ATTO

12Gb SAS: Performance, Flexibility, ROI
Upgrade to ATTO ExpressSAS™ SAS/SATA Host Bus Adapters

Challenge

Strong demand from high-performance database, analytics, streaming video and other applications is driving the need for improved access time to stored data. Revolutionary new server and workstation architectures are part of the solution. Additionally, solid state storage devices are providing a boost to performance and reducing latencies in a cost-effective way. Nevertheless, IT professionals who need better, faster and more efficient storage options are looking for a cohesive solution. Upgrading to an ATTO ExpressSAS 12Gb SAS/SATA Host Bus Adapter (HBA) is an ideal way to overcome this obstacle.

Solution

ATTO 12Gb SAS/SATA HBAs double the performance over previous generations of HBAs and offer fresh new features that reduce downtime, improve efficiency and save money on the bottom line. They provide more flexibility for connecting to storage while greatly decreasing latency to drives, making it easier to manage the overall storage infrastructure and improve connection diagnostic capabilities, all at a lower total cost of ownership.

Performance

12Gb SAS/SATA data transfer rates are up to 1200 MB/s for each connection. Simply put – it is twice as fast as 6Gb SAS/SATA. Pair this performance gain with PCIe 3.0 host computer bus speeds and the adapter is capable of delivering performance of up to 8000 MB/s. This allows users to run faster backups, complete more On-Line Transactions or deliver more streams of video concurrently.

The ability to move twice as much data means one 12Gb SAS/SATA controller is required instead of two similar 6Gb controllers to accomplish the same tasks. Users will realize a lower total cost of ownership with reduced initial hardware costs, decreased management costs, lower power consumption, lower heat output, fewer cables and the use of fewer PCI slots.

Improved Efficiency & Usability

To ease the transition to 12Gb SAS/SATA, customers can take advantage of a new feature: End Device Frame Buffering. A SAS host connection can physically connect to multiple SAS or SATA drives through a SAS Expander. 6Gb SAS adapters support multiplexing, which allows multiple 3Gb SATA drives to share a connection to a 6Gb SAS host adapter. This works great for 3Gb SATA drives but adds no value to 6Gb SATA drives. The difficulty is that when SATA drives are used, they will hold the connection to the host open until all of the data for a particular command is transferred, essentially starving the other SATA drives on that connection. This challenge is eliminated with 12Gb SAS/SATA End Device Frame Buffering as this technology efficiently allows multiple SATA drives to share a host connection (Figure 1).
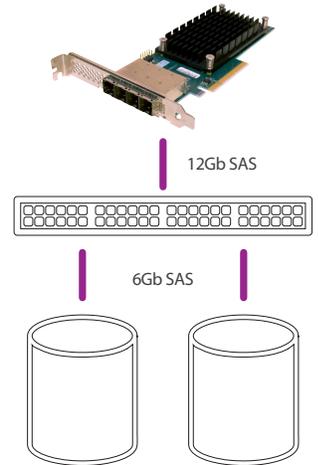

12Gb SAS

6Gb SAS

Fig. 1

With 12Gb SAS/SATA, each link is capable of 1200 MB/s. With the exception of Solid State Drives, storage devices are not capable of saturating the link. With End Device Frame Buffering, more drives can work in parallel, increasing the overall performance of the system.

This technology also protects your current investment in 6Gb SAS/SATA storage as you can continue to use existing 6Gb drives with a 12Gb host adapter and realize a significant performance increase (*Figure 2*).
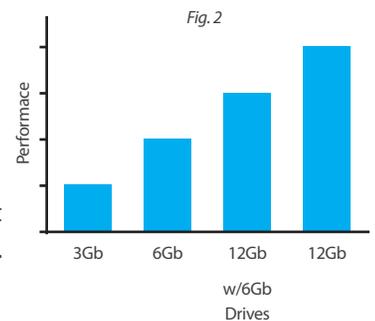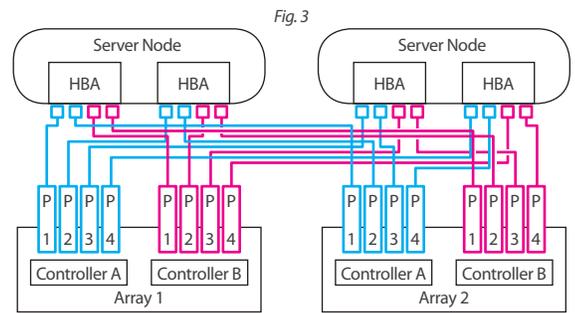

Fig. 2

Performance

| 3Gb | 6Gb | 12Gb w/6Gb Drives | 12Gb |

Reduced Downtime

Migrating from 6Gb to 12Gb SAS/SATA provides new cabling options through the use of Mini-SAS HD connectors. Not only do they require a smaller foot print, these new connectors incorporate intelligence in the cabling. Problems related to performance, access errors and latency can all be attributed to intermittent cable issues. Additionally, it can be difficult to determine that a cable is the cause of these problems. *Figure 3* shows a small three node cluster connected to several SAS RAID storage arrays. In this small installation, there are four (4) SAS cables per node for a total of 12 cables. Narrowing down a problem to a cable can be a daunting task, even in this small cluster. Using an ATTO 12Gb SAS/SATA adapter, operators can quickly troubleshoot cable problems. A cable that is generating errors, or simply showing a lack of connectivity, is reported to the operating system so the operator can quickly determine the defective cable, saving time and money.

Fig. 3

The Bottom Line

Upgrading to ATTO 12Gb SAS/SATA HBAs is not only a good investment for the future, but a simple way to improve the overall value of a storage system at minimal cost.

ATTO's family of 12Gb SAS/SATA HBAs help maximize your productivity through cutting edge technologies associated with 12Gb SAS, including ADS™ Technology. To learn more, visit www.attotech.com or contact an ATTO sales representative.

Make the switch to 12Gb

• Instant performance enhancement

• Increase ROI on existing 6Gb SAS/SATA drive infrastructure

• Seamless transition from 6Gb SAS/SATA to 12Gb SAS/SATA

• Reduced downtime and easy troubleshooting with ATTO cable management

How to Buy

• Channel Sales: +1.716.691.1999 extension 240

• International Sales: +1.716.691.1999 extension 239

• OEM Sales: +1.716.691.1999 extension 241

• VAR & System Integrators: www.attotech.com/howtobuy

• Direct Sales - www.attotech.com