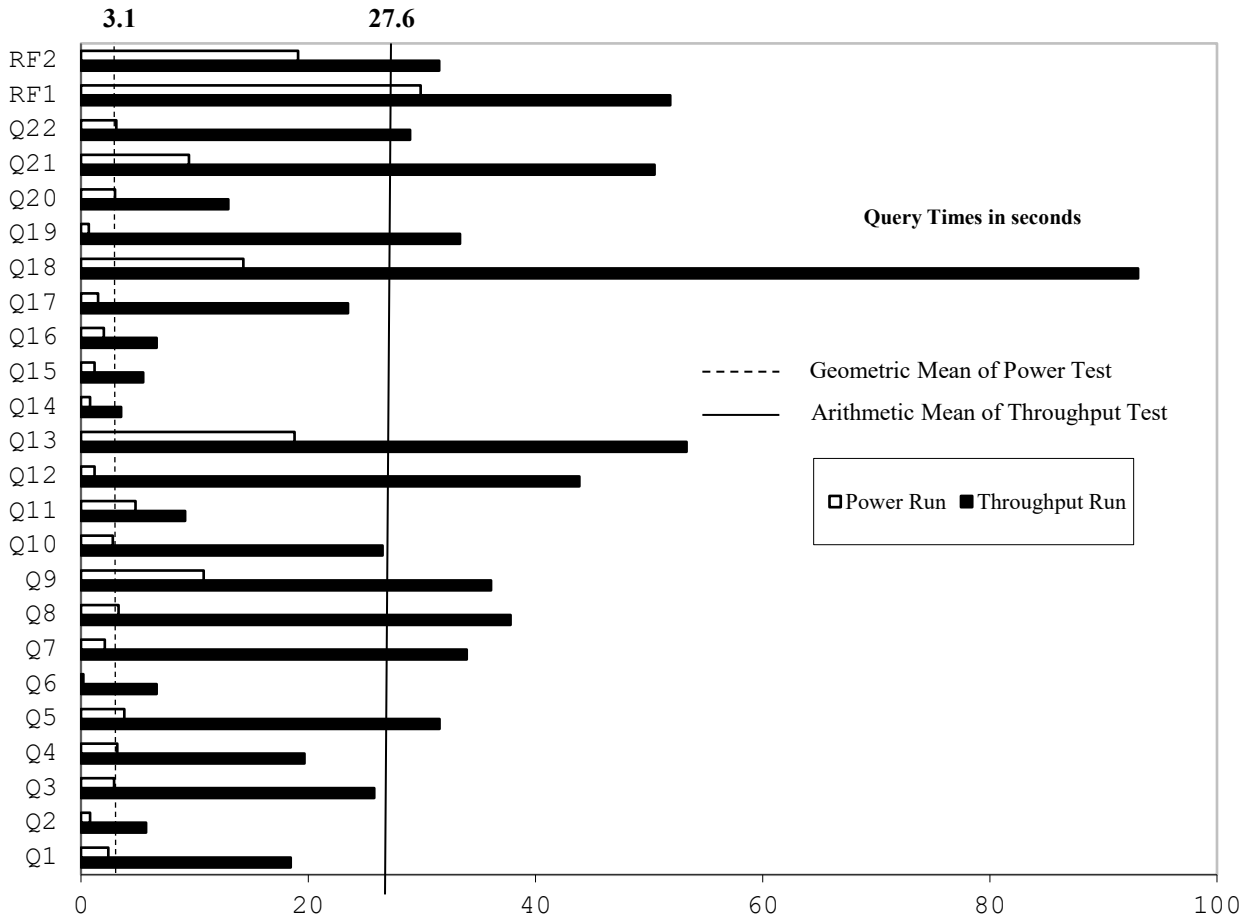
 Hewlett Packard Enterprise		HPE ProLiant DL380 Gen10		TPC-H Rev. 2.17.3 TPC Pricing Rev. 2.1.1	
Total System Cost		Composite Query per Hour Rating		Report Date: November 17, 2017	
\$472,069 USD		1,009,065.5 QphH @ 1000GB		\$0.47 USD \$/ QphH @1000GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date	
1000GB	SQL Server 2017 Enterprise Edition	SUSE Linux Enterprise Server 12 SP3	None	21st May 2018	



Database Load Time = 00d 02h 36m 04s	Storage Redundancy Level	
Load included backup: Y	Base Tables and Auxiliary Data Structures	0
Total Data Storage / Database Size = 2.70	DBMS Temporary Space	0
Memory/Database Size = 51.2%	OS and DBMS Software	1

System Components	System Total
Nodes:	1
Intel(R) Xeon(R) Platinum 8180 @ 2.50GHz:	2
Cores/Threads:	56/112
Memory:	512GB
Network Interfaces (10 Gbps):	1
Persistent Memory Capacity	1024 GB (2 x 282GB, 2 x 102GB, 1 x unused 256GB)
Persistent Memory Devices	5
400 GB SAS SSDs	2
1TB SATA HDD	1
Total Storage:	2,700.64 GB



HPE ProLiant DL380 Gen10

TPC-H Rev. 2.17.3
 TPC Pricing Rev. 2.1.1

Report Date:
 November 17, 2017

Description	Price Key	Part Number	Unit Price	Qty	Extended Price	3 Yr Maint Price	
Server Hardware							
HPE DL380 Gen10 8SFF CTO Server (Customer to Order)	1	868703-B21	\$2,359	1	\$2,359		
HPE DL380 Gen10 Intel® Xeon® Platinum 8180 (2.50GHz/28-core) Kit	1	871619-B21	\$18,089	1	\$18,089		
HPE DL380 Gen10 Intel® Xeon®Platinum 8180 (2.50GHz/28-core) FIO Kit	1	871619-L21	\$18,089	1	\$18,089		
HPE 3Y FC 24x7 DL380 Gen10 SVC	1	H8QP7E	\$2,127	1		\$2,127	
HPE Eth 10/25Gb 2p 631FLR-SFP28 Adptr	1	817709-B21	\$779	1	\$779		
HP 17" FlatPanel Monitor	1	GV537A8	\$130	1	\$130		
HP PS/2 Keyboard And Mouse Bundle	1	RC464AA	\$39	1	\$39		
HPE Scalable Persistent Memory 1024GB 2 Socket Server SKU	1	876403-B21	\$89,445	1	\$89,445		
Note: Persistent Memory Kit Includes 1024GB persistent memory, 512GB of volatile memory, battery backed power supplies, high performance fan, 4p NVMe riser, NVMe SSDs, and BIOS configuration settings)							
HPE Universal Rack 11642 1075mm Shock Rack	1	H6J66A	\$1,699	1	\$1,699		
HPE 24A High Voltage Core Only Corded PDU	1	252663-D74	\$259	1	\$259		
					Subtotal	\$130,888	\$2,127
Storage							
HPE 400GB SAS 12G MU SFF SC DS SSD	1	872374-B21	\$1,399	2	\$2,798		
HPE 400GB SAS 12G MU SFF SC DS SSD (10% Spare)	1	872374-B21	\$1,399	2	\$2,798		
HPE 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline Hard Drive	1	655710-B21	\$499	1	\$499		
HPE 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline Hard Drive (10% spares)	1	655710-B21	\$499	2	\$998		
					Subtotal	\$7,093	\$0
Server Software							
SQL Server 2017 Enterprise Edition for Linux (2 core license, 28 cores)	2	N/A	\$13,472.50	28	\$377,230	included	
SLES 12 Server 2 Sockets w/ 3Y Subscription 24x7 Support Flx LTU	1	M6K28A	\$3,509.00	1	\$3,509	included	
Microsoft Problem Resolution Services	2	N/A	\$259.00	1		\$259	
					Subtotal	\$380,739	\$259
Price Key:					Total Extended Price	\$518,720	\$2,386
1 - Hewlett Packard Enterprise					Total Discounts	\$48,293	\$744
2 - Microsoft Corporation							
Audited by Francois Raab of InfoSizing (www.sizing.com)					Grand Total	\$470,428	\$1,642
All discounts are based on US list prices and for similar quantities and configurations. A 35% 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:		\$472,069
					QpH @ 1000GB:		1,009,065.5
					\$ USD/QpH @ 1000GB		\$0.47

Sales contact: HPE WW Headquarters, 3000 Hanover St., Palo Alto, CA 94304-1185 (855) 472-5233 / (800) 786-7967 / (888) 269-4073 (US)

Microsoft Corporation, One Microsoft Way, Redmond, WA 98052-6399 (425) 882 8080

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.



**Hewlett Packard
Enterprise**

HPE ProLiant DL380 Gen10

TPC-H Rev. 2.17.3
TPC Pricing Rev. 2.1.1

Report Date:
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Numerical Quantities

Measurement Results

Database Scale Factor	1,000
Total Data Storage / Database Size	2.70
Percentage Memory / Database Size	51.2%
Start of Database Load	2017-11-11 05:23:05
End of Database Load	2017-11-11 08:27:56
Database Load Time	00d 02h 36m 04s
Query Streams for Throughput Test	7
TPC-H Power	1,177,263.0
TPC-H Throughput	864,898.6
TPC-H Composite Query-per-Hour (QphH@1000GB)	1,009,065.5
Total System Price over 3 Years (\$ USD)	\$472,069
TPC-H Price/Performance Metric (\$ USD / QphH@1000GB)	\$0.47

Measurement Interval

Measurement Interval in Throughput Test	641 seconds
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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
	1111082756	2017-11-11 08:55:06	94	2017-11-11 08:54:36	2017-11-11 08:56:40
		2017-11-11 08:56:40		2017-11-11 08:55:06	2017-11-11 08:56:59
Throughput Stream	Seed	Query Start Time	Duration (sec)	RF1 Start Time	RF2 Start Time
1	1111082757	2017-11-11 08:56:58	596	2017-11-11 08:56:58	2017-11-11 08:57:53
		2017-11-11 09:06:54		2017-11-11 08:57:53	2017-11-11 08:58:24
2	1111082758	2017-11-11 08:56:58	641	2017-11-11 08:58:24	2017-11-11 08:59:17
		2017-11-11 09:07:39		2017-11-11 08:59:17	2017-11-11 08:59:51
3	1111082759	2017-11-11 08:56:58	548	2017-11-11 08:59:51	2017-11-11 09:00:45
		2017-11-11 09:06:06		2017-11-11 09:00:45	2017-11-11 09:01:19
4	1111082760	2017-11-11 08:56:58	599	2017-11-11 09:01:19	2017-11-11 09:02:11
		2017-11-11 09:06:57		2017-11-11 09:02:11	2017-11-11 09:02:44
5	1111082761	2017-11-11 08:56:58	633	2017-11-11 09:02:45	2017-11-11 09:03:35
		2017-11-11 09:07:31		2017-11-11 09:03:35	2017-11-11 09:04:03
6	1111082762	2017-11-11 08:56:59	626	2017-11-11 09:04:03	2017-11-11 09:04:51
		2017-11-11 09:07:25		2017-11-11 09:04:51	2017-11-11 09:05:21
7	1111082763	2017-11-11 08:56:59	610	2017-11-11 09:05:21	2017-11-11 09:06:13
		2017-11-11 09:07:09		2017-11-11 09:06:13	2017-11-11 09:06:45



**Hewlett Packard
Enterprise**

**HPE ProLiant DL380
Gen10**

TPC-H Rev. 2.17.3
TPC Pricing Rev. 2.1.1

Report Date:
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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	Min Qi	Max Qi	Avg. Qi
Q1	2.4	13.8	15.2	17.7	32.0	19.8	27.2	3.5	2.4	32.0	16.5
Q2	0.8	11.5	4.9	4.3	4.2	4.8	4.9	5.5	0.8	11.5	5.1
Q3	2.9	23.9	4.3	17.5	12.1	50.7	31.3	40.8	2.9	50.7	22.9
Q4	3.2	7.4	8.3	6.1	43.3	20.5	13.4	38.7	3.2	43.3	17.6
Q5	3.8	29.0	26.5	9.5	26.2	43.9	30.5	55.4	3.8	55.4	28.1
Q6	0.2	4.6	2.7	6.1	12.8	6.8	6.3	7.3	0.2	12.8	5.9
Q7	2.1	21.4	17.5	41.9	28.9	39.4	28.8	59.8	2.1	59.8	30.0
Q8	3.3	90.7	28.0	29.6	9.8	12.5	45.4	48.6	3.3	90.7	33.5
Q9	10.8	51.4	16.5	37.1	36.7	20.5	49.5	41.0	10.8	51.4	32.9
Q10	2.8	9.2	42.2	18.2	45.3	11.8	38.9	20.2	2.8	45.3	23.6
Q11	4.8	7.8	6.0	14.5	15.1	6.0	7.0	7.8	4.8	15.1	8.6
Q12	1.2	34.6	84.3	51.8	13.3	12.6	101.6	8.8	1.2	101.6	38.5
Q13	18.8	46.3	68.3	57.5	31.5	66.3	52.8	50.5	18.8	68.3	49.0
Q14	0.8	5.5	1.6	3.6	3.7	3.7	4.8	1.9	0.8	5.5	3.2
Q15	1.2	7.4	5.4	2.9	8.0	4.3	8.2	2.2	1.2	8.2	5.0
Q16	2.0	5.8	8.8	6.5	5.3	10.3	5.0	4.9	2.0	10.3	6.1
Q17	1.5	28.5	30.0	21.7	28.7	20.3	23.4	11.9	1.5	30.0	20.8
Q18	14.3	67.6	145.7	57.6	111.0	120.5	77.6	71.4	14.3	145.7	83.2
Q19	0.7	34.2	42.9	44.1	34.1	27.4	23.1	27.7	0.7	44.1	29.3
Q20	3.0	20.6	8.5	19.0	13.6	6.9	8.8	13.4	3.0	20.6	11.7
Q21	9.5	54.4	22.9	41.6	69.4	73.2	26.3	65.7	9.5	73.2	45.4
Q22	3.1	19.3	48.9	38.3	13.0	49.9	10.6	22.8	3.1	49.9	25.7
RF1	29.9	53.8	53.1	54.1	52.2	49.9	47.9	52.1	29.9	54.1	49.1
RF2	19.1	30.7	33.7	33.5	33.2	28.4	29.2	32.0	19.1	33.7	30.0