

## VMware® VMmark® V2.1.1 Results

Vendor and Hardware Platform: HP ProLiant BL465c Gen8  
 Virtualization Platform: VMware ESX 4.1.0 U2 Build 502767  
 VMware vCenter Server: VMware vCenter Server 5.0.0 Build 455964

**VMmark V2.1.1 Score =  
59.99 @ 62 Tiles**

Number of Hosts: 16

Uniform Hosts [yes/no]: yes

Total sockets/core/threads in test: 32/512/512

Tested By: Hewlett-Packard

Test Date: 09-25-2012

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### 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	327.82	0.99	74.00	4621.70	1.00	219.43	2654.88	1.21	144.75	1904.90	1.25	152.58	1357.40	1.28	159.21	1.14
p1	325.68	0.99	83.50	4649.73	1.00	215.25	2781.38	1.26	134.11	2090.18	1.38	140.19	1528.97	1.45	142.36	1.20
p2	326.82	0.99	88.00	4606.73	0.99	234.26	2467.90	1.12	163.78	1710.62	1.13	179.68	1293.00	1.22	182.57	1.09
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.05	0.99	84.00	4632.27	1.00	211.79	3217.30	1.46	103.11	2301.78	1.52	112.00	1644.40	1.55	116.77	1.28
p1	326.48	0.99	85.00	4608.68	0.99	239.36	2686.95	1.22	142.35	1922.78	1.27	158.62	1438.03	1.36	166.15	1.16
p2	327.12	0.99	94.00	4594.60	0.99	242.60	2653.20	1.21	143.75	1897.25	1.25	152.96	1337.97	1.26	161.42	1.13
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.77	0.98	88.70	4613.43	0.99	229.97	2634.45	1.20	148.43	1888.53	1.24	165.41	1345.00	1.27	173.39	1.13
p1	327.05	0.99	94.00	4639.90	1.00	208.26	2582.18	1.17	152.72	1771.42	1.17	172.13	1310.47	1.24	180.09	1.11
p2	328.15	0.99	94.00	4581.02	0.99	269.88	2669.10	1.21	143.89	1832.00	1.21	162.16	1320.03	1.25	166.19	1.12
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	330.00	1.00	73.75	4637.40	1.00	222.60	2658.88	1.21	146.48	1924.17	1.27	160.04	1431.62	1.35	168.94	1.16
p1	327.55	0.99	74.00	4621.85	1.00	224.95	2815.78	1.28	132.78	1920.83	1.26	151.40	1401.08	1.32	151.86	1.16
p2	329.52	1.00	75.25	4603.02	0.99	266.30	2663.75	1.21	145.71	1887.08	1.24	164.48	1359.85	1.29	170.33	1.14
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.90	0.99	75.00	4633.70	1.00	231.18	2503.62	1.14	159.15	1805.60	1.19	174.60	1339.53	1.27	184.16	1.11
p1	323.38	0.98	82.50	4670.50	1.01	195.62	2550.97	1.16	154.27	1790.58	1.18	167.68	1254.55	1.19	178.33	1.10
p2	331.60	1.00	84.00	4615.60	0.99	221.50	2491.90	1.13	160.16	1812.97	1.19	173.53	1286.80	1.22	183.67	1.10
TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.98	0.99	92.50	4577.10	0.99	240.51	2900.97	1.32	127.42	2067.32	1.36	136.32	1503.75	1.42	147.01	1.20
p1	328.50	0.99	97.75	4596.98	0.99	243.22	3016.90	1.37	116.94	2181.88	1.44	122.71	1532.90	1.45	130.74	1.23

<b>p2</b>	329.23	1.00	104.00	4553.23	0.98	281.01	2945.07	1.34	122.27	2169.93	1.43	131.84	1636.60	1.55	136.36	1.24
<b>TILE_6</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.18	1.00	86.25	4547.38	0.98	293.09	2828.53	1.29	129.67	1966.55	1.30	144.26	1383.00	1.31	153.30	1.16
<b>p1</b>	330.00	1.00	94.00	4591.80	0.99	262.88	2717.78	1.24	137.95	1967.38	1.30	151.20	1481.38	1.40	157.72	1.17
<b>p2</b>	325.75	0.99	94.00	4492.43	0.97	367.48	2585.60	1.18	150.54	1811.28	1.19	164.71	1263.58	1.19	176.22	1.10
<b>TILE_7</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.05	0.98	104.00	4566.65	0.98	287.81	2332.97	1.06	96.57	2266.50	1.49	113.10	1589.00	1.50	121.18	1.18
<b>p1</b>	323.30	0.98	112.50	4610.45	0.99	252.00	2360.32	1.07	94.73	2294.95	1.51	110.96	1691.83	1.60	118.40	1.20
<b>p2</b>	323.65	0.98	114.00	4563.70	0.98	289.18	2259.10	1.03	103.22	2176.97	1.43	121.88	1527.58	1.44	130.11	1.15
<b>TILE_8</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	328.75	1.00	74.00	4593.35	0.99	247.38	2826.75	1.29	132.14	2032.95	1.34	146.06	1432.67	1.35	156.66	1.18
<b>p1</b>	321.57	0.97	74.00	4596.02	0.99	248.34	2838.68	1.29	131.37	1979.10	1.30	143.99	1444.15	1.36	153.77	1.17
<b>p2</b>	326.25	0.99	77.25	4603.75	0.99	266.50	2796.03	1.27	133.68	1957.72	1.29	146.41	1377.30	1.30	154.89	1.16
<b>TILE_9</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	322.27	0.98	84.47	4577.38	0.99	275.19	2387.38	1.09	119.08	2099.03	1.38	136.55	1578.83	1.49	143.06	1.17
<b>p1</b>	323.55	0.98	94.00	4595.95	0.99	269.28	2437.65	1.11	114.11	2055.43	1.35	133.74	1446.12	1.37	141.95	1.15
<b>p2</b>	327.88	0.99	94.00	4556.43	0.98	307.36	2371.05	1.08	120.42	2083.18	1.37	138.00	1480.40	1.40	147.07	1.15
<b>TILE_10</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.43	1.00	87.50	4637.80	1.00	223.72	2704.45	1.23	141.82	2002.28	1.32	149.81	1460.35	1.38	163.01	1.17
<b>p1</b>	323.95	0.98	94.00	4621.05	1.00	230.16	2630.68	1.20	148.39	1855.40	1.22	159.54	1270.78	1.20	176.07	1.11
<b>p2</b>	328.98	1.00	101.50	4578.12	0.99	270.71	2408.85	1.10	168.98	1831.08	1.21	170.35	1306.35	1.23	179.46	1.10
<b>TILE_11</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	328.30	0.99	106.00	4557.05	0.98	315.56	2743.62	1.25	137.90	1845.75	1.22	151.32	1344.17	1.27	159.87	1.13
<b>p1</b>	329.98	1.00	114.00	4554.45	0.98	304.51	2614.93	1.19	147.75	1901.65	1.25	160.53	1336.67	1.26	172.72	1.13
<b>p2</b>	327.77	0.99	119.50	4499.30	0.97	361.03	2798.32	1.27	131.11	1970.65	1.30	142.63	1457.65	1.38	150.22	1.17
<b>TILE_12</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	319.45	0.97	75.50	4596.38	0.99	258.66	2610.97	1.19	152.97	1807.97	1.19	166.75	1283.05	1.21	174.02	1.10
<b>p1</b>	325.95	0.99	84.00	4575.65	0.99	272.69	2611.70	1.19	149.71	1899.17	1.25	161.78	1338.42	1.26	173.61	1.13
<b>p2</b>	328.18	0.99	84.00	4560.38	0.98	301.10	2640.22	1.20	146.53	1869.22	1.23	157.80	1376.08	1.30	166.86	1.13
<b>TILE_13</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.43	0.99	83.38	4597.32	0.99	248.10	2770.00	1.26	135.75	1972.25	1.30	144.44	1400.58	1.32	150.67	1.16
<b>p1</b>	326.88	0.99	83.05	4642.23	1.00	214.79	2815.10	1.28	131.26	2243.50	1.48	130.30	1638.55	1.55	135.33	1.24
<b>p2</b>	320.55	0.97	83.92	4623.75	1.00	246.67	2720.65	1.24	138.90	1994.88	1.31	142.12	1486.15	1.40	147.15	1.17
<b>TILE_14</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	320.75	0.97	63.98	4640.27	1.00	199.97	3329.75	1.51	97.26	2443.05	1.61	105.74	1746.12	1.65	112.75	1.31
<b>p1</b>	325.35	0.99	66.75	4643.00	1.00	205.13	3247.62	1.48	101.59	2439.90	1.61	105.87	1817.42	1.72	112.48	1.32

<b>p2</b>	325.60	0.99	74.00	4604.18	0.99	235.05	3063.00	1.39	114.05	2160.05	1.42	124.76	1519.85	1.44	132.41	1.23
<b>TILE_15</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.00	1.00	74.00	4643.80	1.00	195.95	3178.70	1.45	106.83	2332.50	1.54	116.42	1632.83	1.54	127.56	1.28
<b>p1</b>	328.15	0.99	74.00	4636.90	1.00	194.66	3028.93	1.38	117.09	2115.28	1.39	129.36	1531.62	1.45	140.80	1.22
<b>p2</b>	328.90	1.00	74.00	4628.70	1.00	217.32	2990.80	1.36	119.83	2069.28	1.36	133.87	1463.95	1.38	141.29	1.21
<b>TILE_16</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.10	0.99	73.25	4622.15	1.00	220.60	3008.65	1.37	118.81	2143.28	1.41	133.39	1606.22	1.52	140.19	1.24
<b>p1</b>	324.82	0.98	74.00	4646.68	1.00	225.88	2789.72	1.27	135.91	1926.03	1.27	150.74	1370.10	1.29	158.14	1.15
<b>p2</b>	329.57	1.00	74.75	4590.27	0.99	256.99	2598.35	1.18	151.74	1898.12	1.25	162.37	1355.00	1.28	170.75	1.13
<b>TILE_17</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.18	1.00	74.00	4634.98	1.00	199.08	2558.55	1.16	154.13	1784.35	1.18	168.62	1325.42	1.25	176.30	1.11
<b>p1</b>	332.07	1.01	74.00	4598.73	0.99	248.56	2646.95	1.20	145.53	1848.42	1.22	159.84	1314.70	1.24	166.90	1.13
<b>p2</b>	325.12	0.98	74.00	4574.90	0.99	255.32	2572.25	1.17	152.88	1856.15	1.22	166.90	1385.62	1.31	175.46	1.13
<b>TILE_18</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	328.27	0.99	94.00	4594.77	0.99	253.60	2725.68	1.24	138.21	1865.15	1.23	156.41	1318.53	1.25	164.00	1.13
<b>p1</b>	324.88	0.98	94.00	4617.38	0.99	247.28	2821.82	1.28	130.39	2031.05	1.34	144.11	1445.53	1.37	152.39	1.18
<b>p2</b>	324.68	0.98	94.00	4583.40	0.99	293.92	2769.35	1.26	135.69	1834.45	1.21	153.20	1319.42	1.25	164.04	1.13
<b>TILE_19</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.50	0.99	95.25	4550.35	0.98	276.05	2851.90	1.30	129.18	1950.65	1.28	145.99	1378.08	1.30	153.30	1.16
<b>p1</b>	326.32	0.99	104.00	4576.23	0.99	272.38	2668.00	1.21	142.61	1921.90	1.27	156.73	1461.17	1.38	161.26	1.16
<b>p2</b>	325.88	0.99	104.00	4519.07	0.97	315.54	2592.10	1.18	149.70	1853.50	1.22	158.98	1290.62	1.22	170.52	1.11
<b>TILE_20</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.45	0.99	63.00	4657.40	1.00	199.14	3469.80	1.58	89.20	2491.25	1.64	96.54	1793.25	1.69	99.47	1.34
<b>p1</b>	325.65	0.99	63.00	4620.00	1.00	222.25	3116.62	1.42	111.69	2256.53	1.49	123.51	1710.78	1.62	128.31	1.27
<b>p2</b>	327.65	0.99	73.40	4614.48	0.99	226.79	2681.12	1.22	145.76	1850.17	1.22	161.04	1277.03	1.21	174.01	1.12
<b>TILE_21</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.40	0.99	104.25	4582.43	0.99	283.73	2627.22	1.19	148.36	1837.28	1.21	168.30	1378.83	1.30	174.60	1.13
<b>p1</b>	324.98	0.98	120.00	4528.55	0.98	302.75	2644.40	1.20	145.91	1766.97	1.16	169.46	1272.20	1.20	173.64	1.10
<b>p2</b>	327.12	0.99	124.00	4534.18	0.98	328.64	2619.03	1.19	148.35	1816.97	1.20	170.89	1316.53	1.24	176.43	1.11
<b>TILE_22</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.40	0.99	74.00	4645.12	1.00	189.31	2526.85	1.15	159.70	1791.58	1.18	177.33	1322.72	1.25	188.53	1.11
<b>p1</b>	326.23	0.99	74.00	4638.93	1.00	193.51	2484.18	1.13	163.65	1690.95	1.11	183.41	1178.75	1.11	196.19	1.07
<b>p2</b>	325.65	0.99	74.00	4617.90	0.99	242.37	2519.70	1.15	158.82	1807.55	1.19	174.62	1279.00	1.21	186.06	1.10
<b>TILE_23</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.20	0.99	97.00	4601.23	0.99	250.41	2902.82	1.32	123.99	2008.35	1.32	135.01	1508.38	1.43	143.07	1.19
<b>p1</b>	326.45	0.99	94.00	4600.82	0.99	248.64	2787.78	1.27	131.22	2006.12	1.32	139.14	1446.25	1.37	142.88	1.18

<b>p2</b>	330.00	1.00	94.00	4535.93	0.98	291.94	2668.65	1.21	141.57	1896.60	1.25	151.72	1427.85	1.35	156.51	1.15
<b>TILE_24</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.18	0.99	79.25	4604.02	0.99	237.26	2946.62	1.34	123.62	2010.72	1.32	140.67	1462.38	1.38	151.14	1.19
<b>p1</b>	330.70	1.00	84.00	4610.45	0.99	229.56	2941.03	1.34	123.64	2021.58	1.33	138.94	1417.17	1.34	148.56	1.19
<b>p2</b>	328.07	0.99	84.00	4607.32	0.99	243.47	2803.12	1.27	133.18	2040.42	1.34	144.32	1529.38	1.45	151.17	1.20
<b>TILE_25</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.60	0.99	74.00	4660.98	1.00	189.16	3096.88	1.41	112.26	2152.93	1.42	125.44	1530.88	1.45	131.82	1.23
<b>p1</b>	325.88	0.99	74.00	4652.18	1.00	191.40	2996.00	1.36	120.64	2177.03	1.43	131.39	1569.03	1.48	137.62	1.23
<b>p2</b>	327.30	0.99	74.00	4621.65	1.00	236.05	2922.35	1.33	124.17	2068.57	1.36	134.93	1548.65	1.46	140.04	1.21
<b>TILE_26</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	323.32	0.98	84.00	4627.65	1.00	220.70	2823.38	1.28	131.85	1973.10	1.30	144.95	1380.17	1.30	154.51	1.16
<b>p1</b>	325.05	0.98	84.00	4617.20	0.99	224.02	2762.30	1.26	136.56	1996.45	1.31	149.69	1486.53	1.40	157.53	1.18
<b>p2</b>	328.07	0.99	84.00	4572.82	0.99	284.53	2713.10	1.23	142.14	1888.12	1.24	156.68	1297.70	1.23	170.41	1.13
<b>TILE_27</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.02	0.99	106.20	4636.27	1.00	213.13	2890.53	1.31	126.81	2078.82	1.37	140.24	1484.12	1.40	147.87	1.20
<b>p1</b>	319.60	0.97	113.47	4611.68	0.99	235.05	2773.78	1.26	136.16	1911.25	1.26	152.25	1413.25	1.34	159.60	1.15
<b>p2</b>	328.62	1.00	114.00	4582.93	0.99	267.25	2842.25	1.29	131.10	2031.28	1.34	146.39	1442.85	1.36	154.47	1.18
<b>TILE_28</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	327.30	0.99	84.00	4626.20	1.00	231.03	2821.10	1.28	134.52	2105.68	1.39	147.39	1519.42	1.44	156.18	1.20
<b>p1</b>	328.65	1.00	90.00	4560.62	0.98	279.03	2567.50	1.17	156.63	1717.55	1.13	179.70	1280.80	1.21	185.84	1.09
<b>p2</b>	324.93	0.98	94.00	4588.85	0.99	273.65	2575.68	1.17	154.93	1757.67	1.16	173.89	1244.78	1.18	182.01	1.09
<b>TILE_29</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.77	0.99	104.00	4611.23	0.99	219.64	2904.75	1.32	125.92	1947.80	1.28	155.56	1528.55	1.44	151.37	1.19
<b>p1</b>	325.05	0.98	95.25	4646.27	1.00	202.34	3024.12	1.38	116.42	1926.08	1.27	149.23	1497.05	1.41	135.52	1.19
<b>p2</b>	326.52	0.99	94.00	4610.50	0.99	219.05	2943.18	1.34	123.10	1976.17	1.30	151.92	1492.97	1.41	146.76	1.19
<b>TILE_30</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	323.88	0.98	93.65	4613.02	0.99	248.18	2828.85	1.29	129.84	1956.72	1.29	145.17	1365.50	1.29	155.83	1.16
<b>p1</b>	329.52	1.00	94.00	4586.98	0.99	273.55	2871.78	1.31	125.82	2028.28	1.34	144.40	1421.38	1.34	150.68	1.18
<b>p2</b>	324.95	0.98	94.00	4583.95	0.99	283.65	2840.90	1.29	129.55	1959.60	1.29	145.20	1434.25	1.36	154.59	1.17
<b>TILE_31</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.57	0.99	84.00	4586.80	0.99	268.38	1953.90	0.89	101.31	2146.10	1.41	117.48	1518.72	1.44	122.12	1.12
<b>p1</b>	327.93	0.99	84.00	4600.43	0.99	260.40	1906.83	0.87	105.38	2218.85	1.46	124.49	1689.10	1.60	127.03	1.15
<b>p2</b>	322.88	0.98	84.00	4577.75	0.99	272.81	1913.08	0.87	106.02	2077.45	1.37	130.53	1501.33	1.42	133.17	1.10
<b>TILE_32</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	328.40	0.99	84.65	4639.98	1.00	209.85	2925.05	1.33	123.82	2039.78	1.34	136.98	1455.22	1.38	142.81	1.20
<b>p1</b>	328.68	1.00	94.00	4609.18	0.99	236.41	2662.00	1.21	145.86	1989.45	1.31	158.70	1447.55	1.37	165.67	1.16

<b>p2</b>	327.65	0.99	94.00	4603.77	0.99	244.52	2522.80	1.15	159.98	1733.47	1.14	178.15	1259.97	1.19	190.65	1.09
<b>TILE_33</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.10	0.99	109.25	4607.95	0.99	264.26	3076.70	1.40	110.75	2318.65	1.53	115.30	1652.65	1.56	122.57	1.27
<b>p1</b>	329.05	1.00	108.25	4584.05	0.99	266.86	2567.47	1.17	153.56	1828.47	1.20	163.42	1338.78	1.27	173.21	1.12
<b>p2</b>	331.77	1.00	124.00	4582.35	0.99	260.81	2874.40	1.31	126.11	2099.53	1.38	130.31	1460.67	1.38	140.80	1.20
<b>TILE_34</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	327.75	0.99	89.25	4615.98	0.99	223.33	2840.15	1.29	131.06	2078.82	1.37	142.28	1487.05	1.41	150.09	1.20
<b>p1</b>	329.32	1.00	93.00	4661.65	1.00	202.37	3015.10	1.37	117.89	2118.18	1.39	130.10	1581.83	1.50	135.29	1.23
<b>p2</b>	325.52	0.99	84.75	4588.35	0.99	237.50	2908.10	1.32	126.88	2019.62	1.33	140.91	1423.72	1.35	149.68	1.18
<b>TILE_35</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	328.65	1.00	99.75	4576.07	0.99	265.78	1796.33	0.82	118.96	1990.05	1.31	141.81	1465.15	1.38	150.39	1.08
<b>p1</b>	326.55	0.99	106.75	4595.60	0.99	264.65	1787.30	0.81	118.84	1982.92	1.31	142.47	1392.67	1.32	151.47	1.06
<b>p2</b>	330.55	1.00	104.00	4563.60	0.98	287.79	1839.08	0.84	113.02	2102.85	1.38	135.59	1594.53	1.51	140.10	1.11
<b>TILE_36</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.38	0.99	71.50	4636.62	1.00	198.60	2994.30	1.36	119.47	2086.25	1.37	132.59	1551.42	1.47	139.38	1.22
<b>p1</b>	328.25	0.99	79.00	4654.52	1.00	199.65	3066.68	1.39	114.50	2146.20	1.41	126.87	1519.65	1.44	134.20	1.23
<b>p2</b>	325.68	0.99	84.00	4616.38	0.99	229.32	2860.03	1.30	130.66	2031.22	1.34	146.73	1506.85	1.42	156.28	1.19
<b>TILE_37</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.60	0.99	94.00	4647.75	1.00	204.77	2820.72	1.28	132.80	1938.35	1.28	149.14	1382.62	1.31	155.33	1.16
<b>p1</b>	324.15	0.98	99.80	4623.40	1.00	218.90	2840.93	1.29	131.99	1995.22	1.31	150.78	1423.05	1.34	158.61	1.17
<b>p2</b>	323.77	0.98	107.38	4603.12	0.99	232.55	2897.65	1.32	127.22	2058.68	1.36	144.05	1533.67	1.45	152.38	1.20
<b>TILE_38</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	324.82	0.98	74.25	4652.65	1.00	193.08	3334.32	1.52	99.18	2371.55	1.56	113.05	1682.90	1.59	121.11	1.30
<b>p1</b>	327.75	0.99	83.40	4622.95	1.00	220.39	3334.45	1.52	98.23	2425.43	1.60	108.20	1733.17	1.64	115.28	1.31
<b>p2</b>	319.30	0.97	86.00	4603.10	0.99	237.56	2835.03	1.29	132.37	2001.42	1.32	143.53	1467.95	1.39	152.36	1.18
<b>TILE_39</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	327.43	0.99	83.25	4637.43	1.00	211.88	3052.78	1.39	116.02	2130.53	1.40	128.13	1504.85	1.42	135.44	1.22
<b>p1</b>	326.52	0.99	84.00	4654.82	1.00	200.96	3155.10	1.43	108.98	2274.12	1.50	121.75	1682.83	1.59	130.33	1.28
<b>p2</b>	324.07	0.98	80.75	4631.02	1.00	229.78	3052.38	1.39	115.95	2121.05	1.40	129.47	1476.80	1.40	139.92	1.22
<b>TILE_40</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	330.95	1.00	92.00	4610.60	0.99	244.31	2873.75	1.31	127.24	2185.18	1.44	129.63	1549.95	1.46	137.70	1.22
<b>p1</b>	323.38	0.98	94.00	4613.93	0.99	237.78	2799.95	1.27	133.32	2091.88	1.38	132.19	1538.78	1.45	140.40	1.20
<b>p2</b>	324.65	0.98	94.00	4638.40	1.00	214.36	2609.60	1.19	149.04	1966.25	1.29	145.67	1413.85	1.34	149.71	1.15
<b>TILE_41</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	324.10	0.98	66.20	4651.95	1.00	190.63	2712.35	1.23	141.30	1992.35	1.31	151.56	1505.42	1.42	157.23	1.18
<b>p1</b>	327.18	0.99	74.00	4661.38	1.00	185.83	2858.55	1.30	129.29	1960.62	1.29	146.01	1418.42	1.34	147.95	1.17

<b>p2</b>	326.57	0.99	80.50	4625.95	1.00	190.67	2908.45	1.32	124.70	2092.72	1.38	139.24	1527.75	1.44	141.42	1.21
<b>TILE_42</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.10	0.98	94.00	4558.90	0.98	289.70	2800.72	1.27	132.41	1965.47	1.29	145.17	1441.53	1.36	154.33	1.17
<b>p1</b>	328.82	1.00	97.50	4574.38	0.99	282.63	2847.18	1.29	127.49	2028.38	1.34	137.07	1408.12	1.33	148.23	1.18
<b>p2</b>	326.18	0.99	104.00	4537.65	0.98	333.58	2663.18	1.21	141.61	1957.35	1.29	153.05	1470.20	1.39	158.49	1.16
<b>TILE_43</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.95	0.99	129.75	4531.25	0.98	334.63	2602.03	1.18	146.42	1964.60	1.29	144.01	1402.05	1.33	148.99	1.14
<b>p1</b>	323.62	0.98	134.00	4486.02	0.97	382.50	2601.05	1.18	147.43	2079.15	1.37	139.17	1501.65	1.42	144.04	1.17
<b>p2</b>	322.38	0.98	134.00	4555.20	0.98	302.22	2557.25	1.16	150.63	1974.22	1.30	142.66	1479.90	1.40	146.93	1.15
<b>TILE_44</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	324.65	0.98	90.83	4627.68	1.00	222.75	2800.53	1.27	133.16	1980.08	1.30	143.82	1309.60	1.24	167.45	1.15
<b>p1</b>	323.30	0.98	101.00	4617.05	0.99	230.80	2675.60	1.22	145.04	1922.42	1.27	159.60	1270.60	1.20	187.72	1.12
<b>p2</b>	327.15	0.99	104.00	4594.75	0.99	248.81	2879.22	1.31	126.85	2010.10	1.32	140.48	1384.67	1.31	164.78	1.17
<b>TILE_45</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.93	1.00	112.97	4562.75	0.98	287.24	2493.03	1.13	161.14	1763.40	1.16	171.74	1215.67	1.15	186.06	1.08
<b>p1</b>	327.98	0.99	104.00	4587.30	0.99	274.10	2625.22	1.19	147.08	1849.72	1.22	159.43	1349.12	1.28	170.33	1.13
<b>p2</b>	323.57	0.98	104.00	4563.85	0.98	275.73	2598.65	1.18	148.78	1823.72	1.20	162.74	1294.78	1.22	170.61	1.11
<b>TILE_46</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	320.65	0.97	116.50	4646.55	1.00	197.50	3279.05	1.49	100.70	2451.10	1.61	106.51	1733.38	1.64	114.82	1.31
<b>p1</b>	326.15	0.99	103.50	4633.57	1.00	224.87	3304.10	1.50	98.27	2371.82	1.56	105.09	1740.28	1.64	113.30	1.31
<b>p2</b>	325.48	0.99	97.00	4602.50	0.99	221.24	3122.35	1.42	110.50	2223.32	1.46	118.76	1510.22	1.43	133.86	1.24
<b>TILE_47</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.15	1.00	117.25	4591.60	0.99	248.53	2784.95	1.27	110.30	2188.10	1.44	126.62	1651.30	1.56	131.56	1.23
<b>p1</b>	324.07	0.98	114.00	4585.35	0.99	280.73	2828.60	1.29	106.39	2126.50	1.40	126.28	1507.75	1.43	132.77	1.20
<b>p2</b>	328.10	0.99	114.00	4590.95	0.99	274.89	2821.03	1.28	106.91	2228.35	1.47	123.02	1619.85	1.53	126.62	1.23
<b>TILE_48</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	323.80	0.98	94.00	4621.40	1.00	201.24	3095.88	1.41	111.35	2242.55	1.48	122.91	1693.20	1.60	127.60	1.27
<b>p1</b>	327.20	0.99	94.50	4629.73	1.00	214.42	2978.88	1.35	120.98	2089.30	1.38	133.50	1465.50	1.39	142.61	1.21
<b>p2</b>	323.98	0.98	104.00	4627.07	1.00	220.06	2670.85	1.21	146.86	1904.17	1.25	162.45	1349.55	1.28	172.80	1.14
<b>TILE_49</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	328.12	0.99	63.67	4638.40	1.00	204.12	3094.35	1.41	113.95	2144.97	1.41	128.07	1599.80	1.51	133.87	1.24
<b>p1</b>	327.07	0.99	67.50	4607.38	0.99	261.37	2734.20	1.24	140.55	1871.67	1.23	158.41	1307.42	1.24	168.56	1.13
<b>p2</b>	326.62	0.99	73.95	4627.95	1.00	227.45	2857.55	1.30	130.69	2039.62	1.34	145.90	1508.17	1.43	155.38	1.20
<b>TILE_50</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.57	0.99	100.00	4605.85	0.99	241.28	3259.03	1.48	101.53	2281.60	1.50	113.02	1654.80	1.56	114.80	1.28
<b>p1</b>	324.12	0.98	102.55	4615.25	0.99	223.82	3096.90	1.41	110.22	2344.20	1.54	113.74	1677.08	1.59	120.28	1.27

<b>p2</b>	333.50	1.01	94.00	4615.07	0.99	227.47	3096.47	1.41	111.78	2203.07	1.45	120.92	1658.58	1.57	124.38	1.26
<b>TILE_51</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	329.55	1.00	84.50	4602.77	0.99	229.74	2973.07	1.35	120.01	2079.72	1.37	132.45	1469.45	1.39	139.99	1.21
<b>p1</b>	323.48	0.98	90.25	4626.18	1.00	230.49	2937.10	1.34	122.71	2118.47	1.40	135.22	1587.88	1.50	141.81	1.22
<b>p2</b>	327.10	0.99	84.00	4603.85	0.99	240.42	2862.22	1.30	129.07	1982.30	1.31	143.68	1381.92	1.31	153.94	1.17
<b>TILE_52</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	328.12	0.99	63.98	4643.43	1.00	194.91	2796.85	1.27	135.43	2004.00	1.32	150.05	1413.62	1.34	160.80	1.17
<b>p1</b>	324.02	0.98	64.00	4631.45	1.00	210.95	2930.68	1.33	124.94	2078.80	1.37	140.99	1536.50	1.45	151.08	1.21
<b>p2</b>	324.73	0.98	64.00	4635.38	1.00	211.49	2749.32	1.25	139.62	1868.47	1.23	158.13	1304.88	1.23	168.55	1.13
<b>TILE_53</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.45	0.99	89.50	4633.93	1.00	228.97	2805.93	1.28	131.37	2285.82	1.51	126.12	1668.30	1.58	131.46	1.24
<b>p1</b>	326.32	0.99	100.00	4612.95	0.99	215.00	2664.68	1.21	142.52	1974.05	1.30	136.56	1541.12	1.46	140.10	1.18
<b>p2</b>	329.35	1.00	104.00	4604.23	0.99	243.06	2666.62	1.21	142.32	2142.65	1.41	133.11	1478.08	1.40	139.38	1.19
<b>TILE_54</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.50	0.99	124.72	4620.70	1.00	228.95	3258.45	1.48	99.64	2314.90	1.52	109.38	1724.17	1.63	114.93	1.29
<b>p1</b>	328.15	0.99	113.60	4579.02	0.99	251.76	3075.55	1.40	112.00	2125.78	1.40	125.94	1490.58	1.41	134.33	1.22
<b>p2</b>	323.70	0.98	113.20	4573.75	0.99	270.34	2973.18	1.35	117.09	2180.10	1.44	127.67	1640.08	1.55	132.69	1.24
<b>TILE_55</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.45	0.99	106.50	4595.80	0.99	241.62	2766.70	1.26	137.18	1807.03	1.19	157.38	1326.47	1.25	164.61	1.13
<b>p1</b>	328.82	1.00	104.00	4616.38	0.99	252.28	2839.75	1.29	128.89	2069.30	1.36	139.90	1460.00	1.38	149.88	1.19
<b>p2</b>	326.88	0.99	104.00	4595.88	0.99	248.18	2635.32	1.20	146.83	1817.88	1.20	162.95	1320.33	1.25	174.52	1.12
<b>TILE_56</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	325.30	0.99	108.50	4632.65	1.00	224.91	3034.43	1.38	119.00	2104.22	1.39	133.02	1465.47	1.39	142.57	1.21
<b>p1</b>	327.18	0.99	96.00	4619.45	1.00	234.09	2762.07	1.26	138.11	2009.33	1.32	149.60	1431.72	1.35	159.04	1.17
<b>p2</b>	332.45	1.01	96.00	4611.45	0.99	229.84	2711.25	1.23	141.32	1904.30	1.25	153.78	1407.80	1.33	161.16	1.16
<b>TILE_57</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	327.07	0.99	351.32	4559.80	0.98	278.18	2929.47	1.33	123.34	2019.60	1.33	139.09	1397.92	1.32	151.23	1.18
<b>p1</b>	323.20	0.98	229.20	4561.35	0.98	280.54	2841.12	1.29	129.05	2081.22	1.37	139.58	1445.95	1.37	150.43	1.18
<b>p2</b>	323.02	0.98	186.38	4580.88	0.99	301.21	2694.25	1.23	138.88	1852.10	1.22	149.46	1351.78	1.28	157.80	1.13
<b>TILE_58</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	327.80	0.99	97.75	4642.77	1.00	208.22	2603.75	1.18	150.69	1883.50	1.24	155.84	1339.60	1.27	162.13	1.13
<b>p1</b>	328.88	1.00	92.75	4597.23	0.99	249.69	2568.47	1.17	155.12	1900.55	1.25	161.88	1420.85	1.34	169.28	1.14
<b>p2</b>	332.85	1.01	101.75	4573.68	0.99	266.84	2606.10	1.19	150.30	1865.47	1.23	154.54	1262.00	1.19	172.80	1.12
<b>TILE_59</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	326.40	0.99	244.35	4518.32	0.97	330.05	2762.38	1.26	134.87	2014.80	1.33	142.67	1517.53	1.43	151.74	1.18
<b>p1</b>	322.85	0.98	185.18	4501.48	0.97	356.29	2691.28	1.22	139.53	1950.55	1.28	146.63	1352.15	1.28	158.20	1.14

<b>p2</b>	327.82	0.99	160.00	4542.15	0.98	296.93	2647.75	1.20	146.52	1910.70	1.26	160.10	1343.45	1.27	171.59	1.13
<b>TILE_60</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	324.85	0.98	235.82	4625.60	1.00	240.02	2785.25	1.27	135.42	1995.72	1.31	149.82	1501.00	1.42	156.19	1.18
<b>p1</b>	327.15	0.99	181.50	4586.25	0.99	248.46	2876.72	1.31	127.34	2019.00	1.33	139.45	1406.65	1.33	149.35	1.18
<b>p2</b>	328.40	0.99	166.75	4629.18	1.00	224.23	2861.60	1.30	129.62	2087.07	1.37	140.71	1462.05	1.38	153.14	1.20
<b>TILE_61</b>	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
<b>p0</b>	322.27	0.98	100.50	4635.15	1.00	213.50	2655.12	1.21	145.70	1959.45	1.29	147.28	1487.72	1.41	149.12	1.16
<b>p1</b>	328.27	0.99	94.00	4637.62	1.00	213.26	2826.57	1.29	129.32	2203.75	1.45	120.11	1577.30	1.49	121.03	1.23
<b>p2</b>	322.38	0.98	94.00	4608.75	0.99	234.90	2704.60	1.23	141.00	2191.22	1.44	136.17	1610.85	1.52	139.42	1.21
<b>p0_score:</b>	73.76															
<b>p1_score:</b>	73.14															
<b>p2_score:</b>	71.83															

<b>Infrastructure_Operations_Scores:</b>	vmotion	svmotion	deploy
<b>Completed_Ops_PerHour</b>	104.00	80.00	28.00
<b>Avg_Seconds_To_Complete</b>	44.81	35.26	501.45
<b>Failures</b>	0.00	0.00	0.00
<b>Ratio</b>	6.50	8.89	7.00
<b>Number_Of_Threads</b>	8	8	8

<b>Summary</b>	Run_Is_Compliant	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
<b>Unreviewed_VMmark2_Applications_Score</b>	73.14		
<b>Unreviewed_VMmark2_Infrastructure_Score</b>	7.40		
<b>Unreviewed_VMmark2_Score</b>	59.99		

## Configuration

<b>Virtualization Software</b>	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESX 4.1.0 U2 Build-502767/ 10-27-2011
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 5.0.0 Build 455964 / 10-27-2011
Supplemental Software	none

## Servers



Quantity	16
Server Manufacturer and Model	HP ProLiant BL465c Gen8
Processor Vendor and Model	AMD Opteron 6278
Processor Speed (GHz)	2.4
Total Sockets/Total Cores/Total Threads	2 Sockets / 32 Cores / 32 Threads
Primary Cache	512 KB I + 256 KB D on chip per chip, 64 KB I shared / 2 cores, 16 KB D per core
Secondary Cache	16 MB I+D on chip per chip, 2 MB shared / 2 cores
Other Cache	16 MB I+D on chip per chip, 8 MB shared / 8 cores
BIOS Version	A26 08/07/2012
Memory Size (in GB, Number of DIMMs)	256 GB, 16 x 16 GB DIMMs
Memory Type and Speed	dual rank PC3-12800 Registered DDR3/1600 MHz
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	HP Smart Array P220i
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	QLogic QMH2572 8Gb FC HBA for HP BladeSystem c-Class
Number of Network Controllers	2
Network Controller Vendors and Models	HP FlexFabric 10Gb 2-port 554FLB Adapter (Port 1 was split into 3 NICs via Virtual Connect Manager), HP Flex-10 10Gb 2-port 530M Adapter
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	08-07-2012
Software Availability Date (MM-DD-YYYY)	10-27-2011
<b>Network</b>	
Network Switch Vendors and Models	2xH3C S5820X-28S,4xHP Virtual Connect FlexFabric10Gb/24-Port Module
Network Speed	First port on 554FLB NIC split into 3 NICs via Virtual Connect Manager: 2 at 1 Gb/s and 1 at 8 Gb/s; Second port on 554FLB and both NIC ports of 530M each running at 10 Gb/s.
<b>Storage</b>	
Array Vendors, Models, and Firmware Versions	4 x VS-SmartArray Storage Servers by id7 Limited,system bios:P70 05/30/2012, HP SmartArray P420i and P420 firmware:3.02
Fibre Channel Switch Vendors and Models	2 x Brocade 8Gb SAN Switch for BladeSystem c-Class
Disk Space Used	27.200 TB

Array Cache Size	2GB
Total Number of Physical Disks Used	80
Total Number of Enclosures/Pods/Shelves Used	4
Number of Physical Disks Used per Enclosure/Pod/Shelf	Internal: 1 disk per host 4 enclosures: 16 disks
Total Number of Storage Groups Used	0
Number of LUNs Used	32
LUN Size and Number of Disks Per LUN	32 LUNs: 1.60 TB on 8 disks
RAID Type	RAID 0
Number of Members per RAID Set	8
Disk Vendors, Models, and Speeds	16 HP 100GB 3G SATA MLC SFF SSD (P/N 653112-B21) 64 HP 400GB 6G SAS SFF SSD (P/N 653082-B21)

**Datacenter Management Server**

System Model	HP ProLiant BL465c G7
Processor Vendor and Model	AMD Opteron 6134
Processor Speed (GHz)	2.30
Total Sockets/Total Cores/Total Threads	2 Sockets / 16 Cores / 16 Threads
Memory	16 GB
Network Controller(s) Vendors and Models	Integrated NC551i Dual Port FlexFabric 10 Gb Converged Network Adapter
Operating System, Version, and Service Pack	Microsoft® Windows® 2008 R2 Enterprise (64-bit)
Other Hardware	none
Other Software	none

**Clients**

Number of Clients	13 physical servers: 1 physical server running non-virtualized prime client 12 physical servers hosting 62 virtual clients
System Model(s)	HP ProLiant BL465c G7
Processor Vendor(s) and Model(s)	AMD Opteron 6174
Processor Speed(s) (GHz)	2.20
Total Sockets/Total Cores/Total Threads	2 Sockets / 24 Cores / 24 Threads
Memory per Client	64 GB

Network Controller(s) Vendors and Models	Prime Client: HP NC551i embedded dual port FlexFabric 10Gb adapters, 1 x HP NC542m dual port Flex-10 10GbE adapter Physical Clients 1-12: HP NC551i embedded dual port FlexFabric 10Gb adapters, 1 x HP NC542m dual port Flex-10 10GbE adapter,HP NC552m 2port Flex-10 10GbE BL-c Adapter
Operating System, Version, and Service Pack	Prime Client: Microsoft® Windows® 2003 Enterprise SP2 (32-bit) Physical Clients 1-12: VMware ESXi 4.1 U1 (Build 348481) Virtual Clients 0-62: Microsoft® Windows® 2008 R2 Enterprise (64-bit)
Other Hardware	none
Other Software	none

## Notes for Workload

### Virtualization Software Notes

- all VMs used virtual hardware V7
- ethernet adapter type set to vmxnet3 for all VMs (default vmxnet2)
- logging was disabled for all VMs (default enabled)
- IDE & floppy devices were removed on all VMs (default enabled)
- firewall was disabled in the console os (default enabled)
- All Mailserver VMs: Paravirtual Controller
- Cluster DRS Automation Level set to Fully Automated
- DrsMigrationThreshold set to level 2
- Logical CPU layout changed for all multi-cpu VM's to 1 socket w/ multiple cores. (default Single core per socket)

#### Advanced Settings:

- Cpu.CoschedCrossCall = 0 (default 1)
- Cpu.HaltingIdleMsecPenalty = 0 (default 800)
- DataMover.HardwareAcceleratedInit = 0 (default 1)
- DataMover.HardwareAcceleratedMove = 0 (default 1)
- Disk.SchedNumReqOutstanding = 256 (default 32)
- Irq.RoutingPolicy = 0 (default 2)
- Mem.BalancePeriod = 0 (default 15)
- Mem.SamplePeriod = 0 (default 60)
- Mem.ShareScanGHz = 0 (default 4)
- Misc.TimerMaxHardPeriod = 4000 (default 100000)
- Misc.TimerMinHardPeriod = 2000 (default 100)
- Net.MaxNetifRxQueueLen = 500 (default 100)
- Net.MaxNetifTxQueueLen = 1000 (default 500)
- Net.NefTxCompletionWorldlet = 0 (default 1)
- Net.NetTxWordlet = 0 (default 2)
- Numa.LTermFairnessInterval = 0 (default 5)
- Numa.PageMigEnable = 0 (default 1)
- Numa.MonMigEnable = 0 (default 1)
- Numa.SwapLoadEnable = 0 (default 1)
- Numa.SwapLocalityEnable = 0 (default 1)
- VMFS3.HardwareAcceleratedLocking = 0 (default 1)

#### Driver Options:

- Updated Drivers:

- be2net 4.1.334.0
- bnx2x 1.70.34.v41.1
- scsi-hpsa 400.4.1.0-180EM
- /vmkernel/module/qla2xxx.o/options = "ql2xmaxqdepth=256 ql2xintrdelaytimer=1" (default 32, and 0)

## Server Notes

Server BIOS settings:

- HP Power Profile set to Maximum Performance (default: Balanced Performance)
- Thermal Configuration set to Max Cooling (default: Optimal Cooling)
- Hardware Prefetch training on Software Prefetch set to Disabled (default: Enabled)
- CPU Core Hardware Prefetcher set to Disabled (default: Enabled)
- Processor Power and Utilization Monitoring set to Disabled (default: Enabled)
- Memory Pre-Failure Notification set to Disabled (default: Enabled)
- AMD Core Performance Boost Technology set to Enabled (frequency boost to 3.3 GHz @ 1 core) (default: Enabled)

## Networking Notes

HP Virtual Connect Manager can split up each blade's 10Gb/sec port into 4 NICs. This was used on the first port of the 554FLB NIC to split it into 3 different NICs which are vmnic0, vmnic2, and vmnic4 on each blade.

The second port of the 554FLB NIC was configured as a single NIC which is vmnic3.

The 530M ports were each configured with as a single NIC, port 1 which is vmnic8 and port 2 which is vmnic9.

The unconfigured NICs of the 4 that each port can be split into, still show up as NICs that have a link status of "Down".

vSwitch Configuration:

- vSwitch0 for the Service Console on vmnic0 at 1 Gb/s
- vSwitch1 for the DS2DB and DS2Web workloads on vmnic3 at 10 Gb/s
- vSwitch2 for the OlioDB and OlioWeb workloads on vmnic8 at 10 Gb/s
- vSwitch3 for the vMotion network on vmnic9 at 10 Gb/s
  - MTU set to 9000
- vSwitch4 for the mailserver workloads on vmnic2 at 8 Gb/s
- vSwitch5 for the standby and deploy workloads on vmnic4 at 1 Gb/s

## Storage Notes

- ESX was installed on one disk as RAID0 in the internal server storage bay
- All four "VS SmartArray Storage Server" by id7 Limited uses LUNs configured as block devices; as such no system memory is used for write caching.
- All four "VS SmartArray Storage Server" by id7 Limited hardware configuration details as below:
  - HP ProLiant DL380p Gen8 server
    - 2 x Intel Xeon E5-2690 2.9 GHz processors
    - 128 GB memory (16 x 8 GB dual rank PC3-12800 Registered DDR3 / 1600 MHz DIMMS)
    - HP 380/385 Gen8 8-SFF Cage/Bkpln Kit
    - 2xHP 82Q PCIe dual port 8Gb Fibre HBA
    - 1 x 32 GB SDHC memory card
      - used for OS and id7 VS-SmartArray
    - HP Smart Array P420i controller with 2 GB FBWC
      - Array A - 8 x HP 400GB SAS SSD SFF disks
        - Logical disk 1
          - 745 GB, RAID 0
          - exported as fibre target LUN

- Logical disk 2
      - 745 GB, Raid 0
      - exported as fibre target LUN
    - Logical disk 3
      - 745 GB, RAID 0
      - exported as fibre target LUN
    - Logical disk 4
      - 745 GB, RAID 0
      - exported as fibre target LUN
  - HP Smart Array P420 controller with 2 GB FBWC
    - Array A - 8 x HP 400GB SAS SSD SFF disks
      - Logical disk 1
        - 745 GB, RAID 0
        - exported as fibre target LUN
      - Logical disk 2
        - 745 GB, RAID 0
        - exported as fibre target LUN
      - Logical disk 3
        - 745 GB, RAID 0
        - exported as fibre target LUN
      - Logical disk 4
        - 745 GB, RAID 0
        - exported as fibre target LUN
- VM Layout on the id7 VS-SmartArray's as below:
  - id7 VS-SmartArray #1
    - P420i:Logical Drive 1
      - All VMs except standby for tiles 0 and 32
      - standby VMs for tiles 0,8,16,24,32,40,48, and 56
    - P420i:Logical Drive 2
      - All VMs except standby for tiles 1 and 33
      - standby VMs for tiles 1,9,17,25,33,41,49, and 57
    - P420i:Logical Drive 3
      - All VMs except standby for tiles 2 and 34
      - standby VMs for tiles 2,10,18,26,34,42,50, and 58
    - P420i:Logical Drive 4
      - All VMs except standby for tiles 3 and 35
      - standby VMs for tiles 3,11,19,27,35,43,51, and 59
    - P420:Logical Drive 1
      - All VMs except standby for tiles 4 and 36
      - standby VMs for tiles 4,12,20,28,36,44,52, and 60
    - P420:Logical Drive 2
      - All VMs except standby for tiles 5 and 37
      - standby VMs for tiles 5,13,21,29,37,45,53, and 61
    - P420:Logical Drive 3
      - All VMs except standby for tiles 6 and 38
      - standby VMs for tiles 6,14,22,30,38,46, and 54
    - P420:Logical Drive 4
      - All VMs except standby for tiles 7 and 39
      - standby VMs for tiles 7,15,23,31,39,47, and 55
  - id7 VS-SmartArray #2

- P420i:Logical Drive 1
  - All VMs except standby for tiles 8 and 40
  - DeployTemplate1
- P420i:Logical Drive 2
  - All VMs except standby for tiles 9 and 41
  - DeployTemplate2
- P420i:Logical Drive 3
  - All VMs except standby for tiles 10 and 42
  - DeployTemplate3
- P420i:Logical Drive 4
  - All VMs except standby for tiles 11 and 43
  - DeployTemplate4
- P420:Logical Drive 1
  - All VMs except standby for tiles 12 and 44
  - DeployTemplate5
- P420:Logical Drive 2
  - All VMs except standby for tiles 13 and 45
  - DeployTemplate6
- P420:Logical Drive 3
  - All VMs except standby for tiles 14 and 46
  - DeployTemplate7
- P420:Logical Drive 4
  - All VMs except standby for tiles 15 and 47
  - DeployTemplate8
- id7 VS-SmartArray #3
  - P420i:Logical Drive 1
    - All VMs except standby for tiles 16 and 48
    - First SVMotion Target
  - P420i:Logical Drive 2
    - All VMs except standby for tiles 17 and 49
    - Second SVMotion Target
  - P420i:Logical Drive 3
    - All VMs except standby for tiles 18 and 50
    - Third SVMotion Target
  - P420i:Logical Drive 4
    - All VMs except standby for tiles 19 and 51
    - Fourth SVMotion Target
  - P420:Logical Drive 1
    - All VMs except standby for tiles 20 and 52
    - Fifth SVMotion Target
  - P420:Logical Drive 2
    - All VMs except standby for tiles 21 and 53
    - Sixth SVMotion Target
  - P420:Logical Drive 3
    - All VMs except standby for tiles 22 and 54
    - Seventh SVMotion Target
  - P420:Logical Drive 4
    - All VMs except standby for tiles 23 and 55
    - Eighth SVMotion Target
- id7 VS-SmartArray #4
  - P420i:Logical Drive 1

- All VMs except standby for tiles 24 and 56
  - First Deploy Target
- P420i:Logical Drive 2
  - All VMs except standby for tiles 25 and 57
  - Second Deploy Target
- P420i:Logical Drive 3
  - All VMs except standby for tiles 26 and 58
  - Third Deploy Target
- P420i:Logical Drive 4
  - All VMs except standby for tiles 27 and 59
  - Fourth Deploy Target
- P420:Logical Drive 1
  - All VMs except standby for tiles 28 and 60
  - Fifth Deploy Target
- P420:Logical Drive 2
  - All VMs except standby for tiles 29 and 61
  - Sixth Deploy Target
- P420:Logical Drive 3
  - All VMs except standby for tile 30
  - Seventh Deploy Target
- P420:Logical Drive 4
  - All VMs except standby for tile 31
  - Eighth Deploy Target

## **Datacenter Management Server Notes**

None

## **Operating System Notes**

- All mailserver VMs running Microsoft® Windows® 2008 R2 Enterprise SP 1 (64-bit) and were updated with all critical updates via windows update on July 20, 2012
- The Shell Hardware Detection service was not running on mailserver VMs 0-61
- All standby VMs running Microsoft® Windows® 2003 Enterprise SP2 (32-bit)

## **Software Notes**

- Microsoft® Exchange Server 2007 Enterprise SP3 (64-bit) was installed on each mailserver VM

## **Client Notes**

- Prime client functionality was split from the client0 driver and was run on a non-virtualized copy of Microsoft® Windows® 2003 Enterprise SP2 (32-bit).
- Prime client was running VMware vSphere PowerCLI 4.1 U1 build 332441
- All client drivers were run on virtual machines that were each defined with 4 virtual cpus, 4GB of memory, 1 vmxnet3 network, and 32GB of disk space.
- Twelve HP ProLiant BL465c G7 clients ran the 62 client virtual machines as follows:
  - system 1: hosted vclients: 0,12,24,36,48,60
  - system 2: hosted vclients: 1,13,25,37,49,61
  - system 3: hosted vclients: 2,14,26,38,50
  - system 4: hosted vclients: 3,15,27,39,51
  - system 5: hosted vclients: 4,16,28,40,52
  - system 6: hosted vclients: 5,17,29,41,53

- system 7: hosted vclients: 6,18,30,42,54
- system 8: hosted vclients: 7,19,31,43,55
- system 9: hosted vclients: 8,20,32,44,56
- system 10: hosted vclients: 9,21,33,45,57
- system 11: hosted vclients: 10,22,34,46,58
- system 12: hosted vclients: 11,23,35,47,59
- All client operating systems were updated via Windows Update.

## Other Notes

The following parameter was altered from its default value in VMMARK2.CONFIG

TILEDELAY=50 (default 60)

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