Silicom

Connectivity Solutions

PE10G2T

Dual Port Fiber 10 Gigabit Ethernet TOE PCI Express Server Adapter Broadcom® BCM57710 Based

Product Description

Silicom 10Gigabit 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 10Gigabit Ethernet PCI Express TOE server adapters are Silicom's forth -generation solution for high performance server network application.

Silicom 10Gigabit Ethernet PCI Express TOE server adapters are based on Broadcom 10Gigabit Ethernet TOE controller features an industry first support for single chip TOE 10Gigabit Ethernet NIC with TCP/IP offload Engine, RDMA NIC (RNIC)*, iSCSI 1.0* /iSER HBA*.

TCP Offload Engine

Silicom 10Gigabit 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 buffers. The transmit and the receive TOE functionality relieves the host CPU 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 10Gigabit 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 10Gigabit 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

Fiber 10 Gigabit Ethernet 10GBASE-SR:

- Short Range 10 Gigabit Fiber Ethernet port supports 10GBASE-SR (850nM LAN PHY)
- 10Gigabit 850nM Small form Factor Pluggable (XFP)
- LC Duplex connector

Fiber 10 Gigabit Ethernet 10GBASE-LR:

- 10 Gigabit Fiber Ethernet port supports 10GBASE-LR (1310nM LAN PHY)
- 10Gigabit 1310nM Small form Factor Pluggable (XFP)
- LC Duplex 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*
- Accelerated IP based storage*
  - o Lower CPU utilization for file level storage protocol such as CIFS and NFS
  - o 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:

  o Link Aggregation and Load Balancing:

  o Switch and NIC Independent

  o 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 status.

Technical Specifications

Short Range Fiber 10 Gigabit Ethernet Technical Specifications – (10GBase-SR) Adapters:	
IEEE Standard / Network topology:	Fiber 10Gigabit Ethernet, 10GBASE-SR (850nM LAN PHY)
Data Transfer Rate:	10.3125GBd
Cables and Operating distance: **Up to:**	62.5um, 160MHz/Km 26m 62.5um, (OM1)200MHz/Km 33m 50um, 400MHz/Km 66m 50um, (OM2)500 MHz/Km 82m 50um, (OM3)2000MHz/Km 300m
Output Transmit Power:	Typical: -2.5 dBm Minimum: -3 dBm
Optical Receive Sensitivity:	Typical: -14.5 dBm Maximum: -11.1 dBm
Maximum Input Power:	Maximum: +0.5dBm

Long Range Fiber 10 Gigabit Ethernet Technical Specifications – (10GBase-LR) Adapters:	
IEEE Standard / Network topology:	Long Range Fiber 10Gigabit Ethernet, 10GBASE-LR (1310nM LAN PHY)
Data Transfer Rate:	10.3125GBd
Cables and Operating distance: **Up to:**	Single-Mode: 10000m at 9um
Optical Output Power:	Typical: -2.25 dBm Minimum: +0.5dBm
Optical Receive Sensitivity: **(Stressed Received Sensitivity in Optical Modulated Amplitude)**	Typical: -19.5 dBm Maximum: -12.6 dBm
Average Receive Power:	Minimum: -14.4 dBm (A receiver power below this value cannot be compliant; however, a value above this doesn't ensure compliance)
Operating Systems Support	
Operating system support:	Windows Linux Netware Unix Solaris
General Technical Specifications	
Interface Standard:	PCI-Express Base Specification Revision 1.1
Board Size:	PCI low profile short add in card: 167.64mm x 68.91mm (6.6"X 2.713")
PCI Express Card Type:	X8 Lane
PCI Express Voltage:	+3.3V +-9%, +12V +- 8%
PCI Connector:	X8 Lane
Controller:	Broadcom: BCM57710

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Holder:	Metal Bracket: Full Height and low profile
Weight:	130gr (4.586 oz)
Power Consumption:	**PE10G2T-SR:** 13.58W 1.86 Aat 3.3Vand 0.62 A at 12V: Typical all ports operate at 10Gb/s. 13.55W 1.85A at 3.3Vand 0.62 at 12V: Typical No link at all ports 11.30W 1.17A at 3.3Vand 0.62 at 12V: Typical No XFPs
Operating Humidity:	0%–90%, non-condensing
Operating Temperature:	0°C – 50°C (32°F – 122°F)
Storage:	-20°C–65°C (-4°F–149°F)
EMC Certifications:	FCC Part 15, Subpart B Class B Conducted Emissions Radiated Emissions CE EN 55022: 1998 Class B Amendments A1: 2000; A2: 2003 Conducted Emissions Radiated Emissions CE EN 55024: 1998 Amendments A1: 2000; A2: 2003 Immunity for ITE Amendment A1: 2001 CE EN 61000-3-2 2000, Class A Harmonic Current Emissions CE EN 61000 3-3 1995, Amendment A1: 2001 Voltage Fluctuations and Flicker CE IEC 6100-4-2: 1995 ESD Air Discharge 8kV. Contact Discharge 4kV. CE IEC 6100-4-3:1995 Radiated Immunity (80-1000Mhz), 3V/m 80% A.M. by 1kHz CE IEC 6100-4-4:1995 EFT/B: Immunity to electrical fast transients 1kV Power Leads, 0.5Kv Signals Leads CE IEC 6100-4-5:1995 Immunity to conductive surges COM Mode; 2kV, Dif. Mode 1kV 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

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LEDs	
LEDs:	(1) LED per port Link / Act : Turns on link, blinks on activity (green)
LEDs location:	LED is located on the PCB, visible via holes in the metal bracket holder
Connectors:	LC

Order Information

P/N	Description	Notes
PE10G2T-SR	Dual Port Fiber (SR) 10 Gigabit Ethernet TOE PCI Express Server Adapter*	X8, Based on Broadcom BCM57710, Low-profile, RoHS compliant
PE10G2T-LR	Dual Port Fiber (LR) 10 Gigabit Ethernet TOE PCI Express Server Adapter*	X8, Based on Broadcom BCM57710, Low-profile, RoHS compliant

Model P/N /S/-LP

S: Solaris:

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

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

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