VMmark® 3.1.1 Results

Server Vendor & Model: Dell EMC PowerEdge R6525		
Storage Vendor & Model: Vmware vSAN ESA	**VMmark 3.1.1 Score =**	
Hypervisor: VMware ESXi 7.0 U2 build 17867351	**30.41 @ 32 Tiles**	
Datacenter Management Software: VMware vCenter Server 7.0 U2 Build 17379766		

Number of Hosts: 4	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 8/512/1024
Performance Section Type: Advanced Micro Devices, Inc.	Test Date: 03-12-2021	
Performance Section	**Configuration Section**	**Notes Section**
Performance	Configuration	Notes for Workloads

Performance

	weathervane			weathervane2			dvdstore3			dvdstore10			dvdstore5		
TILE_0	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)
p0	3176.06	10.99	0.43/0.13	3176.06	10.99	0.43/0.12	561.25	12.28	0.02/0.02	849.63	1.30	984.53	458.77	2.32	1056.99
p1	3159.51	10.93	0.43/0.13	3159.51	10.93	0.43/0.12	560.42	12.26	0.02/0.02	845.36	1.29	982.56	457.68	2.32	1053.71
p2	3158.51	10.99	0.37/0.10	3157.31	10.97	0.38/0.10	550.92	12.29	791.99	862.25	1.32	935.32	464.98	1.34	1040.23
p3	3157.31	10.97	0.38/0.10	3156.11	10.96	0.38/0.10	549.67	12.26	789.19	861.49	1.32	935.32	463.21	1.34	1038.19
p4	3375.88	10.99	0.38/0.10	3370.71	11.00	0.38/0.10	590.05	12.31	775.39	867.65	1.31	941.31	473.32	1.36	977.44
p5	3362.89	10.97	0.38/0.10	3360.78	10.96	0.37/0.10	582.98	12.28	802.52	862.21	1.37	930.49	469.84	1.35	1010.49
p6	3351.98	10.99	0.44/0.28	3347.00	10.99	0.32/0.02	595.73	12.31	766.34	866.13	1.33	920.72	470.12	1.36	1004.92
p7	3346.98	10.97	0.44/0.28	3342.00	10.97	0.32/0.02	594.48	12.28	768.70	864.77	1.33	919.42	469.54	1.35	1000.97
p8	3373.44	10.99	0.41/0.28	3365.33	10.99	0.41/0.29	591.48	12.27	849.65	845.63	1.31	1000.97	470.65	1.35	1107.83
p9	3364.44	10.97	0.41/0.28	3356.33	10.97	0.41/0.28	590.23	12.25	847.31	844.37	1.31	1000.97	470.37	1.34	1104.17
p10	3363.38	10.99	0.33/0.00	3362.20	10.99	0.47/0.17	568.62	12.29	790.38	851.45	1.38	968.80	512.05	1.48	1084.02
p11	3362.38	10.97	0.33/0.00	3361.20	10.97	0.47/0.17	567.37	12.26	788.00	850.71	1.38	968.80	510.78	1.47	1082.02
TILE_1	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)
p0	3373.37	10.99	0.38/0.10	3369.37	10.99	0.37/0.10	588.42	12.29	776.21	860.47	1.31	1000.97	469.84	1.35	1011.17
p1	3360.09	10.99	0.39/0.11	3356.10	10.99	0.40/0.12	587.17	12.26	774.55	859.73	1.31	1000.97	469.56	1.35	1008.17
p2	3360.09	10.99	0.39/0.11	3356.10	10.99	0.40/0.12	585.92	12.29	784.95	885.58	1.37	914.45	510.73	1.47	1016.71
p3	3358.89	10.97	0.39/0.11	3354.90	10.97	0.40/0.12	584.67	12.26	782.58	884.84	1.37	914.45	509.46	1.46	1012.68
p4	3348.68	10.99	0.38/0.10	3341.50	10.99	0.38/0.10	590.98	12.31	777.36	835.55	1.22	1182.91	418.65	2.11	1322.27
p5	3347.48	10.97	0.38/0.10	3340.30	10.97	0.38/0.10	589.73	12.28	799.21	834.81	1.22	1182.91	417.88	2.11	1317.27
p6	3363.82	10.99	0.33/0.00	3363.91	10.99	0.41/0.32	540.38	12.28	822.15	839.95	1.38	956.21	470.90	1.38	1081.35
p7	3362.82	10.97	0.33/0.00	3362.91	10.97	0.41/0.32	539.13	12.25	819.72	838.71	1.38	956.21	469.63	1.38	1077.35
p8	3361.76	10.99	0.38/0.03	3364.67	10.99	0.51/0.20	527.25	12.28	852.91	848.17	1.30	985.18	451.02	1.30	1100.07
p9	3360.76	10.97	0.38/0.03	3363.67	10.97	0.51/0.20	526.00	12.25	850.48	846.93	1.30	985.18	449.75	1.30	1096.07
p10	3354.80	10.99	0.39/0.04	3358.28	10.98	0.38/0.13	554.90	12.25	899.68	807.17	1.21	1076.07	435.45	2.26	1204.83
p11	3353.80	10.97	0.39/0.04	3357.28	10.96	0.38/0.13	553.65	12.22	897.24	806.43	1.21	1076.07	434.18	2.26	1200.83
p12	3378.55	10.99	0.33/0.12	3380.00	10.99	0.41/0.20	553.65	12.27	853.02	853.60	1.32	1017.35	469.85	1.35	1127.36
p13	3377.55	10.97	0.33/0.12	3379.00	10.97	0.41/0.20	552.40	12.24	851.59	852.86	1.32	1017.35	468.58	1.35	1123.36
p14	3357.21	10.99	0.32/0.03	3355.56	10.97	0.57/0.19	564.40	12.25	921.93	805.90	1.21	1093.53	420.65	2.24	1248.14
p15	3356.21	10.97	0.32/0.03	3354.56	10.95	0.57/0.19	563.15	12.22	919.50	805.16	1.21	1093.53	419.38	2.24	1244.14
TILE_2	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)
p0	3382.64	10.99	0.33/0.00	3385.98	11.00	0.42/0.04	510.87	12.25	891.88	838.55	1.28	1038.63	461.20	2.33	1165.67
p1	3381.64	10.97	0.33/0.00	3384.98	10.97	0.42/0.04	509.62	12.22	889.45	837.81	1.28	1038.63	459.93	2.32	1161.67
p2	3340.68	10.99	0.38/0.10	3341.50	10.99	0.38/0.10	590.98	12.31	777.36	835.55	1.22	1182.91	418.65	2.11	1322.27
p3	3339.48	10.97	0.38/0.10	3340.30	10.97	0.38/0.10	589.73	12.28	799.21	834.81	1.22	1182.91	417.88	2.11	1317.27
p4	3378.43	10.99	0.35/0.03	3368.98	10.99	0.53/0.26	554.30	12.22	829.33	852.48	1.30	974.53	472.48	1.36	1094.32
p5	3377.43	10.97	0.35/0.03	3367.98	10.97	0.53/0.26	553.05	12.19	826.90	851.74	1.30	974.53	471.21	1.36	1090.32
p6	3374.50	10.99	0.33/0.00	3362.34	10.98	0.41/0.19	568.30	12.29	796.47	861.08	1.32	940.49	454.13	3.11	1080.02
p7	3373.50	10.97	0.33/0.00	3361.34	10.96	0.41/0.19	567.05	12.26	794.09	860.34	1.32	940.49	452.86	3.11	1076.02
p8	3377.28	10.99	0.37/0.03	3366.20	10.99	0.50/0.30	556.65	12.30	768.52	880.02	1.39	888.88	490.25	1.41	993.04
p9	3376.28	10.97	0.37/0.03	3365.20	10.97	0.50/0.30	555.40	12.27	766.14	879.28	1.39	888.88	488.98	1.41	989.04
p10	3352.99	10.99	0.41/0.23	3361.33	10.98	0.42/0.28	525.30	12.26	872.55	840.38	1.28	1037.82	444.77	2.28	1162.18
p11	3351.99	10.97	0.41/0.23	3360.33	10.96	0.42/0.28	524.05	12.23	870.12	839.64	1.28	1037.82	443.50	2.28	1158.18
p12	3383.53	10.99	0.31/0.00	3386.01	10.99	0.33/0.20	537.05	12.33	728.91	710.45	1.42	848.01	395.73	1.43	961.84
p13	3382.53	10.97	0.31/0.00	3385.01	10.97	0.33/0.20	535.80	12.31	771.75	868.30	1.34	911.89	486.82	1.40	1015.36
p14	3363.51	10.99	0.37/0.03	3365.20	10.99	0.50/0.29	554.30	12.29	819.18	844.30	1.29	1019.29	464.75	1.34	1145.50
p15	3362.51	10.97	0.37/0.03	3364.20	10.97	0.50/0.29	553.05	12.26	817.41	843.56	1.29	1019.29	463.48	1.34	1141.50
TILE_3	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)
p0	3363.94	10.99	0.37/0.03	3364.67	10.99	0.49/0.27	553.05	12.26	817.41	843.56	1.29	1019.29	463.48	1.34	1141.50
p1	3362.94	10.97	0.37/0.03	3363.67	10.97	0.49/0.27	551.80	12.23	814.98	842.82	1.29	1019.29	462.21	1.34	1137.50
p2	3354.80	10.99	0.39/0.04	3358.28	10.98	0.38/0.13	554.90	12.25	899.68	807.17	1.21	1076.07	435.45	2.26	1204.83
p3	3353.80	10.97	0.39/0.04	3357.28	10.96	0.38/0.13	553.65	12.22	897.24	806.43	1.21	1076.07	434.18	2.26	1200.83
p4	3383.53	10.99	0.31/0.00	3386.01	10.99	0.33/0.20	537.05	12.33	728.91	710.45	1.42	848.01	395.73	1.43	961.84
p5	3382.53	10.97	0.31/0.00	3385.01	10.97	0.33/0.20	535.80	12.31	771.75	868.30	1.34	911.89	486.82	1.40	1015.36
p6	3363.51	10.99	0.37/0.03	3365.20	10.99	0.50/0.29	554.30	12.29	819.18	844.30	1.29	1019.29	464.75	1.34	1145.50
p7	3362.51	10.97	0.37/0.03	3364.20	10.97	0.50/0.29	553.05	12.26	817.41	843.56	1.29	1019.29	463.48	1.34	1141.50
p8	3365.41	10.99	0.36/0.00	3365.88	10.99	0.48/0.19	510.90	12.28	899.21	829.25	1.26	1072.39	452.00	1.30	1214.56
p9	3364.41	10.97	0.36/0.00	3364.88	10.97	0.48/0.19	509.65	12.25	896.78	828.51	1.26	1072.39	450.73	1.30	1210.56
p10	3360.64	10.99	0.35/0.12	3353.81	10.97	0.37/0.16	552.20	12.26	878.60	845.25	1.29	1018.89	439.95	1.33	1187.29
p11	3359.64	10.97	0.35/0.12	3352.81	10.95	0.37/0.16	550.95	12.23	876.17	844.51	1.29	1018.89	438.68	1.33	1183.29
p12	3384.70	10.99	0.31/0.00	3387.45	10.99	0.40/0.21	554.85	12.25	899.84	880.03	1.38	944.74	479.40	1.37	1069.27
p13	3383.70	10.97	0.31/0.00	3386.45	10.97	0.40/0.21	553.60	12.22	897.41	879.29	1.38	944.74	478.13	1.37	1065.27
p14	3350.56	10.99	0.44/0.18	3341.17	10.97	0.47/0.18	547.45	12.29	791.87	867.50	1.33	921.44	439.57	1.33	1055.33
p15	3349.56	10.97	0.44/0.18	3340.17	10.95	0.47/0.18	546.20	12.26	789.49	866.76	1.33	921.44	438.30	1.33	1051.33
p16	3374.10	10.99	0.41/0.33	3362.64	10.98	0.38/0.15	504.52	12.31	950.66	848.83	1.30	1095.01	444.55	2.28	1267.50
p17	3373.10	10.97	0.41/0.33	3361.64	10.96	0.38/0.15	503.27	12.28	948.23	848.09	1.30	1095.01	443.28	2.28	1263.50
p18	3347.20	10.99	0.36/0.04	3354.67	10.97	0.43/0.22	897.88	12.22	972.04	821.42	1.24	1123.47	435.98	1.26	1341.75
p19	3346.20	10.97	0.36/0.04	3353.67	10.95	0.43/0.22	896.63	12.19	969.61	820.68	1.24	1123.47	434.71	1.26	1337.75
p20	3376.04	10.99	0.42/0.08	3362.51	10.98	0.40/0.19	559.62	12.31	767.21	702.15	1.40	875.56	398.45	1.41	999.41
p21	3375.04	10.97	0.42/0.08	3361.51	10.96	0.40/0.19	558.37	12.28	764.83	701.41	1.40	875.56	397.18	1.41	995.41
p22	3355.61	10.99	0.41/0.13	3357.25	10.97	0.40/0.13	569.77	12.29	780.51	874.75	1.35	901.04	461.23	1.33	1035.20
p23	3354.61	10.97	0.41/0.13	3356.25	10.95	0.40/0.13	568.52	12.26	778.13	873.91	1.35	901.04	459.12	1.32	1031.20
p24	3377.88	10.99	0.38/0.24	3367.54	10.99	0.38/0.28	525.30	12.26	861.77	847.45	1.31	990.10	464.78	1.35	1089.27
p25	3376.88	10.97	0.38/0.24	3366.54	10.97	0.38/0.28	524.05	12.23	859.34	846.71	1.31	990.10	463.51	1.35	1085.27
TILE_20	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)
p0	3380.54	10.99	0.35/0.12	3351.81	10.97	0.35/0.10	555.25	12.27	914.98	880.03	1.38	964.74	479.40	1.37	1069.27
p1	3379.54	10.97	0.35/0.12	3350.81	10.95	0.35/0.10	553.99	12.24	912.55	879.29	1.38	964.74	478.13	1.37	1065.27
p2	3350.56	10.99	0.44/0.18	3341.17	10.97	0.47/0.18	547.45	12.29	791.87	867.50	1.33	921.44	439.57	1.33	1055.33
p3	3349.56	10.97	0.44/0.18	3340.17	10.95	0.47/0.18	546.20	12.26	789.49	866.76	1.33	921.44	438.30	1.33	1051.33
p4	3374.10	10.99	0.41/0.33	3362.64	10.98	0.38/0.15	504.52	12.31	950.66	848.83	1.30	1095.01	444.55	2.28	1267.50
p5	3373.10	10.97	0.41/0.33	3361.64	10.96	0.38/0.15	503.27	12.28	948.23	848.09	1.30	1095.01	443.28	2.28	1263.50
p6	3347.20	10.99	0.36/0.04	3354.67	10.97	0.43/0.22	897.88	12.22	972.04	821.42	1.24	1123.47	435.98	1.26	1341.75
p7	3346.20	10.97	0.36/0.04	3353.67	10.95	0.43/0.22	896.63	12.19	969.61	820.68	1.24	1123.47	434.71	1.26	1337.75
p8	3376.04	10.99	0.42/0.08	3362.51	10.98	0.40/0.19	559.62	12.31	767.21	702.15	1.40	875.56	398.45	1.41	999.41
p9	3375.04	10.97	0.42/0.08	3361.51	10.96	0.40/0.19	558.37	12.28	764.83	701.41	1.40	875.56	397.18	1.41	995.41
p10	3355.61	10.99	0.41/0.13	3357.25	10.97	0.40/0.13	569.77	12.29	780.51	874.75	1.35	901.04	461.23	1.33	1035.20
p11	3354.61	10.97	0.41/0.13	3356.25	10.95	0.40/0.13	568.52	12.26	778.13	873.91	1.35	901.04	459.12	1.32	1031.20
p12	3377.88	10.99	0.38/0.24	3367.54	10.99	0.38/0.28	525.30	12.26	861.77	847.45	1.31	990.10	464.78	1.35	1089.27
p13	3376.88	10.97	0.38/0.24	3366.54	10.97	0.38/0.28	524.05	12.23	859.34	846.71	1.31	990.10	463.51	1.35	1085.27
TILE_21	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)
p0	3351.81	10.99	0.35/0.12	3352.37	10.99	0.39/0.24	530.32	12.27	843.96	847.58	1.29	1001.96	443.15	1.28	1150.69
p1	3350.81	10.97	0.35/0.12	3351.37	10.97	0.39/0.24	529.07	12.24	841.52	846.84	1.29	1001.96	441.88	1.28	1146.69
p2	3380.03	10.99	0.35/0.03	3371.58	10.99	0.51/0.25	553.65	12.27	854.27	874.27	1.35	879.35	470.10	1.36	1016.97
p3	3379.03	10.97	0.35/0.03	3370.58	10.97	0.51/0.25	552.40	12.24	851.84	873.53	1.35	879.35	468.83	1.36	1012.97
p4	3351.61	10.99	0.41/0.13	3357.25	10.97	0.40/0.13	569.77	12.29	780.51	874.75	1.35	901.04	461.23	1.33	1035.20
p5	3350.61	10.97	0.41/0.13	3356.25	10.95	0.40/0.13	568.52	12.26	778.13	873.91	1.35	901.04	459.12	1.32	1031.20
p6	3377.88	10.99	0.38/0.24	3367.54	10.99	0.38/0.28	525.30	12.26	861.77	847.45	1.31	990.10	464.78	1.35	1089.27
p7	3376.88	10.97	0.38/0.24	3366.54	10.97	0.38/0.28	524.05	12.23	859.34	846.71	1.31	990.10	463.51	1.35	1085.27
TILE_22	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)	Actual	Rate	QoSviolTMinP(s)
p0	3349.56	10.99	0.44/0.18	3340.17	10.97	0.47/0.18	546.20	12.26	789.49	866.76	1.33	921.44	438.30	1.33	1051.33
p1	3348.56	10.97	0.44/0.18	3339.17	10.95	0.47/0.18	544.95	12.23	787.06	866.02	1.33	921.44	437.03	1.33	1047.33
p2	3373.10	10.99	0.41/0.33	3361.64	10.98	0.38/0.15	503.27	12.28	948.23	848.09	1.30	1095.01	443.28	2.28	1263.50
p3	3372.10	10.97	0.41/0.33	3360.64	10.96	0.38/0.15	502.02	12.25	945.80	847.35	1.30	1095.01	442.01	2.28	1259.50
p4	3346.20	10.99	0.36/0.04	3353.67	10.97	0.43/0.22	896.63	12.19	969.61	820.68	1.24	1123.47	434.71	1.26	1337.75
p5	3345.20	10.97	0.36/0.04	3352.67	10.95	0.43/0.22	895.38	12.16	967.18	819.94	1.24	1123.47	433.44	1.26	1333.75
p6	3376.04	10.99	0.42/0.08	3362.51	10.98	0.40/0.19	559.62	12.31	767.21	702.15	1.40	875.56	398.45	1.41	999.41
p7	3375.04	10.97	0.42/0.08	3361.51	10.96	0.40/0.19	558.37	12.28	764.83	701.41	1.40	875.56	397.18	1.41	995.41
p8	3355.61	10.99	0.41/0.13	3357.25	10.97	0.40/0.13	569.77	12.29	780.51	874.75	1.35	901.04	461.23	1.33	1035.20
p9	3354.61	10.97	0.41/0.13	3356.25	10.95	0.40/0.13	568.52	12.26	778.13	873.91	1.35	901.04	459.12	1.32	1031.20
p10	3377.88	10.99	0.38/0.24	3367.54	10.99	0.38/0.28	525.30	12.26	861.77	847.45	1.31	990.10	464.78	1.35	1089.27
p11	3376.88	10.97	0.38/0.24	3366.54	10.97	0.38/0.28	524.05	12.23	859.34	846.71	1.31	990.10	463.51	1.35	1085.27

Configuration

Virtualization Software

Hypervisor Vendor, Product, Version, and Build	VMware ESXi 7.0 U2 Build 17867351 / 03-09-2021
Availability Data (MM-DD-YYYY)	
Datacenter Management Software Vendor, Product, Version, and Build	VMware vCenter Server 7.0 U2 Build 17379766 / 03-09-2021
Availability Data (MM-DD-YYYY)	
Supplemental Software	None

Servers

Number of Servers in System Under Test (all managed hosts in the cluster are per server)	4
Server Manufacturer and Model	Dell EMC PowerEdge R6525
Processor Vendor and Model	AMD EPYC 7713
Processor Speed (GHz) / Turbo Boost Speed (GHz)	2.0 / 3.675
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Primary CPU Cache	32 KB I + 32 KB D on chip per core
Secondary CPU Cache	512 KB I+D on chip per core
Other CPU Cache	256 MB I+D on chip per chip, 32 MB shared / 8 cores
BIOS Version	2.0.3
Memory Size (in GB, Number of DIMMs)	2048, 32
Memory Type and Speed	512 KB I+D on chip per core
Disk Subsystem Type	vSAN, iSCSI SAN
Number of Disk Controllers	2
Disk Controller Vendors and Models	Dell BOSS-S1
Total Number of Physical Disks in Hypervisor	2
Disk Vendors, Models, Capacities, and Speeds	Dell, SSDSCKKB240G8R, 240GB SSD, RAID 1
Number of Boot Disks	2
Boot Disk Adapters Vendor and Models	None
Number of Network Controllers	2
Network Controller Vendors and Models	Mellanox ConnectX-5 EN 25GbE Dual port Adapter
Hypervisor Vendor, Version, and Service Pack	VMware ESXi 7.0 U2 Build 17867351
Virtual Center VM Number of vCPUs	4
Virtual Center VM Virtual Memory (in GB)	17.42
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server 7.0 U2 Build 17379766
Virtual Center VM Disk Size	Default as Notes for Workload
Other Software	None

Clients

Total Number of Virtual Clients / Virtual Client Hosts	317 / 8
System Model(s)	Dell EMC PowerEdge R6525
Processor Vendor(s) and Model(s)	AMD EPYC 7742
Processor Speed(s) (GHz)	2.25 GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Memory per Virtual Client Host	1024 GB
Network Controller(s) Vendors and Models	Mellanox ConnectX-5 EN 25GbE Dual port Adapter
Virtual Client Networking Notes	Management and VM traffic are separated on the vSwitch with two uplinks
Virtual Client Storage Notes	All Clients on local Dell Express Flash PM1725b 3.2TB SFF LUN
Other Software	2 x Dell Express Flash PM1725b 3.2TB SFF FW 1.1.0 2 x Dell BOSS 2 x Dell SSDSCKKB240G8R 240GB SSD, RAID 1
Other Software	VMware ESXi 7.0 U2, Build 17867351

Security Mitigations

Vulnerability	CVE	Exploit	Public Vulnerability Name	Mitigated		
				Server Firmware	ESXi	Guest OS
Spectre	2017-5753	Variant 1	Bounch Check Bypass	Not Vulnerable	Not Vulnerable	Not Vulnerable
Spectre	2017-5753	Variant 1	Branch Target Injection	Not Vulnerable	Not Vulnerable	Not Vulnerable
Meltdown	2017-5754	Variant 3	Rogue Data Cache Load	Not Vulnerable	Not Vulnerable	Not Vulnerable
Meltdown	2018-3640	Variant 3a	Rogue System Register Read	Not Vulnerable	Not Vulnerable	Not Vulnerable
Spectre NG	2018-3639	Variant 4	Speculative Store Bypass	N/A	Not Vulnerable	Not Vulnerable
Foreshadow	2018-3615	L1 Terminal Fault - SGX	L1 Terminal Fault - SGX	N/A	N/A	N/A
Foreshadow-NG	2018-3620	Variant 5	L1 Terminal Fault - OS	N/A	Not Vulnerable	Not Vulnerable
Foreshadow-NG	2018-3646	Variant 5	L1 Terminal Fault - VMM	N/A	Not Vulnerable	N/A

Notes for Workload

Template deployed with disk type: Thick Lazy

Virtualization Software Notes

- vSphere DRS Migration Threshold level set to 1
- Disk.EnableUUID=TRUE (required for vSAN VCenter set to)
- Logging was disabled for all VM's (vSAN, client VMs, and the prime client) (Default is Enabled)
- CDROM & Floppy removed for all VM's except Template VMs (Default is Enabled)
- Power Management set to High Performance (Default is Balanced)
- All Memory Reserved for DS3200 VMs (Default is Not reserved)
- school.mem.pin set to TRUE for all DS3200 VMs (Default FALSE)
- Disk.Local.Unmap set to TRUE for all hosts VMs (Default is Normal)
- Third virtual disk removed from DS3200 twelve clients (DS3200 VMs for other tiles)

Storage Notes

- iqn.2bama.Locality.WeightAction.Affinity = 0 (default 130)
- iqn.2-jyn.VMfsCloneThresh = 0 (default 800)
- iqn.Mem.MemSaveGrp.Limit = 0 (default 6)
- iqn.Net.TcpipHeapSize = 32 (default 32 for vSphere 6.0)
- iqn.Vmx.ChaseSpaceBlocksize = 2 (default 8)

Server Notes

Server BIOS Settings

- NUMA Nodes Per Socket set to 1
- SMT(Logical Cores) off
- DEMM set to off
- Sysrm Profile set to Custom
- Determinism set to Power Determinism

Networking Notes

vSwitch Configuration

- vSwitch0 used for Management, vSAN traffic, and VM traffic for Standby and Test VMs
  - vmnic7 configured as uplink at 100Gbps
  - vmnic6 configured as standby uplink (vmnic5, and vmk0 (default 1500)
- vSwitch1 used for vMotion and DCB traffic
  - vmnic5 configured as uplink at 100Gbps
  - vmnic6 configured as standby uplink (vmnic5, and vmk1 (default 1500)
- vSwitch2 used for all DS3, Auction, and Client traffic
  - vmnic2 and vmnic3 configured as uplinks at 25 Gbps each
  - MTU 9000 configured on vSwitch2, vmnic2, and vmnic3 (default 1500)

Priority Flow Control enabled on the Mellanox switch

Storage Notes

DS3 VM configured with Dell BOSS-S1 virtual disk for each host

- 2 x Dell SSDSCKKB240G8 240GB SSDs configured in RAID1 for virtual disk for LUN1

VMware vSAN (Primary Storage)

- VMware vSAN 7.0 U2
- Capacity: 1032.4 TB
- Cache: 128.0 TB
- Hardware Configuration
  - Each host had two disk groups. Each disk group used:
    - Caching drive: 1 x Dell Express Flash PM1725a 1.6 TB SFF FW 2.0.2
    - Capacity drive: 4 x Dell Express Flash PM1725b 3.2 TB SFF FW 1.1.0
- Software Configuration
  - Custom vSAN Storage Policy: applied Object Checksum Disabled
  - vSAN over RDMA enabled
  - MTU vSAN datastore was used for all SUT VMs and template VMs

Dell EMC Competitive Storage Array (Secondary Storage)

- Dell EMC Unity XT 880F v 5.0.7.0.5.011
- Physical Configuration
  - 25 x 2.5" 1.92TB SSD Drives
  - 2 x Compactlet Storage Controllers
  - 4 x Compactlet 25 GbE SFP28 ports
  - 2 x Dell EMC Compactlet PM1013 1TB SFF SAS
  - Deduplication with compression was enabled across the entire array
  - Thin provisioning was enabled across the entire array and across all LUNs
  - The Compactlet Storage Array in VAA enabled
- Virtual Configuration