

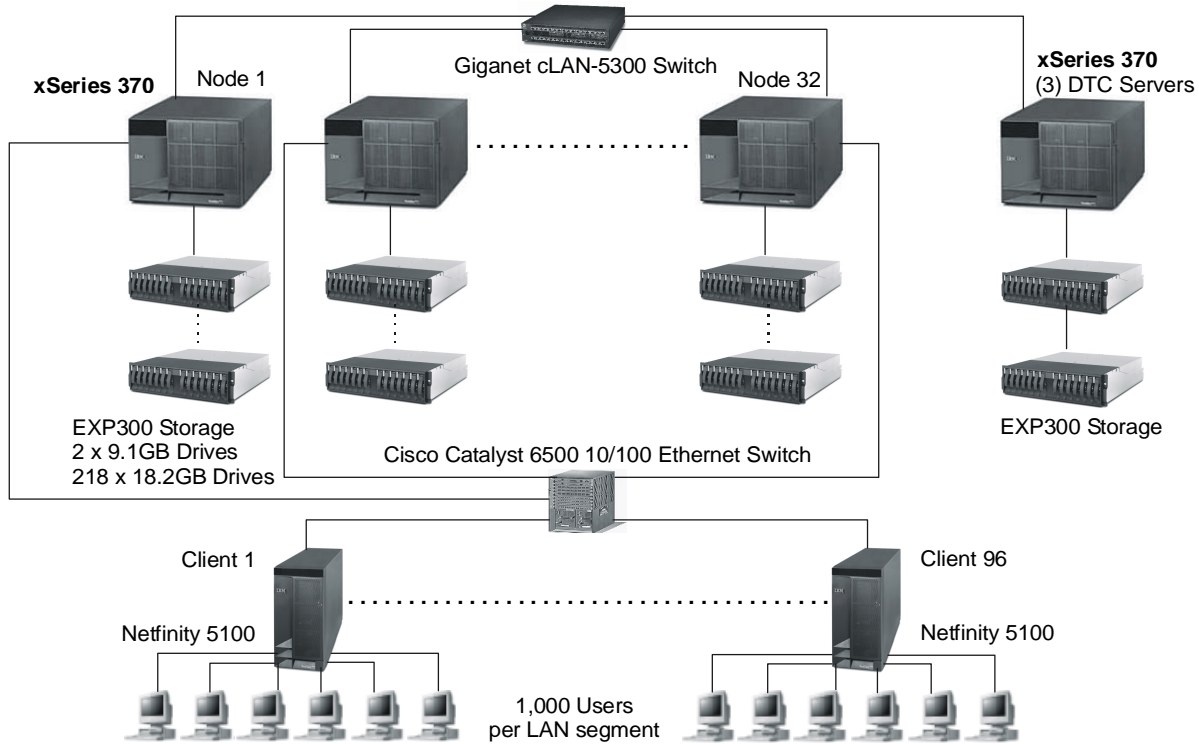


**IBM @server xSeries 370
with
Microsoft SQL Server 2000**

TPC-C Rev. 3.5

Report Date: Mar. 23, 2001
(Amended April 6, 2001)

| | | | | |
|--|--|---|--|-----------------|
| Total System Cost | TPC-C Throughput | Price/Performance | Availability Date | |
| \$19,884,668 | 688,220.90 tpmC | \$28.89/tpmC | May 31, 2001 | |
| Processors | Database Manager | Operating System | Other Software | Number of Users |
| Database Servers = 256 DTC Servers = 24 Intel^(R) Pentium^(R) III XeonTM 900MHz 2MB L2 Cache | Microsoft^(R) SQL Server 2000 | Microsoft Windows^(R) 2000 Datacenter Server | Microsoft COM+ Microsoft Visual C++ 6.0 | 576,000 |



| System Component | Qty | Each of 32 Database Servers: | Qty | Each of 96 Clients: |
|------------------|----------|---|-----|------------------------------------|
| Processors | 8 | 900MHz Pentium III Xeon | 2 | 733MHz Pentium III |
| Cache | | w/2MB L2 Cache | | w/256KB L2 Cache |
| Memory | 32 | 512MB ECC SDRAM | 4 | 128MB |
| Disk Controllers | 8 | ServeRAID-4H Ultra160 SCSI Adapter | 1 | Ultra160 SCSI Onboard |
| Disk Drives | 2 218 | 9.1GB (10000 rpm) 18.2GB (10000 rpm) | 1 | 9.1GB Hard Disk |
| Total Storage | | 116TB (57.99TB online) | 8 | Each of 3 DTC Servers: |
| Other | | | 4 | 900MHz/2MB Pentium III Xeon |
| Tape Drive | 1 | 3502-R14 DLT Tape Library | 1 | 128MB ECC SDRAM |
| Interconnect | 1 | Giganet cLAN-1000 Host Adapter | 6 | ServeRAID-4H Ultra160 SCSI Adapter |
| | 2 | Giganet cLAN-5300 Switch | 1 | 9.1GB (10000 rpm) drive |
| | | | | Giganet cLAN-1000 Host Adapter |



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| Description | Order Number | Third-Party Brand | Third-Party Pricing | Unit Price | Qty | Ext. Price | 5-Yr. Maint.* |
|---|--------------|-------------------|---------------------|------------|--------|---------------------|--------------------|
| Server Hardware | | | | | | | |
| xSeries 370 900MHz/2MB Pentium III Xeon* | 8681-3RX | IBM | 1 | \$19,114 | 35 | \$668,990 | \$373,975 |
| 900MHz/2MB L2 Cache Processor Upgrade | 19K4637 | IBM | 1 | 6,599 | 245 | 1,616,755 | 0 |
| 8500R Memory Expansion Card | 28L4454 | IBM | 1 | 625 | 32 | 20,000 | 0 |
| 8500 >4X Accelerator Filter | 10K2335 | IBM | 1 | 1,249 | 35 | 43,715 | 0 |
| 512MB ECC SDRAM RDIMM Memory Kit | 20L0249 | IBM | 1 | 1,575 | 1,024 | 1,612,800 | 0 |
| ServeRAID-4H Ultra160 SCSI Adapter | 37L6889 | IBM | 1 | 2,439 | 259 | 631,701 | 0 |
| Ultra2 SCSI 4m Cable | 03K9311 | IBM | 1 | 105 | 739 | 77,595 | 0 |
| 10/100 Ethernet Server Adapter with IPsec | 06P3601 | IBM | 1 | 99 | 32 | 3,168 | 0 |
| E54 15" (13.8" Viewable) Color Monitor* | 6331N2N | IBM | 1 | 173 | 35 | 6,055 | 9,800 |
| 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 | 32 | 105,568 | 0 |
| Netfinity Rack* | 9306900 | IBM | 1 | 1,725 | 79 | 136,275 | 103,332 |
| Side Panel Kit | 94G6669 | IBM | 1 | 195 | 12 | 2,340 | 0 |
| Hardware installation and prep fees | | IBM | 1 | | | 238,475 | 0 |
| Giganet cLAN-1000 Host Adapter (incl. 10%) | cLAN-1000 | Giganet | 4 | 795 | 39 | 31,005 | 75,000 |
| Giganet cLAN5300 30-Port Switch (incl. 10%) | cLAN5300 | Giganet | 4 | 15,995 | 4 | 63,980 | incl. above |
| Giganet cLAN-A1011 10M Cable (incl. 10%) | cLAN-A1011 | Giganet | 4 | 135 | 39 | 5,265 | incl. above |
| Storage Hardware | | | | | | | |
| Netfinity EXP300 Rack Storage Enclosure* | 35311RU | IBM | 1 | 3,179 | 706 | 2,244,374 | 554,916 |
| 9.1GB 10K Ultra160 SCSI Drive | 37L7204 | IBM | 1 | 299 | 82 | 24,518 | 0 |
| 18.2GB 10K Ultra160 SCSI Drive | 37L7205 | IBM | 1 | 467 | 6,976 | 3,257,792 | 0 |
| Subtotal | | | | | | \$10,804,150 | \$1,120,867 |
| Server Software | | | | | | | |
| Datacenter OS Preload Kit/Ship Group/Warr. | 22P4745 | IBM | 1 | | | \$2,760,000 | 0 |
| Microsoft SQL Server 2000 | 11K7641 | Microsoft | 2 | 15,802 | 256 | 4,045,312 | 0 |
| Microsoft Windows 2000 Advanced Server | C10-00475 | Microsoft | 2 | 2,399 | 3 | 7,197 | 0 |
| 5-Year Maintenance for Software | | Microsoft | 2 | 2,095 | 160 | | \$335,200 |
| Subtotal | | | | | | \$6,812,509 | \$335,200 |
| Client Hardware | | | | | | | |
| Netfinity 5100 / 733MHz/256KB Pentium III* | 8658-2RY | IBM | 1 | 2,052 | 96 | \$196,992 | \$566,880 |
| 733MHz/256KB Pentium III Upgrade | 00N7943 | IBM | 1 | 399 | 96 | 38,304 | 0 |
| 128MB DIMMs | 33L3123 | IBM | 1 | 185 | 288 | 53,280 | 0 |
| 9.1GB 10K Ultra160 SCSI Drive | 37L7204 | IBM | 1 | 299 | 96 | 28,704 | 0 |
| Intel Pro/100+ Dual-Port Ethernet Adapter** | 8472 | Intel | 1 | 219 | 288 | 63,072 | 0 |
| E54 15" (13.8" Viewable) Color Monitor* | 6331N2N | IBM | 1 | 173 | 96 | 16,608 | 26,880 |
| Subtotal | | | | | | \$396,960 | \$593,760 |
| Client Software | | | | | | | |
| Microsoft Windows 2000 Server with COM+ | C11-00821 | Microsoft | 2 | 738 | 96 | 70,848 | incl. above |
| Microsoft Visual C++ Professional 6.0 | 048-00317 | Microsoft | 2 | 549 | 1 | 549 | incl. above |
| Subtotal | | | | | | \$71,397 | \$0 |
| User Connectivity | | | | | | | |
| 8-Port 10/100Mbps Hub** (10% spares***) | DEH2924 | Generic | 3 | 23 | 79,200 | \$1,821,600 | \$0 |
| Cisco Catalyst 6500 48-Port 10/100 RJ-45 | WSX6248RJ45 | Cisco | 5 | 55,399 | 1 | 55,399 | 52,500 |
| Subtotal | | | | | | \$1,876,999 | \$52,500 |
| Total | | | | | | \$19,962,015 | \$2,102,327 |
| Discount | | | | | | (2,179,674) | |
| Grand Total | | | | | | \$17,782,341 | \$2,102,327 |

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 - Software House International ; 4 - Giganet; 5 - Cisco

Audited by Brad Askins of InfoSizing, Inc.

Five-Year Cost of Ownership: \$19,884,668

tpmC Rating: 688,220.90

\$/ tpmC: \$28.89

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: | | | 688,220.90 tpmC 0.1108 % |
| Response Times (in seconds) | 90% | Average | Maximum |
| New-Order | 1.79 | 1.03 | 438.85 |
| Payment | 2.58 | 1.16 | 147.16 |
| Delivery (Interactive) | 1.01 | 0.44 | 68.32 |
| Stock-Level | 1.38 | 0.75 | 168.62 |
| Order Status | 1.12 | 0.54 | 31.68 |
| Delivery (Deferred) | 0.43 | 0.32 | 6.17 |
| Menu | 1.03 | 0.45 | 525.33 |
| Transaction Mix (in percent of total transactions) | | Total Occurrences | Percent |
| New-Order | | 13,764,418 | 44.84 |
| Payment | | 13,219,779 | 43.06 |
| Delivery | | 1,239,025 | 4.04 |
| Stock Level | | 1,237,686 | 4.03 |
| Order Status | | 1,239,034 | 4.04 |
| 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 / 12.05 | 18.14 / 120.61 |
| Payment | 3.00 / 0.00 | 3.01 / 12.04 | 3.13 / 120.60 |
| Delivery | 2.00 / 0.00 | 2.01 / 5.05 | 2.13 / 50.50 |
| Stock Level | 2.00 / 0.00 | 2.01 / 5.05 | 2.14 / 50.50 |
| Order Status | 2.00 / 0.00 | 2.01 / 10.04 | 2.13 / 100.50 |
| Test Duration | | | |
| Ramp-up time | | | 29 minutes 25 seconds |
| Measurement interval | | | 20 minutes |
| Number of transactions (all types) completed in measurement interval | | | 31,801,244 |
| Ramp-down time | | | 4 minutes 15 seconds |
| Number of checkpoints in measurement interval | | | 1 |
| Checkpoint interval | | | 20 minutes |