



Subsystem Performance Testing Report for

EonStor® A24F-G2430



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1. Performance Configuration

Below is a description of the benchmarking testing environment and includes specifications for the server hardware, disk drive, subsystem, management tools of the subsystem and the software-testing tool. The industry standard test application IOMeter was used to measure the performance of the unit. This system comes with the standard Infortrend management software SANWatch®. Telnet and RS-232 connections can be used to manage the subsystem as well.

A24F-G2430 Testing Configuration

RAID	Controller	A24F-G2430
	FW	3.61F.05 (FA361F05_203_IFT_ESSA24F-G2430.bin)
	RAM	512MB DDR SDRAM
	Drives	Seagate SATAII 750GB (Model: ST37500640NS; Capacity: 750GB; Speed: 3G; 7200 RPM)
	Channels	Host Channel – 0, 1
		Drive Channel – 2, 3
	Logical Drives (RAID5/6) (Dual Hosts)	LD0 - Host channel 0; ID 112; LUN 0; 12 drives/LD; 1 partition
		LD1 - Host channel 1; ID 112. LUN 0; 12 drives/LD; 1 partition
	Setting	Optimization for – Sequential, (Default stripe size: 128K)
		Auto Rebuild on Drive Swap – Disable
Verification on Normal Drive Writes – Disable		
Verification on LD Rebuild Writes – Disable		
Drive Delayed Write – Disabled		
SDRAM ECC – Enable		
	BBU – ON	
Server*2	M/B	SUPERMICRO X6DHE-XG2

(Host)	CPU	Intel Xeon 2.8GHz
	RAM	Kingston 512MB DDRII400 DIMM * 2
	PCI	PCI-X 64-bit/133MHz *3
	System Drive	IDE Seagate 120G (ST3120026A)
	OS.	Microsoft Windows Server 2003 Enterprise R2 (With Service Pack 2)
	HBA Card	QLogic QLA2462 (Driver VER: 9.1.4.15)
Benchmark	IOmeter	2004.07.30
	I/O Tool Setting	Outstanding I/O - 16 for MB/s; 64 for IO/s
		Ramp Up Time: 40 sec.
		Run Time: 30 sec.
	One LD Corresponds to One Worker.	

2. Performance Test Results

The Performance test results are listed below.



NOTE:

In the following sections, “write-back” is abbreviated as **WB** and “write-through” is abbreviated as **WT**.

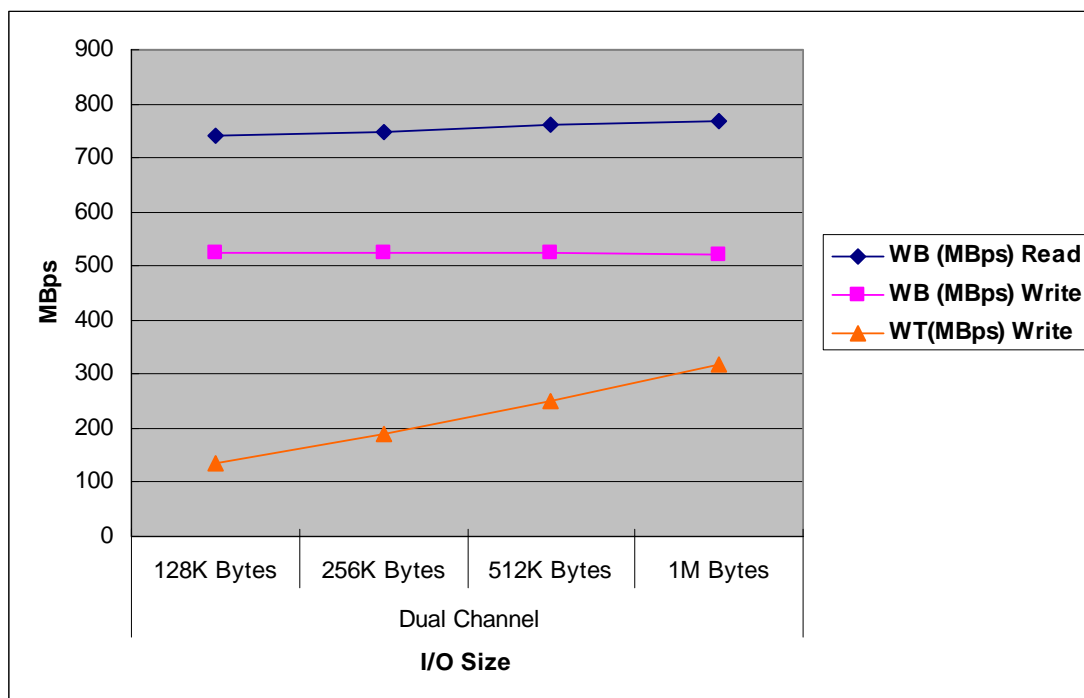
❖ **End-to-End RAID 5 Performance**

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)		WT (MBPS)
Host Channels	I/O Size	Read	Write	Write
Dual Channel	128K Bytes	739.87	523.36	135.94
	256K Bytes	748.33	522.90	189.87
	512K Bytes	759.79	523.54	249.60
	1M Bytes	766.58	521.63	318.45



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	71410.67	51400.27
	4K Bytes	52992.93	37864.34

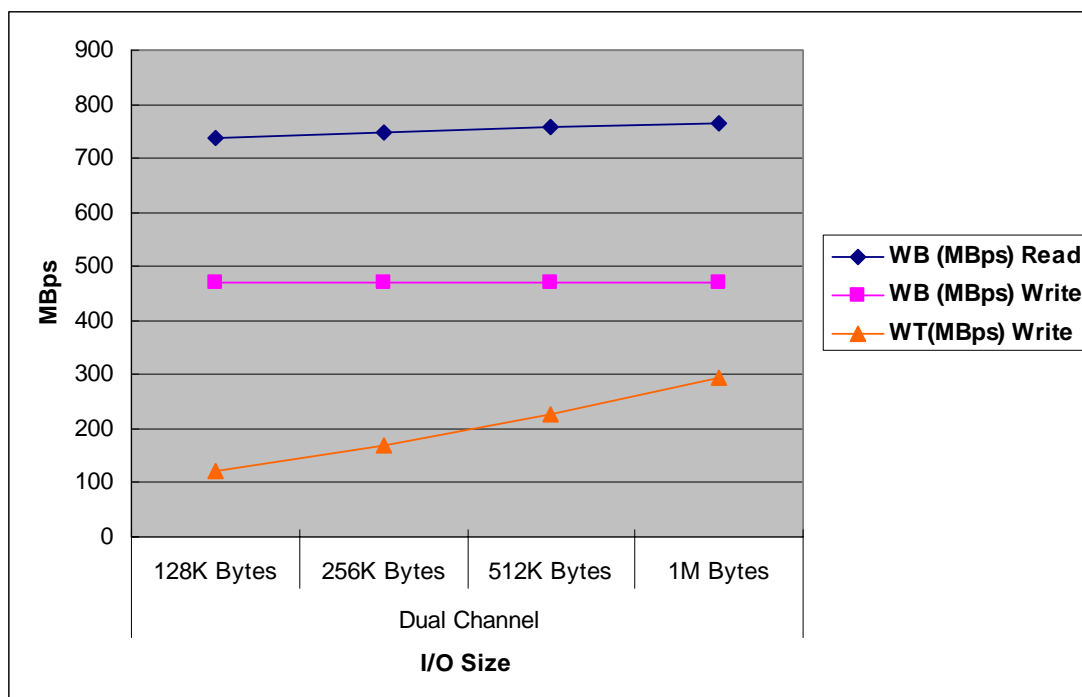
❖ End-to-End RAID 6 Performance

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)		WT (MBPS)
Host Channels	I/O Size	Read	Write	Write
Dual Channel	128K Bytes	736.80	471.57	122.48
	256K Bytes	746.88	471.84	168.93
	512K Bytes	757.36	471.76	225.93
	1M Bytes	765.13	468.65	293.87



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	71064.69	51092.62
	4K Bytes	53094.42	37447.34

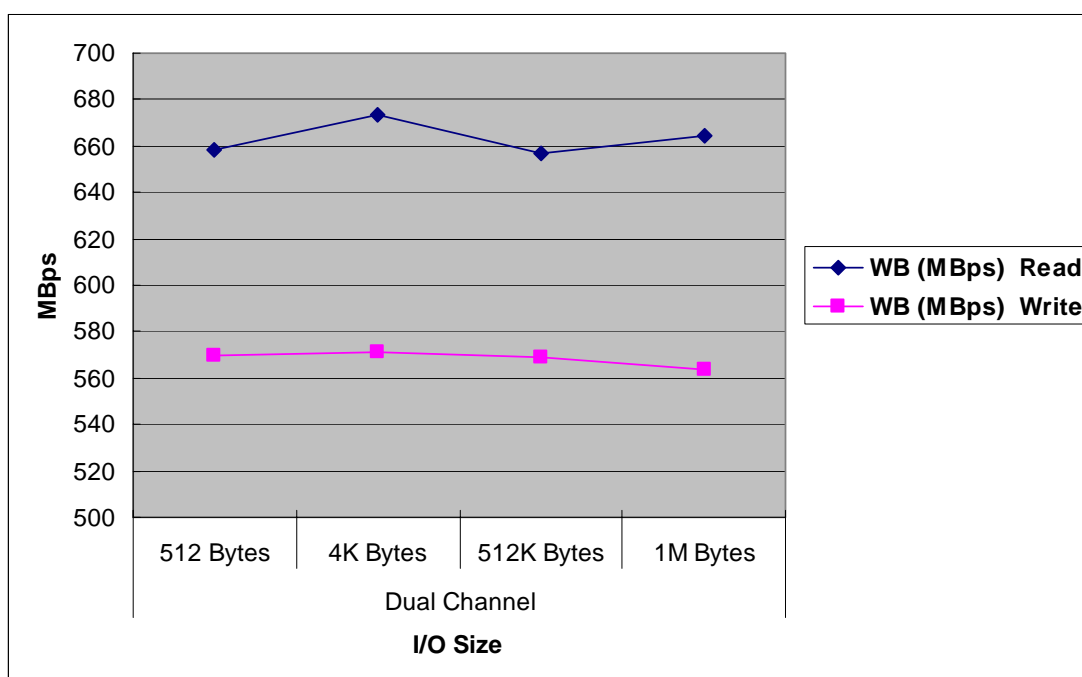
❖ Degraded RAID 5 Performance

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	128K Bytes	657.96	569.72
	256K Bytes	673.75	571.20
	512K Bytes	656.52	568.66
	1M Bytes	664.54	563.28



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	70485.89	51433.10
	4K Bytes	49794.64	38100.64

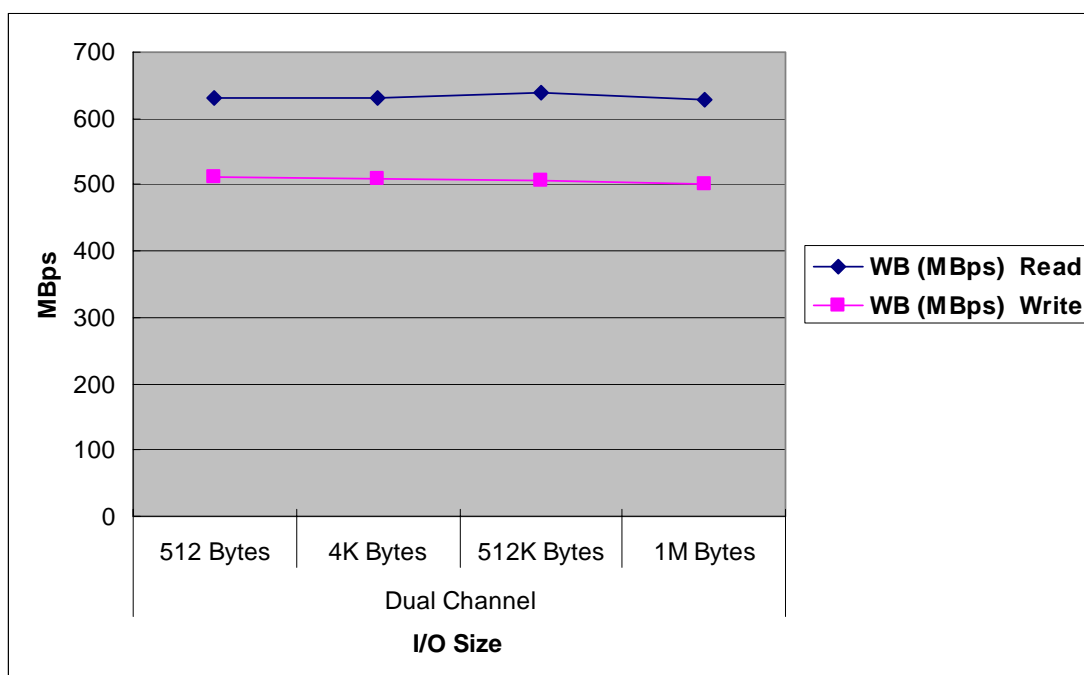
❖ **Degraded RAID 6 Performance (1 Drive Failed)**

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	128K Bytes	630.03	511.88
	256K Bytes	630.56	508.94
	512K Bytes	638.86	506.51
	1M Bytes	628.50	501.23



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	69636.67	50899.05
	4K Bytes	48375.25	37595.47

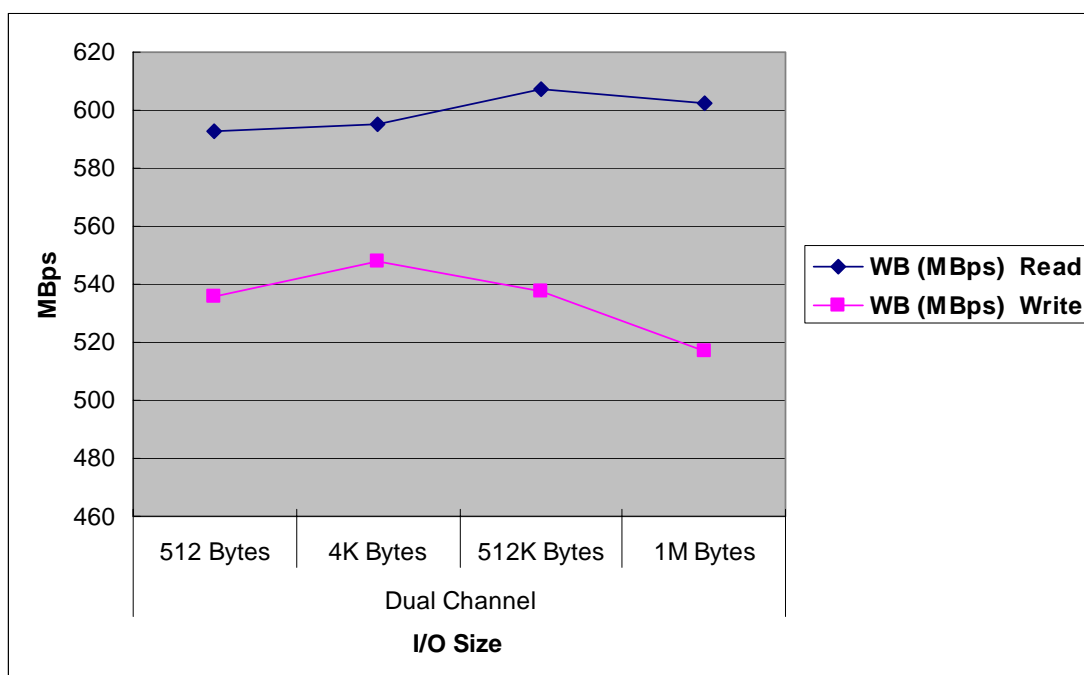
❖ **Degraded RAID 6 Performance (2 Drives Failed)**

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	128K Bytes	592.73	535.52
	256K Bytes	595.01	547.97
	512K Bytes	607.25	537.52
	1M Bytes	602.61	516.75



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	69295.24	51226.19
	4K Bytes	47554.36	37880.00

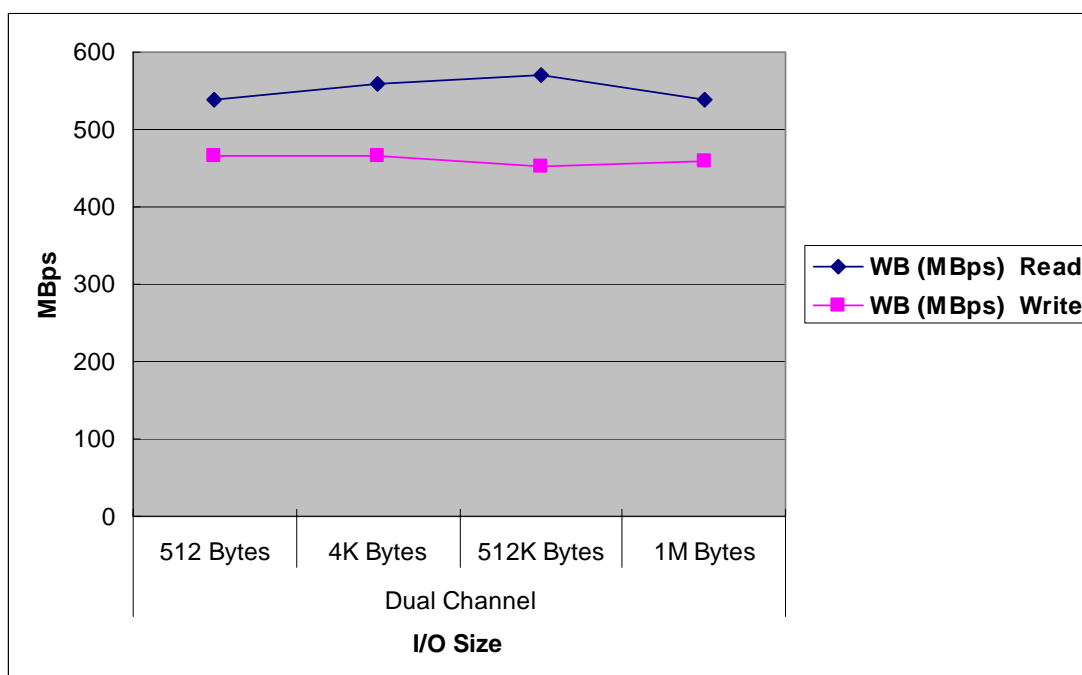
❖ Rebuilding RAID 5 Performance

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	128K Bytes	538.08	465.01
	256K Bytes	559.19	466.34
	512K Bytes	570.66	451.25
	1M Bytes	538.80	458.05



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	47973.72	36023.75
	4K Bytes	36123.97	30089.58

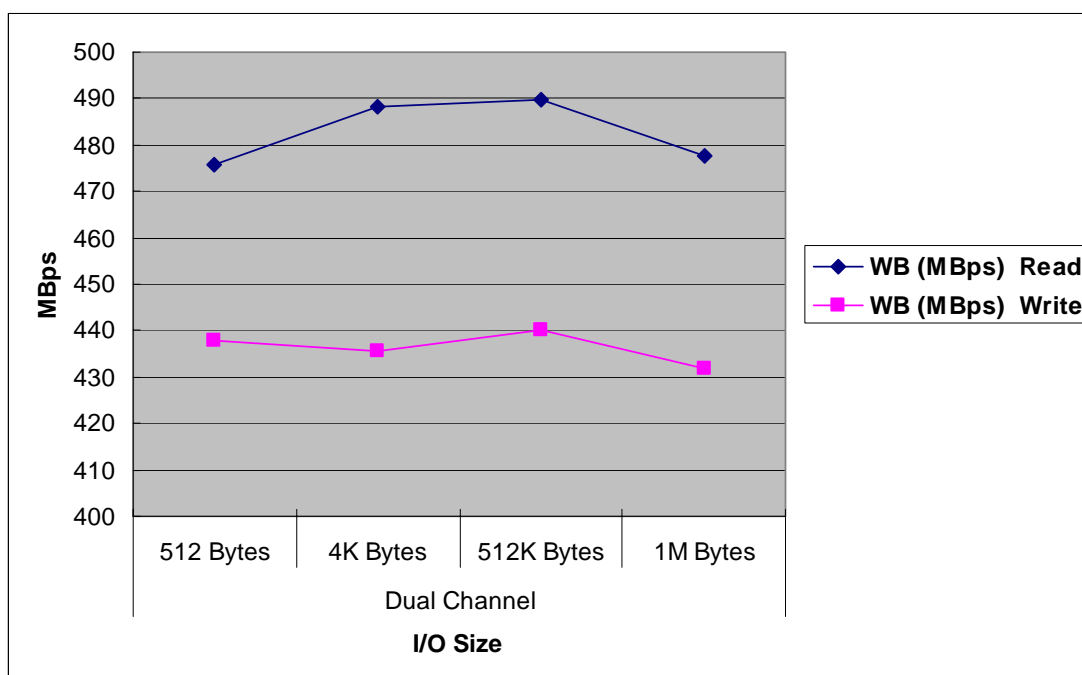
❖ **Rebuilding RAID 6 Performance (2 Drives Rebuilding)**

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	128K Bytes	475.64	437.96
	256K Bytes	488.11	435.58
	512K Bytes	489.88	440.15
	1M Bytes	477.52	431.97



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	49740.89	37468.51
	4K Bytes	35645.39	31502.76

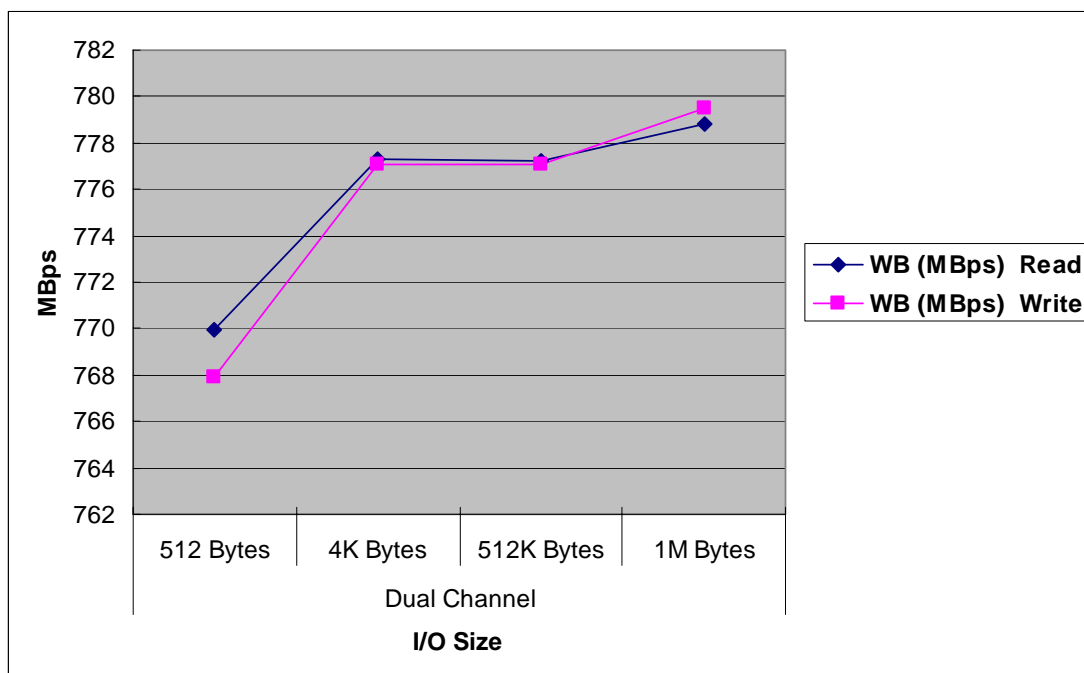
❖ **All Cache Hit RAID 5 Performance**

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	128K Bytes	769.96	767.93
	256K Bytes	777.27	777.06
	512K Bytes	777.22	777.10
	1M Bytes	778.81	779.49



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	75945.87	53867.53
	4K Bytes	68728.59	49512.10

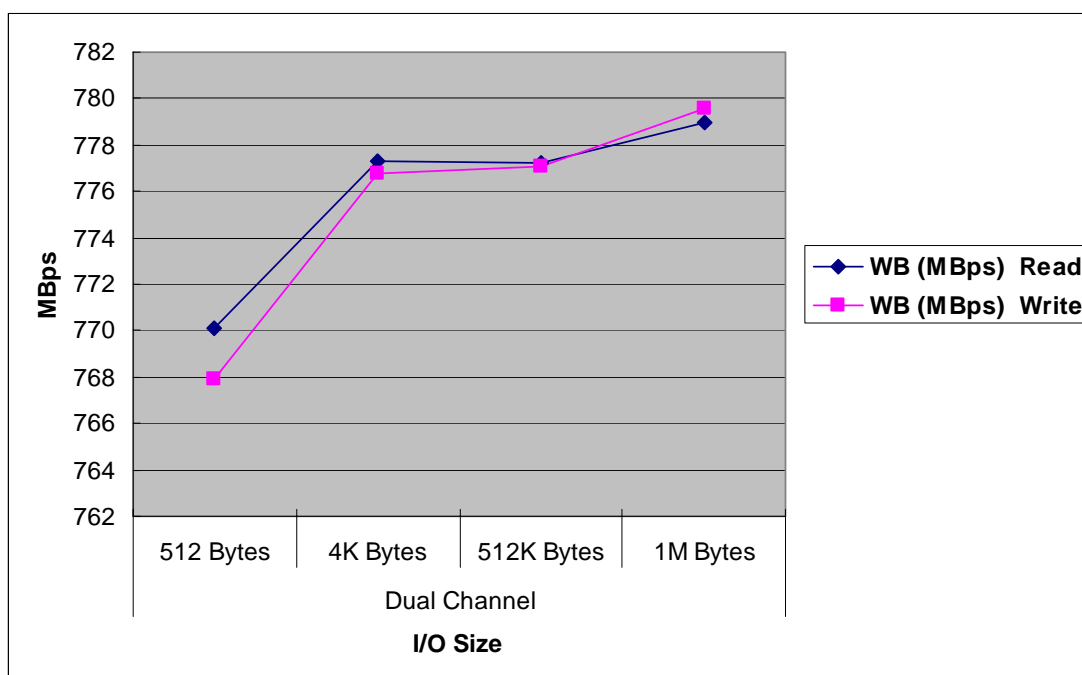
❖ **All Cache Hit RAID 6 Performance**

(Sequential I/O)

>> Dual Channel

Data Transfer Rate (MBps)

I/O Parameters		WB (MBPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	128K Bytes	770.11	767.93
	256K Bytes	777.27	776.81
	512K Bytes	777.21	777.07
	1M Bytes	778.98	779.57



Data Access Rate (IOPS)

I/O Parameters		WB (IOPS)	
Host Channels	I/O Size	Read	Write
Dual Channel	512 Bytes	76417.91	54081.53
	4K Bytes	69221.36	49502.08