

DS S24F-R2840-4

Performance

Test Report

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Test Configuration

RAID	Controller	DS S24F-R2840-4
	FW	3.85B.26 (FA385B26_222_IFT_ESDSG6S6G.BIN)
	RAM	1GB DDR II SDRAM
	Drives	RAID: Hitachi SAS 450GB (Model: HUS156045VLS600; Capacity: 450GB; Speed: 6G; 15,000 RPM) JBOD Hitachi SAS 450GB (Model: HUS156045VLS600; Capacity: 450GB; Speed: 6G; 15,000 RPM)
	Channels	Host Channel - Channel 0, 1, 2, 3
		Drive Channel - Channel 4, 5
		RCC Channel – Channel 6
	Logical Drives (RAID5/6) (Dual Hosts)	LV0 - Host channel 0; AID 112; LUN 0; 20 drives/channel; 1 partition
		LV1 - Host channel 1; BID 113; LUN 0; 20 drives/channel; 1 partition
	Logical Drives (RAID5/6) (Four Hosts)	LV0 - Host channel 0; AID 112; LUN 0; 10 drives/channel; 1 partition
		LV1 - Host channel 0; BID 113; LUN 0; 10 drives/channel; 1 partition
		LV2 - Host channel 1; AID 112; LUN 0; 10 drives/channel; 1 partition
		LV3 - Host channel 1; BID 113; LUN 0; 10 drives/channel; 1 partition
	Logical Drives (RAID5/6) All Cache Hit (Eight Hosts)	LV0 - Host channel 0; AID 112; LUN 0; Host channel 1; AID 112; LUN 0; 10 drives/channel; 1 partition
		LV1 - Host channel 0; BID 113; LUN 0; Host channel 1; BID 113; LUN 0; 10 drives/channel; 1 partition
		LV2 - Host channel 2; AID 112; LUN 0; Host channel 3; AID 112; LUN 0; 10 drives/channel; 1 partition
		LV3 - Host channel 2; BID 113; LUN 0; Host channel 3; BID 113; LUN 0; 10 drives/channel; 1 partition
	Setting	Optimization for – Sequential, (Raid 5 / 6 Default stripe size 128K)
		Periodic Drive Check Time – Disable
		Periodic SAF-TE and SES Device Check Time – Disable
		Verification on Normal Drive Writes – Disable
		Verification on LD Rebuild Writes – Disable
		Max Drive Response Timeout – Disable
Drive Delayed Write – Disable		
SDRAM ECC – Enable		

		BBU – On
Data Service	Snapshot Copy on Write	V.V Size: 100GB Virtual Volume 1: Host channel 0; ID 112; LUN 0 Virtual Volume 2: Host channel 1; ID 112; LUN 0
	Split mirror	V.V Size: 100GB (Source) Virtual Volume 1: Host channel 0; ID 112; LUN 0 (Target) Virtual Volume 2
Software	SANWatch	SANWatch_2.1.c.10.SW_DBFlushAgent_2.0.a.44-20091223_CM_2.0.a.50-20091229
HBA	OS Register	MaximumSGList: FF (Hexadecimal)
		NumberOfRequests: FF (Hexadecimal)
	QLogic	QLE2562 (Driver VER: 9.1.7.18), Bios: v2.02
Server * 2 (Host)	M/B	SUPERMICRO X7DBE Single
	CPU	Intel Quad-Core Xeon 2.0GHz
	RAM	Kingston 2GB DDRII 667 DIMM * 8
	PCI	PCI-X 64-bit/133MHz *3
	System Drive	IDE Seagate 120G (ST3120026A)
	OS.	Microsoft Windows Server 2003 Enterprise R2 (With Service Pack 2)
Benchmark	IOmeter	2004.07.30
	I/O Tool Setting	Outstanding I/O - 16 for MB/s; (Random - 256 for IO/s , Sequential - 64 for IO/s)
		Ramp Up Time: 40 sec.
		Run Time: 30 sec.
		One LD Corresponds to One Worker.
		All Cache: Maximum Disk Size 10240
		Align I/Os on

Test Result

1 End-to-End

1.1 Adaptive Write Policy Disable

1.1.1 Sequential I/O

1.1.1.1 RAID5 Normal Status

(End-to-End / Adaptive Write Policy Disable / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	150573.80	73.52	54088.49	26.41
	4K Bytes	127545.94	498.22	43056.57	168.18
	8K Bytes	113553.02	887.13	36247.30	283.18
	128K Bytes	10689.79	1336.22	6282.53	785.31
	256K Bytes	6185.70	1546.42	3448.45	862.11
	512K Bytes	3105.20	1552.60	1763.76	881.88
	1M Bytes	1558.17	1558.17	847.58	847.58
Four Channel	512 Bytes	139993.00	68.36	57295.17	27.97
	4K Bytes	120207.80	469.56	43546.51	170.10
	8K Bytes	108427.04	847.09	35627.66	278.34
	128K Bytes	20746.56	2593.32	5762.21	720.27
	256K Bytes	11048.95	2762.24	2958.95	739.73
	512K Bytes	5555.45	2777.73	1403.31	701.65
	1M Bytes	2783.38	2783.38	712.74	712.74

1.1.1.2 RAID6 Normal Status

(End-to-End / Adaptive Write Policy Disable / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	150445.17	73.45	53293.32	26.02
	4K Bytes	126861.35	495.55	42039.20	164.21
	8K Bytes	113529.22	886.94	34899.60	272.65
	128K Bytes	10327.46	1290.93	5742.35	717.79
	256K Bytes	6189.69	1547.42	3148.81	787.20
	512K Bytes	3104.98	1552.49	1617.17	808.58
	1M Bytes	1558.10	1558.10	787.80	787.80
Four Channel	512 Bytes	139501.12	68.12	56597.10	27.63
	4K Bytes	119520.13	466.88	41078.97	160.46
	8K Bytes	108330.29	846.33	32346.66	252.70
	128K Bytes	20101.60	2512.70	4774.28	596.78
	256K Bytes	10561.09	2640.27	2449.01	612.25
	512K Bytes	5349.40	2674.70	1255.32	627.66
	1M Bytes	2691.04	2691.04	633.12	633.12

1.2 Adaptive Write Policy Enable

1.2.1 Sequential I/O

1.2.1.1 RAID5 Normal Status

(End-to-End / Adaptive Write Policy Enable / Sequential / Write Back with Cache Sync.)

(End-to-End / Adaptive Write Policy Enable / Sequential / Write Through with Cache Sync.)

(End-to-End / Adaptive Write Policy Enable / Sequential / Write Through without Cache Sync.)

I/O Parameters		Read		Write Back W/ Cache Sync		Write Through			
						W/ Cache Sync.		W/O Cache Sync.	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	150326.65	73.40	46717.07	22.81	6894.74	3.36	9580.44	4.67
	4K Bytes	126832.85	495.44	37117.01	144.99	5682.70	22.19	7714.22	30.13
	8K Bytes	112697.23	880.44	30928.90	241.63	5555.68	43.40	7084.34	55.34
	128K Bytes	10701.00	1337.62	6285.21	785.65	2318.28	289.78	2308.87	288.60
	256K Bytes	6186.91	1546.72	3453.11	863.27	1705.29	426.32	1725.81	431.45
	512K Bytes	3105.09	1552.54	1380.33	690.16	1359.69	679.84	1358.69	679.34
	1M Bytes	1558.04	1558.04	1241.30	1241.30	1063.44	1063.44	1066.24	1066.24
Four Channel	512 Bytes	137998.17	67.38	55503.29	27.10	13731.60	6.70	18985.15	9.27
	4K Bytes	117195.87	457.80	41800.84	163.28	11429.00	44.64	15377.36	60.06
	8K Bytes	106334.56	830.74	33900.39	264.85	12000.27	93.75	14080.18	110.00
	128K Bytes	20318.29	2539.79	5878.70	734.83	4276.43	534.55	4271.48	533.93
	256K Bytes	10956.26	2739.07	2978.89	744.72	3102.30	775.57	3077.05	769.26
	512K Bytes	5559.14	2779.57	2410.66	1205.33	2408.61	1204.30	2403.28	1201.64
	1M Bytes	2781.67	2781.67	1241.26	1241.26	1201.15	1201.15	1239.99	1239.99

1.2.1.2 RAID6 Normal Status

(End-to-End / Adaptive Write Policy Enable / Sequential / Write Back with Cache Sync.)

(End-to-End / Adaptive Write Policy Enable / Sequential / Write Through with Cache Sync.)

(End-to-End / Adaptive Write Policy Enable / Sequential / Write Through without Cache Sync.)

I/O Parameters		Read		Write Back W/ Cache Sync		Write Through			
						W/ Cache Sync.		W/O Cache Sync.	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	150503.77	73.48	46639.37	22.77	6744.54	3.29	9197.76	4.49
	4K Bytes	126469.02	494.01	36218.33	141.48	5292.81	20.67	7012.69	27.39
	8K Bytes	112855.01	881.67	30226.63	236.15	4974.25	38.86	6546.55	51.14
	128K Bytes	10323.53	1290.44	5759.27	719.90	2364.76	295.59	2363.80	295.47
	256K Bytes	6189.76	1547.44	3123.40	780.85	1796.27	449.06	1784.52	446.13
	512K Bytes	3105.01	1552.50	1372.65	686.32	1370.83	685.41	1364.66	682.33
	1M Bytes	1558.24	1558.24	1204.12	1204.12	980.99	980.99	1037.35	1037.35
Four Channel	512 Bytes	137755.28	67.26	55079.20	26.89	13326.33	6.50	17460.00	8.52
	4K Bytes	116803.36	456.26	39382.76	153.84	10311.35	40.27	14558.31	56.86
	8K Bytes	106004.27	828.16	30595.80	239.03	11379.91	88.90	13351.33	104.30
	128K Bytes	19930.75	2491.34	4055.54	506.94	4676.15	584.51	4542.76	567.84
	256K Bytes	10586.48	2646.62	2486.48	621.62	3579.30	894.82	3829.51	957.37
	512K Bytes	5345.32	2672.66	2535.50	1267.75	2552.68	1276.34	2498.46	1249.23
	1M Bytes	2695.07	2695.07	1266.22	1266.22	1315.69	1315.69	1305.30	1305.30

1.2.2 Random I/O

1.2.2.1 RAID5 Normal Status

(End-to-End / Adaptive Write Policy Enable / Random)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	11018.11	5.37	4464.65	2.18
	4K Bytes	11033.06	43.09	4430.07	17.30
	8K Bytes	11051.41	86.33	4391.06	34.30
	128K Bytes	3363.06	420.38	1292.39	161.54
	256K Bytes	2246.09	561.52	1042.89	260.72
	512K Bytes	1425.69	712.84	720.24	360.12
	1M Bytes	849.70	849.70	429.88	429.88
Four Channel	512 Bytes	12295.22	6.00	4393.63	2.14
	4K Bytes	12299.80	48.04	4383.45	17.12
	8K Bytes	12307.80	96.15	4349.03	33.97
	128K Bytes	5135.69	641.96	1312.15	164.01
	256K Bytes	3110.11	777.52	849.97	212.49
	512K Bytes	1813.67	906.83	699.76	349.88
	1M Bytes	1038.35	1038.35	458.12	458.12

:: Drive Version : 9.17.16

1.2.2.2 RAID6 Normal Status

(End-to-End / Adaptive Write Policy Enable / Random)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	11017.69	5.37	3126.24	1.52
	4K Bytes	10995.93	42.95	3113.34	12.16
	8K Bytes	11039.44	86.24	3076.53	24.03
	128K Bytes	3365.07	420.63	887.80	110.97
	256K Bytes	2304.81	576.20	792.79	198.19
	512K Bytes	1430.59	715.29	576.91	288.45
	1M Bytes	855.06	855.06	369.31	369.31
Four Channel	512 Bytes	12493.78	6.10	3141.51	1.53
	4K Bytes	12502.08	48.83	3134.04	12.24
	8K Bytes	12512.07	97.75	3107.33	24.27
	128K Bytes	5142.87	642.85	916.84	114.60
	256K Bytes	3151.29	787.82	680.47	170.11
	512K Bytes	1836.99	918.49	686.35	343.17
	1M Bytes	1045.42	1045.42	578.52	578.52

:: Drive Version : 9.17.16

1.2.3 Degraded Status

1.2.3.1 RAID5 Degraded Status

(End-to-End / Adaptive Write Policy Enable / Degraded / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	148780.59	72.64	53772.22	26.25
	4K Bytes	122821.27	479.77	43275.01	169.04
	8K Bytes	103656.15	809.81	36407.87	284.43
	128K Bytes	10431.83	1303.97	6305.93	788.24
	256K Bytes	6161.50	1540.37	3446.74	861.68
	512K Bytes	3103.96	1551.98	1761.69	880.84
	1M Bytes	1558.24	1558.24	854.68	854.68
Four Channel	512 Bytes	133509.23	65.19	57010.87	27.83
	4K Bytes	109736.85	428.65	43041.30	168.13
	8K Bytes	91954.25	718.39	35435.57	276.84
	128K Bytes	13909.91	1738.73	5877.90	734.73
	256K Bytes	7032.77	1758.19	3026.10	756.52
	512K Bytes	3523.42	1761.71	1471.84	735.92
	1M Bytes	1746.56	1746.56	710.75	710.75

1.2.3.2 RAID6 Degrad Status (1 Drive Failed)

(End-to-End / Adaptive Write Policy Enable / Degraded / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	148222.86	72.37	53259.51	26.00
	4K Bytes	121618.19	475.07	42377.18	165.53
	8K Bytes	101582.56	793.61	35290.63	275.70
	128K Bytes	10039.37	1254.92	5810.86	726.35
	256K Bytes	6167.42	1541.85	3139.49	784.87
	512K Bytes	3101.55	1550.77	1640.43	820.21
	1M Bytes	1558.26	1558.26	800.62	800.62
Four Channel	512 Bytes	132011.58	64.45	56964.97	27.81
	4K Bytes	107086.56	418.30	41743.38	163.06
	8K Bytes	90662.61	708.30	32610.49	254.76
	128K Bytes	13774.24	1721.78	5022.55	627.81
	256K Bytes	6925.05	1731.26	2620.17	655.04
	512K Bytes	3464.27	1732.13	1305.70	652.85
	1M Bytes	1472.96	1472.96	639.14	639.14

1.2.3.3 RAID6 Degrad Status (2 Drives Failed)

(End-to-End Adaptive Write Policy Enable / Degraded / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	147004.58	71.77	53562.59	26.15
	4K Bytes	117959.52	460.77	42598.53	166.40
	8K Bytes	97629.26	762.72	35561.85	277.82
	128K Bytes	9987.45	1248.43	5936.16	742.02
	256K Bytes	5962.29	1490.57	3259.69	814.92
	512K Bytes	3101.33	1550.66	1668.62	834.31
	1M Bytes	1557.67	1557.67	807.77	807.77
Four Channel	512 Bytes	129811.17	63.38	56724.74	27.69
	4K Bytes	104616.05	408.65	42227.28	164.95
	8K Bytes	85669.69	669.29	33611.96	262.59
	128K Bytes	13135.21	1641.90	5156.22	644.52
	256K Bytes	6760.69	1690.17	2734.81	683.70
	512K Bytes	3008.66	1504.33	1356.24	678.12
	1M Bytes	1193.13	1193.13	667.34	667.34

1.2.4 Rebuilding Status

1.2.4.1 RAID5 Rebuilding - Low Priority

(End-to-End / Adaptive Write Policy Enable / Rebuilding / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	129104.79	63.03	45865.24	22.39
	4K Bytes	112737.54	440.38	38126.79	148.93
	8K Bytes	99649.46	778.51	32634.13	254.95
	128K Bytes	10820.26	1352.53	5814.82	726.85
	256K Bytes	6146.63	1536.65	3230.18	807.54
	512K Bytes	3104.64	1552.32	1670.62	835.31
	1M Bytes	1558.10	1558.10	807.78	807.78
Four Channel	512 Bytes	96719.26	47.22	44884.57	21.91
	4K Bytes	86811.13	339.10	37167.79	145.18
	8K Bytes	80430.17	628.36	31513.10	246.19
	128K Bytes	12487.77	1560.97	5587.85	698.48
	256K Bytes	6572.27	1643.06	2907.78	726.94
	512K Bytes	3420.12	1710.06	1394.07	697.03
	1M Bytes	1891.92	1891.92	694.11	694.11

1.2.4.3 RAID6 – 2 Drives Rebuilding - Low Priority

(End-to-End / Adaptive Write Policy Enable / Rebuilding / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	127024.22	62.02	45185.76	22.06
	4K Bytes	110537.79	431.78	37270.56	145.58
	8K Bytes	97646.81	762.86	31711.40	247.74
	128K Bytes	10372.20	1296.52	5422.61	677.82
	256K Bytes	5844.13	1461.03	3004.53	751.13
	512K Bytes	3091.96	1545.98	1538.78	769.39
	1M Bytes	1555.48	1555.48	749.40	749.40
Four Channel	512 Bytes	99783.81	48.72	44564.34	21.75
	4K Bytes	87285.30	340.95	35680.49	139.37
	8K Bytes	81468.08	636.46	28984.37	226.44
	128K Bytes	11531.60	1441.45	4687.29	585.91
	256K Bytes	6655.26	1663.81	2473.59	618.39
	512K Bytes	3921.86	1960.93	1236.84	618.42
	1M Bytes	1948.12	1948.12	609.36	609.36

2 All cache hit

2.1 Adaptive Write Policy Disable

2.1.1 Sequential I/O

2.1.1.1 RAID5 Normal Status

(All Cache Hit / Adaptive Write Policy Disable / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	157807.20	77.05	56265.96	27.47
	4K Bytes	155255.67	606.46	53342.39	208.36
	8K Bytes	152009.11	1187.57	50573.19	395.10
	128K Bytes	12203.64	1525.45	10556.63	1319.57
	256K Bytes	6192.68	1548.17	5339.75	1334.93
	512K Bytes	3104.35	1552.17	2678.69	1339.34
	1M Bytes	1558.48	1558.48	1330.13	1330.13
Four Channel	512 Bytes	142367.56	69.51	59605.71	29.10
	4K Bytes	139145.34	543.53	55620.64	217.26
	8K Bytes	135747.13	1060.52	52465.57	409.88
	128K Bytes	17801.14	2225.14	10509.01	1313.62
	256K Bytes	8917.70	2229.42	5289.39	1322.34
	512K Bytes	4465.36	2232.68	2629.81	1314.90
	1M Bytes	2229.98	2229.98	1304.77	1304.77
Eight Channel	512 Bytes	132047.64	64.47	64054.93	31.27
	4K Bytes	124128.95	484.87	57129.56	223.16
	8K Bytes	117808.20	920.37	52250.80	408.20
	128K Bytes	22937.59	2867.19	10241.92	1280.24
	256K Bytes	11485.93	2871.48	5168.88	1292.22
	512K Bytes	5745.77	2872.88	2601.80	1300.90
	1M Bytes	2863.42	2863.42	1289.50	1289.50

2.1.1.2 RAID6 Normal Status

(All Cache Hit / Adaptive Write Policy Disable / Sequential)

I/O Parameters		Read		Write Back W/ Cache Sync	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	512 Bytes	157841.47	77.07	55848.33	27.26
	4K Bytes	154874.97	604.98	52983.43	206.96
	8K Bytes	151949.32	1187.10	50625.10	395.50
	128K Bytes	12197.11	1524.63	10554.99	1319.37
	256K Bytes	6191.85	1547.96	5337.30	1334.32
	512K Bytes	3104.50	1552.25	2678.67	1339.33
	1M Bytes	1558.43	1558.43	1330.09	1330.09
Four Channel	512 Bytes	142225.05	69.44	59625.48	29.11
	4K Bytes	138860.07	542.42	55616.41	217.25
	8K Bytes	135403.19	1057.83	52440.23	409.68
	128K Bytes	17804.23	2225.52	10507.54	1313.44
	256K Bytes	8909.21	2227.30	5294.64	1323.66
	512K Bytes	4461.14	2230.57	2626.34	1313.17
	1M Bytes	2227.16	2227.16	1305.01	1305.01
Eight Channel	512 Bytes	133305.41	65.09	64861.97	31.67
	4K Bytes	124447.24	486.12	57973.09	226.45
	8K Bytes	118330.54	924.45	53232.45	415.87
	128K Bytes	22964.21	2870.52	10383.44	1297.93
	256K Bytes	11463.34	2865.83	5168.17	1292.04
	512K Bytes	5742.58	2871.29	2602.82	1301.41
	1M Bytes	2862.85	2862.85	1288.53	1288.53

3 Data Service

3.1 Snapshot Copy on Write

3.1.1 Sequential I/O

2.1.1.1 RAID5 Normal Status

(End-to-End / Sequential)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	1M Bytes	689.46	689.46	428.79	428.79

3.1.1.2 RAID6 Normal Status

(End-to-End / Sequential)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	1M Bytes	683.05	683.05	409.75	409.75

3.1.2 Random I/O

3.1.2.1 RAID5 Normal Status

(End-to-End / Random)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	8K Bytes	1943.13	15.18	659.39	5.15

3.1.2.2 RAID6 Normal Status

(End-to-End / Random)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
Dual Channel	8K Bytes	1969.30	15.39	629.83	4.92

3.1.2.2 RAID5 Normal Status

(End-to-End / Random)

I/O Parameters		OLTP: 60 % Read / 40 % Write			
Host Channels	I/O Size	IOPS		MB/sec	
Dual Channel	8K Bytes	1027.28		8.03	

3.1.2.4 RAID6 Normal Status

(End-to-End / Random)

I/O Parameters		OLTP: 60 % Read / 40 % Write			
Host Channels	I/O Size	IOPS		MB/sec	
Dual Channel	8K Bytes	1007.15		7.87	

3.2 Split mirror

3.2.1 Host Performance when Volume mirror

3.2.1.1 1 Source to 1 Target

3.2.1.1.1 Sequential I/O

3.2.1.1.1.1 RAID5 Normal Status

(End-to-End / Sequential)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
One Channel	1M Bytes	748.68	748.68	246.69	246.69

3.2.1.1.1.2 RAID6 Normal Status

(End-to-End / Sequential)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
One Channel	1M Bytes	744.88	744.88	239.30	239.30

3.2.1.1.2 Random I/O

3.2.1.1.2.1 RAID5 Normal Status

(End-to-End / Random)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
One Channel	8K Bytes	4590.77	35.87	1324.95	10.35

3.2.1.1.2.2 RAID6 Normal Status

(End-to-End / Random)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
One Channel	8K Bytes	4569.13	35.70	1094.39	8.55

3.2.1.1.2.3 RAID5 Normal Status

(End-to-End / Random)

I/O Parameters		OLTP: 60 % Read / 40 % Write			
Host Channels	I/O Size	IOPS		MB/sec	
One Channel	8K Bytes	2446.47		19.11	

3.2.1.1.2.4 RAID6 Normal Status

(End-to-End / Random)

I/O Parameters		OLTP: 60 % Read / 40 % Write	
Host Channels	I/O Size	IOPS	MB/sec
One Channel	8K Bytes	2079.11	16.24

3.2.1.2 1 Source to 2 Target

3.2.1.2.1 Sequential I/O

3.2.1.2.1.1 RAID5 Normal Status (End-to-End / Sequential)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
One Channel	1M Bytes	742.07	742.07	152.72	152.72

3.2.1.2.1.2 RAID6 Normal Status

(End-to-End / Sequential)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
One Channel	1M Bytes	741.54	741.54	151.29	151.29

3.1.1.2.2 Random I/O

3.1.1.2.2.1 RAID5 Normal Status

(End-to-End / Random)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
One Channel	8K Bytes	4166.45	32.55	882.29	6.89

3.2.1.2.2.2 RAID6 Normal Status

(End-to-End / Random)

I/O Parameters		Read		Write Back	
Host Channels	I/O Size	IOPS	MB/sec	IOPS	MB/sec
One Channel	8K Bytes	4569.94	35.70	713.76	5.58

3.2.1.2.2.3 RAID5 Normal Status

(End-to-End / Random)

I/O Parameters		OLTP: 60 % Read / 40 % Write			
Host Channels	I/O Size	IOPS		MB/sec	
One Channel	8K Bytes	1740.23		13.60	

3.2.1.2.2.4 RAID6 Normal Status

(End-to-End / Random)

I/O Parameters		OLTP: 60 % Read / 40 % Write	
Host Channels	I/O Size	IOPS	MB/sec
One Channel	8K Bytes	1488.04	11.63

3.2.2 Volume Copy / Virtual Volume Size 100GB / Data Size 10GB

Sub System	1 Raid
Parameters	1 Source to 1 Target
Finish Time	8 Min