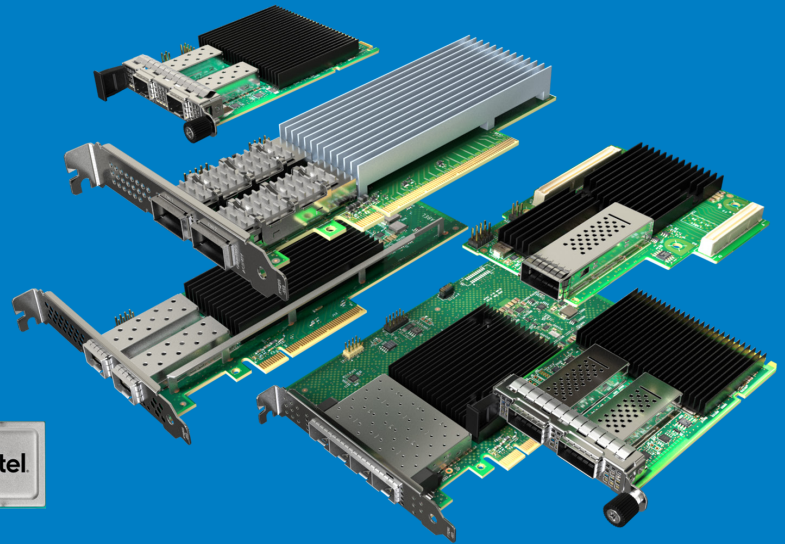


# 1 to 100 Gb Ethernet



## Intel® Ethernet 800 Series

Improve application efficiency and network performance with innovative and versatile capabilities that optimize high-performance server workloads such as NFV, storage, HPC-AI, and hybrid cloud.

### Performance for Cloud Applications

Delivers the bandwidth and increased application throughput required for demanding cloud workloads including edge services, web servers, database applications, caching servers, and storage targets.

### Optimizations for Communications Workloads

Provides packet classification and sorting optimizations for high-bandwidth network and communications workloads, including mobile core, 5G RAN, and network appliances.

### Supports Hyperconverged Solutions

The 800 Series broad portfolio of adapters, with different port counts and form factors, delivers performance with efficient use of server processors.

## Move Data Faster

Intel's evolving Ethernet product portfolio consistently delivers a reliable experience and proven interoperability. Whether migrating from 1 to 10GBASE-T, or from 1 to 100Gbps, Intel Ethernet Products and technologies help move data faster.

### Compatibility and interoperability

- Extensive conformance testing to IEEE and Ethernet Technology Consortium standards
- Broad network interoperability testing of different media types and Ethernet switches for best-in-class compatibility
- Comprehensive operating system and hypervisor support

### Performance assurance

- Optimized for Intel® architecture
- Data Plane Development Kit (DPDK) enabled for faster network functions virtualization (NFV), advanced packet forwarding, and highly-efficient packet processing

### Worldwide product support

- Limited lifetime warranty for retail Ethernet Products
- Adherence to global regulatory, environmental, and market requirements

# All 800 Series products include these technologies

## Greater Predictability at Scale

As modern data centers scale, a key challenge is to provide scalable, predictable application-level performance. Application Device Queues (ADQ) technology improves performance scalability and predictability by dedicating queues to key workloads, delivering predictable high performance through dramatically reduced jitter.

Increasing the predictability of application response times by lowering jitter enables more compute servers to be assigned to a task and can allow more users to access the system, providing a better end-user experience. Even applications that are not large scale can benefit from higher consistency, enabling them to meet service-level agreements (SLAs) more easily.

ADQ enables application-specific data steering, signaling, and rate limiting using an optimized application thread to device data path. This ability to dedicate queues and shape network traffic not only increases performance, it reduces latency and improves throughput.

## Increase Throughput and Lower Latency

Remote Direct Memory Access (RDMA) provides high throughput and low-latency performance for modern high-speed Ethernet by eliminating three major sources of networking overhead: TCP/IP stack process, memory copies, and application context switches. Intel Ethernet 800 Series Network Adapters support all Ethernet-based storage transport, including iWARP, RoCEv2, and NVMe over Fabric.

**RoCE (RDMA over Converged Ethernet):** RoCEv2 substitutes the InfiniBand physical layer and data link layer with Ethernet, operates on top of UDP/IP, and is routable over IP networks.

**iWARP, IETF standard protocols based:** Delivers RDMA on top of the pervasive TCP/IP protocol. iWARP RDMA runs over standard network and transport layers and works with all Ethernet network infrastructure. TCP provides flow control and congestion management and does not require a lossless Ethernet network. iWARP is a highly routable and scalable RDMA implementation.

## Improve Packet Processing Efficiency

Dynamic Device Personalization (DDP) customizable packet filtering, along with enhanced DPDK, supports advanced packet forwarding and highly-efficient packet processing for both Cloud and NFV workloads. The 800 Series firmware loads an enhanced DDP profile with many workload-specific protocols at driver initialization for greater flexibility. When multiple 800 Series adapters are present in a system, the pipeline on each adapter can be programmed independently with a different DDP profile.

## Increase Timing Accuracy

Intel Ethernet 800 Series supports both IEEE 1588 PTP v1 and v2 with two-step option. The products provide increased accuracy at single-digit nanosecond level, and can report the reception time for every packet. This level of timing accuracy can help ensure tight synchronization across network deployments ranging from 5G RAN to financial services, industrial automation, and energy monitoring.

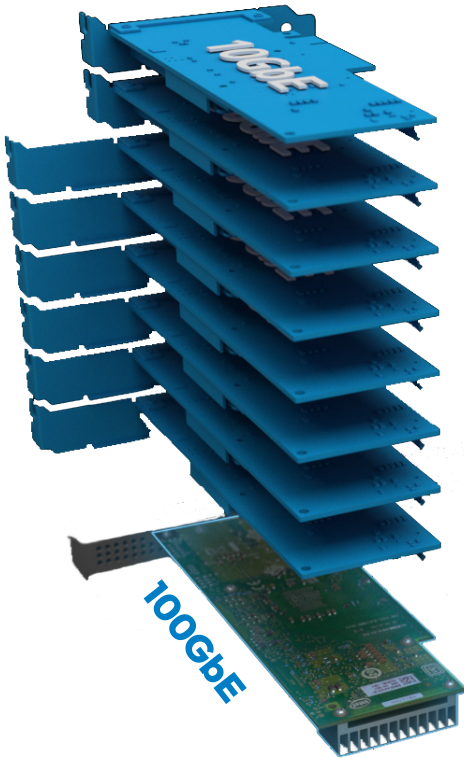
## Protect, Detect, and Recover

Zero Trust is a security design strategy centered on the belief that organizations, by default, should not automatically trust any request for system access. This includes requests coming from outside, as well as inside its perimeters. Zero Trust demands that every access request be verified before granting access.

The 800 Series implements a design philosophy of platform resiliency with 3 attributes compliant with the NIST Cybersecurity Framework, including NIST 800-193 Platform Firmware Resiliency Guidelines: Protect, Detect and Recover. By design, the Hardware Root of Trust in the 800 Series protects the firmware and critical device settings with authentication for every access. Signed firmware updates and the Hardware Root of Trust protects and verifies critical device settings with built-in corruption detection and automated device recovery. Together these features ensure the device safely returns to its originally programmed state.

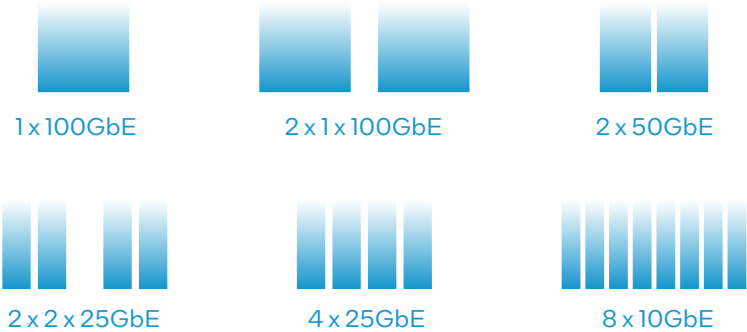
For more information about Intel® Ethernet Technologies, including videos and resource libraries, visit [intel.com/ethernet](https://intel.com/ethernet)

# 100GbE 800 Series Products include Ethernet Port Configuration Tool (EPCT)



## Flexible port and speed combinations

EPCT, available on 100GbE 800 Series Network Adapters<sup>1</sup>, offers a versatile solution for high-density, port-constrained network environments. One port becomes eight 10GbE ports, four 25GbE ports, and more—up to six configurations to choose from.



Validate once. Reconfigure as often as you need.

Watch the video at [intel.com/epct](https://intel.com/epct)

## Intel® Ethernet Optics for 800 Series Network Adapters

### Extensively tested for compatibility

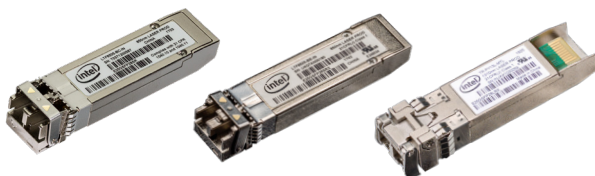
These short range and long-range transceiver modules offer flexible configurations, and proven reliability. The extended case operating temperatures support a wide range of server requirements.

### Intel® Ethernet SFP28 Optics



An excellent choice for high-speed communications equipment when exceptional performance and reliability are essential.

### Intel® Ethernet QSFP28 Optics


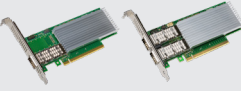

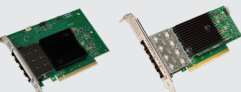



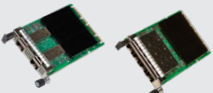
Delivers high-performing computing interconnect for deployments of 100GbE.



# Intel® Ethernet 800 Series Controllers

Product	Host Interface	Speed	Ports	Physical Package	Network Interfaces Supported	Order Codes
 E810-CAM1, -CAM2	PCIe 4.0	100/50/25/10/1GbE	Up to 8 ports <sup>2</sup>	25 mm x 25 mm	100GbE: 100GBASE-KR4, CR4, CR2, KR2; CAUI-4; 100GAUI-2, -4 50GbE: 50GBASE-KR2, CR2, CR, KR; 50GAUI-2, -1; LAUI-2 25GbE: 25GBASE-KR, CR, CR1/KR1; AUI 10GbE: KR, SFI 1GbE: KX 100M: SGMII	EZE810CAM1 EZE810CAM2
 E810-XXVAM2	PCIe 4.0	25/10/1GbE	Dual	21 mm x 21 mm	50GbE: 50GAUI-2, -1; LAUI-2 25GbE: 25GBASE-KR, CR, CR1/KR1; AUI 10GbE: KR, SFI 1GbE: KX 100M: SGMII	EYE810XXVAM2

# Intel® Ethernet 800 Series Network Adapters

Product	Form Factor	Speed	Ports	Cabling Type and Range	Connection	Order Codes
 E810-2CQDA2	Standard adapter	100*/50/25/10/1GbE <sup>3</sup>  *100Gbps per port for total bandwidth of 200Gbps	Dual	DAC: up to 5 m SMF: up to 10 km MMF: up to 100 m	QSFP28	E8102CQDA2G1P5
 E810-CQDA1, -CQDA2	Standard adapter	100/50/25/10/1GbE <sup>3</sup>	Single and Dual	DAC: up to 5 m SMF: up to 10 km MMF: up to 100 m	QSFP28	E810CQDA1, E810CQDA1BLK E810CQDA2, E810CQDA2BLK
 E810-CQDA2T	Standard adapter for high-precision timing synchronization	100/50/25/10GbE	Dual	DAC: up to 5 m SMF: up to 10 km MMF: up to 100 m	QSFP28	E810CQDA2TGG1 (with GNSS mezzanine) E810CQDA2TG1 (without GNSS mezzanine)
 E810-XXVDA4	Standard adapter	25/10/1GbE	Quad	DAC: up to 5 m SMF: up to 10 km MMF: up to 100 m	SFP28	E810XXVDA4, E810XXVDA4BLK E810XXVDA4LG1P5 (low profile)
 E810-XXVDA2	Standard adapter	25/10/1GbE	Dual	DAC: up to 5 m SMF: up to 10 km MMF: up to 100 m	SFP28	E810XXVDA2, E810XXVDA2BLK
 E810-XXVDA4T	Standard adapter for high-precision timing synchronization	25/10/GbE	Quad	DAC: up to 5 m SMF: up to 10 km MMF: up to 100 m	SFP28	E810XXVDA4TGG1, E810XXVDA4TG1
 E810-CQDA1, -CQDA2 for OCP 3.0	OCP 3.0 Small form factor	100/50/25/10/1GbE <sup>3</sup>	Single and Dual	DAC: up to 5 m SMF: up to 10 km MMF: up to 100 m	QSFP28	E810CQDA1OCPV3, E810CQDA2OCPV3  Interlock SKUs available on request
 E810-XXVDA2, -XXVDA4 for OCP 3.0	OCP 3.0 Small form factor	25/10/1GbE	Dual and Quad	DAC: up to 5 m SMF: up to 10 km MMF: up to 100 m	SFP28	E810XXVDA2OCPV3, E810XXVDA4OCPV3  Interlock SKUs available on request

<sup>1</sup> EPCT is available on QSFP28 connection-based 100GbE 800 Series Network Adapters.

<sup>2</sup> E810-CAM2 supports up to 8 ports, E810-CAM1 supports up to 4 ports

<sup>3</sup> For 100GbE adapters, 1GbE will be supported in a future release.