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SR2611&SR3611Performance Testing Report with Areca 1200 PCIe SATA-II Adapter

Over 200% Sequential Read Performance Increase

Testing Environment:

System Board: SuperMicro X8SAX motherboard
Processor: Intel i7-920 2.66GB Quad Core
Memory: 2GB DDR3 1066 RAM
OS: Windows Server 2003 x64
Partition: Single NTFS with default block size 4096bytes
Disks: 2 x 500GB Seagate ES.2
RAID1 Unit: SR2611/SR3611 with FIRMWARE: V.36.M01
Internal HBA: Areca 1200 PCIex1

<< Testing Procedure Results >>

Hardware Detection Tests:

Connection:	Areca 1200 PCIe	Onboard SATA-II
Drive:	Seagate 500GB ES.2	Seagate 500GB ES.2
BIOS Visibility	Yes	Yes
OS Visibility	Yes	Yes
Format	Yes	Yes
R/W	Yes	Yes

I/O and Performance Tests:

Tests performed with SR3611-2S-S2 using Areca 1200 PCIe at SATA-300. The results are shown first using the onboard SATA-II port via eSATA connection. The second set are using an Areca 1200 SATA PCIe controller card as drive pass-through via eSATA connection. Relative performance is marked with a "% +" to demonstrate the increase.

Single Drive Test:

64K	Onboard SATA-II	Areca1200 PCIe	Relative
Sequential Read	1600.54 IO/s 100.03 MB/s	3260.51 IO/s 203.78 MB/s	204% +
Sequential Write	932.66 IO/s 58.29 MB/s	604.84 IO/s 37.8 MB/s	54% -
Random Read	83.45 IO/s 5.22 MB/s	87.32 IO/s 5.46 MB/s	4.6% +
Random Write	146.39 IO/s 9.15 MB/s	145.07 IO/s 9.07 MB/s	1% -
50% Read/50% Write	121.83 IO/s 7.61 MB/s	124.48 IO/s 7.78 MB/s	2.2% +

Dual drives (mirroring)

64K	Onboard SATA-II	Areca1200 PCIe	Relative
Sequential Read	855.56 IO/s 53.47 MB/s	3260.38 IO/s 203.77 MB/s	381%+
Sequential Write	723.04 IO/s 45.19 MB/s	431.32 IO/s 29.96 MB/s	59.6%-
Random Read	79.19 IO/s 4.95 MB/s	84.70 IO/s 5.29 MB/s	6.8%+
Random Write	139.56 IO/s 8.72 MB/s	141.63 IO/s 8.85 MB/s	1.5%+
50% Read/50% Write	118.96 IO/s 7.44 MB/s	120.65 IO/s 7.54 MB/s	1.3%+

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Dual drives (mirrored)

64K	Onboard SATA-II	Areca1200 PCIe	Relative
Sequential Read	1651.64 IO/s 103.23 MB/s	3620.27 IO/s 230.77 MB/s	219%+
Sequential Write	905.62 IO/s 56.60 MB/s	601.44 IO/s 37.59 MB/s	50.5% -
Random Read	83.54 IO/s 5.22 MB/s	87.45 IO/s 5.47 Mb/s	4.8%+
Random Write	107.24 IO/s 6.70 MB/s	132.40 IO/s 8.28 MB/s	23.5%+
50% Read/50% Write	118.03 IO/s 7.38 MB/s	121.58 IO/s 7.60 MB/s	2.9%+

Results:

The Areca card significantly outperforms the onboard SATA-II port in Sequential Read with almost any block size whether with a single drive, while rebuilding, or in mirrored mode. This performance bonus is between twice to almost four times faster.

However the results are opposite for Sequential Writes. Here, the onboard SATA port outperforms the Areca card. Again, whether with a single drive, while rebuilding, or in mirrored mode. This performance bonus is noticeably smaller however, staying in between 50% - 60% faster range. This however will change toward higher performance with Areca controller for larger size blocks 128,256,512/1024KB.

The results during Random Read, Random Write, and using a 50/50 split, see the Areca card outperforming the onboard SATA port in all three. We see results ranging up to around 23% faster in these categories.

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