

## VMware® VMmark® V2.5.1 Results

Vendor and Hardware Platform: Huawei Tecal RH2288 V2-8S  
 Virtualization Platform: VMware ESXi 5.1.0 U1 Build 1065491  
 VMware vCenter Server : VMware vCenter Server 5.1.0 Build 799731

**VMmark V2.5.1 Score =  
14.81 @ 14 Tiles**

Number of Hosts: 2

Uniform Hosts [yes/no]: yes

Total sockets/cores/threads in test: 4/48/96

Tested By: Huawei Technologies Co.,Ltd.

Test Date: 11-17-2013

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### Performance

	mailserver			olio			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.55	0.99	73.22	4732.77	1.02	109.90	3440.25	1.56	92.96	2524.93	1.66	101.97	1798.88	1.70	109.32	1.35
p1	326.00	0.99	74.00	4711.40	1.02	126.25	3273.22	1.49	102.53	2458.03	1.62	107.44	1726.45	1.63	117.36	1.32
p2	327.48	0.99	78.00	4632.85	1.00	217.72	3140.00	1.43	112.65	2277.78	1.50	124.46	1638.15	1.55	136.94	1.27
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.27	0.99	74.00	4719.82	1.02	112.22	3483.90	1.58	89.30	2610.00	1.72	95.18	1879.83	1.78	99.89	1.37
p1	330.00	1.00	74.00	4707.85	1.01	131.74	3262.72	1.48	102.92	2342.22	1.54	115.76	1767.03	1.67	120.40	1.31
p2	330.10	1.00	74.00	4629.68	1.00	222.61	3044.25	1.38	120.48	2055.55	1.35	139.56	1447.85	1.37	148.27	1.21
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	322.30	0.98	74.00	4726.25	1.02	114.32	3448.85	1.57	92.10	2616.93	1.72	100.17	1861.17	1.76	109.57	1.36
p1	322.27	0.98	74.00	4718.57	1.02	124.92	3288.47	1.50	102.30	2275.10	1.50	115.99	1623.53	1.53	129.32	1.28
p2	324.07	0.98	74.00	4649.43	1.00	199.23	3156.57	1.44	110.79	2191.45	1.44	124.11	1495.10	1.41	137.66	1.24
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.25	0.98	74.00	4721.35	1.02	124.00	3537.97	1.61	89.21	2545.50	1.68	100.70	1853.15	1.75	109.83	1.36
p1	325.98	0.99	74.00	4693.77	1.01	133.19	3258.32	1.48	105.52	2232.88	1.47	120.59	1536.00	1.45	131.30	1.26
p2	327.93	0.99	79.88	4652.30	1.00	187.67	2957.18	1.34	128.55	2084.32	1.37	145.58	1438.78	1.36	158.95	1.20
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.00	1.00	84.00	4739.30	1.02	114.49	3610.05	1.64	83.17	2669.50	1.76	90.52	2007.20	1.90	88.70	1.41
p1	328.62	1.00	84.00	4731.05	1.02	122.45	3425.80	1.56	92.58	2427.25	1.60	101.87	1794.22	1.70	100.86	1.34
p2	328.32	0.99	84.00	4629.93	1.00	230.82	3296.32	1.50	100.74	2394.65	1.58	111.82	1840.35	1.74	113.44	1.32
TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM

<b>p0</b>	328.75	1.00	74.00	4729.95	1.02	123.00	3468.30	1.58	92.44	2383.70	1.57	105.48	1753.25	1.66	113.52	1.33
<b>p1</b>	321.43	0.97	74.22	4732.02	1.02	122.40	3429.00	1.56	95.19	2394.10	1.58	111.11	1729.95	1.64	116.30	1.32
<b>p2</b>	327.68	0.99	84.00	4683.40	1.01	156.95	3378.00	1.54	98.84	2212.00	1.46	120.16	1684.38	1.59	122.49	1.29
<b>TILE_6</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.25	0.99	66.45	4732.10	1.02	121.24	3451.10	1.57	91.24	2460.28	1.62	99.56	1811.22	1.71	107.03	1.34
<b>p1</b>	326.90	0.99	74.00	4712.95	1.02	123.43	3269.38	1.49	102.62	2342.45	1.54	116.18	1731.00	1.64	124.66	1.30
<b>p2</b>	329.45	1.00	75.00	4655.25	1.00	208.37	3167.88	1.44	108.75	2208.53	1.45	121.96	1531.95	1.45	132.42	1.25
<b>TILE_7</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	327.35	0.99	73.90	4700.60	1.01	117.08	3503.07	1.59	90.23	2513.15	1.65	102.26	1871.72	1.77	108.48	1.36
<b>p1</b>	325.90	0.99	75.42	4745.68	1.02	121.68	3264.53	1.48	104.74	2218.62	1.46	120.70	1634.25	1.54	127.98	1.28
<b>p2</b>	326.48	0.99	85.50	4703.80	1.01	145.33	3010.25	1.37	124.07	2026.30	1.33	143.11	1395.12	1.32	155.31	1.19
<b>TILE_8</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	327.18	0.99	63.95	4732.10	1.02	114.66	3546.50	1.61	88.73	2546.00	1.68	100.85	1917.17	1.81	106.24	1.38
<b>p1</b>	324.93	0.98	70.75	4699.23	1.01	120.49	3483.70	1.58	92.59	2429.50	1.60	103.92	1727.03	1.63	110.37	1.33
<b>p2</b>	326.85	0.99	74.00	4663.43	1.00	185.45	3295.68	1.50	104.01	2342.32	1.54	117.74	1676.72	1.58	125.17	1.30
<b>TILE_9</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.25	0.99	75.80	4736.15	1.02	111.50	3494.75	1.59	89.03	2438.25	1.61	100.27	1853.78	1.75	101.98	1.35
<b>p1</b>	328.48	0.99	74.00	4722.70	1.02	125.53	3484.65	1.58	90.50	2379.47	1.57	105.94	1716.90	1.62	108.89	1.32
<b>p2</b>	324.18	0.98	81.50	4635.60	1.00	205.66	3392.07	1.54	95.65	2432.38	1.60	113.22	1792.50	1.69	117.60	1.33
<b>TILE_10</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.60	1.00	87.58	4728.55	1.02	115.78	3507.30	1.59	91.33	2353.93	1.55	108.68	1655.70	1.56	116.49	1.32
<b>p1</b>	330.60	1.00	84.00	4739.10	1.02	123.37	3372.43	1.53	99.24	2340.47	1.54	116.35	1657.47	1.57	125.21	1.30
<b>p2</b>	327.50	0.99	84.00	4670.90	1.01	178.50	3241.82	1.47	108.13	2221.35	1.46	128.44	1628.25	1.54	138.66	1.27
<b>TILE_11</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.48	0.99	74.00	4730.23	1.02	122.08	3372.07	1.53	98.28	2328.35	1.53	110.39	1608.47	1.52	120.78	1.29
<b>p1</b>	335.68	1.02	75.75	4709.62	1.01	127.36	3376.12	1.54	98.71	2400.35	1.58	111.74	1743.00	1.65	123.39	1.33
<b>p2</b>	326.18	0.99	85.00	4692.50	1.01	152.49	3314.50	1.51	103.03	2337.20	1.54	117.82	1597.60	1.51	132.51	1.28
<b>TILE_12</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	324.73	0.98	112.00	4717.60	1.02	120.37	3493.68	1.59	91.27	2536.38	1.67	100.84	1767.58	1.67	111.32	1.35
<b>p1</b>	320.82	0.97	100.50	4715.68	1.02	130.64	3305.03	1.50	102.89	2260.43	1.49	117.73	1615.47	1.53	129.88	1.28
<b>p2</b>	328.80	1.00	94.00	4587.15	0.99	273.79	3202.47	1.46	109.26	2249.85	1.48	126.27	1491.50	1.41	137.86	1.25
<b>TILE_13</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	327.73	0.99	81.08	4722.90	1.02	110.25	3404.00	1.55	94.31	2493.75	1.64	104.14	1820.95	1.72	113.85	1.35
<b>p1</b>	326.12	0.99	77.25	4714.00	1.02	127.34	3222.00	1.47	106.30	2212.78	1.46	121.92	1498.08	1.42	135.77	1.25
<b>p2</b>	325.73	0.99	84.00	4649.25	1.00	192.22	2932.75	1.33	129.35	2043.22	1.35	149.68	1395.10	1.32	165.83	1.19

<b>p0_score:</b>	18.92
<b>p1_score:</b>	18.21
<b>p2_score:</b>	17.57

<b>Infrastructure_Operations_Scores:</b>	vmotion	svmotion	deploy
<b>Completed_Ops_PerHour</b>	16.50	11.00	5.50
<b>Avg_Seconds_To_Complete</b>	35.47	23.22	331.34
<b>Failures</b>	0.00	0.00	0.00
<b>Ratio</b>	1.03	1.22	1.38
<b>Number_Of_Threads</b>	1	1	1

<b>Summary</b>	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
<b>Unreviewed_VMmark2_Applications_Score</b>	18.21	
<b>Unreviewed_VMmark2_Infrastructure_Score</b>	1.20	
<b>Unreviewed_VMmark2_Score</b>	14.81	

## Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 5.1.0 U1 Build 1065491/04-25-2013
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 5.1.0 Build 799731 / 11-19-2012
Supplemental Software	none
Servers	
Quantity	2
Server Manufacturer and Model	Huawei Tecal RH2288 V2-8S
Processor Vendor and Model	Intel Xeon E5-2697 V2
Processor Speed (GHz)	2.70
Total Sockets/Total Cores/Total Threads	2 Sockets /24 Cores / 48 Threads
Primary Cache	32KB I + 32KB D on chip per core

Secondary Cache	256KB I+D on chip per core
Other Cache	30MB I+D on chip per chip L3
BIOS Version	RMIBV369
Memory Size (in GB, Number of DIMMs)	256GB,16x16GB
Memory Type and Speed	16GB-Dimms,Dual rank 1866 MHz Registered ECC DDR3
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	1 x LSI SAS2208
Number of Host Bus Adapters	3
Host Bus Adapter Vendors and Models	QLogic QLE2562 Dual Port 8Gb Fibre Channel HBA
Number of Network Controllers	2
Network Controller Vendors and Models	1 x Intel 1Gb 4-port 82580 Adapter, 1 x Intel 10Gb 2-port 82599 Adapter
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	09-10-2013
Software Availability Date (MM-DD-YYYY)	11-15-2013
<b>Network</b>	
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
<b>Storage</b>	
Array Vendors, Models, and Firmware Versions	2 x HUAWEI OceanStor Dorado 5100 (FW version V1R1C00) , 1 x HUAWEI OceanStor Dorado 2100 (FW version V1R1C00)
Fibre Channel Switch Vendors and Models	HUAWEI E9000 CX911
Disk Space Used	3750GB
Array Cache Size	HUAWEI OceanStor Dorado 5100:48GB HUAWEI OceanStor Dorado 2100:16GB
Total Number of Physical Disks Used	215 SSDs for VMS
Total Number of Enclosures/Pods/Shelves Used	1
Number of Physical Disks Used per Enclosure/Pod/Shelf	Internal: 2 disks per host
Total Number of Storage Groups Used	3

Number of LUNs Used	19
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	24xHuawei Dorado 2100-HSSD-D3220AS0100; 191xHuawei Dorado 5100-HSSD-322XAS0200; 4x HSSD-322XAS0200 ; 4xHSSD-322XAS0200 for SUT

**Datacenter Management Server**

System Model	A Virtual Server on Huawei Tecal RH5885 V2
Processor Vendor and Model	Intel Xeon E7-8860
Processor Speed (GHz)	2.26Ghz
Total Sockets/Total Cores/Total Threads	1 Sockets / 4 Cores / 4 Threads
Memory	16GB
Network Controller(s) Vendors and Models	Intel® PRO/1000 MT Network
Operating System, Version, Bitness, and Service Pack	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	14/1/2
System Model(s)	1xHuawei Tecal RH2288V2 (Prime Client), 2xHuawei Tecal RH5885V2(Virtual Client Host)
Processor Vendor(s) and Model(s)	1xPrime Client: Intel Xeon E5-2620 2xVirtual Client Host: Intel Xeon E7-8860
Processor Speed(s) (GHz)	1xPrime Client: 2.0GHz 2xVirtual Client Host: 2.26GHz
Total Sockets/Total Cores/Total Threads	1xPrime Client: 2 Socket / 12 Cores / 24 Threads 2xVirtual Client Host: 4 Socket / 40 Cores / 80Threads
Memory per Physical Client	1xPrime Client: 96GB 2xVirtual Client Host: 512GB
Network Controller(s) Vendors and Models	1xPrime Client: 1 x Intel 1Gb 2-port 82580 Adapter, 1 x Intel 10Gb 2-port 82599 Adapter 2xVirtual Client Host: 1 x Intel 1Gb 2-port 82580 Adapter, 1 x Intel 10Gb 2-port 82599 Adapter
Operating System, Version, Bitness, and Service Pack	Clients: Microsoft Windows 2008 R2 Enterprise SP1 (64bit) 2x Virtual Client Host: VMware ESXi 5.1.0 (Build 799733)
Number of Virtual Clients	13

Number of vCPUs Per Virtual Client	8
Number of vMem (GB) Per Virtual Client	32GB
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	Client VMs stored on local media respective to their ESXi host
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 1

Firewall was disabled in the Console OS (default enabled)

Hardware version 9 used for all VMs

ALL VMs used VMware tools version 9221

### Advanced Setting

Cpu.CoschedCrossCall = 0 (default 1)

Cpu.CreditAgePeriod = 533 (default 3000)

Cpu.HTWholeCoreThreshold = 0 (default 200)

DataMover.HardwareAcceleratedInit = 0 (default 1)

DataMover.HardwareAcceleratedMove = 0 (default 1)

Disk.SchedNumReqOutstanding = 256 (default 32)

Irq.BestVcpuRouting = 1 (default 0)

Mem.BalancePeriod = 0 (default 15)

Mem.SamplePeriod = 0 (default 60)

Mem.ShareScanGHz = 0 (default 4)

Mem/VMOverheadGrowthlimit = 0 (default 4294967295)

Misc.TimerMaxHardPeriod = 4000 (default 100000)

Misc.TimerMinHardPeriod = 2000 (default 30)

Net.MaxNetifRxQueueLen = 500 (default 100)

Net.MaxNetifTxQueueLen = 1000 (default 500)

Net.NetTxCompletionWorldlet = 0 (default 1)

Net.NetTxWorldlet = 1 (default 2)

Numa.LargeInterleave = 0 (default 1)  
Numa.LTermFairnessInterval = 0 (default 5)  
Numa.MigImbalanceThreshold = 57 (default 10)  
Numa.MonMigEnable = 0 (default 1)  
Numa.PreferHT =1 (default 0)  
Numa.RebalancePeriod = 60000 (default 2000)  
Numa.SwapLoadEnable = 0 (default 1)  
Numa.SwapLocalityEnable=0 (default 1)  
Numa.SwapInterval = 1 (default 3)  
Irq.IRQRebalancePeriod = 20000 (default 50)  
Net.NetTxWorldlet = 1 (default 2)  
VMFS3.HardwareAcceleratedLocking = 0 (default 1)  
Power.CpuPolicy was set to "static" (default "Balanced")

Driver options:

/vmkernel/module/qla2xxx/options = “ql2xmaxqdepth=256 ql2xintrdelaytimer=2 ql2xenablesix=1” (default 64,0,and 0)  
/vmkernel/module/ixgbe/options = “MQ=0,0 InterruptThrottleRate=2000,2000 InterruptType=2,2” (default 1,16000,and 2)

## Server Notes

Server BIOS settings:

Turbo Boost Technology: Enabled (Intel Turbo Boost up to 3.5GHz , default enabled)  
MLC Spatial Prefetcher : Disabled (default enable)  
MLC Streamer Prefetcher : Disabled (default enable)

## Networking Notes

vSwitch0 for the service Console and standby at 1Gb/s on vmnic0  
vSwitch1 for mailserver and olio\* workloads at 10Gb/s on vmnic4  
vSwitch2 for the DS2\* workloads at 10Gb/s on vmnic5  
vSwitch3for vmotion at 1Gb/s on vmnic1

## Storage Notes

ESXi was install on two disk configured as RAID0 in the internal server storage bay  
All FC LUNs configured for VMW\_PSP\_FIXED

### **2 x Dorado 5100 (96 x 200GB SSDs) and Dorado 2100 ( 24 x 100GB SSDs)**

LUN 0-13 : All VMs from Tile0 to Tile 13 except standby\* 、 mailserver8 and mailserver11 (12 x200GB SSDs for RAID0 per LUN)  
LUN 14: mailserver8 (11 x200GB SSDs for RAID0)  
LUN 15: mailserver11 (12 x200GB SSDs for RAID0)  
LUN 16: Deploy Template and standby\* (8 x100GB SSDs for RAID0)  
LUN 17: SVmotionTarget (8 x100GB SSDs for RAID0)  
LUN 18: DeployTarget (8 x100GB SSDs for RAID0)

All FC LUNs configured for VMW\_PSP\_FIXED

### **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 5.1 Release 1 Build 793510

All virtual client hosts were installed with VMware ESXi 5.1.0 (Build 1065491)

### **Other Notes**

None

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