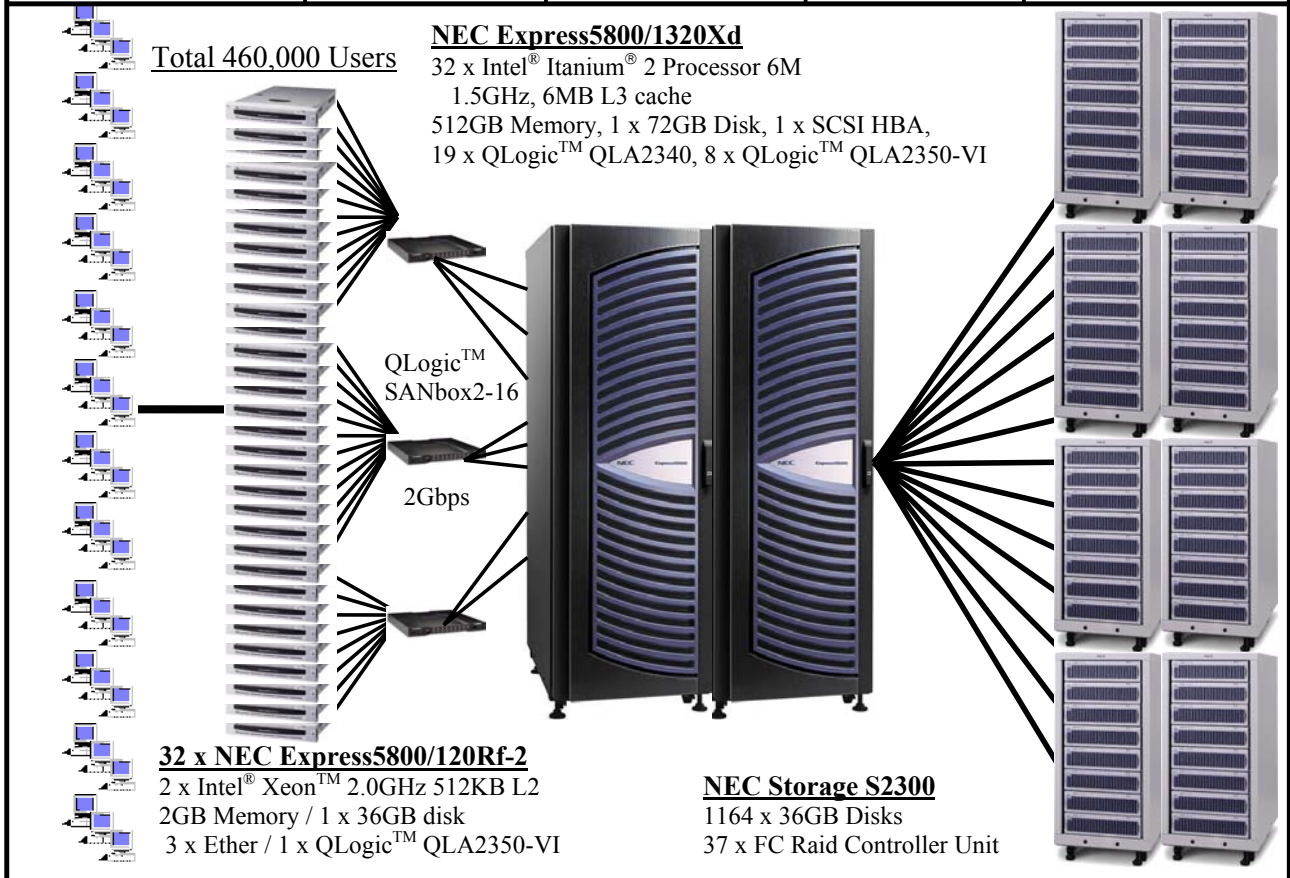


| | | | | |
|---|--|---|--|---|
| NEC | | NEC Express5800/1320Xd C/S with Express5800/120Rf-2 | | TPC-C Rev.5.1 Reported Date October 9, 2003 |
| Total System Cost | TPC-C Throughput | Price/Performance | | Availability Date |
| \$4,464,332 | 577,530.77 tpmC | \$7.74 per tpmC | | December 1, 2003 |
| Processors | Database Manager | Operating System | Other Software | Number of Users |
| 32 Intel® Itanium® 2 Processor 6M 1.5GHz for Server 62 Intel® Xeon™ 2.0GHz 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+ | 460,000 |



| System Component | Server | | Each Client | |
|-------------------------|-------------|--|------------------|--|
| Processors | 32 | Intel® Itanium® 2 Processor 6M | 2 | Intel® Xeon™ 2.0GHz |
| Cache | | 1.5GHz, 6MB L3 Cache | | 512KB L2 Cache |
| Memory | | 2 GB x 256 | | 512MB x 4 |
| Disk Controllers | 19 1 | QLogic™ QLA2340 SCSI HBA | 1 | On-board SCSI |
| Disk Drives | 1 1164 | 72GB (68.05GB Usable) 36GB (33.2GB Usable) | 1 | 36GB |
| Total Storage | | 41,976GB | | 36GB |
| 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 Express5800/1320Xd
C/S with Express5800/120Rf-2

TPC-C REV 5.1

Report Date: **10/9/2003**

| Description | Part Number | Third Party | | Unit Price | Qty | Extended Price | 3-yr Mnt. Price |
|--|-------------------|-------------|---------|------------|-----------------|---|------------------|
| | | Brand | Pricing | | | | |
| Server Hardware | | | | | | | |
| Express5800/1320Xd system | 850200704 | NEC | 1 | 1,470,925 | 1 | 1,470,925 | 1,001,671 |
| Express5800/1320Xd base system | | | | | 1 | - | - |
| NEC 1160Xd/1320Xd Cell with 4 Itanium 2 CPUs - 1.5GHz/6MB Cache | | | | | 8 | - | - |
| 8GB (4x2GB ECC SDRAM DIMM) memory kit | | | | | 64 | - | - |
| Additional Server Partition | | | | | 3 | - | - |
| 36GB Ultra 320/m SCSI HDD 10000RPM | | | | | 1 | - | - |
| Expansion Cabinet | | | | | 1 | - | - |
| 10/100/1000Mb Ether card (Intel Pro1000XT) | | | | | 1 | - | - |
| Ultra160 SCSI card (Adaptec 39160) | | | | | 1 | - | - |
| Windows Server 2003, Data Center Edition | | | | | 1 | - | - |
| NEC Express5800/120Rf-2 (for System Maintenance) | | | | | | | |
| Base System with 1 x Xeon Processor 2.0GHz/512KB | 850166001 | NEC | 1 | 3,499 | 1 | 3,499 | - |
| 1 x Xeon Processor 2.0GHz/512KB BTO Option, | 062-02259-000 | NEC | 1 | 499 | 1 | 499 | - |
| 1GB(2 x 512MB) DDR266 SDRAM memory, | 062-02264-000 | NEC | 1 | 599 | 2 | 1,198 | - |
| 1 x 36GB 10K rpm HDD, | 062-02012-000 | NEC | 1 | 459 | 1 | 459 | - |
| CD-ROM, 2 x On-board LAN, KB/MS | Included | NEC | 1 | - | 1 | - | - |
| 3 years of warranty service to 4-hour response, 7x24 | DE-0000-1095-7244 | NEC | 1 | 1,599 | 1 | - | 1,599 |
| NEC AccuSync500 (15" monitor) | AS500 | NEC | 3 | 101 | 2 | 201 | - |
| 73.9GB 15K rpm SCSI HDD (+2 spares) | 08K2403 | HITACHI | 3 | 579 | 3 | 1,737 | - |
| FC HBA QLA2340 (+2 spares) | QLA2340-CK | QLogic | 3 | 1,060 | 21 | 22,253 | - |
| FC Adapter QLA2350 (+2 spares) | 062-02379-000 | NEC | 1 | 2,095 | 11 | 23,045 | - |
| FC Cable 10M LC-LC (+2 spares) | 062-02304-000 | NEC | 1 | 200 | 11 | 2,200 | - |
| | | | | | Subtotal | 1,526,016 | 1,003,270 |
| Disk Subsystem | | | | | | | |
| NEC Storage S2300 Basic Unit | 850161002 | NEC | 1 | 46,296 | 37 | 1,712,952 | - |
| 2 RAID_Cntrl, 1GB Cache, 1DE, 3 x 36GB Drive | | | | | | | |
| 1GB(2 x 512MB) PC133 SDRAM memory | 062-02301-000 | NEC | 1 | 1,999 | 74 | 147,926 | - |
| S2300 DE (+10% spares) | 062-02302-000 | NEC | 1 | 6,999 | 46 | 321,954 | - |
| 36GB 15K rpm FC HDD (+10% spares) | 062-02303-000 | NEC | 1 | 1,099 | 1159 | 1,273,741 | - |
| 3 yr Telephone Upgrade Hdw & Storage | IS-THSU-1095-0724 | NEC | 1 | 1,499 | 37 | - | 55,463 |
| 42U Rackframe | 050-01790-000 | NEC | 1 | 1,799 | 9 | 16,191 | - |
| FC Cable 10M LC-LC (+10% spares) | 062-02304-000 | NEC | 1 | 200 | 41 | 8,200 | - |
| | | | | | Subtotal | 3,480,964 | 55,463 |
| 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 Express5800/120Rf-2 | | | | | | | |
| Base System with 1 x Xeon Processor 2.0GHz/512KB | 850166001 | NEC | 1 | 3,499 | 31 | 108,469 | - |
| 1 x Xeon Processor 2.0GHz/512KB BTO Option, | 062-02259-000 | NEC | 1 | 499 | 31 | 15,469 | - |
| 1GB(2 x 512MB) DDR266 SDRAM memory, | 062-02264-000 | NEC | 1 | 599 | 62 | 37,138 | - |
| 1 x 36GB 10K rpm HDD, | 062-02012-000 | NEC | 1 | 459 | 31 | 14,229 | - |
| CD-ROM, 2 x On-board LAN, KB/MS | Included | NEC | 1 | - | 31 | - | - |
| 3 years of warranty service to 4-hour response, 7x24 | DE-0000-1095-7244 | NEC | 1 | 1,599 | 31 | - | 49,569 |
| NEC AccuSync500 (15" monitor) | AS500 | NEC | 3 | 101 | 31 | 3,122 | - |
| 42U Rackframe | 050-01790-000 | NEC | 1 | 1,799 | 2 | 3,598 | - |
| FC Adapter QLA2350 (+10% spares) | 062-02379-000 | NEC | 1 | 2,095 | 35 | 73,325 | - |
| FC Cable 10M LC-LC (+10% spares) | 062-02304-000 | NEC | 1 | 200 | 35 | 7,000 | - |
| Intel PRO/100+ Adapter, 20-pack (+10% spares) | PILA8460BNIPK20 | Intel | 3 | 515 | 2 | 1,029 | - |
| Fast Ether Cable 10' RJ45-RJ45 (+10% spares) | N010-010-GY | Tripp Lite | 3 | 1 | 103 | 147 | - |
| | | | | | Subtotal | 263,527 | 49,569 |
| 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 | 3 | 11,975 | 5 | 59,873 | - |
| SFP-Shortwave LC Optic / 8 SFPs per pack (+10% spares) | SFP2-SW-00 | QLogic | 3 | 1,148 | 6 | 6,891 | - |
| | | | | | Subtotal | 66,763 | 0 |
| TOTAL | | | | | | 5,890,307 | 1,114,152 |
| NEC brand total(Pricing 1-NEC) | | | | | | 5,242,017 | 1,108,302 |
| NEC brand Large Purchase Cash Prepay Discount(-40%) | | | | | | -2,096,807 | -443,321 |
| Notes: | | | | | | 3-Yr. Cost of Ownership: \$4,464,332 | |
| Client softw are maintenance is covered by the maintenance costs of Microsoft SQL Server 2000 | | | | | | tpmC Rating: 577530.77 | |
| Pricing: 1-NEC 2-Microsoft 3-PROVANTAGE | | | | | | \$ / tpmC: \$7.74 | |
| 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 | | 577,530.77 tpmC | | | | |
| <u>Response Times(in seconds)</u> | <u>Average</u> | <u>Maximum</u> | <u>90%</u> | | | |
| New-Order | 0.32 | 15.43 | 0.63 | | | |
| Payment | 0.29 | 18.47 | 0.61 | | | |
| Delivery(interactive portion) | 0.10 | 2.84 | 0.11 | | | |
| Stock-Level | 0.37 | 12.33 | 0.70 | | | |
| Order-status | 0.31 | 12.77 | 0.63 | | | |
| Delivery(deferred portion) | 0.09 | 1.70 | 0.13 | | | |
| Menu | 0.10 | 2.84 | 0.11 | | | |
| Response time delay added for emulated components | | | 0.1 | | | |
| <u>Transaction Mix , in percent of total transaction</u> | | | | | | |
| New-Order | | | 44.92% | | | |
| Payment | | | 43.03% | | | |
| Delivery | | | 4.01% | | | |
| Stock-Level | | | 4.01% | | | |
| Order-Status | | | 4.03% | | | |
| <u>Keying/Think Times (in seconds)</u> | <u>Average</u> | | <u>Min</u> | | <u>Max</u> | |
| New-Order | 18.02 | 12.07 | 18.00 | 0.00 | 18.06 | 120.72 |
| Payment | 3.02 | 12.07 | 3.00 | 0.00 | 3.06 | 120.73 |
| 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 |
| <u>Test Duration</u> | | | | | | |
| Ramp-up time | | | | | | 195 minutes |
| Measurement interval | | | | | | 120 minutes |
| Number of checkpoints | | | | | | 4 |
| Checkpoint interval | | | | | | 30 minutes |
| Number of transactions (all types) completed in measurement interval | | | | | | 160,479,233 |