VMware® VMmark™ V1.0.0 Results

Vendor and Hardware Platform: Dell PowerEdge R900 Virtualization Platform: VMware ESX 3.5 Update 1 (build 82663)	NONCOMPLIANT (NC) RESULT
Tested By: Dell Inc.	Test Date: Apr-30-2008

Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload

VMware has determined that this result was not in compliance with the VMmark run and reporting rules. Specifically, this result used a configuration that was not fully disclosed and that VMware has determined is not in compliance with section 3.2.3 of the Run and Reporting Rules and thus violates VMmark publication requirements. VMware has updated the Run and Reporting Rules to further clarify the types of optimizations permitted.

Replacement results have been published and can be found on the VMmark Results page.

Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM

p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
p0_score:	NC										
p1_score:	NC										
p2_score:	NC										
Unreviewed_VMmark_Score:	NC										

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	32 KB I + 32 KB D on chip per core
Secondary Cache	8 MB I+D on chip per chip, 4 MB shared/2 cores
Other Cache	None
Memory	64 GB (16 x 4 GB) 667MHz ECC CL5 DDR2 FB-DIMM
Disk Subsystem	SAS (OS), FC SAN (VMs)

# of Disk Controllers	1
Host Bus Adapters Vendor and Model	QLogic Corp QLE2462
# of Host Bus Adapters	2
# of Network Controllers	3
Network Controllers Vendor and Model	Intel PRO 1000PT Dual Port 1GbE
Network Switches Vendor and Model	Dell PowerConnect 6248
Network Speed	1000Base-T
Other Hardware	None
Other Software	None
Hardware Availability Date	Nov-2007
Software Availability Date	Apr-2008

Virtualization Platform	
Vendor, Product, and Version	VMware ESX 3.5 Update 1
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Platform Availability Date	Apr-2008

Storage	
Array Vendor and Model/ Firmware Version	1. EMC CX3-40f, version 03.24.40.5.006 2. EMC CX3-40f, version 03.24.40.5.006 3. EMC CX3-40f, version 03.24.40.5.006
Fibre Channel Switches Vendor and Model	None
Used GB	707
Array Cache GB	1. EMC CX3-40f, 2048 MB 2. EMC CX3-40f, 2048 MB 3. EMC CX3-40f, 2048 MB
Number and Size of LUNs	LUN 1: 100GB LUN 2: 100GB LUN 3: 200GB LUN 4: 200GB LUN 5: 200GB LUN 6: 200GB LUN 7: 200GB LUN 8: 200GB LUN 9: 200GB LUN 10: 200GB LUN 11: 200GB LUN 12: 200GB

	LUN 13: 200GB LUN 14: 200GB	
RAID Type	RAID0 (all LUNs)	
Number of Members per RAID Set	3 per LUN	
Disk Vendor and Model/Speed	Seagate Cheetah/15K	

Clients	
# of Clients	10
System Model	PowerEdge 860
Processor Vendor and Model	Intel Xeon
Processor Speed (GHz)	2.66
# of Sockets/# of Cores	1/4
Memory	2 GB
Network Controller Vendor and Model	Intel PRO/1000 PT
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 Enterprise Edition SP2
Other Hardware	None
Other Software	None

Notes for Workload

SUT Notes

- The PERC 6/i Integrated SAS controller contained 1 73GB/10K drive for OS.
- BIOS settings:
  Hardware Prefetcher Disabled (default Enabled)
  Adjacent Sector Prefetch Disabled (default Enabled)
  I/OAT DMA Engine Enabled (default Disabled)

Virtualization Platform Notes

- Six vSwitches (0-5) bound to six physical NICs, vmnic0-5, respectively.
- Each vSwitch was configured to 128 ports (default 56).
- Service Console was shared with vSwitch0.
- Database VMs attached to vSwitch0;
  Standby, Web, JavaServer 0-2 VMs attached to vSwitch1;
  Standby, Web, JavaServer 3-5 attached to vSwitch2;
  Standby, Web, JavaServer 6-9 attached to vSwitch5;
  Mailserver VMs attached to vSwitch3;
  Fileserver VMs attached to vSwitch4.
- Each tile was stored on its own LUN from LUN0 to LUN8, with the following exceptions:

Database VMs 0-1 were stored on LUN12;
Database VMs 2-3 were stored on LUN13;
Database VMs 5 and 8 were stored on LUN14;
Database VMs 6-7 were stored on LUN10;
Database VM 4 was stored on LUN11;
Mailserver VM 7 was stored on LUN11.

- Ethernet Adapter Type set to Enhanced vmxnet for all VMs.
- vmfs2 module was unloaded prior to the benchmark run.
- Disk.SchedNumReqOutstanding 128 (default 32)
- Net.TcpipUseIoat 1 (default 0)

Operating System Notes

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

Software Notes

Client Notes

Other Notes

QLogic HBA settings:

- Loop reset delay = 8 (default 5)
- Link down timeout = 45 (default 30)
- LUNs per target = 256 (default 128)
- Maximum queue depth = 64 (default 32)

VMMARK.CONFIG settings:

- TILEDELAY = 1200 (default 600)
- MailServer/DELAYTIME = 360 (default 5)
- JavaServer/DELAYTIME = 1140 (default 540)
- Standby/DELAYTIME = 770 (default 170)
- WebServer/DELAYTIME = 1150 (default 180)
- Database/DELAYTIME = 900 (default 360)
- FileServer/DELAYTIME = 5 (default 450)