



# Cisco UCS C460 M4 Server

TPC-H Rev. 2.17.0  
 TPC-Pricing Rev. 2.0.0  
 Report Date: 15-Dec-2014  
 Revised: 17-Dec-2014

Total System Cost

Composite Query per Hour Metric

Price / Performance

**\$571,047 USD**

**588,831.5**  
 QphH@1000GB

**\$0.97 USD**  
 \$ / QphH@1000GB

Database Size

Database Manager

Operating System

Other Software

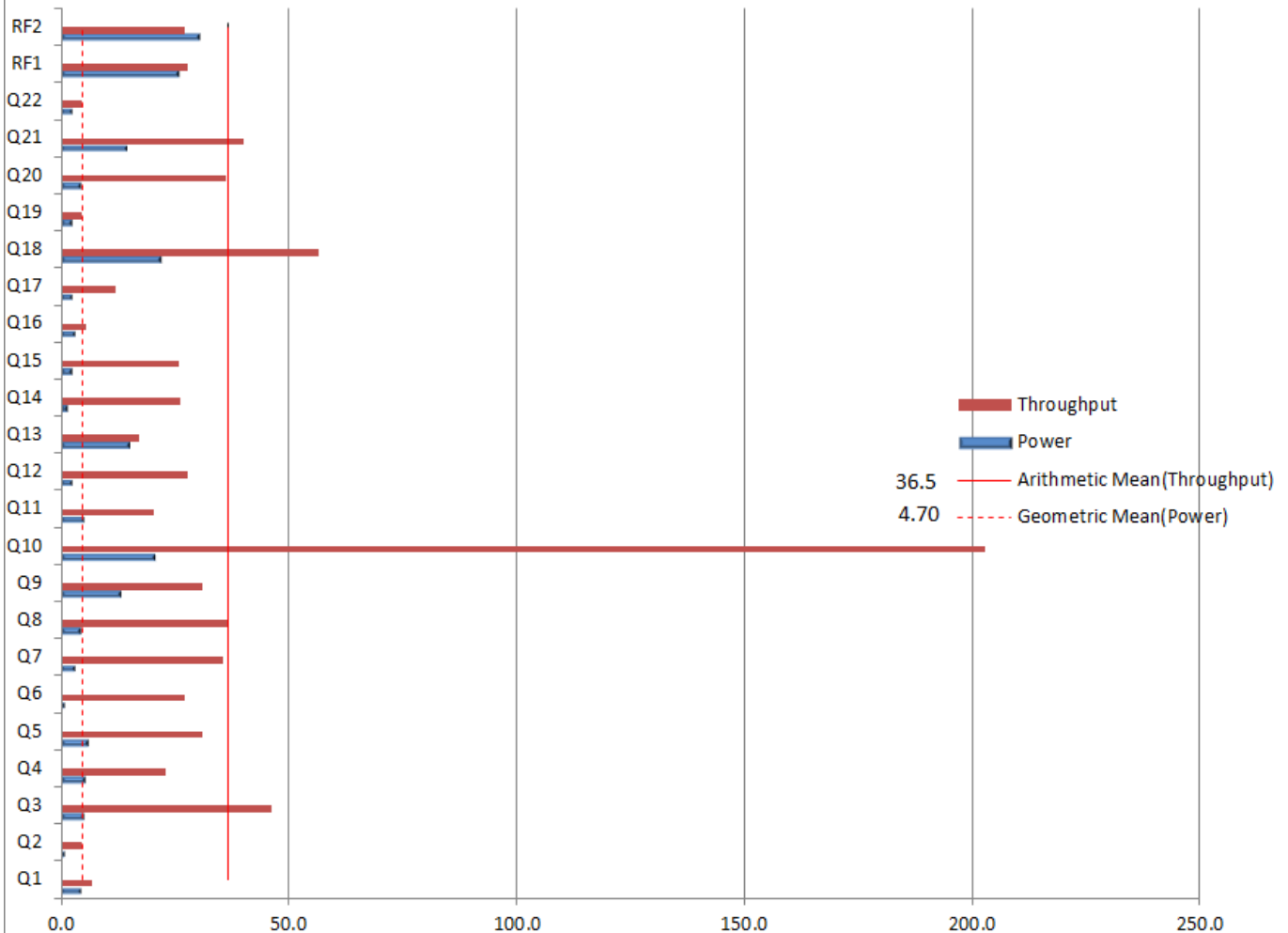
Availability Date

1000GB

**Microsoft SQL Server 2014 Enterprise Edition**

**Windows 2012 R2 Standard Edition**

**15-Dec-2014**



Database Load Time = 05h 41m 13s

### Storage Redundancy Level

Load Includes Backup: Y

Base Tables and Auxiliary Data Structures

0

Total Data Storage / Database Size = 10.63

DBMS Temporary Space

0

Percentage Memory / Database Size = 153.6%

OS and DBMS Software

1

### System Configuration:

**Cisco UCS C460 M4 Server**

Processors/Cores/Threads/Model:

4/60/120 Intel Xeon E7-4890 v2 Processor (2.8 GHz, 37.5MB cache, 155W)

Memory:

1.5 TB

Storage:

2 X 400 GB 12 Gb SAS 2.5 inch Enterprise performance SSD

6 X 1.6 TB 12 Gb SAS 2.5 inch Enterprise performance SSD

Table Storage:

10.63 TB

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Description	Part Number	Brand	Source	Unit Price	Qty	Extended Price	3 Year Maint. Price	
<b>Server Hardware</b>								
UCS C460 M4 base chassis w/o CPU/DIMM/HDD	UCSC-C460-M4	Cisco		1	16,500.00	1	\$16,500	
UCS C460 M4 ServerSMARTnet Onsite Premium 24x7x4 (36 months)	CON-OSP-C460M4	Cisco		1	3,321.00	1	\$3,321	
2.8 GHz E7-4890 v2/155W 15C/37.5M Cache/DDR3 1600MHz	UCS-CPU-E74890B	Cisco		1	19,700.00	4	\$78,800	
Mem kit for UCS-MR-2X162RY-E	UCS-MKIT-162RY-E	Cisco		1	0.00	96	\$0	
2 X 16 GB DDR3-1600 MHz RDIMM/PC3-12800 dual rank/x4/1.35v	UCS-MR-2X162RY-E	Cisco		1	1,559.00	48	\$74,832	
Riser card with 5 PCIe slots	UCSC-PCIE-RSR-05	Cisco		1	500.00	2	\$1,000	
Memory riser with 12 DIMM slots	UCSC-MRBD-12	Cisco		1	750.00	8	\$6,000	
1.6TB2.5 inch Enterprise performance 12G SAS SSD	UCS-SD16T12S2-EP	Cisco		1	29,000.00	6	\$174,000	
400GB 2.5 inch Enterprise performance 12G SAS SSD	UCS-SD400G12S2-EP	Cisco		1	7,700.00	2	\$15,400	
1400W AC Power Supply for 2U & 4U C Series Servers	UCSC-PSU2-1400W	Cisco		1	800.00	4	\$3,200	
Power Cord 200/240V 6A North America	CAB-N5K6A-NA	Cisco		1	0.00	4	\$0	
CPU Heat Sink for UCS C460 M4 Rack Server	UCSC-HS-01-EX	Cisco		1	0.00	4	\$0	
UCS 2.5 inch HDD blanking panel	N20-BBLKD	Cisco		1	0.00	4	\$0	
Rail Kit for UCS C460 M4	UCSC-RAIL-4U	Cisco		1	\$0	1	\$0	
Full Height PCIe slot filler for C Series	UCSC-PCIE-FLR-F	Cisco		1	\$0	10	\$0	
MegaRAID 9361CV with 8 internal SAS/SATA ports with Supercap	UCS-RAID9361CV-8I	Cisco		1	\$3,500	1	\$3,500	
Cisco R42610 standard rack w/side panels	RACK-UCS2	Cisco		1	\$3,429	1	\$3,429	
IOGEARGKM513 Spill Proof Keyboard & Mouse Combo	GKM513	Provantage		3	\$17	1	\$17	
ASUS 19.5" VS207D-P Widescreen LED 1600x900 VGA	VS207D-P	Provantage		3	\$89	1	\$89	
						Subtotal	\$376,766	\$3,321
Large Purchase Discount <sup>1</sup>							-\$214,757	-\$1,893
						Hardware Subtotal	\$162,010	\$1,428
<b>Software</b>								
SQL Server 2014 Enterprise Edition	7JQ-00750	Microsoft		2	\$13,473	30	\$404,175	
Windows Server 2012 R2 Standard Edition 2 Processor License	P73-06284	Microsoft		2	\$735	2	\$1,470	
Windows Server 2012 R2 Client Access License	R18-04280	Microsoft		2	\$24	70	\$1,705	
Microsoft Problem Resolution Services	NA	Microsoft		2	\$259	1	\$259	
						Software Subtotal	\$407,350	\$259
						Total	\$569,360	\$1,687
Pricing: 1=Cisco 2=Microsoft 3=Provantage;								
Audited by Francois Raab from InfoSizing, Inc. (sizing.com)								
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.						Three-Year Cost of Ownership: \$571,047 USD		
						QphH: 588,831.5		
						\$ / QphH: \$0.97 USD		
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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**Measurement Results**

Database Scaling (SF/Size)	1,000
Total Data Storage/Database Size	10.63
Percentage Memory/Database Size	153.6
Start of Database Load Time	12/8/2014 9:28:53
End of Database Load Time	12/8/2014 15:10:05
Database Load Time	05h 41m 13s
Query Streams for Throughput Test (S)	7
TPC-H Power	761,739.0
TPC-H Throughput	455,172.40
TPC-H Composite	588,831.50
Total System Price Over 3 Years	\$571,047
TPC-H Price/Performance Metric (\$/QpH@1000GB)	\$0.97

**Measurement Interval**

Measurement Interval in Throughput Test (Ts)	1, 218
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Duration of stream execution:

Power Run	Seed	Query Start Time	Duration (sec)	RF1 Start Time	RF2 Start Time
		Query End Time		RF1 End Time	RF2 End Time
	1208151005	2014-12-08 15:41:55	138	2014-12-08 15:41:29	2014-12-08 15:44:13
		2014-12-08 15:44:13		2014-12-08 15:41:55	2014-12-08 15:44:43

Throughput Stream	Seed	Query Start Time	Duration (sec)	RF1 Start Time	RF2 Start Time
		Query End Time		RF1 End Time	RF2 End Time
1	1208151006	2014-12-08 15:44:42	773	2014-12-08 15:58:34	2014-12-08 15:59:00
		2014-12-08 15:57:35		2014-12-08 15:59:01	2014-12-08 15:59:27
2	1208151007	2014-12-08 15:44:42	811	2014-12-08 15:59:26	2014-12-08 15:59:53
		2014-12-08 15:58:13		2014-12-08 15:59:54	2014-12-08 16:00:20
3	1208151008	2014-12-08 15:44:42	794	2014-12-08 16:00:19	2014-12-08 16:00:47
		2014-12-08 15:57:56		2014-12-08 16:00:48	2014-12-08 16:01:19
4	1208151009	2014-12-08 15:44:42	817	2014-12-08 16:01:18	2014-12-08 16:01:45
		2014-12-08 15:58:19		2014-12-08 16:01:46	2014-12-08 16:02:13
5	1208151010	2014-12-08 15:44:42	832	2014-12-08 16:02:12	2014-12-08 16:02:40
		2014-12-08 15:58:34		2014-12-08 16:02:41	2014-12-08 16:03:09
6	1208151011	2014-12-08 15:44:42	791	2014-12-08 16:03:08	2014-12-08 16:03:34
		2014-12-08 15:57:53		2014-12-08 16:03:34	2014-12-08 16:03:58
7	1208151012	2014-12-08 15:44:42	818	2014-12-08 16:03:57	2014-12-08 16:04:35
		2014-12-08 15:58:20		2014-12-08 16:04:36	2014-12-08 16:05:00

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**TPC-H Timing Intervals (in seconds)**

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
0	4.1	0.8	4.7	5.3	5.9	0.7	2.8	4.3	12.9	20.2	4.8	2.2
1	4.2	7.2	49.2	14.5	28.4	22.1	55.4	33.5	15.3	194.6	16.2	69.7
2	5.2	3.5	36.7	26.4	29.2	54.5	40.9	32.1	28.4	249.3	14.8	10.5
3	9.8	1.5	41.3	40.7	35.6	11.3	33.7	51.4	52.3	222.4	30.8	27.6
4	8.4	1.9	52.5	33.0	57.8	18.1	57.5	46.5	54.5	176.7	32.2	62.7
5	8.2	17.6	64.9	21.5	30.5	38.5	26.3	49.8	13.0	261.6	24.6	14.0
6	8.1	3.6	70.0	27.6	38.8	46.0	14.9	26.9	39.1	252.1	9.2	30.1
7	4.9	1.0	49.0	15.1	22.5	25.9	52.8	46.1	31.5	247.0	29.4	5.5
Minimum	4.1	0.8	4.7	5.3	5.9	0.7	2.8	4.3	12.9	20.2	4.8	2.2
Average	6.6	4.6	46.0	23.0	31.1	27.1	35.5	36.3	30.9	203.0	20.3	27.8
Maximum	9.8	17.6	70.0	40.7	57.8	54.5	57.5	51.4	54.5	261.6	32.2	69.7

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
0	14.7	1.2	2.1	3.0	2.4	21.8	2.3	4.1	14.3	2.3	25.4	30.1
1	18.3	26.9	36.6	3.5	6.3	38.2	5.3	73.0	50.1	3.7	27.1	26.0
2	15.4	44.2	31.4	8.0	15.7	57.5	6.9	62.5	34.0	2.5	26.3	26.6
3	15.7	22.9	40.7	6.4	15.4	51.4	5.0	21.9	51.4	3.6	27.2	31.3
4	18.5	40.3	7.3	6.9	15.2	56.4	3.4	25.1	32.4	8.6	26.6	26.8
5	20.9	18.4	27.8	4.6	29.9	62.7	4.8	37.7	49.6	3.6	27.6	28.4
6	16.4	37.2	17.5	5.0	4.4	73.5	3.7	35.2	23.9	6.3	25.2	23.5
7	16.3	18.7	43.5	6.5	6.2	90.2	4.7	29.3	64.9	6.2	37.8	24.0
Minimum	14.7	1.2	2.1	3.0	2.4	21.8	2.3	4.1	14.3	2.3	25.2	23.5
Average	17.0	26.2	25.9	5.5	11.9	56.5	4.5	36.1	40.1	4.6	27.9	27.1
Maximum	20.9	44.2	43.5	8.0	29.9	90.2	6.9	73.0	64.9	8.6	37.8	31.3