

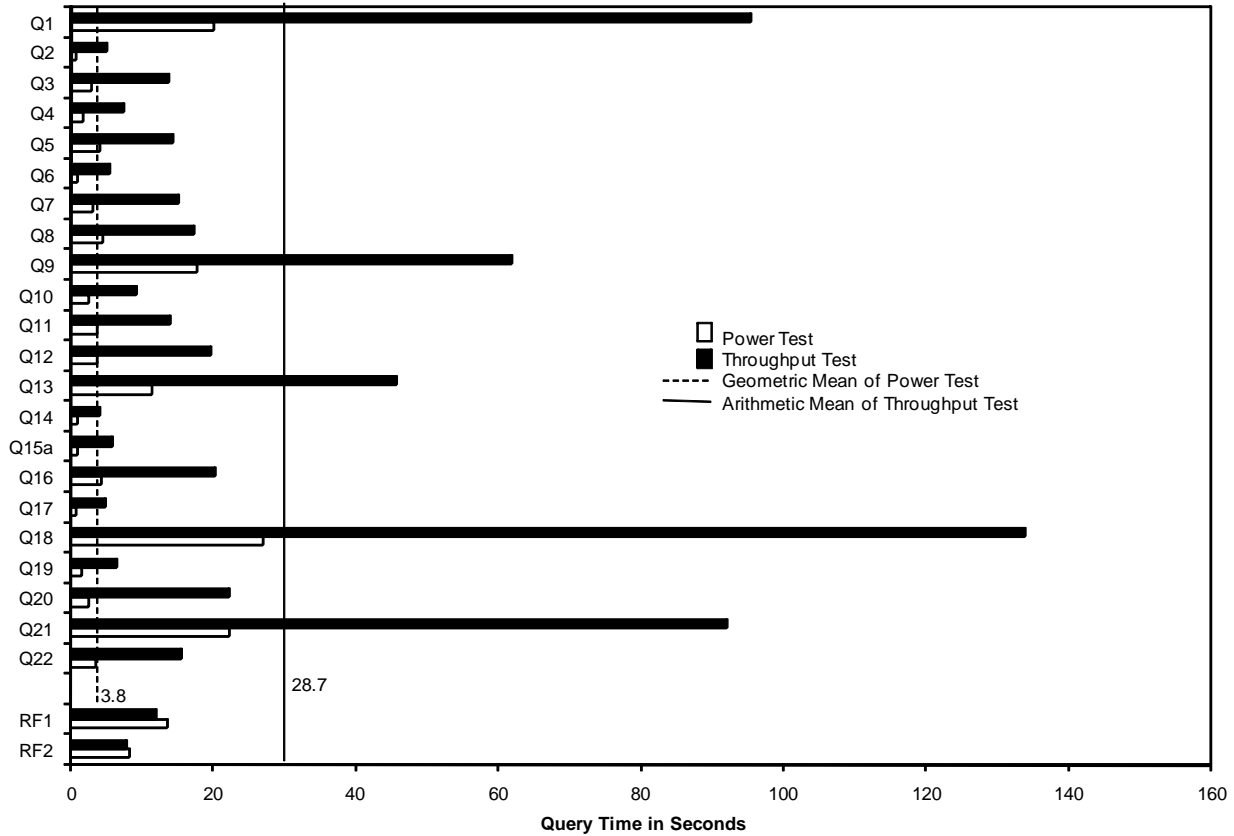


HP ProLiant DL385 G7

TPC-H Rev. 2.11.0
 TPC-Energy Rev. 1.1.1

Report Date:
Jul 14, 2010

Total System Cost		Composite Query per Hour Metric		Price / Performance		TPC-Energy Metric	
\$36,271 USD		71,438.3 QphH@100GB		\$0.51 USD \$/QphH@100GB		6.48 Watts/KQphH@100GB	
Database Size	Database Manager	Operating System	Other Software		Availability Date		
100GB	Microsoft SQL Server 2008 R2 Enterprise Edition	Windows Server 2008 R2 Enterprise Edition			Jul 14, 2010		



Database Load Time = 3:33:15	Storage Redundancy Levels			
Load Included Backup: Y	Base Tables	0	DBMS Temporary Space	0
Total Storage / Database Size = 6.84	Auxiliary Data Structures	1	OS and DBMS Software	1
Memory/Database size = 192 %				

System Configuration:

Processors : 2x 2.3 GHz 12 Core AMD Opteron 6176 SE
Cores : 24
Threads : 24
Memory : 192 GB
OS Disk Drives : 2x 72 GB 6G 15K rpm SFF SAS
Network : 4x on-board GigE
Disk Controllers : 1x Smart Array P410i
Disks : 4x HP 60 GB SSD SFF SATA, 1x 300GB 6G 10K rpm SFF SAS
Total Disk Storage: 684 GB

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



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TPC-H Rev. 2.11.0

Report Date: 14-Jul-10

Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
Server Hardware							
Brand Pricing							
HP DL385G7 SFF CTO Chassis	573122-B21	1	1,511	1	1,511		
HP 6176SE DL385G7 FIO Kit	585322-L21	1	1,799	2	3,598		
HP 8GB 2Rx4 PC3-10600R-9 Kit	593913-B21	1	509	24	12,216		
HP 512MB Flash Backed Write Cache	534916-B21	1	429	1	429		
HP 72GB 15K rpm Hot Plug SAS 2.5 Hard Drive	418371-B21	1	349	2	698		
HP 300GB 6G SAS 10K rpm SFF Hard Drive	507127-B21	1	519	1	519		
HP LE1851w 18.5-Inch wide Monitor	NK033AA#ABA HP	1	159	1	159		
HP PS/2 Keyboard And Mouse Bundle	RC464AA#ABA HP	1	39	1	39		
HP 3y 4h 24x7 ProLiant DL38x HW Support	U4545E	1	837	1		837	
Subtotal					19,169	837	
Storage							
HP 60GB 3G SATA 2.5in MDL	572071-B21	1	1,549	4	6,196		
Subtotal					6,196	0	
Hardware and Maintenance Discount							
Large Purchase and Net 30 discount	14.0%	1			(\$3,551)	(\$117)	
Hardware Subtotal					21,814	720	
Software							
SQL Server 2008 R2 Enterprise Edition with 25 CALs	810-08553	Microsoft	2	8,318	1	8,318	incl. bellow
Windows Server 2008 R2 Enterprise Edition	P72-04217	Microsoft	2	2,310	1	2,310	incl. bellow
SQL Server 2008 R2 Client Access License	359-05354	Microsoft	2	114	25	2,850	incl. bellow
Microsoft Problem Resolution Services		Microsoft	2	259	1	259	
Subtotal					13,478	259	
Total					\$35,292	\$979	

Three-Year Cost of Ownership: \$36,271 USD

QpH @ 100GB: 71438.3

\$ / QpH @ 100GB: \$0.51 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.

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	= 100
Total Data Storage / Database Size	= 6.84
Start of Database Load	= 2010-07-09 05:34:55
End of Database Load	= 2010-07-09 09:08:10
Database Load Time	= 3 :33:15
Query Streams for Throughput Test	= 5
TPC-H Power	= 94,761.5
TPC-H Throughput	= 53,855.6
TPC-H Composite Query-per-Hour Metric (QphH@100GB)	= 71,438.3
Total System Price Over 3 Years	= \$36,271
TPC-H Price/ Performance Metric (\$/QphH@100GB)	= \$0.51 USD

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 735.3 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	709090810	7/9/2010	10:28:57	7/9/2010	10:31:40	0:02:43
Stream01	709090811	7/9/2010	10:31:40	7/9/2010	10:42:09	0:10:29
Stream02	709090812	7/9/2010	10:31:40	7/9/2010	10:42:05	0:10:25
Stream03	709090813	7/9/2010	10:31:40	7/9/2010	10:42:15	0:10:35
Stream04	709090814	7/9/2010	10:31:40	7/9/2010	10:42:10	0:10:30
Stream05	709090815	7/9/2010	10:31:40	7/9/2010	10:42:15	0:10:35
Refresh00		7/9/2010	10:28:57	7/9/2010	10:31:40	0:02:43
Refresh01		7/9/2010	10:42:15	7/9/2010	10:42:37	0:00:22
Refresh02		7/9/2010	10:42:37	7/9/2010	10:42:57	0:00:20
Refresh03		7/9/2010	10:42:57	7/9/2010	10:43:16	0:00:20
Refresh04		7/9/2010	10:43:16	7/9/2010	10:43:35	0:00:19
Refresh05		7/9/2010	10:43:35	7/9/2010	10:43:55	0:00:20



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Report Date:
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TPC-H Timing Intervals (in seconds)

Query	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q08
Stream 00	20.2	0.7	2.9	1.8	4.1	0.9	3.2	4.6
Stream 01	99.7	4.1	18.2	6.8	15.8	5.7	12.2	13.8
Stream 02	95.9	5.0	12.8	7.8	12.7	4.2	17.6	18.6
Stream 03	93.0	5.2	8.2	7.7	16.2	6.7	15.6	17.9
Stream 04	95.8	6.0	14.0	6.6	12.4	6.2	16.8	18.9
Stream 05	92.7	5.8	16.1	8.7	15.2	5.0	13.6	17.8
Min Qi	92.7	4.1	8.2	6.6	12.4	4.2	12.2	13.8
Max Qi	99.7	6.0	18.2	8.7	16.2	6.7	17.6	18.9
Avg Qi	95.4	5.2	13.9	7.5	14.5	5.6	15.2	17.4
Query	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	17.8	2.6	3.8	3.7	11.4	0.9	1.0	4.3
Stream 01	58.3	7.6	11.3	13.1	50.3	3.4	6.1	23.5
Stream 02	62.9	10.0	16.7	21.9	44.8	4.2	5.4	21.2
Stream 03	67.3	10.2	17.0	20.8	44.4	4.6	6.1	19.3
Stream 04	65.0	8.8	13.0	20.3	38.9	5.5	5.3	19.3
Stream 05	55.9	9.4	11.9	22.5	50.9	2.7	6.2	18.4
Min Qi	55.9	7.6	11.3	13.1	38.9	2.7	5.3	18.4
Max Qi	67.3	10.2	17.0	22.5	50.9	5.5	6.2	23.5
Avg Qi	61.9	9.2	14.0	19.7	45.9	4.1	5.8	20.3
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	0.8	27.1	1.5	2.5	22.2	3.5	13.7	8.2
Stream 01	5.2	131.4	5.6	26.3	95.3	15.6	13.2	8.4
Stream 02	5.6	123.8	7.1	20.2	90.7	15.9	11.9	7.9
Stream 03	4.5	140.1	7.0	23.5	84.8	15.0	11.6	8.0
Stream 04	4.4	130.3	5.6	26.0	94.5	16.7	11.5	7.6
Stream 05	4.6	144.1	7.3	15.1	95.5	14.8	12.0	7.9
Min Qi	4.4	123.8	5.6	15.1	84.8	14.8	11.5	7.6
Max Qi	5.6	144.1	7.3	26.3	95.5	16.7	13.2	8.4
Avg Qi	4.9	133.9	6.5	22.2	92.2	15.6	12.0	8.0

HP ProLiant DL385 G7		Energy Summary		TPC-H Rev. 2.11.0 TPC-Energy Rev. 1.1.1
				Report Date: Jul 14, 2010
Total System Cost		Composite Query per Hour Metric		Price / Performance
\$36,271 USD		71,438.3 QphH@100GB		\$0.51 USD \$/QphH@100GB
Database Size		Database Manager	Operating System	Other Software
100GB		Microsoft SQL Server 2008 R2 Enterprise Edition	Windows Server 2008 R2 Enterprise Edition	Availability Date
Jul 14, 2010				

Numerical Quantities For Reported Energy Configuration:

REC Idle Power: **294.1 Watts**
Average Power of REC: **463.2 Watts**

Subsystem Reporting:

Secondary (subsystem) Metrics are not reported. Comparisons to other TPC-Energy Results must not reference subsystem energy information.

Lowest ambient temperature at air inlet: **20.41 Degrees Celsius**

Items in Priced Configuration not in the Reported Energy Configuration

Items in the Reported Energy Configuration not in the Measured Energy Configuration