



HP ProLiant DL785 G6

TPC-H Rev 2.9.0

Report Date:
February 1, 2010

Total System Cost

Composite Query per Hour Metric

Price/Performance

\$371,721 USD

102,375.3
QphH@1000GB

\$3.63 USD
Price/QphH@1000GB

Database Size

Database Manager

Operating System

Other Software

Availability Date

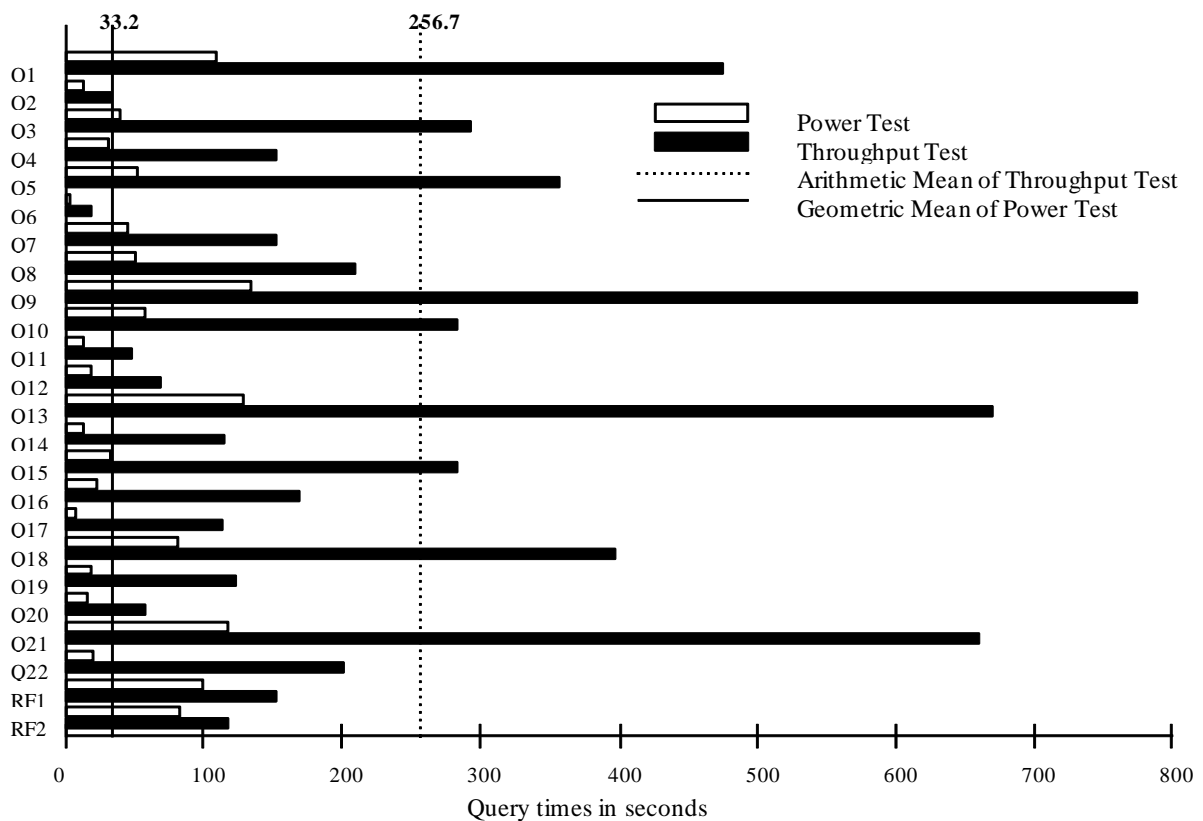
1000 GB*

**Sybase IQ Single
Application Server
Edition v15.1 ESD#1**

**Red Hat
Enterprise Linux
5.3**

None

2/1/2010



Database Load Time = 01:40:25 | Load Includes Backup: N | Total Data Storage/Database Size = 15.18 | Memory Ratio=38.4%

Storage Redundancy Level: 3 (RAID-10 base tables + RAID-10 auxiliary data structures + RAID-10 other)

System Configuration

Number of Nodes: 1
 Processors/Cores/Threads/Type: 8/48/48/AMD Opteron 8439 2.8 GHz, 512 KB L3 cache per core
 Memory: 384 GB
 Disk Drives: 4 MSA2324 with a total of 96, 146GB disks
 8, 146GB internal disks
 Total Disk Storage 15184GB (In this number one GB is defined as 1024*1024*1024 bytes)
 Lan Controllers 1 Embedded Gigabit Ethernet Adapter

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



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Description	Part Number	Source	Reference Price	Qty	Extended Price	3 yr Maint Price
Server Hardware						
HP ProLiant DL785 G6 Rack CTO Chassis	AM437A	1	9,999	1	9,999	
HP O8439SE 2.8GHz DL785 4p FIO Kit	575261-L21	1	19,499	1	19,499	
HP O8439SE 2.8GHz DL785 4p Kit	575261-B21		19,499	1	19,499	
HP 64GB Reg PC2-5300 8x8GB	495605-B21	1	7,199	6	43,194	
HP 146GB 10k 2.5 Dual Port HP SAS Drive	418367-B21	1	269	8	2,152	
HP 3year 4h 24x7 Proliant DL785 HW Support	HA104A3 Opt.6XV	1	3,208	1		3,208
HP SA P400 FIO 256MB Cache	405139-B21	1	99	1	99	
HP TFT7600 Rackmount Keyboard 17in Monitor	AG052A	1	1,679	1	1,679	
Subtotal					96,121	3,208
Server Software						
Sybase IQ Single App Svr – per cpu core	11518	2	2,595	48	124,560	
Sybase IQ 3 Years Extended Support 24 x 7	98477	2	1,713	48		82,224
RHELAP Ult'd SKT 24x7 3Year RHN Nm SW	445214-B21	1	6,747	1	6,747	Included
Subtotal					131,307	82,224
Storage						
HP 5642 Unassembled Rack	358254-B21	1	865	1	865	
HP 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A	1	2,250	8	18,000	
HP 2324fc DC Modular Smart Array	AJ797A	1	8,900	4	35,600	
MSA2000 Array Support	HA104A3 Opt. 9CJ	1	1,513	4		6,052
HP 2m Multi-mode OM2 LC/LC FC Cable	221692-B21	1	75	16	1,200	
HP 146GB 3G SAS 15K 2.5in DP ENT HDD	504062-B21	1	529	96	50,784	
Subtotal					106,449	6,052
Total					333,877	91,484
					Sybase discount	(18,684) (12,334)
					16 % Large Configuration Discount and Support Prepayment*	(33,475) (1,482)
Grand Total					281,718	90,002
*All discounts are based on US list prices and for similar quantities and configurations			3-yr Cost of Ownership:		371,721	
			QphH@1000GB:		102,375	
			\$/QphH@1000GB:		3.63	
Source 1=HP, 2=Sybase						
Audited By: Francois Raab for InfoSizing (www.sizing.com)						

Prices used in TPC benchmarks reflect 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 the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.



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Measurement Results

Database Scaling (SF/size)	1000
Total Data Storage/Database Size	15.18
Percentage Memory/Database Size	38.4%
Start of Database Load Time	01/22/10 11:52:56
End of Database Load Time	01/22/10 13:33:21
Database Load Time	1:40:25
Query Streams for Throughput Test (S)	7
TPC-H Power	108,436.8
TPC-H Throughput	96,652.7
TPC-H Composite Query-per-Hour Metric (QphH@1000GB)	102,375.3
Total System Price Over 3 Years	371,721
TPC-H Price/Performance Metric (\$/QphH@1000GB)	3.63

Measurement Intervals

Measurement Interval in Throughput Test (Ts)	5,736
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Duration of Stream Execution:

Power Run	Seed	Query Start Time	Duration (sec)	RF1 Start Time	RF2 Start Time
		Query End Time		RF1 End Time	RF2 End Time
	122133321	01/22/10 14:01:14	1,016	01/22/10 13:59:34	01/22/10 14:18:13
		01/22/10 14:18:10		01/22/10 14:01:13	01/22/10 14:19:35

Throughput Stream	Seed	Query Start Time	Duration (sec)	RF1 Start Time	RF2 Start Time
		Query End Time		RF1 End Time	RF2 End Time
1	122133322	01/22/10 14:19:35 01/22/10 15:54:14	5,679	01/22/10 14:20:39 01/22/10 14:23:56	01/22/10 14:23:56 01/22/10 14:25:40
2	122133323	01/22/10 14:19:35 01/22/10 15:53:06	5,611	01/22/10 14:25:40 01/22/10 14:28:04	01/22/10 14:28:04 01/22/10 14:29:53
3	122133324	01/22/10 14:19:35 01/22/10 15:53:09	5,614	01/22/10 14:29:53 01/22/10 14:32:10	01/22/10 14:32:11 01/22/10 14:34:26
4	122133325	01/22/10 14:19:35 01/22/10 15:54:09	5,674	01/22/10 14:34:30 01/22/10 14:37:31	01/22/10 14:37:31 01/22/10 14:39:30
5	122133326	01/22/10 14:19:35 01/22/10 15:51:57	5,542	01/22/10 14:39:30 01/22/10 14:42:11	01/22/10 14:42:12 01/22/10 14:44:37
6	122133327	01/22/10 14:19:35 01/22/10 15:55:11	5,736	01/22/10 14:44:38 01/22/10 14:46:23	01/22/10 14:46:28 01/22/10 14:47:57
7	122133328	01/22/10 14:19:35 01/22/10 15:54:15	5,680	01/22/10 14:47:58 01/22/10 14:50:14	01/22/10 14:50:14 01/22/10 14:52:10



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TPC-H Timing Intervals (in seconds)

Duration of stream execution:

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Stream 00	108.4	12.4	39.3	30.5	51.5	2.6	44.9	50.2	134.5	57.1	13.2	18.2
Stream 01	347.5	26.1	379.7	94.2	351.8	8.7	142.4	212.5	742.2	248.5	44.2	81.9
Stream 02	597.9	74.9	289.4	154.9	321.0	30.6	149.0	186.9	843.4	330.0	35.3	81.0
Stream 03	503.6	30.1	184.6	159.7	412.1	4.4	215.7	258.6	912.5	264.8	68.7	67.9
Stream 04	512.3	19.9	196.2	119.0	369.2	30.3	107.6	170.4	663.6	265.7	43.2	66.7
Stream 05	446.5	23.3	341.0	221.2	281.3	33.8	208.7	148.5	720.9	260.0	27.2	72.8
Stream 06	534.4	21.3	409.8	152.3	364.6	14.9	135.2	241.1	706.5	374.3	65.2	62.3
Stream 07	381.5	27.5	243.9	157.3	398.4	7.7	105.7	241.7	832.6	240.0	52.7	45.7
Minimum	347.5	19.9	184.6	94.2	281.3	4.4	105.7	148.5	663.6	240.0	27.2	45.7
Maximum	597.9	74.9	409.8	221.2	412.1	33.8	215.7	258.6	912.5	374.3	68.7	81.9
Average	474.8	31.9	292.1	151.2	356.9	18.6	152.0	208.5	774.5	283.3	48.1	68.3

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
Stream 00	128.9	12.3	32.4	22.0	7.8	80.4	17.8	15.0	116.8	19.9	98.6	82.6
Stream 01	719.4	69.3	223.7	214.4	86.0	515.0	124.1	59.3	808.8	178.6	196.3	104.0
Stream 02	679.6	183.5	241.2	202.6	161.7	285.1	107.3	52.6	424.4	177.3	143.5	109.5
Stream 03	581.5	94.0	279.3	104.9	152.4	420.8	152.4	45.7	465.9	233.7	137.1	135.3
Stream 04	698.9	198.9	232.5	149.8	188.6	345.8	130.8	40.3	839.3	284.7	181.1	119.0
Stream 05	547.7	81.8	336.2	150.6	57.1	345.9	178.3	58.8	830.7	169.7	160.7	145.4
Stream 06	686.0	110.1	494.4	197.0	35.7	350.5	102.8	67.6	404.7	204.4	105.6	89.0
Stream 07	771.4	59.8	175.4	165.1	107.3	519.6	64.2	73.7	847.9	159.7	136.6	115.7
Minimum	547.7	59.8	175.4	104.9	35.7	285.1	64.2	40.3	404.7	159.7	105.6	89.0
Maximum	771.4	198.9	494.4	214.4	188.6	519.6	178.3	73.7	847.9	284.7	196.3	145.4
Average	669.2	113.9	283.2	169.2	112.7	397.5	122.8	56.9	660.2	201.2	151.6	116.8