

VMware® VMmark™ V1.1 Results

Vendor and Hardware Platform: Sun Microsystems Sun Fire X4600 M2
Virtualization Platform: VMware ESX 3.5.0 Update 3 (build 123630)

VMmark V1.1 Score =
29.11 @ 19 Tiles

Tested By: Sun Microsystems

Test Date: 02/26/2009

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Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2062.57	2.02	18138.30	1.09	1795.15	1.64	20.49	1.60	2209.50	1.48	1.54
p1	2057.00	2.02	18146.62	1.09	1781.97	1.62	20.74	1.62	2203.05	1.48	1.54
p2	2060.45	2.02	18133.15	1.09	1954.38	1.78	20.48	1.60	2211.68	1.48	1.56
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1927.12	1.89	17646.92	1.06	2007.35	1.83	19.60	1.53	2268.68	1.52	1.54
p1	1918.95	1.88	18090.62	1.09	1719.97	1.57	19.43	1.51	2285.60	1.53	1.49
p2	1855.58	1.82	18055.50	1.09	1786.62	1.63	19.37	1.51	2272.10	1.52	1.49
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2019.30	1.98	18056.40	1.09	1799.10	1.64	19.48	1.52	2402.88	1.61	1.54
p1	2014.62	1.98	18050.38	1.09	1839.70	1.68	19.28	1.50	2222.65	1.49	1.52
p2	2003.17	1.97	18050.75	1.09	1804.22	1.64	19.19	1.50	2220.43	1.49	1.51
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1958.75	1.92	18175.12	1.09	1922.28	1.75	20.66	1.61	2371.28	1.59	1.57
p1	1956.17	1.92	18148.80	1.09	1924.58	1.75	20.72	1.61	2365.32	1.58	1.57
p2	1977.12	1.94	18151.08	1.09	1697.05	1.55	20.56	1.60	2351.30	1.58	1.53
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2030.08	1.99	18161.83	1.09	1736.70	1.58	20.74	1.62	2151.70	1.44	1.52
p1	2027.08	1.99	17696.88	1.07	1883.60	1.72	20.63	1.61	2130.50	1.43	1.53
p2	2027.47	1.99	18153.17	1.09	1839.85	1.68	20.46	1.59	2119.03	1.42	1.53
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2059.80	2.02	18103.62	1.09	1693.28	1.54	20.77	1.62	2182.30	1.46	1.52
p1	2061.68	2.02	18088.05	1.09	1886.50	1.72	20.59	1.60	2170.28	1.45	1.55
p2	2062.53	2.02	17641.05	1.06	1834.80	1.67	20.16	1.57	2174.78	1.46	1.52
TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2060.03	2.02	17681.55	1.06	1718.40	1.57	21.10	1.64	2404.03	1.61	1.55

p1	2057.30	2.02	18139.42	1.09	1850.95	1.69	20.81	1.62	2417.28	1.62	1.58
p2	2051.97	2.01	18156.35	1.09	1820.40	1.66	20.88	1.63	2415.93	1.62	1.57
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1959.10	1.92	18121.90	1.09	1754.83	1.60	21.04	1.64	2283.03	1.53	1.53
p1	1928.47	1.89	18121.72	1.09	1853.62	1.69	21.05	1.64	2303.03	1.54	1.55
p2	1906.83	1.87	18116.95	1.09	1848.47	1.69	20.85	1.62	2288.03	1.53	1.54
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1939.55	1.90	18043.80	1.09	1907.70	1.74	20.46	1.59	2401.90	1.61	1.56
p1	1978.80	1.94	18004.58	1.08	1753.95	1.60	20.27	1.58	2413.55	1.62	1.54
p2	1978.17	1.94	17561.70	1.06	1876.70	1.71	20.26	1.58	2405.97	1.61	1.55
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2051.38	2.01	18118.00	1.09	1712.75	1.56	20.72	1.61	2411.18	1.62	1.55
p1	2046.95	2.01	17682.05	1.06	1919.03	1.75	20.77	1.62	2413.07	1.62	1.58
p2	2046.80	2.01	18137.28	1.09	1796.85	1.64	20.89	1.63	2403.40	1.61	1.57
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2061.60	2.02	18103.42	1.09	1594.78	1.45	20.47	1.60	2263.75	1.52	1.51
p1	2061.30	2.02	18119.62	1.09	1756.55	1.60	20.32	1.58	2289.03	1.53	1.54
p2	2059.72	2.02	17667.72	1.06	1609.67	1.47	20.37	1.59	2273.45	1.52	1.50
TILE_11	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2059.85	2.02	18090.88	1.09	1647.53	1.50	20.18	1.57	2363.88	1.58	1.52
p1	2057.25	2.02	18107.22	1.09	1746.28	1.59	20.09	1.57	2354.05	1.58	1.54
p2	2057.20	2.02	18107.17	1.09	1767.30	1.61	20.11	1.57	2341.25	1.57	1.54
TILE_12	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2062.40	2.02	18108.60	1.09	1502.78	1.37	21.09	1.64	2256.18	1.51	1.50
p1	2058.55	2.02	18104.45	1.09	1600.72	1.46	20.55	1.60	2280.10	1.53	1.51
p2	2060.00	2.02	18098.45	1.09	1728.95	1.58	20.57	1.60	2260.93	1.51	1.53
TILE_13	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2054.65	2.02	18147.00	1.09	1470.50	1.34	20.69	1.61	2365.60	1.59	1.50
p1	2044.67	2.01	18166.92	1.09	1659.78	1.51	20.52	1.60	2358.78	1.58	1.53
p2	2050.00	2.01	18138.08	1.09	1799.47	1.64	20.38	1.59	2347.28	1.57	1.55
TILE_14	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2052.28	2.01	18120.03	1.09	1454.15	1.33	20.72	1.62	2361.60	1.58	1.49
p1	2048.72	2.01	18132.33	1.09	1736.97	1.58	20.62	1.61	2359.10	1.58	1.55
p2	2046.45	2.01	17701.28	1.07	1387.00	1.26	20.62	1.61	2353.95	1.58	1.47
TILE_15	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2056.10	2.02	18075.83	1.09	1430.65	1.30	20.86	1.63	2340.45	1.57	1.49
p1	2054.68	2.02	18092.62	1.09	1679.58	1.53	20.82	1.62	2313.57	1.55	1.53
p2	2059.95	2.02	18086.00	1.09	1828.40	1.67	20.69	1.61	2315.62	1.55	1.56

TILE_16	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2021.72	1.98	18165.45	1.09	1322.70	1.21	20.40	1.59	2378.95	1.59	1.46
p1	2018.45	1.98	18162.12	1.09	1625.45	1.48	20.12	1.57	2377.55	1.59	1.52
p2	2004.92	1.97	18129.72	1.09	1805.30	1.65	20.02	1.56	2371.53	1.59	1.54
TILE_17	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2045.80	2.01	18156.80	1.09	1307.00	1.19	20.63	1.61	2243.12	1.50	1.45
p1	2041.90	2.00	18160.38	1.09	1571.28	1.43	20.59	1.60	2251.80	1.51	1.50
p2	2038.47	2.00	18136.15	1.09	1682.20	1.53	20.66	1.61	2246.40	1.51	1.52
TILE_18	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1983.92	1.95	18104.10	1.09	1270.47	1.16	20.71	1.61	2167.38	1.45	1.42
p1	2038.45	2.00	18102.15	1.09	1567.40	1.43	20.93	1.63	2217.72	1.49	1.50
p2	2039.05	2.00	17642.70	1.06	1731.75	1.58	20.70	1.61	2271.65	1.52	1.52
p0_score:	28.74										
p1_score:	29.14										
p2_score:	29.11										
Unreviewed_VMmark_Score:	29.11										

Configuration

Server and Network	
Server Manufacturer and Model	Sun Microsystems Sun Fire X4600 M2
Processor Vendor and Model	Quad-Core AMD Opteron 8384
Processor Speed (GHz)	2.7 GHz
Number of Sockets/Cores per Socket	8 Sockets / 4 Cores per Socket (32 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	6 MB I+D L3on chip per chip
Memory	128 GB(32 x 4GB)PC2-5300 DDR2-667Mhz Registered ECC DIMMs
Disk Subsystem Type	SAS(OS), FC SAN (VMs)
Number of Disk Controllers	1
Number of Host Bus Adapters	3
Host Bus Adapter Vendors and Models	2x QLogic Corp QLE2462 Dual port 4Gb FC 1x Emulex LPe11002 Dual Port 4Gb FC
Number of Network Controllers	4
Network Controller Vendors and Models	2x Intel PRO/1000 PT Quad Gigabit Ethernet 2x On-Board Intel PRO/1000 MT Dual port Ethernet controller
Network Switch	2x CISCO Catalyst 3750
Network Speed	1000Base-T
Other Hardware	None

Other Software	None
Hardware Availability Date	12/09/2008
Software Availability Date	12/09/2008

Virtualization Software

Vendor, Product, Version, and Build	VMware ESX 3.5.0 Update 3 Build 123630
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Software Availability Date	11/06/2008

Storage

Array Vendor, Model, and Firmware Version	1. 8x Sun StorageTek 2540 with 2501 SAS Expansion Tray IOM, Version 06.70.54.11 2. 3x Sun StorageTek 2540 Version 06.70.54.11
Fibre Channel Switch Vendors and Models	Brocade 5000
Disk Space Used	1292.61GB for VMs
Array Cache Size	8x Sun StorageTek 2540, 1024MB 3x Sun StorageTek 2540, 512MB
Number and Size of LUNs	15 LUNs, each 36GB 4 LUNs, each 60GB 5 LUNs, each 192GB 1 LUN: 380GB 1 LUN 385GB 1 LUN: 390GB 1 LUN: 395GB 1 LUN: 410GB 1 LUN: 415GB 1 LUN: 420GB 1 LUN: 425GB 1 LUN: 435GB 1 LUN: 440GB 1 LUN; 442GB 1 LUN: 444GB 1 LUN: 445GB 1 LUN: 450GB
RAID Type	RAID 0
Number of Members per RAID Set	3 members for 36GB LUNs, 12 members for all other LUNs
Disk Vendor, Model, and Speed	Seagate Cheetah 146GB, 15K rpm

Clients

Number of Clients	19
System Model(s)	1. Sun Blade 6000 Chassis with 10 Sun Blade X6240 2. Sun Blade 6000 Chassis with 9 Sun Blade X6240
Processor Vendor(s) and Model(s)	AMD Quad Core Opteron 2356

Processor Speed(s) (GHz)	2.3
Number of Sockets/Cores per Socket	2 Sockets / 4 Cores per Socket (8 Cores Total)
Memory	32GB
Network Controller Vendor and Model	Intel PRO 1000/PT Dual port 1GbitE NIC
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 Enterprise Edition 2003 SP2
Other Hardware	None
Other Software	none

Notes for Workload

Server and Network Notes

- Used one internal 146GB 10K rpm SAS drive for OS
- CPU Prefetching disabled (default enabled)
- QLogic HBA BIOS setting DataRate option set to 3 (default 2)
- QLogic HBA BIOS setting EnableFCTape disabled (default enabled)
- QLogic HBA BIOS setting ExecutionThrottle set to 64 (default 16)

Virtualization Software Notes

- Network adapter type set to enhanced vmxnet for all VMs
- vSwitch 1-2 configured with 120 ports (default 56)
- Four vSwitches(1-4) bound to 4 physical NICs, vmnic 4,5,6,7 respectively
- Seven vSwitches(5-11) bound to 7 physical NICs, vmnic 8,12,13,14,15,10,11 respectively
- vSwitch0 bound to on-board Ethernet Controller port 0, vmnic9
- vSwitch0 was dedicated to Service Console
- vSwitch1 attached to all VMs of tiles 0,1,2 (except Webserver)
- vSwitch2 attached to all VMs of tiles 5,6 (except Webserver)
- vSwitch3 attached to all VMs of tiles 8,9 (except Webserver)
- vSwitch4 attached to all VMs of tiles 7,10 (except Webserver)
- vSwitch6 attached to all VMs of tiles 3,12,13 (except Webserver)
- vSwitch7 attached to all VMs of tiles 4,11,14 (except Webserver)
- vSwitch8 attached to all VMs of tiles 15,16 (except Webserver)
- vSwitch9 attached to all VMs of tiles 17,18 (except Webserver)
- vSwitch5 attached to all Webservers of tiles 0,1,2,3,4,5
- vSwitch10 attached to all Webservers of tiles 6,7,8,9,10,11
- vSwitch11 attached to all Webservers of tiles 12,13,14,15,16,17,18
- Each tile (except for database VM) was stored on its own LUN
- Each database VM was stored on its own LUN
- Disk.SchedNumRequestOutstanding set to 128 (default 32)
- Misc.RunningVCpuLimit set to 192 (default 128)
- Removed IDE and Floppy devices from all VMs (except IDE not removed from webserver1, fileserver2, mailserver2, fileserver8, standby14 and database18 VMs)
- Virtualized MMU was enabled for all VMs
- Logging was disabled for all VMs (default logging enabled)
- VMFS2 was unloaded prior the run
- Stopped firewall, iptables and pegasus services prior the run

Operating System Notes

- Microsoft Windows Server 2003 Virtual Machines were updated to SP2 and KB933360 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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