TECH SPEC

FastFrame AIR

Technical Features

- Fourth-generation improved silicon
- Two unique models supporting high-speed Ethernet standards from 10GbE to 100GbE
- Added thermal protection via advanced heat baffling technology
- High-performance x8 PCIe 3.0 or x16 PCIe 4.0
- ATTO360™ Networking
- Supports up to 100Gb/s throughput
- RDMA over Converged Ethernet (RoCE) enables industry-leading low-latency and decreases CPU utilization on Linux and Windows
- End-to-end Quality of Service and congestion control
- Models support SFP+, SFP28, and QSFP28
- TCP/UDP/IP hardware based stateless offloads
- Advanced HW/SW offloads including LRO, LSO, TSO, RSS, and TSS
- Supports Data Center Bridging; Priority-based Flow Control (PFC), Enhanced Transmission Selection (ETS) and DCB Exchange (DCBX) protocol
- SR-IOV technology dedicates adapter resources for virtual machines within servers
- Hardware-based I/O virtualization
- Advanced Congestion Avoidance
- Half Height, 3/4 length form factor
- Includes full and half height bracket

FastFrame™ AIR Network Interface Cards

10/25/50/100GbE Workstation Optimized Ethernet Adapters

ATTO FastFrame AIR Network Interface Cards provide their own airflow along with unmatched performance, industry-lowest latency and the versatility needed to support the most demanding and complex ecosystems. Supporting line speeds of up to 100GbE and latency as low as 1us, ATTO AIR adapters are made to adapt to the extreme thermal and airflow conditions needed for high-speed Ethernet connectivity in modern workstation environments.

As Ethernet networks are being enhanced to manage large unstructured data they can depend on the company that customers have trusted for over 30 years to move and protect their data. FastFrame adapters are suitable for media & entertainment applications such as video post-production, finishing, imaging, archiving and workgroup file sharing, as well as IT applications such as data analytics, CAD/CAM workstations, Medical Imaging, AI/ML/DL, and unstructured data solutions.

ATTO360™ Networking

ATTO simplifies the installation and configuration of our world-class SmartNICs via our ATTO360 management utility. This software offers easy-to-use tuning profiles for performance optimization including partner-specific storage profiles that get the most out of your adapter and Ethernet storage. This application also includes ATTOview™ monitoring that analyzes thousands of metrics in both real-time and point-in-time via a time series database. An advanced diagnostics engine points users to potential bottlenecks offering instant advice to solve connection issues.

Optimized for Workstation Environments

ATTO AIR adapters ship with a highly advanced heat baffling technology consisting of a custom-made fan & blower to increase airflow and aid in heat dissipation over ATTO adapters. While our regular class of high-speed Ethernet adapters are typically implemented in rack optimized data centers with capable air flow moving across the adapters, ATTO AIR provides its own airflow and can be used in any environment.

ATTO360 Networking Suite for Windows and Linux

Our groundbreaking custom installer, Networking Suite, loads relevant drivers, ATTO360 management utility, and all dependencies needed to transport data via RDMA if needed. Other options require you to load drivers, utilities, and dependencies separately and consume valuable time, ATTO Networking Suite has everything you need in a single convenient package designed to have ATTO users up and running quickly without frustration.

Performance Engineered for 4K/8K Digital Video

Bandwidth reductions caused by transmission control protocol overhead make many competing NICs incapable of supporting 8K video. Our SmartNICs, in contrast, utilize RoCE to free up the full pipeline, providing sufficient bandwidth for multiple streams of raw 8K and 4K video.

About ATTO

For nearly 40 years ATTO Technology, Inc. has been a global leader specializing in network and storage connectivity and infrastructure solutions for the most data-intensive computing environments. ATTO works closely with its partners to create the world's best end-to-end data delivery, management and storage solutions.

Applications

ATTO FastFrame™ AIR NICs are designed for applications that demand low latency and high-bandwidth data transfers. Built for workstation deployments where airflow is more restricted than in traditional data center environments, FastFrame AIR delivers reliable performance for CAD/CAM, medical imaging, AI, and media and entertainment workflows.

General Features

- Advanced Heat Baffle
- Precision Blower Assembly
- Optimized Airflow Channels
- Remote Direct Memory Access (RDMA) Support via RDMA over Converged Ethernet (RoCE) Linux® and Windows®
- End-to-end Quality of Service and congestion control
- Erasure Coding offload
- Advanced storage capabilities including NVMe over Fabric offloads
- Hardware offloads for NVGRE and VXLAN encapsulated traffic
- Hardware-based I/O virtualization
- Tx/TCP segmentation offload (Large Send Offload—LSO)
- Low latency interrupts
- PCI-SIG SR-IOV support
- Interrupt levels INTA, MSI, MSI-X
- Direct Cache Access (DCA) eliminates cache misses and reduces CPU load
- Plug and play specification support
- Advanced packet filtering

Management Tools

- ATTO360™ Networking
- ATTO ExpertAI™
- ATTOview™ Time Series Database
- ATTO Networking Suite custom installer

Operating System Support

- Windows
- Windows Server®
- macOS *(N412 and N424 models only)*
- Linux

External Connectivity

- QSFP28 (50/100GbE) N412
- SFP28 (10/25GbE) N422
- 2 LED indicators per port

Network Standards

- IEEE 802.3by (25 Gigabit Ethernet)
- IEEE 802.3ba (40 Gigabit Ethernet)
- IEEE 802.3cd (50 Gigabit Ethernet)
- IEEEE 802.3z (100 Gigabit Ethernet)
- IEEE 802.3az (Energy Efficient Ethernet)
- IEEE 802.1p (Priority Encoding)
- IEEE 802.3ad (Link aggregation)
- IEEE 802.1qbb (Priority flow control)

Environmental

Operating Temperature

- Temperature: 0-55° C
- Max Junction Temp to 110° C
- Humidity: 10-90% non-condensing

Storage Temperature

- Temperature: -40 C to 70° C
- Humidity: 5-95% non-condensing

Airflow

- No LFM requirements, adapter provides consistent airflow

Agency Approvals

- FCC Part 15 Subpart B, Class A
- EN55022: 2010, Class A

ATTO FastFrame AIR	N422-AIR	N412-AIR
Max Transfer Rate	25Gb/s	100Gb/s
Ports	Dual	Dual
Bus Characteristics	x8 PCIe 3.0	x16 PCIe 4.0
Connector	SFP28	QSFP28
Form Factor	Half Height, 3/4 Length	Half Height, 3/4 Length
OS Support	macOS/Windows/Linux	macOS/Windows/Linux
SKU w/Optics	FFRM-N422-AIR	FFRM-N412-AIR