

VMmark® 3.0 Results

Vendor and Hardware Platform: QuantaGrid D52B-1U
Virtualization Platform: VMware ESXi 6.5 U1 (Build 5969303)
VMware vCenter Server : VMware vCenter Server 6.5 U1 (Build 5973321)

VMmark 3.0 Score =
8.51 @ 9 Tiles

Number of Hosts: 4	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 8/176/352
Tested By: Quanta Cloud Technology		Test Date: 11-30-2017
Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload

Performance

	weathervane			weathervaneE			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3598.92	1.00	0.35 0.08	571.43	1.00	0.83 0.52	828.65	1.13	1417.43	557.50	1.11	1719.72	377.32	1.09	1950.77	1.06
p1	3599.39	1.00	0.20 0.00	573.73	1.00	0.69 0.36	822.58	1.12	1268.34	571.77	1.14	1521.96	403.68	1.16	1754.62	1.08
p2	3599.34	1.00	0.20 0.00	573.78	1.00	0.67 0.40	889.65	1.21	1009.88	610.10	1.22	1207.90	398.57	1.15	1386.75	1.11
TILE_1	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3597.73	1.00	0.21 0.00	570.03	1.00	0.79 0.43	906.48	1.23	941.44	658.58	1.32	1074.41	453.95	1.31	1249.60	1.16
p1	3596.12	1.00	0.21 0.00	572.89	1.00	0.84 0.53	865.55	1.18	1075.95	589.05	1.18	1289.99	415.70	1.20	1482.30	1.11
p2	3596.82	1.00	0.21 0.00	572.24	1.00	1.00 0.67	867.15	1.18	1082.19	588.65	1.18	1305.91	397.50	1.15	1498.07	1.10
TILE_2	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3594.77	1.00	0.20 0.00	571.96	1.00	0.80 0.52	911.60	1.24	936.69	655.12	1.31	1093.62	476.10	1.37	1248.56	1.17
p1	3601.17	1.00	0.21 0.00	572.49	1.00	0.81 0.49	915.42	1.25	918.81	629.80	1.26	1102.39	434.98	1.25	1255.53	1.15
p2	3597.22	1.00	0.20 0.00	573.19	1.00	0.73 0.37	897.75	1.22	950.13	648.75	1.30	1091.42	452.35	1.30	1221.46	1.16
TILE_3	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3594.47	1.00	0.20 0.00	572.68	1.00	0.72 0.40	899.40	1.22	1015.60	609.77	1.22	1227.62	433.57	1.25	1409.04	1.13
p1	3597.54	1.00	0.21 0.00	573.36	1.00	0.90 0.56	958.75	1.31	777.89	675.05	1.35	921.01	465.30	1.34	1045.15	1.19
p2	3599.49	1.00	0.20 0.00	572.44	1.00	0.84 0.54	927.38	1.26	872.76	664.55	1.33	1026.52	484.25	1.40	1168.01	1.19
TILE_4	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3601.46	1.00	0.35 0.02	571.99	1.00	1.21 0.95	886.05	1.21	1146.24	607.75	1.21	1438.54	410.25	1.18	1646.30	1.12
p1	3599.44	1.00	0.21 0.00	572.60	1.00	0.79 0.50	900.73	1.23	972.23	647.12	1.29	1142.95	449.15	1.30	1308.33	1.16
p2	3596.58	1.00	0.23 0.00	572.88	1.00	0.73 0.36	918.98	1.25	888.64	634.45	1.27	1068.75	457.25	1.32	1204.60	1.16
TILE_5	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM

p0	3598.77	1.00	0.17 0.00	572.22	1.00	0.78 0.54	864.75	1.18	1135.92	574.70	1.15	1405.36	388.65	1.12	1607.64	1.09
p1	3596.74	1.00	0.22 0.00	572.15	1.00	0.94 0.59	900.80	1.23	953.76	648.45	1.30	1112.32	465.52	1.34	1288.60	1.16
p2	3597.29	1.00	0.20 0.00	573.29	1.00	0.98 0.71	888.08	1.21	1031.39	602.75	1.20	1250.38	405.93	1.17	1452.61	1.11
TILE_6	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3600.88	1.00	0.19 0.00	574.91	1.00	0.76 0.53	931.80	1.27	849.26	671.45	1.34	996.70	467.12	1.35	1136.99	1.18
p1	3599.70	1.00	0.20 0.00	572.05	1.00	0.73 0.37	908.92	1.24	926.13	630.38	1.26	1098.56	453.62	1.31	1232.06	1.15
p2	3595.63	1.00	0.24 0.00	571.58	1.00	0.75 0.42	917.30	1.25	897.30	636.42	1.27	1059.57	434.70	1.25	1221.55	1.15
TILE_7	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3596.43	1.00	0.18 0.00	572.17	1.00	0.73 0.45	887.92	1.21	1012.80	668.58	1.34	1143.17	464.68	1.34	1315.97	1.17
p1	3594.49	1.00	0.17 0.00	573.24	1.00	0.87 0.54	978.15	1.33	734.95	655.62	1.31	884.05	468.18	1.35	1015.12	1.19
p2	3599.73	1.00	0.18 0.00	570.89	1.00	0.77 0.41	972.67	1.32	733.37	711.48	1.42	844.89	501.62	1.45	956.59	1.22
TILE_8	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3597.85	1.00	0.44 0.12	572.81	1.00	1.10 0.84	887.52	1.21	999.80	632.02	1.26	1172.57	438.10	1.26	1323.57	1.14
p1	3595.61	1.00	0.23 0.00	574.15	1.00	0.77 0.50	888.30	1.21	1009.99	584.85	1.17	1223.48	409.50	1.18	1417.26	1.11
p2	3600.51	1.00	0.24 0.00	572.25	1.00	0.63 0.29	849.45	1.16	1138.86	604.73	1.21	1338.55	434.23	1.25	1512.32	1.12
p0_score:	10.23															
p1_score:	10.29															
p2_score:	10.31															

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	52.00	38.00	30.00	4.00
Avg_Seconds_To_Complete	13.20	153.06	189.11	1129.25
Failures	0.00	0.00	0.00	0.00
Ratio	2.00	2.11	1.67	0.50
Number_Of_Threads	2	2	2	2

Summary	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
Unreviewed_VMmark3_Applications_Score	10.29	
Unreviewed_VMmark3_Infrastructure_Score	1.37	
Unreviewed_VMmark3_Score	8.51	

Configuration

Virtualization Software

Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.5 U1 , Build 5969303 / 07-27-2017
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.5 U1 , Build 5973321 / 07-27-2017
Supplemental Software	none
Servers	
Number of Servers in System Under Test (all subsequent fields in this section are per server)	4
Server Manufacturer and Model	QuantaGrid D52B-1U
Processor Vendor and Model	Intel® Xeon Gold 6152
Processor Speed (GHz)	2.1 GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 44 Cores / 88 Threads
Primary CPU Cache	32 KB I + 32 KB D on chip per core
Secondary CPU Cache	1 MB I+D on chip per core
Other CPU Cache	30.25 MB I+D on chip per chip
BIOS Version	3A08
Memory Size (in GB, Number of DIMMs)	384GB, 12
Memory Type and Speed	32GB DDR4 2666MHz RDIMM
Disk Subsystem Type	VMware vSAN
Number of Disk Controllers	N/A
Disk Controller Vendors and Models	N/A
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	Innodisk,32G MLC SATADOM,32GB,6.0Gb/s
Number of Host Bus Adapters	N/A
Host Bus Adapter Vendors and Models	N/A
Number of Network Controllers	1

Network Controller Vendors and Models	Intel Ethernet Converged Network Adapter X710-DA2 10 GbE
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	07-12-2017
BIOS Availability Date (MM-DD-YYYY)	07-12-2017
Software Availability Date (MM-DD-YYYY)	07-11-2017
Network	
Network Switch Vendors and Models	QuantaMesh BMS T3048-LY8
Network Speed	10Gb
Storage	
Array Vendors, Models, and Firmware Versions	4 x QuantaGrid D52B-1U ,with VMware vSAN 6.6.1 1 x QuantaPlex T41S-2U ,with Windows Server 2012
Fibre Channel Switch Vendors and Models	No Fibre Channel Switch
Disk Space Used	32TB (4 x QuantaGrid D52B-1U) 2.6TB(1 x QuantaPlex T41S-2U)
Array Cache Size	3TB (4 x QuantaGrid D52B-1U) No cache used (1 x QuantaPlex T41S-2U)
Total Number of Physical Disks Used	24,(4 x QuantaGrid D52B-1U) 3,(1 x QuantaPlex T41S-2U)
Total Number of Enclosures/Pods/Shelves Used	Internal: 8 NVMe SSD ,Shelf: 16 NVMe SSD (4 x QuantaGrid D52B-1U) Shelf: 3 SATA SSD (1 x QuantaPlex T41S-2U)
Total Number of Storage Groups Used	0
Number of LUNs Used	Refer section: Storage Notes
LUN Size and Number of Disks Per LUN	Refer section: Storage Notes
RAID Type	Refer section: Storage Notes
Number of Members per RAID Set	Refer section: Storage Notes
Disk Vendors, Models, and Speeds	8 x Intel® SSD DC P4800X Series SSDPED1K375GA (375 GB, AIC) NVMe SSD, 16 x Intel® SSD DC P4500 Series SSDPE2KX020T7 (2 TB, 2.5-inch) NVMe SSD, 1 x Intel® SSD DC S3710 Series (200 GB, 2.5-inch) SATA SSD, 2 x Intel® SSD DC S3710 Series (1.2TB, 2.5-inch) SATA SSD

Datacenter Management Server	
System Model	QuantaPlex T41S-2U
Processor Vendor and Model	Intel® Xeon E5-2620 v4
Processor Speed (GHz)	2.1GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 16 Cores / 32Threads
Memory Size (in GB, Number of DIMMs)	256GB,16
Network Controller(s) Vendors and Models	QN 10GbE 82599ES
Operating System, Version, Bitness, and Service Pack	VMware ESXi 6.5 U1 , Build 5969303
Virtual Center VM Number of vCPUs	4
Virtual Center VM Virtual Memory (in GB)	16
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server 6.5 U1 , Build 5973321
Other Hardware	N/A
Other Software	N/A

Clients	
Total Number of Virtual Clients / Virtual Client Hosts	10/3
System Model(s)	QuantaGrid D51BP-1U
Processor Vendor(s) and Model(s)	Intel® Xeon E5-2699 v4
Processor Speed(s) (GHz)	2.2 GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 44 Cores / 88Threads
Memory per Virtual Client Host	256GB
Network Controller(s) Vendors and Models	QN 10GbE 82599ES
Virtual Client Networking Notes	1 vmnic for management, 1vmnic for workload traffic
Virtual Client Storage Notes	2TB Intel SSD DC P3500
Other Hardware	N/A

Notes for Workload

Virtualization Software Notes

- Logging was disabled for all VMs except the PrimeClient
- CDROM & floppy devices were removed on all VMs except the PrimeClient
- Logical CPU layout changed for all multi-cpu VMs to 1 socket with multiple cores
- All DS3DB, Clients and PrimeClient VMs had CPU share set to high
- All DS3DB and Clients VMs had memory share set to high
- All memory reserved for DS3DB, Clients and PrimeClient VMs
- All VMs are virtual hardware version 13 (default 11)
- Cluster DRS Automation Level set to Fully Automated, DRS Migration Threshold set to level 2
- Config.HostAgent.log.level = warning (default info)
- Power management Policy = High Performance (default: Balanced)

Server Notes

Server BIOS setting:

- Intel® Hyper Threading Technology Enabled (default: Enabled)
- Intel® Turbo Boost Technology Enabled (Frequency boost up to 3.70 GHz) (default: Enabled)
- Intel® Speed Shift Technology: HWP Native (default: HWP Native)
- C-States: Disabled (default: Disabled)
- Power Management Settings: Performance (default: Balance)
- Intel® TXT Enabled (default: Disabled)

Networking Notes

vSwitch Configuration:

- vSwitch0 for the management, vMotion, iscsi and vSAN traffic on vmnic0 at 10Gb/s
- vSwitch1 for all VMs on vmnic1 at 10Gb/s

Storage Notes

- OS was installed on SATADOM for each host.
- Storage box#1 (System Under Test): vsanDatastore(32TB) ,3TB cache used
 - Hardware Configuration

QuantaGrid D52B-1U

 - 2 x Intel® Xeon Gold 6152
 - 384 GB Memory (12 x 32GB DDR4 2666MHz RDIMM)
 - 2 x Intel® SSD DC P4800X,375GB, Gen 3x4 Gbps (used in internal)
 - 4 x Intel® SSD DC P4500,2TB,Gen 3x4 Gbps (used in shelf)
 - Software Configuration
 - All Flash vSAN with two disk groups, each disk group include 1 Intel® SSD DC P4800X 375GB (AIC) for array cache and 2 Intel® SSD DC P4500 Series 2TB (NVMe) for capacity.
 - vSAN Default Storage Policy used for all disk objects
 - LUN/VM layout
 - LUN1(32TB,3TB cache): DS3DB*,DS3WebB*,DS3WebC*,AuctionLB*,AuctionNoSQL*,AuctionAppA*,AuctionAppB*,AuctionDB*,AuctionMSQ*, AuctionWebA*,AuctionWebB*,ElasticLB*,ElasticAppA*,ElasticAppB*,ElasticDB*,ElasticWebA*,ElasticWebB* for tile 0-9,template,SVmotion source LUN,XVmotion source LUN, Deploy source LUN

Storage box#2 (Shared storage): Windows Server 2012 with two volumes shared as iSCSI target to System Under Test (2.6TB),No cache used

- Hardware Configuration

QuantaPlex T41S-2U (only use one node)

 - 2 x Intel® Xeon E5-2620 v4 processors
 - 256GB Memory (16 x 16 GB DIMMs 2400MHz DDR4)
 - 1 x Quanta SAS 3008
 - 1 x Intel® SSD DC S3710 200GB, 2.5",SATA 6Gb/s (used in shelf)
 - 2 x Intel® SSD DC S3710 1.2 TB, 2.5",SATA 6Gb/s (used in shelf)
- Software Configuration
 - Storage Pools were created using Windows Server 2012
 - 2 x Intel® SSD DC S3710 1.2 TB were built into one storage pool (RAID0)
 - Storage Pool 1, Volume 1(RAID 0),LUN1

- 1 x Intel® SSD DC S3710 200GB were built into one volume
- Volume 1,LUN2

- LUN/VM layout

- LUN1(2TB,No cache): DS3WebA*,Standby* for tile 0-9,Deploy LUN
- LUN2(200GB,No cache): SVMotion target LUN, XVMotion target LUN,Deploy LUN

Datacenter Management Server Notes

QuantaPlex T41S-2U running VMware ESXi 6.5U1 , Build 5969303 with VMware vCenter Server 6.5 U1 , Build 5973321 for SUT and client hosts.

- 4 vCPUs
- 16GB virtual memory
- vCenter Server 6.5.0-5973321

Operating System Notes

VMware ESXi 6.5U1 , Build 5969303

Software Notes

none

Client Notes

QuantaGrid D51BP-1U was used for client hosts.

- Client hosts have updated from ESXi 6.5, Build 4564106 to ESXi 6.5U1, Build 5969303
- Client host1: Client0,Client1,Client2
- Client host2: Client3,Client4,Client5
- Client host3: Client6,Client7,Client8,,PrimeClient

Other Notes

none

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