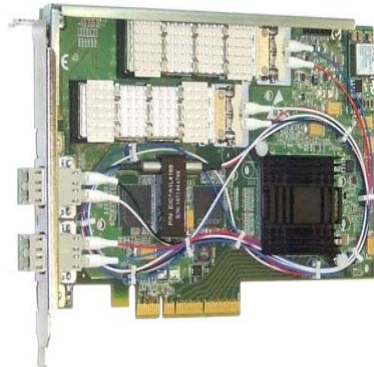


PE10G2BPi-SR - Dual port Fiber (SR) 10 Gigabit Ethernet PCI Express Bypass Server Adapter

Introduction

Silicom's dual port fiber (SR) 10Gigabit Ethernet Bypass server adapter is a PCI-Express X8 network interface card that contains two fiber (SR)10 Gigabit Ethernet ports on a PCI-E adapter. The Silicom's dual port copper 10 Gigabit Ethernet Bypass server adapter is targeted to inline network system that maintains network connectivity when system fails.



Silicom's dual port fiber (SR) 10 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 the adjacent port. In Disconnect mode, the adapter simulates switch / rout cable disconnection.

Silicom's dual port fiber (SR) 10 Gigabit Ethernet Bypass server adapter can Bypass or Disconnect its Ethernet ports on a host system failure, power off, or upon software request.

In Bypass mode, the connections of the Ethernet ports are disconnected from the system 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 the adjacent port and vice versa. This feature enables to bypass a failed system and provides maximum up time for the network.

Silicom's dual port fiber (SR) 10 Gigabit Ethernet Bypass server adapter includes 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 (SR) 10 Gigabit Ethernet Bypass server adapter is based on Intel 82598 controller. The Silicom's 10 Gigabit Ethernet PCI Express Bypass Server adapter is the ideal solution for implementing multiple network segments, mission-critical high-powered networking applications and environments within high performance servers.

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.
- Emulates standard NIC

Fiber 10 Gigabit Ethernet 10GBASE-SR:

- Short Range Fiber 10Gigabit Ethernet channels support 10GBase-SR
- LC connectors

Common Key features:

- Host Interface:
 - PCI Express X8 lane
 - Support PCI Express Base Specification Revision 2.0 / 2.5GHz5

Performance Features:

- IPV6 Supports for IP/ TCP and IP/UDP Receive Checksum offload
- Fragmented UDP checksum offload for Packet Reassembly
- Receive Side Scaling minimize CPU utilization across multiple processor systems
- Support for 16 virtual machine Device Queues (VMDq) per port
- Support Direct Cache Access (DCA)
- Advanced memory architecture reduces latency
- Minimized device I/O interrupts using MSI and MSI-X
- Offload of TCP / IP / UDP checksum calculation and TCP segmentation.
- Large on chip receive packet buffer (520 KB)
- Large on chip transmit packet buffer (320KB)

LAN Features:

- IEEE 802.x flow control support
- IEEE 802.q VLAN tagging support
- IEEE 802.1p layer 2 priority encoding
- Jumbo Frame (up to 16KB).
- Link Aggregation and Load Balancing.
- RFC2819 RMON MIB statistics
- TCP Segmentation Offload Up to 256KB
- Ipv6 Support for IP/TCP Receive Checksum Offload
- DDP Offload
- LEDs indicator for link/Activity.

Technical Specifications:

Bypass Specification

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

Fiber Gigabit Ethernet Technical Specifications - (10GBASE-SR) Adapters

IEEE Standard / Network topology:	Fiber 10Gigabit Ethernet, 10GBASE-SR (850nm LAN PHY)
Data Transfer Rate:	20Gbit/s in full duplex mode per port
Cables and Operating distance: (Up to)	62.5um, 160MHz/Km 13m* 62.5um, (OM1)200MHz/Km 16m* 50um, 400MHz/Km 33m* 50um, (OM2)500 MHz/Km 41m* 50um, (OM3)2000MHz/Km 150m*

	Defined as half a distance as stated by the IEEE 802.3 standard
Optical Output Power:	Typical: -2.6 dBm Minimum: -3 dBm
Optical Receive Sensitivity:	Typical: -14.6 dBm Maximum: -11.1 dBm
Maximum Input Power:	Maximum: +0.5dBm
Insertion Loss:	Bypass Mode: Insertion loss (Optical Power attenuation between TX to RX) Typical: 1.0 dB (From RX to TX) Maximum 1.9 dB

Operating Systems Support :

Operating system support:	Windows Linux VMware ESX Server 3.5
----------------------------------	---

PE10G2BPi-SR

PE10G2BPi-SR: General Technical Specifications

Interface Standard:	PCI-Express Base Specification Revision 2.0 / 2.5GHz
Board Size:	Standard height short PCI add in card: 167.64mm X 111.15mm (6.60"X 4.376")
PCI Express Card Type:	X8 Lane
PCI Express Voltage	+3.3V +-9%, +12V +- 8%
PCI Connector:	X8 Lane
Controller:	Intel 82598
Holder:	Metal Bracket
Weight	270 gram (9.524 Oz)
Power Consumption:	11.2 W, 0.59A at 12V and 1.24A at 3.3V: Typical, all ports operate at 10Gbit/s. 11.0W, 0.59A at 12V and 1.18A at 3.3V: Typical, No link at all ports.
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

	<p>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</p>
MTBF*	<p>58 (Years) *According to Telcordia SR-332 Issue 1 Environmental condition – G_B (Ground, Fixed, Controlled). Ambient temperature - 25°C. Temperature rise of 10°C above the system ambient temperature was assumed for the cards components</p>

PE10G2BPi-SR: LED / Connector Specifications

LEDs	<p>(2) LEDs per port Link: Turns on link (green) Act: Blinks on activity (green) Bi-color LED per Bypass pair: BYPASS: Turns on Bypass (green) Disconnect : Turns on Disconnect (yellow) Normal: Off</p>
LEDs location	<p>LEDs are located on the PCB, visible via holes in the metal bracket holder</p>
Connectors:	<p>LC</p>

Order Information:

P/N	Description	Note
PE10G2BPi-SR-SD	Dual port Fiber (SR) 10 Gigabit Ethernet PCI Express Bypass Server Adapter	RoHS Compliant, X8, based on Intel 82598, standard height card

Note: Model P/N -SD
-SD: Side Driver
-LP: Assemble Low Profile Metal Bracket