

VMware®VMmark®V2.1 Results

Vendor and Hardware Platform: Fujitsu PRIMERGY RX900 S2
 Virtualization Platform: VMware ESX 4.1 U1 Build 348481
 VMware vCenter Server: VMware vCenter Server 4.1.0 build 258902

**VMmark V2.1 Score =
29.03 @ 30 Tiles**

Number of Hosts: 2	Uniform Hosts [yes/no]: yes	Total sockets/core/threads in test: 16 Sockets / 160 Cores / 320 Threads
	Tested By: Fujitsu	Test Date: 08-06-2011
Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload

Performance

	mailserver			olio			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.12	1.00	189.75	4589.85	0.99	268.79	2929.38	1.33	120.93	2138.50	1.41	94.15	1532.60	1.45	71.71	1.22
p1	329.82	1.00	205.25	4550.95	0.98	301.38	2846.55	1.29	126.41	2236.57	1.47	103.80	1635.55	1.55	80.99	1.24
p2	325.07	0.98	215.00	4551.93	0.98	324.82	2835.22	1.29	127.65	1911.33	1.26	94.51	1404.47	1.33	72.95	1.16
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	331.73	1.00	180.22	4610.85	0.99	245.32	2966.53	1.35	117.64	2246.15	1.48	94.52	1650.12	1.56	71.07	1.25
p1	324.52	0.98	195.25	4564.45	0.98	280.85	2893.93	1.32	123.25	2187.18	1.44	98.95	1674.30	1.58	77.95	1.24
p2	325.20	0.98	207.25	4590.65	0.99	265.30	2872.03	1.31	124.79	2029.92	1.34	93.68	1453.35	1.37	69.04	1.18
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.90	0.99	178.00	4595.85	0.99	245.08	2983.30	1.36	116.87	2298.43	1.51	99.04	1692.67	1.60	76.30	1.26
p1	331.88	1.00	196.50	4610.90	0.99	259.69	2906.28	1.32	122.51	2076.70	1.37	98.82	1567.78	1.48	77.57	1.22
p2	329.43	1.00	204.00	4561.35	0.98	274.71	2831.53	1.29	128.28	2038.88	1.34	102.10	1453.00	1.37	78.00	1.18
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	330.60	1.00	205.50	4614.68	0.99	241.98	3034.75	1.38	113.43	2261.95	1.49	93.51	1706.47	1.61	75.40	1.27
p1	328.38	0.99	219.25	4579.62	0.99	277.92	2958.03	1.35	118.63	2129.25	1.40	95.21	1515.75	1.43	72.89	1.22
p2	322.55	0.98	227.75	4581.23	0.99	271.38	2879.10	1.31	124.59	2155.75	1.42	101.54	1563.65	1.48	77.87	1.22
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	321.95	0.97	219.12	4597.98	0.99	238.22	3021.82	1.37	114.32	2134.88	1.41	94.34	1647.38	1.56	71.65	1.24
p1	325.20	0.98	220.32	4587.27	0.99	272.40	2895.85	1.32	123.22	2040.83	1.34	101.62	1507.85	1.43	73.60	1.20
p2	323.85	0.98	229.00	4573.23	0.99	273.08	2830.70	1.29	127.88	2077.78	1.37	107.30	1622.15	1.53	82.13	1.21
TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	322.35	0.98	204.25	4604.43	0.99	248.84	2965.70	1.35	117.61	2236.18	1.47	95.24	1662.25	1.57	70.24	1.25
p1	324.88	0.98	215.00	4583.75	0.99	303.98	2858.85	1.30	125.41	2157.85	1.42	101.09	1616.40	1.53	73.87	1.22

p2	329.35	1.00	225.75	4568.90	0.98	312.41	2791.78	1.27	130.88	2035.97	1.34	102.12	1560.95	1.48	78.04	1.20
TILE_6	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.43	0.99	204.00	4575.60	0.99	262.48	3039.57	1.38	114.10	1645.90	1.08	60.17	1156.55	1.09	37.73	1.10
p1	326.07	0.99	223.75	4578.12	0.99	285.55	2662.45	1.21	143.52	1555.53	1.02	83.03	1059.33	1.00	51.28	1.04
p2	327.35	0.99	228.50	4571.85	0.99	281.27	2462.38	1.12	163.11	1312.38	0.86	85.47	917.85	0.87	53.42	0.96
TILE_7	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.38	0.98	182.70	4620.48	1.00	234.50	2993.47	1.36	116.44	2307.88	1.52	98.12	1685.67	1.59	76.85	1.26
p1	324.02	0.98	194.00	4588.30	0.99	259.55	2940.53	1.34	120.23	2105.35	1.39	96.70	1573.62	1.49	77.00	1.22
p2	331.02	1.00	201.00	4619.82	1.00	255.47	2907.85	1.32	122.25	2095.28	1.38	97.43	1497.40	1.42	74.43	1.21
TILE_8	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.32	0.99	202.50	4606.32	0.99	249.58	2868.07	1.30	125.13	2056.90	1.35	91.94	1691.70	1.60	76.99	1.23
p1	331.43	1.00	212.53	4541.32	0.98	288.69	2841.57	1.29	126.68	2233.10	1.47	95.96	1590.17	1.50	67.99	1.23
p2	329.90	1.00	223.50	4576.02	0.99	290.37	2781.05	1.26	130.88	2125.65	1.40	95.16	1640.85	1.55	72.44	1.22
TILE_9	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.07	0.99	221.12	4621.82	1.00	222.98	2564.12	1.17	152.22	1842.08	1.21	120.08	1371.03	1.30	96.01	1.13
p1	320.60	0.97	224.00	4601.98	0.99	256.49	2470.47	1.12	161.85	1786.47	1.18	126.88	1238.00	1.17	100.47	1.08
p2	327.93	0.99	232.25	4586.60	0.99	278.27	2315.50	1.05	178.76	1711.72	1.13	145.81	1275.70	1.21	118.83	1.07
TILE_10	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.50	0.99	190.75	4600.62	0.99	248.47	2915.38	1.33	121.65	2145.88	1.41	93.92	1534.83	1.45	71.26	1.22
p1	325.10	0.98	203.45	4603.07	0.99	273.67	2806.22	1.28	129.35	2156.10	1.42	101.10	1590.40	1.50	75.73	1.22
p2	329.18	1.00	219.75	4554.68	0.98	293.63	2741.28	1.25	135.27	2053.32	1.35	109.93	1493.55	1.41	83.99	1.18
TILE_11	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	321.82	0.97	205.25	4634.45	1.00	234.31	2966.78	1.35	118.05	2151.22	1.42	93.22	1547.72	1.46	70.69	1.22
p1	325.10	0.98	217.00	4584.12	0.99	266.41	2898.07	1.32	122.84	2180.15	1.44	99.45	1658.53	1.57	78.95	1.24
p2	326.82	0.99	228.05	4577.38	0.99	295.20	2900.90	1.32	122.56	2108.25	1.39	96.35	1516.85	1.43	72.77	1.21
TILE_12	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.30	0.99	217.50	4625.62	1.00	243.01	2967.57	1.35	119.13	2219.68	1.46	96.55	1613.10	1.52	73.88	1.24
p1	324.35	0.98	231.00	4598.10	0.99	247.25	2829.57	1.29	128.64	2080.65	1.37	98.82	1556.55	1.47	78.60	1.20
p2	322.90	0.98	235.75	4586.48	0.99	274.00	2759.68	1.25	133.09	2079.85	1.37	98.94	1478.05	1.40	75.91	1.18
TILE_13	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.70	0.98	210.97	4600.32	0.99	252.24	2904.75	1.32	122.22	2241.12	1.48	95.01	1704.20	1.61	75.57	1.25
p1	330.15	1.00	223.00	4600.90	0.99	261.27	2850.70	1.30	126.23	2132.57	1.40	94.33	1535.20	1.45	71.27	1.21
p2	329.05	1.00	238.50	4578.10	0.99	273.07	2812.53	1.28	128.73	2172.45	1.43	99.95	1585.85	1.50	75.89	1.22
TILE_14	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.35	0.99	204.00	4620.80	1.00	229.32	2916.72	1.33	121.51	2135.40	1.41	94.36	1613.95	1.53	73.93	1.23
p1	325.60	0.99	211.25	4589.40	0.99	251.40	2838.40	1.29	127.45	2085.07	1.37	98.40	1488.78	1.41	75.00	1.19

p2	325.65	0.99	222.75	4595.02	0.99	261.76	2760.70	1.26	133.50	2169.88	1.43	109.73	1577.03	1.49	85.75	1.21
TILE_15	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.57	0.99	187.60	4612.80	0.99	235.85	2972.75	1.35	117.54	2178.18	1.43	91.23	1566.92	1.48	68.88	1.23
p1	326.07	0.99	201.25	4594.35	0.99	257.36	2861.60	1.30	125.38	2183.93	1.44	99.45	1594.83	1.51	75.65	1.22
p2	325.57	0.99	214.00	4582.73	0.99	276.41	2830.57	1.29	127.90	2155.62	1.42	101.87	1624.33	1.54	81.75	1.22
TILE_16	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	332.32	1.01	226.75	4635.15	1.00	238.81	2992.18	1.36	116.60	2149.38	1.42	93.62	1528.08	1.44	71.91	1.23
p1	323.45	0.98	237.55	4594.75	0.99	249.20	2827.30	1.29	128.11	2221.47	1.46	105.28	1620.17	1.53	82.20	1.23
p2	323.30	0.98	248.40	4577.70	0.99	275.83	2725.50	1.24	136.72	2001.65	1.32	105.10	1496.33	1.41	83.55	1.17
TILE_17	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	312.77	0.95	166.55	4443.25	0.96	227.92	2999.82	1.36	115.13	2173.40	1.43	92.34	1557.17	1.47	70.26	1.21
p1	329.12	1.00	188.25	4613.98	0.99	246.57	2944.18	1.34	118.00	2143.20	1.41	94.49	1611.47	1.52	74.69	1.23
p2	330.25	1.00	202.45	4583.40	0.99	264.75	2826.22	1.29	127.48	2110.78	1.39	97.54	1502.20	1.42	74.26	1.20
TILE_18	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	321.75	0.97	224.50	4600.45	0.99	231.24	2945.68	1.34	119.48	2206.72	1.45	97.50	1709.50	1.62	75.15	1.25
p1	327.20	0.99	234.00	4603.60	0.99	256.19	2887.20	1.31	124.10	2130.22	1.40	103.32	1497.00	1.41	74.07	1.21
p2	323.52	0.98	244.25	4593.05	0.99	274.65	2803.62	1.27	130.03	2013.35	1.33	104.17	1531.47	1.45	80.59	1.19
TILE_19	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.50	1.00	204.00	4638.00	1.00	230.88	2941.68	1.34	119.77	2149.65	1.42	93.42	1642.47	1.55	71.83	1.24
p1	324.20	0.98	205.50	4584.85	0.99	255.46	2827.78	1.29	128.72	2131.18	1.40	104.15	1490.00	1.41	75.45	1.20
p2	323.57	0.98	214.00	4569.52	0.98	269.61	2747.05	1.25	135.06	2079.62	1.37	108.30	1577.38	1.49	86.05	1.20
TILE_20	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.93	0.99	219.28	4592.55	0.99	254.26	2975.50	1.35	117.60	2183.85	1.44	90.92	1567.83	1.48	69.08	1.23
p1	323.88	0.98	226.40	4595.70	0.99	258.15	2800.45	1.27	130.16	2160.57	1.42	100.99	1573.55	1.49	77.36	1.21
p2	332.48	1.01	235.75	4563.82	0.98	284.39	2758.10	1.25	133.85	2121.47	1.40	104.09	1612.90	1.52	83.09	1.21
TILE_21	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.65	0.99	194.00	4607.40	0.99	239.60	2751.93	1.25	134.95	1965.58	1.29	108.57	1398.22	1.32	83.24	1.16
p1	326.05	0.99	199.00	4613.95	0.99	254.64	2678.53	1.22	141.46	2017.15	1.33	123.12	1497.05	1.41	93.62	1.18
p2	325.30	0.99	207.75	4586.68	0.99	273.73	2678.22	1.22	141.43	1888.33	1.24	115.67	1412.35	1.33	91.60	1.14
TILE_22	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.85	0.99	207.25	4629.90	1.00	215.28	2753.50	1.25	135.13	2073.93	1.37	109.07	1463.28	1.38	86.93	1.18
p1	327.45	0.99	213.75	4600.00	0.99	250.00	2617.88	1.19	146.76	1991.12	1.31	115.87	1476.42	1.40	95.63	1.16
p2	326.70	0.99	223.00	4590.23	0.99	259.78	2602.03	1.18	147.50	1907.03	1.26	113.77	1323.72	1.25	90.19	1.13
TILE_23	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.80	0.99	221.35	4646.35	1.00	210.87	2793.35	1.27	131.57	2170.80	1.43	109.77	1560.10	1.47	87.58	1.22
p1	328.70	1.00	223.75	4617.60	0.99	238.35	2720.82	1.24	137.16	1971.10	1.30	107.58	1461.58	1.38	86.85	1.17

p2	324.85	0.98	230.75	4583.50	0.99	262.16	2663.03	1.21	142.20	1938.33	1.28	110.92	1355.53	1.28	86.87	1.14
TILE_24	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	321.48	0.97	214.50	4643.93	1.00	215.05	2931.53	1.33	120.21	2205.47	1.45	97.29	1686.58	1.59	77.00	1.25
p1	325.12	0.98	220.03	4600.40	0.99	246.07	2902.60	1.32	122.64	2130.53	1.40	94.70	1526.78	1.44	71.98	1.21
p2	324.98	0.98	227.50	4571.32	0.98	269.25	2819.80	1.28	128.66	2141.10	1.41	102.33	1558.60	1.47	78.37	1.21
TILE_25	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.23	0.99	236.50	4633.05	1.00	219.62	2908.88	1.32	121.92	2197.97	1.45	98.17	1525.25	1.44	72.17	1.22
p1	327.57	0.99	235.75	4611.15	0.99	240.80	2816.40	1.28	129.10	2081.82	1.37	98.73	1564.65	1.48	77.89	1.21
p2	326.43	0.99	244.00	4616.88	0.99	253.97	2785.05	1.27	131.13	2126.85	1.40	103.67	1625.35	1.54	81.93	1.22
TILE_26	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	333.20	1.01	224.25	4651.12	1.00	209.70	2967.00	1.35	118.04	2211.00	1.46	97.15	1611.28	1.52	74.10	1.25
p1	330.20	1.00	224.25	4578.43	0.99	255.82	2893.38	1.32	123.10	2163.38	1.42	100.91	1578.03	1.49	77.00	1.22
p2	327.52	0.99	233.50	4581.73	0.99	257.41	2810.50	1.28	129.53	2049.38	1.35	100.96	1547.90	1.46	79.16	1.20
TILE_27	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.00	0.99	218.75	4655.30	1.00	218.05	2972.50	1.35	117.78	2238.47	1.47	95.25	1624.78	1.54	73.10	1.25
p1	327.57	0.99	224.00	4613.35	0.99	236.77	2887.85	1.31	123.49	2191.45	1.44	98.32	1670.95	1.58	78.14	1.24
p2	327.43	0.99	226.25	4587.48	0.99	258.57	2878.72	1.31	124.15	2115.45	1.39	95.99	1521.15	1.44	72.47	1.21
TILE_28	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.80	0.98	204.00	4646.00	1.00	204.21	2974.78	1.35	117.39	2217.88	1.46	96.65	1688.08	1.60	76.83	1.25
p1	326.18	0.99	209.25	4589.85	0.99	247.86	2894.53	1.32	123.54	2069.15	1.36	99.87	1547.95	1.46	79.26	1.21
p2	326.32	0.99	219.22	4590.85	0.99	260.83	2871.47	1.31	125.32	2053.45	1.35	100.72	1462.58	1.38	77.23	1.19
TILE_29	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.35	0.99	234.75	4619.60	1.00	227.44	3023.93	1.38	114.89	2253.12	1.48	93.77	1711.03	1.62	74.85	1.27
p1	325.38	0.99	241.25	4593.00	0.99	250.50	2952.45	1.34	118.86	2121.78	1.40	95.40	1526.55	1.44	71.93	1.21
p2	322.62	0.98	246.75	4585.38	0.99	276.35	2877.88	1.31	124.45	2166.35	1.43	100.44	1579.22	1.49	76.53	1.22
p0_score:	36.80															
p1_score:	36.07															
p2_score:	35.47															

Infrastructure_Operations_Scores:										vmotion			svmotion			deploy		
Completed_Ops_PerHour										14.00			6.00			4.50		
Avg_Seconds_To_Complete										66.94			49.82			344.04		
Failures										0.00			0.00			0.00		
Ratio										0.88			0.67			1.12		
Number_Of_Threads										1			1			1		

Summary							Run_Is_Compliant			Number_Of_Compliance_Issues(0)*					Median_Phase(p1)				
Unreviewed_VMmark2_Applications_Score							36.07												

Unreviewed_VMmark2_Infrastructure_Score	0.87
Unreviewed_VMmark2_Score	29.03

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESX 4.1 Build 348481 / 02-10-2011
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 4.1 Build 258902 / 07-13-2010
Supplemental Software	none
Servers	
Quantity	2
Server Manufacturer and Model	Fujitsu PRIMERGY RX900 S2
Processor Vendor and Model	Ten-core Intel Xeon E7-8870
Processor Speed (GHz)	2.40
Total Sockets/Total Cores/Total Threads	8 Sockets / 80 Cores / 160 Threads
Primary Cache	32KB I + 32KB D on chip per core
Secondary Cache	256KB I+D on chip per core
Other Cache	30MB I+D on chip per chip L3
BIOS Version	Rev R1.01.02
Memory Size (in GB, Number of DIMMs)	1024GB, 64
Memory Type and Speed	Quad rank 1066 MHz Registered ECC DDR3
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1 (unused)
Disk Controller Vendors and Models	Intel ICH10
Number of Host Bus Adapters	2
Host Bus Adapter Vendors and Models	Dual-channel Emulex LPe12002 (one port each used)
Number of Network Controllers	5

Network Controller Vendors and Models	Integrated Intel 82576NS Dual Port 1GbE Adapter(3x), Integrated Intel 82599 Dual Port 10GbE Adapter(1x, not used), Fujitsu D2745 Quad Port 1GbE Adapter(1x)	
Other Hardware	none	
Other Software	INT-intel-lad-ddk-igb-3.0.18	
Hardware Availability Date (MM-DD-YYYY)	08-02-2011	
Software Availability Date (MM-DD-YYYY)	02-10-2011	
Network		
Network Switch Vendors and Models	4xFujitsu PRIMERGY BX600 GbE Switch Blade 30/12, CISCO 4900M	
Network Speed	1Gbps	
Storage		
Array Vendors, Models, and Firmware Versions	16xFujitsu ETERNUS DX80, Firmware version V10L20-0000	
Fibre Channel Switch Vendors and Models	Brocade 5100	
Disk Space Used	9182GB	
Array Cache Size	2GB	
Total Number of Physical Disks Used	340	
Total Number of Enclosures/Pods/Shelves Used	31	
Number of Physical Disks Used per Enclosure/Pod/Shelf	1x4 Disks, 6x8 Disks, 16x12 Disk, 8x10 Disk + 2SSDs	
Total Number of Storage Groups Used	16	
Number of LUNs Used	113	
LUN Size and Number of Disks Per LUN	Details in section Storage Notes	
RAID Type	0	
Number of Members per RAID Set	Details in section Storage Notes	
Disk Vendors, Models, and Speeds	4xSeagate, ST3450856SS, 15krpm; 320xSeagate, ST3300656SS, 15krpm; 16xSTEC Zeus SSD, Z16IZF2D-100UCT-FUJ	
Datacenter Management Server		
System Model	Fujitsu PRIMERGY BX620S4	
Processor Vendor and Model	Intel Xeon X5470	
Processor Speed (GHz)	3.33	

Total Sockets/Total Cores/Total Threads	2 Sockets / 4 Cores / 8 Threads
Memory	4GB
Network Controller(s) Vendors and Models	3xDual Port Broadcom NetXtreme, 5 Ports disabled
Operating System, Version, and Service Pack	Microsoft(R) Windows(R) Server 2003 R2 Enterprise x64 Edition, Service Pack 2
Other Hardware	none
Other Software	none
Clients	
Number of Clients	31 (one Client used as a dedicated Benchmark Controller)
System Model(s)	Fujitsu PRIMERGY BX620S4
Processor Vendor(s) and Model(s)	Intel Xeon 5130 (excepted Benchmark Controller with Intel Xeon X5470)
Processor Speed(s) (GHz)	2
Total Sockets/Total Cores/Total Threads	2 Sockets / 4 Cores / 4 Threads
Memory per Client	4GB
Network Controller(s) Vendors and Models	3xDual Port Broadcom NetXtreme, 5 Ports disabled (excepted Benchmark Controller with only 4 disabled ports)
Operating System, Version, and Service Pack	Microsoft(R) Windows(R) Server 2003 R2 Enterprise Edition (32-bit), Service Pack 2
Other Hardware	none
Other Software	none

Notes for Workload

Virtualization Software Notes

- Hardware version 7 used for all VMs (default 7)
- Logging disabled for all VMs (default enabled)
- VMXNET3 enabled for all VMs (default VMXNET2)
- SCSI adapter type PVSCSI used for all Standby VMs (default LSI Logic parallel)
- SCSI adapter type PVSCSI used for all Mailserver VMs (default LSI Logic SAS)
- Floppy and CDROM removed for all VMs (default enabled)
- Firewall disabled for the Console OS (default enabled)
- Changes in esx.conf:
 - /adv/Cpu/CoschedCrossCall = 0 (default 1)
 - /adv/Cpu/HaltingIdleMsecPenalty = 0 (default 100)
 - /adv/Irq/RoutingPolicy = 0 (default 2)
 - /adv/Mem/BalancePeriod = 0 (default 15)
 - /adv/Mem/SamplePeriod = 0 (default 60)
 - /adv/Mem/ShareScanGHZ = 0 (default 4)
 - /adv/Misc/TimerMaxHardPeriod = 4000 (default 100000)
 - /adv/Misc/TimerMinHardPeriod = 2000 (default 100)

```
/adv/Net/MaxNetifRxQueueLen = 500 (default 100 )
/adv/Net/MaxNetifTxQueueLen = 1000 (default 500 )
/adv/Net/NetTxWorldlet = 0 (default 2)
/adv/Numa/LTermFairnessInterval = 0 (default 5)
/adv/Numa/MonMigEnable = 0 (default 1 )
/adv/Numa/PageMigEnable = 0 (default 1 )
/adv/Numa/SwapLoadEnable = 0 (default 1 )
/adv/Numa/SwapLocalityEnable = 0 (default 1 )
/vmkernel/module/lpfc820.o/options = "lpfc_lun_queue_depth=64 lpfc_cr_count=40 lpfc_cr_delay=1" (defaults 31,1,0)
```

Server Notes

- Server BIOS settings:
 - Turbo Boost Technology: Enabled (Intel Turbo Boost up to 2.53GHz, default enabled)
 - Integrated Intel 82599 Dual Port 10GbE Adapter: Disabled (default enabled)
- Emulex HBA BIOS settings:
 - defaults

Networking Notes

- One dedicated VLAN for the systems under test, vCenter Server and Benchmark Controller (SUT-VLAN)
- One dedicated VLAN for the VMs and Clients (Load-VLAN)
- vSwitch Configuration:
 - vSwitch0 on vmnic0 (1Gb) for Service Console
 - vSwitch1 on vmnic3 (1Gb) for VMotion
 - vSwitch2 on vmnic6 (1Gb) for OlioWeb and OlioDB 0,1,6,7,12,13,18,19,24,25 VMs
 - vSwitch3 on vmnic7 (1Gb) for OlioWeb and OlioDB 2,3,8,9,14,15,20,21,26,27 VMs
 - vSwitch4 on vmnic8 (1Gb) for OlioWeb and OlioDB 4,5,10,11,16,17,22,23,28,29 VMs
 - vSwitch5 unused
 - vSwitch6 on vmnic4 (1Gb) for all DS2Web and DS2DB VMs
 - vSwitch7 on vmnic5 (1Gb) for all Mail and Standby VMs and Deploy

Storage Notes

- ETERNUS DX80[0] (1 shelf, total 4 disks)
 - RAID set 0: (4 disks)
 - LUN 0: Boot/Console OS for SUT1 (11GB)
 - LUN 1: Boot/Console OS for SUT2 (11GB)
- ETERNUS DX80[1] (2 shelves, total 24 disks)
 - RAID set 0: (6 disks)
 - LUN 1: All even numbered Standby VMs (110GB)
 - LUN 2: All odd numbered Standby VMs (110GB)
 - RAID set 1: (6 disks)
 - LUN 3: Source Deploy Template (50GB)
 - RAID set 2: (6 disks)
 - LUN 4: Target Storage VMotion (50GB)
 - RAID set 3: (6 disks)
 - LUN 5: Target Deploy Template (50GB)

- ETERNUS DX80[2] (2 shelves, total 20 disks)
 - RAID set 0: (4 disks)
 - LUN 1: For Tile 0 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 2: For Tile 0 OlioDB (20GB)
 - RAID set 1: (4 disks)
 - LUN 3: For Tile 6 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 4: For Tile 6 OlioDB (20GB)
 - RAID set 2: (4 disks)
 - LUN 5: For Tile 12 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 6: For Tile 12 OlioDB (20GB)
 - RAID set 3: (4 disks)
 - LUN 7: For Tile 18 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 8: For Tile 18 OlioDB (20GB)
 - RAID set 4: (4 disks)
 - LUN 9: For Tile 24 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 10: For Tile 24 OlioDB (20GB)
- ETERNUS DX80[3] (2 shelves, total 20 disks)
 - RAID set 0: (4 disks)
 - LUN 1: For Tile 2 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 2: For Tile 2 OlioDB (20GB)
 - RAID set 1: (4 disks)
 - LUN 3: For Tile 8 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 4: For Tile 8 OlioDB (20GB)
 - RAID set 2: (4 disks)
 - LUN 5: For Tile 14 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 6: For Tile 14 OlioDB (20GB)
 - RAID set 3: (4 disks)
 - LUN 7: For Tile 20 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 8: For Tile 20 OlioDB (20GB)
 - RAID set 4: (4 disks)
 - LUN 9: For Tile 26 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 10: For Tile 26 OlioDB (20GB)
- ETERNUS DX80[4] (2 shelves, total 20 disks)
 - RAID set 0: (4 disks)
 - LUN 1: For Tile 4 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 2: For Tile 4 OlioDB (20GB)
 - RAID set 1: (4 disks)
 - LUN 3: For Tile 10 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 4: For Tile 10 OlioDB (20GB)
 - RAID set 2: (4 disks)
 - LUN 5: For Tile 16 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 6: For Tile 16 OlioDB (20GB)
 - RAID set 3: (4 disks)
 - LUN 7: For Tile 22 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 8: For Tile 22 OlioDB (20GB)
 - RAID set 4: (4 disks)
 - LUN 9: For Tile 28 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 10: For Tile 28 OlioDB (20GB)

- ETERNUS DX80[5] (2 shelves, total 20 disks)
 - RAID set 0: (4 disks)
 - LUN 1: For Tile 1 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 2: For Tile 1 OlioDB (20GB)
 - RAID set 1: (4 disks)
 - LUN 3: For Tile 7 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 4: For Tile 7 OlioDB (20GB)
 - RAID set 2: (4 disks)
 - LUN 5: For Tile 13 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 6: For Tile 13 OlioDB (20GB)
 - RAID set 3: (4 disks)
 - LUN 7: For Tile 19 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 8: For Tile 19 OlioDB (20GB)
 - RAID set 4: (4 disks)
 - LUN 9: For Tile 25 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 10: For Tile 25 OlioDB (20GB)

- ETERNUS DX80[6] (2 shelves, total 20 disks)
 - RAID set 0: (4 disks)
 - LUN 1: For Tile 3 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 2: For Tile 3 OlioDB (20GB)
 - RAID set 1: (4 disks)
 - LUN 3: For Tile 9 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 4: For Tile 9 OlioDB (20GB)
 - RAID set 2: (4 disks)
 - LUN 5: For Tile 15 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 6: For Tile 15 OlioDB (20GB)
 - RAID set 3: (4 disks)
 - LUN 7: For Tile 21 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 8: For Tile 21 OlioDB (20GB)
 - RAID set 4: (4 disks)
 - LUN 9: For Tile 27 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 10: For Tile 27 OlioDB (20GB)

- ETERNUS DX80[7] (2 shelves, total 20 disks)
 - RAID set 0: (4 disks)
 - LUN 1: For Tile 5 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 2: For Tile 5 OlioDB (20GB)
 - RAID set 1: (4 disks)
 - LUN 3: For Tile 11 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 4: For Tile 11 OlioDB (20GB)
 - RAID set 2: (4 disks)
 - LUN 5: For Tile 17 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 6: For Tile 17 OlioDB (20GB)
 - RAID set 3: (4 disks)
 - LUN 7: For Tile 23 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 8: For Tile 23 OlioDB (20GB)
 - RAID set 4: (4 disks)
 - LUN 9: For Tile 29 DS2WebA, DS2WebB, DS2WebC, Mailserver and first VHD from DS2DB (140GB)
 - LUN 10: For Tile 29 OlioDB (20GB)

- ETERNUS DX80[8] (2 shelves, total 22 disks and 2 SSDs)
 - RAID set 0: (11 disks)
 - LUN 1: For Tile 0, 8 OlioWeb (180GB)
 - RAID set 1: (11 disks)
 - LUN 2: For Tile 16, 24 OlioWeb (180GB)
 - RAID set 2: (2 SSDs)
 - LUN 3: For Tile 0 second VHD from DS2DB (37GB)
 - LUN 4: For Tile 8 second VHD from DS2DB (37GB)
 - LUN 5: For Tile 16 second VHD from DS2DB (37GB)
 - LUN 6: For Tile 24 second VHD from DS2DB (37GB)

- ETERNUS DX80[9] (2 shelves, total 22 disks and 2 SSDs)
 - RAID set 0: (11 disks)
 - LUN 1: For Tile 2, 10 OlioWeb (180GB)
 - RAID set 1: (11 disks)
 - LUN 2: For Tile 18, 26 OlioWeb (180GB)
 - RAID set 2: (2 SSDs)
 - LUN 3: For Tile 2 second VHD from DS2DB (37GB)
 - LUN 4: For Tile 10 second VHD from DS2DB (37GB)
 - LUN 5: For Tile 18 second VHD from DS2DB (37GB)
 - LUN 6: For Tile 26 second VHD from DS2DB (37GB)

- ETERNUS DX80[10] (2 shelves, total 22 disks and 2 SSDs)
 - RAID set 0: (11 disks)
 - LUN 1: For Tile 4, 12 OlioWeb (180GB)
 - RAID set 1: (11 disks)
 - LUN 2: For Tile 20, 28 OlioWeb (180GB)
 - RAID set 2: (2 SSDs)
 - LUN 3: For Tile 4 second VHD from DS2DB (37GB)
 - LUN 4: For Tile 12 second VHD from DS2DB (37GB)
 - LUN 5: For Tile 20 second VHD from DS2DB (37GB)
 - LUN 6: For Tile 28 second VHD from DS2DB (37GB)

- ETERNUS DX80[11] (2 shelves, total 22 disks and 2 SSDs)
 - RAID set 0: (11 disks)
 - LUN 1: For Tile 6, 14 OlioWeb (180GB)
 - RAID set 1: (11 disks)
 - LUN 2: For Tile 22 OlioWeb (180GB)
 - RAID set 2: (2 SSDs)
 - LUN 3: For Tile 6 second VHD from DS2DB (37GB)
 - LUN 4: For Tile 14 second VHD from DS2DB (37GB)
 - LUN 5: For Tile 22 second VHD from DS2DB (37GB)

- ETERNUS DX80[12] (2 shelves, total 22 disks and 2 SSDs)
 - RAID set 0: (11 disks)
 - LUN 1: For Tile 1, 9 OlioWeb (180GB)
 - RAID set 1: (11 disks)
 - LUN 2: For Tile 17, 25 OlioWeb (180GB)
 - RAID set 2: (2 SSDs)
 - LUN 3: For Tile 1 second VHD from DS2DB (37GB)

LUN 4: For Tile 9 second VHD from DS2DB (37GB)
LUN 5: For Tile 17 second VHD from DS2DB (37GB)
LUN 6: For Tile 25 second VHD from DS2DB (37GB)

- ETERNUS DX80[13] (2 shelves, total 22 disks and 2 SSDs)

- RAID set 0: (11 disks)

- LUN 1: For Tile 3, 11 OlioWeb (180GB)

- RAID set 1: (11 disks)

- LUN 2: For Tile 19, 27 OlioWeb (180GB)

- RAID set 2: (2 SSDs)

- LUN 3: For Tile 3 second VHD from DS2DB (37GB)

- LUN 4: For Tile 11 second VHD from DS2DB (37GB)

- LUN 5: For Tile 19 second VHD from DS2DB (37GB)

- LUN 6: For Tile 27 second VHD from DS2DB (37GB)

- ETERNUS DX80[14] (2 shelves, total 22 disks and 2 SSDs)

- RAID set 0: (11 disks)

- LUN 1: For Tile 5, 13 OlioWeb (180GB)

- RAID set 1: (11 disks)

- LUN 2: For Tile 21, 29 OlioWeb (180GB)

- RAID set 2: (2 SSDs)

- LUN 3: For Tile 5 second VHD from DS2DB (37GB)

- LUN 4: For Tile 13 second VHD from DS2DB (37GB)

- LUN 5: For Tile 21 second VHD from DS2DB (37GB)

- LUN 6: For Tile 29 second VHD from DS2DB (37GB)

- ETERNUS DX80[15] (2 shelves, total 22 disks and 2 SSDs)

- RAID set 0: (11 disks)

- LUN 1: For Tile 7, 15 OlioWeb (180GB)

- RAID set 1: (11 disks)

- LUN 2: For Tile 23 OlioWeb (180GB)

- RAID set 2: (2 SSDs)

- LUN 3: For Tile 7 second VHD from DS2DB (37GB)

- LUN 4: For Tile 15 second VHD from DS2DB (37GB)

- LUN 5: For Tile 23 second VHD from DS2DB (37GB)

Datacenter Management Server Notes

Operating System Notes

Mailserver VMs: Microsoft Windows 2008 Enterprise x64 Edition updated with SP2

Software Notes

Mailserver VMs: Microsoft Exchange 2007 Enterprise x64 Edition updated with SP3

Client Notes

Benchmark Controller was running VMware vSphere PowerCLI 4.1 build 264274

Other Notes

One Client used as a dedicated Benchmark Controller. This system was connected to the SUT- and the Load-VLAN.

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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