



# HP ProLiant DL980 G7

TPC-H Rev. 2.15.0  
 TPC Pricing Rev. 1.7.0

Report Date:  
 April 12, 2013

Total System Cost

Composite Query per Hour Rating

Price/Performance

**\$1,025,686 USD**

**158,108.3**

QphH @ 10000G

**\$6.49 USD**

\$/ QphH @ 10000G

Database Size

Database Manager

Operating System

Other Software

Availability Date

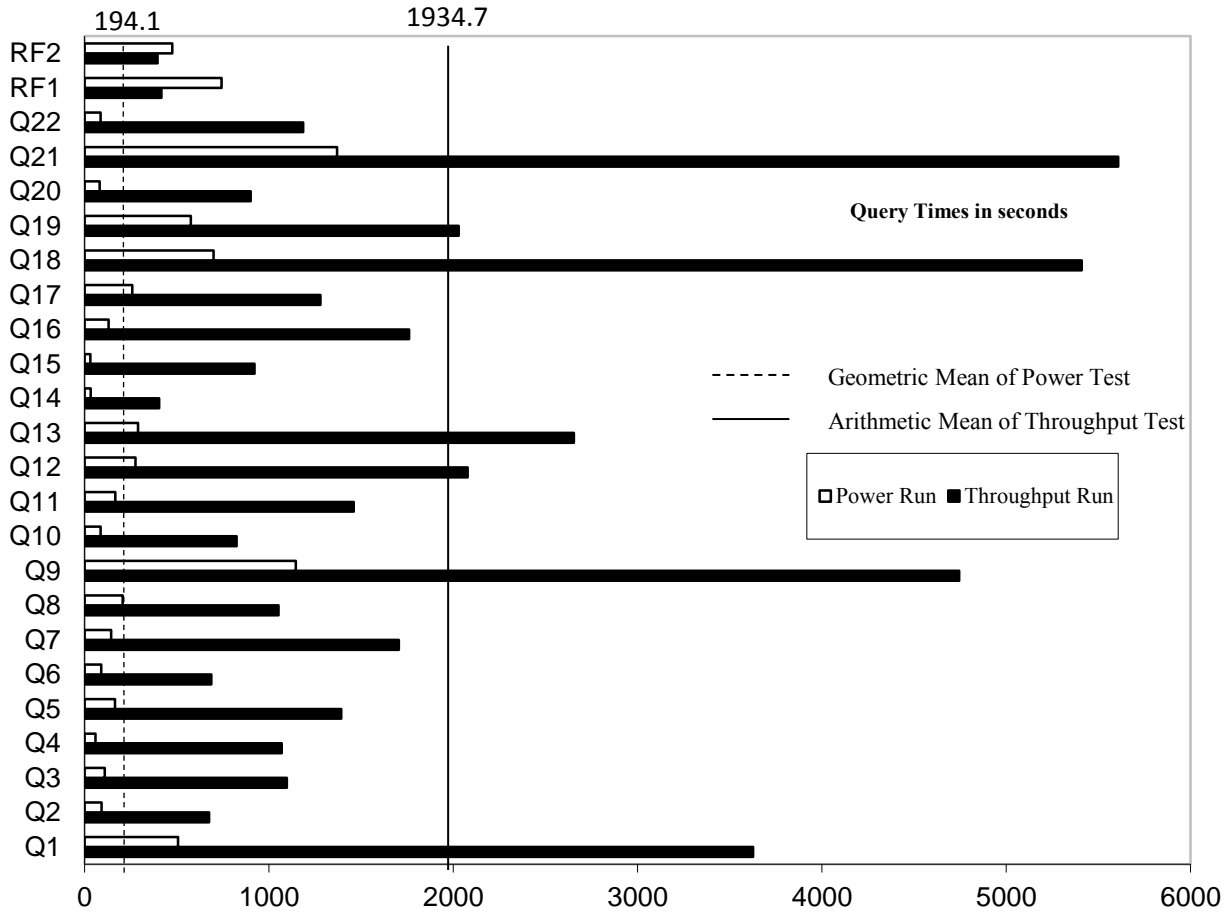
**10000GB**

**SQL Server 2012 SP1  
 Enterprise Edition**

**Windows Server 2012  
 Standard Edition**

**None**

**Now**



Database Load Time = 79h 28m 23s

Storage Redundancy Level

Load included backup: Y

Base Tables and Auxiliary Data Structures

0

Total Data Storage / Database Size = 12.55

DBMS Temporary Space

0

Memory/Database Size = 40.96%

OS and DBMS Software

1

**System Components**

**System Total**

**Per Node**

Nodes:	1	n.a.
Intel(R) Xeon(R) CPU E7-4870 @ 2.40GHz:	8	8
Cores/Threads:	80/160	80/160
Memory:	4096GB	4096GB
OS Disk Drives(internal)(146GB 6G SAS 15K each):	2	2
Network Interfaces (on-board GigE):	2	2
Storage Controllers P421 / P411 / HP 82E 8Gb Dual FC:	10 / 3 / 1	10 / 3 / 1
MSA P2000	1	n.a.
Storage Shelves D2700:	26	n.a.
Storage Subsystem Disk Drives (Qty 500:146GB 6G SAS 15K):	674	n.a.
(Qty 174: 300GB 6G SAS 10K):		
Total Storage:	125,492 GB	n.a.



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Description	Price Key	Part Number	Unit Price	Qty.	Extended Price	3 Yr Maint Price
<b>Server Hardware</b>						
HP ProLiant DL980 G7 CTO system-E7 proc	1	AM451A	\$9,449	1	\$9,449	
HP DL980 G7 E7-4870 FIO 4-processor Kit	1	650770-L21	\$34,559	1	\$34,559	
HP DL980 G7 E7-4870 4-processor Kit	1	650770-B21	\$34,559	1	\$34,559	
HP DL980 CPU Installation Assembly for E7	1	AM450A	\$6,999	1	\$6,999	
HP 32GB 4Rx4 PC3L-8500R-7 Kit	1	A0R61A	\$1,399	128	\$179,072	
HP DL580G7/DL980G7 (E7) Memory Cartridge	1	644172-B21#0D1	\$200	8	\$1,600	
HP Slim 12.7mm SATA DVD RW Optical Kit	1	481043-B21#0D1	\$109	1	\$109	
HP PCI Express Kit	1	588137-B21#0D1	\$349	1	\$349	
HP DL980 LP PCIe I/O Expansion Module	1	AM434A#0D1	\$399	1	\$399	
HP P410i 512MB Flash Backed Write Cache	1	534916-B21#0D1	\$429	1	\$429	
HP 146GB 6G SAS 15K 2.5in DP ENT HDD	1	512547-B21#0D1	\$369	2	\$738	
HP 3year 4h 24x7 ProLiant DL980 HW Support	1	UV298E	\$3,205	1		\$3,205
HP 17" FlatPanel Monitor	1	GV537A8	\$130	1	\$130	
HP PS/2 Keyboard And Mouse Bundle	1	RC464AA	\$39	1	\$39	
<b>Subtotal</b>					<b>\$268,431</b>	<b>\$3,205</b>
<b>Storage</b>						
HP Universal Rack 10642 G2 Shock Rack	1	AF002A	\$1,489	2	\$2,978	
HP 24A High Voltage US/JP Modular PDU	1	252663-D72	\$299	2	\$598	
HP Smart Array Controller P411	1	462832-B21	\$629	3	\$1,887	
HP Smart Array Controller P411 (10% Spares)	1	462832-B21	\$629	2	\$1,258	
HP Smart Array P421/2GB FBWC hba	1	631674-B21	\$899	10	\$8,990	
HP Smart Array P421/2GB FBWC hba (10% Spares)	1	631674-B21	\$899	2	\$1,798	
HP Ext Mini SAS 2m Cable	1	407339-B21	\$111	26	\$2,886	
HP StorageWorks D2700 Disk Enclosure	1	AJ941A	\$3,399	26	\$88,374	
HP StorageWorks D2700 Disk Enclosure (10% Spares)	1	AJ941A	\$3,399	3	\$10,197	
HP 146GB 15k 2.5" Dual Port 6G SAS Drive	1	512547-B21	\$369	500	\$184,500	
HP 146GB 15k 2.5" Dual Port 6G SAS Drive (10% Spares)	1	512547-B21	\$369	50	\$18,450	
HP 300GB 6G SAS 10K 2.5in DP ENT HDD	1	507127-B21	\$309	150	\$46,350	
HP 300GB 6G SAS 10K 2.5in DP ENT HDD (10% Spares)	1	507127-B21	\$309	15	\$4,635	
HP 82E 8Gb Dual-port PCI-e FC HBA	1	AJ763A	\$1,849	1	\$1,849	
HP 82E 8Gb Dual-port PCI-e FC HBA (10% Spares)	1	AJ763A	\$1,849	2	\$3,698	
HP 2m Multi-mode OM2 LC/LC FC Cable	1	221692-B21	\$75	2	\$150	
HP P2000 G3 MSA FC Dual Cntrl SFF Array	1	AP846A	\$10,350	1	\$10,350	
HP 300GB 6G SAS 10K 2.5in DP ENT HDD	1	507127-B21	\$309	24	\$7,416	
HP 300GB 6G SAS 10K 2.5in DP ENT HDD (10% Spares)	1	507127-B21	\$309	3	\$927	
HP 3y 4h 24x7 MSA 2000 G3 HWSupp (for HP P2000 G3)	1	UV394E	\$2,721	1		\$2,721
<b>Subtotal</b>					<b>\$397,291</b>	<b>\$2,721</b>
<b>Server Software</b>						
SQL Server 2012 Enterprise Edition	2	7JQ-00256	\$13,473	40	\$538,900	
Windows Server 2012 Standard Edition	2	P73-005761	\$735	4	\$2,940	
Microsoft Problem Resolution Services	2	N/A	\$259	1		\$259
<b>Subtotal</b>					<b>\$541,840</b>	<b>\$259</b>
<b>Total Extended Price</b>					<b>\$1,207,562</b>	<b>\$6,185</b>
<b>Total Discounts</b>					<b>\$186,402</b>	<b>\$1,659</b>
<b>Grand Total</b>					<b>\$1,021,160</b>	<b>\$4,526</b>
Price Key: 1 - HP , 2 – Microsoft Audited by Francois Raab of InfoSizing, Inc. (www.sizing.com)					<b>3 year cost of ownership USD: \$1,025,686</b>	
All discounts are based on US list prices and for similar quantities and configurations. A 28% 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.					<b>QpH @ 1000GB: 158,108.3</b>	
					<b>\$ USD/QpH @ 1000GB \$6.49</b>	
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	10000
Total Data Storage / Database Size	12.55
Start of Database Load	2013-03-28 10:09:30
End of Database Load	2013-04-01 00:30:47
Database Load Time	79h 28m 23s
Query Streams for Throughput Test	9
TPC-H Power	185,473.6
TPC-H Throughput	134,780.5
TPC-H Composite Query-per-Hour (QphH@10000GB)	158,108.3
Total System Price over 3 Years	\$ 1,025,686 USD
TPC-H Price/Performance Metric (\$ USD / QphH@10000GB)	\$ 6.49 USD / QphH@10000GB

### Measurement Interval

Measurement Interval in Throughput Test 52,886 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				
	401003047	04/01/13 21:33:54	04/01/13 21:46:17	04/01/13 23:36:18	04/01/13 23:44:12			2:10:18
Throughput Stream	Seed	Query Start Time		Duration	RF1 Start Time		RF2 Start Time	
		Query End Time			RF1 End Time	RF2 End Time		
1	401003048	04/01/13 23:44:13	04/02/13 11:59:27	12:15:14	04/02/13 12:23:48	04/02/13 12:32:18	04/02/13 12:32:19	12:39:55
2	401003049	04/01/13 23:44:13	04/02/13 11:50:09	12:05:57	04/02/13 12:39:55	04/02/13 12:47:24	04/02/13 12:47:24	12:53:32
3	401003050	04/01/13 23:44:13	04/02/13 10:46:33	11:02:20	04/02/13 12:53:33	04/02/13 13:00:48	04/02/13 13:00:48	13:06:40
4	401003051	04/01/13 23:44:13	04/02/13 12:11:13	12:27:00	04/02/13 13:06:41	04/02/13 13:12:44	04/02/13 13:12:44	13:18:44
5	401003052	04/01/13 23:44:13	04/02/13 11:56:49	12:12:36	04/02/13 13:18:45	04/02/13 13:24:53	04/02/13 13:24:53	13:31:13
6	401003053	04/01/13 23:44:13	04/02/13 11:50:10	12:05:57	04/02/13 13:31:14	04/02/13 13:37:27	04/02/13 13:37:27	13:44:07
7	401003054	04/01/13 23:44:13	04/02/13 10:24:24	10:40:11	04/02/13 13:44:08	04/02/13 13:50:43	04/02/13 13:50:43	13:57:31
8	401003055	04/01/13 23:44:13	04/02/13 10:40:01	10:55:48	04/02/13 13:57:31	04/02/13 14:04:47	04/02/13 14:04:47	14:11:45
9	401003056	04/01/13 23:44:13	04/02/13 12:23:47	12:39:34	04/02/13 14:11:45	04/02/13 14:18:44	04/02/13 14:18:44	14:25:38



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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	Stream 7	Stream 8	Stream 9	Min Qi	Max Qi	Avg. Qi
Q1	507.2	2,938.5	3,728.6	2,539.5	4,318.7	4,171.0	3,601.1	2,999.9	3,601.2	4,741.7	2,539.5	4,741.7	3,626.7
Q2	92.2	729.0	278.1	141.5	718.7	1,184.1	179.4	832.8	665.4	1,343.7	141.5	1,343.7	674.7
Q3	108.9	1,062.2	651.9	1,154.9	368.4	1,021.0	1,067.6	1,148.6	1,354.0	2,039.5	368.4	2,039.5	1,096.5
Q4	58.9	281.9	549.0	4,133.8	550.3	456.7	755.0	1,630.9	836.9	431.4	281.9	4,133.8	1,069.5
Q5	165.5	1,710.1	1,174.8	957.5	999.6	1,636.9	3,270.6	1,461.7	1,179.8	140.1	140.1	3,270.6	1,392.3
Q6	90.3	199.1	184.3	176.6	892.5	272.8	558.1	380.9	2,068.9	1,447.9	176.6	2,068.9	686.8
Q7	143.4	1,451.6	2,309.5	2,150.3	1,933.2	2,016.2	1,003.6	2,979.4	924.1	579.2	579.2	2,979.4	1,705.2
Q8	205.6	948.4	1,089.1	936.5	790.5	1,110.6	1,071.4	574.6	1,389.5	1,557.9	574.6	1,557.9	1,052.1
Q9	1,145.9	5,563.2	5,712.9	5,711.0	4,713.0	4,185.8	6,007.4	3,027.9	3,388.4	4,390.3	3,027.9	6,007.4	4,744.4
Q10	86.0	1,669.5	738.2	744.4	865.4	659.7	506.1	616.0	766.5	860.0	506.1	1,669.5	825.1
Q11	165.8	2,552.6	908.8	1,488.3	1,688.8	1,318.9	1,335.7	912.1	1,191.8	1,737.6	908.8	2,552.6	1,459.4
Q12	276.6	4,131.3	1,302.8	1,874.9	1,703.5	2,431.2	1,634.1	2,845.3	2,175.2	610.6	610.6	4,131.3	2,078.8
Q13	289.0	3,090.4	2,117.8	2,017.6	2,210.1	3,332.4	1,885.1	1,427.9	1,841.2	5,962.2	1,427.9	5,962.2	2,653.9
Q14	32.4	430.3	823.4	289.4	294.9	297.8	639.7	174.0	665.6	23.4	23.4	823.4	404.3
Q15	31.6	264.3	480.3	308.5	346.9	476.4	4,457.4	789.7	885.5	284.6	264.3	4,457.4	921.5
Q16	130.6	933.0	4,837.7	1,615.1	3,295.4	822.7	1,456.9	1,578.0	1,172.1	129.9	129.9	4,837.7	1,760.1
Q17	258.0	895.6	1,053.8	714.6	3,110.5	1,163.9	778.5	762.7	572.9	2,459.5	572.9	3,110.5	1,279.1
Q18	698.7	4,914.3	4,857.1	4,852.3	7,498.9	6,260.1	3,767.2	5,176.6	4,595.7	6,766.7	3,767.2	7,498.9	5,409.9
Q19	575.9	1,229.1	1,854.0	2,103.8	1,890.0	3,592.7	1,491.1	1,384.7	1,518.2	3,199.0	1,229.1	3,592.7	2,029.2
Q20	81.3	2,641.7	465.5	449.8	107.1	711.8	733.1	459.0	1,869.6	667.8	107.1	2,641.7	900.6
Q21	1,369.8	5,814.2	5,889.9	4,510.4	6,240.1	5,847.3	5,225.9	5,389.1	5,845.6	5,710.6	4,510.4	6,240.1	5,608.1
Q22	86.9	663.8	2,549.3	869.3	283.5	986.2	2,131.7	1,858.9	840.0	490.4	283.5	2,549.3	1,185.9
RF1	742.8	510.3	448.6	435.1	363.1	367.9	373.0	395.0	435.9	419.0	363.1	510.3	416.4
RF2	474.6	455.8	368.0	352.1	360.1	379.9	399.9	407.7	417.2	413.4	352.1	455.8	394.9