
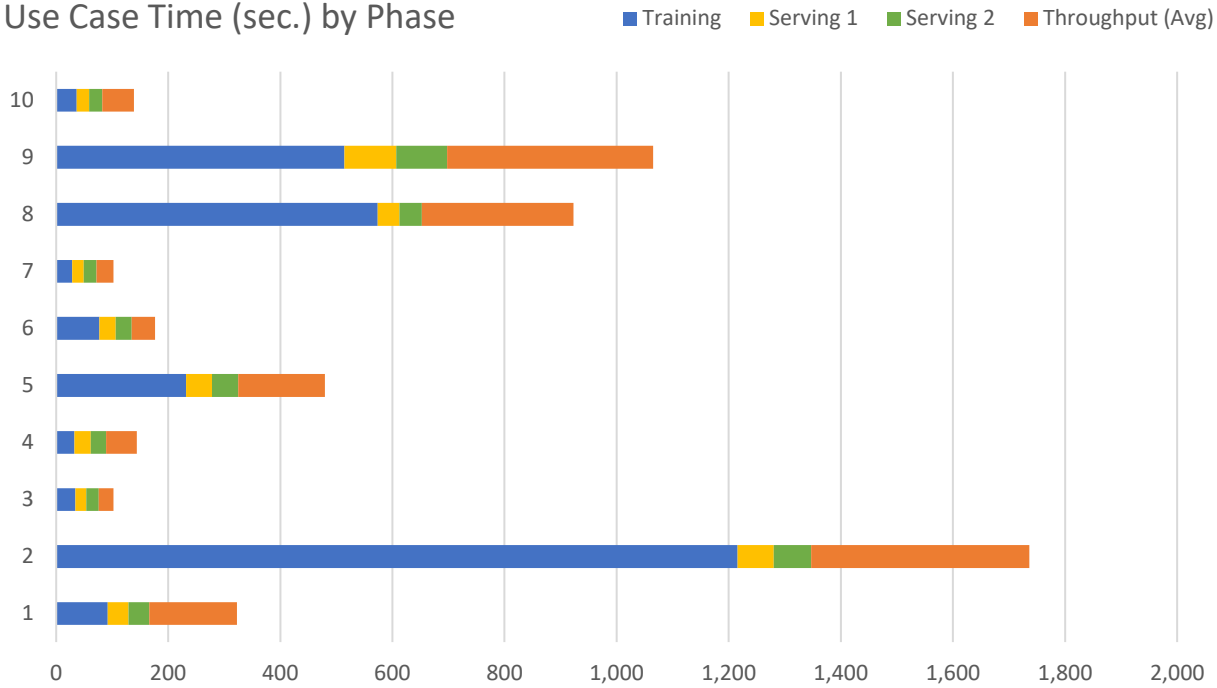



|  Hewlett Packard Enterprise | | <h1>ProLiant DL380 Gen11</h1> | | TPCx-AI 2.0.0 TPC Pricing 2.9.0 Report Date Mar. 07, 2025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|-------|----------------|-----------------|-----------------|------------------------|---|-----|----|----|-----|---|------|----|----|-----|---|----|----|----|----|---|----|----|----|-----|---|-----|-----|-----|-----|---|----|----|----|-----|---|----|----|----|----|---|-----|----|----|-----|---|-----|-----|-----|-----|----|----|----|----|-----|
| TPCx-AI Performance 1,600.16 AIUCpm@100 | Total System Cost \$867,492 USD | Price/Performance \$542.13 USD/AIUCpm@100 | Availability Date March 7, 2025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Framework Cloudera 7.1.9 | Operating System Red Hat Enterprise Linux 8.9 (Ootpa) | Other Software N/A | Scale Factor 100 | Streams 54 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h3>Use Case Time (sec.) by Phase</h3>  <p>■ Training ■ Serving 1 ■ Serving 2 ■ Throughput (Avg)</p> <table border="1"> <caption>Approximate Use Case Time (sec.) by Phase</caption> <thead> <tr> <th>Phase</th> <th>Training (sec)</th> <th>Serving 1 (sec)</th> <th>Serving 2 (sec)</th> <th>Throughput (Avg) (sec)</th> </tr> </thead> <tbody> <tr><td>1</td><td>100</td><td>50</td><td>50</td><td>100</td></tr> <tr><td>2</td><td>1200</td><td>50</td><td>50</td><td>400</td></tr> <tr><td>3</td><td>50</td><td>50</td><td>50</td><td>50</td></tr> <tr><td>4</td><td>50</td><td>50</td><td>50</td><td>100</td></tr> <tr><td>5</td><td>200</td><td>100</td><td>100</td><td>200</td></tr> <tr><td>6</td><td>50</td><td>50</td><td>50</td><td>100</td></tr> <tr><td>7</td><td>50</td><td>50</td><td>50</td><td>50</td></tr> <tr><td>8</td><td>550</td><td>50</td><td>50</td><td>300</td></tr> <tr><td>9</td><td>500</td><td>100</td><td>100</td><td>400</td></tr> <tr><td>10</td><td>50</td><td>50</td><td>50</td><td>100</td></tr> </tbody> </table> | | | | | Phase | Training (sec) | Serving 1 (sec) | Serving 2 (sec) | Throughput (Avg) (sec) | 1 | 100 | 50 | 50 | 100 | 2 | 1200 | 50 | 50 | 400 | 3 | 50 | 50 | 50 | 50 | 4 | 50 | 50 | 50 | 100 | 5 | 200 | 100 | 100 | 200 | 6 | 50 | 50 | 50 | 100 | 7 | 50 | 50 | 50 | 50 | 8 | 550 | 50 | 50 | 300 | 9 | 500 | 100 | 100 | 400 | 10 | 50 | 50 | 50 | 100 |
| Phase | Training (sec) | Serving 1 (sec) | Serving 2 (sec) | Throughput (Avg) (sec) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 100 | 50 | 50 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 1200 | 50 | 50 | 400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 50 | 50 | 50 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 50 | 50 | 50 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 200 | 100 | 100 | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 50 | 50 | 50 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 50 | 50 | 50 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 550 | 50 | 50 | 300 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 500 | 100 | 100 | 400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 50 | 50 | 50 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Physical Storage / Scale Factor 879.20 | | Scale Factor / Physical Memory 0.01 | | Main Data Redundancy Model Replication 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Servers: Total Processors/Cores/Threads | | 10 20 / 624 / 1,248 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Server Type | 8x ProLiant DL380 Gen11 (Compute) | 2x ProLiant DL380 Gen10 Plus (Controller) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Processors | 2x Intel(R) Xeon(R) Platinum 8562Y+ CPU @ 2.80GHz | 2x Intel(R) Xeon(R) Gold 6330 CPU @ 2.00GHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Memory | 1,024 GiB | 512 GiB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Storage Controller | 1x NS204i-u Gen11 (7 nodes) | 1x MR416i-p Gen10+ or P408i-a SR Gen10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Storage Device | 2x 480 GB NVMe SSD (7 nodes) 3x 3.2 TB NVMe SSD (7 nodes) 4x 3.2 TB NVMe SSD (1 node) | 2x 300 GB 15K SAS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Network Controller | 1x InfiniBand NDR200/Ethernet 200GbE 2-port | 1x MCX623106AS CDAT Ethernet 100Gb 2-port | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connectivity | 1x CX 8360-12C v2 12-port 100G (Compute); 1x CX 5420 24p 10M/100M/1G (Manage) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | |
|--|-------------------------------|-------------|---------------|
|  Hewlett Packard Enterprise | <h1>ProLiant DL380 Gen11</h1> | TPCx-AI | 2.0.0 |
| | | TPC Pricing | 2.9.0 |
| | | Report Date | Mar. 07, 2025 |

| Description | Part Number | Source | List Price | Qty | Extended Price | 1-Yr. Maintenance |
|---|------------------|--------|-------------|-----|-----------------------------|-----------------------|
| Server Hardware | | | | | | |
| HPE ProLiant DL380 Gen11 8SFF CPU1/2 NVMe Cable Kit | P48825-B21 | 1 | \$2,127.00 | 8 | \$17,016.00 | |
| Intel Xeon-Platinum 8562Y+ 2.8GHz 32-core 300W Processor for HPE | P67085-B21 | 1 | \$11,296.00 | 16 | \$180,736.00 | |
| HPE 64GB (1x64GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit | P43331-B21 | 1 | \$4,960.00 | 128 | \$634,880.00 | |
| HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device | P48183-B21 | 1 | \$1,994.00 | 7 | \$13,958.00 | |
| HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD | P63849-B21 | 1 | \$6,555.00 | 25 | \$163,875.00 | |
| HPE InfiniBand NDR200/Ethernet 200GbE 2-port QSFP112 PCIe5 x16 MCX755106AC-HEAT Adapter | P65333-B21 | 15 | \$7,331.00 | 8 | \$58,648.00 | |
| Intel E810 2-port for HPE | P08443-B21 | 1 | \$756.00 | 8 | \$6,048.00 | |
| HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit | P51911-B21 | 1 | \$120.00 | 8 | \$960.00 | |
| | | | | | \$0.00 | |
| HPE ProLiant DL380 Gen10 Plus 2U 8SFF x1 Tri-Mode 24G U.3 BC Front Drive Cage Kit | P27194-B21 | 1 | \$737.00 | 2 | \$1,474.00 | |
| Intel Xeon-Gold 6330 2.0GHz 28-core 205W Processor for HPE | P36927-B21 | 1 | \$3,758.00 | 4 | \$15,032.00 | |
| HPE 32GB (1x32GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit | P06033-B21 | 1 | \$1,524.00 | 32 | \$48,768.00 | |
| HPE 300GB 15K 12G SFF SAS SC | 870753-B21 | 1 | \$231.00 | 4 | \$924.00 | |
| HPE ProLiant DL380 Gen10 Plus x8/x16/x8 Primary FIO Riser Kit | P37038-B21 | 1 | \$215.00 | 2 | \$430.00 | |
| HPE MR416i-a Gen10 Plus x16 Lanes 4GB Cache NVMe/SAS 12G Controller | P26279-B21 | 1 | \$2,299.00 | 1 | \$2,299.00 | |
| HPE Smart Array P408i-a SR Gen10 12G SAS Controller | 804331-B21 | 1 | \$1,128.00 | 1 | \$1,128.00 | |
| Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE | P51181-B21 | 1 | \$485.00 | 2 | \$970.00 | |
| HPE MCX623106AS CDAT Ethernet 100Gb 2 port QSFP56 Adapter | P25960-B21 | 1 | \$4,373.00 | 2 | \$8,746.00 | |
| Network Hardware | | | | | | |
| HPE Aruba Networking CX 8360-12C v2 12-port 100G QSFP+/QSFP28 | JL709C | 1 | \$32,735.00 | 1 | \$32,735.00 | |
| HPE Aruba Networking 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable | JL307A | 1 | \$734.00 | 10 | \$7,340.00 | |
| HPE Aruba Networking CX 5420 24p 10M/100M/1G Class4 PoE Module - switch | SOU62A | 1 | \$6,149.00 | 1 | \$6,149.00 | |
| HPE 1.2m/4ft CAT5 RJ45 M/M Ethernet Cable | C7533A | 1 | 16 | 10 | \$160.00 | |
| HPE 3 Year Tech Care Essential w/DMR DL380a Gen11 HW Service | H38YLE | 1 | 22626 | 1 | | \$22,626.00 |
| HPE 42U 600mmx1200mm G2 Enterprise Shock Rack | P9K40A | 1 | \$6,200.00 | 1 | \$6,200.00 | |
| | | | | | Subtotal | \$1,208,476.00 |
| | | | | | | \$22,626.00 |
| Other | | | | | | |
| HPE USB US Keyboard/Mouse Kit | 631341-B21 | 1 | 24.99 | 3 | \$74.97 | |
| HP M22f FHD Monitor | 2D9J9AA#ABA | 2 | 144.99 | 3 | \$434.97 | |
| | | | | | Subtotal | \$509.94 |
| | | | | | | \$0.00 |
| Software | | | | | | |
| RHEL Svr Sckt/2 Gst 1yr 24x7 E-LTU | J8J36A | 1 | \$1,214.00 | 10 | \$12,140.00 | |
| CDP Private Cloud Base Edition - Business Select | CDP-PVC-BASE-SLT | 1 | \$5,462.50 | 10 | \$54,625.00 | |
| | | | | | Software Subtotal | \$66,765.00 |
| | | | | | | \$0.00 |
| | | | | | Total Extended Price | \$1,275,750.94 |
| | | | | | Total Discounts | \$422,966.00 |
| | | | | | | \$7,919.00 |

| | |
|--|---|
| Pricing: 1 = HPE; 2 = HP.com * Discount applies to Server/Network line items where Key = 1. Discount based upon total system cost as purchased by a regular customer. One or more components of the Measured Configuration have been substituted in the Priced Configuration. See the FDR for details. Audited by Doug Johnson, InfoSizing | Total System Cost (USD): \$867,492 AIUCpm@100: 1,600.16 \$/AIUCpm@100: \$542.13 |
|--|---|

Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated Line Items. 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 Line Items. For complete details, see the pricing section of the TPC Benchmark Standard. If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.

| | | | | |
|--|-------------------------------|------------|-------------|---------------|
|  Hewlett Packard Enterprise | <h1>ProLiant DL380 Gen11</h1> | | TPCx-AI | 2.0.0 |
| | | | TPC Pricing | 2.9.0 |
| | | | Report Date | Mar. 07, 2025 |
| <u>Numerical Quantities</u> | | | | |
| AIUCpm@100 | 1,600.16 | T_{Load} | 141.69 | |
| Scale Factor | 100 | T_{LD} | 141.69 | |
| Streams | 54 | T_{PTT} | 121.33 | |
| Kit Version | 2.0.0 | T_{PST1} | 35.39 | |
| Execution Status | Pass | T_{PST2} | 36.20 | |
| Accuracy Status | Pass | T_{PST} | 36.20 | |
| | | T_{TT} | 3.18 | |
| Test Times | | | | |
| Overall Run Start Time | 2025-01-29 06:57:55.787 | | | |
| Overall Run End Time | 2025-01-29 08:47:16.266 | | | |
| Overall Run Elapsed Time | 6,560.479 | | | |
| Load Test Start Time | 2025-01-29 03:04:52.203 | | | |
| Load Test End Time | 2025-01-29 03:07:16.791 | | | |
| Load Test Elapsed Time | 144.588 | | | |
| Power Training Start Time | 2025-01-29 03:07:16.859 | | | |
| Power Training End Time | 2025-01-29 03:54:49.762 | | | |
| Power Training Elapsed Time | 2,852.903 | | | |
| Power Serving 1 Start Time | 2025-01-29 03:54:49.848 | | | |
| Power Serving 1 End Time | 2025-01-29 04:01:45.492 | | | |
| Power Serving 1 Elapsed Time | 415.644 | | | |
| Power Serving 2 Start Time | 2025-01-29 04:01:45.570 | | | |
| Power Serving 2 End Time | 2025-01-29 04:08:46.560 | | | |
| Power Serving 2 Elapsed Time | 420.990 | | | |
| Scoring Start Time | 2025-01-29 04:12:02.561 | | | |
| Scoring End Time | 2025-01-29 04:18:04.459 | | | |
| Scoring Elapsed Time | 361.898 | | | |
| Throughput Start Time | 2025-01-29 04:18:04.586 | | | |
| Throughput End Time | 2025-01-29 04:47:16.263 | | | |
| Throughput Elapsed Time | 1,751.677 | | | |

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|--|-------------------------------|-------------|---------------|
|  Hewlett Packard Enterprise | <h1>ProLiant DL380 Gen11</h1> | TPCx-AI | 2.0.0 |
| | | TPC Pricing | 2.9.0 |
| | | Report Date | Mar. 07, 2025 |

Numerical Quantities (continued)

Use Case Times & Accuracy

| Use Case | Training (sec) | Serving 1 (sec) | Serving 2 (sec) | Throughput (avg) | Accuracy |
|----------|----------------|-----------------|-----------------|------------------|----------|
| UC01 | 92.237 | 36.724 | 37.077 | 156.562 | 0.000 |
| UC02 | 1,215.930 | 64.606 | 66.461 | 389.176 | 0.457 |
| UC03 | 34.131 | 19.842 | 21.984 | 26.136 | 3.885 |
| UC04 | 32.885 | 29.183 | 27.259 | 54.669 | 0.694 |
| UC05 | 231.837 | 46.398 | 46.763 | 154.738 | 0.084 |
| UC06 | 77.189 | 28.865 | 28.939 | 41.268 | 0.204 |
| UC07 | 28.484 | 20.680 | 22.729 | 30.157 | 1.307 |
| UC08 | 573.633 | 38.795 | 39.899 | 270.592 | 0.757 |
| UC09 | 514.635 | 91.932 | 91.131 | 367.508 | 0.990 |
| UC10 | 36.497 | 22.678 | 23.421 | 56.341 | 0.816 |

Use Case Serving Times (sec.)

