



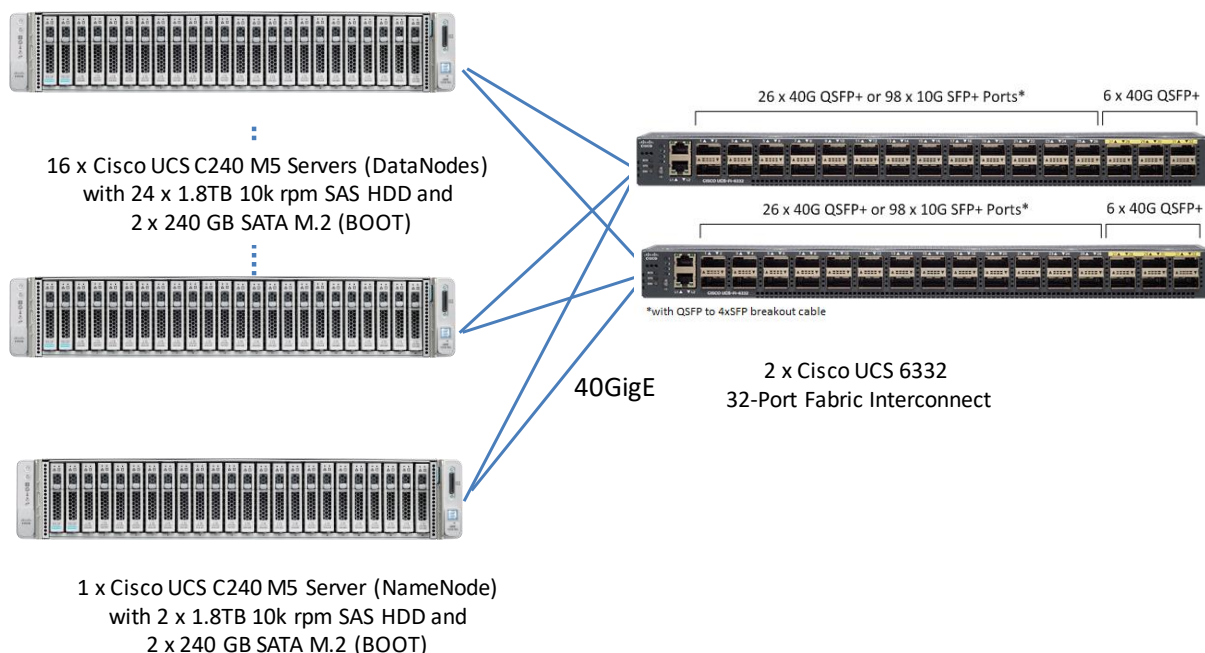
Cisco UCS Integrated Infrastructure for Big Data and Analytics

TPCx-HS Rev. v2.0.2
TPC-Pricing Rev. v2.2.0

Report Date:
January 30, 2018

Total System Cost		TPCx-HS Performance Metric		Price/Performance
656,096 USD		11.54 HSph@30TB		56,854.08 USD \$/HSph@30TB
Scale Factor	Apache Hadoop Compatible Software	Operating System	Other Software	Availability Date
30	Cloudera Enterprise Edition V5.13.0	Red Hat Enterprise Linux Server Release 7.4	n/a	January 30, 2018

System Configuration



Physical Storage/Scale Factor: 23.43

Scale Factor/Physical Memory: 9.41

Servers:	17 x UCS C240M5
Total Processors/Cores/Threads	34/476 /952
Server Configuration:	Per node:
Processors	2 x Intel® Xeon® Gold Processor 6132, 2.60 GHz, 19.25 MB L3
Memory	192GB
Storage Controller	1 x Cisco 12G SAS Modular Raid Controller
Storage Device	24 x 1.8TB 10K RPM SAS HDD (data nodes) 2 x 1.8TB 10K RPM SAS HDD (name node) 2 x 240GB SATA (all nodes, boot disk)
Network	1 x Cisco VIC 1387 Dual Port 40Gb QSFP CNA MLOM
Connectivity:	2 x Cisco UCS 6332 32-Port Fabric Interconnect
Total Rack Units:	$(17 * C240M5) + (2 * FI) = (17 * 2) + (2 * 1) = 36RU$



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Description	Part Number	Source	Unit Price	Qty	Extended Price	3 Year Maint. Price
UCS C240 M5 24 SFF + 2 rear drives w/o CPU,mem,HD,PCIe,PS	UCSC-C240-M5SX	1	\$ 4,399.00	17	\$ 74,783.00	
2.6 GHz 6132/140W 14C/19.25MB Cache/DDR4 2666MHz	UCS-CPU-6132	1	\$ 7,000.00	34	\$ 238,000.00	
16GB DDR4-2666-MHz RDIMM/PC4-21300/single rank/x4/1.2v	UCS-MR-X16G1RS-H	1	\$ 900.00	204	\$ 183,600.00	
Riser 1 incl 3 PCIe slots (x8, x16, x8); slot 3 req CPU2	UCSC-PCI-1-C240M5	1	\$ 199.00	17	\$ 3,383.00	
Cisco VIC 1387 Dual Port 40Gb QSFP CNA MLOM	UCSC-MLOM-C40Q-03	1	\$ 2,192.00	17	\$ 37,264.00	
240GB SATA M.2	UCS-M2-240GB	1	\$ 535.00	34	\$ 18,190.00	
Cisco UCS 1600W AC Pow er Supply for Rack Server	UCSC-PSU1-1600W	1	\$ 800.00	34	\$ 27,200.00	
Pow er Cord, 125VAC 13A NEMA 5-15 Plug, North America	CAB-9K12A-NA	1	\$ -	34	\$ -	
Ball Bearing Rail Kit for C220 & C240 M4 & M5 rack servers	UCSC-RAILB-M4	1	\$ 220.00	17	\$ 3,740.00	
IMC SW (Recommended) latest release for C-Series Servers.	CIMC-LATEST	1	\$ -	17	\$ -	
Heat sink for UCS C240 M5 rack servers 150W CPUs & below	UCSC-HS-C240M5	1	\$ -	34	\$ -	
UCS C-Series M5 SFF drive blanking panel	UCSC-BBLKD-S2	1	\$ -	56	\$ -	
C240 M5 PCIe Riser Blanking Panel	UCSC-PCIF-240M5	1	\$ -	17	\$ -	
Mini Storage carrier for M.2 SATA/NVME (holds up to 2)	UCS-MSTOR-M2	1	\$ -	17	\$ -	
Super Cap for UCSC-RAID-M5, UCSC-MRAID1GB-KIT	UCSC-SCAP-M5	1	\$ -	17	\$ -	
Super Cap cable for UCSC-RAID-M5HD	CBL-SC-MR12GM5P	1	\$ -	17	\$ -	
Cisco 12G Modular RAID controller with 4GB cache	UCSC-RAID-M5HD	1	\$ 2,900.00	17	\$ 49,300.00	
Cisco ONE Data Center Compute Opt Out Option	C1UCS-OPT-OUT	1	\$ -	17	\$ -	
UCS SP 1.8 TB 12G SAS 10K RPM SFF HDD (4K) 4Pk	UCS-SP-H1P8TB-4X	1	\$ -	96	\$ -	
1.8 TB 12G SAS 10K RPM SFF HDD (4K)	UCS-SP-H1P8TB	1	\$ 1,500.00	384	\$ 576,000.00	
1.8 TB 12G SAS 10K RPM SFF HDD (4K)	UCS-HD18TB10K4KN	1	\$ 1,827.00	2	\$ 3,654.00	
SmartNet total care 3YR support (24x7x4)	CON-3OSP-C240M5A2	1	\$ 2,364.00	17		\$40,188
UCS SP Select 2 x 6332 FI	UCS-SP-FI6332-2X	1	\$ -	1	\$ -	
(Not sold standalone) UCS 6332 1RU FI/12 QSFP+	UCS-SP-FI6332	1	\$ 22,000.00	2	\$ 44,000.00	
UCS 6332 Pow er Supply/100-240VAC	UCS-PSU-6332-AC	1	\$ -	4	\$ -	
40GBASE-CR4 Passive Copper Cable, 3m	QSFP-H40G-CU3M	1	\$ -	16	\$ -	
QSFP40G BiDi Short-reach Transceiver	QSFP-40G-SR-BD	1	\$ -	8	\$ -	
UCS Manager v3.1	N10-MGT014	1	\$ -	2	\$ -	
UCS 6332 Fan Module	UCS-FAN-6332	1	\$ -	8	\$ -	
UCS 6332 Chassis Accessory Kit	UCS-ACC-6332	1	\$ -	2	\$ -	
40GBASE-CR4 Passive Copper Cable, 3m	QSFP-H40G-CU3M=	1	\$ 250.00	20	\$ 5,000.00	
Pow er Cord, 125VAC 13A NEMA 5-15 Plug, North America	CAB-9K12A-NA	1	\$ -	4	\$ -	
3rd Gen FI Per port License to connect C-direct only	UCS-LIC-6300-40GC=	1	\$ 1,388.00	20	\$ 27,760.00	
3YR SMARTNET24X7X4OS (Not sold standalone) UCS6332	CON-3OSP-SPFI6332	1	\$ 6,678.00	1		\$6,678



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Cisco R42612 standard rack, w/side panels	RACK2-UCS2	1	\$ 6,341.00	1	\$ 6,341.00	
Red Hat Enterprise Linux Server, 3Y 24x7	CON-ISV1-EL2S2V3A	1	\$ 3,897.00	17	\$66,249	
Cloudera Enterprise Edition, 3Y 24x7	UCS-BD-CEBN-GD=	1	\$14,057.00	17	\$238,969	
Total					\$1,603,433.00	\$46,866
Large Purchase Discount ¹	61% for products and 35% for service		1		\$ (978,094.13)	\$ (16,403.10)
Acer V206HQL-LED monitor -20" (Inc 2 spares)	UM.1V6AA.A02	2	\$ 79.99	3	\$ 239.97	
Logitech USB Corded Keyboard/Mouse Combo MK120 (Inc 2 spares)	920-002565	2	\$ 17.99	3	\$ 53.97	

Pricing: 1 = Cisco, 2 = CDW ⁽¹⁾ All discounts are based on US list prices and for similar quantities and configurations. The discounts are based on the overall specific components pricing from respective vendors 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. <p style="text-align: center;">Audited by Doug Johnson of InfoSizing</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-right: 20px;">Three-Year Cost of Ownership</td> <td>\$656,096</td> </tr> <tr> <td style="padding-right: 20px;">HSph@30TB</td> <td>11.54</td> </tr> <tr> <td style="padding-right: 20px;">\$/HSph@30TB</td> <td>\$56,854.08</td> </tr> </table>	Three-Year Cost of Ownership	\$656,096	HSph@30TB	11.54	\$/HSph@30TB	\$56,854.08
Three-Year Cost of Ownership	\$656,096						
HSph@30TB	11.54						
\$/HSph@30TB	\$56,854.08						

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 terms, please inform at pricing@tpc.org. Thank you.



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Numerical Quantities

Performance Run – Run 2

Scale Factor	30TB
Run Start Time	2018-01-24 01:35:58.000
Run End Time	2018-01-24 04:11:50.000
Run Elapsed Time	9,355.000
HSGen Start Time	2018-01-24 01:36:00.000
HSGen End Time	2018-01-24 02:11:14.000
HSGen Elapsed Time	2,116.012
HSSort Start Time	2018-01-24 02:11:17.000
HSSort End Time	2018-01-24 03:57:04.000
HSSort Elapsed Time	6,348.416
HSValidate Start Time	2018-01-24 03:57:07.000
HSValidate End Time	2018-01-24 04:11:50.000
HSValidate Elapsed Time	884.574

Repeatability Run – Run 1

Scale Factor	30TB
Run Start Time	2018-01-23 22:55:45.000
Run End Time	2018-01-24 01:30:52.000
Run Elapsed Time	9,309.000
HSGen Start Time	2018-01-23 22:55:47.000
HSGen End Time	2018-01-23 23:29:42.000
HSGen Elapsed Time	2,036.900
HSSort Start Time	2018-01-23 23:29:45.000
HSSort End Time	2018-01-24 01:15:00.000
HSSort Elapsed Time	6,316.566
HSValidate Start Time	2018-01-24 01:15:04.000
HSValidate End Time	2018-01-24 01:30:52.000
HSValidate Elapsed Time	949.882



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 =	9355
	Total Size =	300000000000
	Scale-Factor =	30

TPCx-HS Performance Metric (HSph@SF): 11.5446

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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 =	9309
	Total Size =	300000000000
	Scale-Factor =	30

TPCx-HS Performance Metric (HSph@SF): 11.6018