



Cisco UCS Integrated Infrastructure for Big Data

TPCx-HS Rev. 1.4.1
TPC-Pricing Rev. 2.0.0

Report Date:
November 11, 2016

Total System Cost

TPCx-HS Performance Metric

Price/Performance

572,353 USD

11.34
HSph@300TB

50,472.05 USD
\$/HSph@300TB

Scale Factor

Apache Hadoop
Compatible Software

Operating System

Other Software

Availability Date

300TB

Cloudera Enterprise
Edition

Red Hat Enterprise Linux
Server Release 6.7

None

November 11,
2016

System Configuration



8 x Cisco UCS S3260 Dual-node Servers (16 DataNodes)
Per Node:

- 2 x Intel Xeon E5-2680 v4
- 256 GB Memory
- 28 x 8TB LFF HDD
- 2 x 480 GB 2.5 inch Enterprise Value SSD (BOOT)



1 x Cisco UCS C240 M4 Server (NameNode)
2 x Intel Xeon E5-2690 v3
256 GB Memory
2 x 1.8TB 12G SAS 10K rpm SFF HDD(4K)
2 x 120GB 2.5 inch Enterprise Value SSD (BOOT)



2 x Cisco UCS 6332 32-Port Fabric
Interconnects

1*40GigE

Upstream

40GigE

Physical Storage/Scale Factor: 12.01

Scale Factor/Physical Memory: 70.59

Servers:	8 x Cisco UCS S3260 2-Node Servers (DataNodes), 1 x Cisco UCS C240 M4 Server (NameNode)
Total Processors/Cores/Threads	34/472 /944
Server Configuration:	Per Node:
Processors	2 x Intel® Xeon® Processor E5-2680 v4, 2.40 GHz, 35 MB L3 (DataNodes) 2 x Intel® Xeon® Processor E5-2690 v3, 2.60 GHz, 30 MB L3 (NameNode)
Memory	256GB
Storage Controller	1 x Cisco UCS C3000 RAID Controller M4 Server w 4G RAID Cache (DataNodes) 1 x Cisco 12Gbps Modular SAS HBA (NameNode)
Storage Device	28 x 8TB LFF HDD (DataNodes) 2 x 480GB 2.5in. Enterprise Value SSD (DataNodes, boot disk) 2 x 1.8TB 12G SAS 10K rpm SFF HDD (NameNode) 2 x 120GB 2.5 Enterprise Value SSD (NameNode, boot disk)
Network	Cisco VIC 1300
Connectivity:	2 x Cisco UCS 6332 32-Port Fabric Interconnect
Total Rack Units:	(8*S3260)+(1*C240)+(2*FI) = (8*4RU)+(1*2RU)+(2*1RU) = 32+2+2 = 36



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Description	Part Number	Source	Unit Price	Qty	Extended Price	3 Year Maint. Price
Cisco S3260 2 Node Bundle						
UCS C3000 M4 Server Node for Intel E5-2600 v4	UCSS-SP-S3260-BV1	1	\$97,360.20	8	\$ 778,881.60	
2.40 GHz E5-2680 v4/120W 14C/35MB Cache/DDR4 2400MHz	UCSC-C3K-M4SRB	1	\$ -	2	\$ -	
16GB DDR4-2400-MHz RDIMM/PC4-19200/single rank/x4/1.2v	UCS-CPU-E52680E	1	\$ -	2	\$ -	
Cisco UCS C3000 RAID Controller M4 Server w 4G RAID Cache	UCS-MR-1X161RV-A	1	\$ -	16	\$ -	
Cisco UCS C3X60 Server Node CPU Heatsink	UCS-C3K-M4RAID	1	\$ -	1	\$ -	
UCSC C3X60 480GB Boot SSD (Gen 2)	UCSC-HS-C3X60	1	\$ -	2	\$ -	
Cisco UCS C3260 System IO Controller w ith VIC 1300 incl.	UCS-C3X60-G2SD48	1	\$ -	2	\$ -	
UCSC 3X60 8TB NL-SAS 7.2KHelium HDD w ith HDD Carrier	UCSC-C3260-SIOC	1	\$ -	2	\$ -	
Cisco UCS C3260 Base Chassis w /4x PSU, SSD, Railkit	UCSC-C3X60-HD8TB	1	\$ -	48	\$ -	
Power Cord Jumper, C13-C14 Connectors, 2 Meter Length	UCSC-C3260	1	\$ -	1	\$ -	
Cisco UCS C3160 System Bezel	CAB-C13-C14-2M	1	\$ -	4	\$ -	
UCS C3X60 Rack Rails Kit	UCSC-C3160-BEZEL	1	\$ -	1	\$ -	
UCS C3X60 1050W Power Supply Unit	UCSC-C3X60-RAIL	1	\$ -	1	\$ -	
8 TB 12G SAS 7.2K RPM LFF HDD (4K)	UCSC-PSU1-1050W	1	\$ -	4	\$ -	
	UCS-HD8T7KL4K=	1	\$ 2,719.00	64	\$ 174,016.00	
UCS C240 M4 SFF 24 HD w/o CPU mem HD PCIe PS railkit w /expndr	UCSC-C240-M4SX	1	\$ 3,995.00	1	\$ 3,995.00	
2.60 GHz E5-2690 v3/135W 12C/30MB Cache/DDR4 2133MHz	UCS-CPU-E52690D	1	\$ 6,307.00	2	\$ 12,614.00	
16GB DDR4-2133-MHz RDIMM/PC4-17000/dual rank/x4/1.2v	UCS-MR-1X162RU-A	1	\$ 600.00	16	\$ 9,600.00	
1.8 TB 12G SAS 10K RPM SFF HDD (4K)	UCS-HD18TB10KS4K	1	\$ 1,827.00	2	\$ 3,654.00	
Cisco VIC 1387 Dual Port 40Gb QSFP CNA MLOM	UCSC-MLOM-C40Q-03	1	\$ 2,192.00	1	\$ 2,192.00	
Cisco 12Gbps Modular SAS HBA	UCSC-SAS12GHBA	1	\$ 656.00	1	\$ 656.00	
120 GB 2.5 inch Enterprise Value 6G SATA SSD (boot)	UCS-SD120GBKS4-EB	1	\$ 567.00	2	\$ 1,134.00	
Ball Bearing Rail Kit for C220 M4 and C240 M4 rack servers	UCSC-RAILB-M4	1	\$ 220.00	1	\$ 220.00	
1200W / 800W V2 AC Power Supply for 2U C-Series Servers	UCSC-PSU2V2-1200W	1	\$ 749.00	2	\$ 1,498.00	
Power Cord 125VAC 13A NEMA 5-15 Plug North America	CAB-9K12A-NA	1	\$ -	2	\$ -	
Right PCI Riser Bd (Riser 1) 2onbd SATA bootdrvs+ 2PCI slts	UCSC-PCI-1C-240M4	1	\$ 148.00	1	\$ 148.00	
UCS 6332 1RU F/No PSU/32 QSFP+	UCS-SP-FI6332	1	\$22,000.00	2	\$ 44,000.00	
3rd Gen FI Per port License to connect C-direct only	UCS-LIC-6300-40GC	1	\$ 1,388.00	20	\$ 27,760.00	
40GBASE-CR4 Passive Copper Cable, 3m	QSFP-H40G-CU3M-RF	1	\$ 150.00	34	\$ 5,100.00	
Cisco R42610 standard rack w /side panels	RACK-UCS2	1	\$ 3,429.00	1	\$ 3,429.00	
3YR 24X7X4 Support UCS S3260	CON-OSP-S3260BSE	1	\$ 7,872.00	8		\$ 62,976.00
3YR 24X7X4 Support UCS C240 M4 SFF	CON-OSP-C240V4SP	1	\$ 1,284.99	1		\$ 1,284.99
3YR 24x7x4 Support UCS6332	CON-OSPT-FI6332	1	\$ 3,330.25	2		\$ 6,660.50
Red Hat Enterprise Linux Server, 3Y 24x7	CON-ISV1-RH2SUG3A	1	\$ 2,397.00	17	\$ 40,749.00	
Cloudera Enterprise Edition	UCS-BD-CEBN-GD=	1	\$14,057.00	17	\$ 238,969.00	
Total					1348615.6	70921.49

(continued next page)



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Description	Part Number	Source	Unit Price	Qty	Extended Price	3 Year Maint. Price
(continued from previous page)						
				Total	\$1,348,615.60	\$ 70,921.49
Large Purchase Discount 1	61% for products and 35% for service	1			\$ (822,655.52)	\$(24,822.52)
Acer V206HQLAbd - 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.com

⁽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.

Audited by Doug Johnson of InfoSizing

Three-Year Cost of Ownership \$572,353

HSph@300TB 11.34

\$/HSph@300TB \$50,472.05

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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Performance Run

Scale Factor 300TB

Run Start Time 2016-10-30 07:44:10

Run End Time 2016-10-31 10:10:17

Run Elapsed Time 95,169.000

HSGen Start Time 2016-10-30 07:44:11

HSGen End Time 2016-10-30 14:06:36

HSGen Elapsed Time 22,946.110

HSSort Start Time 2016-10-30 14:06:38

HSSort End Time 2016-10-31 07:48:08

HSSort Elapsed Time 63,690.014

HSValidate Start Time 2016-10-31 07:48:11

HSValidate End Time 2016-10-31 10:10:17

HSValidate Elapsed Time 8,528.144

Repeatability Run

Scale Factor 300TB

Run Start Time 2016-10-29 05:11:50

Run End Time 2016-10-30 07:27:19

Run Elapsed Time 94,531.000

HSGen Start Time 2016-10-29 05:11:52

HSGen End Time 2016-10-29 11:31:05

HSGen Elapsed Time 22,755.357

HSSort Start Time 2016-10-29 11:31:08

HSSort End Time 2016-10-30 05:11:13

HSSort Elapsed Time 63,605.884

HSValidate Start Time 2016-10-30 05:11:16

HSValidate End Time 2016-10-30 07:27:19

HSValidate Elapsed Time 8,164.399



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Run Report for Performance Run - Run 2

TPCx-HS Performance Metric (HSph@SF) Report

Test Run 1 Details	Total Time =	95169
	Total Size =	3000000000000
	Scale-Factor =	300

TPCx-HS Performance Metric (HSph@SF): 11.3482

Run Report for Repeatability Run - Run 1

TPCx-HS Performance Metric (HSph@SF) Report

Test Run 2 Details	Total Time =	94531
	Total Size =	3000000000000
	Scale-Factor =	300

TPCx-HS Performance Metric (HSph@SF): 11.4248
