



## PowerEdge R730/R730xd

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

Report Date:  
May 12, 2017

Total System Cost

TPCx-BB Performance Metric

Price/Performance

**439,187 USD**

**495.28**  
BBQpm@10000

**886.75 USD**  
\$/BBQpm@10000

Framework

Operating System

Other Software

Availability Date

Scale Factor

Streams

Cloudera CDH  
5.9.0

Red Hat  
Enterprise Linux  
Server 7.2

OpenJDK 64-  
bit Server  
1.7.0\_67

May 12, 2017

10000

2

### System Configuration

#### System Configuration

**1xDell R730 Server (Namenode)**

w/ 2xIntel E5-2650 v4, 8x 1TB, 3.5", 6G, SATA HDD



**12xDell R730xd Servers (Datanodes)**

each w/ 2xIntel E5-2690 v4,  
24x 1.2TB, 2.5", 6G, SAS + 2x300GB, 2.5", 6G, SAS (OS)



**Networking:**

2xDell Force10 S4810 10 GbE

Physical Storage/Scale Factor: 36.08

Scale Factor/Physical Memory: 3.00

Servers: 13x R730/R730xd  
Total Processors/Cores/Threads 26/360/720

Server Configuration:

Processors

Memory

Storage Controller

Storage Device

Network

**R730 (Namenode):**

2x Intel E5-2650 v4 @ 2.20GHz

256 GB

Dell PERC H730 Mini

8x 1TB, 3.5", 7200 rpm, 6G SATA

Intel x520 DP 10 Gb

Intel x520 DP 10GbE + I350 DP 1GbE

**12x R730xd (Datanodes):**

2x Intel E5-2690 v4 @ 2.60GHz

256 GB

Dell PERC H730 Mini

24x 1.2TB, 2.5", 10K rpm, 6G SAS

2x 300GB, 2.5", 6G SAS

Intel x520 DP 10GbE + I350 DP 1GbE

Connectivity:

2x Dell Force10 S4810



## PowerEdge R730/R730xd

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

Report Date:  
May 12, 2017

Description	Part Number	Key	Unit Price	Qty	Extended Price	3 yr. Maint. Price
<b>HARDWARE COMPONENTS</b>						
PowerEdge R730xd Server	210-ADBC	1	\$25,520.00	\$37,964.00	12	\$455,568.00
PowerEdge R730/R730xd Motherboard	329-BCZK	1	\$0.00	\$0.00	12	
R730/xd PCIe Riser 2, Center	330-BBCO	1	1	\$0.00	12	
R730/xd PCIe Riser 1, Right	330-BBCR	1	1	\$0.00	12	
Intel X520 DP 10Gb DA/SFP+, + I350 DP 1Gb Ethernet, Network Daughter Card	540-BBBB	1	1	\$0.00	12	
Chassis with up to 24, 2.5 Hard Drives and 2, 2.5" Flex Bay Hard Drives	350-BBFE	1	1	\$0.00	12	
Performance BIOS Settings	384-BBBL	1	1	\$0.00	12	
UEFI BIOS	800-BBDM	1	1	\$0.00	12	
No RAID for H330/H730/H730P including Flex Bay Drives (1-24 HDDs or SSDs)	780-BBLS	1	1	\$0.00	12	
PERC H730 Integrated RAID Controller, 1GB Cache	405-AAEG	1	1	\$0.00	12	
Intel Xeon E5-2690 v4 2.6GHz,35M Cache,9.60GT/s QPI,Turbo,HT,14C/28T (135W) Max Mem 2400MHz	338-BJCT	1	1	\$0.00	12	
Upgrade to Two Intel Xeon E5-2690 v4 2.6GHz,35M Cache,9.60GT/s QPI,Turbo,HT,14C/28T (135W)	374-BJES	1	1	\$0.00	12	
16GB RDIMM, 2400 MT/s, Dual Rank, x8 Data Width	370-ACNX	1	1	\$0.00	192	
2400MT/s RDIMMs	370-ACPH	1	1	\$0.00	12	
Performance Optimized	370-AAIP	1	1	\$0.00	12	
300GB 10K RPM SAS 6Gbps 2.5in Flex Bay Hard Drive,13G	400-AJPR	1	1	\$0.00	24	
1.2 TB 10K RPM SAS 6Gbps 2.5in Hot-plug Hard Drive,13G	400-AEFO	1	1	\$0.00	288	
Electronic System Documentation and OpenManage DVD Kit, PowerEdge R730/xd	631-AAJG	1	1	\$0.00	12	



## PowerEdge R730/R730xd

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

Report Date:  
May 12, 2017

Description	Part Number	Key	Unit Price	Qty	Extended Price	3 yr. Maint. Price
ReadyRails Sliding Rails With Cable Management Arm	770-BBBR	1	1	\$0.00	12	
Dual, Hot-plug, Redundant Power Supply (1+1), 750W	450-ADWS	1	1	\$0.00	12	
C13 to C14, PDU Style, 12 AMP, 2 Feet (.6m) Power Cord, North America	492-BBDH	1	1	\$0.00	12	
DIMM Blanks for System with 2 Processors	370-ABWE	1	1	\$0.00	12	
Standard Heatsink for PowerEdge R730/R730xd	374-BBHM	1	1	\$0.00	12	
Standard Heatsink for PowerEdge R730/R730xd	374-BBHM	1	1	\$0.00	12	
INFO QS, 13G HADOOP BUNDLE	379-BBWM	1	1	\$0.00	12	
4hr response, 24x7 Maintenance Package, R730xd				\$2,529.00	12	\$30,348.00
- Thank you choosing Dell ProSupport. For tech support, visit <a href="http://support.dell.com/ProSupport">http://support.dell.com/ProSupport</a>						
support	911-6619	1		\$0.00	12	
- Dell Limited Hardware Warranty Plus Service, Initial Year						
	978-4029	1		\$0.00	12	
- ProSupport Mission Critical Package: Enhanced Services,3 Year						
	978-4042	1		\$0.00	12	
- ProSupport Mission Critical: 7X24 HW / SW Tech Support and Assistance,3 Year						
	978-4043	1		\$0.00	12	
- Mission Critical Package: 4- Hours 7X24 On-Site Service with Emergency Dispatch, 3 Year						
	978-4044	1		\$0.00	12	
- On-Site Installation Declined						
	900-9997	1		\$0.00	12	
- US Order						
	332-1286	1		\$0.00	12	



## PowerEdge R730/R730xd

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

Report Date:  
May 12, 2017

Description	Part Number	Key	Unit Price	Qty	Extended Price	3 yr. Maint. Price
PowerEdge R730 Server	329-BCZK	1	\$25,027.92	1	\$25,027.92	
PowerEdge R730/R730xd Motherboard	591-BBCH	1	\$0.00	1		
R730/xd PCIe Riser 2, Center	330-BBCO	1	\$0.00	1		
R730 PCIe Riser 3, Left	330-BBCQ	1	\$0.00	1		
R730/xd PCIe Riser 1, Right	330-BBCR	1	\$0.00	1		
Intel X520 DP 10Gb DA/SFP+ Server Adapter, Low Profile	540-BBHY	1	\$0.00	1		
Intel X520 DP 10Gb DA/SFP+, + I350 DP 1Gb Ethernet, Network Daughter Card	540-BBBB	1	\$0.00	1		
Chassis with up to 8, 3.5" Hard Drives	350-BBEO	1	\$0.00	1		
Performance BIOS Settings	384-BBBL	1	\$0.00	1		
UEFI BIOS	800-BBDM	1	\$0.00	1		
No RAID for H330/H730/H730P (1-16 HDDs or SSDs)	780-BBJS	1	\$0.00	1		
PERC H730 Integrated RAID Controller, 1GB Cache	405-AAEG	1	\$0.00	1		
Intel Xeon E5-2650 v4 2.2GHz,30M Cache,9.60GT/s QPI,Turbo,HT,12C/24T (105W) Max Mem 2400MHz	338-BJDV	1	\$0.00	1		
Upgrade to Two Intel Xeon E5-2650 v4 2.2GHz,30M Cache,9.60GT/s QPI,Turbo,HT,12C/24T (105W)	374-BJDW	1	\$0.00	1		
32GB RDIMM, 2400 MT/s, Dual Rank, x4 Data Width	370-ABUG	1	\$0.00	8		
2400MT/s RDIMMs	370-ACPH	1	\$0.00	1		
Performance Optimized	370-AAIP	1	\$0.00	1		
1TB 7.2K RPM SATA 6Gbps 3.5in Hot-plug Hard Drive,13G Electronic System	400-AEEZ	1	\$0.00	8		
Documentation and OpenManage DVD Kit, PowerEdge R730/xd	631-AAJG	1	\$0.00	1		
DVD+/-RW, SATA, Internal	429-AAPS	1	\$0.00	1		



## PowerEdge R730/R730xd

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

Report Date:  
May 12, 2017

Description	Part Number	Key	Unit Price	Qty	Extended Price	3 yr. Maint. Price
ReadyRails Sliding Rails With Cable Management Arm	770-BBBR	1	\$0.00	1		
Dual, Hot-plug, Redundant Power Supply (1+1), 750W	450-ADWS	1	\$0.00	1		
C13 to C14, PDU Style, 12 AMP, 2 Feet (.6m) Power Cord, North America	492-BBDH	1	\$0.00	2		
DIMM Blanks for System with 2 Processors	370-ABWE	1	\$0.00	1		
Standard Heatsink for PowerEdge R730/R730xd	374-BBHM	1	\$0.00	1		
Standard Heatsink for PowerEdge R730/R730xd	374-BBHM	1	\$0.00	1		
INFO QS, 13G HADOOP BUNDLE	379-BBWM	1	\$0.00	1		
4hr response, 24x7 Maintanance Package, R730		1	\$2,049.00	1		\$2,049.00
- Thank you choosing Dell ProSupport. For tech support, visit <a href="http://support.dell.com/ProSupport">http://support.dell.com/ProSupport</a>	911-6619	1	\$0.00	1		
- Dell Limited Hardware Warranty Plus Service, Initial Year	978-3603	1	\$0.00	1		
- ProSupport Mission Critical Package: Enhanced Services,3 Year	978-3617	1	\$0.00	1		
- ProSupport Mission Critical: 7X24 HW / SW Tech Support and Assistance,3 Year	978-3618	1	\$0.00	1		
- Mission Critical Package: 4- Hours 7X24 On-Site Service with Emergency Dispatch, 3 Year	978-3619	1	\$0.00	1		
- On-Site Installation Declined	900-9997	1	\$0.00	1		
- US Order	332-1286	1	\$0.00	1		



## PowerEdge R730/R730xd

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

Report Date:  
May 12, 2017

Description	Part Number	Key	Unit Price	Qty	Extended Price	3 yr. Maint. Price
<b>Dell Force10 S4810 Switch</b> Force10, S4810P, 1RU, 48 x 10GbE SFP+, 4 x 40GbE QSFP+, 1 x AC PSU, 2 x FM, PSU to IO Panels (Reverse)	225-2477	1	\$21,156.00	2	\$36,872.00	
Dell Networking, Jumper Cord, 250V, 12A, 2 Meters, C13/C14, US	450-AASX	1	\$0.00	2	\$0.00	
Force10 Customer not deploying this switch in iSCSI or FCOE environment.	332-0139	1	\$0.00	2	\$0.00	
INFO QS, 13G HADOOP BUNDLE	379-BBWM	1	\$0.00	2	\$0.00	
Dell Networking, Cable, SFP+ to SFP+, 10GbE, Copper Twinax Direct Attach Cable, 3 Meter	470-AAGP	1	\$0.00	30	\$0.00	
4hr response, 24x7 Maintanance Package, S4810 - Force10, User Documentation for S4810, DAO/BCC	331-6279	1	\$3,153.99	2	\$3,153.99	\$6,307.98
- SW Support,Force10 Software ,3 Years	935-0103	1	\$0.00	2	\$0.00	
- ProSupport: 7x24 HW / SW Tech Support and Assistance, 3 Years	935-0143	1	\$0.00	2	\$0.00	
- Thank you choosing Dell ProSupport. For tech support, visit <a href="http://www.dell.com/support">http://www.dell.com/support</a> or call 1-800- 945-3355	989-3439	1	\$0.00	2	\$0.00	
- Dell Hardware Limited Warranty Initial Year	996-2670	1	\$0.00	2	\$0.00	
- Dell Hardware Limited Warranty Extended Year(s)	996-2760	1	\$0.00	2	\$0.00	
- On-Site Installation Declined	900-9997	1	\$0.00	2	\$0.00	
- Declined Remote Consulting Service	973-2426	1	\$0.00	2	\$0.00	
Dell Netshelter SX 42U Rack - 600mm Wide x 1070mm Deep	A7545497	1		1	\$1,299.99	
Logitech MK120 Keyboard and Mouse	A3974709	1		1	\$16.99	
<b>HARDWARE COMPONENTS</b>				<b>Subtotal</b>	<b>\$518,784.90</b>	<b>\$38,704.98</b>



## PowerEdge R730/R730xd

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

Report Date:  
May 12, 2017

Description	Part Number	Key	Unit Price	Qty	Extended Price	3 yr. Maint. Price
<b>SOFTWARE COMPONENTS</b>						
Red Hat Enterprise Linux,1-2SKT,3yr Premium Subscription,1 Virtual Guest	421-5721	1	1 \$3,059.00	13	\$39,767.00	
- Red Hat Enterprise Linux Non Factory Install, x64,Reqs Subscription Selection	605-BBIX	1	1 \$0.00		\$0.00	
- Red Hat Enterprise Linux 7.3 Media Only X86_64, No Subscription	340-AVFG	1	1 \$0.00		\$0.00	
Cloudera Enterprise Basic Edition, Node License, 24x7 3YR	A9081372	1	1 6,000	13	\$78,000.00	
<b>Subtotal</b>					<b>\$117,767.00</b>	<b>\$0.00</b>
<b>Total</b>					<b>\$636,551.90</b>	<b>\$38,704.98</b>
Large Purchase Discount (35%)*					-222,793.17	-13,546.74
ViewSonic VA2055Sa LED Monitor 20" (includes spares)	3701841	2	\$89.99	3	269.97	

Pricing:1 = Dell; 2 = CDW (www.cdw.com)

<sup>(1)</sup> 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**

<b>Three-Year Cost of Ownership</b>	<b>\$439,187</b>
<b>BBQ pm@10000</b>	<b>495.28</b>
<b>\$/BBQ pm@10000</b>	<b>\$ 886.75</b>

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](mailto:pricing@tpc.org). Thank you.



## PowerEdge R730/R730xd

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

Report Date:  
May 12, 2017

### Numerical Quantities

Scale Factor	10000
Streams	2
SUT Validation Status	TRUE

### Performance Run

Overall Run Start Time	2017-05-05 22:45:23.903
Overall Run End Time	2017-05-07 15:14:41.732
Overall Run Elapsed Time	145,757.829
Load Test Start Time	2017-05-05 22:45:23.904
Load Test End Time	2017-05-05 23:51:19.682
Load Test Elapsed Time	3,955.778
Power Test Start Time	2017-05-05 23:51:19.684
Power Test End Time	2017-05-06 14:36:07.138
Power Test Elapsed Time	53,087.454
Throughput Test Start Time	2017-05-06 14:36:07.140
Throughput Test End Time	2017-05-07 15:14:41.731
Throughput Test Elapsed Time	88,714.591
Performance Metric (BBQpm@ 10000)	495.282507443747

### Repeatability Run

Overall Run Start Time	2017-05-03 23:08:35.781
Overall Run End Time	2017-05-05 15:26:35.283
Overall Run Elapsed Time	145,079.502
Load Test Start Time	2017-05-03 23:08:35.782
Load Test End Time	2017-05-04 00:14:50.426
Load Test Elapsed Time	3,974.644
Power Test Start Time	2017-05-04 00:14:50.428
Power Test End Time	2017-05-04 14:58:00.867
Power Test Elapsed Time	52,990.439
Throughput Test Start Time	2017-05-04 14:58:00.869
Throughput Test End Time	2017-05-05 15:26:35.282
Throughput Test Elapsed Time	88,114.413
Performance Metric (BBQpm@ 10000)	496.657229239438





## Run Report – Run 1

\*\*\*\*\*

TPCx-BB

Result

v1.2

\*\*\*\*\*

INFO: T\_LOAD = 3974.644

INFO: T\_LD = 0.1 \* T\_LOAD: 397.4644

INFO: T\_PT = 29163.26971375

INFO: T\_T\_PUT = 88114.413

INFO: T\_TT = 44057.2065

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 = 496.657229239438

## Run Report – Run 2

\*\*\*\*\*

TPCx-BB

Result

v1.2

\*\*\*\*\*

INFO: T\_LOAD = 3955.778

INFO: T\_LD = 0.1 \* T\_LOAD: 395.5778

INFO: T\_PT = 29131.838981562

INFO: T\_T\_PUT = 88714.591

INFO: T\_TT = 44357.2955

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 = 495.282507443747

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