



### PE10G2T-CX4

#### Dual Port Copper (CX4) 10 Gigabit Ethernet PCI Express Server Adapter Broadcom® BCM57710 Based

#### Product Description

Silicom 10 Gigabit TOE PCI Express server adapters are network interface cards that contain multiple / single independent 10 Gigabit Ethernet port/s.

The Silicom 10 Gigabit PCI Express TOE server adapters provide a fully integrated up to Layer 5 solution along with a complete Gigabit Ethernet port/s.

Silicom 10 Gigabit Ethernet PCI Express TOE server adapters are Silicom's forth -generation solution for high performance server network application. Silicom 10 Gigabit Ethernet PCI Express TOE server adapters are based on Broadcom 10 Gigabit Ethernet TOE controller features an industry first support for single chip TOE 10 Gigabit Ethernet NIC with TCP / IP offload Engine, RDMA NIC (RNIC)\*, iSCSI 1.0\* /iSER HBA\*.

#### TCP Offload Engine

Silicom 10 Gigabit Ethernet TOE server adapters include dedicated hardware and processors to process the frame that traverse it functionality. On the transmit path, the TOE controller Copied the data directly from the highest hierarchy of buffers available, execute the TCP/IP, adds lower level headers. On the receive, path, the TOE controller process frame up to the highest layer supported present in the frame, removes lower level headers, posts the data directly to application to application buffers. The transmit and the receive TOE functionality relieves the host CPI from the from these time consuming operations.

#### Convergence NIC

The Silicom 10 Gigabit Ethernet PCI Express TOE server adapters enable convergence of all networked communication possible in a server, such as data network (LAN), storage network, or file ( CIFS / NFS), clustering for high performance commuting or inter process communication by support of RDMA\* over TCP. The Silicom TOE server adapter is a convergence networking interface card and allows one network connection to provide access to all information types. Silicom TOE Gigabit Ethernet server adapters can simultaneously support the following functions:

- TOE Chimney- enabled network accelerator
- RDMA Network Interface Controller ( RNIC)\*
- iSCSI or iSER Host Bus Adapter ( HBA)\*

## Reliability, Availability, Serviceability

Silicom 10 Gigabit Ethernet PCI Express TOE server adapters enables fault-tolerant via teaming. Traffic from the failed port is routed through up to seven other members of the team.

Silicom 10 Gigabit Ethernet PCI Express TOE server adapters are the ideal solution for implementing multiple network segments, mission-critical high-powered networking applications and environments within high performance servers.

## Key Features

### Copper 10 Gigabit Ethernet 10GBASE-CX4:

- Copper short distance 10 Gigabit Ethernet port supports 10Gbase-CX4
- CX4 connector

### TCP offload Engine\*

- Full fast path TCP offload for IPV4 and IPV6
- Zero Copy capable hardware

### iSCSI Controller\*

- iSCSI initiator
- iSER (iSCSI over RDMA)

### RDMA Controller ( RNIC)\*

- RDMA over TCP (iWARP) – RDMAC 1.0 compliant
- Hardware-based data placement in application buffers without CPU intervention (user and kernel modes)

### Performance Features:

- Full fast path TCP offload Extremely Low CPU utilization for TCP/IP applications – Host CPU is free to run application code
- Microsoft TCP Chimney compliant\*
- Lower CPU utilization for file level storage protocol such as CIFS and NFS
- iSCSI functionality with low CPU utilization
- RDMA support for data placement in application buffers reduces CPU utilization and lower data transits latencies.\*
- Receive Side Scaling (RSS)
- TCP, IP checksum
- TCP segmentation
- Adaptive Interrupts
- Message Signal Interrupts (MSI)
- Host Interface standard support PCI Express 1.1.
- High performance, reliability, and low power use in Broadcom BCM57710 TOE controller

- Server class reliability, availability and performance features:
- Link Aggregation and Load Balancing:
- Switch dependent: 802.3ad (LACP), Generic Trunking ( GEC / FEC)
- Switch and NIC Independent
- Failover
- Ultra deep packet buffer per channel lowers CPU utilization
- Virtual LANs –802.1q VLAN tagging
- Jumbo Frame (9KB)
- 802.x flow control
- Boot ROM embedded or optional can be used for Boot ROM applications
- PCI Power Management Interface. (v1.1)
- Statistics for SNMP MIB II, Ethernet like MIB, and Ethernet MIB (802.3z, Clause 30)
- LEDs indicators for link/Activity/Speed status

## Technical Specifications

Copper CX4 10 Gigabit Ethernet Technical Specifications – (10GBASE-CX4) Adapters:	
<b>IEEE Standard / Network topology:</b>	Copper 10 Gigabit Ethernet, 10GBase-CX4
<b>Data Transfer Rate:</b>	3.125GBd per one lane, X4 transmit, X4 receive
<b>Cables and Operating distance: (Up to)</b>	CX4 Cable: Up to 15m
Operating Systems Support	
<b>Operating system support:</b>	Windows Linux Netware Unix Solaris
General Technical Specifications	
<b>Interface Standard:</b>	PCI-Express Base Specification Revision 1.1
<b>Board Size:</b>	Low profile short add-in card: 167.64mm X 68.91mm (6.6"X 2.713")

<b>PCI Express Card Type:</b>	X8 Lane
<b>PCI Express Voltage:</b>	+3.3V +-9%, +12V +- 8%
<b>PCI Connector:</b>	X8 Lane
<b>Controller:</b>	Broadcom: BCM57710
<b>Holder:</b>	Metal Bracket Full Height and low profile
<b>Weight:</b>	100 gr (3.527oz)
<b>Power Consumption:</b>	7.08W, 0.59A at 12V and 0.066W, 0.02 at 3.3V: Typical all ports operate at 10Gbit/s. 6.12W, 0.51A at 12V and 0.066W, 0.02 at 3.3V: Typical No link at all ports.
<b>Operating Humidity:</b>	0%–90%, non-condensing
<b>Operating Temperature:</b>	0°C – 50°C (32°F – 122°F)
<b>Storage:</b>	-20°C–65°C (-4°F–149°F)
<b>EMC Certifications:</b>	<p>FCC Part 15, Subpart B Class B</p> <p>Conducted Emissions</p> <p>Radiated Emissions</p> <p>CE EN 55022: 1998 Class B Amendments A1: 2000; A2: 2003</p> <p>Conducted Emissions</p> <p>Radiated Emissions</p> <p>CE EN 55024: 1998 Amendments A1: 2000; A2: 2003</p> <p>Immunity for ITE Amendment A1: 2001</p> <p>CE EN 61000-3-2 2000, Class A</p> <p>Harmonic Current Emissions</p> <p>CE EN 61000 3-3 1995, Amendment A1: 2001</p> <p>Voltage Fluctuations and Flicker</p> <p>CE IEC 6100-4-2: 1995</p> <p>ESD Air Discharge 8kV. Contact Discharge 4kV</p> <p>CE IEC 6100-4-3:1995</p> <p>Radiated Immunity (80-1000Mhz), 3V/m 80% A.M. by 1kHz</p> <p>CE IEC 6100-4-4:1995</p> <p>EFT/B: Immunity to electrical fast transients 1kV Power Leads, 0.5Kv Signals Leads</p> <p>CE IEC 6100-4-5:1995</p> <p>Immunity to conductive surges COM Mode; 2kV, Dif. Mode 1kV</p>

	CE IEC 6100-4-6:1996 Conducted immunity (0.15-80 MHz) 3VRMS 80% A.M.By 1kHz CE IEC 6100-4-11:1994 Voltage Dips and Short Interruptions V reduc >95%, 30% >95% Duration 0.5per, 25per, 250per
<b>LEDs</b>	
<b>LEDs:</b>	(1) LED per port Link / Act : Turns on link, blinks on activity (green)
<b>LEDs location:</b>	LEDs are located on the PCB, visible via holes in the metal bracket holder
<b>Connectors:</b>	CX4

## Order Information

P/N	Description	Notes
<b>PE10G2T-CX4</b>	Copper (CX4) 10 Gigabit Ethernet TOE PCI Express Server Adapter*	X8, Based on Broadcom BCM57710, Low-profile, RoHS compliant

Note: Model P/N /S/-LP /

S: Solaris:

-LP: Assemble Low Profile Metal Bracket: Available only with Dual and Single ports adapters.

\*iSCSI, iSER and RDMA are not released. TOE is not released. When TOE will be released it will support it will support Windows Chimney only. Initial release will be L2 legacy drivers.

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