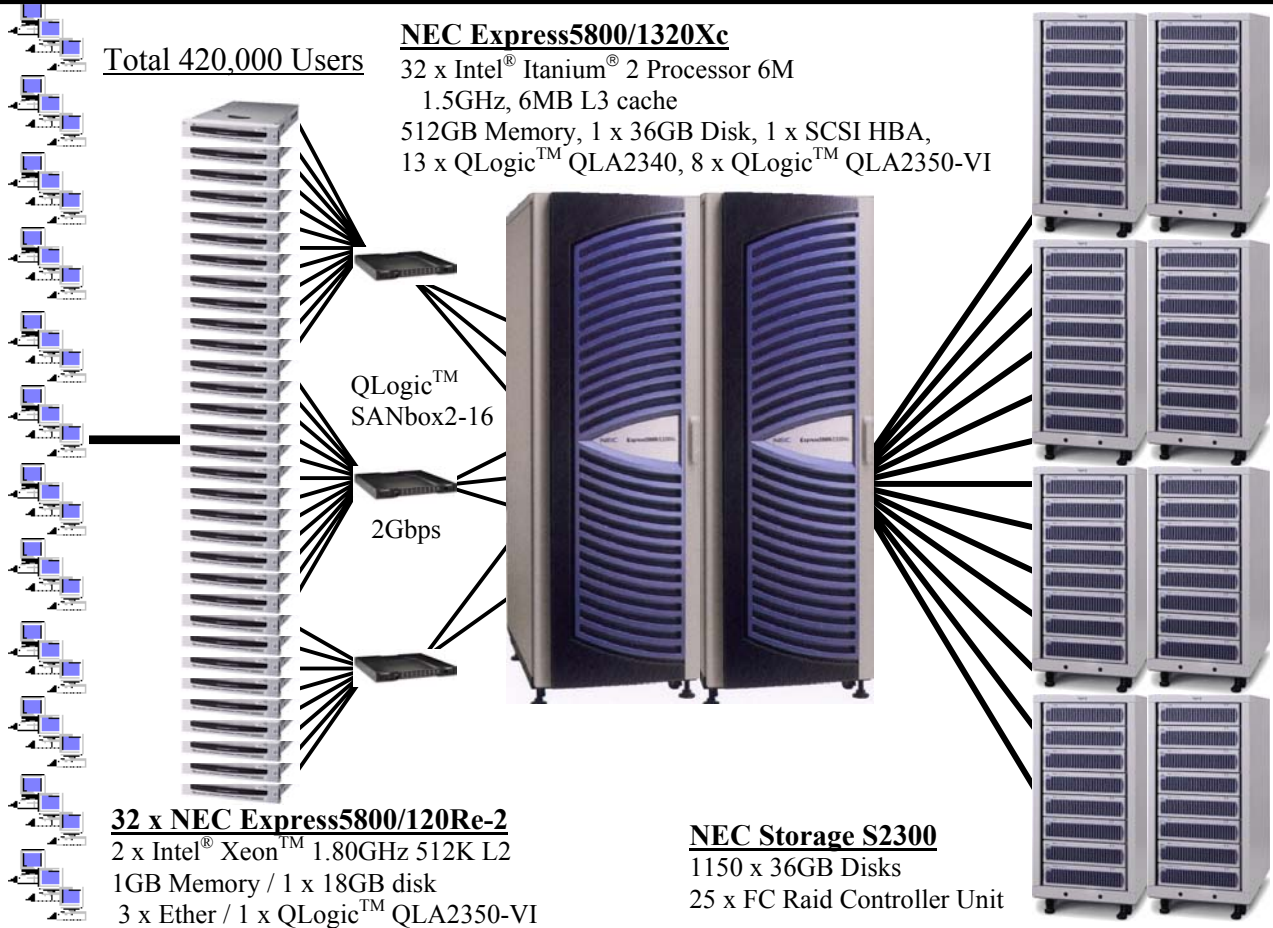


| | | | |
|--|---|---|--|
| NEC | NEC Express5800/1320Xc C/S with Express5800/120Re-2 | | TPC-C Rev.5.1 Reported Date April 23, 2003 |
| Total System Cost | TPC-C Throughput | Price/Performance | Availability Date |
| \$5,907,028 | 514,034.72 tpmC | \$11.50 per tpmC | October 22, 2003 Hardware Available on Aug 11, 2003 |
| Processors | Database Manager | Operating System | Other Software |
| 32 Intel® Itanium® 2 Processor 6M 1.5GHz for Server 62 Intel® Xeon™ 1.80GHz for Client | Microsoft® SQL Server™ 2000 Enterprise Edition(64-bit) | Microsoft® Windows® Server 2003, Datacenter Edition for 64-bit Itanium-based Systems | Windows® 2000 Server Microsoft® VC++ Microsoft® COM+ |
| Number of Users | | | |
| 420,000 | | | |



| System Component | Server | | Each Client | |
|-------------------------|-------------|--|------------------|--|
| Processors | 32 | Intel® Itanium® 2 Processor 6M | 2 | Intel® Xeon™ 1.80GHz |
| Cache | | 1.5GHz, 6MB L3 Cache | | 512KB L2 Cache |
| Memory | | 2 GB x 256 | | 512MB x 2 |
| Disk Controllers | 13 1 | QLogic™ QLA2340 SCSI HBA | 1 | On-board SCSI |
| Disk Drives | 1 1150 | 36GB (33.4GB Usable) 36GB (33.2GB Usable) | 1 | 18GB |
| Total Storage | | 41,436GB | | 18GB |
| Others | 1 1 8 | DVD-ROM Drive 1Gbps Ether NIC QLogic™ QLA2350-VI 2Gb NIC | 1 2 1 1 | CD-ROM Drive On-board Ether controller 100Mbps Ether NIC QLogic™ QLA2350-VI 2Gb NIC |



NEC Express5800/1320Xc
C/S with Express5800/120Re-2

TPC-C REV 5.1

Report Date: **04/23/03**

| Description | Part Number | Third Party Brand | Pricing | Unit Price | Qty | Extended Price | 3-yr Mnt. Price |
|--|-------------------|-------------------|---------|------------|-----------------|---|------------------|
| Server Hardware | | | | | | | |
| Express5800/1320Xc system | 850200023 | NEC | 1 | 2,126,090 | 1 | 2,126,090 | 1,158,910 |
| Base Original 32 | Included | NEC | 1 | - | 1 | - | - |
| Cell Card Original | Included | NEC | 1 | - | 8 | - | - |
| CPU(1.5GHz/6MB) | Included | NEC | 1 | - | 32 | - | - |
| Memory(8GB) | Included | NEC | 1 | - | 64 | - | - |
| Base PCI Box | Included | NEC | 1 | - | 3 | - | - |
| Core PCI Box(Windows Model) | Included | NEC | 1 | - | 1 | - | - |
| PCI Cable(2.5m) | Included | NEC | 1 | - | 6 | - | - |
| PCI Cable(3.0m) | Included | NEC | 1 | - | 2 | - | - |
| Expansion Cabinet | Included | NEC | 1 | - | 1 | - | - |
| 18GB 10K rpm HDD | Included | NEC | 1 | - | 1 | - | - |
| Gbit Ether NIC | Included | NEC | 1 | - | 1 | - | - |
| Mouse/Keyboard | Included | NEC | 1 | - | 1 | - | - |
| SCSI HBA with VHDCI cables | Included | NEC | 1 | - | 1 | - | - |
| Windows Server 2003, Datacenter Edition | Included | NEC | 1 | - | 1 | - | - |
| NEC Express5800/120Re-2 (for System Maintenance) | | | | | | | |
| Base System with 1 x Xeon Processor 1.8GHz/512KB | 850162001 | NEC | 1 | 2,859 | 1 | 2,859 | - |
| 1 x Xeon Processor 1.8GHz/512KB BTO Option, | 062-02163-000 | NEC | 1 | 399 | 1 | 399 | - |
| 1GB(2 x 512MB) DDR200 SDRAM memory, | 062-02168-000 | NEC | 1 | 599 | 1 | 599 | - |
| 1 x 18.2GB 10K rpm Ultra160 HDD, | 062-02011-000 | NEC | 1 | 329 | 1 | 329 | - |
| CD-ROM, 2 x On-board LAN, KB/MS | Included | NEC | 1 | - | 1 | - | - |
| 3 years of warranty service to 4-hour response, 7x24 | WG-0000-1095-7244 | NEC | 1 | 1,399 | 1 | - | 1,399 |
| NEC AccuSync50 (15" monitor) | AS50 | NEC | 3 | 120 | 2 | 239 | - |
| 36GB 10K rpm SCSI HDD (+2 spares) | DK32DJ-36MC | HITACHI | 3 | 239 | 3 | 717 | - |
| FC HBA QLA2340 (+2 spares) | QLA2340-CK | QLogic | 3 | 1,329 | 15 | 19,940 | - |
| FC Adapter QLA2350 (+2 spares) | QLA2350 | QLogic | 4 | 2,095 | 11 | 23,045 | - |
| FC Cable 10M LC-LC (+2 spares) | 062-02304-000 | NEC | 1 | 200 | 11 | 2,200 | - |
| | | | | | Subtotal | 2,176,417 | 1,160,309 |
| Disk Subsystem | | | | | | | |
| NEC Storage S2300 Basic Unit | 850161002 | NEC | 1 | 46,296 | 25 | 1,157,400 | - |
| 2 RAID_Cntrl, 1GB Cache, 1DE, 3 x 36GB Drive | | | | | | | |
| 1GB(2 x 512MB) PC133 SDRAM memory | 062-02301-000 | NEC | 1 | 1,999 | 2 | 3,998 | - |
| S2300 DE (+10% spares) | 062-02302-000 | NEC | 1 | 6,999 | 58 | 405,942 | - |
| 36GB 15K rpm FC HDD (+10% spares) | 062-02303-000 | NEC | 1 | 1,099 | 1183 | 1,300,117 | - |
| 3 yr Telephone Upgrade Hdw & Storage | | | | | | | |
| Manager SW Support; 7days/ 24hours per day | IS-THSU-1095-0724 | NEC | 1 | 1499 | 25 | - | 37,475 |
| 42U Rackframe | 050-01790-000 | NEC | 1 | 1,799 | 8 | 14,392 | - |
| FC Cable 10M LC-LC (+10% spares) | 062-02304-000 | NEC | 1 | 200 | 28 | 5,600 | - |
| | | | | | Subtotal | 2,887,449 | 37,475 |
| Server Software | | | | | | | |
| SQL Server2000 Ent. Edition(64-bit) ,Processor License | 810-00560 | Microsoft | 2 | 16,541 | 32 | 529,312 | 5,850 |
| | | | | | Subtotal | 529,312 | 5,850 |
| Client Hardware | | | | | | | |
| NEC Express5800/120Re-2 | | | | | | | |
| Base System with 1 x Xeon Processor 1.8GHz/512KB | 850162001 | NEC | 1 | 2,859 | 31 | 88,629 | - |
| 1 x Xeon Processor 1.8GHz/512KB BTO Option, | 062-02163-000 | NEC | 1 | 399 | 31 | 12,369 | - |
| 1GB(2 x 512MB) DDR200 SDRAM memory, | 062-02168-000 | NEC | 1 | 599 | 31 | 18,569 | - |
| 1 x 18.2GB 10K rpm Ultra160 HDD, | 062-02011-000 | NEC | 1 | 329 | 31 | 10,199 | - |
| CD-ROM, 2 x On-board LAN, KB/MS | Included | NEC | 1 | - | 31 | - | - |
| 3 years of warranty service to 4-hour response, 7x24 | WG-0000-1095-7244 | NEC | 1 | 1,399 | 31 | - | 43,369 |
| NEC AccuSync50 (15" monitor) | AS50 | NEC | 3 | 120 | 31 | 3,710 | - |
| 42U Rackframe | 050-01790-000 | NEC | 1 | 1,799 | 2 | 3,598 | - |
| FC Adapter QLA2350 (+10% spares) | QLA2350 | QLogic | 4 | 2,095 | 35 | 73,325 | - |
| FC Cable 10M LC-LC (+10% spares) | 062-02304-000 | NEC | 1 | 200 | 35 | 7,000 | - |
| Intel PRO/100 S Server Adapter, 5-pack (+10% spares) | PILA8470C3PAK5 | Intel | 3 | 286 | 7 | 2,002 | - |
| Fast Ether Cable 25' RJ45-RJ45 (+10% spares) | C5E-114GY-25FB | AESP | 3 | 11 | 103 | 1,133 | - |
| | | | | | Subtotal | 220,535 | 43,369 |
| Client Software | | | | | | | |
| Windows2000 Server, Server License | C11-00821 | Microsoft | 2 | 738 | 32 | 23,616 | (Included) |
| Visual C++ Standard | 254-00170 | Microsoft | 2 | 109 | 1 | 109 | (Included) |
| | | | | | Subtotal | 23,725 | |
| User Connectivity | | | | | | | |
| SAN BOX2-16 16-ports 2-Gbit FC Switch(+2 spares) | SB2A-16A | QLogic | 4 | 17,995 | 5 | 89,975 | - |
| SFP-Shortwave LC Optic / 8 SFPs per pack (+10% spares) | SFP2-SW-01 | QLogic | 4 | 2,150 | 6 | 12,900 | - |
| | | | | | Subtotal | 102,875 | 0 |
| TOTAL | | | | | | 5,940,313 | 1,247,003 |
| NEC brand total(Pricing 1-NEC) | | | | | | 5,160,289 | 1,241,153 |
| NEC brand Large Purchase Cash Prepay Discount(-20%) | | | | | | -1,032,058 | -248,231 |
| Notes: | | | | | | 3-Yr. Cost of Ownership: \$5,907,028 | |
| Client software maintenance is covered by the maintenance costs of Microsoft SQL Server 2000 | | | | | | tpmC Rating: 514034.72 | |
| Pricing: 1-NEC 2-Microsoft 3-CDW 4-QLogic | | | | | | \$ / tpmC: \$11.50 | |
| Results and methodology audited by Francois Raab of InfoSizing, Inc. (www.sizing.com) | | | | | | | |
| 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 reflects standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark specifications.If you find that the 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

514,034.72 tpmC

Response Times(in seconds)

| | <u>Average</u> | <u>Maximum</u> | <u>90%</u> |
|-------------------------------|----------------|----------------|------------|
| New-Order | 0.89 | 21.45 | 1.73 |
| Payment | 0.86 | 24.88 | 1.68 |
| Delivery(interactive portion) | 0.10 | 2.52 | 0.11 |
| Stock-Level | 0.94 | 22.06 | 1.82 |
| Order-status | 0.88 | 22.59 | 1.75 |
| Delivery(deferred portion) | 0.10 | 3.20 | 0.14 |
| Menu | 0.10 | 2.53 | 0.11 |

Response time delay added for emulated components

0.1

Transaction Mix , in percent of total transaction

| | |
|--------------|--------|
| New-Order | 44.91% |
| Payment | 43.03% |
| Delivery | 4.01% |
| Stock-Level | 4.01% |
| Order-Status | 4.03% |

Keying/Think Times (in seconds)

| | <u>Average</u> | | <u>Min</u> | | <u>Max</u> | |
|--------------|----------------|-------|------------|------|------------|--------|
| New-Order | 18.02 | 12.07 | 18.00 | 0.00 | 18.06 | 120.71 |
| Payment | 3.02 | 12.07 | 3.00 | 0.00 | 3.06 | 120.71 |
| Delivery | 2.02 | 5.08 | 2.00 | 0.00 | 2.06 | 50.71 |
| Stock-Level | 2.02 | 5.07 | 2.00 | 0.00 | 2.06 | 50.71 |
| Order-Status | 2.02 | 10.08 | 2.00 | 0.00 | 2.06 | 100.71 |

Test Duration

| | |
|--|-------------|
| Ramp-up time | 145 minutes |
| Measurement interval | 120 minutes |
| Number of checkpoints | 4 |
| Checkpoint interval | 30 minutes |
| Number of transactions (all types) completed in measurement interval | 142,855,735 |