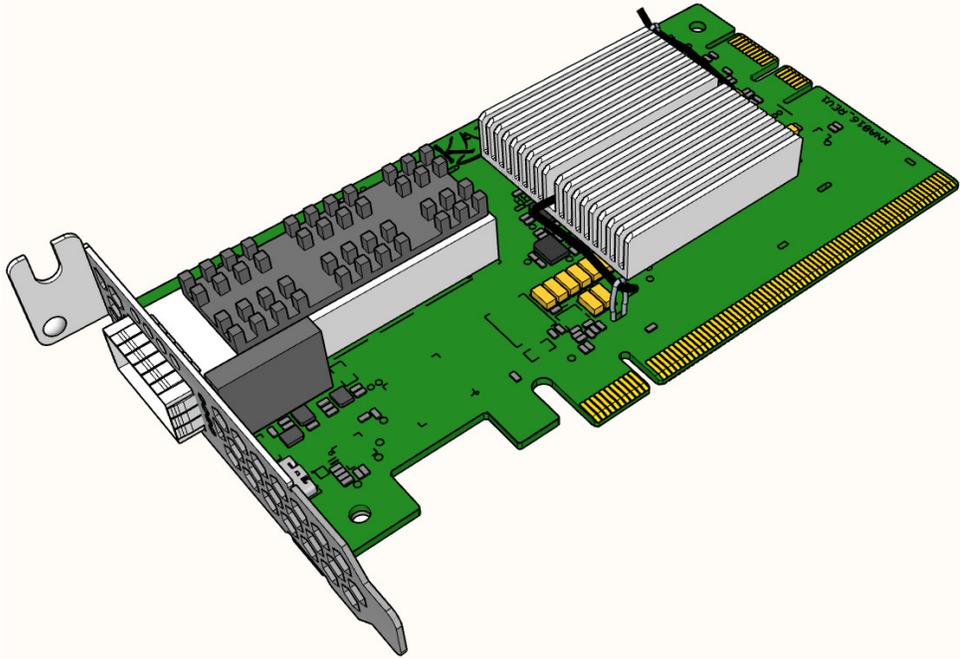


# Onyx

## NVMe-oF Bridge Adapter



The Onyx adapter from Kazan Networks is an industry-leading solution which enables NVMe-oF-attached storage systems. Onyx is based on Kazan's *Fuji* ASIC and forms a key component for the enablement of the industry's newest **Composable Infrastructures**. Both Onyx and *Fuji* lead the industry in terms of cost, power, and performance.



Onyx - NVMe-oF Bridge Adapter

Kazan Networks' *Fuji* and Onyx represent a unique approach to NVMe-oF bridging, based on extensive levels of hardware acceleration. This architecture is proven to provide significantly higher performance at lower power and lower TCO than other, SOC-type approaches.

Kazan Networks' solution is unique in the industry in that it supports RoCEv1, RoCEv2, and iWARP/TCP protocols all seamlessly and even simultaneously. This features maximizes interoperability of target systems based on *Fuji* and Onyx, and eliminates the risk of choosing the "wrong" RDMA protocol.

At less than 10W of power consumed, Onyx is by far the lowest power solution available. Competitor's products typically consume 3-4 times the power of Onyx!

Onyx offers an optional second Ethernet management port through the PCIe connector. This second Ethernet port runs up to 100Mbps and allows management traffic to be supported on an independent network from the main data fabric. This port can be enabled through the addition of a "-E" suffix (see ordering information at the end of this document.)

Contact Kazan Networks today for more information about integrating Onyx into your system.

# Onyx

## Features

### Network Interfaces

- Ethernet 100GbE – single port
- Ethernet 50/25/10GbE – dual ports
- Static or Dynamic addressing
- Fiber and Copper cable support
- 4 MAC addresses per port
- 4k VLAN address per port
- 4 IPv4 / IPv6 addresses per port
- HW Link Aggregation

### PCIe Interface

- Root Complex
- Single x16 or dual x8 Gen3
- 2.5, 5.0, 8GT/s rates

### Hardware-based protocol engines

- RoCEv1, RoCEv2
- iWARP / TCP
- NVMe
- Up to 1,024 NVMe / RDMA queue pairs

### Power

- 9.3W nominal @ Tj = 25 °C
- 15.5W worst-case @ Tj = 110 °C
  - Power supply = +5%
- 200 lfm airflow at 55 °C (sea level)

### Physical dimensions

- Length 129.41 mm
- Height 68.95 mm

### Miscellaneous Interfaces

- SPI Flash for firmware / logging
- Three I<sup>2</sup>C ports
- 8 GPIO pins

### Standards Supported

- NVMe 1.2, 1.3
- NVMe-oF 1.0 - NVMe over Fabrics
- 802.1AX-2008 (IEEE 802.3ax) - Link Aggregation
- 802.1P - QoS Priority
- 802.1Q - Virtual LANS
- 802.1Qbb - (PFC) Priority-based Flow Control
- 802.1Qaz - (ETS) Enhanced Transmission Selection
- 802.1Qau - (QCN) Congestion Notification
- 802.1Qbb - Priority-based Flow Control (PFC)
- 802.3-2012 IEEE Standard for Ethernet
- 802.3ac-1998 - VLAN TAG
- 802.3ad-2000 - Link Aggregation
- P802.3ar - Congestion Management
- 802.3az-2010 - Energy-efficient Ethernet
- 802.3ae-2002 - 10 Gigabit Ethernet
- 802.3by-2016 - 25 Gigabit Ethernet
- 802.3bj-2014 - 100 Gb/s Backplane and Copper Cable
- 802.3bm-2015 - 40 Gb/s and 100 Gb/s Fiber Optic
- 802.3-2012 CL91 - RS-FEC (100G)

## Ordering Information

Onyx OPNs:                    [KN-ONYX1.0-SB Standard Bracket](#)  
                                       [KN-ONYX1.0-LP Low Profile Bracket](#)  
                                       [KN-ONYX1.0-NB](#)                [No Bracket](#)

Onyx-E OPNs:                [KN-ONYX1.0-E-SB](#)            [Standard Bracket](#)  
                                       [KN-ONYX1.0-E-LP](#)            [Low Profile Bracket](#)  
                                       [KN-ONYX1.0-E-NB](#)            [No Bracket](#)

Leadtime:                    [16 weeks](#)  
 ECCN:                         [4A003](#)  
 HTC:                         [8473.30.11](#)