



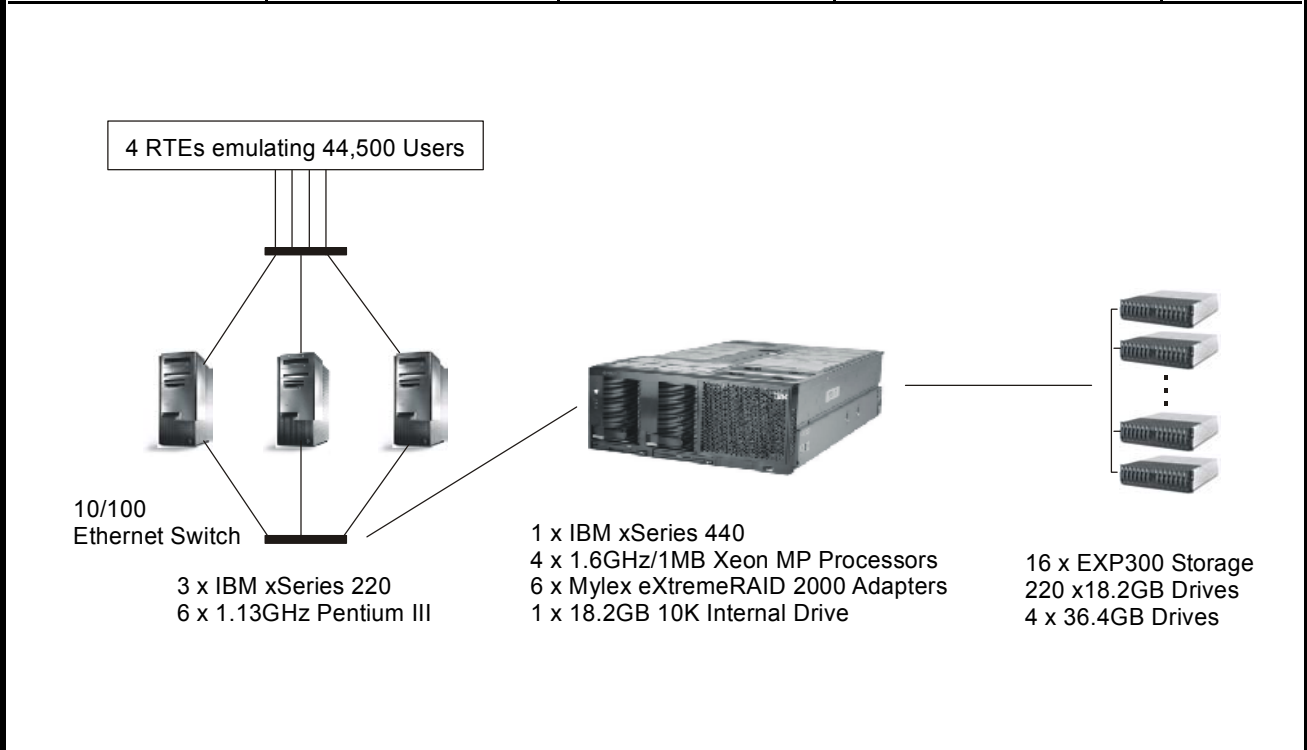
**IBM @server xSeries 440 c/s  
with Microsoft SQL Server 2000**

TPC-C Rev. 5.0

Report Date: March 11, 2002

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
<b>\$384,998</b>	<b>55,138.60 tpmC</b>	<b>\$6.98 / tpmC</b>	<b>Sept. 10, 2002</b>

Processors	Database Manager	Operating System	Other Software	Number of Users
<b>4 Intel® Xeon MP 1.6GHz - Server 6 Pentium® III 1.13GHz -Client</b>	<b>Microsoft® SQL Server 2000 Enterprise Edition</b>	<b>Microsoft Windows® 2000 Datacenter Server</b>	<b>Microsoft Visual C++ 6.0 Win32 Microsoft COM+</b>	<b>44,500</b>



System Component	Qty	One Server:	Qty	Each Client:
Processors	4	1.6GHz Xeon Processor	2	1.13GHz Pentium III
Cache		w/1MB L3 Cache		w/256KB L2 Cache
Memory	16	1GB ECC SDRAM	3	256MB
Disk Controllers	6	Mylex eXtremeRAID 2000 Adapter	1	Ultra160 SCSI Interface
Disk Drives	220	18.2GB (15000 rpm)	1	18.2GB Hard Disk
	4	36.4GB (15000 rpm)		
	1	18.2GB (10000 rpm)		
Total Storage		3724.60GB		
Tape Drive	1	20/40GB SCSI Tape Drive		

IBM Corporation	IBM @server xSeries 440 c/s with Microsoft SQL Server 2000			TPC-C Rev. 5.0				
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Description	Order Number	Third-Party Brand	Pricing	Unit Price	Qty	Ext. Price	3-Yr. Maint.*	
<b>Server Hardware</b>								
IBM @server xSeries 440 Two 1.6GHz/1MB Xeon MP	8687-3RX	IBM	1	\$27,099	1	\$27,099	\$3,390	
1.6GHz Xeon MP Processor Upgrade	32P8707	IBM	1	6,599	2	13,198	0	
1GB ECC SDRAM RDIMM	33L3326	IBM	1	989	16	15,824	0	
18.2GB 10K Ultra160 SCSI Drives	06P5754	IBM	1	275	1	275	0	
Mylex eXtremeRAID 2000 Adapter	08P3834	IBM	3	1,293	8	10,344	0	
Netfinity 4.2M Ultra2 SCSI Cable	03K9311	IBM	1	105	17	1,785	0	
IBM UPS 500	33L3477	IBM	1	99	1	99	0	
E54 14" (13.8" Viewable) Color Monitor*	633147N	IBM	1	149	1	149	90	
20/40GB Internal SCSI Tape Drive	00N7991	IBM	1	769	1	769	0	
NetBAY42 Standard Rack Cabinet	9306421	IBM	1	1,610	2	3,220	600	
<b>Storage Hardware</b>								
EXP300 Rack Storage Enclosure*	35311RU	IBM	1	3,179	16	50,864	3,200	
18.2GB 15K Ultra160 SCSI Drive	06P5767	IBM	1	549	220	120,780	0	
36.4GB 15K Ultra160 SCSI Drive	06P5768	IBM	1	989	4	3,956	0	
						<b>Subtotal</b>	<b>\$248,362</b>	<b>\$7,280</b>
<b>Server Software</b>								
Microsoft SQL Server 2000 Enterprise Ed.	810-00652	Microsoft	2	16,541	4	\$66,164	\$0	
Three-Year Maintenance for Software		Microsoft	2	2,095	3		6,285	
Microsoft Windows 2000 Datacenter Server		IBM	1	33,000	1	33,000	43,800	
Image Load Fee	06P7505	IBM	1	35	1	35	0	
Rack Prep Fee	06P7514	IBM	1	400	1	400	0	
Rack Installation Fee	06P7515	IBM	1	160	1	160	0	
						<b>Subtotal</b>	<b>\$99,759</b>	<b>\$50,085</b>
<b>Client Hardware</b>								
xSeries 220 / 1.13GHz/256KB Pentium III*	8646-31X	IBM	1	949	3	\$2,847	\$2,244	
1.13GHz/256KB Pentium III Processor	32P0651	IBM	1	799	3	2,397	0	
256MB 133MHz ECC SDRAM RDIMM	10K0020	IBM	1	245	9	2,205	0	
18.2GB 10K Ultra160 SCSI Drive	06P5754	IBM	1	275	3	825	0	
E54 15" (13.8" Viewable) Color Monitor*	633147N	IBM	1	149	3	447	270	
						<b>Subtotal</b>	<b>\$8,721</b>	<b>\$2,514</b>
<b>Client Software</b>								
Microsoft Windows 2000 Server w/COM+	C11-00821	Microsoft	2	738	3	2,214	0	
Microsoft Visual C++ Professional 6.0	048-00317	Microsoft	2	549	1	549	0	
						<b>Subtotal</b>	<b>\$2,763</b>	<b>\$0</b>
<b>User Connectivity</b>								
8-Port 10/100Mbps Hub*** (incl. 2 spares)	DSS-8		4	47	3	141	0	
						<b>Subtotal</b>	<b>\$141</b>	<b>\$0</b>
						<b>Total</b>	<b>\$359,746</b>	<b>\$59,879</b>
<b>Large volume discount of 14% on IBM Hardware; prices will vary if purchased separately.</b>			1			(34,627)	\$0	
Notes: * The standard 3-year warranties on IBM hardware have been upgraded to 7x24, 4-hour response time coverage. ** Five-year warranty. *** 10% or minimum 2 spares are added in place of on-site service (products have a 5-year return-to-vendor-warranty) Pricing: 1 - IBM Corp.; 2 - Microsoft Corp.; 3 - Computer Giants; 4 - ShopNet Audited by Bradley J. Askins of InfoSizing, Inc.				<b>Three-Year Cost of Ownership:</b>		\$384,998		
				<b>tpmC Rating:</b>		55,138.60		
				<b>\$ / tpmC:</b>		\$6.98		
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 specification. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.								

<b>Numerical Quantities Summary</b>			
MQTh, Computed Maximum Qualified Throughput:			55,138.60 tpmC
<b>Response Times (in seconds)</b>	<b>Average</b>	<b>Maximum</b>	<b>90 %-tile</b>
New-Order	0.48	4.54	0.80
Payment	0.42	2.73	0.74
Delivery	0.22	1.85	0.46
Stock Level	0.97	3.65	1.50
Order Status	0.43	3.85	0.75
Delivery (Deferred)	0.18	2.70	0.30
Menu	0.23	1.88	0.47
<b>Transaction Mix (in percent of total transactions)</b>		<b>Total Occurrences</b>	<b>Percent</b>
New-Order		6,616,632	44.84
Payment		6,350,752	43.04
Delivery		595,673	4.04
Stock-Level		597,555	4.05
Order Status		595,729	4.04
<b>Emulation Delay (in seconds)</b>		<b>Response Time</b>	<b>Menu</b>
New-Order		0.1	0.1
Payment		0.1	0.1
Delivery		0.1	0.1
Stock-Level		0.1	0.1
Order Status		0.1	0.1
<b>Keying/Think Times (in seconds)</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
New Order	18.01 / 12.05	18.00 / 0.00	18.03 / 120.51
Payment	3.01 / 12.05	3.00 / 0.00	3.03 / 120.51
Delivery	2.01 / 5.06	2.00 / 0.00	2.03 / 50.51
Stock Level	2.01 / 5.06	2.00 / 0/00	2.03 / 50.51
Order Status	2.01 / 10.04	2.00 / 0.00	2.03 / 100.51
<b>Test Duration</b>			
Ramp-up time			38 minutes
Measurement interval			120 minutes
Number of transactions (all types) completed in measurement interval			15,352,008
Ramp-down time			6 minutes
Number of checkpoints in measurement interval			4
Checkpoint interval			30 minutes