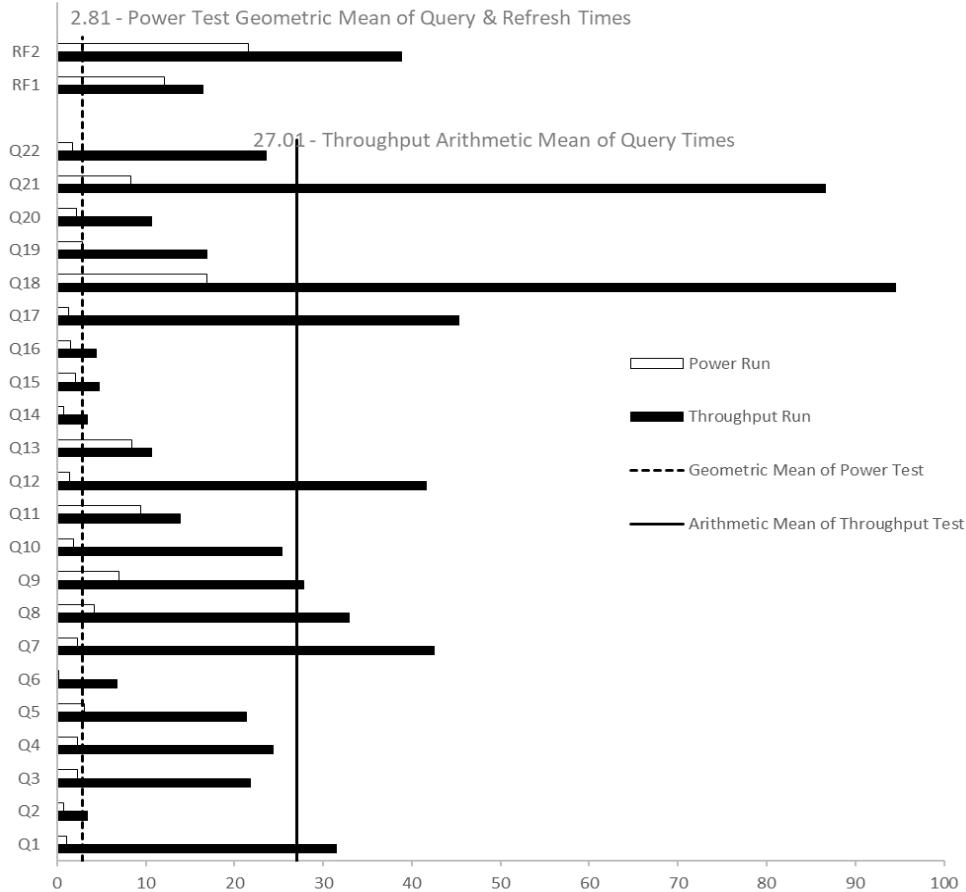
 Hewlett Packard Enterprise		HPE ProLiant DL385 Gen11		TPC-H Rev. 3.0.1 TPC Pricing Rev. 2.9.0	
Total System Cost		Composite Query per Hour Rating		Report Date: October 1, 2024	
\$1,190,460 USD		3,401,383 QpH @ 3,000GB		\$350 USD \$/kQpH @ 3,000GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date	
3,000GB	Microsoft® SQL Server 2022 Enterprise Edition	Microsoft Windows Server 2025	None	December 2, 2024	



Database Load Time = 0d 9h 20m 41s	Storage Redundancy Level	
Load included backup: Y	Base Tables and Auxiliary Data Structures	No RAID
Total Data Storage / Database Size = 14.21	DBMS Temporary Space	No RAID
Memory/Database Size = 102.4%	OS and DBMS Software	RAID 1

System Components	System Total
Nodes:	1
AMD® EPYC 9575F @ 3.29 GHz:	2
Cores/Threads:	128/256
Memory:	3,072 GiB
3.2TB E3S Drives	12
3.2TB NVMe Drives	2
RAID1 Boot Controller with 480GB M.2 NVMe	2
Total Storage:	42,617.32 GiB

HPE ProLiant DL385 Gen11

Report Date: October 1, 2024

Description	Price Key	Part Number	Unit Price	Qty	Extended Price	3 Yr Maint Price
Server Hardware						
HPE DL385 Gen11 12EDSFF CTO Svr	1	P53929-B21	\$4,867	1	\$4,867	
AMD EPYC 9575F 64C CPU for HPE	1	P72758-B21	\$22,623	2	\$45,246	
HPE DL3X5 Gen11 Perf 2U Heat Sink Kit	1	P58459-B21	\$256	1	\$256	
HPE DL3X5 Gen11 2U Perf Fan Kit	1	P58465-B21	\$160	1	\$160	
HPE 128GB 2Rx4 PC5-6400B-R Smart Kit	1	P69730-B21	\$11,676	24	\$280,224	
HPE 1600W FS Plat Ht Plg LH Pwr Sply Kit	1	P38997-B21	\$751	2	\$1,502	
MLX MCX623106AS 100GbE 2p QSFP56 Adptr	1	P25960-B21	\$4,373	1	\$4,373	
HPE 48U 600x1075mm Adv G2 Kit Pilt Rack	1	P9K19A	\$3,023	1	\$3,023	
HPE 3 Year Total Care Essential for DL385 Gen11	1	H79N7E	\$5,364	1		\$5,364
Subtotal					\$339,651	\$5,364
Storage						
HPE 3.2TB NVMe MU E3S EC1 CM7 SSD	1	P61191-B21	\$6,900	12	\$82,800	
HPE 3.2TB NVMe MU SFF BC U.3 PM1735a SSD	1	P50230-B21	\$6,476	2	\$12,952	
HPE NS204i-u Gen11 Ht Plg Boot Opt Dev	1	P48183-B21	\$1,994	1	\$1,994	
HPE MR416i-p Gen11 SPDM Storage Cntrl	1	P47777-B21	\$3,955	1	\$3,955	
HPE DL3X5 G11 NS204i-u NVMe Boot Cbl Kit	1	P57013-B21	\$83	1	\$83	
HPE DL385 Gen11 20EDSFF x4 FIO Kit	1	P64383-B21	\$1,192	1	\$1,192	
HPE DL385 G11 2 SFF NVME U.3 x4 drive cage kit	1	P55091-B21	\$1,145	1	\$1,145	
HPE Gen 11 EI Rail Kit	1	P52351-B21	\$141	1	\$141	
HPE DL385G10 Standard Riser	1	standardDL325G10Riser		1		
Subtotal					\$104,262	\$0
Other						
HP V22v G5 FHD Monitor + Wireless Mouse and Keyboard Bundle	3	65P56AA 18H24AA	\$100	3	\$300	
Subtotal					\$300	\$0
Software Components						
SQL Server 2022 Enterprise Edition for Linux (2 core license, 64 cores)	2	N/A	\$15,123	64	\$967,872	
Microsoft Problem Resolution Services	2	N/A	\$259	1		\$259
MS WS25 16C DC Add Lic WW SW(16 Core license)	1	P77107-B21	\$6,826.00	8	\$54,608	
Subtotal					\$1,022,480	\$259
Total Extended Price					\$1,472,057	\$5,623
Total Discounts					\$282,125	\$2,950.00
Price Key: 1 - HPE , 2 – Microsoft, 3 – Hewlett Packard Inc.		Grand Total			\$1,189,931.97	\$2,673.00
Audited by Doug Johnson of InfoSizing (www.sizing.com)						
All discounts are based on US list prices and for similar quantities and configurations. A 60% discount was based on the overall specific components pricing from vendor 1 except 23% only for Software Component 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:			\$1,190,460	
		QphH @ 3,000GB :			3,401,383.1	
		\$ USD/QphH @ 3,000GB			\$350.00	
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	3,000
Total Data Storage / Database Size	14.21
Percentage Memory / Database Size	102.4%
Start of Database Load	2024-09-02 14:02:32
End of Database Load	2024-09-02 23:45:39
Database Load Time	00d 9h 20m 41s
Query Streams for Throughput Test	8
TPC-H Power	3842226.3
TPC-H Throughput	3011120.6
TPC-H Composite Query-per-Hour (QphH@3,000GB)	3401383.1
Total System Price over 3 Years (\$ USD)	\$1,190,460
TPC-H Price/Performance Metric (\$ USD / kQphH@3,000GB)	\$350.00

Measurement Interval

Measurement Interval in Throughput Test **631.26 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
	902234539	2024-09-03 00:05:08	00:01:24	2024-09-03 00:04:56	2024-09-03 00:06:32
		2024-09-03 00:06:32		2024-09-03 00:05:08	2024-09-03 00:06:53
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	902234540	2024-09-03 00:06:53	00:10:02	2024-09-03 00:06:52	2024-09-03 00:07:09
		2024-09-03 00:16:55		2024-09-03 00:07:09	2024-09-03 00:07:43
2	902234541	2024-09-03 00:06:53	00:07:33	2024-09-03 00:07:43	2024-09-03 00:08:00
		2024-09-03 00:14:26		2024-09-03 00:08:00	2024-09-03 00:08:36
3	902234542	2024-09-03 00:06:53	00:10:22	2024-09-03 00:08:36	2024-09-03 00:08:52
		2024-09-03 00:17:15		2024-09-03 00:08:52	2024-09-03 00:09:36
4	902234543	2024-09-03 00:06:53	00:10:09	2024-09-03 00:09:37	2024-09-03 00:09:55
		2024-09-03 00:17:02		2024-09-03 00:09:55	2024-09-03 00:10:38
5	902234544	2024-09-03 00:06:53	00:09:57	2024-09-03 00:10:38	2024-09-03 00:10:56
		2024-09-03 00:16:50		2024-09-03 00:10:56	2024-09-03 00:11:32
6	902234545	2024-09-03 00:06:53	00:10:21	2024-09-03 00:11:32	2024-09-03 00:11:48
		2024-09-03 00:17:14		2024-09-03 00:11:48	2024-09-03 00:12:35
7	902234546	2024-09-03 00:06:53	00:10:23	2024-09-03 00:12:35	2024-09-03 00:12:51
		2024-09-03 00:17:16		2024-09-03 00:12:51	2024-09-03 00:13:24
8	902234547	2024-09-03 00:06:53	00:10:32	2024-09-03 00:13:25	2024-09-03 00:13:41
		2024-09-03 00:17:25		2024-09-03 00:13:40	2024-09-03 00:14:18

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	Min Qi	Max Qi	Avg. Qi
Q1	1.05	3.95	53.50	36.63	36.37	23.62	31.28	30.53	35.69	1.05	28.07	53.50
Q2	0.75	2.42	1.56	4.25	2.42	2.94	3.36	7.91	2.41	0.75	3.11	7.91
Q3	2.34	43.61	21.33	13.50	5.23	21.31	16.52	21.09	31.63	2.34	19.62	43.61
Q4	2.28	4.33	9.09	13.58	24.52	33.20	27.28	46.16	36.55	2.28	21.89	46.16
Q5	3.11	26.81	17.34	24.47	22.81	12.77	6.95	25.30	34.80	3.11	19.37	34.80
Q6	0.22	9.72	0.45	13.98	5.91	14.44	3.59	0.60	5.56	0.22	6.05	14.44
Q7	2.33	44.86	9.16	56.06	58.25	57.06	24.39	63.80	26.83	2.33	38.08	63.80
Q8	4.19	22.75	26.70	13.84	22.47	16.45	49.72	74.48	37.42	4.19	29.78	74.48
Q9	6.98	13.98	15.92	51.25	41.41	13.25	21.38	17.41	48.11	6.98	25.52	51.25
Q10	1.88	44.03	2.99	25.53	6.77	45.17	33.91	11.67	33.31	1.88	22.81	45.17
Q11	9.44	21.91	12.09	11.28	11.91	10.37	15.28	16.59	11.92	9.44	13.42	21.91
Q12	1.45	80.42	16.63	49.94	24.88	46.91	80.02	4.99	29.00	1.45	37.14	80.42
Q13	8.38	9.91	11.17	11.50	9.39	10.59	11.94	10.39	10.61	8.38	10.43	11.94
Q14	0.77	2.31	7.47	3.25	1.66	2.64	1.55	3.23	5.09	0.77	3.11	7.47
Q15	2.13	3.50	4.23	3.77	4.86	6.09	3.98	6.08	5.47	2.13	4.46	6.09
Q16	1.55	3.03	6.50	2.97	2.37	3.88	8.49	3.59	4.31	1.55	4.08	8.49
Q17	1.31	26.66	40.08	33.56	49.19	72.11	68.69	26.63	45.08	1.31	40.37	72.11
Q18	16.95	105.23	109.80	97.20	84.03	58.05	101.06	116.44	84.16	16.95	85.88	116.44
Q19	2.91	3.69	11.52	7.94	73.05	6.19	13.50	6.77	12.39	2.91	15.33	73.05
Q20	2.25	7.97	6.98	9.67	5.50	6.64	11.75	27.48	9.31	2.25	9.73	27.48
Q21	8.28	104.80	60.75	112.94	94.67	109.33	48.20	66.11	95.83	8.28	77.88	112.94
Q22	1.75	15.24	7.42	24.36	20.42	23.17	37.72	35.16	25.37	1.75	21.18	37.72
RF1	12.10	15.16	17.25	15.77	18.16	17.59	15.94	16.33	15.86	12.10	16.02	18.16
RF2	21.62	34.03	35.73	44.78	43.20	35.58	46.89	33.25	37.49	21.62	36.95	46.89