

VMware® VMmark™ V1.0.0 Results

Vendor and Hardware Platform: IBM System x3850 M2
Virtualization Platform: VMware ESX 3.5.0 (Build 64607)

VMmark V1.0.0 Score = 13.16 @ 9 Tiles

Tested By: IBM Inc., RTP, NC

Test Date: Mar-26-2008

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Performance

	webservers		javaservers		mailservers		fileservers		databases		
	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
TILE_0											
p0	1748.97	1.72	18055.80	1.09	1817.50	1.66	20.45	1.59	2121.47	1.42	1.48
p1	1735.35	1.70	18073.30	1.09	1853.22	1.69	20.40	1.59	2121.15	1.42	1.48
p2	1714.33	1.68	18033.53	1.09	1946.55	1.77	20.29	1.58	2115.28	1.42	1.49
TILE_1											
p0	1762.88	1.73	18097.62	1.09	1832.53	1.67	20.49	1.60	2137.15	1.43	1.48
p1	1759.97	1.73	17652.33	1.06	1934.58	1.76	20.41	1.59	2144.57	1.44	1.49
p2	1742.78	1.71	18092.53	1.09	1998.88	1.82	20.39	1.59	2139.72	1.43	1.51
TILE_2											
p0	1737.20	1.70	18093.83	1.09	1837.25	1.68	20.39	1.59	2122.25	1.42	1.48
p1	1739.70	1.71	17651.95	1.06	1754.90	1.60	20.41	1.59	2135.93	1.43	1.46
p2	1718.58	1.69	18108.17	1.09	1836.53	1.67	20.80	1.62	2123.18	1.42	1.48
TILE_3											
p0	1786.60	1.75	17650.15	1.06	1756.03	1.60	20.72	1.62	2106.18	1.41	1.47
p1	1768.22	1.74	18099.17	1.09	1787.08	1.63	20.86	1.63	2116.90	1.42	1.48
p2	1732.53	1.70	18113.12	1.09	1867.67	1.70	20.46	1.59	2115.35	1.42	1.48
TILE_4											
p0	1766.85	1.73	18079.40	1.09	1706.40	1.56	21.12	1.65	2078.12	1.39	1.46
p1	1779.17	1.75	18048.80	1.09	1804.85	1.65	20.90	1.63	2099.43	1.41	1.48
p2	1748.47	1.72	18068.10	1.09	1781.95	1.62	20.78	1.62	2097.47	1.41	1.47
TILE_5											
p0	1751.70	1.72	18145.85	1.09	1659.60	1.51	21.05	1.64	2049.80	1.37	1.45
p1	1756.35	1.72	18105.35	1.09	1712.95	1.56	20.84	1.62	2086.75	1.40	1.46

p2	1745.12	1.71	18141.92	1.09	1789.20	1.63	20.80	1.62	2083.95	1.40	1.47
TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1743.00	1.71	17665.25	1.06	1613.88	1.47	20.87	1.63	2072.82	1.39	1.43
p1	1745.95	1.71	18089.30	1.09	1723.75	1.57	20.74	1.62	2071.03	1.39	1.46
p2	1720.05	1.69	18071.65	1.09	1799.67	1.64	20.70	1.61	2087.82	1.40	1.47
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1742.65	1.71	18063.38	1.09	1406.42	1.28	21.02	1.64	2059.70	1.38	1.40
p1	1750.53	1.72	18065.72	1.09	1566.03	1.43	20.80	1.62	2072.62	1.39	1.43
p2	1738.15	1.71	18058.47	1.09	1682.35	1.53	21.06	1.64	2081.00	1.39	1.45
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1741.28	1.71	18054.10	1.09	1334.33	1.22	20.72	1.62	2043.60	1.37	1.38
p1	1695.30	1.66	18053.38	1.09	1536.58	1.40	20.88	1.63	2064.15	1.38	1.42
p2	1698.60	1.67	18048.62	1.09	1726.72	1.57	20.41	1.59	2065.75	1.38	1.44
p0_score:	13.03										
p1_score:	13.16										
p2_score:	13.26										
Unreviewed_VMmark_Score:	13.16										

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, 4MB shared/2 cores
Other Cache	None
Memory	64GB (32x2GB) PC2-5300 667MHz Registered ECC DDR2 DIMM
Disk Subsystem	FC SAN (OS + VMs)
# of Disk Controllers	1
Host Bus Adapters Vendor and Model	2 x QLogic Corp QLA2462

# of Host Bus Adapters	2
# of Network Controllers	4
Network Controllers Vendor and Model	Intel PRO 1000PT Dual Port 1GbE
Network Switches Vendor and Model	Nortel Passport 8010 Switch Chassis, 8616GTE Module
Network Speed	Gigabit Ethernet TX
Other Hardware	None
Other Software	None
Hardware Availability Date	Dec-2007
Software Availability Date	Dec-2007

Virtualization Platform

Vendor, Product, and Version	VMware ESX 3.5.0
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Platform Availability Date	Dec-2007

Storage

Array Vendor and Model/ Firmware Version	<ol style="list-style-type: none"> 1. IBM System Storage DS4800, version 06.16.96.00 2. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00 3. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00 4. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00 5. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00 6. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00 7. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00 8. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00 9. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00 10. IBM System Storage EXP 810 storage expansion unit, version 06.16.96.00
Fibre Channel Switches Vendor and Model	None
Used GB	706
Array Cache GB	IBM System Storage DS4800, 4GB
Number and Size of LUNs	LUN0: 130GB LUN1: 130GB LUN2: 130GB LUN3: 130GB LUN4: 130GB LUN5: 130GB LUN6: 130GB LUN7: 130GB LUN8: 130GB LUN9: 270GB LUN10: 80GB

RAID Type	LUN0: RAID10 LUN1: RAID10 LUN2: RAID10 LUN3: RAID10 LUN4: RAID10 LUN5: RAID10 LUN6: RAID10 LUN7: RAID10 LUN8: RAID10 LUN9: RAID10 LUN10: RAID5
Number of Members per RAID Set	LUN0: 10 members LUN1: 10 members LUN2: 10 members LUN3: 10 members LUN4: 10 members LUN5: 10 members LUN6: 10 members LUN7: 10 members LUN8: 10 members LUN9: 16 members LUN10: 16 members
Disk Vendor and Model/Speed	Seagate Technologies Inc. ST373455FC /15K RPM

Clients

# of Clients	9
System Model	9 x IBM eServer xSeries x335
Processor Vendor and Model	Intel Xeon
Processor Speed (GHz)	3.06 GHz
# of Sockets/# of Cores	2/2
Memory	2.5 GB
Network Controller Vendor and Model	Broadcom NetXtreme Gigabit Ethernet
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 R2 Enterprise Edition SP2
Other Hardware	None
Other Software	None

Notes for Workload

SUT Notes

- Processor Hardware Prefetch disabled (default enabled)
- Onboard Ethernet disabled (default enabled)
- Onboard SAS disabled (default enabled)

Virtualization Platform Notes

- VMware ESX 3.5.0 (Build 64607)
- Six vSwitch0, vSwitch1, vSwitch2, vSwitch3, vSwitch4 and vSwitch5 bound to vmnic0, vmnic3, vmnic4, vmnic6, vmnic7 and vmnic8 (physical NICs) respectively.
- Each vSwitch was configured to 120 ports (default 56).
- Service Console was shared with vSwitch0.
- Database VMs were attached to vSwitch0; Javaserer, Standby and Webserver VMs 0-2 were attached to vSwitch1; Javaserer, Standby and Webserver VMs 3-5 were attached to vSwitch2, Mailserver VMs were attached to vSwitch3, Fileserver VMs were attached to vSwitch4, Javaserer, Standby and Webserver VMs 6-8 were attached to vSwitch5.
- Database VMs were stored on LUN 9. For all other VMs, each tile was stored on its own LUN from LUN0 to LUN8. LUN10 has an 80GB partition for VMware ESX3.5.0 OS.
- Network adapter type was set to enhanced vmxnet for Windows-based VMs.
- vmfs2 module was unloaded prior to the benchmark run.
- Disk.SchedNumReqOutstanding 128 (default 32)

Operating System Notes

- Microsoft Windows Server 2003 R2 Enterprise Edition Service Pack 2 on Windows-based virtual machines
- [KB 933360](#) was applied

Software Notes

Client Notes

- Microsoft Windows Server 2003 R2 Enterprise Edition, Service Pack 2
- [KB 933360](#) was applied

Other Notes

IBM System Storage DS4800

- Cache block size16KB (default 4KB)
- Background media scan disabled (default enabled)
- Write caching with mirroring disabled (default enabled)
- Write caching without batteries disabled (default enabled)

QLogic 2462

- Loop reset delay 8 (default 5)

- PortDownRetryCount 14 (default 30)
- Interrupt Delay Timer 10 (default 0)
- Enable Target Reset No (default Yes)
- Link down timeout 60 (default 30)
- Execution Throttle 256 (default 16)
- LUNs per Target 256 (default 128)
- Maximum queue depth 64 (default 32)

VMMARK.CONFIG

- TILEDELAY=1200
- JavaServer/DELAYTIME="1140"
- Standby/DELAYTIME="770"
- WebServer/DELAYTIME="780"
- Database/DELAYTIME="960"
- FileServer/DELAYTIME="1050"

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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