



HP ProLiant DL585G1

TPC-H Rev. 2.3.0

Report Date:
Mar 2, 2006

Total System Cost

\$145,264

Composite Query per Hour Metric

10,493.3
QphH@1000GB

Price / Performance

\$13.85 USD
\$/ QphH@1000GB

Database Size

1000GB

Database Manager

**Microsoft SQL Server
2005 Enterprise x64
Edition**

Operating System

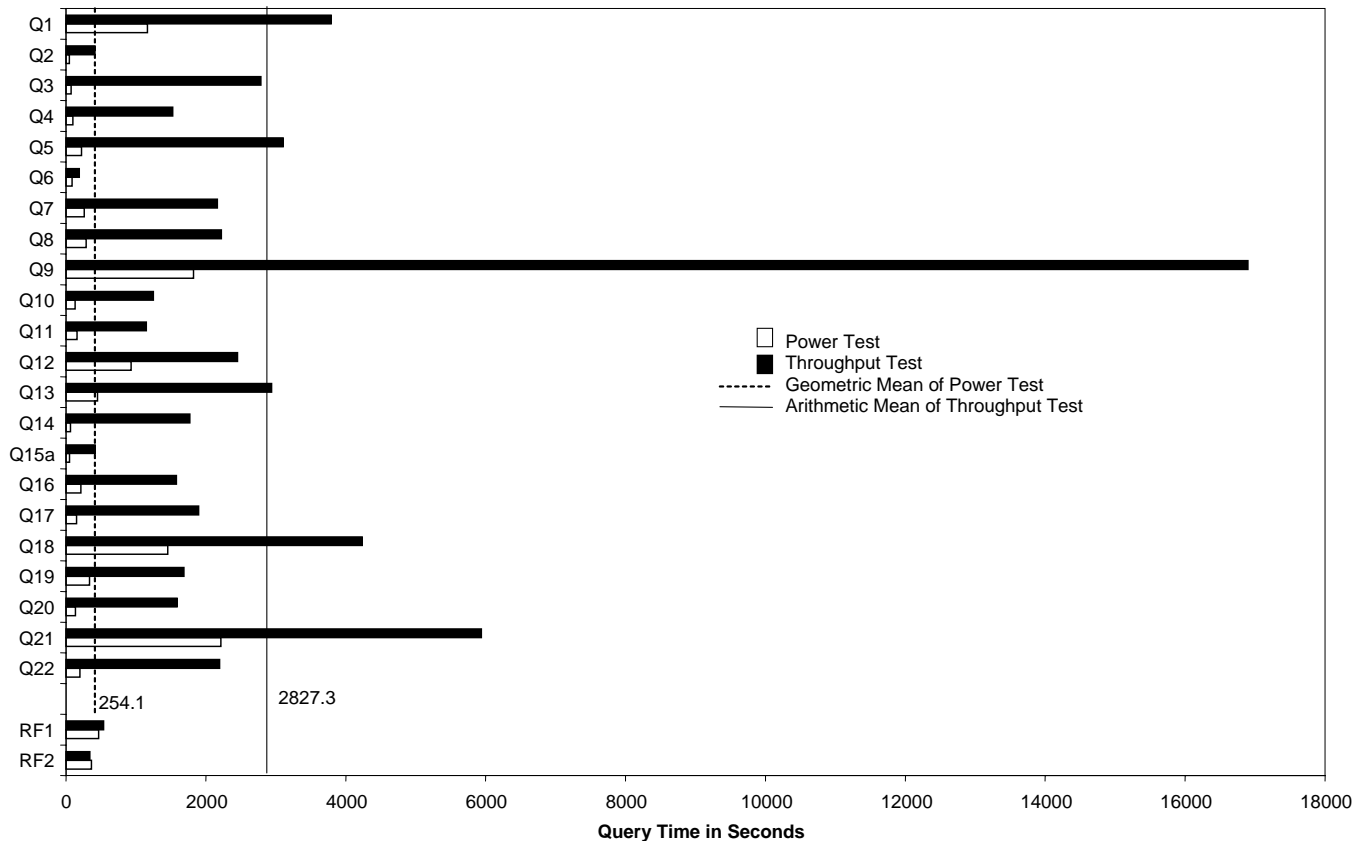
**Windows Server
2003, Enterprise
x64 Edition**

Other Software

**Visual C++
Visual Basic**

Availability Date

Mar 2, 2006



Database Load Time = 23:54:47

Load Included Backup: Y

Total Data Storage / Database Size = 6.43

RAID (Base tables only): N

RAID (Base tables and auxiliary data structures): N

RAID (All): N

System Configuration:

Processors/Cores/Threads: 4/8/8 2.4 GHz DC AMD Opteron w/ 1M Cache

Memory : 64 GB memory

Disk Controllers : 8x Smart Array P600

Disks : 160x 36 GB 10K rpm SAS drives (external)

2x 36 GB 15k rpm SCSI drives + 2x 300 GB 10k rpm SCSI drives (internal)

Total Disk Storage: 6432 GB

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



**HP ProLiant DL585
2.4GHz 4P DC**

TPC-H Rev. 2.3.0

Report Date: 2-Mar-06

Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price
Server Hardware						
ProLiant DL585 R01 O2.4GHz (1 MB) x 2	397841-001	1	14,129	1	14,129	
- 2 GB PC2700 DDR, Integrated Smart Array Controller 5i, - Embedded NC7782 Dual Port PCI-X 10/100/1000T Gigabit NIC						
HP DC 2.4/1000 PC2700 DL585 Opt Kit	397843-B21	1	5,199	2	10,398	
HP 4GB Reg PC2700 2x2GB Memory	371049-B21	1	1,699	16	27,184	
HP s7540 17in CRT Monitor	PF997AA#ABA	1	139	1	139	
HP PS/2 Scroll Mouse Carbonite	DG169AV	1	5	1	5	
PS/2 Standard Keyboard	DG170AV#ABA	1	10	1	10	
HP 5642 Unassembled Rack	358254-B21	1	689	1	689	
3YR 24X7 4HR 500 SERIES SVR	U4608E	1	1,575	1		1,575
Subtotal					52,554	1,575
Storage						
HP SMART Array P600 3G SAS/SATA RAID Controller	337972-B21	1	999	8	7,992	
HP StorageWorks MSA50 Disk Enclosure	364430-B21	1	1,899	16	30,384	
HP 36GB 15K U320 Pluggable Hard Drive (internal)	286776-B22	1	269	2	538	
HP 300GB 10K U320 Pluggable Hard Drive (internal)	350964-B22	1	839	2	1,678	
HP 36GB 10K SAS Single Port SFF Hard Drive	375859-B21	1	299	160	47,840	
HP 36GB 10K SAS Single Port SFF Hard Drive (10% spare)	375859-B21	1	299	16	4,784	
HP StorageWorks MSA50 Disk Enclosure (10% spare)	364430-B21	1	1,899	2		3,798
Subtotal					93,216	3,798
Hardware and Maintenance Discount						
Large Purchase and Net 30 discount	16.0%	1			(\$23,323)	(\$860)
Hardware Subtotal					122,447	4,513
Software						
SQL Server 2005 Enterprise x64 Edition with 25 CALs	810-04793	Microsoft	2	8,487	1	8,487
SQL Server 2005 Client License	359-01911	Microsoft	2	156	45	7,020
Windows Server 2003 Enterprise x64 Edition	P72-00274	Microsoft	2	2,334	1	2,334
Microsoft Problem Resolution Services		Microsoft	2	245	1	245
Visual C++ Standard Edition	254-00170	Microsoft	2	109	1	109
Visual Basic 2003 .Net Professional	046-00856	Microsoft	2	109	1	109
Subtotal					18,059	245
Total					\$140,506	\$4,758

Three-Year Cost of Ownership: \$145,264

QpH @ 1000GB: 10493.3

\$ / QpH @ 1000GB: \$13.85 USD

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

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

Note: The benchmark results and test methodology were audited by Lorna Livingtree of Performance Metrics, Inc. (www.perfmetrics.com).

Audited by: Lorna Livingtree of Performance Metrics Inc.

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



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Numerical Quantities

Measurement Results:

Database Scale Factor	= 1000
Total Data Storage / Database Size	= 6.43
Start of Database Load	= 2006-02-15 16:57:56
End of Database Load	= 2006-02-16 16:52:44
Database Load Time	= 23:54:47
Query Streams for Throughput Test	= 7
TPC-H Power	= 14,167.6
TPC-H Throughput	= 7771.9
TPC-H Composite Query-per-Hour Metric (QpH@1000GB)	= 10,493.3
Total System Price Over 3 Years	= \$145,264
TPC-H Price/ Performance Metric (\$/QpH@1000GB)	= \$13.85 USD

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 71334.1 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	216165244	2/17/2006	9:16:55	2/17/2006	12:13:08	2:56:14
Stream01	216165245	2/17/2006	12:19:14	2/18/2006	6:21:18	18:02:04
Stream02	216165246	2/17/2006	12:19:14	2/18/2006	5:43:58	17:24:43
Stream03	216165247	2/17/2006	12:19:15	2/18/2006	4:53:27	16:34:13
Stream04	216165248	2/17/2006	12:19:15	2/18/2006	4:58:33	16:39:18
Stream05	216165249	2/17/2006	12:19:15	2/18/2006	6:25:15	18:06:00
Stream06	216165250	2/17/2006	12:19:15	2/18/2006	4:43:14	16:23:59
Stream07	216165251	2/17/2006	12:19:15	2/18/2006	6:05:45	17:46:30
Refresh00		2/17/2006	9:09:07	2/17/2006	12:19:14	3:10:06
Refresh01		2/18/2006	6:25:15	2/18/2006	6:38:25	0:13:10
Refresh02		2/18/2006	6:38:26	2/18/2006	6:53:06	0:14:40
Refresh03		2/18/2006	6:53:07	2/18/2006	7:08:00	0:14:53
Refresh04		2/18/2006	7:08:01	2/18/2006	7:22:58	0:14:56
Refresh05		2/18/2006	7:22:59	2/18/2006	7:37:57	0:14:58
Refresh06		2/18/2006	7:37:59	2/18/2006	7:53:19	0:15:20
Refresh07		2/18/2006	7:53:21	2/18/2006	8:08:08	0:14:48



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TPC-H Timing Intervals (in seconds)

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 00	1166.2	47.3	75.9	101.4	223.6	87.4	261.2	289.2
Stream 01	1311.8	423.6	1028.3	100.1	3916.8	150.3	2434.3	3237.0
Stream 02	3368.1	506.4	399.3	1026.1	4186.1	302.5	1055.9	1317.3
Stream 03	5751.1	136.0	1790.9	1187.4	6170.8	211.0	2836.2	1255.2
Stream 04	3547.4	686.5	3088.1	1593.0	661.6	108.4	2204.1	1532.4
Stream 05	2467.3	246.2	3093.4	1024.8	3692.0	203.0	1682.3	3069.5
Stream 06	4071.8	480.9	5186.4	3056.5	908.9	204.4	1320.7	2410.9
Stream 07	6033.4	427.6	4918.1	2692.5	2213.6	161.8	3608.0	2726.0
Min Qi	1311.8	136.0	399.3	100.1	661.6	108.4	1055.9	1255.2
Max Qi	6033.4	686.5	5186.4	3056.5	6170.8	302.5	3608.0	3237.0
Avg Qi	3793.0	415.3	2786.4	1525.8	3107.1	191.6	2163.1	2221.2
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	1824.2	130.4	159.5	933.5	450.5	65.1	49.6	214.3
Stream 01	23202.0	4210.0	2712.6	2457.1	903.3	616.0	286.8	1149.0
Stream 02	18531.2	1451.2	302.5	2145.2	4136.3	3824.3	205.9	2181.9
Stream 03	15221.2	545.7	665.1	2511.5	2231.5	3200.9	296.2	715.2
Stream 04	12827.5	930.8	1223.6	3586.3	4704.8	639.5	322.6	1970.9
Stream 05	19684.8	633.4	353.5	2197.4	4308.7	507.5	398.6	814.2
Stream 06	13398.2	444.0	1099.8	3072.7	2383.3	1294.2	1350.1	3966.6
Stream 07	15404.9	526.9	1682.0	1197.6	1921.4	2328.8	51.8	255.3
Min Qi	12827.5	444.0	302.5	1197.6	903.3	507.5	51.8	255.3
Max Qi	23202.0	4210.0	2712.6	3586.3	4704.8	3824.3	1350.1	3966.6
Avg Qi	16895.7	1248.9	1148.4	2452.5	2941.3	1773.0	416.0	1579.0
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	151.2	1454.5	336.2	136.8	2217.0	198.7	466.8	364.8
Stream 01	3633.2	4502.5	1087.5	537.8	6784.1	239.6	496.8	293.1
Stream 02	1319.5	5663.7	1376.9	3359.2	2650.9	3372.8	534.4	344.7
Stream 03	956.2	2511.6	2760.9	2802.5	4539.0	1356.9	548.6	343.8
Stream 04	2500.7	3680.5	1552.1	411.8	10776.2	1409.8	546.9	349.0
Stream 05	2662.4	5061.6	2494.7	1112.6	6855.6	2596.3	537.7	359.8
Stream 06	1260.4	2923.0	893.9	1735.7	3504.8	4071.7	570.7	348.8
Stream 07	947.9	5295.7	1643.7	1153.8	6461.5	2337.4	532.8	354.2
Min Qi	947.9	2511.6	893.9	411.8	2650.9	239.6	496.8	293.1
Max Qi	3633.2	5663.7	2760.9	3359.2	10776.2	4071.7	570.7	359.8
Avg Qi	1897.2	4234.1	1687.1	1587.6	5938.9	2197.8	538.3	341.9