



**DELL  
PowerEdge R720xd  
with  
VMware vSphere 6.0**

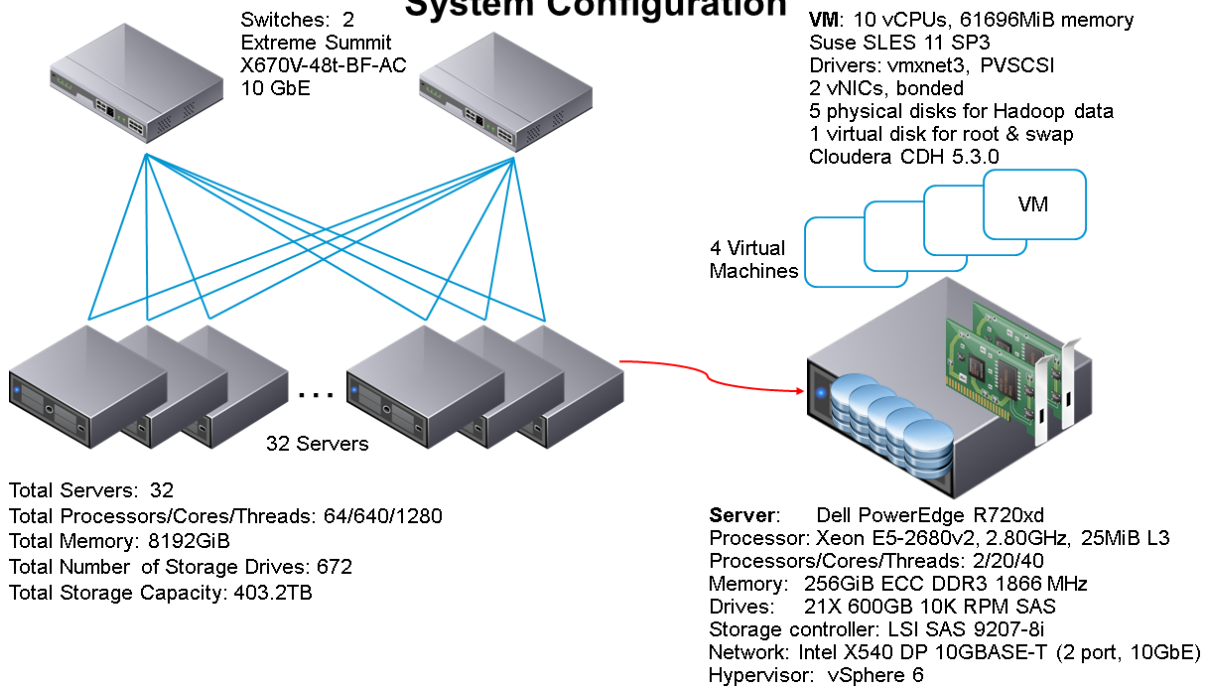
**TPCx-HS Rev. 1.2.0  
TPC-Pricing Rev. 1.7.0**

**Report Date:  
March 9, 2015**

Total System Cost	TPCx-HS Performance Metric	Price/Performance
<b>\$1,019,535</b>	<b>20.76 HSph@30TB</b>	<b>49,110.55 \$/HSph@30TB</b>

Apache Hadoop Compatible Software	Operating System	Other Software	System Availability Date
<b>Cloudera CDH 5.3.0, HDFS API ver 2, Map Reduce API ver 1</b>	<b>Suse SLES 11 SP3</b>	<b>VMware vSphere 6.0, Java HotSpot 1.7.0_55</b>	<b>March 12, 2015</b>

**System Configuration**



Physical Storage/Scale Factor	Scale Factor/Physical Memory
<b>13.44</b>	<b>3.41</b>

**Cluster Configuration**

Total Servers	32X PowerEdge R720xd
Total Processors/Cores/Threads	64/640/1280
Total Memory	8192GiB
Total Storage Capacity	403.2TB

**Server Configuration**

Processors	2X Intel Xeon E5-2680v2, 2.80GHz, 25MiB L3
Memory	256GiB
Storage Controller	Dell H220: LSI SAS9207-8i
Storage Devices	21X 600GB 10K SAS SFF HDD (internal)
Network Interface	Intel X540 DP 10GBASE-T (2 port, 10GbE)

**Network Connectivity**

Network Switches	2X Extreme Summit X670V-48t-BF-AC
------------------	-----------------------------------



**Dell PowerEdge  
R720xd with  
VMware vSphere 6**

**TPCx-HS Rev. 1.2.0  
TPC-Pricing Rev. 1.7.0**

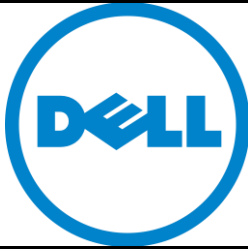
**Report Date  
March 9, 2015**

Description	Part Number	Key	Unit Price	Quantity	Extended Price	3 yr. Maint. Price
PowerEdge R720xd, Intel Xeon E-26XX Processors	210-ABMY	1	1596.53	32	51088.96	
PowerEdge R720 Motherboard, TPM	591-BBBP	1		32	0.00	
Dell Hardware Limited Warranty Plus On Site Service Initial Year	936-0967	1	117.14	32		3748.48
Non-Mission Critical: 4-Hour 7x24 On-site Service After Problem Diagnosis, 2 Year						
Extended	936-7183	1	962.86	32		30811.52
ProSupport: 7x24 HW / SW Tech Support and Assistance, 3 Year	936-7263	1	1712.86	32		54811.52
Dell Hardware Limited Warranty Plus On Site Service Extended Year	939-3398	1	168.57	32		5394.24
Non-Mission Critical: 4-Hour 7x24 On-site Service After Problem Diagnosis, Initial Year	989-2611	1	180.00	32		5760.00
Dell ProSupport. For tech support, visit <a href="http://support.dell.com/ProSupport">http://support.dell.com/ProSupport</a> or call 1-800-945-3355	989-3439	1		32		0.00
On-Site Installation Declined	900-9997	1		32	0.00	
Proactive Maintenance Service Declined	926-2979	1		32	0.00	
PowerEdge R720 Shipping	331-4437	1		32	0.00	
Intel Ethernet X540 DP 10GBASE-T Server Adapter, Low Profile	430-4439	1	971.33	32	31082.56	
iDRAC7 Enterprise	421-5339	1	387.95	32	12414.40	
Broadcom 5720 QP 1Gb Network Daughter Card	430-4418	1	72.92	32	2333.44	
Chassis with up to 24, 2.5" Hard Drives	342-3566	1	670.80	32	21465.60	
No Bezel	313-0869	1		32	0.00	
Power Saving Dell Active Power Controller	330-5116	1		32	0.00	
No RAID for H310 (1-16 HDDs)	331-4533	1		32	0.00	
LSI 9207, Internal Passthrough Host Bus Adapter Card for R720 and R720 XD with 2.5in HDDs	342-5964	1	281.00	32	8992.00	
Heat Sink for PowerEdge R720 and R720xd	331-4508	1		32	0.00	
Intel Xeon E5-2680v2 2.8GHz, 25M Cache, 8.0GT/s QPI, Turbo, HT, 10C, 115W, Max Mem 1866MHz	338-BCUH	1	2274.22	32	72775.04	
DIMM Blanks for Systems with 2 Processors	317-8688	1		32	0.00	
Heat Sink for PowerEdge R720 and R720xd	331-4508	1		32	0.00	
Intel Xeon E5-2680v2 2.8GHz, 25M Cache, 8.0GT/s QPI, Turbo, HT, 10C, 115W, Max Mem 1866MHz, 2nd Proc	338-BCUI	1	2274.22	32	72775.04	
16GB RDIMM, 1866MT/s, Standard Volt, Dual Rank, x4 Data Width	370-AAWL	1	364.62	512	186685.44	
1866MT/s RDIMMs	370-AAWM	1		32	0.00	
Performance Optimized	331-4428	1		32	0.00	
600GB 10K RPM SAS 6Gbps 2.5in Hot-plug Hard Drive	342-0847	1	504.63	672	339111.36	
Electronic System Documentation and OpenManage DVD Kit for R720 and R720xd	331-5914	1		32	0.00	
ReadyRails Sliding Rails With Cable Management Arm	331-4433	1	183.77	32	5880.64	
Dual, Hot-plug, Redundant Power Supply (1+1), 1100W	331-4607	1	476.42	32	15245.44	
Power Cord, NEMA 5-15P to C13, 15 amp, wall plug, 10 feet / 3 meter	310-8509	1		64	0.00	
SUSE Linux Enterprise Server, Non Factory Install, Requires License and Subscription Selection	421-7145	1		32	0.00	
SuSe Enterprise Linux Server, 1-2 Socket, 3yr Subscription and Licensing, Unlimited Virtual Licenses	421-9363	1	5055.00	32	161760.00	included
No Media Required	421-5736	1		32	0.00	
vSphere Ess Plus Kit v5.x 6CPU License, 3yr Subscription w/Dwngrd Rights*	421-7743	1	8278.39	11	91062.29	included
Cloudera Enterprise Basic Edition, Capacity License, 24X7, Subscription (per TB, per year) for the Basic Edition of the Cloudera Enterprise platform.**	A8182567	1	178.00	1152	205056.00	included
DELL DISCOUNT 30%		1			-383318.46	-30157.73
Dell Quote number: 702936152		1				
Extreme Summit X670V-48t-BF-AC	17202	2	25995.00	2	51990.00	
EXTREME DISCOUNT hardware 35%		2			-18196.50	
Extreme support: EW 4hr AHR-17202	97007-17202	2	10920.00	2		21840.00
EXTREME DISCOUNT support 15%		2				-3276.00
Extreme quote number: VMwareCL102614 02		2				
Cat6a patch cable 10G RJ45 7ft (Inc 10% spares)	1117918	3	11.99	71	851.29	
CPI Adjustable ServerRack - 51U	1506291	3	614.99	2	1229.98	
Acer - LED monitor - 18.5" (Inc 2 spares)	2978003	3	87.99	3	263.97	
Logitech USB KB/Mouse (Inc 2 spares)	2124292	3	17.99	3	53.97	
				<b>Total</b>	<b>930602.46</b>	<b>88932.03</b>

Notes:  
 \* Each license covers 3 servers, free upgrade to vSphere 6 when available  
 \*\* 384TB Hadoop data storage X 3 years: quantity=1152  
 Price Key:  
 1 - Dell, Brian Bassett (Brian\_Bassett@Dell.com)  
 2 - Extreme, Randy Norman (norman@extremenetworks.com)  
 3 - CDW

Audited by Doug Johnson, InfoSizing Inc. ([www.sizing.com](http://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 specification. If you find that the stated prices are not available according to these terms, please inform the TPC at [pricing@tpc.org](mailto:pricing@tpc.org). Thank you."



DELL  
PowerEdge R720xd  
with  
VMware vSphere 6.0

TPCx-HS Rev. 1.2.0  
TPC-Pricing Rev. 1.7.0

Report Date:  
March 9, 2015

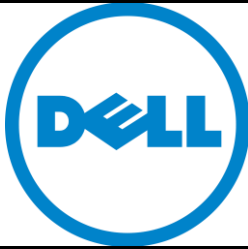
## Numerical Quantities Summary

### Measurement Results for Performance Run

Scale Factor	30TB
Run Start Time	2015/01/12 00:36:13
Run End Time	2015/01/12 02:02:51
Run Elapsed Time	5201.000
Start of HSGen	2015/01/12 00:36:13
End of HSGen	2015/01/12 00:54:17
HSGen Time	1085.464
Start of HSSort	2015/01/12 00:54:20
End of HSSort	2015/01/12 01:51:35
HSSort Time	3435.609
Start of HSValidate	2015/01/12 01:51:39
End of HSValidate	2015/01/12 02:02:51
HSValidate Time	674.168

### Measurement Results for Repeatability Run

Scale Factor	30TB
Run Start Time	2015/01/11 23:06:41
Run End Time	2015/01/12 00:32:04
Run Elapsed Time	5128.000
Start of HSGen	2015/01/11 23:06:41
End of HSGen	2015/01/11 23:24:26
HSGen Time	1066.861
Start of HSSort	2015/01/11 23:24:29
End of HSSort	2015/01/12 00:20:18
HSSort Time	3349.784
Start of HSValidate	2015/01/12 00:20:22
End of HSValidate	2015/01/12 00:32:04
HSValidate Time	704.412



**DELL  
PowerEdge R720xd  
with  
VMware vSphere 6.0**

**TPCx-HS Rev. 1.2.0  
TPC-Pricing Rev. 1.7.0**

**Report Date:  
March 9, 2015**

**Run report for Performance Run**

=====  
TPCx-HS Performance Metric (HSph@SF) Report

Test Run 2 details: Total Time = 5201  
Total Size = 300000000000  
Scale-Factor = 30.0000

TPCx-HS Performance Metric (HSph@SF): 20.7655  
=====

**Run report for Repeatability Run**

=====  
TPCx-HS Performance Metric (HSph@SF) Report

Test Run 1 details: Total Time = 5128  
Total Size = 300000000000  
Scale-Factor = 30.0000

TPCx-HS Performance Metric (HSph@SF): 21.0614  
=====