

 Hewlett Packard Enterprise		Hewlett Packard Enterprise ProLiant DL for Big Data		TPCx-BB Rev. v1.2.0 TPC-Pricing Rev. v2.1.1	
				Report Date: July 9, 2017	
Total System Cost		TPCx-BB Performance Metric		Price/Performance	
719,290 USD		830.67 BBQpm@10000		865.92 USD \$/BBQpm@10000	
Framework	Operating System	Other Software	Availability Date	Scale Factor	Streams
Cloudera for Apache Hadoop (CDH) 5.8.0	Red Hat Enterprise Linux Server 7.2	OpenJDK 1.8.0_65	July 9, 2017	10000	2
System Configuration					
<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>Ethernet Switch: HPE 1620-24G Switch (ILO connection) HP5900AF-48XGT-4QSFP+ (main connection)</p> </div> <div style="border: 1px solid black; padding: 5px; width: 30%; text-align: center;">  </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>Software: Red Hat Enterprise Linux 7.2 Cloudera Enterprise 5.8</p> </div> </div> <div style="margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>3 Management Node: Each: HPE ProLiant DL360 Gen9 2x Intel E5-2640 v4 2.40GHz 1x HPE 800GB 6G SATA SSD (2 nodes) 1x HPE 480GB 6G SATA SSD (1 node) 256GB Memory</p> </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> <p>18 Worker Nodes: Each: HPE ProLiant DL380 Gen9 2x Intel E5-2697A v4 2.60GHz 1x HPE 480GB 6G SATA SSD 1x HPE 1.2TB 6G SATA SSD 16x HPE 1TB 6G SATA 7.2K HDD 256GB Memory</p> </div> </div>					
Physical Storage/Scale Factor: 32.03			Scale Factor/Physical Memory: 1.86		
Servers:		18x HPE ProLiant DL380 Gen9, 3x HPE ProLiant DL360 Gen9			
Total Processors/Cores/Threads		42/636/1,272			
Server Configuration:		Per HPE ProLiant DL380 Gen9:		Per HPE ProLiant DL360 Gen9:	
Processors		2x Intel Xeon E5-2697A v4 @ 2.60GHz		2x Intel Xeon E5-2640 @ 2.40GHz	
Memory		256GB		256GB	
Storage Controller		HPE Smart Array P840/4G		HPE Smart Array P440ar Controller	
Storage Device		1x HPE 480GB 6G SATA SSD 1x HPE 1.2TB 6G SATA SSD 16x HPE 1TB 6G SATA 7.2K HDD		1x HPE 480GB 6G SATA SSD (1 node) 1x HPE 800GB 6G SATA SSD (2 nodes)	
Network		HPE Ethernet 10G 2P Adapter		HPE Ethernet 10G 2P Adapter	
Connectivity:		HPE 1620-24G Switch (ILO connection) HPE 5900AF-48XG-4QSFP+ Switch (main connection)			



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TPCx-BB Rev. v1.2.0
TPC-Pricing Rev. v2.1.1

Report Date:
July 9, 2017

Description	Price Key	Part Number	Unit Price	Qty	Extended Price	3 Yr Maint Price
Server Hardware						
HPE DL360 Gen9 8SFF CTO Server	1	755258-B21	\$1,797	3	\$5,391	
HPE DL360 Gen9 E5-2640v4 Kit	1	842978-B21	\$1,359	3	\$4,077	
HPE DL360 Gen9 E5-2640v4 FIO Kit	1	842978-L21	\$1,359	3	\$4,077	
HPE 32GB 2Rx4 PC4-2400T-R Kit	1	805351-B21	\$1,059	24	\$25,416	
HPE H240ar 12Gb 2-ports Int FIO Smart Host Bus Adapter	1	749976-B21	\$249	3	\$747	
HPE 500W FS Plat Ht Plg Pwr Supply Kit	1	720478-B21	\$309	6	\$1,854	
HPE 480GB 6G SATA RI-2 SFF SC SSD	1	804593-B21	\$609	1	\$609	
HPE 800GB 6G SATA MU-2 SFF SC SSD	1	804671-B21	\$1,389	2	\$2,778	
HPE Ethernet 10Gb 2P 560FLR-SFP+ Adptr	1	665243-B21	\$679	3	\$2,037	
HPE 3Y FC 24x7 DL360 Gen9 SVC	1	U7AL9E	\$1,404	3		\$4,212
HPE iLO Adv incl 3yr TS U E-LTU	1	E6U64ABE	\$469	3		\$1,407
HP W1972a 18.5-In LED Monitor (1 + 2 spare)	1	B7M13A8#ABA	\$80	3	\$240	
HP PS/2 Keyboard And Mouse Bundle (1 + 2 spare)	1	B1T13AA#ABA	\$28	3	\$84	
			Subtotal		\$47,310	\$5,619
HPE DL380 Gen9 24SFF CTO Server	1	767032-B21	\$2,107	18	\$37,926	
HPE DL380 Gen9 High Perf Fan Kit	1	719079-B21	\$239	18	\$4,302	
HPE DL380 Gen9 2SFF Bay Kit	1	724864-B21	\$179	18	\$3,222	
HPE DL380 Gen9 Secondary Riser	1	719073-B21	\$99	18	\$1,782	
HPE XL2x0 Gen9 E5-2697Av4 Kit	1	841179-B21	\$4,359	18	\$78,462	
HPE XL2x0 Gen9 E5-2697Av4 FIO Kit	1	841179-L21	\$4,359	18	\$78,462	
HPE 32GB 2Rx4 PC4-2400T-R Kit	1	805351-B21	\$1,059	144	\$152,496	
HPE 1TB 6G SATA 7.2k 2.5in SC MDL HDD	1	655710-B21	\$499	288	\$143,712	
HPE 480GB 6G SATA RI-2 SFF SC SSD	1	804593-B21	\$609	18	\$10,962	
HPE 1.2TB 6G SATA WI-2 SFF SC SSD	1	804677-B21	\$2,365	18	\$42,570	
HPE Smart Array P840/4G Controller	1	726897-B21	\$1,249	18	\$22,482	
HPE 12Gb DL380 Gen9 SAS Expander Card	1	727250-B21	\$699	18	\$12,582	
HPE 800W FS Ti Ht Plg Pwr Supply Kit	1	720482-B21	\$409	36	\$14,724	
HPE Ethernet 10Gb 2P 560FLR-SFP+ Adptr	1	665243-B21	\$679	18	\$12,222	
HPE 3Y FC 24x7 DL380 Gen9 SVC	1	U7AE5E	\$1,872	18		\$33,696
HPE iLO Adv incl 3yr TS U E-LTU	1	E6U64ABE	\$469	18		\$8,442
			Subtotal		\$615,906	\$42,138



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Description	Price Key	Part Number	Unit Price	Qty	Extended Price	3 Yr Maint Price
Network						
HPE 1620-24G Switch	1	JG913A	\$299	1	\$299	
HPE 5900AF-48XG-4QSFP+ Switch	1	JC772A	\$20,990	1	\$20,990	
HPE 1m Multi-mode OM3 LC/LC FC Cable	1	AJ834A	\$70	21	\$1,470	
CAT6 UTP 1G Ethernet Network Cable 7ft (42 cables)	2	C6-UTPSPMVCYL-2M	\$2	42	\$84	
HPE A58x0AF 650W AC Power Supply	1	JC680A	\$749	4	\$2,996	
HPE 58x0AF Bck(pwr)-Frt(ports) Fan Tray	1	JC682A	\$179	4	\$716	
			Subtotal		\$26,555	\$0
Rack						
HPE 42U 600x1075mm Adv G2 Kit Pltt Rack	1	P9K07A	\$1,179	1	\$1,179	
HPE 24A High Voltage Core Only Corded PDU	1	252663-D74	\$259	4	\$1,036	
			Subtotal		\$2,215	\$0
Server Software						
Cloudera Ent Basic Ed 1yr 24x7	1	G7M27A	\$2,000	72	\$144,000	
RHEL Svr 2 Sckt/2 Gst 3yr 24x7 E-LTU	1	G3J30AAE	\$3,702	21	\$77,742	
			Subtotal		\$221,742	\$0
			Total Extended Price		\$913,728	\$47,757
			Total Discounts (35%)		\$242,195	\$0

Sales contact: HPE WW Headquarters, 3000 Hanover St., Palo Alto, CA 94304-1185
(650) 857-1501 or HPE: 855-472-5233

Grand Total **\$671,533** **\$47,757**

Pricing:1 = {Source 1}; 2 = {Source 2}

⁽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 **\$719,290**

BBQ pm@10000 **830.67**

\$/BBQ pm@10000 **\$ 865.92**

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.



Numerical Quantities

Scale Factor	10000
Streams	2
SUT Validation Test	PASS

Performance Run (Run 2)

Overall Run Start Time	2017-06-27 00:05:50.957
Overall Run End Time	2017-06-27 21:38:50.865
Overall Run Elapsed Time	77,579.908
Load Test Start Time	2017-06-27 00:05:50.958
Load Test End Time	2017-06-27 00:55:30.300
Load Test Elapsed Time	2,979.342
Power Test Start Time	2017-06-27 00:55:30.302
Power Test End Time	2017-06-27 09:11:59.406
Power Test Elapsed Time	29,789.104
Throughput Test Start Time	2017-06-27 09:11:59.408
Throughput Test End Time	2017-06-27 21:38:50.864
Throughput Test Elapsed Time	44,811.456
Performance Metric (BBQpm@ 10000)	830.67

Repeatability Run (Run 1)

Overall Run Start Time	2017-06-26 01:51:21.978
Overall Run End Time	2017-06-26 22:58:06.590
Overall Run Elapsed Time	76,004.612
Load Test Start Time	2017-06-26 01:51:21.979
Load Test End Time	2017-06-26 02:40:31.683
Load Test Elapsed Time	2,949.704
Power Test Start Time	2017-06-26 02:40:31.685
Power Test End Time	2017-06-26 10:55:37.091
Power Test Elapsed Time	29,705.406
Throughput Test Start Time	2017-06-26 10:55:37.093
Throughput Test End Time	2017-06-26 22:58:06.589
Throughput Test Elapsed Time	43,349.496
Performance Metric (BBQpm@ 10000)	844.88



Performance Run Report (Run 2)

TPCx-BB

Result

v1.2

INFO: T_LOAD = 2979.342

INFO: T_LD = 0.1 * T_LOAD: 297.9342

INFO: T_PT = 20384.2122165116

INFO: T_T_PUT = 44811.456

INFO: T_TT = 22405.728

INFO: === Checking validity of the final result ===

INFO: OK: All required BigBench phases were performed.

INFO: OK: All 30 queries were running in the power test.

INFO: OK: All 30 queries were running in the first throughput test.

INFO: OK: Pretend mode was inactive. All commands were executed.

INFO: === Final result ===

INFO: VALID BBQpm@10000 = 830.679180114096

Repeatability Run Report (Run 1)

TPCx-BB

Result

v1.2

INFO: T_LOAD = 2949.704

INFO: T_LD = 0.1 * T_LOAD: 294.9704

INFO: T_PT = 20365.0080854201

INFO: T_T_PUT = 43349.496

INFO: T_TT = 21674.748

INFO: === Checking validity of the final result ===

INFO: OK: All required BigBench phases were performed.

INFO: OK: All 30 queries were running in the power test.

INFO: OK: All 30 queries were running in the first throughput test.

INFO: OK: Pretend mode was inactive. All commands were executed.

INFO: === Final result ===

INFO: VALID BBQpm@10000 = 844.886181932719

Summary details of the run reports are shown above. For the complete run reports, see the Support Files Archive.