



# HP ProLiant DL585G2

TPC-H Rev. 2.3.0

Report Date:  
Sep 25, 2006

Total System Cost

**\$205,988 USD**

Composite Query per Hour Metric

**19,323.0**  
QphH@100GB

Price / Performance

**\$10.67 USD**  
\$/ QphH@100GB

Database Size

**100GB**

Database Manager

**Microsoft SQL Server 2005 Enterprise Edition SP1**

Operating System

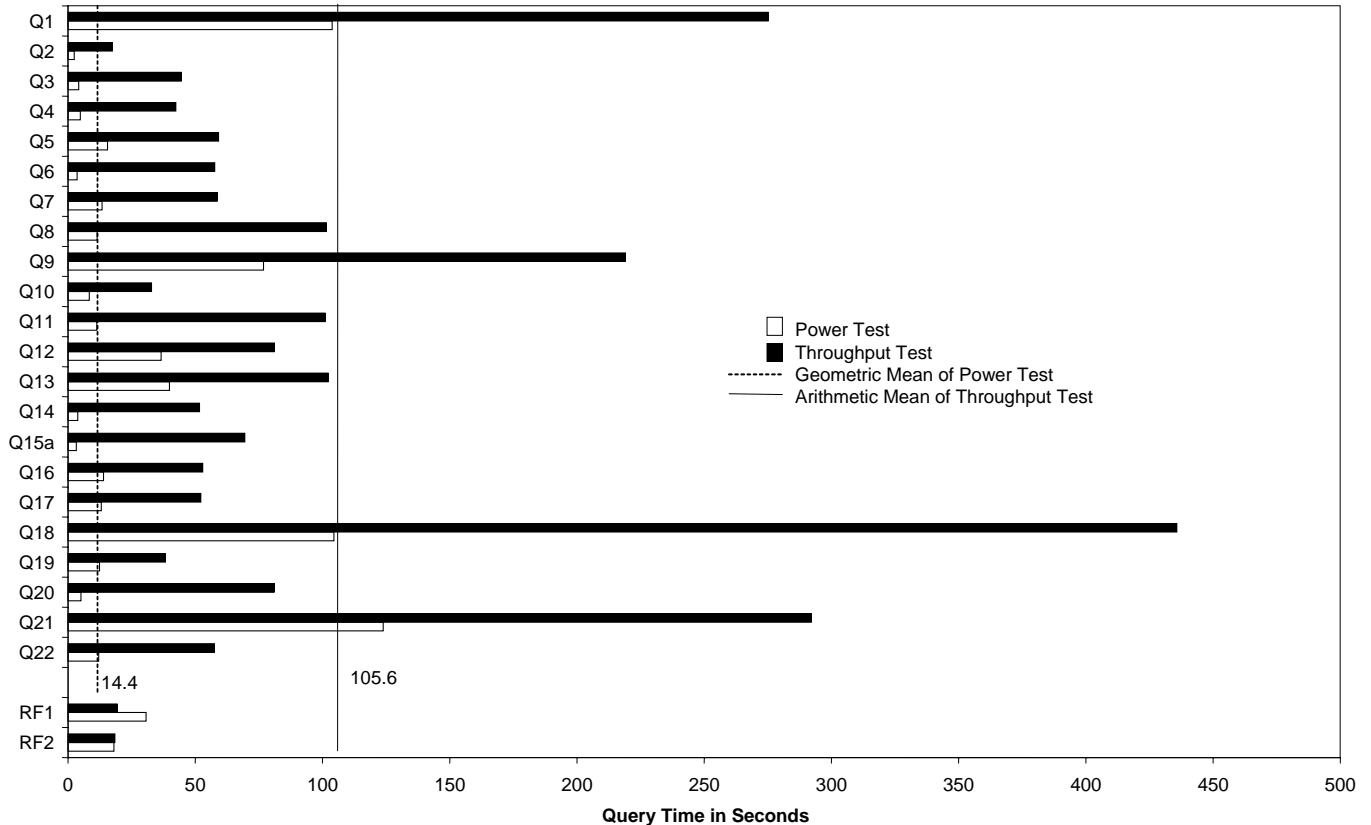
**Windows Server 2003, Enterprise Edition SP1**

Other Software

**Visual C++  
Visual Basic**

Availability Date

**Jan 16, 2007**



Database Load Time = 1:06:51

Load Included Backup: Y

Total Data Storage / Database Size = 31.68

RAID (Base tables only): N

RAID (Base tables and auxiliary data structures): Y

RAID (All): N

### System Configuration:

**Processors :** 4x AMD 8220SE 2.8 GHz 1MB cache  
**Cores :** 8  
**Threads :** 8  
**Memory :** 128 GB  
**OS Disk Drives :** 2x 36 GB 10K rpm SFF SAS (internal)  
**Network :** 2x on-board GigE  
**Disk Controllers :** 6x Smart Array P800, 1x Smart Array P600, 1x Smart Array P400  
**Disks :** 84x 36 GB 15K rpm SFF SAS drives (external)  
 2x36GB 10K rpm SFF SAS drives (internal)  
**Total Disk Storage:** 3168 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>						
HP ProLiant DL585 G2 Rack CTO Chassis/dual port NIC	418633-B21	1	3,663	1	3,663	
AMD Opteron 8220SE 2.8 GHz-1 MB Dual-Core Processor 2P	413934-L21	1	5,343	1	5,343	
AMD Opteron 8220SE, 2P Dual-Core (2.8 GHz, 120 Watts)	413934-B21	1	5,343	1	5,343	
8GB PC2-5300 2 x 4GB Kit	408854-B21	1	8,499	16	135,984	
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	
HP 3y 4h 24x7 ProLiant D58x HW Support	U4608E	1	1,575	1		1,575
<b>Subtotal</b>					<b>151,176</b>	<b>1,575</b>
<b>Storage</b>						
HP Smart Array P800 Controller	381513-B21	1*	1,099	6	6,594	
HP Smart Array P600 Controller	337972-B21	1	729	1	729	
HP Smart Array P400 Controller	411064-B21	1	699	1	699	
HP StorageWorks MSA50 Disk Enclosure	364430-B21	1	1,899	14	26,586	
HP 36GB 10K SAS Single Port SFF Hard Drive (internal)	375859-B21	1	279	4	1,116	
HP 36GB 15K SAS Single Port SFF Hard Drive	431933-B21	1*	375	84	31,500	
HP 36GB 15K SAS Single Port SFF Hard Drive (10% spare)	431933-B21	1*	375	9		3,375
HP StorageWorks MSA50 Disk Enclosure (10% spare)	364430-B21	1	1,899	2		3,798
<b>Subtotal</b>					<b>67,224</b>	<b>7,173</b>
<b>Hardware and Maintenance Discount</b>						
Large Purchase and Net 30 discount	16.0%	1			(\$34,944)	(\$1,400)
<b>Hardware Subtotal</b>					<b>183,456</b>	<b>7,348</b>
<b>Software</b>						
SQL Server 2005 Enterprise x64 Edition with 25 CALs	810-04779	Microsoft	2	8,487	1	8,487
SQL Server 2005 Client License	359-01911	Microsoft	2	156	25	3,900
Windows Server 2003 Enterprise x64 Edition	P72-00274	Microsoft	2	2,334	1	2,334
Microsoft Problem Resolution Services		Microsoft	2	245	1	245
Microsoft Visual C++ .NET Standard 2003	254-00170	Microsoft	2	109	1	109 included
Microsoft Visual Basic .Net Standard 2003	046-00856	Microsoft	2	109	1	109 included
<b>Subtotal</b>					<b>14,939</b>	<b>245</b>
<b>Total</b>					<b>\$198,395</b>	<b>\$7,593</b>

**Three-Year Cost of Ownership: \$205,988 USD****QpH @ 100GB: 19323.0****\$/ QpH @ 100GB: \$10.67 USD**

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

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

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

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](mailto:pricing@tpc.org). Thank you.



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### Numerical Quantities

#### Measurement Results:

Database Scale Factor	= 100
Total Data Storage / Database Size	= 31.68
Start of Database Load	= 2006-09-19 17:45:32.670
End of Database Load	= 2006-09-19 18:52:23.733
Database Load Time	= 1:06:51
Query Streams for Throughput Test	= 5
TPC-H Power	= 25,040.9
TPC-H Throughput	= 14,910.8
TPC-H Composite Query-per-Hour Metric (QphH@100GB)	= 19,323.0
Total System Price Over 3 Years	= \$205,988
TPC-H Price/ Performance Metric (\$/QphH@100GB)	= \$10.67 USD

#### Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 2,655.8 seconds
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#### Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	919185223	9/19/2006	20:32:53	9/19/2006	20:43:17	0:10:25
Stream01	919185224	9/19/2006	20:43:36	9/19/2006	21:18:00	0:34:24
Stream02	919185225	9/19/2006	20:43:36	9/19/2006	21:22:57	0:39:21
Stream03	919185226	9/19/2006	20:43:40	9/19/2006	21:24:39	0:41:00
Stream04	919185227	9/19/2006	20:43:40	9/19/2006	21:22:40	0:39:00
Stream05	919185228	9/19/2006	20:43:40	9/19/2006	21:23:35	0:39:55
Refresh00		9/19/2006	20:32:22	9/19/2006	20:43:35	0:11:14
Refresh01		9/19/2006	21:24:39	9/19/2006	21:25:22	0:00:43
Refresh02		9/19/2006	21:25:22	9/19/2006	21:25:59	0:00:36
Refresh03		9/19/2006	21:25:59	9/19/2006	21:26:34	0:00:35
Refresh04		9/19/2006	21:26:35	9/19/2006	21:27:11	0:00:37
Refresh05		9/19/2006	21:27:12	9/19/2006	21:27:51	0:00:39



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## TPC-H Timing Intervals (in seconds)

Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Stream 00	103.8	2.5	4.2	4.8	15.6	3.6	13.4	11.5
Stream 01	210.3	10.2	11.6	11.7	27.2	52.2	38.6	122.3
Stream 02	242.0	37.8	178.0	18.1	61.8	63.6	76.6	76.1
Stream 03	304.8	8.1	3.4	115.3	99.2	7.1	53.6	59.8
Stream 04	249.7	14.2	13.2	34.3	59.8	10.7	41.9	66.4
Stream 05	369.0	16.8	16.5	32.8	47.9	154.8	82.7	183.3
Min Qi	210.3	8.1	3.4	11.7	27.2	7.1	38.6	59.8
Max Qi	369.0	37.8	178.0	115.3	99.2	154.8	82.7	183.3
Avg Qi	275.2	17.4	44.5	42.4	59.2	57.7	58.7	101.6
Query	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	76.9	8.4	11.3	36.6	39.9	3.8	3.3	14.0
Stream 01	323.6	38.2	43.8	166.8	84.8	16.8	16.6	59.9
Stream 02	224.8	29.8	34.3	68.7	111.2	115.4	18.7	26.6
Stream 03	226.3	33.4	264.7	18.5	47.1	71.6	75.3	13.1
Stream 04	212.1	29.3	112.2	55.4	131.0	26.8	221.3	108.1
Stream 05	108.4	33.4	50.3	96.3	137.2	27.8	15.4	57.2
Min Qi	108.4	29.3	34.3	18.5	47.1	16.8	15.4	13.1
Max Qi	323.6	38.2	264.7	166.8	137.2	115.4	221.3	108.1
Avg Qi	219.0	32.8	101.1	81.1	102.3	51.7	69.5	53.0
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	13.1	104.5	12.4	5.1	123.9	12.1	30.7	18.0
Stream 01	72.2	325.1	55.3	46.0	293.2	38.0	23.6	19.0
Stream 02	99.3	448.2	41.2	23.6	297.2	68.5	19.0	17.2
Stream 03	13.2	462.8	17.2	221.4	304.0	39.6	16.5	18.0
Stream 04	41.3	523.0	29.8	40.2	255.6	63.7	17.8	18.6
Stream 05	35.1	419.6	48.1	74.0	310.8	78.0	19.4	19.4
Min Qi	13.2	325.1	17.2	23.6	255.6	38.0	16.5	17.2
Max Qi	99.3	523.0	55.3	221.4	310.8	78.0	23.6	19.4
Avg Qi	52.2	435.7	38.3	81.0	292.2	57.6	19.3	18.4