Silicom Ltd.
Connectivity Solutions

PEG2BPiX1
Dual Port Copper Gigabit Ethernet PCI Express Bypass Server Adapter Intel® based

Description

Silicom's Dual Port Gigabit Ethernet Bypass server adapter is a PCI-Express X1 Bypass network interface card. The Silicom's Dual Port Gigabit Ethernet Bypass server adapter is designed to provide maximum up time for the network.

Silicom's Dual Port Gigabit Ethernet Bypass server adapters support Normal and Bypass modes. In Normal mode, the ports are independent interfaces. In Bypass mode, all packets received from one port are transmitted to adjacent port.

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.

Silicom's Dual Port Gigabit Ethernet Bypass server adapters include an on board WDT (Watch Dog Timer) controller. The on board controller can Bypass the Ethernet ports on host system failure like Power Off, System hangs or software application hangs.

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

Key Features

Bypass:

- Bypass Ethernet ports on Power Fail, System Hangs or Software Application Hangs
- Software programmable Bypass 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
- Programmable state (Bypass mode or Normal mode) at Power up
- Emulates standard NIC

Copper Gigabit Ethernet 1000Base-T:

- Independently copper Gigabit Ethernet channels support six, four, two and one 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
- 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 Mode status

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^wdt_interval_parameter)*(0.1) sec. wdt_interval_parameter: {Valid Range: 0-15}
Copper Gigabit Ethernet Technical Specifications - (1000Base-T) Adapters:	
IEEE Standard / Network topology:	Gigabit Ethernet, 1000Base-T Fast Ethernet, 100Base-TX Ethernet, 10Base-T
Full duplex / Simplex:	Support both Simplex & Full duplex operation in all operating speeds
Auto negotiation:	Auto-negotiation between Full duplex and simplex operations and between 10Mb/s 100Mb/s speeds and duplex 1000Mb/s
Data Transfer Rate:	1000 Mbit/s, 100 Mbit/s and 10 Mbits/sec in simplex mode per port. 2000Mbit/s 200 and 20 Mbit/s in full duplex mode per port
Cables and Operating distance:	10Base-T Category 3, 4, or 5 maximum 50m * 100Base-Tx Category 5 maximum 50m * 1000Base-T Category 5E maximum 50m * *Theoretical Distance – Defined as half a distance as stated by the IEEE 802.3 standard
Operating Systems Support	
Operating system support:	Windows Linux FreeBSD VMware
General Technical Specifications	
Interface Standard:	PCI-Express Base Specification Revision 1.0a
Board Size:	PCI short add in Card 167.64 mm x 68.91mm 6.6”X2.713”
PCI Express Card Type:	X1
PCI Express Voltage:	+3.3V ± 9%, +12V ± 8%

PCI Connector:	Gold Finger: X1
Controller: :	Intel 82571EB
Holder:	Metal Bracket: Full Height and low profile, detailed description Appendix B
Weight:	100 gram (3.53 Oz)
Power Consumption:	Normal mode: 0.02A at 12V and 1.9A at 3.3V: Typical all ports operate at 1000Mbit/s. 0.02A at 12V and 1A at 3.3V: Typical all ports operate at 100Mbit/s. 0.02A at 12V and 0.95A at 3.3V: Typical all ports operate at 10Mbit/s. 0.02A at 12V and 0.9A at 3.3V: Typical No link at all ports. Bypass Mode: 0.02A at 12V and 0.75A at 3.3V: Typical
Operating Temperature:	0℃ – 50℃ (32℉ - 122℉)
Storage:	-20℃–65℃ (-4℉–149℉)
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:	111 (Years) *According to Telcordia SR-332 Issue 1 Environmental condition – GB (Ground, Fixed, Controlled). Ambient temperature - 25℃. Temperature rise of 15℃ above the system ambient temperature was assumed for the cards components.
LEDs	
LEDs:	(3) LEDs per port Link/Activity: Turns on any link speed, blinks on activity (green). 100: Turns on 100 Mbit/s link (green). 1000: Turn on 1000 Mbit/s link (green). Bypass: LED 1000 and LED 100 are turn on.
LEDs location:	LEDs are located on the PCB, visible via holes in the metal bracket holder
Connectors:	(2) Shielded RJ-45

Order Information

P/N	Description	Notes
PEG2BPiX1-RoHS	Dual Port Copper Gigabit Ethernet PCI Express Bypass Server Adapter	X1, RoSH Compliant, 82571EB

Note: Model P/N -SD/-LP/-RoHS
-SD: Side Driver
-RoHS: RoHS Compliant / Lead free adapter
-LP: Assemble Low Profile Metal Bracket. Available only with Dual and Single ports adapters

1V0