DELLEMC	**Dell PowerEdge R7415**	TPCx-IoT	v1.0.3
		TPC-Pricing	v2.3.0
		Report Date:	May 24, 2019

Total System Cost	TPCx-IoT Performance Metric	Price/Performance
265,084 USD	**354,811.45 IoTps**	**0.75 USD $/IoTps**

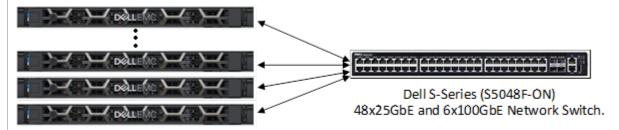| Number of Records	DBMS Software	Operating System	Other Software	Availability Date
600 Millions	HBase 2.0.0 on Cloudera Distribution for Apache Hadoop 6.0	Red Hat Enterprise Linux Server Release 7.5	None	May 24, 2019

System Configuration

1x Dell PowerEdge R7415 Server (Master Node)
1x AMD EPYC 7401P 24-Core Processor
256 GB (8x 32GB RDIMM 2666MT/s Dual Rank)
1x 240GB SSD SATA 2.5in Hot-plug Drive
1x Mellanox Dual Port 25GbE SFP28 NIC

Dell S-Series (S5048F-ON)
48x25GbE and 6x100GbE Network Switch.

7x Dell PowerEdge R7415 Servers (Data Nodes)
1x AMD EPYC 7401P 24-Core Processor
256 GB (8x 32GB RDIMM 2666MT/s Dual Rank)
1x 240GB SSD SATA 2.5in Hot-plug Drive
1x 1.6 TB Dell NVMe
1x Mellanox Dual Port 25GbE SFP28 NIC

Total Number of Servers:		8x Dell PowerEdge R7415
Total Processors/Cores/Threads:		8/192/384
Server Configuration (each)	Processors	1x AMD EPYC 7401P 2.0GHz 24-Core
	Memory	256GB
	Storage Controller	Perc H740P
	Storage Device	1x 240GB SSD SATA (all nodes)
		1x Dell 1.6TB NVMe (Data Nodes)
	Network	1x Mellanox Dual Port 25GbE SFP28 NIC
	Connectivity:	Dell S-Series (S5048F-ON) Network Switch
Total Rack Units:		(8x7415) + (1xS5048F) = (8x2) + (1x1) = 17RU

		TPCx-IoT	v1.0.3
Dell PowerEdge R7415		TPC-Pricing	v2.3.0
		Report Date:	May 24, 2019

Description	Number	Key	Unit Price	Qty	Extended Price	3 yr. Maint. Price	Part
HARDWARE COMPONENTS							
PowerEdge R7415 Server	210-ANKR	1	$23,619.00	7	$165,333.00		
PowerEdge R6415/R7415 Motherboard	384-BBSR	1	0.00	7	0.00		
No Trusted Platform Module	461-AADZ	1	0.00	7	0.00		
Chassis with up to 24 x 2.5" Drives including Maximum of 8 SAS/SATAor up to 23 NVMe Drives	321-BDEL	1	0.00	7	0.00		
PowerEdge R7415 Shipping	340-BVTK	1	0.00	7	0.00		
PowerEdge R7415 x4 or x10 Drive Shipping Material	343-BBGJ	1	0.00	7	0.00		
AMD EPYC™ 7401P 2.0GHz/2.8GHz, 24C/48T, 64M Cache (155W/170W) DDR4-2400/2666	338-BNCT	1	0.00	7	0.00		
Standard Heatsink	322-BBBL	1	0.00	7	0.00		
2666MT/s RDIMMs	370-ADNU	1	0.00	7	0.00		
Performance Optimized	370-AAIP	1	0.00	7	0.00		
Unconfigured RAID	780-BCDS	1	0.00	7	0.00		
PERC H740P RAID Controller, 8GB NV Cache, Mini card	405-AAMS	1	0.00	7	0.00		
Red Hat Enterprise Linux Non Factory Install,x64,Req Lic&Sub Selection	421-4727	1	$0.00	3	$0.00		
iDRAC9,Enterprise	385-BBKT	1	0.00	7	0.00		
iDRAC Group Manager, Disabled	379-BCQY	1	0.00	7	0.00		
iDRAC,Factory Generated Password	379-BCSF	1	0.00	7	0.00		
Riser Config 1, 2 x 16 LP	330-BBJH	1	0.00	7	0.00		
On-Board LOM	542-BBBP	1	0.00	7	0.00		
No Internal Optical Drive	429-AAIQ	1	0.00	7	0.00		
Dual, Hot-plug, Redundant Power Supply (1+1) 495W for x24 chassis	450-AGZB	1	0.00	7	0.00		
No Bezel	350-BBBW	1	0.00	7	0.00		
Dell EMC Luggage Tag	350-BBMI	1	0.00	7	0.00		
No Quick Sync	350-BBKU	1	0.00	7	0.00		
Performance BIOS Settings	384-BBBL	1	0.00	7	0.00		
UEFI BIOS Boot Mode with GPT Partition	800-BBDM	1	0.00	7	0.00		
ReadyRails Sliding Rails With Cable Management Arm	770-BBBR	1	0.00	7	0.00		
No Systems Documentation, No OpenManage DVD Kit	631-AACK	1	0.00	7	0.00		
US Order	332-1286	1	0.00	7	0.00		
Dell Hardware Limited Warranty Plus On-Site Service	816-3842	1	$200.00	7		1,400.00	
ProSupport Mission Critical: 7x24 HW / SW Technical Support and Assistance, 3 Years	816-3859	1	$1,438.00	7		10,066.00	
3 Years ProSupport and Mission Critical 4Hr Onsite Service	816-3843	1	$262.00	7		1,834.00	
Thank you choosing Dell ProSupport. For tech support, visit //www.dell.com/support or call 1-800- 945-3355	989-3439	1	$0.00	7		0.00	
On-Site Installation Declined	900-9997	1	$0.00	7		0.00	
32GB RDIMM 2666MT/s Dual Rank	370-ADNF	1	$0.00	56	$0.00		
240GB SSD SATA Mixed Use 6Gbps 512e 2.5in Hot Plug S4610 Drive	400-BDSS		$0.00	7	$0.00		
Dell 1.6TB, NVMe, Mixed Use Express Flash, 2.5 SFF Drive, U.2, PM1725a with Carrier	400-AWLD	1	$0.00	7	$0.00		
Mellanox ConnectX-4 Lx Dual Port 25GbE SFP28 Network Adapter, Low Profile	406-BBLD	1	$0.00	7	$0.00		
C13 to C14, PDU Style, 12 AMP, 6.5 Feet (2m) Power Cord, North America	492-BBDI	1	$0.00	14	$0.00		
Dell EMC S5048F-ON Switch,48x 25GbE,6x 100GbE QSFP28, IO to PSU,2 PSU,OS10	210-ANRH	1	$25,129.00	1	25,129.00		
QSFP28, IO to PSU airflow, 2x PSU, OS9Software, Rights to use L3 on OS9, S5048-ON	634-BQCB	1	$0.00	1	$0.00		
Dell Networking, Cable, SFP28 to SFP28, 25GbE, Passive Copper Twinax Direct Attach Cable, 2 Meter	470-ACET	1	$0.00	7	$0.00		
Dell EMC S5048 Series User Guide	343-BBGU	1	$0.00	1	$0.00		
US No Canada Ship Charge	332-1286	1	$0.00	1	$0.00		
Force10, Power Cord, 125V, 15A, 10 Feet, NEMA 5-15/C13, S-Series	450-AAFH	1	$0.00	2	$0.00		
Dell Hardware Limited Warranty 1 Year	815-5868	1	$422.00	1		422.00	
ProSupport Mission Critical Package: 4-Hour 7x24 On-Site Service withEmergency Dispatch, 1 Year	815-5876	1	$111.00	1		111.00	
ProSupport Mission Critical Package: 4-Hour 7x24 On-Site Service withEmergency Dispatch, Extended to 2 Years	815-5877	1	$423.00	1		423.00	
ProSupport Mission Critical:7x24 HW/SW Technical Support andAssistance, 3 Years	815-5887	1	$5,956.00	1		5,956.00	
Dell Limited Hardware Warranty Extended Year(s	975-3461	1	$0.00	1		0.00	
Thank you choosing Dell ProSupport. For tech support, visit //www.dell.com/support or call 1-800- 945-3355	989-3439	1	$0.00	7		0.00	
Info 3rd Party Software Warranty provided by Vendor	997-6306	1	$0.00	1		0.00	
On-Site Installation Declined	900-9997	1	$0.00	1		0.00	
APC NetShelter SX 24U 600mm x 1070mm Deep Enclosure	A7067508	1	$1,079.99	1	1,079.99		
Rack PDU, Basic, Zero U, 15A, 120V, 5-15 input, (14) 5-15 output	A7541364	1	$174.99	1	174.99		
Logitech MK120 Keyboard and Mouse	A6999510	1	$15.99	1	15.99		
Dell 24 Monitor	210-AIWG	1	$0.00	1	0.00		
Subtotal					**$191,732.97**	**$20,212.00**	

TPCx-IoT v1.0.3
Executive Summary

Dell
Dell PowerEdge R7415

Reported Date
May 24, 2019

		TPCx-IoT	v1.0.3
DELLEMC	**Dell PowerEdge R7415**	TPC-Pricing	v2.3.0
		Report Date: May 24, 2019	

Description	Part Number	Key	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
PowerEdge R7415 Server	210-ANKR			1	$20,360.00	1	$20,360.00
PowerEdge R6415/R7415 Motherboard	384-BBSR			1	$0.00	1	$0.00
No Trusted Platform Module	461-AADZ			1	$0.00	1	$0.00
2.5" Chassis with up to 10 Hard Drives, including up to 8 SAS/SATA or 9 NVME Drives	321-BDEL			1	$0.00	1	$0.00
PowerEdge R7415 Shipping	340-BVTK			1	$0.00	1	$0.00
PowerEdge R7415 x4 or x10 Drive Shipping Material	343-BBGJ			1	$0.00	1	$0.00
AMD EPYC™ 7401P 2.0GHz/2.8GHz, 24C/48T, 64M Cache (155W/170W) DDR4-2400/2666	338-BNCT			1	$0.00	1	$0.00
Standard Heatsink	322-BBBL			1	$0.00	1	$0.00
2666MT/s RDIMMs	370-ADNU			1	$0.00	1	$0.00
Performance Optimized	370-AAIP			1	$0.00	1	$0.00
Unconfigured RAID	780-BCDS			1	$0.00	1	$0.00
PERC H740P RAID Controller, 8GB NV Cache, Mini card	405-AAMS			1	$0.00	1	$0.00
Red Hat Enterprise Linux Non Factory Install,x64,Req Lic&Sub Selection	421-4727			1	$0.00	3	$0.00
iDRAC9,Enterprise	385-BBKT			1	$0.00	1	$0.00
iDRAC Group Manager, Disabled	379-BCQY			1	$0.00	1	$0.00
iDRAC,Factory Generated Password	379-BCSF			1	$0.00	1	$0.00
Riser Config 1, 2 x 16 LP	330-BBJH			1	$0.00	1	$0.00
On-Board LOM	542-BBBP			1	$0.00	1	$0.00
No Internal Optical Drive	429-AAIQ			1	$0.00	1	$0.00
Dual, Hot-plug, Redundant Power Supply (1+1) 750W for x24 chassis	450-AGUL			1	$0.00	1	$0.00
No Bezel	325-BCHU			1	$0.00	1	$0.00
Dell EMC Luggage Tag	350-BBMI			1	$0.00	1	$0.00
No Quick Sync	350-BBKU			1	$0.00	1	$0.00
Performance BIOS Settings	384-BBBL			1	$0.00	1	$0.00
UEFI BIOS Boot Mode with GPT Partition	800-BBDM			1	$0.00	1	$0.00
ReadyRails Sliding Rails With Cable Management Arm	770-BBBR			1	$0.00	1	$0.00
No Systems Documentation, No OpenManage DVD Kit	631-AACK			1	$0.00	1	$0.00
US Order	332-1286			1	$0.00	1	$0.00
Dell Hardware Limited Warranty Plus On-Site Service	816-3842			1	$200.00	1	$200.00
ProSupport Mission Critical: 7x24 HW / SW Technical Support and Assistance, 3 Years	816-3859			1	$262.00	1	$262.00
3 Years ProSupport and Mission Critical 4Hr Onsite Service	816-3843			1	$1,438.00	1	$1,438.00
Thank you choosing Dell ProSupport. For tech support, visit //www.dell.com/support or call 1-800- 945-3355	989-3439			1	$0.00	1	$0.00
On-Site Installation Declined	900-9997			1	$0.00	1	$0.00
32GB RDIMM 2666MT/s Dual Rank	370-ADNF			1	$0.00	8	$0.00
240GB SSD SATA Boot 6Gbps 512n 2.5in Hot-plug Drive, 1 DWPD, 219 TBW	400-BDSS			1	$0.00	1	$0.00
Mellanox ConnectX-4 Lx Dual Port 25GbE SFP28 Network Adapter, Low Profile	406-BBLD			1	$0.00	1	$0.00
C13 to C14, PDU Style, 12 AMP, 6.5 Feet (2m) Power Cord, North America	492-BBDI			1	$0.00	2	$0.00
Sub Total					$20,360.00		$1,900.00

HARDWARE COMPONENTS					**Subtotal**	$212,092.97	$22,112.00
SOFTWARE COMPONENTS							
Cloudera Enterprise Operational DB Edition, Node License, 24x7, 1YR	CEODN-GOLD			1	$6,000.00	24	$144,000.00
Red Hat Enterprise Linux,1-2SKT,3yr Premium Subscription,1 Virtual Guest	421-5721			1	$3,702	8	$29,616.00
SOFTWARE COMPONENTS					**Subtotal**	$0.00	$173,616.00
Total						$212,092.97	$195,728.00
Large Purchase Discount (35%)*						-74,232.54	-68,504.80

Pricing: 1 Dell EMC	**Three-Year Cost Ownership:**	**$265,084**
* Discount based upon total system cost as purchased by a regular customer.	**IoTps:**	**354,811.45**
	$/IoTps:	**0.75**

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.

DELLEMC	**Dell PowerEdge R7415**	TPCx-IoT v1.0.3
		TPC-Pricing v2.3.0
		Report Date: May 24, 2019

Measurement Results for Performance Run

Total Number of Records	600 Millions
Warmup Run - Start Time	2019-02-10 21:21:37
Warmup Run - End Time	2019-02-10 22:08:45
Warmup Run Elapsed Time in Seconds	2,826.715
Measured Run Start Time	2019-02-10 22:08:45
Measured Run End Time	2019-02-10 22:36:57
Total Time In Seconds	1,691.039

Measurement Results for Repeatability Run

Total Number of Records	600 Millions
Warmup Run Start Time	2019-02-10 22:49:56
Warmup Run End Time	2019-02-10 23:33:25
Warmup Run Elapsed Time in Seconds	2,608.359
Measured Run Start Time	2019-02-10 23:33:25
Measured Run End Time	2019-02-11 00:01:22
Total Time In Seconds	1,676.257

		TPCx-IoT	v1.0.3
DELLEMC	**Dell PowerEdge 7415**	TPC-Pricing	v2.3.0
		Report Date:	May 24, 2019

Run Report for Performance Run

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TPCx-IoT Performance Metric (IoTps) Report

Total Time For Warmup Run In Seconds = 2,826.72
Total Time In Seconds = 1,691.04
Total Number of Records = 600 Millions

TPCx-IoT Performance Metric (IoTps): 354,811.45


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Run Report for Repeatability Run

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TPCx-IoT Performance Metric (IoTps) Report

Total Time For Warmup Run In Seconds = 2,608.36
Total Time In Seconds = 1,676.26
Total Number of Records = 600 Millions

TPCx-IoT Performance Metric (IoTps): 357,940.34


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