

VMware® VMmark™ V1.1 Results

Vendor and Hardware Platform: HP Proliant DL580 G5
Virtualization Platform: VMware ESX 3.5.0 Update 1, build 82663

VMmark V1.1 Score =
14.14 @ 10 Tiles

Tested By: Hewlett Packard

Test Date: 08/24/2008

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Performance

	webserver		javaserver		mailserver		fileserver		database		
	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
TILE_0											
p0	1750.55	1.72	18042.85	1.09	1684.03	1.54	18.83	1.47	2204.12	1.48	1.44
p1	1690.30	1.66	18042.38	1.09	1726.60	1.57	18.40	1.43	2215.40	1.48	1.43
p2	1687.67	1.66	18029.45	1.09	1692.40	1.54	18.24	1.42	2225.90	1.49	1.43
TILE_1											
p0	1748.58	1.72	17988.20	1.08	1653.62	1.51	18.58	1.45	2185.53	1.46	1.43
p1	1692.65	1.66	17987.95	1.08	1811.42	1.65	18.50	1.44	2202.65	1.48	1.45
p2	1673.17	1.64	18025.08	1.08	1742.00	1.59	18.33	1.43	2203.62	1.48	1.43
TILE_2											
p0	1735.60	1.70	18067.47	1.09	1644.85	1.50	18.86	1.47	2143.12	1.44	1.42
p1	1703.08	1.67	18071.45	1.09	1636.60	1.49	18.34	1.43	2152.00	1.44	1.41
p2	1670.00	1.64	18071.58	1.09	1639.95	1.50	18.13	1.41	2151.43	1.44	1.40
TILE_3											
p0	1701.47	1.67	18008.17	1.08	1581.70	1.44	18.68	1.46	2134.68	1.43	1.40
p1	1667.90	1.64	18016.65	1.08	1708.80	1.56	18.58	1.45	2135.10	1.43	1.42
p2	1678.03	1.65	17991.70	1.08	1738.40	1.58	18.45	1.44	2115.28	1.42	1.42
TILE_4											
p0	1727.15	1.70	18057.62	1.09	1594.45	1.45	18.34	1.43	2181.88	1.46	1.41
p1	1704.83	1.67	18032.80	1.09	1744.33	1.59	18.28	1.42	2193.40	1.47	1.43
p2	1671.85	1.64	18055.45	1.09	1816.35	1.66	18.28	1.42	2185.40	1.46	1.44
TILE_5											
p0	1720.85	1.69	18007.47	1.08	1427.60	1.30	18.74	1.46	2193.07	1.47	1.39
p1	1716.65	1.68	17978.83	1.08	1608.25	1.47	18.47	1.44	2199.68	1.47	1.41

p2	1669.80	1.64	17986.33	1.08	1764.90	1.61	18.28	1.42	2203.62	1.48	1.43
TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1715.38	1.68	17936.25	1.08	1489.62	1.36	18.60	1.45	2116.97	1.42	1.38
p1	1673.38	1.64	17979.20	1.08	1639.35	1.49	18.49	1.44	2120.65	1.42	1.40
p2	1674.75	1.64	17981.22	1.08	1744.67	1.59	18.60	1.45	2127.45	1.43	1.42
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1734.10	1.70	17576.25	1.06	1470.20	1.34	18.55	1.45	2111.88	1.42	1.38
p1	1685.50	1.65	18012.03	1.08	1635.20	1.49	18.23	1.42	2111.90	1.42	1.40
p2	1663.60	1.63	18009.70	1.08	1619.62	1.48	18.34	1.43	2125.85	1.42	1.40
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1713.30	1.68	17979.17	1.08	1257.60	1.15	18.84	1.47	2088.55	1.40	1.34
p1	1728.60	1.70	17972.60	1.08	1572.75	1.43	18.51	1.44	2111.95	1.42	1.40
p2	1677.90	1.65	18013.22	1.08	1676.10	1.53	18.12	1.41	2123.97	1.42	1.41
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1706.55	1.67	18033.55	1.09	1185.67	1.08	18.74	1.46	2187.10	1.47	1.33
p1	1713.60	1.68	17983.38	1.08	1440.20	1.31	18.62	1.45	2199.15	1.47	1.39
p2	1686.17	1.65	18013.80	1.08	1610.08	1.47	18.21	1.42	2191.22	1.47	1.41
p0_score:	13.92										
p1_score:	14.14										
p2_score:	14.18										
Unreviewed_VMmark_Score:	14.14										

Configuration

Server and Network	
Server Manufacturer and Model	HP Proliant DL580 G5
Processor Vendor and Model	Quad-Core Intel Xeon X7350
Processor Speed (GHz)	2.93
Number of Sockets/Cores per Socket	4 Sockets / 4 Cores per Socket (16 Cores Total)
Primary Cache	32 KB I + 32 KB D on chip per core
Secondary Cache	8 MB I+D on chip per chip, 4MB shared/2 cores
Other Cache	

Memory	64 GB (16 x 4 GB) PC2-5300 Fully Buffered DIMMs (DDR2-667)
Disk Subsystem Type	Direct attach SAS for operating system, FC SAN for VMs
Number of Disk Controllers	1
Number of Host Bus Adapters	1 dual port HBA
Host Bus Adapter Vendors and Models	Qlogic 2462
Number of Network Controllers	4
Network Controller Vendors and Models	HP NC 360T (dual port), Embedded NC373i
Network Switch Vendors and Models	HP ProCurve Switch 2900-48G
Network Speed	1000Base-T
Other Hardware	None
Other Software	None
Hardware Availability Date	July 2008
Software Availability Date	July 2008

Virtualization Software

Vendor, Product, Version, and Build	VMware ESX 3.5 Update 1, build 82663
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Software Availability Date	July 2008

Storage

Array Vendor, Model, and Firmware Version	HP StorageWorks MSA 2000, Storage Controller Firmware J200P16, Management Controller Firmware W420R30
Fibre Channel Switch Vendors and Models	HP StorageWorks SAN Switch 4/32
Disk Space Used	640 GB used for virtual machines
Array Cache Size	1 GB
Number and Size of LUNs	11 LUNs, 1.60 TB per LUN
RAID Type	RAID 0
Number of Members per RAID Set	12 drives per RAID set
Disk Vendor, Model, and Speed	HP Dual Port 146GB SAS 15K RPM

Clients

Number of Clients	10
System Model(s)	HP Proliant DL360 G5

Processor Vendor(s) and Model(s)	Intel Xeon
Processor Speed(s) (GHz)	2.83
Number of Sockets/Cores per Socket	1 Socket / 4 Cores per Socket (4 Cores Total)
Memory	2 GB
Network Controller Vendor and Model	HP NC373i Gigabit adapter
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

- Server BIOS settings:
 - Embedded Serial Port disabled (default enabled)
 - Virtual Serial Port disabled (default enabled)
 - USB Ports disabled (default enabled)
 - HW Prefetch disabled (default enabled)
 - Adjacent Sector Prefetch disabled (default enabled)
 - No-Execute Memory Protection disabled (default enabled)
 - Defer All Transaction Mode disabled (default enabled)
 - Intel Core Multi-Processing (CMP) enabled
- Qlogic HBA BIOS settings:
 - Fibre Channel tape support disabled (default enabled)
 - Data rate option set to 3 (default 2)
 - Execution Throttle set to 256 (default 16)
 - Interrupt Delay timer set to 15 (default 0)
- Seven vSwitches were created (each vSwitch was set to 120 ports (default 56) except for vSwitch0 left at default):
 - vSwitch0 (bound to vmnic2) for the service console on vmnic2
 - vSwitch1 (bound to vmnic3) for Javaser0, Javaser1 Javaser2, Webserver2, Webserver5, Webserver8 VMs

- vSwitch2 (bound to vmnic0) for all Fileserver VMs
- vSwitch3 (bound to vmnic5) for all Mailserver VMs
- vSwitch4 (bound to vmnic1) for all Standby and Database VMs
- vSwitch5 (bound to vmnic4) for Webserver1, Webserver4, Webserver7, Webserver9, Javaser3, Javaser4, Javaser5 VMs
- vSwitch6 (bound to vmnic7) for Webserver0, Webserver3, Webserver6, Javaser6, Javaser7, Javaser8, Javaser9 VMs
- 11 LUNs were created for the virtual machines:
 - All LUNs resided on an MSA2000 connected via fibre switch, all LUNs were the same size
 - A separate LUN was used for the Database VMs
 - All VMs (except Database VMs) for a tile resided on its own Datastore

Virtualization Software Notes

- vmfs2 was unloaded prior to run
- pegasus CIMOM server was unloaded prior to run
- Disk.Sched.NumRequestOutstanding set to 128 (default 32)
- Qlogic queue depth set to 64
- Ethernet Adapter type set to Enhanced vmxnet for all VMs
- EtherswitchHashSize set to 4 (default 1)
- TcipUseIoat set to 1 (default 0)
- Vmxnet2PinRxBuf set to 1 (default 0)
- MaxHeapSizeMB set to 64 (default 16)
- Logging was disabled for all VMs

Operating System Notes

Microsoft Windows Server 2003 virtual machines were updated to Service Pack2

Software Notes

None

Client Notes

Microsoft Windows Server 2003 client machines were updated to Service Pack 2

Other Notes

None

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