# IBM

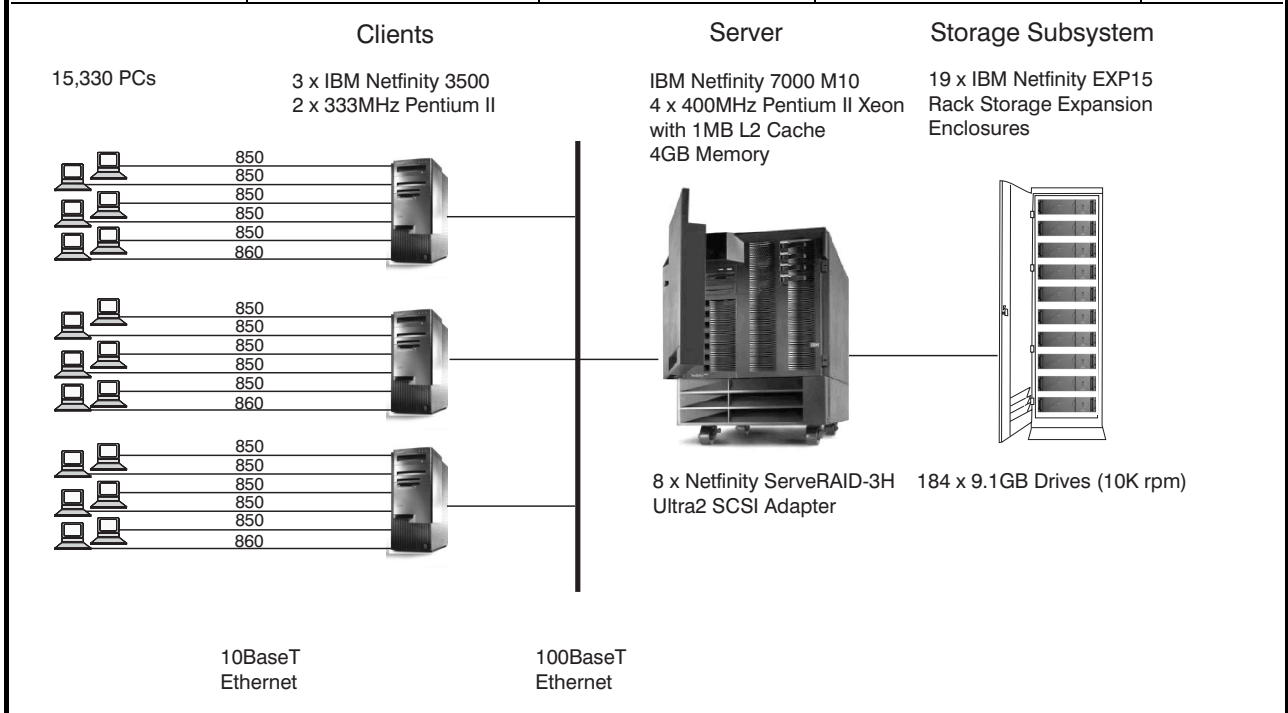# IBM Netfinity 7000 M10 C/S

TPC-C Rev 3.4

Report Date: 14 Sept. 1998

| Total System Cost | TPC-C Throughput | Price/Performance | Availability Date |
|---|---|---|---|
| **$549,551** | **18,893.43 tpmC** | **$29.09/tpmC** | **Dec. 29, 1998** |

| Processors | Database Manager | Operating System | Other Software | Number of Users |
|---|---|---|---|---|
| **4 Pentium® II Xeon 400MHz 1MB L2 Cache** | **Microsoft® SQL Server 7.0 Enterprise Edition** | **Microsoft Windows® NT 4.0 Enterprise Edition** | **TUXEDO® 6.3 CFS** | **15,330** |

Clients | Server | Storage Subsystem

15,330 PCs

3 x IBM Netfinity 3500
2 x 333MHz Pentium II

IBM Netfinity 7000 M10
4 x 400MHz Pentium II Xeon
with 1MB L2 Cache
4GB Memory

19 x IBM Netfinity EXP15
Rack Storage Expansion
Enclosures

850
850
850
850
850
860

850
850
850
850
850
860

850
850
850
850
850
860

8 x Netfinity ServeRAID-3H
Ultra2 SCSI Adapter

184 x 9.1GB Drives (10K rpm)

10BaseT
Ethernet

100BaseT
Ethernet

| System Component | Qty | Server | Qty | Each of Three Clients |
|---|---|---|---|---|
| **Processors** | **4** | **400MHz Pentium II Xeon** | **2** | **333MHz Pentium II** |
| **Cache** | | **1MB L2 Cache** | | **512KB L2 Cache** |
| **Memory** | **1** | **4096MB** | **1** | **384MB** |
| **Disk Controllers** | **8** | **ServeRAID-3H Ultra2** | **1** | **Wide Ultra SCSI Onboard** |
| **Disk Drives** | **184** | **9.1GB (10000rpm)** | **1** | **4.51GB Hard Disk** |
| **Total Storage** | | **1674.4GB** | | |
| **Tape Drive** | **1** | **10/20GB SCSI Tape Drive** | | |
| **Terminals** | **1** | **14-inch Display** | **1** | **14-inch Display** |
| **User Connectivity** | **1** | **NETLUX 8-Port 100Mbps Hub** | **2124** | **COMPEX 8-Port 10Mbps Ethernet Hub** |

| IBM Corporation | Netfinity 7000 M10 C/S | TPC-C Revision 3.4 |
|---|---|---|
| | | Report Date: 14 Sept. 1998 |

| Description | Order Number | Third-Party Brand | Pricing | Unit Price | Qty | Ext. Price | 5-Yr. Maint.* |
|---|---|---|---|---|---|---|---|
| **Server Hardware** | | | | | | | |
| IBM Netfinity 7000 M10 / 400MHz Pentium II Xeon with 1MB L2 Cache* | 8680-2RU | | 1 | $18,804 | 1 | $18,804 | $6,415 |
| 400MHz / 1MB L2 Cache Processor Upgrade | 01K8007 | | 1 | 7,295 | 3 | 21,885 | 0 |
| Memory Card | 01K8004 | | 1 | 656 | 1 | 656 | 0 |
| Netfinity 512MB Memory Expansion Kit | 01K8045 | | 1 | 3,278 | 8 | 26,224 | 0 |
| Netfinity ServeRAID-3H Ultra2 SCSI Adapter | 01K7207 | | 1 | 2,069 | 8 | 16,552 | 0 |
| 32MB Battery Backup Cache | 28L1003 | | 1 | 325 | 1 | 325 | 0 |
| Netfinity 4.2M Ultra2 SCSI Cable | 03K9311 | | 1 | 109 | 22 | 2,398 | 0 |
| IBM Third SCSI Internal Channel Cable | 76H5400 | | 2 | 29 | 7 | 203 | 0 |
| IBM EtherJet 100/10 PCI Adapter | 86H2432 | | 2 | 81 | 1 | 81 | 0 |
| IBM G42 14" (13.2" Viewable) Color Monitor* | 654000N | | 2 | 211 | 1 | 211 | 215 |
| 10/20GB NS Internal SCSI Tape Drive | 01K1319 | | 2 | 652 | 1 | 652 | 0 |
| Netfinity Rack* | 9306900 | | 2 | 1,790 | 2 | 3,580 | 2,106 |
| Side Panel Kit | 94G6669 | | 2 | 207 | 2 | 414 | 0 |
| **Server Storage** | | | | | | | |
| Netfinity EXP15 Rack Storage Exp. Enclosure | 35202RU | | 1 | 2,804 | 19 | 53,276 | 0 |
| Netfinity EXP15 Rack Storage Enc. (10% Spares) | 35202RU | | 1 | 2,804 | 2 | 5,608 | 0 |
| APC Smart-UPS 1400RMB | 94G6674 | | 2 | 1,183 | 1 | 1,183 | 0 |
| Netfinity EXP10 9.1GB 10K Wide Ultra SCSI Drive | 01K8499 | | 2 | 1,108 | 184 | 203,872 | 0 |
| Netfinity EXP10 9.1GB 10K Wide Ultra SCSI Drive (10% Spares) | 01K8499 | | 2 | 1,108 | 19 | 21,052 | 0 |
| | | | | | Subtotal | $376,976 | $8,736 |
| **Server Software** | | | | | | | |
| Microsoft SQL Server Enterprise Edition 7.0, unlimited user license | | Microsoft | 3 | 28,999 | 1 | $28,999 | $0 |
| Microsoft Windows NT Server Enterprise Edition 4.0, including 25 CALs | | Microsoft | 3 | 3,999 | 1 | 3,999 | 0 |
| Microsoft Software Maintenance | | Microsoft | 3 | 10,475 | 1 | | 10,475 |
| | | | | | Subtotal | $32,998 | $10,475 |
| **Client Hardware** | | | | | | | |
| IBM Netfinity 3500 / 333MHz Pentium II* | 8644-30U | | 2 | 2,147 | 3 | $6,441 | 7,605 |
| IBM Netfinity 333MHz Upgrade with Pentium II | 10K8025 | | 2 | 1,142 | 3 | 3,426 | 0 |
| 4.51GB Wide Ultra SCSI Drive | 01K1327 | | 2 | 380 | 3 | 1,140 | 0 |
| 128MB DIMMs | 04K0075 | | 2 | 325 | 9 | 2,925 | 0 |
| IBM EtherJet 100/10 PCI Adapter | 86H2432 | | 2 | 81 | 6 | 486 | 0 |
| Adaptec Quartet 4-Port Ethernet PCI Adapter** | ANA-6944ATX | | 2 | 523 | 3 | 1,569 | 0 |
| IBM G42 14" (13.2" Viewable) Color Monitor* | 654000N | | 2 | 211 | 3 | 633 | 675 |
| | | | | | Subtotal | $16,620 | $8,280 |
| **Client Software** | | | | | | | |
| Microsoft Windows NT Server 4.0, incl. 5 CALs | | Microsoft | 3 | 809 | 3 | 2,427 | 0 |
| Microsoft Visual C++ 32-bit edition (subscription) | | Microsoft | 3 | 499 | 1 | 499 | 0 |
| TUXEDO 6.3 Core Functionality Services for NT | | BEA | 4 | 3,000 | 3 | 9,000 | 6,750 |
| | | | | | Subtotal | $11,926 | $6,750 |
| **User Connectivity** | | | | | | | |
| COMPEX MicroHub/8-Port 10Mbps Hub*** | DEH2924 | COMPEX | 5 | 35.85 | 2,124 | 76,145 | 0 |
| NETLUX 8-Port 100Mbps Hub*** | NX-H8TX | NETLUX | 6 | 215 | 3 | 645 | 0 |
| | | | | | Subtotal | $76,790 | $0 |
| | | | | | Total | $515,310 | $34,241 |

Notes: * The standard 3-year warranty and the extended warranty on IBM hardware is for 7x24, on-site same day 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; 2 - Entex; 3 - Microsoft Corp.; 4 - BEA Systems; 5 - DataComm Warehouse; 6 - NETLUX**
**Audited by Francois Raab of Information Paradigm, Inc.**

| Five-Year Cost of Ownership: | $549,551 |
|---|---|
| tpmC Rating: | 18,893.43 |
| $ / tpmC: | 29.09 |

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. Al l 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: | | | 18,893.43 tpmC |
|---|---|---|---|
| **% throughput difference, reported and reproducibility runs**: | | | 0.1078% |
| **Response Times (in seconds)** | **90th Percentile** | **Average** | **Maximum** |
| New-Order | 0.84 | 0.57 | 28.87 |
| Payment | 0.72 | 0.46 | 24.03 |
| Order-Status | 0.52 | 0.38 | 1.94 |
| Delivery (Interactive) | 0.31 | 0.32 | 1.61 |
| Delivery (Deferred) | 0.76 | 0.53 | 3.03 |
| Stock Level | 2.49 | 2.07 | 4.24 |
| Menu | 0.32 | 0.20 | 1.64 |
| | | | |
| Response time delay added for menu delay is 0.1 seconds. | | | |
| Response time delay added for response time delay is 0.1 seconds. | | | |
| | | | |
| **Transaction Mix, in percent of total transactions** | | **Total Occurrences** | **Percent** |
| New-Order | | 566,803 | 44.89% |
| Payment | | 543,166 | 43.02% |
| Order-Status | | 50,942 | 4.03% |
| Delivery | | 50,817 | 4.02% |
| Stock-Level | | 50,936 | 4.03% |
| | | | |
| **Keying/Think Times (in seconds)** | **Minimum** | **Average** | **Maximum** |
| New-Order | 18.00 / 0.00 | 18.01 / 12.12 | 18.05 / 121.00 |
| Payment | 3.00 / 0.00 | 3.01 / 12.08 | 3.03 / 121.01 |
| Order Status | 2.00 / 0.00 | 2.01 / 10.05 | 2.04 / 101.00 |
| Delivery | 2.00 / 0.00 | 2.01 / 5.11 | 2.03 / 51.00 |
| Stock-Level | 2.00 / 0.00 | 2.01 / 5.04 | 2.03 / 51.00 |
| | | | |
| **Test Duration** | | | |
| Ramp-up time | | | 0 hour, 44 minutes, 2 seconds |
| Measurement interval | | | 30 minutes |
| Number of checkpoints in measurement interval | | | 1 |
| Checkpoint interval | | | 30 minutes |
| Number of transactions (all types) completed in measurement interval | | | 1,262,664 |