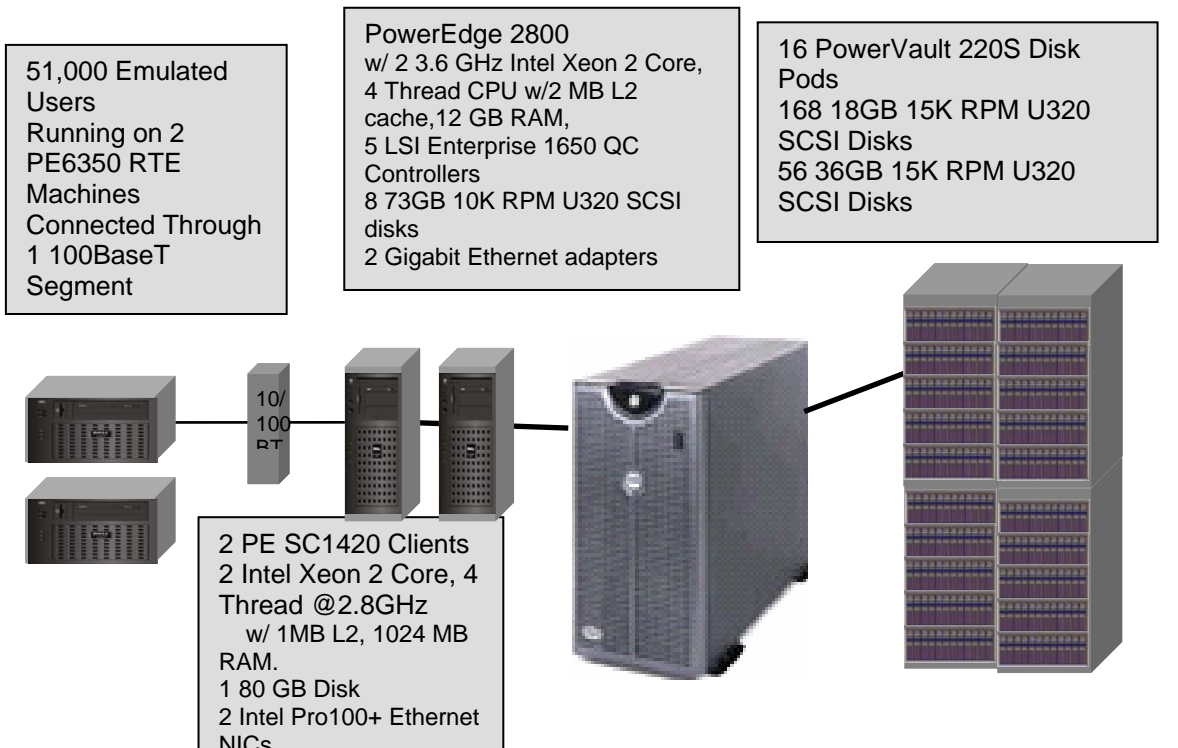| | **PowerEdge 2800 Client/Server w/2 PE SC 1420 Front End** | | | TPC-C Rev 5.6 Report Date **May 10, 2005** Revised Date **April 14, 2006** |
|---|---|---|---|---|
| Total System Cost | TPC-C Throughput | | Price/Performance | Availability Date |
| **$144,804** | **63,646 tpmC** | | **$2.28 / tpmC** | May 10, 2005 |
| Processors | Database Manager | OS | Other Software | Number of Users |
| 2 x Intel Xeon™ 2 Core, 4 Thread Processors @3.6 GHz 2MB L2 Cache | Microsoft SQL Server 2000 Enterprise Edition SP3 | Microsoft Windows Server 2003, Enterprise Edition | Windows Server 2003 Std Ed w/ COM+ Internet Information Server 6.0 Microsoft Visual C++ | 51,000 |

51,000 Emulated Users
Running on 2 PE6350 RTE Machines
Connected Through 1 100BaseT Segment

PowerEdge 2800
w/ 2 3.6 GHz Intel Xeon 2 Core, 4 Thread CPU w/2 MB L2 cache,12 GB RAM,
5 LSI Enterprise 1650 QC Controllers
8 73GB 10K RPM U320 SCSI disks
2 Gigabit Ethernet adapters

16 PowerVault 220S Disk Pods
168 18GB 15K RPM U320 SCSI Disks
56 36GB 15K RPM U320 SCSI Disks

10/ 100 BT

2 PE SC1420 Clients
2 Intel Xeon 2 Core, 4 Thread @2.8GHz
 w/ 1MB L2, 1024 MB RAM.
1 80 GB Disk
2 Intel Pro100+ Ethernet NICs

| **System Component** | | **Server** | | **Each Client** |
|---|---|---|---|---|
| Processors Cache | 2 | Intel Xeon 2 Core, 4 Thread @ 3.6GHz 2MB  cache | 2 | Intel Xeon 2 Core, 4 Thread w/ 1MB L2  Client @  2.8 GHz |
| Memory | | 12288 MB | | 1024 MB |
| Disk Controllers | 5 | LSI Enterprise 1650 QC Controller | 1 | Onboard SATA |
| Disk Drives | 168 56 8 | 18 GB 15k SCSI 36 GB 15k SCSI 73 GB 10k SCSI | 1 | 80 GB SATA |
| Total Storage | | 5400 GB | 1 | 80 GB Disk |
| Other | 2 1 | 2GB NIC CD-ROM | 2 1 | 10/100MB BT NIC CD-ROM |

| | | Client/Server | | Report Date: 10-December-04 Revised April 14, 2006 | | | |
|---|---|---|---|---|---|---|---|
| **Description** | **Part Number** | **Third Party** | | **Unit Price** | **Qty** | **Extended Price** | **3 yr. Maint. Price** |
| | | **Brand** | **Pricing** | | | | |
| **Server Hardware** | | | | | | | |
| Dell PowerEdge 2800 3.6GHz XEON w/2MB L2 cache, | 221-7962 | | | $1,665.00 | 1 | $1,665.00 | $290.00 |
| 800MHZ FSB, 2 onboard Gigabit NICs | | | | | | | |
| 3.6G/2MB, XEON,800MHZ FSB | 311-4848 | | | $999.00 | 1 | $999.00 | |
| 12GB DDR2 400MHz(6X2 GB),1R | 311-3591 | | | $15,299.00 | 1 | $15,299.00 | |
| Dell E773,17 in Gray (16.0 VIS) | 320-2907 | | | $135.00 | 1 | $135.00 | |
| | | | | | Subtotal | $18,098.00 | $290.00 |
| **3rd Party Raid Controllers** | | | | | | | |
| LSI MegaRAID Elite 1650 4-ch SCSI | 4942510264A | LSI | 3 | $1,999.00 | 7 | $13,993.00 | |
| | | | | | | | |
| **PowerVault Disk Subsystem** | | | | | | | |
| PV220S, U3, PS, Tower | 220-4477, etc. | | | $955.00 | 16 | $15,280.00 | $6,416.00 |
| ZEMM,U320,PV22XS,SINGLE | 340-9324 | | | $399.00 | 16 | $6,384.00 | |
| 600W,PWR SPLY,PV22XS | 310-0677 | | | $0.00 | 5 | $0.00 | |
| 600W,PWR SPLY,PV22XS | 310-0683 | | | $89.00 | 5 | $445.00 | |
| 36GB U320M SCSI 15K RPM Hard Drive | 340-9471 | | | $249.00 | 224 | $55,776.00 | |
| 73GB U320M SCSI 15K RPM Hard Drive (OS+LOG) | 340-9372 | | | $399.00 | 8 | $3,192.00 | |
| | | | | | Subtotal | $81,077.00 | $6,416.00 |
| **Server Software** | | | | | | | |
| SQL Server 2000 Ent Edition, Per processor licensing ** | 810-00845 | Microsoft | 1 | $17,279.00 | 2 | $34,558.00 | |
| Windows 2003 Ent Edition Server ** | P72-00264 | Microsoft | 1 | $2,334.00 | 1 | $2,334.00 | |
| Professional Support (1 Incident) | | Microsoft | 1 | $245.00 | 1 | | $245.00 |
| | | | | | Subtotal | $36,892.00 | $245.00 |
| **Client Hardware** | | | | | | | |
| Dell PowerEdge 1420SC, 2.8 GHz / 1MB L2/800 FSB | 221-5680 | | | $480.00 | 2 | $960.00 | $290.00 |
| Additional processor , 2.8 GHz / 1 MB | 311-3803 | | | $399.00 | 2 | $798.00 | |
| 1025MB RAM, 2 DIMMs | 311-3811 | | | $448.00 | 2 | $896.00 | |
| 80GB SATA 7.2K Hard Drive | 340-7087 | | | $159.00 | 2 | $318.00 | |
| IntelPro 100S | 430-0369 | | | $59.00 | 2 | $118.00 | |
| Dell E773,17 in Gray (16.0 VIS) | 320-2907 | | | $135.00 | 2 | $270.00 | |
| | | | | | Subtotal | $3,360.00 | $290.00 |
| **Client Software** | | | | | | | |
| Windows 2003 Standard Server ** | P73-00295 | Microsoft | 1 | $719.00 | 2 | $1,438.00 | |
| Visual C++ ** .NET | 254-00170 | Microsoft | 1 | $109.00 | 2 | $218.00 | |
| | | | | | Subtotal | $1,656.00 | |
| **User Connectivity** | | | | | | | |
| 7ft Crossover cable | CBLC5C7 | LanAdapter | 2 | $2.00 | 6 | $12.00 | |
| | | | | | Subtotal | $12.00 | |
| All hardware and maintenance components from Dell are discounted 16% based on total dollar volume of this configuration. **Other Discounts** | | | | | | $17,524.96 | |
| | | | | | **Total USD** | **$137,563** | **$7,241** |

Notes: * Maint. included in PowerVault 220S disk pod or PV650F/630F fibre channel disk pod

** All Microsoft maintenance is covered by the maintenance costs of Microsoft SQL Server

*** 10% or minimum 2 spares are added in place of onsite service (products have a five year

return-to-vendor warranty) Pricing: 1 - Microsoft 2 - LanAdapter 3 - LSI

Pricing may be verified by calling 1-800-BUY-DELL and referencing quote # 220310286, 220310174, and 22039902 as complex quotes.

**Audited by Lorna Livingtree, Performance Metrics Inc.**

| | | |
|---|---|---|
| **Three-Year Cost of Ownership USD:** | | **$144,804** |
| **tpmC Rating:** | | **63646** |
| **USD$ / tpmC:** | | **2.28** |

*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 specifications. If you find that the stated prices are not available*

*according to these items, please inform the TPC at pricing@tpc.org.*

| MQTh, computed Maximum Qualified Throughput | 63,646 tpmC |
|---|---|

**Response Times**  (in seconds)

| | Average | 90th | Max |
|---|---|---|---|
| - Neworder | 0.43 | 0.67 | 5.68 |
| - Payment | 0.30 | 0.52 | 4.84 |
| - Delivery (interactive portion) | 0.11 | 0.12 | 1.45 |
| - Stock-Level | 1.77 | 2.24 | 6.21 |
| - Order Status | 0.40 | 0.63 | 5.94 |
| - Delivery (deferred portion) | 0.35 | 0.60 | 1.91 |
| - Menu | 0.11 | 0.12 | 1.82 |

Response time delay added for emulated components      Menu 0.1
                                                       Resp 0.1

**Transaction Mix**, in percent of total transactions

| | |
|---|---|
| - New-Order | 44.84% |
| - Payment | 43.02% |
| - Delivery | 4.05% |
| - Stock-Level | 4.05% |
| - Order-Status | 4.05% |

| **Keying/Think Times** (in seconds), | Min | | Average | | Max | |
|---|---|---|---|---|---|---|
| - New-Order | 18.01 | 0.0 | 18.03 | 12.04 | 19.49 | 121.17 |
| - Payment | 3.01 | 0.0 | 3.03 | 12.04 | 4.50 | 120.46 |
| - Delivery | 2.02 | 0.0 | 2.03 | 5.05 | 3.48 | 50.41 |
| - Stock-Level | 2.02 | 0.0 | 2.03 | 5.05 | 3.49 | 51.23 |
| - Order-Status | 2.02 | 0.0 | 2.03 | 10.04 | 3.50 | 100.42 |

**Test Duration**

| | |
|---|---|
| - Ramp-up time | 10 minutes |
| - Measurement interval | 120 minutes |
| - Number of checkpoints | 4 |
| - Checkpoint interval | 30 minutes |
| - Number of transactions (all types) | 17,723,072 |
| completed in measurement interval | 17,646,944 |