

VMware® VMmark™ V1.1.1 Results

Vendor and Hardware Platform: Cisco UCS C460 M1
Virtualization Platform: VMware ESXi 4.0 Build 240223

**VMmark V1.1.1 Score =
73.82 @ 50 Tiles**

Tested By: Cisco Systems

Test Date: 4-09-2010

Performance Section
[Performance](#)

Configuration Section
[Configuration](#)

Notes Section
[Notes for Workload](#)

Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1962.70	1.93	18116.00	1.09	1720.30	1.57	19.29	1.50	2277.80	1.53	1.50
p1	1968.80	1.93	18147.47	1.09	1799.95	1.64	18.84	1.47	2288.50	1.53	1.51
p2	1968.60	1.93	18140.00	1.09	1671.20	1.52	18.55	1.45	2277.00	1.53	1.48
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2032.53	1.99	18104.97	1.09	1690.12	1.54	19.32	1.51	2284.57	1.53	1.51
p1	2018.95	1.98	18107.85	1.09	1690.75	1.54	18.76	1.46	2289.40	1.53	1.49
p2	2000.97	1.96	18125.35	1.09	1677.10	1.53	18.52	1.44	2277.60	1.53	1.48
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1996.03	1.96	17681.15	1.06	1699.03	1.55	17.89	1.39	2300.88	1.54	1.47
p1	2011.78	1.97	18114.65	1.09	1648.00	1.50	17.80	1.39	2303.70	1.54	1.47
p2	2000.97	1.96	18148.38	1.09	1656.78	1.51	17.74	1.38	2287.97	1.53	1.47
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1993.15	1.96	18161.65	1.09	1663.92	1.52	19.20	1.50	2267.43	1.52	1.49
p1	1984.72	1.95	18134.65	1.09	1755.25	1.60	18.79	1.46	2277.97	1.53	1.50
p2	1984.53	1.95	18156.50	1.09	1781.42	1.62	18.52	1.44	2268.68	1.52	1.50
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2017.62	1.98	18167.85	1.09	1628.17	1.48	18.56	1.45	2301.80	1.54	1.48
p1	2010.12	1.97	17713.60	1.07	1802.03	1.64	18.37	1.43	2303.97	1.54	1.50
p2	2009.15	1.97	18131.90	1.09	1672.88	1.53	18.24	1.42	2297.95	1.54	1.48
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1973.78	1.94	18164.40	1.09	1695.70	1.55	17.97	1.40	2302.68	1.54	1.48
p1	1971.95	1.94	18134.65	1.09	1804.20	1.64	18.01	1.40	2313.38	1.55	1.50
p2	1965.47	1.93	17691.62	1.06	1760.15	1.60	17.98	1.40	2294.65	1.54	1.48

TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2031.62	1.99	18121.30	1.09	1722.22	1.57	18.87	1.47	2297.68	1.54	1.51
p1	2028.70	1.99	18125.80	1.09	1767.60	1.61	18.68	1.46	2304.75	1.54	1.51
p2	1998.62	1.96	17690.47	1.06	1700.97	1.55	18.55	1.45	2291.75	1.54	1.48
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1998.85	1.96	18134.25	1.09	1697.25	1.55	18.71	1.46	2302.68	1.54	1.49
p1	1992.12	1.96	18116.80	1.09	1761.90	1.61	18.73	1.46	2310.53	1.55	1.51
p2	1993.00	1.96	18115.65	1.09	1811.12	1.65	18.47	1.44	2297.25	1.54	1.51
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2019.28	1.98	18138.65	1.09	1657.58	1.51	19.37	1.51	2297.57	1.54	1.50
p1	2025.72	1.99	18131.22	1.09	1694.28	1.54	18.85	1.47	2303.60	1.54	1.50
p2	2016.53	1.98	18107.97	1.09	1725.78	1.57	18.69	1.46	2284.38	1.53	1.50
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1997.20	1.96	18138.25	1.09	1648.67	1.50	18.44	1.44	2293.57	1.54	1.48
p1	1987.25	1.95	18149.10	1.09	1818.08	1.66	18.30	1.43	2298.90	1.54	1.51
p2	1988.62	1.95	18146.38	1.09	1809.55	1.65	17.94	1.40	2285.30	1.53	1.50
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1997.10	1.96	18136.75	1.09	1636.65	1.49	17.91	1.40	2300.95	1.54	1.47
p1	1997.10	1.96	18150.12	1.09	1782.92	1.63	17.85	1.39	2303.50	1.54	1.50
p2	1991.33	1.95	18162.70	1.09	1652.53	1.51	17.94	1.40	2289.53	1.53	1.47
TILE_11	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1782.90	1.75	18170.20	1.09	1639.67	1.49	18.37	1.43	2301.00	1.54	1.45
p1	1998.75	1.96	17692.22	1.06	1718.53	1.57	18.15	1.41	2306.00	1.55	1.48
p2	2001.60	1.96	18147.22	1.09	1800.97	1.64	18.04	1.41	2295.25	1.54	1.50
TILE_12	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1975.75	1.94	18123.45	1.09	1604.25	1.46	17.99	1.40	2304.47	1.54	1.46
p1	1974.15	1.94	18117.62	1.09	1832.20	1.67	17.91	1.40	2313.75	1.55	1.50
p2	1963.38	1.93	18115.28	1.09	1675.10	1.53	17.92	1.40	2301.45	1.54	1.47
TILE_13	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2014.22	1.98	18145.55	1.09	1648.12	1.50	18.80	1.47	2317.00	1.55	1.49
p1	2027.67	1.99	18123.08	1.09	1779.25	1.62	18.86	1.47	2326.85	1.56	1.52
p2	2019.10	1.98	18132.33	1.09	1744.20	1.59	18.62	1.45	2323.55	1.56	1.51
TILE_14	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1996.80	1.96	18137.70	1.09	1660.70	1.51	18.95	1.48	2306.22	1.55	1.49
p1	1943.12	1.91	18159.42	1.09	1721.55	1.57	18.89	1.47	2316.25	1.55	1.50
p2	1961.70	1.93	17685.08	1.06	1665.90	1.52	18.65	1.45	2315.80	1.55	1.48

TILE_15	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1966.10	1.93	18111.55	1.09	1635.80	1.49	16.90	1.32	2316.82	1.55	1.45
p1	1949.40	1.91	18091.20	1.09	1614.20	1.47	17.14	1.34	2317.93	1.55	1.45
p2	1845.25	1.81	18131.47	1.09	1718.05	1.57	16.93	1.32	2316.75	1.55	1.45
TILE_16	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1850.20	1.82	18168.67	1.09	1670.03	1.52	18.53	1.44	2313.72	1.55	1.47
p1	1945.90	1.91	18151.58	1.09	1777.25	1.62	18.07	1.41	2319.15	1.55	1.49
p2	1936.60	1.90	18128.10	1.09	1746.90	1.59	18.15	1.41	2312.40	1.55	1.49
TILE_17	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1989.55	1.95	18141.28	1.09	1565.05	1.43	18.50	1.44	2306.05	1.55	1.47
p1	1896.83	1.86	18129.17	1.09	1673.75	1.53	18.15	1.41	2315.65	1.55	1.47
p2	1755.40	1.72	18148.20	1.09	1677.28	1.53	18.07	1.41	2320.10	1.55	1.45
TILE_18	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1987.35	1.95	18110.67	1.09	1541.65	1.41	17.19	1.34	2337.28	1.57	1.44
p1	1991.55	1.95	18103.42	1.09	1638.05	1.49	17.59	1.37	2340.35	1.57	1.47
p2	1993.33	1.96	18105.05	1.09	1716.65	1.57	17.88	1.39	2334.00	1.56	1.49
TILE_19	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1970.60	1.93	18142.22	1.09	1638.40	1.49	19.02	1.48	2329.40	1.56	1.49
p1	1976.97	1.94	18116.40	1.09	1628.17	1.48	18.78	1.46	2337.15	1.57	1.48
p2	1962.78	1.93	18135.53	1.09	1758.70	1.60	18.63	1.45	2335.82	1.57	1.50
TILE_20	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1959.72	1.92	18114.15	1.09	1551.03	1.41	18.06	1.41	2321.72	1.56	1.45
p1	1970.53	1.93	18109.72	1.09	1604.78	1.46	17.89	1.39	2328.50	1.56	1.46
p2	1972.80	1.94	18112.15	1.09	1784.20	1.63	18.02	1.40	2334.03	1.56	1.50
TILE_21	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1971.60	1.93	18183.78	1.09	1628.35	1.48	17.94	1.40	2328.70	1.56	1.47
p1	1976.85	1.94	18171.50	1.09	1728.95	1.58	18.13	1.41	2332.25	1.56	1.49
p2	1970.78	1.93	17689.53	1.06	1786.00	1.63	18.12	1.41	2333.30	1.56	1.49
TILE_22	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2009.83	1.97	18123.60	1.09	1510.47	1.38	17.62	1.37	2331.07	1.56	1.45
p1	2027.20	1.99	18117.88	1.09	1715.47	1.56	17.59	1.37	2335.28	1.56	1.49
p2	2013.80	1.98	18123.42	1.09	1758.45	1.60	17.86	1.39	2332.38	1.56	1.50
TILE_23	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2003.45	1.97	18113.60	1.09	1553.85	1.42	18.56	1.45	2334.15	1.56	1.47
p1	1991.62	1.95	18106.83	1.09	1531.45	1.40	18.30	1.43	2334.35	1.56	1.46
p2	1990.25	1.95	18108.58	1.09	1484.75	1.35	18.21	1.42	2336.78	1.57	1.45

TILE_24	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1976.05	1.94	18110.00	1.09	1526.05	1.39	18.50	1.44	2325.50	1.56	1.46
p1	1975.78	1.94	18146.62	1.09	1634.90	1.49	18.42	1.44	2327.85	1.56	1.48
p2	1973.10	1.94	18159.17	1.09	1775.88	1.62	18.40	1.43	2321.70	1.56	1.50
TILE_25	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2044.50	2.01	18142.70	1.09	1521.70	1.39	18.09	1.41	2318.68	1.55	1.46
p1	2029.83	1.99	18141.25	1.09	1454.80	1.33	17.90	1.40	2290.45	1.53	1.44
p2	2020.33	1.98	18128.67	1.09	1415.72	1.29	17.85	1.39	2292.40	1.54	1.43
TILE_26	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1994.12	1.96	18144.15	1.09	1426.00	1.30	18.61	1.45	2306.00	1.55	1.44
p1	1988.92	1.95	18134.83	1.09	1630.53	1.49	18.22	1.42	2283.12	1.53	1.47
p2	1993.62	1.96	18123.05	1.09	1780.05	1.62	18.01	1.40	2286.28	1.53	1.49
TILE_27	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2031.03	1.99	18158.62	1.09	1503.35	1.37	19.30	1.50	2312.20	1.55	1.47
p1	2023.92	1.99	18120.72	1.09	1659.38	1.51	18.79	1.46	2289.00	1.53	1.49
p2	2023.65	1.99	18124.40	1.09	1815.78	1.66	18.55	1.45	2293.57	1.54	1.51
TILE_28	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2050.07	2.01	18180.40	1.09	1479.70	1.35	18.49	1.44	2317.10	1.55	1.46
p1	2035.55	2.00	18163.75	1.09	1674.15	1.53	18.10	1.41	2287.85	1.53	1.48
p2	2026.03	1.99	18135.60	1.09	1590.83	1.45	18.09	1.41	2293.78	1.54	1.47
TILE_29	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2032.33	1.99	18125.05	1.09	1582.08	1.44	18.53	1.44	2311.35	1.55	1.48
p1	1996.50	1.96	18119.25	1.09	1688.42	1.54	18.14	1.41	2290.00	1.53	1.48
p2	2003.47	1.97	18120.85	1.09	1815.20	1.65	18.01	1.40	2290.75	1.53	1.50
TILE_30	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2020.33	1.98	18150.00	1.09	1367.40	1.25	18.02	1.40	2320.62	1.55	1.43
p1	2000.28	1.96	18126.55	1.09	1482.17	1.35	17.92	1.40	2296.38	1.54	1.44
p2	2001.92	1.96	18135.62	1.09	1752.03	1.60	17.97	1.40	2294.55	1.54	1.49
TILE_31	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1989.92	1.95	18158.17	1.09	1426.20	1.30	19.40	1.51	2321.03	1.56	1.46
p1	1977.67	1.94	18154.03	1.09	1621.62	1.48	18.80	1.47	2290.30	1.53	1.48
p2	1985.80	1.95	18160.60	1.09	1759.15	1.60	18.67	1.46	2295.22	1.54	1.50
TILE_32	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2033.05	2.00	18109.60	1.09	1440.62	1.31	17.95	1.40	2310.50	1.55	1.44
p1	2026.75	1.99	18099.30	1.09	1619.47	1.48	17.91	1.40	2283.43	1.53	1.47
p2	2020.45	1.98	18101.05	1.09	1727.00	1.57	17.96	1.40	2282.65	1.53	1.49

TILE_33	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2026.25	1.99	18114.08	1.09	1347.47	1.23	18.09	1.41	2318.32	1.55	1.42
p1	2018.53	1.98	18104.80	1.09	1407.78	1.28	18.01	1.40	2297.25	1.54	1.43
p2	2017.47	1.98	18105.50	1.09	1385.35	1.26	17.98	1.40	2293.03	1.54	1.42
TILE_34	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1993.78	1.96	18131.88	1.09	1395.50	1.27	18.87	1.47	2327.65	1.56	1.44
p1	1982.65	1.95	17675.60	1.06	1609.70	1.47	18.68	1.46	2298.93	1.54	1.47
p2	1989.17	1.95	18111.15	1.09	1715.50	1.56	18.47	1.44	2294.38	1.54	1.49
TILE_35	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2053.20	2.02	18146.70	1.09	1470.90	1.34	18.26	1.42	2309.57	1.55	1.45
p1	2036.70	2.00	18121.28	1.09	1657.05	1.51	17.84	1.39	2286.38	1.53	1.48
p2	2030.20	1.99	18114.95	1.09	1670.85	1.52	17.93	1.40	2291.72	1.54	1.48
TILE_36	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2049.20	2.01	18174.05	1.09	1313.30	1.20	19.40	1.51	2319.65	1.55	1.44
p1	2025.97	1.99	18174.10	1.09	1642.22	1.50	18.80	1.47	2296.38	1.54	1.49
p2	2021.62	1.98	18170.78	1.09	1693.95	1.54	18.72	1.46	2300.07	1.54	1.50
TILE_37	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1991.45	1.95	18133.97	1.09	1368.92	1.25	18.58	1.45	2316.50	1.55	1.43
p1	1991.08	1.95	18115.53	1.09	1625.08	1.48	18.14	1.41	2288.95	1.53	1.47
p2	1990.75	1.95	17664.90	1.06	1705.33	1.55	17.88	1.39	2289.30	1.53	1.47
TILE_38	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1988.72	1.95	18159.83	1.09	1386.90	1.26	19.27	1.50	2317.12	1.55	1.44
p1	1982.12	1.95	18142.88	1.09	1690.85	1.54	18.92	1.47	2305.43	1.54	1.49
p2	1991.70	1.95	17688.72	1.06	1765.85	1.61	18.59	1.45	2295.50	1.54	1.50
TILE_39	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2019.20	1.98	18155.12	1.09	1404.60	1.28	18.30	1.43	2300.90	1.54	1.44
p1	1991.47	1.95	17717.70	1.07	1568.95	1.43	18.18	1.42	2290.93	1.54	1.45
p2	1993.50	1.96	18196.05	1.10	1626.85	1.48	17.98	1.40	2291.57	1.54	1.47
TILE_40	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2019.08	1.98	18176.83	1.09	1274.55	1.16	19.43	1.51	2313.12	1.55	1.43
p1	2000.65	1.96	17699.15	1.07	1541.28	1.41	18.78	1.46	2301.40	1.54	1.46
p2	2005.70	1.97	18171.50	1.09	1609.42	1.47	18.60	1.45	2289.57	1.53	1.48
TILE_41	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	2015.40	1.98	18153.50	1.09	1273.80	1.16	19.49	1.52	2325.32	1.56	1.43
p1	2030.15	1.99	18163.42	1.09	1654.35	1.51	18.94	1.48	2315.88	1.55	1.50
p2	2020.88	1.98	17703.42	1.07	1698.22	1.55	18.62	1.45	2303.60	1.54	1.49

Configuration

Server and Network	
Server Manufacturer and Model	Cisco UCS C460 M1
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	C460M1.0024.00.00.01
Memory Size (in GB, Number of DIMMs)	512GB, 64x8GB
Memory Type and Speed	Quad rank 1066MHz Registered DDR3
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	LSI Logic embedded
Number of Host Bus Adapters	2 dual-port
Host Bus Adapter Vendors and Models	QLogic 4Gb FC Dual-port HBA Adapter
Number of Network Controllers	2 quad-port plus 1 dual-port (embedded)
Network Controller Vendors and Models	Broadcom NetExtreme II 5709 (all)
Network Switch Vendors and Models	(1) Cisco Nexus 5010, (2) Cisco Nexus 2148T, (2)Cisco UCS-6120XP
Network Speed	1Gbps (server)
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	08-3-2010
Software Availability Date (MM-DD-YYYY)	05-04-2010
Virtualization Software	
Vendor, Product, Version, and Build	VMware ESXi 4.0 Build 240223
Virtualization Type	Hardware
Supplemental Software	None
Virtualization Software Availability Date	08-02-2010

(MM-DD-YYYY)	
Storage	
Array Vendors, Models, and Firmware Versions	2 x EMC CX4-480, version 04.29.000.5.003
Fibre Channel Switch Vendors and Models	Cisco MDS 9134
Disk Space Used	3151.19GB
Array Cache Size	1024MB
Total Number of Physical Disks Used	122
Total Number of Enclosures/Pods/Shelves Used	8
Total Number of Physical Disks per Enclosures/Pods/Shelves Used	15 (10x73GB SSDs + 5x450GB 15K disks)
Total Number of Storage Groups Used	2
Number LUNs Used	111
LUN Size and Number of Disks Per LUN	10 sets of 5 LUNs at 38GB (Fileserver + Mailserver), each set spread over 8x73GB SSDs 10 sets of 5 LUNs at 15GB (database) + 1 LUN at 150GB (Misc) over 4x450GB 15K disks 1 LUN at 64GB (boot) over (2) internal RAID1 15K disks
RAID Type	RAID 0 for VMs, RAID 1 for VMware ESXi 4.0 U2 O/S
Number of Members per RAID Set	10 RAID0 RAID sets each over 8x73GB SSDs 10 RAID0 RAID sets each over 4x450GB 15K disks 1 LUN over 2x64GB 15K internal disks
Disk Vendors, Models, and Speeds	STEC ZIV2A074 CLAR72, SEAGATE ST345085 CLAR450
Clients	
Number of Clients	50
System Model(s)	clients 0-17: Dell PowerEdge 2950 client18: Cisco UCS C200 M1 client19: Cisco UCS B200 M1 client20: Cisco UCS B200 M1 client21: Cisco UCS B200 M1 client22: Cisco UCS B200 M1 client23: Cisco UCS B200 M1 client24: Cisco UCS B200 M1 client25-client49: Cisco UCS C200 M1
Processor Vendor(s) and Model(s)	client0-17: Intel Xeon E5430 client18: Intel Xeon E5540 client19: Intel Xeon E5540 client20: Intel Xeon X5670 client21: Intel Xeon E5520

	client22: Intel Xeon X5570 client23: Intel Xeon E5540 client24: Intel Xeon E5520 client25: Intel Xeon X5570 client26: Intel Xeon E5520 client27: Intel Xeon E5540 client28-48: Intel Xeon E5520 client49: Intel Xeon E5430
Processor Speed(s) (GHz)	client0-17: 2.66GHz client18: 2.53GHz client19: 2.53GHz client20: 2.93GHz client21: 2.26GHz client22: 2.93GHz client23: 2.53GHz client24: 2.26GHz client25: 2.93GHz client26: 2.26GHz client27: 2.53GHz client28-48: 2.26GHz client49: 2.66GHz
Total Sockets/Total Cores/Total Threads	client0-17: 2 Sockets / 8 Cores / 8 Threads client18-49: 2 Sockets / 8 Cores / 16 Threads
Memory per Client	client0-17: 16GB client18-49: 24GB
Network Controller Vendors and Models	client0-17: Broadcom BMC5708C (1Gb/s) client18,25-49: Intel 82576 (1Gb/s) client19-24: Intel 82598EB (10Gb/s)
Operating System, Version, and Service Pack	Windows Server 2003 Enterprise Edition SP2
Other Hardware	None
Other Software	None

Notes for Workload

Server BIOS Settings

- Intel Turbo Boost enabled (up to 2.93 GHz) (default enabled)

QLogic HBA BIOS settings

- Execution throttle set to 128 (default 16)

vSwitch Configuration

- 7 vSwitches defined, each attached to a physical NIC (7 physical NICs were used, 3 were unused).
- All vSwitches were configured with 120 ports (default 56).

- Each vSwitch was configured for 7 tiles in round-robin fashion
 - Tile0, 1, 8, 16, 24, 32, 40, 48 and Console were configured on vSwitch0/vmnic2
 - Tile2, 9, 10, 18, 26, 34, 42 were configured on vSwitch2/vmnic4
 - Tile3, 11, 17, 19, 27, 35, 43 were configured on vSwitch3/vmnic5
 - Tile4, 12, 20, 25, 28, 36, 44 were configured on vSwitch4/vmnic6
 - Tile5, 13, 21, 29, 33, 37, 45 were configured on vSwitch5/vmnic8
 - Tile6, 14, 22, 30, 38, 41, 46 were configured on vSwitch6/vmnic9
 - Tile7, 15, 23, 31, 39, 47, 49 were configured on vSwitch1/vmnic3
- vmnic0, 1, & 7 were unused

Storage Configuration

- 10 sets of 5 LUNs at 38GB were created, with each set spread over 8x73GB SSDs. Each LUN held a single tile's Fileserver & Mailserver VMs.
- 10 sets of 5 LUNs at 15GB + 1 LUN at 150GB (Misc) were created, with each set spread over 4x450GB 15K disks. The 15GB LUNs each held a single tile's Database VM. Each 150GB LUN held five tile's Webserver, Standby and Javasever VM's.
- 1 LUN at 64GB was created over (2) RAID1 15K disks on the embedded RAID controller for the ESXi hypervisor O/S.

Virtualization Software Notes

- Virtual hardware upgraded from V4 to V7
- Hardware support for Virtual MMU & CPU enabled, default automatic.
- Ethernet adapter type set to vmxnet3 for all VMs
- Logging was disabled for all VMs
- Storage multipathing was set to "Fixed" (default MRU)
- IDE & Floppy removed for all VMs (default enabled)
- BufferCache.SoftMaxDirty=85 (default 15)
- Disk.SchedNumReqOutstanding = 120 (default 32)
- IRQ.RoutingPolicy = 0 (default 2)
- Net.MaxNetifRxQueueLen=300 (default 100)
- Net.MaxNetifTxQueueLen=1000 (default 500)
- Net.TcpipHeapMax=120 (default 64)
- Net.vmxnetThroughputWeight=255 (default 0)
- Misc.HostdStatsVMCount=512 (default 0)
- CPU.Quantum=75 (default 50)
- CPU.HaltingIdleMsecPenalty was set to 0 (default is 100)
- /vmkernel/module/qla2xxx.o/options = "ql2xenablesi=1 ql2xmaxqdepth=128" set in /etc/vmware/esx.conf (default 0)
- /vmkernel/module/bnx2.o/options = "disable_msi=0" set in /etc/vmware/esx.conf (default 1)
- /vmkernel/module/tcpip2v6/enabled = "false" set in /etc/vmware/esx.conf (default true)
- Used the VMmark AutoPart utility to expand all mailserver data partitions

Operating System Notes

- Microsoft Windows Server 2003 virtual machines were updated to Service Pack 2
- Microsoft Windows Server 2003 virtual machines updated with KB955839
- Fileserver and Webserver VMs were updated to SLES 10 SP2

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 (default enabled)
- Microsoft Windows Server 2003 clients updated with KB943545 & KB955839
- Clients19-24 were Cisco UCS B200 M1 blade servers connected to the UCS 6120 fabric at 10Gb/s, which was in turn connected to the Cisco Nexus 5010.
- Clients0-18 were connected to one Nexus 2148T at 1Gb/s, which was in turn connected to the Nexus 5010.
- Clients25-48 were connected to the other Nexus 2148T at 1Gb/s, which was in turn connected to the Nexus 5010.
- The SUT was connected to the Nexus 5010 at 1Gb/s

Other Notes

- The TILEDELAY and DELAYTIME values were modified in the VMMARK.CONFIG
 - MailServer/DELAYTIME="0"
 - JavaServer/DELAYTIME="25"
 - Standby/DELAYTIME="35"
 - WebServer/DELAYTIME="50"
 - Database/DELAYTIME="75"
 - Fileserver/DELAYTIME="100"
 - TILEDELAY=120

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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