

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

TPC-C Rev. 5.1

Report Date: Feb. 28, 2003

Total System Cost

TPC-C Throughput

Price/Performance

Availability Date

\$226,504

52,587.46 tpmC

\$4.31 / tpmC

April 30, 2003

Processors

Database Manager

Operating System

Other Software

Number of Users

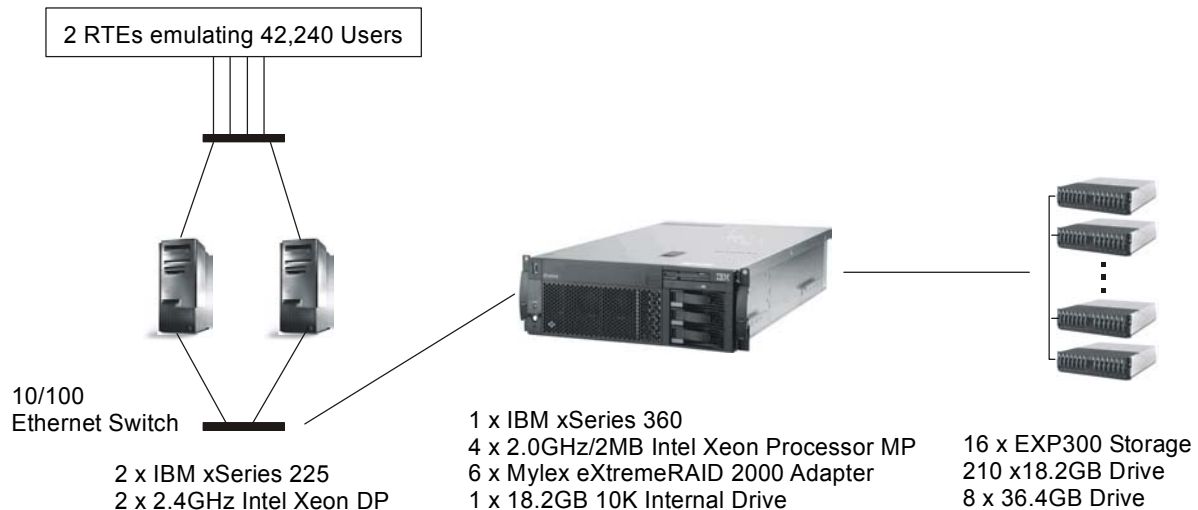
Server: 4 Intel® Xeon™ Processor MP 2.0GHz
Clients: 2 Intel Xeon DP 2.4GHz

Microsoft SQL Server 2000 Enterprise Edition

Microsoft Windows® Server 2003 Enterprise Server

Microsoft Visual C++ 6.0 Win32
Microsoft COM+

42,240



System Components
Processors / Cache

Qty

Server:
2.0GHz Xeon Processor
MP w/2MB L3 Cache

Qty

Each of Two Clients:
2.4GHz Xeon Processor
DP w/512KB L2 Cache

Memory

8

1GB ECC SDRAM

4

256MB

Disk Controllers

6

Mylex eXtremeRAID
2000 Adapter

1

Dual-Channel Ultra320
SCSI Interface

Disk Drives

210

18.2GB (10000 rpm)

1

18.2GB (10000 rpm)

8

36.4GB (10000 rpm)

Total GB of Storage

3843GB

Tape Drive

1

20/40GB SCSI Tape
Drive

IBM Corporation	IBM @server xSeries 360 c/s with Microsoft SQL Server 2000			TPC-C Rev. 5.1				
	Report Date: Feb. 28, 2003							
Description	Order Number	Third-Party Brand	Pricing	Unit Price	Qty	Ext. Price	3-Yr. Maint.*	
Server Hardware								
xSeries 360* Two 2.0GHz/2MB Xeon MP Processor Embedded 10/100 Ethernet Interface	8686-9RX	IBM	1	\$15,799	1	\$15,799		
ServicePac for 24x7x4	30L9186						1,495	
1GB ECC DDR SDRAM RDIMM	33L3285	IBM	1	685	8	5,480	0	
2.0GHz/2MB Xeon Processor MP	19K4647	IBM	1	6,199	2	12,398	0	
Mylex eXtremeRAID 2000 Adapter***	08P3834	Mylex	2	1,217	8	9,736	0	
18.2GB 10K Ultra160 SCSI Drive	06P5754	IBM	1	275	1	275	0	
Netfinity 4.2M Ultra2 SCSI Cable	03K9311	IBM	1	105	19	1,995	0	
IBM UPS 500	33L3477	IBM	1	99	1	99	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	
NetBAY11 Rack Cabinet	9306110	IBM	1	519	1	519	300	
NetBAY42 Standard Rack Cabinet	9306421	IBM	1	1,439	1	1,439	300	
Storage Hardware								
EXP300 Rack Storage Enclosure*	35311RU	IBM	1	3,179	16	50,864	3,200	
18.2GB 10K Ultra160 SCSI Drive	06P5754	IBM	1	275	210	57,750	0	
36.4GB 10K Ultra160 SCSI Drive	06P5755	IBM	1	299	8	2,392	0	
						Subtotal	\$159,654	\$5,385
Server Software								
Microsoft SQL Server 2000 EE	810-00846	Microsoft	3	16,541	4	\$66,164	\$0	
Microsoft Windows Server 2003 ES	N/A	Microsoft	3	2,699	1	2,699	0	
Three-Year Maintenance for Software		Microsoft	3	1,950	3		5,850	
						Subtotal	\$68,863	\$5,850
Client Hardware								
xSeries 225* w/2.4GHz Xeon Processor DP Two 256MB ECC SDRAM RDIMM Embedded Gigabit Ethernet Interface	8647-3AX	IBM	1	1,269	2	\$2,538	\$1,496	
256MB ECC SDRAM RDIMM	33L5037	IBM	1	195	4	780	0	
18.2GB 10K Ultra160 SCSI Drive	06P5754	IBM	1	275	2	550	0	
IBM 10/100 Dual-Port Server Adapter	22P4901	IBM	1	209	4	836	0	
E54 15" (13.8" Viewable) Color Monitor*	633147N	IBM	1	139	2	278	180	
						Subtotal	\$4,982	\$1,676
Client Software								
Microsoft Windows 2000 Server with COM+	C11-00821	Microsoft	3	738	2	1,476	0	
Microsoft Visual C++ Professional 6.0 Win32	254-00170	Microsoft	3	109	1	109	0	
						Subtotal	\$1,585	\$0
Network Components								
10/100 Ethernet 8-Port Switch***	FS108NA		2	65	3	195	0	
						Subtotal	\$195	\$0
See Microsoft quote for discount details.								
Large volume discount of 14% on IBM Hardware; prices will vary if purchased separately.			1			(21,686)	\$0	
Notes: * The standard 3-year warranties on IBM hardware have been upgraded to 7x24, 4-hour response time coverage. *** 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 - Computer Giants; 3 - Microsoft Corp. Audited by Bradley J. Askins of InfoSizing, Inc.				Three-Year Cost of Ownership:		\$226,504		
				tpmC Rating:		52,587.46		
				\$/tpmC:		\$4.31		
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.								

Numerical Quantities Summary			
MQTh, Computed Maximum Qualified Throughput:			52,587.46 t/mC
Response Times (in seconds)	90th Percentile	Average	Maximum
New-Order	0.64	0.43	7.74
Payment	0.47	0.28	5.33
Order-Status	0.54	0.34	8.38
Delivery (Interactive)	0.38	0.20	0.85
Delivery (Deferred)	0.74	0.50	1.81
Stock-Level	3.50	1.82	5.21
Menu	0.38	0.20	1.52
Response time delay added for emulated components: 0.1 Seconds			
Transaction Mix (in percent of total transactions)			Percent
New-Order			44.86
Payment			43.02
Order-Status			4.03
Delivery			4.05
Stock-Level			4.04
Keying/Think Times (in seconds)	Minimum	Average	Maximum
New-Order	18.001 / 0.00	18.01 / 12.04	18.04 / 120.51
Payment	3.00 / 0.00	3.01 / 12.03	3.04 / 120.51
Order-Status	2.00 / 0.00	2.01 / 10.02	2.04 / 100.51
Delivery	2.00 / 0.00	2.01 / 5.04	2.03 / 50.51
Stock-Level	2.00 / 0.00	2.01 / 5.03	2.04 / 50.50
Test Duration			
Ramp-up time			29 minutes
Measurement interval			120 minutes
Number of checkpoints			4
Checkpoint interval			30 minutes
Number of transactions (all types) completed in measurement interval			14,636,124