

VMware® VMmark™ V1.1.1 Results

Vendor and Hardware Platform: Dell PowerEdge M905
Virtualization Platform: VMware ESX version 4.0 (build 159706)

**VMmark V1.1.1 Score =
22.90 @ 17 Tiles**

Tested By: Dell Inc.

Test Date: 05-19-2009

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Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1528.40	1.50	18126.33	1.09	1319.65	1.20	16.84	1.31	2204.43	1.48	1.31
p1	1534.58	1.51	18108.88	1.09	1279.30	1.17	16.67	1.30	2212.60	1.48	1.30
p2	1528.75	1.50	18113.30	1.09	1271.78	1.16	16.95	1.32	2218.12	1.49	1.30
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1730.22	1.70	18106.35	1.09	1594.38	1.45	14.72	1.15	2030.08	1.36	1.33
p1	1692.35	1.66	18107.50	1.09	1584.12	1.44	14.22	1.11	2037.05	1.36	1.32
p2	1744.40	1.71	17658.88	1.06	1432.10	1.31	13.78	1.07	2027.03	1.36	1.28
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1815.62	1.78	18106.12	1.09	1409.62	1.29	16.91	1.32	2199.12	1.47	1.37
p1	1760.38	1.73	18145.90	1.09	1382.85	1.26	16.87	1.31	2178.05	1.46	1.35
p2	1784.95	1.75	17654.90	1.06	1337.80	1.22	16.79	1.31	2185.82	1.46	1.34
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1549.35	1.52	18114.25	1.09	1661.95	1.52	15.12	1.18	2062.50	1.38	1.33
p1	1556.90	1.53	18113.58	1.09	1609.60	1.47	15.37	1.20	2063.05	1.38	1.32
p2	1550.80	1.52	17657.67	1.06	1621.10	1.48	15.36	1.20	2057.47	1.38	1.32
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1602.03	1.57	18122.08	1.09	1659.67	1.51	18.13	1.41	2222.32	1.49	1.40
p1	1606.60	1.58	18128.75	1.09	1649.67	1.50	18.03	1.41	2070.68	1.39	1.38
p2	1609.97	1.58	17672.85	1.06	1606.42	1.46	17.65	1.38	2042.17	1.37	1.36
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1735.33	1.70	18131.92	1.09	1561.20	1.42	15.87	1.24	1967.15	1.32	1.34
p1	1692.10	1.66	18114.83	1.09	1497.17	1.37	15.87	1.24	1963.08	1.32	1.32
p2	1676.38	1.65	17667.45	1.06	1462.58	1.33	15.87	1.24	1955.58	1.31	1.30

TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1696.95	1.67	18089.65	1.09	1567.50	1.43	14.91	1.16	2144.50	1.44	1.34
p1	1741.15	1.71	18098.80	1.09	1534.45	1.40	14.67	1.14	2151.28	1.44	1.34
p2	1756.65	1.72	18112.42	1.09	1571.22	1.43	14.47	1.13	2147.38	1.44	1.34
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1558.30	1.53	18148.67	1.09	1617.90	1.48	14.39	1.12	1928.80	1.29	1.29
p1	1558.88	1.53	18155.42	1.09	1515.83	1.38	14.66	1.14	1927.12	1.29	1.28
p2	1566.80	1.54	18141.90	1.09	1428.62	1.30	15.21	1.19	1923.22	1.29	1.27
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1653.22	1.62	17939.50	1.08	1643.47	1.50	14.87	1.16	2101.10	1.41	1.34
p1	1637.15	1.61	17980.90	1.08	1745.58	1.59	14.98	1.17	2111.00	1.41	1.36
p2	1689.78	1.66	17957.10	1.08	1715.80	1.56	15.08	1.18	2107.35	1.41	1.36
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1832.25	1.80	18063.70	1.09	1655.30	1.51	15.77	1.23	1960.20	1.31	1.37
p1	1810.53	1.78	18078.83	1.09	1758.35	1.60	15.89	1.24	1956.53	1.31	1.38
p2	1783.78	1.75	18096.45	1.09	1689.53	1.54	15.67	1.22	1961.42	1.31	1.36
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1651.03	1.62	17818.30	1.07	1025.00	0.93	17.06	1.33	2291.88	1.54	1.27
p1	1735.62	1.70	17860.95	1.08	1003.00	0.91	17.53	1.37	2305.10	1.54	1.29
p2	1719.60	1.69	17829.30	1.07	988.98	0.90	17.25	1.34	2312.18	1.55	1.28
TILE_11	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1797.70	1.76	18146.72	1.09	1504.78	1.37	14.38	1.12	2085.45	1.40	1.33
p1	1804.78	1.77	18142.00	1.09	1474.88	1.34	14.68	1.14	2081.15	1.39	1.33
p2	1815.30	1.78	17666.75	1.06	1380.58	1.26	14.53	1.13	2064.25	1.38	1.30
TILE_12	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1790.83	1.76	17663.83	1.06	1318.78	1.20	18.44	1.44	2382.55	1.60	1.39
p1	1747.38	1.71	18110.53	1.09	1329.97	1.21	18.18	1.42	2377.82	1.59	1.39
p2	1718.75	1.69	18116.90	1.09	1322.25	1.21	17.99	1.40	2382.25	1.60	1.38
TILE_13	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1893.70	1.86	18109.03	1.09	1412.08	1.29	17.60	1.37	2182.22	1.46	1.39
p1	1873.45	1.84	18127.45	1.09	1495.80	1.36	17.08	1.33	2182.32	1.46	1.40
p2	1858.08	1.82	18137.22	1.09	1442.12	1.31	17.06	1.33	2187.30	1.47	1.39
TILE_14	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1888.30	1.85	18013.55	1.08	1349.15	1.23	18.44	1.44	2356.70	1.58	1.41
p1	1868.85	1.83	18021.85	1.08	1629.15	1.49	18.33	1.43	2366.22	1.59	1.46
p2	1846.67	1.81	17562.70	1.06	1480.28	1.35	18.11	1.41	2369.57	1.59	1.42

TILE_15	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1812.15	1.78	17648.33	1.06	1320.85	1.20	16.47	1.28	2244.53	1.50	1.34
p1	1812.47	1.78	18066.17	1.09	1669.28	1.52	15.80	1.23	2237.78	1.50	1.40
p2	1815.35	1.78	18085.70	1.09	1694.47	1.54	15.80	1.23	2246.00	1.50	1.41
TILE_16	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1797.97	1.76	18059.88	1.09	1267.85	1.16	16.98	1.32	2290.97	1.54	1.35
p1	1796.72	1.76	18059.35	1.09	1514.12	1.38	17.18	1.34	2293.25	1.54	1.40
p2	1804.12	1.77	17635.45	1.06	1635.88	1.49	17.20	1.34	2298.93	1.54	1.42
p0_score:	22.90										
p1_score:	23.02										
p2_score:	22.84										
Unreviewed_VMmark_Score:	22.90										

Configuration

Server and Network	
Server Manufacturer and Model	Dell PowerEdge M905
Processor Vendor and Model	Quad-Core AMD Opteron 8393 SE
Processor Speed (GHz)	3.1GHz
Total Sockets/Total Cores/Total Threads	4 Sockets / 4 Cores per Socket (16 Cores Total) / 16 Total Threads
Primary Cache	64KB I + 64KB D on chip per core
Secondary Cache	512KB I+D on chip per core
Other Cache	6MB I+D L3 on chip per chip
BIOS Version	2.0.0
Memory Size (in GB, Number of DIMMs)	128GB (16x8GB)
Memory Type and Speed	PC2-5300 667MHz Registered ECC DDR2 DIMMs
Disk Subsystem Type	SAS(OS), FC SAN(VMs)
Number of Disk Controllers	NA
Disk Controller Vendors and Models	NA
Number of Host Bus Adapters	2
Host Bus Adapter Vendors and Models	1x Dell PowerEdge Expandable RAID Controller (CERC) 6/i 1x QLogic Corp QLE2462 Dual Port
Number of Network Controllers	4
Network Controller Vendors and Models	Broadcom NetXtreme II BCM5708 (onboard)

Network Switch Vendors and Models	Dell PowerConnect 6248
Network Speed	1000Base-T
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	06-18-2009
Software Availability Date (MM-DD-YYYY)	05-21-2009

Virtualization Software

Vendor, Product, Version, and Build	VMware ESX version 4.0 build 159706
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Software Availability Date (MM-DD-YYYY)	05-21-2009

Storage

Array Vendors, Models, and Firmware Versions	3 x Dell/EMC CX3-40f, version 03.26.040.5.025
Fibre Channel Switch Vendors and Models	Brocade SilkWorm 3200 Brocade SilkWorm 3800
Disk Space Used	1054 GB for VMs
Array Cache Size	8GB per array
Total Number of Physical Disks Used	90 Physical Disks
Total Number of Enclosures/Pods/Shelves Used	6 Enclosures
Total Number of Physical Disks per Enclosures/Pods/Shelves Used	15 Physical Disks per Enclosure
Total Number of Storage Groups Used	6
Number LUNs Used	18 LUNs (6 per Enclosure)
LUN Size and Number of Disks Per LUN	~300GB, 10 disks per LUN
RAID Type	RAID0
Number of Members per RAID Set	10
Disk Vendors, Models, and Speeds	Hitachi HUS151P7 CLAR72 73GB 15K RPM

Clients

Number of Clients

17

System Model(s)

client0: PowerEdge 1750
client1: PowerEdge 1750
client2: PowerEdge 1750
client3: PowerEdge 1750
client4: PowerEdge 1850
client5: PowerEdge 1650
client6: PowerEdge 1650
client7: PowerEdge 1650
client8: PowerEdge 1650
client9: PowerEdge 1650
client10: PowerEdge 1850
client11: PowerEdge 1850
client12: PowerEdge 1850
client13: PowerEdge 1850
client14: PowerEdge 1850
client15: PowerEdge 1850
client16: PowerEdge 1850

Processor Vendor(s)
and Model(s)

Intel Xeon

Processor Speed(s) (GHz)

client0: 3.06
client1: 3.06
client2: 3.20
client3: 3.20
client4: 2.80
client5: 1.40
client6: 1.40
client7: 1.40
client8: 1.40
client9: 1.40
client10: 3.40
client11: 3.60
client12: 3.60
client13: 3.60
client14: 3.60
client15: 3.60
client16: 3.60

Number of Sockets/Cores
per Socket

client0: 2 Sockets / 1 Core per Socket (2 Cores Total)
client1: 2 Sockets / 1 Core per Socket (2 Cores Total)
client2: 2 Sockets / 1 Core per Socket (2 Cores Total)
client3: 2 Sockets / 1 Core per Socket (2 Cores Total)
client4: 1 Socket / 2 Cores per Socket (2 Cores Total)
client5: 2 Sockets / 1 Core per Socket (2 Cores Total)
client6: 2 Sockets / 1 Core per Socket (2 Cores Total)
client7: 2 Sockets / 1 Core per Socket (2 Cores Total)
client8: 2 Sockets / 1 Core per Socket (2 Cores Total)
client9: 2 Sockets / 1 Core per Socket (2 Cores Total)
client10: 2 Sockets / 1 Core per Socket (2 Cores Total)

	client11: 2 Sockets / 1 Core per Socket (2 Cores Total) client12: 2 Sockets / 1 Core per Socket (2 Cores Total) client13: 2 Sockets / 1 Core per Socket (2 Cores Total) client14: 2 Sockets / 1 Core per Socket (2 Cores Total) client15: 2 Sockets / 1 Core per Socket (2 Cores Total) client16: 2 Sockets / 1 Core per Socket (2 Cores Total)
Memory	2 GB except client10, which had 8 GB
Network Controller Vendor and Model	Intel PRO/1000 XT Network Connection (1650), Broadcom NetXtreme Gigabit Ethernet (1750), 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

- BIOS settings:
Virtualization Technology = Enabled
Internal USB port = Off (default On)
- Array settings:
Storage Processor cache High/Low watermark - 40/20 (default 80/60)
- Network Settings:
Broadcom NICs (vmln0,1,2,3) bound to vSwitch0,1,2,3 respectively
Service console and Standby VMs attached to vSwitch0
JavaServer, MailServer, and FileServer VMs attached to vSwitch1
Database VMs attached to vSwitch2
WebServer VMs attached to vSwitch3
- Storage Notes:
For all VMs, each tile was stored on its own LUN

Virtualization Software Notes

- Hardware support for both CPU and MMU virtualization enabled on all VMs (default Automatic)
- All VMs' hardware upgraded to version 7
- Ethernet Adapter type was set to VMXNET3 for all VMs
- Logging was disabled for all VMs (default enabled)
- VMFS2 was unloaded
- IDE and Floppy devices were removed on all VMs (default enabled)
- iptables, ip6tables and firewall services disabled at boot

Operating System Notes

- Microsoft Windows Server 2003 virtual machines were updated to Service Pack 2, and KB951072-v2 was applied
- SUSE Linux Enterprise Server 10 virtual machines were updated to Service Pack 2

Software Notes

- None

Client Notes

- KB951072-v2 was applied

Other Notes

- None

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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