

# VMware® VMmark™ V1.1 Results

**Vendor and Hardware Platform: Dell PowerEdge R905**  
**Virtualization Platform: VMware ESX 3.5 Update 2 (build 110181)**

**VMmark V1.1 Score =**  
**14.84 @ 10 Tiles**

**Tested By: Dell Inc.**

**Test Date: 02/09/2008**

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## Performance

	webservers		javaserver		mailserver		fileserver		database		
<b>TILE_0</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1997.10	1.96	18105.72	1.09	1639.53	1.49	20.85	1.63	2274.97	1.52	1.51
<b>p1</b>	1979.65	1.94	18116.20	1.09	1691.92	1.54	20.97	1.63	2277.80	1.53	1.52
<b>p2</b>	1981.67	1.94	18107.67	1.09	1573.58	1.43	20.67	1.61	2272.12	1.52	1.49
<b>TILE_1</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	2062.12	2.02	18083.03	1.09	1745.28	1.59	20.11	1.57	2304.07	1.54	1.53
<b>p1</b>	2062.38	2.02	18111.10	1.09	1802.05	1.64	19.87	1.55	2304.65	1.54	1.54
<b>p2</b>	2009.25	1.97	18076.62	1.09	1806.08	1.65	19.93	1.55	2302.35	1.54	1.53
<b>TILE_2</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1945.30	1.91	18096.50	1.09	1646.80	1.50	18.99	1.48	2230.12	1.49	1.47
<b>p1</b>	1959.25	1.92	18104.25	1.09	1696.80	1.55	18.77	1.46	2222.00	1.49	1.48
<b>p2</b>	1943.25	1.91	18104.67	1.09	1700.90	1.55	18.67	1.45	2224.22	1.49	1.48
<b>TILE_3</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1940.45	1.90	17656.75	1.06	1679.42	1.53	20.48	1.60	2259.03	1.51	1.50
<b>p1</b>	1928.05	1.89	18102.08	1.09	1778.75	1.62	19.06	1.49	2248.47	1.51	1.50
<b>p2</b>	1916.72	1.88	18096.92	1.09	1888.65	1.72	18.71	1.46	2245.03	1.50	1.51
<b>TILE_4</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	2017.20	1.98	18100.88	1.09	1575.88	1.44	19.15	1.49	2251.45	1.51	1.47
<b>p1</b>	2015.25	1.98	18114.47	1.09	1698.17	1.55	18.92	1.47	2241.70	1.50	1.49
<b>p2</b>	2014.72	1.98	18117.67	1.09	1707.47	1.56	18.66	1.45	2240.62	1.50	1.49
<b>TILE_5</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1955.10	1.92	18060.25	1.09	1528.00	1.39	20.19	1.57	1885.28	1.26	1.42
<b>p1</b>	1890.65	1.86	18063.25	1.09	1774.40	1.62	19.97	1.56	1866.40	1.25	1.45
<b>p2</b>	1929.58	1.89	17621.65	1.06	1801.12	1.64	19.83	1.55	1865.40	1.25	1.45
<b>TILE_6</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM

<b>p0</b>	2072.45	2.03	18055.10	1.09	1341.95	1.22	19.39	1.51	2162.90	1.45	1.43
<b>p1</b>	2067.78	2.03	18071.78	1.09	1673.85	1.53	19.22	1.50	2143.20	1.44	1.49
<b>p2</b>	2072.88	2.03	18079.30	1.09	1702.55	1.55	18.93	1.48	2141.57	1.44	1.49
<b>TILE_7</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	2011.67	1.97	17634.97	1.06	1372.47	1.25	18.18	1.42	2018.78	1.35	1.38
<b>p1</b>	2067.70	2.03	18111.20	1.09	1657.55	1.51	18.84	1.47	1993.00	1.34	1.46
<b>p2</b>	2071.12	2.03	18131.08	1.09	1673.22	1.53	18.86	1.47	2000.28	1.34	1.46
<b>TILE_8</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	2024.10	1.99	18081.15	1.09	1287.90	1.17	20.02	1.56	2222.10	1.49	1.43
<b>p1</b>	1964.67	1.93	18067.75	1.09	1503.62	1.37	19.86	1.55	2210.88	1.48	1.46
<b>p2</b>	2015.20	1.98	18061.85	1.09	1680.17	1.53	19.75	1.54	2203.82	1.48	1.50
<b>TILE_9</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	2057.55	2.02	18032.25	1.09	1207.70	1.10	19.38	1.51	2128.80	1.43	1.39
<b>p1</b>	2055.80	2.02	18013.50	1.08	1571.75	1.43	19.38	1.51	2108.12	1.41	1.46
<b>p2</b>	2051.00	2.01	18048.20	1.09	1654.95	1.51	19.05	1.48	2106.12	1.41	1.47
<b>p0_score:</b>	14.53										
<b>p1_score:</b>	14.84										
<b>p2_score:</b>	14.86										
<b>Unreviewed_VMmark_Score:</b>	14.84										

## Configuration

Server and Network	
Server Manufacturer and Model	Dell PowerEdge R905
Processor Vendor and Model	Quad-Core AMD Opteron 8360 SE
Processor Speed (GHz)	2.50
Number of Sockets/Cores per Socket	4 Sockets / 4 Cores per Socket (16 Cores Total)
Primary Cache	64 KB I + 64 KB D on chip per core
Secondary Cache	512 KB I+D on chip per core
Other Cache	2 MB I+D L3 on chip per chip
Memory	64 GB (16 x 4 GB) PC2-5300 667MHz Registered ECC DDR2 DIMM
Disk Subsystem Type	SAS (OS), FC SAN (VMs)
Number of Disk Controllers	N/A
Number of Host Bus Adapters	3
Host Bus Adapter Vendors and Models	1 x Dell PowerEdge Expandable RAID Controller (PERC) 6/i 2 x QLogic Corp QLE2462
Number of Network Controllers	3

Network Controller Vendors and Models	Intel PRO 1000PT Dual Port 1GbE
Network Switch Vendors and Models	Dell PowerConnect 6248
Network Speed	1000Base-T
Other Hardware	None
Other Software	None
Hardware Availability Date	27/06/2008
Software Availability Date	N/A

**Virtualization Software**

Vendor, Product, Version, and Build	VMware ESX 3.5 Update 2 (build 110181)
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Software Availability Date	12/08/2008

**Storage**

Array Vendor, Model, and Firmware Version	<ol style="list-style-type: none"> <li>1. EMC CX300, version 02.26.300.5.005</li> <li>2. EMC CX300, version 02.26.300.5.005</li> <li>3. EMC CX300, version 02.26.300.5.005</li> <li>4. EMC CX300, version 02.26.300.5.005</li> <li>5. EMC CX300, version 02.26.300.5.005</li> </ol>
Fibre Channel Switch Vendors and Models	Brocade Silkworm 3800
Disk Space Used	744GB
Array Cache Size	<ol style="list-style-type: none"> <li>1. EMC CX300, 2048MB</li> <li>2. EMC CX300, 2048MB</li> <li>3. EMC CX300, 2048MB</li> <li>4. EMC CX300, 2048MB</li> <li>5. EMC CX300, 2048MB</li> </ol>
Number and Size of LUNs	LUN 1: 250GB LUN 2: 250GB LUN 3: 250GB LUN 4: 250GB LUN 5: 250GB LUN 6: 250GB LUN 7: 250GB LUN 8: 250GB LUN 9: 250GB LUN 10: 250GB
RAID Type	RAID0 (all LUNs)
Number of Members per RAID Set	LUN 1: 10 members LUN 2: 10 members LUN 3: 10 members LUN 4: 10 members

	LUN 5: 10 members LUN 6: 10 members LUN 7: 10 members LUN 8: 10 members LUN 9: 10 members LUN 10: 10 members
Disk Vendor, Model, and Speed	Fujitsu Enterprise/15K
<b>Clients</b>	
Number of Clients	10
System Model(s)	5 x PowerEdge 1650, 4 x PowerEdge 1750, 1 x PowerEdge 1850
Processor Vendor(s) and Model(s)	Intel Xeon
Processor Speed(s) (GHz)	5 x 1.40 (1650), 2 x 3.20 (1750), 2 x 3.06 (1750), 2.80 (1850)
Number of Sockets/Cores per Socket	9 x 2 Sockets / 1 Core per Socket (2 Cores Total), 1 x 2 Sockets / 2 Cores per Socket (4 Cores Total)
Memory	2 GB
Network Controller Vendor and Model	5 x Intel PRO/1000 XT Network Connection (1650), 4 x Broadcom NetXtreme Gigabit Ethernet (1750), 1 x Intel PRO/1000 MT Network Connection (1850)
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 Enterprise Edition SP2
Other Hardware	None
Other Software	None

## Notes for Workload

### Server and Network Notes

- The PERC 6/i onboard controller contained 1 73GB/15K drive for OS
- BIOS settings:
  - Optical Drive Controller = Off (default On)
  - User-Accessible USB Ports = Only back ports on (default All Ports On)
  - Embedded Gb NIC1-4 = Disabled (default Enabled)
- Qlogic HBA BIOS settings:
  - Fibre Channel tape support disabled (default enabled)
  - Data rate option set to 1 (default 2)
  - Interrupt Delay timer set to 15 (default 0)
  - Maximum queue depth 64 (default 32)
- EMC CX300 Settings:
  - Storage Processor cache High/Low watermark - 40/20 (default 80/60)
- Network Settings:
  - Two vSwitches (0,1) bound to six physical NICs, vmnics (2,3,10) and vmnics (11,12,13) respectively
  - Each vSwitch was configured to 120 ports (default 56)
  - Service console was shared with vSwitch0
  - Database, FileServer, JavaServer, MailServer, and Standby VMs attached to vSwitch0
  - WebServer VMs attached to vSwitch1
- Storage Notes:
  - For all VMs, each tile was stored on its own LUN

## Virtualization Software Notes

- vmfs2 was unloaded prior to run
- pegasus CIMOM server was unloaded prior to run
- Virtualized MMU was enabled on all Linux VMs (default Automatic)
- Disk.SchedNumReqOutstanding set to 64 (default 32)
- Ethernet Adapter type set to Enhanced vmxnet for all VMs
- Logging was disabled for all VMs (default enabled)
- MaxHeapSizeMB was set to 64 (default 16)

## Operating System Notes

- Microsoft Windows Server 2003 virtual machines were updated to Service Pack 2, and [KB 933360](#) was applied
- SUSE Linux Enterprise Server 10 virtual machines were updated to Service Pack 2

## Software Notes

### Client Notes

- [KB 933360](#) was applied

### Other Notes

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