

# ATTO FibreBridge™ Storage Controller

Build Your Own Private Cloud Storage

## FibreBridge 7500 Storage Controller

- Hardware storage controller
- Over 1.47 million 4K IOPs per controller pair
- < 4 Microseconds of latency
- Up to 6.4 GB/s throughput
- 16Gb Fibre Channel to 12Gb SAS
- Parallel data processing
- All reads/writes hardware accelerated
- Use with all SSD or SSD/HDD mix
- Add up to 240 SSD or HDD devices
- Up to 2.4 petabytes capacity
- Input 85-264 VAC, 0.5A (typical), 47-63 Hz

## Features

- Ethernet based GUI
- Phone Home
- Patented SMP Mapping
- Read/Write Buffer commands
- Robust Event Logging
- Secure Protocols (future)
- PCIe analyzer
- SNMP, SNTp
- IPv6, IPv4
- Passthrough for self-encrypted drives

## Fibre Channel

Fibre Channel is the fastest, most efficient low latency clustered interconnect for storage connectivity which allows immediate transfer of data to and from multiple initiators.

## Reduced CapEx and OpEx

- Use low cost COTS SAS JBOD Storage
- Create High Density Storage
- Integrates with Software Defined Storage solutions
- Lower maintenance costs
- Pay as you grow
- Longer useful life
- Plug and play

A Private Cloud is a networked storage solution deployed for internal users in a single organization, with access blocked by that organization's firewall in order to keep data secure. It can exist either in an enterprise data center, or at a collocation facility owned and operated by a service provider. The benefit to a Private Cloud is that it provides flexibility and simplicity by enabling users to set up and manage their own environment.

ATTO's FibreBridge 7500 Storage Controller serves as a platform for IT system integrators to build out a Private Cloud. FibreBridge Storage Controllers incorporate off-the-shelf SAS JBOD storage into a Fibre Channel SAN, an infrastructure that centralizes storage for shared server cluster access, supports server virtualization and provides guaranteed data delivery, low latency and scalability. The FibreBridge 7500 adds robust management and monitoring features to that list, along with a common set of services when used with Software Defined Storage software from companies including Nexenta, DataCore and Maxta.

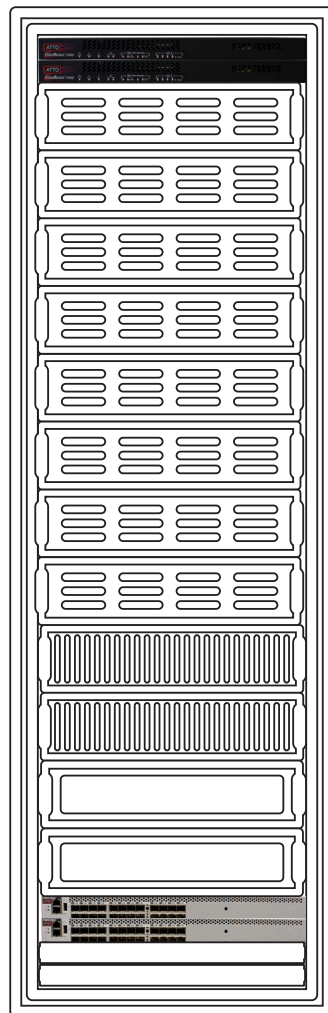


Figure 1 - Dual 7500 Storage Controllers with 10 shelves of SSD/HDD storage connected to a server cluster via 16Gb Fibre Channel.

## Lower TCO

The FibreBridge 7500 enables lower total cost of ownership in comparison with proprietary flash and hybrid storage appliances that are costly to scale and create vendor lock-in. With the 7500, a system integrator can build high-performance and high-capacity storage solutions that aggregate up to 240 SAS/SATA SSD, HDD or hybrid SSD/HDD devices. Costs for an all-flash SSD system including JBOD enclosures and SSD drives can be as low as \$.79/GB, and \$.09/GB for an all-HDD implementation. The 7500 also lowers TCO by allowing servers to share SSDs as read and/or write cache, and it provides the option to boost existing storage performance by adding an SSD Flash tier instead of using expensive All-Flash-Arrays.

## High Performance, Low Latency

ATTO's FibreBridge 7500 delivers industry-leading performance: over 1.47M 4K IOPS and <4 microseconds latency in a dual-controller configuration. This is enabled by ATTO's exceptionally fast acceleration architecture, which provides dedicated memory modules and data paths for performance-critical commands. With all reads and writes accelerated in hardware, commands don't have to compete for shared system resources, resulting in more data transfers at faster transfer rates.

The 7500's high throughput and vanishingly low latency has quantifiable cost benefits: When used as a platform to build a storage solution with off the shelf components, \$/IOP cost is as low as .09 per IOP for All-SSD implementations, and an even lower \$.05/IOP for SSD/HDD combinations.

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## Benefits

- Enables system integrators to build high-performance/high-capacity storage solutions that aggregate up to 240 SAS/SATA SSD, HDD or hybrid SSD/HDD devices—up to 1.4PB total
- Optimal platform for database acceleration, analytics and other high-performance applications
- Brings benefits of Fibre Channel SAN technology, including guaranteed data delivery, low latency and server and site clustering to SAS JBOD storage
- Modular solution enables easy data migration and software/hardware component upgrades
- High availability configuration adds reliability to storage shared by multiple servers

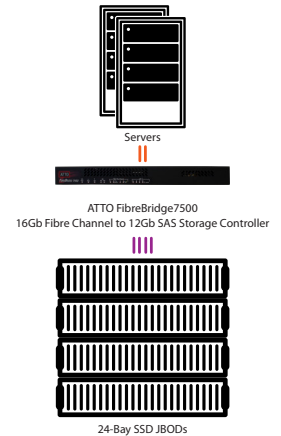


Figure 2 - All SSD Configuration with a single 7500 Storage Controller achieving up to 735,000 4K IOPs

	ATTO 7500 with SSD	ATTO 7500 with HDD	Hybrid Storage	All Flash Array	PCIe Flash
Performance	1.5M 4K IOPs	1.5M 4K IOPs	10,000s 4K IOPs	1M 4K IOPs	500,000 4K IOPs
Throughput	6.4 GB/s	6.4 GB/s	1 – 6GB/s	1 – 12GB/s	Up to 3 GB/s
Usage	Shared Storage	DAS, Shared	DAS, Shared	DAS, Shared	Single Server storage
Controllers	Dual	Dual	Single Node	Single Node	Single
Latency	Controller <4 microsecond, Overall solution latency depends on SSDs used	Controller <4 microsecond, Overall solution latency depends on HDDs used	5-10 millisecond	<1 millisecond	100s microseconds
Cost	As low as \$.79/GB	As low as \$.09/GB	\$3-12/GB	\$5-20/GB	\$4-10/GB, per server
Scalability	Up to 480TB (2TB SSDs)	Up to 2.4PB (6TB HDDs)	100s of TB	5-20TB usable	500GB - 5TB
Build Your Own	Scale storage, servers as needed	Scale storage, servers as needed	Fixed Configurations	Fixed Configurations	Fixed Configurations
Services & Features	In Server	In Server	In Storage	In Storage	In Server