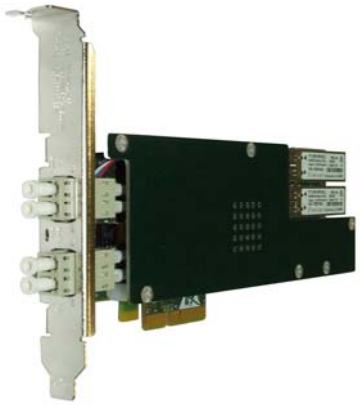
PEG2BPFiD- Dual Port Fiber (SX) Gigabit Ethernet PCI Express Bypass Server Adapter Intel® based



Introduction

Silicom's Dual Port Fiber Gigabit Ethernet Bypass server adapter is a PCI-Express X4 network interface card. The Silicom's Dual Port Gigabit Ethernet Bypass server adapter supports Normal, Bypass and Disconnect modes.

In Normal mode, the ports are independent interfaces. In Bypass mode, all packets received from one port are transmitted to adjacent port. In Disconnect mode, the adapter simulates switch / rout cable disconnection.

In Bypass mode, the connections of the Ethernet network ports are disconnected from the interfaces and switched over to the other port to create a crossed connection loop-back between the Ethernet ports. Hence, in bypass mode all packets received from one port are transmitted to other port and vice versa. This feature enables to bypass a failed system and provides maximum up time for the network.

In Disconnect mode, the adapter simulates switch / router cable disconnection. In Disconnect mode, the switch / router does not detect link partner of the adapter.

Silicom's Gigabit Ethernet Bypass server adapters include an on board WDT (Watch Dog Timer) controller. The adapter's software drivers or software application can write commands to the on board WDT controller. The adapter's software drivers, WDT controller and the Bypass circuitry provide an interface that control and manage the mode of the adapter.

Silicom's Dual Port Fiber Gigabit Ethernet Bypass server adapter is based on Intel 82571 Dual port Gigabit Ethernet MAC+PHY of Intel Controller.

Key features

Bypass *:*

- Bypass / Disconnect Ethernet ports on Power Fail, System Hangs or Software Application Hangs
- Software programmable Bypass, Disconnect or Normal Mode
- On Board Watch Dog Timer (WDT) Controller
- Software programmable time out interval
- Software Programmable WDT Enable / Disable counter
- Software Programmable Bypass Capability Enable / Disable
- Software Programmable Disconnect Capability Enable / Disable
- Software Programmable mode (Bypass, Normal or Disconnect mode) at Power up
- Software Programmable mode (Bypass, Normal mode) at Power off / No power
- Independent Bypass operation in every two ports
- Emulates standard NIC

Fiber Gigabit Ethernet 1000Base-SX:

• Independently Fiber Gigabit Ethernet channel/s support Gigabit Ethernet 1000Base-SX.

• Small Form Factor (SFF) LC Connectors.

Common Key features:

• Host Interface standard support PCI Express 1.0a
• High performance, reliability and low power use in Intel 82571 dual integrated MAC + PHY and SERDES chip controller
• 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
• Priority queuing - 802.1p layer 2 priority encoding
• Virtual LANs - 802.1q VLAN tagging
• Jumbo Frame (16KB)
• 802.x flow control
• Statistics for SNMP
• LEDs indicators for link/Activity/Bypass/Disconnect Mode status

Technical Specifications:

Bypass Specifications

WDT Interval (Software Programmable) :	3,276,800 mSec (3,276.8 Sec) : Maximum 100 mSec (0.1 Sec) : Minimum WDT Interval = (2^wdt_interval_parameter)*(0.1) sec. wdt_interval_parameter: { Valid Range: 0-15}

Fiber Gigabit Ethernet Technical Specifications - (1000Base-SX)

IEEE Standard / Network topology:	Fiber Gigabit Ethernet, 1000BASE-SX (850nM)
Data Transfer Rate:	2000Mbit/s in full duplex mode port
Cables and Operating distance:	Multimode fiber : 137m maximum at 62.5 um** **Theoretical Distance - Defined as half a distance as stated by the IEEE 802.3 standard
Optical Output Power :	Normal Mode (Bypass Off): Typical: -6.8dBm (TX-Switch Norma-Fiber-LC/LC) Minimum : -10.9 dBm
Optical Receive Sensitivity:	Normal Mode (Bypass Off) Typical: -19.7 dBm Maximum: -15.6 dBm
Insertion Loss	Bypass Mode: Insertion loss (Optical Power attenuation between TX to RX) Typical: 0.79 dB (From RX to TX) Maximum 1.9 dB

Operating Systems Support :

Operating system support:	Linux Free BDS Windows 2000SP4 (-SD, Side driver)

PEG2BPFID

PEG2BPFID: General Technical Specifications

Interface Standard:	PCI-Express Base Specification Revision 1.0
Board Size:	Low profile short add-in card: 167.64mm X 68.91mm (6.60"X 2.713")
PCI Express Card Type:	X4
PCI Voltage :	+3.3V +-9%, +12V +- 8%
PCI Express Connector:	Gold Finger : X4
Controller:	Intel 82571EB
Holder:	Metal Bracket : Full Height/Low profile Height
I/O:	Located on the metal bracket
Weight :	120 gram (4.233oz)
Power Consumption:	Normal mode: 2.529W, 0.01A at 12V and 0.73A at 3.3V: Typical all ports operate at 1000Mbit/s. 2.496W, 0.01A at 12V and 0.72A at 3.3V: Typical No link at all ports Bypass Mode : 2.364W, 0.01A at 12V and 0.68A at 3.3V at 3.3V : Typical disconnect Mode : 2.364W, 0.01A at 12V and 0.68A at 3.3V : Typical
Operating Temperature:	0°C – 50°C (32°F – 122°F)
Storage Temperature:	-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
MTBF:	131 (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.

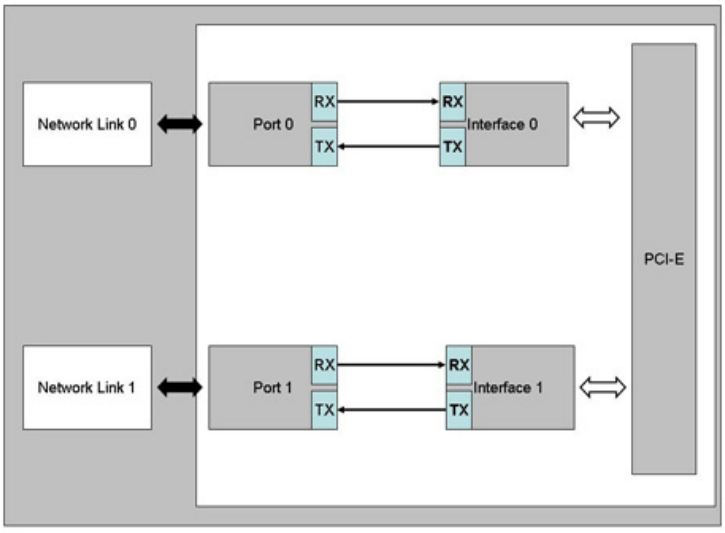
PEG2BPFID : LED / Connector Specifications

LEDs:	(2) LEDs per port Link: Turns on link (yellow) ACT: Blinks on activity (green) (1) Bi-Color LED: Bypass: Green on Bypass, Yellow on Disconnect, off on Normal.
LEDs location	LEDs are located on the PCB, visible via holes in the metal bracket holder
Connectors:	(2) LC

Functional Description

Silicom's Quad Port Fiber Bypass adapter supports Normal, Bypass and Disconnect modes. In Normal mode, the ports are independent interfaces (see Figure 1: Normal mode, one Bypass pair is illustrated).

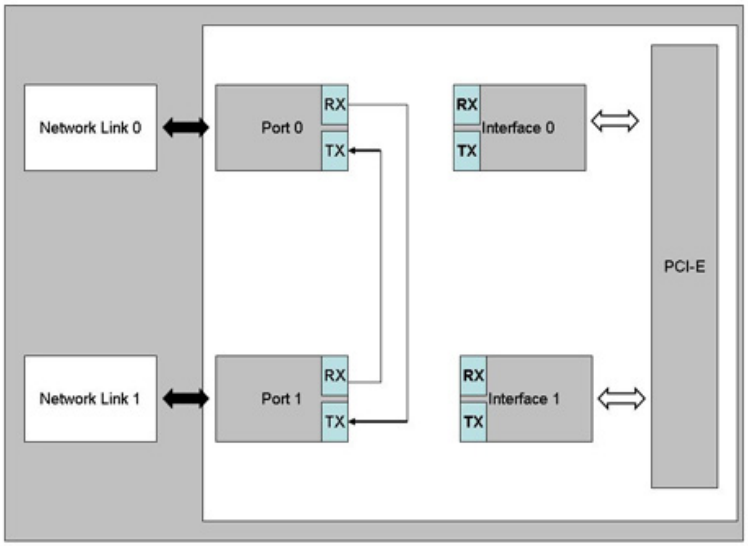
Normal Mode Functional Block Diagram



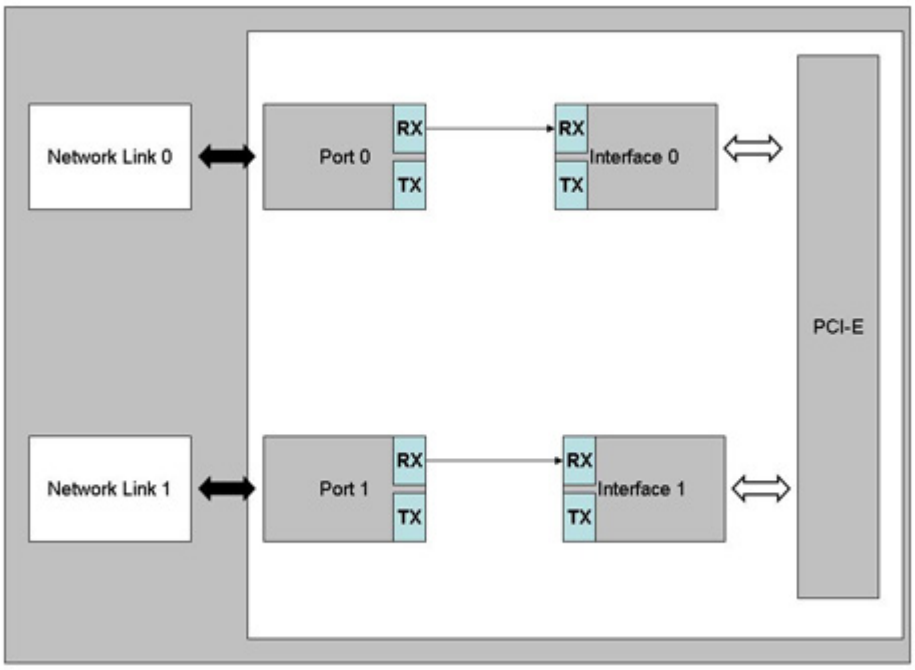
In Bypass mode, the connections of the Ethernet network ports are disconnected from the interfaces and switched over to the other port to create a crossed

connection loop-back between the Ethernet ports. The connections of the interfaces are left unconnected. (See Figure 2: one Bypass pair illustrated)

Bypass Mode Functional Block Diagram



Disconnect Mode Functional Block Diagram



Silicom's Dual Port Fiber Gigabit Ethernet Bypass server adapter supports software programmable to select Normal, Bypass or Disconnect modes.

Silicom's Dual Port Fiber Gigabit Ethernet supports Disable Bypass, Disable Disconnected capabilities; hence, if those adapters receive Disable Bypass capability / Disable Disconnect commands, the adapter does not Bypass / does not Disconnect its Ethernet ports, The Disable Bypass Capabilities are reserved also after power off. This feature enables to emulate a standard NIC.

Silicom's Dual Port Fiber Gigabit Ethernet supports Disable supports setting the default mode at power up and power off. Those setting are reserved also after power off.

Order Information:

P/N	Description	Note
PEG2BPFiD-RoHS	Dual Port Fiber (SX) Gigabit Ethernet PCI Express Server Adapter	RoHS Compliant, 82571EB, Supports Disconnect mode

Note: Model P/N -SD/-LP/-RoHS
-SD: Side Driver
-RoHS: RoHS Compliant/ Lead free adapter
-LP: Assemble Low Profile Metal Bracket

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