



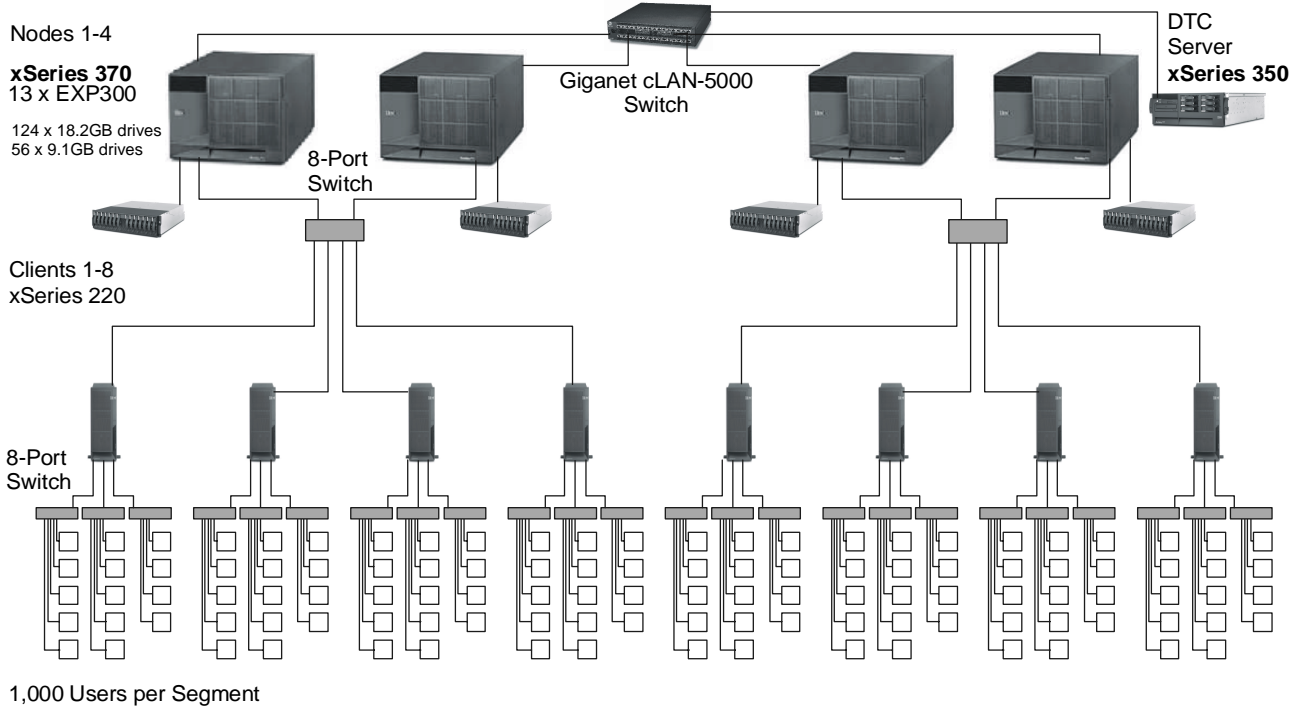
**IBM @server xSeries 370  
with  
Microsoft SQL Server 2000**

**TPC-C Rev. 3.5**

Report Date: April 20, 2001

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
<b>\$3,158,505</b>	<b>136,766.67 tpmC</b>	<b>\$23.09 / tpmC</b>	<b>Sept. 20, 2001</b>

Processors	Database Manager	Operating System	Other Software	Number of Users
<b>Database Servers = 32</b> <b>Pentium III Xeon</b> <b>900MHz/2MB</b> <b>DTC Server = 4</b> <b>Pentium III Xeon</b> <b>700MHz/2MB</b>	<b>Microsoft<sup>(R)</sup></b> <b>SQL Server</b> <b>2000</b>	<b>Microsoft</b> <b>Windows<sup>(R)</sup> 2000</b> <b>Datacenter Server</b>	<b>Microsoft COM+</b> <b>Microsoft Visual C++</b> <b>6.0</b>	<b>112,000</b>



System Component	Qty	Each of 4 Database Servers:	Qty	Each of 8 xSeries 220 Clients:
Processors	8	900MHz Pentium III Xeon w/2MB L2 Cache	2	933MHz Pentium III w/256KB L2 Cache
Cache				
Memory	32	1GB ECC SDRAM	4	128MB
Disk Controllers	6	Mylex cXtremeRAID 2000	1	Ultra160 SCSI Onboard
	1	ServeRAID-4H Ultra160 SCSI Adapter	1	9.1GB (10000 rpm)
Disk Drives	56	9.1GB (15000 rpm)		
	124	18.2GB (15000 rpm)		
	2	9.1GB (10000 rpm)		
Total Storage	1	9.73TB (9.69TB online)	1	One DTC Server:
Other				700MHz/2MB Pentium III Xeon
Tape Drive	1	3502-R14 DLT Tape Library	6	128MB ECC SDRAM
	1	Giganet cLAN-1000 Host Adapter	1	ServeRAID-4H Ultra160 SCSI Adapter
Interconnect	1	Giganet cLAN-5000 Switch		9.1GB (10000 rpm)
				Giganet cLAN-1000 Host Adapter



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Description	Order Number	Third-Party Brand	Pricing	Unit Price	Qty	Ext. Price	5-Yr. Maint.*
<b>Server Hardware</b>							
xSeries 370 900MHz/2MB Pentium III Xeon*	8681-3RX	IBM	1	\$19,114	4	\$76,456	\$42,740
900MHz/2MB L2 Cache Processor Upgrade	19K4637	IBM	1	6,599	28	184,772	0
8500R Memory Expansion Card	28L4454	IBM	1	625	4	2,500	0
8500 >4X Accelerator Filter	10K2335	IBM	1	1,249	4	4,996	0
1GB SDRAM RDIMM Memory Kit	33L3056	IBM	1	2,596	128	332,288	0
xSeries 350 700MHz/2MB Pentium III Xeon*	8682-5RY	IBM	1	7,165	1	7,165	10,685
700MHz/2MB L2 Cache Processor Upgrade	00N7944	IBM	1	3,625	3	10,875	0
9.1GB 10K Ultra160 SCSI Drive	37L7204	IBM	1	299	14	4,186	0
ServeRAID-4H Ultra160 SCSI Adapter	37L6889	IBM	1	2,439	5	12,195	0
Mylex eXtremeRAID 2000 Adapter (incl. 10%)	E2000-4-32NB	Mylex	4	1,872	27	50,544	0
Ultra2 SCSI 4m Cable	03K9311	IBM	1	105	104	10,920	0
10/100 Ethernet Server Adapter with IPsec	06P3601	IBM	1	99	4	396	0
E54 15" (13.8" Viewable) Color Monitor*	6331N2N	IBM	1	173	5	865	1,400
3502-R14 DLT Tape Autoloader*	3502R14	IBM	1	13,779	1	13,779	3,844
IBM Smart-UPS Model 5000RMB	37L6861	IBM	1	3,299	4	13,196	0
Netfinity Rack*	9306900	IBM	1	1,725	6	10,350	7,848
Side Panel Kit	94G6669	IBM	1	195	1	195	0
Hardware installation and prep fees		IBM	1			21,180	0
Giganet cLAN-1000 Host Adapter (incl. 10%)	cLAN-1000	Giganet	3	795	7	5,565	75,000
Giganet cLAN-5000 8-Port Switch (incl. 10%)	cLAN-5000	Giganet	3	6,250	3	18,750	incl. above
Giganet cLAN-A1011 10M Cable (incl. 10%)	cLAN-A1011	Giganet	3	135	7	945	incl. above
<b>Storage Hardware</b>							
Netfinity EXP300 Rack Storage Enclosure*	35311RU	IBM	1	3,179	52	165,308	31,512
9.1GB 15K Ultra160 SCSI Drive	19K0655	IBM	1	601	224	134,624	0
18.2GB 15K Ultra160 SCSI Drive	19K0656	IBM	1	789	496	391,344	0
<b>Subtotal</b>						<b>\$1,473,394</b>	<b>\$173,029</b>
<b>Server Software</b>							
Datacenter OS Preload Kit/Ship Group/Warr.	22P4745	IBM	1			\$738,000	0
Microsoft SQL Server 2000	11K7641	Microsoft	2	16,541	32	539,312	0
Microsoft Windows 2000 Advanced Server	C10-00475	Microsoft	2	2,399	1	2,399	incl. below
5-Year Maintenance for Software		Microsoft	2	2,095	20		\$41,900
<b>Subtotal</b>						<b>\$1,269,711</b>	<b>\$41,900</b>
<b>Client Hardware</b>							
xSeries 220 / 933MHz/256KB Pentium III*	8645-41X	IBM	1	1,593	8	12,744	25,184
933MHz/256KB Pentium III Upgrade	10K3819	IBM	1	999	8	7,992	0
256MB ECC SDRAM RDIMM	33L3144	IBM	1	365	16	5,840	0
9.1GB 10K Ultra160 SCSI Drive	37L7204	IBM	1	299	8	2,392	0
Intel Pro/100+ Dual-Port Ethernet Adapter**	8472	Intel	1	219	16	3,504	0
E54 15" (13.8" Viewable) Color Monitor*	6331N2N	IBM	1	173	8	1,384	2,240
<b>Subtotal</b>						<b>\$33,856</b>	<b>\$27,424</b>
<b>Client Software</b>							
Microsoft Windows 2000 Server with COM+	C11-00821	Microsoft	2	738	8	5,904	incl. above
Microsoft Visual C++ Professional 6.0	048-00317	Microsoft	2	549	1	549	incl. above
<b>Subtotal</b>						<b>\$6,453</b>	<b>\$0</b>
<b>User Connectivity</b>							
8-Port 10Mbps Hub (+!0% )	Generic		5	23	15,400	354,200	0
8-Port 10/100 Nway Fast Ethernet Switch (+!0% )	NX-DSS8		5	25	29	725	0
<b>Subtotal</b>						<b>\$354,925</b>	<b>\$0</b>
<b>Total</b>						<b>\$3,138,339</b>	<b>\$242,353</b>
<b>Discount</b>						<b>(222,187)</b>	<b>\$0</b>
<b>Grand Total</b>						<b>\$2,916,152</b>	<b>\$242,353</b>

Large volume discount; prices will vary if purchased individually.

Notes: \* The standard 3-year warranty and the extended warranty on IBM hardware is for 7x24, 4-hour response. \*\* 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; 2 - Microsoft; 3 - Giganet; 4 - Mylex; 5 - Software House International

**Audited by Brad Askins of InfoSizing, Inc.**

**Five-Year Cost of Ownership: \$3,158,505**

**tpmC Rating: 136,766.67**

**\$/tpmC: \$23.09**

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: % throughput difference, reported and reproducibility runs:			136,766.67 tpmC .12 %
<b>Response Times (in seconds)</b>	<b>90%</b>	<b>Average</b>	<b>Maximum</b>
New-Order	1.12	0.63	19.16
Payment	1.22	0.68	20.01
Delivery (Interactive)	0.85	0.36	1.87
Stock-Level	0.98	0.48	2.44
Order Status	0.90	0.41	3.30
Delivery (Deferred)	0.27	0.20	0.78
Menu	0.86	0.37	3.47
<b>Transaction Mix (in percent of total transactions)</b>		<b>Total Occurrences</b>	<b>Percent</b>
New-Order		4,103,000	44.81
Payment		3,940,308	43.03
Delivery		370,994	4.05
Stock Level		371,032	4.05
Order Status		370,721	4.05
<b>Emulation Delay (in seconds)</b>	<b>Response Time</b>		<b>Menu</b>
New-Order	0.1		0.1
Payment	0.1		0.1
Order-Status	0.1		0.1
Delivery	0.1		0.1
Stock-Level	0.1		0.1
<b>Keying/Think Times (in seconds)</b>	<b>Minimum</b>	<b>Average</b>	<b>Maximum</b>
New-Order	18.00 / 0.00	18.01 / 12.05	18.06 / 120.53
Payment	3.00 / 0.00	3.01 / 12.06	3.07 / 120.51
Delivery	2.00 / 0.00	2.01 / 5.06	2.05 / 50.51
Stock Level	2.00 / 0.00	2.01 / 5.07	2.05 / 50.50
Order Status	2.00 / 0.00	2.01 / 10.06	2.06 / 100.50
<b>Test Duration</b>			
Ramp-up time			35 minutes 38 seconds
Measurement interval			30 minutes
Number of transactions (all types) completed in measurement interval			9,527,120
Ramp-down time			37 minutes 52 seconds
Number of checkpoints in measurement interval			1
Checkpoint interval			30 minutes