



### PE210G2RS

#### Dual Port 10 Gigabit PCI Express Packet Processor Server Adapter

##### Product Description

Silicom's 10 Gigabit Ethernet PCI Express RMI Packet Processor Server Adapter is designed for servers and high-end appliances.

The Silicom's 10 Gigabit Ethernet PCI Express RMI Packet Processor server adapter is targeted for network applications, such as multiservice VPN/ Firewall/IDS systems, that needs to process and monitor packets. The Silicom's 10 Gigabit Ethernet PCI Express RMI Packet Processor server adapter offloads host system processor from various tasks related to packet processing. In high networks rates such as 10 Gigabit this is essential.

The Silicom's 10 Gigabit Ethernet PCI Express RMI Packet Processor server adapter is a complete PCI Express server adapter solution incorporates security acceleration engine with up to 4 Gbps of DES/3DES, AES, SHA-1, MD5 and RSA to support in-line IPSec, SSL, and other secure protocol processing. The Silicom's 10 Gigabit Ethernet PCI Express RMI Packet Processor server adapter can be programmable using SuperSOC™ solution built for a C/C++ environment; it eliminates the need for microcoding or proprietary scripting to enable rapid application development and leverages widely available, well understood development tools.

The Silicom's 10 Gigabit Ethernet PCI Express RMI Packet Processor server adapter is based on RMI XLS416 Multi-Core Superscalar Communication Processor and Netlogic L7 Payload inspection processor.

The Silicom's 10 Gigabit Ethernet PCI Express RMI Packet Processor server adapter offers simple integration into any PCI Express X8 to 10 Gigabit Network.

##### Key Features

###### Adapter Features:

- Programmable Intelligent 10 Gigabit PCI Express NIC
- Front End Packet Processing offload
- C-programmable, flexible
- Cost and power efficient
- Potential Capabilities:
- Offloading from L1 to L7
- Deep packet Inspection
- RegEx Acceleration
- Unified threat management, Firewall, Anti-Virus, VPN

- Content Aware Packet forwarding
- TCP/IP Offloading
- Security Acceleration (IPSec, SSL)
- Compression Acceleration
- Storage Acceleration (RDMA, ISCSI, and FCoE)

#### **Programmable Adapter:**

- A true programmable solution built for a C/C++ environment
- The RMI processor eliminates the need for micro coding or proprietary scripting, enabling rapid application development and leveraging widely-available well-understood development tools
- Software investment protection due to compatibility among RMI processors
- The combination of multi-issue, multi-threaded architecture with security accelerators and NetLogic's regular expression matching with zero memory footprint, offers the best of both worlds – in terms of price, power, and performance

#### **Chips-set:**

- Based on RMI XLS416
- NetLogic NLS 205/405 for Deep Packet Inspection at wire speed
- NetLogic software (up to NLS1005) included
- XLS Software will be forward compatible with RMI XLP series: Customer can start with XLS and port to XLP

#### **XLS416 Processor Features:**

- CPU @ 1.2 GHz
- Up to four processor cores each 4-way multithreaded
- MIPS64®-compatible architecture with enhanced instructions
- Security: DES/3DES, AES, ARC4, Kasumi, SHA, MD5, RSA, ECC
- Compression: GZIP, DEFLATE, ZLIB

#### **NLS405 Features:**

- Gbps (NLS405) throughput
- String and Perl-Compatible Regular Expression (PCRE) signature recognition
- Rule database stored on-chip – no external memory required for most databases
- Database capacity expandable using host memory
- Prevention against DoS
- Support for over 100,000 simultaneous sessions or flows
- Full content inspection across packet boundaries

- Anchored and unanchored recognition with arbitrary length signatures

**SFP+ 10 Gigabit Ethernet:**

- 10 Gigabit Ethernet Adapter with SFP cage support:
- Compliant with the SFP+ MSA SFF-8431 specification
- Fiber 10 Gigabit Ethernet 10GBASE-SR:
  - 10BASE-SR with 10Gigabit 850nM Small form Factor Pluggable (SFP+)
- Fiber 10 Gigabit Ethernet 10GBASE-LR:
  - 10BASE-LR with 10Gigabit 1310nM Small form Factor Pluggable (SFP+)

**Host Interface:**

- PCI Express X8 lane
- Support PCI Express Base Specification Revision 2.0
- LEDs indicator for link/Activity

**Software:**

A BSP will be provided which includes bootloader, Linux kernel and drivers for the XLS and NLS device. This will allow user to develop application on top of Linux. RMI also provides an RMIOS environment, which allows C program to run directly on the processor without a full-fledge OS. RMIOS provides optimized driver for the networking controller in XLS that is optimized for high performance packet processing applications.

**Technical Specifications**

<b>SFP+ 10 Gigabit Ethernet Technical Specifications (10GBase-SR/10GBase-LR):</b>	
<b>SFP+ (Small Form Factor Pluggable) supports:</b>	SFI interfaces supports 10GBase-R PCS and 10 Gigabit PMA in order to connect with SFP+ to 10GBase-SR / 10GBase-LR
<b>IEEE Standard / Network topology: with 10GBase-SR SFP+</b>	Fiber 10 Gigabit Ethernet, 10GBASE-SR (850nM LAN PHY)
<b>IEEE Standard / Network topology: with 10GBase-LR SFP+</b>	Fiber 10 Gigabit Ethernet, 10GBASE-LR (1310nM LAN PHY)
<b>Operating Systems Support</b>	
<b>Operating system support:</b>	Linux

General Technical Specifications	
<b>Interface Standard:</b>	PCI-Express Base Specification Revision 2.0
<b>Board Size:</b>	214.63mm X 106.68mm / (8.45" X 4.2")
<b>PCI Express Card Type:</b>	X8 Lane
<b>PCI Express Voltage:</b>	+3.3V +-9%, +12V +- 8%
<b>PCI Connector:</b>	Gold Finger: X8
<b>Controller:</b>	Broadcom BCM5708C
<b>Processor:</b>	XLS416
<b>Payload inspection processor:</b>	NLS405
<b>Holder:</b>	Metal Bracket
<b>Weight:</b>	360gr (12.7oz)
<b>Power Consumption:</b>	Typical (maximum measured) 36W (12V @ 2.82A; 3.3V @ 0.66A) * requires power cable
<b>Operating Humidity:</b>	0% – 90%, non-condensing
<b>Operating Temperature:</b>	0°C – 50°C (32°F – 122°F)
<b>Storage:</b>	-20°C – 65°C (-4°F – 149°F)
<b>EMC Certifications:</b>	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

	<p>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 &gt;95%, 30% &gt;95% Duration 0.5per, 25per, 250per</p>
<b>LEDs</b>	
<b>LEDs:</b>	<p>LED per port  Link /ACT : Turns on link , blinks on activity (green)</p>
<b>LEDs location:</b>	<p>LED is located on the PCB, visible via holes in the metal bracket holder</p>
<b>Connectors:</b>	<p>(2) SFP+ cage</p>

## Order Information

P/N	Description	Notes
<b>PE210G2RS416N4</b>	Dual port 10GBE PCI Express Packet Processor Server Adapter	X8, Gen 2, based on RMI XLS416 Freq 1.2Ghz, NLS405, Up to 4Gbps throughout, 1Giga Byte DDR2 Freq. 667Mhz
<b>PE210G2RS416N2</b>	Dual port 10GBE PCI Express Packet Processor Server Adapter	X8, Gen 2, based on RMI XLS416 Freq 1.2Ghz, NLS205, Up to 2Gbps throughout, 1 Giga Byte DDR2 Freq. 667Mhz
<b>PE210G2RS416N0</b>	Dual port 10GBE PCI Express Packet Processor Server Adapter	X8, Gen 2, based on RMI XLS416 Freq 1.2Ghz, NLS chip de- populated, 1 Giga Byte DDR2 Freq. 667Mhz

**Legend:**

PE2: PCI Express Gen2

10G: 10 Gigabit Ethernet

2: Number of ports

R: RMI

S: XLS

408 / 416: XLS408 / XLS416

N4 / N2 / N0 N4: LS405 / N2: NLS205 / N0: NLS de-populated

-SR -LR -XR: -SR: Short reach : with -10GBase-SR 850nM optical T/R

-LR: Long reach : with -10GBase-LR 13100nM optical T/R

-XR: Without T/R

**1V3**