



# HP ProLiant DL785

TPC-H Rev. 2.7.0

Report Date: November 17, 2008

Total System Cost

Composite Query per Hour Rating

Price Performance

**\$186,700 USD**

**57,684.7 QphH**  
@ 300G

**\$3.24 USD**  
\$/QphH @300G

Database size

Database Manager

Operating System

Other Software

Availability Date

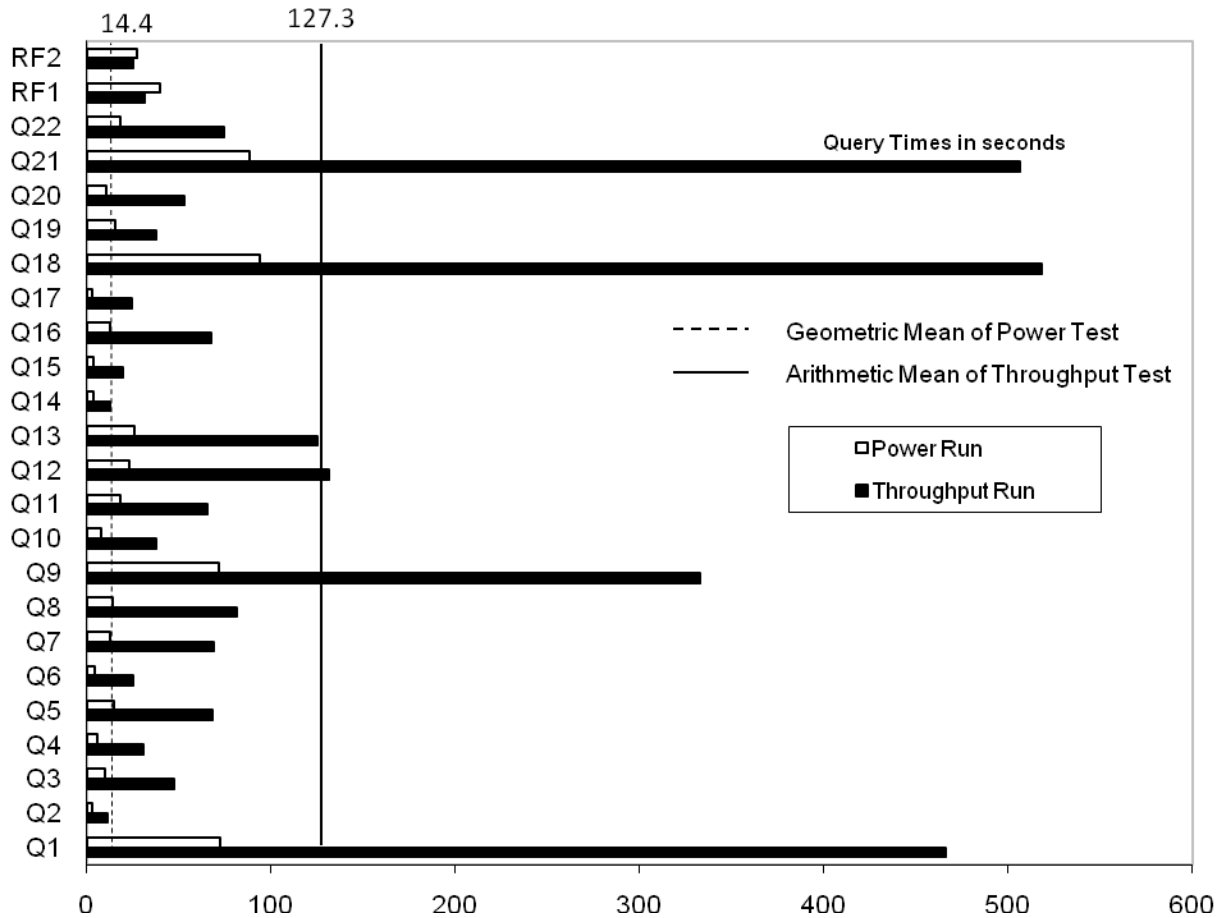
**300G**

**Microsoft SQL Server  
2008 Enterprise  
Edition for x64**

**Windows Server 2008  
Enterprise Edition for  
x64**

**MS Visual Studio  
Standard**

**November 17, 2008**



Database Load Time = 14h46m20s Load included backup: Y Total Data Storage / Database Size = 47.42  
RAID(Base Tables): Y RAID(Base Tables and Auxiliary Data Structure): Y RAID(All)= Y

System Components	System Total	Per Node
Nodes:	1	n.a.
AMD Opteron™ 8384 Quad-Core 2.7GHz:	8	8
Cores:	32	32
Threads:	32	32
Memory:	256GB	256GB
OS Disk Drives(internal:4 x 36GB 15Krpm SAS, 2 x 72GB 15Krpm SAS):	6	6
Network Interfaces (on-board GigE):	2	2
Storage Controllers P800:	7	7
Storage Shelves MSA70:	13	n.a.
Storage Subsystem Disk Drives:	204	n.a.
Total Storage:	14,226GB	n.a.



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TPC Pricing 1.3.0

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Description	Price Key	Part Number	Unit Price	Qty.	Extended Price	3 Yr Maint Price
<b>Server Hardware</b>						
HP DL785 CTO Chassis	1	AH233A	\$9,999	1	\$9,999	
HP O8384 QC 2.7GHz DL785 4p FIO	1	468118-L21	\$15,399	1	\$15,399	
HP O8384 QC 2.7GHz DL785 4p Proc Kit	1	468118-B21	\$15,399	1	\$15,399	
HP 8GB Reg PC2-5300 2x4GB	1	408854-B21	\$599	32	\$19,168	
HP 36GB 15k 2.5 Single Port HP SAS Drive	1	431933-B21	\$349	4	\$1,396	
HP 3year 4h 24x7 ProLiant DL785 HW Support	1	HA104A3 Opt.6XP	\$3,208	1		\$3,208
HP s7540 17" CRT Monitor	1	PF997AA#ABA	\$139	1	\$139	
HP USB Keyboard	1	GM321AA#ABA	\$14	1	\$14	
HP Optical 4 Button USB Mouse	1	EW208AA#ABA	\$13	1	\$13	
<b>Subtotal</b>					<b>\$61,527</b>	<b>\$3,208</b>
<b>Storage</b>						
HP 5642 Unassembled Rack	1	358254-B21	\$865	1	\$865	
HP Smart Array Controller P800	1	381513-B21	\$949	7	\$6,643	
Storage MSA70	1	418800-B21	\$3,199	13	\$41,587	
Storage MSA70 10% Spares	1	418800-B21	\$3,199	2	\$6,398	
HP ext Mini SAS 4m Cable	1	432238-B21	\$142	13	\$1,846	
HP 72GB 15k 2.5 Single Port HP SAS Drive	1	431935-B21	\$359	206	\$73,954	
HP 72GB 15k 2.5 Single Port HP SAS Drive 10% spares	1	431935-B21	\$359	21	\$7,539	
<b>Subtotal</b>					<b>\$138,832</b>	<b>\$0</b>
<b>Server Software</b>						
Microsoft Windows Server 2008 Enterprise Edition (x64)	2	P72-03168	\$2,310	1	\$2,310	
Microsoft SQL Server 2008 Enterprise x64 Edition with 25 CALs	2	810-07578	\$8,318	1	\$8,318	\$245
Microsoft SQL Server 2008 Client License	2	359-01912	\$156	35	\$5,460	
Microsoft Visual Studio Standard 2005	2	127-00012	\$250	1	\$250	
<b>Subtotal</b>					<b>\$16,338</b>	<b>\$245</b>
<b>Total Extended Price</b>					<b>\$216,697</b>	<b>\$3,453</b>
1					<b>\$32,873</b>	<b>\$577</b>

Price Key: 1 - HP , 2 - Microsoft, Audited by Lorna Livingtree of Performance Metrics, Inc

**Grand Total** **\$183,824** **\$2,876**

All discounts are based on US list prices and for similar quantities and configurations. A 16.43% discount was based on the overall specific components pricing from vendor 1 in this single quotation. Discounts for similarly sized configurations will be similar to those quoted here, but may vary based on the components in the configuration.

**3 year cost of ownership USD: \$186,700**

**QpH @ 300GB: 57,684.7**

**\$ USD/QpH @ 300GB \$3.24**

Sales contact: HP Sales Development, 19111 Pruneridge Ave., Cupertino, CA 95014 (408) 447 2320 or H-P direct: 800-203-6748

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	300GB
Total Data Storage / Database Size	47.42
Start of Database Load	11/06/08 14:40:43
End of Database Load	11/07/08 05:27:03
Database Load Time	14h46m20sec
Query Streams for Throughput Test	6
TPC-H Power	75,161.2
TPC-H Throughput	44,271.9
TPC-H Composite Query-per-Hour (QpH@300GB)	57,684.7
Total System Price over 3 Years	\$ 186,700
TPC-H Price/Performance Metric (USD / QpH@300GB)	\$ 3.24 / QpH@300GB

### Measurement Interval

Measurement Interval in Throughput Test (Ts) = seconds                      3220 seconds

### Duration of Stream Execution

Power Stream	Seed	RF1 Start Time	Query Start Time	RF2 Start Time	Duration
		RF1 End Time	Query End Time	RF2 End Time	
	1107052703	11/07/08 11:01:21	11/07/08 11:02:11	11/07/08 11:11:00	0:10:07
		11/07/08 11:02:00	11/07/08 11:11:00	11/07/08 11:11:27	

Throughput Stream	Seed	Query Start Time	Duration	RF1 Start Time	RF2 Start Time
		Query End Time		RF1 End Time	RF2 End Time
1	1107052704	11/07/08 11:11:41	0:48:56	11/07/08 11:59:34	11/07/08 12:00:10
		11/07/08 11:57:43		11/07/08 12:00:09	11/07/08 12:00:37
2	1107052705	11/07/08 11:11:41	0:49:56	11/07/08 12:00:38	11/07/08 12:01:12
		11/07/08 11:59:25		11/07/08 12:01:11	11/07/08 12:01:37
3	1107052706	11/07/08 11:11:41	0:50:56	11/07/08 12:01:38	11/07/08 12:02:11
		11/07/08 11:57:29		11/07/08 12:02:11	11/07/08 12:02:37
4	1107052707	11/07/08 11:11:41	0:51:52	11/07/08 12:02:38	11/07/08 12:03:08
		11/07/08 11:59:34		11/07/08 12:03:07	11/07/08 12:03:33
5	1107052708	11/07/08 11:11:41	0:52:46	11/07/08 12:03:34	11/07/08 12:04:03
		01/00/00 11:57:00		11/07/08 12:04:03	11/07/08 12:04:27
6	1107052709	11/07/08 11:11:41	0:53:40	11/07/08 12:04:28	11/07/08 12:04:58
		11/07/08 11:58:58		11/07/08 12:04:58	11/07/08 12:05:21



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### TPC-H Timing Intervals (in seconds):

Query	Stream 0	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5	Stream 6	Min Qi	Max Qi	Avg. Qi
Q1	72.5	473.2	464.3	496.0	452.4	460.5	449.1	449.1	496.0	465.9
Q2	2.5	8.4	11.8	8.6	12.5	12.9	11.6	8.4	12.9	11.0
Q3	9.4	53.2	37.6	56.8	16.8	69.4	49.3	16.8	69.4	47.2
Q4	5.8	27.4	26.5	36.8	27.5	35.2	31.5	26.5	36.8	30.8
Q5	14.7	64.1	69.0	69.5	65.3	69.7	69.1	64.1	69.7	67.8
Q6	4.1	20.9	28.4	22.6	24.1	28.4	23.8	20.9	28.4	24.7
Q7	12.3	106.0	57.3	75.6	36.0	68.4	68.1	36.0	106.0	68.6
Q8	14.0	70.7	80.7	87.1	86.5	81.9	79.4	70.7	87.1	81.1
Q9	71.8	262.8	272.1	398.5	479.3	279.3	302.6	262.8	479.3	332.4
Q10	7.8	30.8	41.5	37.5	44.4	34.4	37.3	30.8	44.4	37.7
Q11	18.4	57.6	70.6	62.8	69.3	64.1	65.4	57.6	70.6	65.0
Q12	23.0	139.0	125.4	142.6	135.4	92.1	152.8	92.1	152.8	131.2
Q13	25.4	129.3	96.6	106.2	122.9	166.0	130.5	96.6	166.0	125.3
Q14	3.3	11.6	12.6	13.0	14.2	13.8	10.4	10.4	14.2	12.6
Q15	3.3	20.1	19.0	18.0	16.8	21.4	21.0	16.8	21.4	19.4
Q16	12.8	71.2	68.2	64.5	68.3	71.0	60.1	60.1	71.2	67.2
Q17	2.8	35.8	27.4	18.3	27.6	20.9	15.2	15.2	35.8	24.2
Q18	94.0	437.9	774.9	362.7	523.7	373.6	634.3	362.7	774.9	517.9
Q19	15.4	41.8	33.0	23.7	43.5	53.1	28.8	23.7	53.1	37.3
Q20	10.2	66.4	58.1	63.8	12.5	61.2	55.5	12.5	66.4	52.9
Q21	88.1	559.8	409.8	485.9	555.1	561.8	465.7	409.8	561.8	506.4
Q22	18.0	74.5	79.4	97.7	38.9	80.0	75.0	38.9	97.7	74.3
UF1	39.4	35.0	32.8	32.6	29.4	28.2	29.7	28.2	35.0	31.3
UF2	27.0	27.6	25.7	25.6	25.6	23.9	23.0	23.0	27.6	25.2