VMware® VMmark® V2.5.2 Results

Vendor and Hardware Platform: Huawei FusionServer RH2288H V3 **Virtualization Platform: VMware ESXi 6.0.0 Build 2494585** **VMware vCenter Server : VMware vCenter Server 6.0.0 Build 2559268**	**Non-Compliant**

Number of Hosts: 2	**Uniform Hosts [yes/no]: yes**	**Total sockets/cores/threads in test: 4/72/144**
Tested By: Huawei Technologies Co.,Ltd.	**Test Date: 5-8-2015**	

Performance Section	Configuration Section	Notes Section
Performance	Configuration	Notes for Workload

It has been determined that this result was not in compliance with the VMmark Run and Reporting Rules. Specifically, this result used a virtual machine configuration that was not in compliance with section 3.2.2.3 of the Run and Reporting Rules and thus violates VMmark publication requirements.

Performance – all data has been removed = NC

	mailserver			olio			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																

TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_6	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_7	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_8	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_9	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_10	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_11	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_12	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_13	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																

p2																
TILE_14	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_15	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_16	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_17	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_18	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_19	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_20	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
TILE_21	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0																
p1																
p2																
p0_score:	NC															
p1_score:	NC															

p2_score:	NC

Infrastructure_Operations_Scores:	vmotion	svmotion	deploy
Completed_Ops_PerHour	NC	NC	NC
Avg_Seconds_To_Complete	NC	NC	NC
Failures	NC	NC	NC
Ratio	NC	NC	NC
Number_Of_Threads	NC	NC	NC

Summary	NC	Turbo_Setting:0
	Number_Of_Compliance_Issues – NC	Median_Phase(p1)
Unreviewed_VMmark2_Applications_Score	NC	
Unreviewed_VMmark2_Infrastructure_Score	NC	
Unreviewed_VMmark2_Score	NC	

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.0.0 Build 2494585/03-12-2015
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.0.0 Build 2559268/ 3-12-2015
Supplemental Software	none
Servers	
Quantity	2
Server Manufacturer and Model	Huawei FusionServer RH2288H v3
Processor Vendor and Model	Intel Xeon E5-2699 V3
Processor Speed (GHz)	2.3
Total Sockets/Total Cores/Total Threads	2 Sockets /36 Cores / 72 Threads
Primary Cache	32KB I + 32KB D on chip per core
Secondary Cache	256KB I+D on chip per core
Other Cache	45MB I+D on chip per chip L3
BIOS Version	9.31
Memory Size (in GB, Number of DIMMs)	384,24

Memory Type and Speed	16GB-Dimms 2Rx4 PC4-2133P ECC
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	1 x LSI SAS3108
Number of Host Bus Adapters	4
Host Bus Adapter Vendors and Models	Emulex LPed12000 with Dual Port 8Gb Fibre Channel HBA x2 Qlogic ISP2532-based with Single port 8Gb Fibre Channel x2
Number of Network Controllers	2
Network Controller Vendors and Models	1 x Intel 1Gb 2-port I350 Adapter, 1 x Intel 10Gb 2-port 82599 Adapter
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	04-2-2015
Software Availability Date (MM-DD-YYYY)	03-12-2015
Network	
Network Switch Vendors and Models	HUAWEI CE6850-48T4Q-EI for 10GE;HUAWEI S5700 for 1GE
Network Speed	1Gbps for SUT management, 10Gbps for all VMs
Storage	
Array Vendors, Models, and Firmware Versions	2 x RH2288V2 Server with Fusion-io ioDrive2 2.4TB PCIe SSD, 2 x HUAWEI OceanStor Dorado 2100 (FW version V1R1C00)
Fibre Channel Switch Vendors and Models	none
Disk Space Used	16600GB
Array Cache Size	RH2288V2 Server:2GB HUAWEI OceanStor Dorado 2100:16GB
Total Number of Physical Disks Used	6xPCIe-SSD, 48 SSDS
Total Number of Enclosures/Pods/Shelves Used	4
Number of Physical Disks Used per Enclosure/Pod/Shelf	Details in section Storage Notes
Total Number of Storage Groups Used	0
Number of LUNs Used	20
LUN Size and Number of Disks Per LUN	Details in section Storage Notes
RAID Type	0
Number of Members per RAID Set	Details in section Storage Notes
Disk Vendors, Models, and Speeds	48xHuawei Dorado 2100-HSSD-D3220AS0100; 6x Fusion-io ioDrive2 2.4TB PCIe SSD

Datacenter Management Server	
System Model	A Virtual Server on Huawei Tecal RH2288A V2
Processor Vendor and Model	Intel Xeon E5-2670 v2
Processor Speed (GHz)	2.5Ghz
Total Sockets/Total Cores/Total Threads	Hypervisor: 2 Sockets / 20 Cores / 40 Threads Virtual Center VM: 1 Sockets / 4 Cores / 4 Threads
Memory	Hypervisor: 128GB Virtual Center VM: 16GB
Network Controller(s) Vendors and Models	1 x Intel 10Gb 2-port 82599 Adapter
Operating System, Version, Bitness, and Service Pack	Hypervisor: VMware ESXi 5.5.0 Build 1331820 Virtual Center VM: Microsoft Windows 2008 R2 Enterprise SP1 (64bit)
Other Hardware	none
Other Software	none

Clients	
Total Number of Clients / Total Physical Clients / Total Virtual Client Hosts	22/1/3
System Model(s)	1xHuawei Tecal RH2288V2 (Prime Client) 1xHuawei Tecal RH2288AV2(Virtual Client Host for client 1,2,3,4,5,6) 1xHuawei Tecal RH2288HV2(Virtual Client Host for client 7,8,9,10,11,12,13) 1xHuawei Tecal RH2285V3(Virtual Client Host for client 14,15,16,17,18,19,20,21)
Processor Vendor(s) and Model(s)	1xPrime Client: Intel Xeon E5-2450 v2 1xVirtual Client Host: Intel Xeon E5-2670 v2 1xVirtual Client Host: Intel Xeon E5-2695 v2 1xVirtual Client Host: Intel Xeon E5-2670 v3
Processor Speed(s) (GHz)	1xPrime Client: 2.5GHz 1xVirtual Client Host: 2.5GHz 1xVirtual Client Host: 2.4GHz 1xVirtual Client Host: 2.3GHz
Total Sockets/Total Cores/Total Threads	1xPrime Client: 2 Socket / 16 Cores / 32 Threads 1xVirtual Client Host: 2 Socket / 20 Cores / 40Threads 1xVirtual Client Host: 2 Socket / 24 Cores / 48Threads 1xVirtual Client Host: 2 Socket / 24 Cores / 48Threads
Memory per Physical Client	1xPrime Client: 16GB 1xVirtual Client Host: 128GB 1xVirtual Client Host: 128GB 1xVirtual Client Host: 128GB
Network Controller(s) Vendors and Models	Prime Client: 1 x Intel 1Gb 2-port 82580 Adapter, 1 x Intel 10Gb 2-port 82599 Adapter Virtual Client Host: 1 x Intel 10Gb 2-port 82599 Adapter
Operating System, Version, Bitness, and Service Pack	Clients: Microsoft Windows 2008 R2 Enterprise SP1 (64bit) Virtual Client Host: VMware ESXi 5.5.0 (Build 1331820)

Number of Virtual Clients	21
Number of vCPUs Per Virtual Client	4
Number of vMem (GB) Per Virtual Client	12GB
Virtual Client Networking Notes	All client VMs attached to port 1 of Intel 82599 card running at speed of 10Gb/s
Virtual Client Storage Notes	All clients stored on virtual host's local four SAS harddisk RAID0 volume
Other Hardware	none
Other Software	none

Notes for Workload

Virtualization Software Notes

All multiprocessor VMs are using the CPU-scheme single socket with multiple cores (default one core per multiple virtual sockets)
Logging was disabled for all VMs (default Enabled)
SCSI adapter type PVSCSI used for all VMs (default LSI Logic SAS)
Ethernet adapter type set to VMXNET 3 for all VMs (default E1000)
Floppy and CDROM removed for all VMs (default enabled)
Cluster DRS Automation Level set to Fully Automated level 2
Hardware version 10 used for all VMs (default 8)
VMware Tools build 9536 used for all VMs (default 9536)
All DS2DBVMs had CPU shares set to 16000 (default Normal)
All DS2DBVMs had Disk shares set to high (default Normal)
All StandbyVMs had CPU shares set to low (default Normal)
sched.mem.pin = TRUE set for all VMs (locks all Guest memory into physical memory, default FALSE)
Multique is disabled in the vmxnet3 driver on all linux VMs
The vmxnet3 driver version is 1.2.39.0 for all linux VMs

Advanced Setting

esxcfg-advcfg -s 1000 /Cpu/CreditAgePeriod (default 3000)
esxcfg-advcfg -s 0 /Cpu/HTWholeCoreThreshold (default 200)
esxcfg-advcfg -s 0 /DataMover/HardwareAcceleratedInit (default 1)
esxcfg-advcfg -s 0 /DataMover/HardwareAcceleratedMove (default 1)
esxcfg-advcfg -s 0 /Mem/CtlMaxpercent (default 65)
esxcfg-advcfg -s 0 /Mem/ShareScanGHz (default 4)
esxcfg-advcfg -s 500 /Net/MaxNetifRxQueueLen (default 100)
esxcfg-advcfg -s 1000 /Net/MaxNetifTxQueueLen (default 500)
esxcfg-advcfg -s 0 /Numa/LTermFairnessInterval (default 5)
esxcfg-advcfg -s 57 /Numa/MigImbalanceThreshold (default 10)
esxcfg-advcfg -s 0 /Numa/MonMigEnable (default 1)
esxcfg-advcfg -s 0 /Numa/PageMigEnable (default 1)
esxcfg-advcfg -s 60000 /Numa/RebalancePeriod (default 2000)
esxcfg-advcfg -s 0 /Numa/SwapLoadEnable (default 1)
esxcfg-advcfg -s 0 /Numa/SwapLocalityEnable (default 1)
esxcfg-advcfg -s static /Power/CpuPolicy (default balanced)

esxcfg-advcfg -s 0 /VMFS3/HardwareAcceleratedLocking (default 1)
esxcfg-advcfg -s 0 /Cpu/CoschedCrossCall (default 1)
esxcfg-advcfg -s 1 /Irq/BestVcpuRouting (default 0)
esxcfg-advcfg -s 1   /Numa/SwapInterval (default 3)
esxcfg-advcfg -s 1   /Numa/PreferHT (default 0)
esxcfg-advcfg -s 20000 /Irq/IRQRebalancePeriod (default 50)
esxcfg-advcfg -s 4000 /Misc/TimerMaxHardPeriod (default 100000)
esxcfg-advcfg -s 0   /Numa/LargeInterleave (default 1)
esxcfg-advcfg –s 1 /Disk/ReqCallThreshold (default 4)
Driver options:
/usr/sbin/esxcfg-module -s "ql2xmaxqdepth=256" qlnativefc (default 64)
/usr/sbin/esxcfg-module -s " lpfc_lun_queue_depth=128 " lpfc (default lpfc_lun_queue_depth=32 lpfc_cr_count=2 lpfc_cr_delay=1)

Server Notes

Server BIOS settings:
Turbo Boost Technology: Enabled (Intel Turbo Boost up to 3.6GHz , default enabled)
Hardware Prefetcher : Disabled (default enable)
Adjacent Prefetcher : Disabled (default enable)
All C-States disabled except C1E (default enable)
Cluster on die Enabled (default Early snoop mode)

Networking Notes

vSwitch0 for the service Console at 1Gb/s on vmnic0
vSwitch1 for DS2-VMs workloads at 10Gb/s on vmnic1
vSwitch2 for all VMs except DS2-VMs at 10Gb/s on vmnic2
vSwitch3 for vMotion at 1Gb/s on vmnic3

Storage Notes

ESXi was install on four disk configured as RAID0 in the internal server storage bay
Round robin policy was used for "FUSIONIO Fibre Channel Disk" LUNs (default fixed)
All LUNs were configured as block devices; no system memory was used for caching

1x HUAWEI OceanStor Dorado 2100 (24x100GB SATA-SSDs)

RAID configuration:

LUN 1: For Tile 0,1,12,13 Olio VMs (Whole Lun of 8x100GB SATA-SSDs for RAID 0)
LUN 2: For Tile 4,5,16,17 Olio VMs (Whole Lun of 8x100GB SATA-SSDs for RAID 0)
LUN 3: For Tile 8,9,20 Olio VMs (Whole Lun of 5x100GB SATA-SSDs for RAID 0)
LUN 4: For All Standby VMs (2x100GB SATA-SSDs for RAID 0)
LUN 5: Source LUN for Deploy (The First Lun of 1x100GB SATA-SSDs for RAID 0)
LUN 6: Target LUN for Deploy (The Second Lun of 1x100GB SATA-SSDs for RAID 0)
LUN 7: Target LUN for Storage VMtoin (The Third Lun of 1x100GB SATA-SSDs for RAID 0)

1x HUAWEI OceanStor Dorado 2100 (24x100GB SATA-SSDs)

RAID configuration:

LUN 1: For Tile 2,3,14,15 Olio VMs (Whole Lun of 8x100GB SATA-SSDs for RAID 0)
LUN 2: For Tile 6,7,18,19 Olio VMs (Whole Lun of 8x100GB SATA-SSDs for RAID 0)
LUN 3: For Tile 10,11,21 Olio VMs (Whole Lun of 6x100GB SATA-SSDs for RAID 0)

1xRH2288V2 configured as a Fibre Channel Target

Hardware details:

Two Intel Xeon E5-2690v2@3.0GHz processors
128GB RAM(8x16 GB dual rank PC3-14900 Registered DDR3/1866 MHz DIMMs)

Two Qlogic QLE2562 8GB FC HBA user as FC target controllers
One LSI RAID SAS 6G Controller with 1GB Cache
3xFusion-io ioDrive2 2.4TB PCIE-SSD
2x200GB SATA-SSDs (for the storage server' os)

Software details:

Operating System: SUSE Linux Enterprise Server 11 SP3 – 3.0.101-0.8 (64-bit)
Fibre Channel Target SW: ION_Accelerator-vsl-ha.x86_64-2.5.0-276

RAID configuration:
First PCIe-SSD:

LUN 1: For Tile 0,12 DS2 VMs and Mailserver VMs (1200GB)
LUN 2: For Tile 1,13 DS2 VMs and Mailserver VMs (1200GB)

Second PCIe-SSD:

LUN 1: For Tile 4,16 DS2 VMs and Mailserver VMs (1200GB)
LUN 2: For Tile 5,17 DS2 VMs and Mailserver VMs (1200GB)

Third PCIe-SSD:

LUN 1: For Tile 8,20 DS2 VMs and Mailserver VMs (1200GB)
LUN 2: For Tile 9,21 DS2 VMs and Mailserver VMs (1200GB)

1xRH2288V2 configured as a Fibre Channel Target

Hardware details:

Two Intel Xeon E5-2690v2@3.0GHz processors
128GB RAM(8x16 GB dual rank PC3-14900 Registered DDR3/1866 MHz DIMMs)
Two Qlogic QLE2562 8GB FC HBA user as FC target controllers
One LSI RAID SAS 6G Controller with 1GB Cache
2xFusion-io ioDrive2 2.4TB PCIE-SSD
2x200GB SATA-SSDs (for the storage server' os)

Software details:

Operating System: SUSE Linux Enterprise Server 11 SP3 – 3.0.101-0.8 (64-bit)
Fibre Channel Target SW: ION_Accelerator-vsl-ha.x86_64-2.5.0-276

RAID configuration:
First PCIe-SSD:

LUN 1: For Tile 2,14,10 DS2 VMs and Mailserver VMs (1200GB)
LUN 2: For Tile 3,15 DS2 VMs and Mailserver VMs (1200GB)

Second PCIe-SSD:

LUN 1: For Tile 6,18 DS2 VMs and Mailserver VMs (1200GB)
LUN 2: For Tile 7,19,11 DS2 VMs and Mailserver VMs (1200GB)

Datacenter Management Server Notes

None

Operating System Notes

All Mailserver VMs running Microsoft Windows Server 2008 R2 Enterprise SP1(64-bit)
All Standby VMs running Microsoft Windows Server 2003 R2 Enterprise SP2(32-bit)
All SLES11 VMs were updated with SP2

Software Notes

Each Mailserver VM running Microsoft Exchange Server 2007 Enterprise SP3 (64-bit)

Client Notes

Prime client was running VMware vSphere PowerCLI 5.8 Build 2057893

All virtual client hosts were installed with VMware ESXi 5.5.0 (Build 1331820)

Other Notes

TILEDELAY reduced to 33 seconds (default: 60 seconds)
