

VMmark® 3.0 Results

Vendor and Hardware Platform: Quanta Cloud Technology QuantaPlex T42S-2U
 Virtualization Platform: VMware ESXi 6.5 U1g (Build 7967591)
 VMware vCenter Server : VMware vCenter Server 6.5 U1g (Build 8024368)

**VMmark 3.0 Score =
3.45 @ 4 Tiles**

Number of Hosts: 4

Uniform Hosts [yes/no]: yes

Total sockets/cores/threads in test: 8/112/224

Tested By: Quanta Cloud Technology

Test Date: 09-19-2018

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	3595.60	1.00	0.66 0.14	571.47	1.00	1.09 0.67	749.12	1.02	1369.30	513.17	1.03	1586.68	340.20	0.98	1741.99	1.00
p1	3594.52	1.00	0.70 0.05	572.98	1.00	1.20 0.82	725.42	0.99	1428.70	521.92	1.04	1620.42	384.95	1.11	1752.87	1.03
p2	3598.69	1.00	0.81 0.41	570.97	1.00	0.87 0.84	724.60	0.99	1430.94	500.88	1.00	1620.96	349.23	1.01	1780.23	1.00
TILE_1	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3605.17	1.00	0.64 0.02	572.21	1.00	1.20 0.78	742.33	1.01	1376.00	513.48	1.03	1566.41	376.95	1.09	1676.07	1.02
p1	3596.14	1.00	0.68 0.00	572.37	1.00	1.16 0.69	730.08	0.99	1456.11	515.38	1.03	1677.30	363.62	1.05	1820.20	1.01
p2	3598.35	1.00	0.90 0.52	571.56	1.00	1.05 0.72	747.02	1.02	1363.60	498.73	1.00	1548.47	360.77	1.04	1673.16	1.01
TILE_2	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3598.09	1.00	0.69 0.00	572.23	1.00	1.18 0.83	775.25	1.06	1283.05	556.33	1.11	1466.68	390.90	1.13	1605.41	1.06
p1	3598.22	1.00	0.68 0.11	572.69	1.00	1.05 0.68	746.58	1.02	1360.41	514.48	1.03	1562.51	376.50	1.09	1694.24	1.03
p2	3589.00	1.00	1.17 0.87	574.57	1.00	1.10 0.77	763.05	1.04	1290.78	532.90	1.06	1457.78	373.75	1.08	1573.99	1.04
TILE_3	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(nRTIMaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3599.64	1.00	0.67 0.00	572.16	1.00	1.08 0.80	768.20	1.05	1344.83	537.00	1.07	1574.68	393.73	1.14	1720.34	1.05
p1	3598.50	1.00	0.69 0.07	572.52	1.00	1.06 0.65	737.55	1.00	1442.36	498.25	1.00	1684.66	328.18	0.95	1866.85	0.99
p2	3597.59	1.00	0.65 0.00	571.26	1.00	0.88 0.68	715.58	0.97	1509.64	508.12	1.02	1729.90	374.95	1.08	1850.71	1.01
p0_score:	4.14															
p1_score:	4.06															
p2_score:	4.06															

Infrastructure_Operations_Scores:

vMotion

SVMotion

XVMotion

Deploy

Completed_Ops_PerHour

47.00

24.00

20.00

3.00

Avg_Seconds_To_Complete	23.57	269.79	334.81	1521.79
Failures	0.00	0.00	0.00	0.00
Ratio	1.81	1.33	1.11	0.38
Number_Of_Threads	2	2	2	2
Summary	Run_Is_Compliant			Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*			Median_Phase(p2)
Unreviewed_VMmark3_Applications_Score	4.06			
Unreviewed_VMmark3_Infrastructure_Score	1.00			
Unreviewed_VMmark3_Score	3.45			

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.5 U1g, Build 7967591 / 03-20-2018
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.5 U1g, Build 8024368 / 03-20-2018
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	QuantaPlex T42S-2U
Processor Vendor and Model	Intel® Xeon® Gold 5120
Processor Speed (GHz)	2.2 GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 28 Cores / 56 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	19.25 MB I + D on chip per chip
BIOS Version	3A11.Q10

Memory Size (in GB, Number of DIMMs)	256GB, 8
Memory Type and Speed	32GB DDR4 2666MHz
Disk Subsystem Type	VMware vSAN, iSCSI (see storage notes)
Number of Disk Controllers	1
Disk Controller Vendors and Models	Quanta 3008A
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	Intel, SSDSCKJB240G7 , 240GB , 6Gb/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	Quanta ON 10GbE 82599ES
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	12-01-2017
BIOS Availability Date (MM-DD-YYYY)	06-29-2018
Software Availability Date (MM-DD-YYYY)	03-20-2018
Network	
Network Switch Vendors and Models	Quanta T3048-LY2
Network Speed	10Gb
Storage	
Array Vendors, Models, and Firmware Versions	4 x QuantaPlex T42S-2U , with VMware vSAN 6.6.1 1 x QuantaPlex T41S-2U , with Windows Server 2016
Fibre Channel Switch Vendors and Models	No Fibre Channel Switch
Disk Space Used	36TB(4 x QuantaPlex T42S-2U) 800GB(1 x Quantaplex T41S-2U)
Array Cache Size	7.68TB(4 x QuantaPlex T42S-2U) No cache used(1 x QuantaPlex T41S-2U)

Total Number of Physical Disks Used	24(4 x QuantaPlex T42S-2U) 1(1 x QuantaPlex T41S-2U)
Total Number of Enclosures/Pods/Shelves Used	Internal: 4 SATA SSD, Shelf: 20 SAS HDD(4 x QuantaPlex T42S-2U) Shelf: 1 SATA SSD(1 x QuantaPlex T41S-2U)
Number of Physical Disks Used per Enclosure/Pod/Shelf	Internal: 1 SATA SSD, Shelf: 5 SAS HDD(QuantaPlex T42S-2U) Shelf: 1 SATA SSD(QuantaPlex T41S-2U)
Total Number of Storage Groups Used	0
Number of LUNs Used	3, Refer section:Storage Notes
LUN Size and Number of Disks Per LUN	1 x 32.75TB LUN(20 disks) for vSAN 2 x 400GB LUNs(1 disk) for shared storage, 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	20 x Seagate HDD SAS ST1800MM0018 10K(1.8TB), 1 x Intel SSD DC S3710 SSDSC2BA800G4 6Gb/s(800GB), 4 x Intel SSD DC S4600 SSDSC2KG019T7 6Gb/s(1.92TB)

Datacenter Management Server

System Model	QuantaPlex T41S-2U
Processor Vendor and Model	Intel® Xeon® E5-2670 v3
Processor Speed (GHz)	2.3GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 24 Cores / 48 Threads
Memory Size (in GB, Number of DIMMs)	192GB, 12
Network Controller(s) Vendors and Models	Quanta ON 10GbE 82599ES
Operating System, Version, Bitness, and Service Pack	VMware ESXi 6.5 U1g, Build 7967591
Virtual Center VM Number of vCPUs	2
Virtual Center VM Virtual Memory (in GB)	10
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server 6.5 U1g, Build 8024368
Other Hardware	N/A
Other Software	N/A

Clients

Total Number of Virtual Clients / Virtual Client Hosts	5 / 4
System Model(s)	QuantaPlex T41S-2U
Processor Vendor(s) and Model(s)	Intel® Xeon® E5-2670 v3
Processor Speed(s) (GHz)	2.3GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 24 Cores / 48 Threads
Memory per Virtual Client Host	192GB
Network Controller(s) Vendors and Models	Quanta ON 10GbE 82599ES
Virtual Client Networking Notes	1 vmnic for management and vMotion traffic on vSwitch0, 1 vmnic for workload traffic on vSwitch1
Virtual Client Storage Notes	960GB Intel SSD DC S4600, SSDSC2KG960G7
Other Hardware	N/A
Other Software	VMware ESXi 6.5 U1g, Build 7967591

Notes for Workload

Virtualization Software Notes

- All the settings on VMs are default.
- Cluster DRS Automation Level set to FullyAutomated, Migration Threshold set to level 2.

SUT hosts' Advanced Settings:

- /adv/UserVars/HostClientCEIPOptIn was set to 2 (default 0)
- /adv/UserVars/SuppressShellWarning was set to 1 (default 0)
- /adv/Virsto/DedupSpaceReclaim was set to 2 (default 0)

SUT hosts' software modules:

- lsi-msgpt3 driver version 16.00.00.00-1OEM.650.0.0.4598673 was installed for SAS control card.
- vmware-esx-sas3flash version 09.00.00.00 was installed.
- igbn version 0.1.0.0-15vmw.650.1.36.7388607 was installed.
- misc-drivers version 6.5.0-1.36.7388607 was installed.
- ntg3 version 4.1.3.0-1vmw.650.1.36.7388607 was installed.
- nvme version 1.2.0.32-5vmw.650.1.36.7388607 was installed.
- nvmxnet3 version 2.0.0.23-1vmw.650.1.36.7388607 was installed.
- vmkusb version 0.1-1vmw.650.1.36.7388607 was installed.
- cpu-microcode version 6.5.0-1.41.7967591 was installed.
- esx-base version 6.5.0-1.41.7967591 was installed.
- esx-dvfilter-generic-fastpath version 6.5.0-1.36.7388607 was installed.
- esx-tboot version 6.5.0-1.41.7967591 was installed.
- esx-ui version 1.23.0-6506686 was installed.

- vmkata version 0.1-1vmw.650.1.36.7388607 was installed.
- vsan version 6.5.0-1.41.7547709 was installed.
- vsanhealth version 6.5.0-1.41.7547710 was installed.
- tools-light version 6.5.0-1.33.7273056 was installed.

VMmark3.properties parameters:

- DebugLevel was set to 3 (default 0)
- ProvisioningSecondaryDiskType was set to Thin (default ThickLazy)

Server Notes

Server BIOS settings:

- BIOS settings are all default.
- Intel Turbo Boost Technology Enabled (Frequency boost up to 3.20 GHz)(default: Enabled).

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

- Hypervisor was installed on SATADOM for each virtual Client hosts.
- Storage box #1 (System Under Test):vsanDatastore(36TB),7.68TB cache used

- Hardware Configuration

QuantaPlex T42S-2U

· 1 x Intel SSD DC S4600 SSDSC2KG019T7(used in internal)

·5 x Seagate HDD SAS ST1800MM0018(used in shelf)

- Software Configuration

·Hybrid vSAN with one disk group, the disk group include 1 Intel SSD DC S4600 1.92 TB for array cache and 5 Seagate HDD SAS 1.8TB for capacity.

·vSAN Default Policy used for all disk objects

- LUN/VM layout

·LUN1(36TB, 7.68TB cache): DS3DB*, DS3WebB*, DS3WebC*, AuctionLB*, AuctionNoSQL*, AuctionAppA*, AuctionAppB*, AuctionDB*, AuctionMSQ*, AuctionWebA*, AuctionWebB*, ElasticLB*, ElasticAppA*, ElasticAppB*, ElasticDB*, ElasticWebA*, ElasticWebB* for tile 0-3, SVmotion source LUN, XVmotion source LUN, Deploy source LUN

- Storage box #2(Shared storage): Windows Server 2016 with two volumes shared as iSCSI target to SUT(800GB), No cache used

- Hardware Configuration

QuantaPlex T41S-2U

·1 x Intel SSD DC S3710 800GB SSDSC2BA800G4

- Software Configuration

·Storage Pools were created using Windows Server 2016

·1 x Intel SSD DC S3710 800GB SSDSC2BA800G4 was built into two volumes

- Volume1, LUN1

- Volume2, LUN2

- LUN/VM layout

·LUN1(400GB): SVMotion target LUN, XVMotion target LUN, Deploy LUN

·LUN2(400GB): DS3WebA*, Standby* for tile 0-3, Deploy LUN

Datacenter Management Server Notes

- QuantaPlex T41S-2U running VMware ESXi 6.5 U1g, Build 7967591 with VMware vCenter Server 6.5 U1g, Build 8024368.
 - 2vCPUs
 - 10GB virtual memory
 - vCenter Server 6.5.0-8024368

Operating System Notes

VMware ESXi 6.5 U1g, Build 7967591

Software Notes

N/A

Client Notes

- Each virtual client VM placed on an Intel SSD 960GB disk on each client host.
- QuantaPlex T41S-2U was used for client hosts
- All client hosts utilize ESXi 6.5 U1g, Build 7967591
- Client host1:Client0
- Client host2:Client1
- Client host3:Client2, PrimeClient
- Client host4:Client3
- Client hosts' Advanced Settings:
 - /adv/UserVars/HostClientCEIPOptIn was set to 2 (default 0)
 - /adv/UserVars/SuppressShellWarning was set to 1 (default 0)

Other Notes

N/A

Meltdown/Spectre Mitigations

CVE-2017-5754 (aka "Meltdown")

· ESXi: mitigation present (ESXi 6.5 U1g Build 7967591)

· Guest OS; no mitigation present

CVE-2017-5753 (aka "Spectre variant 1")

· ESXi: mitigation present (ESXi 6.5 U1g Build 7967591)

· Guest OS: no mitigation present

CVE-2017-5715 (aka "Spectre variant 2")

· Server Firmware: mitigation present (BIOS version: 3A11.Q10)

· ESXi: mitigation present (ESXi 6.5 U1g Build 7967591)

· Guest OS: no mitigation present

This is a full disclosure report for a VMmark® benchmark result. All published VMmark results must be from fully-compliant tests for which a full disclosure report is publicly available.

For information about VMmark and the rules regarding its usage visit www.vmware.com/products/vmmark.

VMware and VMmark are trademarks or registered trademarks of VMware, Inc. VMmark is a product of [VMware, Inc.](http://www.vmware.com) VMmark utilizes the SPEC Power and Temperature Daemon (SPEC PTDaemon), which is available from the Standard Performance Evaluation Corporation (SPEC®). VMmark results are not SPEC metrics and cannot be compared to SPEC metrics in any way.