

Product Brief

NetXtreme® E-Series

Quad-Port 25G PCIe Ethernet Network Adapter

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

Overview

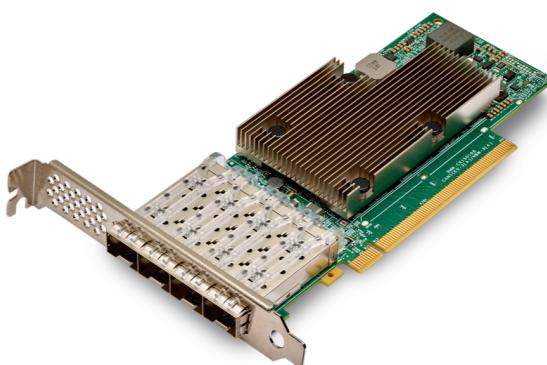
The Broadcom® quad-port 25 GbE PCIe Ethernet network adapters for Dell PowerEdge servers are based on Broadcom's NetXtreme E-Series BCM57504 Thor Ethernet controller technology. Broadcom's full portfolio of high-performance PCIe Ethernet network adapters, including the quad-port 25 GbE adapter, extends 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 NetXtreme E-Series adapters 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, NetXtreme-E Series solutions are designed to deliver the networking performance and flexibility needed to ensure optimal application performance. Features such as SR-IOV with 256 Virtual Functions (VFs) and VMQ hardware support give IT administrators the tools to address any networking challenge.

NetXtreme E-Series adapters 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 Controller (iDRAC) with Lifecycle Controller; ensures that deployment and management are as simple as possible. To achieve the lowest power possible, the NetXtreme E-Series adapters take advantage of cutting-edge architectural and physical design features, such as optimized hardware state machines and Adaptive Voltage Scaling (AVS).

4 x 25G SFP28 PCIe Ethernet Network Adapter



Key Features

- PCI SIG compliant
- x16 PCI Express v4.0
- Flexible, power-efficient 25 GbE solution
- Quad-port 25 Gb SFP28 connectivity
- Line-rate bidirectional concurrent throughput on all ports
- TruFlow™ Flow Accelerator—programmable packet processing in hardware boosts application performance
- High performance and low latency across full range of frame sizes
- Support for Data Plane Developer Kit (DPDK) framework
- Low-latency for RDMA over Converged Ethernet (RoCE) v2
- Single Root I/O Virtualization (SR-IOV) with Function Level Reset (FLR) support
- TruManage™ for enterprise-scale manageability
- BroadSAFE® technology provides Silicon Root of Trust, secure boot, secure firmware, and secure key storage

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

- Network Functions Virtualization (NFV)
- Software Defined Networking (SDN)
- Enterprise and Cloud Storage
- High-Performance Computing
- Machine Learning

NetXtreme® E-Series Features

- Quad-port 25 GbE SFP28
- x16 PCI Express v4.0 compliant host interface
- PCI Express CEM Specification 4.0 compliant
- Low-power consumption using Adaptive Voltage Scaling (AVS)
- RDMA over Converged Ethernet (RoCE) v2
- NIC Partitioning (NPAR) for up to 16 Physical Functions (PFs)
- Silicon-based Root of Trust enables Secure Firmware for best-in-class security
- Single Root I/O Virtualization (SR-IOV) - 256 VF with flexible assignment
- Function Level Reset (FLR) support
- VXLAN and NVGRE encapsulation and decapsulation
- MCTP over SMBus or 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: PXE, UEFI
- MSI and MSI-X
- IEEE 802.1q—VLAN insertion/removal
- IEEE 802.3x—Flow control
- IEEE 802.3ad—Link aggregation
- IEEE 1588—Precision Time Protocol
- IEEE 802.1AS—Timing and Synchronization

Specifications

General	
Item	Support
Form factor	PCIe Electromechanical (CEM) Add-In Card
Host interface	x16 PCI Express v4.0 (16GT/s), v3.0 (8GT/s), and v2.1 (5GT/s)
Network interface (25Gb SFP28)	SFF-8402 interface, supports 25-Gb or 10Gb direct-attach copper (DAC) or optical transceivers
Controller ASIC	BCM57504 (100 Gb SFP28)
OS Support	
Item	Support
Microsoft	Windows Server 2022, Windows Server 2019, Windows Server 2016
Linux	Red Hat Enterprise Linux, SUSE Linux Enterprise Server, XenServer
VMware	vSphere ESXi

Specifications (cont.)

Management			
Broadcom	Diagnostics (UEFI, Linux)		
Dell	Embedded Management Framework (iDRAC and Lifecycle Controller)		
Environmental Requirements			
Parameter	Condition		
Storage Temperature	-40°C to +65°C		
Storage Humidity	5% to 95% non-condensing		
Vibration and Shock	IEC78-2-(*) and IEC721-3-(*)		
Electromagnetic Compatibility (EMC) and Electrostatic Discharge (ESD) Compliance			
Item	Standard		
CE/EU	EN 55032:2012/AC:2013 Class A, EN 55024:2010, EN 61000-3-2:2014, EN 61000-3-3:2013		
FCC/USA	CFR47 Part 15 Subpart B Class A		
IC/Canada	ICES-003 Class A		
ACA/Australia, New Zealand	AS/NZS CISPR 22:2009 +A1:2010		
BSMI/Taiwan	CNS 13438 (2006) Class A and CNX 15663		
MIC/S. Korea	RRL KN22 Class B, KN24 (ESD) (MSIP Mark)		
VCCI/Japan	VCCI-CISPR 32:2016		
ESD	EE 55024:2010 (EN 61000-4-2) Air/Direct discharge		
Regulatory and Safety Certifications			
Item	Standard		
CE/European Union	EN 62368-1:2014		
UL/USA	IEC 62368-1 (ED. 2)		
Safety	CB Scheme, ICES 003, UL 1977, UL 796, UL 94		
Ordering Information			
Configuration	Broadcom Part Number	Dell SKU	Customer Kit SKU
Quad-Port 25G SFP28	BCM57504-P425D	540-BDCZ	540-BDDB