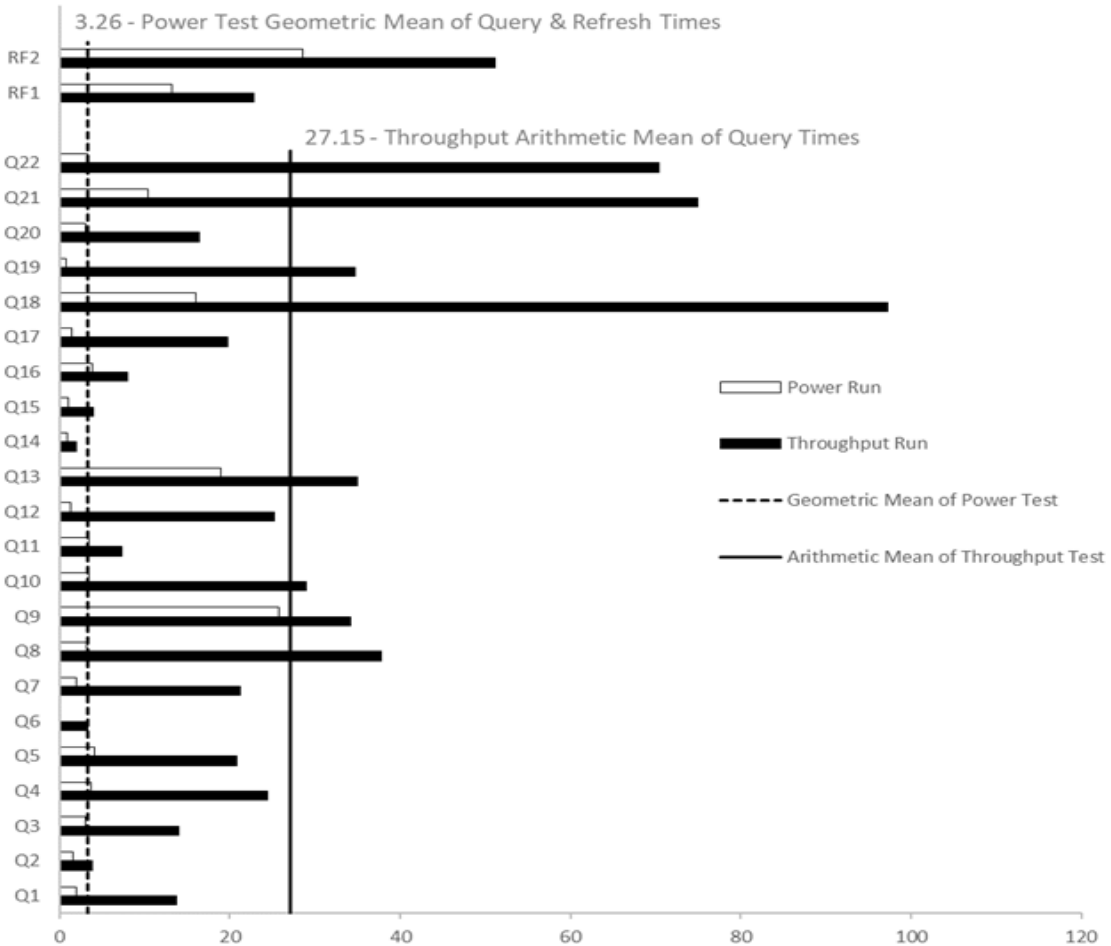
		PowerEdge R7515 Server		TPC-H Rev. 3.0.0 TPC Pricing Rev. 2.7.0
Total System Cost		Composite Query per Hour Rating		Report Date: April 28, 2021
\$263,658 USD		979,335.3 QphH@1000 GB		\$269.23 kQphH@1000GB
Database Size	Database Manager	Operating System	Other Software	Availability Date
1,000 GB	Microsoft® SQL Server 2019 Enterprise Edition	Red Hat® Enterprise Linux® 8	N/A	April 29, 2021



Database load Time = 00D 00H 52M 00S	Storage Redundancy Level	
Load Includes Backup: Y	Base Tables and Auxiliary Data Structures	No RAID
Total Data Storage/Database Size = 15.94	DBMS Temporary Space	No RAID
Percentage Memory/ Database size = 102.4 %	OS and DBMS Software	RAID 1
	Log	RAID 10
System Configuration: Dell PowerEdge R7515 Server (1S)		
Processors/Model:	1 x AMD EPYC 75F3 3.3GHz, 32C/64T, 256M Cache (280W) DDR4-3200	
Cores/Threads:	32C/64T	
Memory:	1024GiB (8 * 128 GB LRDIMM, 3200MT/s, Quad Rank)	
Storage:	BOSS controller card + with 2, 480G , 3 * 480GB SSD SATA read Intensive 6Gbps, 4 * 480GB SSD SAS Mixed use 12Gbps , 8 * Dell 1.6TB, NVMe, Mixed Use Express Flash, 2.5 SFF Drive, U.2 PM1725b	
Total Storage:	15,944.24 (GiB)	



PowerEdge R7515 Server

TPC-H Rev. 3.0.0
 TPC Pricing Rev. 2.7.0
 Report Date: Apr 28, 2021

Description	Part Number	Source	Unit Price	Qty	Ext. Price \$	3 Yr Maint. Price
PowerEdge R7515 Server	210-ASVQ	1	350.00	1	350.00	
2.5 Chassis	379-BDTF	1	0.00	1	0.00	
SAS/SATA/NVMe Capable Backplane	379-BDSW	1	0.00	1	0.00	
No Trusted Platform Module	461-AADZ	1	0.00	1	0.00	
Chassis with up to 24 x 2.5" Hard Drives Including Maximum of 12 NVMe Drives	321-BERS	1	640.00	1	640.00	
PowerEdge R7515 Shipping	340-CMZG	1	0.00	1	0.00	
PowerEdge R7515 Ship Material	340-CODN	1	0.00	1	0.00	
AMD EPYC 75F3 3.3GHz, 32C/64T, 256M Cache (280W) DDR4-3200	338-BZRK	1	8,299.00	1	8,299.00	
Standard Heatsink	412-AASE	1	0.00	1	0.00	
3200MT/s LRDIMMs	370-AFNV	1	0.00	1	0.00	
BOSS controller card + with 2 M.2 Sticks 480GB (RAID 1),LP	403-BCHH	1	1,499.00	1	1,499.00	
Performance Optimized	370-AAIP	1	0.00	1	0.00	
128GB LRDIMM, 3200MT/s, QuadRank	370-AGEW	1	4,299.00	8	34,392.00	
Unconfigured RAID	780-BCDS	1	0.00	1	0.00	
PERC H740P RAID Controller, 8Gb NV Cache, Minicard	405-AAMS	1	999.00	1	999.00	
iDRAC9,Enterprise 15G	385-BBOT	1	489.00	1	489.00	
iDRAC Group Manager, Enabled	379-BCQV	1	0.00	1	0.00	
iDRAC,Legacy Password	379-BCSG	1	0.00	1	0.00	
PowerEdge R7515 Motherboard, with 2 x 1Gb Onboard LOM (BCM5720) V2	384-BCNR	1	0.00	1	0.00	
Riser Config 2, 2 x 16 FH + 2 x 16 LP PCIe slot	330-BBNL	1	149.00	1	149.00	
480GB SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD	400-AXTV	1	400.00	3	1,200.00	
Dell 1.6TB, NVMe, Mixed Use Express Flash, 2.5 SFF Drive, U.2, P4610 with Carrier	400-BELT	1	2,749.00	8	21,992.00	
Broadcom 57414 Dual Port 25GbE OCP SFP28 LOM Mezz Card	540-BCKU	1	889.00	1	889.00	
480GB SSD SAS Mixed use 12Gbps 512e 2.5in Hot-Plug PM5-V Drive, 3 DWPD, 2628 TBW	400-BCQG	1	1,399.00	4	5,596.00	
Performance BIOS Settings	384-BBBL	1	0.00	1	0.00	
No Operating System	611-BBBF	1	0.00	1	0.00	
No Media Required	605-BBFN	1	0.00	1	0.00	
No Internal Optical Drive	429-AAIQ	1	0.00	1	0.00	
Dual, Hot-plug, Redundant Power Supply (1+1), 1600W, 250 Volt Power Cord Required for Use	450-AFMQ	1	850.00	1	850.00	
Jumper Cord - C13/C14, 4M, 250V, 12A (North America, Guam, North Marianas, Philippines, Samoa)	492-BBDV	1	0.00	2	0.00	
PowerEdge 2U Standard Bezel	350-BBWP	1	75.00	1	75.00	
High Performance Fan	750-AAWT	1	199.00	1	199.00	
ReadyRails Sliding Rails	770-BBBQ	1	149.00	1	149.00	
Quick Sync 2 (At-the-box mgmt)	350-BBKV	1	89.00	1	89.00	
Performance BIOS Settings	384-BBBL	1	0.00	1	0.00	
UEFI BIOS Boot Mode with GPTPartition	800-BBDM	1	0.00	1	0.00	
No Systems Documentation, NoOpenManage DVD Kit	631-AACK	1	0.00	1	0.00	
PowerEdge R7515 No CE or CCCMarking	343-BBPP	1	0.00	1	0.00	
US Order	332-1286	1	0.00	1	0.00	
Dell Hardware Limited Warranty Plus On-Site Service	827-1402	1	200.00	1	0.00	200.00
Prosupport and 4 Hrs Mission Critical (36 Months)	865-BBNB	1	9,409.00	1	0.00	9,409.00
ProSupport Plus: Next Business Day On-Site Service After Problem Diagnosis 3 Years	827-1332	1	0.00	1	0.00	0.00
Thank you for choosing Dell ProSupport Plus. For tech support, visit /www.dell.com/contactdell	951-2015	1	0.01	1	0.01	
On-Site Installation Declined	900-9997	1	0.00	1	0.00	
				Sub Total	77,856.01	9,609.00
Large Purchase Discount (55%)				Discounted Price	-42,820.81	-5,284.95
				Server Subtotal	35,035.20	4,324.05
Logitech MK120 USB Keyboard and Mouse Combo (1+2 SPARE)	A6999510	1	19.99	3	59.97	
Dell 24 Monitor - E2420H, 60.5cm (23.8") (1+2SPARE)	210-AUNE	1	195.49	3	586.47	
				Discounted Price	-90.50	
Peripheral Discount(14%)				Peripheral Subtotal	555.94	
				Hardware Subtotal	35,591.14	
SOFTWARE						
SQL SERVER 2019 Enterprise Edition for Linux (2 cores license, 32Cores)	NA	2	13,748.00	16	219,968.00	
Red Hat Enterprise Linux Server, Premium (Physical or Virtual Nodes), 3 Year x 1	RH00003F3	1	3,515.20	1	3,515.20	
Microsoft Problem Resolution Services	NA	2	259.00	1		259.00
				Software Subtotal	223,483.20	259.00
				Total	259,074.34	4,583.05
Source: 1: DELLEMC 2. MICROSOFT					Three Year cost Ownership	\$263,658.00
Audited by Doug Johnson of InfoSizing (www.sizing.com)					QpH @1000	979,335.30
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.					\$/kQpH @1000	\$269.23
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.						



PowerEdge R7515 Server

TPC-H Rev. 3.0.0
 TPC Pricing Rev. 2.7.0
 Report Date: Apr 28, 2021

Numerical Quantities

Measurement Results

Database Scale Factor	1000
Total Data Storage / Database Size	15.94
Percentage Memory / Database Size	102.4%
Start of Database Load	2021-04-19 17:18:11
End of Database Load	2021-04-19 18:10:11
Database Load Time h m s	00d 00h 52m 0s
Query Streams for Throughput Test	7
TPC-H Power	1,102,668.2
TPC-H Throughput	869,797.1
TPC-H Composite Query-per-Hour (QphH@1,000 GB)	979,335.3
Total System Price over 3 Years (\$ USD)	USD 263,658
TPC-H Price/Performance Metric (\$ USD / kQphH@1,000 GB)	USD 269.23

Measurement Interval

Measurement Interval in Throughput Test (Ts)	637.39
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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
	419181011	2021-04-19 18:14:42	00:01:54	2021-04-19 18:14:27	2021-04-19 18:16:39
		2021-04-19 18:16:36		2021-04-19 18:14:40	2021-04-19 18:17:07
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	419181012	2021-04-19 18:17:06	00:09:29	2021-04-19 18:17:06	2021-04-19 18:17:31
		2021-04-19 18:26:35		2021-04-19 18:17:31	2021-04-19 18:18:21
2	419181013	2021-04-19 18:17:06	00:10:18	2021-04-19 18:18:21	2021-04-19 18:18:46
		2021-04-19 18:27:24		2021-04-19 18:18:46	2021-04-19 18:19:37
3	419181014	2021-04-19 18:17:06	00:09:27	2021-04-19 18:19:37	2021-04-19 18:20:00
		2021-04-19 18:26:33		2021-04-19 18:20:00	2021-04-19 18:20:48
4	419181015	2021-04-19 18:17:07	00:09:41	2021-04-19 18:20:48	2021-04-19 18:21:12
		2021-04-19 18:26:48		2021-04-19 18:21:12	2021-04-19 18:22:02
5	419181016	2021-04-19 18:17:07	00:10:26	2021-04-19 18:22:03	2021-04-19 18:22:23
		2021-04-19 18:27:33		2021-04-19 18:22:23	2021-04-19 18:23:17
6	419181017	2021-04-19 18:17:07	00:09:49	2021-04-19 18:23:17	2021-04-19 18:23:40
		2021-04-19 18:26:56		2021-04-19 18:23:40	2021-04-19 18:24:31
7	419181018	2021-04-19 18:17:07	00:10:38	2021-04-19 18:24:31	2021-04-19 18:24:53
		2021-04-19 18:27:45		2021-04-19 18:24:53	2021-04-19 18:25:47



PowerEdge R7515 Server

TPC-H Rev. 3.0.0
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Report Date: Apr 28, 2021

TPC-H Timing Intervals (Seconds)

Stream ID	Stream 0	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5	Stream 6	Stream 7	QI Min	QI Avg	QI Max
Q1	1.91	3.63	28.11	18.83	4.80	17.75	17.39	5.88	1.91	12.29	28.11
Q2	1.59	3.19	6.81	3.95	2.52	2.38	3.16	4.84	1.59	3.56	6.81
Q3	2.99	18.83	7.30	7.08	10.25	24.56	15.70	13.86	2.99	12.57	24.56
Q4	3.64	7.39	29.30	33.44	33.63	10.03	29.47	27.97	3.64	21.86	33.63
Q5	4.14	27.00	39.72	22.30	19.22	12.22	14.97	10.44	4.14	18.75	39.72
Q6	0.13	4.81	0.63	5.08	3.22	3.89	5.83	0.16	0.13	2.97	5.83
Q7	2.02	17.06	12.31	29.50	46.85	30.13	9.44	2.80	2.02	18.76	46.85
Q8	3.23	35.32	21.94	35.58	37.58	50.41	41.89	42.18	3.23	33.52	50.41
Q9	25.78	38.35	38.85	35.44	37.75	34.02	39.71	15.35	15.35	33.16	39.71
Q10	3.44	46.50	35.52	17.80	45.27	19.91	35.24	2.70	2.70	25.80	46.50
Q11	3.39	8.34	6.80	7.25	6.24	8.31	8.09	6.30	3.39	6.84	8.34
Q12	1.31	17.92	41.30	34.74	17.70	39.08	24.77	1.36	1.31	22.27	41.30
Q13	18.89	45.96	45.16	31.74	23.30	32.13	41.64	24.64	18.89	32.93	45.96
Q14	0.88	2.00	1.09	2.27	3.70	2.09	2.16	0.80	0.80	1.87	3.70
Q15	1.00	3.38	4.34	3.48	7.13	4.42	4.16	1.03	1.00	3.62	7.13
Q16	3.80	6.75	5.97	11.06	6.30	12.72	8.81	3.97	3.80	7.42	12.72
Q17	1.44	21.99	31.17	9.03	35.77	10.45	16.55	12.84	1.44	17.41	35.77
Q18	15.97	95.85	90.73	63.16	94.37	124.63	126.12	85.87	15.97	87.09	126.12
Q19	0.81	35.16	41.69	29.69	37.75	37.42	43.66	17.95	0.81	30.52	43.66
Q20	3.09	11.38	12.52	19.38	9.67	19.38	20.19	21.88	3.09	14.69	21.88
Q21	10.33	85.73	76.04	97.16	66.57	85.99	48.30	64.44	10.33	66.82	97.16
Q22	3.33	30.99	39.32	47.30	31.02	43.57	30.78	269.82	3.33	62.02	269.82
RF1	13.14	23.21	24.49	23.10	23.61	20.77	22.74	21.81	13.14	21.61	24.49
RF2	28.63	50.30	50.88	48.32	50.33	53.27	51.41	53.63	28.63	48.35	53.63