



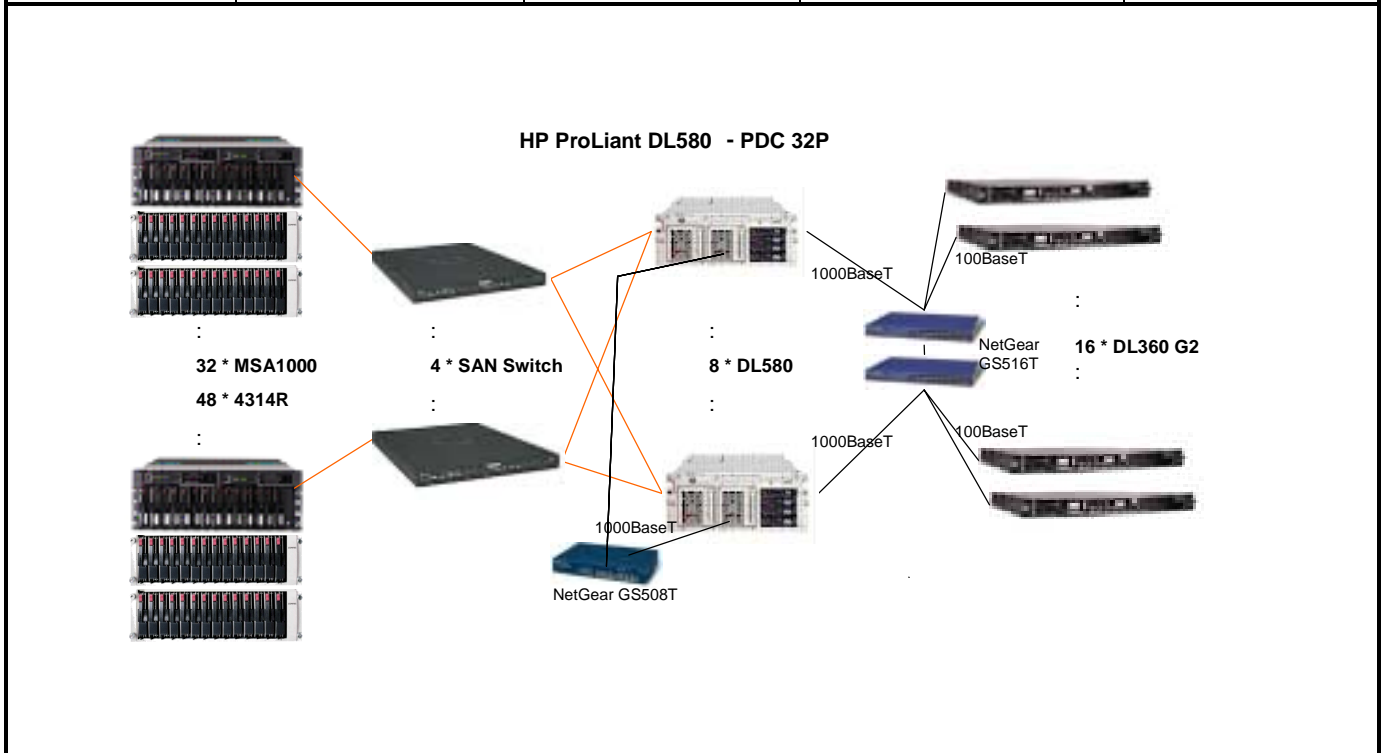
HP ProLiant DL580 - PDC 32P C/S

TPC-C Rev. 5.0


Report Date: October 2, 2002

| | | | |
|--------------------|-------------------------|-------------------|---|
| Total System Cost | TPC-C Throughput | Price Performance | Availability Date |
| \$2,404,503 | 138,362.025 tpmC | \$17.38 | March 5, 2003* Hardware available now |

| | | | | |
|---|---|----------------------------------|----------------|-----------------|
| Processors | Database Manager | Operating System | Other Software | Number of Users |
| 32 PIII Xeon 900/ MHz/2MB-Servers 16 PIII 1400 MHz/ 133/256K - Clients | Oracle 9i Enterprise Edi. Rel. 2 with Real Application Clusters and Partitioning Options | Red Hat Linux Advanced Server | BEA Tuxedo 8.0 | 115200 |



| System Components | Server | | Clients | |
|-------------------|----------|---------------------------------------|----------|-----------------------------------|
| | Quantity | Description | Quantity | Description |
| Processor | 32 | Pentium III Xeon 900MHz/2MB | 32 | Pentium III 1400 MHz/133/ 256K |
| Memory | 32 | 4 GB | 64 | 1 GB |
| Disk Controllers | 32 | FCA 2214 - Fibre Channel HBA | | |
| | 32 | Modular SAN Array 1000 | | |
| | 48 | StorageWorks Enclosure Model 4314R | | |
| | 4 | StorageWorks SAN Switch 2/16 EL | | |
| Disk Drives | 976 | 18.2-GB 15K | 16 | 18.2-GB 10K |
| | 16 | 18.2-GB 10K | | |
| Total Storage | | 18054 GB | | |
| Tape Drives | 1 | 12/24-Gigabyte DAT | | |

|  | | HP ProLiant DL580 - PDC 32P with 16 ProLiant DL360R | | | TPC-C Rev. 5.0 | | |
|--|-------------|---|----------------|--------------|--|--------------------|------------|
| | | | | Report Date: | | 2-Oct-02 | |
| Description | Part Number | Third Party | Unit Price | Qty | Extended Price | 3 yr. Maint. Price | |
| Server Hardware | | | | | | | |
| | | Brand | Pricing | | | | |
| ProLiant DL580R X900 2MB 1024 | 155618-003 | | 1 | 16,129 | 8 | 129,032 | |
| PIII X900-2MB Processor Option Kit for ML570/DL580 | 222627-B21 | | 1 | 6,199 | 16 | 99,184 | |
| 4G SDRAM (4x1GB) | 189083-B21 | | 1 | 3,999 | 32 | 127,968 | |
| NC7770 PCI-X Gigabit Server Adapter | 244948-B21 | | 1 | 227 | 16 | 3,632 | |
| Modular SAN Array 1000 | 201723-B21 | | 1 | 9,995 | 32 | 319,840 | |
| StorageWorks Enclosure Model 4314R - Rack-mountable | 190209-001 | | 1 | 2,955 | 48 | 141,840 | |
| StorageWorks SAN Switch 2/16 EL | 283056-B21 | | 1 | 14,775 | 4 | 59,100 | |
| 5m LC-LC cable kit | 221692-B22 | | 1 | 82 | 64 | 5,248 | |
| 2GB Small Form Pluggable Adapter Kit | 221470-B21 | | 1 | 369 | 64 | 23,616 | |
| FCA 2214 - Fibre Channel HBA | 281541-B21 | | 1 | 1,590 | 32 | 50,880 | |
| V570 Color Monitor - 15 inch CRT - Opal | 228113-001 | | 1 | 169 | 8 | 1,352 | |
| 12/24-Gigabyte DAT Drive (Internal) | 295513-B22 | | 1 | 682 | 1 | 682 | |
| R1500 | 242704-001 | | 1 | 880 | 4 | 3,520 | |
| 18.2-GB Pluggable 1" Universal WideUltra3 15K HDD | 188122-B22 | | 1 | 447 | 976 | 436,272 | |
| 18.2-GB Pluggable 1" Universal WideUltra3 15K HDD (10% spares) | 188122-B22 | | 1 | 447 | 98 | | 43,806 |
| 18.2GB Pluggable Ultra3 SCSI 10K 1" Universal HDD | 142673-B22 | | 1 | 319 | 16 | 5,104 | |
| HP Rack Model 9142 (42U - Opal) - Flat Pallet | 120663-B21 | | 1 | 1,352 | 8 | 10,816 | |
| HP Rack Sidewall Kit | 120670-B21 | | 1 | 212 | 1 | 212 | |
| HP Rack Coupling Kit | 120669-B21 | | 1 | 85 | 7 | 595 | |
| HP Enhanced Keyboard | 122660-006 | | 1 | 44 | 8 | 352 | |
| HP Mouse | 170299-B21 | | 1 | 23 | 8 | 184 | |
| FM-M1724-36YR 24x7 4HR 500 Srs Svr/EC | 401782-002 | | 1 | 1,795 | 8 | | 14,360 |
| FM-FC724-36 3YR 24X7 4HR RA4x/MSA1x/SA | 402164-002 | | 1 | 1,950 | 32 | | 62,400 |
| FM-4E724-36 3YR 24X7 4HR EMPTY DISK ENCL | 171242-002 | | 1 | 157 | 48 | | 7,536 |
| FM-FS724-36 3YR 24x7 4HR, FC/SAN SWITCH 16P | 161308-002 | | 1 | 4,538 | 4 | | 18,152 |
| NetGear GS508T 10/100/1000 Copper Gigabit Switch | GS508TNA | NetGear | 5 | 719 | 3 | 2,157 | |
| Subtotal | | | | | 1,421,586 | 146,254 | |
| Server Software | | | | | | | |
| Oracle9i DB Ent. Edi. Rel. 2, per processor for 3 years | Run time | Oracle | 3 | 20,000 | 32 | 640,000 | |
| Real Application Clusters, per processor for 3 Years | Run time | Oracle | 3 | 10,000 | 32 | 320,000 | |
| Partitioning, per processor for 3Years | Run time | Oracle | 3 | 5,000 | 32 | 160,000 | |
| Oracle Database Server Support Package for 3 years | Run time | Oracle | 3 | 48,000 | 1 | | 48,000 |
| Red Hat Linux Advanced Server 2.1 (Basic) | RHF0090US | Red Hat | 2 | 800 | 8 | 6,400 | |
| Red Hat Two additional year maintenance and support | RHF0090US | Red Hat | 2 | 800 | 16 | | 12,800 |
| Subtotal | | | | | 1,126,400 | 60,800 | |
| Client Hardware | | | | | | | |
| ProLiant DL360R02 P1.40/133-256K 128MB | 233271-001 | | 1 | 2,229 | 16 | 35,664 | |
| 1G Reg 133MHz SDRAM DIMM | 128280-B21 | | 1 | 880 | 64 | 56,320 | |
| 1.40GHz PIII Processor Option Kit (DL360 G2) | 233273-B21 | | 1 | 804 | 16 | 12,864 | |
| NC3134 64 PCI Dual 10/100 All option kit | 138603-B21 | | 1 | 285 | 16 | 4,560 | |
| V570 Color Monitor - 15 inch CRT - Opal | 228113-001 | | 1 | 169 | 1 | 169 | |
| HP Enhanced Keyboard | 122660-006 | | 1 | 44 | 1 | 44 | |
| HP Mouse | 170299-B21 | | 1 | 23 | 1 | 23 | |
| 18.2GB Pluggable Ultra3 SCSI 10K 1" Universal HDD | 142673-B22 | | 1 | 319 | 16 | 5,104 | |
| FM-L0724-363YR 24x7 4HR 300 SERIES SVR | 162657-002 | | 1 | 1,450 | 16 | | 23,200 |
| Subtotal | | | | | 114,748 | 23,200 | |
| Client Software | | | | | | | |
| BEA Tuxedo 8.0 Teir 1 | | BEA | 4 | 3,000 | 16 | 48,000 | 30,240 |
| Red Hat Linux Personal (unlimited copies) | RHF099US | Red Hat | 2 | 60 | 1 | 60 | |
| Red Hat Linux Personal 8 systems x 3 years m& s Bundle | MCT0172US | Red Hat | 2 | 4,800 | 2 | | 9,600 |
| Subtotal | | | | | 48,060 | 39,840 | |
| User Connectivity | | | | | | | |
| NetGear GS516T 10/100/1000 Copper Gigabit Switch | GS516TNA | NetGear | 5 | 1,400 | 4 | 5,598 | |
| Subtotal | | | | | 5,598 | 0 | |
| Oracle Mandatory E-Business Discount (License and Support) | | | | | | (\$292,000) | (\$367) |
| Large Purchase and Cash discount (See Note 1) | | | | | 17.0% | (\$261,177) | (\$28,807) |
| Total | | | | | \$2,163,216 | \$241,287 | |
| 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 pricing 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. | | | | | Three-Year Cost of Ownership: \$2,404,503 | | |
| | | | | | tpmC Rating: 138,362.03 | | |
| | | | | | \$ / tpmC: \$17.38 | | |
| Pricing: 1=HP Direct 2= Red Hat 3=Oracle (contact MaryBeth Pierantoni @ 650-506-2118, See Appendix G of FDR) 4=BEA 5=CDW | | | | | | | |
| Note 1 = Discount based on HP Direct guidance and large cash purchase level. | | | | | | | |
| Note: The benchmark results and test methodology were audited by Loma Livingtree of Performance Metrics, Inc. | | | | | | | |

Numerical Quantities Summary

MQTH, Computed Maximum Qualified Throughput

138,362.025 tpmC

| Response Times (in seconds) | Average | 90% | Maximum |
|------------------------------------|----------------|------------|----------------|
| New-Order | 0.893 | 1.992 | 85.290 |
| Payment | 0.574 | 1.146 | 84.770 |
| Order-Status | 0.643 | 1.339 | 45.256 |
| Delivery (interactive portion) | 0.260 | 0.349 | 81.913 |
| Delivery (deferred portion) | 0.419 | 0.793 | 82.654 |
| Stock-Level | 0.581 | 0.831 | 81.376 |
| Menu | 0.102 | 0.102 | 0.328 |

Transaction Mix, in percent of total transaction

| | |
|--------------|---------|
| New-Order | 44.916% |
| Payment | 43.019% |
| Order-Status | 4.020% |
| Delivery | 4.025% |
| Stock-Level | 4.020% |

Emulation Delay (in seconds)

| | Resp. Time | Menu |
|------------------------|-------------------|-------------|
| New-Order | 0.10 | 0.10 |
| Payment | 0.10 | 0.10 |
| Order-Status | 0.10 | 0.10 |
| Delivery (interactive) | 0.10 | 0.10 |
| Stock-Level | 0.10 | 0.10 |

Keying/Think Times (in seconds)

| | Min. | Average | Max. |
|------------------------|--------------|----------------|----------------|
| New-Order | 18.005/0.000 | 18.008/13.406 | 18.022/134.006 |
| Payment | 3.010/0.000 | 3.018/12.016 | 3.032/120.045 |
| Order-Status | 2.010/0.000 | 2.018/10.015 | 2.031/100.077 |
| Delivery (interactive) | 2.010/0.000 | 2.018/5.025 | 2.031/50.179 |
| Stock-Level | 2.010/0.000 | 2.018/5.014 | 2.030/50.096 |

Test Duration

| | |
|--|-------------|
| Ramp-up time | 102 minutes |
| Measurement interval | 120 minutes |
| Transactions (all types) completed during measurement interval | 38,453,521 |
| Ramp down time | 56 minutes |

Checkpointing

| | |
|-----------------------|------------|
| Number of checkpoints | 4 |
| Checkpoint interval | 30 minutes |