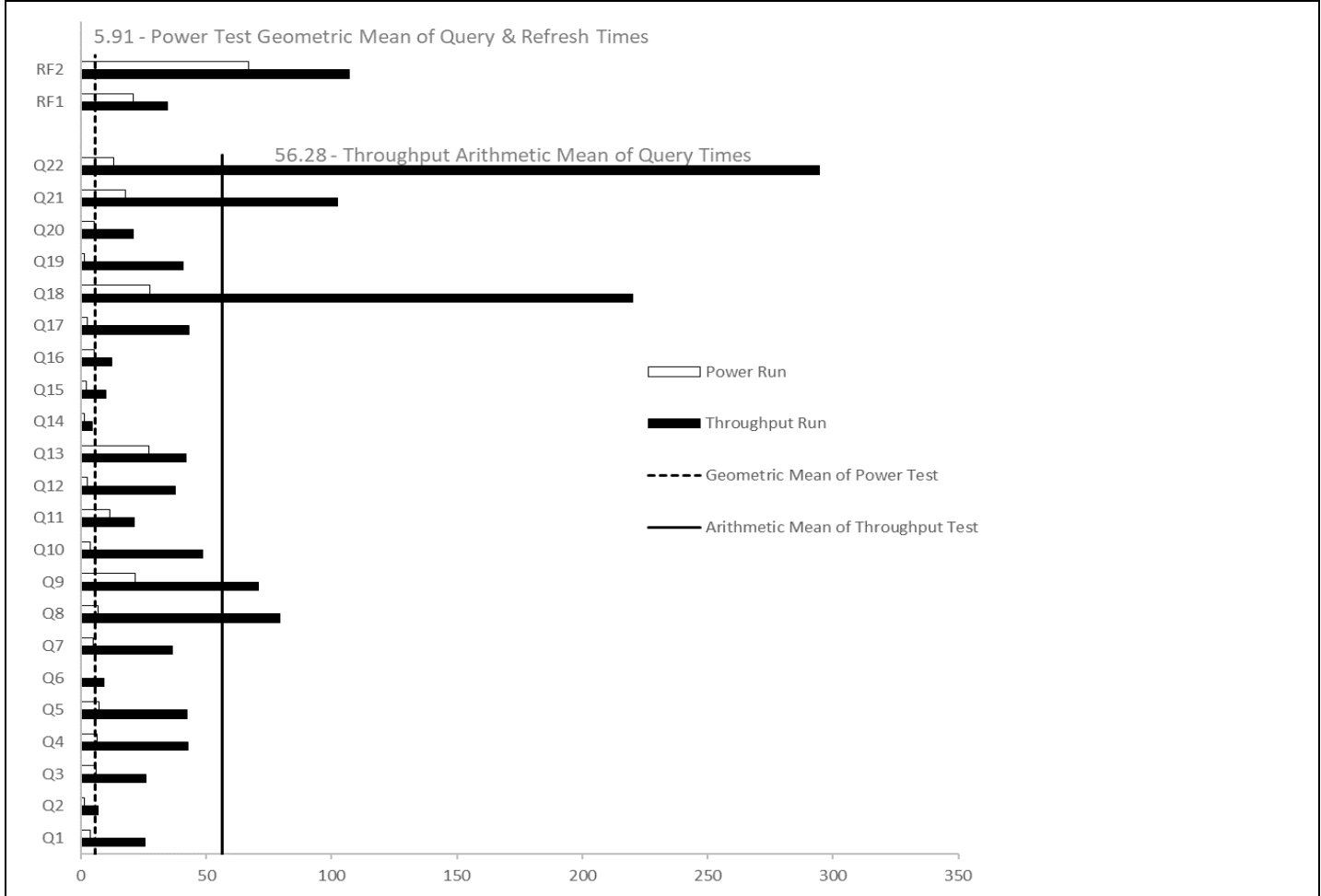


	<h1>PowerEdge R7525 Server</h1>	TPC-H Rev. 3.0.0 TPC Pricing Rev. 2.7.0
		Report Date: July 1, 2021

Total System Cost	Composite Query per Hour Rating	Price/Performance
\$504,996.00	1,542,560.40 QphH@3000 GB	\$327.38 \$/kQphH@3000GB

Database Size	Database Manager	Operating System	Other Software	Availability Date
3,000 GB	Microsoft® SQL Server 2019 Enterprise Edition	Red Hat® Enterprise Linux® 8.3	N/A	July 1, 2021



Database load Time = 00d 01h 55m 34s	Storage Redundancy Level	
Load Includes Backup: Y	Base Tables and Auxiliary Data Structures	No RAID
Total Data Storage/Database Size = 6.16	DBMS Temporary Space	No RAID
Percentage Memory/ Database size = 68.3 %	OS and DBMS Software	RAID 1
	Log	RAID 10
System Configuration:	Dell PowerEdge R7525 Server	
Processors/Model:	2 * AMD EPYC 75F3 2.9GHz, 32C/64T, 256M Cache (280W) DDR4-3200	
Cores/Threads:	64C/128T	
Memory:	2048 GB (16x 128GB LRDIMM,3200MT/s, Quad Rank)	
Storage:	BOSS controller card + with 2 M.2 Sticks 480GB (RAID 1), LP, 4 * 800GB SSD SAS Mix Use 12Gbps512e 2.5in Hot-plug AG Drive,3 DWPD, 3 * 960GB SSD SAS Read Intensive12Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD, 8 * Dell 1.6TB, NVMe, Mixed Use Express Flash, 2.5 SFF Drive, U.2, P4610 with Carrier	
Total Storage:	18,477.39	



PowerEdge R7525 Server

TPC-H Rev. 3.0.0
 TPC Pricing Rev. 2.7.0
 Report Date: July 1, 2021

Description	Part Number	Source	Unit Price	Qty	Ext. Price \$	3 Yr Maint. Price
PowerEdge R7525 Server	210-AUVQ		\$200.00	1	\$200.00	
SAS/SAT/NVMe Capable Backplane	379-BDSW		\$0	1	\$0	
No Trusted Platform Module	461-AADZ		\$0	1	\$0	
16X 2.5 SAS/SATA + 8X 2.5 NVMe without XGM	321-BFEE		\$610	1	\$610	
AMD EPYC 75F3 2.9GHz, 32C/64T, 256M Cache (280W) DDR4-3200	338-BZRK		\$8,299	2	\$16,598	
Additional Processor Selected	379-BDCO		\$0.00	1	\$0.00	
Heatsink for 2 CPU + GPU/FPGA/Full Length card configs configuration	412-ASZ		\$199.00	1	\$199.00	
Performance Optimized	370-AAIP		\$0.00	1	\$0.00	
3200MT/s LRDIMMs	370-AFNV		\$0.00	1	\$0.00	
128GB LRDIMM, 3200MT/s, QuadRank	370-AGEW		\$4,299.00	16	\$68,784.00	
Unconfigured RAID	780-BCDS		\$0.00	1	\$0.00	
PERC H755 SAS Front	405-AAZB		\$1,449.00	1	\$1,449.00	
Front PERC Mechanical Parts,rear load	750-ACFQ		\$0.00	1	\$0.00	
800GB SSD SAS Mix Use 12Gbps12e 2.5in Hot-plug AG Drive,3 DWPD,	400-AZOO		\$1,360.00	4	\$5,440.00	
960GB SSD SAS Read Intensive12Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD,	400-AXOU		\$1,115.00	3	\$3,345.00	
Dell 1.6TB, NVMe, Mixed Use Express Flash, 2.5 SFF Drive, U.2, P4610 with Carrier	400-BELT		\$2,749.00	8	\$21,992.00	
Performance BIOS Settings	384-BBBL		\$0.00	1	\$0.00	
UEFI BIOS Boot Mode with GPTPartition	800-BBDM		\$0.00	1	\$0.00	
Very High Performance Fan x6	750-ACSM		\$289.00	1	\$289.00	
Dual, Hot-Plug,Power Supply Redundant (1+1), 1400W ART, Mixed Mode	450-AJHI		\$1,169.00	1	\$1,169.00	
Jumper Cord - C13/C14, 0.6M,250V, 13A (North American, Guam, North Marianas, Philippines, Sar	492-BBDH		\$20.00	2	\$40.00	
Riser Config 3, Half Length,5 x16 slots	330-BBPI		\$469.00	1	\$469.00	
R7525 Motherboard with LOM,MLK	384-BCUP		\$0.00	1	\$0.00	
IDRAC9,Enterprise 15G	385-BBOT		\$489.00	1	\$489.00	
Broadcom 57414 Dual Port 10/25GbE SFP28, OCP NIC 3.0	540-BCOC		\$709.00	1	\$709.00	
PowerEdge 2U Standard Bezel	325-BCHU		\$49.00	1	\$49.00	
BOSS controller card + with 2 M.2 Sticks 480GB (RAID 1),LP	403-BCHH		\$1,499.00	1	\$1,499.00	
Quick Sync 2 (At-the-box mgmt)	350-BBYW		\$89.00	1	\$89.00	
IDRAC,Legacy Password	379-BCSG		\$0.00	1	\$0.00	
IDRAC Group Manager, Enabled	379-BCQV		\$0.00	1	\$0.00	
No Operating System	611-BBBF		\$0.00	1	\$0.00	
No Media Required	605-BBFN		\$0.00	1	\$0.00	
ReadyRails Sliding Rails	770-BBBQ		\$149.00	1	\$149.00	
Assembly BOSS Blank	329-BERC		\$0.00	1	\$0.00	
Fan Foam, HDD 2U	750-ACOM		\$0.00	1	\$0.00	
No Systems Documentation, NoOpenManage DVD Kit	631-AACK		\$0.00	1	\$0.00	
PowerEdge R7525 Shipping	340-COFR		\$0.00	1	\$0.00	
R7525 Shipping Material	481-BBFE		\$0.00	1	\$0.00	
PowerEdge R7525 no CE or with CCC Marking	389-DUZG		\$0	1	\$0.00	
Prosupport and 4 Hrs Mission Critical (36 Months)	865-BBNB		\$11,998	1	\$0.00	\$11,998.00
Basic Next Business Day 36 Months	709-BBFM		\$200.01	1	\$0.00	\$200.01
On-Site Installation Declined	900-9997		\$0	1	\$0.00	\$0.00
					Sub Total	\$123,568.00
					Discounted Price	-67,962.40
					Server Subtotal	55,605.60
						5,489.10
Logitech MK120 USB Keyboard and Mouse Combo (1+2 SPARE)	A6999510		\$19.99	3	59.97	
					Discounted Price	-8.40
Dell 24 Monitor - E2420H, 60.5cm (23.8")	210-AUNE		\$199	1	199.00	
Dell Limited Hardware Warranty	814-9340		\$0	1	0.00	
Advanced Exchange Service, 3 Years	814-9341		\$0	1	0.00	
					Discounted Price	-59.70
					Peripheral Subtotal	190.87
					Hardware Subtotal	55,796.47
SOFTWARE						
SQL SERVER 2019 Enterprise Edition for Windows (2 cores license, 32Cores)	NA		\$13,748.00	32	439,936.00	
Red Hat Enterprise Linux Server, Premium (Physical or Virtual Nodes), 3 Year x 1	RH00003F3		\$3,515.20	1	3,515.20	
Microsoft Problem Resolution Services	NA		\$259.00	1		259.00
					Software Subtotal	443,451.20
					Total	499,247.67
						5,748.10
Source: 1: DELLEMC 2. MICROSOFT						
Audited by Doug Johnson of InfoSizing (www.sizing.com)	Three Year cost Ownership					\$504,996.00
All discounts are based on US list prices and for similar quantities and configurations. The discounts was based on the overall specific components pricing from respective vendors 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 @3000					1,542,560.40
	\$kQpH @1000					\$327.38
Dell EMC Sales Contact: Microsoft.Assist@dell.com						
Windows and SQL Server Sales Contact: 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 the TPC at pricing@tpc.org. Thank you.						



Numerical Quantities

Measurement Results

Database Scale Factor : 3000
 Total Data Storage / Database Size : 6.16
 Percentage Memory / Database Size : 68.3%
 Start of Database Load : 2021-06-18 16:08:13
 End of Database Load : 2021-06-18 18:03:46
 Database Load Time h m s : 00d 01h 55m 34s
 Query Streams for Throughput Test : 8
 TPC-H Power : 1,826,768.8
 TPC-H Throughput : 1,302,569.1
 TPC-H Composite Query-per-Hour (QphH@3000 GB) : 1,542,560.4
 Total System Price over 3 Years (\$ USD) : USD 504,996.00
 TPC-H Price/Performance Metric (\$ USD / kQphH@3000 GB) : USD 327.38

Measurement Interval

Measurement Interval in Throughput Test (Ts) : 1,459.27

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
618180346	618180346	2021-06-18 22:06:00	00:03:02	2021-06-18 22:05:37	2021-06-18 22:09:04
		2021-06-18 22:09:02		2021-06-18 22:05:58	2021-06-18 22:10:12
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	618180347	2021-06-18 22:10:11	00:16:48	2021-06-18 22:10:11	2021-06-18 22:10:47
		2021-06-18 22:26:59		2021-06-18 22:10:47	2021-06-18 22:12:34
2	618180348	2021-06-18 22:10:11	00:23:48	2021-06-18 22:12:34	2021-06-18 22:13:09
		2021-06-18 22:33:59		2021-06-18 22:13:09	2021-06-18 22:14:57
3	618180349	2021-06-18 22:10:11	00:24:04	2021-06-18 22:14:57	2021-06-18 22:15:29
		2021-06-18 22:34:15		2021-06-18 22:15:29	2021-06-18 22:17:21
4	618180350	2021-06-18 22:10:11	00:16:55	2021-06-18 22:17:21	2021-06-18 22:18:03
		2021-06-18 22:27:06		2021-06-18 22:18:03	2021-06-18 22:19:49
5	618180351	2021-06-18 22:10:11	00:24:20	2021-06-18 22:19:49	2021-06-18 22:20:21
		2021-06-18 22:34:31		2021-06-18 22:20:21	2021-06-18 22:22:11
6	618180352	2021-06-18 22:10:11	00:17:23	2021-06-18 22:22:11	2021-06-18 22:22:43
		2021-06-18 22:27:34		2021-06-18 22:22:43	2021-06-18 22:24:21
7	618180353	2021-06-18 22:10:11	00:17:44	2021-06-18 22:24:21	2021-06-18 22:25:00
		2021-06-18 22:27:55		2021-06-18 22:25:00	2021-06-18 22:26:55
8	618180354	2021-06-18 22:10:12	00:24:10	2021-06-18 22:26:55	2021-06-18 22:27:26
		2021-06-18 22:34:22		2021-06-18 22:27:26	2021-06-18 22:29:08



PowerEdge R7525 Server

TPC-H Rev. 3.0.0
 TPC Pricing Rev. 2.7.0
 Report Date: July 1, 2021

TPC-H Timing Intervals (Seconds)

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
0	3.69	1.33	6.30	6.66	7.45	0.33	5.00	6.76	21.85	3.94	11.62	2.70
1	34.94	7.09	44.76	17.50	59.84	14.65	32.42	37.07	93.87	56.90	22.77	23.44
2	6.16	7.75	8.05	12.95	43.45	4.41	12.53	90.96	81.01	80.42	20.66	11.37
3	37.21	6.87	12.79	43.86	23.37	8.52	60.60	38.34	56.08	8.87	19.11	22.23
4	24.34	3.66	18.32	64.44	33.95	10.80	59.39	58.16	67.91	79.02	30.47	54.66
5	5.22	4.03	21.55	40.42	41.92	11.92	44.24	34.66	29.62	18.38	18.41	70.19
6	42.10	11.17	52.55	46.46	56.34	10.72	36.84	118.89	61.23	52.05	25.07	17.19
7	6.38	11.36	22.01	82.87	46.34	0.84	21.66	152.25	70.62	22.14	16.94	5.16
8	48.00	3.81	28.21	34.60	32.40	11.37	24.14	104.98	106.40	70.18	18.03	97.47
QI Min	3.69	1.33	6.30	6.66	7.45	0.33	5.00	6.76	21.85	3.94	11.62	2.70
QI Avg	23.12	6.34	23.84	38.86	38.34	8.17	32.98	71.34	65.40	43.54	20.34	33.82
QI Max	48.00	11.36	52.55	82.87	59.84	14.65	60.60	152.25	106.40	80.42	30.47	97.47
Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
0	26.99	1.38	2.28	5.42	2.55	27.39	1.34	5.21	17.73	12.96	20.78	67.13
1	69.38	1.91	11.42	18.45	35.83	175.48	26.08	22.67	145.04	56.20	35.07	106.98
2	29.42	3.48	11.15	11.15	55.66	140.58	53.90	12.61	94.43	635.02	35.43	107.55
3	28.21	4.69	7.91	6.61	72.99	326.33	28.03	13.92	65.95	551.03	31.88	111.63
4	37.31	5.80	14.56	15.83	42.03	145.92	59.63	13.29	146.59	28.09	42.01	106.15
5	39.38	6.37	7.81	9.89	8.36	295.13	21.36	27.41	180.25	522.53	31.09	110.56
6	62.13	4.42	8.17	13.01	33.67	262.09	41.76	11.39	29.70	44.84	31.57	97.58
7	34.03	1.59	3.70	6.78	47.10	319.17	40.15	28.73	94.17	28.53	39.56	114.31
8	36.39	7.67	15.43	17.67	50.60	96.83	54.46	37.43	62.42	490.54	31.37	101.29
QI Min	26.99	1.38	2.28	5.42	2.55	27.39	1.34	5.21	17.73	12.96	20.78	67.13
QI Avg	40.36	4.15	9.16	11.65	38.75	198.77	36.30	19.18	92.92	263.30	33.20	102.58
QI Max	69.38	7.67	15.43	18.45	72.99	326.33	59.63	37.43	180.25	635.02	42.01	114.31