PE10G2T-LR - Dual Port Fiber (LR) 10 Gigabit Ethernet PCI Express Server Adapter Broadcom® base

Introduction

Silicom 10Gigabit TOE* PCI Express server adapters are network interface cards that contain multiple / single independent 10Gigabit Ethernet port/s. The Silicom 10Gigabit 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 Ethenret 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 higest layer supported present in the frame, removes lower level headers, posts the data directly to application to application buffers. The tramsmit and the receive TOE functionality relieves the host CPI from the from these time consuming operations.

Convergence NIC

The Silicom 10Gigabit 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-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 initirator
• 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 Chimeny compliant*
• Accelerated IP based storage*

• 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

<u>Technical Specifications</u>

Long Range Fiber 10Gigabit 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: TBD dBm Minimum: -8.2 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 Unix Solaris

PE10G2T-LR: General Technical Specifications

Interface Standard:	PCI-Express Base Specification Revision 1.1
Board Size:	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
Holder:	Metal Bracket Full Height and low profile
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

PE10G2T-LR: LED / Connector Specifications:

LEDs	(1) LEDs per port Link: Turns on link (green) Act: Blinks on activity (green)
LEDs location	LEDs are located on the PCB, visible via holes in the metal bracket holder
Connectors:	CX4

Order Information:

P/N	Description	Note
PE10G2T-LR	Dual Port Fiber (LR) 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:

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

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