

VMmark® 3.1.1 Results		
Server Vendor & Model: IEIT Systems Co., Ltd. inMerge1100M7S 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 = 51.94 @ 55 Tiles
Number of Hosts: 4	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 8/512/1024
Tested By: IEIT Systems Co., Ltd.		Test Date: 06-04-2024
Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload

Performance

	weathervane			weathervaneE			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3557.41	0.99	0.66 0.00	565.94	0.99	0.74 0.38	889.80	1.21	899.49	640.52	1.28	1049.67	470.60	1.36	1164.47	1.16
p1	3540.18	0.98	0.67 0.00	559.20	0.98	0.61 0.22	897.30	1.22	877.49	622.55	1.24	1032.13	431.27	1.24	1163.01	1.13
p2	3523.04	0.98	0.69 0.00	552.37	0.97	0.55 0.23	883.70	1.20	910.54	637.17	1.27	1057.03	449.52	1.30	1172.53	1.13
TILE_1	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3572.15	0.99	0.66 0.01	562.30	0.98	0.63 0.29	943.25	1.28	749.20	697.55	1.39	837.61	512.77	1.48	940.38	1.21
p1	3547.74	0.99	0.69 0.00	558.87	0.98	0.51 0.17	940.33	1.28	752.93	649.05	1.30	866.34	441.30	1.27	990.37	1.15
p2	3533.27	0.98	0.75 0.00	556.24	0.97	0.50 0.20	936.40	1.28	784.11	710.98	1.42	881.26	504.70	1.46	989.51	1.20
TILE_2	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3563.21	0.99	0.81 0.00	566.23	0.99	0.67 0.26	891.42	1.21	905.62	618.67	1.24	1064.32	442.95	1.28	1198.49	1.13
p1	3541.27	0.98	0.82 0.00	564.10	0.99	0.59 0.24	889.67	1.21	908.55	620.30	1.24	1058.04	423.70	1.22	1216.36	1.12
p2	3530.53	0.98	0.81 0.00	557.11	0.97	0.53 0.15	864.48	1.18	970.67	621.05	1.24	1126.99	450.88	1.30	1270.50	1.13
TILE_3	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3565.98	0.99	0.69 0.00	562.93	0.98	0.50 0.15	923.83	1.26	818.78	642.98	1.28	960.36	469.43	1.35	1064.41	1.16
p1	3555.19	0.99	0.69 0.00	563.85	0.99	0.56 0.18	932.40	1.27	782.22	653.00	1.30	918.68	452.73	1.31	1039.90	1.16
p2	3551.86	0.99	0.68 0.00	562.04	0.98	0.57 0.14	923.35	1.26	814.70	667.20	1.33	952.16	472.30	1.36	1046.70	1.17
TILE_4	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3575.24	0.99	0.76 0.00	572.51	1.00	1.01 0.66	928.98	1.27	789.39	655.20	1.31	906.06	452.90	1.31	1035.60	1.17
p1	3559.87	0.99	0.76 0.00	566.56	0.99	0.61 0.24	911.83	1.24	820.19	674.45	1.35	930.74	469.98	1.36	1047.88	1.17
p2	3539.22	0.98	0.76 0.00	558.78	0.98	0.56 0.21	925.45	1.26	799.01	654.52	1.31	913.31	473.20	1.36	1015.28	1.17

p2	3538.74	0.98	0.71 0.00	558.99	0.98	0.46 0.13	964.42	1.31	698.50	708.85	1.42	800.36	524.42	1.51	882.35	1.22
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	3559.21	0.99	0.83 0.00	560.36	0.98	0.41 0.05	895.02	1.22	861.31	628.65	1.26	998.48	438.38	1.26	1101.78	1.13
p1	3539.75	0.98	0.80 0.00	559.25	0.98	0.60 0.17	891.12	1.21	870.64	639.50	1.28	971.09	460.88	1.33	1098.56	1.15
p2	3529.16	0.98	0.83 0.00	556.11	0.97	0.51 0.09	884.88	1.21	898.27	640.45	1.28	1033.37	451.10	1.30	1159.12	1.14
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	3579.54	0.99	0.72 0.00	566.04	0.99	0.85 0.34	928.95	1.27	788.70	656.10	1.31	915.47	453.43	1.31	1033.51	1.16
p1	3565.35	0.99	0.68 0.00	559.57	0.98	0.72 0.36	911.35	1.24	829.50	669.55	1.34	951.39	468.38	1.35	1070.96	1.17
p2	3546.55	0.99	0.73 0.00	558.73	0.98	0.60 0.20	931.17	1.27	786.81	655.17	1.31	914.57	478.90	1.38	1014.77	1.17
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	3573.27	0.99	0.90 0.00	567.36	0.99	0.51 0.21	940.67	1.28	749.07	652.77	1.30	848.09	449.77	1.30	940.99	1.16
p1	3565.12	0.99	0.85 0.00	564.30	0.99	0.60 0.20	927.12	1.26	777.92	709.80	1.42	863.28	509.30	1.47	956.78	1.21
p2	3557.38	0.99	0.88 0.00	563.29	0.98	0.60 0.20	938.62	1.28	757.54	641.02	1.28	869.64	469.25	1.35	952.67	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	3573.54	0.99	0.68 0.00	563.65	0.99	0.43 0.11	941.25	1.28	760.98	667.85	1.33	866.88	466.15	1.34	956.78	1.18
p1	3557.84	0.99	0.67 0.00	561.92	0.98	0.50 0.21	930.77	1.27	780.31	680.67	1.36	893.13	508.07	1.47	977.03	1.20
p2	3539.90	0.98	0.66 0.00	559.34	0.98	0.45 0.06	932.50	1.27	772.91	660.02	1.32	895.73	458.20	1.32	1002.67	1.16
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	3572.61	0.99	1.53 0.02	569.07	0.99	0.82 0.41	947.45	1.29	731.23	673.38	1.35	826.32	477.95	1.38	914.25	1.19
p1	3557.45	0.99	1.32 0.01	565.46	0.99	0.58 0.28	931.15	1.27	767.48	689.42	1.38	867.77	509.18	1.47	955.26	1.20
p2	3542.78	0.98	1.47 0.01	562.87	0.98	0.59 0.25	934.55	1.27	769.53	643.92	1.29	880.60	440.68	1.27	982.64	1.15
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	3576.53	0.99	0.69 0.00	566.05	0.99	0.55 0.21	814.40	1.11	1155.02	574.67	1.15	1359.33	395.80	1.14	1539.75	1.07
p1	3557.87	0.99	0.70 0.00	566.26	0.99	0.53 0.19	826.25	1.13	1109.20	561.83	1.12	1320.09	406.70	1.17	1470.95	1.08

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	3570.13	0.99	0.74 0.01	570.30	1.00	0.89 0.41	932.83	1.27	772.25	684.88	1.37	883.58	481.70	1.39	975.88	1.19
p1	3567.33	0.99	0.78 0.00	570.76	1.00	0.87 0.50	932.20	1.27	773.22	659.20	1.32	889.33	481.50	1.39	975.67	1.18
p2	3552.80	0.99	0.85 0.00	570.75	1.00	0.86 0.46	921.35	1.25	804.18	650.27	1.30	928.86	449.65	1.30	1043.20	1.16
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	3575.61	0.99	0.69 0.00	572.08	1.00	0.82 0.32	952.20	1.30	737.02	698.65	1.40	837.89	492.77	1.42	935.69	1.21
p1	3559.94	0.99	0.71 0.00	572.49	1.00	0.83 0.35	954.80	1.30	729.58	676.23	1.35	831.90	492.35	1.42	927.98	1.20
p2	3553.45	0.99	0.70 0.00	565.35	0.99	0.58 0.14	948.65	1.29	729.92	677.95	1.35	832.75	471.77	1.36	928.87	1.18
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	3587.91	1.00	0.92 0.00	569.22	0.99	0.95 0.48	904.45	1.23	841.73	659.23	1.32	959.70	490.38	1.41	1050.97	1.18
p1	3559.67	0.99	0.90 0.00	563.01	0.98	0.64 0.22	916.88	1.25	800.96	647.23	1.29	922.65	454.12	1.31	1018.02	1.16
p2	3546.55	0.99	0.97 0.00	557.79	0.97	0.52 0.16	898.42	1.22	855.31	656.40	1.31	969.52	462.23	1.33	1082.70	1.15
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	3575.28	0.99	0.77 0.00	571.91	1.00	0.86 0.50	925.20	1.26	800.13	668.98	1.34	941.71	492.45	1.42	1043.34	1.19
p1	3562.92	0.99	0.79 0.00	571.10	1.00	0.63 0.27	924.88	1.26	818.02	642.12	1.28	972.97	421.85	1.22	1110.54	1.14
p2	3537.43	0.98	0.78 0.00	569.15	0.99	0.61 0.26	925.50	1.26	800.37	674.33	1.35	918.94	496.05	1.43	1036.42	1.19
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	3574.47	0.99	0.71 0.00	563.77	0.99	0.51 0.20	942.62	1.28	748.05	660.80	1.32	880.25	487.62	1.41	968.11	1.18
p1	3557.26	0.99	0.74 0.00	561.24	0.98	0.52 0.16	939.60	1.28	758.57	659.48	1.32	884.96	464.43	1.34	972.22	1.17
p2	3538.94	0.98	0.75 0.00	556.20	0.97	0.65 0.23	915.20	1.25	814.98	664.83	1.33	940.15	497.05	1.43	1018.19	1.18
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	3592.95	1.00	0.64 0.00	567.53	0.99	0.51 0.17	974.12	1.33	681.16	687.70	1.37	793.99	503.73	1.45	888.29	1.21
p1	3568.75	0.99	0.72 0.00	565.91	0.99	0.49 0.19	961.12	1.31	717.91	678.23	1.36	832.63	471.38	1.36	942.07	1.19
p2	3556.24	0.99	0.73 0.00	562.87	0.98	0.64 0.27	947.58	1.29	738.10	696.12	1.39	846.07	511.45	1.47	942.33	1.2

p2	3534.28	0.98	0.95 0.00	566.30	0.99	0.56 0.20	950.98	1.30	727.10	674.02	1.35	839.83	467.15	1.35	956.31	1.18
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	3586.49	1.00	0.52 0.00	568.34	0.99	0.48 0.20	985.58	1.34	657.28	701.83	1.40	758.47	487.90	1.41	861.05	1.21
p1	3567.03	0.99	0.56 0.00	564.65	0.99	0.48 0.22	978.65	1.33	674.79	722.45	1.44	770.75	532.90	1.54	851.67	1.24
p2	3563.67	0.99	0.60 0.00	563.95	0.99	0.51 0.20	984.20	1.34	651.85	703.33	1.41	753.37	468.02	1.35	852.98	1.20
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	3581.62	1.00	0.63 0.00	563.51	0.98	0.49 0.15	885.42	1.21	918.80	636.05	1.27	1064.80	441.43	1.27	1223.09	1.14
p1	3567.52	0.99	0.65 0.00	562.85	0.98	0.44 0.13	899.05	1.22	877.84	624.05	1.25	1038.38	448.48	1.29	1170.31	1.14
p2	3552.44	0.99	0.65 0.00	561.96	0.98	0.60 0.21	890.67	1.21	900.85	618.73	1.24	1062.48	424.55	1.22	1199.35	1.12
TILE_51	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3580.41	1.00	0.63 0.00	570.30	1.00	0.84 0.44	924.45	1.26	798.31	678.85	1.36	908.27	475.40	1.37	1034.61	1.18
p1	3560.19	0.99	0.65 0.00	565.00	0.99	0.70 0.29	928.77	1.26	791.77	658.17	1.32	901.59	475.18	1.37	1033.17	1.17
p2	3551.70	0.99	0.65 0.00	561.32	0.98	0.55 0.16	936.40	1.28	770.52	662.52	1.32	887.72	458.45	1.32	1012.17	1.17
TILE_52	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3575.00	0.99	0.64 0.00	566.08	0.99	0.46 0.17	940.85	1.28	753.67	720.73	1.44	844.23	511.70	1.48	942.47	1.22
p1	3563.45	0.99	0.68 0.00	562.11	0.98	0.43 0.17	943.85	1.29	750.61	641.95	1.28	879.66	465.48	1.34	971.20	1.17
p2	3545.34	0.99	0.70 0.00	559.81	0.98	0.53 0.16	935.83	1.27	760.98	690.35	1.38	864.18	486.55	1.40	968.72	1.19
TILE_53	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3573.85	0.99	0.62 0.00	569.68	1.00	0.83 0.38	953.60	1.30	726.12	697.83	1.39	844.64	515.62	1.49	932.63	1.22
p1	3561.05	0.99	0.62 0.00	567.38	0.99	0.63 0.26	954.58	1.30	728.88	671.85	1.34	862.33	463.18	1.34	988.76	1.18
p2	3544.32	0.99	0.64 0.00	564.78	0.99	0.46 0.14	946.40	1.29	753.30	688.55	1.38	877.28	482.27	1.39	1004.56	1.19
TILE_54	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3570.59	0.99	1.16 0.00	567.92	0.99	0.47 0.19	919.33	1.25	807.31	662.02	1.32	944.97	471.85	1.36	1032.06	1.17
p1	3557.11	0.99	1.03 0.00	562.62	0.98	0.52 0.15	921.92	1.26	803.07	624.38	1.25	935.17	446.38	1.29	1060.89	1.14
p2	3536.76	0.98	1.10 0.00	564.44	0.99	0.60 0.21	901.70	1.23	853.83	651.52	1.30	982.96	483.68	1.39	1083.35	1.17
p0_score:	64.56															
p1_score:	64.31															
p2_score:	64.06															

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	56.00	46.00	40.00	24.00
Avg_Seconds_To_Complete	7.42	105.15	123.81	268.00
Failures	0.00	0.00	0.00	0.00
Ratio	2.15	2.56	2.22	3.00
Number_Of_Threads	2	2	2	2

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Summary	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
Unreviewed_VMmark3_Applications_Score	64.31	
Unreviewed_VMmark3_Infrastructure_Score	2.46	
Unreviewed_VMmark3_Score	51.94	

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	inMerge1100M7S, certified as NF5280-M7-A0-R0-00
Processor Vendor and Model	Intel Xeon Platinum 8592+
Processor Speed (GHz) / Turbo Boost Speed (GHz)	1.9 / 3.9
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Primary CPU Cache	32KB I + 48 KB D on chip per core
Secondary CPU Cache	2MB I + D on chip per chip
Other CPU Cache	320 MB I + D on chip per chip
BIOS Version	06.02.00 (2024-03-28)
Memory Size (in GB, Number of DIMMs)	2048,32
Memory Type and Speed	64GB 2Rx4 DDR5-5600 MHz RDIMM
Disk Subsystem Type	vSAN,iSCSI
Number of Disk Controllers	1
Disk Controller Vendors and Models	Intel Corporation Lewisburg SATA AHCI Controller
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	1 x Intel,M.2 SATA SSD,480G,6Gbps
Number of Host Bus Adapters	none
Host Bus Adapter Vendors and Models	none
Number of Network Controllers	3

Network Controller Vendors and Models		1x Mellanox Technologies ConnectX-6 Dx EN NIC,OCP 100GbE 2x Mellanox Technologies ConnectX-6 Dx EN NIC 100GbE
Other Hardware		none
Other Software		none
Hardware Availability Date (MM-DD-YYYY)		12-01-2023
BIOS Availability Date (MM-DD-YYYY)		03-28-2024
Software Availability Date (MM-DD-YYYY)		09-21-2023
Network		
Network Switch Vendors and Models		CN9300-32C 40/100GbE
Network Speed		100 Gb/s for management SUT host : 2x 100Gb/s for vSAN,vMotion 2x 100Gb/s for VMs 2x 100Gb/s for iSCSI Client host: 1x 100Gb/s for VMs
Primary Storage		
Storage Category		VMware vSAN 8.0 Update 2
Storage Vendors, Models, and Firmware Versions		vSAN-ESA-AF-0-IEI-inMerge1100M7S
Storage Configuration Summary		VMware vSAN 8.0 Update 2 ESA 8 x 7.68 TB Samsung PM9A3 NVMe for vSAN each host
Datacenter Management Server		
System Model		NF5280M6
Processor Vendor and Model		Intel Xeon Gold 6348
Processor Speed (GHz)		2.6
Total Sockets/Total Cores/Total Threads		2 Sockets / 56 Cores / 112 Threads
Memory Size (in GB, Number of DIMMs)		1024,32
Network Controller(s) Vendors and Models		1 x Mellanox Technologies ConnectX-6 Dx EN NIC 100GbE
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
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 / 5
System Model(s)		NF5280M6

Processor Vendor(s) and Model(s)			host1-4: Intel Xeon Platinum 8380 host5: Intel Xeon Platinum 6348			
Processor Speed(s) (GHz)			host1-4: 2.3 GHz host5: 2.6 GHz			
Total Sockets/Total Cores/Total Threads			host1-4: 2 Sockets / 80 Cores / 160 Threads host5: 2 Sockets / 56 Cores / 112 Threads			
Memory per Virtual Client Host			1TB			
Network Controller(s) Vendors and Models			Mellanox Technologies ConnectX-6 Dx EN NIC 100GbE			
Virtual Client Networking Notes			vSwitch0 on vmnic0 for management and VMs			
Virtual Client Storage Notes			1 x Intel M.2 SATA SSD 480G for OS,1 x P4510 4T for Client			
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: Thin

Virtualization Software Notes

- Logical CPU configuration changed for all multi-CPU VMs to 1 socket with multiple cores (default single core per socket)
- Memory shares set to high for all DS3DB (default normal)
- CPU shares set to high for all DS3DB VMs (default normal)
- CDROM removed from all VMs except for PrimeClient, and template VMs.
- All memory reserved for DS3DB (default non-reserved)
- sched.mem.pin was set to "TRUE" for DS3DB VMs

-sched.mem.lpage.enable1GPage was set to "TRUE" for DS3DB VMs

-CPU shares set to low for all Standby VMs (default normal)

-vSphere DRS Migration Threshold set to Fully Automated level 2

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.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)

-UserVars.SuppressShellWarning = 1 (default 0)

Server Notes

-DCU Stream Prefetcher set to Disabled (default : Enabled)

-DCU IP Prefetcher set to Disabled (default : Enabled)

-LLC Prefetch set to Enabled (default : Disabled)

-LLC Dead Line Allocation set to Disabled (default : Enabled)

-Stale A to S set to Enabled (default : Disabled)

Networking Notes

-vSwitch0 for Service Console and Elastic VMs on vmnic4 at 100Gbps

vmk0 connected with vSwitch0 for management

MTU 9000 (default 1500)

-vSwitch1 for Auction,DS3,Standby VMs on vmnic1 at 100Gbps

MTU 9000 (default 1500)

-Distributed Virtual Switch DSwitch-vMotion for vMotion vmnic3 at 100Gbps

vmk1 connected with DSwitch-vMotion for vMotion

MTU 9000 (default 1500)

-Distributed Virtual Switch DSwitch-VSAN for vSAN on vmnic2 at 100Gbps

vmk2 connected with DSwitch-VSAN

MTU 9000 (default 1500)

-iSCSI Virtual Switch for iSCSI on vmnic0 and vmnic5 at 100Gbps

vmk3 and vmk4 connected with iscsi

Storage Notes

VMware vSAN 8.0 Update 2 ESA

-Hardware Configuration:

each host has 8 x 7.68 TB Samsung PM9A3 NVMe for vSAN ESA

-Software Configuration

RDMA support service enabled (for vSAN over RDMA feature)

Auto-Policy management was enabled for SUT vSAN Datastore "SUT - Optimal Datastore Default Policy - RAID5" and used for all VMs

SUT - Optimal Datastore Default Policy - RAID5 setting:

Failures to tolerate = 1 failure - RAID-5(Erasure Coding)

Number of disk stripes per object = 1

IOPS limit for object = 0

Object space reservation = Thin provisioning

Flash read cache reservation = 0%

Disable object checksum = Off

Force provisioning = Off

Encryption services = No encryption

Space efficiency = No space efficiency

Storage tier = All flash

iSCSI

-hardware:NF5280M6

-OS:Windows Server Datacenter 2019

-Network: 1 x Mellanox Technologies ConnectX-6 Dx EN NIC 100GbE

LUN1: 4 x P4510 4T RAID 5

LUN2: 4 x P4510 4T RAID 5

Datacenter Management Server Notes

none

Operating System Notes

none

Software Notes

none

Client Notes

-Client-host1: Client0-11

-Client-host2: Client12-23

-Client-host3: Client24-35

-Client-host4: Client36-47

-Client-host5: Client48-54,PrimeClient,ntp,vCenter Server

Advanced Settings:

-Power.CpuPolicy = High Performance (default Balanced)

-UserVars.HostClientCEIPOptIn = 2 (default 0)

-UserVars.SuppressShellWarning = 1 (default 0)

Server notes:

-Sub Numa Clustering set to Disabled (default : Enabled)

- DCU Stream Prefetcher set to Disabled (default : Enabled)
- DCU IP Prefetcher set to Disabled (default : Enabled)
- LLC Prefetch set to Enabled (default : Disabled)
- LLC Dead Line Allocation set to Disabled (default : Enabled)
- Stale A to S set to Enabled (default : Disabled)

Networking notes:

- Client-host1: vSwitch0 on vmnic0 connected with vmk0 for management and VMs at 100Gbps
- Client-host2: vSwitch0 on vmnic0 connected with vmk0 for management and VMs at 100Gbps
- Client-host3: vSwitch0 on vmnic0 connected with vmk0 for management and VMs at 100Gbps
- Client-host4: vSwitch0 on vmnic0 connected with vmk0 for management and VMs at 100Gbps
- Client-host5: vSwitch0 on vmnic0 connected with vmk0 for management and VMs at 100Gbps

Storage notes:

- Client-host1: 1 x P4510 4T for Client, 1 x P4510 4T for OS
- Client-host2: 1 x P4510 4T for Client, 1 x P4510 4T for OS
- Client-host3: 1 x P4510 4T for Client, 1 x P4510 4T for OS
- Client-host4: 1 x P4510 4T for Client, 1 x P4510 4T for OS
- Client-host5: 1 x P4510 4T for Client, 1 x P4510 4T for OS

Other Notes

Changes to VMmark3.properties file:

- TileDelay = 30 (default 60)
- StafMaxThreads was set to 100

Changes to PrimeClient VM Staf.cfg:

- "CONNECTTIMEOUT=10000" was added to the original statement as following

interface ssl library STAFTCP option Secure=Yes option CONNECTTIMEOUT=10000 option Port=6550
- "numthreads" was changed to 500 (default : 200)
- "SET CONNECTATTEMPTS 5 CONNECTRETRYDELAY 2s" was newly added

For information about VMmark and the rules regarding its usage visit www.vmware.com/products/vmmark.

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