



Huawei FusionCube V2.01

TPC-H Rev.2.16.0

TPC-Pricing Rev. 1.7.0

Report Date:
November 16, 2013

Total System Cost

Composite Query per Hour Metric

Price / Performance

\$1,829,327 USD

258,474.4
QphH@1000GB

\$7.08 USD
\$/ QphH@1000GB

Database Size

Database Manager

Operating System

Other Software

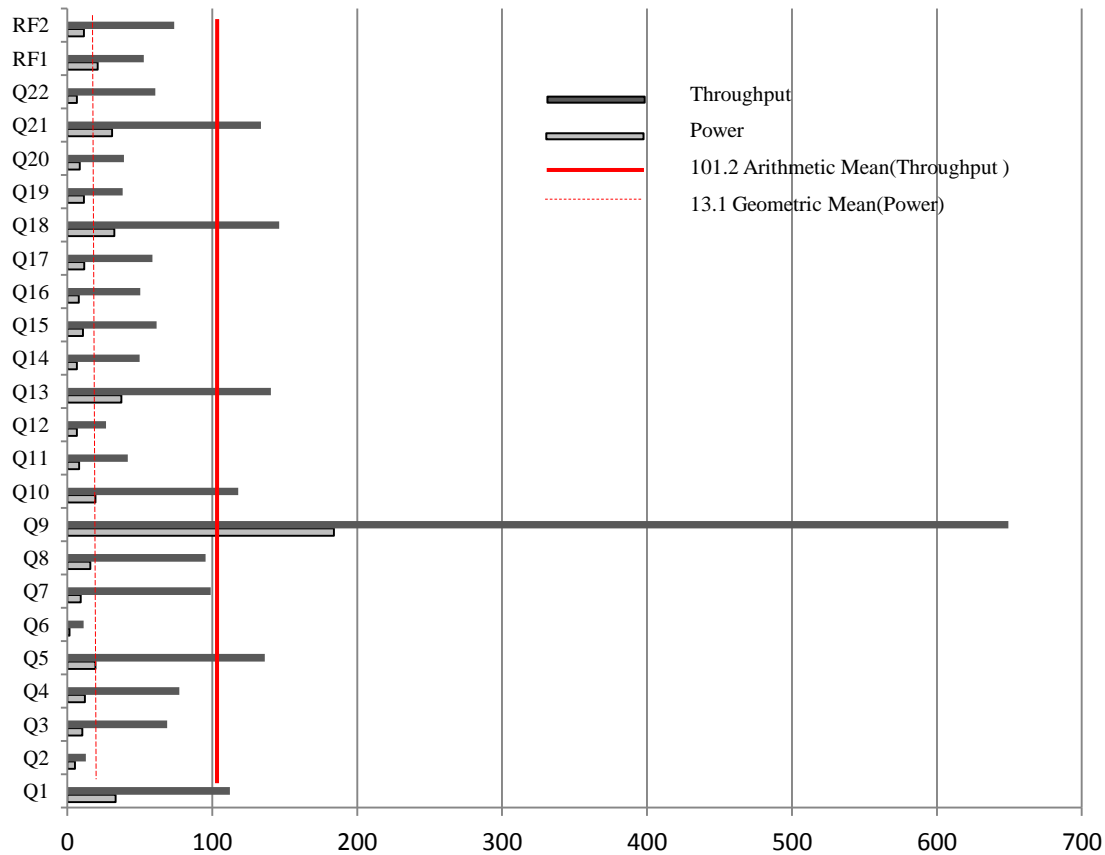
Availability Date

1000 GB

**Sybase IQ Version 16.0
SP02**

**Red Hat Enterprise Linux
Server Release 6.2**

**November 20,
2013**



Database Load Time = 48m 23s	Storage Redundancy Level	
Load Includes Backup: N	Base Tables and Auxiliary Data Structures	2
Total Data Storage / Database Size = 30.46	DBMS Temporary Space	2
Memory to Database Size Percentage = 153.6%	OS and DBMS Software	1

Configuration summary:

FusionCube V2.01 Components	Per Blade	Total
Huawei CH121 Server Blade	-	4
Intel Xeon E5-2680 processors (2.70 GHz, 20MB Cache)/ Cores/Threads	2/16/32	8/64/128
Memory	384 GB	1,536 GB
600 GB (10k rpm) SAS disks	2	8
Huawei CH223 Storage Blade	-	4
600 GB (10k rpm) SAS disks	2	8
2.4 TB PCIe SSD Storage cards	2	8
Huawei CH223 Storage Management Blade	-	1
600 GB (10k rpm) SAS disks	2	2
	Total Storage	29.75 TB



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Description	Source Part Number	Qty	Unit Price (USD)	Extended Price (USD)	3 Year. Maint. Price
Server Hardware					
Server Blade					
Romley EP Compute Node,CH121	1 03054855	4	1,299	5,196	
X86 series-FCLGA2011-2700MHz-0.9V-64bit-130000mW-SandyBridge EP	1 41020283	8	3,199	25,592	
Xeon E5-2680-8Core					
MEMORY MODULE,DDR3 RDIMM,16G, 240PIN, 1.5ns, 1333000KHz, 1.35V, ECC&Registered	1 06200107	96	339	32,544	
Hard Disk-600GB-SAS 6.0Gb/s-10000rpm,2.5"-16MB	1 02310KPU	8	509	4,072	
MZ510, 2*10G Port CNA Mezzanine Card, PCIe2.0 X8	1 03021SMG	4	659	2,636	
MZ611-2*56G Port HCA Mezzanine Card	1 03021VNH	4	1,399	5,596	
RU120 SAS/SATA RAID Card,RAID0,1,1E,0 Cache(LSI2308)	1 03021FTX	4	199	796	
Blade - Upgrade Warranty Hi-Care Onsite Premier 24x7,3 year	1 03054855-881 34ULJ	4	810		3,240
Management Storage Blade					
Romley EP Compute Node,CH121	1 03054855	1	1,299	1,299	
X86 series-FCLGA2011-2000MHz-0.9V-64bit-95000mW-SandyBridge EP	1 41020222	2	755	1,510	
Xeon E5-2620-6Core					
MEMORY MODULE,DDR3 RDIMM,16G, 240PIN, 1.5ns, 1333000KHz, 1.35V, ECC&Registered	1 06200107	4	339	1,356	
Hard Disk-600GB-SAS 6.0Gb/s-10000rpm,2.5"-16MB	1 02310KPU	2	509	1,018	
MZ510, 2*10G Port CNA Mezzanine Card, PCIe2.0 X8	1 03021SMG	1	659	659	
RU120 SAS/SATA RAID Card,RAID0,1,1E,0 Cache(LSI2308)	1 03021FTX	1	199	199	
Blade - Upgrade Warranty Hi-Care Onsite Premier 24x7,3 year	1 03054855-881 34ULJ	1	810		810
Storage Blade					
2*X8 PCIe Resource Extended Romley EP Compute Node-CH223	1 03055079	4	1,799	7,196	
X86 series-FCLGA2011-2000MHz-0.9V-64bit-95000mW-SandyBridge EP	1 41020222	8	755	6,040	
Xeon E5-2620-6Core					
MEMORY MODULE,DDR3 RDIMM,16G, 240PIN, 1.5ns, 1333000KHz, 1.35V, ECC&Registered	1 06200107	16	339	5,424	
Hard Disk-600GB-SAS 6.0Gb/s-10000rpm,2.5"-16MB	1 02310KPU	8	509	4,072	
MZ510, 2*10G Port CNA Mezzanine Card, PCIe2.0 X8	1 03021SMG	4	659	2,636	
MZ611-2*56G Port HCA Mezzanine Card	1 03021VNH	4	1,399	5,596	
RU120 SAS/SATA RAID Card,RAID0,1,1E,0 Cache(LSI2308)	1 03021FTX	4	199	796	
The 4th Generation PCIE SSD Card (2.4TB)	1 03030PWG	8	24,000	192,000	
NVDIMM-4G-240pin-10ns-1333Hz-1.5V-8bit-1Bank	1 06200147	4	1,232	4,928	
Blade - Upgrade Warranty Hi-Care Onsite Premier 24x7,3 year	1 03055079-881 34ULJ	4	810		3,240
SSD Card - Upgrade Warranty Hi-Care Onsite Premier 24x7,3 year	1 03030PWG-88 134ULJ	8	320		2,560



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Description	Source	Part Number	Qty	Unit Price (USD)	Extended Price (USD)	3 Year. Maint. Price
Other Common Part						
Assembly Cabinet,FusionCube,FC0B00GMJG,2m Cabinet	1	02113809	1	1,028	1,028	
PDU2000-32-1PH-9/4-B1-AC220V~240V-9*C13+4*C19-32A	1	02120765	2	120	240	
E9000H 12U high-powered integrative module	1	02300742	1	4,600	4,600	
MM910,Shelf Management Module A	1	03054675	2	500	1,000	
OSCA Fan Box	1	03030QEJ	14	145	2,030	
3000W platinum AC power supply module	1	02310LKL	4	540	2,160	
CX310,16 Optical Port Switch Module	1	03054849	2	10,300	20,600	
CX610,18 External Optical Port, Converged Switch Unit	1	03022BVJ	2	8,900	17,800	
High Speed Transceiver,QSFP+,14.0625Gbps,0.005km	1	34060785	6	1,654	9,924	
Optical transceiver,SFP+,850nm,10Gb/s,-7.3~-1dBm,-11.1dBm,LC,MM,0.3km	1	34060494	4	338	1,352	
Patch cord-LC/PC-LC/PC-Multimode-A1b-2mm-20m-PVC-Orange	1	14130295	8	11	88	
Power Cable,300/500V,60227IEC10(BVV), 46A,3*6mm^2(per meter)	1	25030422	20	6	120	
Wire,450/750V,60227 IEC 02(RV)25mm^2,110A	1	25030431	10	6	60	
High Quality Keyboard & Mouse	1	06060114	1	17	17	
Monitor,Lenovo17 Inch,L1710,Screen ratio 5:4,Native resolution 1280*1024	1	06060153	1	147	147	
Upgrade Warranty Hi-Care Onsite Premier 24x7,3 year	1	03054855-881	1	Included		
		34ULJ				
Server Hardware Subtotal					372,327	9,850
Server Hardware Subdiscount					199,783	0
Software						
Red Hat Enterprise Linux, Enterprise Version, 6.x,4Socket(up to 1 guest),Intel,32&64,1Year 7*24 Premium Service	1	05200169	12	2,400		28,800
Oracle Linux Premier-1 Year Support-per System	1	05200371	12	2,299		27,588
SAP Sybase IQ Enterprise Edition	2	18964	64	72,000	4,608,000	
SAP Sybase IQ Enterprise Edition - sybase extended support fee	2	18964	64	47,520		3,041,280
SAP Sybase IQ Multiplex Grid Option	2	18924	3	50,000	150,000	
SAP Sybase IQ Multiplex Grid Option - sybase extended support fee	2	18924	3	33,000		99,000
SAP Sybase IQ Very Large Database Management Option	2	18922	1	25,000	25,000	
SAP Sybase IQ Very Large Database Management Option - - sybase extended support fee	2	18922	1	16,500		16,500
Distributed Store System Software (FusionStorage) License, per TB,1Year SA&S Bundled	1	88031TRU	20	2,591	51,820	
Distributed Store System Software (FusionStorage),1 Year SA&S,per TB	1	88031TRV	40	648		25,920
Software Subtotal					4,834,820	3,239,088
Software Subdiscount					3,874,103	2,561,872



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Description	Source	Part Number	Qty	Unit Price (USD)	Extended Price (USD)	3 Year. Maint. Price
Service						
Software Engineering Service	1	88122HDX	1	1,800	1,800	
Engineering Service, FusionCube Cabinet(2M,E9000 and FusionStorage)	1	88122ABB	1	1,200	1,200	
Engineering Service, FusionCube (E9000 10GE)	1	88122ABD	1	6,000	6,000	
Service Subtotal:					9,000	0
Totals:					5,216,147	3,248,938
Total discount:					6,635,758	
3-Year Cost of Ownership:						1,829,327
QphH Rating:						258,474.4
\$/QphH@1000GB:						\$7.08

Price Key:

- 1、 Huawei: Pricing may be verified by calling +1 (408) 660 2814,
Contact: James Zhan, zhanjunfeng@huawei.com
- 2、 Sybase IQ: Pricing may be verified by calling 925-236-5000, Contact: Bill Dodd, Address: Sybase, an SAP Company, 1 Sybase Drive, Dublin, CA 94568

All discounts are based on list prices and for similar quantities and configurations.

Results independently audited by: Francois Raab of InfoSizing, Inc. (www.sizing.com)

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 the TPC at pricing@tpc.org. Thank you.



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Measurement Results

Database Scale Factor	1000G
Total Data Storage / Database Size	30.46
Percentage Memory/Database Size	153.6%
Start of Database Load	2013-11-13 10:23:03
End of Database Load	2013-11-13 11:11:26
Database Load Time	48mins:23secs
Query Streams for Throughput Test	7
TPC-H Power	274,996.6
TPC-H Throughput	242,944.8
TPC-H Composite Query-per-Hour Metric (QphH@1000GB)	258,474.4
Total System Price Over 3 Years	\$1,829,327
TPC-H Price/ Performance Metric (\$/QphH@1000GB)	\$7.08

Measurement Interval

Measurement Interval in Throughput Test (Ts)	2,282
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Duration of stream execution:

Power Run	Seed	Query Start Time Query End Time	Duration (sec)	RF1 Start Time RF1 End Time	RF2 Start Time RF2 End Time
	1113111126	2013-11-13 12:22:19 2013-11-13 12:30:28	524	2013-11-13 12:21:57 2013-11-13 12:22:19	2013-11-13 12:30:29 2013-11-13 12:30:41

Stream	Seed	Query Start Time Query End Time	Duration (sec)	RF1 Start Time RF1 End Time	RF2 Start Time RF2 End Time
1	1113111127	2013-11-13 12:30:40 2013-11-13 13:08:17	2,256	2013-11-13 12:31:40 2013-11-13 12:32:35	2013-11-13 12:32:36 2013-11-13 12:33:23
2	1113111128	2013-11-13 12:30:39 2013-11-13 13:07:15	2,196	2013-11-13 12:33:23 2013-11-13 12:33:59	2013-11-13 12:33:59 2013-11-13 12:34:52
3	1113111129	2013-11-13 12:30:40 2013-11-13 13:08:41	2,281	2013-11-13 12:34:52 2013-11-13 12:35:58	2013-11-13 12:35:58 2013-11-13 12:36:46
4	1113111130	2013-11-13 12:30:40 2013-11-13 13:07:01	2,181	2013-11-13 12:36:46 2013-11-13 12:37:48	2013-11-13 12:37:48 2013-11-13 12:39:43
5	1113111131	2013-11-13 12:30:39 2013-11-13 13:08:29	2,270	2013-11-13 12:39:43 2013-11-13 12:40:34	2013-11-13 12:40:34 2013-11-13 12:42:06
6	1113111132	2013-11-13 12:30:40 2013-11-13 13:07:16	2,196	2013-11-13 12:42:06 2013-11-13 12:43:01	2013-11-13 12:43:07 2013-11-13 12:44:24
7	1113111133	2013-11-13 12:30:40 2013-11-13 13:07:37	2,217	2013-11-13 12:44:24 2013-11-13 12:45:09	2013-11-13 12:45:09 2013-11-13 12:46:34



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TPC-H Timing Intervals (in seconds)

Stream ID	Q1	Q3	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
0	33.4	5.2	10.3	12	19.3	1.5	9.3	15.8	183.9	19.4	8.2	6.5
1	97.8	12.7	52.2	40.1	195	17.2	188.9	100.2	535	116.7	53.1	52
2	110.1	18.2	104.6	104.1	214.3	11.1	45.3	136.8	609.2	85.8	27	16.3
3	117.4	7.1	10.9	47.6	77.1	6.9	89.4	101	691.7	178.1	51.9	6.4
4	116.1	11.7	54.8	143.9	98.6	16.9	103	69	762.2	65.2	34.9	34.1
5	125	23.8	167	44.4	128.3	7.9	44.9	109.5	465.5	126.1	47.6	28
6	115.3	10.3	49	85.2	127.9	14.1	98.1	72.7	795.7	98.5	12.6	27.1
7	103.8	5.7	43	75.5	112.8	4.4	123.3	78	686.1	155.4	64.7	22.1
Minimum	33.4	5.2	10.3	12	19.3	1.5	9.3	15.8	183.9	19.4	8.2	6.4
Maximum	125	23.8	167	143.9	214.3	17.2	188.9	136.8	795.7	178.1	64.7	52
Average	102.4	11.8	61.5	69.1	121.7	10	87.8	85.4	591.1	105.6	37.5	24.1

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
0	37.2	6.6	10.8	7.8	11.7	32.4	11.4	8.6	30.9	6.5	21	11.4
1	169.5	22.4	83.3	126.5	50.5	122.2	14.8	58.5	117.4	29.7	54.2	47.2
2	103.9	28.4	102.5	27.5	72	134.4	26.6	31.1	135.2	51	35.8	52.8
3	114.5	111.4	59.9	7.4	64.3	223.1	22.1	39	204.1	48.7	66.7	47.4
4	124.8	33.5	73.7	34.1	28.9	134.6	45	43.9	105.6	45.4	61.9	114.7
5	158.8	94.4	36.4	33.4	110.2	191.5	48.2	29.8	116.4	132.2	51.2	92.4
6	143.2	27	29.6	97.9	55	116.6	61.3	36.1	102.2	19.2	54.1	77
7	169.1	31.6	45.3	25.8	30.7	101.1	49.5	34.3	154.4	99.4	44.7	85.4
Minimum	37.2	6.6	10.8	7.4	11.7	32.4	11.4	8.6	30.9	6.5	21	11.4
Maximum	169.5	111.4	102.5	126.5	110.2	223.1	61.3	58.5	204.1	132.2	66.7	114.7
Average	127.6	44.4	55.2	45.1	52.9	132	34.9	35.1	120.8	54	48.7	66