**Hewlett-Packard**

**Company**

HP ProLiant DL585-G1 2.2GHz Dual Core 4P/8 core

C/S with 8 HP ProLiant DL360G4

**TPC-C Rev. 5.3**

Report Date: April 21, 2005

<table>
<thead>
<tr>
<th>Total System Cost</th>
<th>TPC-C Throughput</th>
<th>Price/Performance</th>
<th>Availability Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD $381,466</td>
<td>187,296</td>
<td>USD $2.04</td>
<td>May 31, 2005</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Processors</th>
<th>Database Manager</th>
<th>Operating System</th>
<th>Other Software</th>
<th>Number of Users</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>System Components</th>
<th>Server</th>
<th>Each Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Quantity</td>
<td>Description</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2.2 GHz DC AMD Opteron w/ 1M Cache</td>
</tr>
<tr>
<td>Memory</td>
<td>Quantity</td>
<td>Description</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>4 GB DDR (2 X 2 GB)</td>
</tr>
<tr>
<td>Disk Controllers</td>
<td>Quantity</td>
<td>Description</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Integrated Smart 5i Controller</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>SMART 6404 Array Controllers</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>SMART 642 Array Controller</td>
</tr>
<tr>
<td>Disk Drives</td>
<td>Quantity</td>
<td>Description</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>72 GB SCSI Drive</td>
</tr>
<tr>
<td></td>
<td>394</td>
<td>36 GB SCSI Drive</td>
</tr>
<tr>
<td>Total Storage</td>
<td>14,314.18 GB</td>
<td>36 GB</td>
</tr>
</tbody>
</table>

HP ProLiant DL585 G1 w/ 64 GB RAM, 7 SMART 6404 RAID Controllers, 1 SMART 642 RAID Controller, and 2 X 36 GB 15K Drives in internal bay

8 RTEs simulating 151680 PCs

8 HP ProLiant DL360 G4

HP ProCurve 2824 Switch

2 HP Racks 5642 containing: 28X MSA 30 StorageWorks Enclosure with 14X 36 GB 15K Drives, and 1X MSA 500G2 StorageWorks Enclosure with 14X 72GB 15K Drives
## Hewlett-Packard

### HP ProLiant DL585-G1 2.2GHz DC-4P/8C

**Company**

**Client/Server**

**TPC-C Rev. 5.3**

**Report Date:** 21-Apr-05

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
<th>Brand</th>
<th>Third Party</th>
<th>Unit Price</th>
<th>Qty</th>
<th>Extended</th>
<th>3 yr. Maint.</th>
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</thead>
<tbody>
<tr>
<td>Server Hardware</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL585 2.2GHz dual core (2P) 2GB PC2700 with Dual port gigabit NIC</td>
<td>383357-001</td>
<td>1</td>
<td>15,999</td>
<td>1</td>
<td>15,999</td>
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<td></td>
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<tr>
<td>DL585 2.2GHz/2700 dual core Processor Option Kit</td>
<td>303931-B21</td>
<td>1</td>
<td>5,699</td>
<td>2</td>
<td>11,398</td>
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<td></td>
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<tr>
<td>4GB PC2100 DDR SDRAM DIMM 3x2048 WW</td>
<td>300682-B21</td>
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<td>2,499</td>
<td>16</td>
<td>39,064</td>
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</tr>
<tr>
<td>HP StorageWorks MSA 30 GB Storage</td>
<td>302966-B21</td>
<td>1</td>
<td>2,978</td>
<td>20</td>
<td>63,384</td>
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<tr>
<td>HP Modular Smart Array 500 G2 Storage includes 2 Smart Array 642 Adapter</td>
<td>335880-B21</td>
<td>1</td>
<td>4,499</td>
<td>1</td>
<td>4,499</td>
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<tr>
<td>HP Modular Smart Array 500 G2 Controller</td>
<td>335881-B21</td>
<td>1</td>
<td>2,499</td>
<td>1</td>
<td>2,499</td>
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<tr>
<td>HP Smart Array 64/64MB Controller</td>
<td>273914-B21</td>
<td>1</td>
<td>1,899</td>
<td>7</td>
<td>13,293</td>
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<tr>
<td>HP 7240 17in. CRT Monitor</td>
<td>PF097AA#ABA</td>
<td>1</td>
<td>149</td>
<td>1</td>
<td>149</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP PS/2 Scroll Mouse carbonate</td>
<td>DG108AV</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PS/2 Standard Keyboard</td>
<td>D3170A#ABA</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>HP 5642 Pallet Unassembled Rack</td>
<td>350254-B21</td>
<td>1</td>
<td>680</td>
<td>2</td>
<td>1,378</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPS R1500 XR Low Voltage US</td>
<td>204404-001</td>
<td>1</td>
<td>866</td>
<td>1</td>
<td>866</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6GB 15K U320 Pluggable Hard Drive</td>
<td>286776-B22</td>
<td>1</td>
<td>299</td>
<td>394</td>
<td>117,800</td>
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<td></td>
</tr>
<tr>
<td>6GB 15K U320 Pluggable Hard Drive (10% Spares external drives)</td>
<td>286776-B22</td>
<td>1</td>
<td>299</td>
<td>40</td>
<td>11,960</td>
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<tr>
<td>72GB 15K U320 Pluggable Hard Drive</td>
<td>286776-B22</td>
<td>1</td>
<td>569</td>
<td>14</td>
<td>7,966</td>
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<td></td>
</tr>
<tr>
<td>72GB 15K U320 Pluggable Hard Drive (2 spares)</td>
<td>286776-B22</td>
<td>1</td>
<td>569</td>
<td>2</td>
<td>1,138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM 39Y 24x7/4HR &quot;FM-EL74-36 3YR 24X7/4HR ENTERPRISE EDITION&quot;</td>
<td>171242-002</td>
<td>1</td>
<td>157</td>
<td>28</td>
<td>4,396</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM 3y 24X7/4HR &quot;FM-EL74-36 3YR 24X7/4HR EMPTY DISK ENCL&quot;</td>
<td>U6456E</td>
<td>1</td>
<td>1,950</td>
<td>1</td>
<td>1,950</td>
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<td></td>
</tr>
</tbody>
</table>

Subtotal | 299,236 | 21,239 |

**Server Software**

- Microsoft SQL Server 2000 Enterprise Edition (per processor) 810-00640: Microsoft 2 | 16,541 | 4 | 66,164 | Incl Below |
- Microsoft Visual C++ Standard 254-00170: Microsoft 2 | 109 | 1 | 109 | Incl Below |
- Microsoft Windows 2003 Server, Enterprise Edition SP1 P72-00264: Microsoft 2 | 2,399 | 1 | 2,399 | Incl Below |
- Microsoft Problem Resolution Services Microsoft 2 | 245 | 1 | 245 | |

Subtotal | 68,672 | 245 |

**Client Hardware**

- HP DL300G4 X3.6GHz 1GB SCSI US Rack Server 360526-001: 1 | 2,799 | 8 | 22,392 |
- Dual Integrated Gigabit NIC, Integrated Smart Array Controller G6 Intel Xeon 3.6GHz 1MB DL300G4 Processor 354583-B21: 1 | 1,139 | 8 | 9,112 |
- 36GB 10K U320 Pluggable Hard Drive 286776-B22: 1 | 299 | 16 | 4,784 |
- FM-EL74-36 3YR 24X7/4HR ENTRY 300 SVR 162675-002: 1 | 599 | 8 | 4,792 |

Subtotal | 36,288 | 4,792 |

**Client Software**

- Windows Server 2000, Standard Edition C11-00621: Microsoft 2 | 738 | 8 | 5,904 | Incl Above |

Subtotal | 5,904 | 0 |

**User Connectivity**

- HP ProCurve Switch 2524 J4903AAABA: 1 | 2,499 | 1 | 2,499 |
- HP CP for HP ProCurve Networking products 3 Yr 4 hr/24x7 U2856E: 1 | 1000 | 1 | 1,000 |

Subtotal | 2,499 | 1,000 |

Large Purchase and Cash discount (See Note 1) | 16.0% | 1 | | |

Total | ($54,064) | ($4,325) |

### Three-Year Cost of Ownership:

- USD 381,466
- tpmC Rating: 187296.00

### $ / tpmC: USD 2.04
## Numerical Quantities Summary

**MQTH, Computed Maximum Qualified Throughput**  
187, 296 tpmC

### Response Times (in seconds)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Average</th>
<th>90%</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>New-Order</td>
<td>0.69</td>
<td>1.15</td>
<td>6.70</td>
</tr>
<tr>
<td>Payment</td>
<td>0.64</td>
<td>1.10</td>
<td>8.37</td>
</tr>
<tr>
<td>Order-Status</td>
<td>0.66</td>
<td>1.12</td>
<td>6.43</td>
</tr>
<tr>
<td>Delivery (interactive portion)</td>
<td>0.10</td>
<td>0.11</td>
<td>0.93</td>
</tr>
<tr>
<td>Delivery (deferred portion)</td>
<td>0.19</td>
<td>0.33</td>
<td>1.11</td>
</tr>
<tr>
<td>Stock-Level</td>
<td>1.34</td>
<td>1.94</td>
<td>7.01</td>
</tr>
<tr>
<td>Menu</td>
<td>0.10</td>
<td>0.11</td>
<td>0.93</td>
</tr>
</tbody>
</table>

### Transaction Mix, in percent of total transaction

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>New-Order</td>
<td>44.93%</td>
</tr>
<tr>
<td>Payment</td>
<td>43.05%</td>
</tr>
<tr>
<td>Order-Status</td>
<td>4.01%</td>
</tr>
<tr>
<td>Delivery</td>
<td>4.01%</td>
</tr>
<tr>
<td>Stock-Level</td>
<td>4.01%</td>
</tr>
</tbody>
</table>

### Emulation Delay (in seconds)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Resp.Time</th>
<th>Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>New-Order</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Payment</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Order-Status</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Delivery (interactive)</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Stock-Level</td>
<td>0.10</td>
<td>0.10</td>
</tr>
</tbody>
</table>

### Keying/Think Times (in seconds)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Min.</th>
<th>Average</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>New-Order</td>
<td>18.00/0.00</td>
<td>18.02/12.06</td>
<td>18.26/120.61</td>
</tr>
<tr>
<td>Payment</td>
<td>3.00/0.00</td>
<td>3.02/12.06</td>
<td>3.26/120.61</td>
</tr>
<tr>
<td>Order-Status</td>
<td>2.00/0.00</td>
<td>2.02/10.06</td>
<td>2.26/100.61</td>
</tr>
<tr>
<td>Delivery (interactive)</td>
<td>2.00/0.00</td>
<td>2.02/5.07</td>
<td>2.25/50.61</td>
</tr>
<tr>
<td>Stock-Level</td>
<td>2.00/0.00</td>
<td>2.02/5.06</td>
<td>2.25/50.61</td>
</tr>
</tbody>
</table>

### Test Duration

- Ramp-up time: 34 minutes
- Measurement interval: 120 minutes
- Transactions (all types) completed during measurement interval: 52,033,964
- Ramp down time: 29 minutes

### Checkpointing

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