

# BENCHMARK



## Competitive Benchmark – 25GbE

### ATTO FastFrame™ N322 NIC and ThunderLink® TLNS-3252 25GbE Adapter vs. Sonnet

#### Overview

When choosing a product for high-speed Ethernet connectivity, it's important to consider factors such as performance, stability, reliability, ease of use, and support. ATTO Technology offers solutions that surpass these requirements in many ways.

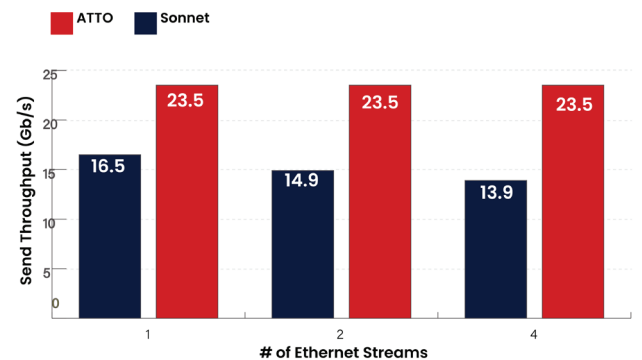
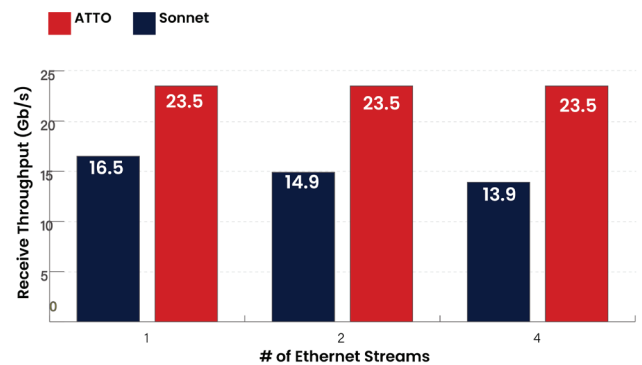
With ATTO, you're not simply purchasing a product - you're investing in advanced technology.

#### Performance

As the capacity for a server or workstation to do work increases so does the demand for I/O bandwidth. Choosing a product that optimizes bandwidth without taxing the CPU and memory is the goal. The ability to minimize latency is the key to achieving the best possible performance. Latency must be carefully managed by the Ethernet drivers as the data passes across the PCIe bus, CPU cores, system memory and the TCP/IP stacks. ATTO has years of experience in developing these drivers to achieve the best possible performance.

We ran 25Gb benchmarks against a Sonnet Twin25G PCIe Network Adapter to highlight the differences in the ATTO Fast Frame N322 driver for macOS Sonoma.

Ethernet NIC Receive & Send Performance



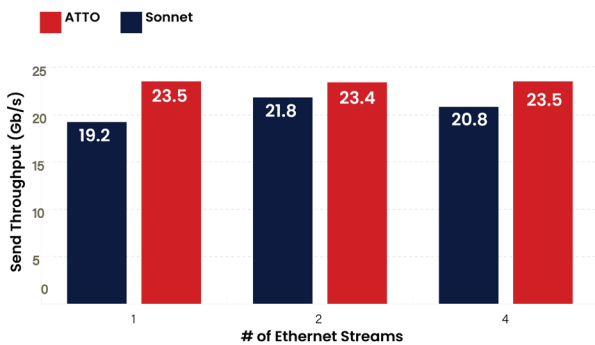
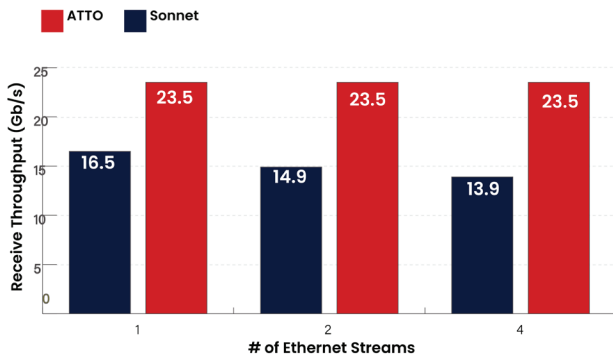
Test #1 setup: NIC under test installed in a 2023 Mac Pro M2 Ultra connected to an ATTO Fast Frame N322 installed in a Linux Server running iPerf. MTU = 1500. No tuning.

You can see that ATTO achieves near line speed where the Sonnet driver struggles, especially as the number of streams (workload) increases.

#### About ATTO

For over 35 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. ATTO manufactures host adapters, SmartNICs, storage appliances and controllers, intelligent bridges, Thunderbolt™ adapters, and software. ATTO solutions enable high-performance connectivity to all storage interfaces, including Fibre Channel, SAS, SATA, iSCSI, Ethernet, NVMe and Thunderbolt. ATTO is the Power Behind the Storage.

We also ran Thunderbolt to 25GbE benchmarks against a Sonnet Twin25G Thunderbolt Adapter to highlight the differences in the ATTO Thunder-Link TLNS-3252 driver for macOS Sonoma.



**Test #2 setup: MacMini M2 connected to the Thunderbolt adapter under test connected to an ATTO Fast Frame N322 installed in a Linux Server running iPerf. MTU = 1500. No**

Here, you can see how the Thunderbolt interface adds latency but also how the ATTO driver outperforms Sonnet by a considerable amount.

## Stability

When you're streaming video, stability is crucial. Transmitting Ethernet frames is fairly indeterministic by nature. That's where ATTO's Advanced Data Streaming Technology (ADS) comes in. It helps manage the bursty nature of data transmissions from apps. You can see the benefits in the consistent performance levels for both reading and writing data, as shown in the graphs above. In addition to higher, more stable throughput, the ATTO driver utilizes noticeably less CPU resources streaming data.

## Reliability

ATTO has been designing and manufacturing host adapters since 1988. Years of experience result in best-in class design and manufacturing with the highest level of quality. ATTO's Thunderbolt Adapters consist of a single circuit board – the Thunderbolt and Ethernet interfaces are combined on one board. Sonnet uses one board for a Thunderbolt to PCIe interface, one board for PCIe connectivity and one board for PCIe to Ethernet. The probability of failure in the three-board solution is much higher than a single board.

## Ease of Use & Support

Total cost of ownership includes time to install and configure as well as down time due to issues. Identifying problems and determining the best resolution in a timely fashion is critical. ATTO FastFrame and Thunderbolt solutions come with ATTO 360™. An all-purpose tool for Ethernet network optimization featuring performance tuning, analytics, and monitoring. In addition to the OS drivers, there are numerous parameters that can be used to fine tune the movement of data. Not everyone is an expert and what knobs to tweak. ATTO 360 makes it easy by Integrating “1-Click-Setup” user configurations for Media & Entertainment, high throughput and low latency workflows. ATTO 360 also provides analytics where it scans for frequently recorded and troublesome errors that are not always obvious. This allows you to fix problems before they occur. It also provides monitoring of all traffic and key parameters from a simple interface.

ATTO FastFrame™ and Thunderbolt Adapters are an easy-to-use, comprehensive portfolio of products designed to provide high-performance Ethernet while minimizing utilization of both power and CPU cycles.

### ATTO Ethernet Smart NICs for macOS

FFRM-N311	1-port QDFP+	10/25/40/50/100 Gb/s
FFRM-N312	2-port QSFP	10/25/40/50/100 Gb/s
FFRM-N322-000	2-port SFP+	10/25/40/50/100 Gb/s
FFRM-N322-10S	2-port SFP+	10 Gb/s
FFRM-N322	2-port RJ45	10 Gb/s

### ATTO Thunderbolt to Ethernet Adapters for macOS

TLNS-3252	2-port SFP+	25 Gb/s
TLN3-3102	2-port SFP+	10 Gb/s
TLN3-3102T	2-port RJ45	10 Gb/s

ATTO