



HP ProLiant DL760G2 8P

TPC-H Rev. 2.0.1

Report Date:
May 28, 2003

Total System Cost

\$235,058

Composite Query per Hour Metric

3334.8

QphH@300GB

Price / Performance

\$71

\$ / QphH@300GB

Database Size

300GB

Database Manager

**Microsoft SQL
Server 2000
Enterprise Edition**

Operating System

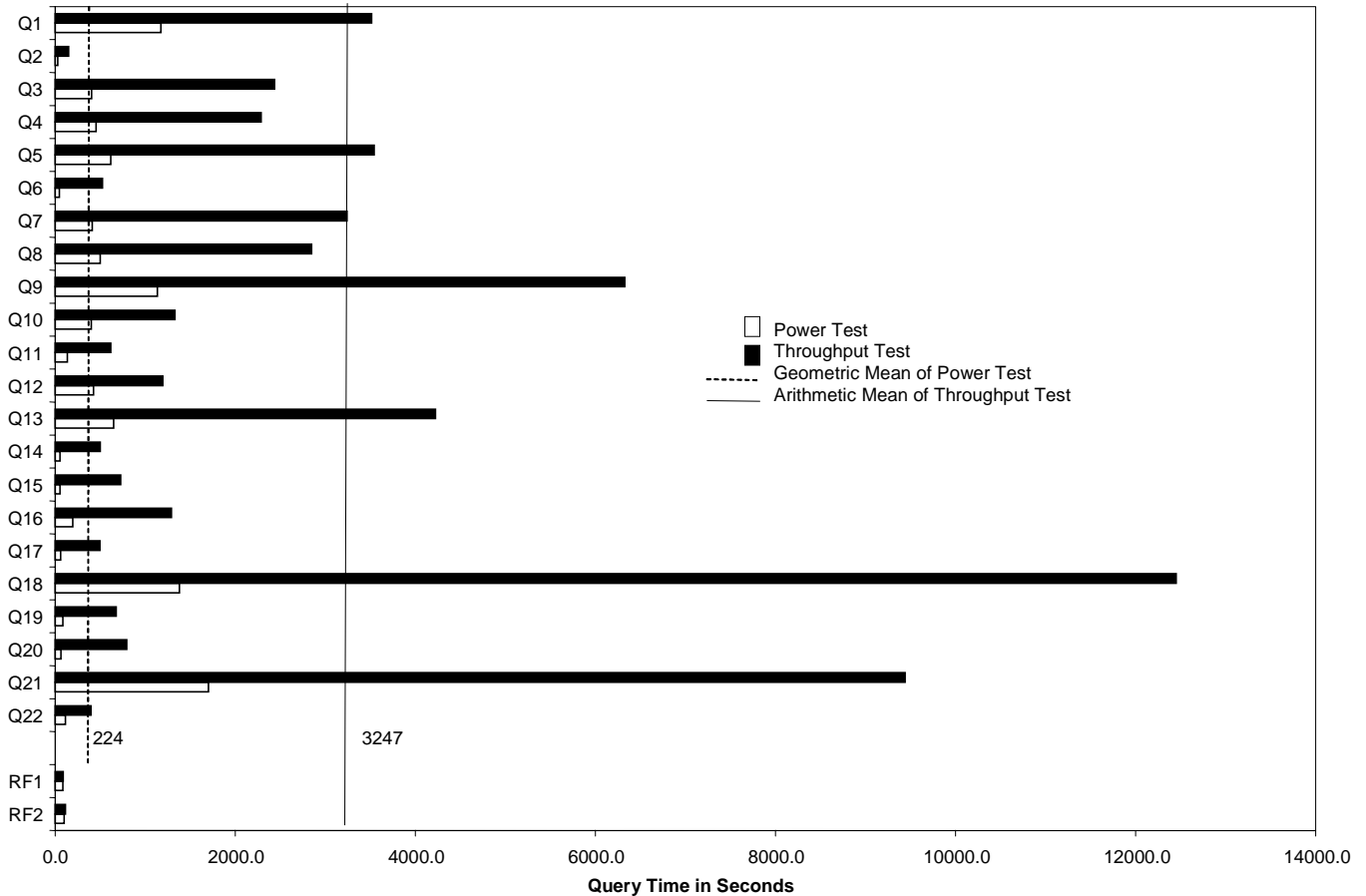
**Windows Server
2003, Enterprise
Server**

Other Software

**Visual C++
.Net Standard**

Availability Date

May 28, 2003



Database Load Time = 13:02:34

Load Included Backup: Y

Total Data Storage / Database Size = 11.04

RAID (Base tables only): N

RAID (Base tables and auxiliary data structures): N

RAID (All): N

System Configuration:

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

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

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

Audited by: Lorna Livingtree of Performance Metrics Inc.

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



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Numerical Quantities

Measurement Results:

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

Measurement Intervals:

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

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



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TPC-H Timing Intervals (in seconds)

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