BROADCOM®

Product Brief

NetXtreme® E-Series
PCIe NIC Ethernet Adapters Specification Sheet

Overview

Broadcom® offers a complete PCIe NIC 3.0 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 PCIe NIC 3.0 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.

Key Features

- PCIe NIC 3.0-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

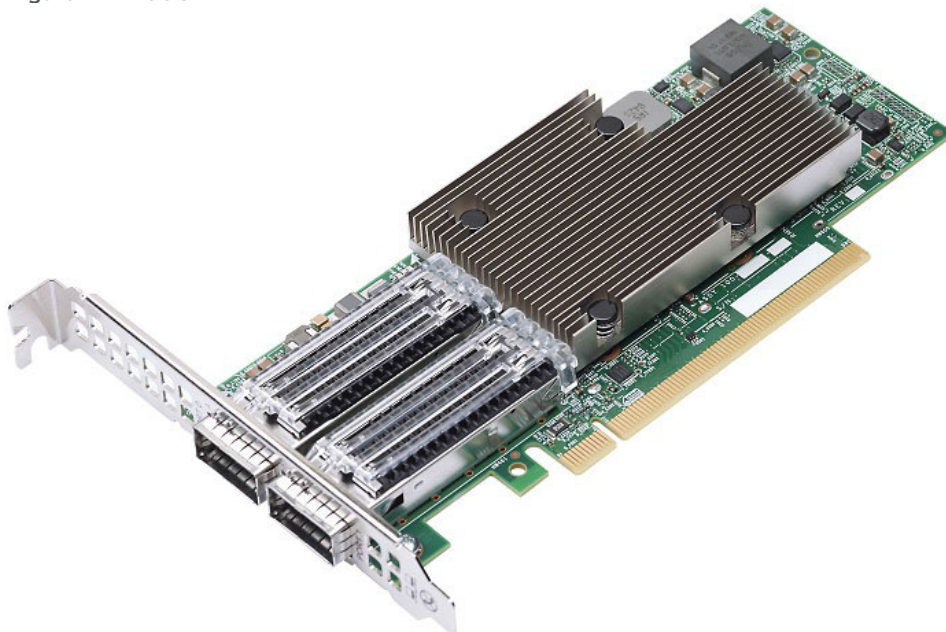| Portfolio and Ordering Information					
Part Number	Name	Port Speed	I/O	Host I/F	Multihost
BCM957508-P2200G	P2200G	2× 200GbE	QSFP56	PCIe 4.0 ×16	Yes
BCM957508-P2100G	P2100G	2× 100GbE	QSFP56	PCIe 4.0 ×16	Yes
BCM957454A4540C	P1100p	1× 100GbE	QSFP28	PCIe 3.0 ×16	No
BCM957414A4140C	P150p	1× 50GbE	QSFP28	PCIe 3.0 ×8	No
BCM957504-P425G	P425G	4× 25GbE	SFP28	PCIe 4.0 ×16	Yes
BCM957414A4142CC	P225p	2× 25GbE/10GbE	SFP28	PCIe 3.0 ×8	No
BCM957412A4120AC	P210p	2× 10GbE	SFP+	PCIe 3.0 ×8	No
BCM957416A4160C	P210TP	2× 10GbE	RJ-45	PCIe 3.0 ×8	No

P2200G

Dual-Port 200 Gb/s with 400 Gb/s High-Availability Connectivity QSFP56 Ethernet PCI Express 4.0 x16 Network Interface Card

The Broadcom BCM957508-P2200G is a dual-port 200 Gb/s with 400 Gb/s connectivity PCI Express 4.0 x16 Network Interface Card that supports QSFP56/QSFP28 optical modules and copper direct-attach cables. The card uses the Broadcom BCM57508 200GbE MAC controller with an integrated dual-channel 200GbE SFI transceiver. 200 Gb/s Ethernet includes 400 Gb/s network connectivity for high-availability features and flexible port configurations including 2× 100GbE and 2× 200GbE, eliminating throughput bottlenecks for data-intensive applications.

Product Features

- Dual-port media interface
- QSFP56/QSFP28 optical transceiver or copper direct-attach cable
- Multi-host support: Dual-host x8 mode
- x16 PCI Express 4.0 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)

P2200G Information	
Attribute	**Details**
Ordering Part No.	BCM957508-P2200G
Product Description	Dual-Port 200 Gb/s QSFP56 Ethernet PCI Express 4.0 ×16 Network Interface Card
Port Configuration	2× 100GbE/50GbE/25GbE/10GbE and 2× 200GbE (failover)
Power	19.8W (typical)
Airflow Requirements	450 LFM at 55°C
Weight	167 grams
Dimensions (in.)	PCIe NIC Form Factor
Warranty	3 years

Figure 1: P2200G

Product Features

- Dual-port media interface
- QSFP56/QSFP28 optical transceiver or copper direct-attach cable
- Multi-host support: Dual-host x8 mode
- x16 PCI Express 4.0 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)

P2100G

Dual-Port 100 Gb/s QSFP56 Ethernet PCI Express 4.0 x16 Network Interface Card

The Broadcom BCM957508-P2100G is a dual-port 100 Gb/s PCI Express 4.0 x16 Network Interface Card that supports QSFP56/QSFP28 optical modules and copper direct-attach cables. The card uses the Broadcom BCM57508 200GbE MAC controller with an integrated dual-channel 100GbE SFI transceiver.

P2100G Information	
Attribute	**Details**
Ordering Part No.	BCM957508-P2100G
Product Description	Dual-Port 100 Gb/s QSFP56 Ethernet PCI Express 4.0 ×16 Network Interface Card
Port Configuration	2× 100GbE, 2× 50GbE, 2× 25GbE, 2× 10GbE
Power	19.3W (typical)
Airflow Requirements	400 LFM at 55°C
Weight	167 grams
Dimensions (in.)	PCIe NIC Form Factor
Warranty	3 years

Figure 2: P2100G

Product Features

- Single-port media interface
- 100 Gb/s or 40 Gb/s QSFP28/ QSFP+ optical transceiver or with copper direct-attach cable
- 16-lane PCI Express host interface designed to operate to the PCI Express v3.0 specifications
- 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
- TruManage™ integrated BMC
- 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)
- MSI and MSI.X
- Conforms to the PCI Express Card Electromechanical Specification Rev. 3.0
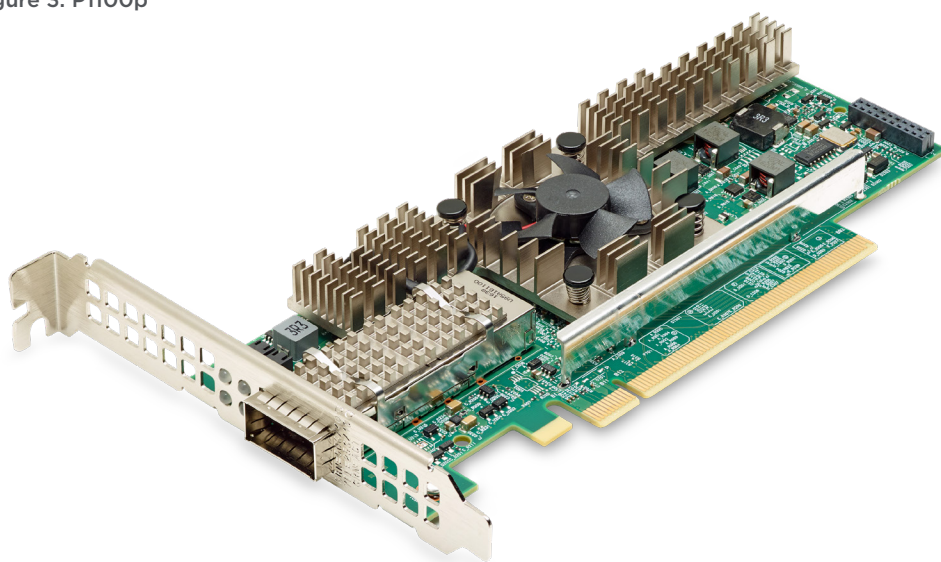
P1100p

Single-Port 1/10/25/40/50/100 Gb/s Ethernet PCI Express 3.0 x16 Network Interface Card

The Broadcom® BCM957454A4540C is a single-port 1/10/25/40/50/ 100 Gb/s adapter that supports both QSFP28/QSFP+ optical modules and copper direct-attach cable. The card uses the Broadcom BCM57454 100 Gb/s Ethernet LAN controller targeted at Public, Private Cloud, and specifically, Big Data, and Multitenant applications. The BCM57454 supports single-port 1/10/25/40/50/100 Gb/s, Dual-Port 1/10/25/50 Gb/s, and Quad-Port 1/10/25 Gb/s Ethernet speeds. The device includes a FalconCore, providing a 4-lane Multi- Rate SerDes (MRS) transceiver. It is focused on providing high performance, low latency, and value-added features for end-to-end solutions using Broadcom switches and controllers.

P1100p Information	
Attribute	**Details**
Ordering Part No.	BCM957454A4540C
Product Description	Single-Port 100 Gb/s QSFP28/QSFP+ Ethernet PCI Express 3.0 ×16 Network Interface Card; RoHS-compliant
Port Configuration	1× 100GbE, 1× 50GbE, 1× 40GbE, 1× 25GbE, 1× 10GbE, 1× 1GbE
Power	16.44W Fiber and 13.16W DAC
Airflow Requirements	100 LFM
Weight	150 grams
Dimensions (in.)	PCIe NIC Form Factor
Warranty	3 years

Figure 3: P1100p

Product Features

- Single-port media interface
- 50GbE or 40G QSFP28/QSFP+ optical transceiver or with copper direct-attach cable
- x8 PCI Express v3.0 compliant
- SR-IOV with up to 128 VFs
- Function Level Reset (FLR) support
- 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)
- Conforms to the PCI Express Card Electromechanical Specification Rev. 3.0
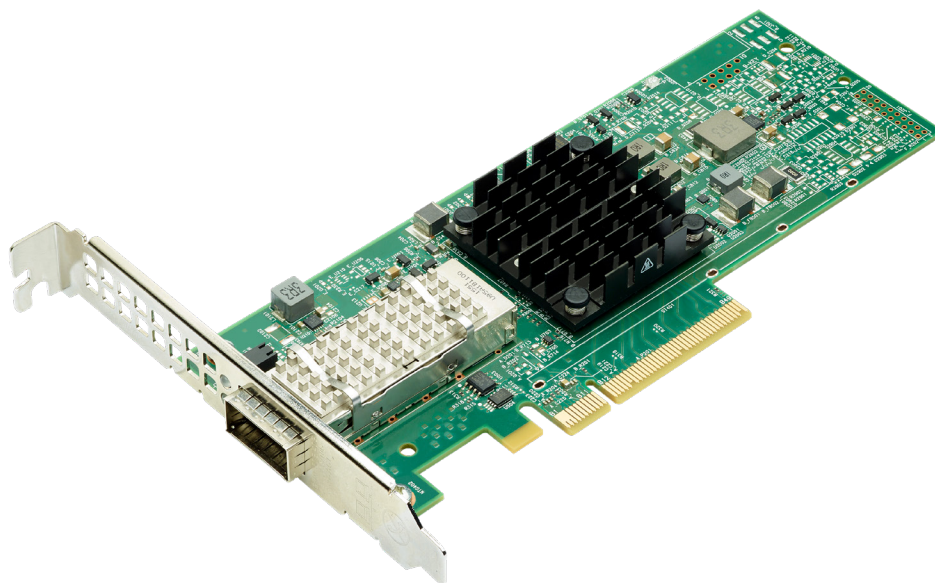
P150p

Single-Port 50 Gb/s or 40 Gb/s Ethernet PCI Express 3.0 x8 Network Interface Card

The Broadcom® BCM957414A4140C is a single-port 50 Gb/s or 40 Gb/s, PCI-Express 3.0 x8 Network Interface Card (NIC) that supports both QSFP28/QSFP+ optical modules and copper direct-attach cable. The card uses the Broadcom BCM57414 50GbE MAC controller with the integrated single-channel 50GbE SFI transceiver.

P150p Information	
Attribute	**Details**
Ordering Part No.	BCM957414A4140C
Product Description	Single-Port 50 Gb/s or 40 Gb/s QSFP28/QSFP+ Ethernet PCI Express Network Interface Card; RoHS-compliant
Port Configuration	1× 50GbE, 1× 40GbE, 1× 25GbE, 1× 10GbE, 1× 1GbE
Power	9.9W
Airflow Requirements	100 LFM at 55°C
Weight	78 grams
Dimensions (in.)	PCIe NIC Form Factor
Warranty	3 years

Figure 4: P150p

Product Features

- Quad-port media interface
- SFP28/SFP+ optical transceiver or copper direct-attach cable
- BroadSAFE® technology
- Multi-host support: Dual-host x8 mode
- x16 PCI Express 4.0 compliant
- SR-IOV with up to 1k virtual functions (VFs)
- Function-Level Reset (FLR) support
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encap/decap
- vSwitch Acceleration
- Tunnel-aware stateless offloads
- RDMA over Converged Ethernet (RoCE)
- Advanced congestion avoidance
- Multiqueue, NetQueue, and VMQ
- IPv4 and IPv6 offloads
- Large send offload (LSO)
- Large receive offload (LRO)
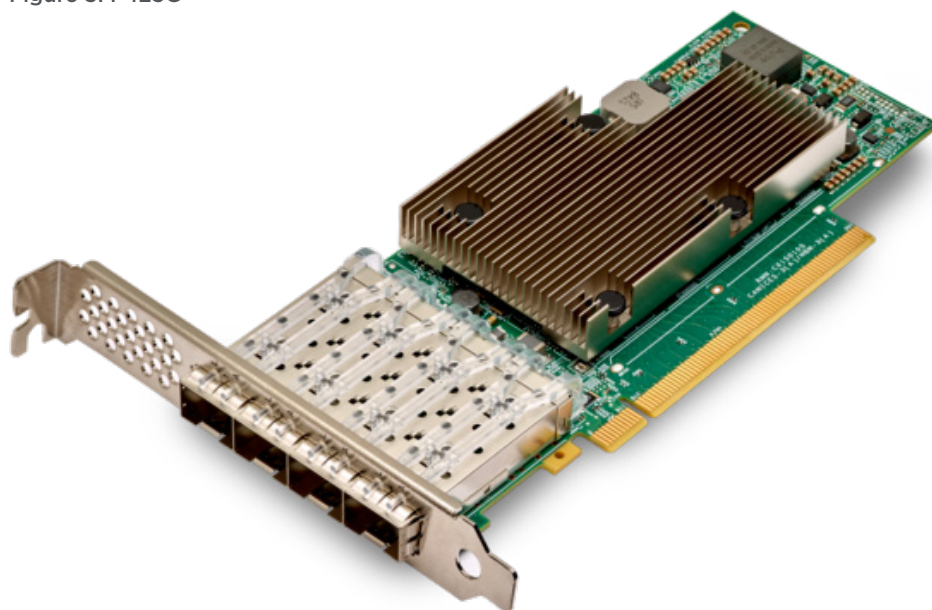- TCP segmentation offload (TSO)

P425G

Quad-Port 25 Gb/s SFP28 Ethernet PCI Express 4.0 x16 Network Interface Card

The Broadcom BCM957504-P425G is a quad-port 25 Gb/s PCI Express 4.0 x16 network interface card that supports SFP28/SFP+ optical modules and copper direct-attach cables. The card uses the Broadcom BCM57504 100GbE MAC controller with an integrated quad-channel 25GbE SFI transceiver.

P425G Information	
Attribute	**Details**
Ordering Part No.	BCM957504-P425G
Product Description	Quad-Port 25 Gb/s SFP28 Ethernet PCI Express 4.0 ×16 Network Interface Card, Halogen-Free
Port Configuration	4× 25GbE, 4× 10GbE
Power	16.9W (typical)
Airflow Requirements	225 LFM at 55°C
Weight	160 grams
Dimensions (in.)	PCIe NIC Form factor
Warranty	3 years

Figure 5: P425G

Product Features

- Dual-port media interface
- 25GbE or 10GbE SFP28/SFP+ optical transceiver or with copper direct-attach cable
- x8 PCI Express v3.0 compliant
- SR-IOV with up to 128 VFs
- Function Level Reset (FLR) support
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encap/decap
- vSwitch acceleration
- Tunnel-aware stateless offloads
- 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)
- Conforms to the PCI Express Card Electromechanical Specification Rev. 3.0

P225p

Dual-Port 25 Gb/s or 10 Gb/s Ethernet PCI Express 3.0 x8 Network Interface Card

The Broadcom® BCM957414A4142CC is a dual-port 25 Gb/s or 10 Gb/s, PCI-Express 3.0 x8 Network Interface Card that supports both SFP28/SFP+ optical modules and copper-direct attach cable. The card uses the Broadcom BCM57414 25GbE MAC controller with the integrated dual-channel 25GbE SFI transceiver.

P225p Information	
Attribute	**Details**
Ordering Part No.	BCM957414A4142CC
Product Description	Dual-Port 25 Gb/s or 10 Gb/s SPF28 Ethernet PCI Express Network Interface Card; RoHS-compliant
Port Configuration	2× 25GbE, 2× 10GbE, 2× 1GbE
Power	9.9W (typical)
Airflow Requirements	100 LFM at 55°C
Weight	75 grams
Dimensions (in.)	PCIe NIC Form Factor
Warranty	3 years

Figure 6: P225p

Product Features

- Dual-port media interface
- 10G SFP+ optical transceiver or with copper direct-attach cable
- x8 PCI Express v3.0 compliant
- SR-IOV with up to 128 VFs
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, GRE encap/decap
- vSwitch acceleration
- Tunnel-aware stateless offloads
- 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)
- Conforms to the PCI Express Card Electromechanical Specification Rev. 3.0
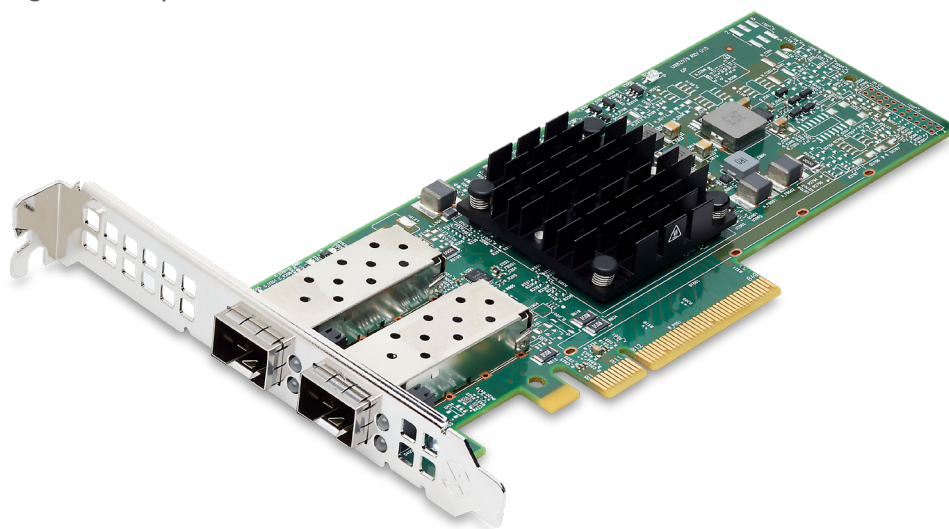
P210p

Dual-Port 10 Gb/s Ethernet PCI Express 3.0 x8 Network Interface Card

The Broadcom® BCM957412A4120AC is a dual-port 10 Gb/s, PCI-Express 3.0 x8 Network Interface Card that supports both SFP+ optical modules and copper direct-attach cable. The card uses the Broadcom BCM57412 10GbE MAC controller with the integrated dual-channel 10GbE SFI transceiver.

P210p Information	
Attribute	Details
Ordering Part No.	BCM957412A4120AC
Product Description	Dual-Port 10 Gb/s SFP+ Ethernet PCI Express Network Interface Card; Halogen-Free
Port Configuration	2× 10GbE, 2× 1GbE
Power	9.1W (typical)
Airflow Requirements	100 LFM at 55°C
Weight	75 grams
Dimensions (in.)	PCIe NIC Form Factor
Warranty	3 years

Figure 9: P210p

Product Features

- Dual-port 10-Gigabit Ethernet
- x8 PCI Express v3.0 compliant
- SR-IOV with up to 128 VFs
- TruFlow™ flow processing engine
- Virtual Network Termination: VXLAN, NVGRE, Geneve, GRE encap/decap
- vSwitch acceleration
- Tunnel-aware stateless offloads
- 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)
- Conforms to the PCI Express Card Electromechanical Specification Rev. 3.0

P210TP

Dual-Port 10GBASE-T Ethernet PCI Express 3.0 x8 Network Interface Card

The Broadcom® BCM957416A4160C is a dual-port 10GBASE-T, PCI-Express 3.0 x8 Network Interface Card that supports a dual-port 10GBASE-T media interface that is fully compliant with the IEEE 802.3an standard. The card uses the Broadcom BCM57416 Ethernet controller with the integrated dual-channel 10GBASE-T transceiver.

P210TP Information	
Attribute	Details
Ordering Part No.	BCM957416A4160C
Product Description	Dual-Port 10GBASE-T Ethernet PCI Express Network Interface Card; RoHS compliant
Port Configuration	2× 10GBASE-T, 2× 1GBASE-T
Power	16.1W (typical)
Airflow Requirements	100 LFM at 55°C
Weight	75 grams
Dimensions (in.)	PCIe NIC Form Factor
Warranty	3 years

Figure 10: P210TP