

# QLogic Ethernet adapter features and specifications

Product features and technical specifications

## QLogic Ethernet adapter features

- The PCIe 3.0 x16 is a low-power, single-chip solution for compliant backplane Ethernet.
- Supports multiple configuration options:
  - Dual-port 50 Gb BASE
  - Quad-port 25 Gb BASE
  - Quad-port 10 Gb BASE applications
- Multiprotocol RDMA with RoCE, RoCE v2, and iWARP
- Networked storage using iSCSI and Fibre Channel over Ethernet (FCoE)
- Virtualization with NIC partitioning (Switch independent NIC partitioning with 16 physical functions and single root I/O virtualization and UFP virtualization)
- L2 network virtualization and tunneling with VXLAN, NVGRE, GRE, and GENEVE
- Next-generation telco deployments with OpenStack, NFV, and DPDK support
- Data Integrity with ECC and byte parity protection, and T-10 CRC



## QLogic Ethernet adapter switch support list

The QLogic Ethernet adapter supports the following switches:

- EN4093R
- CN4093
- SI4091
- SI4093
- NE2552

**Note:** There is a limitation for switch EN4093, CN4093, SI4091, and SI4093. These switches do not support disabling the auto-negotiation mode. The QLogic Ethernet adapter must be set to the auto-negotiation mode to connect to switch EN4093, CN4093, SI4091, and SI4093. This limitation was not addressed for the 10 Gbps mode.

# QLogic Ethernet adapter link status

Port-mode saved configuration	Link
Port INTA1, INTB1, INTA2, INTB2	10 Gb, 10 Gb, 10 Gb, 10 Gb
Port INTA3, INTB3, INTA4, INTB4	25 Gb, 25 Gb, 25 Gb, 25 Gb
Port INTA5, INTB5, INTA6, INTB6	50 Gb, 0 Gb, 50 Gb, 0 Gb
Port INTA7, INTB7, INTA8, INTB8	50 Gb, 0 Gb, 25 Gb, 25 Gb
Port INTA9, INTB9, INTA10, INTB10	25 Gb, 25 Gb, 50 Gb, 0 Gb



## QLogic Ethernet adapter link information

Link	Description
10 Gbps	Sets the port link speed at 10 Gbps (25 Gb and 50 Gb adapters only). FEC is not supported.
25 Gbps	Sets the port link speed at 25 Gbps Reed-Solomon FEC (RS-FEC) is not supported.
50 Gbps	Sets the port link speed at 50 Gbps
SmartAN	SmartAN sets the port link speed to use Smart Auto-Negotiation. SmartAN is a feature in the 45000 Series Adapter that provides the ability to automatically set up a link between the adapter and the switch over DAC or optical media without user intervention or manual setup. The IEEE standards do not provide a standards-based method to auto-negotiate between a 10 Gb switch and a 25 Gb adapter. Cavium's SmartAN provides an automatic and convenient method to detect the switch and to determine and set the link speed, FEC types, media type and length, and so on. Although SmartAN is most useful for connectivity with a 10 Gb switch and for determining the type of transceiver that is inserted in the adapter cage.
Auto-negotiated	Auto-Negotiated is the IEEE Auto-Negotiation defined in the standards. It specifies that dual-port 25 Gb adapters, single or dual-port 50 Gb adapters, and single-port 100 Gb adapters auto-negotiate available speeds and link parameters (FEC, Pause) over DAC connections. (For information about available link speeds and optical connections, see the driver Release Notes.) FEC is negotiated in Auto-Negotiated mode. 10 Gb BASE-T is also auto-negotiated per standards. Auto-Negotiated is the IEEE and Consortium Auto-Negotiation mode for 25 Gb and above DAC link speeds. Auto-Negotiated mode is for DACs only; it does not work on optics (discrete modules or active optical cables).

## QLogic Ethernet adapter Linux drivers

Driver	Description
qed	The qed core driver module directly controls the firmware, handles interrupts, and provides the low-level API for the protocol specific driver set. The qed interfaces with the qede, qedr, qedi, and qedf drivers. The Linux core module manages all PCI device resources (registers, host interface queues, and so on). The qed core module requires Linux kernel version 2.6.32 or later. Testing was concentrated on the x86_64 architecture.
qede	The qede is the Linux Ethernet driver for the 45000 Series Adapter. This driver directly controls the hardware and is responsible for sending and receiving Ethernet packets on behalf of the Linux host networking stack. This driver also receives and processes device interrupts on behalf of itself (for L2 networking). The qede driver requires Linux kernel version 2.6.32 or later. Testing was concentrated on the x86_64 architecture.
qedr	The qedr is the Linux RDMA over converged Ethernet (RoCE) driver. This driver works in the OpenFabrics Enterprise Distribution (OFED™) environment in conjunction with the qed core module and the qede Ethernet driver. RDMA user space applications also require that the libqedr user library is installed on the server.
qedi	The qedi is the Linux iSCSI-Offload driver for the 45000 Series Adapters. This driver works with the Open iSCSI library.
qedf	The qedf is the Linux FCoE-Offload driver for the 45000 Series Adapters. This driver works with Open FCoE library.

# QLogic Ethernet adapter Windows and VMware drivers

Windows driver	Description
QeVBD	Core driver
QeND	Ethernet networking driver
QeOIS	iSCSI-Offload driver
QeFCoE	FCoE-Offload driver
QxDiag	Diagnostics driver

VMware driver	Description
qedentv	Native networking driver
qedrntv	Native RDMA-Offload (RoCE and RoCEv2) driver
qedf	Native FCoE-Offload driver
qedil	Legacy iSCSI-Offload driver

## QLogic Ethernet adapter firmware update

There are two methods used to update the QLogic Ethernet adapter firmware:

- In band firmware update: The user can update the firmware with the OneCLI tool. The user can also update the Linux and Windows firmware with the SUPs file.
- Out-of-band firmware update: The user can update the firmware with the PLDM firmware update function or by using the XCC GUI.



# QLogic Ethernet adapter Thermal specifications

Description	ASIC Power	Operating ambient temp.	Maximum card rated power	Junction temp. (Tj)	Thermal control	Threshold	Approaching velocity (LFM)
ThinkSystem QLogic QL45212 Flex 50 Gb two-port Ethernet adapter	13 W	55°C	19.2 W	93.5°C	PLDM	95°C warning 105°C critical 110°C fatal	185 (LFM)
ThinkSystem QLogic QL45214 Flex 25 Gb four-port Ethernet adapter	13 W	55°C	19.2 W	93.5°C	PLDM	95°C warning 105°C critical 110°C fatal	185 (LFM)
ThinkSystem QLogic QL45262 Flex 50 Gb two-port Ethernet adapter with iSCSI / FCoE	13 W	55°C	19.2 W	93.5°C	PLDM	95°C warning 105°C critical 110°C fatal	185 (LFM)