



Resource Guide

2013



# ATTO Technology, Inc.

## Corporate Overview

For 25 years ATTO has been a leader in storage and network connectivity. ATTO develops high-performance products that manage latency in the most demanding real-time environments, resulting in accelerated application performance and enhanced transaction processing.

- Enterprise - Database, Web Servers, Back-Office Operations
- Departmental - Business Analytics, Supply Chain, Asset Management
- Workgroup - CAD/CAE, Video Production, Seismic Processing

ATTO is a manufacturer of the industry's broadest portfolio of high-performance storage and network connectivity products to help customers better store, manage and deliver their data.

- Fibre Channel, SAS, SATA, iSCSI, 10GbE, FCoE, Thunderbolt™
- HBAs, RAID Adapters, NICs, CNAs, RAID Controllers, Bridges, Switches, Desklink Devices™, Software

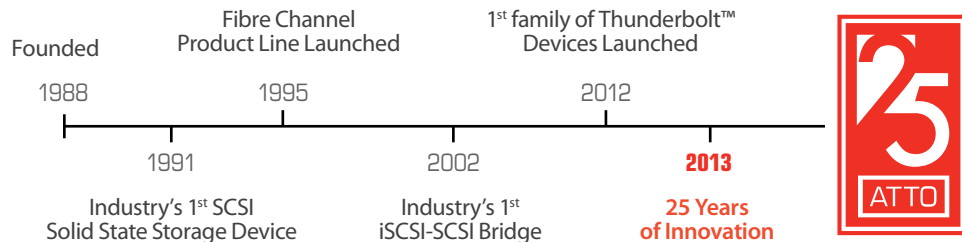
ATTO provides tested solutions qualified and certified with the industry leading workstation, server, storage and application vendors.

## ATTO Does Business Differently

- Accelerate your time to market, delivering faster access to new technology
- Differentiate your solution, resulting in market-driven features that improve your workflow
- Access industry renowned support, maximizing your solution performance and productivity



ATTO Founders  
Dave Snell, CTO & Tim Klein, CEO



**Host Bus & RAID Adapters**  
Celeryty 16Gb/s and 8Gb/s Fibre Channel HBAs and ExpressSAS 12Gb/s and 6Gb/s SAS/SATA HBAs and RAID Adapters provide faster and more efficient data transfers



**Converged Network Adapters & Network Interface Cards**  
FastFrame™ 10Gb CNAs and NICs provide flexible and scalable unified LAN and SAN storage connectivity



**RAID Storage Controllers**  
FastStream™ Storage Controllers are engineered for real-time applications which require managed latency for high-performance workflows



**Desklink™ Devices**  
ThunderLink™ and ThunderStream™ Desklink™ Devices enable high-performance, low latency capabilities to all-in-one systems, laptops and integrated computers for storage and network connectivity



**Bridges**  
ATTO FibreBridge™ Fibre Channel bridges enable Direct Attached SAS/SATA storage into Fibre Channel SANs



**Switches**  
FibreConnect™ 16 & 8Gb/s Fibre Channel switches provide high-performance, scalable connectivity with enterprise-level features for small to mid-range SANs



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



**Cables and Accessories**  
ATTO high quality cables maximize product performance and data integrity

- HBAs
- RAID Adapters
- NICs/CNAs
- ATTO Solutions
- RAID Controllers
- Desklink™ Devices
- Bridges
- Switches
- Software
- Cables

*"Thank you for 25 years of partnership and allowing us to help grow your business. We look forward to working with you for the next 25 years."*

-Timothy J. Klein, President and CEO, ATTO Technology, Inc.

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Product specifications and image representations are subject to change.



# Technology Leadership

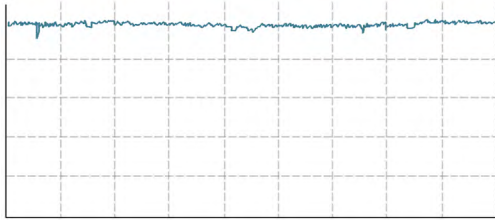
## ATTO Product Differentiators

### Advanced Data Streaming (ADS™) Technology

Latency management technology is built into ATTO host bus adapters (HBAs) and RAID hardware. Advanced Data Streaming manages real-time latency by providing controlled acceleration for smooth data streaming to maintain the highest consistent performance.

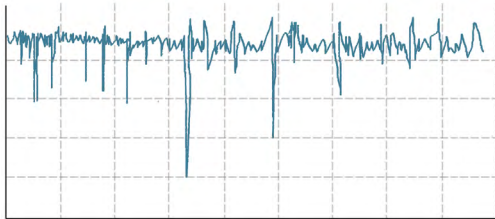
ADS ensures best-in-industry data transfers for high-bandwidth applications.

ATTO Products with ADS™ Technology



Data transfer performance is smooth and reliable

Competitors Product



Disrupted transfer with peaks and drops

Transfer rate dips below optimal performance levels

ATTO's heritage of pioneering solid-state storage technology means that all products are engineered to manage latency in real-time environments:

- Higher application performance = better productivity
- Better transaction processing = faster time to revenue & critical business decisions
- Ability to handle larger workloads & client counts

*"We picked ATTO because ATTO is #1 in the business...They handle cache coherency and latency issues...makes for a tight, well integrated solution."*

- Ray Thompson, Storage Systems Program Manager, HP

### AEOS (ATTO Embedded OS)

ATTO Embedded Operating System provides an integrated, multi-tasking environment, that self optimizes to changing I/O patterns for maximum performance and monitoring in storage products.

### CacheAssure™

Uses supercap technology to protect cached data for up to 10 years. Manages data during power up and power down. Eliminates battery-related maintenance, reducing IT costs .

### Drive Map Director™

ATTO's Drive Map Director™ technology provides a logical, static topology and enables login parameters, access management and security for racks of SAS/SATA storage.

### DriveAssure™

DriveAssure™ repairs drives to prevent premature drive failures and slow downs to maximize system uptime. Also ensures 100% throughput during data rebuilds.

### DVRAID™

ATTO's DVRAID™ technology is optimized for digital content creation environments which require protection in the event of a disk failure without the performance penalty traditionally seen with parity RAID.

### intelligent Bridging Architecture™

ATTO's intelligent Bridging Architecture™ technology combines powerful hardware with an efficient software data engine to deliver the flexibility of "anything-to-anything" connectivity.

### MultiPath Director™

A proprietary technology available on ATTO's Fibre Channel host bus adapters that enables Linux®, Mac® and Windows® workstations and servers to connect directly to enterprise-class storage with redundant controllers, providing failover and load balancing capabilities across multiple paths to the storage.

### Signal Integrity

ATTO engineers design our products with a focus on minimizing jitter, crosstalk, reflections, and power supply noise, resulting in the cleanest signals in the industry.

### Smooth Data Optimization™

Proprietary technology in ATTO's Power Center Software that accelerates transfer of data and manages latency across multiple drives.

### SpeedWrite™

SpeedWrite™ efficiently queues outstanding write commands to enhance the throughput of data transfers.

### Virtual Device Manager

Virtual Device Manager works by creating virtual devices specific to accomplishing the individual tasks and applications within the bridge.

### Virtual Drive Response (VDR)

Virtual Drive Response (VDR) technology enables devices to queue commands on behalf of busy or unresponsive tape storage, reducing the number of failed or incomplete backups.

### Optimized Device-Direct Transfer

ATTO's patented technology pre-processes data and organizes command strings allowing for accelerated movement of data directly between storage devices in a SAN without the need for a server.

HBAs

RAID Adapters

NICs/CNAs

ATTO Solutions

RAID Controllers

Desklink™ Devices

Bridges

Switches

Software

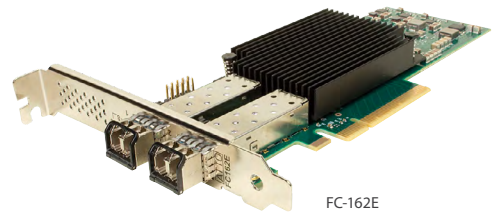
Cables

# 16Gb & 8Gb Fibre Channel HBAs

## Celerity Host Bus Adapters

Celerity Fibre Channel HBAs are designed to cover the full performance spectrum from enterprise to workgroup and server to workstation environments. This highly integrated family of adapters is engineered to optimize data transfer using a combination of features that enhance the data delivery process and is fully scalable. ATTO's latest Celerity 16Gb Fibre Channel quad-channel HBAs, the first of its kind in the market, address the needs of Linux® and Windows® platforms in high performance computing, virtualization and other high IOP environments typically found in enterprise data centers. Built with the PCIe 3.0 computer interface, they are compatible and work seamlessly with all Fibre Channel 4, 8 and 16Gb devices.

- Upgrading to the latest Celerity HBA technology can double performance while preserving existing storage infrastructure investment
- Optimized for extremely low latency and high-bandwidth transfers for both data-intensive and high-transaction rate applications
- Enterprise storage ready - compatible with EMC®, HP®, IBM®, NetApp® and other major storage vendors
- MultiPath Director™, available with Celerity HBAs, is the industry's only solution to allow workstations and servers access to high-availability, high-performance, enterprise-class storage for shared workflows
- Complete SAN connectivity solution when combined with an ATTO FibreConnect™ Fibre Channel Switch
- Low power consumption reduces overall electric and cooling costs
- EMC® E-Lab Certified



FC-162E

**Supports:**

- Mac®, Windows®, Linux®, VMware®, Hyper-V®
- Arbitrated loop, point-to-point and direct fabric/switch attach
- Certified with industry leading platforms and applications

**Includes:**

- Advanced Data Streaming (ADS™) Technology
- Pluggable optical SFP+
- ATTO Config Tool for customized performance settings

**Complementary Products:**

- ATTO FibreConnect™ Fibre Channel Switches
- ATTO FastStream™ RAID Storage Controllers
- ATTO FibreBridge™ Fibre Channel Bridges
- ATTO Express Power Center RAID software
- ATTO premium cables

*"With ATTO's 16 Gb/s advancements, our customers are able to leverage much higher throughput from our TerraBlock Shared Storage Systems without the software and hardware overhead of spanning ports."*

-James McKenna, Vice President, Facilis Technology, Inc.

## ATTO Celerity Host Bus Adapters

Product Features	164E	162E	161E
Part Number	CTFC-164E-000	CTFC-162E-000	CTFC-161E-000
Fibre Channel Ports	4	2	1
Max. Data Rate	16Gb/s	16Gb/s	16Gb/s
Max. Transfer Rate	6400MB/s	3200MB/s	1600MB/s
Bus Type	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8
Auto Negotiation	16Gb, 8Gb, 4Gb	16Gb, 8Gb, 4Gb	16Gb, 8Gb, 4Gb
Connector Type	Optical SFP+ LC	Optical SFP+ LC	Optical SFP+ LC
Max. Cable Length (OM3)	150m - 8Gb 100m - 16Gb	150m - 8Gb 100m - 16Gb	150m - 8Gb 100m - 16Gb
Low-Profile Form Factor	—	Yes	Yes
Developer's Kit* (Target Mode API)	Yes	Yes	Yes
Warranty	3 year	3 year	3 year

Product Features	84EN	82EN	81EN
Part Number	CTFC-84EN-000	CTFC-82EN-000	CTFC-81EN-000
Fibre Channel Ports	4	2	1
Max. Data Rate	8Gb/s	8Gb/s	8Gb/s
Max. Transfer Rate	3200MB/s	1600MB/s	800MB/s
Bus Type	PCIe 2.0 x8	PCIe 2.0 x8	PCIe 2.0 x8
Auto Negotiation	8Gb, 4Gb, 2Gb	8Gb, 4Gb, 2Gb	8Gb, 4Gb, 2Gb
Connector Type	Optical SFP+ LC	Optical SFP+ LC	Optical SFP+ LC
Max. Cable Length (OM3)	500m - 2Gb 380m - 4Gb 150m - 8Gb	500m - 2Gb 380m - 4Gb 150m - 8Gb	500m - 2Gb 380m - 4Gb 150m - 8Gb
Low-Profile Form Factor	—	Yes	Yes
Developer's Kit* (Target Mode API)	Yes	Yes	Yes
Warranty	3 year	3 year	3 year

Compatible Fibre Channel Switch Available - See Page 22.  
 Compatible RAID Controllers Available - See Page 16.  
 Compatible Software Available - See Page 24.  
 Compatible Cables & Accessories Available - See Page 26.

### MultiPath Director™

MultiPath Director™ is a proprietary driver available on ATTO's Fibre Channel host bus adapters that enables Mac®, Windows® and Linux® workstations and servers to connect directly to enterprise storage. MultiPath Director, when paired with enterprise-class storage systems, provides a completely redundant, high-availability, high-performance storage solution for workstation and server applications.

HBAs  
Fibre Channel

RAID  
Adapters

NICs/CNAs

ATTO  
Solutions

RAID  
Controllers

Desklink™  
Devices

Bridges

Switches

Software

Cables

# 12Gb & 6Gb SAS/SATA HBAs

## ExpressSAS Host Bus Adapters

ExpressSAS Host Bus Adapters leverage the performance and scalability enhancements of Serial Attached SCSI (SAS) technology to deliver the fastest available connection to SAS/SATA storage. They offer a reliable Direct Attached Storage connectivity solution that is interoperable with a wide range of internal and external disk and tape products. The newest card in the ExpressSAS family is the H6F0 GT. It features 16 external SAS/SATA ports and the latest PCI Express 3.0 bus technology in a low profile form factor, and offers the latest miniSAS HD connectors for improved cable management and monitoring.

- Optimized for extremely low latency and high-bandwidth transfers for both data-intensive and high-transaction rate applications
- Compatibility with all major SAS, SATA, SSD, disk and tape drives
- Uses 70% less power than competitive HBAs, reducing overall electric and cooling costs

### Supports:

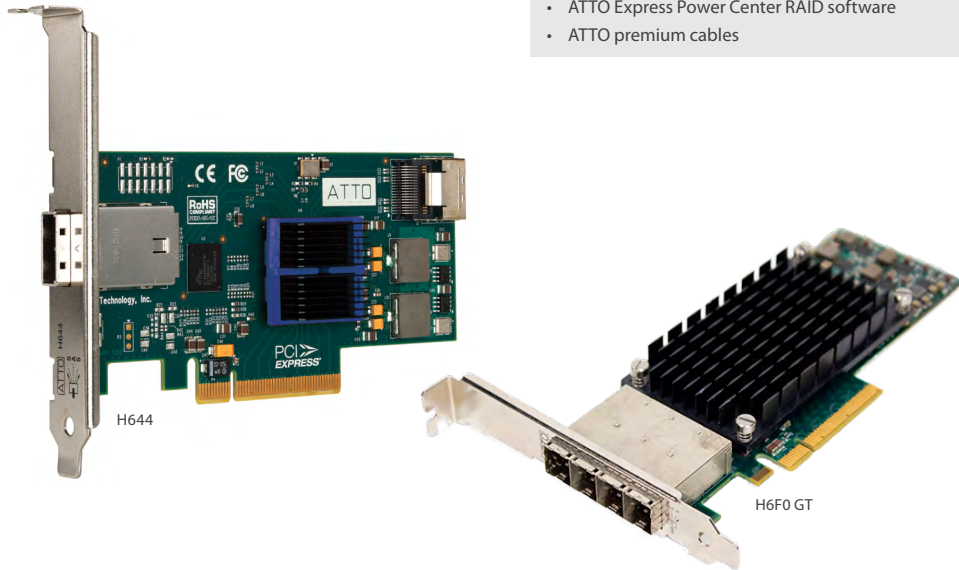
- Mac®, Windows®, Linux® and VMware®
- RAID 0, 1, 10
- Up to 1048 end devices
- Certified with industry leading platforms and applications

### Includes:

- Advanced Data Streaming (ADS™) Technology
- ATTO Config Tool for customized performance settings

### Complementary Products:

- ATTO Express Power Center RAID software
- ATTO premium cables



*“Now we are able to edit as many cameras as we need in 3D, in real-time -- which is a tremendous time and cost savings ... this new workflow is amazing and continues to open up doors to new opportunities.”*

-George Bellias, Jade Productions

## ATTO ExpressSAS Host Bus Adapters

Product Features	H6F0 GT	H6F0	H60F
Part Number	ESAS-H6F0-GT0	ESAS-H6F0-000	ESAS-H60F-000
SAS/SATA Ports	16	16	16
Port Config. (Ext/Int)	16/0	16/0	0/16
Max. Data Rate	6Gb/s	6Gb/s	6Gb/s
Bus Type	PCIe 3.0 x8	PCIe 2.0 x8	PCIe 2.0 x8
Connector Type	(4) 6Gb mini SAS HD (x4) SFF 8644 External	(4) 6Gb mini SAS (x4) SFF 8088 External	(4) 6Gb mini SAS (x4) SFF 8087 Internal
Max. Cable Length (SAS/SATA)	10m/1m	10m/1m	10m/1m
Low-Profile Form Factor	Yes	—	Yes
Developer's Kit* (Target Mode)	Yes	Yes	Yes
End Devices Supported	2048	1024	1024
Warranty	3 year	3 year	3 year

Product Features	H680	H608	H644
Part Number	ESAS-H680-000	ESAS-H608-000	ESAS-H644-000
SAS/SATA Ports	8	8	8
Port Config. (Ext/Int)	8/0	0/8	4/4
Max. Data Rate	6Gb/s	6Gb/s	6Gb/s
Bus Type	PCIe 2.0 x8	PCIe 2.0 x8	PCIe 2.0 x8
Connector Type	(2) 6Gb mini SAS (x4) SFF 8088 External	(2) 6Gb mini SAS (x4) SFF 8087 Internal	(1) 6Gb mini SAS (x4) SFF 8088 External (1) 6Gb mini SAS (x4) SFF 8087 Internal
Max. Cable Length (SAS/SATA)	10m/1m	10m/1m	10m/1m
Low-Profile Form Factor	Yes	Yes	Yes
Developer's Kit* (Target Mode)	Yes	Yes	Yes
End Devices Supported	1024	1024	1024
Warranty	3 year	3 year	3 year

Product Features	H12F0	H120F	H1280	H1208
Part Number	ESAS-H12F0-000	ESAS-H120F-000	ESAS-H1280-000	ESAS-H1208-000
SAS/SATA Ports	16	16	8	8
Port Config. (Ext/Int)	16/0	0/16	8/0	0/8
Max. Data Rate	12Gb/s	12Gb/s	12Gb/s	12Gb/s
Bus Type	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8
Connector Type	(4) 12Gb mini SAS HD (x4) SFF 8644 External	(4) 12Gb mini SAS HD (x4) SFF 8643 Internal	(2) 12Gb mini SAS HD (x4) SFF 8644 External	(2) 12Gb mini SAS HD (x4) SFF 8643 Internal
Max. Cable Length (SAS/SATA)	10m/1m	10m/1m	10m/1m	10m/1m
Low-Profile Form Factor	No	No	No	No
Developer's Kit* (Target Mode)	Yes	Yes	Yes	Yes
End Devices Supported	2048	2048	1024	1024
Warranty	3 year	3 year	3 year	3 year

\*Available for qualified OEM sales only. Please contact your ATTO representative.

Compatible Software Available - See Page 24.

Compatible Cables Available - See Page 26.



# 6Gb SAS/SATA RAID Adapters

## ExpressSAS RAID Adapters

ATTO's ExpressSAS 6Gb/s SAS/SATA RAID Adapters provide high performance data protection to direct attached SAS and SATA JBOD storage. With a wide variety of port configurations and RAID levels, these adapters offer flexibility for every range of application. For over 20 years, ATTO's time-tested RAID stack has provided confidence with high-performance data integrity.

- Upgrading to 6Gb/s will double performance while preserving existing 3Gb/s storage infrastructure investment
- Optimized for extremely low latency and high-bandwidth transfers for both data-intensive and high-transaction rate applications
- Tunable rebuilds allow full application performance for continuous access to storage during degraded or rebuild modes
- Uses 70% less power than competitive adapters, reducing overall electric and cooling costs

### Supports:

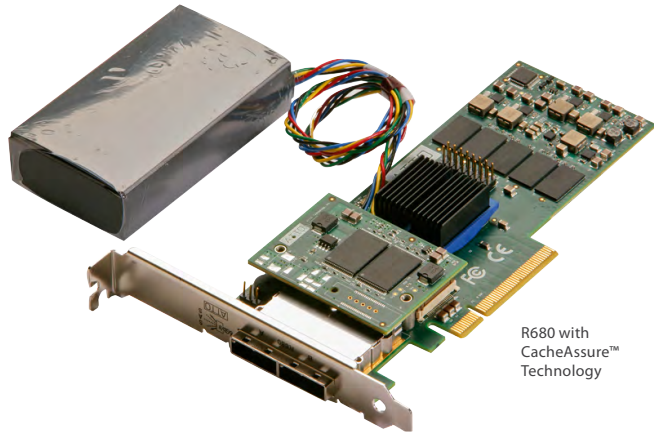
- Mac®, Windows® and Linux®
- RAID levels 0, 1, 4, 5, 6, 10, 40\*, 50\*, 60\*, JBOD and DVRAID™ (\*requires Express Power Center™ RAID software)
- Certified with industry leading platforms and applications

### Includes:

- Advanced Data Streaming (ADS™) Technology
- DriveAssure™ Technology
- CacheAssure™ Technology (Optional)
- ATTO Config Tool for customized performance settings

### Complementary Products:

- CacheAssure™ Technology
- ATTO Express Power Center RAID software
- ATTO premium cables



R680 with CacheAssure™ Technology

*"Data storage and management is a huge part of our business ... we choose ATTO products because they have a history of providing the best tools available and give us the confidence that our data is stored both safely and securely."*

-Chris Peariso, Chief Technical Officer, Lighttron

## ATTO ExpressSAS RAID Adapters

Product Features	R60F	R680	R608	R644
Part Number	ESAS-R60F-000	ESAS-R680-000	ESAS-R608-000	ESAS-R644-000
Part Number w/ CacheAssure™	ESAS-R60F-C00	ESAS-R680-C00	ESAS-R608-C00	ESAS-R644-C00
SAS/SATA Ports	16	8	8	8
Port Config. (Ext/Int)	0/16	8/0	0/8	4/4
Max. Data Rate	6Gb/s	6Gb/s	6Gb/s	6Gb/s
Max. Transfer Rate	9600MB/s	4800MB/s	4800MB/s	4800MB/s
Bus Type	PCIe 2.0 x8	PCIe 2.0 x8	PCIe 2.0 x8	PCIe 2.0 x8
Auto Negotiation	SAS 2.0, SAS, SATA II, SATA	SAS 2.0, SAS, SATA II, SATA	SAS 2.0, SAS, SATA II, SATA	SAS 2.0, SAS, SATA II, SATA
Connector Type	(4) 6Gb mini SAS (x4) SFF 8087 Internal	(2) mini SAS (x4) SFF 8088 External	(2) mini SAS (x4) SFF 8087 Internal	(1) mini SAS (x4) SFF 8088 External (1) mini SAS (x4) SFF 8087 Internal
Max. Cable Length (SAS/SATA)	10m/1m	10m/1m	10m/1m	10m/1m
Low-Profile Form Factor	Yes	Yes	Yes	Yes
End Devices Supported	256	256	256	256
Memory (ECC)	512MB	512MB	512MB	512MB
Warranty	3 year	3 year	3 year	3 year

Compatible Software Available - See Page 24.

Compatible Cables Available - See Page 26.

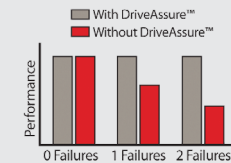
Note: CacheAssure™ is available as a field upgradable unit for existing 6Gb RAID users. Contact your ATTO representative.

## DriveAssure™ Technology

DriveAssure™ provides bounded latency through proprietary algorithms and user controls to prevent premature drive failures and slow downs in an effort to maximize system uptime. This technology is standard on all ATTO RAID adapters and storage controllers.

- Guaranteed latency response from RAID groups
- Media scrubbing during drive initialization
- Manual and scheduled media scans with parity verification
- On-the-fly media error handling
- Rebuilds continue when an error occurs
- Data recovery mode

### Drive Failure Rate



# 10Gb Ethernet Optical and 10GBASE-T NICs

## FastFrame™ Network Interface Cards

ATTO FastFrame NICs comprise a versatile, straightforward portfolio for flexible design. They work wherever you need them: in workstations, servers, data center racked servers, and with Mac®, Windows® and Linux® (server & workstation) operating systems. Available in single-, dual- and quad-port configurations, FastFrame optical NICs include high-quality SFPs, and deliver high performance I/O connectivity and lossless ethernet support for improved iSCSI block storage access. Quad-port cards remove switch-to-server bottlenecks and free up PCI slots for easier system design. All optical cards feature Direct Attach Copper (DAC) support for top-of-rack, and single-mode fiber support for cross-campus scenarios. Single- and dual-port 10GBASE-T NICs work with the twisted pair copper cabling familiar to network professionals and feature the same broad operating system and iSCSI support.

- FastFrame NICs are proven to outperform the competition in demanding imaging applications that require low latency: video editing & streaming, oil & gas exploration, medical imaging and scientific research.
- They allow you to phase in 10GbE upgrades from GigE. FastFrame NICs provide great performance when used with GigE cards, ports and existing Cat6a cabling.
- FastFrame NICs save up to 30% in power consumption versus competitors, resulting in lower energy costs and less heat to dissipate.

### Supports:

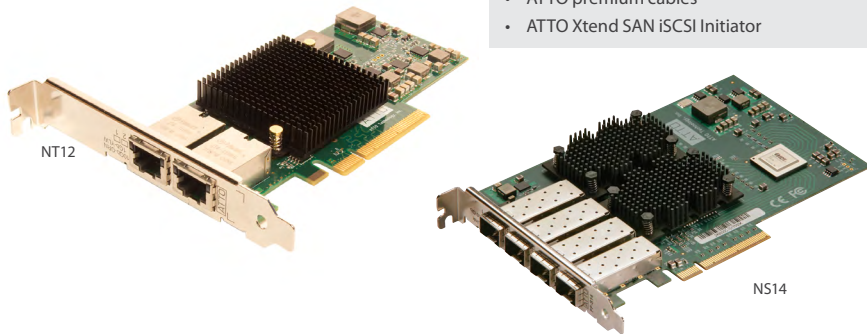
- Mac®, Windows®, Linux® and VMware®
- Data Center Bridging Ethernet
- iSCSI initiators
- Certified with industry leading platforms and applications

### Includes:

- Advanced Data Streaming (ADS™) Technology
- Pluggable optical SFP+

### Complementary Products:

- ATTO premium cables
- ATTO Xtend SAN iSCSI Initiator



*"We have relied on ATTO for years to help us deliver quality content to one of the biggest media markets in the world. Their solutions are easy to install and manage and allow us to focus on creating and distributing critical content."*

-Gregory Gasperino, Director of Broadcast Technology and Infrastructure, New York Public Radio

## ATTO FastFrame SFP+ Network Interface Cards (NICs)

Product Features	NS14	NS12	NS11
Part Number	FFRM-NS14-000	FFRM-NS12-000	FFRM-NS11-000
10GbE Ports	4	2	1
Max. Data Rate	10Gb/s	10Gb/s	10Gb/s
Max. Transfer Rate	5.0GB/s	2.5GB/s	1.25GB/s
Bus Type	PCIe 2.0 x8	PCIe 2.0 x8	PCIe 2.0 x8
Connector Type	Optical SFP+ LC	Optical SFP+ LC	Optical SFP+ LC
Low-Profile Form Factor	—	Yes	Yes
Warranty	3 year	3 year	3 year

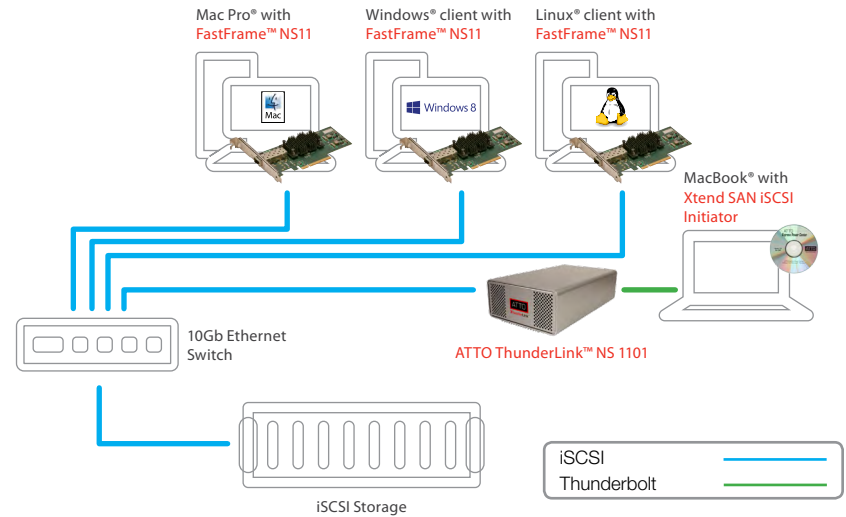
## ATTO FastFrame 10GBASE-T Network Interface Cards (NICs)

Product Features	NT12	NT11
Part Number	FFRM-NT12-000	FFRM-NT11-000
10GbE Ports	2	1
Max. Data Rate	10Gb/s	10Gb/s
Max. Transfer Rate	2.5GB/s	1.25GB/s
Bus Type	PCIe 2.0 x8	PCIe 2.0 x8
Connector Type	RJ45	RJ45
Low-Profile Form Factor	Yes	Yes
Warranty	3 year	3 year

Compatible Software Available - See Page 24.  
Compatible Cables Available - See Page 26.

## Use Case

### Simple iSCSI SAN



# 10Gb Ethernet CNAs

## FastFrame™ Converged Network Adapters

ATTO FastFrame 10GbE FCoE Converged Network Adapters combine ATTO's respected Fibre Channel Technology, proven in data-intensive, low-latency applications, with reliable Ethernet technology from Intel. FastFrame CNAs support Mac®, Windows® and Linux® (server & workstation) operating systems. They are available in single-, dual- and quad-port configurations, include high-quality SFPs, and deliver high-performance I/O connectivity and lossless ethernet support for improved iSCSI block storage access. Quad-port cards remove switch-to-server bottlenecks and free up PCI slots for easier system design. All feature Direct Attach Copper (DAC) support for top-of-rack, and single-mode fiber support for cross-campus scenarios.

- Exclusively from ATTO, FC-BB-6 VN2VN support plus ATTO Target Mode (available to selected OEMs) provides true Fibre Channel reliability & performance over Ethernet without the expense, performance impact and complications of a converged switch.
- ATTO CNAs accommodate evolving plans and storage networking requirements while minimizing complication and cost
- FastFrame CNAs save up to 30% in power consumption versus competitors, resulting in lower energy costs and less heat to dissipate.

### Supports:

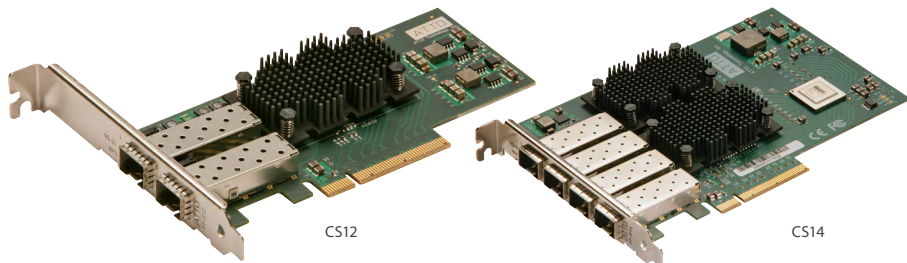
- Mac®, Windows® and Linux®
- Simultaneous 10GbE, FCoE, iSCSI
- FCoE BBv6 support, including VN2VN & Target Mode
- Simultaneous block-level & file-level I/O
- Data Center Bridging & Lossless Ethernet
- iSCSI initiators
- Certified with industry leading platforms & applications

### Includes:

- Advanced Data Streaming (ADS™) Technology
- Pluggable optical SFP+
- ATTO Config Tool for customized performance settings

### Complementary Products:

- ATTO premium cables
- ATTO Xtend SAN iSCSI Initiator



CS12

CS14

"ATTO's cross-platform support is why we incorporate their solutions in our labs. We have both Windows and Mac products and ATTO provides the driver support we need on both platforms as well as their extensive OS support for all the variations of those platforms."

-Robb Cadzow, Application Engineer, Telstream

## ATTO FastFrame Converged Network Adapters (CNAs)

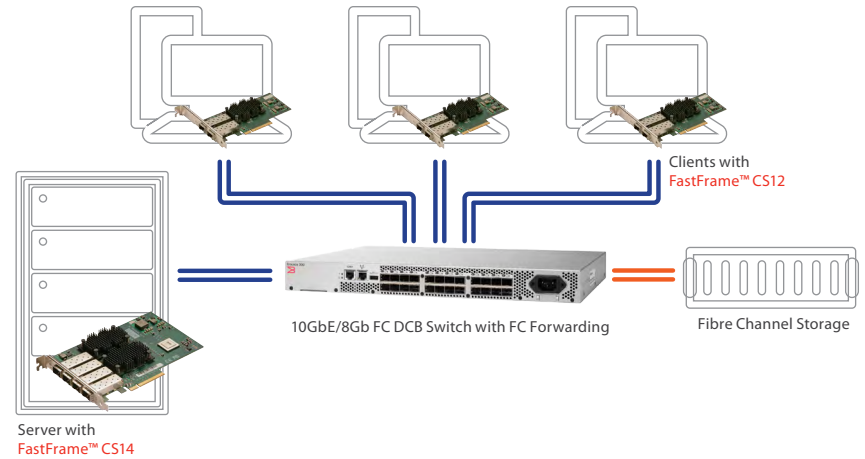
Product Features	CS14	CS12	CS11
Part Number	FFRM-CS14-000	FFRM-CS12-000	FFRM-CS11-000
10GbE Ports	4	2	1
Max. Data Rate	10Gb/s	10Gb/s	10Gb/s
Max. Transfer Rate	5.0GB/s	2.5GB/s	1.25GB/s
FCoE Support	Yes	Yes	Yes
Bus Type	PCIe 2.0 x8	PCIe 2.0 x8	PCIe 2.0 x8
Connector Type	Optical SFP+ LC	Optical SFP+ LC	Optical SFP+ LC
Low-Profile Form Factor	—	Yes	Yes
Warranty	3 year	3 year	3 year

Compatible Software Available - See Page 24.

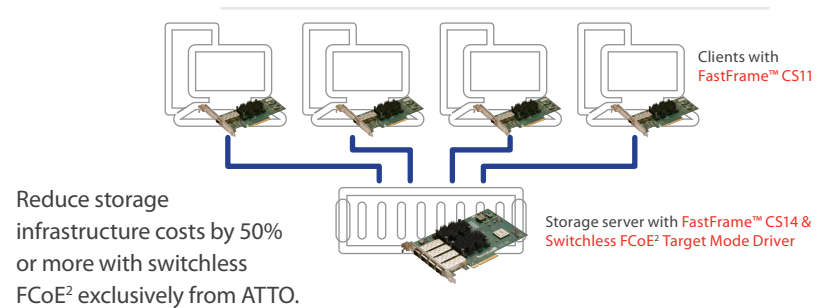
Compatible Cables Available - See Page 26.

### Use Case

FastFrame CNA supports a range of solutions: 10Gb NAS, iSCSI, FCoE<sup>1,2</sup>



1) FCoE using switches that support Fibre Channel forwarding and FCoE using standard DCB switches (VN2VN)



2) Available for qualified OEMs. Please contact your ATTO Representative.



HBAs

RAID Adapters

NICs/CNAs

ATTO Solutions

RAID Controllers

Desktop™ Devices

Bridges

Switches

Software

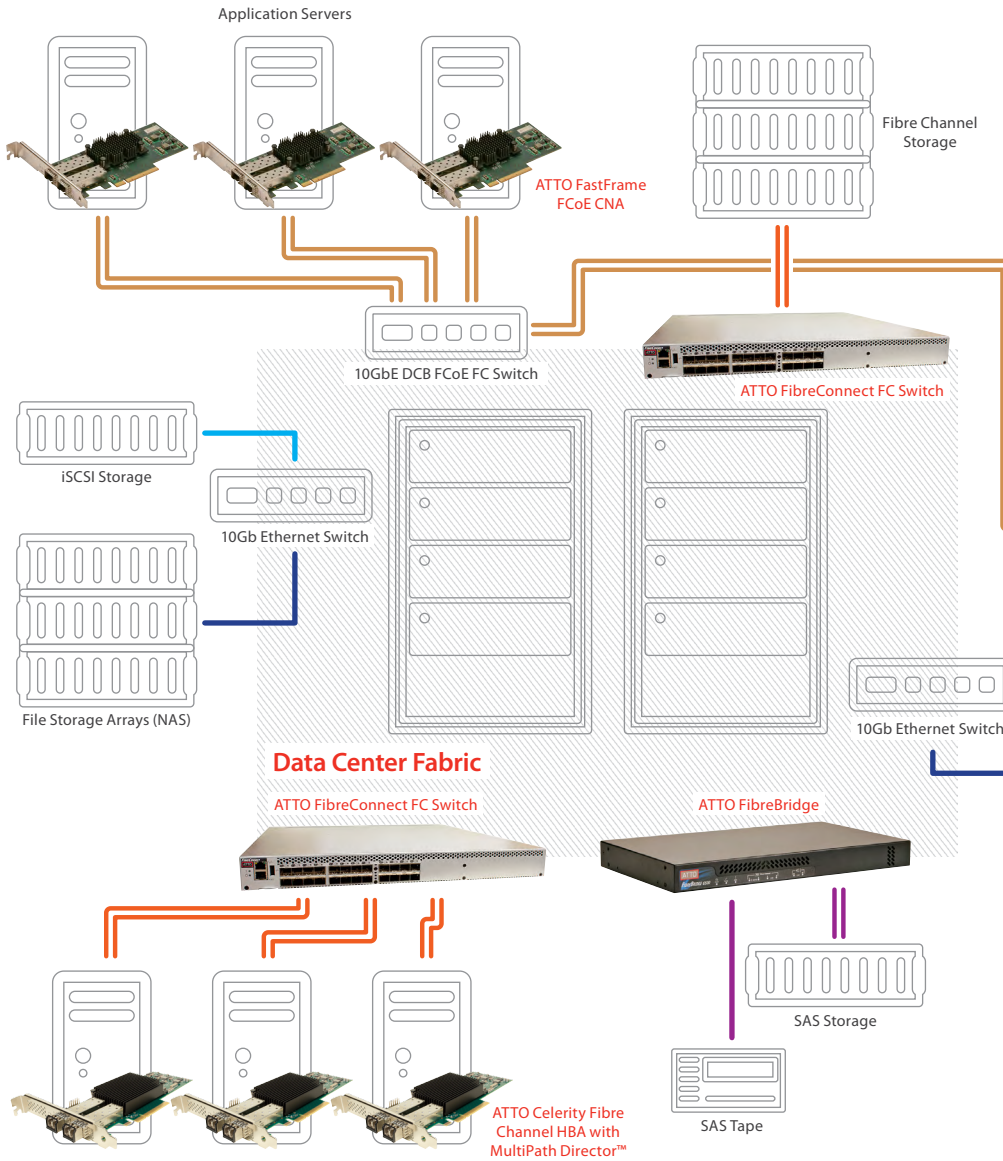
Cables



ATTO develops high-performance products that manage latency in the most demanding, real-time environments resulting in accelerated application performance and enhanced transaction processing, and the ability to handle large workloads and client counts.

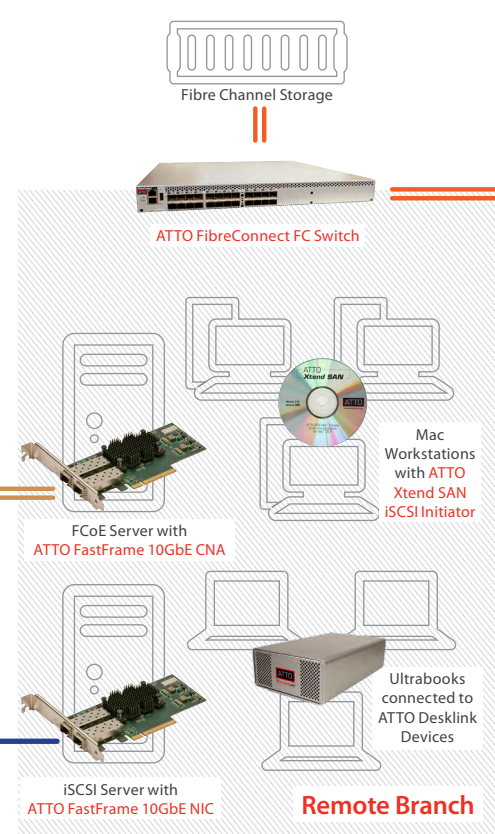
**Enterprise - IOPS**

Database | ERP | Web Servers | Email Servers | Back-Office Operations



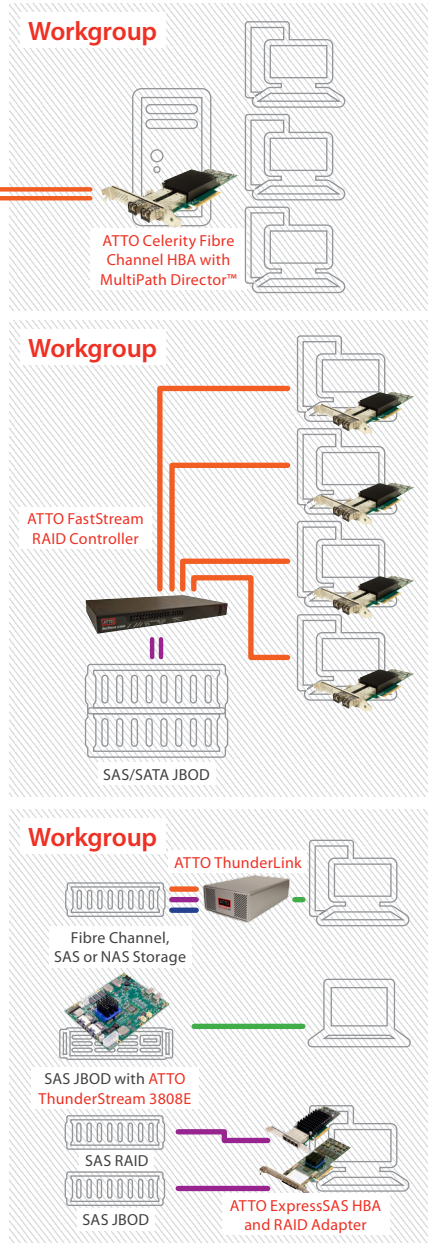
**Departmental - Mixed Environment**

Business Analytics | Financial/OLTP  
Supply Chain | Asset Management | Operations



**Workgroup - MB/sec**

CAD/CAE | Video Production/Broadcast  
Medical Imaging | Seismic/Oil & Gas



ATTO components are designed to work seamlessly together to deliver maximum performance for bandwidth-intensive environments from application specific workgroups to large-scale enterprise infrastructures. ATTO delivers the most extensive portfolio of high-performance storage and network connectivity, interoperable with industry leading server, tape and disk storage, workstation, server and application vendors.

# 16Gb & 8Gb Fibre Channel RAID Storage Controllers

## FastStream™ SC Products

ATTO FastStream Storage Controllers provide an affordable way to create real-time, shared storage with managed latency for high performance workflows. FastStream features technologies which ensure optimal performance, ease-of-use management and flexible connectivity to address demanding requirements while also providing reliability and data protection for SAS and SATA JBOD storage. Available in rackmount and embedded form factors, FastStream is well suited as primary or secondary storage for IT and digital media infrastructures including digital film production, post production, imaging, archive, backup and transaction based applications.

- Optimized for extremely low latency and high-bandwidth transfers for data-intensive applications
- Enable a collaborative workflow – share SAS/SATA JBOD storage with up to four workstations without the need for a Fibre Channel switch
- Easy to setup, manage and maintain without the need for an IT specialist
- Edit up to 30 streams of high definition video
- Pay as you grow - easily add clients or JBOD storage as needed
- Tunable rebuilds allow full application performance for continuous access to storage during degraded or rebuild modes
- Receive event notifications via email for easy monitoring and management

### Supports:

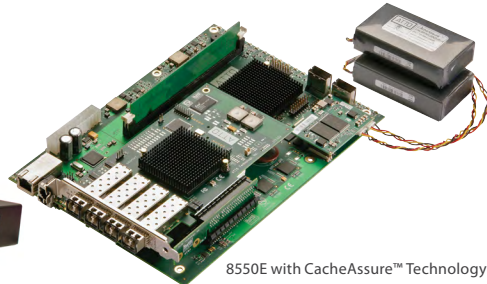
- RAID levels 0, 1, 4, 5, 6, 10, 40\*, 50\*, 60\*, JBOD, DVRAID™, N-way mirroring (\*requires Express Power Center™ RAID software)
- Certified with industry leading platforms and applications

### Includes:

- Advanced Data Streaming (ADS™) Technology
- Pluggable optical SFP+
- ExpressNAV™ storage manager simplifies management, monitoring and diagnostics
- MultiPath Director™ Support
- DriveAssure™ Technology
- CacheAssure™ Technology (Optional)
- Data Recovery Mode
- Dual Flash ROM
- CLI, Telnet, SNMP and FTP via Gig-E or RS-232

### Complementary Products:

- ATTO ThunderLink FC 1082 Desklink Device
- ATTO Express Power Center RAID software
- ATTO Celerity Fibre Channel HBAs
- ATTO premium cables



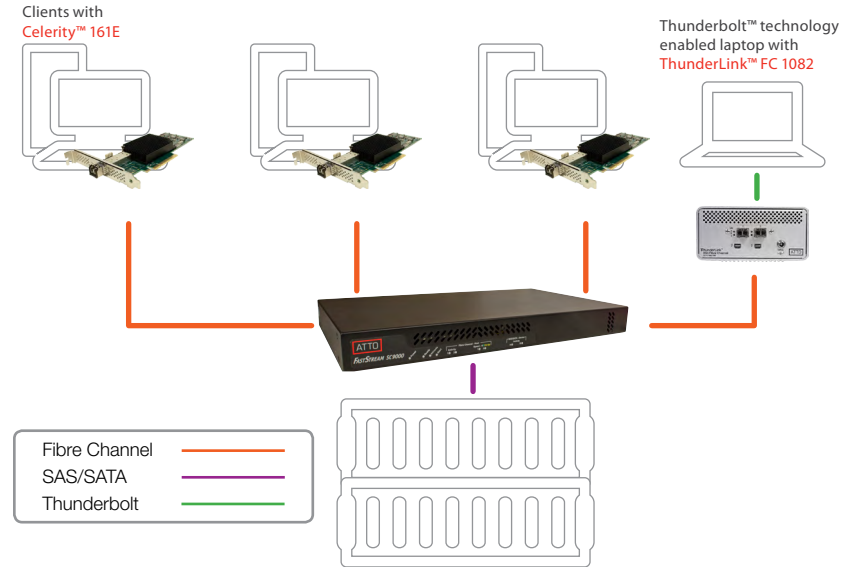
## ATTO FastStream™ SC RAID Controllers

Product Features	9000	9000E*	8550	8550E*
Part Number	FSSC-9000-D00	FSSC-9000-E00	FSSC-8550-D00	FSSC-8550-E00
Part Number w/ CacheAssure™	FSSC-9000-DC0	FSSC-9000-EC0	FSSC-8550-DC0	FSSC-8550-EC0
Max. Sustained Transfer Rate	1300MB/s	1300MB/s	1000MB/s	1000MB/s
Input Connectors	(2) 16Gb Fibre Channel SFP+ LC	(2) 16Gb Fibre Channel SFP+ LC	(4) 8Gb Fibre Channel SFP+ LC	(4) 8Gb Fibre Channel SFP+ LC
Output Connectors	(8) SAS/SATA SFF 8088	(8) SAS/SATA SFF 8088	(8) SAS/SATA SFF 8088	(8) SAS/SATA SFF 8088
Devices Supported	128	128	128	128
10-Bit HD Streams Supported	6	6	6	6
ECC Cache Memory	1024MB	1024MB	1024MB	1024MB
Form Factor	1U Desktop/Rackmount	MicroATX	1U Desktop/Rackmount	MicroATX
Warranty	2 year	1 year	2 year	1 year

\* Embedded models available to OEMs only  
Compatible Cables & Accessories Available - See Page 26.

### Use Case

#### Cost-effective, extremely efficient small workgroup SAN



The FastStream can be used as a controller for high-performance, low latency storage for a workgroup SAN. Up to four users can access the storage with the advantage of expanding capacity by daisy chaining additional JBODs.

*"The ATTO FastStream RAID Controller's simple plug-and-play usability has made it an integral part of our video post production services. ATTO has made an easy to use product that makes data streaming effortless."*

-Stuart Clark, Technical Engineer, Roundabout Entertainment

# Thunderbolt™ Desklink™ Devices

## ATTO ThunderLink™ & ThunderStream™

ATTO ThunderLink™ and ThunderStream™ Desklink™ devices enable storage and network connectivity for SAS, SATA, Fibre Channel or Ethernet devices for Thunderbolt enabled hosts. ATTO ThunderLink and ThunderStream products are focused on prosumer and professional audio and video markets where performance and latency management are key. With Thunderbolt connectivity creative professionals now have access to storage and networks at speeds not previously available with Firewire or USB. ATTO's exclusive Advanced Data Streaming (ADS™) technology provides controlled acceleration of data to deliver the highest consistent performance and reliable data transfers for video editing, digital audio, video on demand, or database applications.

- Enables high-performance, low latency capabilities to all-in-one systems, laptops and integrated computers for storage and network connectivity
- Proven interoperable with leading storage hardware and software vendors
- Customizable onboard management user interface for configuration, monitoring and management allows users to easily take control of their storage without hassle or complexity (embedded versions only)
- Low power consumption

### ThunderLink Supports:

- Mac®, Windows®, Linux®\*\*
- Certified with industry leading platforms and applications
- DisplayPort, Hot Plug, Daisy Chain

### Includes:

- Advanced Data Streaming (ADS™) Technology
- ATTO Config Tool for customized performance settings

### Complementary Products:

- ATTO premium cables

\*When Thunderbolt-enabled systems become available



### ThunderStream Supports:

- Mac®, Windows®\*\* and Linux®\*\*
- RAID Levels 0, 1, 5, 6, 10
- DisplayPort, Hot Plug, Daisy Chain, Autonomous operation

### Includes:

- Advanced Data Streaming (ADS™) Technology
- DriveAssure™ Technology
- ATTO Config Tool™, an easy to use management and monitoring interface
- Automatic drive initialization and verification identifies drives with soft errors or performance issues

### Complementary Products:

- ATTO premium cables

\*When Thunderbolt-enabled systems become available

### ATTO ThunderLink™ Desklink™ Devices

Product Features	Fibre Channel	SAS/SATA HBA	10GBASE-T NIC	SFP+ NIC
Part Number	TLFC-1082-D00/DE0*	TLSH-1068-D00/DE0*	TLNT-1102-D00/DE0*	TLNS-1101-D00/DE0*
Input Connectors	(2) 10Gb/s Thunderbolt™	(2) 10Gb/s Thunderbolt™	(2) 10Gb/s Thunderbolt™	(2) 10Gb/s Thunderbolt™
Output Connectors	(2) 8Gb/s Fibre Channel	(2) x4 6Gb/s SAS/SATA	(2) 10GbE	(1) 10GbE
Connector Type	(2) Optical SFP+ LC	(2) SFF-8088	(2) RJ45	(1) LC SFP+
Form Factor	Desktop	Desktop	Desktop	Desktop
Warranty	3 year	3 year	3 year	3 year

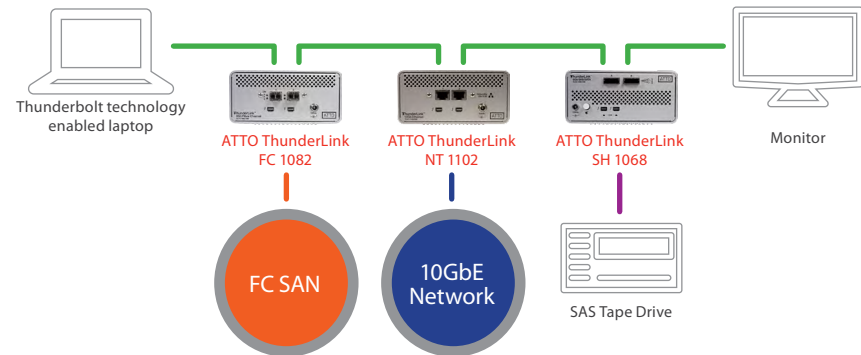
### ATTO ThunderStream™ Desklink™ Devices - RAID

Product Features	3808D	3808E**
Part Number	TSSC-3808-D00/DE0*	TSSC-3808-E00
Input Connectors	(2) 10Gb Thunderbolt™	(2) 10Gb Thunderbolt™
Output Connectors	(2) x4 6Gb SAS/SATA RAID	(2) x4 6Gb SAS/SATA RAID
Connector Type	(2) mini SAS (x4) SFF 8088 External	(2) mini SAS (x4) SFF 8088 External
Devices supported	128	128
Expander/Port Multiplier support	Yes	Yes
10-Bit HD streams supported	5	5
Form Factor	Desktop	Embedded - 100 x 125mm
Warranty	3 year	1 year

\* Meets UK/EU Power Requirements

\*\* Embedded models available to OEMs only

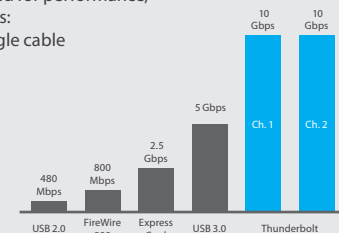
Compatible Cables & Accessories Available - See Page 26.



### What is Thunderbolt™

Thunderbolt™ is a new, high-speed I/O technology designed for performance, simplicity and flexibility. Thunderbolt™ technology features:

- Simultaneous bidirectional, 10 Gbps transfers over a single cable
- Dual-protocol support (PCI Express and DisplayPort)
- Compatible with existing DisplayPort devices
- Daisy-chaining devices
- Choice of electrical or optical cables
- Low latency with highly accurate time synchronization for professional audio and video applications
- Uses native protocol software drivers
- Power-over-cable for bus-powered devices



*“ATTO is well positioned to offer advanced building blocks for Thunderbolt technology-enabled storage. Mobile media creators and SMB customers will continue to have more storage solution choices as companies like ATTO continue to innovate.”*

-Jason Ziller, Director of Thunderbolt Marketing, Intel



# Fibre Channel-to-SAS Bridges

## FibreBridge™ Fibre Channel Bridges

The ATTO FibreBridge allows the use of direct attached SAS/SATA disk or tape storage devices in a Fibre Channel SAN environment while providing management and monitoring capabilities not available in direct connect or native technologies. ATTO bridges are engineered to integrate with and are fully compliant with Fibre Channel and SAS specifications to assure easy installation and flawless operation. ATTO offers enterprise-class intelligent bridging products that allow you to keep your infrastructure in place without the need to rip and replace and allow the use of existing technology as the industry changes and new technology as your organizational needs change.

- Compatible with all storage devices including JBODs, hard disk drives, SSD, tape libraries, RAID arrays and RAID controllers
- Includes patent-pending Drive Map Director™, which reduces down time during drive maintenance by keeping the exiting network topology available without having to re-map the LUN structure of the SAN
- Lower solution and operational costs with reduced need for many fibre channel components and low power consumption which reduces overall electric and cooling costs

### Supports:

- Full-duplex Fibre Channel data transfers
- Error recovery
- Certified with industry leading platforms and applications

### Includes:

- ExpressNAV™ web-based GUI simplifies management, monitoring and diagnostics
- intelligent Bridging Architecture™
- SpeedWrite™
- Virtual Drive Response (VDR)
- Drive Map Director™
- Pluggable optical SFP+
- RS-232 serial connector for command line interface access
- Ethernet management port for remote monitoring and management

### Complementary Products:

- ATTO Celerity Fibre Channel HBAs
- ATTO premium cables



## ATTO FibreBridge™ Fibre Channel Bridges

Product Features	6500	6500E*
Part Number	FCBR-6500-D00	FCBR-6500-E00
Max Sustained Transfer Rate	1200 MB/s	1200 MB/s
Input Connectors	(2) 8Gb Fibre Channel SFP+	(2) 8Gb Fibre Channel SFP+
Output Connectors	(2) 6Gb Mini SAS (x4) SFF 8088 External	(2) 6Gb Mini SAS (x4) SFF 8088 External
Devices supported	255	255
Active initiator Support	64	64
Event Log Protection	NVRAM	NVRAM
Expander/Port Multiplier support	Yes	Yes
Form Factor	1U Desktop/Rackmount	MicroATX
Disk Support	Yes	Yes
Tape Support	Yes	Yes
Warranty	2 year	1 year

\* Embedded models available to OEMs only  
Compatible Cables & Accessories Available - See Page 26.

### Use Case

#### Adding next generation, low cost storage technology to a SAN



With Fibre Channel drives being phased out for SAS, the FibreBridge™ 6500 will allow you to connect newer, faster and higher capacity SAS or SATA drive technology to your existing 2, 4 or 8Gb/s Fibre Channel SAN. Since SAS/SATA technology does not natively connect to Fibre Channel SANs, a bridge must be used to allow coexistence on the SAN. The FibreBridge 6500 also provides extensive manageability and troubleshooting features not found in direct attached technology.

*"ATTO bridges give us more than just basic connectivity... advanced troubleshooting and tuning features are invaluable in the field."*

- Dave Griffith, Vice President, Operations & Business Development, Qualstar

# 16Gb & 8Gb Fibre Channel Switches

## FibreConnect™ Switches

ATTO FibreConnect Fibre Channel Switches bring together high performance with exclusive latency management features for a completely scalable end-to-end SAN connectivity solution. This combination ensures smooth and reliable data transfers on a SAN to keep pace with growing business demands. Fibre Connect switches streamline workflow processes and are ideal for streaming media, virtualized and backup and recovery applications.

- Designed, built and tested for low latency to ensure smooth and reliable transfers
- Guaranteed uninterrupted bandwidth for time-sensitive applications
- Facilitates collaborative workflows allowing multiple users to share media resources increasing productivity
- Pay-as-you-grow options enable organizations to grow at their own pace in an affordable, flexible and non-disruptive manner
- Simplifies administration with easy implementation and comprehensive management tools
- Industry's only comprehensive SAN solution for Mac OS X
- Fully tested and interoperable SAN solution

### Supports:

- 2, 4, 8 and 16Gb/s devices
- Ports-On-Demand scalability (increments of 8 or 12)
- Certified with industry leading platforms and applications

### Includes:

- Pluggable optical LC SFP+
- Web Tools interface simplifies configuration and management
- Mounting hardware

### Complementary Products:

- ATTO Celerity Fibre Channel HBAs
- ATTO premium cables



FibreConnect™ 1612

## ATTO FibreConnect™ Switches

Product Features	1612	8324	8316	8308
Part Number	FCSW-1612-D00 (Single Power) FCSW-1612-D02 (Dual Power)	FCSW-8324-D00	FCSW-8316-D00	FCSW-8308-D00
Fibre Channel Ports	12*	24	16	8
Max. Data Rate	16Gb/s	8Gb/s	8Gb/s	8Gb/s
Aggregate Bandwidth	192Gb/s**	192Gb/s	128Gb/s	64Gb/s
Auto-Sensing	2, 4, 8, 16Gb/s	2, 4, 8Gb/s	2, 4, 8Gb/s	2, 4, 8Gb/s
Form Factor	1U Desktop/ Rackmount	1U Desktop/ Rackmount	1U Desktop/ Rackmount	1U Desktop/ Rackmount
Low Power <2.5W/Port	Yes	Yes	Yes	Yes
Web Tools	Yes	Yes	Yes	Yes
Warranty	1 Year***	1 Year***	1 Year***	1 Year***

\* 12 port expansion available for a total of 24 ports

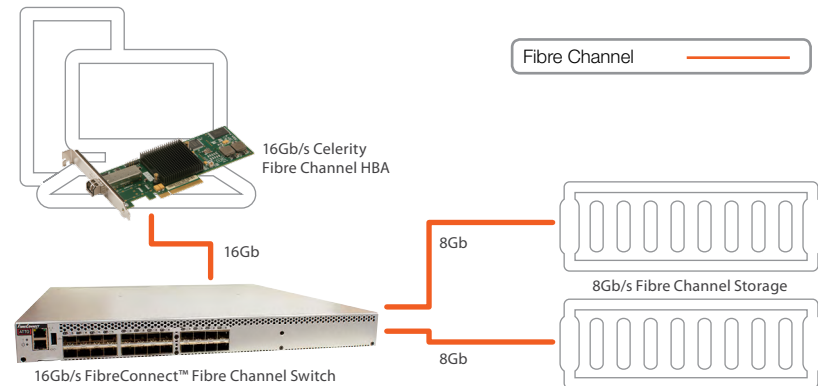
\*\* 384Gb/s with 24 active ports

\*\*\* Extended warranty available

Compatible Cables & Accessories Available - See Page 26.

## Use Case

### Improving performance while utilizing existing storage



When combining an ATTO 16Gb/s Celerity Fibre Channel host bus adapter, an ATTO 16Gb/s FibreConnect Fibre Channel switch and 8Gb/s Fibre Channel storage, you can obtain the full performance of an 16Gb/s HBA (1600MB/s) when aggregating the performance over two 8Gb/s storage devices. ATTO offers media and entertainment and general IT users a completely scalable end-to-end SAN connectivity solution to deliver high-performance and reliable storage solutions.

*"Our high-performance audio and video systems are designed for very diverse and demanding groups of people. ATTO products are an integral part in many of the media solutions we offer our customers."*

-Peyman Dadpanah, Business Director, MediaCast



# Software

## Express Power Center and XtendSAN

### Express Power Center Software

Computer applications such as digital video/audio creation and editing require the fastest data transfer speeds possible. ATTO's acceleration software, when used with ATTO HBAs, provides the highest performance from any attached SAS, SATA and Fibre Channel storage. And, the easy-to-use wizard-style interface provides step-by-step instruction to configure and optimize storage.

- Powerful acceleration software that works tightly with the OS to accelerate storage transfer and reduce latency
- Software RAID level 0 support for all ATTO HBAs
- User selectable interleave sizes
- Support for media with up to a 4KB sector size

### Xtend SAN Software

Xtend SAN iSCSI Initiator for Mac® software connects workstations with built-in Ethernet to multiple Direct Attached Storage servers across long distances. It provides users with network access to block storage without the cost and complexity of a Fibre Channel SAN. iSCSI gives small businesses and workgroups the advantages of a SAN, on a manageable budget.

- Easy setup and management features make implementing an iSCSI SAN a snap.
- High performance for demanding applications
- EMC® E-Lab Certified
- Compatible with 32/64 bit Mac OS® X
- Volume and Enterprise Licensing available

#### For Windows®

- Exclusive Smooth Data Optimization (SDO™) for increased productivity
- Seamless portability of stripe groups between systems
- Support for Windows 8, 7, Vista, XP, Server 2008, 2003, 2000

#### For Mac OS® X

- Benchmark the drive's peak, average and minimum read transfer rates
- Initialize disks and delete volumes
- Journaling support
- Create multiple volumes of various sizes simultaneously with support of up to 8 Exabytes
- Support for Mac OS X

#### Part Number:

- EPCI-PWRC-000

#### Supports:

- Up to 1024 targets
- Header/Data digest with class 1 error recovery
- SNS client login redirect function
- CHAP iSCSI security
- iSNS client
- Certified with industry leading platforms and applications

#### Includes:

- Easy-to-use GUI simplifies set-up, configuration and management
- Advanced CLI for addressing iSCSI targets
- Voluming Licensing: 1, 5, 10, 25, and 100

#### Complementary Products:

- ATTO FastFrame NICs and CNAs

#### Part Number:

- INIT-MAC0-001

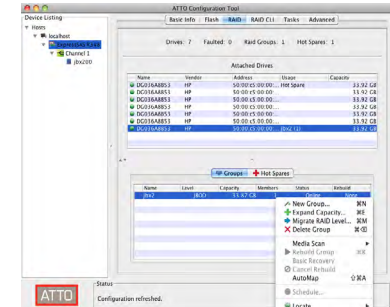
# Management Tools

## Config Tool™ and ExpressNAV™

### Config Tool™

ATTO Config Tool helps customize the settings of your ATTO host bus adapter to maximize the performance of your storage connection. Standard on all ATTO HBAs, ATTO Configuration Tool is available for Mac®, Windows® and Linux® operating systems. While the factory settings on your host adapter provide excellent performance for a wide range of applications, some specialized applications may benefit from adjustment of the adapter settings to tune the adapter for a specific performance range.

- Custom utility settings to optimize performance
- Available on Mac, Windows and Linux
- Advanced troubleshooting and monitoring

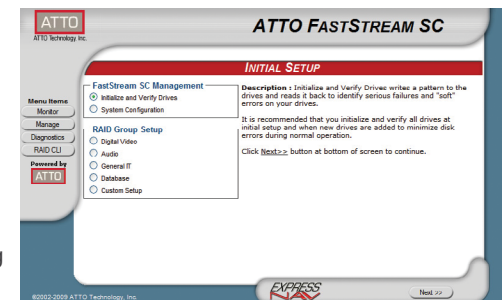


### ExpressNAV™

The ExpressNAV remote management interface helps get any FastStream controller up and running in as little as five minutes without specialized IT personnel.

ExpressNAV helps users spend less time managing storage and more time accessing data. Storage environments can haphazardly build up with disparate storage groups making it necessary to tend to several management interfaces. FastStream Controllers equipped with ExpressNAV help manage complete storage infrastructures via a single product.

- One click setup wizards
- Custom setup option for advanced performance tuning
- Email notification for monitoring



*"We found that Xtend SAN was a hassle-free initiator that just worked and was easy to implement and integrate."*

-Ed Casaccia, Director of Product Marketing for Servers and Storage, Grass Valley

# ATTO Cables and Accessories

## Premium Connectivity Components

For over 25 years, ATTO has conducted in-depth examinations of noise, interference, cable lengths and their effects on connectivity solutions. ATTO premium cables are specifically designed to optimize connections between high-performance storage and workstations. ATTO cables are recommended for use with the ATTO line of Desklink Devices, HBAs, RAID Controllers and Bridges to obtain high levels of performance and signal quality.

By utilizing high-quality shielding, equipment-specific cable lengths and extensive pull testing to verify connection integrity, these premium cables are the best connectivity solution for every ATTO product.

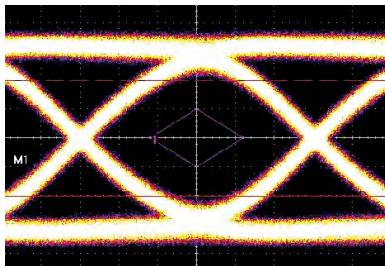


SAS Cable, External SFF-8088 to SFF-8088

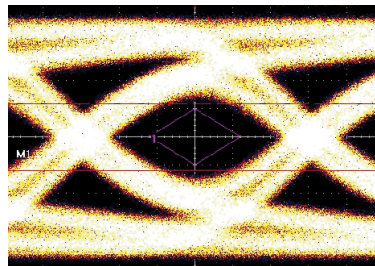
### Signal Integrity

ATTO Technology has been manufacturing storage connectivity products for over 24 years, becoming experts in the art of developing clean board design for smooth data streaming. ATTO engineers pay close attention to signal integrity with a focus on minimizing jitter, crosstalk, reflections, and power supply noise, resulting in the cleanest signals in the industry.

This is one of the reasons why ATTO is the most trusted storage connectivity solution provider in the Media and Entertainment industry for high speed streaming applications. Signal quality is the best indicator of performance and could be the difference between completing projects on time or missing deadlines. ATTO products can be relied upon for uninterrupted reliable, and high-performance data transfers.



ATTO Cable Signal:  
Clean eye pattern = tighter signal strength  
Smooth and reliable data transfers



Substandard Cable Signal:  
Distorted eye pattern = weaker signal integrity  
Possible data loss, errors



SAS/ SATA	External SFF-8088 to SFF-8088	External SFF-8088 to SFF-8470	External SFF-8644 to SFF-8470	External SFF-8436 to SFF-8088	Internal SFF-8087 to (4) x1 SATA	Internal SFF-8087 to SFF-8087	Internal I2C 3-Pos to 3-Pos
Length	1 & 3 meters <sup>1</sup>	1 & 3 meters <sup>1</sup>	1 meter	1 & 3 meters <sup>1</sup>	.5 meters	.5 meters	.5 meters
For use with	ESAS-H6F0 ESAS-R680 ESAS-H680 ESAS-R644 ESAS-H644 ESAS-R380 ESAS-H380 ESAS-R348 FSSC-8550 FSSC-5550 FSSC-9000 TSSH-1068 TSSC-3808	ESAS-H6F0 ESAS-R680 ESAS-H680 ESAS-R644 ESAS-H644 ESAS-R380 ESAS-H380 ESAS-R348 FSSC-8550 FSSC-5550 FSSC-9000 TSSH-1068 TSSC-3808	ESAS-H6F0 GT	FCBR-6500 ESAS-H6F0 ESAS-H680 ESAS-H644 ESAS-H380 ESAS-R680 ESAS-R644 ESAS-R380 ESAS-R348 FSSC-8550 FSSC-5550 FSSC-9000 FCBR-6500	ESAS-H60F ESAS-H608 ESAS-H644 ESAS-H30F ESAS-R60F ESAS-R608 ESAS-R644 ESAS-R30F ESAS-R348 FSSC-8550* FSSC-5550* FSSC-9000* TSSC-3808*	ESAS-H60F ESAS-H608 ESAS-H644 ESAS-H30F ESAS-R60F ESAS-R608 ESAS-R644 ESAS-R30F ESAS-R348 FSSC-8550* FSSC-5550* FSSC-9000* TSSC-3808*	ESAS-H6F0 ESAS-H608 ESAS-R60F ESAS-R608 ESAS-R644 ESAS-R30F ESAS-R348 FSSC-8550* FSSC-5550* FSSC-9000* TSSC-3808*
Part #	CBL-8088-EX1 CBL-8088-EX3	CBL-8470-EX1 CBL-8470-EX3	CBL-4488-E1X	CBL-QSFP-EP1 CBL-QSFP-EP3	CBL-SATA-INT	CBL-8087-INT	CBL-SI2C-KI2

[<sup>1</sup>] SATA limited to 1 meter, use with SAS targets only  
\*Embedded models only



Fibre Channel	LC to LC 50 µm OM 2	LC to LC 50 µm OM 2	8Gb/s SFP+ LC SW Optical	16Gb/s SFP+ LC SW Optical
Length	1 & 3 meters <sup>1</sup>	1 & 3 meters <sup>1</sup>	1 & 3 meters <sup>1</sup>	1 & 3 meters <sup>1</sup>
For use with	CTFC-164E/162E/161E CTFC-84EN/82EN/81EN CTFC-44ES/42ES/41ES/41XS TLFC-1082 TLNS-1101 FSSC-8550/5550 FF-CS14/CS12/CS11 FF-NS14/NS12/NS11 FCBR-6500 FC 8308/8316/8324	CTFC-164E/162E/161E CTFC-84EN/82EN/81EN CTFC-44ES/42ES/41ES/41XS TLFC-1082 TLNS-1101 FSSC-8550/5550 FF-CS14/CS12/CS11 FF-NS14/NS12/NS11 FCBR-6500 FC 8308/8316/8324	CTFC-84EN/82EN/81EN FSSC-8550 FCBR-6500 TLFC-1082	CTFC-164E/162E/161E FSSC-9000
Part Number	CBL-LCLC-R03	CBL-LCLC-R10	SFP8-0000-R00	

[<sup>1</sup>] SATA limited to 1 meter, use with SAS targets only

### ATTO Cable Finder

Visit the ATTO website to best determine the cable for your configuration.

**Cable Finder**

ExpressSAS H6F0 GT

Select your ATTO HBA connection: SFF-4488

Select your target device connection: SFF-8088 - Mini-SAS

Your recommended cable options: SAS Cable, External SFF-8644 to SFF-8088

*"When anyone has connectivity issues we just tell them to put in an ATTO card to solve their challenge."*

-David Fontaine, General Manager, Cap Ciné

- HBAs
- RAID Adapters
- NICs/CNAs
- ATTO Solutions
- RAID Controllers
- Desklink™ Devices
- Bridges
- Switches
- Software
- Cables

# Resources

## How to Buy, Interoperability, Support, Partner Programs

ATTO's Resources page contains our latest press releases, videos, success stories, case studies, images, and more. Visit [www.attotech.com/resources/](http://www.attotech.com/resources/)

### How to Buy

On the web: [www.attotech.com/howtobuy](http://www.attotech.com/howtobuy)

Channel Sales: +1.716.691.1999 extension 240

International Sales: +1.716.691.1999 extension 239

OEM Sales: +1.716.691.1999 extension 241

Direct Sales: [www.attotech.com](http://www.attotech.com)

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

### Interoperability

ATTO tests our products with third-party vendor products to ensure compatibility.

Visit [www.attotech.com/support/interoperability](http://www.attotech.com/support/interoperability) for compatibility listings.

### Support

ATTO provides customers the finest in technical support for the lifetime of all product lines. It is our priority to understand customer workflows and their specific needs to provide the best technical assistance in the industry. Contact ATTO Technical Support at +716.691.1999 extension 242 or visit our website to submit inquires [www.attotech.com/support/techsuptmail.html](http://www.attotech.com/support/techsuptmail.html)

### Partner Programs

The ATTO Technology Access™ program is a results-oriented program that offers technical partners opportunities to engage in high-performance markets with fully tested connectivity solutions. It builds and strengthens partner relationships through interoperability testing and co-marketing efforts. Access members benefit from technology and marketing support and a single point of contact at ATTO.

The ATTO Technology Accelerate™ Partner Program rewards our dedicated solution providers with outstanding support in all key collaborative areas such as sales, marketing, training and more. It provides a higher level of engagement and tools to help you reach your business objectives.

*"The ATTO Accelerate Partner Program is the easiest and most cooperative marketing program in the industry and this, combined with the support we receive from the ATTO team, has resulted in good market visibility and sales."*

- Lynn Guess, Vice President, ALT Systems

# Industry Partners



HBAS

RAID Adapters

NICs/CNAs

ATTO Solutions

RAID Controllers

Desklink™ Devices

Bridges

Switches

Software

Cables



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