
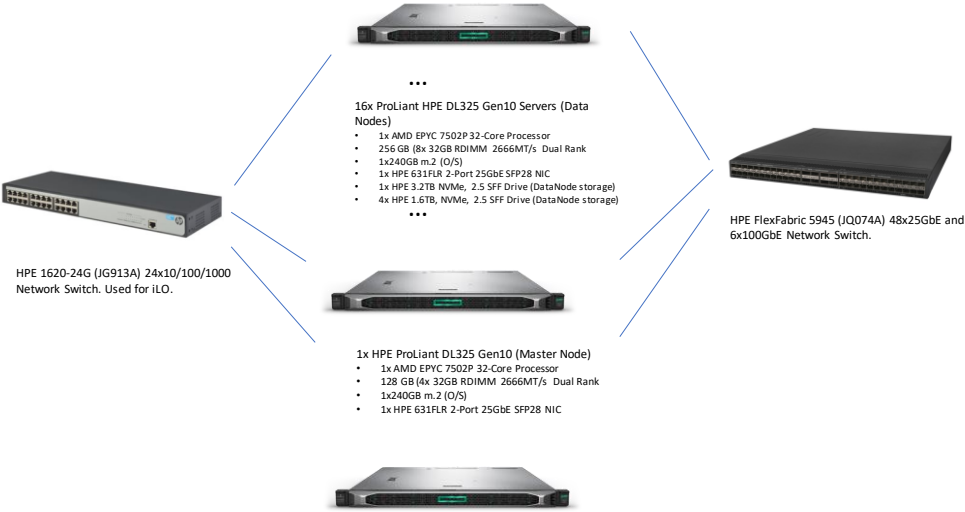




| | | | |
|--|--|---|---|
|  Hewlett Packard Enterprise | <h1>HPE DL325 Gen10</h1> | | TPCx-HS 2.0.3 TPC Pricing 2.4.0 Report Date Aug. 07, 2019 |
| Availability Date August 26, 2019 | TPCx-HS Performance 25.47 HSph@30TB | Price/Performance \$27,649.40 \$ / HSph@30TB | Total System Cost \$704,230 USD |
| System Under Test Configuration Overview | | | |
| Scale Factor 30 | Hadoop Software Hortonworks Data Platform, HDP 3.1 | Operating System Red Hat Enterprise Linux Server 7.6 | Other Software N/A |
|  <p>16x ProLiant HPE DL325 Gen10 Servers (Data Nodes)</p> <ul style="list-style-type: none"> • 1x AMD EPYC 7502P 32-Core Processor • 256 GB (8x 32GB RDIMM) 2666MT/s Dual Rank • 1x240GB m.2 (O/S) • 1x HPE 631FLR 2-Port 25GbE SFP28 NIC • 1x HPE 3.2TB NVMe, 2.5 SFF Drive (DataNode storage) • 4x HPE 1.6TB, NVMe, 2.5 SFF Drive (DataNode storage) <p>1x HPE ProLiant DL325 Gen10 (Master Node)</p> <ul style="list-style-type: none"> • 1x AMD EPYC 7502P 32-Core Processor • 128 GB (4x 32GB RDIMM) 2666MT/s Dual Rank • 1x240GB m.2 (O/S) • 1x HPE 631FLR 2-Port 25GbE SFP28 NIC <p>HPE FlexFabric 5945 (IQ074A) 48x25GbE and 6x100GbE Network Switch.</p> <p>HPE 1620-24G (JG913A) 24x10/100/1000 Network Switch. Used for iLO.</p> | | | |
| Physical Storage/Scale Factor: 5.26 | | Scale Factor/Physical Memory: 7.27 | |
| Total Number of Servers: Total Processors/Cores/Threads: | | 17x ProLiant DL325 Gen10 17/544/1,088 | |
| Server Configuration: Processors Memory Storage Controller Storage Device | | Per ProLiant DL325 Gen10 1x AMD EPYC 7502P 32-Core Processor 256 GiB (128 GiB Mgmt. node) Dual m.2 SATA, NVM Express 1x 240 GB m.2 SATA 4x HPE 1.6 TB NVMe (data nodes) 1x HPE 3.2 TB NVMe (data nodes) 1x HPE 631FLR 2-Port 25GbE SFP28 NIC | |
| Network Connectivity: | | HPE FlexFabric 5945 Switch HPE 1620-24G 24x10/100/1000 Network Switch (used for iLO) | |
| Total Rack Units: | | 17 (1U) + 1 (1U) + 1 (1U) = 19U | |

|  Hewlett Packard Enterprise | | HPE DL325 Gen10 | | | TPCx-HS | 2.0.3 | |
|--|--------|------------------------|------------|-----|-----------------|--------------------|-----------------|
| | | | | | TPC Pricing | 2.4.0 | |
| | | | | | Report Date | Aug. 07, 2019 | |
| Description | Source | Part Number | Unit Price | Qty | Extended Price | 3 Yr. Maint. Price | |
| Server Hardware | | | | | | | |
| HPE DL325 Gen10 8SFF CTO Server | 1 | P04654-B21 | \$1,350 | 17 | \$22,950 | | |
| HPE DL325 Gen10 8SFF CTO Server, EPYC 1x7502P | 1 | P16639-L21 | \$3,459 | 17 | \$58,803 | | |
| HPE 32GB 2Rx4 PC4-2933-R | 1 | P00924-B21 | \$1,170 | 132 | \$154,440 | | |
| HPE 800W CS Platinum Plus AC Power Supply | 1 | 865414-B21 | \$379 | 17 | \$6,443 | | |
| HPE DL325 Gen10 8SFF (NVMe backplane) CTO Server | 1 | P04662-B21 | \$1,699 | 17 | \$28,883 | | |
| HPE Dual M.2 SSD enablement option DL/ML | 1 | 878783-B21 | \$159 | 17 | \$2,703 | | |
| HPE 240GB m.2 SATA SSD | 1 | P04556-B21 | \$379 | 17 | \$6,443 | | |
| HPE 3.2 TB NVMe MO003200KWVNC | 1 | P10224-B21 | \$5,580 | 16 | \$89,280 | | |
| HPE 1.6 TB NVMe, MO001600KWVNB | 1 | P10222-B21 | \$3,120 | 64 | \$199,680 | | |
| HPE Ethernet 10/25G Network Adapter 631FLR-SFP28 | 1 | 817709-B21 | \$749 | 17 | \$12,733 | | |
| HPE 3Y FC 24x7 DL325 Gen10 SVC | 1 | HB4G8E | \$1,355 | 17 | | \$23,035 | |
| HPE iLO Adv incl 3yr TS U E-LTU | 1 | E6U64ABE | \$469 | 17 | | \$7,973 | |
| HP V194 18.5" HD 1366x768 LED Monitor (1 + 2 spare) | 3 | V5E94A6#ABA | \$95 | 3 | \$285 | | |
| HP PS/2 Keyboard And Mouse Bundle (1 + 2 spare) | 3 | H3C53AA#ABA | \$30 | 3 | \$90 | | |
| | | | | | Subtotal | \$582,733 | \$31,008 |
| Network | | | | | | | |
| HPE 1620-24G Switch + 2 spares | 1 | JG913A | \$299 | 3 | \$897 | | |
| 5ft (1.5m) Cat6 Snagless Unshielded (UTP) PVC CM 17 + 2 spares | 2 | C6-UTPSGPVCBE | \$2 | 19 | \$38 | | |
| HPE 5945 48SFP28 8QSFP28 Switch | 1 | JQ074A | \$30,970 | 1 | \$30,970 | | |
| HPE 25Gb SFP28 to SFP28 3m DAC 34 + 10% spares | 1 | 844477-B21 | \$222 | 39 | \$8,658 | | |
| HPE 3Y FC 24x7 FF 5945 Switch SVC | 1 | HB4S3E | \$8,003 | 1 | | \$8,003 | |
| | | | | | Subtotal | \$40,563 | \$8,003 |
| Rack | | | | | | | |
| HPE 42U 600x1075mm Adv G2 Kit Pltt Rack | 1 | P9K07A | \$1,179 | 1 | \$1,179 | | |
| HPE 24A High Voltage Core Only Corded PDU + 2 spares | 1 | 252663-D74 | \$259 | 3 | \$777 | | |
| | | | | | Subtotal | \$1,956 | \$0 |
| (Continued on next page) | | | | | | | |

|  Hewlett Packard Enterprise | <h1>HPE DL325 Gen10</h1> | TPCx-HS 2.0.3 TPC Pricing 2.4.0 Report Date Aug. 07, 2019 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|--------------------------------------|------------------|-------------------|--------------------|------------------------|--------------------|--------------------|------------------------|--|--|--|--|--|--|----------------------|---|--------|---------|----|-----------|--|--------------------------------------|---|----------|---------|----|----------|--|-----------------|--|--|--|--|------------------|------------|-----------------------------|--|--|--|--|------------------|-----------------|------------------------|--|--|--|--|------------------|------------|--------------------|--|--|--|--|------------------|-----------------|
| (Continued from previous page) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Description</th> <th style="text-align: left;">Source</th> <th style="text-align: left;">Part Number</th> <th style="text-align: right;">Unit Price</th> <th style="text-align: right;">Qty</th> <th style="text-align: right;">Extended Price</th> <th style="text-align: right;">3 Yr. Maint. Price</th> </tr> </thead> <tbody> <tr> <td colspan="7">Server Software</td> </tr> <tr> <td>Hortonworks 1yr 24x7</td> <td>1</td> <td>G7M27A</td> <td style="text-align: right;">\$2,000</td> <td style="text-align: right;">51</td> <td style="text-align: right;">\$102,000</td> <td></td> </tr> <tr> <td>RHEL Svr 2 Sckt/2 Gst 3yr 24x7 E-LTU</td> <td>1</td> <td>G3J30AAE</td> <td style="text-align: right;">\$3,702</td> <td style="text-align: right;">17</td> <td style="text-align: right;">\$62,934</td> <td></td> </tr> <tr> <td colspan="5" style="text-align: right;">Subtotal</td> <td style="text-align: right;">\$164,934</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td colspan="5" style="text-align: right;">Total Extended Price</td> <td style="text-align: right;">\$790,186</td> <td style="text-align: right;">\$39,011</td> </tr> <tr> <td colspan="5" style="text-align: right;">Total Discounts</td> <td style="text-align: right;">\$124,967</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td colspan="5" style="text-align: right;">Grand Total</td> <td style="text-align: right;">\$665,219</td> <td style="text-align: right;">\$39,011</td> </tr> </tbody> </table> | | | Description | Source | Part Number | Unit Price | Qty | Extended Price | 3 Yr. Maint. Price | Server Software | | | | | | | Hortonworks 1yr 24x7 | 1 | G7M27A | \$2,000 | 51 | \$102,000 | | RHEL Svr 2 Sckt/2 Gst 3yr 24x7 E-LTU | 1 | G3J30AAE | \$3,702 | 17 | \$62,934 | | Subtotal | | | | | \$164,934 | \$0 | Total Extended Price | | | | | \$790,186 | \$39,011 | Total Discounts | | | | | \$124,967 | \$0 | Grand Total | | | | | \$665,219 | \$39,011 |
| Description | Source | Part Number | Unit Price | Qty | Extended Price | 3 Yr. Maint. Price | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Server Software | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hortonworks 1yr 24x7 | 1 | G7M27A | \$2,000 | 51 | \$102,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RHEL Svr 2 Sckt/2 Gst 3yr 24x7 E-LTU | 1 | G3J30AAE | \$3,702 | 17 | \$62,934 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Subtotal | | | | | \$164,934 | \$0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Extended Price | | | | | \$790,186 | \$39,011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Discounts | | | | | \$124,967 | \$0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grand Total | | | | | \$665,219 | \$39,011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pricing: 1 = HPE; 2 = fs.com; 3 = hp.factoryoutletstore.com * All discounts are based on US list prices and for similar quantities and configurations. A 20% discount was based on the overall specific components pricing from vendor 1 in this single quotation. Discounts for similarly sized configurations will be similar to those quoted here, but may vary based on the components in the configuration. Sales contact: HPE WW Headquarters, 3000 Hanover St., Palo Alto, CA 94304-1185 (650) 857-1501 or HPE: 855-472-5233 Audited by Doug Johnson, InfoSizing | <table style="width: 100%;"> <tr> <td style="text-align: right;">Three-Year Cost of Ownership:</td> <td style="text-align: right;">\$704,230</td> </tr> <tr> <td style="text-align: right;">HSph@30TB:</td> <td style="text-align: right;">25.47</td> </tr> <tr> <td style="text-align: right;">\$ / HSph@30TB:</td> <td style="text-align: right;">\$27,649.40</td> </tr> </table> | | Three-Year Cost of Ownership: | \$704,230 | HSph@30TB: | 25.47 | \$ / HSph@30TB: | \$27,649.40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Three-Year Cost of Ownership: | \$704,230 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HSph@30TB: | 25.47 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| \$ / HSph@30TB: | \$27,649.40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p><i>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.</i></p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|  | HPE DL325 Gen10 | TPCx-HS 2.0.3 |
| Hewlett Packard Enterprise | | TPC Pricing 2.4.0 |
| | | Report Date Aug. 07, 2019 |
| Numerical Quantities | | |
| Performance Run – Run 2 | | |
| Scale Factor | | 30TB |
| Run Start Time | 2019-06-29 14:06:45.000 | |
| Run End Time | 2019-06-29 15:17:21.000 | |
| Run Elapsed Time | | 4,240.000 |
| HSGen Start Time | 2019-06-29 14:06:47.000 | |
| HSGen End Time | 2019-06-29 14:20:15.000 | |
| HSGen Elapsed Time | | 809.953 |
| HSSort Start Time | 2019-06-29 14:20:28.000 | |
| HSSort End Time | 2019-06-29 15:07:09.000 | |
| HSSort Elapsed Time | | 2,802.153 |
| HSValidate Start Time | 2019-06-29 15:07:20.000 | |
| HSValidate End Time | 2019-06-29 15:17:21.000 | |
| HSValidate Elapsed Time | | 602.329 |
| Repeatability Run – Run 1 | | |
| Scale Factor | | 30TB |
| Run Start Time | 2019-06-29 12:46:11.000 | |
| Run End Time | 2019-06-29 13:56:39.000 | |
| Run Elapsed Time | | 4,231.000 |
| HSGen Start Time | 2019-06-29 12:46:12.000 | |
| HSGen End Time | 2019-06-29 12:59:50.000 | |
| HSGen Elapsed Time | | 819.318 |
| HSSort Start Time | 2019-06-29 13:00:02.000 | |
| HSSort End Time | 2019-06-29 13:46:39.000 | |
| HSSort Elapsed Time | | 2,797.960 |
| HSValidate Start Time | 2019-06-29 13:46:50.000 | |
| HSValidate End Time | 2019-06-29 13:56:39.000 | |
| HSValidate Elapsed Time | | 590.317 |

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|  Hewlett Packard Enterprise | <h1>HPE DL325 Gen10</h1> | TPCx-HS 2.0.3 TPC Pricing 2.4.0 Report Date Aug. 07, 2019 |
|--|--------------------------|---|

Run Reports

Run Report for Performance Run – Run 2

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TPCx-HS Performance Metric (HSph@SF) Report

| | | |
|--------------------|----------------|--------------|
| Test Run 2 Details | Total Time = | 4240 |
| | Total Size = | 300000000000 |
| | Scale-Factor = | 30 |

TPCx-HS Performance Metric (HSph@SF): 25.4733

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Run Report for Repeatability Run – Run 1


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TPCx-HS Performance Metric (HSph@SF) Report

| | | |
|--------------------|----------------|--------------|
| Test Run 1 Details | Total Time = | 4231 |
| | Total Size = | 300000000000 |
| | Scale-Factor = | 30 |

TPCx-HS Performance Metric (HSph@SF): 25.5275

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|--|--------------------------|---|
|  Hewlett Packard Enterprise | <h1>HPE DL325 Gen10</h1> | TPCx-HS 2.0.3 TPC Pricing 2.4.0 Report Date Aug. 07, 2019 |
| Revision History | | |
| Date August 7, 2019 | Edition First | Description Initial Publication |