

NetXtreme® E-Series

OCP NIC 2.0 Ethernet Adapters

Specification Sheet

Key Features

- OCP NIC 2.0-compliant
- Line-rate throughput from 1 Gb/s to 200 Gb/s
- 1-port, 2-port, and 4-port support
- DAC, copper, and fiber connectivity
- PCIe 3.0, PCIe 4.0 host interface
- 25G, 50G PAM-4 SerDes
- TruFlow™-configurable packet processor for virtual switch acceleration
- BroadSAFE® technology provides Silicon Root of Trust, secure boot, and secure key storage
- TruManage™ for cloud-scale manageability
- On-chip tunneling protocol processing for Geneve, VXLAN, and NVGRE
- Multi-host with ECN marking
- Hardware-based low-latency RoCE v1/v2
- SR-IOV up to 1K VFs
- GPUDirect acceleration
- PXE, UEFI network boot
- LSO/LRO/TSO/RSS

Overview

Broadcom® offers a complete Open Compute Project (OCP) NIC 2.0 Ethernet portfolio supporting the full range of speeds and feeds, from 1G to 200G, on one same Small Form Factor (SFF). Broadcom utilizes its highest-performance market-leading silicon solutions for this portfolio, including Thor—the market’s first 200G Ethernet controller.

Broadcom’s NetXtreme E-Series network controller delivers best-in-class performance and hardware acceleration and offload capabilities that result in higher throughput, higher CPU efficiency, and lower workload latency for TCP/IP as well as RoCE traffic.

Broadcom OCP NIC 2.0 Ethernet adapters utilize the NetXtreme market-leading 25G NRZ, 50G PAM-4, and PCIe 4.0 SerDes technology, ensuring seamless interoperability with Broadcom’s market-leading Top-of-Rack switch and PCIe Express switch solutions which also use the same SerDes technology.

Broadcom Ethernet adapters, including the PCIe NIC portfolio, are supported with a full suite of drivers for all major operating system distributions and versions. The latest firmware, drivers, and tools can be downloaded from www.broadcom.com.

Portfolio and Ordering Information

Part Number	Name	Port Speed	I/O	Host I/F	Multihost
BCM957504-M1100G16	M1100G16	1× 100GbE	QSFP28	PCIe 4.0 ×16	No
BCM957414M4143C	M150P	1× 50GbE	QSFP28	PCIe 3.0 ×8	No
BCM957414M4142C	M225p	2× 25GbE	SFP28	PCIe 3.0 ×8	No
BCM957412M4122C	M125p	1× 25GbE	SFP28	PCIe 3.0 ×8	No
BCM957412M4123C	M210p	2× 10GbE	SFP+	PCIe 3.0 ×8	No
BCM957416M4163C	M210TP	2× 10GBASE-T	RJ-45	PCIe 3.0 ×8	No

Product Features

- Media interface
- QSFP56/QSFP28/QSFP+ optical transceiver or copper direct-attach cable
- Supports 50G PAM-4 and 25G NRZ signaling
- Multi-Host up to four hosts
- x16 PCI Express v4.0 compliant
- SR-IOV with up to 1k virtual functions (VFs)
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encap/decap
- vSwitch Acceleration
- Tunnel-aware stateless offloads
- DCB support: PFC, ETS, QCN, DCBx
- RDMA over Converged Ethernet (RoCE)
- Advanced congestion avoidance
- Multiqueue, NetQueue, and VMQ
- IPv4 and IPv6 offloads
- Large send offload (LSO)
- Large receive offload (LRO)
- TCP segmentation offload (TSO)
- Wake-on-LAN (WOL)
- OCP 2.0 FRU Support
- Conforms to the OCP Mezzanine Card Design Specification v2.0 Type 2

M1100G16

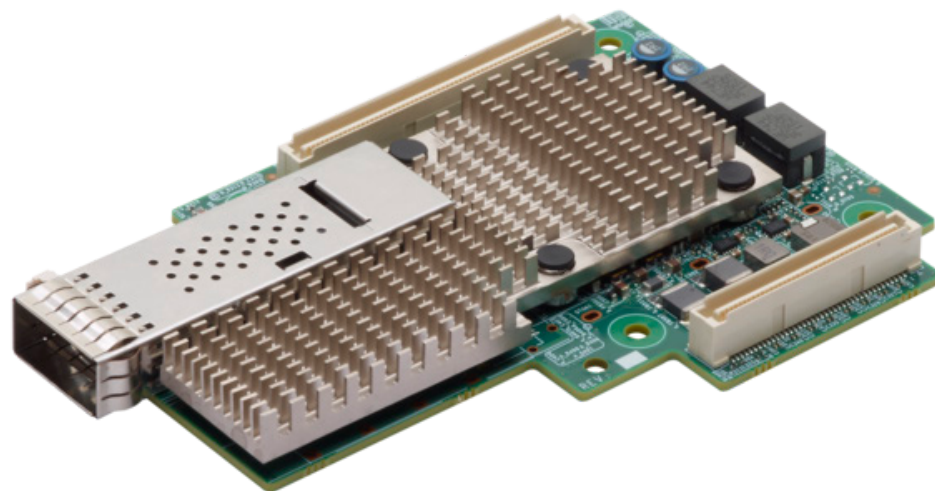
Single-Port 100 Gb/s Ethernet PCI Express 4.0 x16 OCP 2.0 Mezzanine Card

The Broadcom® BCM957504-M1100G16 is a single-port 100 Gb/s PCI Express 4.0 x16 network adapter card designed to the OCP mezzanine card specification with a QSFP56 network connector. The adapter is designed to the OCP Mezzanine v2.0 specification as a Type 2 adapter with the board outline adhering to the original v0.5 dimensions. The adapter supports QSFP56/QSFP28/QSFP+ optical modules and copper direct-attach cables. The card uses the Broadcom BCM57504 100GbE MAC controller with an integrated 100GbE SFI transceiver.

M1100G16 Information

Attribute	Details
Ordering Part No.	BCM957504-M1100G16
Product Description	Single-port 100 Gb/s QSFP56 Ethernet PCI Express 4.0 x16 OCP 2.0 Mezzanine Card; RoHS-compliant
Port Configuration	1x 100GbE, 1x 50GbE, 1x 40GbE, 1x 25GbE, 1x 10GbE
Power	16.3W Typical with Passive DAC at 55°C ambient temperature
Weight	109 grams
Dimensions (in.)	OCP 2.0 Form Factor
Warranty	3 years

Figure 1: M1100G16



Product Features

- Single-port media interface
- 50 Gb/s or 40 Gb/s QSFP28/QSFP+ optical transceiver or with copper direct-attach cable
- x8 PCI Express 3.0 compliant
- SR-IOV with up to 128 virtual functions (VFs)
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encapsulation/decapsulation; Switch acceleration
- Tunnel-aware stateless offloads
- DCB support: PFC, ETS, QCN, DCBx
- TruManage™ integrated BMC
- PCIe-based UART and KCS
- Advanced Congestion Avoidance
- Multiqueue, NetQueue, and VMQ
- IPv4 and IPv6 offloads
- Large Send Offload (LSO)
- Large Receive Offload (LRO)
- TCP Segmentation Offload (TSO)
- Wake-on-LAN (WOL)
- Conforms to the OCP Mezzanine Card Design Specification v2.0 Type 1
- RDMA over Converged Ethernet (RoCE)

M150P

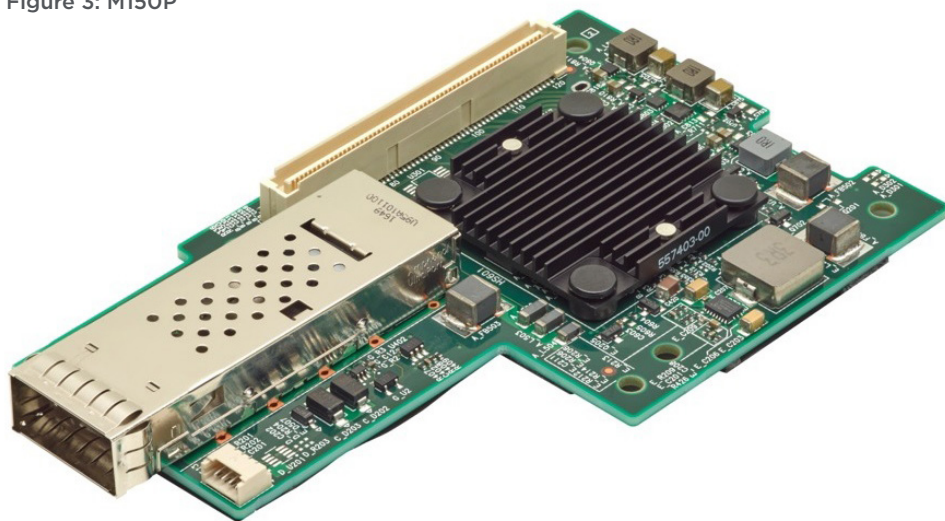
Single-Port 50 Gb/s and 40 Gb/s Ethernet PCI Express 3.0 x8 OCP Mezzanine Card

The Broadcom® BCM957414M4143C is a single-port 50 Gb/s or 40 Gb/s, PCI Express 3.0 x8 Mezzanine Card, designed to the OCP Mezzanine Card specification with a QSFP28 network connector. The adapter is designed to the OCP Mezzanine v2.0 specification as a Type 1 adapter with the board outline adhering to the original v0.5 dimensions. The adapter supports both QSFP28/QSFP+ optical modules and copper direct-attach cables. The card uses the Broadcom BCM57414 50GbE MAC controller with an integrated single-channel 50GbE SFI transceiver.

M150P Information

Attribute	Details
Ordering Part No.	BCM957414M4143C
Product Description	Single-port 50 Gb/s or 40 Gb/s QSFP28 Ethernet x8 PCI Express OCP Mezzanine Card; RoHS-compliant
Port Configuration	1x 50GbE, 1x 40GbE, 1x 25GbE, 1x 10GbE
Power	10.9W Typical with Passive DAC at 55°C ambient temperature
Weight	75 grams
Dimensions (in.)	OCP 2.0 Form Factor
Warranty	3 years

Figure 3: M150P



Product Features

- Dual-port media interface
- 10G SFP+ optical transceiver or with copper direct-attach cable
- x8 PCI Express 3.0 compliant
- SR-IOV with up to 128 virtual functions (VFs)
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encapsulation
- Switch acceleration
- Tunnel-aware stateless offloads
- DCB support: PFC, ETS, QCN, DCBx
- RDMA over Converged Ethernet (RoCE)
- PCIe-based UART and KCS
- Advanced Congestion Avoidance
- Multiqueue, NetQueue, and VMQ
- IPv4 and IPv6 offloads
- Large Send Offload (LSO)
- Large Receive Offload (LRO)
- TCP Segmentation Offload (TSO)
- Wake-on-LAN (WOL)
- Conforms to the OCP Mezzanine Card Design Specification v2.0 Type 1

M225p

Dual-Port 25 Gb/s or 10 Gb/s Ethernet PCI Express 3.0 x8 OCP Mezzanine Card

The Broadcom BCM957414M4142C is a dual-port 25 Gb/s or 10 Gb/s PCI Express 3.0 x8 Mezzanine Card designed to the OCP Mezzanine Card specification with a SFP+ network connector. The adapter is designed to the OCP Mezzanine v2.0 specification as a Type 1 adapter, with the board outline adhering to a form factor called out in v0.5 of the specification. The adapter supports SFP+ optical modules and copper direct-attach cables. The card uses the Broadcom BCM57414 25GbE MAC controller with an integrated dual-channel 10GbE SFI transceiver.

M225p Information

Attribute	Details
Ordering Part No.	BCM957414M4142C
Product Description	Dual-Port 25 Gb/s or 10 Gb/s Ethernet PCI Express 3.0 x8 OCP Mezzanine Card; RoHS-compliant
Port Configuration	2x 25GbE, 2x 10GbE
Power	10.9W Typical with Passive DAC at 55°C ambient temperature
Weight	75 grams
Dimensions (in.)	OCP 2.0 Form Factor
Warranty	3 years

Figure 5: M225p



Product Features

- Single-port media interface
- 25GbE or 10G SFP28/SFP+ optical transceiver or with copper direct-attach cable
- x8 PCI Express 3.0 compliant
- SR-IOV with up to 128 virtual functions (VFs)
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encap/decap
- Switch acceleration
- Tunnel-aware stateless offloads
- DCB support: PFC, ETS, QCN, DCBx
- RDMA over Converged Ethernet (RoCE)
- PCIe-based UART and KCS
- Advanced Congestion Avoidance
- Multiqueue, NetQueue, and VMQ
- IPv4 and IPv6 offloads
- TCP, UDP, and IP checksum offloads
- Large Send Offload (LSO)
- Large Receive Offload (LRO)
- Wake-on-LAN (WOL)
- Conforms to the OCP Mezzanine Card Design Specification v2.0 Type 1.

M125p

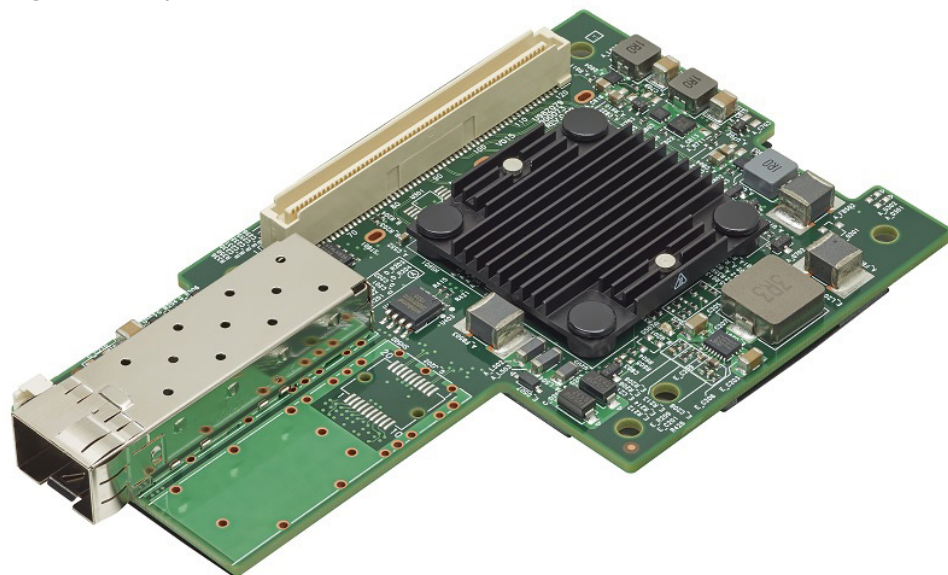
Single-Port 25 Gb/s or 10 Gb/s Ethernet PCI Express 3.0 x8 OCP Mezzanine Card

The Broadcom® BCM957412M4122C is a single-port 25 Gb/s or 10 Gb/s PCI Express 3.0 x8 Mezzanine Card designed to the OCP Mezzanine Card specification with a SFP28 network connector. The adapter is designed to the OCP Mezzanine v2.0 specification as a Type 1 adapter, with the board outline adhering to a form factor called out in v0.5 of the specification. The adapter supports both SFP28/SFP+ optical modules and copper direct-attach cables. The card uses the Broadcom BCM57412 25GbE MAC controller with an integrated single-channel 25GbE SFI transceiver.

M125p Information

Attribute	Details
Ordering Part No.	BCM957412M4122C
Product Description	Single-Port 25 Gb/s or 10 Gb/s Ethernet x8 PCI Express OCP Mezzanine Card; RoHS-compliant
Port Configuration	1x 25GbE, 1x 10GbE
Power	8.0W Typical with Passive DAC at 55°C ambient temperature
Weight	75 grams
Dimensions (in.)	OCP 2.0 Form Factor
Warranty	3 years

Figure 6: M125p



Product Features

- Dual-port media interface
- 10G SFP+ optical transceiver or with a copper direct-attach cable
- x8 PCI Express 3.0 compliant
- SR-IOV with up to 128 virtual functions (VFs)
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encaps/decap
- Switch acceleration
- PCIe-based UART and KCS
- Advanced Congestion Avoidance
- Multiqueue, NetQueue, and VMQ
- IPv4 and IPv6 offloads
- TCP, UDP, and IP checksum offloads
- Large Send Offload (LSO)
- Large Receive Offload (LRO)
- Wake-on-LAN (WOL)
- Conforms to the OCP Mezzanine Card Design Specification v2.0 Type 1

M210p

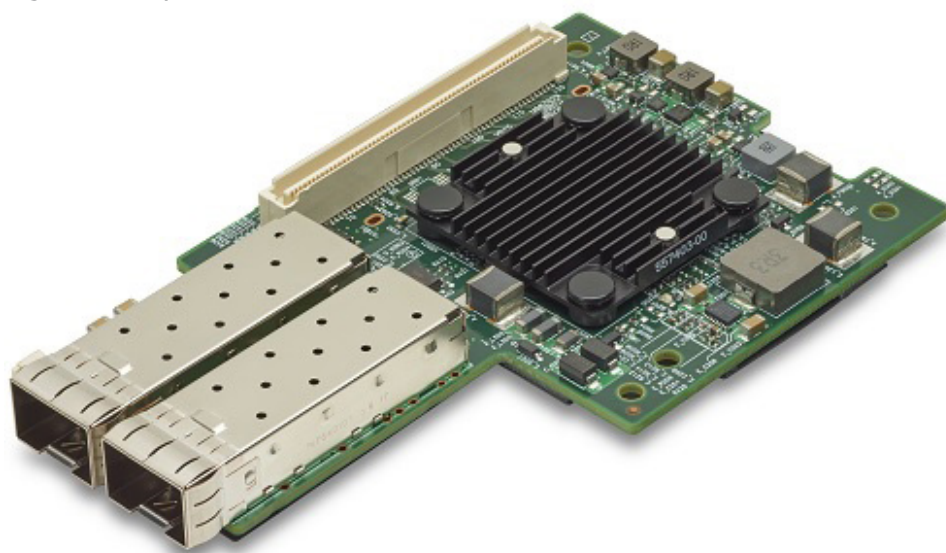
Dual-Port 10 Gb/s Ethernet PCI Express 3.0 x8 OCP Mezzanine Card

The Broadcom® BCM957412M4123C is a dual-port 10 Gb/s PCI Express 3.0 x8 Mezzanine Card designed to the OCP Mezzanine Card specification with a SFP+ network connector. The adapter is designed to the OCP Mezzanine v2.0 specification as a Type 1 adapter, with the board outline adhering to a form factor called out in v0.5 of the specification. The adapter supports SFP+ optical modules and copper direct-attach cables. The card uses the Broadcom BCM57412 MAC controller with an integrated dual-channel 10GbE SFI transceiver.

M210p Information

Attribute	Details
Ordering Part No.	BCM957412M4123C
Product Description	Dual-Port 10 Gb/s Ethernet PCI Express 3.0 x8 OCP Mezzanine Card; Halogen-Free
Port Configuration	2x 10GbE
Power	8.1W Typical with Passive DAC at 55°C ambient temperature
Weight	75 grams
Dimensions (in.)	OCP 2.0 Form Factor
Warranty	3 years

Figure 7: M210p



Product Features

- Dual-port 10-Gigabit Ethernet: 10GBASE-T IEEE 802.3an, 1000BASE-T IEEE 802.3ab
- x8 PCI Express 3.0 compliant
- RDMA over Converged Ethernet (RoCE)
- SR-IOV with up to 128 virtual functions (VFs)
- Function-Level Reset (FLR) support
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encaps/decap
- Switch acceleration
- MCTP over SMBus
- PCIe-based UART and KCS
- Jumbo frames up to 9 KB
- Advanced Congestion Avoidance
- Multiqueue, NetQueue, and VMQ
- IPv4 and IPv6 offloads
- Large Send Offload (LSO)
- Large Receive Offload (LRO)
- TCP Segmentation Offload (TSO)
- Wake-on-LAN (WOL)
- Conforms to the OCP Mezzanine Card Design Specification v2.0 Type 1

M210TP

Dual-Port 10GBASE-T Ethernet PCI Express 3.0 x8 OCP Mezzanine Card

The Broadcom® BCM957416M4163C is a dual-port 10GBASE-T PCI Express 3.0 x8 Mezzanine Card designed to the OCP mezzanine card that supports a dual-port 10GBASE-T media interface that is fully compliant with the IEEE 802.3an standard. The adapter is designed to the OCP Mezzanine v2.0 specification as a Type 1 adapter, with the board outline adhering to a form factor called out in v0.5 of the specification. The adapter uses the Broadcom BCM57416 Ethernet controller with an integrated dual-channel 10GBASE-T transceiver.

M210TP Information

Attribute	Details
Ordering Part No.	BCM957416M4163C
Product Description	Dual-Port 10GBASE-T Ethernet PCI Express 3.0 x8 OCP Mezzanine Card; Halogen-Free
Port Configuration	2x 10GBASE-T
Power	15.5W Typical with 10GBASE-T Network Cable at 55°C ambient temperature
Weight	80 grams
Dimensions (in.)	OCP 2.0 Form Factor
Warranty	3 years

Figure 8: M210TP

