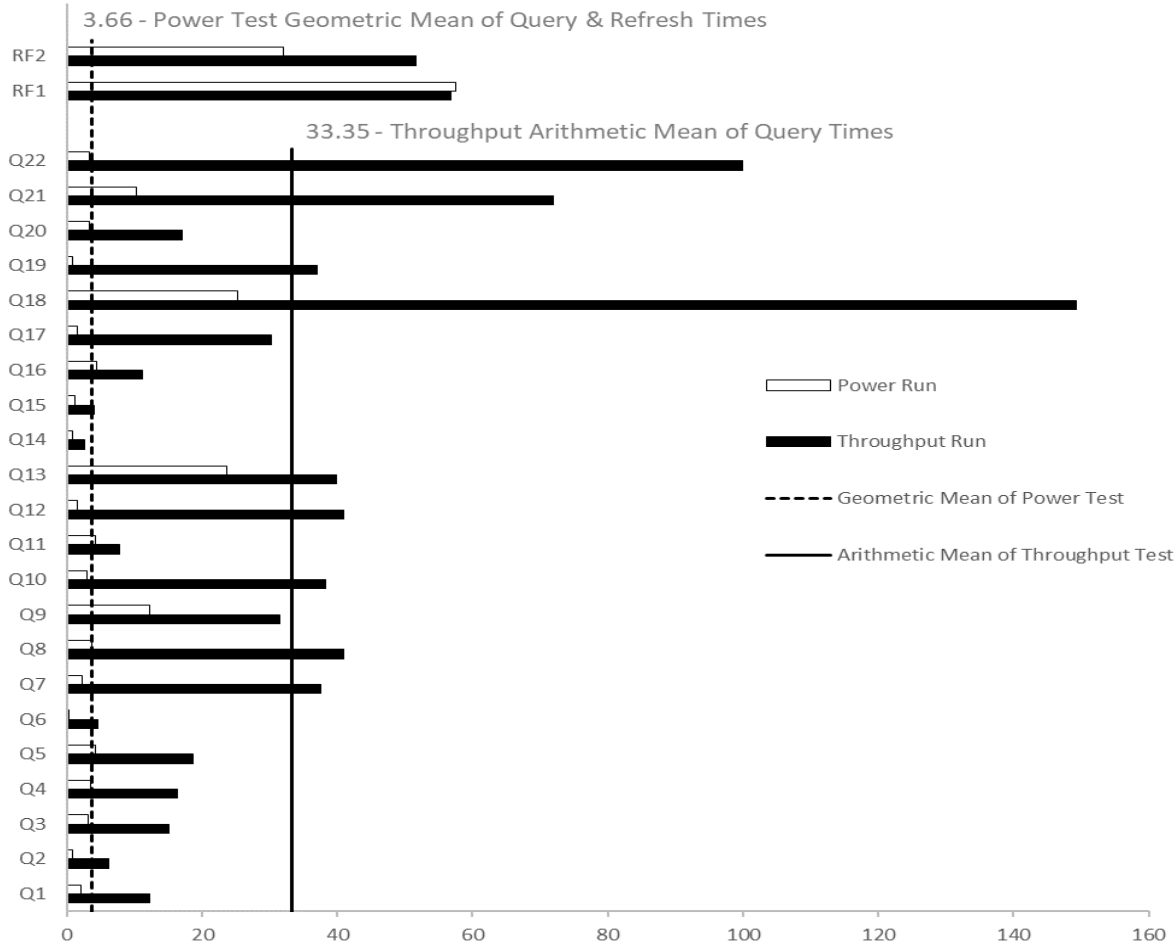
		PowerEdge MX740c Modular Server		TPC-H Rev. 2.18.0 TPC Pricing Rev. 2.6.0
Total System Cost		Composite Query per Hour Rating		Report Date: March 3, 2021
\$378,974.00		824,693.5 QphH@1000 GB		\$0.46 QphH@1000GB
Database Size	Database Manager	Operating System	Other Software	Availability Date
1,000 GB	Microsoft® SQL Server 2019 Enterprise Edition	Red Hat® Enterprise Linux® 8.0	N/A	March 3, 2021



Database load Time = 00d 01h 32m 26s	Storage Redundancy Level	
Load Includes Backup: Y	Base Tables and Auxiliary Data Structures	No RAID
Total Data Storage/Database Size = 8.49	DBMS Temporary Space	No RAID
Percentage Memory/ Database size = 76.8 %	OS and DBMS Software	RAID 1
	Log	RAID 1
System Configuration:	Dell PowerEdge MX740c Modular Server	
Processors/Model:	2x Intel Xeon Platinum 8268 2.9G, 24C/48T, 10.4GT/s, 35.75M Cache, Turbo, HT (205W) DDR4-2933	
Cores/Threads:	48C/96T	
Memory:	768GB (12x 64GB)	
Storage:	3x Dell 1.6TB, NVMe, Mixed Use Express Flash, 2.5 SFF Drive, U.2, PM1725b with Carrier. BOSS controller card + with 2 M.2 Sticks 480G (RAID 1), Blade 2x 480GB SSD SAS Mixed Use 12Gbps 512e 2.5in Hot-Plug Drive, PM5-V 2.4TB 10K RPM SAS 12Gbps 512e 2.5in Hot-plug Hard Drive	
Total Storage:	8,493.66	



PowerEdge MX740c Modular Server

TPC-H Rev. 2.18.0
TPC Pricing Rev. 2.6.0
Report Date: March 3, 2021

Description	Part Number	Source	Unit Price	Qty	Ext. Price \$	3 Yr Maint. Price	
PowerEdge MX7000 CHASSIS							
PowerEdge MX7000 Enclosure	210-ANYT	1	4,450.00	1	4,450.00		
PowerEdge MX7000 Chassis Configuration	321-BDJT	1	0.00	1	0.00		
PowerEdge MX7000 Shipping	340-BZNC	1	0.00	1	0.00		
PowerEdge MX7000 Shipping Material	343-BBIQ	1	99.00	1	99.00		
No Media Required	605-BBFN	1	0.00	1	0.00		
Unique Random Password	389-CGLD	1	0.00	1	0.00		
PowerEdge MX7000 Redundant Power Supply, 6 x 3000W, (3+3)	450-AGXF	1	3,650.00	1	3,650.00		
LCD, no Quick Sync	350-BBPG	1	220.00	1	220.00		
ReadyRail II for MX7000	770-BCPC	1	99.00	1	99.00		
Redundant Management Module for PowerEdge MX7000 Chassis	403-BBTY	1	2,100.00	1	2,100.00		
Pass Through Module Filler Blank	544-BBCK	1	0.00	1	0.00		
C20 to C21, PDU Style, 16 AMP, 8 Feet, Power Cord	450-AGXK	1	30.00	6	180.00		
PowerEdge MX7000 10/25Gb Pass Through Module	542-BBDD	1	3,200.00	2	6,400.00		
No I/O Module, Filler Blank	543-BBDP	1	0.00	2	0.00		
MX7000 Sled Blank	321-BDND	1	0.00	7	0.00		
Basic Next Business Day 36 Months	709-BBFM	1	200.00	1		200	
Prosupport Plus and 4Hr Mission Critical Initial, 36 Month(s)	865-BBNF	1	3,131.64	1		3131.64	
ProDeploy Plus Training Credits 1300 Redeem at education.dellemc.com Expires 1Yr from Order	812-4020	1	1,300.00	1		1300	
ProDeploy Plus Dell EMC Poweredge MX7000 Chassis	822-1675	1	7,634.36	1		7634.36	
ProDeploy Plus Dell EMC Poweredge MX7000 Deployment Verification	822-1677	1	279.48	1		279.48	
					Sub Total	12545.48	
Large Purchase Discount (44.2% for Chassis)					Discounted Price	-5545.102	
					Chassis Subtotal	7000.378	
PowerEdge MX740C							
PowerEdge MX740C Server	210-AOFH	1	1,937.00	1	1,937.00		
No Trusted Platform Module	461-AADZ	1	0.00	1	0.00		
2.5" Chassis with up to 6 SAS/SATA/NVMe Hard Drives MLK	321-BERL	1	165.00	1	165.00		
No System Documentation, No OpenManage DVD Kit	343-BBDG	1	0.00	1	0.00		
System ordered as part of Multipack order	750-AADI	1	0.00	2	0.00		
PowerEdge MX740C Regulatory Label	389-DKXC	1	0.00	1	0.00		
Intel Xeon Platinum 8268 2.9G, 24C/48T, 10.4GT/s, 35.75M Cache,Turbo, HT (205W) DDR4	338-BRVJ	1	9,609.00	1	9,609.00		
Intel Xeon Platinum 8268 2.9G, 24C/48T, 10.4GT/s, 35.75M Cache,Turbo, HT (205W) DDR4	338-BRVJ	1	9,609.00	1	9,609.00		
Additional Processor Selected	379-BDCO	1	0.00	1	0.00		
2 CPU Heatsink	412-AANK	1	309.00	1	309.00		
3200MT/s RDIMMs	370-AEVR	1	0.00	1	0.00		
Performance Optimized	370-AAIP	1	0.00	1	0.00		
No RAID	780-BCDI	1	0.00	1	0.00		
PERC H730P RAID Controller	405-AARS	1	849.00	1	849.00		
BOSS controller card + with 2 M.2 Sticks 480G (RAID 1), Blade	403-BBYN	1	1,499.00	1	1,499.00		
No Operating System	611-BBBF	1	0.00	1	0.00		
No Media Required	605-BBFN	1	0.00	1	0.00		
iDRAC9,Enterprise	385-BBKT	1	489.00	1	489.00		
OpenManage Enterprise Advanced	528-BIYY	1	299.00	1	299.00		
iDRAC Group Manager, Enabled	379-BCQV	1	0.00	1	0.00		
Redundant Power Supply on Chassis (X+3 PSU Configuration)	450-AJPS	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		
No Systems Documentation, No OpenManage DVD Kit	631-AACK	1	0.00	1	0.00		
Fabric C Filler Blank	544-BBCL	1	0.00	1	0.00		
64GB RDIMM, 3200MT/s, Dual Rank	370-AEVP	1	2,124.00	12	25,488.00		
2.4TB 10K RPM SAS 12Gbps 512e 2.5in Hot-plug Hard Drive	400-AYSF	1	1,179.00	1	1,179.00		
480GB SSD SAS Mixed Use 12Gbps 512e 2.5in Hot-Plug Drive, PM5-V	400-BGHS	1	1,399.00	2	2,798.00		
Dell 1.6TB, NVMe, Mixed Use Express Flash, 2.5 SFF Drive, U.2, PM1725b with Carrier	400-BEFB	1	2,425.00	3	7,275.00		
QLLogic FastLinQ 41262 Dual Port 10/25GbE Mezzanine Card with Storage Offloads (iSCSI, FCoE)	543-BBDI	1	729.00	1			
Basic Next Business Day 36 Months	709-BBFL	1	200.00	1		200.00	
Prosupport Plus and 4Hr Mission Critical Initial, 36 Month(s)	865-BBNF	1	9,365.85	1		9,365.85	
On-Site Installation Declined	900-9997	1	0.00	1		0.00	
					Sub Total	9,565.85	
Large Purchase Discount (60% for Server)					Discounted Price	-5,739.51	
					Server Subtotal	3,826.34	
Logitech MK120 USB Keyboard and Mouse Combo	A6999510	1	\$19.99	3	59.97		
					Discounted Price	-8.40	
Dell 19S Monitor - P1917S	210-AIIJ	1	\$239.99	1	\$239.99		
					Discounted Price	-69.60	
					Peripheral Subtotal	221.96	
					Hardware Subtotal	34,420.45	
SOFTWARE							
SQL SERVER 2019 Enterprise Edition for RHEL (2 cores license, 24 Cores)	NA	2	13,748.00	24	329,952.00		
Red Hat Enterprise Linux Server, Premium (Physical or Virtual Nodes), 3 Year x 1	RH00003F3	1			3,515.20		
Microsoft Problem Resolution Services	NA	2	259.00	1		259.00	
					Software Subtotal	259.00	
					Total	11,085.72	
Source: 1: DELLEMC 2. MICROSOFT						Three Year cost Ownership	\$378,974.00
Audited by Doug Johnson of InfoSizing (www.sizing.com)							
All discounts are based on US list prices and for similar quantities and configurations. The discounts was 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.						OphH @1000	824,693.50
						\$/QpH @1000	\$0.46
Dell EMC Sales Contact: Microsoft.Assist@dell.com							
SQL Server Sales Contact: Microsoft Corporation, One Microsoft Way, Redmond, WA 98052 6399 (425) 882 8080							
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. Thank you.							



PowerEdge MX740c Modular Server

TPC-H Rev. 2.18.0
 TPC Pricing Rev. 2.6.0
 Report Date: March 3, 2021

Numerical Quantities

Measurement Results

Database Scale Factor : 1000
 Total Data Storage / Database Size : 8.49
 Percentage Memory / Database Size : 76.8%
 Start of Database Load : 2021-02-17 00:04:05
 End of Database Load : 2021-02-17 01:36:32
 Database Load Time h m s : 00d 01h 32m 26s
 Query Streams for Throughput Test : 7
 TPC-H Power : 982,578.7
 TPC-H Throughput : 692,178.0
 TPC-H Composite Query-per-Hour (QphH@1000 GB) : 824,693.5
 Total System Price over 3 Years (\$ USD) : USD 378,974.00
 TPC-H Price/Performance Metric (\$ USD / QphH@1000 GB) : USD 0.46

Measurement Interval

Measurement Interval in Throughput Test (Ts) : 800.95

Duration of Stream Execution

Power Run	Seed	Query Start Time	Total Time	RF1 Start Time	RF2 Start Time
		Query End Time	(hh:mm:ss)	RF1 End Time	RF2 End Time
	217013632	2021-02-17 10:44:06	00:01:57	2021-02-17 10:43:07	2021-02-17 10:46:06
		2021-02-17 10:46:03		2021-02-17 10:44:04	2021-02-17 10:46:38
Throughput Stream	Seed	Query Start Time	Total Time	RF1 Start Time	RF2 Start Time
		Query End Time	(hh:mm:ss)	RF1 End Time	RF2 End Time
1	217013633	2021-02-17 10:46:37	00:11:43	2021-02-17 10:46:37	2021-02-17 10:47:35
		2021-02-17 10:58:20		2021-02-17 10:47:35	2021-02-17 10:48:28
2	217013634	2021-02-17 10:46:37	00:13:22	2021-02-17 10:48:28	2021-02-17 10:49:22
		2021-02-17 10:59:59		2021-02-17 10:49:22	2021-02-17 10:50:08
3	217013635	2021-02-17 10:46:37	00:12:52	2021-02-17 10:50:08	2021-02-17 10:51:06
		2021-02-17 10:59:29		2021-02-17 10:51:06	2021-02-17 10:51:52
4	217013636	2021-02-17 10:46:37	00:11:58	2021-02-17 10:51:53	2021-02-17 10:52:52
		2021-02-17 10:58:35		2021-02-17 10:52:52	2021-02-17 10:53:44
5	217013637	2021-02-17 10:46:37	00:13:07	2021-02-17 10:53:44	2021-02-17 10:54:41
		2021-02-17 10:59:44		2021-02-17 10:54:41	2021-02-17 10:55:36
6	217013638	2021-02-17 10:46:37	00:11:58	2021-02-17 10:55:36	2021-02-17 10:56:34
		2021-02-17 10:58:35		2021-02-17 10:56:34	2021-02-17 10:57:28
7	217013639	2021-02-17 10:46:37	00:10:43	2021-02-17 10:57:29	2021-02-17 10:58:24
		2021-02-17 10:57:20		2021-02-17 10:58:24	2021-02-17 10:59:19



**PowerEdge MX740c
Modular Server**

TPC-H Rev. 2.18.0
TPC Pricing Rev. 2.6.0
Report Date: March 3, 2021

TPC-H Timing Intervals (Seconds)

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
0	2.17	0.84	3.21	3.58	4.18	0.22	2.27	3.61	12.24	3.04	4.17	1.51
1	3.11	5.21	17.14	11.75	21.77	4.92	28.05	61.58	40.86	30.71	4.82	9.13
2	29.04	4.88	13.10	12.20	28.56	0.63	18.45	33.02	42.41	35.14	4.95	57.51
3	19.26	5.74	8.50	39.16	22.10	6.47	60.74	43.30	25.13	70.82	7.88	7.06
4	5.32	14.79	11.10	11.38	16.86	4.69	56.93	43.55	26.59	46.25	8.96	11.09
5	11.11	3.47	34.73	6.01	7.77	3.68	42.89	15.00	15.92	7.99	10.64	35.23
6	3.05	1.63	12.01	7.75	7.86	5.58	33.55	31.02	42.98	36.81	10.20	86.43
7	14.38	8.01	9.70	26.59	26.26	5.86	21.96	59.10	26.91	40.60	7.60	80.39
QI Min	2.17	0.84	3.21	3.58	4.18	0.22	2.27	3.61	12.24	3.04	4.17	1.51
QI Avg	10.93	5.57	13.69	14.80	16.92	4.01	33.11	36.27	29.13	33.92	7.40	36.04
QI Max	29.04	14.79	34.73	39.16	28.56	6.47	60.74	61.58	42.98	70.82	10.64	86.43
Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
0	23.72	0.87	1.26	4.41	1.64	25.29	0.88	3.41	10.35	3.40	57.45	32.08
1	48.39	1.83	5.42	14.95	20.86	150.76	64.99	16.14	113.89	25.42	57.55	52.08
2	35.07	1.66	3.72	14.64	40.18	179.77	47.45	10.37	10.70	177.45	54.34	46.16
3	28.82	4.55	5.31	6.41	20.02	117.61	9.19	20.80	47.12	195.42	57.16	46.74
4	35.09	2.59	4.49	13.31	34.90	183.90	42.01	18.78	92.59	32.08	59.40	51.64
5	33.92	1.97	2.61	9.13	12.26	161.78	41.55	18.36	115.19	195.07	56.79	55.51
6	43.23	2.67	3.03	7.79	59.58	119.75	46.48	20.49	86.05	49.32	57.37	54.64
7	54.66	2.66	3.80	11.97	24.11	131.43	7.67	14.59	38.57	24.67	55.53	54.38
QI Min	23.72	0.87	1.26	4.41	1.64	25.29	0.88	3.41	10.35	3.40	54.34	32.08
QI Avg	37.86	2.35	3.71	10.33	26.69	133.79	32.53	15.37	64.31	87.85	56.95	49.15
QI Max	54.66	4.55	5.42	14.95	59.58	183.90	64.99	20.80	115.19	195.42	59.40	55.51