

12Gb/s SAS to PCI Express 3.0 Host Bus Adapters (HBAs)

ExpressSAS H1280

12Gb/s SAS to PCIe 3.0 HBA, 8 external ports

ExpressSAS H12F0

12Gb/s SAS to PCIe 3.0 HBA, 16 external ports

ExpressSAS H1208

12Gb/s SAS to PCIe 3.0 HBA, 8 internal ports

ExpressSAS H120F

12Gb/s SAS to PCIe 3.0 HBA, 16 internal ports

ATTO's ExpressSAS 12Gb/s SAS HBAs provide high performance direct attach connectivity for server storage, JBOD and RAID arrays.

Industry Proven Technology

ATTO's ExpressSAS 12Gb/s SAS host adapters (HBAs) provide high performance data protection to direct attached SAS and SATA storage. With a wide variety of port configurations and built-in Power Center Pro RAID 0, 1, 1e and 10 for performance and protection, these adapters offer flexibility for every range of application. For over 25 years, ATTO has been at the forefront of the latest innovations in storage connectivity.

Flexible Connectivity Solutions

The ExpressSAS 12Gb/s SAS HBAs are available with 16 external, 16 internal, 8 external or 8 internal mini-SAS HD ports to support a dense and efficient connection to storage from rack-mounted servers and workstations in datacenter, data warehousing, VOD and other high-availability, high-performance applications

Performance Engineered

ExpressSAS 12Gb/s host bus adapters combine 12Gb/s SAS speeds and x8 PCI Express 3.0 with powerful hardware and software elements to manage latency in real-time environments. Additionally, the H1208 and H120F HBAs include Power Center Pro, an integrated software RAID solution for that brings the performance and protection of RAID to attached storage devices.

Exclusive 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

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

We offer a broad array of management and diagnostic capabilities. Cables, the most significant point of failure, are often difficult to troubleshoot. ExpressSAS 12Gb/s SAS 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.

Technical Features

- Up to 1,200 MB/s throughput per port.
- Over 1 million sustained IOPS
- Features a high-performance x8 PCIe 3.0 host interface.
- 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 with cable management support
- Driver support for the latest Windows®, Linux®, and VMware® operating systems
- Target mode software development kit available
- 3-year standard product warranty

12Gb/s SAS Host Bus Adapters (HBAs)

ExpressSAS H1280, H12F0, H1208, H120F

Tech Sheet

Technical Specifications

Applications

The ExpressSAS 12Gb/s SAS/SATA family of host bus adapters offers the fastest available connection to direct-attached SAS or SATA storage. The impressive speed of the 12Gb/s SAS interface, coupled with a x8 PCI Express 3.0 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.

Advanced Data Streaming (ADS™)

Latency-management technology that controls the acceleration of data transfers to move large amounts of data faster and more efficiently

Key Features

- Automatic link negotiation:
 - 12Gb/s, 6Gb/s and 3Gb/s SAS targets
 - 6Gb/s, 3Gb/s and 1/5Gb/s SATA targets
- Supports up to 2048 (H120F, H12F0) or 1024 (H1208, H1280) targets
- Onboard Power Center Pro RAID 0, 1, 1e and 10 included for performance and data protection
- Supports Serial SCSI Protocol (SSP), SATA Tunneling Protocol (STP), SMP, SAT and direct attached SATA protocol
- Supports T10-DIF standards
- 16MB on-board flash memory to store persistent parameters
- Wide-port end device support
- Supports ATAPI devices
- Dual port SAS support for redundant configurations
- Support for SAS tape devices and transport layer retries (TLR) for error handling
- Target mode driver (TMD) development kit available for storage servers, storage systems and appliances

User Benefits

- Highest available performance— 1200 MB/s maximum sustained throughput per port; 1M+ IOPS sustained
- Flexible connectivity options for internal and external storage
- Compatible with SAS and SATA technology
- Low power consumption

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

- x8 PCI Express 3.0 host interface
- PCIe low profile form factor
- Supports PCI Express Base Spec 3.0
- Supports PCI Express CEM Spec 3.0

Connectivity

- SFF8644 x4 Mini SAS HD connectors externally
- SFF8643 x4 Mini SAS HD connectors internally
- Full cable management and reporting
- Easy-to-install full height and low profile connection brackets included
- Designed to support 12Gb/s SAS signaling

Operating System Support

- Windows® Server 2008 R2 and Server 2012
- Windows 7 and Windows 8
- SUSE Linux® Enterprise Server (SLES) v 11 SP1 and 11 SP2
- Red Hat Enterprise Linux (RHEL) 5 and 6
- CentOS 5 and 6
- VMware® ESXi 5.5

Boot Support

- UEFI v2.3.1 with HII support

Safety & Environmental Approvals

- UL, CSA, CE and IEC 60950
- EU RoHS Compliant (2011/65/EU)

EMC Compliance

- FCC Part 15, Subpart B (Class B)
- ICES-003 (Canada)
- EN55022: 2010, CISPR 22 (Class B)
- EN55024: 2010
- VCCI V3/2013.4
- AS/NZS CISPR22:2010

Operating Temperature

Hardware Environment

- Airflow: 100 LFM (min)
- Temperature: 0-55° C
- Humidity: 10 - 90% non-condensing

Storage Environment

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

Dimensions

- Length 6.600", Height 2.713"

Power

- 25W (max)
- H1208, H1280: 15W (typical)
- H120F, H12F0: 17W (typical)

Reliability

- H1280, H12F0: 680,000 hours
- H1208, H120F: 755,000 hours

Warranty

- 3 Years

	ATTO ExpressSAS H1280	ATTO ExpressSAS H12F0	ATTO ExpressSAS H1208	ATTO ExpressSAS H120F
Ports	8 External	16 External	8 Internal	16 Internal
Bus Characteristics	x8 PCIe 3.0	x8 PCIe 3.0	x8 PCIe 3.0	x8 PCIe 3.0
Form Factor	Low Profile	Low Profile	Low Profile	Low Profile
Connectors	2 Mini SAS (x4) SFF 8644 External	4 Mini SAS (x4) SFF 8644 External	2 Mini SAS HD (x4) SFF 8643 Internal	4 Mini SAS HD (x4) SFF 8643 Internal



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