VMware® VMmark™ V1.1 Results

Vendor and Hardware Platform: Dell PowerEdge M905 Virtualization Platform: VMware ESX 3.5 Update 2 (build 110181)	VMmark V1.1 Score = 15.09 @ 11 Tiles
Tested By: Dell Inc.	**Test Date: 19/09/2008**

Performance Section	Configuration Section	Notes Section
Performance	Configuration	Notes for Workload

Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1709.33	1.68	17646.55	1.06	1417.10	1.29	17.78	1.39	1878.22	1.26	1.32
p1	1696.40	1.66	18129.05	1.09	1350.10	1.23	17.81	1.39	1880.62	1.26	1.31
p2	1657.42	1.63	18082.67	1.09	1290.58	1.18	17.73	1.38	1874.15	1.26	1.29
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1906.60	1.87	18089.17	1.09	1453.60	1.33	17.54	1.37	2227.75	1.49	1.41
p1	1901.22	1.87	18100.38	1.09	1334.65	1.22	17.34	1.35	2229.43	1.49	1.38
p2	1878.92	1.84	18103.45	1.09	1365.15	1.24	18.00	1.40	2235.32	1.50	1.39
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1755.25	1.72	18110.95	1.09	1404.72	1.28	18.00	1.40	2163.72	1.45	1.37
p1	1748.40	1.72	18132.83	1.09	1245.30	1.14	18.05	1.41	2156.20	1.44	1.34
p2	1748.38	1.72	18101.25	1.09	1217.40	1.11	17.78	1.39	2158.30	1.45	1.33
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1909.95	1.87	18093.00	1.09	1571.53	1.43	18.47	1.44	2243.20	1.50	1.45
p1	1887.62	1.85	18067.10	1.09	1617.65	1.47	18.23	1.42	2246.57	1.51	1.45
p2	1917.00	1.88	18074.33	1.09	1453.80	1.33	18.36	1.43	2255.80	1.51	1.42
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1952.35	1.92	18041.42	1.09	1577.53	1.44	17.04	1.33	2142.18	1.44	1.42
p1	1951.25	1.91	18047.15	1.09	1525.00	1.39	17.06	1.33	2144.25	1.44	1.41
p2	1928.50	1.89	18041.95	1.09	1456.65	1.33	17.11	1.33	2143.90	1.44	1.39
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1781.85	1.75	18058.28	1.09	1509.40	1.38	17.87	1.39	1855.00	1.24	1.35
p1	1775.00	1.74	18045.03	1.09	1593.33	1.45	17.52	1.37	1860.60	1.25	1.36
p2	1771.53	1.74	18057.08	1.09	1598.47	1.46	17.73	1.38	1854.78	1.24	1.36
TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1741.85	1.71	18095.33	1.09	1529.95	1.39	16.42	1.28	2043.10	1.37	1.35
p1	1712.72	1.68	18098.20	1.09	1601.25	1.46	16.56	1.29	2041.45	1.37	1.36
p2	1741.58	1.71	18090.70	1.09	1396.35	1.27	16.41	1.28	2047.92	1.37	1.33
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM

p0	1560.05	1.53	17648.70	1.06	1368.67	1.25	18.40	1.43	1987.97	1.33	1.31
p1	1556.30	1.53	18101.80	1.09	1521.45	1.39	18.19	1.42	1988.80	1.33	1.34
p2	1534.75	1.51	18092.50	1.09	1389.17	1.27	18.43	1.44	1987.10	1.33	1.32
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1772.28	1.74	18103.45	1.09	1440.35	1.31	18.23	1.42	2069.85	1.39	1.37
p1	1763.15	1.73	18093.92	1.09	1641.00	1.50	18.09	1.41	2088.53	1.40	1.41
p2	1755.03	1.72	18085.65	1.09	1739.10	1.59	18.01	1.40	2086.40	1.40	1.42
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1922.38	1.89	18043.17	1.09	1313.20	1.20	17.52	1.37	2153.47	1.44	1.37
p1	1900.85	1.87	18085.25	1.09	1452.83	1.32	17.33	1.35	2143.72	1.44	1.39
p2	1931.60	1.90	17615.88	1.06	1340.42	1.22	17.38	1.35	2144.57	1.44	1.37
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1967.45	1.93	18033.67	1.09	1214.60	1.11	19.62	1.53	1989.33	1.33	1.36
p1	1902.45	1.87	18030.47	1.09	1413.80	1.29	19.44	1.52	1994.97	1.34	1.40
p2	1975.60	1.94	18022.25	1.08	1492.92	1.36	19.54	1.52	1976.40	1.32	1.42
p0_score:	15.09										
p1_score:	15.15										
p2_score:	15.06										
Unreviewed_VMmark_Score:	15.09										

Configuration

Server and Network	
Server Manufacturer and Model	Dell PowerEdge M905
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 Onboard Dell CERC6 RAID Controller 2 x QLogic Corp QME2472
Number of Network Controllers	2
Network Controller Vendors and Models	2 x Onboard Broadcom NetXtreme II BCM5708 Dual Port
Network Switch Vendors and Models	Dell PowerConnect 6248
Network Speed	1000Base-T

Other Hardware	None
Other Software	None
Hardware Availability Date	17/10/2008
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	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

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 onboard CERC6 controller contained 1 73GB/15K drive for OS
- BIOS settings:
  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 four physical NICs, vmnics (0,1) and vmnics (2,3) 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

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.

For information about VMmark and the rules regarding its usage visit www.vmware.com/products/vmmark.