

 Hewlett Packard Enterprise		HPE ProLiant DL385 Gen11		TPC-H Rev. 3.0.1 TPC Pricing Rev. 2.8.0	
Total System Cost		Composite Query per Hour Rating		Report Date: November 10, 2022	
\$306,605 USD		1,156,627.9 QphH @ 1,000GB		\$265.09 USD \$/kQphH @ 1,000GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date	
1,000GB	Microsoft® SQL Server 2022 Enterprise Edition	Microsoft Windows Server 2022	None	December 5, 2022	



Database Load Time = 0d 11h 52m 25s	Storage Redundancy Level	
Load included backup: Y	Base Tables and Auxiliary Data Structures	No RAID
Total Data Storage / Database Size = 15.80	DBMS Temporary Space	No RAID
Memory/Database Size = 76.8%	OS, transaction logs and DBMS Software	RAID 1

System Components	System Total
Nodes:	1
AMD® EPYC 9174F @ 4.1GHz:	2
Cores/Threads:	32/64
Memory:	768 GiB
1.6TB NVMe Drives	10
RAID1 Boot Controller with 480GB M.2 NVMe	2
Total Storage:	15,795.23 GiB



HPE ProLiant DL385 Gen11

TPC-H Rev. 3.0.1
TPC Pricing Rev. 2.8.0

Report Date: November 10, 2022

Description	Price Key	Part Number	Unit Price	Qty	Extended Price	3 Yr Maint Price	
Server Hardware							
HPE DL385 Gen11 8SFF CTO Server	1	P53921-B21	\$3,829	1	\$3,829		
AMD EPYC 9174F CPU for HPE	1	P53846-001	\$8,273	2	\$16,546		
HPE DL38X Gen11 Max Perf Heat Sink Kit	1	P58460-B21	\$280	1	\$280		
HPE G11 6056DR PER FAN KIT	1	P58465-B21	\$257	1	\$257		
HPE 32GB 2RX8 DDR5-4800 Smart kit	1	P50311-B21	\$2,465	24	\$59,160		
HPE 1600W FS Plat Ht Plug LH PS Kit	1	P38997-B21	\$685	2	\$1,370		
HPE USB US Keyboard/Mouse Kit	1	631341-B21	\$32	3	\$96		
MLX MCX6314 10/25GbE 2p SFP28 OCP3 Adptr	1	P42041-B21	\$1,398	1	\$1,398		
Add to Rack 48U 600mmx1075mm G2 Advanced Pallet	1	P9K19A	\$3,023	1	\$3,023		
HPE 3 Year Total Care Essential for DL385 Gen11	1	H79N7E	\$5,364	1		\$5,364	
		Subtotal			\$85,959	\$5,364	
Storage							
HPE 1.6TB NVMe MU SFF BC PM1735a SSD	1S	P50227-B21	\$4,025	8	\$32,200		
HPE 1.6TB NVMe MU SFF BC U.3ST MV SSD	1	P47838-B21	\$3,076	2	\$6,152		
NS204i-u Gen11 OS Boot, RAID 1	1	P48183-B21	\$2,005	1	\$2,005		
HPE DL3X5 Gen11 Ter WM enablement Kit	1	P57850-B21	\$75	1	\$75		
MR416i-p Cntrl for HPE Gen11	1	P47777-B21	\$3,933	1	\$3,933		
HPE DL385 G11 8NVMex4 DA Cbl Kit	1	P57854-B21	\$584	1	\$584		
HPE DL385 G11 8SFF x4 U.3 BP Cage Kit	1	P55083-B21	\$431	3	\$1,293		
HPE DL385 G11 2 SFF NVME U.3 enablement kit	1	P55091-B21	\$220	1	\$220		
HPE Gen 11 EI Rail Kit	1	P52351-B21	\$34	1	\$34		
HPE DL385G10 Standard Riser	1	standardDL325G10Riser		1			
		Subtotal			\$46,496	\$0	
Other							
HP V22v G5 FHD Monitor	3	65P56AA	\$130	3	\$390		
		Subtotal			\$390	\$0	
Software Components							
SQL Server 2022 Enterprise Edition for Linux (2 core license, 64 cores)	2	N/A	\$15,123	16	\$241,968		
Microsoft Problem Resolution Services	2	N/A	\$259	1		\$259	
Windows Server 2022 Standard Edition (2 processor license)	2	N/A	\$123.00	16	\$1,968		
		Subtotal			\$243,936	\$259	
		Total Extended Price			\$376,781	\$5,623	
		Total Discounts			\$73,932.00	\$2,950.00	
Price Key: 1 - HPE , 2 - Microsoft, 3 - Hewlett Packard Inc.		Grand Total					\$303,932.00
Audited by Doug Johnson of InfoSizing (www.sizing.com)		3 year cost of ownership USD:					\$306,603
All discounts are based on US list prices and for similar quantities and configurations. A 55% 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.		QpH @ 1,000GB :					1,156,627.9
One or more components of the Measured Configuration have been substituted in the Priced Configuration. See the FDR for details.		\$ USD/QpH @ 1,000GB					\$265.09
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.							



Numerical Quantities

Measurement Results

Database Scale Factor	1,000
Total Data Storage / Database Size	15.80
Percentage Memory / Database Size	76.8%
Start of Database Load	2022-10-21 15:43:04
End of Database Load	2022-10-22 03:35:29
Database Load Time	00d 11h 52m 25s
Query Streams for Throughput Test	7
TPC-H Power	1,270,778.1
TPC-H Throughput	1,052,731.5
TPC-H Composite Query-per-Hour (QphH@1,000GB)	1,156,627.9
Total System Price over 3 Years (\$ USD)	\$306,605
TPC-H Price/Performance Metric (\$ USD / kQphH@1,000GB)	\$265.09

Measurement Interval

Measurement Interval in Throughput Test **526.63 seconds**

Duration of Stream Execution

Power Run	Seed	Query Start Time	Total Time	RF1 Start Time	RF2 Start Time
		Query End Time	(hh:mm:ss)	RF1 End Time	RF2 End Time
	1022033529	2022-10-22 03:59:29	00:01:25	2022-10-22 03:59:06	2022-10-22 04:00:54
		2022-10-22 04:00:54		2022-10-22 03:59:29	2022-10-22 04:01:17
Throughput Stream	Seed	Query Start Time	Total Time	RF1 Start Time	RF2 Start Time
		Query End Time	(hh:mm:ss)	RF1 End Time	RF2 End Time
1	1022033530	2022-10-22 04:01:16	00:08:23	2022-10-22 04:01:16	2022-10-22 04:01:54
		2022-10-22 04:09:39		2022-10-22 04:01:54	2022-10-22 04:02:26
2	1022033531	2022-10-22 04:01:16	00:08:13	2022-10-22 04:02:26	2022-10-22 04:03:02
		2022-10-22 04:09:29		2022-10-22 04:03:02	2022-10-22 04:03:32
3	1022033532	2022-10-22 04:01:16	00:08:32	2022-10-22 04:03:32	2022-10-22 04:04:09
		2022-10-22 04:09:48		2022-10-22 04:04:09	2022-10-22 04:04:39
4	1022033533	2022-10-22 04:01:16	00:08:08	2022-10-22 04:04:39	2022-10-22 04:05:16
		2022-10-22 04:09:24		2022-10-22 04:05:16	2022-10-22 04:05:49
5	1022033534	2022-10-22 04:01:16	00:08:47	2022-10-22 04:05:49	2022-10-22 04:06:29
		2022-10-22 04:10:03		2022-10-22 04:06:29	2022-10-22 04:07:01
6	1022033535	2022-10-22 04:01:16	00:08:25	2022-10-22 04:07:02	2022-10-22 04:07:40
		2022-10-22 04:09:41		2022-10-22 04:07:40	2022-10-22 04:08:12
7	1022033536	2022-10-22 04:01:16	00:08:48	2022-10-22 04:08:12	2022-10-22 04:08:49
		2022-10-22 04:10:04		2022-10-22 04:08:49	2022-10-22 04:09:23

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	2.19	5.49	4.11	4.92	5.81	13.41	8.84	14.91	2.19	7.46	14.91
Q2	0.83	3.81	1.98	3.22	3.95	3.72	4.44	2.24	0.83	3.02	4.44
Q3	2.41	9.50	17.81	3.81	18.81	29.35	5.91	23.02	2.41	13.83	29.35
Q4	2.50	4.11	20.78	4.24	6.22	4.02	24.21	23.71	2.50	11.22	24.21
Q5	2.91	14.57	22.13	5.91	20.99	16.17	23.14	35.93	2.91	17.72	35.93
Q6	0.17	4.63	0.64	6.64	4.91	4.55	4.66	1.08	0.17	3.41	6.64
Q7	1.83	23.61	30.04	56.22	13.24	50.56	25.92	15.68	1.83	27.14	56.22
Q8	2.28	31.88	14.96	27.08	21.57	43.35	12.47	30.25	2.28	22.98	43.35
Q9	9.97	30.36	14.85	62.96	31.78	11.85	23.72	18.61	9.97	25.51	62.96
Q10	2.61	15.25	33.08	15.16	22.07	7.64	34.03	5.91	2.61	16.97	34.03
Q11	5.49	8.56	7.28	10.09	9.94	8.47	8.81	8.99	5.49	8.45	10.09
Q12	1.47	44.58	15.03	15.90	31.74	59.25	39.89	2.64	1.47	26.31	59.25
Q13	16.46	18.81	22.11	22.98	22.21	43.07	25.67	18.33	16.46	23.71	43.07
Q14	0.86	2.75	1.39	4.22	1.66	1.75	2.49	2.20	0.86	2.17	4.22
Q15	1.20	3.33	1.80	3.17	7.80	2.50	3.24	3.25	1.20	3.29	7.80
Q16	1.97	27.33	4.69	4.38	6.25	5.70	6.64	3.63	1.97	7.57	27.33
Q17	1.23	21.42	26.98	35.36	7.10	13.82	41.54	57.16	1.23	25.58	57.16
Q18	13.47	67.75	96.43	94.12	107.65	57.50	115.39	99.18	13.47	81.44	115.39
Q19	1.30	39.53	36.79	40.18	40.72	26.69	36.16	42.47	1.30	32.98	42.47
Q20	2.52	14.75	15.44	11.22	23.56	10.58	12.06	6.75	2.52	12.11	23.56
Q21	8.41	73.88	76.67	48.28	51.03	74.02	24.40	85.74	8.41	55.30	85.74
Q22	1.94	36.01	27.03	31.31	28.41	37.57	20.39	24.65	1.94	25.91	37.57
RF1	22.10	36.72	36.50	36.70	36.51	39.58	38.07	37.02	22.10	35.40	39.58
RF2	22.96	32.12	29.18	30.39	33.54	32.33	32.13	33.51	22.96	30.77	33.54