

	IBM® System x® 3850 X6 Microsoft® SQL Server® 2014		TPC-E™ 1.12.0 TPC Pricing 1.7.0
			Report Date: February 18, 2014
			Revision Date: February 18, 2014
TPC-E Throughput 5576.27 tpsE	Price/Performance \$188.69 USD per tpsE™	Availability Date April 15, 2014	Total System Cost \$1,052,173 USD
Database Server Configuration			
Operating System Microsoft Windows Server® 2012 Standard Edition	Database Manager Microsoft SQL Server 2014 Enterprise Edition	Processors/Cores/ Threads 4/60/120	Memory 2048GB
IBM System x3650 M4, with: - 2 x Intel® Xeon® Processor E5-2697 v2 2.70GHz (2 Procs/24 Cores/48 Threads) - 32GB Memory - 2 x 250GB SFF SATA (RAID-1) - 1 x IBM ServeRAID M5110e - Onboard Quad Gb Ethernet - Dual Port Gb Ethernet	IBM System x3850 X6, with: - 4 x Intel Xeon Processor E7-4890 v2 2.80GHz (4 Procs/60 Cores/120 Threads) - 2048GB Memory - 2 x 300GB 10K SAS (RAID-1) - 4 x 800GB SATA SSD (RAID-10) - 1 x IBM ServeRAID M5210 - 5 x IBM ServeRAID M5120 - 4 x Dual 10Gb-T Ethernet	9 x IBM System Storage® EXP2524 JBOD Storage Enclosures, with: - 208 x 200GB 2.5" SAS SSD (2 x 20-drive RAID-5 DB data) - 7 x 24-drive RAID-5 DB data) - 2 x 600GB 2.5" SAS HDD (1 x 2-drive RAID-1 temp space) 210 Total External Drives	
Initial Database Size 23,393 GB	Redundancy Level: 1 RAID-10 Log RAID-5 Data	Storage 2 x 300GB 2.5" 10K SAS 4 x 800GB 2.5" SATA SSD 208 x 200GB 2.5" SAS SSD 2 x 600GB 2.5" 10K SAS	



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Description	Part Number	Price Source	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware						
IBM System x3850 X6 Configure-To-Order, includes:	3837AC1	1 *	144,293	1	144,293	
x3850 X6 4U Chassis + Midplane	44X3950, 44X4052			1		
X6 Compute Book with Intel Xeon Processor E7-4890 v2	44X3994, 44X3995			4		
X6 Primary I/O Book + X6 Storage Book	44X4042, 44X4046			1		
Half Length PCI-e Expansion Card	44X4048			2		
IBM 4x 2.5" HS SAS/SATA/SSD HDD Backplane	44X4103			2		
ServeRAID M5210 SAS/SATA Controller for IBM System x	46C9109			1		
Intel X540 ML2 Dual Port 10GbBaseT Adapter for IBM System x	00D1993			1		
IBM 1400W HE Redundant Power Supply	44X4151			4		
S3700 800GB SATA 2.5" G3HS Enterprise SSD	00AJ168			4		
IBM 300GB 10K 6Gbps SAS 2.5" G3HS HDD	00AJ098			2		
Gen 3 Rail Kit	44X4113			1		
Power Cable	39Y5533			4		
32GB PC3L-12800 ECC DDR3 1600MHz LP LRDIMM	46W0675			64		
Intel X540-T2 Dual Port 10GbBase-T Adapter for IBM System x	49Y7973	1	749	3	2,247	
IBM ServeRAID M5120 SAS/SATA Controller	81Y4478	1	299	5	1,495	
ServeRAID M5100 Series 1GB Flash/RAID 5 Upgrade	81Y4559	1	499	5	2,495	
ServeRAID M5100 Series SSD Performance Key	90Y4273	1	399	1	399	
IBM Preferred Pro Keyboard USB - US English 103P RoHS	94Y6138	1	29	1	29	
IBM 2-Button Optical Mouse - Black - USB	40K9200	1	19	1	19	
ServicePac for 3-Year 24x7x4 Support (x3850 X6)	00GW689	1 *	1,500	1		1500
Hanns-G 16" Widescreen LED LCD Monitor (2 spares)	HL163ABB	3	100	3	300	
				Subtotal	151,277	1,500
Server Storage						
IBM S2 42U Standard Rack	93074RX	1	1,459	1	1,459	
IBM System Storage EXP2524 Storage Enclosure	174724X	1	3,999	9	35,991	
IBM 1M SAS cable	39R6529	1	119	9	1,071	
200GB 6Gb SAS 2.5" SSD	49Y6072	1 - S	3,079	208	640,432	
IBM 600GB 10K 6Gbps SAS 2.5" G2HS Hybrid HDD	00AD102	1	899	2	1,798	
ServicePac for 3-Year 24x7x4 Support (EXP2524)	91Y5785	1	1,200	9		10,800
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1	315	1		315
				Subtotal	680,751	11,115
Server Software						
SQL Server 2014 Enterprise Edition		2a *	13,472.50	30	404,175	
Windows Server 2012 Standard Edition	P73-05761	2	882	2	1,764	
Microsoft Problem Resolution Services	N/A	2a	259	1		259
				Subtotal	405,939	259
Client Hardware						
IBM System x3650 M4 Configure-To-Order, includes:	7915AC1	1	12,412	1	12,412	
x3650 M4 Base + Planar	A1KF, A3V6			1		
750W High Efficiency Platinum AC Power Supply	A1H5			2		
Intel Xeon Processor E5-2697 v2 12C 2.7GHz 30MB 130W	A3VM, A3W5			2		
NetXtreme II 1000 Express Dual Port Ethernet Adapter	2995			1		
x3650 M4 PCIe Riser Card 1 (1 x8 FH/FL + 2 x8 FH/HL Slots)	A1JT			1		
IBM System x Gen-III Slides Kit	A228			1		
IBM 250GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	A1NX			2		
IBM System x Lightpath Kit	A1LF			1		
x3650 M4 8x 2.5" HS HDD Assembly Kit	A1JX			1		
4GB PC3L-12800 CL11 ECC DDR3 1600MHz LP RDIMM	A3QE			8		
Power Cable	6263			2		
ServeRAID M5100 Series 512MB Cache/RAID 5 Upgrade	A1J3			1		
ServicePac for 3-Year 24x7x4 Support (x3650 M4)	67567XR	1	790	1		790
				Subtotal	12,412	790
Client Software						
Windows Server 2012 Standard Edition	P73-05761	2	882	1	882	
				Subtotal	882	0
Infrastructure						
Ethernet Cables (2 spares)	RCW-720	3		4	24	
				Subtotal	24	0
				Total	1,251,285	13,664
Dollar Volume Discount (See Note 1)		24.67%	1		212,335	
Microsoft Open Program Discount Schedule		16.67%	2		441	
Pricing: 1 - IBM 1-866-883-8901; 2 - Microsoft; 3 - newegg.com				Three-Year Cost of Ownership USD:		\$1,052,173
Note 1: Discount applies to all line items where Pricing=1; pricing is for these or similar quantities.				TPC-E Throughput:		5,576.27
Discounts for similarly sized configurations will be similar to what is quoted here, but may vary based on the specific components priced.				\$ USD/tps:		\$188.69
S: One or more components of the measured configuration have been substituted in the priced configuration. See the FDR for details.						
* These components are not immediately orderable. See the FDR for more information.						
Benchmark results and test methodology audited by Doug Johnson for InfoSizing, Inc. (www.sizing.com)						
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 section of the TPC benchmark specifications. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.						



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Numerical Quantities Summary				
Reported Throughput: 5576.27 tpsE		Configured Customers: 2,850,000		
Response Time (in seconds)	Minimum	Average	90 th Percentile	Maximum
Broker-Volume	0.00	0.01	0.02	0.48
Customer-Position	0.00	0.01	0.01	0.49
Market-Feed	0.00	0.00	0.02	0.87
Market-Watch	0.00	0.01	0.01	0.33
Security-Detail	0.00	0.00	0.01	0.48
Trade-Lookup	0.00	0.06	0.10	0.46
Trade-Order	0.00	0.05	0.12	0.98
Trade-Result	0.00	0.01	0.02	1.45
Trade-Status	0.00	0.00	0.01	0.53
Trade-Update	0.00	0.07	0.11	0.42
Data-Maintenance	0.00	0.01	N/A	0.10
Transaction Mix		Transaction Count	Mix %	
Broker-Volume		19,672,099	4.900%	
Customer-Position		52,190,503	13.000%	
Market-Feed		4,014,916	1.000%	
Market-Watch		72,264,528	18.000%	
Security-Detail		56,206,099	14.000%	
Trade-Lookup		32,117,080	8.000%	
Trade-Order		40,548,131	10.100%	
Trade-Result		40,149,146	10.001%	
Trade-Status		76,279,029	19.000%	
Trade-Update		8,029,224	2.000%	
Data-Maintenance		120	N/A	
Test Duration and Timings				
Ramp-up Time (hh:mm:ss)				00:21:49
Measurement Interval (hh:mm:ss)				02:00:00
Business Recovery Time (hh:mm:ss)				00:19:28
Total Number of Transactions Completed in Measurement Interval				401,470,755