Fibre Channel-to-SAS Bridge

FibreBridge™ 6500 R/D/E

The ATTO FibreBridge™ is a performance tuned, highly manageable, intelligent protocol translator which allows FC initiators to communicate with SAS/SATA target devices

Performance Engineered

ATTO FibreBridge™ products are engineered with an advanced architecture which provides high-performance by leveraging the latest hardware technology combined with ATTO's *i*ntelligent bridging architecture. ATTO FibreBridge products provide industry leading performance with value added features that have addressed customer connectivity needs for over 18 years.

More than a Bridge

The FibreBridge enables users to manage storage infrastructures with features not found in direct connect technologies. Advanced read ahead and write cache algorithms in the FibreBridge give users the highest level of performance. Robust error processing enables the FibreBridge to manage disk and communication errors between targets and initiators. Email notification of errors and persistent error and trace logs assist troubleshooting in the field to minimize downtime.

Easy-to-use Management Tools

ExpressNAV™ System Manager is a remote management user interface for configuration, monitoring and management of ATTO Bridge products. Advanced tuning features include; performance monitoring, diagnostic and troubleshooting capabilities, and phone home email notification. Several management interfaces are available including GUI, CLI, Telnet, SNMP and FTP. Streamline storage management with the tools you need to confidently and efficiently manage your storage infrastructure.

SAS/SATA storage on the SAN

The FibreBridge provides the lowest cost per drive for Fibre Channel connectivity to SAS/SATA and SSD storage. Adding Fibre Channel connectivity to your SAS/SATA devices gives this storage all the benefits provided by a SAN that SAS/SATA storage cannot natively provide. ATTO provides regular firmware updates and maintenance programs to keep the FibreBridge up to date with advances in technology.

Technical Features

- Connects (2) 8Gb Fibre Channel SFP+ ports to (2) x4 6Gb mini-SAS SFF-8436 QSFP connectors
- Auto negotiates to 2, 4 & 8Gb FC
- Auto negotiates to 1.5, 3 & 6Gb SAS
- Support for SAS and SATA devices
- Supports up to 254 SAS/SATA devices
- Will support SAS distances up to 100m
- *i*ntelligent Bridging Architecture provides optimized performance
- SpeedWrite™ feature enhances write performance by efficiently managing outstanding commands
- Advanced management, remote administration and system diagnostics via the ExpressNAV™ System Manager
- Virtual Drive Response™ (VDR) reduces failed backups due to busy or slow-to-respond storage devices (2H 2011)
- Management capable through RS-232, Ethernet or in-band via Fibre Channel
- Several debug tools available to help OEM customers release a highly tested and reliable solution
- Available in standard 1U 19" rackmount or desktop and microATX form factors
- 2 year standard product warranty

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Technical Specifications

Technology
FibreBridge™ products are based on the ATTO *i*ntelligent Bridging Architecture which combines powerful hardware with an efficient software data engine to deliver high performance with valuable features and minimal overhead. ATTO Bridges set the standard for customers that need to deliver a total system approach to storage connectivity.

Bridging Features
- The core control logic driving ATTO Bridge products is optimized to maintain priority for data transfers while providing memory management and cooperative multi-tasking
- Drive Map Director™ provides consistent drive, shelf and rack device LUN mapping
- Universal Virtual Device Architecture (UVDA) product which supports protocol conversion between hosts and targets and designed to move data quickly and efficiently
- Virtual Device Manager (VDM) is a proprietary software architecture that assures the smooth flow of data. VDM minimizes overhead by creating a virtual link between initiators and targets on a per-command basis
- The Data Routing Fabric topology incorporates advanced ASIC, firmware and interface technologies that enable users to configure bridges to specific operating environments
- Virtual Drive Response™ (VDR) improves reliability by reducing failed or incomplete backups (2H 2011)
- Error Correcting Code (ECC) cache memory
- Max login management capability

OEM Customization
- Hardware configuration options allow for unique board ID to define initialization and characteristics of the OEM product
- Bridge configuration able to accommodate features which interact with custom software packages to enhance the bridging hardware
- OEM configuration files store OEM specific parameters in NVRAM which enable features, product naming and look and feel of the user interface for the OEM product
- Product labeling will allow OEM logo and naming to appear on the front of the rack mount or desktop enclosure

Connectivity and Notification
- All connectors on rear side of bridge
- External LEDs for power, ready and alert status, Fibre Channel activity, link status and speed and SAS link status
- Statistic reporting for all bridge ports

Fibre Channel Connections:
- (2) 8Gb SFP+ Fibre Channel connectors
- Optical SFP+ modules included
- Auto negotiates to 8Gb/4Gb/2Gb
- Full support for FC-AL, FC-AL2, FC-FLA, FC-FS, FCP-3, FC-PLDA
- Private loop, public loop, point-to-point or fabric point-to-point with support for direct connection to F-port switches
- Fibre Channel retry logic for FLOGI, PLOGI

SAS Connections:
- (2) 6Gb x4 mini-SAS QSFP SFF-8436 connectors
- Auto negotiates to 6Gb/3Gb/1.5Gb
- Supports passive and active copper with future support for optical connectors
- Supports SAS and SATA disk devices
- Supports SAS tape devices (2H 2011)
- Supports up to 10 levels of SAS expanders

Management Interfaces
- Dual 100/1000 RJ-45 Ethernet ports
- Support for SNMP, SNTP, Telnet, FTP, ICMP

Product Dimensions
1U Rackmount and desktop models:
- Height 1.69" - Length 9.90" - Width 17.31"
- Rack mount units have mounting hardware that will extend the width to fit a 19" rack.

Embedded models:
- Length 9.80" - Width 7"
- Standard microATX Form Factor

Management Tools
- User friendly web based ExpressNAV™ System Manager provides remote configuration, management and diagnostic capabilities
- Local diagnostics supported via Command Line Interface (CLI) via RS-232 and Ethernet
- SCSI Enclosure Services (SES) monitor critical components to provide system feedback
- Persistent Event Log gathers up to 40,000 hardware, software and network events to assist in overall system troubleshooting
- Retrieve event logs through the Ethernet port
- Dual firmware image support (Dual flash ROM)
- Performance monitoring and error logging
- Temperature monitoring
- Phone home email notification of errors
- Real Time Clock (RTC)
- Audible Alarm

Operating Environment
Bridge Operation:
- Temperature: 5-40° C at 10,000 feet
- Humidity: 10 - 90% non-condensing
- Thermal monitoring of the Bridge available

Bridge Storage:
- Temperature: -40°-70°C (-40°-157°F)
- Humidity: 5 - 95% non-condensing

Power and Airflow (Desktop/Rack)
- Input 85-264 VAC, 1A, 47-63 Hz
- 11 CFM (Ambient air not to exceed 40° C)
- Front to rear cooling
- Embedded model will require 24 pin ATX connector with available +12 VDC @ 35W

Agency Approvals and Compliance

(Rackmount / Desktop models)
Safety:
- EN 60950, CSA 60950, CB IEC 60950-1, UL 60950, IRAM, GOST-R, BSMI, C-TICK

Electromagnetic Compatibility (EMC):
- FCC Part 15 Class A, CE, VCCI, AS/NZS, CISPR 22, EN55022: 2006, Class A, EN55024, EN61000, CoC (South Africa)

(All models):
- RoHS Compliant 2002/95/EC
- Battery-free design

ATTO FibreBridge™ 6500	
Input Connectors	(2) 8Gb Fibre Channel (SFP+)
Output Connectors	(2) 6Gb mini-SAS (x4) (QSFP)
Max Transfer Rate (HHD)	Up to 1200 MB/s / 75K IO/s
SAS/SATA Devices Supported	Up to 254
Memory Type	512MB ECC
Form Factor	1U Desktop/rackmount MicroATX Embedded
Desktop/rack mount SKU Embedded SKU	FCBR-6500-D00 FCBR-6500-E00

ATTO Technology, Inc.

Product features and specifications are subject to change without notice.