WANic 56512 Packet Processor

Intelligent High-Performance 10 Gigabit Ethernet Packet Processor PCI-Express Card

Interface Support

- Supports the intelligent high-performance Cavium OCTEON™ Plus 12-core 750 MHz CN5650 processor
- Up to 4 GB of high-speed DDR2 SDRAM Packet Memory via VLP Mini-RDIMMs (4 GB standard)
- Front panel access ports for 10 Gb Ethernet via two 10GBase-SR/LR SFP+ transceivers
- 32 MB of DDR SDRAM persistent memory
- Up to 4 GB USB Flash Disk (2 GB standard)
- 4 lane PCI-Express host interface

Compliance/Form Factor

- PCI-SIG – PCI-Express CEM R1.1 compliant
- PCI-SIG – PCI-Express Base R1.1 compliant
- PCI single slot card
- Designed for NEBS compliance

Software Support available

- Popular Cavium/Debian Linux® Support Package and Device Drivers
- Embedded boot loader and diagnostics (POST)

Applications

- Session Border Controller (SBC)
- Secure Access (IPsec)
- Network Address Translation (NAT)
- Traffic Management
- Firewall
- Deep Packet Inspection (DPI) and Lawful Intercept

Product Reliability

- Reliability calculated via Telcordia SR332 Issue 1
- Technical support for OEM customers and resellers

The WANic™ 56512 is an intelligent, high performance Packet Processor based on the OCTEON™ Plus multi-core processor. Ideal for IP communications networks, the WANic packet processor can be configured to enable a wide variety of applications such as demanding wire-speed communications for secure IP access.

The WANic 56512 provides a 12-core Cavium OCTEON Plus CN5650 processor at up to 750 MHz with 2 Mbytes (MB) of shared L2 cache memory, delivering up to 10 Gb/s line-speed packet processing for Layers 2-7. Up to 4 GBytes (GB) of high-speed DDR2 Packet Memory is implemented using VLP Mini-RDIMM modules. Thirty-two megabytes of DDR SDRAM persistent memory for storing state information is included. Up to 4 GB of Flash Disk is available for bulk memory storage.

To optimize application performance, the CN5650 supports a dual-issue, five-stage pipeline and optimized latencies as well as auto instruction pre-fetching and advanced data prefetching features to minimize memory delays.

WANic 56512 supports high-speed communications to the host via a four lane PCI-Express bus interface.

For application flexibility, the WANic 56512 supports two 10 Gb Ethernet SFP+ transceivers

via the front panel, with options for SR/LR fiber or Direct Attach copper interfaces for the line connection.

Software

The WANic 56512 software implementation is a comprehensive development package designed to improve time-to-revenue. It is optimized to simplify application integration for multi-core processor development environments.

At its lowest level, the software includes a Universal Boot (U-Boot) loader and comprehensive Power On Self Test (POST) firmware embedded in the product. This boot package is loaded from Flash memory or via the host PCI-Express bus.

A Linux Support Package (LSP) and sample application code, designed to exercise the packet processor, is provided to aid in application development. This LSP includes a Linux Operating System and user application diagnostics. It loads user application code from a TFTP server, Flash memory or via the host PCI-Express bus, and includes a well-defined Application Program Interface (API) to ease application development. Support for other operating systems is available upon request.

To further improve customer time-to-market, optional software modules such as an IPv4/IPv6 stack, IPSec, QoS management, multicast forwarding, IP filtering, VLAN, L2 tunneling and application programming frameworks are available from GE and/or its partners.

WANic 56512 10 Gb Ethernet Packet Processor PCI-Express Card

Specifications

Processor
- OCTEON Plus CN5650, 12-core, up to 750 MHz

Memory
- Up to 4 GB of DDR2 SDRAM via VLP Mini-RDIMMs (4 GB standard)
- 32 MB of DDR SDRAM persistent memory
- Up to 128 MB Flash memory
- Up to 4 GB of Flash Disk (2 GB standard)

Front-Panel
- 2 × 10 Gigabit Ethernet SFP+
- Power and Status LEDs

Bus Interconnect
- x4 PCI-Express host interface

Network Interface
- 2 × 10 GbE 10GBase-SR/LR

PCI-SIG Compliance
- PCI-SIG – PCI-Express CEM R1.1
- PCI-SIG – PCI-Express Base R1.1

Dimensions
- Form Factor: PCI-Express standard, half length card
- Dimensions: [H] 4.2 inches (10.67 cm) × [W] 6.6 inches (16.76 cm)

Power Requirements
- +12.0 Vdc and +3.3 Vdc
- Less than 50 watts

Current & Power Limits for Connectors
- 3.702W typical max @ +3.3V Rail Voltage (PCIe Edge)
- 39.062W typical max @ +12V Rail Voltage (J4 external connector)
- Total: 42.764W typical max

Cooling Requirements
- Board with heat sink assembly:
  Minimum volumetric flow rate at a maximum ambient temperature (Celsius) in Linear Feet per Minute (LFM):
 - 205 LFM @ 25° C
  - 305 LFM @ 40° C
  - 505 LFM @ 55° C

Environmental
- Temperature
  - Operating: 0° to +55 °C
  - Storage: -40° to +85 °C
- Relative Humidity
  - Operating: 5% to 95%, non-condensing
  - Storage: 5% to 95%, non-condensing
- Required Air Flow: 580 LFM @ +55° C

Regulatory Compliance:
- CE Mark
- Emissions:
  - FCC 47CFR Part 15 Class A (USA)
  - EN55022: 1998/A1:2000/A2:2003 Class A ITE (EU)
  - AS/NZ CISPR 22:2002 Class A (Aus. New Zealand)
  - ICES-003 Issue 3 Class A (Canada)
  - VCCI Class A ITE (Japan)
- Immunity
  - EN55024:1998/A1:2001/A2:2003 (EU)
- Safety
  - UL60950-1 (USA)
  - CSA 22.1 no. 60950-1-03 (Canada))
  - EN 60950-1 (EU)
- RoHS 2002/95/EC compliant

Block Diagram
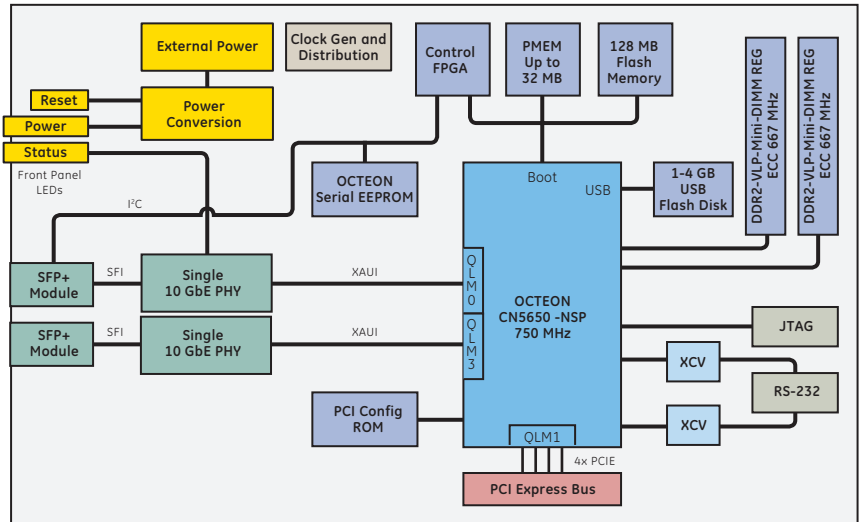
Ordering Information

WPC5D62101001	WANic 56512 with 12-core CN5650-NSP @ 750 MHz; 4 GB DDR2, 32 MB persistent memory; 2 GB Flash Disk, 2 × 10 GbE interface; no SFP+
88020-366	Serial Adapter Cable Kit
SFP-0A	10Gb SFP+ SR Transceiver
SFP-0B	10Gb SFP+ LR Transceiver
CBL-PWR	LP6 to LP4 Power Adapter cable for WANic 56512
WPC5D-SDK-Linux	WANic 56512 Software and Manual CD

About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit www.ge-ip.com.

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