

VMware® VMmark™ V1.1.1 Results

Vendor and Hardware Platform: Cisco UCS B440 M1
 Virtualization Platform: VMware ESXi 4.1 Build 260247

**VMmark V1.1.1 Score =
71.13 @ 48 Tiles**

Tested By: Cisco Systems

Test Date: 7-11-2010

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 | 2002.40 | 1.97 | 18146.40 | 1.09 | 1616.12 | 1.47 | 18.48 | 1.44 | 2263.53 | 1.52 | 1.47 |
| p1 | 1965.15 | 1.93 | 18136.65 | 1.09 | 1540.35 | 1.40 | 18.25 | 1.42 | 2252.00 | 1.51 | 1.45 |
| p2 | 1924.45 | 1.89 | 18137.97 | 1.09 | 1398.67 | 1.28 | 18.19 | 1.42 | 2238.93 | 1.50 | 1.41 |
| TILE_1 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1958.58 | 1.92 | 17720.55 | 1.07 | 1665.03 | 1.52 | 18.33 | 1.43 | 2262.97 | 1.52 | 1.46 |
| p1 | 1960.53 | 1.92 | 18177.72 | 1.09 | 1645.75 | 1.50 | 18.09 | 1.41 | 2261.90 | 1.52 | 1.47 |
| p2 | 1942.80 | 1.91 | 18143.33 | 1.09 | 1482.80 | 1.35 | 18.35 | 1.43 | 2252.03 | 1.51 | 1.43 |
| TILE_2 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1974.00 | 1.94 | 18160.35 | 1.09 | 1740.95 | 1.59 | 18.74 | 1.46 | 2255.25 | 1.51 | 1.49 |
| p1 | 1951.97 | 1.92 | 18147.45 | 1.09 | 1602.15 | 1.46 | 18.21 | 1.42 | 2246.28 | 1.51 | 1.46 |
| p2 | 1954.33 | 1.92 | 18153.25 | 1.09 | 1545.67 | 1.41 | 18.04 | 1.41 | 2235.38 | 1.50 | 1.44 |
| TILE_3 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1971.20 | 1.93 | 18111.33 | 1.09 | 1611.50 | 1.47 | 18.20 | 1.42 | 2267.72 | 1.52 | 1.46 |
| p1 | 1968.10 | 1.93 | 18111.78 | 1.09 | 1693.53 | 1.54 | 18.04 | 1.41 | 2265.88 | 1.52 | 1.47 |
| p2 | 1962.53 | 1.93 | 18110.30 | 1.09 | 1479.40 | 1.35 | 17.92 | 1.40 | 2258.03 | 1.51 | 1.43 |
| TILE_4 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1992.97 | 1.96 | 18111.83 | 1.09 | 1690.53 | 1.54 | 17.33 | 1.35 | 2253.03 | 1.51 | 1.46 |
| p1 | 1988.75 | 1.95 | 18117.58 | 1.09 | 1717.72 | 1.57 | 17.35 | 1.35 | 2246.97 | 1.51 | 1.47 |
| p2 | 2002.97 | 1.97 | 18108.62 | 1.09 | 1634.97 | 1.49 | 17.20 | 1.34 | 2228.18 | 1.49 | 1.45 |
| TILE_5 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2001.80 | 1.96 | 18102.58 | 1.09 | 1634.92 | 1.49 | 18.70 | 1.46 | 2271.22 | 1.52 | 1.48 |
| p1 | 1982.25 | 1.95 | 17695.70 | 1.07 | 1422.58 | 1.30 | 18.32 | 1.43 | 2276.50 | 1.53 | 1.42 |
| p2 | 1990.00 | 1.95 | 18122.78 | 1.09 | 1434.65 | 1.31 | 18.16 | 1.42 | 2262.95 | 1.52 | 1.43 |

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|----------------|---------|-------|----------|-------|---------|-------|--------|-------|---------|-------|------|
| TILE_6 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2020.28 | 1.98 | 17693.42 | 1.06 | 1851.60 | 1.69 | 18.87 | 1.47 | 2266.55 | 1.52 | 1.51 |
| p1 | 2005.72 | 1.97 | 18126.17 | 1.09 | 1889.80 | 1.72 | 18.33 | 1.43 | 2255.57 | 1.51 | 1.52 |
| p2 | 2004.35 | 1.97 | 18116.78 | 1.09 | 1739.00 | 1.59 | 18.25 | 1.42 | 2240.95 | 1.50 | 1.49 |
| TILE_7 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1996.45 | 1.96 | 18096.72 | 1.09 | 1848.90 | 1.69 | 18.11 | 1.41 | 2267.32 | 1.52 | 1.50 |
| p1 | 1993.75 | 1.96 | 18103.40 | 1.09 | 1888.70 | 1.72 | 17.74 | 1.38 | 2268.15 | 1.52 | 1.50 |
| p2 | 1998.55 | 1.96 | 18140.33 | 1.09 | 1808.78 | 1.65 | 18.07 | 1.41 | 2254.20 | 1.51 | 1.50 |
| TILE_8 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1972.72 | 1.94 | 18114.97 | 1.09 | 1821.40 | 1.66 | 18.24 | 1.42 | 2256.97 | 1.51 | 1.50 |
| p1 | 1978.17 | 1.94 | 18109.60 | 1.09 | 1722.42 | 1.57 | 18.25 | 1.42 | 2252.60 | 1.51 | 1.48 |
| p2 | 1967.90 | 1.93 | 18144.15 | 1.09 | 1695.25 | 1.55 | 18.29 | 1.43 | 2237.25 | 1.50 | 1.47 |
| TILE_9 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2018.03 | 1.98 | 18148.70 | 1.09 | 1755.50 | 1.60 | 17.65 | 1.38 | 2270.10 | 1.52 | 1.49 |
| p1 | 1999.67 | 1.96 | 18170.00 | 1.09 | 1834.12 | 1.67 | 17.80 | 1.39 | 2275.47 | 1.52 | 1.50 |
| p2 | 1992.72 | 1.96 | 18112.08 | 1.09 | 1789.50 | 1.63 | 17.78 | 1.39 | 2260.88 | 1.51 | 1.49 |
| TILE_10 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2032.75 | 1.99 | 18119.70 | 1.09 | 1817.35 | 1.66 | 18.36 | 1.43 | 2255.70 | 1.51 | 1.51 |
| p1 | 2017.53 | 1.98 | 17655.00 | 1.06 | 1892.60 | 1.73 | 18.23 | 1.42 | 2245.05 | 1.50 | 1.51 |
| p2 | 2019.30 | 1.98 | 18115.08 | 1.09 | 1641.85 | 1.50 | 18.15 | 1.41 | 2231.12 | 1.50 | 1.47 |
| TILE_11 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1978.85 | 1.94 | 18115.60 | 1.09 | 1681.47 | 1.53 | 17.89 | 1.39 | 2274.93 | 1.52 | 1.47 |
| p1 | 1985.75 | 1.95 | 17657.58 | 1.06 | 1700.38 | 1.55 | 17.74 | 1.38 | 2278.32 | 1.53 | 1.47 |
| p2 | 1961.85 | 1.93 | 18114.50 | 1.09 | 1681.25 | 1.53 | 17.77 | 1.38 | 2262.30 | 1.52 | 1.47 |
| TILE_12 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2030.62 | 1.99 | 18149.88 | 1.09 | 1789.17 | 1.63 | 18.15 | 1.41 | 2259.55 | 1.51 | 1.50 |
| p1 | 2009.20 | 1.97 | 18134.10 | 1.09 | 1685.80 | 1.54 | 18.27 | 1.42 | 2243.82 | 1.50 | 1.48 |
| p2 | 2013.42 | 1.98 | 18145.55 | 1.09 | 1599.00 | 1.46 | 18.15 | 1.41 | 2230.25 | 1.49 | 1.46 |
| TILE_13 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2004.65 | 1.97 | 17671.20 | 1.06 | 1552.60 | 1.42 | 18.10 | 1.41 | 2283.12 | 1.53 | 1.45 |
| p1 | 1976.97 | 1.94 | 18158.38 | 1.09 | 1551.80 | 1.41 | 18.02 | 1.40 | 2282.55 | 1.53 | 1.45 |
| p2 | 1917.22 | 1.88 | 18131.08 | 1.09 | 1492.83 | 1.36 | 17.89 | 1.39 | 2272.43 | 1.52 | 1.43 |
| TILE_14 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2041.47 | 2.00 | 18106.83 | 1.09 | 1840.75 | 1.68 | 17.85 | 1.39 | 2255.82 | 1.51 | 1.50 |
| p1 | 2020.92 | 1.98 | 18113.80 | 1.09 | 1873.55 | 1.71 | 17.79 | 1.39 | 2248.78 | 1.51 | 1.50 |
| p2 | 2026.35 | 1.99 | 18113.33 | 1.09 | 1807.60 | 1.65 | 17.51 | 1.36 | 2236.05 | 1.50 | 1.49 |

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|----------------|---------|-------|----------|-------|---------|-------|--------|-------|---------|-------|------|
| TILE_15 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2024.38 | 1.99 | 18158.08 | 1.09 | 1818.65 | 1.66 | 18.46 | 1.44 | 2273.57 | 1.52 | 1.51 |
| p1 | 2016.47 | 1.98 | 18170.78 | 1.09 | 1607.28 | 1.47 | 17.92 | 1.40 | 2277.12 | 1.53 | 1.47 |
| p2 | 2027.97 | 1.99 | 18140.15 | 1.09 | 1682.33 | 1.53 | 17.63 | 1.37 | 2261.97 | 1.52 | 1.47 |
| TILE_16 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2012.12 | 1.97 | 18127.83 | 1.09 | 1874.00 | 1.71 | 18.14 | 1.41 | 2253.47 | 1.51 | 1.51 |
| p1 | 2015.85 | 1.98 | 18147.40 | 1.09 | 1824.88 | 1.66 | 17.94 | 1.40 | 2248.60 | 1.51 | 1.50 |
| p2 | 2017.90 | 1.98 | 18171.22 | 1.09 | 1837.58 | 1.68 | 17.89 | 1.39 | 2227.25 | 1.49 | 1.50 |
| TILE_17 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1971.80 | 1.94 | 18153.00 | 1.09 | 1576.67 | 1.44 | 17.70 | 1.38 | 2274.43 | 1.52 | 1.45 |
| p1 | 1949.00 | 1.91 | 18152.85 | 1.09 | 1458.90 | 1.33 | 17.78 | 1.39 | 2277.47 | 1.53 | 1.43 |
| p2 | 1961.88 | 1.93 | 17680.50 | 1.06 | 1403.92 | 1.28 | 17.77 | 1.38 | 2260.47 | 1.51 | 1.41 |
| TILE_18 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2042.90 | 2.00 | 18148.40 | 1.09 | 1756.35 | 1.60 | 17.91 | 1.40 | 2275.82 | 1.52 | 1.49 |
| p1 | 2024.83 | 1.99 | 18167.20 | 1.09 | 1802.70 | 1.64 | 18.03 | 1.41 | 2265.35 | 1.52 | 1.50 |
| p2 | 2027.20 | 1.99 | 18136.45 | 1.09 | 1854.53 | 1.69 | 17.97 | 1.40 | 2252.97 | 1.51 | 1.51 |
| TILE_19 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2034.22 | 2.00 | 18109.25 | 1.09 | 1784.92 | 1.63 | 18.21 | 1.42 | 2298.47 | 1.54 | 1.51 |
| p1 | 2027.95 | 1.99 | 18115.17 | 1.09 | 1698.70 | 1.55 | 18.21 | 1.42 | 2295.80 | 1.54 | 1.49 |
| p2 | 2038.12 | 2.00 | 17654.38 | 1.06 | 1712.92 | 1.56 | 18.01 | 1.40 | 2285.82 | 1.53 | 1.48 |
| TILE_20 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2024.80 | 1.99 | 17663.05 | 1.06 | 1839.28 | 1.68 | 17.86 | 1.39 | 2275.25 | 1.52 | 1.50 |
| p1 | 2014.33 | 1.98 | 18117.08 | 1.09 | 1737.72 | 1.58 | 17.95 | 1.40 | 2268.82 | 1.52 | 1.49 |
| p2 | 2013.88 | 1.98 | 18114.70 | 1.09 | 1868.12 | 1.70 | 17.92 | 1.40 | 2247.55 | 1.51 | 1.50 |
| TILE_21 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2024.08 | 1.99 | 18109.15 | 1.09 | 1796.78 | 1.64 | 18.08 | 1.41 | 2296.15 | 1.54 | 1.50 |
| p1 | 2019.05 | 1.98 | 18120.30 | 1.09 | 1827.10 | 1.67 | 17.86 | 1.39 | 2296.93 | 1.54 | 1.50 |
| p2 | 2021.25 | 1.98 | 18156.12 | 1.09 | 1687.90 | 1.54 | 17.78 | 1.39 | 2285.82 | 1.53 | 1.48 |
| TILE_22 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2002.17 | 1.96 | 18113.95 | 1.09 | 1720.58 | 1.57 | 18.40 | 1.43 | 2269.82 | 1.52 | 1.49 |
| p1 | 1989.55 | 1.95 | 18122.62 | 1.09 | 1783.88 | 1.63 | 18.07 | 1.41 | 2264.15 | 1.52 | 1.49 |
| p2 | 1988.22 | 1.95 | 18116.72 | 1.09 | 1694.58 | 1.55 | 17.96 | 1.40 | 2249.53 | 1.51 | 1.47 |
| TILE_23 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2028.72 | 1.99 | 18141.47 | 1.09 | 1831.67 | 1.67 | 18.46 | 1.44 | 2290.43 | 1.53 | 1.52 |
| p1 | 2029.12 | 1.99 | 18159.70 | 1.09 | 1902.67 | 1.73 | 17.84 | 1.39 | 2296.12 | 1.54 | 1.52 |
| p2 | 2034.20 | 2.00 | 18154.70 | 1.09 | 1767.95 | 1.61 | 17.69 | 1.38 | 2281.78 | 1.53 | 1.49 |

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|----------------|---------|-------|----------|-------|---------|-------|--------|-------|---------|-------|------|
| TILE_24 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1995.55 | 1.96 | 18153.08 | 1.09 | 1734.83 | 1.58 | 18.51 | 1.44 | 2276.62 | 1.53 | 1.49 |
| p1 | 1990.85 | 1.95 | 18159.28 | 1.09 | 1711.78 | 1.56 | 18.43 | 1.44 | 2266.60 | 1.52 | 1.49 |
| p2 | 1992.55 | 1.96 | 18177.47 | 1.09 | 1833.72 | 1.67 | 18.39 | 1.43 | 2253.30 | 1.51 | 1.51 |
| TILE_25 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2017.80 | 1.98 | 17688.03 | 1.06 | 1715.10 | 1.56 | 17.71 | 1.38 | 2299.90 | 1.54 | 1.48 |
| p1 | 2006.28 | 1.97 | 18129.58 | 1.09 | 1821.55 | 1.66 | 17.74 | 1.38 | 2296.03 | 1.54 | 1.50 |
| p2 | 2005.88 | 1.97 | 18109.90 | 1.09 | 1821.12 | 1.66 | 17.58 | 1.37 | 2286.75 | 1.53 | 1.50 |
| TILE_26 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1968.62 | 1.93 | 18109.65 | 1.09 | 1845.97 | 1.68 | 17.98 | 1.40 | 2315.85 | 1.55 | 1.50 |
| p1 | 1935.78 | 1.90 | 18115.70 | 1.09 | 1863.30 | 1.70 | 18.05 | 1.41 | 2313.62 | 1.55 | 1.50 |
| p2 | 1972.92 | 1.94 | 18122.45 | 1.09 | 1734.90 | 1.58 | 17.79 | 1.39 | 2303.60 | 1.54 | 1.48 |
| TILE_27 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1987.15 | 1.95 | 18123.30 | 1.09 | 1868.53 | 1.70 | 17.45 | 1.36 | 2308.70 | 1.55 | 1.50 |
| p1 | 1979.95 | 1.94 | 18118.17 | 1.09 | 1804.40 | 1.65 | 17.58 | 1.37 | 2308.20 | 1.55 | 1.49 |
| p2 | 1978.90 | 1.94 | 18121.25 | 1.09 | 1856.75 | 1.69 | 17.58 | 1.37 | 2297.43 | 1.54 | 1.50 |
| TILE_28 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2045.70 | 2.01 | 18160.38 | 1.09 | 1756.22 | 1.60 | 18.26 | 1.42 | 2310.05 | 1.55 | 1.51 |
| p1 | 2026.67 | 1.99 | 17691.83 | 1.06 | 1855.92 | 1.69 | 18.12 | 1.41 | 2308.10 | 1.55 | 1.51 |
| p2 | 2035.50 | 2.00 | 18159.38 | 1.09 | 1788.62 | 1.63 | 18.05 | 1.41 | 2298.05 | 1.54 | 1.50 |
| TILE_29 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2043.42 | 2.01 | 18112.10 | 1.09 | 1741.05 | 1.59 | 18.71 | 1.46 | 2301.55 | 1.54 | 1.51 |
| p1 | 2027.62 | 1.99 | 18112.20 | 1.09 | 1670.33 | 1.52 | 18.46 | 1.44 | 2298.43 | 1.54 | 1.49 |
| p2 | 2028.33 | 1.99 | 18110.88 | 1.09 | 1784.38 | 1.63 | 18.31 | 1.43 | 2287.62 | 1.53 | 1.51 |
| TILE_30 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2017.28 | 1.98 | 18167.70 | 1.09 | 1774.20 | 1.62 | 18.95 | 1.48 | 2306.15 | 1.55 | 1.52 |
| p1 | 1991.20 | 1.95 | 18186.03 | 1.09 | 1792.50 | 1.63 | 18.55 | 1.45 | 2300.00 | 1.54 | 1.51 |
| p2 | 1998.90 | 1.96 | 17724.65 | 1.07 | 1740.42 | 1.59 | 18.52 | 1.44 | 2292.43 | 1.54 | 1.49 |
| TILE_31 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2020.15 | 1.98 | 18117.25 | 1.09 | 1709.78 | 1.56 | 19.04 | 1.48 | 2306.80 | 1.55 | 1.51 |
| p1 | 2016.00 | 1.98 | 18117.05 | 1.09 | 1763.20 | 1.61 | 18.45 | 1.44 | 2305.70 | 1.54 | 1.50 |
| p2 | 2026.97 | 1.99 | 18161.28 | 1.09 | 1801.35 | 1.64 | 18.50 | 1.44 | 2295.70 | 1.54 | 1.51 |
| TILE_32 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2025.62 | 1.99 | 18153.65 | 1.09 | 1816.40 | 1.66 | 18.61 | 1.45 | 2312.32 | 1.55 | 1.52 |
| p1 | 2019.15 | 1.98 | 17696.83 | 1.07 | 1756.72 | 1.60 | 18.39 | 1.43 | 2306.62 | 1.55 | 1.50 |
| p2 | 2028.53 | 1.99 | 18165.12 | 1.09 | 1888.58 | 1.72 | 18.42 | 1.44 | 2303.03 | 1.54 | 1.53 |

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|----------------|---------|-------|----------|-------|---------|-------|--------|-------|---------|-------|------|
| TILE_33 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2024.50 | 1.99 | 18116.67 | 1.09 | 1634.10 | 1.49 | 19.01 | 1.48 | 2309.68 | 1.55 | 1.49 |
| p1 | 2023.08 | 1.99 | 18113.17 | 1.09 | 1721.85 | 1.57 | 18.66 | 1.45 | 2307.95 | 1.55 | 1.50 |
| p2 | 2027.90 | 1.99 | 18115.88 | 1.09 | 1775.70 | 1.62 | 18.36 | 1.43 | 2295.68 | 1.54 | 1.51 |
| TILE_34 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2047.08 | 2.01 | 18122.58 | 1.09 | 1707.58 | 1.56 | 17.74 | 1.38 | 2321.18 | 1.56 | 1.49 |
| p1 | 2026.75 | 1.99 | 18145.00 | 1.09 | 1712.60 | 1.56 | 17.77 | 1.38 | 2313.05 | 1.55 | 1.49 |
| p2 | 2031.03 | 1.99 | 18140.80 | 1.09 | 1862.30 | 1.70 | 17.73 | 1.38 | 2303.85 | 1.54 | 1.51 |
| TILE_35 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1992.90 | 1.96 | 18113.62 | 1.09 | 1777.72 | 1.62 | 18.43 | 1.44 | 2305.05 | 1.54 | 1.50 |
| p1 | 1978.88 | 1.94 | 18111.47 | 1.09 | 1696.15 | 1.55 | 18.17 | 1.42 | 2305.62 | 1.54 | 1.48 |
| p2 | 1979.72 | 1.94 | 18114.67 | 1.09 | 1788.50 | 1.63 | 17.93 | 1.40 | 2288.82 | 1.53 | 1.49 |
| TILE_36 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1986.33 | 1.95 | 18158.38 | 1.09 | 1749.30 | 1.59 | 18.22 | 1.42 | 2307.82 | 1.55 | 1.49 |
| p1 | 1978.95 | 1.94 | 18160.62 | 1.09 | 1772.05 | 1.62 | 18.19 | 1.42 | 2303.88 | 1.54 | 1.50 |
| p2 | 1983.65 | 1.95 | 17702.75 | 1.07 | 1797.62 | 1.64 | 18.14 | 1.41 | 2294.10 | 1.54 | 1.49 |
| TILE_37 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1991.90 | 1.95 | 18118.53 | 1.09 | 1599.22 | 1.46 | 18.09 | 1.41 | 2300.57 | 1.54 | 1.47 |
| p1 | 1984.70 | 1.95 | 18119.05 | 1.09 | 1649.67 | 1.50 | 17.85 | 1.39 | 2297.88 | 1.54 | 1.47 |
| p2 | 1979.22 | 1.94 | 18118.67 | 1.09 | 1778.97 | 1.62 | 17.99 | 1.40 | 2286.70 | 1.53 | 1.49 |
| TILE_38 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2013.75 | 1.98 | 18141.70 | 1.09 | 1574.05 | 1.44 | 18.27 | 1.42 | 2309.68 | 1.55 | 1.47 |
| p1 | 1993.60 | 1.96 | 18157.03 | 1.09 | 1783.90 | 1.63 | 18.11 | 1.41 | 2299.38 | 1.54 | 1.50 |
| p2 | 2008.08 | 1.97 | 17719.22 | 1.07 | 1832.38 | 1.67 | 17.92 | 1.40 | 2294.85 | 1.54 | 1.50 |
| TILE_39 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2002.10 | 1.96 | 18139.25 | 1.09 | 1538.95 | 1.40 | 18.10 | 1.41 | 2301.43 | 1.54 | 1.46 |
| p1 | 2002.60 | 1.97 | 18119.35 | 1.09 | 1775.78 | 1.62 | 17.93 | 1.40 | 2300.05 | 1.54 | 1.50 |
| p2 | 1998.83 | 1.96 | 18133.00 | 1.09 | 1800.20 | 1.64 | 17.89 | 1.39 | 2289.22 | 1.53 | 1.50 |
| TILE_40 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2018.35 | 1.98 | 18118.40 | 1.09 | 1510.42 | 1.38 | 18.58 | 1.45 | 2308.15 | 1.55 | 1.46 |
| p1 | 2013.80 | 1.98 | 17683.75 | 1.06 | 1624.15 | 1.48 | 18.40 | 1.43 | 2308.25 | 1.55 | 1.47 |
| p2 | 2018.15 | 1.98 | 18145.12 | 1.09 | 1708.12 | 1.56 | 18.35 | 1.43 | 2301.32 | 1.54 | 1.49 |
| TILE_41 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1987.25 | 1.95 | 18112.15 | 1.09 | 1475.28 | 1.35 | 18.70 | 1.46 | 2303.68 | 1.54 | 1.45 |
| p1 | 1974.78 | 1.94 | 18115.50 | 1.09 | 1590.22 | 1.45 | 18.62 | 1.45 | 2307.80 | 1.55 | 1.47 |
| p2 | 1972.55 | 1.94 | 17692.12 | 1.06 | 1740.67 | 1.59 | 18.66 | 1.45 | 2288.72 | 1.53 | 1.49 |

| | | | | | | | | | | | |
|---------------------------------|---------|-------|----------|-------|---------|-------|--------|-------|---------|-------|------|
| TILE_42 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2028.42 | 1.99 | 18115.30 | 1.09 | 1484.62 | 1.35 | 18.53 | 1.44 | 2313.22 | 1.55 | 1.46 |
| p1 | 2019.85 | 1.98 | 18139.03 | 1.09 | 1619.25 | 1.48 | 18.37 | 1.43 | 2307.65 | 1.55 | 1.48 |
| p2 | 2030.60 | 1.99 | 17692.60 | 1.06 | 1736.35 | 1.58 | 18.49 | 1.44 | 2303.90 | 1.54 | 1.50 |
| TILE_43 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 1987.53 | 1.95 | 18147.90 | 1.09 | 1398.85 | 1.28 | 18.55 | 1.45 | 2308.70 | 1.55 | 1.43 |
| p1 | 1971.47 | 1.93 | 17695.12 | 1.07 | 1563.55 | 1.43 | 18.42 | 1.44 | 2305.53 | 1.54 | 1.45 |
| p2 | 1968.35 | 1.93 | 18140.70 | 1.09 | 1758.05 | 1.60 | 18.44 | 1.44 | 2291.90 | 1.54 | 1.49 |
| TILE_44 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2046.80 | 2.01 | 18106.65 | 1.09 | 1397.72 | 1.27 | 18.76 | 1.46 | 2322.03 | 1.56 | 1.45 |
| p1 | 2031.85 | 1.99 | 18115.47 | 1.09 | 1640.62 | 1.50 | 18.56 | 1.45 | 2313.72 | 1.55 | 1.49 |
| p2 | 2032.72 | 1.99 | 18120.40 | 1.09 | 1691.42 | 1.54 | 18.44 | 1.44 | 2307.00 | 1.55 | 1.49 |
| TILE_45 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2012.38 | 1.97 | 18124.03 | 1.09 | 1299.25 | 1.18 | 19.08 | 1.49 | 2306.30 | 1.55 | 1.42 |
| p1 | 1993.85 | 1.96 | 18112.67 | 1.09 | 1539.78 | 1.40 | 18.68 | 1.46 | 2300.75 | 1.54 | 1.46 |
| p2 | 2010.95 | 1.97 | 18115.20 | 1.09 | 1752.20 | 1.60 | 18.57 | 1.45 | 2290.50 | 1.53 | 1.50 |
| TILE_46 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2019.35 | 1.98 | 18108.60 | 1.09 | 1244.33 | 1.13 | 19.04 | 1.48 | 2322.75 | 1.56 | 1.41 |
| p1 | 2007.05 | 1.97 | 18108.62 | 1.09 | 1556.22 | 1.42 | 18.49 | 1.44 | 2315.12 | 1.55 | 1.47 |
| p2 | 2010.03 | 1.97 | 18111.47 | 1.09 | 1644.88 | 1.50 | 18.41 | 1.44 | 2308.07 | 1.55 | 1.48 |
| TILE_47 | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | Actual | Ratio | GM |
| p0 | 2038.65 | 2.00 | 18127.75 | 1.09 | 1150.25 | 1.05 | 19.01 | 1.48 | 2308.00 | 1.55 | 1.39 |
| p1 | 2022.33 | 1.98 | 18102.35 | 1.09 | 1515.25 | 1.38 | 18.49 | 1.44 | 2309.53 | 1.55 | 1.46 |
| p2 | 2022.70 | 1.99 | 18089.05 | 1.09 | 1750.00 | 1.60 | 18.35 | 1.43 | 2295.65 | 1.54 | 1.50 |
| p0_score: | 71.13 | | | | | | | | | | |
| p1_score: | 71.20 | | | | | | | | | | |
| p2_score: | 71.13 | | | | | | | | | | |
| Unreviewed_VMmark_Score: | 71.13 | | | | | | | | | | |

Configuration

| Server and Network | |
|---|-----------------------------------|
| Server Manufacturer and Model | Cisco UCS B440 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 | B440M1.1.3.1.0.05052010.2137 |
| Memory Size (in GB, Number of DIMMs) | 512GB, 32x16GB |
| 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 (one on each the Converged Network Adapters) |
| Host Bus Adapter Vendors and Models | 2 Cisco UCS VIC M81KR Converged Network Adapters |
| Number of Network Controllers | 2 dual-port (one on each of the Converged Network Adapters) |
| Network Controller Vendors and Models | (see above) |
| Network Switch Vendors and Models | (1) Cisco Nexus 5010, (2) Cisco Nexus 2148T, (2)Cisco UCS-6120XP |
| Network Speed | 10Gbps (server) |
| Other Hardware | none |
| Other Software | none |
| Hardware Availability Date (MM-DD-YYYY) | 10-25-2010 |
| Software Availability Date (MM-DD-YYYY) | 10-25-2010 |

Virtualization Software

| | |
|--|---|
| Vendor, Product, Version, and Build | VMware ESXi 4.1 Build 260247 |
| Virtualization Type | Hardware |
| Supplemental Software | VMware VCenter Server 4.1 Build 258902, Cisco Virtual Ethernet Module cross_cisco-vem-v120-4.0.4.1.3.0.0-2.0.21.vib |
| Virtualization Software Availability Date (MM-DD-YYYY) | 7-13-2010 |

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 | 106 |
| LUN Size and Number of Disks Per LUN | 9 sets of 5 LUNs and 1 set of 3 LUNs at 38GB (Fileserver + Mailserver), each set spread over 8x73GB SSDs 9 sets of 5 LUNs and one set of 3 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 4.1 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 | 47 |
| 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-client47: 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 client28-47: Intel Xeon E5520 |
| 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 client28-47: 2.26GHz |
| Total Sockets/Total Cores/Total Threads | client0-17: 2 Sockets / 8 Cores / 8 Threads client18-47: 2 Sockets / 8 Cores / 16 Threads |
| Memory per Client | client0-17: 16GB client18-46: 24GB |
| Network Controller Vendors and Models | client0-17: Broadcom BMC5708C (1Gb/s) client18,25-47: 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 2.66 GHz) (default enabled)

vSwitch Configuration

- 6 static vnics were defined: 3 on each of the Cisco UCS VIC M81KR CNAs
- 2 vSwitches defined, each attached to a physical NIC and configured with 248 ports.
 - All VM's (except webserver) for the even numbered tiles were configured on vSwitch0/vmnic0.
 - All VM's (except webserver) for the odd numbered tiles were configured on vSwitch1/vmnic28.
 - Fileserver47 was configured on vSwitch0/vmnic0.
- 48 dynamic virtual NICs were configured on the Cisco UCS VIC M81KR CNAs and configured as a Distributed Virtual Switch in VMware VCenter DVS_VMmark
- The 48 webserver were assigned to this Distributed Virtual Switch
- 4 static virtual NICs were assigned to the Distributed Virtual Switch - vmnic1, vmnic2, vmnic27 and vmnic30
- Both virtual switches were configured with 248 ports (default 24)

Storage Configuration

- 9 sets of 5 LUNs and one set of 3 LUNs at 38GB were created, with each set spread over 8x73GB SSDs. Each LUN held a single tile's Fileserver & Mailserver VMs.
- 9 sets of 5 LUNs at 15GB and one set of 3 LUNs + 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. Nine of the 150GB LUNs held five tile's Webserver, Standby and Javaser VM's, the tenth held three tile's Webserver, Standby and Javaser VMs.
- 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)
- CPU.Quantum=75 (default 50)
- CPU.HaltingIdleMsecPenalty was set to 0 (default is 100)
- Net.netQueueEnabled = false (default true)
- Net.AllowPT = 1 (default 0)
- /vmkernel/module/tcpip2v6/enabled = "false" set in /etc/vmware/esx.conf (default true)
- Used the VMmark AutoPart utility to expand all mailserver data partitions
- Used a new VMmark harness file 'fileservr_functions.xml' to serialize "GetLockMem" calls in setup rather than run them in parallel

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 housed in the same chassis as the SUT and connected to the UCS 6120 fabric interconnects at 10Gb/s
- Clients0-18 were connected to one Nexus 2148T at 1Gb/s, which was in turn connected to the Nexus 5010.
- Clients25-47 were connected to the other Nexus 2148T at 1Gb/s, which was in turn connected to the Nexus 5010.
- The SUT was connected to UCS 6120 fabric interconnects at 10Gb/s
- The UCS 6120 fabric interconnects were connected to the Nexus 5010 at 10Gb/s

Other Notes

- The TILEDELAY and DELAYTIME values were modified in the VMARK.CONFIG
 - 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)
 - TILEDELAY=420 (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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