

Adaptec 48300 vs. LSI SAS3442X-R: SAS Host Bus Adapter Performance Comparison

Summary

- The Adaptec Serial Attached SCSI 48300 handles file server requests up to 19% faster than the LSI SAS3442X-R
- The Adaptec 48300 provides the ability to enable or disable disk drive write caching on the drive for better performance than the LSI SAS3442X-R
- Adaptec HostRAID™ is optimized for faster RAID 1 and 10 random reads and writes

Adaptec Real-World Performance

Adaptec Serial Attached SCSI host bus adapters are designed to perform in the conditions in which you really use them. While other RAID vendors advertise unrealistic workload performance, these measurements don't demonstrate how your RAID controller will hold up under a real-world usage workload. Adaptec has optimized its HostRAID™ software to give the best file server performance in the industry for SAS disk drives configured with RAID levels 1 and 10.

File Servers

File servers present a special challenge since user requests tend to be scattered across the span of the disks, with distinct hot spots. These hot spots, which typically contain file information structures, open-file updates, page swapping regions, and other frequently accessed data, benefit from the faster random performance of Adaptec HostRAID. The busiest file servers need to service hundreds of requests each second.

A comparison of the Adaptec 48300 host bus adapter against the LSI SAS3442X-R (see Fig. 1 & 2) demonstrates the Adaptec 48300's exceptional ability to handle a greater number of user requests, which translates to higher I/Os per second for RAID levels 1 and 10.

RAID 1

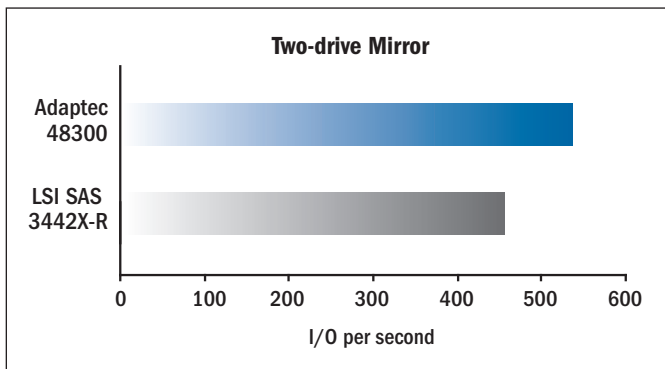


Figure 1: RAID 1 protects your data against drive failure and the Adaptec 48300 offers superior RAID 1 performance. The Adaptec 48300 file server performance on a RAID 1 array is 19% faster than the LSI SAS3442X-R.

RAID 1E & 10

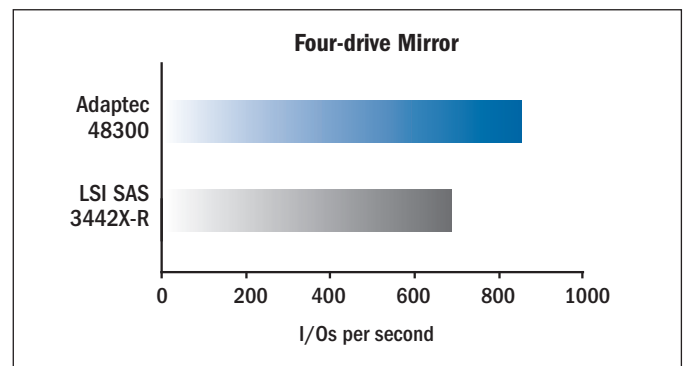


Figure 2: File server performance of the Adaptec 48300 on a RAID 10 array is 16% faster than the LSI SAS3442X-R performance on a RAID 1E array.

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Test Environment

- CPU: Dual 3.6GHz Intel Xeon
- Motherboard: Supermicro X6DH8G2
- Memory: 4GB DDR2-400, 800MHz FSB
- Disk drives: Maxtor SAS Atlas 15K2 (fw:BK00)
- Windows Server 2003
- RAID configuration: RAID 1 and 10 (1E for LSI)
- Read cache enabled and write cache disabled
- IOMeter version 2004.07.30 Post
- Queue depth = 16 per array
- Drivers used: Adaptec 1.2.59180, LSI 1.21.15

Features

Adaptec Serial Attached SCSI 48300

- Eight 3Gb/s ports
- Supports both Serial Attached SCSI and Serial ATA hard disk drives
- Integrated RAID 0, 1, and 10
- PCI-X/133 MHz host interface
- One x4 internal SFF-8484 connector
- One x4 external SFF-8470 connector
- Bootable array support
- Low profile form factor
- RoHS-compliant

Comparison Matrix

| Product Features | Adaptec 48300 | LSI SAS 3442X-R |
|---|---------------|-----------------|
| RAID Levels | | |
| RAID 0 | ✓ | ✓ |
| RAID 1E | - | ✓ |
| RAID 10 | ✓ | - |
| Stripe Size supported | 16K, 32K, 64K | 64K |
| RAID Application Management | | |
| Ability to create/delete/initialize RAID arrays from GUI | ✓ | - |
| Task Scheduler: Verify/Initialize/Spares | ✓ | - |
| Ability to change Drive/Array Cache Settings (Enable/Disable) | ✓ | - |
| E-Mail and Pager Notification | ✓ | - |



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