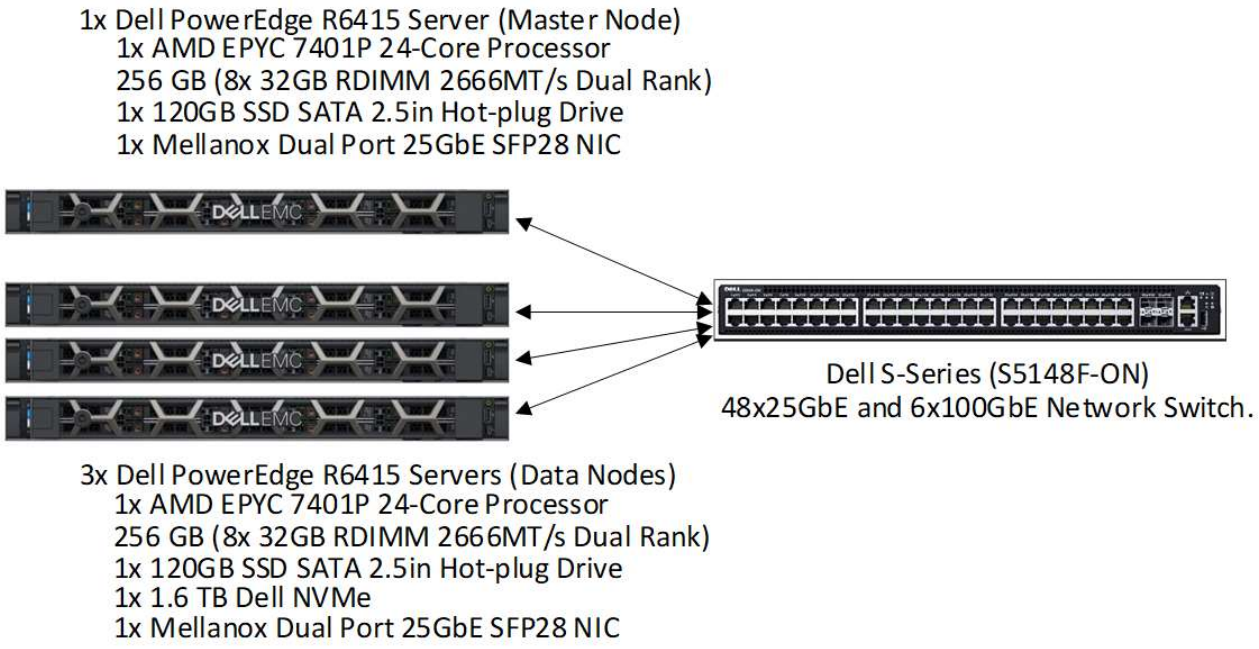
DELL EMC		**Dell PowerEdge R6415**		TPCx-IoT v2.0.0 TPC-Pricing v2.3.0 Report Date: April 02, 2021
Total System Cost		TPCx-IoT Performance Metric		Price/Performance
129,663 USD		**165,054 IoTps**		**$785.58 USD $/kIoTps**
Number of Records	DBMS Software	Operating System	Other Software	Availability Date
300 Million	HBase 2.0.0 on Cloudera Distribution for Apache Hadoop 6.0	Red Hat Enterprise Linux Server Release 7.5	None	Nov 30, 2018

System Configuration



Total Number of Servers:		4x Dell PowerEdge R6415
Total Processors/Cores/Threads:		4/96/192
Server Configuration (each)	Processors	1x AMD EPYC 7401P 2.0GHz 24-Core
	Memory	256GB
	Storage Controller	Perc H740P
	Storage Device	1x 120GB SSD SATA (all nodes)
		1x Dell 1.6TB NVMe (Data Nodes)
	Network	1x Mellanox Dual Port 25GbE SFP28 NIC
	Connectivity:	Dell S-Series (S5148F-ON) Network Switch
Total Rack Units:		(4xR6415) + (1xS5148F) = (4x1) + (1x1) = 15RU

DELL EMC

Dell PowerEdge R6415

TPCx-IoT v2.0.0

TPC-Pricing v2.3.0

Report Date: April 02, 2021

Description	Part Number	Qty	Extended Price	3 yr. Maint. Price	Key	Unit Price
HARDWARE COMPONENTS						
PowerEdge R6415 Server	210-ANJO	1	$925.00	3	$2,775.00	
PowerEdge R6415/R7415 Motherboard	384-BBSR	1	$0.00	3	$0.00	
No Trusted Platform Module	461-AADZ	1	$0.00	3	$0.00	
2.5" Chassis with up to 10 Hard Drives, including up to 8 SAS/SATA or 9 NVME Drives	321-BDFY	1	$100.00	3	$300.00	
PowerEdge R6415 Shipping	340-BTFM	1	$0.00	3	$0.00	
PowerEdge R6415 x4 or x10 Drive Shipping Material	343-BBGL	1	$99.00	3	$297.00	
AMD EPYC™ 7401P 2.0GHz/2.8GHz, 24C/48T, 64M Cache (155W/170W) DDR4-2400/2666	338-BNCT	1	$1,849.00	3	$5,547.00	
Standard Heatsink	412-AALH	1	$19.00	3	$57.00	
2666MT/s RDIMMs	370-ADNU	1	$0.00	3	$0.00	
Performance Optimized	370-AAIP	1	$0.00	3	$0.00	
Unconfigured RAID	780-BCDS	1	$0.00	3	$0.00	
PERC H740P RAID Controller, 8GB NV Cache, Mini card	405-AAMS	1	$1,049.00	3	$3,147.00	
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	$489.00	3	$1,467.00	
iDRAC Group Manager, Disabled	379-BCQY	1	$0.00	3	$0.00	
iDRAC,Factory Generated Password	379-BCSF	1	$0.00	3	$0.00	
Riser Config 1, 2 x 16 LP	330-BBIV	1	$149.00	3	$447.00	
On-Board LOM	542-BBBP	1	$0.00	3	$0.00	
No Internal Optical Drive	429-AAIQ	1	$0.00	3	$0.00	
Dual, Hot Plug, Redundant Power Supply (1+1), 550W	450-AGZB	1	$559.00	3	$1,677.00	
No Bezel	350-BBBW	1	$0.00	3	$0.00	
Dell EMC Luggage Tag	350-BBME	1	$0.00	3	$0.00	
No Quick Sync	350-BBKR	1	$49.00	3	$147.00	
Performance BIOS Settings	384-BBBL	1	$0.00	3	$0.00	
UEFI BIOS Boot Mode with GPT Partition	800-BBDM	1	$0.00	3	$0.00	
ReadyRails Sliding Rails With Cable Management Arm	770-BCKT	1	$189.00	3	$567.00	
No Systems Documentation, No OpenManage DVD Kit	631-AACK	1	$0.00	3	$0.00	
US Order	332-1286	1	$0.00	3	$0.00	
Dell Hardware Limited Warranty Plus On-Site Service	816-0779	1	$200.00	3		$600.00
ProSupport Mission Critical: 7x24 HW / SW Technical Support and Assistance, 3 Years	816-0796	1	$1,438.00	3		$4,314.00
ProSupport Mission Critical: 4-Hour 7x24 On-Site Service with Emergency Dispatch, 3 Years	816-0784	1	$262.00	3		$786.00
Thank you choosing Dell ProSupport. For tech support, visit //www.dell.com/support or call 1-800- 945-3355	989-3439	1	$0.00	3		$0.00
On-Site Installation Declined	900-9997	1	$0.00	3		$0.00
32GB RDIMM 2666MT/s Dual Rank	370-ADNF	1	$1,209.00	24	$29,016.00	
120GB SSD SATA Boot 6Gbps 512n 2.5in Hot-plug Drive, 1 DWPD, 219 TBW	400-ASEG	1	$249.00	3	$747.00	
Dell 1.6TB, NVMe, Mixed Use Express Flash, 2.5 SFF Drive, U.2, PM1725a with Carrier	400-AUMP	1	$3,379.00	3	$10,137.00	
Mellanox ConnectX-4 Lx Dual Port 25GbE SFP28 Network Adapter, Low Profile	406-BBLD	1	$749.00	3	$2,247.00	
C13 to C14, PDU Style, 12 AMP, 6.5 Feet (2m) Power Cord, North America	492-BBDI	1	$20.00	6	$120.00	
Dell EMC S5148F-ON Switch,48x 25GbE,6x 100GbE QSFP28, IO to PSU,2 PSU,OS10	210-ANCK	1	$21,578.00	1	$21,578.00	
OS10 Enterprise S5148F-ON	634-BMIF	1	$0.00	1	$0.00	
Dell Networking, Cable, SFP28 to SFP28, 25GbE, Passive Copper Twinax Direct Attach Cable, 2 Meter	470-ACET	1	$215.00	1	$215.00	
Dell EMC S5148 Series User Guide	343-BBFV	1	$6.00	1	$6.00	
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	$40.00	1	$40.00	
Dell Hardware Limited Warranty 1 Year	814-8268	1	$422.00	1	$422.00	
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	
Dell Limited Hardware Warranty Extended Year(s)	975-3461	1	$0.00	1		$0.00
Mission Critical Package: 4-Hour 7X24 On-Site Service with Emergency Dispatch, 2 Year Extended	814-8278	1	$423.00	1		$423.00
ProSupport: 7x24 HW / SW Tech Support and Assistance, 3 Year	814-8288	1	$5,956.00	1		$5,956.00
Info 3rd Party Software Warranty provided by Vendor	997-6306	1	$0.00	1		$0.00
Mission Critical Package: 4-Hour 7X24 On-Site Service with Emergency Dispatch, 1 Year	814-8277	1	$111.00	1		$111.00
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	$169.99	1	$169.99	
Subtotal					**$82,396.96**	**$12,190.00**

DELL EMC

Dell PowerEdge R6415

TPCx-IoT v2.0.0

TPC-Pricing v2.3.0

Report Date: April 02, 2021

Description				Part Number	Key	Unit Price	Qty
	Extended Price	3 yr. Maint. Price					
PowerEdge R6415 Server		210-ANJO	1	$925.00	1	$925.00	
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-BDFY	1	$100.00	1	$100.00	
PowerEdge R6415 Shipping		340-BTFM	1	$0.00	1	$0.00	
PowerEdge R6415 x4 or x10 Drive Shipping Material		343-BBGL	1	$99.00	1	$99.00	
AMD EPYC™ 7401P 2.0GHz/2.8GHz, 24C/48T, 64M Cache (155W/170W) DDR4-2400/2666		338-BNCT	1	$1,849.00	1	$1,849.00	
Standard Heatsink		412-AALH	1	$19.00	1	$19.00	
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	$1,049.00	1	$1,049.00	
Red Hat Enterprise Linux Non Factory Install,x64,Req Lic&Sub Selection		421-4727	1	$0.00	1	$0.00	
iDRAC9,Enterprise		385-BBKT	1	$489.00	1	$489.00	
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-BBIV	1	$149.00	1	$149.00	
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), 550W		450-AGZB	1	$559.00	1	$559.00	
No Bezel		350-BBBW	1	$0.00	1	$0.00	
Dell EMC Luggage Tag		350-BBME	1	$0.00	1	$0.00	
No Quick Sync		350-BBKR	1	$49.00	1	$49.00	
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-BCKT	1	$189.00	1	$189.00	
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		816-0779	1	$200.00	1		$200.00
ProSupport Mission Critical: 7x24 HW / SW Technical Support and Assistance, 3 Years		816-0796	1	$1,438.00	1		$1,438.00
ProSupport Mission Critical: 4-Hour 7x24 On-Site Service with Emergency Dispatch, 3 Years		816-0784	1	$262.00	1		$262.00
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	$1,209.00	8	$9,672.00	
120GB SSD SATA Boot 6Gbps 512n 2.5in Hot-plug Drive, 1 DWPD, 219 TBW		400-ASEG	1	$249.00	1	$249.00	
Mellanox ConnectX-4 Lx Dual Port 25GbE SFP28 Network Adapter, Low Profile		406-BBLD	1	$749.00	1	$749.00	
C13 to C14, PDU Style, 12 AMP, 6.5 Feet (2m) Power Cord, North America		492-BBDI	1	$20.00	2	$40.00	
Sub Total						$16,186.00	$1,900.00
HARDWARE COMPONENTS					**Subtotal**	$98,582.96	$14,090.00
SOFTWARE COMPONENTS							
Cloudera Enterprise Operational DB Edition, Node License, 24x7, 1YR		CEODN-GOLD	1	$6,000.00	12		$72,000.00
Red Hat Enterprise Linux,1-2SKT,3yr Premium Subscription,1 Virtual Guest		421-5721	1	$3,702	4		$14,808.00
SOFTWARE COMPONENTS					**Subtotal**	$0.00	$86,808.00
Total						**$98,582.96**	**$100,898.00**
Large Purchase Discount (35%)*						-34,504.04	-35,314.30

Pricing: 1 Dell EMC
* Discount based upon total system cost as purchased by a regular customer.

Three-Year Cost of Ownership: $129,663

IoTps: 165,054.36

$ / kIoTps: $785.58

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.

DELL EMC	**Dell PowerEdge R6415**	TPCx-IoT v2.0.0 TPC-Pricing v2.3.0 Report Date: April 02, 2021

Measurement Results for Performance Run

Total Number of Records	300 Million
Warmup Run - Start Time	2018-10-23 23:30:41
Warmup Run - End Time	2018-10-24 00:05:29
Warmup Run Elapsed Time in Seconds	2,088.092
Measured Run Start Time	2018-10-24 00:05:30
Measured Run End Time	2018-10-24 00:35:48
Total Time In Seconds	1,817.583

Measurement Results for Repeatability Run

Total Number of Records	300 Million
Warmup Run Start Time	2018-10-23 22:14:35
Warmup Run End Time	2018-10-23 22:55:29
Warmup Run Elapsed Time in Seconds	2,453.423
Measured Run Start Time	2018-10-23 22:55:29
Measured Run End Time	2018-10-23 23:25:34
Total Time In Seconds	1,804.289

DELL EMC	**Dell PowerEdge R6415**	TPCx-IoT v2.0.0 TPC-Pricing v2.3.0 Report Date: April 02, 2021

Run Report for Performance Run

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TPCx-IoT Performance Metric (IoTps) Report

Total Time For Warmup Run In Seconds = 2,088.09
Total Time In Seconds = 1,817.58
Total Number of Records = 300 Million

TPCx-IoT Performance Metric (IoTps): 165,054.36

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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 = 2,453.42
Total Time In Seconds = 1,804.28
Total Number of Records = 300 Million

TPCx-IoT Performance Metric (IoTps): 166,270.48

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