

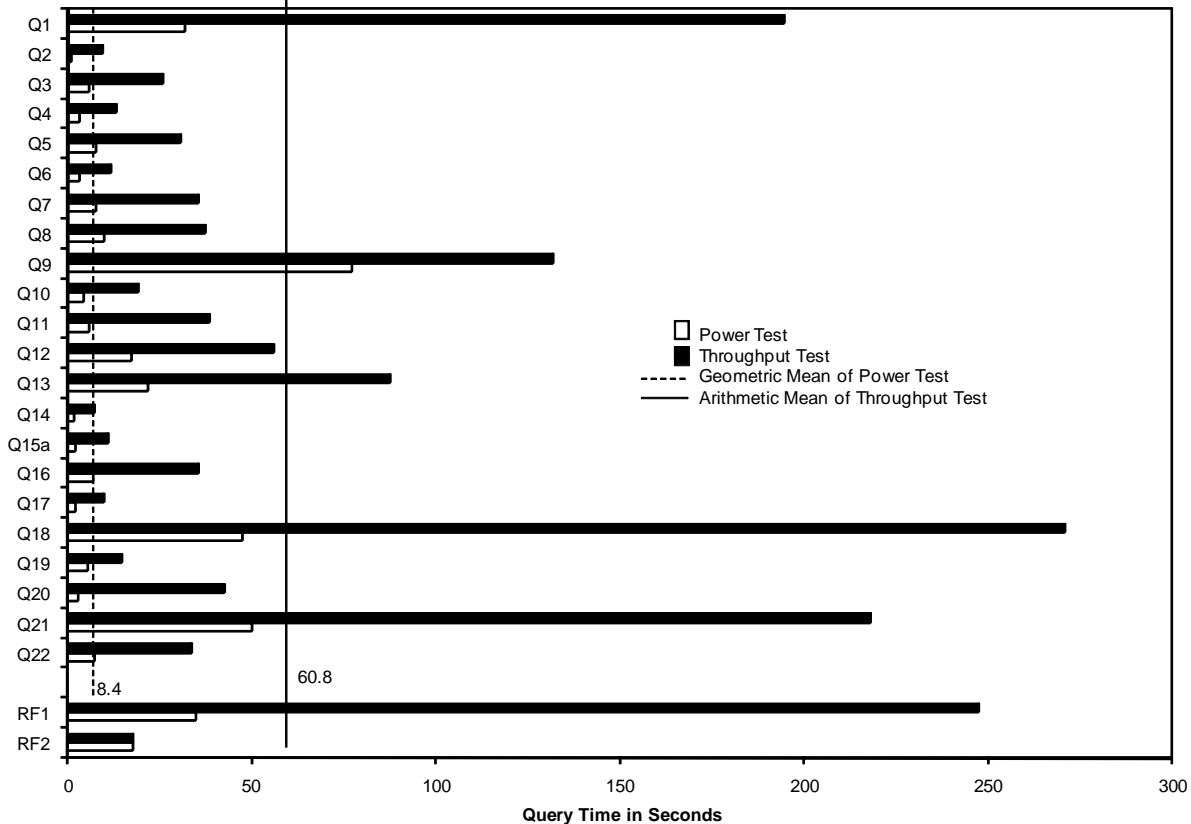


HP ProLiant DL585 G7

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

Report Date:
Jun 21, 2010

Total System Cost		Composite Query per Hour Metric		Price / Performance		TPC-Energy Metric	
\$115,129 USD		107,561.2 QphH@300GB		\$1.08 USD \$/QphH@300GB		9.58 Watts/KqphH@300GB	
Database Size	Database Manager	Operating System	Other Software		Availability Date		
300GB	Microsoft SQL Server 2008 R2 Enterprise Edition	Windows Server 2008 R2 Enterprise Edition			Jun 21, 2010		



Database Load Time = 2:33:58	Storage Redundancy Levels			
Load Included Backup: Y	Base Tables	0	DBMS Temporary Space	0
Total Storage / Database Size = 8.59	Auxiliary Data Structures	1	OS and DBMS Software	1
Memory/Database size = 170.6%				

System Configuration:

Processors : 4x 2.3 GHz 12 Core AMD Opteron 6167 SE
Cores : 48
Threads : 48
Memory : 512 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 320GB SLC PCIe ioDrive Duo , 2x 72 GB 6G 15K rpm SFF SAS, 4x 300GB 6G 10K rpm SFF SAS
Total Disk Storage: 2577.9 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: 21-Jun-10

Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price
Server Hardware						
		Brand Pricing				
HP DL585R07 CTO Chassis	590480-B21	HP	1	3,785	1	3,785
HP DL585G7 6176SE FIO 2P Kit	601351-L21	HP	1	3,600	2	7,200
HP DL585G7 PCI-e Option Kit	590485-B21	HP	1	349	1	349
HP DL585G7 CPU/MEM SEC Option Kit	590489-B21	HP	1	750	1	750
HP 16GB 1x16GB PC3-8500 Registered Memory Kit	500666-B21	HP	1	1,549	16	24,784
HP 8GB 1x8GB PC3-10600 Registered Memory Kit	500662-B21	HP	1	649	32	20,768
HP 1GB Flash Backed Cache	534562-B21	HP	1	529	1	529
HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise	512545-B21	HP	1	349	4	1,396
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise	507127-B21	HP	1	549	4	2,196
HP LE1851 w 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 DL58x HW Support	U4608E	HP	1	1,397	1	1,397
				Subtotal	61,955	1,397
Storage						
HP 320GB SLC PCIe ioDrive Duo	600281-B21	HP	1	13,999	4	55,996
				Subtotal	55,996	0
Hardware and Maintenance Discount						
Large Purchase and Net 30 discount	16.0%	HP	1			
					(\$18,872)	(\$224)
				Hardware Subtotal	99,079	1,173
Software						
SQL Server 2008 R2 Enterprise Edition with 25 CALs		Microsoft	2	8,318	1	8,318
Windows Server 2008 R2 Enterprise Edition	P72-04217	Microsoft	2	2,310	1	2,310
SQL Server 2008 R2 Client Access License		Microsoft	2	114	35	3,990
Microsoft Problem Resolution Services		Microsoft	2	259	1	259
				Subtotal	14,618	259
				Total	\$113,697	\$1,432

Three-Year Cost of Ownership: \$115,129 USD

QpH @ 300GB: 107561.2

\$ / QpH @ 300GB: \$1.08 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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Report Date:
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Numerical Quantities

Measurement Results:

Database Scale Factor	= 300
Total Data Storage / Database Size	= 8.59
Start of Database Load	= 2010-06-15 18:26:08
End of Database Load	= 2010-06-15 21:00:06
Database Load Time	= 2 :33:58
Query Streams for Throughput Test	= 6
TPC-H Power	= 129198.3
TPC-H Throughput	= 89547.7
TPC-H Composite Query-per-Hour Metric (QphH@300GB)	= 107561.2
Total System Price Over 3 Years	= \$115,129
TPC-H Price/ Performance Metric (\$/QphH@300GB)	= \$1.08 USD

Measurement Intervals:

Measurement Interval in Throughput Test (Ts)	= 1592.0 seconds
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Duration of Stream Execution:

Stream ID	Seed	Start Date	Start time	Stop Date	Stop Time	Duration
Stream00	615210006	6/17/2010	9:25:15	6/17/2010	9:31:31	0:06:17
Stream01	615210007	6/17/2010	9:31:32	6/17/2010	9:54:08	0:22:36
Stream02	615210008	6/17/2010	9:31:32	6/17/2010	9:54:03	0:22:30
Stream03	615210009	6/17/2010	9:31:32	6/17/2010	9:54:07	0:22:34
Stream04	615210010	6/17/2010	9:31:32	6/17/2010	9:53:17	0:21:44
Stream05	615210011	6/17/2010	9:31:32	6/17/2010	9:53:28	0:21:56
Stream06	615210012	6/17/2010	9:31:32	6/17/2010	9:54:01	0:22:29
Refresh00		6/17/2010	9:25:15	6/17/2010	9:31:32	0:06:17
Refresh01		6/17/2010	9:54:08	6/17/2010	9:54:47	0:00:39
Refresh02		6/17/2010	9:54:47	6/17/2010	9:55:26	0:00:39
Refresh03		6/17/2010	9:55:26	6/17/2010	9:56:05	0:00:38
Refresh04		6/17/2010	9:56:05	6/17/2010	9:56:45	0:00:41
Refresh05		6/17/2010	9:56:45	6/17/2010	9:57:24	0:00:39
Refresh06		6/17/2010	9:57:24	6/17/2010	9:58:04	0:00:40



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TPC-H Timing Intervals (in seconds)

Query	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q08
Stream 00	31.8	1.3	5.8	3.3	7.9	3.2	7.7	10.1
Stream 01	197.5	7.9	26.1	5.1	34.7	8.8	32.6	30.4
Stream 02	187.0	9.2	32.4	16.1	34.2	11.7	39.0	37.7
Stream 03	214.6	8.1	11.2	16.3	31.1	13.8	39.0	40.2
Stream 04	188.0	10.0	28.5	14.2	30.0	12.0	35.9	39.2
Stream 05	190.6	12.4	27.6	13.4	26.2	11.8	36.6	38.6
Stream 06	190.1	10.0	31.3	15.1	29.5	12.2	30.3	40.1
Min Qi	187.0	7.9	11.2	5.1	26.2	8.8	30.3	30.4
Max Qi	214.6	12.4	32.4	16.3	34.7	13.8	39.0	40.2
Avg Qi	194.6	9.6	26.2	13.4	31.0	11.7	35.6	37.7
Query	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Stream 00	77.3	4.6	5.9	17.4	21.8	1.8	2.3	7.1
Stream 01	141.1	17.2	37.5	78.2	73.0	7.2	11.5	40.5
Stream 02	128.5	21.2	44.1	75.9	97.4	9.1	10.6	36.1
Stream 03	129.3	17.9	44.8	63.9	89.7	7.1	11.5	34.4
Stream 04	139.6	19.6	31.0	37.6	73.2	6.9	12.6	36.0
Stream 05	126.8	19.8	31.0	26.5	101.7	7.3	10.5	35.1
Stream 06	127.1	19.6	43.1	54.2	92.0	7.5	11.2	31.6
Min Qi	126.8	17.2	31.0	26.5	73.0	6.9	10.5	31.6
Max Qi	141.1	21.2	44.8	78.2	101.7	9.1	12.6	40.5
Avg Qi	132.1	19.2	38.6	56.1	87.8	7.5	11.3	35.6
Query	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	2.1	47.4	5.5	3.0	50.0	7.3	35.1	17.7
Stream 01	14.1	273.4	13.3	44.1	235.8	25.3	20.7	18.3
Stream 02	9.7	266.2	17.2	30.2	204.0	33.0	20.7	18.3
Stream 03	9.2	285.1	12.6	43.8	197.1	34.0	21.0	17.3
Stream 04	10.4	239.9	16.2	56.7	229.7	37.7	23.4	17.2
Stream 05	9.1	280.2	14.1	28.7	236.0	32.7	19.9	18.6
Stream 06	8.1	282.3	15.8	53.3	205.7	39.2	23.7	16.7
Min Qi	8.1	239.9	12.6	28.7	197.1	25.3	19.9	16.7
Max Qi	14.1	285.1	17.2	56.7	236.0	39.2	23.7	18.6
Avg Qi	10.1	271.2	14.9	42.8	218.1	33.7	21.6	17.7

HP ProLiant DL585 G7		Energy Summary		TPC-H Rev. 2.11.0 TPC-Energy Rev. 1.1.1
				Report Date: Jun 21, 2010
Total System Cost		Composite Query per Hour Metric		Price / Performance
\$115,129 USD		107,561.2 QphH@300GB		\$1.08 USD \$/QphH@300GB
Database Size		Database Manager	Operating System	TPC-Energy Metric
300GB		Microsoft SQL Server 2008 R2 Enterprise Edition	Windows Server 2008 R2 Enterprise Edition	9.58 Watts/KqphH@300GB
			Other Software	Availability Date
				Jun 21, 2010

Numerical Quantities For Reported Energy Configuration:

REC Idle Power: **703.52 Watts**
Average Power of REC: **1030.57 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: **21.81 Degrees Celsius**

Items in Priced Configuration not in the Reported Energy Configuration

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