Silicom Ltd.
Connectivity Solutions

PXG2BPi
Dual Port Copper Gigabit Ethernet PCI-X Bypass Server Adapter Intel® based

Description

Silicom Gigabit Ethernet Bypass server adapters are 64-bit/133Mhz PCI-X network interface cards that contain four/ two independent Gigabit ports on one PCI-X adapter.

Silicom's Gigabit Ethernet Bypass server adapters are designed with optical or copper bypass circuitry in order to provide maximum up time for the network.

Silicom's Gigabit Ethernet Bypass server adapters can Bypass its Ethernet ports on a host system failure, power off, or upon software request. 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 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 Gigabit Ethernet Bypass server adapters have 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 PXBPI-Series are adapters are based on the 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
- Independent Bypass operation in every two ports

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

Common Key Features:

- Host Interface standard support:
  - PCI v2.2 32/64 bit, 33/66Mhz
  - PCI-X v1.0 32/64-bit, 66/100/133MHz
- High performance, reliability, and low power use in Intel 82546 dual integrated MAC + PHY / SERDES chip controller
- Ultra deep, 64 KB packet buffer per channel lowers CPU utilization, avoids PCI-X congestion
- 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
- Priority queuing – 802.1p layer 2 priority encoding
- Virtual LANs –802.1q VLAN tagging
- Jumbo Frame (16KB)
- 802.x flow control
- PCI Power Management Interface. (v1.1)
- PCI Hot Plug. (IBM, Compaq, Dell, and Microsoft)
- Statistics for SNMP MIB II, Ethernet like MIB, and Ethernet MIB (802.3z, Clause 30)
- LEDs indicators for link/Activity/Speed/Bypass 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 v2.2 32/64 bit, 33/66Mhz PCI-X v1.0 32/64-bit, 66/100/133MHz
Board Size:	PCI low profile short add in Card167.64 mm x 63.5mm (”6.6x2.5”)
PCI Card Type:	Universal 64 bit Card
PCI Voltage:	+5V (Min 4.75V, Max, 5.25V)
PCI Connector:	Universal 64 bit
Holder:	Metal Bracket: full-height and low-profile metal brackets Detailed description
Weight:	100 gram (3/5 oz)
Power Consumption:	NNormal mode: 1.73A at 5V: Typical all ports operate at 1000Mbit/s 0.76A at 5V: Typical all ports operate at 100Mbit/s 0.61A at 5V: Typical all ports operate at 10Mbit/s 0.56A at 5V: Typical No link at all ports
Operating Humidity:	0%–90%, non-condensing
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: Amendment A1 2000, A2 2003 Conducted Emissions Radiated Emissions CE EN 55024: 1998 Amendment A1: 2001, Amendment A2: 2003 Immunity for ITE CE EN 61000-3-2 2000 Harmonic Current Emissions CE EN 61000 3-3 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 MIC Class B VCCI 2002, Class B CISPR 22, 1997 Amendment A1 2000, A2 2002 VCCI 2002, Class B CISPR 22, 1997 Amendment A1 2000, A2 2002

MTBF*:	81 (Years) *According to Telcordia SR-332 Issue 1 Environmental condition – GB (Ground, Fixed, Controlled). Ambient temperature - 25℃. Temperature rise of 10℃ 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
PXG2BPiA-RoHS	Dual Port Copper Gigabit Ethernet PCI-X Bypass Server Adapter	RoHS Compliant, 82546GB controller. Compatible product to the PXG2BPi-RoHS
PXG2BPi-RoHS	Dual Port Copper Gigabit Ethernet PCI-X Bypass Server Adapter	RoHS Compliant, 82546GB controller
PXG2BPi	Dual Port Copper Gigabit Ethernet PCI-X Bypass Server Adapter	Version 1.1 (and on) 82546GB controller, Version 1.0: 82546EB controller

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

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