

# VMware® VMmark™ V1.1 Results

**Vendor and Hardware Platform: HP ProLiant ML370 G5**  
**Virtualization Platform: VMware ESX 3.5 Update 2 build 110268**

**VMmark V1.1 Score =**  
**8.66 @ 6 Tiles**

**Tested By: Hewlett Packard**

**Test Date: 09/22/2008**

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## Performance

	webservers		javaserver		mailserver		fileservers		database		
<b>TILE_0</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1773.00	1.74	18088.60	1.09	1722.70	1.57	18.95	1.48	2298.60	1.54	1.47
<b>p1</b>	1745.38	1.71	18039.70	1.09	1839.38	1.68	18.90	1.47	2297.35	1.54	1.48
<b>p2</b>	1705.10	1.67	17582.65	1.06	1662.38	1.52	18.82	1.47	2287.03	1.53	1.43
<b>TILE_1</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1796.40	1.76	18092.97	1.09	1663.75	1.52	19.39	1.51	2253.28	1.51	1.46
<b>p1</b>	1753.90	1.72	18076.75	1.09	1816.28	1.66	19.26	1.50	2257.68	1.51	1.48
<b>p2</b>	1732.00	1.70	17600.20	1.06	1707.58	1.56	18.90	1.47	2266.18	1.52	1.44
<b>TILE_2</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1764.22	1.73	18036.47	1.09	1572.70	1.43	18.91	1.47	2181.43	1.46	1.42
<b>p1</b>	1757.55	1.72	18044.62	1.09	1710.92	1.56	18.80	1.47	2086.20	1.40	1.43
<b>p2</b>	1727.22	1.70	18033.58	1.09	1928.00	1.76	18.71	1.46	2126.00	1.42	1.46
<b>TILE_3</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1807.05	1.77	17578.72	1.06	1543.35	1.41	18.79	1.46	2082.72	1.40	1.40
<b>p1</b>	1785.92	1.75	18014.85	1.08	1721.60	1.57	18.72	1.46	2112.53	1.42	1.44
<b>p2</b>	1774.88	1.74	18024.55	1.08	1809.08	1.65	18.62	1.45	2134.55	1.43	1.45
<b>TILE_4</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1785.60	1.75	17620.92	1.06	1460.88	1.33	18.87	1.47	2077.82	1.39	1.38
<b>p1</b>	1773.22	1.74	18078.20	1.09	1590.78	1.45	18.76	1.46	2124.00	1.42	1.42
<b>p2</b>	1745.35	1.71	18071.25	1.09	1667.55	1.52	18.67	1.46	2158.30	1.45	1.43
<b>TILE_5</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1790.08	1.76	18047.17	1.09	1356.05	1.24	18.94	1.48	2354.28	1.58	1.41
<b>p1</b>	1792.10	1.76	18046.22	1.09	1526.70	1.39	18.77	1.46	2350.25	1.57	1.44
<b>p2</b>	1723.90	1.69	18058.85	1.09	1692.62	1.54	18.73	1.46	2196.60	1.47	1.44
<b>p0_score:</b>	8.54										
<b>p1_score:</b>	8.68										
<b>p2_score:</b>	8.66										
<b>Unreviewed_VMmark_Score:</b>	8.66										

# Configuration

Server and Network	
Server Manufacturer and Model	HP ProLiant ML370 G5
Processor Vendor and Model	Intel Xeon X5460
Processor Speed (GHz)	3.16GHz
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	12MB (I+D) on chip, per chip, 6MB shared/2 cores
Other Cache	none
Memory	32GB
Disk Subsystem Type	SAS(OS), FC SAN (VM's)
Number of Disk Controllers	1
Number of Host Bus Adapters	2 dual-port HBA's
Host Bus Adapter Vendors and Models	QLogic 2462
Number of Network Controllers	3
Network Controller Vendors and Models	quad-port HP NC364T, dual-port HP NC360T, embedded dual-port HP NC371i
Network Switch Vendors and Models	HP ProCurve 2824
Network Speed	1000Base-T
Other Hardware	None
Other Software	None
Hardware Availability Date	January 2008
Software Availability Date	August 2008

Virtualization Software	
Vendor, Product, Version, and Build	VMWare ESX 2.5 Update 2 build 110268
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Software Availability Date	August 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	none
Disk Space Used	402GB used for virtual machines
Array Cache Size	1GB
Number and Size of LUNs	4 @ 1.6TB
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

<b>Clients</b>	
Number of Clients	6
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	2GB
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

Second embedded NC371i NIC disabled (default enabled)

Embedded Serial Port disabled (default enabled)

Virtual Serial Port disabled (default enabled)

Adjacent Sector Prefetcher disabled (default enabled)

Hardware Prefetcher disabled (default enabled)

USB Ports disabled (default 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)

- Six vSwitches were created (each vSwitch was set to 120 ports (default 56) ):

vSwitch0 for the service console on vmnic2 and vmnic1

vSwitch1 for webservers 0, 1 & 2 on vmnic3

vSwitch2 for webserver 3, 4 & 5 on vmnic4

vSwitch3 for fileserver 0, 1, 2, 3, 4 & 5 on vmnic0

vSwitch4 for mailserver 0, 1, 2, 3, 4 & 5 on vmnic5

vSwitch5 for standby, database and fileservers 0, 1 & 2 on vmnic6

vSwitch6 for standby, database and fileservers 3, 4 & 5 on vmnic7

- 4 LUNs were created for the virtual machines:

Datastore\_5 for all database VM's

Datastore\_4 for all other VM's in Tiles 0 & 1

Datastore\_6 for all other VM's in Tiles 2 & 3

Datastore\_9 for all other VM's in Tiles 4 & 5

## 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)
- Ethernet Adapter type set to Enhanced vmxnet for all VMs
- Logging was disabled for all VMs (default enabled)
- MaxHeapSizeMB was set to 64 (default 16)
- IDE & Floppy devices were removed on all VM's (default enabled)
- Hardware MMU was set for all Webserver VM's (default automatic)
- IRQroutingpolicy = 0 (default 1)
- Intel E1000 InterruptThrottleRate = 1000
- Advanced Settings->BufferCache->SoftMaxDirty set to 85 (default 15)

## 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  
TCP TOE chimney was disabled on all clients.

## Other Notes

The benchmark tiledelay and workload delay times were set as follows:

```
TILEDELAY=1200
JavaServer/DELAYTIME="900"
WebServer/DELAYTIME="1050"
Database/DELAYTIME="720"
FileServer/DELAYTIME="810"
MailServer/DELAYTIME="5"
Standby/DELAYTIME="530"
```

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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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