

# VMware® VMmark™ V1.1 Results

**Vendor and Hardware Platform: HP ProLiant BL685c G5**  
**Virtualization Platform: VMWare ESX 3.5 U3 build 123630**

**VMmark V1.1 Score =**  
**19.96 @ 14 Tiles**

Tested By: HP

Test Date: 11/26/2008

**Performance Section**  
[Performance](#)

**Configuration Section**  
[Configuration](#)

**Notes Section**  
[Notes for Workload](#)

## Performance

	webservers		javaserver		mailserver		fileserver		database		
<b>TILE_0</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1876.88	1.84	18138.62	1.09	1336.22	1.22	18.24	1.42	2145.80	1.44	1.38
<b>p1</b>	1863.28	1.83	18124.75	1.09	1316.67	1.20	18.02	1.40	2145.03	1.44	1.37
<b>p2</b>	1860.60	1.83	18120.62	1.09	1220.67	1.11	17.80	1.39	2129.93	1.43	1.34
<b>TILE_1</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1871.95	1.84	17663.42	1.06	1624.62	1.48	17.94	1.40	2163.18	1.45	1.42
<b>p1</b>	1859.75	1.83	18113.97	1.09	1757.05	1.60	17.90	1.40	2167.90	1.45	1.45
<b>p2</b>	1860.12	1.83	18121.30	1.09	1735.88	1.58	17.54	1.37	2159.38	1.45	1.44
<b>TILE_2</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1775.00	1.74	17678.55	1.06	1684.35	1.54	16.90	1.32	2198.68	1.47	1.41
<b>p1</b>	1755.40	1.72	18117.90	1.09	1808.50	1.65	16.81	1.31	2190.57	1.47	1.43
<b>p2</b>	1729.55	1.70	18118.75	1.09	1649.72	1.50	16.70	1.30	2187.85	1.47	1.40
<b>TILE_3</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1789.25	1.76	18091.00	1.09	1692.55	1.54	18.48	1.44	2211.85	1.48	1.44
<b>p1</b>	1778.90	1.75	17652.58	1.06	1714.88	1.56	18.42	1.44	2216.22	1.49	1.44
<b>p2</b>	1770.25	1.74	18109.65	1.09	1700.60	1.55	18.29	1.43	2226.93	1.49	1.44
<b>TILE_4</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1876.40	1.84	17660.33	1.06	1602.67	1.46	17.82	1.39	2163.45	1.45	1.42
<b>p1</b>	1864.35	1.83	18107.72	1.09	1534.30	1.40	17.60	1.37	2156.68	1.45	1.41
<b>p2</b>	1859.95	1.83	18157.78	1.09	1496.40	1.36	17.18	1.34	2145.28	1.44	1.39
<b>TILE_5</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1872.00	1.84	17704.47	1.07	1622.30	1.48	17.93	1.40	2176.97	1.46	1.43
<b>p1</b>	1859.53	1.82	18133.88	1.09	1744.90	1.59	17.78	1.39	2187.62	1.47	1.45
<b>p2</b>	1856.67	1.82	18129.30	1.09	1822.90	1.66	17.76	1.38	2186.18	1.46	1.46
<b>TILE_6</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1780.38	1.75	18120.28	1.09	1599.85	1.46	17.17	1.34	2196.70	1.47	1.41
<b>p1</b>	1753.30	1.72	18124.38	1.09	1722.28	1.57	16.88	1.32	2198.38	1.47	1.42
<b>p2</b>	1734.40	1.70	17660.72	1.06	1744.60	1.59	16.43	1.28	2200.43	1.47	1.40
<b>TILE_7</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM

<b>p0</b>	1796.38	1.76	17695.75	1.07	1614.15	1.47	18.51	1.44	2209.15	1.48	1.43
<b>p1</b>	1790.03	1.76	18159.60	1.09	1722.15	1.57	18.42	1.44	2212.43	1.48	1.45
<b>p2</b>	1783.15	1.75	18143.65	1.09	1737.53	1.58	18.08	1.41	2229.85	1.49	1.45
<b>TILE_8</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1874.60	1.84	17667.30	1.06	1622.80	1.48	17.96	1.40	2152.70	1.44	1.42
<b>p1</b>	1859.97	1.83	18174.28	1.09	1742.05	1.59	17.54	1.37	2154.62	1.44	1.44
<b>p2</b>	1861.20	1.83	18102.22	1.09	1734.45	1.58	17.55	1.37	2136.30	1.43	1.44
<b>TILE_9</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1871.12	1.84	18147.80	1.09	1570.20	1.43	18.36	1.43	2174.93	1.46	1.43
<b>p1</b>	1851.53	1.82	17718.83	1.07	1759.95	1.60	18.19	1.42	2186.55	1.47	1.45
<b>p2</b>	1851.47	1.82	18147.28	1.09	1745.42	1.59	18.13	1.41	2182.55	1.46	1.46
<b>TILE_10</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1778.78	1.75	18116.95	1.09	1383.72	1.26	18.85	1.47	2213.07	1.48	1.39
<b>p1</b>	1746.83	1.71	18117.95	1.09	1631.00	1.49	18.79	1.46	2203.07	1.48	1.43
<b>p2</b>	1722.10	1.69	17651.35	1.06	1607.25	1.47	18.67	1.46	2210.35	1.48	1.41
<b>TILE_11</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1804.25	1.77	18177.28	1.09	1395.85	1.27	18.55	1.45	2214.25	1.48	1.40
<b>p1</b>	1794.05	1.76	17709.95	1.07	1708.62	1.56	18.49	1.44	2214.53	1.48	1.44
<b>p2</b>	1783.53	1.75	18152.80	1.09	1629.95	1.49	18.37	1.43	2224.53	1.49	1.43
<b>TILE_12</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1878.35	1.84	18112.08	1.09	1281.22	1.17	17.84	1.39	2178.72	1.46	1.37
<b>p1</b>	1858.67	1.82	18119.65	1.09	1564.60	1.43	17.78	1.39	2168.18	1.45	1.42
<b>p2</b>	1856.45	1.82	18097.28	1.09	1691.00	1.54	17.56	1.37	2151.62	1.44	1.43
<b>TILE_13</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1872.85	1.84	18136.45	1.09	1231.35	1.12	18.21	1.42	2176.45	1.46	1.36
<b>p1</b>	1857.20	1.82	18126.05	1.09	1486.30	1.36	18.24	1.42	2188.82	1.47	1.41
<b>p2</b>	1849.55	1.82	18120.08	1.09	1766.17	1.61	17.84	1.39	2175.68	1.46	1.45
<b>p0_score:</b>	19.70										
<b>p1_score:</b>	20.02										
<b>p2_score:</b>	19.96										
<b>Unreviewed_VMmark_Score:</b>	19.96										

## Configuration

Server and Network	
Server Manufacturer and Model	HP ProLiant BL685c G5
Processor Vendor and Model	Quad-core Opteron 8384
Processor Speed (GHz)	2.7GHz
Number of Sockets/Cores per Socket	4 Sockets / 4 Cores per Socket (16 Cores Total)
Primary Cache	64KB I + 64KB D on chip per core
Secondary Cache	512 KB I+D on chip per core

Other Cache	6MB I+D L3 on chip
Memory	128GB
Disk Subsystem Type	Direct attach SAS for operating system, FC SAN for VMs
Number of Disk Controllers	1
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	1 QLogic QMH2462 dual port fibre channel HBA
Number of Network Controllers	8
Network Controller Vendors and Models	4xBroadcom BCM5715S Gigabit Ethernet (1 used), 2xHP NC326i Integrated Dual-port Gigabit, 2xBroadcom NetExtreme II BCM5708 Gigabit
Network Switch Vendors and Models	HP ProCurve 3400
Network Speed	1Gb/s
Other Hardware	None.
Other Software	None.
Hardware Availability Date	11/17/2008
Software Availability Date	11/2008

#### Virtualization Software

Vendor, Product, Version, and Build	VMWare ESX 3.5 U3 build 123630
Virtualization Type	Hardware
Supplemental Software	None.
Virtualization Software Availability Date	11/2008

#### Storage

Array Vendor, Model, and Firmware Version	HP StorageWorks MSA 1000, firmware version 4.48
Fibre Channel Switch Vendors and Models	HP StorageWorks SAN Switch 4/32
Disk Space Used	943GB for VM's
Array Cache Size	256MB
Number and Size of LUNs	9 LUNs, 1.6TB per LUN
RAID Type	RAID 0
Number of Members per RAID Set	14 drives per RAID set
Disk Vendor, Model, and Speed	HP 36GB 15K RPM Ultra320 SCSI drive

#### Clients

Number of Clients	14
System Model(s)	HP ProLiant DL360G5
Processor Vendor(s) and Model(s)	Intel Xeon
Processor Speed(s) (GHz)	2.83GHz
Number of Sockets/Cores per Socket	1 Sockets / 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:
  - Power Regulator: Static High Performance (default Dynamic Power Savings Mode)
  - Ultra Low Power State: 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 64 (default 16)
- vSwitch Configuration:
  - vSwitch0 for the Service Console configured on vmnic2
  - vSwitch1 for all webserver VMs configured with 120 ports (default 56) on vmnic0 & vmnic1
  - vSwitch2 for all other VMs configured with 120 ports (default 56) on vmnic3 & vmnic4
- Storage Configuration:
  - database00\_bl685 configured to store even-numbered database VMs
  - database01\_bl685 configured to store odd-numbered database VMs
  - storage0\_bl685 configured to store all VMs other than database for tiles 0 & 1
  - storage1\_bl685 configured to store all VMs other than database for tiles 2 & 3
  - storage2\_bl685 configured to store all VMs other than database for tiles 4 & 5
  - storage3\_bl685 configured to store all VMs other than database for tiles 6 & 7
  - storage4\_bl685 configured to store all VMs other than database for tiles 8 & 9
  - storage5\_bl685 configured to store all VMs other than database for tiles 10 & 11
  - storage6\_bl685 configured to store all VMs other than database for tiles 12 & 13

### Virtualization Software Notes

- vmfs2 was unloaded prior to run
- firewall and iptables services were stopped prior to the run
- pegasus CIMOM server was unloaded prior to run
- virtualized MMU was enabled for all VMs (default Automatic)
- ethernet adapter type set to Enhanced vmxnet for all VMs
- logging was disabled for all VMs
- IDE & floppy devices were removed on all VMs (default enabled)
- Misc.RunningVCpuLimit set to 192 (default 128)
- Irq.RoutingPolicy=0 (default 2)
- BufferCache.SoftMaxDirty=85 (default 15)

### Operating System Notes

- Microsoft Windows Server 2003 virtual machines were updated to Service Pack 2

- Fileserver and Webserver VMs were updated to SLES 10 SP2

## Software Notes

On the webservers, FastCGI version 2.4.6 was used.

## Client Notes

- Microsoft Windows Server 2003 client machines were updated to Service Pack 2
- TCP TOE chimney was disabled on all clients (default enabled)

## Other Notes

None.

---

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.

For information about VMmark and the rules regarding its usage visit [www.vmware.com/products/vmmark](http://www.vmware.com/products/vmmark).

VMware and VMmark are trademarks or registered trademarks of VMware, Inc. VMware® VMmark™ is a product of [VMware, Inc.](http://www.vmware.com). VMmark utilizes SPECjbb®2005 and SPECweb®2005, which are available from the [Standard Performance Evaluation Corporation \(SPEC®\)](http://www.spec.org).