

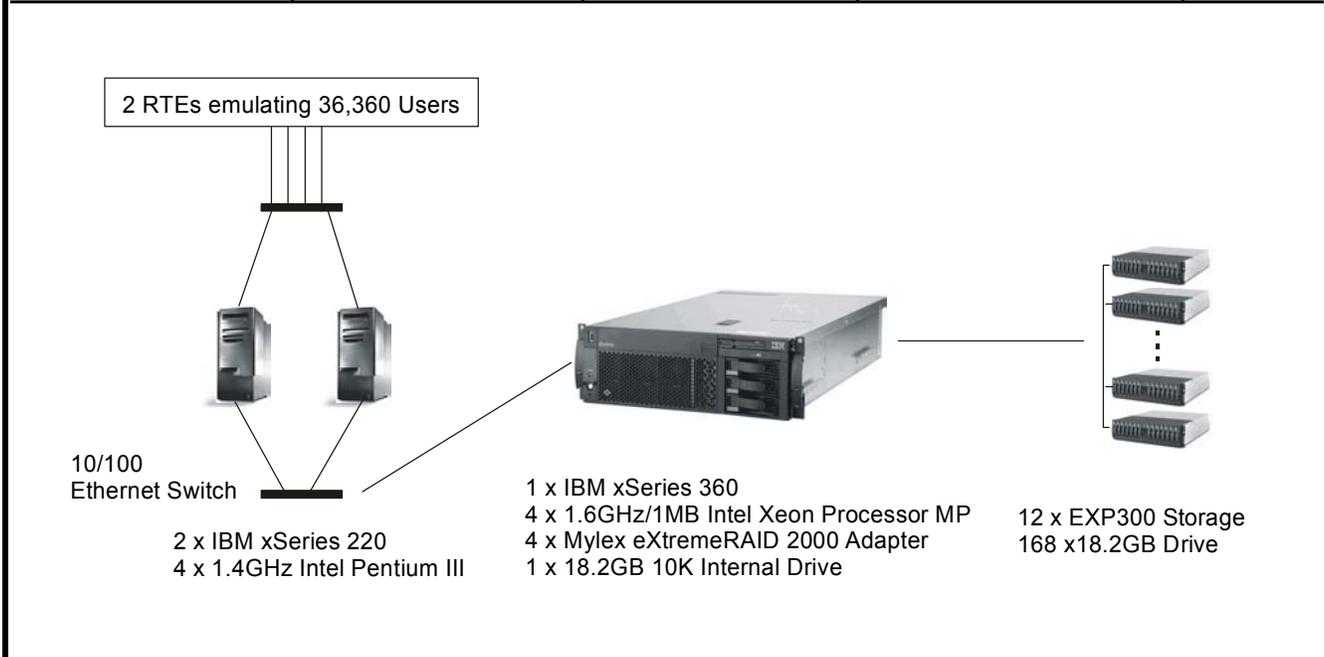
**IBM @server xSeries 360 c/s  
with Microsoft SQL Server 2000**

TPC-C Rev. 5.0

Report Date: July 17, 2002

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
<b>\$204,271</b>	<b>45,230.03 tpmC</b>	<b>\$4.52 / tpmC</b>	<b>August 30, 2002</b>

Processors	Database Manager	Operating System	Other Software	Number of Users
<b>Database Server: 4 Xeon Processor MP 1.6GHz</b> <b>Client: 4 Pentium III 1.4GHz</b>	<b>Microsoft® SQL Server 2000 Enterprise Edition</b>	<b>Microsoft Windows® 2000 Advanced Server</b>	<b>Microsoft Visual C++ 6.0 Win32</b> <b>Microsoft COM+</b>	<b>36,360</b>



System Component	Qty	Server:	Qty	Each Client:
Processors	4	1.6GHz Xeon Processor MP w/1MB L3 Cache	2	1.4GHz Pentium III w/512KB L2 Cache
Cache				
Memory	8	1GB ECC DDR SDRAM RDIMM	1	128MB
			2	256MB
Disk Controllers	4	Mylex eXtremeRAID 2000 Adapter with 32MB	1	Ultra160 SCSI Interface
Disk Drives	169	18.2GB (10000 rpm)	1	18.2GB Hard Disk
Total Storage		2861.17GB		
Tape Drive	1	20/40GB SCSI Tape Drive		

IBM Corporation	IBM @server xSeries 360 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>								
xSeries 360 / 1.6GHz/1MB Xeon MP 2 x 1.6GHz/1MB Xeon Processor MP	8686-6RX	IBM	1	\$18,309	1	\$18,309	\$600	
1.6GHz/1MB Xeon Processor MP	19K4647	IBM	1	6,199	2	12,398	0	
1GB ECC DDR SDRAM RDIMM Memory Kit	33L3285	IBM	1	989	8	7,912	0	
Mylex eXtremeRAID 2000 SCSI Adapter	08P3832	Mylex	3	1,280	6	7,680	0	
Netfinity 4.2M Ultra2 SCSI Cable	03K9311	IBM	1	105	13	1,365	0	
E54 15" (13.8" Viewable) Color Monitor*	633147N	IBM	1	139	1	139	90	
20/40GB Internal SCSI Tape Drive	00N7991	IBM	1	769	1	769	0	
NetBAY42S Enterprise Rack*	9306421	IBM	1	1,439	1	1,439	300	
<b>Storage Hardware</b>								
EXP300 Rack Storage Enclosure*	3531-1RU	IBM	1	3,179	12	38,148	2,400	
18.2GB 10K Ultra160 SCSI Drive	06P5754	IBM	1	275	169	46,475	0	
						<b>Subtotal</b>	<b>\$134,634</b>	<b>\$3,390</b>
<b>Server Software</b>								
Microsoft SQL Server 2000 Enterprise Ed.	810-00846	Microsoft	2	16,541	4	\$66,164	\$0	
Microsoft Windows 2000 Advanced Server	C10-00475	Microsoft	2	2,399	1	2,399	0	
Three-Year Maintenance for Software		Microsoft	2	1,950	3		5,850	
						<b>Subtotal</b>	<b>\$68,563</b>	<b>\$5,850</b>
<b>Client Hardware</b>								
xSeries 220 / 1.4GHz/512KB Pentium III* 128MB 133MHz ECC SDRAM RDIMM	8646-51X	IBM	1	1,249	2	\$2,498	\$1,496	
1.4GHz/512KB Pentium III Processor	25P2090	IBM	1	1,199	2	\$2,398	0	
256MB 133MHz ECC SDRAM RDIMM	10K0020	IBM	1	245	4	245	0	
18.2GB 10K Ultra160 SCSI Drive	06P5754	IBM	1	275	2	550	0	
E54 15" (13.8" Viewable) Color Monitor*	633147N	IBM	1	139	2	278	180	
						<b>Subtotal</b>	<b>\$6,704</b>	<b>\$1,676</b>
<b>Client Software</b>								
Microsoft Windows 2000 Server with COM+	C11-00821	Microsoft	2	738	2	1,476	0	
Microsoft Visual C++ Professional 6.0 Win32	048-00317	Microsoft	2	549	1	549	0	
						<b>Subtotal</b>	<b>\$2,025</b>	<b>\$0</b>
<b>User Connectivity</b>								
8-Port 100Mbps Switch*** (incl. 2 spares)	DSS		4	47	3	141	0	
						<b>Subtotal</b>	<b>\$141</b>	<b>\$0</b>
<b>Large volume discount on IBM hardware of 14%; prices vary if purchased separately.</b>			1	<b>Discount</b>		<b>\$18,712</b>	<b>\$0</b>	
						<b>Total</b>	<b>\$212,067</b>	<b>\$0</b>
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 - Netlux Audited by Francois Raab of InfoSizing, Inc.				<b>Three-Year Cost of Ownership:</b> \$204,271				
				<b>tpmC Rating:</b> 45,230.03				
				<b>\$ / tpmC:</b> \$4.52				
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:			45,230.03 tpmC
<b>Response Times (in seconds)</b>	<b>Average</b>	<b>Maximum</b>	<b>90 %-tile</b>
New-Order	0.43	5.28	0.60
Payment	0.27	3.62	0.43
Delivery	0.19	0.71	0.34
Stock Level	2.04	4.27	3.15
Order Status	0.29	5.23	0.44
Delivery (Deferred)	0.48	1.44	0.72
Menu	0.20	0.81	0.35
<b>Transaction Mix (in percent of total transactions)</b>		<b>Total Occurrences</b>	<b>Percent</b>
New-Order		5,427,604	44.87
Payment		5,206,759	43.04
Delivery		488,584	4.04
Stock-Level		486,682	4.02
Order Status		486,719	4.02
<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	18.10 / 120.51
Payment	3.01 / 12.06	3.00 / 0.00	3.10 / 120.51
Delivery	2.01 / 5.06	2.00 / 0.00	2.10 / 50.50
Stock Level	2.01 / 5.06	2.00 / 0.00	2.10 / 50.50
Order Status	2.01 / 10.05	2.00 / 0.00	2.11 / 100.51
<b>Test Duration</b>			
Ramp-up time			33 minutes
Measurement interval			120 minutes
Number of transactions (all types) completed in measurement interval			12,584,921
Ramp-down time			6 minutes
Number of checkpoints in measurement interval			4
Checkpoint interval			30 minutes