
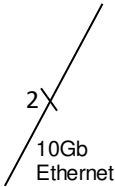
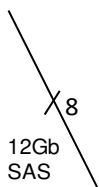


	Lenovo® ThinkSystem™ SR655		TPC-E™ 1.14.0 TPC Pricing 2.7.0
			Report Date: June 8, 2021 Revision Date: June 8, 2021
TPC-E Throughput 7,890.66 tpsE™	Price/Performance \$76.92 USD per tpsE	Availability Date June 15, 2021	Total System Cost \$606,896 USD
Database Server Configuration			
Operating System Microsoft® Windows Server® 2016 Standard Edition	Database Manager Microsoft SQL Server® 2019 Enterprise Edition	Processors/Cores/Threads 1/64/128	Memory 1024GB
			
 2x 10Gb Ethernet		 8 12Gb SAS	
		4 x 	
TIER A (Client) 1 x Lenovo ThinkSystem SR650, with: <ul style="list-style-type: none"> - 2 x Intel Xeon Gold 6248R Processor 3.00GHz (2 Procs/48 Cores/96 Threads) - 96GB Memory - 2 x 300GB 10K SAS HDD (RAID-1) - 1 x ThinkSystem RAID 930-8i - 1 x Onboard Dual Gb Ethernet - 1 x Intel x550 Dual 10Gb-T Ethernet - 2 x Broadcom NX-E Dual 10Gb-T Enet 		TIER B (Database Server and Storage) 1 x Lenovo ThinkSystem SR655, with: <ul style="list-style-type: none"> - 1 x AMD EPYC 7763 64-Core Processor 2.45GHz (1 Proc/64 Cores/128 Threads) - 1024GB Memory - 2 x 300GB 10K SAS HDD (RAID-1) - 6 x 1.6TB SAS SSD (RAID-10) - 1 x ThinkSystem RAID 930-8i - 4 x ThinkSystem RAID 930-8e - 1 x Onboard Quad 1Gb-T Ethernet - 2 x Broadcom NX-E Dual 10Gb-T Enet 	
		4 x Lenovo Storage D1224 DAS Enclosures, with: <ul style="list-style-type: none"> - 84 x 800GB 2.5" SAS SSD (4 x 21-drive RAID-5) 	
		84 Total External Drives	
Initial Database Size 32,843 GB	Redundancy Level: 1 RAID-10 Log, tempdb RAID-5 Data	Storage 84x 800GB 2.5" SAS SSD 6x 1.6TB 2.5" SAS SSD 2x 300GB 2.5" 10K SAS HDD	



Lenovo ThinkSystem SR655

TPC-E 1.14.0 TPC Pricing 2.7.0

Report Date: June 8, 2021
Revision Date: June 8, 2021

Availability Date:
June 18, 2021

Description	Part Number	Price Source	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware						
ThinkSystem SR655 Configure-To-Order, includes:						
ThinkSystem SR655 24x2.5" Chassis	7Z01CTO1WW	1	58,837	1	58,837	
ThinkSystem AMD EPYC 7763 64C 280W 2.45GHz Processor	B5VJ			1		
ThinkSystem 64GB TruDDR4 3200MHz (2Rx4 1.2V) RDIMM-A	BF73			1		
ThinkSystem 2U/Twr 2.5" SATA/SAS 8-Bay Backplane	B5XC			16		
ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter	AURA			1		
ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD	AUNJ			1		
ThinkSystem 2.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD	AULY			2		
ThinkSystem SR635/SR655 x8 PCIe Internal Riser	B8J4			6		
ThinkSystem SR655 x16/x8/x8 PCIe Riser1	B5VW			1		
ThinkSystem SR655 x16/x8/x8 PCIe Riser2	B5VX			1		
ThinkSystem Broadcom 5719 1GbE RJ45 4-port OCP Ethernet Adapter	B5VU			1		
ThinkSystem RAID 930-8e 4GB Flash PCIe 12Gb Adapter	B5T1			1		
ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	AUNQ			4		
ThinkSystem 1100W (230V/115V) Platinum Hot-Swap Power Supply	AUKP			2		
2.8m, 13A/100-250V, C13 to C14 Jumper Cord	AVWF			2		
ThinkSystem Toolless Slide Rail	6400			2		
ThinkSystem 2U left EIA Latch Standard	AXCA			1		
ThinkSystem Rome Milan MB	AURD			1		
ThinkSystem SR655 EIA Latch with FIO (Right, 2 USB3.0)	BGWZ			1		
FBU345 SuperCap	B5WR			1		
ThinkSystem SR655 Airduct	AUNP			5		
ThinkSystem SR655 Performance Fan Module	B5W5			1		
Essential Service - 3Yr 24x7 4Hr Resp + YDYD SR655	B5W3			6		
	5PS7A34674	1	1,559	1		1,559
				Subtotal	58,837	1,559
Server Storage						
Lenovo Storage D1224 SFF Chassis, Dual ESM	4587A31	1	2,999	4	11,996	
External MiniSAS HD 8644/MiniSAS HD 8644 1M Cable	00YL848	1	59	8	472	
Lenovo Storage 800GB 3DWD 2.5" SAS SSD	01DC477	1	2,499	84	209,916	
Essential Service - 3Yr 24x7 4Hr Response (D1224)	01JR577	1	1,169	4		4,676
				Subtotal	222,384	4,676
Server Software						
SQL Server 2019 Enterprise Edition (2 Core License)	N/A	2	13,748	32	439,936	
Windows Server 2016 Standard Edition (2 Core License)	N/A	2	113	32	3,616	
Microsoft Problem Resolution Services (1 Incident)	N/A	2	259			259
				Subtotal	443,552	259
Client Hardware						
ThinkSystem SR650 Configure-To-Order, includes:						
ThinkSystem SR650 2.5" Chassis with 8, 16 or 24 bays	7X06CTO1WW	1	19,575	1	19,575	
Intel Xeon Gold 6248R 24C 205W 3.0GHz Processor	AUVV			1		
ThinkSystem 8GB TruDDR4 2933MHz (1Rx8 1.2V) RDIMM	BAZQ			2		
ThinkSystem 2U/Twr 2.5" SATA/SAS 8-Bay Backplane	B4H1			12		
ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter	AURA			1		
ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD	AUNJ			1		
ThinkSystem 2U x8/x8/x8 PCIe FH Riser 1	AULY			2		
ThinkSystem SR550/SR590/SR650 (x16/x8)/(x16/x16) PCIe FH Riser 2 Kit	AUR4			1		
ThinkSystem 1Gb 2-port RJ45 LOM	AURC			1		
ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	AUKG			1		
Intel X550-T2 Dual Port 10GBase-T Adapter	AUKP			2		
ThinkSystem 1100W (230V/115V) Platinum Hot-Swap Power Supply	ATPX			1		
2.8m, 13A/100-250V, C13 to C14 Jumper Cord	AVWF			2		
ThinkSystem Toolless Friction Rail	6400			2		
ThinkSystem 2U left EIA Latch Standard	AXFM			1		
ThinkSystem SR650 Refresh MB	AURD			1		
Lenovo ThinkSystem 2U 3FH & 2FH Riser Brackets	B4NL			1		
FBU345 SuperCap	AURQ, AURP			1		
Essential Service - 3Yr 24x7 4Hr Response + YourDrive YourData (SR650)	AUNP			1		
	5PS7A01558	1	2,079	1		2,079
				Subtotal	19,575	2,079
Client Software						
Windows Server 2019 Standard Edition (2 Core License)	N/A	2	123	24	2,952	
				Subtotal	2,952	0
Infrastructure						
S2 42U Standard Rack	93074RX	1	1,565	1	1,565	
0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord	00YJ776	1	479	1	479	
ThinkSystem Pref. Pro II USB Keyboard - US English	AXTL	1	29	1	29	
ThinkSystem Optical Wheel Mouse - USB	B0LN	1	39	1	39	
ThinkVision S24e 23.8 Inch LED Backlit LCD Monitor	61CAKCR1US	1	149	1	149	
1.0m CAT6 Green Cable	00WE127	1	19	2	38	
Essential Service - 3Yr 24x7 4Hr Response (Rack)	41L2760	1	315	1		315
				Subtotal	2,299	315
				Total	749,599	8,888
Dollar Volume Discount (See Note 1)		48.63%	1		151,591	
Pricing: 1 - Lenovo 1-877-782-7134; 2 - Microsoft					Three-Year Cost of Ownership USD: \$606,896	
Note 1: Discount applies to all line items where Pricing=1; pricing is for these or similar quantities. Discounts for similarly sized configurations will be similar to what is quoted here, but may vary based on the specific components priced.					TPC-E Throughput: 7,890.66	
Benchmark results and test methodology audited by Doug Johnson for InfoSizing, Inc. (www.sizing.com)					\$ USD/tpsE: \$76.92	

Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated Line Items. 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 Line Items. For complete details, see the pricing section of the TPC Benchmark Standard. If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.



Lenovo ThinkSystem SR655

TPC-E 1.14.0 TPC Pricing 2.7.0

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June 15, 2021

Numerical Quantities Summary

Reported Throughput:

7,890.66 tpsE

Configured Customers:

4,000,000

Response Time (in seconds)	Minimum	Average	90 th Percentile	Maximum
Broker-Volume	0.01	0.01	0.02	0.48
Customer-Position	0.01	0.01	0.02	1.34
Market-Feed	0.01	0.01	0.02	2.70
Market-Watch	0.01	0.01	0.01	0.50
Security-Detail	0.01	0.01	0.01	0.46
Trade-Lookup	0.01	0.04	0.06	0.56
Trade-Order	0.01	0.04	0.11	2.76
Trade-Result	0.01	0.01	0.04	1.73
Trade-Status	0.01	0.01	0.01	0.82
Trade-Update	0.01	0.04	0.06	0.52
Data-Maintenance	0.01	0.01	N/A	0.02

Transaction Mix	Transaction Count	Mix %
Broker-Volume	27,838,661	4.900%
Customer-Position	73,857,855	13.000%
Market-Feed	5,681,288	1.000%
Market-Watch	102,264,817	18.000%
Security-Detail	79,539,189	14.000%
Trade-Lookup	45,450,767	8.000%
Trade-Order	57,381,575	10.100%
Trade-Result	56,812,821	10.000%
Trade-Status	107,945,873	19.000%
Trade-Update	11,362,705	2.000%
Data-Maintenance	120	N/A

Test Duration and Timings

Ramp-up Time (hh:mm:ss)	00:36:53
Measurement Interval (hh:mm:ss)	02:00:00
Business Recovery Time (hh:mm:ss)	00:27:45
Total Number of Transactions Completed in Measurement Interval	568,135,551