

Broadcom® 25G PCIe NIC

Dual-Port 25G Ethernet



Key Features

- Standards-compliant PCIe 3.0 NICs with line-rate, full-duplex throughput
- Flexible, power-efficient 10GbE and 25GbE solutions
- Dual-port 10/25G SFP28 connectivity
- Line-rate bidirectional throughput on all ports
- TruFlow™ Flow Accelerator—programmable packet processing in hardware boosts application performance
- CNSA 1.0 ensures strong secure boot, secure firmware update, and advanced security for secured NIC configuration and data communication
- High performance and low latency across full range of frame sizes
- Support for Data Plane Developer Kit (DPDK) framework
- Single Root I/O virtualization (SR-IOV) with function level reset (FLR) support

High-Performance, Industry's Most-Secure Feature-Rich PCIe Ethernet Adapters for Dell PowerEdge Servers

Overview

The Broadcom® dual-port 10G and 25G PCIe Ethernet adapters for Dell PowerEdge servers are based on Broadcom BCM57414 Ethernet controller technology. This full portfolio of high-performance PCIe NIC Ethernet network adapters extends Broadcom's long-standing Ethernet industry leadership into Dell's PowerEdge servers.

As application workloads and virtualization technologies drive increased demands on server performance, network performance requirements scale accordingly. This growth demands a new breed of Ethernet connectivity solutions. Broadcom PCIe NICs in Dell's PowerEdge servers deliver high throughput, low latency, and key features to enable optimal performance for a variety of workloads.

Whether in a native bare-metal platform or in a virtualized environment, Broadcom PCIe NICs are designed to deliver the networking performance and flexibility needed to ensure optimal application performance. Features such as SR-IOV with 128 virtual functions (VFs) and VMQ hardware support give IT administrators the tools to address any networking challenge.

Broadcom PCIe NICs help IT organizations control cost of ownership by keeping the cost of management and power to a minimum. Integrated support for Dell's embedded management framework—integrated Dell Remote Access (iDRAC) with Lifecycle controller; ensures that deployment and management are as simple as possible. To keep power consumption to a best-in-class minimum, the Broadcom PCIe Ethernet NIC takes advantage of cutting-edge architectural and physical design features, such as optimized hardware state machines and adaptive voltage scaling (AVS).

Figure 1: 2×25G PCIe Ethernet Network Adapter



Key Features (cont.)

- Tunnel-aware stateless offloads for VXLAN, NVGRE, Geneve
- NPAR EP support for up to 16 physical functions (PFs)
- Reliability and interoperability assured by Broadcom's market-proven Ethernet expertise

Applications

- High-performance computing
- Cloud data center servers
- Network function virtualization
- NVMe storage disaggregation
- Software defined networking
- Traditional enterprise data centers
- Machine learning
- Mobile edge computing and telco
- Storage servers

BCM57414 NIC Features

- Dual-port 10/25GbE SFP28
- x8 PCI Express v3.0 compliant host interface
- PCI Express CEM Specification compliant
- Low power consumption using adaptive voltage scaling (AVS)
- NIC partitioning (NPAR) for up to 16 physical functions (PFs)
- CNSA 1.0 compliant (SHA-512)
- Meets FIPS 140-3 requirements
- Silicon-based Root of Trust (RoT) enables secure boot and firmware updates
- Attestation (SPDM)
- Single Root I/O virtualization (SR-IOV): 128 VF with flexible assignment
- Function level reset (FLR) support
- VXLAN and NVGRE encapsulation and decapsulation
- MCTP over SMBus, and MCTP over PCIe VDM
- Jumbo frames (up to 9600 bytes)
- VMQ support
- IPv4 and IPv6 offloads
- TCP, UDP, and IP checksum offloads
- Large send offload (LSO)
- Large receive offload (LRO)
- TCP segmentation offload (TSO)
- Receive-side scaling (RSS)
- Transmit-side scaling (TSS)
- Interrupt coalescing
- Network boot: iPXE, UEFI PXE
- MSI and MSI-X
- IEEE 802.1q VLAN insertion/removal
- IEEE 802.3x flow control
- IEEE 802.3ad link aggregation
- IEEE 1588v2 precision time protocol

Specifications

General	
Item	Support
Form Factor	PCIe low profile, half length
Host Interface	x8 PCI Express 3.0; Link rates of 8, 5, 2.5 GT/s
Network Interface	SFF-8402 interface, supports 25-Gb or 10-Gb direct-attach copper (DAC) or optical transceivers
Controller ASICs	BCM57414
OS Support	
Item	Support
Microsoft	Windows Server 2025, 2022
Linux	Red Hat Enterprise Linux, SUSE Linux Enterprise Server, Ubuntu
VMware	vSphere ESXi
Management	
Item	Support
Broadcom	Diagnostics (UEFI, Linux)
Dell	Embedded Management Framework (iDRAC and Lifecycle Controller)

Specifications (cont.)

Environmental Requirements				
Parameter		Condition		
Storage Humidity		10% to 90% RH, non-condensing		
Storage Temperature		−40°C to +70°C		
Operating Temperature		0°C to +55°C		
Electromagnetic Compatibility (EMC) and Electrostatic Discharge (ESD) Compliance				
Standard/Country		Certification Type	Compliance	
CE/EU		EN 55032:2015 +A11:2020, Class A EN55035:2017 +A11:2020 EN 61000-3-2:2014 EN 61000-3-3:2013	CE report and CE DoC	
FCC/USA		CFR47 Part 15 Subpart B Class A	FCC SDoC and EMC report referencing FCC standards	
IC/Canada		ICES-003 Issue7, Class A	Report referencing IC standards	
ACA/Australia, New Zealand		AS/NZS CISPR 32:2015, Class A	ACA certificate	
BSM/Taiwan		CNS 15936:2016	BSMI certificate	
BSMI/Taiwan		CNS 15663	BSMI certificate/RoHS table	
KC/South Korea		KN32 Class A KN35	Korea certificate KC mark R-R-BCM-CX150164	
VCCI/Japan		VCCI-CISPR 32:2016	Copy of VCCI online certificate	
ESD/EN55035 (EN 61000-4-2)		Air/Direct Discharge		
Regulatory and Safety Certifications				
Item		Standard	Approval/Certificate	
CE/European Union		EN IEC 62368-1:2020 +A11:2020 IEC 62368-1:2018 (Ed3)	CB report and certificate	
UL/USA		IEC 62368-1 (ED. 2)	CB report and certificate	
Safety		CB Scheme, UL 1977 (connector safety) UL 796 (PCB wiring safety) UL 94 (flammability of parts) CSA C22.2 No. 62368-1-19, 3rd Ed		
Channel Part Number Mapping				
Dell Orderable Broadcom Part Number		Broadcom Equivalent Channel Part Number		
BCM957414-P225DF0S, BCM957414-P225DL0S		BCM957414-P225GF0S		
Ordering Information				
Configuration		Broadcom Part Number	Dell SKU	Customer Kit SKU
Dual-Port 25/10G SFP28 (full height)		BCM957414-P225DF0S	540-BFXP	540-BFXQ
Dual-Port 25/10G SFP28 (low profile)		BCM957414-P225DL0S	540-BFXN	540-BFXR