAX))
         AS SUM_CHARGE,
       AVG(L_QUANTITY)
         AS AVG_QTY,
       AVG(L_EXTENDEDPRI)
         AS AVG_PRICE,
       AVG(L_DISCOUNT)
         AS AVG_DISC,
       COUNT_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      0.050093      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)

### C.2. 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
       S_SUPPKEY
       = PS_SUPPKEY AND
       S_NATIONKEY
       = N_NATIONKEY AND
       N_REGIONKEY
       = R_REGIONKEY AND
       R_NAME
       = 'EUROPE'
) )
```

```
ORDER BY S_ACCTBAL DESC,
         N_NAME,
         S_NAME,
         P_PARTKEY
S_ACCTBAL S_NAME N_NAME
P_PARTKEY P_MFGR S_ADDRESS
S_PHONE S_COMMENT
```

```
-----
9938.530000      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 J8fcXW'sTqM 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 t5L67YdBYYH6o,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 Y28ITVeYriT3klGdV2K8fSZ
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 WCNfBPZeSXh3h,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 2Z0JGkiv01Y00oCFwUGfviIbhzcDy 16-464-
517-8943 carefully bold accounts doub

```

(100 row(s) affected)

### C.3. Qualification Query 3

-- using default substitutions

/\* TPC\_H Query 3 - Shipping Priority \*/

```

SELECT TOP 10
L_ORDERKEY,
SUM(L_EXTENDEDPRI*(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 00:00:00.0000 0
3459808 405838.698900 1995-03-04 00:00:00.0000 0
492164 390324.061000 1995-02-19 00:00:00.0000 0
1188320 384537.935900 1995-03-09 00:00:00.0000 0
2435712 378673.055800 1995-02-26 00:00:00.0000 0
4878020 378376.795200 1995-03-12 00:00:00.0000 0
5521732 375153.921500 1995-03-13 00:00:00.0000 0
2628192 373133.309400 1995-02-22 00:00:00.0000 0
993600 371407.459500 1995-03-05 00:00:00.0000 0
2300070 367371.145200 1995-03-13 00:00:00.0000 0

```

(10 row(s) affected)

### C.4. 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)



## C.5. 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)

## C.6. 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)

## C.7. 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
              O_ORDERKEY  = L_ORDERKEY
              C_CUSTKEY   = O_CUSTKEY
              S_NATIONKEY =
              C_NATIONKEY =
              N1.N_NATIONKEY AND
              N2.N_NATIONKEY AND
              ( (N1.N_NAME =
'FRANCE' AND N2.N_NAME = 'GERMANY')
              OR
              (N1.N_NAME =
'GERMANY' AND N2.N_NAME = 'FRANCE')
              ) AND
              L_SHIPDATE BETWEEN '1995-
01-01' AND '1996-12-31'
        )
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)

## C.8. 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
        P_TYPE = 'ECONOMY
ANODIZED STEEL'
) 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)

```

## C.9. 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)

## C.10. 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 Eioyjf4pp 22-895-641-3466
requests sleep blithely about the furiously i
143347 Customer#000143347 721002.694800 2557.470000
EGYPT IaReFYv,Kw4 14-742-935-3718
fluffily bold excuses haggle finally after the u
60838 Customer#000060838 679127.307700 2454.770000
BRAZIL 64EaJ5vMAHWJIBOXJkIpNc2RJIWE 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 01c9CILnNtfOQYmZj 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 rrM27N 2qBnzc5WBauxbA
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 sublute blithely regular requests. regular, even ideas
solve.
39922 Customer#000039922 584878.113400 7321.110000
GERMANY Zgy4s50I2GKN4pLDPBU8m342gIw6R 17-
147-757-8036 even pinto beans haggle. slyly bold accounts inte
6226 Customer#000006226 576783.760600 2230.090000
UNITED KINGDOM 8gPu8,NPGkfyQQ0hcIYUGPIBwc,ybP5g,
33-657-701-3391 quickly final requests against the regular instructions wake
blithely final instructions. pa
922 Customer#000000922 576767.533300 3869.250000
GERMANY Az9RFaut7NkPnc5zSD2PwHgVvr4jRzq 17-
945-916-9648 boldly final requests cajole blith
147946 Customer#000147946 576455.132000 2030.130000
ALGERIA iANyZHjqhy7AJahOpTrYyhJ 10-886-956-
3143 furiously even accounts are blithely above the furiously
115640 Customer#000115640 569341.193300 6436.100000
ARGENTINA Vtgfia9qI 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 ChqEoK43OysjdHbtKCP6dKqjNyvv9 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)

## C.11. 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
'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)

## C.12. 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)
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)

## C.13. 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)

## C.14. 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)

## C.15. 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)

## C.16. 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)

## C.17. 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)

## C.18. 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,
O_TOTALPRICE
ORDER BY
O_TOTALPRICE  DESC,
O_ORDERDATE

```

C\_NAME C\_CUSTKEY O\_ORDERKEY  
O\_ORDERDATE O\_TOTALPRICE

```

-----
Customer#000128120 128120 4722021 1994-04-07
00:00:00.000 544089.090000 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)

## C.19. Qualification Query 19

-- using default substitutions

/\* TPC\_H Query 19 - Discounted Revenue \*/

```

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

```

3083843.057800

(1 row(s) affected)

## C.20. 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 (
    SELECT PS_SUPPKEY
    FROM PARTSUPP
    WHERE PS_PARTKEY IN (
        SELECT P_PARTKEY
        FROM PART
        WHERE P_NAME like 'forest%'
    )
    AND
    PS_AVAILQTY > (
        SELECT 0.5 * sum(L_QUANTITY)
        FROM LINEITEM
        WHERE L_PARTKEY =
             PS_PARTKEY
             AND
             L_SUPPKEY =
             PS_SUPPKEY
             AND
             L_SHIPDATE >= '1994-01-01'
             AND
             L_SHIPDATE <
             dateadd(yy,1,cast('1994-01-01' as date))
    )
)
AND
S_NATIONKEY = N_NATIONKEY AND
N_NAME = 'CANADA'
ORDER BY S_NAME
S_NAME S_ADDRESS
-----
Supplier#00000020 iybAE,RmTymrZVYafZva2SH,j
Supplier#00000091 YV45D7TkdQanOOZ7q9QxkyGUapU1oOWU6q3
Supplier#00000197 YC2Acon6kjY3zj3Fbxs2k4Vdf7X0cd2F
Supplier#00000226 83qOdU2EYRdPQAQhEtn GRZEd
Supplier#00000285 Br7e1nnt1yxrw6ImgpJ7YdhFDjuBf
Supplier#00000378 FfbhyCxWvcPrO8ltp9
Supplier#00000402 i9Sw4DoyMhzhKXCH9By,AYSgmD
Supplier#00000530 0qwCMwobKY OcmLyfRXlagA8ukENJv,
Supplier#00000688 D fw5ocppmZpYBBIPI718hCihLDZ5KhKX
Supplier#00000710 f19YPvOyb QoYwjKC,oPycpGfieBAcwKJo
Supplier#00000736 l6i2nMwVuovfKnuVgaSGK2rDy65DIAFLegil7
Supplier#00000761 zLSLeLQUj2XrvTTFnv7WAcYZGvvMTx882d4
Supplier#00000884 bmhEShejas

```

```

Supplier#00000887 urEaTejH5POADP2ARrf
Supplier#00000935 ij98czM 2KzWe7dDToxB8sq0UfCdvrx
Supplier#00000975 ,AC e,tBpNwKb5xMUzeohxlRn, hdZJo73gFQF8y
Supplier#00001263 rQWr6nf8ZhB2TAiIDlvo5I0

```

... additional rows deleted ...

```

Supplier#000009812 APFRMy3lCbgFga53n5t9DxzFPQPgnjrGt32
Supplier#000009862 rJzweWeN58
Supplier#000009868 ROjGgx5gvtkmmUUoeyy7v
Supplier#000009869 ucLqxzrpBTRMewGSM29t0rNTM30g1Tu3Xgg3mKag
Supplier#000009899 7XdpAHRzrIt,UQFZE
Supplier#000009974 7wJ,J5DKcxSU4Kp1cQLPbcAvB5AsvKT

```

(204 row(s) affected)

## C.21. 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
             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#00000289 20
Supplier#000005808 18
Supplier#000000262 17
Supplier#000000496 17

```



```

Supplier#000002160 17
Supplier#000002301 17
Supplier#000002540 17
Supplier#000003063 17
Supplier#000005178 17
Supplier#000008331 17
Supplier#000002005 16
Supplier#000002095 16
Supplier#000005799 16
Supplier#000005842 16

```

... 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)

## C.22. 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

## D.1. Stream0 Seed : 831225207

```

14 1996-04-01
2 18 BRASS AMERICA
9 steel
20 medium 1997-01-01 VIETNAM
6 1997-01-01 0.08 25
17 Brand#34 JUMBO PACK
18 314
8 JORDAN MIDDLE EAST PROMO PLATED NICKEL
21 UNITED STATES
13 unusual accounts
3 MACHINERY 1995-03-07
22 17 25 26 15 16 28
22
16 Brand#43 LARGE BRUSHED 11 27 23
44 29 22 37 18
4 1994-01-01
11 INDONESIA 0.0000003333
15 1997-02-01
1 70
10 1994-07-01
19 Brand#43 Brand#55 Brand#54 3 13 28
5 MIDDLE EAST 1997-01-01
7 SAUDI ARABIA JORDAN
12 FOB MAIL 1997-01-01
    
```

## D.2. Stream1 Seed : 831225208

```

21 UNITED STATES
3 MACHINERY 1995-03-07
18 314
5 MIDDLE EAST 1997-01-01
11 INDONESIA 0.0000003333
7 SAUDI ARABIA JORDAN
6 1997-01-01 0.08 25
20 medium 1997-01-01 VIETNAM
17 Brand#34 JUMBO PACK
12 FOB MAIL 1997-01-01
16 Brand#43 LARGE BRUSHED 11 27 23
44 29 22 37 18
15 1997-02-01
13 unusual accounts
10 1994-07-01
2 18 BRASS AMERICA
8 JORDAN MIDDLE EAST PROMO PLATED NICKEL
14 1996-04-01
19 Brand#43 Brand#55 Brand#54 3 13 28
9 steel
22 17 25 26 15 16 28
22
1 70
4 1994-01-01
    
```

## D.3. Stream2 Seed : 831225209

```

6 1997-01-01 0.08 25
17 Brand#34 JUMBO PACK
14 1996-04-01
16 Brand#43 LARGE BRUSHED 11 27 23
44 29 22 37 18
19 Brand#43 Brand#55 Brand#54 3 13 28
10 1994-07-01
9 steel
2 18 BRASS AMERICA
15 1997-02-01
8 JORDAN MIDDLE EAST PROMO PLATED NICKEL
5 MIDDLE EAST 1997-01-01
22 17 25 26 15 16 28
22
12 FOB MAIL 1997-01-01
7 SAUDI ARABIA JORDAN
13 unusual accounts
18 314
1 70
4 1994-01-01
20 medium 1997-01-01 VIETNAM
3 MACHINERY 1995-03-07
11 INDONESIA 0.0000003333
21 UNITED STATES
    
```

## D.4. Stream3 Seed : 831225210

```

8 JORDAN MIDDLE EAST PROMO PLATED NICKEL
5 MIDDLE EAST 1997-01-01
4 1994-01-01
6 1997-01-01 0.08 25
17 Brand#34 JUMBO PACK
7 SAUDI ARABIA JORDAN
1 70
18 314
22 17 25 26 15 16 28
22
14 1996-04-01
9 steel
10 1994-07-01
15 1997-02-01
11 INDONESIA 0.0000003333
20 medium 1997-01-01 VIETNAM
2 18 BRASS AMERICA
21 UNITED STATES
19 Brand#43 Brand#55 Brand#54 3 13 28
13 unusual accounts
16 Brand#43 LARGE BRUSHED 11 27 23
44 29 22 37 18
12 FOB MAIL 1997-01-01
3 MACHINERY 1995-03-07
    
```

## D.5. Stream4 Seed : 831225211

```

5 MIDDLE EAST 1997-01-01
21 UNITED STATES
14 1996-04-01
19 Brand#43 Brand#55 Brand#54 3 13 28
    
```

15 1997-02-01  
 17 Brand#34 JUMBO PACK  
 12 FOB MAIL 1997-01-01  
 6 1997-01-01 0.08 25  
 4 1994-01-01  
 9 steel  
 8 JORDAN MIDDLE EAST PROMO PLATED NICKEL  
 16 Brand#43 LARGE BRUSHED 11 27 23  
 44 29 22 37 18  
 11 INDONESIA 0.0000003333  
 2 18 BRASS AMERICA  
 10 1994-07-01  
 18 314  
 1 70  
 13 unusual accounts  
 7 SAUDI ARABIA JORDAN  
 22 17 25 26 15 16 28  
 22  
 3 MACHINERY 1995-03-07  
 20 medium 1997-01-01 VIETNAM

### D.6. Stream5 Seed : 831225212

21 UNITED STATES  
 15 1997-02-01  
 4 1994-01-01  
 6 1997-01-01 0.08 25  
 7 SAUDI ARABIA JORDAN  
 16 Brand#43 LARGE BRUSHED 11 27 23  
 44 29 22 37 18  
 19 Brand#43 Brand#55 Brand#54 3 13 28  
 18 314  
 14 1996-04-01  
 22 17 25 26 15 16 28  
 22  
 11 INDONESIA 0.0000003333  
 13 unusual accounts  
 3 MACHINERY 1995-03-07

1 70  
 2 18 BRASS AMERICA  
 5 MIDDLE EAST 1997-01-01  
 8 JORDAN MIDDLE EAST PROMO PLATED NICKEL  
 20 medium 1997-01-01 VIETNAM  
 12 FOB MAIL 1997-01-01  
 17 Brand#34 JUMBO PACK  
 10 1994-07-01  
 9 steel

### D.7. Stream6 Seed : 831225213

10 1994-07-01  
 3 MACHINERY 1995-03-07  
 15 1997-02-01  
 13 unusual accounts  
 6 1997-01-01 0.08 25  
 8 JORDAN MIDDLE EAST PROMO PLATED NICKEL  
 9 steel  
 7 SAUDI ARABIA JORDAN  
 4 1994-01-01  
 11 INDONESIA 0.0000003333  
 22 17 25 26 15 16 28  
 22  
 18 314  
 12 FOB MAIL 1997-01-01  
 1 70  
 5 MIDDLE EAST 1997-01-01  
 16 Brand#43 LARGE BRUSHED 11 27 23  
 44 29 22 37 18  
 2 18 BRASS AMERICA  
 14 1996-04-01  
 19 Brand#43 Brand#55 Brand#54 3 13 28  
 20 medium 1997-01-01 VIETNAM  
 17 Brand#34 JUMBO PACK  
 21 UNITED STATES

# Appendix E: Refresh Function Source Code

## E.1. CreateRF1Proc.sql

```
-- File:  CREATERF1PROC.SQL
--        Microsoft TPC-H Benchmark Kit Ver. 1.00
--        Copyright Microsoft, 1999
--
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
    SET NOCOUNT OFF
    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 'Start RF1'
```

```
--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)'
SET @liSql = N'INSERT INTO LINEITEM
(L_ORDERKEY,L_PARTKEY,L_SUPPKY,L_LINENUMBER,L_QUAN
TITY,
L_EXTENDEDPRI,
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_SUPPKY,L_LINENUMBER,L_QUAN
TITY,
L_EXTENDEDPRI,
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 LINTITEM 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
select @startdate, @edate
EXEC sp_executesql @liSql, N'@startdate DATE,
@edate DATE', @startdate, @edate
select @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
deadlock
PRINT ERROR_MESSAGE()
SELECT @ErrorNumber =
@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
select 'End RF1'
END
GO

E.2. CreateRF2Proc.sql
-- File: CREATERF2PROC.SQL
-- Microsoft TPC-H Benchmark Kit Ver. 1.00
-- Copyright Microsoft, 1999
--
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
SET NOCOUNT OFF
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 'start RF2'
--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
select @startdate, @edate
EXEC sp_executesql @orderSql, N'@startdate DATE,
@edate DATE', @startdate, @edate
select @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.
        @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 DELETE_TRANS
COMMIT TRANSACTION
SET @startdate = @edate
SET @edate = dateadd(day, @range, @edate)
IF (@edate > @enddate)
    SET @edate = @enddate
END
select 'End RF2'
END
GO

```

# Appendix F: Implementation Specific Layer and Source Code

## F.1. Setup.cmd

```
echo off

rem
rem Modify the following parameters for your configuration
rem

set DB=tpch300g

set HOMEDRIVE=G:
set HOMEDIR=\HP_TPCH_KIT\Setup
set OUTPUTDRIVE=G:
set OUTPUTDIR=\HP_TPCH_KIT\Output
set SCALEFACTOR=300
set DBGEN_SEGMENTS=32
set DBGEN_PARALLELISM=32
set FLATFILEDRIVE=F:
set FLATFILEDIR=HP_Flatfiles\
set FLATFILESUBDIR=\
set RF1_PARALLELISM=48
set RF2_PARALLELISM=48
set UPDATEDRIVE=F:
set UPDATEDIR=\HP_UF_Flatfiles
set UPDATE_SETS=14

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%%UPDATEDIR% goto :ERROR_EXIT

echo Finding next output directory in
%OUTPUTDRIVE%%OUTPUTDIR%
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%
```

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

rem
rem DBGEN invokes dbgen.exe in parallel
rem

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

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

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

:DBGEN
%FLATFILEDRIVE%
cd %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 -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())" -l 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 -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())" -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT

```

```

echo Starting bulk inserts
for %%i in (LINEITEM ORDERS CUSTOMER PART PARTSUPP
SUPPLIER) do call :BULKINSERTi %%i
echo for NATION and REGION
sqlcmd -E -d%DB% -Q"insert into LOADTIMES values ('Nation/Region
insert begin',getdate())" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -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 -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -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 -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -e -d%DB% -Q"insert into LOADTIMES values ('Nation/Region
insert end',getdate())" -b -l 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())" -l 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 -l 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 -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 -l 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 -l 300
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -e -d%DB% -i %DB%\CreateIndexes_1.sql -o
%OUTPUTPATH%\CreateIndexes_1.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -e -d%DB% -i %DB%\CreateFK.sql -o
%OUTPUTPATH%\CreateFK.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -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 -l 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 -e -d%DB% -Q"sp_createstats @fullscan='fullscan' " -o
%OUTPUTPATH%\CreateStats.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -I -E -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 -e -d%DB% -Q"sp_dboption '%DB%', 'auto create
statistics', 'OFF'" -o %OUTPUTPATH%\AutoCreateStats.out
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -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 -e -I -d%DB% -i CreateRF1Proc.sql -o
%OUTPUTPATH%\CreateRF1Proc.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -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 -e -Q"sp_dboption %DB%, 'trunc', 'FALSE'" -b
>%OUTPUTPATH%\dboptionTruncOFF.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 -e -d%DB% -i %DB%\DelLoadFG.sql -o
%OUTPUTPATH%\DelLoadFG.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
sqlcmd -E -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 -d %DB% -i RI-test-sf100.sql -o
%OUTPUTPATH%\RI-test-sf100.out
sqlcmd -E -I -e -w300 -d %DB% -i Initial_RI_Check.SQL -o
%OUTPUTPATH%\Initial_RI_Check.out
sqlcmd -E -I -w3000 -Q"dbcc sqlperf(logspace)" -o
%OUTPUTPATH%\logspace.out
rem echo Optional step to check datab ase 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=tpch300g
set HOMEDRIVE=G:
set HOMEDIR=\\HP_TPCH_KIT\Run
set OUTPUTDRIVE=G:
set OUTPUTDIR=\\HP_TPCH_KIT\Output
set UPDATEDRIVE=F:
set UPDATEDIR=\\HP_UF_Flatfiles
rem set UPDATESSET=1
set UPDATESSET=8
set UPDATESSEGMENTS=48
set SEED=831225207
set SCALEFACTOR=300
set STREAMS=6

```

```

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

```

```

%HOMEDRIVE%
cd %HOMEDIR%

if '%1' == 'RF1' goto RF1
if '%1' == 'RF1_LOAD' goto RF1_LOAD
if '%1' == 'RF2' goto RF2
if '%1' == 'RF2_LOAD' goto RF2_LOAD
if '%1' == 'THROUGHPUT_STREAM' goto :THROUGHPUT_STREAM
if '%1' == 'PowerStream' goto :PowerStream

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 Running the ACID query for TPC-Energy measurements
sqlcmd -i acid_query.sql -d tpch300g -v o_key=2000 -e -p -o
%OUTPUTPATH%\ACID_Query1.out -b

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"
sqlcmd -I -E -d%DB% -i RF_counts.sql -o
%OUTPUTPATH%\Start_RF_Row_Count.out -b
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%
sqlcmd -I -E -d%DB% -i RF_counts.sql -o
%OUTPUTPATH%\Post_RF1_Row_Count_Stream0.out -b
rem sqlcmd -I -E -d%DB% -Q "checkpoint" -o
%OUTPUTPATH%\RF1_checkpoint.out -b
rem sqlcmd -I -E -d%DB% -i cleantemp.sql -o
%OUTPUTPATH%\CleanTempRF1.out -b

rem
rem Execute the PowerRun Queries
rem

:STREAM0
if NOT '%DoPOWERStream0%' == 'TRUE' goto :STREAM0_DONE
echo Running Stream0
start cmd /c Run PowerStream
if ERRORLEVEL 1 goto :ERROR_EXIT
semaphore -wait PowerStream -count 1
: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())" -
l300
sqlcmd -I -E -d%DB% -i RF_counts.sql -o
%OUTPUTPATH%\Post_RF2_Row_Count_Stream0.out -b
rem sqlcmd -I -E -d%DB% -Q "checkpoint" -o
%OUTPUTPATH%\RF2_checkpoint.out -b
rem sqlcmd -I -E -d%DB% -i cleantemp.sql -o
%OUTPUTPATH%\CleanTempRF2.out -b

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_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%
sqlcmd -I -E -d%DB% -i RF_counts.sql -o
%OUTPUTPATH%\Post_RF1_Row_Count_Stream%1.out -b

sqlcmd -I -E -d%DB% -Q"insert into TIMES values ('RF2',%1,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%

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
sqlcmd -E -I -w300 -d %DB% -Q"select * from TIMES order by START"
-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
sqlcmd -E -I -w3000 -Q"dbcc sqlperf(logspace)" -o
%OUTPUTPATH%\logspace.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% -w3000 -i%OUTPUTPATH%\stream.sql -
o%OUTPUTPATH%\plans.out

rem ----- Get Boot.ini
TYPE c:\boot.ini >%OUTPUTPATH%\boot.ini
reg query "HKLM\SYSTEM\CurrentControlSet\Control\Session
Manager\I/O System" /s >%OUTPUTPATH%\session.reg
reg query
"HKLM\SYSTEM\CurrentControlSet\Services\hpcqissb\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
'%UPDATEDRIVE%%%UPDATEDIR%\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
'%UPDATEDRIVE%%UPDATEDIR%\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 ='\n',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

:PowerStream
sqlcmd -I -E -d%DB% -iStream0.sql -o %OUTPUTPATH%\Stream0.out -b
semaphore -release PowerStream

```

### 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);
}
}

```

# ***Appendix G: Price Quotations & Verification***

---



Hewlett-Packard  
 Daniel Pol  
 SH 249  
 Houston, TX 77077

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
810-08553	<b>SQL Server 2008 R2 Enterprise Edition</b> <i>Server License with 25 CALs</i> <i>Discount Schedule: Open Program - Level C</i> <i>Unit Price reflects a 40% discount from the retail unit price of \$13,969.</i>	\$8,318	1	\$8,318
359-05354	<b>SQL Server 2008 R2 Client Access License</b> <i>Discount Schedule: Open Program - Level C</i> <i>Unit Price reflects a 30% discount from the retail unit price of \$163.</i>	\$114	35	\$3,990
P72-04217	<b>Windows Server 2008 R2 Enterprise Edition</b> <i>Server License with 25 CALs</i> <i>Discount Schedule: Open Program - Level C</i> <i>Unit Price reflects a 42% discount from the retail unit price of \$3,999.</i>	\$2,310	1	\$2,310
N/A	<b>Microsoft Problem Resolution Services</b> <i>Professional Support</i> <i>(1 Incident).</i>	\$259	1	\$259

All products are currently orderable and available through Microsoft's normal distribution channels. A list of Microsoft's resellers can be found at the Microsoft Product Information Center at <http://www.microsoft.com/products/info/render.aspx?view=22&type=how>

Defect support is included in the purchase price. Additional support is available from Microsoft PSS on an incident by incident basis at \$259 per call.

This quote is valid for the next 90 days.

Reference ID: TPC\_H\_g3wOpiq6ZA tJNM+DREbYWNCCDVhXuI+I\_V1.0.0.

# ***Appendix H: TPC-Energy Disclosure Report***

---

## **H.1. TPC-Energy Clause 2-related items (Methodology)**

### **H.1.1. Minimum ambient temperature**

*The minimum ambient temperature must be disclosed*

Page 4 of the executive summary contains this information.

### **H.1.2. External electric power source characteristics**

*The characteristics of the external electric power source must be disclosed. In particular, the voltage, frequency in Hertz, and phase information must be reported.*

The external electric power source has the following characteristics: 208V, 60Hz, single phase.

### **H.1.3. Air-pressure alterations**

*A statement is required that assures that nothing was done to alter the air-pressure in the measurement environment.*

Nothing was done to alter the air-pressure in the measurement environment.

### **H.1.4. Temperature measurement**

*A description of where the temperature was measured and how it was determined that this was representative of the lowest ambient temperature is required.*

Temperature was measured at the SUT air inlet and no air conditioning returns were blowing at the SUT.

### **H.1.5. Cooling method**

*If a method of cooling other than circulation of ambient air is employed in the REC, a statement describing this method must be included.*

No other method of cooling was used.

### **H.1.6. PTD license**

*To be compliant with licenses associated with EMS, the following statement must be included in every FDR which contains a TPC-Energy Metric:*

The power and temperature characteristics of the MEC were measured using TPC's Energy Measurement Software (EMS). This includes the EMS-PTD, a modified version of the SPEC PTDaemon, which is provided under license from the Standard Performance Evaluation Corporation (SPEC).

## **H.2. TPC-Energy Clause 3-related items (Metrics)**

### **H.2.1. Primary Metric**

*The normalized work derived from the Performance Metric (as described in Clause 3.2.1) must be disclosed*

*The computation for total energy used for each measurement segment that contributes to a Performance Metric must be disclosed. If the energy of the entire Priced Configuration is not derived from direct measurements, the methods for deriving the energy for components that were not measured must be disclosed (See Clause 7.3.3.4)*

*The duration of each measurement that produces a Performance Metric must be disclosed*

The average power requirement for each measurement that produces one of these metrics,

Power Full Load Energy									Power MI Seconds:	317.0		
PMU	Full Load Average Watts Reading	% of Reading Uncertainty	Watts Reading Correction	Wattage Range Setting	% of Range Uncertainty	Wattage Range Correction	Total Wattage Correction	Accuracy Correction Factor	Reported Watt / Seconds	Adjusted Watt / Seconds	Measurement Reported Seconds	Adjusted Average Watts
DB Server PMU-1	1152.5	0.10%	+1.15	3000	0.10%	+3.00	+4.15	0.36%	367,646.5	368,971.1	317.0	1,163.9
DB Server PMU-2	0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-		0.0
DB Server PMU-3	0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-		0.0
DB Server Total	1152.5								367,646.5	368,971.1	317.0	1,163.9
Storage PMU-1	0	0.10%	+0.00	0	0.10%	+0.00	+0.00	0.00%	-	-		0.0
Storage PMU-2	0	0.10%	+0.00	0	0.10%	+0.00	+0.00	0.00%	-	-		0.0
Storage PMU-3	0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-		0.0
Storage PMU-4	0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-		0.0
Storage Total	0								-	-	158.1	0.0
Monitor Name Plate	28	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	8,876.0	8,876.0	317.0	28.0
Misc PMU-2	0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-		0.0
Misc PMU-3	0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-		0.0
Misc Total	28								8,876.0	8,876.0	317.0	28.0
REC Total	1180.5								376,522.5	377,847.1	317.0	1,191.9

Throughput Full Load Energy									Throughput MI Seconds:	1476		
PMU	Full Load Average Watts Reading	% of Reading Uncertainty	Watts Reading Correction	Wattage Range Setting	% of Range Uncertainty	Wattage Range Correction	Total Wattage Correction	Accuracy Correction Factor	Reported Watt / Seconds	Adjusted Watt / Seconds	Measurement Reported Seconds	Adjusted Average Watts
DB Server PMU-1	1233.7	0.10%	+1.23	3000	0.10%	+3.00	+4.23	0.34%	1,822,134.7	1,828,387.8	1,476.0	1,238.7
DB Server PMU-2	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	1,476.0	-
DB Server PMU-3	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	1,476.0	-
DB Server Total	1233.7								1,822,134.7	1,828,387.8	1,476.0	1,238.7
Storage PMU-1	0.0	0.10%	+0.00	0	0.10%	+0.00	+0.00	0.00%	-	-	1,476.0	-
Storage PMU-2	0.0	0.10%	+0.00	0	0.10%	+0.00	+0.00	0.00%	-	-	1,476.0	-
Storage PMU-3	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	1,476.0	-
Storage PMU-4	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	1,476.0	-
Storage Total	0.0								-	-	1,476.0	-
Monitor Name Plate	28.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	41,328.0	41,328.0	1,476.0	28.0
Misc PMU-2	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	1,476.0	-
Misc PMU-3	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	1,476.0	-
Misc Total	28.0								41,328.0	41,328.0	1,476.0	28.0
REC Total	1261.67								1,863,462.7	1,869,715.8	719.5	2,598.6

The TPC-Energy Primary Metric must be disclosed, including the calculation that is used to derive it.

	Power MI Seconds	Throughput MI Seconds	Reported QpH	SUT Total Work	REC Energy Consumption SUT Total Work X 1000 }=====> Watts / KQpH
	317.0	1476	121,345.6	60,437	
	Power Watt-Secs	Throughput Watt-Secs	Full Load Avg Watts	REC Energy Consumption Watt-Secs	REC Energy Consumption Watt-Hours
Total REC	377,847	1,869,716	1,253.5	2,247,563	624.3
DB Server	368,971	1,828,388	1,225.5	2,197,359	610.4
Storage	0	0	0.0	0	0.0
Misc.	8,876	41,328	28.0	50,204	13.9

Total REC Energy Consumption = 624.3 Watt-Hours  
 SUT Total Work = 60437 queries  
 624.3 Watt-Hours / 60437 queries = 0.01033 Watts / QphH@300GB  
 0.01033 Watts / QphH@300GB \* 1000 = 10.33 Watts / KQphH@300GB

	Secondary Metrics	Additional Numerical Quantities				
		Watts / KQph	Full Load	Full Load	Avg. Watts	Idle % of REC
			Avg Watts	% of REC		
Database Server	<b>36.36</b>	<b>1225.5</b>	97.8%	<b>913.1</b>	97.0%	
Storage	<b>0.00</b>	<b>0.0</b>	0.0%	<b>0.0</b>	0.0%	
Miscellaneous	<b>0.83</b>	<b>28.0</b>	2.2%	<b>28.0</b>	3.0%	
<b>Total REC</b>	<b>10.33</b>	<b>1253.5</b>	100%	<b>941.0</b>	100%	

### H.2.2. Secondary Metrics At Reported Performance

*If the TPC-Energy Secondary Metrics are reported, the components of the REC that are included in each subsystem must be identified. This can be achieved with separate lists to be included in the FDR or with a specific designation in the price spreadsheet. Every component in the REC that consumes energy must be included in exactly one subsystem.*

No TPC-Energy secondary metrics are reported.

*For each defined subsystem, the calculations defined for the TPC-Energy Secondary Metrics in Clause 3.3 must be reported, using the Performance Metric of the entire SUT and the energy consumption for each REC subsystem.*

No TPC-Energy secondary metrics are reported.

### H.2.3. Idle Power reporting

*The Idle Power measurement/calculation for the REC must be reported as numerical quantities.*

PMU	Full Load Average Watts Reading	% of Reading Uncertainty	Idle Load Energy						Reported Watt / Seconds	Adjusted Watt / Seconds	Reported Seconds	Adjusted Average Watts
			Watts Reading Correction	Wattage Range Setting	% of Range Uncertainty	Wattage Range Correction	Total Wattage Correction	Accuracy Correction Factor				
DB Server PMU-1	909.2	0.10%	+0.91	3000	0.10%	+3.00	+3.91	0.43%	546,399.6	548,749.0	600.0	914.6
DB Server PMU-2	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	601.0	-
DB Server PMU-3	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	601.0	-
<b>DB Server Total</b>	<b>909.2</b>								<b>546,399.6</b>	<b>548,749.0</b>	<b>600.0</b>	<b>913.1</b>
Storage PMU-1	0.0	0.10%	+0.00	0	0.10%	+0.00	+0.00	0.00%	-	-	601.0	-
Storage PMU-2	0.0	0.10%	+0.00	0	0.10%	+0.00	+0.00	0.00%	-	-	601.0	-
Storage PMU-3	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	601.0	-
Storage PMU-4	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	601.0	-
<b>Storage Total</b>	<b>0.0</b>								<b>-</b>	<b>-</b>	<b>601.0</b>	<b>-</b>
Monitor Name Plate	28.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	16,800.0	16,800.0	600.0	28.0
Misc PMU-2	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	601.0	-
Misc PMU-3	0.0	0.00%	+0.00	0	0.00%	+0.00	+0.00	0.00%	-	-	601.0	-
<b>Misc Total</b>	<b>28.0</b>								<b>16,800.0</b>	<b>16,800.0</b>	<b>600.0</b>	<b>28.0</b>
<b>REC Total</b>	<b>937.15</b>								<b>563,199.6</b>	<b>565,549.0</b>		<b>941.0</b>

*If TPC-Energy Secondary Metrics are reported, then the Idle Power measurement/calculation for each subsystem must also be reported as numerical quantities.*

No TPC-Energy secondary metrics are reported.

*The length of time between the conclusion of the performance measurement and the start of the idle measurement must be reported.*

Idle measurement was started 20 minutes after the conclusion of the performance measurement.

*The duration of the idle measurement must be reported*

Idle measurement duration was 10 minutes.

*A statement is required that assures that the system is in a state that is ready to run the Application(s) of the benchmark for the duration of the idle measurement.*

The system is in a state that is ready to run the Application(s) of the benchmark for the duration of the idle measurement. The auditors verified that at the end of the idle time the shortest power query submitted again met the required response time.

#### H.2.4. Disclosure requirements when only part of the REC is measured for power

*If all PMU's of the REC are not measured for energy use, the FDR must include a description of which PMUs of REC were measured with a power analyzer. The FDR must disclose which PMUs of the REC were computed based on the energy measurements of similar PMUs. A diagram must be included that identifies the portions of the configuration which were measured for energy use and which were calculated. This diagram may be combined with other diagrams required by the TPC Benchmark Standard.*

- *The method used to determine which PMUs were measured must be disclosed.*
- *The power values for the each partial-REC measurement for duration of the performance and idle measurements must be disclosed.*
- *The calculation for the power requirements of the entire REC and, if applicable, each subsystem must be disclosed.*

Monitor power usage was based on vendor max wattage specifications (name plate).

#### H.2.5. Disclosure requirements when component substitution is used

*If the TPC Benchmark Standard allows the Priced Configuration to differ from the Measured Configuration, the methods used to assign energy or power characteristics to the substitute components must be disclosed*

The Priced Configuration was identical to the Measured Configuration.

*The method used to determine which PMUs were measured must be disclosed*

The monitor was the only component not measured. All other components were internal to the SUT.

*The power values for the each partial-REC measurement for duration of the performance and idle measurements must be disclosed.*

See previous sections in Appendix H.2.

### H.3. TPC-Energy Clause 4-related items (Drivers /Controller)

*A statement indicating the version of EMS used must be included in the FDR, including a statement that no alterations of this code were made for the benchmark, except as specified by Clause 7.3.4.3. This includes levels for the EMS-PTD Manager, EMS-PTD and EMS-controller*

EMS version was 1.2.0 and no alterations were made.

*Input parameters for the EMS software must be disclosed*

The following EMS script was used to configure the EMS software:

```
start log power-perfrun > DL580G7_SUT
sleep 5
start log temperature-perfrun > TempDL580G7
sleep 5
time sync
sleep 5
set sample 1000 > DL580G7_SUT
sleep 5
set sample 10000 > TempDL580G7
sleep 5
start data "run 1"
```

*Any changes in the EMS components must be documented. Documentation must include a description of the issue, the reason the change was necessary for disclosure of the Result, and the changes made to resolve it. Any change to TPC-Provided Code must be included with the submission as a Supporting File.*

No changes to EMS components were made.

## **H.4. TPC-Energy Clause 6-related items (Instrumentation)**

### **H.4.1. Power Analyzer information**

Yokogawa Model WT210  
Certification date : 12/10/2009  
Amperage Range setting: 10A Manual  
Voltage Range setting: 300V Manual  
Reading accuracy: 0.1% (from Vendor Manual)  
Range accuracy: 0.1% (from Vendor Manual)

### **H.4.2. Temperature Sensor information**

InsideOut Networks WatchPort/H USB Humidity/Temperature Sensor  
Accuracy: +/-0.5° C at (-10° C to 85° C) (from Vendor website)

## **H.5. TPC-Energy Clause 8-related items**

### **H.5.1. Auditor's attestation letter.**

Benchmark Sponsor: John Ellyson  
 Senior Performance Engineer  
 Hewlett-Packard Company  
 11445 Compaq Center Dr.  
 Houston, TX 77070

September 12, 2010

I verified the TPC Benchmark™ H performance of the following configuration:

Platform: **HP ProLiant DL580 G7**  
 Database Manager: **Microsoft SQL Server 2008 R2 Enterprise Edition**  
 Operating System: **Microsoft Windows Server 2008 R2 Enterprise Edition**

The results were:

CPU (Speed)	Memory	Disks	QphH@300GB
<b>HP ProLiant DL580 G7</b>			
4 x Intel Xeon X7560 (2.27GHz, 8-core)	24MB L3 640GB Main	6 x 300GB SFF SAS 2 x 146GB SFF SAS	<b>121,345.6</b>

In my opinion, this performance result was produced in compliance with the TPC’s requirements for the benchmark.

The following verification items were given special attention:

- The database records were defined with the proper layout and size
- The database population was generated using DBGEN
- The database was properly scaled to 300GB and populated accordingly
- The compliance of the database auxiliary data structures was verified

- The database load time was correctly measured and reported
- The required ACID properties were verified and met
- The query input variables were generated by QGEN
- The query text was produced using minor modifications and no query variant
- The execution of the queries against the SF1 database produced compliant answers
- A compliant implementation specific layer was used to drive the tests
- The throughput tests involved 6 query streams
- The ratio between the longest and the shortest query was such that no query timings were adjusted
- The execution times for queries and refresh functions were correctly measured and reported
- The repeatability of the measured results was verified
- The measurement of the TPC-Energy metrics was verified
- The system pricing was verified for major components and maintenance
- The major pages from the FDR were verified for accuracy

Additional Audit Notes:

None.

Respectfully Yours,



François Raab  
President

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## H.6. TPC-Energy Supporting Files Index



Clause	Description	Pathname
Clause 7	Energy Measurement Log Files	SupportingFiles/Energy
	Energy Measurement Configuration Files	SupportingFiles/Energy/CollectData.ems