Product Brief
Intel® Ethernet 600 Series

Intel® Ethernet Network Adapter E610-IT4 for OCP 3.0

Key Specifications

- OCP NIC 3.0 Small Form Factor
- Backward compatible with multi-speed support for 2.5/1GbE, and 100BASE-TX
- Standard CAT5e/CAT6/CAT6A cabling with 100m reach
- Low power consumption
- Network Virtualization Overlay aware with stateless offload support for VXLAN, GENEVE, and NVGRE
- Intel® Ethernet Flow Director for hardware-based application traffic steering
- Excellent small packet performance for network appliances and Network Functions Virtualization (NFV)
- Device attestation and encrypted BMC communications with secure SPDM

Overview

Simplify technology transitions and optimize performance with the Intel® Ethernet Network Adapter E610-IT4 for OCP 3.0. The E610-IT4 is part of the Intel® Ethernet 600 Series adapters that offer broad interoperability, critical performance optimizations, and increased agility for Communications, Cloud, and Enterprise IT network solutions.

The E610-IT4 supports auto-negotiation between multiple port speeds, providing maximum flexibility in a quad-port configuration. The 600 Series also includes the latest innovations for 2.5GBASE-T and 1GBASE-T connectivity. Advanced security features offer modern standards-based cryptographic security anchored by hardware Root of Trust (RoT), and secure communications via PLDM manageability enhances Ethernet security.

The OCP NIC 3.0 specification defines a standardized design for the latest generation of network adapters. Simple form factors, clear manageability requirements, and improved serviceability help simplify deployment for current and emerging capabilities.

Why Intel® Ethernet

Intel Ethernet E610 Network Adapters offer best-in-class compatibility, performance assurance, and world-class customer support. Key features and technologies deliver outstanding performance and support for servers, network appliances, embedded and edge IoT workloads.

Compatibility and interoperability

- Extensive conformance testing to IEEE and Ethernet Technology Consortium standards
- Comprehensive operating system and hypervisor support
- 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

Worldwide product support

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

All Intel® Ethernet 600 Series Network Adapters include these feature-rich technologies:

Flexible and Scalable I/O for Virtualized Infrastructures

Intel® Virtualization Technology (Intel® VT) delivers outstanding I/O performance in virtualized server environments.

I/O bottlenecks are reduced through intelligent offloads, enabling near-native performance and VM scalability. These offloads include Virtual Machine Device Queues (VMDq) and Flexible Port Partitioning using SR-IOV with a common Virtual Function (VF) driver for networking traffic per Virtual Machine (VM). Host-based features supported include:

VMDq for Emulated Path. VMDQ enables a hypervisor to represent a single network port as multiple network ports that can be assigned to individual VMs. Traffic handling is offloaded to the network controller, delivering the benefits of port partitioning with little or no administrative overhead.

SR-IOV for Direct Assignment. Adapter-based isolation and switching enables optimal CPU usage in virtualized environments.

- Up to 64 VFs per port; each VF can support a unique and separate data path for I/O-related functions within the PCI Express hierarchy.
- SR-IOV, used with a networking device, allows the bandwidth of a single port (function) to be partitioned into smaller slices that can be allocated to specific VMs or guests via a standard interface.

Advanced Traffic Steering

Intel® Ethernet Flow Director (Intel® Ethernet FD) is an advanced traffic steering capability. Large numbers of flow affinity filters direct receive packets by their flows to queues for classification, load balancing, and matching between flows and CPU cores.

Steering traffic into specific queues can eliminate context switching required within the CPU. As a result, Intel® Ethernet FD significantly increases the number of transactions per second and reduces latency for cloud applications like memcached.

Enhanced Network Virtualization Overlays (NVO)

Network virtualization has changed the way networking is done in the data center, delivering accelerations across a wide range of tunneling methods: VxLAN, GENEVE, NVGRE, MPLS, and VxLAN-GPE with NSH Offloads.

These stateless offloads preserve application performance for overlay networks, enabling network traffic to be distributed across CPU cores – increasing network throughput.

Manageability

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

- NC-SI 1.2 protocol compliance. Transport options include NC-SI over RBT and NC-SI over MCTP.
- Secured messages using SPDM over MCTP.
- PLDM over RBT with an extended list of message types, including T4, T5, and T6 over RBT, and MCTP transport.

Modern Standards-based Security

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

- Device attestation in compliance with SPDM 1.1.2 Security Protocol and Data Model.
- 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.

Specifications

General

Connections	RJ45 Copper
RJ45 Copper	100 m using CAT5e, CAT6, or CAT6A

Thermals and Airflow

	Heatsink to Port (0 - 65 °C) Minimum LFM	Port to heatsink (0 - 55 °C) Minimum LFM	Port to heatsink (0 - 45 °C) Minimum LFM
Quad Port	260 LFM	150 LFM	100 LFM

Power Consumption

	Quad Port	
Link Speed / Traffic	Typical Power	Max Power
100 Mbps	5.7 W	6.9 W
1GbE	7.2 W	8.6 W
2.5GbE	7.2 W	8.6 W

Technical Features

Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Storage Humidity	Maximum: 90% non-condensing relative humidity at 35 °C
LED Indicators	LINK (green = 2.5/1Gbps, 100Mbps) ACTIVITY (green = link up/idle; blinking green = port activity)

Intel Regulatory

FCC Class A for World Wide EMC/EMI	Commercial usage
Safety	UL 62368-1 and CAN/CSA C22.2 No. 62368-1-14 - Audio/video, information and communication technology equipment Part 1: Safety requirements European Group Differences and National Differences according to EN 62368-1:2014
RoHS-compliant	Product is compliant with EU RoHS Directive 2 2011/65/EU (Directive 2011/65/EU) and its amendments (e.g. 2015/863/EU)

Adapter Features

Data Rate Supported Per Port	2.5/1Gbps and 100Mbps
Bus Type/Bus Width	Quad-Port: PCIe 4.0 x8 x8 (bifurcated – first 4 lanes of each x8 group)
Interrupt Levels	INTA, MSI, MSI-X
Hardware Certifications	FCC A, cULus, CE, VCCI, BSMI, RCM, KCC, EEE
Controller	Intel® Ethernet Controller E610-IAT2

Physical Dimensions

Dimensions	115 mm x 76 mm (OCP NIC 3.0 Small Form Factor)

Product Order Codes

Configuration	Product Code
Quad Port (Single Pack)	E610IT4OCPV3
Quad Port (Multi Pack)	E610IT4OCP3M5
All SKU's are pull tab	

Supported Operating Systems

For a complete list of supported network operating systems for Intel® Ethernet 600 Series Network Adapters visit: intel.com/support/EthernetOS

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