



### PE2G4I80L

#### Quad Port Copper Gigabit Ethernet PCI Express Server Adapter Intel® 82580EB Based

##### Product Description

Silicom's Quad Port Copper Gigabit Ethernet PCI Express Server adapter is designed for Servers and high-end appliances. The performance is optimized so that system I/O is not the bottleneck in high-performance networking applications.



Silicom's Quad Port Copper Gigabit Ethernet PCI Express Server adapter enable fault-tolerant via teaming. Traffic from the failed port is routed through other members of the team. Silicom's Quad Port Copper Gigabit Ethernet PCI Express Server adapter has an integrated hardware acceleration that performs TCP/UDP/IP checksum offload and TCP segmentation.

The host processing offloads accelerators frees CPU for application processing. Silicom's Quad Port Copper Gigabit Ethernet PCI Express Server adapter is the ideal solution for implementing multiple network segments, mission-critical high-powered networking applications and environments within high performance servers.

Silicom's Quad Port Copper Gigabit Ethernet server adapter is based on Intel 82580 Quad port Gigabit Ethernet MAC+PHY of Intel Controller.



##### Key Features

###### Performance Features:

- 8 Transmit and Receive queues per port
- Up to 8 queues of Receive Side Scaling (RSS) minimize CPU utilization across multiple processor systems
- Support for 8 pools (single queue) of virtual machine Device Queues (VMDq) per port
- Support Direct Cache Access (DCA)
- Support Intel I/O Acceleration Technology v3.0
- TSO interleaving for reduced latency
- Minimized device I/O interrupts using MSI and MSI-X
- UDP, TCP and IP checksum offload
- UDP and TCP transmit segmentation offload (TSO)

- SCTP receive and transmit checksum offload
- Packet interrupt coalescing timers (packet timers) and absolute- delay interrupt timers for both transmit and receive operation

#### **Copper Gigabit Ethernet 1000Base-T :**

- Independently copper Gigabit Ethernet channels support four Gigabit Ethernet (1000Base-T), Fast Ethernet (100Base-Tx) and Ethernet (10Base-T)
- Triple speed 1000Mbps (1000Base-T), 100 Mbps (100Base-Tx) and 10 Mbps (100Base-T) operation
- Nway auto negotiation automatic sensing and switching between 1Gbps full duplex and 100 / 10 Mbps operations Simplex or Full Duplex
- RJ-45 female connectors

#### **Common Key features:**

- Support PCI Express Base Specification 2.0 (5 GTs)
- High performance, reliability, and low power use in Intel 82580 Quad integrated MAC + PHY and SERDES chip Controllers
- Ultra deep, packet buffer per channel lowers CPU utilization
- Hardware acceleration that can offload tasks from the host processor. The Controllers can offload TCP/UDP/IP checksum calculations and TCP segmentation
- 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
- Priority queuing – 802.1p layer 2 priority encoding
- Virtual LANs –802.1q VLAN tagging
- Jumbo Frame (9.5KB)
- 802.x flow control
- Multicast/ broadcast Packet replication
- Statistics for SNMP MIB II, Ethernet like MIB, and Ethernet MIB (802.3z, Clause 30)
- Supports Vital Product Data (VPD)
- LEDs indicators for link/Activity/Speed status

## Technical Specifications

### Copper Gigabit Ethernet Technical Specifications – (1000Base-T) Adapters:

<b>IEEE Standard / Network topology:</b>	Gigabit Ethernet, 1000Base-T Fast Ethernet, 100Base-TX Ethernet, 10Base-T
<b>Full duplex / Simplex:</b>	Support both Simplex & Full duplex operation in all operating speeds
<b>Auto negotiation:</b>	Auto-negotiation between Full duplex and simplex operations and between 10Mb/s 100Mb/s speeds and duplex 1000Mb/s
<b>Cables and Operating distance:</b>	10Base-T Category 3, 4, or 5 maximum 100m 100Base-Tx Category 5 maximum 100m 1000Base-T Category 5E maximum 100m
<b>Operating Systems Support</b>	
<b>Operating system support:</b>	Windows Linux FreeBSD VMware
<b>General Technical Specifications</b>	
<b>Interface Standard:</b>	PCI-Express Base Specification Revision 2.0 ( 5 GTs)
<b>Board Size:</b>	Low profile short add-in card: 167.64mm X 68.91mm (6.60"X 2.713")
<b>PCI Express Card Type:</b>	X4 Lane
<b>PCI Express Voltage:</b>	+3.3V +-9%, +12V +- 8%
<b>PCI Connector:</b>	Gold Finger: X4
<b>Controller:</b>	Intel 82580EB
<b>I/O:</b>	Quad RJ45 located on edge of the board
<b>Weight:</b>	180 gr (6.35 oz )

<b>Power Consumption:</b>	<p>5.04 W, 0.42A at 12V: Typical all ports operate at 1000Mb/s.</p> <p>3.60 W, 0.30A at 12V: Typical all ports operate at 100Mb/s.</p> <p>3.48 W, 0.29A at 12V: Typical all ports operate at 10Mb/s.</p> <p>2.52 W, 0.21A at 12V: Typical No link at all ports</p>
<b>Holder:</b>	Metal Bracket: Full Height/Low profile Height
<b>Operating Humidity:</b>	0%–90%, non-condensing
<b>Operating Temperature:</b>	0°C – 45°C (32°F – 113°F)
<b>Storage Temperature:</b>	-40°C–65°C (-40°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> <p>CE IEC 6100-4-6:1996</p> <p>Conducted immunity (0.15-80 MHz) 3VRMS 80% A.M. By 1kHz</p> <p>CE IEC 6100-4-11:1994</p> <p>Voltage Dips and Short Interruptions</p>

	V reduc >95%, 30% >95% Duration 0.5per, 25per, 250per
<b>MTBF:</b>	175 (Years) *According to Telcordia SR-332 Issue 1 Environmental condition – GB (Ground, Fixed, Controlled). Ambient temperature – 25°C. Temperature rise of 15°C above the system ambient temperature was assumed for the cards components
<b>LEDs</b>	
<b>LEDs:</b>	(2) LEDs per port Link / Act Led: Turn on any Link speed , Blinks on Activity (green) Speed (Bi-color) Led: 1000Mb/s: Turns on Yellow 100Mb/s: Turns on Green. 10Mb/s: Turns off
<b>LEDs location:</b>	LEDs are integrated on RJ-45 connector
<b>Connectors:</b>	(4) Shielded RJ-45

## Order Information

P/N	Description	Notes
<b>PE2G4i80L-R</b>	Quad Port Copper Gigabit Ethernet PCI Express Server Adapter	X4, Based on Intel 82580EB, Low-Profile, RoHS compliant

Note: Model P/N -LP /-RoHS

-R: RoHS Compliant / Lead free adapter

-LP: Assemble Low Profile Metal Bracket, available in dual or single port only

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