

VMware® VMmark™ V1.1.1 Results

Vendor and Hardware Platform: NEC Express5800/A1160
Virtualization Platform: VMware ESX 4.0 (Build 164009)

VMmark V1.1.1 Score =
34.05 @ 24 Tiles

Tested By: NEC Corporation

Test Date: 07/09/2009

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Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1982.05	1.95	17871.12	1.08	1713.65	1.56	19.11	1.49	2278.00	1.53	1.49
p1	1977.88	1.94	17421.50	1.05	1860.83	1.70	19.02	1.48	2288.03	1.53	1.51
p2	2013.80	1.98	17830.58	1.07	1766.40	1.61	19.00	1.48	2285.30	1.53	1.51
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1965.78	1.93	17954.50	1.08	1611.70	1.47	16.32	1.27	2313.40	1.55	1.43
p1	2005.60	1.97	17493.35	1.05	1517.08	1.38	16.12	1.26	2324.38	1.56	1.41
p2	2015.17	1.98	17945.28	1.08	1477.22	1.35	16.06	1.25	2325.62	1.56	1.41
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1711.10	1.68	17880.72	1.08	1513.67	1.38	18.95	1.48	2287.18	1.53	1.41
p1	1696.92	1.67	17415.65	1.05	1437.42	1.31	18.72	1.46	2290.50	1.53	1.39
p2	1763.97	1.73	17875.50	1.08	1310.05	1.19	18.46	1.44	2272.57	1.52	1.37
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1758.25	1.73	17270.75	1.04	1783.50	1.63	16.15	1.26	2325.53	1.56	1.42
p1	1749.55	1.72	17732.85	1.07	1719.85	1.57	16.15	1.26	2333.80	1.56	1.41
p2	1748.40	1.72	17709.00	1.07	1673.80	1.53	15.97	1.24	2337.53	1.57	1.40
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1729.03	1.70	17891.53	1.08	1563.00	1.43	16.00	1.25	2303.55	1.54	1.38
p1	1759.92	1.73	17908.67	1.08	1338.25	1.22	15.45	1.20	2286.45	1.53	1.33
p2	1750.62	1.72	17931.83	1.08	1320.17	1.20	15.63	1.22	2285.78	1.53	1.33
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1758.88	1.73	17205.72	1.04	1755.40	1.60	16.02	1.25	2288.32	1.53	1.41
p1	1744.78	1.71	17670.72	1.06	1801.25	1.64	15.99	1.25	2312.50	1.55	1.42
p2	1766.90	1.73	17690.20	1.06	1872.08	1.71	15.83	1.23	2270.20	1.52	1.43

TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1767.40	1.73	17291.45	1.04	1820.95	1.66	16.82	1.31	2330.20	1.56	1.44
p1	1755.88	1.72	17724.75	1.07	1849.50	1.69	15.80	1.23	2339.07	1.57	1.43
p2	1765.58	1.73	17744.65	1.07	1900.67	1.73	14.94	1.16	2335.53	1.56	1.42
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1693.92	1.66	17954.85	1.08	1640.67	1.50	16.37	1.28	2317.07	1.55	1.40
p1	1689.12	1.66	17921.38	1.08	1624.47	1.48	15.94	1.24	2309.07	1.55	1.38
p2	1690.75	1.66	17944.55	1.08	1604.30	1.46	16.13	1.26	2342.57	1.57	1.39
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1751.25	1.72	17725.60	1.07	1633.00	1.49	16.11	1.26	2331.80	1.56	1.40
p1	1745.72	1.71	17317.80	1.04	1550.15	1.41	15.84	1.23	2336.00	1.57	1.37
p2	1754.88	1.72	17784.72	1.07	1506.97	1.37	15.93	1.24	2338.47	1.57	1.38
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1733.80	1.70	17800.30	1.07	1601.42	1.46	17.79	1.39	2348.28	1.57	1.42
p1	1729.10	1.70	17810.58	1.07	1596.40	1.46	18.77	1.46	2355.18	1.58	1.44
p2	1752.47	1.72	17828.95	1.07	1721.00	1.57	18.65	1.45	2346.25	1.57	1.46
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1688.58	1.66	17862.88	1.08	1673.72	1.53	16.86	1.31	2330.80	1.56	1.41
p1	1673.60	1.64	17364.72	1.05	1714.30	1.56	16.47	1.28	2335.57	1.57	1.40
p2	1746.38	1.71	17817.45	1.07	1742.03	1.59	16.67	1.30	2341.22	1.57	1.43
TILE_11	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1984.35	1.95	17726.38	1.07	1579.10	1.44	16.48	1.28	2329.25	1.56	1.43
p1	1957.92	1.92	17679.90	1.06	1597.97	1.46	16.12	1.26	2322.68	1.56	1.42
p2	1992.25	1.96	17289.95	1.04	1551.53	1.41	16.28	1.27	2312.18	1.55	1.41
TILE_12	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1747.30	1.71	17881.40	1.08	1549.62	1.41	16.20	1.26	2242.40	1.50	1.38
p1	1734.03	1.70	17880.72	1.08	1659.10	1.51	16.02	1.25	2279.88	1.53	1.40
p2	1752.72	1.72	17914.03	1.08	1748.45	1.59	15.92	1.24	2300.88	1.54	1.41
TILE_13	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2017.25	1.98	17864.20	1.08	1537.12	1.40	18.70	1.46	2267.18	1.52	1.46
p1	2016.88	1.98	17936.00	1.08	1683.28	1.53	18.68	1.46	2275.38	1.52	1.49
p2	2028.72	1.99	17942.47	1.08	1506.47	1.37	18.65	1.45	2286.53	1.53	1.46
TILE_14	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2021.35	1.98	17919.50	1.08	1668.92	1.52	18.50	1.44	2302.78	1.54	1.49
p1	2023.12	1.99	17948.72	1.08	1803.38	1.64	18.65	1.45	2305.15	1.54	1.51
p2	2014.80	1.98	17939.75	1.08	1888.05	1.72	18.64	1.45	2308.88	1.55	1.53

TILE_15	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1714.00	1.68	17864.45	1.08	1532.88	1.40	16.26	1.27	2289.55	1.53	1.38
p1	1713.72	1.68	17429.62	1.05	1626.45	1.48	16.24	1.27	2295.35	1.54	1.38
p2	1706.40	1.67	17881.40	1.08	1527.78	1.39	16.04	1.25	2303.12	1.54	1.37
TILE_16	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1952.78	1.92	17484.35	1.05	1489.58	1.36	18.85	1.47	2297.12	1.54	1.44
p1	1984.85	1.95	17933.08	1.08	1556.92	1.42	18.56	1.45	2311.10	1.55	1.46
p2	2014.42	1.98	17955.40	1.08	1597.12	1.46	18.47	1.44	2289.12	1.53	1.47
TILE_17	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2025.40	1.99	17880.35	1.08	1481.90	1.35	19.17	1.49	2306.20	1.55	1.46
p1	2009.28	1.97	17817.03	1.07	1661.58	1.51	18.86	1.47	2292.72	1.54	1.49
p2	2031.58	1.99	17824.12	1.07	1694.22	1.54	19.04	1.48	2308.72	1.55	1.50
TILE_18	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1736.60	1.70	17899.12	1.08	1343.92	1.23	15.96	1.24	2310.75	1.55	1.34
p1	1695.22	1.66	17901.33	1.08	1611.17	1.47	16.01	1.25	2256.30	1.51	1.38
p2	1716.83	1.68	17899.58	1.08	1585.17	1.45	16.22	1.26	2314.70	1.55	1.39
TILE_19	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2012.92	1.98	17816.72	1.07	1437.67	1.31	16.26	1.27	2266.25	1.52	1.40
p1	2027.38	1.99	17868.72	1.08	1541.38	1.41	15.97	1.25	2259.40	1.51	1.41
p2	2017.38	1.98	17421.58	1.05	1717.03	1.57	16.11	1.26	2263.80	1.52	1.44
TILE_20	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1723.72	1.69	17922.50	1.08	1303.75	1.19	16.40	1.28	2303.18	1.54	1.34
p1	1694.08	1.66	17952.80	1.08	1478.40	1.35	16.18	1.26	2300.43	1.54	1.36
p2	1772.40	1.74	17931.35	1.08	1651.20	1.51	16.11	1.26	2299.45	1.54	1.40
TILE_21	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1717.03	1.69	17860.53	1.08	1273.42	1.16	16.48	1.28	2252.05	1.51	1.32
p1	1700.60	1.67	17884.12	1.08	1594.92	1.45	16.19	1.26	2253.00	1.51	1.38
p2	1717.75	1.69	17437.05	1.05	1629.40	1.49	16.19	1.26	2284.38	1.53	1.38
TILE_22	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1989.88	1.95	17856.95	1.07	1257.80	1.15	19.12	1.49	2291.93	1.54	1.41
p1	1973.60	1.94	17867.95	1.08	1535.58	1.40	19.00	1.48	2263.68	1.52	1.46
p2	2012.60	1.98	17845.08	1.07	1685.35	1.54	18.90	1.47	2297.20	1.54	1.49
TILE_23	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1720.83	1.69	17951.65	1.08	1202.88	1.10	19.03	1.48	2298.72	1.54	1.36
p1	1707.78	1.68	17921.60	1.08	1475.70	1.35	19.11	1.49	2288.93	1.53	1.41
p2	1712.25	1.68	17855.95	1.07	1503.67	1.37	19.00	1.48	2299.43	1.54	1.41

p0_score:	33.80
p1_score:	34.05
p2_score:	34.20
Unreviewed_VMmark_Score:	34.05

Configuration

Server and Network	
Server Manufacturer and Model	NEC Express5800/A1160
Processor Vendor and Model	Intel(R) Xeon(R) Processor X7460
Processor Speed (GHz)	2.66
Total Sockets/Total Cores/Total Threads	8 Sockets / 48 Cores / 48 Threads
Primary Cache	32KB(I) + 32KB(D) on chip, per core
Secondary Cache	3MB per core pair, 9MB per socket, 72MB Total
Other Cache	16MB per socket, 128MB Total L3 cache
BIOS Version	2.01.151
Memory Size (in GB, Number of DIMMs)	128GB (4GB x 32)
Memory Type and Speed	PC2-5300F ECC DDR2
Disk Subsystem Type	SAS(OS), FC(VMs)
Number of Disk Controllers	1
Disk Controller Vendors and Models	LSI MegaRAID SAS 8708ELP
Number of Host Bus Adapters	4
Host Bus Adapter Vendors and Models	Emulex LPe11002
Number of Network Controllers	3
Network Controller Vendors and Models	Intel(R) PRO/1000PT Server Adapter
Network Switch Vendors and Models	NETGEAR JGS524 24-port Gigabit Ethernet Switch
Network Speed	Gigabit Ethernet TX
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	07/31/2009
Software Availability Date (MM-DD-YYYY)	05/21/2009
Virtualization Software	

Vendor, Product, Version, and Build	VMware ESX 4.0 (Build 164009)
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Software Availability Date (MM-DD-YYYY)	05/21/2009

Storage

Array Vendors, Models, and Firmware Versions	NEC Storage S2500, Firmware revision 043H
Fibre Channel Switch Vendors and Models	None
Disk Space Used	1627GB
Array Cache Size	2GB per controller
Total Number of Physical Disks Used	482
Total Number of Enclosures/Pods/Shelves Used	32
Total Number of Physical Disks per Enclosures/Pods/Shelves Used	15
Total Number of Storage Groups Used	8
Number LUNs Used	32
LUN Size and Number of Disks Per LUN	498.25GB, 15disks per LUN
RAID Type	RAID0
Number of Members per RAID Set	15
Disk Vendors, Models, and Speeds	Fujitsu, MAX3073FC, 15K RPM

Clients

Number of Clients	24
System Model(s)	13x NEC Express5800/120Rj-2 11x NEC Express5800/120Rg-2
Processor Vendor(s) and Model(s)	Intel(R) Xeon(R) Processor X5450, Xeon(R) Processor X5470, Xeon(R) Processor
Processor Speed(s) (GHz)	X5450: 3.0GHz, X5470: 3.33GHz, Xeon(R): 3.0GHz
Total Sockets/Total Cores/Total Threads	X5450: 1 Sockets / 4 Cores / 4 Threads in 12x 120Rj-2 X5470: 2 Sockets / 8 Cores / 8 Threads in 1x 120Rj-2 Xeon(R): 2 Sockets / 2 Cores / 4 Threads in 11x 120Rg-2

Memory per Client	4GB
Network Controller Vendors and Models	Intel(R) PRO/1000EB in 120Rj-2 Intel(R) PRO/1000MT Dual Port Server Adapter in 120Rg-2
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 R2 Enterprise Edition SP2
Other Hardware	None
Other Software	None

Notes for Workload

Server and Network Notes

- None

Virtualization Software Notes

- Three vSwitches: vSwitch0-2
vSwitch0 was configured with 248 ports,vSwitch1-2 were configured with 24 ports
- vSwitch0-2 were attached to vmnic0-2,respectively
- Webserver0-11 attached to vSwitch1
- Webserver12-23 attached to vSwitch2
- All other VMs and Service console attached to vSwitch0
- Network adapter type was set to vmxnet3 for all VMs
- Database0,1,16 VMs were stored on LUN 24
- Database2,3,17 VMs were stored on LUN 25
- Database4,5,18 VMs were stored on LUN 26
- Database6,7,19 VMs were stored on LUN 27
- Database8,9,20 VMs were stored on LUN 28
- Database10,11,21 VMs were stored on LUN 29
- Database12,13,22 VMs were stored on LUN 30
- Database14,15,23 VMs were stored on LUN 31
- All other VMs were stored on LUNs 0-23 each tile on its own LUN
- Stopped Crond,Firewall,IPtables,IP6tables processes on ESX host prior to run
- VMFS2 module was unloaded prior to run
- Disabled ESX logging on all VMs
- Disk.SchedNumReqOutstanding was set to 128 (default 32)
- lpfc820.o/options was set to lpfc_lun_queue_depth=128 (default lpfc_lun_queue_depth=32)
- Net.EtherswitchHashSize was set to 4 (default 1)
- BufferCache.SoftMaxDirty was set to 85 (default 15)
- Cpu.CoshdHandoffLLC was set to 1 (default 0)
- Net.MaxNetifRxQuereLen was set to 300 (default 100)
- Net.MaxNetifTxQueueLen was set to 1000 (default 500)
- Net.MaxPortRxQueueLen was set to 160 (default 80)
- Removed IDE and Floppy devices from all VMs prior to run
- Hardware Version was 7 for all VMs

Operating System Notes

- Microsoft Windows Server 2003 R2 Enterprise Edition Service Pack 2 on Windows-based virtual machines
- SUSE Linux Enterprise Server 10 (32-and 64-bit) Service Pack 2 on all Linux-based virtual machines

Software Notes

- None

Client Notes

- Microsoft Windows Server 2003 R2 Enterprise Edition Service Pack 2

Other Notes

VMMARK.CONFIG

- TILEDELAY=300 (default 600)

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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