
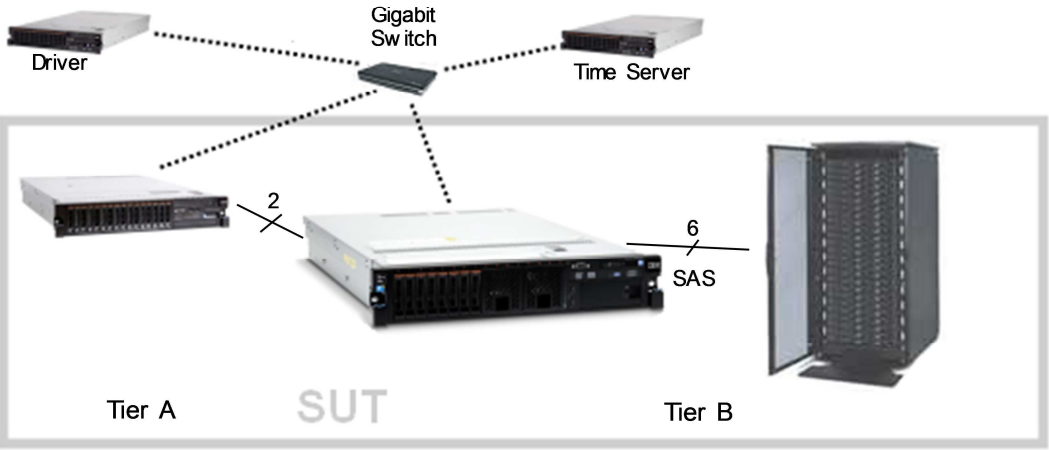
	IBM® System x® 3650 M4 Microsoft® SQL Server 2012		TPC-E 1.12.0 TPC Pricing 1.7.0
			Report Date: September 10, 2013
			Revision Date: September 10, 2013
TPC-E Throughput 2590.93 tpsE	Price/Performance \$150.00 USD per tpsE	Availability Date November 29, 2013	Total System Cost \$388,636 USD
Database Server Configuration			
Operating System Microsoft Windows Server 2008 R2 Enterprise Edition SP1	Database Manager Microsoft SQL Server 2012 Enterprise Edition	Processors/Cores/ Threads 2/24/48	Memory  512GB
			
IBM System x3650 M4, with: - 2 x Intel Xeon Processor E5-2690 2.90GHz (2 Procs/16 Cores/32 Threads) - 16GB Memory - 2 x 250GB SFF SATA (RAID-1) - 1 x IBM ServeRAID M5110e - Onboard Quad Gb Ethernet	IBM System x3650 M4, with: - 2 x Intel Xeon Processor E5-2697 v2 2.70GHz (2 Procs/24 Cores/48 Threads) - 512GB Memory - 2 x 300GB 10K SAS (RAID-1) - 6 x 600GB 10K SAS (RAID-10) - 1 x IBM ServeRAID M5110e - 6 x IBM ServeRAID M5120 - Onboard Quad Gb Ethernet	6 x IBM EXP2524 JBOD Enclosures, with: - 98 x 200GB 2.5" SAS SSD (2 x 21-drive RAID-5 DB data) - 4 x 14-drive RAID-5 DB data) - 2 x 600GB 2.5" SAS HDD (1 x 2-drive RAID-1 temp space)	100 Total External Drives
Initial Database Size 10,739 GB	Redundancy Level: 1 RAID-10 Log RAID-5 Data	Storage 2 x 300GB 2.5" 10K SAS 98 x 200GB 2.5" SAS SSD 8 x 600GB 2.5" 10K SAS	



IBM System x3650 M4 Microsoft SQL Server 2012

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Description	Part Number	Price Source	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware						
IBM System x3650 M4 Configure-To-Order, includes:	7915AC1	1 *	10,800	1	10,800	
x3650 M4 Base + Planar	A1KF, A1KH			1		
900W High Efficiency Platinum AC Power Supply	A2EB			2		
Intel Xeon Processor E5-2697 v2 12C 2.7GHz 30MB 130W	A3W5			2		
IBM UltraSlim Enhanced SATA DVD-ROM + cable	4161, A22N			1		
x3650 M4 PCIe Riser Cards 1 & 2 (3 x8 Slots)	A1JT, A1JU			2		
IBM System x Gen-III Slides Kit + CMA	A228, A229			1		
IBM System x Lightpath Kit	A1LF			1		
x3650 M4 8x 2.5" HS HDD Assembly Kit	A1JX			1		
Power Cable	6263			2		
32GB PC3-14900 DDR3 1866MHz LP LR-DIMM	46W0761	1 *	1,439	16	23,024	
IBM 300GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	90Y8877	1	309	2	618	
IBM 600GB 10K 6Gbps SAS 2.5" G2HS Hybrid HDD	00AD102	1	899	6	5,394	
IBM ServeRAID M5120 SAS/SATA Controller	81Y4478	1	299	6	1,794	
ServeRAID M5100 Series 1GB Flash/RAID 5 Upgrade	81Y4559	1	529	6	3,174	
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 (x3650 M4)	67567XR	1	790	1		790
Hanns-G 18.5" 5ms LED LCD Monitor (2 spares)	HE195ABB	3	130	3	390	
				Subtotal	45,641	790
Server Storage						
IBM S2 42U Standard Rack	93074RX	1	1,459	1	1,459	
IBM System Storage EXP2524 Storage Enclosure	174724X	1	3,999	6	23,994	
IBM 1M SAS cable	39R6529	1	119	6	714	
200GB 6Gb SAS 2.5" SSD	49Y6072	1 - S	3,079	98	301,742	
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	6		7,200
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1	315	1		315
				Subtotal	329,707	7,515
Server Software						
SQL Server 2012 Enterprise Edition	7JQ-00256	2a	13,472.50	12	161,670	
Windows Server 2008 R2 Enterprise Edition	P72-04217	2	3,999	1	3,999	
Microsoft Problem Resolution Services	N/A	2a	259	1		259
				Subtotal	165,669	259
Client Hardware						
IBM System x3650 M4 Configure-To-Order, includes:	7915AC1	1	10,294	1	10,294	
x3650 M4 Base + Planar	A1KF, A1KH			1		
750W High Efficiency Platinum AC Power Supply	A1H5			2		
Intel Xeon Processor E5-2690 8C 2.9GHz 20MB 135W	A2VN, A2QL			2		
IBM UltraSlim Enhanced SATA DVD-ROM + cable	4161, A22N			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 + CMA	A228, A229			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-10600 CL9 ECC DDR3 1333MHz LP RDIMM	6941			4		
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	10,294	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	16	
				Subtotal	16	0
				Total	552,209	9,354
Dollar Volume Discount (See Note 1)	43.38%	1			171,061	
Microsoft Open Program Discount Schedule	38.23%	2			1,866	
Pricing: 1 - IBM - 1-800-656-0833, x35330; 2 - Microsoft; 3 - newegg.com				Three-Year Cost of Ownership USD:		\$388,636
Note 1: Discount applies to all line items where Pricing=1; pricing is for these or similar quantities.				TPC-E Throughput:		2,590.93
Discounts for similarly sized configurations will be similar to what is quoted here, but may vary based on the specific components priced.				\$ USD/tpse:		\$150.00
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: 2590.93 tpsE		Configured Customers: 1,310,000		
Response Time (in seconds)	Minimum	Average	90 th Percentile	Maximum
Broker-Volume	0.00	0.01	0.02	0.31
Customer-Position	0.00	0.01	0.01	0.42
Market-Feed	0.00	0.01	0.02	0.83
Market-Watch	0.00	0.00	0.01	0.39
Security-Detail	0.00	0.00	0.01	0.31
Trade-Lookup	0.00	0.05	0.09	0.89
Trade-Order	0.00	0.01	0.03	0.60
Trade-Result	0.00	0.01	0.04	0.66
Trade-Status	0.00	0.00	0.01	0.54
Trade-Update	0.01	0.06	0.09	0.81
Data-Maintenance	0.00	0.01	N/A	0.15
Transaction Mix		Transaction Count	Mix %	
Broker-Volume		9,140,424	4.900%	
Customer-Position		24,249,887	13.000%	
Market-Feed		1,865,472	1.000%	
Market-Watch		33,576,978	18.000%	
Security-Detail		26,115,757	14.000%	
Trade-Lookup		14,923,030	8.000%	
Trade-Order		18,840,488	10.100%	
Trade-Result		18,654,707	10.000%	
Trade-Status		35,442,608	19.000%	
Trade-Update		3,730,807	2.000%	
Data-Maintenance		120	N/A	
Test Duration and Timings				
Ramp-up Time (hh:mm:ss)			00:17:48	
Measurement Interval (hh:mm:ss)			02:00:00	
Business Recovery Time (hh:mm:ss)			00:10:49	
Total Number of Transactions Completed in Measurement Interval			186,540,158	