

VMware® VMmark™ V1.1.1 Results

Vendor and Hardware Platform: Dell PowerEdge M910
Virtualization Platform: VMware ESX version 4.0 Build 258828

VMmark V1.1.1 Score =
37.11 @ 26 Tiles

Tested By: Dell Inc

Test Date: 06-23-2010

Performance Section

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Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1913.90	1.88	17698.97	1.07	1318.72	1.20	17.19	1.34	2294.80	1.54	1.38
p1	1871.08	1.84	18138.22	1.09	1521.45	1.39	17.06	1.33	2290.03	1.53	1.42
p2	1850.75	1.82	18135.38	1.09	1653.72	1.51	16.80	1.31	2290.60	1.53	1.43
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1865.03	1.83	17701.97	1.07	1341.58	1.22	17.89	1.39	2303.07	1.54	1.39
p1	1745.67	1.71	18148.80	1.09	1565.28	1.43	17.32	1.35	2306.43	1.55	1.41
p2	1819.33	1.79	18114.75	1.09	1616.10	1.47	17.22	1.34	2300.20	1.54	1.43
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1846.65	1.81	18116.22	1.09	1376.20	1.25	16.66	1.30	2343.22	1.57	1.38
p1	1817.47	1.78	17690.58	1.06	1561.60	1.42	16.29	1.27	2345.70	1.57	1.40
p2	1845.80	1.81	18129.25	1.09	1636.65	1.49	15.79	1.23	2348.88	1.57	1.42
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1838.30	1.80	18117.38	1.09	1380.33	1.26	17.59	1.37	2348.60	1.57	1.40
p1	1820.35	1.79	17654.28	1.06	1568.03	1.43	17.26	1.35	2351.45	1.58	1.42
p2	1836.75	1.80	18111.92	1.09	1753.75	1.60	16.86	1.31	2358.75	1.58	1.46
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1950.12	1.91	18139.33	1.09	1369.97	1.25	17.67	1.38	2328.45	1.56	1.41
p1	1912.80	1.88	17653.00	1.06	1634.83	1.49	17.32	1.35	2331.22	1.56	1.44
p2	1864.03	1.83	18108.08	1.09	1740.42	1.59	16.93	1.32	2332.75	1.56	1.46
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1895.35	1.86	18116.20	1.09	1403.97	1.28	17.94	1.40	2337.93	1.57	1.42
p1	1871.42	1.84	18110.92	1.09	1602.65	1.46	17.65	1.38	2335.85	1.57	1.44
p2	1812.85	1.78	17660.05	1.06	1710.65	1.56	17.52	1.37	2340.25	1.57	1.45

TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1942.20	1.91	18133.55	1.09	1365.72	1.25	18.03	1.41	2361.72	1.58	1.42
p1	1880.35	1.85	17663.65	1.06	1574.12	1.44	17.47	1.36	2362.80	1.58	1.43
p2	1867.42	1.83	18134.00	1.09	1678.72	1.53	17.08	1.33	2368.90	1.59	1.45
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1941.50	1.91	18142.03	1.09	1424.92	1.30	17.91	1.40	2362.05	1.58	1.43
p1	1910.83	1.88	17698.45	1.07	1522.05	1.39	17.33	1.35	2366.10	1.59	1.43
p2	1937.65	1.90	18155.42	1.09	1640.38	1.50	16.81	1.31	2374.68	1.59	1.45
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1934.53	1.90	18110.75	1.09	1338.30	1.22	18.11	1.41	2364.53	1.58	1.41
p1	1913.30	1.88	18108.80	1.09	1530.70	1.40	17.94	1.40	2367.35	1.59	1.45
p2	1883.25	1.85	17678.15	1.06	1641.85	1.50	17.70	1.38	2374.25	1.59	1.45
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1885.83	1.85	18135.80	1.09	1264.00	1.15	18.00	1.40	2362.65	1.58	1.39
p1	1815.12	1.78	17660.35	1.06	1529.72	1.39	17.50	1.36	2365.68	1.59	1.42
p2	1858.35	1.82	18114.17	1.09	1743.92	1.59	17.02	1.33	2366.43	1.59	1.46
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1932.45	1.90	18145.45	1.09	1240.10	1.13	17.87	1.39	2341.70	1.57	1.39
p1	1868.38	1.83	17705.78	1.07	1585.17	1.45	17.32	1.35	2343.40	1.57	1.43
p2	1889.38	1.85	18150.92	1.09	1647.58	1.50	16.88	1.32	2345.28	1.57	1.44
TILE_11	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1967.85	1.93	18136.78	1.09	1291.78	1.18	18.21	1.42	2348.78	1.57	1.41
p1	1927.17	1.89	17677.83	1.06	1561.08	1.42	17.90	1.39	2352.47	1.58	1.44
p2	1945.35	1.91	18131.30	1.09	1708.15	1.56	17.62	1.37	2353.75	1.58	1.48
TILE_12	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1972.08	1.94	18119.42	1.09	1253.50	1.14	18.36	1.43	2353.85	1.58	1.40
p1	1937.92	1.90	18112.78	1.09	1536.67	1.40	18.05	1.41	2355.07	1.58	1.45
p2	1942.38	1.91	17678.60	1.06	1575.15	1.44	17.65	1.38	2355.32	1.58	1.45
TILE_13	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1916.22	1.88	18150.42	1.09	1256.58	1.15	18.07	1.41	2354.70	1.58	1.39
p1	1885.40	1.85	17700.38	1.07	1459.53	1.33	17.36	1.35	2356.85	1.58	1.41
p2	1893.65	1.86	18141.92	1.09	1577.83	1.44	17.20	1.34	2363.00	1.58	1.44
TILE_14	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1954.08	1.92	18124.88	1.09	1292.42	1.18	18.24	1.42	2354.82	1.58	1.41
p1	1917.85	1.88	18131.55	1.09	1593.50	1.45	17.82	1.39	2356.97	1.58	1.46
p2	1955.65	1.92	17686.72	1.06	1531.22	1.40	17.85	1.39	2366.20	1.59	1.44

TILE_15	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1954.70	1.92	18157.72	1.09	1292.47	1.18	17.65	1.38	2359.45	1.58	1.40
p1	1887.15	1.85	17689.12	1.06	1572.05	1.43	17.22	1.34	2363.20	1.58	1.43
p2	1861.92	1.83	18120.70	1.09	1684.28	1.54	17.01	1.33	2369.50	1.59	1.45
TILE_16	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1934.83	1.90	18106.85	1.09	1242.42	1.13	17.95	1.40	2353.25	1.58	1.39
p1	1912.83	1.88	18108.75	1.09	1493.30	1.36	17.58	1.37	2355.80	1.58	1.43
p2	1899.60	1.86	17651.90	1.06	1597.58	1.46	17.19	1.34	2356.03	1.58	1.44
TILE_17	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1930.12	1.89	18161.47	1.09	1250.10	1.14	18.19	1.42	2343.45	1.57	1.39
p1	1924.92	1.89	17697.88	1.07	1431.92	1.31	17.82	1.39	2350.80	1.58	1.42
p2	1905.33	1.87	18135.90	1.09	1653.28	1.51	17.56	1.37	2351.18	1.58	1.46
TILE_18	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1958.95	1.92	18171.12	1.09	1283.38	1.17	17.72	1.38	2320.35	1.55	1.40
p1	1881.10	1.85	18161.55	1.09	1550.42	1.41	17.22	1.34	2316.57	1.55	1.43
p2	1873.03	1.84	18179.65	1.09	1620.47	1.48	16.64	1.30	2318.20	1.55	1.43
TILE_19	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1939.95	1.90	18115.58	1.09	1274.12	1.16	17.72	1.38	2290.40	1.53	1.39
p1	1916.88	1.88	18116.17	1.09	1508.75	1.38	17.28	1.35	2289.80	1.53	1.42
p2	1905.97	1.87	18117.20	1.09	1694.00	1.54	16.75	1.31	2288.97	1.53	1.45
TILE_20	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1913.65	1.88	18160.35	1.09	1194.75	1.09	17.76	1.38	2322.43	1.56	1.37
p1	1865.40	1.83	18109.67	1.09	1583.80	1.44	17.32	1.35	2322.47	1.56	1.43
p2	1870.60	1.84	18102.38	1.09	1643.10	1.50	16.84	1.31	2323.20	1.56	1.44
TILE_21	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1869.72	1.83	18150.08	1.09	1208.60	1.10	16.31	1.27	2309.90	1.55	1.34
p1	1831.60	1.80	18154.03	1.09	1431.40	1.31	15.95	1.24	2306.03	1.55	1.38
p2	1836.15	1.80	18134.53	1.09	1614.08	1.47	15.48	1.21	2296.55	1.54	1.40
TILE_22	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1946.05	1.91	18137.88	1.09	1178.78	1.07	17.96	1.40	2347.45	1.57	1.38
p1	1909.92	1.87	17680.60	1.06	1514.10	1.38	17.61	1.37	2349.65	1.57	1.43
p2	1891.85	1.86	18132.35	1.09	1628.95	1.49	17.39	1.36	2356.50	1.58	1.45
TILE_23	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1923.75	1.89	18164.92	1.09	1137.35	1.04	17.95	1.40	2332.12	1.56	1.36
p1	1939.33	1.90	17687.88	1.06	1468.38	1.34	17.56	1.37	2335.88	1.57	1.42
p2	1935.95	1.90	18169.53	1.09	1594.28	1.45	17.56	1.37	2336.70	1.57	1.45

TILE_24	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1884.42	1.85	18117.17	1.09	1183.58	1.08	18.03	1.40	2334.90	1.56	1.37
p1	1883.65	1.85	18109.58	1.09	1469.08	1.34	17.61	1.37	2334.95	1.56	1.42
p2	1914.42	1.88	18148.72	1.09	1654.33	1.51	17.60	1.37	2342.95	1.57	1.46
TILE_25	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1969.20	1.93	18127.50	1.09	1152.67	1.05	17.70	1.38	2345.45	1.57	1.37
p1	1942.72	1.91	18129.90	1.09	1563.88	1.43	17.22	1.34	2350.75	1.58	1.44
p2	1916.58	1.88	18141.47	1.09	1609.72	1.47	16.94	1.32	2354.45	1.58	1.44
p0_score:	36.17										
p1_score:	37.11										
p2_score:	37.57										
Unreviewed_VMmark_Score:	37.11										

Configuration

Server and Network	
Server Manufacturer and Model	Dell PowerEdge M910
Processor Vendor and Model	Intel Xeon X7560
Processor Speed (GHz)	2.27 GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 16 Cores / 32 Threads
Primary Cache	32KB I+32KB D on chip per core
Secondary Cache	256KB I+D on chip per core
Other Cache	24MB I+D on chip per chip L3
BIOS Version	1.1.7
Memory Size (in GB, Number of DIMMs)	256GB, 32x8GB
Memory Type and Speed	Quad rank 1066MHz Registered DDR3
Disk Subsystem Type	SAS(OS), FC SAN (VMs)
Number of Disk Controllers	1
Disk Controller Vendors and Models	Dell SAS 6/iR Modular RAID Controller
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	Dual-Port QLogic FC4 Fibre Channel Host Bus Adapter QME2472
Number of Network Controllers	8 (2 unused)
Network Controller Vendors and Models	2 embedded Broadcom 5709S dual-port Gb LAN controllers 2 Broadcom NetXtreme II BCM5709 dual-port Gb mezzanine adapters

Network Switch Vendors and Models	2x Dell PowerConnect 6248
Network Speed	1 Gbps
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	07-07-2010
Software Availability Date (MM-DD-YYYY)	07-07-2010
Virtualization Software	
Vendor, Product, Version, and Build	VMware ESX 4.0 Build 258828
Virtualization Type	Hardware
Supplemental Software	None
Virtualization Software Availability Date (MM-DD-YYYY)	06-10-2010
Storage	
Array Vendors, Models, and Firmware Versions	3x Dell/EMC CX3-40f, version 03.26.040.5.025
Fibre Channel Switch Vendors and Models	Brocade SilkWorm 4100
Disk Space Used	1612GB
Array Cache Size	8GB per array
Total Number of Physical Disks Used	180 Physical Disks
Total Number of Enclosures/Pods/Shelves Used	12 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	20 LUNs
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	26
System Model(s)	PowerEdge 1750: Clients 0-3 PowerEdge 1850: Clients 4,10-25 PowerEdge 1950: Clients 5-9
Processor Vendor(s) and Model(s)	Intel Xeon, P4, E5205
Processor Speed(s) (GHz)	3.06GHz: Clients 0,1 3.20GHz: Clients 2,3 2.80GHz: Client4 1.86GHz: Clients 5-9 3.40GHz: Client10 3.60GHz: Clients 11-25
Total Sockets/Total Cores/Total Threads	2 Sockets / 1 Cores per Socket / 4 Threads: Clients 0-4, 10-25 2 Sockets / 4 Cores per Socket / 4 Threads: Clients 5-9
Memory per Client	2GB: Clients 0-4, 11-25 4GB: Clients 5-10
Network Controller Vendors and Models	Broadcom NetXtreme 5704 Gigabit Ethernet (PE1750) Intel PRO/1000 MT Network Controller (PE1850) Broadcom 5708 Gigabit Network Controller (PE1950)
Operating System, Version, and Service Pack	Windows Server 2003 Enterprise Edition SP2
Other Hardware	None
Other Software	None

Notes for Workload

Server and Network Notes

- Bios Settings:
 - Virtualization Technology=Enabled (default Disabled)
 - User USB port=Off (default On)
 - Internal USB port=Off (default On)
 - Power Management=Maximum Performance (Default Active Power Controller)
- Array Settings:
 - Storage Processor cache High/Low watermark=40/20 (Default 80/60)
- Network Settings:
 - Broadcom NICs (vmnic0,1,2,3,4,6) bound to vSwitch0,1,2,3,4,5 respectively
 - vmnic5 and 7 not used
 - Service Console, MailServer and Standby VMs are attached to vSwitch0
 - FileServer VMs are attached to vSwitch1
 - JavaServer VMs are attached to vSwitch2
 - Database VMs are attached to vSwitch3
 - WebServer VMs (0,2,4,6,8,10,12,14,16,18,20,22,24) are attached to vSwitch4
 - WebServer VMs (1,3,5,7,9,11,13,15,17,19,21,23,25) are attached to vSwitch5
 - vSwitch0,1,2 and 3 were configured with 120 ports (default 56)

- Storage Configuration
 - Dell/EMC CX3-40f(1)
 - RAID0 LUN0, 300GB for Tiles 0 and 20
 - RAID0 LUN1, 301GB for Tiles 1 and 21
 - RAID0 LUN2, 302GB for Tiles 2 and 22
 - RAID0 LUN3, 303GB for Tiles 3 and 23
 - RAID0 LUN4, 304GB for Tiles 4 and 24
 - RAID0 LUN5, 305GB for Tiles 5 and 25
 - RAID0 LUN6, 318GB for Tile 18
 - RAID0 LUN7, 319GB for Tile 19
 - Dell/EMC CX3-40f(2)
 - RAID0 LUN0, 306GB for Tile 6
 - RAID0 LUN1, 307GB for Tile 7
 - RAID0 LUN2, 308GB for Tile 8
 - RAID0 LUN3, 309GB for Tile 9
 - RAID0 LUN4, 310GB for Tile 10
 - RAID0 LUN5, 311GB for Tile 11
 - Dell/EMC CX3-40f(3)
 - RAID0 LUN0, 312GB for Tile 12
 - RAID0 LUN1, 313GB for Tile 13
 - RAID0 LUN2, 314GB for Tile 14
 - RAID0 LUN3, 315GB for Tile 15
 - RAID0 LUN4, 316GB for Tile 16
 - RAID0 LUN5, 317GB for Tile 17

Virtualization Software Notes

- Hardware support for both CPU and MMU virtualization enabled on all VMs (default automatic)
- All VM's hardware upgraded to version 7
- Ethernet adapter type upgraded to VMXNET3 for all VM's
- Logging was disabled for all VMs
- IDE and Floppy devices were removed on all VMs (default enabled)
- iptables and firewall services were disabled at boot
- Disk.SchedNumReqOutstanding set to 128 (default 32)
- Disk.EnableNaviReg=0 (default 1)
- BufferCache.SoftMaxDirty=85 (default 15)
- CPU.Quantum=60 (default 50)
- CPU.HaltingIdleMsecPenalty=0 (default 100)
- IRQ.RoutingPolicy=0 (default 2)
- Mem.BalancePeriod=0 (default 15)
- Mem.ShareScanGHz=0 (default 4)
- Net.MaxNetifRxQueueLen=300 (default 100)
- Net.MaxNetifTxQueueLen=1000 (default 500)
- Net.vmxnetThroughputWeight=255 (default 0)
- Numa.PageMigEnabled=0 (default 1)
- JavaServer VMs use jrockit-R27.5.0-jdk1.5.0_15
- All mailserver data partitions have been expanded

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 to all clients and overwrites KB933360

Other Notes

- VMmark Config:
 - TILEDELAY=60
 - MailServer/DELAYTIME="0"
 - JavaServer/DELAYTIME="25"
 - Standby/DELAYTIME="35"
 - WebServer/DELAYTIME="50"
 - Database/DELAYTIME="75"
 - FileServer/DELAYTIME="100"

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.

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