

# Stretch Cluster with High Availability

Node A

powered by: *open-e*   
JovianDSS



**AIC**

SB202-LB



**ATTO**

ATTO Technology, Inc.

Celerity™ FC-162E HBA

Node B

powered by: *open-e*   
JovianDSS



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HA Stretch  
Cluster



**ATTO**

ATTO Technology, Inc.

XstreamCORE™ FC 7500



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**AIC**

J4024-02



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# Stretch Cluster with High Availability

A stretch cluster provides a low total cost of ownership (TCO) solution by creating enterprise-class storage services on industry standard server and storage hardware. This **solution with ATTO Technology connectivity, AIC hardware and Open-E JovianDSS software** provides 24/7 uptime with business continuity for real-time, mission-critical applications enabling organizations to virtualize these applications and maintain high-availability access. Utilizing Fibre Channel to create a high-performance storage area network (SAN) makes sure data is always synchronized between data center sites. It is important to have reliable, predictable, low-latency links between sites in a stretch cluster; ATTO's XstreamCORE™ and FibreBridge® storage controllers are building blocks that add enterprise Fibre Channel connectivity to up to 10 shelves of low cost SAS/SATA drives while introducing up to only four microseconds of latency. When paired with standard JBOD or JBOF enclosures, ATTO storage controllers represent a foundational data center component – one that companies can use to architect stretch cluster solutions that enable active site balancing, downtime avoidance and Disaster Recovery with more flexibility and a lower TCO than native Fibre Channel storage.

## ➤ Disaster avoidance

Disaster avoidance involves proactive behavior to circumvent an impending storage outage. Even if a partial site failure occurs, disasters tend to affect an entire site. Disaster avoidance technologies allow for configuration of a host, cluster or site in a fashion that keeps systems running with minimal interruption.

## ➤ Downtime avoidance

With downtime avoidance, virtualization technologies can move virtual machines (VMs) or virtual storage with no interruption to service.

## ➤ Disaster Recovery

Disaster Recovery helps to rapidly restore services when there is an unexpected outage and the recovery time is unknown.

## ➤ High Availability and fault recovery

High Availability technology reduces the length of an outage sustained by a failure and allows for rapid recovery of system services. High Availability Clusters provide automated fault recovery in a reactive fashion, with VMs restarted as required to recover from unplanned outages.

## Software features

# Open-E JovianDSS

Open-E JovianDSS is a ZFS- and Linux-based data storage software designed especially for enterprise-sized storage environments.

- Optional Off-site Data Protection that enables asynchronous replication to local sites or co-locations with consistent snapshots, secure archiving, encryption and buffering
- Highest quality for mission-critical business needs with ZFS on Linux
- Unlimited scalability and compatibility
- High Availability Load-balanced Cluster for NFS and iSCSI for highest data security with failover
- Warranted data integrity with self-healing check-sums, atomic writes and transactional copy-on-write I/O operations
- Native compression and data deduplication to reduce physical disk usage
- Tiered RAM and SSD cache tier for performance
- Thin provisioning for easy scalability
- Unlimited snapshots and clones that enable easy cloning, versioning and backup
- Unlimited file size
- Independent VIP (Virtual IP Addresses) feature to avoid downtime during maintenance
- VMware vSphere Storage APIs included for data acceleration
- Hybrid storage pools to utilize the I/O performance of SSDs and high capacity of HDDs in a single system
- No backup agents required for Disaster Recovery

## Hardware details

# ATTO Technology Celerity™ 16Gb Gen 5 host bus adapters (HBA)

ATTO's Celerity™ products feature Advanced Data Streaming (ADS™) latency management and MultiPath Director™ technologies for the most reliable Fibre Channel connectivity. ATTO Celerity™ FC-162E HBA provides:

- Dual-channel 16Gb Fibre Channel HBA that supports for Windows®, Windows Hyper-V, Linux®, Mac® OS X, VMware® and FreeBSD
- 3200MB/s throughput per port in full-duplex mode using x8 PCIe 3.0 host connection
- Backward compatible with 8Gb/s and 4Gb/s Fibre Channel products
- Proven industry interoperability with support for SNIA HBA API

# ATTO Technology XstreamCORE™ FC 7500 storage controller

ATTO storage controllers provide high IOPS and throughput, massive storage scalability and extremely low latency to satisfy application storage needs.

- Connects SAS storage to Fibre Channel SANs with (2) 16Gb Fibre Channel ports and (4) x4 12Gb SAS connectors
- xCORE™ Acceleration Technology moves all reads and writes through hardware acceleration with less than four microseconds of latency
- eCORE™ Control Engine adds common, open storage services including data mover, LUN masking, reservations and host mapping
- Up to 3200MB/s sustained transfer rate and 735,000 4K IOPS per controller
- Supports up to 240 direct-attached SAS devices from JBOD/JBOF or RAID arrays
- Supports NPIV and Virtual Fabric

# AIC SB202-LB

SB202-LB, a 2U 12-bay storage server solution, supports dual Intel® Xeon® Processors E5-2600 v3 and v4 product family. The backplane is tool-less and is of 12Gb/s SAS.

- 2U 12-Bay storage server
- Supports two Intel® Xeon® Processors E5-2600 v3 and v4 product family
- With Intel® C612 Series Chipset to provide 5+ years product life cycle
- Onboard Baseboard Management Controller for system management and IPMI control
- Front-to-back airflow and hot swap redundant fans to provide optimal thermal conditions
- Two 10 GbE RJ45 ports

# AIC J4024-02

- Intelligent Enclosure Management
- Individual drive power management
- Cutting edge performance and scalability
- Expander Self-discovery / Self-configuration (connects Mini SAS port to host or expansion)
- Supports SES-2 (SCSI Enclosure Service)
- Hot-swap design for easy maintenance and management
- Drive trays support interposers
- Adjustable Thermal Profile
- Easy deployment
- Supports Active Bezel

## About ATTO

For nearly 30 years, ATTO Technology, Inc., has been a global leader across the IT and media and entertainment markets, specializing in storage and network connectivity and infrastructure solutions for the most data-intensive computing environments. ATTO works collaboratively with partners to deliver a wide range of end-to-end, customized solutions to better store, manage and deliver big data. With a focus toward markets that require higher performance and with a dedication to working as an extension of customer's design teams, ATTO manufactures host and RAID adapters, network adapters, storage controllers, Thunderbolt-enabled devices, switches and software. ATTO solutions provide a high level of connectivity to all storage interfaces, including Fibre Channel, SAS, SATA, iSCSI, 40/10GbE and Thunderbolt. Distributing its cutting-edge products worldwide through Original Equipment Manufacturers (OEMs), systems integrators, value added resellers (VARs) and authorized resellers, ATTO is the Power Behind the Storage.

All trademarks, trade names, service marks and logos referenced herein belong to their respective companies.

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## About AIC

AIC is a leading provider of both standard OTS, off-the-shelf, and OEM/ODM server and storage solutions. With expert in-house design capabilities, validation, manufacturing and production, our broad selection of products are highly flexible and are configurable to any form factor or custom configuration. AIC leads the industry with over 20 years of experience in mechanical, electronic, system-level engineering as well as a dedication to product innovation and customer support. Headquartered in Taiwan, AIC has offices and operations throughout the United States, Asia and Europe.

## About Open-E

Open-E is a well-established developer of IP-based storage management software. Open-E JovianDSS, Open-E DSS V7 and the free Open-E DSS V7 SOHO are robust, award-winning storage applications which offer excellent compatibility with industry standards, and are the easiest to use and manage. Additionally, they are some of the most stable solutions on the market and undisputed price performance leaders. Open-E accounts for over 27,000 installations world-wide and has received numerous industry awards and recognition. Thanks to its reputation, experience and business reliability, Open-E has become the technology partner of choice for industry-leading IT companies. For further information about Open-E, its products and partners, visit <http://www.open-e.com/>

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