VMmark® 3.1.1 Results

Server Vendor & Model: xFusion Digital Technologies Co.,Ltd 2288H V7 **Storage Vendor & Model: VMware vSAN 8.0 U1 - All Flash** **Hypervisor: VMware ESXi 8.0 U1 Build 21495797** **Datacenter Management Software: VMware vCenter 8.0 U1 Build 21560480**	**VMmark 3.1.1 Score = 31.58 @ 32 Tiles**

Number of Hosts: 4	**Uniform Hosts [yes/no]: yes**	**Total sockets/cores/threads in test: 8/480/960**
Tested By: xFusion Digital Technologies Co.,Ltd	**Test Date: 08-08-2023**	

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	3572.70	0.99	0.64 | 0.00	566.92	0.99	0.56 | 0.09	918.25	1.25	876.30	657.73	1.31	1031.88	479.60	1.38	1155.92	1.17
p1	3564.92	0.99	0.80 | 0.00	562.90	0.98	0.44 | 0.02	972.48	1.32	727.16	680.73	1.36	859.48	472.60	1.36	974.07	1.19
p2	3556.65	0.99	0.58 | 0.00	561.78	0.98	0.42 | 0.04	918.77	1.25	887.43	662.75	1.32	1035.47	456.65	1.32	1188.67	1.16
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	3578.67	0.99	0.58 | 0.01	569.38	1.00	0.34 | 0.00	961.42	1.31	739.36	703.20	1.40	860.47	517.62	1.49	962.15	1.22
p1	3570.92	0.99	0.82 | 0.02	566.82	0.99	0.42 | 0.04	1021.40	1.39	608.03	725.50	1.45	708.23	507.80	1.46	803.38	1.24
p2	3561.76	0.99	0.78 | 0.01	564.82	0.99	0.49 | 0.09	971.80	1.32	745.87	707.50	1.41	867.84	497.68	1.44	986.34	1.21
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	3574.15	0.99	0.50 | 0.00	564.88	0.99	0.41 | 0.03	980.85	1.34	693.67	722.85	1.44	802.20	537.05	1.55	884.43	1.24
p1	3566.09	0.99	0.58 | 0.01	559.53	0.98	0.40 | 0.04	968.50	1.32	735.57	683.25	1.37	865.98	468.75	1.35	997.89	1.19
p2	3542.52	0.98	0.86 | 0.01	554.21	0.97	0.41 | 0.02	951.95	1.30	775.37	701.42	1.40	884.10	489.75	1.41	1005.31	1.20
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	3568.63	0.99	0.70 | 0.00	561.84	0.98	0.42 | 0.09	1000.20	1.36	656.04	729.77	1.46	760.87	542.25	1.56	845.40	1.25
p1	3561.49	0.99	0.78 | 0.00	559.64	0.98	0.39 | 0.03	995.35	1.36	673.38	700.10	1.40	804.97	483.07	1.39	939.79	1.21
p2	3550.26	0.99	0.60 | 0.00	554.64	0.97	0.28 | 0.02	1007.45	1.37	638.50	745.15	1.49	736.90	530.55	1.53	829.04	1.24
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	3584.31	1.00	0.44 | 0.00	572.96	1.00	0.60 | 0.08	934.60	1.27	832.27	665.75	1.33	1002.38	464.95	1.34	1132.08	1.18
p1	3563.89	0.99	0.64 | 0.00	570.53	1.00	0.74 | 0.19	981.88	1.34	702.43	675.15	1.35	814.62	474.98	1.37	963.98	1.20
p2	3554.28	0.99	0.53 | 0.00	568.89	0.99	0.55 | 0.06	947.83	1.29	791.81	714.50	1.43	921.20	502.10	1.45	1051.91	1.21
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	3581.61	1.00	0.52 | 0.00	569.75	1.00	0.58 | 0.08	982.05	1.34	700.97	690.58	1.38	831.52	502.35	1.45	938.22	1.22

p1	3561.24	0.99	0.65 | 0.00	562.46	0.98	0.32 | 0.01	979.92	1.33	714.34	686.67	1.37	838.19	479.50	1.38	960.42	1.20
p2	3548.95	0.99	0.66 | 0.00	559.01	0.98	0.40 | 0.05	956.77	1.30	776.20	691.75	1.38	908.64	504.35	1.45	1033.92	1.20
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	3575.02	0.99	0.78 | 0.01	568.34	0.99	0.37 | 0.03	995.90	1.36	653.94	714.05	1.43	760.26	526.42	1.52	835.49	1.24
p1	3566.25	0.99	0.93 | 0.04	563.44	0.98	0.32 | 0.02	984.52	1.34	685.27	699.98	1.40	799.69	485.38	1.40	912.08	1.21
p2	3540.06	0.98	0.94 | 0.02	560.59	0.98	0.44 | 0.02	990.90	1.35	682.81	726.05	1.45	784.63	538.92	1.55	880.41	1.24
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	3569.92	0.99	0.78 | 0.01	564.07	0.99	0.33 | 0.03	983.02	1.34	695.66	689.88	1.38	819.85	505.20	1.46	914.31	1.21
p1	3565.94	0.99	0.89 | 0.01	561.15	0.98	0.36 | 0.02	1009.60	1.37	620.66	725.38	1.45	710.92	508.32	1.47	801.84	1.23
p2	3539.39	0.98	0.98 | 0.02	559.03	0.98	0.35 | 0.02	989.12	1.35	679.17	721.85	1.44	788.28	538.70	1.55	875.38	1.24
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	3574.19	0.99	0.48 | 0.00	568.09	0.99	0.61 | 0.06	976.33	1.33	711.48	685.70	1.37	841.02	499.48	1.44	940.12	1.21
p1	3558.74	0.99	0.76 | 0.00	570.68	1.00	0.64 | 0.15	977.77	1.33	708.46	690.55	1.38	836.24	477.80	1.38	950.04	1.20
p2	3545.92	0.99	0.91 | 0.00	562.89	0.98	0.40 | 0.04	943.12	1.28	819.54	681.83	1.36	954.37	499.18	1.44	1081.08	1.20
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	3573.04	0.99	0.49 | 0.00	566.80	0.99	0.58 | 0.12	1011.20	1.38	630.80	716.95	1.43	737.74	528.48	1.52	824.43	1.24
p1	3571.32	0.99	0.58 | 0.00	566.16	0.99	0.53 | 0.11	975.73	1.33	715.63	689.55	1.38	834.77	477.20	1.38	954.89	1.20
p2	3545.23	0.99	0.76 | 0.00	566.31	0.99	0.57 | 0.09	963.52	1.31	743.84	703.83	1.41	853.77	519.90	1.50	957.86	1.22
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	3568.25	0.99	0.50 | 0.00	566.39	0.99	0.37 | 0.05	1002.70	1.37	648.21	708.17	1.41	758.79	517.10	1.49	858.01	1.23
p1	3547.81	0.99	0.50 | 0.00	562.43	0.98	0.34 | 0.04	994.10	1.35	671.12	709.23	1.42	766.43	494.95	1.43	882.61	1.22
p2	3531.93	0.98	0.56 | 0.00	560.30	0.98	0.37 | 0.03	970.05	1.32	739.95	702.42	1.40	870.15	493.95	1.42	986.79	1.20
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	3565.14	0.99	0.82 | 0.01	570.91	1.00	0.49 | 0.01	990.10	1.35	680.20	672.83	1.34	802.18	485.45	1.40	903.85	1.20
p1	3560.47	0.99	0.69 | 0.00	561.46	0.98	0.33 | 0.00	980.25	1.33	698.86	719.48	1.44	800.41	508.43	1.47	909.05	1.22
p2	3547.38	0.99	0.61 | 0.00	556.14	0.97	0.30 | 0.01	986.48	1.34	679.46	698.35	1.40	793.33	511.52	1.47	888.17	1.22
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	3579.57	0.99	1.05 | 0.02	569.55	1.00	0.61 | 0.12	955.02	1.30	751.98	646.42	1.29	893.74	466.43	1.34	1012.04	1.17
p1	3567.90	0.99	0.83 | 0.00	564.53	0.99	0.42 | 0.05	955.30	1.30	760.76	698.33	1.40	877.96	492.95	1.42	988.28	1.20
p2	3553.86	0.99	1.17 | 0.02	560.26	0.98	0.38 | 0.01	970.80	1.32	729.33	680.92	1.36	850.78	499.82	1.44	950.35	1.20
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	3572.17	0.99	0.54 | 0.00	562.88	0.98	0.37 | 0.02	1000.42	1.36	654.19	709.77	1.42	762.99	492.98	1.42	869.08	1.22
p1	3549.49	0.99	0.61 | 0.00	559.18	0.98	0.32 | 0.01	950.40	1.29	792.61	693.52	1.39	919.40	481.27	1.39	1045.91	1.19
p2	3541.06	0.98	0.59 | 0.00	556.99	0.97	0.39 | 0.01	1003.70	1.37	643.26	713.12	1.42	754.54	522.75	1.51	832.22	1.23
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	3580.10	1.00	0.61 | 0.00	566.03	0.99	0.45 | 0.02	999.35	1.36	684.47	701.50	1.40	813.66	485.70	1.40	936.43	1.21

p1	3565.23	0.99	0.79 | 0.01	560.25	0.98	0.40 | 0.03	1014.02	1.38	625.90	747.92	1.49	724.30	530.05	1.53	816.11	1.25
p2	3557.71	0.99	0.72 | 0.00	553.92	0.97	0.40 | 0.02	1024.15	1.39	609.14	729.70	1.46	710.53	536.10	1.55	801.24	1.25
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	3570.13	0.99	0.62 | 0.00	568.60	0.99	0.35 | 0.03	1026.25	1.40	603.16	729.45	1.46	700.28	510.02	1.47	794.87	1.24
p1	3542.78	0.98	0.74 | 0.00	565.03	0.99	0.29 | 0.01	995.85	1.36	683.06	732.85	1.46	793.51	512.35	1.48	908.17	1.23
p2	3529.58	0.98	0.69 | 0.00	559.77	0.98	0.27 | 0.02	974.20	1.33	726.09	684.00	1.37	858.47	473.65	1.37	967.93	1.19
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	3574.11	0.99	1.01 | 0.07	572.52	1.00	0.65 | 0.03	982.38	1.34	696.33	692.12	1.38	814.57	478.68	1.38	929.36	1.20
p1	3566.12	0.99	0.77 | 0.01	572.09	1.00	0.57 | 0.08	960.98	1.31	751.18	704.00	1.41	871.85	494.30	1.43	983.83	1.21
p2	3557.37	0.99	0.72 | 0.01	566.13	0.99	0.40 | 0.11	971.92	1.32	748.02	672.23	1.34	914.19	466.10	1.34	1028.61	1.19
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	3569.71	0.99	0.56 | 0.00	570.03	1.00	0.58 | 0.02	958.55	1.31	749.21	653.12	1.30	871.26	448.93	1.29	988.70	1.17
p1	3557.55	0.99	0.54 | 0.01	569.42	1.00	0.51 | 0.09	963.05	1.31	738.30	732.92	1.46	839.83	520.50	1.50	947.24	1.23
p2	3531.28	0.98	0.62 | 0.01	570.08	1.00	0.46 | 0.12	971.62	1.32	735.58	655.50	1.31	865.07	470.38	1.36	988.58	1.18
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	3584.09	1.00	0.70 | 0.01	569.45	1.00	0.51 | 0.04	973.08	1.33	714.12	685.90	1.37	837.99	474.40	1.37	955.61	1.20
p1	3575.55	0.99	0.76 | 0.01	565.22	0.99	0.47 | 0.02	976.73	1.33	712.92	717.38	1.43	821.52	531.92	1.53	911.12	1.23
p2	3560.34	0.99	0.57 | 0.00	561.22	0.98	0.38 | 0.02	966.60	1.32	735.96	681.00	1.36	853.74	469.55	1.35	975.80	1.19
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	3582.57	1.00	0.55 | 0.00	568.20	0.99	0.25 | 0.00	1043.35	1.42	564.57	745.42	1.49	654.98	522.10	1.51	744.83	1.26
p1	3571.32	0.99	0.60 | 0.00	564.43	0.99	0.32 | 0.00	1016.23	1.38	624.30	745.02	1.49	725.18	554.27	1.60	810.48	1.26
p2	3557.97	0.99	0.54 | 0.00	563.57	0.98	0.36 | 0.01	996.35	1.36	674.55	701.08	1.40	804.33	482.95	1.39	914.98	1.21
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	3580.80	1.00	0.52 | 0.00	564.73	0.99	0.31 | 0.05	939.62	1.28	823.68	652.17	1.30	986.08	447.07	1.29	1127.63	1.16
p1	3572.71	0.99	0.56 | 0.00	562.85	0.98	0.37 | 0.03	951.00	1.30	788.03	685.20	1.37	922.57	502.43	1.45	1033.10	1.20
p2	3556.84	0.99	0.51 | 0.00	562.15	0.98	0.42 | 0.08	967.12	1.32	738.05	673.75	1.35	879.93	470.95	1.36	994.10	1.19
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	3582.41	1.00	0.47 | 0.00	573.43	1.00	0.51 | 0.03	972.70	1.32	725.98	678.73	1.36	861.12	469.93	1.36	982.30	1.19
p1	3568.18	0.99	0.65 | 0.00	566.72	0.99	0.39 | 0.05	930.60	1.27	849.82	675.50	1.35	986.92	489.68	1.41	1114.31	1.19
p2	3556.87	0.99	0.48 | 0.00	567.11	0.99	0.42 | 0.02	999.70	1.36	646.67	709.20	1.42	760.33	496.75	1.43	854.36	1.22
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	3567.09	0.99	0.77 | 0.01	559.88	0.98	0.38 | 0.03	971.52	1.32	721.37	691.30	1.38	819.64	482.55	1.39	920.98	1.20
p1	3557.30	0.99	0.92 | 0.01	558.59	0.98	0.43 | 0.08	980.98	1.34	687.95	722.90	1.44	800.25	532.02	1.53	895.64	1.23
p2	3539.82	0.98	0.97 | 0.02	553.99	0.97	0.39 | 0.06	983.55	1.34	688.46	690.83	1.38	814.64	463.18	1.34	912.96	1.19
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	3575.06	0.99	0.56 | 0.01	565.86	0.99	0.42 | 0.01	981.55	1.34	698.09	699.88	1.40	800.61	486.25	1.40	909.98	1.21

p1	3560.65	0.99	0.56 | 0.00	561.06	0.98	0.33 | 0.00	965.45	1.31	745.88	704.52	1.41	874.94	494.35	1.43	986.82	1.21
p2	3545.38	0.99	0.60 | 0.01	559.46	0.98	0.41 | 0.08	1002.12	1.36	649.55	690.95	1.38	745.28	497.07	1.43	852.52	1.21
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	3568.50	0.99	0.85 | 0.08	565.89	0.99	0.45 | 0.01	964.08	1.31	743.35	701.00	1.40	870.09	489.75	1.41	987.63	1.21
p1	3552.84	0.99	0.84 | 0.01	562.07	0.98	0.46 | 0.05	939.27	1.28	827.49	653.15	1.30	979.61	467.82	1.35	1125.54	1.17
p2	3535.57	0.98	0.72 | 0.00	558.05	0.98	0.34 | 0.02	933.80	1.27	844.41	645.00	1.29	1006.19	440.32	1.27	1161.55	1.15
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	3569.96	0.99	0.53 | 0.00	568.06	0.99	0.34 | 0.05	997.25	1.36	658.09	732.85	1.46	757.71	521.20	1.50	847.54	1.24
p1	3558.28	0.99	0.55 | 0.00	568.31	0.99	0.35 | 0.01	935.12	1.27	814.15	654.60	1.31	960.87	472.98	1.36	1088.86	1.17
p2	3538.92	0.98	1.00 | 0.01	568.36	0.99	0.38 | 0.03	967.30	1.32	737.67	679.70	1.36	862.89	471.68	1.36	977.48	1.19
TILE_26	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3590.08	1.00	0.44 | 0.00	569.36	1.00	0.39 | 0.04	1010.92	1.38	637.10	749.52	1.50	724.85	531.05	1.53	827.06	1.26
p1	3573.41	0.99	0.54 | 0.00	566.09	0.99	0.39 | 0.07	1014.98	1.38	617.35	723.62	1.45	715.53	532.17	1.53	794.80	1.25
p2	3549.04	0.99	0.54 | 0.00	559.42	0.98	0.38 | 0.02	1000.83	1.36	653.80	709.17	1.42	766.07	493.23	1.42	874.70	1.22
TILE_27	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3584.13	1.00	0.51 | 0.00	564.53	0.99	0.28 | 0.00	1018.05	1.39	613.17	760.00	1.52	696.91	537.83	1.55	780.83	1.26
p1	3572.65	0.99	0.63 | 0.01	563.03	0.98	0.41 | 0.04	1008.27	1.37	634.74	717.85	1.43	733.07	525.98	1.52	824.48	1.24
p2	3553.92	0.99	0.61 | 0.01	559.23	0.98	0.39 | 0.03	1010.85	1.38	632.51	714.20	1.43	741.15	498.60	1.44	836.37	1.22
TILE_28	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3579.97	1.00	1.23 | 0.07	564.03	0.99	0.44 | 0.06	957.92	1.30	743.06	703.92	1.41	844.36	494.38	1.43	957.41	1.21
p1	3560.11	0.99	1.26 | 0.09	559.69	0.98	0.47 | 0.05	1004.80	1.37	617.88	715.75	1.43	726.51	526.00	1.52	800.79	1.23
p2	3543.71	0.98	1.10 | 0.03	556.69	0.97	0.40 | 0.01	1019.60	1.39	583.17	740.45	1.48	655.18	520.65	1.50	723.95	1.24
TILE_29	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3580.67	1.00	0.71 | 0.01	573.37	1.00	0.54 | 0.02	972.92	1.32	721.40	713.38	1.43	822.07	503.20	1.45	930.04	1.22
p1	3561.29	0.99	0.99 | 0.04	572.89	1.00	0.51 | 0.05	993.55	1.35	681.46	697.75	1.39	809.62	484.60	1.40	914.42	1.21
p2	3536.41	0.98	1.81 | 0.27	573.92	1.00	0.44 | 0.05	994.50	1.35	673.30	706.58	1.41	781.28	515.12	1.49	884.25	1.23
TILE_30	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3574.69	0.99	0.62 | 0.00	563.30	0.98	0.34 | 0.01	1044.55	1.42	552.83	778.20	1.55	622.70	582.48	1.68	682.94	1.29
p1	3551.81	0.99	0.52 | 0.00	559.52	0.98	0.30 | 0.01	999.27	1.36	651.35	709.77	1.42	760.26	497.30	1.43	855.70	1.22
p2	3543.15	0.98	0.57 | 0.00	559.07	0.98	0.35 | 0.02	964.98	1.31	745.70	706.90	1.41	856.64	495.77	1.43	975.05	1.21
TILE_31	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3578.87	0.99	0.52 | 0.00	564.44	0.99	0.31 | 0.02	1009.50	1.37	634.51	747.85	1.49	723.52	556.23	1.60	795.71	1.26
p1	3562.89	0.99	0.58 | 0.01	560.41	0.98	0.32 | 0.01	1020.30	1.39	601.09	730.17	1.46	694.85	512.58	1.48	785.74	1.24
p2	3555.68	0.99	0.64 | 0.01	554.28	0.97	0.37 | 0.02	1009.88	1.38	630.45	745.23	1.49	724.73	527.52	1.52	818.26	1.24
p0_score:	39.00															

p1_score:	38.87
p2_score:	38.67

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	56.00	50.00	40.00	21.00
Avg_Seconds_To_Complete	5.37	90.80	108.97	302.74
Failures	0.00	0.00	0.00	0.00
Ratio	2.15	2.78	2.22	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	38.87	
Unreviewed_VMmark3_Infrastructure_Score	2.43	
Unreviewed_VMmark3_Score	31.58	

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 8.0 U1 Build 21495797 / 04-18-2023
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter 8.0 U1 Build 21560480 / 04-18-2023
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	xFusion Digital Technologies Co.,Ltd 2288H V7
Processor Vendor and Model	Intel Xeon Platinum 8490H CPU @ 1.90GHz
Processor Speed (GHz) / Turbo Boost Speed (GHz)	1.9 / 3.5
Total Sockets/Total Cores/Total Threads	2 Sockets / 120 Cores / 240 Threads

Primary CPU Cache	32KB I+48KB D on chip per core
Secondary CPU Cache	2MB I+D on chip per core
Other CPU Cache	112.5MB I+D on chip per chip
BIOS Version	2.00.51 (U6216)
Memory Size (in GB, Number of DIMMs)	2048GB, 32*64GB
Memory Type and Speed	64GB 2Rx4 DDR5-4800MT/s RDIMM
Disk Subsystem Type	VMware vSAN OSA, NFS
Number of Disk Controllers	0
Disk Controller Vendors and Models	N/A
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	Intel Corporation NVMe Datacenter SSD P4510 2.0TB
Number of Host Bus Adapters	0
Host Bus Adapter Vendors and Models	none
Number of Network Controllers	2
Network Controller Vendors and Models	Mellanox MCX516A-CCAT 2*100GE QSFP28, Mellanox MCX516A-CCAT 2*100GE QSFP28 (one 100GE port used)
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	02-01-2023
BIOS Availability Date (MM-DD-YYYY)	02-01-2023
Software Availability Date (MM-DD-YYYY)	04-18-2023
Network	
Network Switch Vendors and Models	Huawei CE8850-64CQ-EI Huawei CE5855-48T4S2Q-EI
Network Speed	3*100GE
Primary Storage	
Storage Category	VMware vSAN OSA
Storage Vendors, Models, and Firmware Versions	4*xFusion Digital Technologies Co.,Ltd 2288H V7
Storage Configuration Summary	VMware vSAN (caching tier): xFusion Digital Technologies Co.,Ltd EP600 XFSP4161T60000N (1.6TB 2.5"), VMware vSAN (capacity tier): xFusion Digital Technologies Co.,Ltd EP500 XFSP4151T90000N (1.92TB 2.5")

Datacenter Management Server	
System Model	xFusion Digital Technologies Co.,Ltd 2288H V5
Processor Vendor and Model	Intel Xeon Gold 6226 CPU @ 2.7GHz
Processor Speed (GHz)	2.7
Total Sockets/Total Cores/Total Threads	2 Sockets / 24 Cores / 48 Threads
Memory Size (in GB, Number of DIMMs)	384GB, 12*32GB, 2933MHz
Network Controller(s) Vendors and Models	Huawei LOM X722 2*10GE+2*1GE (one GE port used) Huawei SM380 2*25GE SFP+ (not used) Mellanox MCX416A-CCAT 2*100GE QSFP28 (one 100GE port used)
Operating System, Version, Bitness, and Service Pack	VMware ESXi 8.0 U1 Build 21495797
Virtual Center VM Number of vCPUs	8
Virtual Center VM Virtual Memory (in GB)	28
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter 8.0 U1 Build 21560480
Other Hardware	none
Other Software	none

Clients	
Total Number of Virtual Clients / Virtual Client Hosts	33 / 5
System Model(s)	xFusion Digital Technologies Co.,Ltd 2288H V5
Processor Vendor(s) and Model(s)	Intel Xeon Gold 6242R CPU @ 3.10GHz
Processor Speed(s) (GHz)	3.10
Total Sockets/Total Cores/Total Threads	2 Sockets / 40 Cores / 80 Threads
Memory per Virtual Client Host	384GB, 12*32GB, 2933MHz
Network Controller(s) Vendors and Models	Huawei LOM X722 2*10GE+2*1GE (not used) Huawei SM380 2*25GE SFP+ (not used) Mellanox MCX416A-CCAT 2*100GE QSFP28
Virtual Client Networking Notes	All management traffic and workload traffic running on one vmnic6, vSAN and vMotion traffic running on one vmnic7.

Virtual Client Storage Notes	All clients stored on vSAN datastore.
Other Hardware	none
Other Software	VMware ESXi 8.0 U1 Build 21495797

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

- PrimeClient VM configured with a 500GB sized second disk and a 500GB sized third disk for scratch (default 200GB second disk, no third disk).
- Cluster DRS Automation level set to Fully Automated.
- DRS Migration threshold set to level 2.
- Logging was disabled for all VMs (default: enabled).
- Logical CPU configuration changed for all multi-cpu VMs to one socket with multiple cores (default: Single core per socket).
- The CPU Shares of PrimeClient and all DS3DB* and Client* set to "high" (default: normal).
- VMkernel.Boot.hyperthreadingMitigation = true set on all ESXi hosts (default: false).

Server Notes

- NUMA enabled (default).
- Intel Hyper Threading enabled (default).
- Power Management Setting: Performance.
- VMX enabled (default).
- SATA Controller disable.
- MONITOR/MWAIT enabled.
- BIOS automatically configured the memory 4800MT/s to run at 4400MT/s.

- **ESXi settings of SUT hosts:**

  - o CPU performance policy = High Performance (default: balanced)
  - o /vmkernel/hyperthreadingMitigation = true (default: false)
  - o /UserVars/HostClientSessionTimeout = 0 (default: 900)
  - o /UserVars/HostClientCEIPOptIn = 1 (default: 0)
  - o /vmkernel/module/tcpip4/options = "ipv6=0" (default: "ipv6=1")
  - o /UserVars/SuppressShellWarning = 1 (default: 0)

Networking Notes

- MTU was set to 9000 for vmnic0, vmnic1 and vmnic2, and MTU was set to 9000 for VM Network, vSAN and vMotion vSwitches.
- Three Standard vSwitches were set up: vSwitch0, vSAN and vMotion.
- These three switches were backed by vmnic0, vmnic1 and vmnic2 respectively.
- vSwitch0 contains the following portgroups: VM Network, Management Network.
- vSAN contains the following portgroups: vSAN.
- vMotion contains the following portgroups: vMotion.
- All virtual machines used VM Network for traffic.
- All vSAN traffic is only run on vSAN on its only dedicated vSwitch.
- All vMotion traffic is only run on vMotion on its only dedicated vSwitch.

Storage Notes

- All client hosts OS installed on a RAID1 of 2 m.2 drives via SSSTC ER2-GD480.
- All SUT hosts OS installed on one Intel DC P4510 2.0TB.

- **NFS Folder configuration**
  - o All folders are backed by two physical servers acting as a NFS server on a single striped zfs array, mounted storage device detailed in the "Secondary Shared Storage Device" section.
  - o deploy1 datastore -> /data/deploy1 belongs to "nfs1".
  - o deploy2 datastore -> /data/deploy2 belongs to "nfs2".
  - o vmotion1 datastore -> /data/vmotion1 belongs to "nfs1".
  - o vmotion2 datastore -> /data/vmotion2 belongs to "nfs2".

- **System under Test configuration**
  - o 4 x 2 x Intel(R) Xeon(R) Platinum 8490H CPU @ 1.90GHz
  - o 4 x 32 x Samsung 64GB, 4800MHz, 2Rank (4G*4bit)
  - o 4 x 3 x xFusion EP600 1.6TB NVMe
  - o 4 x 9 x xFusion EP500 1.92TB NVMe
  - o 4 x 2 x Mellanox MCX516A-CCAT 2*100GE QSFP28
  - o 4 x Intel P4510 2.0TB NVMe

- **Software configuration**
  - o All Flash vSAN.
  - o Three disk groups per host.
  - o Each disk group contains 1 x xFusion EP600 1.6TB for caching and 3 x xFusion EP500 1.92TB for capacity.
  - o vSAN Default Storage Policy used.

- **Virtual Machine LUN Distribution:**

o vsanDatastore contains the following workloads:

- ♦ AuctionAppA*
- ♦ AuctionAppB*
- ♦ AuctionDB*
- ♦ AuctionLB*
- ♦ AuctionMSQ*
- ♦ AuctionNoSQL*
- ♦ AuctionWebA*
- ♦ AuctionWebB*
- ♦ DS3DB*
- ♦ DS3WebA*
- ♦ DS3WebB*
- ♦ DS3WebC*
- ♦ ElasticAppA*
- ♦ ElasticAppB*
- ♦ ElasticDB*
- ♦ ElasticLB*
- ♦ ElasticWebA*
- ♦ ElasticWebB*
- ♦ Standby*
- ♦ vmmark3.1.1-template-031420-02
- ♦ vmmark3.1.1-template-031420-03

• Secondary Shared Storage Device:

o Hardware: xFusion Digital Technologies Co.,Ltd 2288H V5
- ♦ 2 x xFusion Digital Technologies Co.,Ltd 2288H V5
- ♦ 2 x 2 x Intel(R) Xeon(R) Gold 6226R CPU @ 2.90GHz
- ♦ 2 x 12 x Samsung 32GB 2933 DIMM
- ♦ 2 x Huawei LOM X722 2*10GE+2*1GE
- ♦ 2 x Huawei SM380 2*25GE SFP+
- ♦ 2 x Mellanox MCX416A-CCAT 2*100GE QSFP28
- ♦ 2 x 4 x Intel P4610 1.6TB NVMe
- ♦ 2 x 2 x SSSTC ER2-GD480
- ♦ 2 x LSI SAS3004

o Firmware:
- ♦ BIOS - 8.46 (U47)
- ♦ BMC - 6.64 (U4282)
- ♦ X722 - 3.33
- ♦ SM380 - 14.28.1300
- ♦ MCX416A-CCAT - 12.28.2006
- ♦ 1.6TB P4610 - VDV10184
- ♦ SSSTC ER2-GD480 - E4N6404

o Software:
- ♦ CentOS-7-x86_64-DVD-2009.iso/ Updates as of 11/04/2020

o Configuration:
♦ Disks installed into Bays 20,21,22,23 per host
♦ All 4 disks mounted to /data per host
♦ Network ports for MCX416A-CCAT set to MTU 9000 per host
♦ ufw disabled per host

o Virtual Machine LUN Distribution:
♦ deploy1 contains the following workload: deploy1, belongs to "nfs1".
♦ deploy2 contains the following workload: deploy2, belongs to "nfs2".
♦ vmotion1 contains the following workload: vmotion1, belongs to "nfs1".
♦ vmotion2 contains the following workload: vmotion2, belongs to "nfs2".

Datacenter Management Server Notes

The datacenter management server was hosted on a separate vCenter Server Appliance from the Clients and SUT.

Operating System Notes

• none

Software Notes

• none

Client Notes

• Cluster DRS Automation level set to Fully Automated.
• DRS Migration threshold set to level 2.
• MTU was set to 9000 for vmnic6 and MTU was set to 9000 for vSwitch "vSwitch0" of VM Network and Management.
• MTU was set to 9000 for vmnic7 and MTU was set to 9000 for vSwitch "vSAN" of vSAN and vMotion.
• The CPU Shares of PrimeClient and all Client* set to "high" (default: normal).

• ESXi settings of Client hosts:

o CPU performance policy = High Performance (default: balanced)
o /vmkernel/hyperthreadingMitigation = true (default: false)
o /UserVars/HostClientSessionTimeout = 0 (default: 900)
o /UserVars/HostClientCEIPOptIn = 1 (default: 0)
o /vmkernel/module/tcpip4/options = "ipv6=0" (default: "ipv6=1")
o /UserVars/SuppressShellWarning = 1 (default: 0)

• vSAN configuration

o All Flash vSAN.
o One disk group per host.
o Each disk group contains 1 x Intel P4610 1.6TB for caching and 1 x Intel P4510 2.0TB for capacity.
o vSAN Default Storage Policy used.

o vsanDatastore contains the following Client VMs:

- ♦ Client0
- ♦ Client1
- ♦ Client2
- ♦ Client3
- ♦ Client4
- ♦ Client5
- ♦ Client6
- ♦ Client7
- ♦ Client8
- ♦ Client9
- ♦ Client10
- ♦ Client11
- ♦ Client12
- ♦ Client13
- ♦ Client14
- ♦ Client15
- ♦ Client16
- ♦ Client17
- ♦ Client18
- ♦ Client19
- ♦ Client20
- ♦ Client21
- ♦ Client22
- ♦ Client23
- ♦ Client24
- ♦ Client25
- ♦ Client26
- ♦ Client27
- ♦ Client28
- ♦ Client29
- ♦ Client30
- ♦ Client31
- ♦ PrimeClient

Other Notes

- VMmark3.properties - DebugLevel = 3 (default: 0)
- VMmark3.properties - VCscratchDir = /root/VMmark3/results/scratch (default: /root/VMmark3/samples/)
- VMmark3.properties - VCsupportTimeOut = 4800 (default: 2400)
- VMmark3.properties - TileDelay = 10 (default: 60)
