

## VMware® VMmark® V2.1.1 Results

Vendor and Hardware Platform: Dell PowerEdge R715  
 Virtualization Platform: VMware ESXi 5.1.0 Build 799733  
 VMware vCenter Server: VMware vCenter Server 5.1.0 Build 799731

**VMmark V2.1.1 Score =  
8.37 @ 8 Tiles**

Number of Hosts: 2	Uniform Hosts [yes/no]: yes	Total sockets/core/threads in test: 4/64/64
Tested By: AMD		Test Date: 10-23-2012
Performance Section <a href="#">Performance</a>	Configuration Section <a href="#">Configuration</a>	Notes Section <a href="#">Notes for Workload</a>

### Performance

	mailserver			olio			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.12	1.00	140.50	4680.70	1.01	180.45	3300.95	1.50	102.33	2259.22	1.49	115.89	1560.50	1.47	126.68	1.27
<b>p1</b>	328.98	1.00	139.00	4614.93	0.99	254.74	3190.40	1.45	107.96	2262.60	1.49	122.13	1701.00	1.61	127.54	1.28
<b>p2</b>	328.00	0.99	144.00	4576.38	0.99	275.73	3195.55	1.45	107.64	2186.32	1.44	122.12	1534.35	1.45	130.14	1.24
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.25	1.00	174.72	4661.07	1.00	184.75	3193.82	1.45	108.18	2295.12	1.51	119.50	1595.53	1.51	131.67	1.27
<b>p1</b>	321.50	0.97	164.25	4616.07	0.99	218.39	3142.55	1.43	110.10	2261.55	1.49	121.84	1660.10	1.57	131.84	1.26
<b>p2</b>	326.77	0.99	163.50	4499.15	0.97	387.23	3072.57	1.40	116.07	2065.40	1.36	135.24	1460.00	1.38	141.44	1.20
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	321.80	0.97	164.85	4680.40	1.01	169.48	3427.97	1.56	94.37	2474.50	1.63	105.46	1781.03	1.68	117.80	1.33
<b>p1</b>	320.30	0.97	156.47	4595.23	0.99	260.85	3296.70	1.50	99.35	2373.05	1.56	106.42	1611.12	1.52	120.29	1.28
<b>p2</b>	326.60	0.99	154.00	4629.30	1.00	223.38	3283.50	1.49	100.76	2424.72	1.60	108.57	1668.42	1.58	122.36	1.30
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.52	0.99	193.88	4649.95	1.00	191.28	3312.25	1.51	100.71	2282.00	1.50	114.56	1662.50	1.57	123.62	1.29
<b>p1</b>	329.12	1.00	171.75	4636.50	1.00	199.71	3261.88	1.48	102.78	2344.40	1.54	115.01	1656.80	1.57	123.28	1.29
<b>p2</b>	327.18	0.99	170.75	4522.55	0.97	382.26	3130.07	1.42	110.86	2320.18	1.53	117.82	1607.85	1.52	130.66	1.26
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.95	0.99	151.50	4674.00	1.01	171.64	3234.25	1.47	105.90	2181.18	1.44	122.57	1531.75	1.45	130.46	1.25
<b>p1</b>	326.07	0.99	144.00	4613.27	0.99	218.84	3154.28	1.43	108.95	2255.07	1.49	122.08	1584.58	1.50	132.54	1.26
<b>p2</b>	328.38	0.99	144.00	4618.75	1.00	238.19	3066.90	1.39	114.55	2172.20	1.43	129.72	1545.53	1.46	137.83	1.24
TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.20	0.98	173.50	4654.32	1.00	178.29	3399.40	1.55	93.66	2441.03	1.61	106.17	1792.60	1.69	107.82	1.33
<b>p1</b>	326.55	0.99	162.25	4648.77	1.00	210.26	3308.93	1.50	98.90	2411.43	1.59	108.86	1759.92	1.66	111.33	1.32

<b>p2</b>	327.80	0.99	164.00	4564.00	0.98	300.75	3056.35	1.39	115.15	2131.65	1.40	127.84	1608.45	1.52	130.64	1.24
<b>TILE_6</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	322.70	0.98	178.62	4690.77	1.01	163.82	3223.95	1.47	105.94	2328.25	1.53	116.93	1627.85	1.54	127.34	1.28
<b>p1</b>	326.60	0.99	165.57	4631.95	1.00	212.63	3116.12	1.42	112.08	2199.88	1.45	121.49	1613.92	1.53	129.22	1.25
<b>p2</b>	322.68	0.98	164.00	4647.75	1.00	201.76	3109.93	1.41	112.07	2260.85	1.49	122.05	1594.12	1.51	131.70	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>	327.12	0.99	201.75	4662.55	1.00	191.79	3140.93	1.43	111.82	2294.97	1.51	125.57	1642.28	1.55	134.69	1.27
<b>p1</b>	330.05	1.00	175.00	4618.40	1.00	224.18	3165.20	1.44	109.54	2154.78	1.42	124.83	1579.28	1.49	133.07	1.25
<b>p2</b>	333.68	1.01	168.78	4570.10	0.98	280.86	3071.22	1.40	114.94	2136.30	1.41	127.50	1484.58	1.40	137.64	1.22
<b>p0_score:</b>	10.29															
<b>p1_score:</b>	10.19															
<b>p2_score:</b>	9.96															

<b>Infrastructure_Operations_Scores:</b>	vmotion	svmotion	deploy
<b>Completed_Ops_PerHour</b>	16.50	10.00	4.50
<b>Avg_Seconds_To_Complete</b>	34.49	32.37	412.44
<b>Failures</b>	0.00	0.00	0.00
<b>Ratio</b>	1.03	1.11	1.12
<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>	10.19		
<b>Unreviewed_VMmark2_Infrastructure_Score</b>	1.09		
<b>Unreviewed_VMmark2_Score</b>	8.37		

## Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 5.1.0 Build 799133 / 09-10-2012
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 5.1.0 Build 799731 / 09-10-2012
Supplemental Software	None
Servers	

Quantity	2
Server Manufacturer and Model	Dell PowerEdge R715
Processor Vendor and Model	AMD Opteron Processor 6284 SE
Processor Speed (GHz)	2.7
Total Sockets/Total Cores/Total Threads	2 Sockets / 32 Cores / 32 Threads
Primary Cache	512 KB I (64KB shared / 2 cores) and 256 KB D (16KB/core on chip per chip)
Secondary Cache	16 MB I+D on chip per chip (2 MB share / 2 cores)
Other Cache	12 MB I+D on chip per chip
BIOS Version	2.3.0
Memory Size (in GB, Number of DIMMs)	128 GB, 8 x 16 GB DIMMs
Memory Type and Speed	dual rank PC3-12800 Registered DDR3 / 1600 MHz
Disk Subsystem Type	FC-SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	Dell PERC H200
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	Emulex LPe12002 dual port 8Gbps Fibre Channel
Number of Network Controllers	3
Network Controller Vendors and Models	2 x Dual-Port Broadcom 5709c 1GbE ports onboard Intel X520-SR2 dual port 10Gigabit Network Adapter
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	11-18-2011
Software Availability Date (MM-DD-YYYY)	11-18-2011
<b>Network</b>	
Network Switch Vendors and Models	Dell PowerConnect 6248
Network Speed	10Gbps
<b>Storage</b>	
Array Vendors, Models, and Firmware Versions	3 x Dell PowerVault MD3620f (Firmware 07.80.41.60)
Fibre Channel Switch Vendors and Models	None
Disk Space Used	2.2 TB

Array Cache Size	4 GB
Total Number of Physical Disks Used	72 (9 SSDs and 63 HDDs)
Total Number of Enclosures/Pods/Shelves Used	3
Number of Physical Disks Used per Enclosure/Pod/Shelf	24
Total Number of Storage Groups Used	11
Number of LUNs Used	21
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	SEAGATE ST9146852SS, 15K RPM (HDDs) Pliant LB150S (SSDs)

#### Datacenter Management Server

System Model	Sun Fire V20z
Processor Vendor and Model	AMD Opteron 275
Processor Speed (GHz)	2.2
Total Sockets/Total Cores/Total Threads	2 Sockets / 4 Cores / 4 Threads
Memory	8 GB
Network Controller(s) Vendors and Models	Integrated Broadcom NetXtreme GigE
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 SP2 Enterprise (x64)
Other Hardware	None
Other Software	None

#### Clients

Number of Clients	3 (1 physical server for prime client and 2 ESX Servers hosting 8 virtual clients)
System Model(s)	Prime client: Sun Fire V20z Virtual Client Hosts: Dell PowerEdge R815
Processor Vendor(s) and Model(s)	Prime client: AMD Opteron 275 Physical clients: AMD Opteron 6278
Processor Speed(s) (GHz)	Prime client: 2.2 Physical clients: 2.4
Total Sockets/Total Cores/Total Threads	Prime Client: 2 Sockets / 2 Cores / 4 Threads Physical clients: 4 Sockets / 128 Cores / 128 Threads

Memory per Client	Prime client: 4 GB Physical clients: 256 GB
Network Controller(s) Vendors and Models	Prime client: Integrated Broadcom NetXtreme GigE Physical clients: 2 x Dual-Port Broadcom 5709c 1GbE ports onboard
Operating System, Version, and Service Pack	Prime client: Microsoft Windows Server 2003 SP2 Enterprise (x64) Physical Clients: VMware ESXi 5.1.0 Build 799733 Virtual Clients: Microsoft Windows Server 2008 SP2 (x64)
Other Hardware	None
Other Software	None

## Notes for Workload

### Virtualization Software Notes

- Logging was disabled for all VMs (default enabled)
- Ethernet adapter type set to vmxnet3 for all VMs (default vmxnet2)
- CDROM and Floppy removed from all VMs except Mailserver3 (default attached)
- Virtual hardware for all VMs V7 except Mailservers V8
- All Mailserver VMs: Paravirtual Controller
- All VMs configured to have a single virtual socket with multiple cores (default one core per multiple virtual sockets)
- vSphere DRS Migration Threshold set to Fully Automated level 1

#### Advanced Settings:

- Value of CoschedCrossCall is 0 (default = 1)
- Value of HTWholeCoreThreshold is 0 (default = 200)
- Value of BalancePeriod is 0 (default = 15)
- Value of SamplePeriod is 0 (default = 60)
- Value of ShareScanGHz is 0 (default = 4)
- Value of UseMwait is 1 (default = 2)
- Value of TimerMaxHardPeriod is 4000 (default = 100000)
- Value of TimerMinHardPeriod is 2000 (default = 30)
- Value of MaxNetifRxQueueLen is 500 (default = 100)
- Value of MaxNetifTxQueueLen is 1000 (default = 500)
- Value of NetTxCompletionWorldlet is 0 (default = 1)
- Value of NetTxWorldlet is 1 (default = 2)
- Value of vmxnetThroughputWeight is 255 (default = 0)
- Value of LTermFairnessInterval is 0 (default = 5)
- Value of PageMigEnable is 0 (default = 1)
- Value of SwapLoadEnable is 0 (default = 1)
- Value of SwapLocalityEnable is 0 (default = 1)
- Value of PageMigRateMax is 10 (default = 16000)
- Value of SchedNumReqOutstanding is 256 (default = 32)
- Value of MonMigEnable is 0 (default = 1)
- Value of ShareVmkEnable is 0 (default = 1)
- Value of HardwareAcceleratedLocking is 0 (default = 1)

#### Driver Options:

- /vmkernel/module/ixgbe/options = "VMDQ=4,4 InterruptThrottleRate=2000"
- /vmkernel/module/lpfc820/options = "lpfc\_lun\_queue\_depth=64 lpfc\_cr\_delay=1 lpfc\_cr\_count=5"

### Server Notes

#### Server BIOS Settings:

- HW Prefetch Training on SW Prefetcher set to Disabled (Default = Enabled)
- HW Prefetcher set to Disabled (Default = Enabled)
- C1E set to Disabled (Default = Enabled)
- Power Management set to "Maximum Performance"
- Core Performance Boost Mode set to Enabled (Max freq 3.4GHz @ 1 core)(Default = Enabled)

### Networking Notes

- vSwitch0 for Service Console at 1Gbps (vmnic0)
- vSwitch1 for Olioweb and Oliodb VMs at 10Gbps (vmnic4)
- vSwitch2 for Ds2web, Ds2db VMS and VMotion at 10Gbps (vmnic5)
- vSwitch3 for Standby VMs at 1Gbps (vmnic1)
- vSwitch4 for Mailserver VMs at 1Gbps (vmnic2 & vmnic3)

### Storage Notes

- ESX installed on local disk drive.
- 1 RAID0 disk group, 7x146GB HDDs, contains LUNs SAS\_GRP1\_VOL1 & SAS\_GRP1\_VOL2
- 1 RAID0 disk group, 8x146GB HDDs, contains LUNs SAS\_GRP2\_VOL1 & SAS\_GRP2\_VOL2
- 1 RAID0 disk group, 8x146GB HDDs, contains LUNs SAS\_GRP3\_VOL1 & SAS\_GRP3\_VOL2
- 1 RAID0 disk group, 8x146GB HDDs, contains LUNs SAS\_GRP4\_VOL1 & SAS\_GRP4\_VOL2
- 1 RAID0 disk group, 8x146GB HDDs, contains LUNs SAS\_GRP5\_VOL1 & SAS\_GRP5\_VOL2
- 1 RAID0 disk group, 8x146GB HDDs, contains LUNs SAS\_GRP6\_VOL1 & SAS\_GRP6\_VOL2
- 1 RAID0 disk group, 8x146GB HDDs, contains LUNs SAS\_GRP7\_VOL1 & SAS\_GRP7\_VOL2
- 1 RAID0 disk group, 8x146GB HDDs, contains LUNs SAS\_GRP8\_VOL1 & SAS\_GRP8\_VOL2
- 1 RAID0 disk group, 4x150GB SSDs, contains LUNs SSD\_RAID0\_GRP1\_VOL1 and SSD\_RAID0\_GRP1\_VOL2
- 1 RAID0 disk group, 4x150GB SSDs, contains LUNs SSD\_RAID0\_GRP2\_VOL1 and SSD\_RAID0\_GRP2\_VOL2
- 1 RAID0 disk group, 1x150GB SSD, contains LUN SSD\_RAID0\_GRP5\_VOL1
- Tile 0 Mailserver, Standby, Olioweb and Ds2web VMs installed on SAS\_GRP2\_VOL1
- Tile 0 Oliodb VM installed on SAS\_GRP2\_VOL2
- Tile 1 Mailserver, Standby, Olioweb and Ds2web VMs installed on SAS\_GRP3\_VOL1
- Tile 1 Oliodb VM installed on SAS\_GRP3\_VOL2
- Tile 2 Mailserver, Standby, Olioweb and Ds2web VMs installed on SAS\_GRP4\_VOL1
- Tile 2 Oliodb VM installed on SAS\_GRP4\_VOL2
- Tile 3 Mailserver, Standby, Olioweb and Ds2web VMs installed on SAS\_GRP5\_VOL1
- Tile 3 Oliodb VM installed on SAS\_GRP5\_VOL1
- Tile 4 Mailserver, Standby, Olioweb and Ds2web VMs installed on SAS\_GRP6\_VOL1
- Tile 4 Oliodb VM installed on SAS\_GRP6\_VOL2
- Tile 5 Mailserver, Standby, Olioweb and Ds2web VMs installed on SAS\_GRP7\_VOL1
- Tile 5 Oliodb VM installed on SAS\_GRP7\_VOL2
- Tile 6 Mailserver, Standby, Olioweb and Ds2web VMs installed on SAS\_GRP8\_VOL1
- Tile 6 Oliodb VM installed on SAS\_GRP8\_VOL2

- Tile 7 Mailserver, Standby, Olioweb and Ds2web VMs installed on SAS\_GRP1\_VOL1
- Tile 7 Oliodb VM installed on SAS\_GRP1\_VOL2
- Tiles 0 and 4 ds2db VMs installed on SSD\_RAID0\_GRP1\_VOL1
- Tiles 1 and 5 ds2db VMs installed on SSD\_RAID0\_GRP2\_VOL1
- Tiles 2 and 6 ds2db VMs installed on SSD\_RAID0\_GRP2\_VOL2
- Tiles 3 and 7 ds2db VMs installed on SSD\_RAID0\_GRP1\_VOL2
- deploy LUN is SSD\_RAID0\_GRP5\_VOL1

### **Datacenter Management Server Notes**

None

### **Operating System Notes**

- All MailServer VMs running Microsoft Windows Server 2008 R2 SP1 Enterprise (64-bit)
- MailServer VM 3 "Network connections" service was running

### **Software Notes**

None

### **Client Notes**

- All clients (except prime client) were run on virtual machines that were each defined with 4 vCPUs, 4GB memory, 1 VMXNET3 network and 32GB disk space.

### **Other Notes**

None

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