

 <b>Hewlett Packard Enterprise</b>		<b>HPE ProLiant DL385 Gen11</b>		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	
<b>\$1,178,568 USD</b>		<b>2,405,162.5</b> QphH @ 3,000GB		<b>\$490.02 USD</b> \$/kQphH @ 3,000GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date	
<b>3,000GB</b>	<b>Microsoft® SQL Server 2022 Enterprise Edition</b>	<b>Microsoft Windows Server 2022</b>	<b>None</b>	<b>April 3, 2023</b>	



Database Load Time = <b>0d 16h 38m 05s</b>	<b>Storage Redundancy Level</b>	
Load included backup: <b>Y</b>	Base Tables and Auxiliary Data Structures	<b>No RAID</b>
Total Data Storage / Database Size = <b>8.25</b>	DBMS Temporary Space	<b>No RAID</b>
Memory/Database Size = <b>102.4%</b>	OS, transaction logs and DBMS Software	<b>RAID 1</b>

System Components	System Total
Nodes:	1
AMD® EPYC 9554 @ 3.1GHz:	2
Cores/Threads:	128/256
Memory:	3,072 GiB
1.6TB NVMe Drives	12
3.2TB NVMe Drives	2
RAID1 Boot Controller with 480GB M.2 NVMe	2
<b>Total Storage:</b>	<b>24,735.93 GiB</b>



# 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
<b>Server Hardware</b>						
HPE DL385 Gen11 8SFF CTO Server	1	P53921-B21	\$3,829	1	\$3,829	
AMD EPYC 9554 CPU for HPE	1	P53848-B21	\$20,694	2	\$41,388	
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 128GB 4Rx4 PC5-4800B-R 3DS Smart Kit	1	P50313-B21	\$13,497	24	\$323,928	
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
		<b>Subtotal</b>			<b>\$375,569</b>	<b>\$5,364</b>
<b>Storage</b>						
HPE 1.6TB NVMe MU SFF BC U.3 PM1735a SSD	1	P50227-B21	\$4,025	12	\$48,300	
HPE 3.2TB NVMe MU SFF BC U.3 PM1735a SSD	1	P50230-B21	\$6,476	2	\$12,952	
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	\$13	1	\$13	
MR416i-p Cntrl for HPE Gen11	1	P47777-B21	\$3,933	1	\$3,933	
HPE DL385 G11 8NVMex4 DA Cbl Kit (BOX1)	1	P57855-B21	\$185	1	\$185	
HPE DL385 G11 8NVMex4 DA Cbl Kit (BOX2)	1	P57854-B21	\$135	1	\$135	
HPE DL385 G11 8NVMex4 DA Cbl Kit (BOX3)	1	P57853-B21	\$167	1	\$167	
HPE DL385 G11 8SFF x4 U.3 BP Cage Kit	1	P55083-B21	\$83	3	\$249	
HPE DL385 Gen11 16NVMe U.3 Bal FIO Kit	1	P59756-B21	\$0	1	\$0	
HPE DL385 G11 2 SFF NVMe U.3 enablement kit	1	P55091-B21	\$369	1	\$369	
HPE Gen 11 EI Rail Kit	1	P52351-B21	\$34	1	\$34	
HPE DL385G10 Standard Riser	1	standardDL325G10Riser		1		
		<b>Subtotal</b>			<b>\$68,341</b>	<b>\$0</b>
<b>Other</b>						
HP V22v G5 FHD Monitor	3	65P56AA	\$130	3	\$390	
		<b>Subtotal</b>			<b>\$390</b>	<b>\$0</b>
<b>Software Components</b>						
SQL Server 2022 Enterprise Edition (2 core license, 64 cores)	2	N/A	\$15,123	64	\$967,872	
Microsoft Problem Resolution Services	2	N/A	\$259	1		\$259
Windows Server 2022 Standard Edition (2 processor license)	2	N/A	\$123.00	64	\$7,872	
		<b>Subtotal</b>			<b>\$975,744</b>	<b>\$259</b>
		Total Extended Price			\$1,420,044	\$5,623
		Total Discounts			\$244,150	\$2,950.00
Price Key: 1 - HPE , 2 - Microsoft, 3 - Hewlett Packard Inc.		<b>Grand Total</b>			<b>\$1,175,894.03</b>	<b>\$2,673.00</b>
<b>Audited by Doug Johnson of InfoSizing (www.sizing.com)</b>		<b>3 year cost of ownership USD:</b>				<b>\$1,178,568</b>
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.		<b>QpH @ 3,000GB :</b>				<b>2,405,162.5</b>
		<b>\$ USD/QpH @ 3,000GB</b>				<b>\$490.02</b>
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	8.25
Percentage Memory / Database Size	102.4%
Start of Database Load	2022-10-15 13:36:17
End of Database Load	2022-10-16 06:14:22
Database Load Time	00d 16h 38m 05s
Query Streams for Throughput Test	8
TPC-H Power	2,537,457.0
TPC-H Throughput	2,279,765.4
TPC-H Composite Query-per-Hour (QphH@3,000GB)	2,405,162.5
Total System Price over 3 Years (\$ USD)	\$1,178,568
TPC-H Price/Performance Metric (\$ USD / kQphH@3,000GB)	\$490.02

### Measurement Interval

Measurement Interval in Throughput Test **833.77 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
	1016061422	2022-10-16 07:00:17	00:02:04	2022-10-16 07:00:01	2022-10-16 07:02:21
		2022-10-16 07:02:21		2022-10-16 07:00:16	2022-10-16 07:03:00
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	1016061423	2022-10-16 07:02:59	00:12:43	2022-10-16 07:02:59	2022-10-16 07:03:20
		2022-10-16 07:15:42		2022-10-16 07:03:20	2022-10-16 07:04:08
2	1016061424	2022-10-16 07:02:59	00:13:26	2022-10-16 07:04:08	2022-10-16 07:04:31
		2022-10-16 07:16:25		2022-10-16 07:04:31	2022-10-16 07:05:14
3	1016061425	2022-10-16 07:02:59	00:12:24	2022-10-16 07:05:14	2022-10-16 07:05:34
		2022-10-16 07:15:23		2022-10-16 07:05:34	2022-10-16 07:06:20
4	1016061426	2022-10-16 07:02:59	00:13:54	2022-10-16 07:06:20	2022-10-16 07:06:40
		2022-10-16 07:16:53		2022-10-16 07:06:40	2022-10-16 07:07:42
5	1016061427	2022-10-16 07:02:59	00:13:47	2022-10-16 07:07:42	2022-10-16 07:08:01
		2022-10-16 07:16:46		2022-10-16 07:08:01	2022-10-16 07:08:48
6	1016061428	2022-10-16 07:02:59	00:13:13	2022-10-16 07:08:48	2022-10-16 07:09:12
		2022-10-16 07:16:12		2022-10-16 07:09:12	2022-10-16 07:09:57
7	1016061429	2022-10-16 07:02:59	00:13:36	2022-10-16 07:09:58	2022-10-16 07:10:23
		2022-10-16 07:16:35		2022-10-16 07:10:23	2022-10-16 07:11:09
8	1016061430	2022-10-16 07:02:59	00:13:24	2022-10-16 07:11:09	2022-10-16 07:11:37
		2022-10-16 07:16:23		2022-10-16 07:11:37	2022-10-16 07:12:24

**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
<b>Q1</b>	2.05	5.97	17.49	27.13	7.24	12.50	6.69	4.58	3.64	2.05	9.70	27.13
<b>Q2</b>	1.66	4.66	5.45	19.00	4.39	3.24	7.99	6.53	8.02	1.66	6.77	19.00
<b>Q3</b>	3.86	18.71	55.81	9.85	3.89	62.65	20.75	54.93	24.10	3.86	28.28	62.65
<b>Q4</b>	3.53	6.42	20.08	27.04	73.42	57.46	38.30	35.77	36.30	3.53	33.15	73.42
<b>Q5</b>	4.11	26.74	47.59	27.35	28.72	46.19	18.86	50.95	48.34	4.11	33.21	50.95
<b>Q6</b>	0.22	14.22	1.16	0.81	13.41	23.54	11.44	0.86	4.63	0.22	7.81	23.54
<b>Q7</b>	3.58	91.44	66.24	34.90	10.41	103.80	49.41	50.45	79.67	3.58	54.43	103.80
<b>Q8</b>	5.33	27.93	31.47	41.91	15.33	29.72	41.76	52.49	100.95	5.33	38.54	100.95
<b>Q9</b>	9.39	13.72	42.93	59.31	25.10	13.78	32.10	25.35	40.88	9.39	29.17	59.31
<b>Q10</b>	4.27	88.31	35.99	23.55	106.23	5.50	47.48	5.35	21.52	4.27	37.58	106.23
<b>Q11</b>	21.53	27.07	32.74	33.80	76.32	81.17	27.79	60.34	32.02	21.53	43.64	81.17
<b>Q12</b>	1.56	51.81	6.31	113.31	49.41	29.82	40.69	47.40	13.30	1.56	39.29	113.31
<b>Q13</b>	15.21	17.91	20.02	17.16	18.16	22.49	18.93	17.96	21.10	15.21	18.77	22.49
<b>Q14</b>	0.94	1.91	1.39	3.56	2.88	3.41	2.72	4.03	4.42	0.94	2.81	4.42
<b>Q15</b>	3.56	22.79	5.33	8.77	6.25	4.64	6.24	6.94	7.55	3.56	8.01	22.79
<b>Q16</b>	3.39	6.45	6.33	4.97	4.86	7.31	14.14	5.97	7.81	3.39	6.80	14.14
<b>Q17</b>	2.17	32.91	58.43	70.28	75.37	40.48	83.48	41.94	43.26	2.17	49.81	83.48
<b>Q18</b>	16.13	96.91	125.25	61.04	129.04	137.01	100.86	93.95	75.82	16.13	92.89	137.01
<b>Q19</b>	3.09	13.02	31.85	5.00	29.75	5.42	9.35	31.33	27.21	3.09	17.34	31.85
<b>Q20</b>	3.97	10.06	33.21	26.74	3.97	12.55	43.24	15.28	14.21	3.97	18.14	43.24
<b>Q21</b>	11.88	170.90	148.76	85.79	140.12	98.80	135.94	129.22	175.39	11.88	121.87	175.39
<b>Q22</b>	2.25	12.60	11.22	42.44	9.36	24.82	33.80	72.93	12.39	2.25	24.65	72.93
<b>RF1</b>	15.33	20.43	23.14	19.83	19.93	18.93	24.10	25.58	28.24	15.33	21.72	28.24
<b>RF2</b>	38.19	47.43	43.02	46.12	61.40	46.98	45.20	45.70	46.80	38.19	46.76	61.40