

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 =
15.35 @ 11 Tiles

Tested By: Dell Inc.

Test Date: 09/24/2008

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Performance

	webservers		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1848.97	1.81	18109.75	1.09	1746.45	1.59	19.21	1.50	1922.53	1.29	1.43
p1	1827.33	1.79	18094.20	1.09	1673.92	1.53	19.09	1.49	1914.92	1.28	1.42
p2	1832.75	1.80	18066.50	1.09	1598.30	1.46	18.96	1.48	1913.90	1.28	1.40
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1875.60	1.84	18056.70	1.09	1614.70	1.47	18.27	1.42	2232.72	1.50	1.44
p1	1851.28	1.82	17612.12	1.06	1833.55	1.67	18.17	1.42	2236.75	1.50	1.47
p2	1832.72	1.80	18034.35	1.09	1762.55	1.61	18.08	1.41	2240.07	1.50	1.46
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1834.92	1.80	18044.88	1.09	1728.08	1.58	18.36	1.43	2013.40	1.35	1.43
p1	1820.35	1.79	17646.58	1.06	1799.45	1.64	18.27	1.42	2015.17	1.35	1.43
p2	1821.10	1.79	18076.92	1.09	1858.47	1.69	18.27	1.42	2022.72	1.36	1.45
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1528.62	1.50	18113.20	1.09	1663.00	1.52	19.10	1.49	1835.97	1.23	1.35
p1	1492.30	1.46	18117.30	1.09	1748.88	1.59	18.82	1.47	1809.90	1.21	1.35
p2	1476.88	1.45	18135.22	1.09	1772.85	1.62	18.60	1.45	1788.58	1.20	1.35
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1797.85	1.76	18057.90	1.09	1576.05	1.44	17.77	1.39	2157.85	1.45	1.41
p1	1771.45	1.74	18053.67	1.09	1727.42	1.57	17.27	1.35	2170.75	1.45	1.42
p2	1760.95	1.73	18062.38	1.09	1552.25	1.42	16.82	1.31	2178.65	1.46	1.38
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1813.58	1.78	17664.20	1.06	1553.75	1.42	18.70	1.46	1855.00	1.24	1.37
p1	1785.05	1.75	18101.72	1.09	1781.28	1.62	18.70	1.46	1823.95	1.22	1.41
p2	1771.70	1.74	18121.25	1.09	1780.92	1.62	18.63	1.45	1847.75	1.24	1.41
TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1980.58	1.94	18066.80	1.09	1484.17	1.35	17.04	1.33	2110.68	1.41	1.40
p1	1969.40	1.93	18053.62	1.09	1635.60	1.49	16.80	1.31	2120.03	1.42	1.42
p2	1965.05	1.93	18084.03	1.09	1676.00	1.53	16.70	1.30	2126.22	1.42	1.43
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM

p0	1627.42	1.60	18029.35	1.09	1485.83	1.35	18.89	1.47	1981.80	1.33	1.36
p1	1599.03	1.57	18039.30	1.09	1545.95	1.41	18.75	1.46	1991.83	1.33	1.36
p2	1590.92	1.56	18032.20	1.09	1829.05	1.67	18.64	1.45	1992.65	1.34	1.41
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1989.15	1.95	18057.15	1.09	1375.00	1.25	16.80	1.31	2073.05	1.39	1.37
p1	1921.05	1.89	18061.95	1.09	1635.12	1.49	16.21	1.26	2066.53	1.38	1.40
p2	1966.42	1.93	18051.83	1.09	1670.62	1.52	16.27	1.27	2067.95	1.39	1.41
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1850.80	1.82	17729.33	1.07	1300.10	1.19	18.28	1.42	1791.08	1.20	1.31
p1	1834.20	1.80	17299.08	1.04	1606.90	1.47	17.98	1.40	1792.28	1.20	1.36
p2	1784.12	1.75	17928.45	1.08	1810.22	1.65	17.87	1.39	1775.53	1.19	1.39
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1910.28	1.87	18055.17	1.09	1104.75	1.01	19.58	1.53	1981.60	1.33	1.33
p1	1894.60	1.86	17631.62	1.06	1054.50	0.96	19.56	1.52	1976.92	1.32	1.31
p2	1895.95	1.86	18056.58	1.09	1056.40	0.96	19.54	1.52	1967.30	1.32	1.31
p0_score:	15.21										
p1_score:	15.35										
p2_score:	15.40										
Unreviewed_VMmark_Score:	15.35										

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	2
Host Bus Adapter Vendors and Models	1 x Dell PowerEdge Expandable RAID Controller (PERC) 6/i 1 x QLogic Corp QLE2462 Dual Port
Number of Network Controllers	8
Network Controller Vendors and Models	2 x Onboard Broadcom NetXtreme II BCM5708 Dual Port 6 x Broadcom NetXtreme II BCM5708 Single Port
Network Switch Vendors and Models	Dell PowerConnect 6248
Network Speed	1000Base-T

Other Hardware	None
Other Software	None
Hardware Availability Date	06/27/2008
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	08/12/2008

Storage

Array Vendor, Model, and Firmware Version	1. EMC CX300, version 02.26.300.5.005 2. EMC CX300, version 02.26.300.5.005 3. EMC CX300, version 02.26.300.5.005 4. EMC CX300, version 02.26.300.5.005 5. EMC CX300, version 02.26.300.5.005
Fibre Channel Switch Vendors and Models	Brocade Silkworm 3800
Disk Space Used	819GB
Array Cache Size	1. EMC CX300, 2048MB 2. EMC CX300, 2048MB 3. EMC CX300, 2048MB 4. EMC CX300, 2048MB 5. EMC CX300, 2048MB
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 LUN 11: 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 LUN 11: 10 members
Disk Vendor, Model, and Speed	Fujitsu Enterprise/15K

Clients

Number of Clients	11
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System Model(s)	5 x PowerEdge 1650, 4 x PowerEdge 1750, 2 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), 3.40 (1850)
Number of Sockets/Cores per Socket	10 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), 2 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 = All Ports Off (default All Ports On)
- 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 ten physical NICs, vmnics (0,1,10,11) and vmnics (2,3,4,5,8,9) 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 VMs (default Automatic)
- Disk.SchedNumReqOutstanding was set to 64 (default 32)
- Ethernet Adapter type was set to Enhanced vmxnet for all VMs
- Logging was disabled for all VMs (default enabled)
- MaxHeapSizeMB was set to 64 (default 16)
- IDE and Floppy devices were removed on all VMs (default enabled)

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

This is a full disclosure report for a VMmark benchmark result. All published VMmark results must be from fully-compliant tests for which a full disclosure report is publicly available.

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