



ATTO SiliconDisk

Key Features

- Deterministic latency of < 600 ns
- Full Bandwidth up to 25 GBytes / sec
- Up to 6.4M 4K IOPS
- (4) 100 GbE Ethernet host ports per controller
- Full NVMeoF RoCE v2 support
- Storage capacities include 128GB and 512GB
- ATTO eCORE Virtualized Device Services:
 - Common services for every attached device
 - Custom management capabilities
 - Error recovery & reporting, retry & escalation
 - Custom command timeouts
 - Firmware and enclosure services support
- In-band management:
 - Firmware upgrade
 - Event log retrieval
 - Core dump
 - Port management and statistics
 - Reboot
 - Cable management
- Unique RTOptimizer - an AI-driven analytics engine
- Allows computing devices & storage to evolve independently
- ATTO Infinite Write Endurance™ enables no daily write limitations
- Supports direct-attached or Ethernet switch environments

ATTO SiliconDisk™ RAM-based Storage Appliance Extremely Low Latency Storage for 100GbE Enterprise Fabric Architectures

Storage for the Most-Demanding Applications

Next generation NVMe storage and fabric connectivity holds great promise for data center storage, but today's flash-based arrays introduce too much latency for applications that demand the highest performance.

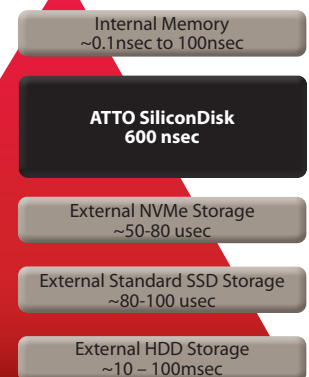
ATTO SiliconDisk™ changes the way enterprise architects design for the ultimate performance in storage solutions. With just nanosecond latency and Four 100Gb Ethernet ports for 400Gb of bandwidth, SiliconDisk storage blows away current SSD solutions for performance.

With guaranteed latency in a shared ethernet fabric, ATTO SiliconDisk is the next step in the evolution of storage and will change the way your applications store and use data. Data is instantly stored and retrieved with incredible speed letting you edit more streams of video, capture more data instances for AI / ML, manipulate more data sets quicker, and provides incredible performance to index look-ups.

We integrated four channels of ultra-fast 100GbE into a single chip along with our xCORE™ storage controller attached to high speed RAM to eliminate any bottlenecks in performance. This architecture allows us to deliver an incredibly deterministic 600 nanosecond latency with performance of more than 6 million IOPS and over 25GByte/sec sustained bandwidth. Directly connect up to four host servers without a fabric or expand to many using an Ethernet fabric switch to share as part of server cluster architectures.

Unique to ATTO SiliconDisk is our RTOptimizer™ feature. It delivers real-time performance analytics on your storage network connections, storage utilization as well as overall SiliconDisk data performance allowing you to quickly assess issues and optimize your solution. As an embedded feature we integrated sophisticated timing analytics to measure down to nanosecond time-slices in order to give visibility to a level never before seen. Cut your time troubleshooting storage bottlenecks. Know with certainty application storage utilization. All are critical factors in optimizing storage and getting the most from your systems.

SiliconDisk storage provides performance and low latency that is exponentially faster than traditional SSD and even NVMe storage solutions.



About ATTO

For over 30 years, ATTO Technology, has been a global leader specializing in network and storage connectivity and infrastructure solutions for the most data-intensive computing environments. ATTO works with partners to deliver end-to-end solutions to better store, manage and deliver data.

Nanosecond Total Latency

Performance levels are unparalleled with up to 6.4M 4K IOPS and throughput of up to 25GBytes per second. Access times at 4K block sizes will be deterministic and consistent with a latency of fewer than 600 nanoseconds. Additionally, ATTO SiliconDisk features technology that eliminates the small write penalties or latency gaps often seen on SSD type devices.

Infinite Write Endurance™

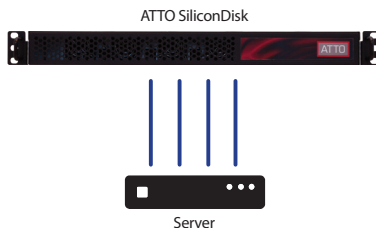
Deficiencies in write endurance have made using non-volatile storage solutions in mission critical applications difficult. Device writes per day, or DWPD, is an endurance calculation that NAND flash products use to predict when the device will become unreliable. RAM Memory in ATTO SiliconDisk™ has no “per write” flash performance penalties or worry of memory wear-out

High Performance Resiliency

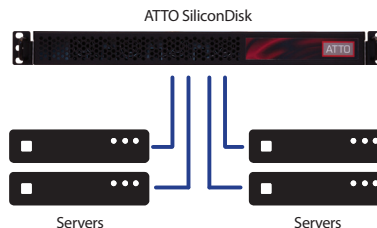
By moving RAM-level storage data externally to a shared fabric for high availability configurations every node can have easy access to share that data. Should cluster node failures occur, another node can have quick access to that data for better resiliency. System architects can re-imagine their solution to add n-1 performance models using additional nodes for better overall performance. And for composability, ATTO SiliconDisk can be scaled up or down and reassigned on demand.

Intelligently Optimize Systems, Reducing Expensive Support Calls

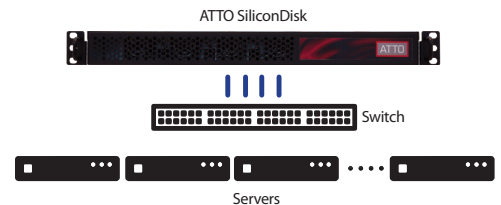
- RTOptimizer feature provides an embedded AI analytics engine enabling “on the wire” storage performance data to cut support costs with critical troubleshooting information
- Analyze RAM storage usage, controller performance as well as, up through the Ethernet fabric for a complete, unique view of true overall system performance
- Analytics capabilities are hardware-based, allowing users to dig deep without impacting system performance
- No debugging or other specialized tools needed – everything is available to the user via the GUI with no performance penalty
- Unprecedented granularity as well as customized data visualization tools
- RTOptimizer feature is readily available for integration with OEM software



Direct-attached for 400 GbE performance.



Switch-less direct-connect server configuration.



Fabric-attached for greater scalability.

ATTO xCORE™ Data Acceleration

ATTO xCORE hardware-based data acceleration technology features software-free I/O acceleration, handling all reads and writes with almost zero additional processing overhead. The ATTO xCORE Acceleration Processor is enterprise tested with thousands of current installations globally.

Example Applications

The ultra high-performance sharable block storage of ATTO SiliconDisk is not constrained by access to a single server, opening up many possible applications such as:

- Adds a new tier for a Hierarchical Storage Management (HSM) environment
- Exceptionally low latency processing of large, complex databases
- Artificial intelligence (AI) & machine learning (ML) & data mining
- Bridges the gap between composable and virtualized infrastructures
- Creation of high availability server clusters
- Highly responsive Online transaction processing (OLTP)
- Real-time rendering of next generation physics, effects, and other video/image processing
- In-memory databases
- Metadata servers
- Highly reliable and resilient RAID cache
- Additional ultra-high performance storage tier
- High speed distributed project collaboration
- Independent scaling of memory and compute resources

SiliconDisk Specifications

Input Connectors	(4) 100Gb Ethernet
Latency	<600 μs
Bandwidth	25 GBytes/s
Latency >	6M IOPS
Form Factor	1U Rackmount / Desktop
Memory Capacity	128 GB SDSK-0128-000 512 GB SDSK-0512-000 For larger capacities, contact ATTO.