



The ATTO Technology Inc. XstreamCORE™ ET storage controller family adds Ethernet connectivity to SAS JBOD, JBOF and RAID storage to provide remote connectivity, sharing and common services with minimal added latency

### TECHNICAL FEATURES

- Connects two 40 GbE ports to four x4 12Gb mini-SAS connectors
- Integrates with up to 960 devices\* per controller
- Adds less than 4 microseconds of latency
- I/O Acceleration with ATTO xCORE Technology featuring multiple hardware acceleration engines
- eCORE virtualizes a common set of services and features
- Patented Drive Map Director™ simplifies mapping and reduces maintenance costs for storage
- ATTO data mover technology improves storage performance while reducing compute, memory and network utilization
- ATTO control processing provides intelligence and features not found in direct attached technologies to add functionality for improved productivity
- Management capable through RS-232, USB, Ethernet or in-band
- Ability to run OEM IP on the controller
- VMware Ready with support for VAAI

## ATTO XstreamCORE™ ET 8200

40Gb ETHERNET TO 12Gb SAS STORAGE CONTROLLER

### EXTEND THE REACH OF STORAGE FROM SERVERS

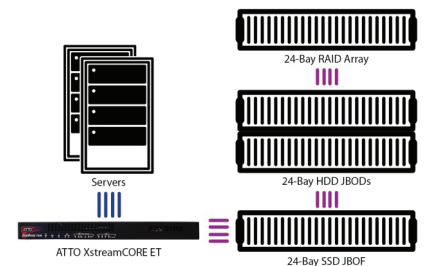
ATTO XstreamCORE storage controllers act as external adapters adding a common set of services and features to flash SSD and HDD based JBOD, JBOF or RAID storage devices. XstreamCORE then remotely shares this storage over long or short distances using high speed Ethernet technology. Use cases for these controllers include the remoting of storage from servers or other storage mediums over an Ethernet network, sharing a pool of high speed flash to multiple Ethernet connected systems, connecting data centers for business continuity via a stretch cluster and the ability to aggregate mass storage for archive usage.

### ENGINEERED TO PROVIDE DETERMINISTIC LATENCY

Higher storage latency slows real-world performance while smaller amounts of latency allows more completed transactions. Server based storage architectures depend on general purpose processors to transfer data, manage storage and add services and features to storage. When services and features are added the CPU has to process each command in software which increases overall latency. XstreamCORE features a more efficient architecture that separates data traffic from services and features removing any non-data request from the data path to maintain a consistent level of latency and performance.

### xCORE HARDWARE DATA ACCELERATION ENGINE

ATTO developed the xCORE Acceleration Engine to handle the majority of I/O operations in a hardware processing pipeline without software intervention. xCORE manages all I/O, command routing and decoding, buffer allocation, reservations, access controls and provides real time data analytics. Any exception is off-ramped to the eCORE Control Engine to manage commands which do not require acceleration. ATTO xCORE technology enables the ATTO XstreamCORE to achieve up to 1.2M 4K IOPS or 6GB/s throughput per controller while adding a consistent sub 4 microseconds of latency.



### eCORE CONTROL ENGINE FOR MANAGEMENT AND STORAGE SERVICES

ATTO eCORE Control Engine technology provides un-accelerated command processing for management services, storage services and integration with third party IP. eCORE has full access to all on-chip resources to add common, open storage services, storage routing, diagnostics, one pane of glass interfacing and host mapping functions while managing all performance metric reporting and data mover functions. With direct access to hardware drivers, enclosure management I/O signals and busses, eCORE is an efficient tool that virtualizes services and features.

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## 40Gb ETHERNET TO 12Gb SAS STORAGE CONTROLLER

### xCORE ACCELERATION TECHNOLOGY

xCORE data acceleration technology features multiple parallel I/O acceleration engines with end to end I/O processing, hardware buffer allocation management and real-time performance and latency analytics.

- Performance-critical commands and all reads/writes are accelerated in hardware
- End-to-end data protection in the acceleration technology and control functions to safeguard data throughout the controller and also enables max login management capabilities
- Eliminates bottlenecks with parallel processing for up to a 10X performance improvement over standard protocol conversion
- Maximizes large block transfer sizes from Ethernet to SAS/SATA devices for optimal streaming performance (GB/s)

### OEM CUSTOMIZATION

- Hardware configuration options allow for unique board ID to define initialization and characteristics of the OEM product
- eCORE capabilities can be extended with ATTO OEM integration programs to take advantage of available XstreamCORE ARM processing cores and a Linux based operating system to add OEM IP for unique features that do not impact latency or performance.

### eCORE CONTROL ENGINE

The eCORE control engine adds common, open storage services, integrates with industry standard APIs, handles reservations, storage routing and host and LUN mapping functions. The eCORE control engine also manages traffic for data mover offload functions with added error handling and diagnostic tools. These features add value to JBOD, JBOF or RAID storage while providing tight integration with server based software.

- Provides common services such as multi-initiator access, data mover, reservations and vendor specific commands
- Maintains priority for data transfers while providing management of memory and cooperative multi-tasking capabilities.

### CONNECTIVITY

#### ETHERNET CONNECTIONS:

- Two 40Gb optical Ethernet connectors
- Supports iSCSI Extensions for RDMA (iSER)
- DHCP, IPv4 and IPv6

#### ETHERNET SPECIFICATIONS:

- IEEE 802.3ba, 802.3ae, 802.3az, 802.3ap, 802.3ad, 802.1Q, 802.1p, 802.1Qau, 802.1Qaz, 802.1Qbb, 802.1Qbg

#### SAS CONNECTIONS:

- Four 12Gb x4 mini-SAS HD connectors
- Auto negotiates to 12Gb/6Gb/3Gb
- Supports SAS and SATA devices

#### SAS SPECIFICATIONS:

- SAS-1.1, SAS-2, SAS-3

### MANAGEMENT TOOLS

- Web based XstreamVIEW™ System Manager
- Local diagnostics supported via Command Line Interface (CLI) via RS-232 and Ethernet
- Monitor SCSI Enclosure Services (SES) information provided by attached enclosures
- Persistent Event Log gathers at least 40,000 hardware, software and network events
- Dual firmware image support for protection from firmware update failures
- Performance and temperature monitoring
- Data mover copy manager and performance metrics
- Identify devices by flashing LEDs
- Core dump error analysis
- SNMP, SNTp, Telnet, FTP, iCMP

### DATA ROUTING FABRIC TOPOLOGY

- Incorporates advanced ASIC, firmware and interface technologies that enable users to fine tune ATTO controllers for specific applications.
- ATTO Embedded Operating System (AEOS) provides an integrated, multitasking environment that self optimizes to changing I/O patterns for maximum performance while maintaining priority for data transfers.
- Standard READ BUFFER commands allow the collection of inquiry data, event logs, port statistics, phy statistics, SFP and SAS connector information, trace log, core dump, configuration and status information.
- WRITE BUFFER commands are also supported to update controller firmware, clear the event log, clear port and phy statistics and to also write a message to the event log.

### PRODUCT DIMENSIONS

- Height 1.735" - Length 9.90" - Width 17.31"
- Weight 9.7 pounds (unboxed)  
12.9 pounds (boxed)

### OPERATING ENVIRONMENT

#### CONTROLLER OPERATION (EXPECTED):

- Temperature 5 to 40° at 10,000 feet
- Humidity 10 to 90% non-condensing

#### CONTROLLER STORAGE:

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

### POWER AND AIRFLOW

- Input 100-240 VAC, 1.0A 50-60 Hz
- 11 CFM (Ambient Air not to exceed 40° C)
- Front to rear cooling

### AGENCY APPROVALS AND COMPLIANCE

#### SAFETY:

- 60950, BSMI, cTUVus

#### ELECTROMAGNETIC COMPATIBILITY (EMC):

- FCC Part 15 Class A, CE
- RoHS Compliant 2011 /65/EU
- Battery-free design

### AVAILABLE FORM FACTORS

- 1U Rackmount
- microATX embedded
- Custom embedded



| ATTO XstreamCORE™ ET            | Ethernet Family           |
|---------------------------------|---------------------------|
| <b>Input Connectors</b>         | (2) 40Gb Ethernet         |
| <b>Output Connectors</b>        | (4) 12Gb mini-SAS HD (x4) |
| <b>Architecture Latency</b>     | < 4 microseconds          |
| <b>SAS/SATA disks supported</b> | Up to 960 per controller* |
| <b>Memory Type</b>              | ECC                       |
| <b>Form Factor</b>              | 1U rackmount              |
| <b>Power Supplies</b>           | 2                         |
| <b>Power Supply Type</b>        | Hot Swap                  |
| <b>40Gb Product SKU</b>         | XCET-8200-002             |

\* Standard product supports 240 drives; OEM program required to support 960 drives