

VMmark® 3.1.1 Results

Server Vendor & Model: HPE ProLiant DL380 Gen11
Storage Vendor & Model: VMware vSAN 8.0 Update 2 - All Flash
Hypervisor: VMware ESXi 8.0 Update 2, Build 22380479
Datacenter Management Software: VMware vCenter Server 8.0 Update 2a Build 22617221

**VMmark 3.1.1 Score =
50.64 @ 55 Tiles**

Number of Hosts: 4	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 8/512/1024
Tested By: Hewlett Packard Enterprise		Test Date: 01-08-2024
Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload

Performance

	weathervane			weathervaneE			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3575.39	0.99	0.87 0.00	566.22	0.99	0.52 0.34	873.65	1.19	924.14	610.85	1.22	1073.44	419.48	1.21	1209.05	1.12
p1	3558.19	0.99	0.87 0.00	562.38	0.98	0.44 0.11	889.62	1.21	880.08	645.15	1.29	1010.94	458.32	1.32	1112.08	1.15
p2	3545.20	0.99	0.87 0.00	562.77	0.98	0.59 0.23	899.73	1.23	859.22	624.08	1.25	1015.38	456.85	1.32	1125.79	1.14
TILE_1	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3571.69	0.99	0.76 0.00	566.68	0.99	0.71 0.29	905.30	1.23	863.80	629.45	1.26	1021.82	439.75	1.27	1126.70	1.14
p1	3553.27	0.99	0.88 0.00	566.50	0.99	0.58 0.26	887.30	1.21	903.40	645.33	1.29	1031.78	460.07	1.33	1132.25	1.15
p2	3537.30	0.98	0.92 0.00	564.83	0.99	0.49 0.15	894.20	1.22	894.76	618.38	1.24	1060.25	450.75	1.30	1170.70	1.14
TILE_2	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3572.29	0.99	1.22 0.00	568.85	0.99	0.92 0.45	818.92	1.12	1108.82	563.23	1.13	1298.51	366.10	1.06	1483.35	1.06
p1	3551.87	0.99	1.11 0.00	560.09	0.98	0.48 0.22	817.58	1.11	1114.63	589.20	1.18	1272.91	426.82	1.23	1431.57	1.09
p2	3550.68	0.99	1.35 0.00	558.02	0.98	0.65 0.26	819.45	1.12	1110.58	565.20	1.13	1294.00	384.50	1.11	1472.98	1.06
TILE_3	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3579.82	0.99	0.78 0.00	572.44	1.00	0.80 0.47	898.17	1.22	858.62	609.10	1.22	997.12	423.40	1.22	1100.91	1.13
p1	3560.01	0.99	0.79 0.00	568.43	0.99	0.64 0.28	876.60	1.19	932.08	658.73	1.32	1048.34	469.25	1.35	1180.22	1.16
p2	3539.25	0.98	0.87 0.00	568.17	0.99	0.64 0.35	868.10	1.18	961.21	580.38	1.16	1124.33	415.98	1.20	1265.73	1.10
TILE_4	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3576.88	0.99	0.90 0.00	568.12	0.99	0.93 0.57	877.65	1.20	931.31	607.92	1.21	1098.06	419.85	1.21	1240.44	1.12
p1	3564.91	0.99	0.84 0.00	567.22	0.99	0.73 0.34	871.92	1.19	951.48	625.95	1.25	1105.33	459.75	1.33	1231.05	1.14
p2	3547.87	0.99	0.88 0.00	567.62	0.99	0.82 0.47	905.90	1.23	859.88	630.45	1.26	996.86	435.77	1.26	1133.17	1.14
TILE_5	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3563.35	0.99	0.83 0.00	568.28	0.99	0.67 0.39	956.70	1.30	716.50	678.48	1.36	832.55	470.38	1.36	937.31	1.19

p1	3554.30	0.99	0.80 0.00	563.35	0.98	0.49 0.19	944.00	1.29	749.66	690.98	1.38	861.12	514.65	1.48	947.16	1.21
p2	3533.87	0.98	0.84 0.00	562.37	0.98	0.42 0.19	935.20	1.27	777.71	652.85	1.30	910.84	453.45	1.31	1029.96	1.16
TILE_6	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3557.36	0.99	1.28 0.00	566.86	0.99	0.56 0.22	848.00	1.15	995.88	591.83	1.18	1141.52	413.30	1.19	1255.35	1.10
p1	3539.89	0.98	1.38 0.01	564.36	0.99	0.47 0.20	850.05	1.16	985.14	615.50	1.23	1124.33	453.25	1.31	1240.30	1.13
p2	3519.11	0.98	1.48 0.00	563.52	0.98	0.46 0.18	849.00	1.16	997.43	592.98	1.18	1139.23	409.25	1.18	1277.98	1.09
TILE_7	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3572.08	0.99	0.86 0.00	565.75	0.99	0.61 0.34	904.30	1.23	864.78	630.65	1.26	1013.87	432.57	1.25	1152.76	1.14
p1	3556.41	0.99	0.86 0.00	563.37	0.98	0.46 0.18	892.05	1.21	897.15	645.48	1.29	1024.27	471.25	1.36	1163.23	1.16
p2	3544.28	0.99	0.95 0.00	559.18	0.98	0.50 0.17	898.40	1.22	880.65	623.25	1.25	1027.66	425.23	1.23	1182.99	1.12
TILE_8	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3559.62	0.99	1.01 0.00	568.30	0.99	0.76 0.50	879.23	1.20	913.10	613.95	1.23	1055.45	423.12	1.22	1208.27	1.12
p1	3550.83	0.99	0.92 0.00	560.28	0.98	0.55 0.22	881.92	1.20	909.38	636.62	1.27	1056.57	463.35	1.34	1183.02	1.15
p2	3530.97	0.98	0.94 0.00	559.39	0.98	0.49 0.12	916.50	1.25	823.02	642.70	1.28	951.03	418.98	1.21	1111.33	1.13
TILE_9	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3577.90	0.99	0.70 0.00	569.21	0.99	0.75 0.35	854.70	1.16	1034.15	592.40	1.18	1205.87	398.60	1.15	1401.37	1.09
p1	3565.47	0.99	0.78 0.00	571.40	1.00	0.73 0.40	843.35	1.15	1062.43	605.20	1.21	1222.11	415.77	1.20	1395.14	1.11
p2	3551.62	0.99	0.78 0.00	570.24	1.00	0.71 0.44	853.92	1.16	1041.29	563.90	1.13	1220.28	396.48	1.14	1413.72	1.08
TILE_10	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3572.69	0.99	1.19 0.00	569.56	1.00	0.66 0.27	856.38	1.17	956.91	609.92	1.22	1062.93	440.40	1.27	1190.96	1.12
p1	3556.72	0.99	1.29 0.00	563.07	0.98	0.55 0.14	870.75	1.19	931.65	609.20	1.22	1057.11	440.18	1.27	1204.17	1.12
p2	3537.50	0.98	1.38 0.00	561.88	0.98	0.58 0.27	850.30	1.16	971.92	605.25	1.21	1094.87	413.23	1.19	1252.77	1.10
TILE_11	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3569.17	0.99	0.87 0.00	567.71	0.99	0.78 0.41	916.55	1.25	849.15	665.23	1.33	969.10	454.95	1.31	1137.57	1.16
p1	3551.52	0.99	0.84 0.00	560.61	0.98	0.44 0.14	923.00	1.26	815.09	650.35	1.30	940.01	460.07	1.33	1095.51	1.16
p2	3536.47	0.98	0.92 0.00	556.60	0.97	0.44 0.12	913.25	1.24	843.21	647.77	1.29	960.99	435.27	1.26	1132.02	1.14
TILE_12	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3569.15	0.99	0.97 0.00	568.59	0.99	0.86 0.41	902.45	1.23	865.84	654.85	1.31	999.81	452.70	1.31	1150.14	1.16
p1	3555.18	0.99	0.91 0.00	568.22	0.99	0.71 0.40	923.77	1.26	802.17	640.40	1.28	961.92	464.40	1.34	1074.43	1.16
p2	3540.32	0.98	0.94 0.01	565.73	0.99	0.92 0.38	928.15	1.26	803.58	645.20	1.29	945.59	444.15	1.28	1067.02	1.15
TILE_13	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3567.59	0.99	0.67 0.00	570.44	1.00	0.54 0.16	875.73	1.19	945.20	633.80	1.27	1087.42	446.38	1.29	1203.01	1.14
p1	3551.06	0.99	0.73 0.00	567.32	0.99	0.55 0.21	879.35	1.20	941.11	604.98	1.21	1112.96	444.02	1.28	1216.00	1.13
p2	3533.30	0.98	0.75 0.00	564.43	0.99	0.46 0.14	877.50	1.19	944.54	606.98	1.21	1114.17	421.75	1.22	1230.69	1.11
TILE_14	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3574.04	0.99	0.88 0.00	563.86	0.99	0.66 0.31	835.98	1.14	1053.72	594.92	1.19	1228.45	411.75	1.19	1389.26	1.09

p1	3556.51	0.99	0.93 0.00	556.38	0.97	0.42 0.14	854.30	1.16	998.52	588.50	1.18	1168.88	418.65	1.21	1334.25	1.10
p2	3540.52	0.98	1.04 0.00	556.38	0.97	0.65 0.33	842.15	1.15	1030.22	582.80	1.16	1199.65	398.02	1.15	1355.14	1.08
TILE_15	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3572.83	0.99	0.99 0.00	564.53	0.99	0.51 0.33	888.70	1.21	915.35	645.00	1.29	1035.10	442.65	1.28	1208.64	1.14
p1	3561.09	0.99	0.99 0.00	563.51	0.98	0.44 0.10	901.98	1.23	878.81	631.02	1.26	1016.84	428.05	1.23	1188.98	1.13
p2	3545.83	0.99	1.07 0.00	560.06	0.98	0.53 0.19	898.25	1.22	882.27	630.52	1.26	1005.49	447.45	1.29	1186.20	1.14
TILE_16	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3582.60	1.00	1.04 0.00	560.92	0.98	0.51 0.26	906.67	1.23	843.77	661.42	1.32	957.34	476.15	1.37	1099.19	1.17
p1	3572.94	0.99	0.95 0.00	561.39	0.98	0.55 0.26	929.33	1.27	785.18	627.60	1.25	929.60	443.48	1.28	1059.20	1.15
p2	3564.39	0.99	1.05 0.00	559.72	0.98	0.47 0.13	924.80	1.26	796.34	674.05	1.35	917.71	465.90	1.34	1064.50	1.17
TILE_17	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3582.25	1.00	0.75 0.00	568.10	0.99	0.57 0.31	883.83	1.20	898.46	648.15	1.29	1015.09	468.45	1.35	1155.43	1.16
p1	3562.98	0.99	0.76 0.00	562.13	0.98	0.34 0.15	895.85	1.22	881.65	625.80	1.25	1027.42	424.98	1.23	1185.51	1.13
p2	3549.21	0.99	0.81 0.00	560.64	0.98	0.43 0.10	877.58	1.20	917.78	641.02	1.28	1046.55	444.50	1.28	1194.16	1.14
TILE_18	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3558.59	0.99	1.50 0.00	565.38	0.99	0.47 0.09	867.00	1.18	950.61	629.12	1.26	1076.38	458.05	1.32	1209.31	1.14
p1	3542.49	0.98	1.39 0.00	561.20	0.98	0.62 0.30	888.45	1.21	886.51	620.73	1.24	1031.82	428.02	1.23	1177.96	1.12
p2	3528.07	0.98	1.60 0.01	557.61	0.97	0.52 0.17	864.35	1.18	953.55	627.33	1.25	1091.52	436.48	1.26	1229.65	1.12
TILE_19	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3575.07	0.99	0.88 0.00	568.48	0.99	0.82 0.43	895.45	1.22	888.89	643.27	1.29	1049.00	468.80	1.35	1165.39	1.16
p1	3554.49	0.99	0.84 0.00	566.02	0.99	0.93 0.50	908.30	1.24	857.52	630.15	1.26	1009.94	432.25	1.25	1150.18	1.14
p2	3549.70	0.99	0.94 0.00	563.76	0.99	0.40 0.12	890.83	1.21	896.09	644.20	1.29	1037.87	450.00	1.30	1156.59	1.15
TILE_20	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3570.93	0.99	1.13 0.00	570.06	1.00	0.90 0.63	904.45	1.23	839.64	658.05	1.31	965.33	484.80	1.40	1068.28	1.17
p1	3564.25	0.99	1.04 0.00	568.81	0.99	0.89 0.53	927.55	1.26	782.40	657.35	1.31	903.10	451.35	1.30	1028.59	1.16
p2	3548.00	0.99	0.96 0.00	560.88	0.98	0.65 0.27	920.98	1.25	790.31	676.83	1.35	902.13	475.60	1.37	1008.49	1.18
TILE_21	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3571.32	0.99	0.77 0.00	570.91	1.00	0.85 0.47	966.20	1.32	695.60	716.55	1.43	788.33	529.50	1.53	877.67	1.23
p1	3560.01	0.99	0.93 0.00	569.95	1.00	0.83 0.44	957.00	1.30	717.47	687.55	1.37	800.12	454.35	1.31	913.98	1.18
p2	3543.07	0.98	0.93 0.00	569.11	0.99	0.66 0.35	930.75	1.27	775.10	690.00	1.38	855.38	507.93	1.46	959.53	1.20
TILE_22	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3569.62	0.99	1.43 0.00	571.03	1.00	1.03 0.59	882.92	1.20	889.26	622.67	1.24	1034.18	472.02	1.36	1139.89	1.15
p1	3559.30	0.99	1.34 0.00	568.03	0.99	0.66 0.32	876.83	1.19	913.80	620.02	1.24	1044.24	401.25	1.16	1209.48	1.11
p2	3538.83	0.98	1.53 0.00	565.57	0.99	0.48 0.13	855.73	1.17	977.12	616.58	1.23	1131.87	453.32	1.31	1250.30	1.13
TILE_23	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3572.53	0.99	1.01 0.00	567.33	0.99	0.64 0.27	908.85	1.24	849.57	630.88	1.26	1008.87	453.62	1.31	1146.64	1.15

p1	3559.34	0.99	0.97 0.00	563.17	0.98	0.47 0.21	911.48	1.24	847.36	638.35	1.28	981.29	435.93	1.26	1130.67	1.14
p2	3535.40	0.98	1.03 0.00	558.64	0.98	0.56 0.23	888.85	1.21	882.16	646.75	1.29	1021.82	473.82	1.37	1144.75	1.15
TILE_24	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3558.38	0.99	1.18 0.00	564.81	0.99	0.47 0.27	914.27	1.25	801.07	648.23	1.30	912.95	474.70	1.37	1015.19	1.17
p1	3546.12	0.99	1.18 0.00	559.47	0.98	0.44 0.13	929.58	1.27	773.29	660.58	1.32	881.36	458.12	1.32	993.06	1.16
p2	3528.01	0.98	1.13 0.00	560.07	0.98	0.63 0.20	923.77	1.26	788.52	675.17	1.35	898.54	502.05	1.45	990.81	1.19
TILE_25	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3564.45	0.99	0.70 0.00	569.00	0.99	0.69 0.28	927.60	1.26	781.32	663.17	1.32	875.77	478.57	1.38	1008.86	1.18
p1	3551.54	0.99	0.73 0.00	563.49	0.98	0.54 0.22	924.65	1.26	780.85	663.38	1.33	871.42	455.55	1.31	1012.88	1.16
p2	3542.71	0.98	0.73 0.00	560.46	0.98	0.46 0.11	920.55	1.25	800.00	679.98	1.36	894.88	495.85	1.43	1017.42	1.19
TILE_26	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3568.20	0.99	2.90 0.09	568.64	0.99	0.71 0.51	875.00	1.19	901.46	626.25	1.25	1000.23	456.30	1.32	1108.36	1.14
p1	3559.87	0.99	2.25 0.05	564.74	0.99	0.48 0.19	859.02	1.17	949.38	608.80	1.22	1071.03	431.25	1.24	1157.45	1.12
p2	3544.46	0.99	2.59 0.10	563.93	0.99	0.55 0.21	841.55	1.15	996.65	617.23	1.23	1116.82	458.98	1.32	1204.14	1.13
TILE_27	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3558.83	0.99	0.78 0.00	568.79	0.99	0.49 0.18	925.08	1.26	807.05	647.20	1.29	935.27	471.52	1.36	1049.91	1.17
p1	3535.93	0.98	0.84 0.00	563.96	0.99	0.45 0.20	926.52	1.26	795.23	653.67	1.31	910.73	455.05	1.31	1024.16	1.16
p2	3527.23	0.98	0.98 0.00	558.12	0.98	0.53 0.15	904.75	1.23	841.67	665.25	1.33	949.96	491.55	1.42	1052.52	1.17
TILE_28	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3578.48	0.99	1.05 0.00	569.48	1.00	0.74 0.33	876.62	1.19	918.34	615.50	1.23	1074.93	439.88	1.27	1218.67	1.13
p1	3569.66	0.99	0.87 0.00	566.75	0.99	0.67 0.43	889.48	1.21	882.45	634.02	1.27	985.46	436.25	1.26	1110.30	1.14
p2	3556.65	0.99	0.86 0.00	558.73	0.98	0.49 0.18	893.85	1.22	868.25	650.17	1.30	1003.94	454.52	1.31	1135.38	1.15
TILE_29	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3565.12	0.99	0.79 0.00	565.88	0.99	0.45 0.20	910.85	1.24	841.08	613.92	1.23	1002.89	441.38	1.27	1108.72	1.14
p1	3561.45	0.99	0.91 0.00	565.04	0.99	0.45 0.17	885.50	1.21	916.41	642.75	1.28	1049.37	451.05	1.30	1170.96	1.15
p2	3538.90	0.98	0.91 0.00	561.86	0.98	0.47 0.23	882.40	1.20	911.57	618.17	1.24	1053.02	453.07	1.31	1158.98	1.13
TILE_30	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3558.63	0.99	2.42 0.07	565.89	0.99	0.83 0.63	852.88	1.16	986.08	597.83	1.19	1142.88	404.23	1.17	1312.97	1.10
p1	3545.91	0.99	2.10 0.06	560.73	0.98	0.57 0.17	857.02	1.17	971.20	626.90	1.25	1098.00	429.80	1.24	1267.79	1.12
p2	3527.38	0.98	2.33 0.05	558.75	0.98	0.70 0.40	841.08	1.15	1014.89	594.33	1.19	1154.63	419.62	1.21	1333.20	1.10
TILE_31	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3576.13	0.99	0.71 0.00	564.75	0.99	0.43 0.15	923.92	1.26	810.11	640.52	1.28	964.66	449.12	1.30	1069.69	1.15
p1	3556.64	0.99	0.75 0.00	566.09	0.99	0.47 0.15	924.88	1.26	807.36	665.05	1.33	951.17	470.75	1.36	1040.04	1.17
p2	3540.69	0.98	0.90 0.00	563.29	0.98	0.48 0.16	908.92	1.24	838.40	635.83	1.27	974.38	466.48	1.35	1074.49	1.15
TILE_32	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3565.77	0.99	1.19 0.00	564.23	0.99	0.53 0.25	918.33	1.25	799.75	647.58	1.29	921.55	450.52	1.30	1032.08	1.15

p1	3555.04	0.99	1.10 0.00	565.08	0.99	0.47 0.31	927.98	1.26	782.05	682.23	1.36	870.10	482.52	1.39	973.80	1.19
p2	3531.33	0.98	1.09 0.00	561.32	0.98	0.50 0.27	924.58	1.26	789.22	657.08	1.31	889.92	479.62	1.38	996.41	1.17
TILE_33	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3573.42	0.99	0.66 0.00	567.60	0.99	0.79 0.45	875.90	1.19	972.39	600.55	1.20	1149.39	410.93	1.18	1321.46	1.11
p1	3556.97	0.99	0.71 0.00	566.16	0.99	0.78 0.41	855.17	1.16	1027.42	615.62	1.23	1191.05	426.45	1.23	1344.17	1.11
p2	3542.16	0.98	0.75 0.00	567.64	0.99	0.77 0.41	855.17	1.16	1029.39	586.48	1.17	1207.72	404.05	1.17	1365.52	1.09
TILE_34	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3569.76	0.99	2.41 0.07	567.65	0.99	0.57 0.36	869.67	1.18	926.02	609.67	1.22	1065.62	423.07	1.22	1190.12	1.12
p1	3564.59	0.99	2.05 0.04	559.98	0.98	0.57 0.26	868.67	1.18	935.58	636.75	1.27	1041.26	448.40	1.29	1153.24	1.14
p2	3548.17	0.99	2.26 0.04	559.91	0.98	0.62 0.21	876.80	1.19	912.63	613.48	1.23	1060.04	425.70	1.23	1176.81	1.12
TILE_35	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3575.14	0.99	0.80 0.00	567.82	0.99	0.48 0.18	902.77	1.23	870.91	603.92	1.21	1032.74	427.48	1.23	1192.12	1.13
p1	3559.81	0.99	0.82 0.00	561.91	0.98	0.50 0.21	894.42	1.22	890.65	666.90	1.33	1025.50	467.95	1.35	1176.65	1.16
p2	3541.64	0.98	0.96 0.00	559.96	0.98	0.44 0.14	895.42	1.22	882.30	599.62	1.20	1046.94	426.65	1.23	1187.92	1.12
TILE_36	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3575.04	0.99	0.81 0.00	565.68	0.99	0.56 0.37	874.05	1.19	931.32	602.40	1.20	1094.12	420.90	1.21	1207.43	1.11
p1	3564.03	0.99	0.83 0.00	564.79	0.99	0.50 0.23	887.40	1.21	878.83	645.35	1.29	1005.17	478.73	1.38	1117.72	1.16
p2	3546.68	0.99	0.85 0.00	562.02	0.98	0.48 0.15	899.88	1.23	862.33	627.77	1.25	999.42	438.38	1.26	1114.86	1.13
TILE_37	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3570.64	0.99	0.62 0.00	574.55	1.00	0.85 0.44	923.52	1.26	826.58	639.02	1.28	985.83	439.57	1.27	1120.88	1.15
p1	3559.57	0.99	0.65 0.00	565.56	0.99	0.70 0.26	901.73	1.23	873.32	652.00	1.30	1010.05	475.05	1.37	1133.22	1.16
p2	3541.65	0.98	0.71 0.00	566.60	0.99	0.59 0.24	913.02	1.24	850.03	633.48	1.27	1009.09	434.23	1.25	1154.20	1.14
TILE_38	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3563.93	0.99	2.56 0.09	569.28	0.99	0.72 0.34	884.15	1.20	892.38	617.15	1.23	1036.96	429.82	1.24	1144.36	1.13
p1	3549.73	0.99	2.32 0.07	565.83	0.99	0.61 0.27	876.90	1.19	899.24	638.30	1.28	1023.32	472.75	1.36	1121.78	1.15
p2	3533.76	0.98	2.40 0.05	561.70	0.98	0.54 0.20	880.62	1.20	908.07	614.80	1.23	1043.49	429.27	1.24	1155.67	1.12
TILE_39	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3576.14	0.99	0.86 0.00	563.28	0.98	0.44 0.16	925.00	1.26	809.60	636.73	1.27	974.59	439.85	1.27	1108.21	1.15
p1	3567.37	0.99	0.91 0.00	560.68	0.98	0.52 0.19	910.75	1.24	846.12	651.27	1.30	997.83	477.20	1.38	1119.81	1.17
p2	3546.59	0.99	1.04 0.00	558.96	0.98	0.47 0.10	914.48	1.25	826.77	630.05	1.26	996.42	436.00	1.26	1121.48	1.14
TILE_40	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3565.77	0.99	0.88 0.00	567.57	0.99	0.84 0.34	873.77	1.19	945.56	601.98	1.20	1105.20	418.40	1.21	1231.30	1.11
p1	3558.24	0.99	0.83 0.00	561.46	0.98	0.46 0.22	904.42	1.23	862.85	643.42	1.29	1026.96	458.05	1.32	1122.17	1.15
p2	3533.67	0.98	0.87 0.00	561.88	0.98	0.39 0.14	899.83	1.23	869.87	633.42	1.27	996.37	431.90	1.25	1155.90	1.13
TILE_41	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3578.37	0.99	0.68 0.00	566.03	0.99	0.32 0.10	945.73	1.29	752.68	658.10	1.31	900.42	482.73	1.39	984.09	1.18

p1	3565.93	0.99	0.73 0.00	568.53	0.99	0.42 0.15	941.35	1.28	763.48	671.58	1.34	916.63	476.05	1.37	1007.48	1.18
p2	3554.45	0.99	0.80 0.00	567.70	0.99	0.51 0.25	939.23	1.28	765.81	635.70	1.27	909.30	454.62	1.31	1021.12	1.16
TILE_42	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3575.60	0.99	1.46 0.00	569.13	0.99	0.93 0.49	852.95	1.16	976.91	617.65	1.23	1112.63	433.30	1.25	1238.69	1.12
p1	3563.53	0.99	1.55 0.01	560.93	0.98	0.48 0.18	865.00	1.18	948.37	600.33	1.20	1104.87	437.90	1.26	1224.51	1.12
p2	3549.09	0.99	1.59 0.01	559.30	0.98	0.59 0.21	848.27	1.16	993.48	592.17	1.18	1144.13	408.73	1.18	1280.43	1.09
TILE_43	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3585.95	1.00	0.72 0.00	569.21	0.99	0.67 0.45	903.88	1.23	877.98	650.85	1.30	1014.89	451.23	1.30	1150.99	1.16
p1	3567.60	0.99	0.76 0.00	562.42	0.98	0.49 0.17	905.60	1.23	862.26	629.08	1.26	1013.93	450.75	1.30	1148.78	1.14
p2	3555.47	0.99	0.91 0.00	560.58	0.98	0.49 0.15	902.73	1.23	871.50	626.17	1.25	1019.13	428.77	1.24	1164.28	1.13
TILE_44	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3579.23	0.99	1.12 0.00	570.13	1.00	0.80 0.43	871.83	1.19	944.80	625.50	1.25	1094.80	435.30	1.26	1226.09	1.13
p1	3564.77	0.99	1.03 0.01	561.28	0.98	0.48 0.19	877.10	1.19	917.93	608.80	1.22	1071.52	440.45	1.27	1210.66	1.12
p2	3554.65	0.99	1.09 0.01	560.53	0.98	0.46 0.23	902.70	1.23	859.67	628.12	1.25	998.54	432.77	1.25	1136.98	1.13
TILE_45	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3581.12	1.00	0.76 0.00	568.27	0.99	0.65 0.25	951.40	1.30	745.00	693.05	1.38	858.30	482.00	1.39	1004.49	1.20
p1	3567.44	0.99	0.79 0.00	562.27	0.98	0.43 0.12	945.33	1.29	753.39	665.12	1.33	886.27	473.77	1.37	1022.21	1.18
p2	3552.01	0.99	0.84 0.00	559.30	0.98	0.45 0.22	948.15	1.29	747.23	661.98	1.32	881.78	450.40	1.30	1035.51	1.16
TILE_46	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3577.32	0.99	1.04 0.00	566.71	0.99	0.99 0.60	832.65	1.13	1051.85	600.73	1.20	1202.13	413.90	1.19	1370.65	1.10
p1	3566.35	0.99	0.98 0.00	561.79	0.98	0.54 0.20	859.60	1.17	977.26	588.62	1.18	1160.06	399.05	1.15	1341.94	1.09
p2	3554.85	0.99	1.12 0.00	560.35	0.98	0.63 0.26	840.05	1.14	1027.62	585.50	1.17	1183.09	412.15	1.19	1352.28	1.09
TILE_47	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3582.31	1.00	0.84 0.00	570.20	1.00	0.73 0.56	909.50	1.24	864.30	656.17	1.31	999.07	456.88	1.32	1139.39	1.16
p1	3570.10	0.99	0.87 0.00	559.64	0.98	0.41 0.14	918.52	1.25	831.30	636.02	1.27	999.11	434.98	1.25	1133.68	1.14
p2	3551.11	0.99	1.04 0.00	562.20	0.98	0.46 0.21	890.88	1.21	912.50	621.12	1.24	1057.27	442.60	1.28	1217.91	1.13
TILE_48	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3576.44	0.99	1.42 0.01	568.48	0.99	0.78 0.49	870.92	1.19	936.62	652.12	1.30	1067.95	460.43	1.33	1200.02	1.15
p1	3565.20	0.99	1.09 0.00	562.66	0.98	0.49 0.21	891.38	1.21	889.08	594.20	1.19	1056.61	423.60	1.22	1192.77	1.11
p2	3549.54	0.99	1.11 0.00	561.37	0.98	0.48 0.21	906.85	1.23	845.95	658.15	1.31	974.58	460.00	1.33	1108.28	1.16
TILE_49	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3580.02	1.00	0.74 0.00	568.14	0.99	0.78 0.41	952.15	1.30	735.67	689.58	1.38	860.82	513.12	1.48	939.41	1.21
p1	3564.78	0.99	0.84 0.00	562.97	0.98	0.43 0.15	958.73	1.31	724.35	667.92	1.33	856.85	469.12	1.35	941.19	1.18
p2	3557.30	0.99	0.90 0.00	559.82	0.98	0.46 0.16	941.20	1.28	748.19	682.10	1.36	879.82	487.62	1.41	959.27	1.19
TILE_50	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3573.25	0.99	1.43 0.01	570.51	1.00	0.97 0.56	864.50	1.18	971.66	623.67	1.25	1120.57	450.00	1.30	1274.92	1.14

p1	3564.97	0.99	1.41 0.01	562.80	0.98	0.59 0.23	856.95	1.17	995.00	598.73	1.20	1159.99	398.32	1.15	1377.32	1.09
p2	3547.57	0.99	1.56 0.00	559.24	0.98	0.60 0.26	844.73	1.15	1024.84	612.45	1.22	1164.84	419.62	1.21	1345.90	1.10
TILE_51	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3584.25	1.00	0.85 0.00	570.06	1.00	0.82 0.46	898.12	1.22	875.01	650.92	1.30	1015.20	473.75	1.37	1147.47	1.17
p1	3568.07	0.99	0.85 0.00	564.25	0.99	0.48 0.17	898.50	1.22	879.66	626.55	1.25	1041.18	426.23	1.23	1196.24	1.13
p2	3548.09	0.99	0.97 0.00	561.01	0.98	0.51 0.31	870.75	1.19	961.46	626.20	1.25	1116.74	433.43	1.25	1276.53	1.12
TILE_52	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3580.98	1.00	1.08 0.00	569.57	1.00	0.82 0.49	907.92	1.24	844.02	654.58	1.31	980.19	477.48	1.38	1104.16	1.17
p1	3564.53	0.99	0.92 0.00	561.43	0.98	0.43 0.13	912.05	1.24	835.73	635.17	1.27	987.83	432.90	1.25	1148.28	1.14
p2	3548.48	0.99	0.91 0.00	560.70	0.98	0.53 0.20	895.17	1.22	881.91	649.55	1.30	1010.31	451.80	1.30	1150.22	1.15
TILE_53	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3581.31	1.00	0.62 0.00	569.79	1.00	0.83 0.45	904.80	1.23	875.87	648.92	1.30	1026.32	475.48	1.37	1146.79	1.17
p1	3566.02	0.99	0.65 0.00	563.13	0.98	0.44 0.18	906.67	1.23	862.89	630.08	1.26	1025.67	413.05	1.19	1165.97	1.13
p2	3553.62	0.99	0.70 0.00	560.02	0.98	0.49 0.19	888.75	1.21	912.32	646.38	1.29	1043.99	466.43	1.34	1189.97	1.15
TILE_54	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3569.53	0.99	2.74 0.09	566.52	0.99	0.55 0.32	832.05	1.13	1051.06	598.00	1.19	1218.38	420.30	1.21	1358.45	1.10
p1	3550.39	0.99	2.28 0.05	566.78	0.99	0.55 0.26	826.50	1.13	1067.78	555.98	1.11	1245.44	394.80	1.14	1387.79	1.07
p2	3539.11	0.98	2.53 0.07	561.93	0.98	0.57 0.24	804.80	1.10	1136.40	581.20	1.16	1303.23	425.93	1.23	1445.09	1.09
p0_score:	62.82															
p1_score:	62.76															
p2_score:	62.35															

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	53.00	38.00	34.00	21.00
Avg_Seconds_To_Complete	11.83	151.83	170.24	301.46
Failures	0.00	0.00	0.00	0.00
Ratio	2.04	2.11	1.89	2.62
Number_Of_Threads	2	2	2	2

Summary	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
Unreviewed_VMmark3_Applications_Score	62.76	
Unreviewed_VMmark3_Infrastructure_Score	2.15	
Unreviewed_VMmark3_Score	50.64	

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 8.0 Update 2, Build 22380479 / 09-21-2023
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 8.0 Update 2a, Build 22617221 / 10-26-2023
Supplemental Software	None
Servers	
Number of Servers in System Under Test (all subsequent fields in this section are per server)	4
Server Manufacturer and Model	HPE ProLiant DL380 Gen11
Processor Vendor and Model	Intel Xeon Platinum 8592+
Processor Speed (GHz) / Turbo Boost Speed (GHz)	1.90 / 3.90
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Primary CPU Cache	32 KB I + 48 KB D on chip per core
Secondary CPU Cache	2 MB I+D on chip per core
Other CPU Cache	320 MB I+D on chip per chip
BIOS Version	U54 v2.10 (11/28/2023)
Memory Size (in GB, Number of DIMMs)	2048, 16
Memory Type and Speed	128 GB 4Rx4 DDR5-5600 MT/s 3DS RDIMM
Disk Subsystem Type	vSAN, FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device
Total Number of Physical Disks for Hypervisor	2
Disk Vendors, Models, Capacities, and Speeds	HPE 480 GB NVMe M.2 SSD
Number of Host Bus Adapters	1

Host Bus Adapter Vendors and Models	HPE SN1610Q 32Gb 2p FC HBA
Number of Network Controllers	2
Network Controller Vendors and Models	Mellanox MCX623106AS 100GbE 2p QSFP56 Adptr
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	03-19-2024
BIOS Availability Date (MM-DD-YYYY)	12-15-2023
Software Availability Date (MM-DD-YYYY)	09-21-2023
Network	
Network Switch Vendors and Models	HPE SN2700M 100GbE 32QSFP28
Network Speed	DSwitch-Management-Clients: 1 Gbps for Clients DSwitch-Management-SUT: 100 Gbps for SUT DSwitch-vMotion: 100 Gbps for SUT DSwitch-vSAN: 100 Gbps for SUT DSwitch-VM-Network: 100 Gbps
Primary Storage	
Storage Category	VMware vSAN 8.0 Update 2
Storage Vendors, Models, and Firmware Versions	vSAN-ESA-AF-HighDensity-HPE-ProLiant DL380 Gen11
Storage Configuration Summary	VMware vSAN 8.0 Update 2 ESA <ul style="list-style-type: none"> 16 x HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD
Datacenter Management Server	
System Model	HPE ProLiant DL380 Gen10
Processor Vendor and Model	Intel Xeon Gold 6238
Processor Speed (GHz)	2.10
Total Sockets/Total Cores/Total Threads	2 Sockets / 44 Cores / 88 Threads
Memory Size (in GB, Number of DIMMs)	192, 12
Network Controller(s) Vendors and Models	HPE Ethernet 1Gb 4-port 331i Adapter

Operating System, Version, Bitness, and Service Pack	VMware ESXi 8.0 Update 2, Build 22380479
Virtual Center VM Number of vCPUs	16
Virtual Center VM Virtual Memory (in GB)	39 GB
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server 8.0 Update 2a, Build 22617221
Other Hardware	None
Other Software	None

Clients

Total Number of Virtual Clients / Virtual Client Hosts	56 / 7
System Model(s)	HPE ProLiant DL380 Gen10 Plus
Processor Vendor(s) and Model(s)	Intel Xeon Platinum 8380
Processor Speed(s) (GHz)	2.30
Total Sockets/Total Cores/Total Threads	14 Sockets / 560 Cores / 1120 Threads
Memory per Virtual Client Host	Host 1,4-7: 2TB Hosts 2,3: 1 TB
Network Controller(s) Vendors and Models	<ul style="list-style-type: none"> • 1 x Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE • 1 x Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE
Virtual Client Networking Notes	Details in Networking Notes
Virtual Client Storage Notes	Details in Client Notes
Other Hardware	None
Other Software	VMware ESXi 8.0 Update 2, Build 22380479

Security Mitigations

Vulnerability	CVE	Exploit Name	Public Vulnerability Name	Mitigated		
				Server Firmware	ESXi	Guest OS
Spectre	2017-5753	Variant 1	Bounds Check Bypass	N/A	Yes	Yes
Spectre	2017-5715	Variant 2	Branch Target Injection	Yes	Yes	Yes
Meltdown	2017-5754	Variant 3	Rogue Data Cache Load	N/A	Yes	Yes
Spectre-NG	2018-3640	Variant 3a	Rogue System Register Read	Yes	N/A	N/A
Spectre-NG	2018-3639	Variant 4	Speculative Store Bypass	N/A	Yes	Yes

Foreshadow	2018-3615	Variant 5	L1 Terminal Fault - SGX	N/A	N/A	N/A
Foreshadow-NG	2018-3620	Variant 5	L1 Terminal Fault - OS	N/A	N/A	Yes
Foreshadow-NG	2018-3646	Variant 5	L1 Terminal Fault - VMM	N/A	Yes	N/A

Notes for Workload

Template deployed with disk type: Thick

Virtualization Software Notes

- Cluster DRS Automation Level set to Fully Automated
- vSphere DRS Migration Threshold level set to 2
- Logical CPU layout changed for all multi-CPU VMs to 1 socket with multiple cores (default single core per socket)
- Logging was disabled for all VMs (default enabled)
- All DS3DB, ElasticDB, and ElasticLB VMs had CPU shares set to High (default Normal)
- All Standby VMs had CPU shares set to Low (default Normal)
- All memory reserved (LockedToMax) for all DS3DB VMs
- sched.mem.lpage.enable1GPage set to TRUE for all DS3DB VMs (default FALSE)
- DS3DB0 was configured to not use the third virtual disk before building additional tiles.
- CD and floppy devices were removed from all VMs (default installed)
- PrimeClient's second virtual disk configured to be 1.2 TB (default: 200 GB)

Advanced Settings:

- Cpu.CreditAgePeriod = 1000 (default 3000)
- Cpu.HTWholeCoreThreshold = 0 (default 800)
- DataMover.HardwareAcceleratedInit = 0 (default 1)
- DataMover.HardwareAcceleratedMove = 0 (default 1)
- Disk.IdleCredit = 64 (default 32)
- Disk.ReqCallThreshold = 1 (default 8)
- Mem.CtlMaxPercent = 0 (default 65)
- Mem.ShareScanGHz = 0 (default 4)
- Numa.LTermFairnessInterval = 0 (default 5)
- Numa.LocalityWeightActionAffinity = 0 (default 130)
- Numa.MigImbalanceThreshold = 57 (default 10)
- Numa.PageMigEnable = 0 (default 1)
- Numa.RebalancePeriod = 60000 (default 2000)
- Numa.SwapLoadEnable = 0 (default 1)
- Numa.SwapLocalityEnable = 0 (default 1)
- Power.CpuPolicy = 'High Performance' (default Balanced)
- VMkernel.Boot.hyperthreadingMitigation = true (default false)
- UserVars.HostClientCEIPOptIn = 2 (default 0)

Server Notes

Server BIOS settings

- HPE Workload Profile set to "Virtualization - Max Performance" (default: General Power Efficient Compute)
- Thermal Configuration set to Maximum Cooling (default: Optimal Cooling)
- Memory Patrol Scrubbing set to disabled(default: Enabled)
- EPP set to Aggressive(default: Disabled)

Networking Notes

Distributed vSwitch configuration:

- All SUT and client hosts were part of the same distributed vSwitch.
- The MTU of the distributed vSwitch was set to 9000 (default 1500). Except where noted differently below, the same change was made to all vmnics and vmks.
- 'DSwitch-Management-Clients' port group
 - Uplinks:
 - vmnic2 on client hosts
 - Usage:
 - vmk0(MTU 1500) on all client hosts - used for management and vMotion
 - One virtual NIC port of PrimeClient VM
- 'DSwitch-Management-SUT' port group
 - Uplinks:
 - vmnic2 on SUT hosts
 - Usage:
 - vmk0(MTU 1500) on all SUT hosts - used for management
- 'DSwitch-vMotion' port group
 - Uplinks:
 - vmnic2 on SUT hosts
 - Usage:
 - vmk1 on all SUT hosts - used for vMotion
- 'DSwitch-VM-Network' port group
 - Uplinks:
 - SUT hosts: vmnic1, vmic3
 - client hosts: vmnic0, vmnic1
 - Usage:
 - All VMs - including one virtual NIC port of PrimeClient VM
- 'DSwitch-vSAN' port group
 - Uplinks:
 - SUT hosts: vmnic0
 - Usage:
 - vmk2 on all SUT hosts - used for vSAN

HPE SN2700M switch was configured for RoCE lossless and LLDP.

Storage Notes

OS Storage

- On each SUT host, VMware ESXi 8.0 Update 2 was installed on HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device, which provides a RAID1 volume on 2 x 480 GB NVMe M.2 SSDs.
- On each client host, VMware ESXi 8.0 Update 2 was installed on HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD.

Primary Storage: VMware vSAN storage

- VMware vSAN 8.0 Update 2 ESA
 - Hardware Configuration
 - 16 x HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD per host
 - Software Configuration
 - RDMA support service enabled (for vSAN over RDMA feature)
 - vSAN ESA Default Policy-RAID5 was cloned to vSAN ESA Default Policy-RAID5-Clone, Following changes were made to "vSAN ESA Default Policy-RAID5-Clone":
 - "Disable object checksum" set to enable (default: disable)
 - "Object space reservation" set to "Thick provisioning" (default: Thin provisioning)
 - SUT vSAN Datastore Default Storage Policy was changed to vSAN ESA Default Policy-RAID5-Clone and used for all SUT VMs, template VMs

Secondary Storage: FC Channel Target via SCSI Target Server (LIO)

- Hardware details:
 - HPE ProLiant DL385 Gen10 Plus
 - 2 x AMD EPYC 7F52(3.50 GHz)
 - 512 GB (16 x 32GB 2Rx4 3200 MHz DDR4 RDIMMs)
 - 2 x HPE SN1610Q 32Gb 2-port FC HBA used as FC target controller
 - 1 x HPE NS204i-p x2 Lanes NVMe PCIe3 x8 OS Boot Device
 - 2 x HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF SC U.3 Static Multi Vendor SSD
- Software details:
 - Operating System: SUSE Linux Enterprise Server 15 SP4 - 5.14.21-150400.22-default x86_64
 - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 15 SP4)
- LUN details:
 - 1 x HPE NS204i-p x2 Lanes NVMe PCIe3 x8 OS Boot Device
 - 1 LUN(447 GB)
 - Storage system OS (not exported as FC target LUN)
 - 1 x HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF SC U.3 Static Multi Vendor SSD
 - 1 LUN (700 GB): SVMotion Target LUN
 - 1 LUN (700 GB): SVMotion Target LUN
 - 1 LUN (500 GB): DeployTarget LUN
 - 1 x HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF SC U.3 Static Multi Vendor SSD
 - 1 LUN (2.91 TB): XVMotion Target LUN

Datacenter Management Server Notes

VMware vCenter Server Appliance 8.0 Update 2a, Build 22617221 was hosted on a HPE ProLiant DL380 Gen10 system that was not part of the client or SUT clusters.

Operating System Notes

OS installation on both SUT and client hosts was done using the VMware ESXi 8.0 Update 2, Build 22380479 ISO as released by VMware for OS installation. After the OS was installed, VIB packages were downloaded from the URLs listed below and were installed.

- <https://vibsdepot.hpe.com/hpe/nov2023/esxi-800-devicedrivers/>
- <https://vibsdepot.hpe.com/hpe/nov2023/esxi-800-bundles/>

Software Notes

None

Client Notes

Advanced ESXi settings:

- UserVars.HostClientCEIPOptIn = 2 (default 0)

Server BIOS settings:

- HPE Workload Profile set to "Virtualization - Max Performance" (default: General Power Efficient Compute)

The client VMs were distributed across the client hosts as follows:

- Client host 1: Client0,Client7,Client14,Client21,Client28,Client35,Client42,Client49,Client52
- Client host 2: Client1,Client8,Client15,Client22,Client29,Client36,Client43,Client51,Client54
- Client host 3: Client2,Client9,Client16,Client23,Client30,Client37,Client44
- Client host 4: Client3,Client10,Client17,Client24,Client31,Client38,Client45
- Client host 5: Client4,Client11,Client18,Client25,Client32,Client39,Client46
- Client host 6: Client5,Client12,Client19,Client26,Client33,Client40,Client47,Client50
- Client host 7: Client6,Client13,Client20,Client27,Client34,Client41,Client48,Client53,PrimeClient

Client Storage:

Client host 1-6:

- 1 * HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD was used for client VMs

Client host 7:

- 1 * HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD was used for client VMs including PrimeClient

Other Notes

VMmark3.properties file modifications:

- TileDelay = 10 (default 60)
- VCscratchDir = /root/VMmark3/results/scratch (default /root/VMmark3/samples)
- ErrorImmediate = true(default false)
- The PrimeClient VM STAF.cfg was modified as follows:
"CONNECTIMEOUT=10000" was added as follows:

```
"interface ssl library STAFTCP option Secure=Yes option CONNECTTIMEOUT=10000 option Port=6550"
```

```
default:"interface ssl library STAFTCP option Secure=Yes option Port=6550"
```

- "numthreads" was changed to 500(default: 200)
 - "SET CONNECTATTEMPTS 5 CONNECTRETRYDELAY 2s" was added as a new line to STAF.cfg
-

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