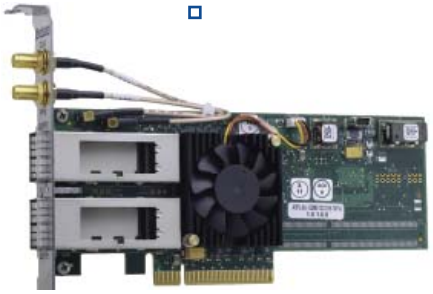
Myricom Ethernet Network Adapters with DBL software

For Financial Trading using Linux or Windows



CSPi's Myricom® 10 gigabit network adapters with DBL™ software deliver higher fill rates by enabling extremely low latency financial transactions. In addition, these adapters include two unique features: hardware A/B arbitration and the ability to measure the "tick to trade" latency with even better accuracy than the most popular packet recorder delivers.

Hardware A/B Arbitration

Myricom adapters can arbitrate the A and B sides of multiple feeds for both fiber and microwave sources (4-way arbitration). The adapters ship with a configuration file defining how A/B is done for many popular equity and option feeds. Users can extend this file to define feeds that aren't available from CSPi. Offloading A/B arbitration with hardware reduces "tick to trade" latency further than competitive products can achieve. It also removes significant traffic from your servers' shared DRAM subsystems. Turning on A/B adds zero extra latency to the adapter's receive path.

Nanosecond Latency Measurements

Myricom 10GbE adapters can measure your application's latency with less effort and more accuracy than any expensive, packet capture device. This is accomplished by a unique feature of Myricom adapters that provides a precise timestamp as transmit packets leave the adapter. You application calculates latency by comparing the timestamps on the incoming and outgoing packets. Measuring latency at the adapter means that your application does not need to tag TCP orders with UDP sequence numbers, thus even further reducing latency.

Myricom products have been focused on low-latency networking since 1994. Myricom DBL™ software is the industry's original, and thus most mature, user-space TCP/UDP stack available today. Introduced in 2010, it has been in continuous operation by many financial organizations ever since. DBL offers both a socket-like API and a transparent acceleration mode (a replacement for the host's socket library). The transparent acceleration mode allows the customer to run his existing sockets application without modification. The optional API mode is optimized for lower latency and provides access to additional features.

KEY FEATURES

- 10GbE adapter that out performs the competition at "tick to trade", particularly when you exploit our hardware offload features
- A/B arbitration in hardware for up to 4 sources per feed (fiber and microwave arbitration)
- No dropped packets even during the busiest time of the trading day
- Industry's largest host buffers in case your application cannot keep up with surges in feed transaction rates
- The most accurate way to measure application "tick to trade" latency
- Industry's best customer support

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Hardware Specifications

KEY SPECIFICATIONS	
Bus Interface	PCI Express Gen 3, 8 lanes wide
Form Factor	Low-profile PCI Express x8 add-in card. Ships with a standard height faceplate installed; low profile faceplate in the box. The optional timing kit has a standard height faceplate with coax connectors installed.
Electrical Power	Adapter power consumption is compliant with the x8 PCIe standard. Actual power consumption is dependent upon firmware load and has been measured at 18.3 watts using two Ethernet ports and passive, copper cables with firmware BR5/RC3.
Environmental	CSPi recommends that adapters be installed into servers that provide some air flow over the PCIe slots (very common). Use in an office or computer room environment.
DBL Endpoints	Support for 16 simultaneous rings (DBL endpoints). The size of each ring is limited by the amount of available host memory. Support for up to 511 simultaneous UDP multicast groups open per Ethernet port (1022 per board).
Latency	Myricom adapters perform the networking portion of a tick-to-trade in about 1.8x µs, 99% of the time. Coupled with an efficient, time-tested programming model and world class customer support, Myricom adapters are industry leading in low latency and feature set.
Packets Per Second	Every adapter optimized for ultra-low latency will bump into a maximum packet-per-second rate when the packets hit Intel's PCIe implementation. That maximum depends upon the Intel chip on the other end of the PCIe bus. Generally expect to achieve the rate of a single 10 Gbit Ethernet port (14.88 M PPS dependent on packet size). The typical usage model, of one port ingress and one port egress, supports dropless operation.
On-board clock tick accuracy	±10 nanoseconds when measuring latency using the on-board TCXO. Use the optional timing inputs for accuracy over long periods of time or to synchronize time between multiple cards. Refer to the timing kit datasheet for details.
IEEE 1588	Myricom time stamps are captured in a manner that allow IEEE-1588 software implementations to deliver highly accurate, synchronized time.
Passive Copper Cable Length	Retimers, included on the adapter, support a 7 meter target specification with a quality, passive, copper cable. Not all passive cable specifications support this length. Using a QSFP to SFP+ adapter may also limit cable length.
Operating Systems	Support for all major Linux distributions as well as Windows 2008R2 and newer.
Virtualization	Myricom adapters are compatible with all popular virtual environments, provided that users assign the adapter to a single virtual machine. The alternative, sharing an adapter, conflicts with delivering high performance.
REGULATORY APPROVALS, COMPLIANCE	
Emissions	Emissions and safety authorities do not certify board-level products. They certify complete systems with all boards installed. To minimize risk for OEM customers, CSPi uses a third-party certification organization to test its Myricom adapters installed into a generic PC. Final test reports are available to customers. We meet US, Canadian, and European emissions, Class A.
Compliance	RoHS (Reduction of Hazardous Substances)
Country of Origin	USA
PART NUMBERS	
10G-PCIE3-8D-2S+DBL	Network adapter with Dual SFP+ 10GbE ports (configured as a dual QSFP with bundled SFP+ adapters) and Myricom DBLv4 software. Timing kit is optional (10G-8D-2SA-SYNC-KIT).
Cables and transceivers	Contact your Account/Sales representative for more information on cables and transceivers that are compatible with this adapter.
Warranty and add-on support	One year for hardware defects and 90 days for software defects. 90 days of "getting started" telephone and email support as well as any software upgrades shipped within that window. Refer to the support datasheet for options extending the 90-day window.

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