

VMware® VMmark™ V1.1.1 Results

Vendor and Hardware Platform: Dell PowerEdge R910
Virtualization Platform: VMware ESX version 4.0 Update 2 Build 258828

VMmark V1.1.1 Score =
74.34 @ 50 Tiles

Tested By: Dell Inc.

Test Date: 07-01-2010

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Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2061.05	2.02	18148.70	1.09	1449.53	1.32	18.88	1.47	2289.68	1.53	1.46
p1	2045.80	2.01	17666.33	1.06	1683.95	1.54	18.44	1.44	2258.38	1.51	1.48
p2	2032.42	1.99	18116.85	1.09	1803.50	1.64	18.07	1.41	2204.82	1.48	1.49
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2054.15	2.02	18164.12	1.09	1467.92	1.34	18.96	1.48	2336.12	1.57	1.47
p1	1884.47	1.85	17711.12	1.07	1583.85	1.44	18.79	1.46	2319.72	1.55	1.45
p2	1714.80	1.68	18138.60	1.09	1766.08	1.61	18.54	1.45	2303.82	1.54	1.46
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2063.75	2.03	18139.83	1.09	1462.65	1.33	19.26	1.50	2353.40	1.58	1.47
p1	2048.65	2.01	18145.58	1.09	1671.85	1.52	19.29	1.50	2335.10	1.56	1.51
p2	2027.92	1.99	17677.03	1.06	1786.08	1.63	19.24	1.50	2322.75	1.56	1.52
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1939.88	1.90	18121.38	1.09	1504.62	1.37	19.50	1.52	2332.68	1.56	1.47
p1	1864.67	1.83	18119.58	1.09	1744.20	1.59	19.24	1.50	2319.53	1.55	1.49
p2	1825.55	1.79	17664.55	1.06	1841.22	1.68	19.24	1.50	2303.47	1.54	1.49
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2075.72	2.04	18117.28	1.09	1474.58	1.34	19.30	1.50	2314.55	1.55	1.47
p1	2054.82	2.02	18115.08	1.09	1684.90	1.54	18.65	1.45	2297.12	1.54	1.50
p2	2050.22	2.01	18134.97	1.09	1738.08	1.58	18.58	1.45	2269.85	1.52	1.50
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2054.18	2.02	18167.38	1.09	1540.80	1.40	18.97	1.48	2345.38	1.57	1.48
p1	2051.93	2.01	17709.03	1.07	1660.28	1.51	18.83	1.47	2326.65	1.56	1.49
p2	2041.08	2.00	18165.28	1.09	1816.17	1.66	18.27	1.42	2312.05	1.55	1.52

TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2066.30	2.03	18183.38	1.09	1378.17	1.26	19.40	1.51	2355.55	1.58	1.46
p1	2055.82	2.02	17715.35	1.07	1572.45	1.43	18.97	1.48	2336.15	1.57	1.48
p2	2039.12	2.00	18162.97	1.09	1777.25	1.62	18.83	1.47	2318.30	1.55	1.52
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2065.40	2.03	18154.70	1.09	1542.67	1.41	19.15	1.49	2333.07	1.56	1.49
p1	2062.07	2.02	18140.38	1.09	1774.53	1.62	18.48	1.44	2314.45	1.55	1.52
p2	2061.72	2.02	17702.33	1.07	1791.60	1.63	18.29	1.43	2294.70	1.54	1.51
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1972.00	1.94	18146.28	1.09	1488.67	1.36	18.75	1.46	2339.35	1.57	1.46
p1	1858.08	1.82	17701.28	1.07	1702.08	1.55	18.59	1.45	2319.55	1.55	1.47
p2	1755.17	1.72	18157.15	1.09	1827.22	1.67	18.30	1.43	2292.07	1.54	1.47
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2066.70	2.03	18138.17	1.09	1471.62	1.34	19.38	1.51	2359.50	1.58	1.48
p1	2056.05	2.02	18163.47	1.09	1684.55	1.54	18.93	1.48	2344.15	1.57	1.51
p2	2036.83	2.00	17703.33	1.07	1756.35	1.60	18.61	1.45	2332.75	1.56	1.51
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2052.90	2.01	18171.22	1.09	1444.80	1.32	19.31	1.50	2338.20	1.57	1.47
p1	2039.17	2.00	17717.67	1.07	1655.62	1.51	19.05	1.48	2315.00	1.55	1.49
p2	2039.97	2.00	18166.33	1.09	1704.60	1.55	18.86	1.47	2301.38	1.54	1.50
TILE_11	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2073.65	2.04	18125.17	1.09	1448.15	1.32	19.45	1.52	2329.88	1.56	1.47
p1	2048.20	2.01	18120.38	1.09	1615.83	1.47	19.21	1.50	2307.12	1.55	1.50
p2	2037.08	2.00	18118.85	1.09	1756.53	1.60	18.84	1.47	2287.55	1.53	1.51
TILE_12	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2070.12	2.03	18122.58	1.09	1423.22	1.30	19.42	1.51	2332.60	1.56	1.47
p1	2055.65	2.02	18117.47	1.09	1634.67	1.49	18.89	1.47	2312.25	1.55	1.50
p2	2051.32	2.01	18118.22	1.09	1725.05	1.57	18.73	1.46	2282.43	1.53	1.50
TILE_13	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2074.43	2.04	18169.95	1.09	1472.20	1.34	19.46	1.52	2349.35	1.57	1.48
p1	2059.93	2.02	17711.10	1.07	1683.95	1.54	19.27	1.50	2330.93	1.56	1.51
p2	2050.45	2.01	18155.33	1.09	1844.78	1.68	19.14	1.49	2313.25	1.55	1.54
TILE_14	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2066.97	2.03	18172.85	1.09	1397.00	1.27	19.13	1.49	2351.15	1.58	1.46
p1	2051.47	2.01	17693.42	1.06	1578.47	1.44	18.88	1.47	2331.60	1.56	1.48
p2	2039.42	2.00	18118.60	1.09	1744.80	1.59	18.63	1.45	2318.80	1.55	1.51

TILE_15	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2008.72	1.97	18155.60	1.09	1413.85	1.29	19.21	1.50	2327.43	1.56	1.45
p1	1904.25	1.87	18118.35	1.09	1649.95	1.50	18.70	1.46	2304.18	1.54	1.47
p2	1867.80	1.83	17682.33	1.06	1812.97	1.65	18.33	1.43	2289.22	1.53	1.48
TILE_16	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1986.75	1.95	18153.08	1.09	1511.55	1.38	19.61	1.53	2327.03	1.56	1.48
p1	1832.83	1.80	17699.30	1.07	1680.58	1.53	19.13	1.49	2304.72	1.54	1.47
p2	1807.80	1.77	18167.70	1.09	1698.03	1.55	18.71	1.46	2279.28	1.53	1.46
TILE_17	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2078.82	2.04	18168.90	1.09	1465.10	1.34	19.26	1.50	2344.72	1.57	1.48
p1	2076.18	2.04	17691.53	1.06	1619.80	1.48	18.87	1.47	2324.55	1.56	1.49
p2	2076.38	2.04	18129.00	1.09	1798.08	1.64	18.74	1.46	2311.55	1.55	1.52
TILE_18	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2080.60	2.04	18168.90	1.09	1376.22	1.25	19.30	1.50	2343.97	1.57	1.46
p1	2073.30	2.03	17684.55	1.06	1641.08	1.50	18.95	1.48	2323.05	1.56	1.49
p2	2068.40	2.03	18143.05	1.09	1761.62	1.61	18.78	1.46	2305.55	1.54	1.52
TILE_19	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2074.90	2.04	18143.78	1.09	1369.88	1.25	19.70	1.54	2326.80	1.56	1.46
p1	2063.00	2.02	18116.88	1.09	1669.92	1.52	19.33	1.51	2303.88	1.54	1.51
p2	2046.95	2.01	18117.65	1.09	1704.35	1.55	19.00	1.48	2289.72	1.53	1.51
TILE_20	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2078.43	2.04	18124.38	1.09	1431.60	1.31	19.44	1.52	2331.93	1.56	1.47
p1	2074.57	2.04	18120.15	1.09	1672.40	1.52	19.24	1.50	2311.85	1.55	1.51
p2	2075.93	2.04	18119.33	1.09	1696.80	1.55	18.94	1.48	2290.07	1.53	1.51
TILE_21	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2075.35	2.04	18159.45	1.09	1433.92	1.31	19.63	1.53	2351.68	1.58	1.48
p1	2056.95	2.02	17709.17	1.07	1646.17	1.50	19.19	1.50	2328.15	1.56	1.50
p2	2043.70	2.01	18109.08	1.09	1766.10	1.61	19.22	1.50	2310.43	1.55	1.52
TILE_22	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2079.55	2.04	18146.45	1.09	1400.65	1.28	19.33	1.51	2351.90	1.58	1.47
p1	2069.50	2.03	18132.72	1.09	1641.17	1.50	19.18	1.49	2328.62	1.56	1.51
p2	2057.50	2.02	17709.00	1.07	1780.15	1.62	18.71	1.46	2312.10	1.55	1.51
TILE_23	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2080.40	2.04	18153.95	1.09	1364.58	1.24	19.68	1.53	2326.00	1.56	1.46
p1	2065.95	2.03	18145.53	1.09	1534.30	1.40	19.55	1.52	2302.68	1.54	1.49
p2	2061.80	2.02	17689.40	1.06	1809.58	1.65	19.14	1.49	2289.47	1.53	1.52

TILE_24	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2074.35	2.04	18137.67	1.09	1354.10	1.23	19.27	1.50	2332.32	1.56	1.45
p1	2063.32	2.02	18114.30	1.09	1606.25	1.46	19.24	1.50	2310.55	1.55	1.50
p2	2050.55	2.01	18116.08	1.09	1691.55	1.54	19.33	1.51	2282.20	1.53	1.51
TILE_25	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2071.50	2.03	18156.35	1.09	1467.40	1.34	19.09	1.49	2348.85	1.57	1.47
p1	2062.00	2.02	18162.95	1.09	1593.58	1.45	19.09	1.49	2324.43	1.56	1.49
p2	2051.50	2.01	17704.78	1.07	1705.97	1.56	19.09	1.49	2313.18	1.55	1.50
TILE_26	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2078.35	2.04	18166.95	1.09	1456.05	1.33	19.53	1.52	2359.75	1.58	1.48
p1	2064.20	2.03	18158.47	1.09	1573.42	1.43	19.29	1.50	2334.88	1.56	1.50
p2	2059.18	2.02	17708.83	1.07	1738.30	1.58	18.99	1.48	2326.75	1.56	1.51
TILE_27	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2017.85	1.98	18179.60	1.09	1355.60	1.24	18.81	1.47	2225.62	1.49	1.42
p1	2021.40	1.98	17723.78	1.07	1628.30	1.48	18.81	1.47	2194.93	1.47	1.47
p2	1969.88	1.93	18152.92	1.09	1778.80	1.62	18.14	1.41	2164.53	1.45	1.48
TILE_28	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2080.43	2.04	18168.62	1.09	1363.40	1.24	19.60	1.53	2345.57	1.57	1.46
p1	2074.03	2.04	18127.10	1.09	1603.97	1.46	19.33	1.51	2320.20	1.55	1.50
p2	2069.50	2.03	17669.28	1.06	1843.78	1.68	19.03	1.48	2290.40	1.53	1.53
TILE_29	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1982.28	1.95	18174.65	1.09	1312.88	1.20	19.66	1.53	2357.95	1.58	1.44
p1	1869.85	1.84	18159.08	1.09	1588.38	1.45	19.33	1.51	2334.85	1.56	1.47
p2	1794.33	1.76	17676.80	1.06	1694.65	1.55	19.33	1.51	2319.82	1.55	1.47
TILE_30	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2066.85	2.03	18180.10	1.09	1404.05	1.28	19.61	1.53	2352.57	1.58	1.47
p1	2061.97	2.02	17711.78	1.07	1713.12	1.56	19.16	1.49	2330.00	1.56	1.51
p2	2048.28	2.01	18162.50	1.09	1806.97	1.65	18.83	1.47	2319.30	1.55	1.53
TILE_31	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2072.57	2.03	18117.97	1.09	1444.20	1.32	19.38	1.51	2327.35	1.56	1.47
p1	2058.20	2.02	18124.60	1.09	1716.25	1.56	19.25	1.50	2301.55	1.54	1.51
p2	2054.53	2.02	18147.90	1.09	1706.75	1.56	18.99	1.48	2286.45	1.53	1.51
TILE_32	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2080.72	2.04	18156.72	1.09	1398.22	1.27	19.51	1.52	2339.20	1.57	1.47
p1	2064.70	2.03	18150.70	1.09	1642.97	1.50	18.96	1.48	2322.22	1.56	1.50
p2	2056.78	2.02	17708.80	1.07	1724.33	1.57	19.05	1.48	2296.32	1.54	1.51

TILE_33	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2074.57	2.04	18156.80	1.09	1372.75	1.25	19.94	1.55	2359.05	1.58	1.47
p1	2059.97	2.02	18150.05	1.09	1553.17	1.42	19.74	1.54	2342.05	1.57	1.50
p2	2063.18	2.02	17707.72	1.07	1724.30	1.57	19.31	1.51	2327.55	1.56	1.51
TILE_34	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2079.82	2.04	18159.97	1.09	1346.88	1.23	19.45	1.52	2357.45	1.58	1.46
p1	2073.05	2.03	18163.20	1.09	1656.12	1.51	19.27	1.50	2334.55	1.56	1.51
p2	2071.50	2.03	17718.78	1.07	1701.05	1.55	19.22	1.50	2317.10	1.55	1.51
TILE_35	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2071.93	2.03	18183.25	1.09	1257.15	1.15	19.36	1.51	2337.57	1.57	1.43
p1	2061.45	2.02	18136.15	1.09	1533.20	1.40	19.22	1.50	2313.15	1.55	1.48
p2	2046.35	2.01	17699.55	1.07	1704.35	1.55	19.39	1.51	2295.75	1.54	1.51
TILE_36	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2076.53	2.04	18183.62	1.09	1251.22	1.14	19.07	1.49	2337.55	1.57	1.43
p1	2066.15	2.03	17721.22	1.07	1554.88	1.42	19.19	1.50	2314.28	1.55	1.48
p2	2053.22	2.02	18193.08	1.10	1631.65	1.49	19.05	1.48	2287.28	1.53	1.50
TILE_37	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2069.65	2.03	18175.72	1.09	1261.92	1.15	19.46	1.52	2357.57	1.58	1.44
p1	2063.30	2.02	17719.22	1.07	1460.58	1.33	19.25	1.50	2337.97	1.57	1.47
p2	2053.00	2.01	18157.22	1.09	1632.72	1.49	19.11	1.49	2320.50	1.55	1.50
TILE_38	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2036.50	2.00	18168.65	1.09	1235.58	1.13	19.52	1.52	2360.22	1.58	1.43
p1	1981.85	1.94	18141.40	1.09	1485.08	1.35	19.21	1.50	2333.00	1.56	1.46
p2	1820.88	1.79	17683.78	1.06	1607.10	1.47	19.05	1.49	2322.05	1.56	1.45
TILE_39	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2081.45	2.04	18164.83	1.09	1213.75	1.11	19.46	1.52	2318.82	1.55	1.42
p1	2070.32	2.03	18107.10	1.09	1414.25	1.29	19.12	1.49	2296.82	1.54	1.46
p2	2052.93	2.01	18116.20	1.09	1678.50	1.53	18.89	1.47	2285.50	1.53	1.50
TILE_40	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2070.93	2.03	18138.25	1.09	1254.20	1.14	19.13	1.49	2268.28	1.52	1.42
p1	2058.80	2.02	18135.47	1.09	1590.17	1.45	18.58	1.45	2244.38	1.50	1.47
p2	2052.15	2.01	18108.75	1.09	1685.30	1.54	18.38	1.43	2230.38	1.49	1.48
TILE_41	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2074.53	2.04	18143.58	1.09	1277.78	1.17	19.14	1.49	2352.15	1.58	1.44
p1	2033.88	2.00	18149.22	1.09	1588.10	1.45	18.83	1.47	2326.45	1.56	1.49
p2	2025.50	1.99	17706.08	1.07	1698.10	1.55	18.83	1.47	2315.35	1.55	1.50

Configuration

Server and Network	
Server Manufacturer and Model	Dell PowerEdge R910
Processor Vendor and Model	Intel Xeon X7560
Processor Speed (GHz)	2.27 GHz
Total Sockets/Total Cores/Total Threads	4 Sockets / 32 Cores / 64 Threads
Primary Cache	32KB I+32KB D on chip per core
Secondary Cache	256KB I+D on chip per core
Other Cache	24MB I+D on chip per chip L3
BIOS Version	1.0.1
Memory Size (in GB, Number of DIMMs)	512GB, 64x8GB
Memory Type and Speed	Quad Rank 1066MHz Registered DDR3
Disk Subsystem Type	SAS DAS
Number of Disk Controllers	3
Disk Controller Vendors and Models	1x Dell PERC H700 integrated 2x Dell PERC H800 Adapter
Number of Host Bus Adapters	0
Host Bus Adapter Vendors and Models	N/A
Number of Network Controllers	6
Network Controller Vendors and Models	2x dual-port Broadcom BCM5709C (onboard) 2x Single-port Intel 10GbE SR
Network Switch Vendors and Models	2x Dell PowerConnect 6248
Network Speed	10Gbps for all webserver VMs, 1Gbps for all remaining VMs and clients
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	07-07-2010
Software Availability Date (MM-DD-YYYY)	07-07-2010
Virtualization Software	
Vendor, Product, Version, and Build	VMware ESX 4.0 Update 2 Build 258828
Virtualization Type	Hardware
Supplemental Software	None
Virtualization Software Availability Date	06-10-2010

(MM-DD-YYYY)

Storage

Array Vendors, Models, and Firmware Versions	3x Dell PowerVault MD1220 version A.00
Fibre Channel Switch Vendors and Models	None
Disk Space Used	3100GB
Array Cache Size	N/A
Total Number of Physical Disks Used	59
Total Number of Enclosures/Pods/Shelves Used	3
Total Number of Physical Disks per Enclosures/Pods/Shelves Used	2(17x 146GB SSDs), 1(24x 146GB SAS 15k disks)
Total Number of Storage Groups Used	N/A
Number LUNs Used	39
LUN Size and Number of Disks Per LUN	34 LUNs at 138GB (MailServer + FileServer) each on 1x146GB SSD 4 LUNs at 816.5GB ((Misc) over 6x146GB 15k disks 1 LUN at 66.5GB (boot) over 1 local 73GB 15k disk
RAID Type	RAID0
Number of Members per RAID Set	34 RAID sets each over 1x 146GB SSD 4 RAID sets over 6x146GB 15k disks 1 RAID set over 1x 73GB 15k disk
Disk Vendors, Models, and Speeds	Pliant LB 150S, Hitachi GST HUC151414CSS600

Clients

Number of Clients	50
System Model(s)	PowerEdge 1750: Clients 0-3,37 PowerEdge 1850: Clients 4,10-25,27,41-44 PowerEdge 1950: Clients 5-9,26,28-36,38-40,45-49
Processor Vendor(s) and Model(s)	Intel Xeon, P4, E5205
Processor Speed(s) (GHz)	3.06GHz: Clients 0,1 3.20GHz: Clients 2,3,37 2.80GHz: Clients 4,42,44 1.86GHz: Clients 5-9,26,28-36,38-40,45-49 3.40GHz: Client10 3.60GHz: Clients 11-25,27,43 3.80GHz: Client41
Total Sockets/Total Cores/Total Threads	2 Sockets / 1 Core per Socket / 4 Threads: Clients 0-4, 10-25, 27, 37, 41-44 2 Sockets / 4 Cores per Socket / 4 Threads: Clients 5-9, 26, 28-36, 38-40, 45-49

Memory per Client	2GB: Clients 0-4, 11-25, 37, 43 4GB: Clients 5-10,26,28-36, 38-42, 45-49 8GB: Client27 12GB: Client44
Network Controller Vendors and Models	Broadcom NetXtreme 5704 Gigabit Ethernet (PE1750) Intel PRO/1000 MT Network Controller (PE1850) Broadcom 5708 Gigabit Network Controller (PE1950)
Operating System, Version, and Service Pack	Windows Server 2003 Enterprise Edition SP2
Other Hardware	None
Other Software	None

Notes for Workload

Server and Network Notes

- Server BIOS settings:
 - Turbo Boost Technology: Enabled (Intel Turbo Boost up to 2.93GHz, default enabled)
 - Virtualization Technology=Enabled (default Disabled)
 - Internal USB port=Off (default On)
 - User Accessible USB ports=Only back ports on (default All ports on)
 - Power Management: Maximum Performance (default Active Power Controller)
- PERC BIOS settings:
 - SSD virtual disks set to Write-Through, No Read Ahead (default Write-Back, Adaptive Read Ahead)”
 - SAS virtual disks set to Write-Back, Read Ahead (default Write-Back/Adaptive Read Ahead)
- Network Settings:
 - Broadcom NICs (vmnic0,1,2,3) bound to vSwitch0,1,2,3 respectively
 - Intel 10GbE NICs (vmnic4,5) bound to vSwitch4,5 respectively
 - Service Console, Standby and FileServer VMs attached to vSwitch0
 - MailServer VMs attached to vSwitch1
 - JavaServer VMs attached to vSwitch2
 - Database VMs attached to vSwitch3
 - WebServer 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48 VMs attached to vSwitch 4
 - WebServer 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49 VMs attached to vSwitch 5
 - vSwitch0,1,2,3,4 configured with 128 ports (default 56)
- Storage Configuration:
 - 17 LUNs of 138GB were created (One LUN per hard drive) for FileServer VMs
 - LUN1 for FileServer 0,17,34
 - LUN2 for FileServer 1,18,35
 - LUN3 for FileServer 2,19,36
 - LUN4 for FileServer 3,20,37
 - LUN5 for FileServer 4,21,38
 - LUN6 for FileServer 5,22,39
 - LUN7 for FileServer 6,23,40
 - LUN8 for FileServer 7,24,41

LUN9 for FileServer 8,25,42
LUN10 for FileServer 9,26,43
LUN11 for FileServer 10,27,44
LUN12 for FileServer 11,28,45
LUN13 for FileServer 12,29,46
LUN14 for FileServer 13,30,47
LUN15 for FileServer 14,31,48
LUN16 for FileServer 15,32,49
LUN17 for FileServer 16,33
17 LUNs of 138GB were created (One LUN per hard drive) for MailServer VMs
LUN1 for MailServer 0,17,34
LUN2 for MailServer 1,18,35
LUN3 for MailServer 2,19,36
LUN4 for MailServer 3,20,37
LUN5 for MailServer 4,21,38
LUN6 for MailServer 5,22,39
LUN7 for MailServer 6,23,40
LUN8 for MailServer 7,24,41
LUN9 for MailServer 8,25,42
LUN10 for MailServer 9,26,43
LUN11 for MailServer 10,27,44
LUN12 for MailServer 11,28,45
LUN13 for MailServer 12,29,46
LUN14 for MailServer 13,30,47
LUN15 for MailServer 14,31,48
LUN16 for MailServer 15,32,49
LUN17 for MailServer 16,33
4 LUNs of 817GB were created across 6 SSD for Standby, Database, WebServer and JavaServer VMs
LUN0 for Tiles 0,4,8,12,16,20,24,28,32,36,40,44,48
LUN1 for Tiles 1,5,9,13,17,21,25,29,33,37,41,45,49
LUN2 for Tiles 2,6,10,14,18,22,26,30,34,38,42,46
LUN3 for Tiles 3,7,11,15,19,23,27,31,35,39,43,47

Virtualization Software Notes

- Hardware support for both CPU and MMU virtualization enabled on all VMs (default automatic)
- All VM's hardware upgraded to version 7
- Ethernet adapter type upgraded to VMXNET3 for all VM's
- Iptables and firewall services were disabled at boot
- Logging was disabled for all VMs
- Tcpi2v6 has been disabled
- IDE and Floppy devices were removed on all VMs, except for MailServer04 (default enabled)
- BufferCache.SoftMaxDirty=85 (default 15)
- CPU.HaltingIdleMsecPenalty=0 (default 100)
- CPU.Quantum=65 (default 50)
- Disk.EnableNaviReg=0 (default 1)
- Disk.SchedNumReqOutstanding set to 128 (default 32)
- Irq.RoutingPolicy=0 (default 2)
- Mem.BalancePeriod=0 (default 15)
- Mem.SamplePeriod=0 (default 60)

- Mem.ShareScanGHz=0 (default 4)
- Net.MaxNetifRxQueueLen=300 (default 100)
- Net.MaxNetifTxQueueLen=1000 (default 500)
- Net.TcpipHeapMax=120 (default64)
- Net.vmxnetThroughputWeight=255 (default 0)
- Numa.PageMigEnable=0 (default 1)
- Misc.HostdStatsVMCount=512 (default 0)
- JavaServer VMs use jrockit-R27.5.0-jdk1.5.0_15
- All mailserver data partitions have been expanded
- /vmkernel/module/bnx2.o/options = "disable_msi=0" set in /etc/vmware/esx.conf (default 1)

Operating System Notes

- Microsoft Windows Server 2003 virtual machines were updated to Service Pack 2, and KB951072-v2 was applied
- SUSE Linux Enterprise Server 10 virtual machines were updated to Service Pack 2

Software Notes

- None

Client Notes

- KB951072-v2 was applied to all clients and overwrites KB933360

Other Notes

- VMmark Config:
 - TILEDELAY=60 (Default 600)
 - MailServer/DELAYTIME="0" (Default 5)
 - JavaServer/DELAYTIME="25" (Default 540)
 - Standby/DELAYTIME="35"(Default 170)
 - WebServer/DELAYTIME="50"(Default 180)
 - Database/DELAYTIME="75"(Default 360)
 - FileServer/DELAYTIME="100"(Default 450)

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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