ATTO Niagara Acceleration Platform

Key Features

- Accelerator engines process all time-sensitive operations
- Command Queues for Interfaces
- Integrated ARM9 processor
- Data Path Integrity
- 12GB/s throughput and 3.2M 4K IOPS with consistent 1us latency
- "Anything to Anything" connect capability (Fibre Channel, Ethernet, SAS, NVMe)
- Support for new interface technologies
- Ability to build in value-add IP features
- Dual Gen 3 x8 PCIe Busses
- Proprietary Control Unit with dedicated high speed memory bus
- Proprietary Accelerator Unit with dedicated high speed memory bus
- Supports connection of up to 960 drives
- Supports connection of up to 64 initiators
- Dual 100/1000 Ethernet IPv4/IPv6 management ports (RJ-45 interface)
- System monitoring hardware and diagnostics
- Management via Ethernet based GUI, Telnet, CLI, FTP, SNMP

Overview

ATTO Technology has a 25-plus-year history of manufacturing high-performance storage infrastructure solutions. The company's latest product, the FibreBridge 7500, is built upon a new acceleration platform that pushes the limits of storage performance, achieving up to 20GB/s throughput and 3.2M 4K IOPS while adding only a consistent 1us of latency.

The ATTO Acceleration Platform is a solid state controller that aggregates and accelerates SSD flash and/or HDD storage. It can implement dedicated application modules such as data mover, cold storage, deduplication, hardware RAID assist and media scan as well as other functionalities that may be vendor-specific. The platform can also incorporate higher performing components and processors to further improve features, performance and scalability.

The ATTO Acceleration Platform is not limited by configuration, protocol types or form factors and can be adapted to any application. By providing a best of breed development architecture, it promotes the implementation of state of the art storage solutions to meet the demanding performance needs of Big Data Analytics, web serving, Hyperscale and Cold Storage.
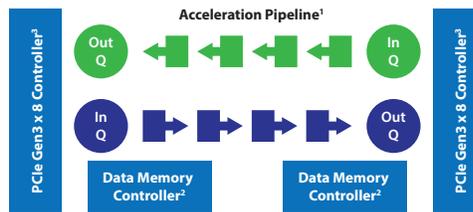
Anything-to-Anything (A2A)

ATTO's Anything-to-Anything (A2A) transport/protocol development supports a wide range of industry-leading storage protocols and interfaces and makes new developments portable across product lines.
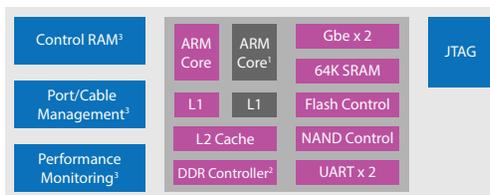
ATTO Accelerator

The ATTO Accelerator, a proprietary component of the ATTO Acceleration Platform, accelerates read and write commands in hardware. It features an Acceleration Pipeline that efficiently moves data between PCIe controllers with minimal latency and interfaces with the ATTO Control Engine (see below). Other ATTO Accelerator features include ASICs, dual PCIe busses, high performance memory, and data memory controllers.

1) Acceleration Pipeline efficiently moves data with parallel processing with <1us latency

2) High Speed Memory with Data Path Protection throughout the architecture

3) Dual PCIe Gen 3 busses allow for a high rate of bandwidth or IO transfers from initiator to target

ATTO Control Engine

The ATTO Control Engine adds intelligence to the Acceleration Platform, managing control processing with its own dedicated CPU, high speed memory, Ethernet and control RAM. It additionally provides functions such as firmware management, performance monitoring, event logging, port and cable management, trace logging, and state of the art management and analysis tools for better QoS. By separating the Control Engine from the Accelerator, latency is also reduced to minimal levels for all data transfers.

1) Capable of multiple processor cores with associated L1/L2 cache memory

2) Dedicated DDR Controller for improved bandwidth and communication with the ATTO Accelerator

3) Management and control modules built in and expandable with new technology or features

ATTO Niagara Acceleration Platform

Current products based on the ATTO Acceleration Platform

ATTO Technology 7500 Storage Controller

The ATTO 7500 Storage Controller is capable of 3.2GB/s throughput with 750,000 4K IOPS at a consistent 4us of latency. The 7500 maxes out IOPS and throughput of its dual 16Gb Fibre Channel ports. Future versions will include quad 16Gb ports.

Download the Technical Specifications

http://www.attotech.com/software/files/techpdfs/TechSheet_FibreBridge7500.pdf
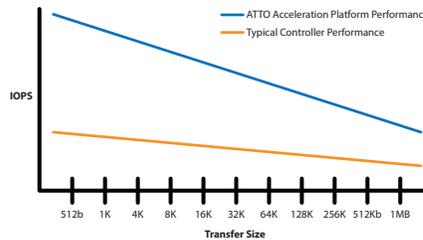
ATTO Acceleration Platform highlights:

- Embedded Operating System (AEOS) Environment A field-proven cooperative multi-tasking operating system optimized for storage application performance
- Virtual Device Architecture (VDA) A portfolio of market-based features that can be easily customized for OEM product developmentATTO Optimization Cores A collection of internally developed, industry tested solutions designed for the low-latency, high bandwidth demands of high performance storage applications
- ATTO Management Services Supports a broad range of common industry standards-based requirements, from configuration to diagnostics and installation

Overall Architecture

When combined, the ATTO Accelerator and ATTO Control Unit create a powerful connectivity solution capable of aggregating up to 960 SSD or HDD devices while providing class-leading performance.

ATTO Acceleration Platform provides improvements in performance of up to 500%

Capabilities and Use Cases

With expertise in industry standard protocols including Fibre Channel, Ethernet and SAS, ATTO is primed to leverage its Acceleration Platform for new technologies such as NVM Express (NVMe) and NVM Express over Fabrics (i.e. NVoE) that can fully exploit its performance capabilities.

Since the ATTO Acceleration Platform is not bound by existing server or OS technology, it presents many opportunities for new product categories. Possible use cases include: Cold Storage Controller (with the addition of power management features); Shingled Magnetic Recording (SMR) and ZBC command support; hardware data mover functionality; and VMware VAAI and Microsoft Hyper-V ODX support.