

## VMware® VMmark® V2.1.1 Results

Vendor and Hardware Platform: Huawei Tecal RH2288-8S V2  
 Virtualization Platform: VMware ESX 4.1.0 U2 Build 502767  
 VMware vCenter Server: VMware vCenter Server 5.0.0 Build 455964

**VMmark V2.1.1 Score =  
10.47 @ 10 Tiles**

Number of Hosts: 2

Uniform Hosts [yes/no]: yes

Total sockets/core/threads in test: 4/32/64

Tested By: Huawei Inc.

Test Date: 09-28-2012

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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	326.48	0.99	53.08	4709.48	1.01	136.02	3580.90	1.63	84.10	2541.30	1.67	92.49	1898.67	1.79	96.99	1.37
p1	328.88	1.00	53.85	4698.40	1.01	143.61	3472.88	1.58	90.76	2472.57	1.63	98.55	1748.30	1.65	105.10	1.34
p2	328.57	0.99	53.92	4665.85	1.01	178.72	3471.75	1.58	90.19	2645.43	1.74	97.84	1913.95	1.81	104.38	1.38
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.43	0.99	74.00	4661.02	1.00	187.58	3562.20	1.62	85.22	2607.25	1.72	93.97	1873.80	1.77	99.68	1.38
p1	324.77	0.98	74.00	4664.32	1.00	196.05	3486.53	1.59	88.98	2554.30	1.68	97.76	1838.17	1.74	103.49	1.36
p2	322.98	0.98	74.00	4641.35	1.00	201.05	3438.50	1.56	91.63	2405.07	1.58	102.75	1786.00	1.69	108.85	1.33
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.85	0.98	64.00	4660.57	1.00	176.96	2869.70	1.30	129.63	2041.95	1.34	145.28	1440.30	1.36	156.09	1.19
p1	328.95	1.00	54.77	4640.40	1.00	200.79	2668.28	1.21	146.14	1864.05	1.23	165.94	1399.45	1.32	173.32	1.14
p2	324.35	0.98	53.58	4624.00	1.00	203.60	2675.62	1.22	147.68	1808.83	1.19	167.63	1241.47	1.17	182.59	1.11
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	322.70	0.98	63.88	4671.18	1.01	170.96	3476.82	1.58	89.29	2654.40	1.75	96.33	1942.42	1.84	100.97	1.38
p1	323.73	0.98	63.35	4653.93	1.00	190.59	3554.18	1.62	85.79	2514.15	1.66	95.02	1862.92	1.76	101.22	1.36
p2	325.15	0.98	64.00	4649.38	1.00	215.58	3527.75	1.60	87.65	2497.90	1.64	96.41	1748.25	1.65	105.11	1.34
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.30	0.99	55.48	4674.88	1.01	179.05	3423.78	1.56	92.57	2493.60	1.64	101.96	1876.80	1.77	106.88	1.35
p1	326.77	0.99	53.00	4642.52	1.00	198.29	3423.07	1.56	93.40	2391.15	1.57	105.07	1658.12	1.57	114.64	1.31
p2	324.70	0.98	53.67	4663.60	1.00	194.32	3337.22	1.52	97.92	2428.62	1.60	107.71	1722.00	1.63	115.57	1.31
TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.85	0.98	61.50	4674.48	1.01	174.04	3552.88	1.62	85.17	2518.35	1.66	93.99	1913.58	1.81	95.60	1.37
p1	327.68	0.99	53.50	4650.18	1.00	190.70	3543.05	1.61	85.77	2541.40	1.67	92.92	1842.30	1.74	95.07	1.36

<b>p2</b>	326.80	0.99	53.85	4625.45	1.00	215.38	3396.62	1.54	93.82	2479.43	1.63	103.34	1888.25	1.78	106.76	1.35
<b>TILE_6</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.52	0.99	75.90	4660.62	1.00	183.88	3415.60	1.55	93.82	2373.38	1.56	106.53	1670.60	1.58	113.80	1.31
<b>p1</b>	325.40	0.99	64.25	4648.50	1.00	208.38	3395.88	1.54	93.74	2475.20	1.63	103.70	1788.25	1.69	108.55	1.33
<b>p2</b>	321.55	0.97	64.00	4595.23	0.99	248.98	3375.55	1.53	95.60	2381.45	1.57	105.64	1749.60	1.65	113.30	1.31
<b>TILE_7</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.18	0.98	66.70	4659.90	1.00	171.85	3251.40	1.48	103.20	2273.28	1.50	115.31	1605.97	1.52	121.63	1.27
<b>p1</b>	326.82	0.99	62.42	4655.10	1.00	198.97	3146.22	1.43	110.96	2239.53	1.47	125.26	1665.72	1.57	133.19	1.27
<b>p2</b>	325.07	0.98	54.00	4650.68	1.00	195.13	3026.65	1.38	120.03	2057.55	1.35	137.09	1449.65	1.37	145.55	1.20
<b>TILE_8</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.07	0.99	85.97	4672.18	1.01	172.19	3251.85	1.48	102.75	2358.18	1.55	113.71	1701.53	1.61	119.04	1.30
<b>p1</b>	327.62	0.99	74.00	4662.98	1.00	190.60	3118.05	1.42	111.96	2148.53	1.41	127.03	1604.95	1.52	131.43	1.25
<b>p2</b>	326.18	0.99	66.50	4664.60	1.00	188.33	2991.72	1.36	121.08	2060.18	1.36	136.35	1442.72	1.36	145.52	1.20
<b>TILE_9</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	320.55	0.97	53.00	4678.55	1.01	174.02	3046.85	1.39	117.03	2169.40	1.43	131.27	1608.97	1.52	140.26	1.24
<b>p1</b>	332.30	1.01	53.00	4641.18	1.00	203.19	2920.85	1.33	128.29	1973.53	1.30	146.92	1349.92	1.28	161.67	1.17
<b>p2</b>	322.50	0.98	53.00	4632.55	1.00	209.51	2790.95	1.27	137.33	1953.70	1.29	155.36	1379.22	1.30	166.18	1.16
<b>p0_score:</b>	13.15															
<b>p1_score:</b>	12.89															
<b>p2_score:</b>	12.68															

<b>Infrastructure_Operations_Scores:</b>	vmotion	svmotion	deploy
<b>Completed_Ops_PerHour</b>	10.50	8.00	3.50
<b>Avg_Seconds_To_Complete</b>	70.09	25.30	326.85
<b>Failures</b>	0.00	0.00	0.00
<b>Ratio</b>	0.66	0.89	0.88
<b>Number_Of_Threads</b>	1	1	1

<b>Summary</b>	Run_Is_Compliant	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
<b>Unreviewed_VMmark2_Applications_Score</b>	12.89		
<b>Unreviewed_VMmark2_Infrastructure_Score</b>	0.80		
<b>Unreviewed_VMmark2_Score</b>	10.47		

## Configuration

<b>Virtualization Software</b>
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Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESX 4.1.0 U2 Build 502767/08-24-2011
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 5.0.0 Build 455964/08-24-2011
Supplemental Software	None
<b>Servers</b>	
Quantity	2
Server Manufacturer and Model	Huawei Tecal RH2288-8S
Processor Vendor and Model	Intel Xeon E5-2690
Processor Speed (GHz)	2.9 GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 16 Cores / 32 Threads
Primary Cache	32KB I+32KB D on chip per core
Secondary Cache	256KB I+D on chip per core
Other Cache	20MB I+D on chip per chip L3
BIOS Version	V025
Memory Size (in GB, Number of DIMMs)	256 GB, 16 * 16 GB
Memory Type and Speed	Dual rank PC3-12800 Registered ECC
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	2*QLE2560 single port 8Gb Fibre HBA 1*QLE2462 dual port 4Gb Fibre HBA
Number of Network Controllers	3
Network Controller Vendors and Models	Intel 82580 Quad Port 1GbE Adapter Intel 82599 dual Port 10GbE Adapter Broadcom NetXtrem II 57710 dual port 10GbE Adapter
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	06-13-2012

Software Availability Date (MM-DD-YYYY)	08-15-2012
<b>Network</b>	
Network Switch Vendors and Models	2 x Huawei NX112
Network Speed	1Gbps for SUT management,all clients,mailserver,standby and deploy,10Gbps for remaining VMs
<b>Storage</b>	
Array Vendors, Models, and Firmware Versions	2 x Huawei Oceanspace Dorado2100
Fibre Channel Switch Vendors and Models	None
Disk Space Used	3000 GB
Array Cache Size	2 GB
Total Number of Physical Disks Used	48
Total Number of Enclosures/Pods/Shelves Used	2
Number of Physical Disks Used per Enclosure/Pod/Shelf	Two enclosures with 24 SSDs,48 SSDs used
Total Number of Storage Groups Used	2
Number of LUNs Used	27
LUN Size and Number of Disks Per LUN	Details in section Storage Notes
RAID Type	Raid 0
Number of Members per RAID Set	Details in section Storage Notes
Disk Vendors, Models, and Speeds	48xHuawei,Dorado2100-STTZ01SSD50 SSD;
<b>Datacenter Management Server</b>	
System Model	Huawei Tecal E6000
Processor Vendor and Model	Intel Xeon E5620
Processor Speed (GHz)	2.40Ghz
Total Sockets/Total Cores/Total Threads	2 Sockets / 8 Cores / 16 Threads
Memory	8 GB
Network Controller(s) Vendors and Models	1 x Integrated Broadcom 1GbE BASE-T MC Server Adapter
Operating System, Version, and Service Pack	Microsoft Windows 2008 R2 Enterprise(64bit)

Other Hardware	None
Other Software	None
<b>Clients</b>	
Number of Clients	1 physical server(Prime Client) used as a dedicated Benchmark Controller 3 physical servers(ESXi server) used for 9 virtual clients
System Model(s)	Huawei Tecal E6000
Processor Vendor(s) and Model(s)	Intel Xeon E5620
Processor Speed(s) (GHz)	2.40Ghz
Total Sockets/Total Cores/Total Threads	2 Sockets / 8 Cores / 16 Threads
Memory per Client	Prime client: 8 GB ESXi Server:48 GB
Network Controller(s) Vendors and Models	1 x Integrated Broadcom 1GbE BASE-T MC Server Adapter
Operating System, Version, and Service Pack	Prime client:Microsoft Windows 2008 R2 Enterprise(64bit) Physical Clients:VMware ESXi 5.0.0(Build 469512) Virtual Clients:Microsoft Windows 2008 R2 Enterprise(64bit)
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 except DS2WebA0 (default Enabled)  
 SCSI adapter type PVSCSI used for all VMs(default LSI Logic SAS)  
 Ethernet adapter type set to VMXNET3 for all VMs(default VMXNET2)  
 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)

### Advanced Setting

Cpu.CoschedCrossCall = 0 (default 1)  
 Cpu.HaltingIdleMsecPenalty = 0 (default 100)  
 DataMover.HardwareAcceleratedInit = 0 (default 1)  
 DataMover.HardwareAcceleratedMove = 0 (default 1)  
 Irq.RoutingPolicy = 0 (default 2)  
 Mem.BalancePeriod = 0 (default 15)  
 Mem.SamplePeriod = 0 (default 60)  
 Mem.ShareScanGHZ = 0 (default 60)  
 Misc.TimerMaxHardPeriod = 4000 (default 4000)

Misc.TimerMinHardPeriod = 2000 (default 2000)  
Net.MaxNetifRxQueueLen = 500 (default 100)  
Net.MaxNetifTxQueueLen = 1000 (default 500)  
Net.NetTxCompletionWorldlet = 0 (default 1)  
Net.NetTxWorldlet = 0 (default 2)  
Numa.AutoSplitVM = 0 (default 1)  
Numa.LTermFairnessinterval = 0 (default 5)  
Numa.MonMigEnable = 0 (default 1)  
Numa.PageMigEnable = 0 (default 1)  
Numa.SwapLoadEnable = 0 (default 1)  
Numa.SwapLocalityEnable = 0 (default 1)  
VMFS3.HardwareAcceleratedLocking = 0 (default 1)

#### Driver Options:

##### Updated Drivers:

megaraid-sas 400.5.33-1vmw.2.17.00000

/vmkernel/module/qla2xxx.o/options = "ql2xintrdelaytimer=3" (defaults 0)

## Server Notes

Turbo Mode Enabled up to 3.8GHz

MLC Spatial Prefetcher : Disabled (default Enabled)

MLC Streamer Prefetcher : Disabled (default Enabled)

## Networking Notes

#### vSwitch Configuration:

vSwitch 0 on vmnic0(1Gb) for Service Console

vSwitch 1 on vmnic5(10Gb) for vmotion

vSwitch 2 on vmnic6(10Gb) for all Olio VMs

vSwitch 3 on vmnic7(10Gb) for all DS2 VMs

vSwitch 4 on vmnic1(1Gb) for all mailserver VMs

vSwitch 5 on vmnic2(1Gb) for Deploy VMs and all standby VMs

## Storage Notes

### Dorado2100[0](total 24 SSDs)

Raid set 0: 4 x SSDs

LUN1:SVmotion Target(20GB)

LUN2:DS2DB VM from Tile1(60GB)

LUN3:DS2DB VM from Tile7(60GB)

LUN4:All VMs from Tile7 except Standby VM,DS2DB VM(230GB)

Raid set 1: 4 x SSDs

LUN5:Deploy Template(10GB)

LUN6:Standby VM from Tile 0,4,8(30GB)

LUN7:Standby VM from Tile 2,6,(30GB)

Raid set 2: 4 x SSDs

LUN8:DS2DB VM from Tile3(60GB)

LUN9:DS2DB VM from Tile9(60GB)

LUN10:All VMs from Tile9 except Standby VM,DS2DB VM(230GB)  
Raid set 3: 4 x SSDs  
LUN11:All VMs from Tile4 except Standby VM,DS2DB VM(230GB)  
Raid set 4: 4 x SSDs  
LUN12:All VMs from Tile3 except Standby VM,DS2DB VM(230GB)  
Raid set 5: 4 x SSDs  
LUN13:All VMs from Tile5 except Standby VM,DS2DB VM(230GB)  
LUN14:DS2DB VM from Tile5(60GB)

### **Dorado2100[1](total 24 SSDs)**

Raid set 0: 4 x SSDs  
LUN1:All VMs from Tile6 except Standby VM,DS2DB VM(230GB)  
LUN2:DS2DB VM from Tile6(60GB)  
Raid set 1: 4 x SSDs  
LUN3:Deploy Template(10GB)  
LUN4:Standby VM from Tile 1,5,9(30GB)  
LUN5:Standby VM from Tile 3,7,(30GB)  
Raid set 2: 4 x SSDs  
LUN6:DS2DB VM from Tile8(60GB)  
LUN7:All VMs from Tile8 except Standby VM,DS2DB VM(230GB)  
Raid set 3: 4 x SSDs  
LUN8:DS2DB VM from Tile2(60GB)  
LUN9:All VMs from Tile0 except Standby VM,DS2DB VM(230GB)  
Raid set 4: 4 x SSDs  
LUN10:DS2DB VM from Tile0(60GB)  
LUN11:All VMs from Tile2 except Standby VM,DS2DB VM(230GB)  
Raid set 5: 4 x SSDs  
LUN12:All VMs from Tile4 except Standby VM,DS2DB VM(230GB)  
LUN13:DS2DB VM from Tile4(60GB)

### **Datacenter Management Server Notes**

None

### **Operating System Notes**

All Mailserver VMs running Microsoft Windows Server 2008 R2 Enterprise(64-bit)  
All Standby VMs running Microsoft Windows Server 2003 R2 Enterprise SP2(32-bit)

### **Software Notes**

None

### **Client Notes**

One physical client was prime client  
One physical client ran three client virtual machines  
Prime client was running VMware vSphere PowerCLI-4.1.1-332441

All clients were run on virtual machines that were each defined with 4vCPU,4GB memory,1 VMXNET3 network and 32GB disk space  
All client operating systems were Microsoft Windows Server 2008 R2 Enterprise(64-bit)

## Other Notes

None

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