VMmark® 3.1.1 Results

Server Vendor & Model: Supermicro AS-2125HS-TNR **Storage Vendor & Model: PureStorage FlashArray FA-X90R2** **Hypervisor: VMware ESXi 8.0 U2 Build 22380479** **Datacenter Management Software: VMware vCenter Server 8.0 U2 Build 22385739**	**VMmark 3.1.1 Score = 26.95 @ 26 Tiles**

Number of Hosts: 2	**Uniform Hosts [yes/no]: yes**	**Total sockets/cores/threads in test: 4/192/384**
Tested By: Supermicro	**Test Date: 04-27-2024**	

Performance Section	Configuration Section	Notes Section
Performance	Configuration	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	3569.80	0.99	2.04 | 0.28	572.53	1.00	0.57 | 0.09	1065.20	1.45	483.40	783.15	1.56	581.61	564.23	1.63	632.91	1.30
p1	3557.41	0.99	1.77 | 0.10	571.38	1.00	0.45 | 0.01	1083.03	1.47	454.33	762.80	1.52	556.18	574.70	1.66	595.07	1.30
p2	3544.22	0.99	1.58 | 0.07	567.83	0.99	0.45 | 0.00	1077.80	1.47	455.80	763.12	1.52	558.98	550.42	1.59	602.25	1.28
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	3562.28	0.99	2.42 | 0.30	568.62	0.99	0.45 | 0.02	1067.95	1.45	475.29	782.42	1.56	569.47	571.02	1.65	603.82	1.30
p1	3541.27	0.98	2.08 | 0.17	564.53	0.99	0.37 | 0.05	1074.22	1.46	464.51	758.80	1.52	562.74	574.20	1.66	594.25	1.29
p2	3529.02	0.98	2.33 | 0.23	564.33	0.99	0.36 | 0.00	1070.03	1.46	473.81	759.17	1.52	571.18	543.15	1.57	626.98	1.27
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	3559.43	0.99	2.19 | 0.20	568.34	0.99	0.64 | 0.13	1070.55	1.46	468.12	787.40	1.57	573.33	569.83	1.64	615.43	1.30
p1	3545.82	0.99	2.02 | 0.22	568.01	0.99	0.45 | 0.03	1079.42	1.47	455.57	763.83	1.53	561.88	573.15	1.65	596.57	1.29
p2	3522.67	0.98	2.32 | 0.30	563.68	0.99	0.44 | 0.03	1085.42	1.48	448.97	763.52	1.53	552.23	548.17	1.58	594.72	1.28
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	3557.32	0.99	2.22 | 0.27	567.00	0.99	0.43 | 0.09	1065.28	1.45	484.45	780.52	1.56	575.92	564.67	1.63	621.41	1.29
p1	3548.81	0.99	1.79 | 0.10	564.90	0.99	0.35 | 0.00	1070.70	1.46	470.93	758.80	1.52	563.37	571.45	1.65	609.34	1.29
p2	3523.95	0.98	2.45 | 0.29	562.78	0.98	0.32 | 0.00	1070.50	1.46	474.46	759.85	1.52	571.32	539.12	1.55	622.47	1.27
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	3565.73	0.99	1.68 | 0.19	571.19	1.00	0.59 | 0.10	1072.75	1.46	481.61	776.60	1.55	591.99	561.50	1.62	643.21	1.29
p1	3545.87	0.99	1.65 | 0.09	564.71	0.99	0.34 | 0.01	1074.85	1.46	466.15	760.42	1.52	574.62	567.48	1.64	625.86	1.29
p2	3531.11	0.98	1.71 | 0.12	559.29	0.98	0.37 | 0.02	1085.42	1.48	448.85	764.52	1.53	557.28	544.60	1.57	612.93	1.28
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	3559.21	0.99	2.50 | 0.33	569.21	0.99	0.41 | 0.04	1050.97	1.43	499.07	775.55	1.55	592.20	556.33	1.60	656.64	1.28
p1	3537.90	0.98	2.23 | 0.31	568.85	0.99	0.35 | 0.00	1075.25	1.46	468.38	761.33	1.52	558.70	566.73	1.63	609.25	1.29
p2	3523.60	0.98	2.46 | 0.26	564.83	0.99	0.33 | 0.01	1063.50	1.45	484.41	754.45	1.51	582.29	532.35	1.54	651.50	1.27
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	3571.79	0.99	2.30 | 0.26	563.28	0.98	0.44 | 0.02	1063.20	1.45	486.53	777.83	1.55	592.54	557.52	1.61	652.46	1.29
p1	3559.01	0.99	1.99 | 0.17	559.86	0.98	0.35 | 0.01	1069.75	1.46	477.11	756.70	1.51	590.20	560.95	1.62	643.83	1.28
p2	3547.17	0.99	1.82 | 0.10	560.54	0.98	0.36 | 0.01	1071.60	1.46	471.73	753.42	1.51	581.98	536.95	1.55	639.36	1.27
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	3566.63	0.99	2.26 | 0.30	568.51	0.99	0.56 | 0.03	1059.60	1.44	496.92	770.58	1.54	590.59	556.80	1.61	647.42	1.29
p1	3550.87	0.99	1.81 | 0.09	562.57	0.98	0.36 | 0.00	1066.35	1.45	479.10	755.55	1.51	575.32	562.30	1.62	626.78	1.28
p2	3534.09	0.98	2.35 | 0.30	559.49	0.98	0.37 | 0.00	1064.30	1.45	477.35	759.00	1.52	578.07	536.77	1.55	639.61	1.27
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	3567.25	0.99	1.59 | 0.07	568.47	0.99	0.35 | 0.00	1067.25	1.45	484.50	781.60	1.56	588.82	553.85	1.60	663.43	1.29
p1	3558.81	0.99	1.38 | 0.05	566.50	0.99	0.34 | 0.01	1075.90	1.47	474.73	753.23	1.50	586.11	560.10	1.62	645.98	1.28
p2	3542.10	0.98	1.51 | 0.05	561.28	0.98	0.36 | 0.01	1074.20	1.46	469.52	756.40	1.51	584.15	534.27	1.54	649.74	1.27
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	3564.94	0.99	2.36 | 0.37	569.23	0.99	0.54 | 0.01	1056.22	1.44	497.54	772.40	1.54	599.02	553.85	1.60	660.02	1.28
p1	3539.66	0.98	2.00 | 0.18	568.49	0.99	0.45 | 0.01	1064.53	1.45	483.25	749.62	1.50	601.32	529.62	1.53	657.26	1.27
p2	3526.48	0.98	2.02 | 0.15	560.09	0.98	0.35 | 0.00	1058.03	1.44	499.57	748.27	1.50	603.51	549.17	1.58	672.30	1.27
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	3572.03	0.99	2.24 | 0.29	562.25	0.98	0.31 | 0.00	1073.20	1.46	470.25	783.98	1.57	568.79	561.15	1.62	637.47	1.29
p1	3554.51	0.99	1.83 | 0.13	563.65	0.99	0.35 | 0.01	1087.10	1.48	453.10	762.92	1.52	570.88	543.88	1.57	622.34	1.28
p2	3543.34	0.98	1.79 | 0.15	559.59	0.98	0.35 | 0.01	1073.30	1.46	476.63	760.65	1.52	573.46	559.55	1.61	646.56	1.28
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	3568.92	0.99	2.28 | 0.23	566.99	0.99	0.42 | 0.03	1048.67	1.43	501.93	772.23	1.54	600.59	554.25	1.60	657.40	1.28
p1	3555.40	0.99	2.00 | 0.17	558.59	0.98	0.34 | 0.00	1066.92	1.45	483.46	723.12	1.44	597.96	534.55	1.54	648.70	1.26
p2	3539.02	0.98	2.35 | 0.20	558.60	0.98	0.37 | 0.01	1054.65	1.44	496.91	772.77	1.54	597.04	554.12	1.60	656.46	1.28
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	3573.46	0.99	2.47 | 0.39	564.65	0.99	0.35 | 0.01	1052.70	1.43	508.61	796.15	1.59	610.77	573.50	1.65	681.07	1.30
p1	3562.55	0.99	2.25 | 0.22	563.23	0.98	0.34 | 0.01	1072.12	1.46	476.87	726.08	1.45	593.89	531.30	1.53	655.73	1.26
p2	3545.19	0.99	1.76 | 0.08	559.16	0.98	0.37 | 0.01	1068.53	1.46	483.60	779.95	1.56	586.78	555.25	1.60	657.31	1.28
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	3563.14	0.99	2.36 | 0.28	570.30	1.00	0.52 | 0.01	1058.00	1.44	496.55	774.12	1.55	597.52	576.83	1.66	662.80	1.30
p1	3556.88	0.99	1.95 | 0.16	568.40	0.99	0.53 | 0.06	1078.22	1.47	464.83	759.60	1.52	571.69	533.45	1.54	642.62	1.27
p2	3541.66	0.98	2.37 | 0.25	560.17	0.98	0.37 | 0.01	1056.10	1.44	509.40	772.77	1.54	612.23	542.42	1.56	706.15	1.27

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	3569.66	0.99	2.39 | 0.46	565.60	0.99	0.39 | 0.03	1065.22	1.45	492.53	776.52	1.55	601.11	577.08	1.66	670.12	1.30
p1	3559.91	0.99	1.85 | 0.12	564.23	0.99	0.35 | 0.02	1078.28	1.47	464.17	761.33	1.52	573.33	531.67	1.53	647.86	1.27
p2	3541.64	0.98	1.65 | 0.09	557.87	0.97	0.31 | 0.00	1074.00	1.46	469.35	785.50	1.57	568.26	557.35	1.61	638.91	1.29
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	3572.22	0.99	2.70 | 0.43	567.19	0.99	0.40 | 0.03	1059.85	1.44	490.28	774.88	1.55	599.32	579.17	1.67	659.21	1.30
p1	3553.00	0.99	1.97 | 0.12	563.50	0.98	0.30 | 0.00	1076.47	1.47	464.96	755.50	1.51	576.71	537.30	1.55	640.08	1.27
p2	3533.68	0.98	2.94 | 0.38	562.63	0.98	0.37 | 0.02	1065.83	1.45	483.60	780.27	1.56	586.78	553.92	1.60	653.58	1.28
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	3568.37	0.99	2.00 | 0.14	569.74	1.00	0.61 | 0.13	1058.53	1.44	498.38	769.33	1.54	610.30	572.70	1.65	681.76	1.29
p1	3553.90	0.99	1.56 | 0.06	565.08	0.99	0.41 | 0.02	1072.72	1.46	482.78	749.60	1.50	594.87	522.42	1.51	684.54	1.26
p2	3531.87	0.98	1.81 | 0.12	561.05	0.98	0.36 | 0.02	1073.25	1.46	478.43	785.85	1.57	578.20	558.52	1.61	653.91	1.29
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	3565.50	0.99	2.50 | 0.34	569.72	1.00	0.54 | 0.06	1072.22	1.46	481.25	781.15	1.56	583.79	582.40	1.68	642.31	1.30
p1	3555.66	0.99	1.92 | 0.15	561.95	0.98	0.32 | 0.02	1081.38	1.47	454.25	758.70	1.52	565.57	540.12	1.56	627.85	1.28
p2	3531.19	0.98	2.31 | 0.29	560.47	0.98	0.36 | 0.02	1061.38	1.45	490.97	774.27	1.55	598.24	551.00	1.59	672.05	1.28
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	3568.28	0.99	1.91 | 0.16	572.57	1.00	0.48 | 0.00	1064.67	1.45	488.93	775.65	1.55	595.97	579.20	1.67	660.74	1.30
p1	3545.97	0.99	1.63 | 0.13	563.09	0.98	0.37 | 0.03	1080.90	1.47	465.93	757.70	1.51	574.66	535.08	1.54	655.20	1.27
p2	3534.42	0.98	1.88 | 0.14	562.61	0.98	0.32 | 0.02	1078.30	1.47	465.28	788.08	1.57	565.35	563.33	1.62	637.45	1.29
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	3562.50	0.99	2.75 | 0.39	566.52	0.99	0.37 | 0.00	1056.38	1.44	496.09	772.20	1.54	594.37	577.67	1.67	662.76	1.29
p1	3552.53	0.99	2.19 | 0.19	562.42	0.98	0.33 | 0.02	1075.17	1.46	463.81	767.65	1.53	552.11	449.75	1.30	605.14	1.23
p2	3539.50	0.98	2.91 | 0.36	560.35	0.98	0.31 | 0.01	1072.28	1.46	469.07	797.40	1.59	543.27	544.85	1.57	606.44	1.29
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	3566.96	0.99	2.22 | 0.24	570.23	1.00	0.51 | 0.07	1060.33	1.44	497.91	776.90	1.55	598.15	575.77	1.66	673.40	1.30
p1	3550.19	0.99	1.82 | 0.10	570.43	1.00	0.61 | 0.13	1064.85	1.45	484.98	756.35	1.51	589.11	526.58	1.52	675.66	1.27
p2	3531.47	0.98	2.00 | 0.17	564.55	0.99	0.38 | 0.02	1067.03	1.45	481.26	785.33	1.57	577.96	558.12	1.61	656.70	1.29
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	3571.46	0.99	2.31 | 0.28	565.04	0.99	0.33 | 0.00	1064.65	1.45	482.60	783.98	1.57	574.34	586.38	1.69	638.75	1.30
p1	3552.27	0.99	1.86 | 0.13	563.94	0.99	0.35 | 0.02	1073.35	1.46	468.43	758.65	1.52	570.73	511.65	1.48	641.27	1.26
p2	3534.59	0.98	2.11 | 0.15	560.66	0.98	0.39 | 0.04	1052.30	1.43	502.93	780.38	1.56	586.22	579.25	1.67	664.59	1.29
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	3563.47	0.99	1.79 | 0.08	567.48	0.99	0.42 | 0.01	1068.08	1.45	482.34	779.85	1.56	587.66	581.17	1.68	658.86	1.30
p1	3554.88	0.99	1.61 | 0.09	564.76	0.99	0.36 | 0.02	1076.95	1.47	469.66	760.77	1.52	577.77	532.23	1.53	659.33	1.27

p2	3541.79	0.98	1.58 | 0.09	560.52	0.98	0.38 | 0.05	1065.60	1.45	482.12	791.73	1.58	567.62	560.67	1.62	646.90	1.29
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	3566.45	0.99	2.45 | 0.36	571.72	1.00	0.50 | 0.01	1067.78	1.45	479.22	780.15	1.56	583.27	581.52	1.68	647.28	1.30
p1	3552.48	0.99	2.10 | 0.16	568.91	0.99	0.35 | 0.00	1082.22	1.47	462.19	738.67	1.48	564.84	512.23	1.48	637.21	1.26
p2	3536.10	0.98	2.21 | 0.21	566.00	0.99	0.38 | 0.01	1068.70	1.46	474.06	784.02	1.57	568.86	589.42	1.70	625.46	1.30
TILE_24	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3572.66	0.99	2.14 | 0.25	568.69	0.99	0.40 | 0.00	1072.72	1.46	470.72	786.12	1.57	571.94	589.23	1.70	632.29	1.31
p1	3563.97	0.99	1.85 | 0.28	564.63	0.99	0.36 | 0.01	1091.45	1.49	450.28	747.05	1.49	551.41	512.73	1.48	639.14	1.26
p2	3551.45	0.99	1.69 | 0.09	560.42	0.98	0.32 | 0.02	1078.80	1.47	464.94	794.52	1.59	560.68	593.50	1.71	618.76	1.31
TILE_25	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3574.72	0.99	2.18 | 0.18	568.75	0.99	0.51 | 0.02	1062.03	1.45	489.38	754.23	1.51	589.41	554.17	1.60	663.88	1.28
p1	3558.09	0.99	1.95 | 0.11	562.35	0.98	0.34 | 0.00	1072.67	1.46	470.41	758.60	1.52	572.35	529.27	1.53	657.00	1.27
p2	3539.94	0.98	2.54 | 0.25	562.65	0.98	0.39 | 0.01	1068.33	1.45	482.42	784.98	1.57	571.27	581.62	1.68	643.57	1.30

p0_score:	33.66
p1_score:	33.10
p2_score:	33.34

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	29.00	29.00	23.00	12.50
Avg_Seconds_To_Complete	4.56	66.35	84.17	247.94
Failures	0.00	0.00	0.00	0.00
Ratio	1.12	1.61	1.28	1.56
Number_Of_Threads	1	1	1	1

Summary	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p2)
Unreviewed_VMmark3_Applications_Score	33.34	
Unreviewed_VMmark3_Infrastructure_Score	1.38	
Unreviewed_VMmark3_Score	26.95	

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 8.0 U2 Build 22380479 / 09-21-2023
Datacenter Management Software Vendor,	

Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 8.0 U2 Build 22385739 / 09-21-2023
Supplemental Software	None
Servers	
Number of Servers in System Under Test (all subsequent fields in this section are per server)	2
Server Manufacturer and Model	Supermicro AS-2125HS-TNR
Processor Vendor and Model	AMD EPYC 9474F
Processor Speed (GHz) / Turbo Boost Speed (GHz)	3.6 / 4.1
Total Sockets/Total Cores/Total Threads	2 Sockets / 96 Cores / 192 Threads
Primary CPU Cache	32KB I + 32KB D on chip per core
Secondary CPU Cache	1MB I + D on chip per core
Other CPU Cache	256MB I+D on chip per chip, 32MB shared / 6 cores
BIOS Version	1.5
Memory Size (in GB, Number of DIMMs)	2304GB, 24
Memory Type and Speed	96GB DDR5 2Rx4 4800MHz RDIMM
Disk Subsystem Type	FC SAN
Number of Disk Controllers	0
Disk Controller Vendors and Models	N/A
Total Number of Physical Disks for Hypervisor	0
Disk Vendors, Models, Capacities, and Speeds	N/A
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	Emulex LPe35002-M2 32Gb 2p FC HBA
Number of Network Controllers	1
Network Controller Vendors and Models	Solarflare XtremeScale X2522 25G Network Adapter
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	06-13-2023
BIOS Availability Date (MM-DD-YYYY)	07-05-2023
Software Availability Date (MM-DD-YYYY)	09-21-2023
Network	
Network Switch Vendors and Models	Mellanox MSN2700 32-port Switch
Network Speed	SUT hosts: 2 x 25Gb/s Client hosts: 2 x 100Gb/s
Primary Storage	
Storage Category	FC SAN

Storage Vendors, Models, and Firmware Versions	PureStorage FlashArray FA-X90R2, Purity FA6.1.0
Storage Configuration Summary	PureStorage FlashArray FA-X90R2: • 2 Controller nodes • 20 x Pure Storage 1.92TB NVMe Flash Modules

Datacenter Management Server	
System Model	Supermicro SuperServer AS-1024US-TRT
Processor Vendor and Model	AMD EPYC 7742 CPU
Processor Speed (GHz)	2.25
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Memory Size (in GB, Number of DIMMs)	512, 16
Network Controller(s) Vendors and Models	Mellanox ConnectX-5 VPI (MCX556A-EDAT) 100Gb/s 2-port NIC
Operating System, Version, Bitness, and Service Pack	VMware ESXi 7.0 Update 2 Build 17630552
Virtual Center VM Number of vCPUs	8
Virtual Center VM Virtual Memory (in GB)	30
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server 8.0 U1 Build 21560480
Other Hardware	None
Other Software	None

Clients	
Total Number of Virtual Clients / Virtual Client Hosts	25 / 4
System Model(s)	AS-1124US-TNRP
Processor Vendor(s) and Model(s)	AMD EPYC 7763
Processor Speed(s) (GHz)	2.45
Total Sockets/Total Cores/Total Threads	8 Sockets / 512 Cores / 1024 Threads
Memory per Virtual Client Host	2TB (Client Host 1-3) 1792GB (Client Host 4)
Network Controller(s) Vendors and Models	Mellanox ConnectX-6 VPI (MT28908) 100Gb/s 2-port NIC
Virtual Client Networking Notes	All management traffic and workload traffic running on a single 100Gb/s port
Virtual Client Storage Notes	All clients on shared FC LUN on PureStorage FlashArray FA-X90R2
Other Hardware	Emulex LPe35002-M2 32Gb 2p FC HBA
Other Software	VMware ESXi 8.0 U2 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	Not Vulnerable	Not Vulnerable
Spectre	2017-5715	Variant 2	Branch Target Injection	Not Vulnerable	Not Vulnerable	Not Vulnerable
Meltdown	2017-5754	Variant 3	Rogue Data Cache Load	N/A	Not Vulnerable	Not Vulnerable

Spectre-NG	2018-3640	Variant 3a	Rogue System Register Read	Not Vulnerable	N/A	N/A
Spectre-NG	2018-3639	Variant 4	Speculative Store Bypass	N/A	Not Vulnerable	Not Vulnerable
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	Not Vulnerable
Foreshadow-NG	2018-3646	Variant 5	L1 Terminal Fault - VMM	N/A	Not Vulnerable	N/A

Notes for Workload

Virtualization Software Notes

- All Standby VMs had CPU shares set to low (default normal)
- All DS3DB, ElasticDB and ElasticLB, and DS3WebA VMs had CPU shares set to High (default normal)
- All DS3DB VM memory shares set to High (default normal)
- Added sched.mem.lpage.enable1GPage to TRUE for all DS3DB VMs (default normal)
- All memory reserved for DS3DB VMs and PrimeClient (default non-reserved)
- Memory was pinned for all DS3DB VMs and PrimeClient.
- CDROM and floppy removed from all VMs except for PrimeClient, clients, and template VMs.
- Logical CPU configuration changed for all multi-CPU VMs except for PrimeClient and clients to 1 socket with multiple cores (default single core per socket)
- vSphere DRS Automation level set to Fully Automated.
- vSphere DRS Migration Threshold set to Fully Automated level 2.
- DS3DB0 was configured to not use the third virtual disk before building additional tiles.
- Logging was disabled for all VMs.
- Template VM deployed with disk type thick

Server Notes

- L2 Stream HW Prefetcher = Disabled (default Auto)
- L2 Up/Down Prefetcher = Disabled (default Auto)
- Global C-state Control = Disabled (default Auto)
- TDP Control = 400 (default Auto)
- PPT Control = 400 (default Auto)
- Determinism Control = Power (default Auto)
- NUMA per Socket = 1 (default Auto)

- **Advanced Settings:**

- Cpu.CreditAgePeriod = 1000 (default 3000)
- Cpu.HTWholeCoreThreshold = 0 (default 800)
- Disk.IdleCredit = 64 (default 32)
- Disk.ReqCallThreshold = 1 (default 8)
- Mem.CtlMaxPercent = 0 (default 65)
- Mem.ShareScanGHz = 0 (default 4)
- Numa.LocalityWeightActionAffinity = 0 (default 130)
- Numa.LTermFairnessInterval = 0 (default 5)
- Numa.PageMigEnable = 0 (default 1)

- Numa.PreferHT = 1 (default 0)
- Numa.RebalancePeriod = 60000 (default 2000)
- Numa.SwapLoadEnable = 0 (default 1)
- Numa.SwapLocalityEnable = 0 (default 1)
- Power.CpuPolicy = High Performance (default Balanced)
- UserVars.SuppressShellWarning = 1 (default 0)

Networking Notes

- vSwitch0 configured for Management Network, VM Network, and workload networks
  - Connected to vmnic0
  - vSwitch0, vmk0, and vmnic0 set to MTU 9000 (default 1500)
  - 3 additional portgroups created on vSwitch0
    - All Auction VMs connected to portgroup auction
    - All DS3 VMs connected to portgroup ds3
    - All Elastic VMs connected to portgroup elastic
- vSwitch1 configured for vMotion Network
  - Connected to vmnic1
  - vSwitch1, vmk1, and vmnic1 set to MTU 9000 (default 1500)
- All Standby VMs and a template VM were also connected to VM Network.

Storage Notes

- All client server OS installed on 64GB LUN PureStorage FA-X90R2 Array
- All SUT hosts OS installed on 32GB LUN PureStorage FA-X90R2 Array
- All FC ports regardless of model are running at 16Gbps
- FC LUN Folder configuration:
  - All LUNs are backed by the same NVMe disks present on the PureStorage FA-X90R2 Array
  - All DB VMs were stored on a 1TB LUN associated with a corresponding tile number.
  - All template VMs were storage a 8TB LUN named infra_source.
  - All DS3WebA VM were stored on a 4TB LUN named infra_source.
  - All Standby VM were stored on a 4TB LUN named infra_source.
  - All other VMs were stored on a 1TB LUN associated with a corresponding tile number.
  - All VM infrastructure operations were on a 1TB LUN called infra_target for its destination.
- All FC LUNs were configured with:
  - Round Robin Path Policy (Default: Most Recently Used)
  - IO Operations Limit 1 (Default: 1000)

Datacenter Management Server Notes

None

Operating System Notes

None

Software Notes

None

Client Notes

- Primeclient VM configured with a 1TB sized second disk.
- PureStorage FA-X90R2 Array contains all the client and PrimeClient virtual machines on a shared 4TB LUN.
- MTU set to 9000 (default 1500) for vSwitch0, vmkernel ports, and all uplinks on the ESXi Client Hosts.
    - ESXi Client Host 1, 2, and 4 were connected to the vSwitch through vmnic0
    - ESXi Client Host 3 was connected to the switch through vmnic4.
- PrimeClient and all Client VMs were connected to VM Network.
- DRS level 4 was enabled on the Client cluster.
- UserVars.SuppressShellWarning = 1 (default 0)

Other Notes

VMmark3.properties file modified with:

- TileDelay was set to 5 (default 60)
- ErrorImmediate was set to true (default false)
- ScrubConfigFile was set to true (default false)
- VCscratchDir = /root/VMmark3/results/scratch (default /root/VMmark3/samples)

  These were the following changes made to VM Staf.cfg in PrimeClient.

- "CONNECTTIMEOUT=10000" was added to the original statement as following:
  interface ssl library STAFTCP option Secure=Yes option CONNECTTIMEOUT=10000 option Port=6550
- "-Xms8192m -Xmx8192m" was added to the original statement as following:
  /usr/local/staf/services/stax/STAX.jar OPTION "J2=-Xverify:none -Xms8192m -Xmx8192m" \
- "numthreads" was changed to 500 (default : 200)
- "SET CONNECTATTEMPTS 5 CONNECTRETRYDELAY 2s" was newly added to STAF.cfg

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