



ATTO ExpressSAS® 24Gb/s SAS Model host bus adapters (HBAs) provide high-performance direct attach connectivity for server storage, JBOD and RAID arrays.

TECHNICAL FEATURES

- Capable of 3 million 4KB IOPS
- Onboard Power Center Pro RAID 0, 1, 1e and 10 included
- Supports up to 2048 end devices
- Low-profile, MD2 short form factor for versatility and improved airflow
- Exclusive Advanced Data Streaming (ADS™) Technology included
- MiniSAS HD high density connectors for copper and optical cable usage with cable management support
- Driver support for the latest Windows®, Linux®, macOS®, VMware®, FreeBSD and illumos operating systems
- Target mode software development kit available
- Three year standard product warranty

ATTO ExpressSAS® 24Gb SAS Model HBAs

24GB/s SAS PCIe 4.0 Host Bus Adapters

INDUSTRY PROVEN TECHNOLOGY

ATTO ExpressSAS® 24Gb/s SAS Model host bus adapters (HBAs) provide high-performance host connectivity as well as providing a building block as a front-end target device for 24Gb SAS storage. These adapters take advantage of cutting-edge PCIe Gen 4 connectivity for the highest performance for all direct attached storage needs. This latest evolution in SAS HBAs shows why ATTO has been the forefront of innovations in storage connectivity for over 35 years.

FLEXIBLE CONNECTIVITY SOLUTIONS

Whether you need host connectivity or you are building your own 24Gb/s SAS storage solutions, ATTO has the right connectivity options for you. Offering options that fit your specific needs, ExpressSAS HBAs support dense and efficient connections to storage from rack mounted servers and workstations in datacenters, data warehousing, video on demand, and other high-availability, high-performance applications.

PERFORMANCE ENGINEERED

ExpressSAS 24Gb/s HBAs combine the impressive speed of the 24Gb SAS interface, coupled with a PCI Express 4.0 host interface.

ATTO Advanced Data Streaming (ADS™) Technology maximizes CPU processes to deliver smooth and reliable data transfers and the highest consistent performance. ATTO pays close attention to detail in board design and signal integrity to minimize transmission errors and data corruption. These differentiating capabilities make ATTO the premier choice for high-performance direct-attached SAS/SATA storage connectivity.

ADVANCED MANAGEMENT TOOLS

The easy-to-use ATTO ConfigTool™ features an intuitive GUI that simplifies the installation, management and monitoring of the HBA. With advanced troubleshooting and performance tuning capabilities, ExpressSAS HBAs provide users with sophisticated diagnostics and the flexibility to control settings for specific applications.

ATTO offers a broad array of management and diagnostic capabilities. Cables, the most significant point of failure, are often difficult to troubleshoot. ExpressSAS 24Gb/s SAS Model HBAs are able to help isolate cable and connector failures (and intermittent problems) through independent control of each port, as well as discovery and cable management of data passed through the mini-SAS HD connectors.

APPLICATIONS

- The impressive speed of the 24Gb/s SAS interface, coupled with a x PCI Express 4.0 host interface, delivers a dense and efficient connection to all types of storage— from rack-mounted servers and workstations in data center, data warehousing, VOD and other high-availability, high-performance applications.
- ATTO Advanced Data Streaming (ADS™) Technology controls the acceleration of data transfers to move large amounts of data faster and more efficiently.

KEY FEATURES

- Automatic link negotiation:
 - 24Gb/s, 12Gb/s and 6Gb/s SAS targets
 - 6Gb/s SATA targets
- Supports up to 512 targets, configurable to 1200
- Onboard ATTO PowerCenter Pro RAID 0, 1, 1e and 10 included for performance and data protection for Mac, Windows, and Linux
- Supports Serial SCSI Protocol (SSP), SATA Tunneling Protocol (STP), SMP, SAT and direct attached SATA protocol
- Supports T10-DIF/PI standards
- 16MB on-board flash memory to store persistent parameters
- Wide-port end device support
- Support for advanced format storage media: 512e, 4Kn
- Supports ATAPI devices
- Dual port SAS support for redundant configurations
- Target mode driver development kit available for storage servers, storage systems and appliances

MANAGEMENT TOOLS

- Management APIs via CSMI and IOCTLs
- Scriptable Command Line Interface (CLI) for advanced functionality, including phy and cable management
- ATTO ConfigTool™ GUI support for management and configuration
- Extensive event and trace logging
- External locate LED on bracket
- Onboard temperature monitoring

BUS SPECIFICATIONS

- H240F and H24F0 - x16 PCI Express 4.0 host interface
- H240N- x8 PCI Express 4.0 host interface
 - Backward compatible with x8 PCI Express 3.0 host interface
- PCIe low profile form factor
- Supports PCI Express Base Spec 4.0
- Supports PCI Express CEM Spec 4.0

CONNECTIVITY

- SFF-8674 connectors externally (H24F0)
- SFF-8654 connectors internally (H240F and H240N)
- Full cable management and reporting
- Supports cable lengths up to 1m (SATA), 10m at 12Gb (passive copper) and 100m (active optical)
- Easy-to-install full height and low profile connection brackets included
- Designed to support 12Gb/s SAS signaling

BOOT SUPPORT

- UEFI v2.3.1 with HII support

RELIABILITY

- Average 4,500,000 Hours MTBF

OPERATING SYSTEM SUPPORT

- Windows® / Windows® Server
- macOS®
- SUSE Linux® Enterprise Server (SLES)
- Red Hat Enterprise Linux (RHEL)

- Cent OS
- Fedora Linux
- VMware ESXi Server®
- FreeBSD
- illumos

SAFETY & ENVIRONMENTAL COMPLIANCE

- CE and IEC 62368-1
- RoHS Compliant (2011/65/EU) EU (2015/863)
- EMC Compliance
- FCC Part 15, Subpart B:2020 (Class A)
- ICES-003 (Canada)
- EN55032:2015, CISPR 32:2015 (Class A)
- EN55035:2017
- VCCI 32-1
- AS/NZ CISPR32.2015

OPERATING TEMPERATURE

HARDWARE ENVIRONMENT:

- Airflow: 200 lf/m (min) recommended (H24F0, H240F), 150 lf/m (min) recommended (H240N)
- Temperature: 0-55° C
- Humidity: 10 - 90% non-condensing

STORAGE ENVIRONMENT:

- Temperature: -40°-70°C
- Humidity: 5 - 95% non-condensing

DIMENSIONS

- Low profile:
 - Length = 6.600"
 - Height = 2.713"

POWER

- H240F - 22W (max)
- H24F0 - 22W (max)
- H240N - 22W (max)

WARRANTY

- Three Year (Standard product)
For OEM product contact ATTO sales for details

ATTO ExpressSAS®	H240F	H24F0	H240N
Ports	16 Internal	16 External	24 Internal
Bus Characteristics	x16 PCIe 4.0	x16 PCIe 4.0	x8 PCIe 4.0
Connections	2 x8 SlimSAS SFF-8654 internal	4x4 miniSAS HD SFF-8674 external	3 x8 SlimSAS SFF-8654 internal