PEG2BP - Dual Port Copper Gigabit Ethernet PCI Express Bypass Server Adapter Broadcom® based

Introduction

Silicom Gigabit Ethernet Bypass server adapters are PCI Express network interface cards that contain four/two independent Gigabit ports on one PCI Express adapter.

Silicom's Gigabit Ethernet Bypass server adapters are designed with 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.

Silicoms Gigabit Ethernet Bypass server adapters include an on board WDT (Watch Dog Timer) controller. The adapters software drivers or software application can write commands to the on board WDT controller. The adapters 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

Silicoms PEBP-Series adapter are based on the advanced Broadcom 5715/ 5714 / 5704 PCI-Express / PCI-X Dual port Gigabit Ethernet MAC+PHY Controller.

Key features

- 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.
- 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:
- Host Interface PCI-Express 4X Lane (Version 1.0a).
- High performance, reliability, and low power use in Broadocm 5715 /5714 / 5704 dual integrated MAC + PHY and SERDES chip controller.
- Ultra deep, 64 KB 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 (9KB).

- 802.3x flow control.
- PCI Hot Plug.
- Statistics for SNMP
- RJ-45 female connectors.
- 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:	Linux kernel 2.4.x & 2.6.x FreeBDS 4.7, 4.9, 5.3, 5.4, 6.x Windows 2000 Windows 2003 Solaris 7,8,9,10 Sparc & x86 platforms

PEG2BP: General Technical Specifications

Interface Standard:	PCI-Express Base Specification Revision 1.0
Board Size:	PCI low profile short add in Card167.64 mm x 63.5mm (”6.6x2.5”)
PCI Express Card Type:	X4
PCI Express Connector:	Gold Finger: X4
PCI Voltage:	+3.3V ± 9%
Holder:	Metal Bracket: Full Height and Low-Profile
Weight:	110 gram (3.88oz)
Power Consumption:	2A at 3.3V: Typical, all ports operate at 1000Mbit/s.

	1.34A at 3.3V: Typical, all ports operate at 100Mbit/s. 1.19A at 3.3V: Typical, all port operates at 10Mbit/s. 1.26A at 3.3V: Typical, No link.
Operating Humidity:	0%–90%, non-condensing
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: 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
MTBF*:	143 (Years) *According to Telcordia SR-332 Issue 1 Environmental condition – GB (Ground, Fixed, Controlled). Ambient temperature - 25°C. Temperature rise of 10°C above the system ambient temperature was assumed for the cards components.

PEG2BP: LED / Connector Specifications

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
PEG2BP-RoHS	Dual Port Copper Gigabit Ethernet PCI Express Bypass Server Adapter

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

OV5