

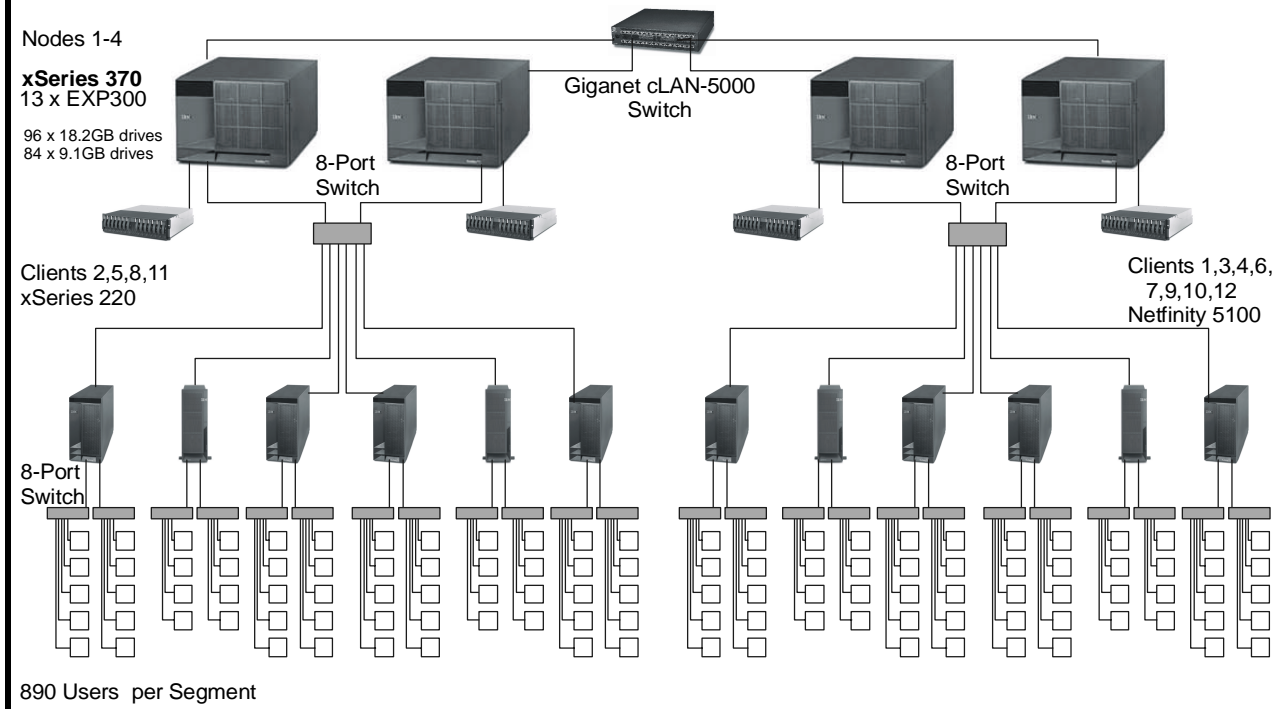


**IBM @server xSeries 370
with SQL Server 2000**

TPC-C Rev. 3.5

Report Date: Mar. 23, 2001

Total System Cost		TPC-C Throughput	Price/Performance	Availability Date
\$3,090,250		121,319.23 tpmC	\$25.47 / tpmC	May 31, 2001
Processors	Database Manager	Operating System	Other Software	Number of Users
32 Intel^(R) Pentium^(R) III Xeon™ 900MHz 2MB L2 Cache	Microsoft^(R) SQL Server 2000	Microsoft Windows^(R) 2000 Datacenter Server	Microsoft COM+ Microsoft Visual C++ 6.0	99,680



System Component	Qty	Each of 4 Server Nodes	Qty	Each of 8 Netfinity 5100 Clients:
Processors	8	900MHz Pentium III Xeon	2	733MHz Pentium III
Cache		w/2MB L2 Cache		w/256KB L2 Cache
Memory	32	1GB ECC SDRAM	4	128MB
Disk Controllers	7	ServeRAID-4H Ultra160 SCSI Adapter	1	Ultra160 SCSI Onboard
Disk Drives	84	9.1GB (15000 rpm)	1	9.1GB (10000 rpm)
	96	18.2GB (15000 rpm)		
	2	9.1GB (10000 rpm)		
Total Storage	1	9.2TB (8.77TB online)	2	Each of 4 xSeries 220 Clients:
Other			1	933MHz/256KB Pentium III
Tape Drive	1	3502-R14 DLT Tape Library	1	128MB ECC SDRAM
		Giganet cLAN-1000 Host Adapter	1	256MB ECC SDRAM
Interconnect	1	Giganet cLAN-5000 Switch	1	Ultra160 SCSI Onboard
				9.1GB (10000 rpm)



@server xSeries 370 c/s
with Microsoft SQL Server
2000

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Description	Order Number	Third-Party Brand	Pricing	Unit Price	Qty	Ext. Price	5-Yr. Maint.*
Server Hardware							
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
9.1GB 10K Ultra160 SCSI Drive	37L7204	IBM	1	299	8	2,392	0
ServeRAID-4H Ultra160 SCSI Adapter	37L6889	IBM	1	2,439	28	68,292	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	4	692	1,120
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	6	4,770	75,000
Giganet cLAN5000 8-Port Switch (incl. 10%)	cLAN5000	Giganet	3	6,250	3	18,750	incl. above
Giganet cLAN-A1011 10M Cable (incl. 10%)	cLAN-A1011	Giganet	3	135	6	810	incl. above
Storage Hardware							
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	336	201,936	0
18.2GB 15K Ultra160 SCSI Drive	19K0656	IBM	1	789	384	302,976	0
Subtotal						\$1,436,954	\$162,064
Server Software							
Datacenter OS Preload Kit/Ship Group/Warr.	22P4745	IBM	1			\$702,000	0
Microsoft SQL Server 2000	11K7641	Microsoft	2	16,541	32	539,312	0
5-Year Maintenance for Software		Microsoft	2	2,095	20		\$41,900
Subtotal						\$1,231,312	\$41,900
Client Hardware							
Netfinity 5100 / 733MHz/256KB Pentium III*	8658-2RY	IBM	1	2,052	8	\$16,416	\$47,240
733MHz/256KB Pentium III Upgrade	00N7943	IBM	1	399	8	3,192	0
128MB DIMMs	33L3123	IBM	1	185	24	4,440	0
xSeries 220 / 933MHz/256KB Pentium III*	8645-41X	IBM	1	1,593	4	6,372	12,592
933MHz/256KB Pentium III Upgrade	10K3819	IBM	1	999	4	3,996	0
256MB ECC SDRAM RDIMM	33L3144	IBM	1	365	8	2,920	0
9.1GB 10K Ultra160 SCSI Drive	37L7204	IBM	1	299	12	3,588	0
Intel Pro/100+ Dual-Port Ethernet Adapter**	8472	Intel	1	219	12	2,628	0
E54 15" (13.8" Viewable) Color Monitor*	6331N2N	IBM	1	173	12	2,076	3,360
Subtotal						\$45,628	\$63,192
Client Software							
Microsoft Windows 2000 Server with COM+	C11-00821	Microsoft	2	738	12	8,856	incl. above
Microsoft Visual C++ Professional 6.0	048-00317	Microsoft	2	549	1	549	incl. above
Subtotal						\$9,405	\$0
User Connectivity							
8-Port 10/100Mbps Hub** (10% spares***)	DEH2924	Generic	4	23	13,799	\$317,377	\$0
8-Port 10/100 Nway Fast Ethernet Switch (+!0%)	NX-DSS8		4	25	30	725	0
Subtotal						\$318,102	\$0
Total						\$3,041,401	\$267,156
Discount						(218,307)	\$0
Grand Total						\$2,823,094	\$267,156

Large volume discount; prices will vary if purchase 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 - Software House International

Audited by Brad Askins of InfoSizing, Inc.

Five-Year Cost of Ownership: \$3,090,250

tpmC Rating: 121,319.23

\$/tpmC: \$25.47

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: % throughput difference, reported and reproducibility runs:			121,319.23 tpmC 0.7 %
Response Times (in seconds)	90%	Average	Maximum
New-Order	1.30	0.78	24.82
Payment	1.30	0.77	26.10
Delivery (Interactive)	0.83	0.33	2.19
Stock-Level	1.10	0.57	6.11
Order Status	1.03	0.51	6.42
Delivery (Deferred)	0.46	0.34	6.14
Menu	0.85	0.34	3.88
Transaction Mix (in percent of total transactions)		Total Occurrences	Percent
New-Order		3,639,577	44.83
Payment		3,493,410	43.03
Delivery		328,099	4.04
Stock Level		328,584	4.05
Order Status		329,461	4.06
Emulation Delay (in seconds)	Response Time		Menu
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
Keying/Think Times (in seconds)	Minimum	Average	Maximum
New-Order	18.00 / 0.00	18.01 / 12.04	18.07 / 120.51
Payment	3.00 / 0.00	3.01 / 12.05	3.07 / 120.51
Delivery	2.00 / 0.00	2.01 / 5.06	2.08 / 50.51
Stock Level	2.00 / 0.00	2.01 / 5.06	2.05 / 50.50
Order Status	2.00 / 0.00	2.01 / 10.07	2.05 / 100.51
Test Duration			
Ramp-up time			1 hour 6 minutes 21 seconds
Measurement interval			30 minutes
Number of transactions (all types) completed in measurement interval			8,447,190
Ramp-down time			3 minutes 1 seconds
Number of checkpoints in measurement interval			1
Checkpoint interval			30 minutes