

VMware® VMmark™ V1.1 Results

Vendor and Hardware Platform: IBM BladeCenter HS21 XM
Virtualization Platform: ESX Server 3.5 Update 1 (build 82663)

VMmark V1.1 Score =
8.44 @ 6 Tiles

Tested By: Principled Technologies

Test Date: Aug-2008

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Performance

	webservers		javaserver		mailserver		fileserver		database		
	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
TILE_0											
p0	1774.17	1.74	18046.40	1.09	1562.53	1.42	18.52	1.44	2195.10	1.47	1.42
p1	1748.65	1.72	18006.70	1.08	1621.95	1.48	18.33	1.43	2221.55	1.49	1.42
p2	1707.95	1.68	18055.62	1.09	1780.58	1.62	18.65	1.45	2238.53	1.50	1.45
TILE_1											
p0	1751.58	1.72	17994.95	1.08	1591.58	1.45	18.64	1.45	2048.68	1.37	1.40
p1	1750.72	1.72	18038.67	1.09	1630.22	1.49	18.45	1.44	1992.47	1.34	1.40
p2	1748.92	1.72	18016.85	1.08	1791.38	1.63	18.70	1.46	2040.33	1.37	1.43
TILE_2											
p0	1778.22	1.75	17990.00	1.08	1466.67	1.34	18.78	1.46	2123.65	1.42	1.39
p1	1723.65	1.69	17971.55	1.08	1691.75	1.54	18.55	1.45	2111.68	1.41	1.42
p2	1703.72	1.67	18041.75	1.09	1672.67	1.53	18.60	1.45	2060.30	1.38	1.41
TILE_3											
p0	1707.62	1.68	18032.20	1.09	1257.20	1.15	18.13	1.41	2225.35	1.49	1.34
p1	1655.47	1.62	18067.55	1.09	1638.53	1.49	18.07	1.41	2109.70	1.41	1.39
p2	1617.12	1.59	17611.95	1.06	1763.45	1.61	18.19	1.42	2061.75	1.38	1.40
TILE_4											
p0	1797.33	1.76	18052.75	1.09	1328.20	1.21	17.88	1.39	2188.72	1.47	1.37
p1	1767.38	1.73	18059.33	1.09	1605.42	1.46	17.83	1.39	2193.50	1.47	1.41
p2	1735.90	1.70	18077.42	1.09	1667.22	1.52	17.96	1.40	2172.53	1.46	1.42
TILE_5											
p0	1735.72	1.70	18010.17	1.08	1201.28	1.10	18.23	1.42	2181.28	1.46	1.33
p1	1658.12	1.63	18022.55	1.08	1572.35	1.43	17.99	1.40	2171.95	1.46	1.39

p2	1653.20	1.62	18031.03	1.09	1638.65	1.49	17.71	1.38	2184.55	1.46	1.40
p0_score:	8.25										
p1_score:	8.44										
p2_score:	8.50										
Unreviewed_VMmark_Score:	8.44										

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Configuration

Server and Network	
Server Manufacturer and Model	IBM BladeCenter HS21 XM
Processor Vendor and Model	Intel Xeon X5450
Processor Speed (GHz)	3
Number of Sockets/Cores per Socket	2 Sockets / 4 Cores per Socket (8 Cores Total)
Primary Cache	32KB(I) + 32KB(D) on chip, per core
Secondary Cache	12 MB(I+D) on chip, per chip, 6 MB shared/2 cores
Other Cache	None
Memory	32 GB
Disk Subsystem Type	SAS (OS), FC SAN (VMs)
Number of Disk Controllers	N/A
Number of Host Bus Adapters	3
Host Bus Adapter Vendors and Models	2 x QLogic Corp QMI3472 1 x LSI Logic SAS1064E Controller
Number of Network Controllers	4
Network Controller Vendors and Models	4 x BroadCom BCM5715S Gigabit Ethernet Controller
Network Switch Vendors and Models	Netgear GS724T
Network Speed	1000Base-T
Other Hardware	None
Other Software	None
Hardware Availability Date	Nov-2007
Software Availability Date	Apr-2008
Virtualization Software	
Vendor, Product, Version, and Build	VMware ESX Server 3.5 Update 1 (build 82663)

Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Software Availability Date	Apr-2008
Storage	
Array Vendor, Model, and Firmware Version	<ol style="list-style-type: none"> 1. IBM System Storage DS4500, version 06.60.08.00 2. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 3. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 4. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 5. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 6. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 7. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 8. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 9. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 10. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00 11. IBM System Storage EXP 710 storage expansion unit, version 06.60.08.00
Fibre Channel Switch Vendors and Models	None
Disk Space Used	416 GB
Array Cache Size	2 GB
Number and Size of LUNs	LUN 0: 475 GB LUN 1: 475 GB LUN 2: 475 GB LUN 3: 475 GB LUN 4: 475 GB LUN 5: 475 GB LUN 6: 339 GB LUN 7: 339 GB LUN 8: 339 GB LUN 9: 339 GB LUN 10: 339 GB LUN 11: 339 GB LUN 12: 950 GB
RAID Type	RAID 0
Number of Members per RAID Set	LUN 0: 7 members LUN 1: 7 members LUN 2: 7 members LUN 3: 7 members LUN 4: 7 members LUN 5: 7 members LUN 6: 5 members LUN 7: 5 members LUN 8: 5 members LUN 9: 5 members LUN 10: 5 members LUN 11: 5 members LUN 12: 14 members

Disk Vendor, Model, and Speed	Seagate, ST373453FC/15K
Clients	
Number of Clients	6
System Model(s)	Custom Built
Processor Vendor(s) and Model(s)	Intel Pentium 4
Processor Speed(s) (GHz)	3.00
Number of Sockets/Cores per Socket	1 Sockets / 1 Cores per Socket (1 Cores Total)
Memory	1 GB
Network Controller Vendor and Model	Mavell Yukon
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 Enterprise Edition, Service Pack 2
Other Hardware	None
Other Software	None

Notes for Workload

Server and Network Notes

- The LSI onboard controller contained 1 73GB/10K drive in a RAID 0 for the OS.
- Processor Hardware Prefetcher disabled (default enabled).
- Processor Adjacent Sector Prefetcher disabled (default enabled).

Virtualization Software Notes

- VMware ESX Server 3.5 Update 1 (build 82663)
- Four vSwitch0, vSwitch1, vSwitch2, vSwitch3 bound to vmnic1, vmnic0, vmnic2, and vmnic3 (physical NICs) respectively.
- Each vSwitch was configured to 1000 Mb, Full Duplex (default Auto negotiate)
- Each vSwitch was configured to 120 ports (default 56).
- Network adapter type was set to enhanced vmxnet for all VMs.
- Service Console was shared with vSwitch0.
- Webserver VMs 0-2 were attached to vSwitch1; all Database, Javasever, and Standby VMs were attached to vSwitch0, and fileserver 0-2 VMs were also attached to vSwitch0; Webserver VMs 3-5 were attached to vSwitch3; all Mailserver VMs were attached to vSwitch2, and fileserver 3-5 VMs were also attached to vSwitch2.
- Path policy of each LUN storage was configured to Fixed (default Most Recently Used)
- Database VMs were stored on LUN12, each Fileserver VM was stored on its own LUN (LUNs 6-11), and all other VMs in a tile were stored on their own LUN (LUNs 0-5).
- vmfs2 module was unloaded prior to the benchmark run.
- Disk.SchedNumReqOutstanding 128 (default 32)

Operating System Notes

- Microsoft Windows Server 2003 Enterprise Edition, Service Pack 2 on Windows-based virtual machines.

Software Notes

Client Notes

- Microsoft Windows Server 2003 Enterprise Edition, Service Pack 2

Other Notes

IBM System Storage DS4500

- IBM System Storage DS4500 original availability date was March 2003.
- IBM System Storage EXP 710 storage expansion unit original availability date was October 2004.
- Cache block size 16KB (default 4KB)
- Background media scan disabled (default enabled)
- Write caching with mirroring disabled (default enabled)
- Write caching without batteries disabled (default enabled)

QLogic QMI3472

- 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)
- Login Retry Count 30 (default 8)
- Operation Mode 5 (default 0)
- Maximum queue depth 64 (default 32)

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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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