



# HP ProLiant DL760G2 8P

TPC-H Rev. 2.0

Report Date:  
Aug 15, 2003

Total System Cost

**\$180,721**

Composite Query per Hour Metric

**4224.8**

QphH@100GB

Price / Performance

**\$43**

\$ / QphH@100GB

Database Size

**100GB**

Database Manager

**Microsoft SQL Server 2000 Enterprise Edition**

Operating System

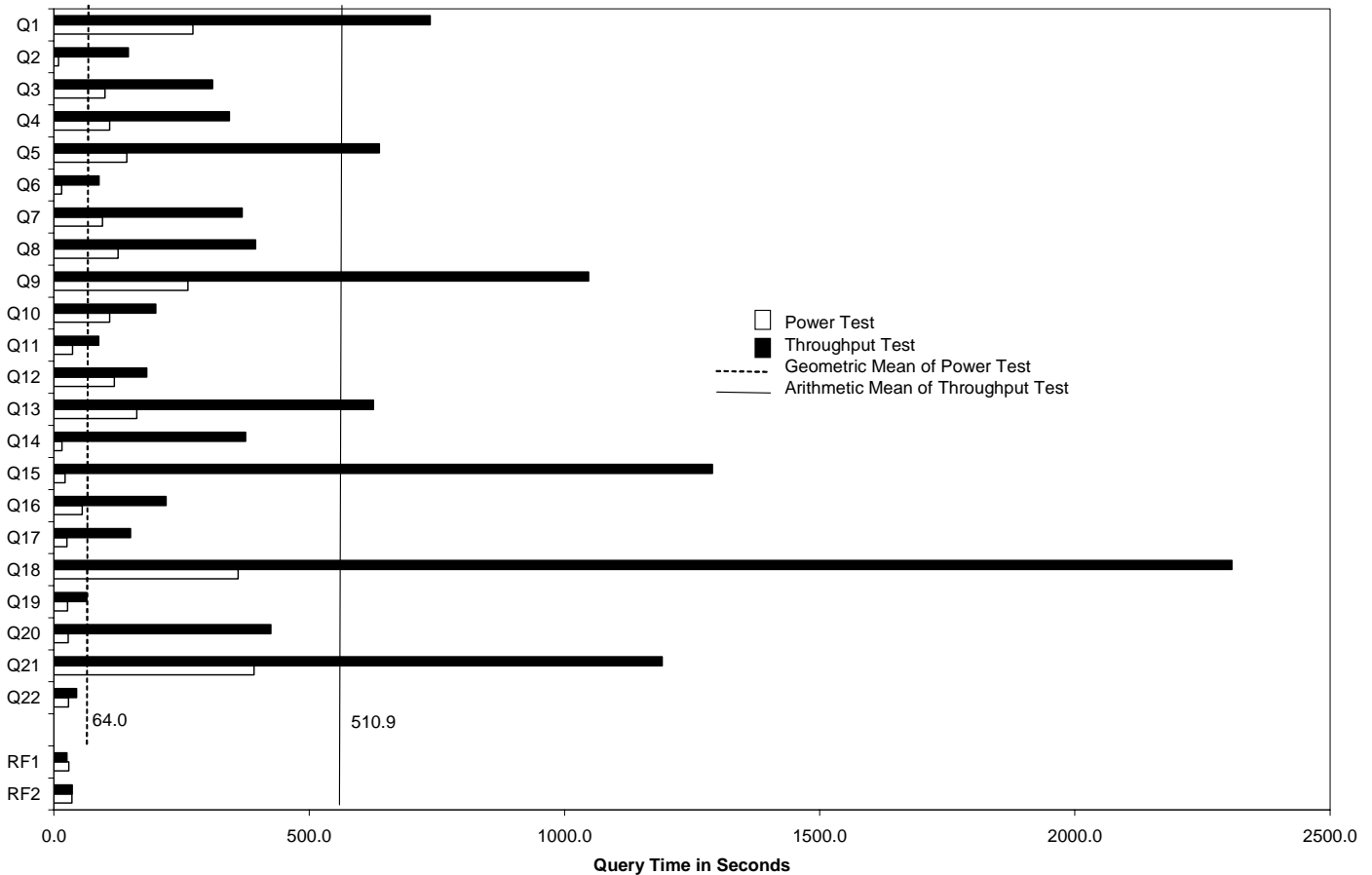
**Windows Server 2003, Enterprise Edition**

Other Software

**Visual C++ .Net Standard**

Availability Date

**Aug 15, 2003**



Database Load Time = 2:21:40

Load Included Backup: Y

Total Data Storage / Database Size = 24.36

RAID (Base tables only): N

RAID (Base tables and auxiliary data structures): N

RAID (All): N

**System Configuration:**

**Processors :** 8 x Intel Xeon MP 2.8 GHz with 2MB L2 cache  
**Memory :** 16 GB memory  
**Disk Controllers :** 5x Smart Array 5302  
**Disks :** 144 x 18.2 GB 15K RPM drives  
**Total Disk Storage:** 2436.5 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
<b>Server Hardware</b>						
<b>Brand Pricing</b>						
ProLiant DL760 G2 X2.8-2M 4P 4G - 4GB addressable RAM, 1GB redundant RAM - integrated Smart Array 5i controller	326703-B21	1	49,199	1	49,199	
X2.8-2M 4P DL760 G2	334037-B21	1	29,699	1	29,699	
512 REG PC133	236853-B21	1	499	22	10,978	
Monitor 15" S5500	261602-169	1	129	1	129	
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	1	1,321	
Rack Sidewall Kit	120670-B21	1	207	1	207	
18.2 GB Hot-Plug Wide U320 15K 1"	286775-B22	1	359	4	1,436	
UPS T1500 XR	204155-002	1	621	1	621	
Servers 700 Series CarePak, 3yr 7x24, 4hr resp.	401784-002	1	3,390	1		3,390
<b>Subtotal</b>					<b>93,607</b>	<b>3,390</b>
<b>Storage</b>						
Smart Array 5302/128	283552-B21	1	1,299	5	6,495	
StorageWorks Enclosure Model 4314R - Rack-mountable	190209-001	1	2,955	10	29,550	
18.2 GB Hot-Plug Wide U320 15K 1"	286775-B22	1	359	140	50,260	
18.2 GB Hot-Plug Wide U320 15K 1" (10% spare)	286775-B22	1	359	14	5,026	
CarePak 43xx Enclosure, 3yr, 7x24, 4hr resp.	171242-002	1	157	10		1,570
<b>Subtotal</b>					<b>91,331</b>	<b>1,570</b>
<b>Hardware and Maintenance Discount</b>						
Large Purchase and Net 30 discount	16.0%	1			(\$29,590)	(\$794)
<b>Hardware Subtotal</b>					<b>155,348</b>	<b>4,166</b>
<b>Software</b>						
Microsoft SQL Server 2000 Enterprise Edition	810-00652	Microsoft	2	5,549	5,549	
Database Server Support Package	RO-PRORS-16U-01	Microsoft	2	1,950		5,850
Microsoft SQL Server 2000 Client Licenses	359-00532	Microsoft	2	146	7,300	included
Windows Server 2003, Enterprise Edition	P72-00264	Microsoft	2	2,399	2,399	included
Visual C++ .Net Standard	254-00170	Microsoft	2	109	109	included
<b>Subtotal</b>					<b>15,357</b>	<b>5,850</b>
<b>Total</b>					<b>\$170,705</b>	<b>\$10,016</b>
<b>3-Year Cost of Ownership:</b>						<b>\$180,721</b>
<b>QphH Rating:</b>						<b>4224.8</b>
<b>\$/QphH@100GB:</b>						<b>\$43</b>

Pricing: 1=HP; 2= Microsoft

Note: The benchmark results and test methodology were audited by Lorna Livingtree of Performance Metrics

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

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



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### Numerical Quantities

#### Measurement Results:

Database Scale Factor	= 100
Total Data Storage / Database Size	= 24.36
Start of Database Load	= 2003-07-04 08:02:25
End of Database Load	= 2003-07-04 10:24:05
Database Load Time	= 2:21:40
Query Streams for Throughput Test	= 5
TPC-H Power	= 5628.0
TPC-H Throughput	= 3171.4
TPC-H Composite Query-per-Hour Metric (QphH@100GB)	= 4224.8
Total System Price Over 3 Years	= \$180,721
TPC-H Price/ Performance Metric (\$/QphH@100GB)	= \$43

#### Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 12486.6 seconds
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#### Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	704102405	7/4/2003	12:49:41	7/4/2003	13:32:39	0:42:58
Stream01	704102406	7/4/2003	13:32:39	7/4/2003	16:33:11	3:00:32
Stream02	704102407	7/4/2003	13:32:39	7/4/2003	16:35:26	3:02:47
Stream03	704102408	7/4/2003	13:32:39	7/4/2003	16:55:40	3:23:01
Stream04	704102409	7/4/2003	13:32:39	7/4/2003	16:26:37	2:53:58
Stream05	704102410	7/4/2003	13:32:39	7/4/2003	16:48:58	3:16:19
Refresh00		7/4/2003	12:49:41	7/4/2003	13:32:39	0:42:58
Refresh01		7/4/2003	13:32:39	7/4/2003	16:56:37	3:23:57
Refresh02		7/4/2003	16:56:37	7/4/2003	16:57:29	0:00:53
Refresh03		7/4/2003	16:57:29	7/4/2003	16:58:33	0:01:04
Refresh04		7/4/2003	16:58:33	7/4/2003	16:59:40	0:01:07
Refresh05		7/4/2003	16:59:40	7/4/2003	17:00:46	0:01:06



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## TPC-H Timing Intervals (in seconds)

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 00	272.0	9.5	100.1	109.3	142.6	14.8	95.6	125.7
Stream 01	544.8	84.1	352.2	265.8	426.9	137.0	519.6	248.1
Stream 02	617.6	109.7	308.9	376.5	467.2	22.2	522.2	385.4
Stream 03	638.9	290.6	103.6	431.3	1039.0	129.5	239.3	783.0
Stream 04	946.2	14.4	409.8	373.2	550.8	117.4	318.6	350.3
Stream 05	937.8	231.7	380.1	271.3	705.4	36.3	244.8	207.7
Min Qi	544.8	14.4	103.6	265.8	426.9	22.2	239.3	207.7
Max Qi	946.2	290.6	409.8	431.3	1039.0	137.0	522.2	783.0
Avg Qi	737.1	146.1	310.9	343.6	637.9	88.5	368.9	394.9
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	262.5	109.1	36.8	118.2	162.5	15.6	21.7	55.4
Stream 01	1051.6	209.8	118.5	193.8	879.7	79.3	1438.7	395.3
Stream 02	955.2	288.8	83.9	178.4	654.8	917.4	1133.6	325.7
Stream 03	1119.8	218.6	120.0	121.4	160.4	526.1	1548.0	56.0
Stream 04	1397.7	155.8	60.9	194.5	897.6	103.1	962.3	175.4
Stream 05	713.2	127.0	56.0	220.3	537.8	251.5	1366.4	146.0
Min Qi	713.2	127.0	56.0	121.4	160.4	79.3	962.3	56.0
Max Qi	1397.7	288.8	120.0	220.3	897.6	917.4	1548.0	395.3
Avg Qi	1047.5	200.0	87.9	181.7	626.1	375.5	1289.8	219.7
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	25.7	361.0	27.1	28.2	391.7	28.7	29.0	35.0
Stream 01	251.9	2015.0	121.5	96.8	1349.0	53.6	26.4	29.5
Stream 02	284.7	2145.9	98.4	76.6	970.0	43.6	20.4	32.2
Stream 03	86.4	2980.4	28.6	879.7	640.8	40.2	25.4	38.3
Stream 04	102.4	1463.3	32.5	65.2	1699.3	47.4	27.1	39.4
Stream 05	25.7	2934.8	42.5	1007.4	1298.1	37.3	26.6	39.3
Min Qi	25.7	1463.3	28.6	65.2	640.8	37.3	20.4	29.5
Max Qi	284.7	2980.4	121.5	1007.4	1699.3	53.6	27.1	39.4
Avg Qi	150.2	2307.9	64.7	425.1	1191.4	44.4	25.2	35.7