



### **P425G4B504L 25G Ethernet PCIe Server Adapter Broadcom® based** **Quad Port Fiber SFP28 25 Gigabit Ethernet PCIe Server Adapter Broadcom® NetXtreme E-Series based**

#### **Product Description**

Silicom's P425G4B504L Quad Port Fiber SFP28 25G/10G Ethernet PCI Express x16 Gen 4.0 server adapter is based on the Broadcom® NetXtreme E-Series BCM57504 Ethernet controller technology.

Powered by Broadcom® NetXtreme E-Series technology, Silicom's P425G4B504L Quad Port 25G/10G server adapter delivers high throughput, low latency, and key features to ensure optimal performance for various workloads and virtualization.

The Silicom P425G4B504L Server Adapter, based on Broadcom® NetXtreme E-Series technology, takes advantage of cutting-edge architectural and physical design features, such as SR-IOV, Virtual Functions (VFs), RoCEv2, and vSwitch offload accelerator.

#### **Key Features**

- Quad-port pluggable media interface, 25G SFP28 /10G SFP+ optical transceiver or with copper direct-attach cable
- PCIe half-height, half-length adapters available with low-profile and full-height brackets (HHHL)
- Line-rate bidirectional throughput on all ports
- Single Root I/O Virtualization (SR-IOV) with up to 1K VFs with Function Level Reset (FLR) support
- TruFlow™ flow processing engine – programmable packet processing in hardware boosts application performance
- High performance and low latency across the full range of frame sizes
- Support for Data Plane Developer Kit (DPDK) framework
- Virtual Network Termination – VXLAN, NVGRE, Geneve, GRE encapsulation and decapsulation
- Tunnel-aware stateless offloads for VXLAN, NVGRE, Geneve
- Low-latency for RDMA over converged Ethernet (RoCE) v1 and v2
- Comprehensive stateless offload support to minimize host CPU workload
- Silicon-based Root of Trust enables Secure Firmware for best-in-class security
- NIC partitioning (NPAR) EP support for up to 16 Physical Functions (PFs)
- Low-power consumption using Adaptive Voltage Scaling (AVS)
- Reliability and interoperability assured by Broadcom's market-proven Ethernet expertise

#### **Host Interface**

- Vendor ID = 0x14E4
- Device ID = 0x1751
- X16 PCI Express v4.0 compliant host interface
- Conforms to the PCI Express Card Electromechanical Specification Rev. 4.0
- PCIe-based UART and KCS
- SMBus 2.0
- MCTP over SMBus
- Message Signal Interrupt MSI and MSI-X

## Networking Features

- Fully compliant with the SFF-8402 standard
- Jumbo frames up to 9 KB
- vSwitch acceleration
- Advanced Congestion Avoidance
- Network boot – PXE, UEFI, iSCSI
- Data Center Bridging (DCB) support: PFC, ETS, QCN, DCBx
- 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

## Stateless Offload Features

- TCP, UDP, and IPv4 and IPv6 checksum offloads
- Large Send Offload (LSO)
- Large Receive Offload (LRO)
- TCP Segmentation Offload (TSO)
- Receive-side Scaling (RSS)
- Transmit-side Scaling (TSS)
- Interrupt coalescing

## Virtualization

- Multiqueue, NetQueue, and VMQ

## Technical Specifications

| SFP28 25Gigabit Ethernet Technical Specifications Adapters: |  |
|---|--|
| SFP28 (Small Form Factor Pluggable) supports:               | SFI interfaces supports 25GBase-R PCS and 25 Gigabit PMA in order to connect with SFP28 to 25GBase-SR / 25GBase-LR and SFP28 Direct Attach |
| 25GBase-SR SFP28:<br>IEEE Standard / Network topology:      | Fiber 25Gigabit Ethernet, 25GBASE-SR (850nm LAN PHY).  |
| 25GBase-SR SFP28:<br>Data Transfer Rate:                    | 25.78125GBd  |
| 25GBase-LR SFP28:<br>IEEE Standard / Network topology:      | Fiber 25Gigabit Ethernet, 25GBASE-LR (1310nm LAN PHY)  |
| 25GBase-LR SFP28:<br>Data Transfer Rate:                    | 25.78125Gbps   |
| 25GBase-LR SFP28:<br>Cables and Operating distance Up to:   | Single-Mode: 10000m at 9um   |
| 25GSFP28Cu:<br>IEEE Standard / Network topology:            | Copper 25Gigabit Ethernet, 25GSFP28Cu (Direct Attach)  |
| Operating Systems Support                                   |  |
| Operating system support:                                   | Linux  |
| P325G2B414 General Technical Specifications                 |  |
| Interface Standard:   | PCI-Express Base Specification Revision 4.0 (16 GTs)   |

|                               |   |
|-------------------------------|---|
| <b>Board Size:</b>            | Half Height Half Length add-in card 167.64mm X 64.389mm (6.6"X 2.535")  |
| <b>PCIe Card Type:</b>        | X16 Lane Gen4   |
| <b>PCIe Voltage:</b>          | 12+V ± 8%<br>+3.3V AUX ± 9%   |
| <b>PCIe Connector:</b>        | Gold Finger: X16 Lane   |
| <b>Controller:</b>            | Broadcom BCM57504B2KFSBG  |
| <b>Network Ports:</b>         | 4x SFP28  |
| <b>Power Consumption:</b>     | Card's Maximum Power Consumption 27.0W  |
| <b>Operating Temperature:</b> | 0°C – 55°C (32°F – 131°F)   |
| <b>Air Flow requirement:</b>  | 200 LFM   |
| <b>Heatsink design:</b>       | Aluminum base&Fins heatsink with black anodize coating  |
| <b>Storage:</b>               | -40°C–65°C (-40°F–149°F)  |
| <b>Regulation:</b>            | CE, FCC Class A, ROHS requirements.   |
| <b>LEDs</b>                   |   |
| <b>LEDs:</b>                  | Each Port has 2 LEDs to indicate traffic activity and link speed.<br>Upper LED – Link:<br>Green stay on – Physical link on at 25G Speed.<br>Yellow stay on – Physical link on at 10G or 1G Speed.<br>Off – No physical link.<br>Lower LED – Activity:<br>Green blinking – Traffic flowing activity.<br>Off – No activity. |
| <b>LEDs location:</b>         | SFP28: LEDs are located on the PCB, visible via light pipe to the holes on the metal bracket.   |
| <b>Connectors:</b>            | Quad Port SFP28 cage  |

## Order Information

| P/N                   | Description  | Notes   |
|-----------------------|--|---|
| <b>P425G4B504L-XR</b> | Quad port Fiber SFP28 25 Gigabit Ethernet PCI Express Gen 4.0 Server Adapter | RoHS Compliant,<br>Gen4 x 16,<br>based on Broadcom BCM57504 |
| <b>P425G4B504L-ZS</b> | Quad port Fiber (SR) 25 Gigabit Ethernet PCI Express Gen 4.0 Server Adapter  | RoHS Compliant,<br>Gen4 x 16,<br>based on Broadcom BCM57504 |
| <b>P425G4B504L-ZL</b> | Quad port Fiber (LR) 25 Gigabit Ethernet PCI Express Gen 4.0 Server Adapter  | RoHS Compliant,<br>Gen4 x 16,<br>based on Broadcom BCM57504 |