

1ST EDITION

# ATTO Backup and Archive Application Guide

The Power Behind the Storage



# ATTO Technology, Inc.

## Still the Industry Standard for Backup & Archive Storage Connectivity

Backup and archiving applications continue to evolve to support more complicated, distributed storage architectures needed to ensure the safe and secure storage of the more than 2.5 Exabytes of information that is created every day around the world. To ensure that all of this data is protected and available requires a high-performance, reliable connectivity fabric. ATTO remains the industry standard for backup & archive connectivity solutions.

*What are the challenges that system administrators need to solve to ensure that the data they are responsible for is stored properly and available when it's needed most?*

**Time.** Data is being created faster than it can be backed up or archived, and there is little room for inefficient backup policies, or hardware that can't support the performance requirements needed to complete data transfers in ever-shrinking backup windows. Reliability of the storage connectivity fabric is more important than ever before.

**Distance.** The days of connecting a tape drive to a server and backing up every night are long gone. Data centers require global access to data, especially for backup and archiving. Solutions need to provide access everywhere, all-the-time.

**Cost.** We're all being asked to do more with less, and long-term data protection is no different. Connectivity solutions need to provide flexibility so that administrators can meet service level policies –at a cost they can afford.

With all of these challenges, end users and integrators are looking for partners to help them navigate the chaotic waters of providing fast, dependable and cost-effective backup and archiving solutions to drive today's enterprises.

For over 30 years, ATTO has been an innovator in network and storage connectivity, creating high-performance products that manage latency in the most demanding real-time environments, resulting in accelerated application performance and enhanced transaction processing.

We manufacture the industry's broadest portfolio of high-performance network and storage connectivity products, designed and optimized to work together to help our customers better store, manage, analyze and deliver data.

ATTO delivers tested solutions which are qualified and certified with industry-leading workstation, server, storage and application vendors, ensuring faster access to new technology, workflow optimization and maximum performance.

This application guide shows how ATTO has already put our experience and expertise to use, helping many of our partners develop and support backup and archiving solutions in a variety of different markets as well as different levels of complexity. Take a look at what we've done with others, and then let's chat about how we're able to help you solve your particular backup and archiving challenges.

# ATTO Product Lines



## Host Bus Adapters

Celerity™ Fibre Channel HBAs and ExpressSAS® SAS/SATA HBAs provide faster and more efficient data transfers.



## Network Interface Cards

FastFrame™ 10/25/40/50/100 Gb Ethernet NICs provide flexible and scalable unified LAN and SAN storage connectivity.



## Thunderbolt™ Adapters

ThunderLink® adapters enable high-performance, low latency Thunderbolt connectivity to desktop and mobile workstations for network and storage connectivity.



## Intelligent Bridges

XstreamCORE® Ethernet and Fibre Channel intelligent bridges disaggregate storage from compute by enabling remote access and sharing of SAS, JBOD, JBOF, RAID, tape and optical devices.



## NVMe Switch Host Adapters

ExpressNVM™ host bus adapters offer a unique option to create shareable NVMe storage pools with unparalleled storage performance—all while delivering enterprise-level management and configuration capabilities.



## Software

ATTO software and downloadable tools help to maximize the productivity of a number of ATTO products.

## Tape Connectivity Solutions

### ATTO Products Provide Disk and Tape Access

#### Simultaneous Disk and Tape Access

ATTO products have enabled server, workstation and workbook connection to disk and tape devices. With multiple configurations in direct attached and shared products, ATTO gives you several options for adding tape drives to your disk storage infrastructure.

#### Benefits of using ATTO products for Disk and Tape access

- One PCIe slot for both disk and tape
- Thunderbolt™ connectivity
- Shared access
- Advanced Data Streaming™ (ADS) latency-management technology
- High performance

#### Interoperability

ATTO products have a rich interoperability history and leverage testing methodologies with industry leading products including ISV backup software, NLE editing software, hard drives, tape drives, tape libraries, switches and host adapters. Testing specific to backup applications ensures that ATTO based solutions are provide the highest levels of performance and interoperability in the industry.



ATTO Celerity™ and ExpressSAS™ HBAs, ThunderLink™ Desklink device and XstreamCORE® Intelligent Bridges

## Extend the Reach of Storage from Servers

Connect SAS tape libraries and drives to Ethernet or Fibre Channel Networks

#### Tape Drive and Library Benefits

The COVID-19 pandemic has triggered enterprises around the world to re-evaluate their IT infrastructures. And there has never been a more imperative time to turn to cost-effective, reliable and established choices for archiving and preserving vast amounts of data. Tape drives and libraries allow users to create backups on a consistent, regular schedule using a variety of backup software such as Veeam Backup & Replication or they are able to copy data directly with LTFs. This media allows for backups that are lower cost and longer lasting than hard drive backups. Individual LTO tape drives are available with SAS or Fibre Channel connectivity options while tape libraries typically have the same connection type and capability for slower 1Gb or 10Gb Ethernet. With long roadmaps and hundreds of technological improvements, such as advances in media substrates and coatings, tape technology and tape libraries are poised for a strong and enduring future.

#### Tape Drive and Library Limitations

When an organization wants to use a tape library remotely or outside of their primary data center the main option is Fibre Channel. This can be challenging when there is no in-house Fibre Channel expertise or no physical method to connect Fibre Channel without a significant investment. Existing ethernet options may be too slow to keep up with growing demands of multiple LTO-8/9 drives due to their high-performance rates. The latest tape technology rivals performance and capacity of disk at a reasonable price per TB. This value proposition further pushes the need for incorporating intelligent and optimized infrastructure while using the latest technology to help manage and monitor tape devices.

#### XstreamCORE® connects SAS Tape Devices over Ethernet or Fibre Channel

ATTO XstreamCORE® intelligent protocol bridge provides a versatile interface with SAS tape drives or libraries allowing for full speed writes and reads over 40Gb Ethernet or 16Gb/32Gb Fibre Channel. It allows multiple hosts to access and share storage at direct attached speeds with a deterministic latency of less than 4µs and throughputs of upto 6.4 Gb/s per controller. The onboard hardware accelerator technology, ATTO xCORE™ processor, features multiple parallel I/O acceleration engines with end-to-end I/O processing, data protection, performance-critical commands, hardware buffer allocation management, and real-time performance analytics. This enables, large block transfer sizes, maximum login management capabilities and eliminates bottlenecks using parallel processing for up to a 10x performance improvement over standard protocol conversion.

# Tape Over Distance

## Backup Data Offsite by adding Ethernet Connectivity to SAS Tape

ATTO XstreamCORE® allows users to create secure and remote backup of mission critical data

### Background:

A misleading assumption when designing storage infrastructure is that there is no need for data to ever be moved off system. The use of data has become more globalized today making it vulnerable to ransomware and corruption. With data repositories growing at incomparable rates and a shift of focus towards hybrid cloud models, tape technology has evolved to become a vital archiving and digital preservation component in an organization's data protection plan. The ATTO XstreamCORE® family of accelerated intelligent bridges offer a cost-effective way of handling this growing amount of data by enabling secure, scalable, and robust backup and archiving solutions at direct attached speeds with very low latency.

### Problem:

Secure data centers do not allow access to the server room making tape backups a challenge. By running Fibre Channel or Ethernet outside the data center to secure backup locations enables data center technicians and user access to those servers for fast and reliable data backup and recovery without disturbing the security of the data center. This allows storage and compute to scale independently by disaggregating SAS storage such that it can be shared and managed more effectively.

### Solution:

Using ATTO Fibre Channel or Ethernet to SAS intelligent bridge, sixteen SAS tape drives can be connected at a lower cost than Fibre Channel and Ethernet drives without the need for a large quantity of fabric switch ports. Two to four fabric ports are all that is required to connect upto sixteen SAS tape drives. In addition to that, ATTO XstreamCORE® provides advanced troubleshooting, management, and monitoring capabilities. ATTO XstreamCORE® ET 8200/8200T connects SAS tape devices to a high-speed Ethernet network using 40GbE with either hardware accelerated iSCSI or iSCSI over RDMA (iSER). When services and features are added, the CPU has to process each command software which increases overall latency. With a state-of-the art architecture featured on the XstreamCORE® that separates data traffic from services, any non-data request is removed from the data path to maintain a consistent level of latency and performance.

### Benefits:

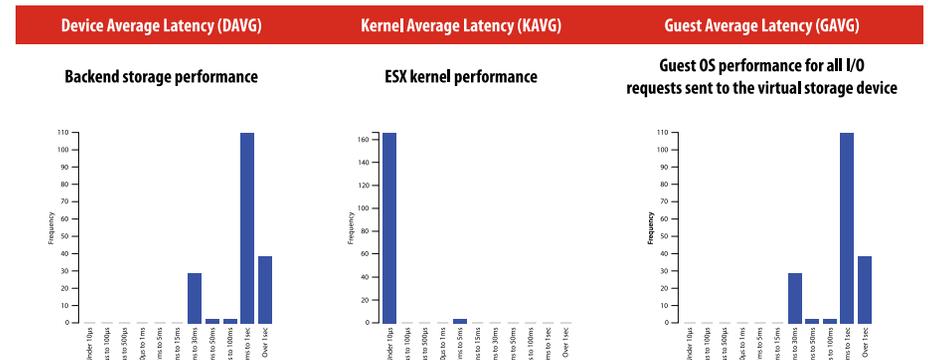
-XstreamCORE® features the ATTO xCORE™ Processor which accelerates all I/O in hardware ensuring a deterministic latency of less than two microseconds.

-ATTO SpeedWrite™ keeps paths between hosts and XstreamCORE® filled with data eliminating the slow down near the end of writes which is common with tape drives, instead, significantly boosting tape write performance.

-Multiple backup servers can share a remote tape library. Patented ATTO Drive Map Director™ feature allows for robust mapping of servers to specific tape drives.

-ATTO Data Mover™ technology improves storage performance while reducing compute, memory, and network utilization.

Latency Scout measures three levels of latency:



A Latency Scout histogram display indicating backend storage performance challenges occurring within the datacenter.

## Using Thunderbolt and LTFS with LTO Tape to Enhance Media Workflows

### Background:

Thunderbolt™ technology offers high throughput (40 Gbps) to peripheral devices, but even more importantly, brings versatility to traditionally limited mobile computers. It is also changing how media professionals think about external storage by opening up many new use cases: a single Thunderbolt cable can provide connectivity to 40Gb Ethernet, 32Gb Fibre Channel and 12Gb SAS.

### Problem:

Content is everything in media and entertainment (M&E), and Thunderbolt provides the high-performance connectivity needed to transfer content data to SAS or Fibre Channel storage systems. It also provides the means to quickly distribute content via Ethernet networks. With Thunderbolt, the broadcast and film industries have more flexibility to manage their creative assets. But now, with the adoption of 4K and higher formats, traditional storage options are too expensive to accommodate the growing amount of data. A challenge also exists in being able to cost-effectively protect content.

### Solution:

ATTO ThunderLink® Thunderbolt™ adapters provide a solution to these obstacles when combined with linear tape open (LTO™) tape. Prior to Thunderbolt, moving large volumes of data in the media sector involved portable disks —there was no easy way to move content from a mobile computer to tape, which is less expensive. Now, connecting a Thunderbolt-to-SAS adapter outfitted with an LTO SAS tape drive provides a simple and affordable means to store, archive and transport large amounts of content.



## Amplify HPE Workstations and Tape Storage using ATTO adapters

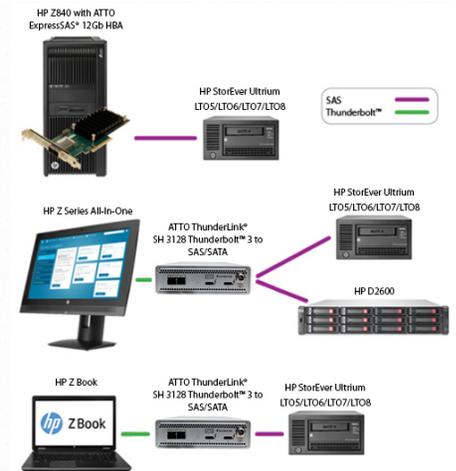
ATTO ExpressSAS® and Thunderlink® Thunderbolt™ adapters boost data backup and recovery

### HPE Z Workstation and ATTO ExpressSAS® solution

From design and simulation to video editing and machine learning, the HP Z workstations can handle today's heaviest workloads and still allows for more to expand as the industry demands change. No matter what the future holds, you'll have all the performance you need plus the ability to backup and archive precious data in case of an unforeseeable event. ATTO ExpressSAS® Host Bus Adapters (HBAs) provide the highest and smoothest throughput and high-performance data protection for streaming applications such as tape backup and archiving, video post-production, geologic survey and video-on-demand applications requiring increased connectivity. Featured on ExpressSAS is ATTO PowerCenter Pro®, a game changing software technology that adds hardware RAID capabilities at the cost of a host bus adapter, and without additional drivers or complicated set-up, and is undoubtedly the most effective way to improve performance while also protecting data.

### HPE StorEver® and ATTO Thunderlink® Thunderbolt™ solution

Organizations are again turning to economical, scalable, and truly offline -LTO tape storage to protect and retain infrequently accessed yet essential data across longer time frames. IT leaders can now address all of their retention and compliance needs with HPE StoreEver® tape storage solutions, featuring ultra-low total cost of ownership and air-gap protection against ransomware and data corruption. Enterprises and small-to-medium-sized business environments face escalating data storage needs. In many situations, data must be archived to meet compliance requirements. HPE StoreEver tape storage solutions provide a scalable, reliable, low-cost solution for long-term data storage. The new LTO-8 based HPE StoreEver tape storage solutions make accessing, managing and sharing files on tape as easy as disk. When used in combination with ATTO ExpressSAS® host bus adapters or Thunderbolt™ adapters, they benefit from low-latency, high-bandwidth workstation connectivity to ensure consistent data transfers. You can mix operating systems in your production chain however you like knowing that ATTO Thunderlink® will share and move the data between all of it like lightning bolt speeds.



## ATTO XstreamCore® enables 40Gbe for SAS LTO tape drives

Share Dell EMC ML3 SAS library resources remotely over Ethernet

### Background:

Tape drives typically only support Fibre Channel or SAS connectivity. The connectivity choice governs the tape library implementation and performance. SAS limits the feasibility of using SAS tape drives for high-speed remote backups. Libraries can connect via a server but are difficult to manage and support, and do not perform as well as a dedicated appliance. Fibre Channel isn't limited like SAS or Ethernet, but is a more expensive technology to deploy.

ATTO XstreamCORE™ ET 8200 intelligent bridges allow you to remotely connect to SAS tape drives over standard Ethernet networks using iSCSI and iSER protocols. When combined with Dell EMC PowerVault™ ML3 scalable tape libraries, featuring the latest LTO technologies, users have access to the industry's only commercially available solution to add high speed Ethernet connectivity to standard SAS LTO tape drives for open-compute, hybrid cloud, and hyperscale environments.

### Problem:

SAS tape libraries have distance limitations and connect on a one to one basis. Sharing must occur through a server and connectivity is typically done over a LAN connection with the server being the bottleneck and a point of failure if the server goes down.

When connectivity to tape devices is not capable of higher performance it can lengthen the time it takes to backup mission critical data and can leave data stranded in the event of a disaster.

### Solution:

By using ATTO XstreamCORE® ET 8200 intelligent bridges connected to Dell EMC ML3 scalable tape libraries, backup environments gain a high-performance, Ethernet connected LTO tape library that is remotely accessible by multiple servers.

### Benefits:

- Servers reserved for sharing tape libraries are no longer needed.
- Decrease backup times, 16 SAS tape drives can be connected to the network via a single XstreamCORE ET 8200.
- Tape libraries can be located anywhere with network access.
- Build upon existing networking infrastructure.
- SpeedWrite™ technology on the ATTO XstreamCORE® bridges, significantly boosts tape performance by up to 25% over a direct connect SAS HBA connection.

## ATTO and Archiware

Enable every Thunderbolt-equipped Mac® or PC to be used as an Archiware P5 server

### Background:

Many professional media editing workflows incorporate Apple® desktop and mobile workstations for which Thunderbolt™ is the main connectivity option. A Thunderbolt adapter or Thunderbolt enabled expansion chassis is required for connecting to high performance mass storage.

### Problem:

For many media production environments backing up assets and work files is crucial. The common method involves replicating files to a disk, network, or SAN volume. The other part of data management is archiving. Files that are no longer needed for daily production can be archived, i.e. migrated from production storage to either disk, tape or cloud. For smaller production studios, or any size organization that prefers to use direct-attached storage (DAS), this combination of data management and connectivity can create a spiral of software and hardware experiments in an effort to find an appropriate solution, all while their data is at risk. Disk storage can fail even if it's RAID protected; a backup is needed because RAID does not protect against accidental erasure.

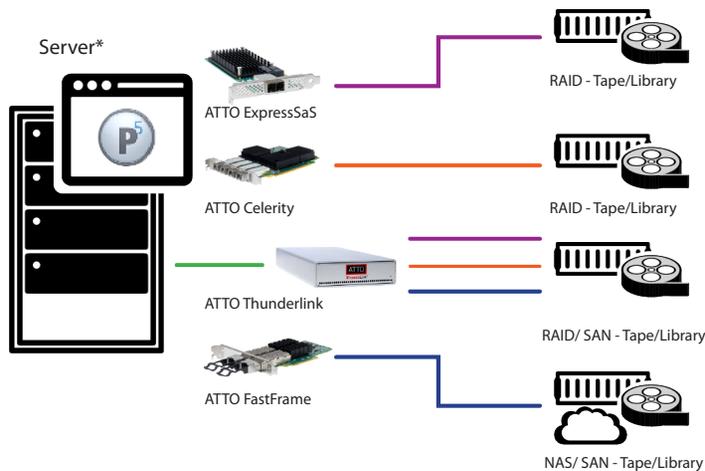
### Solution:

ATTO ThunderLink® Thunderbolt adapters are purpose-built adapters incorporating 32Gb and 16Gb Fibre Channel (FC), 40Gb, 25Gb and 10Gb Ethernet, and 12Gb SAS/SATA. ThunderLink enables seamless integration of Thunderbolt 4 and 3 desktop and mobile workstations to high performance, high capacity storage, like SSD/HDD RAID arrays, LTO tape drives, or shared storage systems. ThunderLink is engineered for applications where optimized performance and high throughput are essential.

Archiware P5 media archiving software suite is a software solution for archiving and managing data directly from workstations. The four modules in the Archiware P5 suite secure data using different methods and restore them when required. The browserbased user interface of the P5 suite ensures maximum user friendliness. P5 software runs on macOS, Windows, Linux, FreeBSD and Solaris, and is storage platform neutral. P5 Archive and P5 Backup can be used with any manufacturer's tape hardware.

ATTO ThunderLink is certified to work with Archiware P5. Now every Thunderbolt equipped Mac® or PC can be used as an Archiware P5 server, utilizing the full portfolio of ATTO connectivity solutions, including SAS, Fibre Channel, and Ethernet for use with iSCSI devices. This way large amounts of data can be protected easily using P5 Synchronize for cloning, P5 Backup for backup to disk and tape and P5 Archive for long-term archiving. Even tape libraries can be driven from a workstation-class machine.

The small form factor of ATTO ThunderLink adapters means that they can be transported and connected to a single LTO tape drive for a desktop archive. This allows for maximum flexibility and scalability, and it takes into account that more and more production is being decentralized and handled on the desktop level. Additionally, transport of large data sets can easily be solved using LTO tape with or without LTFS as the data exchange format



## ATTO and Quantum

### High-Performance Solutions for Archiving and Data Protection

#### Background:

Disk storage capacity requirements for both enterprise and small-to-medium businesses (SMB) are growing at an extraordinary rate. All of that data needs to be backed up and much of it needs to be retained for an extended period to meet regulatory compliance requirements.

#### Problem:

The challenge that exists for businesses faced with explosive data growth is to deal with it in an efficient and strategic manner. For enterprises, the key concerns are scale, performance, high availability and security. SMBs, on the other hand, require an entry level back up and archiving solution that's low cost, easy to manage and scalable to meet escalating business demands.

#### Solution:

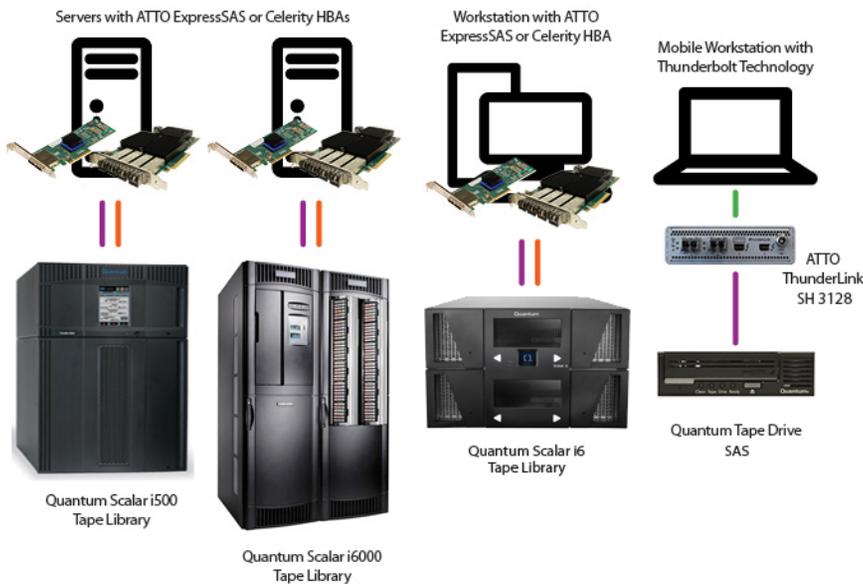
Quantum Scalar line of tape libraries support the long-term storage requirements of both large enterprises and SMBs. At the enterprise level, they provide features such as Active/Active Dual Robots for high availability and faster performance. The entire Scalar family also features capacity-on-demand scalability to enable non-disruptive growth, and iLayer Intelligent Software, which automates administrative tasks and provides proactive diagnostics to avoid downtime. Plus, there's tape encryption to ensure that your data is protected even when it's stored offsite.

ATTO host bus adapters (HBAs) and Thunderbolt™ adapters enable connection to disk and tape devices from servers and workstations. They are engineered for real-time applications and excel in streaming application performance such as tape backup. ATTO Advanced Data Streaming (ADS)™ technology ensures low-latency, high-bandwidth connectivity for consistent data transfers. The entire family is also designed to consume up to 70% less power than competitive offerings

ATTO ThunderLink® Thunderbolt adapters enable serial-attached SCSI (SAS) and Fibre Channel storage connectivity from Thunderbolt enabled hosts adapters. SAS tape drives can be connected to Thunderbolt hosts to provide access for backup software and LTFS tape applications.

ATTO ExpressSAS® SAS/SATA HBAs deliver the fastest available connection to SAS tape. With a full range of port configurations and driver support, extensive features, industry qualifications and support for up to 2048 end devices, ExpressSAS SAS/SATA HBAs are designed to meet your performance and connectivity needs.

ATTO Celerity™ Fibre Channel HBAs meet tomorrow's connectivity needs today. It extends the capabilities of software and hardware, increases overall system performance and drives intelligence all the way to the edge of the storage area networks (SAN). Celerity HBAs provides connectivity to Fibre channel tape libraries.



## SpectraLogic makes Tape storage accessible over 40Gb/s Ethernet

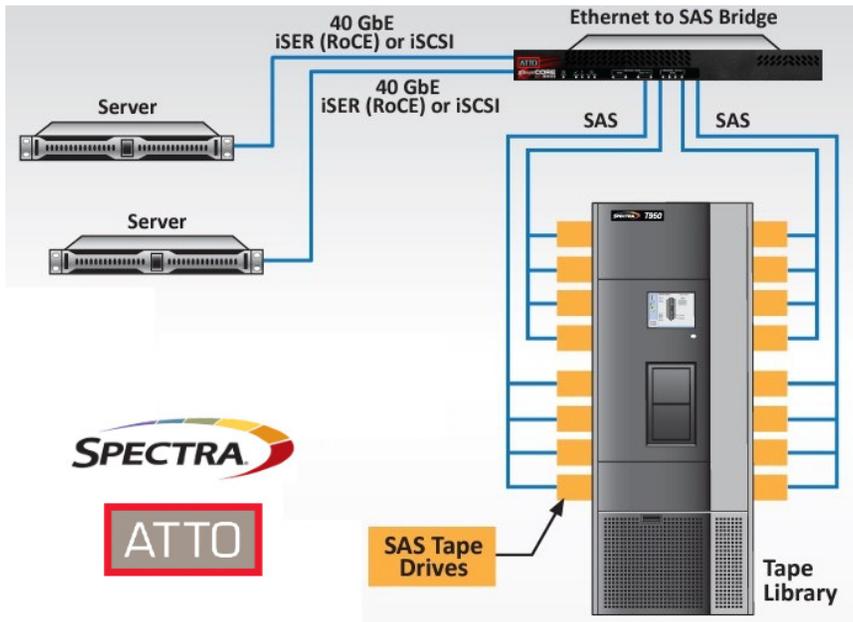
ATTO XstreamCORE® 8200T brings SpectraLogic T950 into a networked storage environment

### SpectraLogic and ATTO Tape Solution

Continuing its role in tape technology innovation, Spectra Logic has introduced Swarm, Ethernet controllers for tape technology, in partnership with ATTO. The economic advantages of Ethernet are now available to tape users as well. The combination of performance, versatility, ease of use and lower cost have made Ethernet a mainstay in data centers of all types and sizes. For datacenters running Fibre Channel simply to support tape, moving to a single protocol and being able to share switches and other infrastructure offers significant cost savings not to mention the overall increased ease of operation and lower management overhead. Using the XstreamCORE®, Spectra Swarm supports LTO-7, LTO-8, LTO-9 and all future SAS tape technology.

### Spectra Swarm

Spectra Swarm Storage Controllers are optimized for high performance through ATTO xCORE™ and eCORE™ technologies, as featured on the ATTO XstreamCORE® bridges, providing industry-leading performance to keep multiple tape drives streaming at maximum throughput. It enables a common set of services and features and is engineered with an open design that does not alter the data path. The 1U appliance allows tape storage to be integrated with existing modern data center infrastructure over a 40 GB/s Ethernet, thereby leveraging the reach of tape storage systems. Swarm provides two 40GbE inbound connections using iSCSI or iSER via RoCE V2 (iSCSI Extensions for RDMA), driving up to 16 channels of 12G SAS. The addition of network connectivity to SAS tape storage makes it easier to backup and archive data from within the vicinity of the storage space at microsecond latencies, further strengthening the data protection plan of an enterprise.



**Enable Business Continuity with ATTO XstreamCORE®**

ATTO XstreamCORE allows you to disaggregate storage from compute resources thus eliminating the expense of more servers and additional software licensing fees. With a performance footprint that drives full racks of storage, it doesn't take long before you become a hero for saving significant budget dollars. ATTO host group mapping feature, Drive Map Director™, allows you to assign or share drives connected to XstreamCORE® to multiple or individual host servers, while the intelligent bridge architecture enables effective transfer of data with minimal overhead from multiple combinations of protocols and custom applications. When teamed with the XstreamCORE, SpectraLogic's T950 Tape Library is the ultimate solution to meet the growing needs of backup and archiving in hybrid cloud, hyperscaled and hyperconverged applications.

ATTO Hardware Partners



ATTO Integration Partners

ATTO ISV Partners

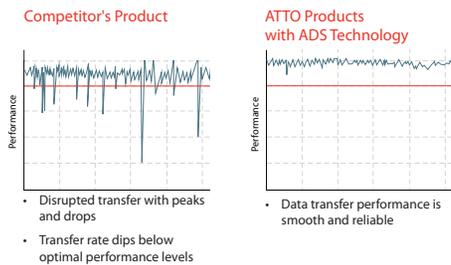
# Technology Leadership

## Technology at it's fastest

### ATTO Advanced Data Streaming (ADS™) Technology

ATTO ADS™ is proprietary latency management technology works transparently to smooth data transfers through controlled acceleration. Data moves efficiently giving ATTO users an unmistakable edge in total system performance.

From high I/O transactions to large bandwidth real-time streaming, ADS reduces interruptions and maximizes the amount of data processed per CPU cycle.



### ATTO xCORE™ Hardware Acceleration Processor / eCORE™ Offload Processor

xCORE is hardware-based data acceleration technology that manages the data path and assures that all reads and writes are processed software-free with minimal overhead. Latency is limited to a consistent two to four microseconds.

eCORE provides software-based virtualization and management services. ATTO eCORE supplements xCORE to maintain deterministic latency by enabling software functionality only where and when needed. Working together, xCORE and eCORE unleash the full potential of software defined storage, making it possible to add common, open storage services and industry standard API integration and maximize the gains of all-flash storage architectures.

### ATTO SpeedWrite™

Exclusive performance-enhancing capability that significantly boosts tape performance by efficiently managing read and write commands between host and tape, resulting in continuous operation, shorter back-up times and higher overall throughput.

SpeedWrite is a mode of operation in which SCSI Write commands are processed using 'Write-Behind' and 'Deferred Error' handling to return completion status back to the host prior to actual command completion.

# Speed Write improves SAS Tape Performance by 20%

### ATTO SpeedWrite™ Boosts Tape Write Performance

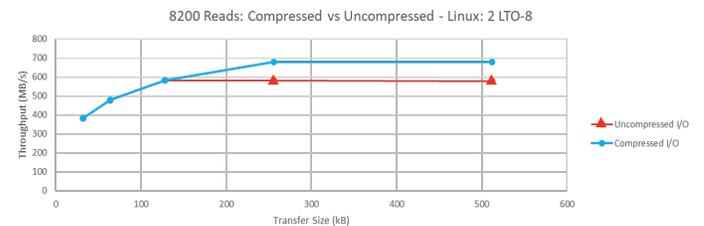
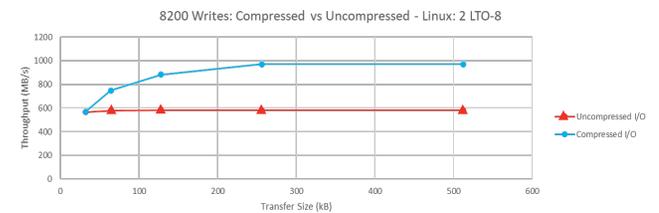
When backing up data, write speed is the most important metric to an organization. ATTO SpeedWrite™ keeps paths between host & ATTO XstreamCORE® intelligent bridge filled with data to significantly boost write performance to tape. Multiple hosts can each be talking to different tape drives and all hosts benefit from SpeedWrite's early response mechanism. SpeedWrite boosts tape performance by up to 20% over a direct connect SAS HBA connection to tape drives. SpeedWrite gives a successful response to the host in parallel with sending commands to the drive. Hosts can send the next command down to XstreamCORE, making the system look like tape devices can handle a queue depth of two.

### ATTO XstreamCORE provides fast performance connecting Fibre Channel, iSCSI or iSER to SAS tape drives

ATTO XstreamCORE storage controllers connect up to 16 SAS LTO tape drives to a 16Gb or 32Gb Fibre Channel or 40Gb Ethernet fabric. Connectivity via multiple ports allows up to 6400 MB/s of throughput when connecting with Fibre Channel, up to 6000 MB/s when connecting with iSCSI Extensions for RDMA (iSER) or up to 2500 MB/s of throughput when connecting with ATTO hardware accelerated iSCSI. Simply connect SAS drives behind XstreamCORE to take advantage of the speed and versatility of standard off the shelf SAS drives without the expense of Fibre Channel or Ethernet tape drives..

### ATTO Hardware Accelerated iSCSI technology

ATTO engineered the TCP/IP stack into the xCORE Acceleration Processor to improve iSCSI performance by accelerating all SCSI, iSCSI and TCP commands in hardware without the need for CPU intervention or context switching. Built from the ground up to enable high performance not experienced by software iSCSI implementations, ATTO's implementation of iSCSI is fully in hardware and is not an offload engine. ATTO hardware accelerated iSCSI eliminates any burden to the CPU and provides an extremely fast connection between iSCSI targets and initiators.



Compressed traffic benefits from SpeedWrite while uncompressed traffic hit line rate on SAS tape drives. A total of 6000 MB/s of throughput is available with the 8200 using iSER

## Differentiators

### Adaptive Path Optimization

Intelligently senses multiple paths to drives and increases I/O performance up to 70%.  
Eliminates single points of failure in storage connections.

### Latency Scout™

Enables IT administrators to quickly isolate datacenter bottlenecks with real-time latency histograms, ensuring maximum infrastructure uptime and optimal performance.

### MultiPath Director™

Proprietary technology that provides Linux®, macOS®, and Windows® workstations and servers multiple paths to enterprise-class storage with redundant controllers, providing failover and load balancing capabilities.

### WriteStop™

Ensures data security in digital forensics applications by blocking writes to hard disks, while providing read-only protection at the system level.



**The Power Behind the Storage**

### How to Buy

**On the web:**

[www.atto.com/howtobuy](http://www.atto.com/howtobuy)

+1.716.691.1999

VARs and System Integrators can also purchase  
ATTO products from the "How To Buy" page

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