

VMware® VMmark™ V1.0.0 Results

Vendor and Hardware Platform: Dell PowerEdge R900
Virtualization Platform: VMware ESX Server V3.5.0 BETA (build 62773)

VMmark V1.0.0 Score =
12.23 @ 8 Tiles

Tested By: Dell Inc., Round Rock, TX

Test Date: Nov-16-2007

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Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2042.17	2.00	18126.00	1.09	1693.33	1.54	21.45	1.67	2245.82	1.50	1.53
p1	2035.15	2.00	17693.62	1.07	1951.62	1.78	21.28	1.66	2246.55	1.51	1.57
p2	2017.42	1.98	18154.33	1.09	1887.72	1.72	21.45	1.67	2251.43	1.51	1.57
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2054.05	2.02	18086.15	1.09	1567.40	1.43	22.04	1.72	2240.07	1.50	1.52
p1	2042.58	2.00	18091.15	1.09	1763.33	1.61	22.21	1.73	2232.25	1.50	1.55
p2	2036.78	2.00	18073.05	1.09	1847.40	1.68	21.98	1.71	2233.22	1.50	1.57
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2047.65	2.01	18127.25	1.09	1543.55	1.41	22.34	1.74	2247.40	1.51	1.52
p1	2034.53	2.00	18141.95	1.09	1786.10	1.63	22.46	1.75	2253.80	1.51	1.56
p2	2021.83	1.98	17654.50	1.06	1865.53	1.70	22.21	1.73	2258.07	1.51	1.57
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2049.03	2.01	18080.28	1.09	1515.50	1.38	22.42	1.75	2242.65	1.50	1.51
p1	2046.88	2.01	18091.95	1.09	1734.12	1.58	22.34	1.74	2241.20	1.50	1.55
p2	2040.40	2.00	18095.42	1.09	1843.78	1.68	22.20	1.73	2250.72	1.51	1.57
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2055.53	2.02	18064.62	1.09	1482.35	1.35	22.10	1.72	2227.47	1.49	1.50
p1	2048.68	2.01	17618.67	1.06	1673.10	1.53	22.21	1.73	2232.53	1.50	1.53
p2	2041.03	2.00	18075.78	1.09	1780.38	1.62	21.94	1.71	2244.35	1.50	1.56
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2059.82	2.02	18129.95	1.09	1376.05	1.25	21.48	1.67	2167.55	1.45	1.46
p1	2041.88	2.00	18140.75	1.09	1567.03	1.43	21.59	1.68	2166.00	1.45	1.50

p2	2034.55	2.00	17687.20	1.06	1752.15	1.60	21.21	1.65	2172.78	1.46	1.52
TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2050.93	2.01	18102.05	1.09	1258.35	1.15	21.62	1.69	2116.43	1.42	1.43
p1	2033.50	2.00	18098.10	1.09	1487.45	1.36	21.46	1.67	2116.78	1.42	1.48
p2	2037.75	2.00	17616.80	1.06	1657.65	1.51	21.17	1.65	2124.12	1.42	1.50
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2053.50	2.02	18089.88	1.09	1157.65	1.06	21.08	1.64	2131.45	1.43	1.40
p1	2055.30	2.02	18081.58	1.09	1513.05	1.38	20.74	1.62	2153.12	1.44	1.48
p2	2037.83	2.00	18065.05	1.09	1640.60	1.50	20.52	1.60	2155.57	1.44	1.50
p0_score:	11.89										
p1_score:	12.23										
p2_score:	12.34										
Unreviewed_VMmark_Score:	12.23										

Configuration

System Under Test (SUT)	
Processor Vendor and Model	Quad-Core Intel Xeon X7350
Processor Speed (GHz)	2.93
# of Sockets/Cores per Socket	4 Sockets / 4 Cores per Socket (16 Cores Total)
Primary Cache	32KB(I) + 32KB(D) on chip, per core
Secondary Cache	8MB(I+D) on chip, per chip, 4 MB shared/2 cores
Other Cache	None
Memory	64GB (16x4GB) 667MHz ECC CL5 DDR2 FB-DIMM
Disk Subsystem	SAS (OS), FC SAN (VMs)
# of Disk Controllers	N/A
Host Bus Adapters Vendor and Model	1 x Dell PowerEdge Expandable RAID Controller (PERC) 6/i 2 x QLogic Corp QLA2462
# of Host Bus Adapters	3
# of Network Controllers	3
Network Controllers Vendor and Model	Intel PRO 1000PT Dual Port 1GbE
Network Switches Vendor and Model	Dell PowerConnect 5224
Network Speed	1000Base-T
Other Hardware	None

Other Software	None
Hardware Availability Date	Nov-2007
Software Availability Date	Aug-2007
Virtualization Platform	
Vendor, Product, and Version	VMware ESX Server V3.5.0
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Platform Availability Date	Dec-2007
Storage	
Array Vendor and Model/ 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
Fibre Channel Switches Vendor and Model	Brocade Silkworm 3800
Used GB	557
Array Cache GB	1. EMC CX300, 2048MB 2. EMC CX300, 2048MB 3. EMC CX300, 2048MB 4. EMC CX300, 2048MB
Number and Size of LUNs	LUN 1: 120GB LUN 2: 120GB LUN 3: 120GB LUN 4: 120GB LUN 5: 120GB LUN 6: 120GB LUN 7: 120GB LUN 8: 120GB LUN 9: 260GB
RAID Type	LUN 1: RAID10 LUN 2: RAID10 LUN 3: RAID10 LUN 4: RAID10 LUN 5: RAID10 LUN 6: RAID10 LUN 7: RAID10 LUN 8: RAID10 LUN 9: RAID10
	LUN 1: 10 members LUN 2: 10 members LUN 3: 10 members

Number of Members per RAID Set	LUN 4: 10 members LUN 5: 10 members LUN 6: 10 members LUN 7: 10 members LUN 8: 10 members LUN 9: 16 members
Disk Vendor and Model/Speed	Fujitsu Enterprise/15K
Clients	
# of Clients	8
System Model	3 x PowerEdge 1650, 4 x PowerEdge 1750, PowerEdge 1850
Processor Vendor and Model	Intel Xeon
Processor Speed (GHz)	1.40 (1650), 2 x 3.20 (1750), 2 x 3.06 (1750), 2.80 (1850)
# of Sockets/# of Cores	2/2 (1650), 2/2 (1750), 2/4 (1850)
Memory	2 GB
Network Controller Vendor and Model	3 x Intel PRO/1000 XT Network Connection (1650), 4 x Broadcom NetXtreme Gigabit Ethernet (1750), Intel PRO/1000 MT Network Connection (1850)
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 SP1
Other Hardware	None
Other Software	None

Notes for Workload

SUT Notes

- The PERC 6/i onboard controller contained 1 146GB/10K drive for OS.
- BIOS settings: Hardware Prefetcher Disabled (default Enabled), Adjacent Sector Prefetch Disabled (default Enabled)

Virtualization Platform Notes

- Six vSwitch0, vSwitch1, vSwitch2, vSwitch3, vSwitch4, and vSwitch5 bound to vmnic0, vmnic1, vmnic2, vmnic3, vmnic4 and vmnic5 (physical NICs) respectively.
- Each vSwitch was configured to 120 ports (default 56).
- Service Console was shared with vSwitch0.
- Database VMs were attached to vSwitch0, Standby VMs and Javasever VMs were attached to vSwitch1, Webserver VMs 0-3 were attached to vSwitch2, Mailserver VMs were attached to vSwitch3, Fileserver VMs were attached to vSwitch4, Webserver VMs 4-7 were attached to vSwitch5.
- Database VMs were stored on LUN 9. For all other VMs, each tile was stored on its own LUN.
- vmfs2 module was unloaded prior to the benchmark run.

Operating System Notes

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

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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