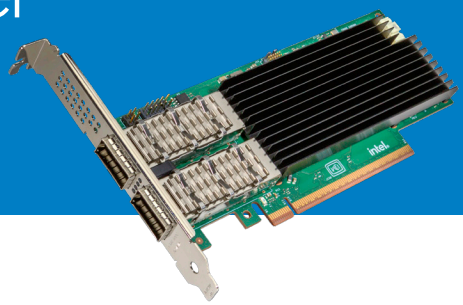
Product Brief
Intel® Ethernet 800 Series

Intel® Ethernet Network Adapter E830-CQDA2



Key Specifications

- Speeds up to 200GbE
- Supports multiple port configurations using EPCT
- PCIe 5.0 x8 or PCIe 4.0 x16
- Dynamic Device Personalization (DDP)
- Data Plane Development Kit (DPDK) enabled
- IEEE 1588 Precision Time Protocol v2
- Precision Time Measurement (PTM) v1.0a
- Commercial National Security Algorithm (CNSA) 1.0 compliant
- Modern security with signed firmware, secure boot, and hardware root of trust (RoT)

Overview

The E830-CQDA2, configurable to speeds up to 200GbE, supports the growing bandwidth demands of modern networks, especially for cloud services, virtualized environments, and large data transfers.

The low-power design enables decreased energy consumption across the system to reduce costs and environmental impact, solving increasingly important power density challenges. Modern security features, key timing protocols, fast data exchange, and reduced latency make the E830-CQDA2 an optimal choice for applications supporting critical, bandwidth-heavy technologies without the complexity and high cost of proprietary technologies.

This adapter also features an Ethernet Port Configuration Tool (EPCT). In addition to the default configuration of 2x100, four other configurations are possible: 1x200 (port 1 only), 4x50, 2x50, and 8x25 (via breakout cables).

Intel® Ethernet 800 Series Network Adapters, E830 and E810 families, share drivers ensuring software consistency across generations of products for easy deployment.

Optimized for Intel® Xeon® processors

Data centers and workloads need computing capacity and powerful ways to move data securely. Intel® architecture offers both. Deployment-ready, reliable, and affordable, Intel Ethernet E830 Network Adapters are the perfect choice for amplifying server performance with Intel® Xeon® 6 processors.

Why Intel® Ethernet

Intel Ethernet Network Adapters offer best-in-class compatibility, performance assurance, and world-class customer support. Key features and technologies deliver outstanding performance and support for data center workloads.

Compatibility and interoperability

- Extensive conformance testing to IEEE and Ethernet Technology Consortium standards
- Broad network interoperability testing for best-in-class compatibility

Performance assurance

- Validated on all x86 architectures and optimized for Intel® architecture
- Security protocols and management to ensure data integrity
- Scales with processor cores and technologies

Worldwide product support

- Industry-leading warranty
- World-class customer pre- and post-product support
- Adherence to regulatory and environmental requirements

All Intel® Ethernet E830 Adapters offer these key features:

Programmable Pipeline / Dynamic Device Personalization (DDP)

DDP improves packet processing performance by using the E830 Controller's programmable pipeline to classify frames instead of the CPU. DDP increases throughput, lowers latency, and reduces host CPU overhead in both network functions virtualization (NFV) workloads and cloud-native architectures.

Data Plane Development Kit (DPDK)

DPDK enabled to deliver faster NFV, advanced packet forwarding, and efficient packet processing, resulting in effective use of CPU cycles and reduced overhead.

Open vSwitch (OVS) Acceleration

The E830 is optimized for Intel® Xeon® processors to minimize packet parsing overhead and flow table search. DPDK integration with OVS increases performance by eliminating extra layers in the architecture and native OVS stack.

Precision Time Synchronization and Measurement

Growth in 5G RAN and edge deployments is driving demand for high-precision timing synchronization across the network.

Intel® Ethernet E830 Network Adapters enable service providers to build open, disaggregated vRAN solutions with off-the-shelf components to meet unique customer needs, including system size and budget.

- Compliant with IEEE 1588 Precision Time Protocol (PTP) v2.
- Supports Precision Time Measurement (PTM) v1.0a, a protocol used to synchronize a CPU with other devices in a server platform, such as E830 network adapters. Applications benefitting from PTM sub-microsecond timing accuracy include financial services, network monitoring, and distributed database systems.

Manageability

Broad system manageability capabilities using the latest DTMF (Distributed Management Task Force) protocols.

- MCTP over SMBus 2.0 and PCIe VDM (Vendor Defined Messages).
- NC-SI 1.2 protocol compliance. Transport options include NC-SI over MCTP.
- PLDM over MCTP with an extended list of message types, including PLDM command types T2, T4, T5, and T6.

Modern Standards-based Security

Intel offers modern standards-based cryptographic security anchored by a hardware Root of Trust (RoT).

- Unsigned device attestation in compliance with SPDM 1.1.2 Security Protocol and Data Model.
- Silicon Root of Trust (RoT) compliant with NIST SP 800-193 platform firmware resiliency guidelines.
- Meets FIPS 140-3 level 1 requirements.
- Secure Boot isolates sensitive parameters and keys used for boot and operation.
- Secure Firmware Update verifies digital signatures of new firmware binaries.
- Recovery Mode Failsafe mode is activated upon detection of abnormal device operation.

Ethernet Port Configuration Tool (EPCT)

All 200GbE and 100GbE Intel Ethernet 800 Series Network Adapters feature EPCT, a versatile port configuration tool designed for high-density, port-constrained network environments. Validate once, then reconfigure as often as needed.

Adapter Features

Data Rate Supported	200/100/50/25/10GbE
Bus Type/Bus Width	PCIe 5.0 x8 or 4.0 x16
Form Factor	Standard PCIe; ships with both low-profile and full-height brackets
Controller	Intel Ethernet Controller E830
Supported Operating Systems	Linux
Hardware Certifications	BSMI, CE, CMIM, FCC, ICES, KCC, RCM, UKCA, cURus, and VCCI
Compliance	RoHS and BMSI RoHS compliant. Product is compliant with Taiwan Bureau of Standards, Metrology and Inspection (BMSI) and EU RoHS Directive 2 2011/65/EU (Directive 2011/65/EU) and its amendments.

Technical Specifications

Storage Humidity	Maximum: 90% non-condensing relative humidity at 35 °C
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Operating Temperature	0 °C to 65 °C (32 °F to 149 °F)
LED Indicators	ACTIVITY (blinking) NO ACTIVITY (off) LINK SPEED (green = Max Speed; amber = less than Max; off = no link)

Ethernet Media Supported

100GbE QSFP28 – 2 Ports

100GBASE-CR4, 100GBASE-SR4, 100GBASE-LR4, 100GBASE-FR, 100GBASE-DR, 100GBASE-PSM4 (Optical Breakout)

200GbE QSFP56 – 1 Port*

200GBASE-CR4, 200GBASE-SR4, 200GBASE-LR4, 200GBASE-FR4

50GbE SFP56 – Up to 4 ports with breakout cables

50GBASE-CR, 50GBASE-KR, 50GBASE-LR, 50GBASE-SR

25GbE SFP28 – Up to 8 ports with breakout cables (4 ports per cage)

25GBASE-CR (802.3by 25G twinax), 25GBASE-CR1 (Consortium 25G twinax), 25GBASE-SR, 25GBASE-LR, 25G-AUI C2M, CA-25G-N (DA Breakout), CA-25G-S (DA Breakout), CA-25G-L (DA Breakout)

10GbE SFP+ – Up to 8 ports using breakout cables (4 ports per cage)

10Gb SFI-DAC (SFP+ twinax); 10Gb SFI Limiting (SFP+ optics/AOC)

*Use only Port 1 to configure the adapter as a single 200GbE port; using this configuration, Port 2 will not have connectivity.

Power Consumption

DACs	Typical Power
2x100Gb Traffic	13.3 W
2x100Gb Idle (no traffic)	13.0 W
1x200Gb Traffic	11.6 W
1x200Gb Idle (no traffic)	11.4 W
Optics*	
2x100Gb Traffic	21.5 W
2x100Gb Idle (no traffic)	20.1 W
1x200Gb Traffic	15.7 W
1x200Gb Idle (no traffic)	15.2 W

*100GbE Optics measured with 3.5 W load modules
200GbE Optics measured with 7 W load modules

Product Order Code

E830CQDA2M (Five Pack)

Warranty

Intel limited lifetime hardware warranty, 90-day money-back guarantee (US and Canada) and worldwide support. Visit: Intel® Terms and Conditions of Warranty, Support and Services

Customer Support

For customer support options in North America visit: intel.com/content/www/us/en/support/contact-support.html

Product Information

For information about Intel® Ethernet Products and technologies visit: intel.com/ethernet

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