

# ATTO Celerity FC-44ES Storage Adapter

4-Gb!!

## Quad-channel 4-Gigabit Fibre Channel Storage Adapter Featuring ADS™ Technology

*The fastest storage technology just got better. The Celerity FC-44ES leverages two next-generation storage technologies - PCI Express interconnect and 4-Gigabit Fibre Channel.*

*With 4-Gb FC speeds of up to 800 MB/sec. per channel, the FC-44ES supports the most demanding application requirements, including high-definition video, rich content databases and other high-bandwidth environments.*

*The FC-44ES takes advantage of the latest in host interconnect technology – PCI Express – a serial, high-speed connection that supports aggregate throughput up to 2 GB/sec. (x8 PCIe). Software compatible with existing PCI and PCI-X products, the FC-44ES uses the same device drivers as the other Celerity FC family products, simplifying user installation and support.*

*ATTO Celerity storage adapters are an integrated family of advanced storage connectivity solutions that are designed to provide reliable connectivity, intelligence and scalability. Meeting tomorrow's connectivity needs today, Celerity FC storage adapters extend the capabilities of software and hardware, increase overall system performance and drive intelligence all the way to the edge of the SAN. Celerity, a platform for advanced storage connectivity.*



## TECHNICAL HIGHLIGHTS

- Quad-channel 4-Gigabit Fibre Channel Storage Adapter
- 800 MB/sec. throughput per channel in full-duplex mode
- Features a 2 GB/sec., high-performance x8 PCI Express (PCIe) host connection
- Exclusive Advanced Data Streaming (ADS™) Technology
- Proven industry interoperability with support for SNIA host adapter API
- Driver support for Windows® and Linux
- Backward compatible with 2-Gb and 1-Gb legacy Fibre Channel products
- 2-year standard product warranty

Storage Adapter

ATTO

ATTO Technology, Inc.  
attotech.com

*celerity*

*a platform for advanced storage connectivity*

155 CrossPoint Parkway • Amherst, NY 14068 • 716.691.1999



## Hardware Specifications

### Fibre Channel Interface

- Four independent FC ports
- 4-Gigabit FC data-transfer rates
- 800 MB/sec. maximum full-duplex throughput per channel
- Supports all FC topologies: direct fabric, arbitrated loop and point-to-point
- ANSI Fibre Channel: FC-PH, FC-FCP, FC FCP2, FC-AL, FC-AL2, FC-PLDA, FC-FLA
- Flash ROM for easy field upgrades
- FC Class 3 support
- Local management and diagnostics
- Buffer Credits: 8 @ 512 Bytes; 8 @ 2k bytes

### Advanced FC Capabilities:

- Supports SNIA HBA API
- Supports Windows FDMI and WMI
- Supports Target and Initiator modes
- Backward compatible with 2-Gb and 1-Gb Fibre Channel

### PCI Bus Specifications:

- x8 mechanical and x8 electrical PCI Express interconnect
- Supports PCI Express Base Spec 1.0a
- Supports PCI Express CEM Spec 1.0a
- PCI to PCI/PCI-X Bridge spec 1.0

### External Connectivity:

- Easy-to-install full height connection bracket
- External LEDs for on-line and speed status for each channel
- Four (4) pluggable optical LC SFP connectors included

## Software Specifications:

### Driver Support:

- Windows Server 2003
- Windows XP
- Windows 2000
- Red Hat Linux (2.4 and 2.6 kernel)
- SUSE Linux (2.6 kernel)
- Mac OS X (10.4.x Tiger)

## Agency Approvals

- FCC Rules, part 15, Class B
- CE Mark: CISPR 22:2002/EN55022:2002, Class B

## Environmental & Physical Specifications

### Dimensions:

- Conforms to PCI half height, half length form factor specifications
- Length: 6.600"
- Height: 3.987"

### Operating Environment:

- Temperature: 0 - 45° C (32° - 113°F)
- Humidity: 5 to 95% non-condensing

### Storage Environment:

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

### Power:

- 12V @ 2.1A max
- 3.3V @ 3.0A max

### Airflow:

- 100 lf/m (min) recommended

### Optical Cabling:

- 50/125µm up to 150m @ 4-Gb
- 50/125µm up to 300m @ 2-Gb
- 50/125µm up to 500m @ 1-Gb

## Celerity FC Product Family

PRODUCT FEATURES	FC-44ES	FC-42ES	FC-42XS	FC-41XS	FC-24XL	FC-22XH	FC-21PS
Fibre Channel Ports	4	2	2	1	4	4/2 <sup>1</sup>	1
Fibre Channel Protocol	4-Gb	4-Gb	4-Gb	4-Gb	2-Gb	2-Gb	2-Gb
Maximum Transfer Rate (half duplex)	1.6 GB/sec.	800 MB/sec.	800 MB/sec.	400 MB/sec.	800 MB/sec.	400 MB/sec.	200 MB/sec.
Maximum Transfer Rate (full duplex)	2 GB/sec.	1 GB/sec.	1 GB/sec. <sup>2</sup>	800 MB/sec.	1 GB/sec. <sup>2</sup>	800 MB/sec.	400 MB/sec.
Bus Type	PCIe	PCIe	PCI-X	PCI-X	PCI-X	PCI-X	PCI
Bus Characteristics <sup>3</sup>	8 lane	8 lane	64-bit, 133 MHz	64-bit, 133 MHz	64-bit, 133 MHz	64-bit, 133 MHz	64-bit, 66 MHz
Optical Interface	SFP LC	SFP LC	SFP LC	SFP LC	SFP LC	SFP LC	SFF LC
Maximum Cable Length	300m @ 2-Gb 150m @ 4-Gb	300m @ 2-Gb 150m @ 4-Gb	300m @ 2-Gb 150m @ 4-Gb	300m @ 2-Gb 150m @ 4-Gb	500m @ 1-Gb 300m @ 2-Gb	500m @ 1-Gb 300m @ 2-Gb	500m @ 1-Gb 300m @ 2-Gb
Advanced Data Streaming (ADS™) Technology	•	•	•	•	•	•	•
Software RAID Support <sup>4</sup>	•	•	•	•	•	•	•
Developer's Kit (Target Mode & API)	•	•	•	•	•	•	•
Developer's Kit (Advanced)	-	-	-	-	•	-	-
Integrated Offload & Processing Center (IOPC)	-	-	-	-	•	-	-
Onboard Memory for Direct Memory Transfers	-	-	-	-	•	-	-
Integrated Hub Technology	-	-	-	-	-	•	-
Windows Driver Support	•	•	•	•	•	•	•
Linux (Red Hat, SUSE) Driver Support	•	•	•	•	•	•	•
Mac OS X (Tiger) Driver Support	•	•	•	•	•	•	•

1 ATTO's onboard hub technology allows for up to four external connections to two FC channels

2 Performance ceiling is constrained by 133 MHz PCI-X bus transfer speed

3 Backward compatible to 32-bit and 33 MHz PCI; FC-24XL and FC-22XH are 3.3V; FC-21PS is 3.3V/5V Universal

4 ATTO ExpressStripe for OS X available; other software RAID supported

*celerity*

*a platform for advanced storage connectivity*

# Storage Adapter