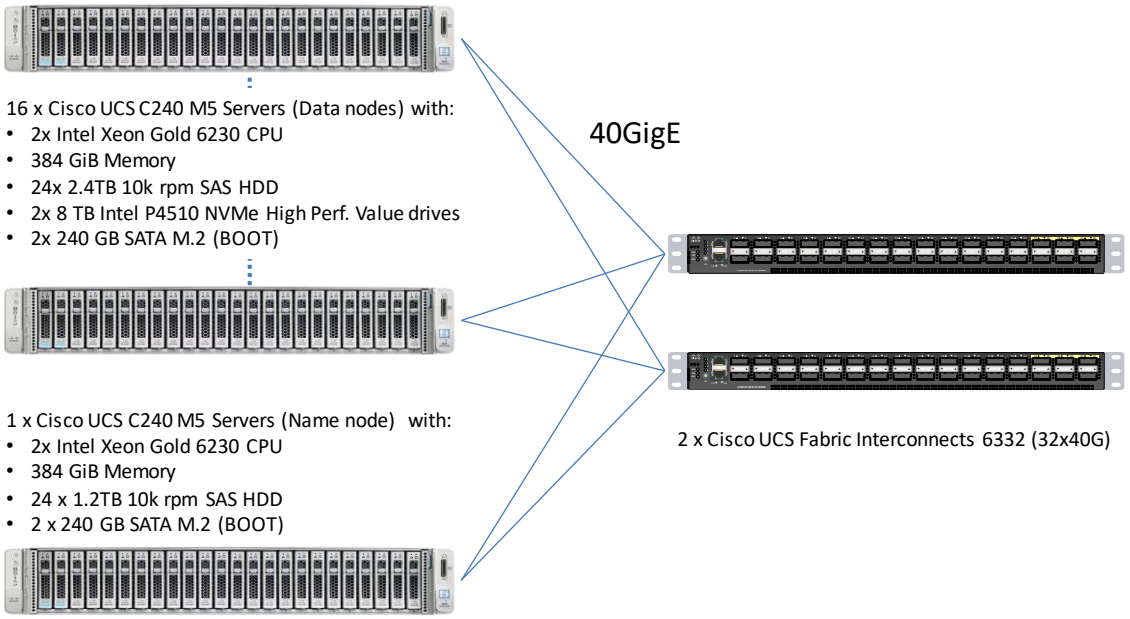
# Cisco Data Intelligence Platform

| TPCx-HS | 2.0.3 |
|---|---|
| TPC Pricing | 2.5.0 |
| Report Date | Dec. 13, 2019 |

| Availability Date | TPCx-HS Performance | Price/Performance | Total System Cost |
|---|---|---|---|
| **Currently Available** | **15.60 HSph@1TB** | **$65,021.16 $ / HSph@1TB** | **$1,014,330 USD** |

## System Under Test Configuration Overview

| Scale Factor | Hadoop Software | Operating System | Other Software |
|---|---|---|---|
| 1 | Cloudera Enterprise Basic 6.3.0 | Red Hat Enterprise Linux Server 7.6 | n/a |




| Physical Storage/Scale Factor: 1,214.56 | Scale Factor/Physical Memory: 0.16 |
|---|---|

| | | |
|---|---|---|
| Servers:<br>Total Processors/Cores/Threads: | 17 (1x Cisco UCS C240 M5; 16x Cisco UCS C240 M5)<br>34/680/1,360 | |
| Server Configuration:<br>Processors<br>Memory<br>Storage Controller<br>Storage Device<br><br>Network | 1x Cisco UCS C240 M5:<br>2x Intel(R) Xeon(R) Gold 6230<br>384 GiB<br>1x 12G SAS Modular RAID<br>2x 240GB SATA M.2<br>24x 1.2TB 10k rpm SAS HDD<br><br>VIC 1387 Dual Port 40Gb | 16x Cisco UCS C240 M5:<br>2x Intel(R) Xeon(R) Gold 6230<br>384 GiB<br>1x 12G SAS Modular RAID<br>2x 240GB SATA M.2<br>24x 2.4TB 10k rpm SAS HDD<br>2x 8TB Intel NVMe<br>VIC 1387 Dual Port 40Gb |
| Connectivity:<br>Total Rack Units: | 2x Cisco UCS Fabric Interconnect 6332 (32x40G)<br>(17 x UCS C240 M5) + (2 x FI 6332) = (17x2) + (2x1) = 36RU | |

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| Description | Part Number | Source | Unit Price | Qty | Extended Price | 3 Yr. Maint. Price |
|---|---|---|---|---|---|---|
| **Hardware** | | | | | | |
| UCS C240 M5 24 SFF + 2 rear drives w/o CPU,mem,HD,PCIe,PS | UCSC-C240-M5SX | 1 | $4,939.00 | 16 | $79,024.00 | |
| SNTC 24X7X4OS UCS C240 M5 24 SFF + 2 rear drives w/o CPU,mem | CON-OSP-C240M5SX | 1 | $3,102.75 | 17 | | $52,746.75 |
| Riser 1 incl 3 PCIe slots (x8, x16, x8); slot 3 req CPU2 | UCSC-PCI-1-C240M5 | 1 | $199.00 | 16 | $3,184.00 | |
| Cisco VIC 1387 Dual Port 40Gb QSFP CNA MLOM | UCSC-MLOM-C40Q-03 | 1 | $2,192.00 | 16 | $35,072.00 | |
| 240GB SATA M.2 | UCS-M2-240GB | 1 | $535.00 | 32 | $17,120.00 | |
| Ball Bearing Rail Kit for C220 & C240 M4 & M5 rack servers | UCSC-RAILB-M4 | 1 | $220.00 | 16 | $3,520.00 | |
| IMC SW (Recommended) latest release for C-Series Servers. | CIMC-LATEST | 1 | $0.00 | 16 | $0.00 | |
| Big Data and Analytics Platform (Hadoop/IoT/ITOA/AI/ML) | UCS-SID-INFR-BD | 1 | $0.00 | 16 | $0.00 | |
| Big Data and Analytics (Hadoop/IoT/ITOA) | UCS-SID-WKL-BD | 1 | $0.00 | 16 | $0.00 | |
| Mini Storage carrier for M.2 SATA/NVME (holds up to 2) | UCS-MSTOR-M2 | 1 | $0.00 | 16 | $0.00 | |
| Super Cap cable for UCSC-RAID-M5HD | CBL-SC-MR12GM5P | 1 | $0.00 | 16 | $0.00 | |
| Super Cap for UCSC-RAID-M5, UCSC-MRAID1GB-KIT | UCSC-SCAP-M5 | 1 | $0.00 | 16 | $0.00 | |
| Cisco 12G Modular RAID controller with 4GB cache | UCSC-RAID-M5HD | 1 | $2,900.00 | 16 | $46,400.00 | |
| 2.4 TB 12G SAS 10K RPM SFF HDD (4K) | UCS-HD24TB10K4KN | 1S | $2,065.00 | 352 | $726,880.00 | |
| 32GB DDR4-2933-MHz RDIMM/2Rx4/1.2v | UCS-MR-X32G2RT-H | 1 | $2,043.00 | 192 | $392,256.00 | |
| C240 Rear UCS-RAID-M5HD SAS cbl(1)kitinclfan,bkpln | UCSC-RSAS-240M5X | 1 | $0.00 | 16 | $0.00 | |
| C240 M5 Front NVMe cable (1) | CBL-NVME-C240SFF | 1 | $0.00 | 16 | $0.00 | |
| 8TB 2.5in U.2 Intel P4510 NVMe High Perf. Value Endurance | UCSC-NVMEHW-I8000 | 1 | $14,675.00 | 32 | $469,600.00 | |
| 2.4 TB 12G SAS 10K RPM SFF HDD (4K) | UCS-HD24TB10K4KN | 1 | $2,065.00 | 32 | $66,080.00 | |
| Riser 2C incll 3 PCIe slots (3 x8) supports front+rear NVMe | UCSC-PCI-2C-240M5 | 1 | $199.00 | 16 | $3,184.00 | |
| Cisco UCS 1050W AC Power Supply for Rack Server | UCSC-PSU1-1050W | 1 | $729.00 | 32 | $23,328.00 | |
| Power Cord, 125VAC 13A NEMA 5-15 Plug, North America | CAB-9K12A-NA | 1 | $0.00 | 32 | $0.00 | |
| Heat sink for UCS C240 M5 rack servers 150W CPUs & below | UCSC-HS-C240M5 | 1 | $0.00 | 32 | $0.00 | |
| Intel 6230 2.1GHz/125W 20C/27.50MB DCP DDR4 2933 MHz | UCS-CPU-I6230 | 1 | $6,500.00 | 32 | $208,000.00 | |
| Cisco R42612 standard rack, w/side panels | RACK2-UCS2 | 1 | $6,241.00 | 1 | $6,241.00 | |
| SNTC 8X5XNBD, Cisco R42612 standard rack, w side panels | CON-SNT-RCK2UCS2 | 1 | $300.00 | 1 | | $300.00 |
| (Not sold standalone) UCS 6332 1RU FI/12 QSFP+ | UCS-SP-FI6332 | 1 | $24,400.00 | 2 | $48,800.00 | |
| ONSITE 24X7X4 (Not sold standalone) UCS 6332 1RU FI/No PSU/3 | CON-OSP-SPFI6332 | 1 | $7,011.90 | 2 | | $14,023.80 |
| UCS 6332/ 6454 Power Supply/100-240VAC | UCS-PSU-6332-AC | 1 | $0.00 | 4 | $0.00 | |
| Power Cord, 125VAC 13A NEMA 5-15 Plug, North America | CAB-9K12A-NA | 1 | $0.00 | 4 | $0.00 | |
| 40GBASE-CR4 Passive Copper Cable, 3m | QSFP-H40G-CU3M | 1 | $0.00 | 16 | $0.00 | |
| QSFP40G BiDi Short-reach Transceiver | QSFP-40G-SR-BD | 1 | $0.00 | 8 | $0.00 | |
| UCS Manager v3.2 | N10-MGT015 | 1 | $0.00 | 2 | $0.00 | |
| UCS 6332/ 6454 Fan Module | UCS-FAN-6332 | 1 | $0.00 | 8 | $0.00 | |
| UCS 6332/ 6454 Chassis Accessory Kit | UCS-ACC-6332 | 1 | $0.00 | 2 | $0.00 | |
| 3rd Gen FI Per port License to connect C-direct only | UCS-LIC-6300-40GC= | 1 | $1,388.00 | 20 | $27,760.00 | |

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(continued from previous page)

| Description | Part Number | Source | Unit Price | Qty | Extended Price | 3 Yr. Maint. Price |
|---|---|---|---|---|---|---|
| UCS C240 M5 24 SFF + 2 rear drives w/o CPU,mem,HD,PCIe,PS | UCSC-C240-M5SX | 1 | $4,939.00 | 1 | $4,939.00 | |
| Riser 1 incl 3 PCIe slots (x8, x16, x8); slot 3 req CPU2 | UCSC-PCI-1-C240M5 | 1 | $199.00 | 1 | $199.00 | |
| Cisco VIC 1387 Dual Port 40Gb QSFP CNA MLOM | UCSC-MLOM-C40Q-03 | 1 | $2,192.00 | 1 | $2,192.00 | |
| 240GB SATA M.2 | UCS-M2-240GB | 1 | $535.00 | 2 | $1,070.00 | |
| Ball Bearing Rail Kit for C220 & C240 M4 & M5 rack servers | UCSC-RAILB-M4 | 1 | $220.00 | 1 | $220.00 | |
| IMC SW (Recommended) latest release for C-Series Servers. | CIMC-LATEST | 1 | $0.00 | 1 | $0.00 | |
| Big Data and Analytics Platform (Hadoop/IoT/ITOA/AI/ML) | UCS-SID-INFR-BD | 1 | $0.00 | 1 | $0.00 | |
| Big Data and Analytics (Hadoop/IoT/ITOA) | UCS-SID-WKL-BD | 1 | $0.00 | 1 | $0.00 | |
| Mini Storage carrier for M.2 SATA/NVME (holds up to 2) | UCS-MSTOR-M2 | 1 | $0.00 | 1 | $0.00 | |
| Super Cap cable for UCSC-RAID-M5HD | CBL-SC-MR12GM5P | 1 | $0.00 | 1 | $0.00 | |
| Super Cap for UCSC-RAID-M5, UCSC-MRAID1GB-KIT | UCSC-SCAP-M5 | 1 | $0.00 | 1 | $0.00 | |
| Cisco 12G Modular RAID controller with 4GB cache | UCSC-RAID-M5HD | 1 | $2,900.00 | 1 | $2,900.00 | |
| 32GB DDR4-2933-MHz RDIMM/2Rx4/1.2v | UCS-MR-X32G2RT-H | 1 | $2,043.00 | 12 | $24,516.00 | |
| Riser 2C incll 3 PCIe slots (3 x8) supports front+rear NVMe | UCSC-PCI-2C-240M5 | 1 | $199.00 | 1 | $199.00 | |
| Cisco UCS 1050W AC Power Supply for Rack Server | UCSC-PSU1-1050W | 1 | $729.00 | 2 | $1,458.00 | |
| Power Cord, 125VAC 13A NEMA 5-15 Plug, North America | CAB-9K12A-NA | 1 | $0.00 | 2 | $0.00 | |
| Heat sink for UCS C240 M5 rack servers 150W CPUs & below | UCSC-HS-C240M5 | 1 | $0.00 | 2 | $0.00 | |
| UCS C-Series M5 SFF drive blanking panel | UCSC-BBLKD-S2 | 1 | $0.00 | 2 | $0.00 | |
| Intel 6230 2.1GHz/125W 20C/27.50MB DCP DDR4 2933 MHz | UCS-CPU-I6230 | 1 | $6,500.00 | 2 | $13,000.00 | |
| 1.2 TB 12G SAS 10K RPM SFF HDD | UCS-HD12TB10K12N | 1 | $1,533.00 | 24 | $36,792.00 | |
| **Software** | | | | | | |
| Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 3-Yr Support Req | RHEL-2S2V-3A | 1 | $0.00 | 17 | $0.00 | |
| ISV 24X7 RHEL Server 2Socket-OR-2Virtual; ANNUAL List Price | CON-ISV1-EL2S2V3A | 1 | $3,897.00 | 17 | $66,249.00 | |
| Cloudera Ent. Basic, Node LIC, Gold | UCS-BD-CEBN-GD= | 1 | $0.00 | 17 | $0.00 | |
| Cloudera Ent. Basic, Node LIC, Gold - 3 Year | UCS-BD-CEBN-GD-3Y | 1 | $10,461.54 | 17 | $177,846.18 | |
| | | | Hardware & Software Subtotals | | $2,488,029.18 | $67,070.55 |
| Large Purchase Discount 1 | | | | | | |
| 61% for products and 35% for service | | 1 | | | $1,517,697.80 | $23,474.69 |
| | | | **Hardware & Software Totals** | | **$970,331.38** | **$43,595.86** |
| **Infrastructure** | | | | | | |
| ViewSonic VA2246M 22" Monitor | | 2 | $83.39 | 3 | $250.17 | |
| Logitech MK120 USB Wired Keyboard/mouse | | 2 | $12.25 | 3 | $36.75 | |
| | | | | **Totals** | **$970,618.30** | **$43,595.86** |

Pricing: 1 = Cisco; 2 = CDW

* Discount applies to all line items where Key = 1. Discount based upon total system cost as purchased by a regular customer.

S: 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**

| | |
|---|---|
| **Three-Year Cost of Ownership:** | **$1,014,330** |
| **HSph@1TB:** | **15.60** |
| **$ / HSph@1TB:** | **$65,021.16** |

*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.*

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## Numerical Quantities

Performance Run – Run 2

| | |
|---|---|
| Scale Factor | 1TB |
| Run Start Time | 2019-12-13 06:29:28.000 |
| Run End Time | 2019-12-13 06:33:18.000 |
| Run Elapsed Time | 231.000 |
| HSGen Start Time | 2019-12-13 06:29:30.000 |
| HSGen End Time | 2019-12-13 06:30:38.000 |
| HSGen Elapsed Time | 69.724 |
| HSSort Start Time | 2019-12-13 06:30:41.000 |
| HSSort End Time | 2019-12-13 06:32:54.000 |
| HSSort Elapsed Time | 134.753 |
| HSValidate Start Time | 2019-12-13 06:32:58.000 |
| HSValidate End Time | 2019-12-13 06:33:18.000 |
| HSValidate Elapsed Time | 21.524 |

Repeatability Run – Run 1

| | |
|---|---|
| Scale Factor | 1TB |
| Run Start Time | 2019-12-13 06:25:07.000 |
| Run End Time | 2019-12-13 06:28:54.000 |
| Run Elapsed Time | 229.000 |
| HSGen Start Time | 2019-12-13 06:25:09.000 |
| HSGen End Time | 2019-12-13 06:26:16.000 |
| HSGen Elapsed Time | 68.743 |
| HSSort Start Time | 2019-12-13 06:26:19.000 |
| HSSort End Time | 2019-12-13 06:28:30.000 |
| HSSort Elapsed Time | 132.994 |
| HSValidate Start Time | 2019-12-13 06:28:34.000 |
| HSValidate End Time | 2019-12-13 06:28:54.000 |
| HSValidate Elapsed Time | 21.575 |

| | Cisco Data Intelligence Platform | TPCx-HS 2.0.3<br>TPC Pricing 2.5.0<br>Report Date Dec. 13, 2019 |
|---|---|---|

## Run Reports

Run Report for Performance Run – Run 2
==========
TPCx-HS Performance Metric (HSph@SF) Report

| | | |
|---|---|---|
| Test Run 2 Details | Total Time = | 231 |
| | Total Size = | 10000000000 |
| | Scale-Factor = | 1 |

TPCx-HS Performance Metric (HSph@SF): 15.6006

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Run Report for Repeatability Run – Run 1
==========
TPCx-HS Performance Metric (HSph@SF) Report

| | | |
|---|---|---|
| Test Run 1 Details | Total Time = | 229 |
| | Total Size = | 10000000000 |
| | Scale-Factor = | 1 |

TPCx-HS Performance Metric (HSph@SF): 15.7232

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## Revision History

| Date | Edition | Description |
|---|---|---|
| December 13, 2019 | First | Initial Publication |