WANic™ 6354 Packet Processor

Intelligent High-Performance OCTEON II™ Ethernet Packet Processor PCI Express Card

Features

Interface Support

- Supports the high-performance Cavium OCTEON II™ CN6335-AAP 6-core, 1.1GHz processor
- 4GB of high-speed DDR3 SDRAM Packet Memory via VLP Mini-RDIMMs
- 512MB of high-speed DDR3 SDRAM HFA/DFA memory for the Regular Expression Engine
- 4 front panel access ports of Gigabit Ethernet (SFP SR, LR)
- 32MB of SDRAM Persistent Memory
- 2GB USB Flash Disk (Up to 16GB optional)
- 4 lane PCI Express Generation 2 host interface

Compliance/Form Factor

- PCI-SIG – PCI Express CEM R2.0 compliant
- PCI-SIG – PCI Express Base R2.1 compliant
- PCI Express single slot card
- Designed for NEBS compliance

Software Support available

- Popular GE Intelligent Platforms SDK supporting Linux & Simple Executive, utilities 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) & Lawful Intercept
- Ethernet/IP Test & Measurement Equipment
- Low latency gateways and packet filters

Product Reliability

- Reliability calculated via Telcordia SR332 Issue 2
- Technical support for OEM customers and resellers

The WANic™ 6354 is a high performance Packet Processor based on the Cavium OCTEON II™ multi-core processor. Ideal for IP communications networks, the WANic 6354 can be configured to enable a wide variety of applications such as demanding wire-speed communications for secure IP access, network encryption, network monitoring and Deep Packet Inspection.

The WANic 6354 provides a 6-core OCTEON II CN6335-AAP Applications Acceleration Processor with 2 MBytes of shared L2 cache memory, delivering up to 4 Gb/s line-speed packet processing for Layers 2-7. Up to 4 GBytes of high-speed DDR3 memory is implemented using VLP Mini-RDIMM modules. Also, 512 Mbytes of DDR3 SDRAM is implemented for Regular Expression pattern matching engine memory (HFA/DFA). 32 MB of SDRAM is available for use as Persistent Memory in storing processor state information. Up to 16 GBytes of eUSB Flash Disk are optional for bulk memory storage.

To optimize application performance, the CN6335 supports a dual-issue, eight-stage pipeline and optimized latencies as well as auto instruction pre-fetching and advanced data prefetching features to minimize memory delays.

The WANic 6354 supports high-speed communications via a four lanes PCI-Express Generation 2 bus interface to the host.

IEEE 1588 support and hardware timestamping provide time synchronization for Ethernet. Hardware timestamping with 100 nanosecond or less granularity, such as that provided by the OCTEON II, is of particular interest to folks involved in monitoring and evaluating Ethernet traffic since it facilitates reporting flow/timing details for the network being monitored.

Four front panel ports with SFP connectors support IEEE 10/100/1000BaseT Gigabit Ethernet as well as short and long-reach optical.

Software

A comprehensive development package designed to improve time-to-revenue is offered with the WANic 6354. 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.

A Software Development Kit (SDK) and sample application code, designed to exercise the packet processor, is available to aid in application development. The GE Intelligent Platforms SDK includes a Linux Operating System, drivers and user application diagnostics, both Linux and Simple Executive examples. 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.

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Specifications

Processor
- OCTEON II™ CN6335-AAP, 6-core, up to 1.1GHz

Memory
- 4GB of DDR3 SDRAM Packet Memory via VLP Mini-RDIMMs
- 512MB of DDR3 HFA/DFA SDRAM
- 32MB of SDRAM Persistent Memory
- Up to 128MB Flash memory
- 2GB of eUSB Flash Disk (Up to 16GB optional)

Front-Panel
- 4x 1 Gigabit Ethernet, SFP connectors
- Status LEDs

Bus Interconnect
- x4 PCI Express Gen2 host interface

PCI-SIG Compliance
- PCI-SIG – PCI Express CEM R2.0
- PCI-SIG – PCI Express Base R2.1

Dimensions
- Form Factor: PCI Express single slot card
- Dimensions: [H] 4.2 inches (10.67cm) x [W] 6.6 inches (16.76cm)
- Weight: 0.582 lbs. (0.3 Kg) with SFPs; 0.474 Lbs (0.2Kg) no SFPs

Power Requirements
- +12.0Vdc and +3.3Vdc
- Less than 40 watts

Current and Power Limits
- 7.316 watts typical max @ +3.3V rail voltage (PCIe Edge)
- 32.755 watts typical max @ +12V rail voltage (J4 PCIe Graphic Power Connector)

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

Cooling Requirements
- Board with heat sink assembly – Minimum volumetric flow rate at a maximum ambient temperature (Celsius) in Linear Feet per Minute (LFM):
  - 300 LFM @ 25° C
  - 450 LFM @ 40° C
  - 650 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
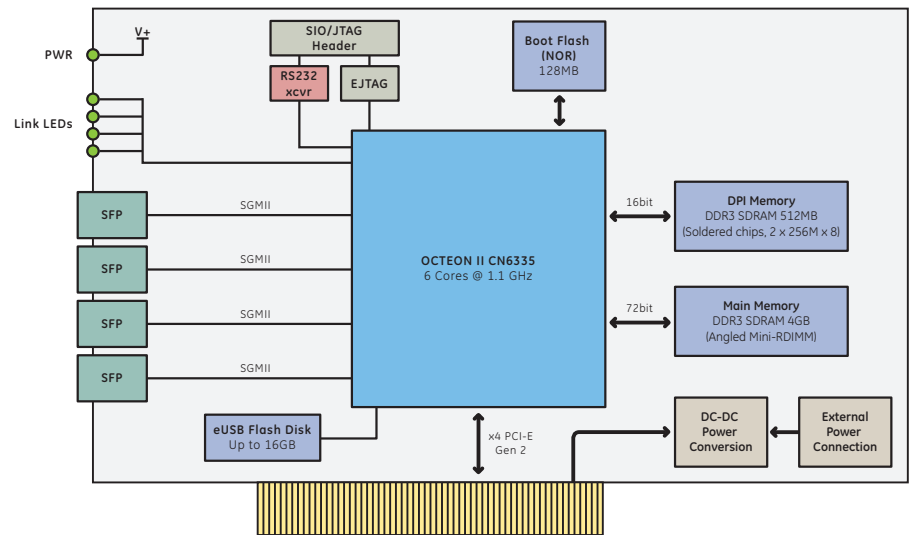
Ordering Information

WPC63541AA001	OCTEON II CN6335-AAP 6-core 1.1GHz, PCI Express Packet Processor, 4GB DDR3, 2GB Flash, SyncE, 32MB Persistent Memory, no SFPs
SFP-0D	1000BaseSX SFP transceiver
SFP-0E	1000BaseLX SFP transceiver
SFP-0F	10/100/1000BaseT SFP transceiver
WPC6-SDK-LINUX	Software Development Kit for WANic series 63x4
88020-366	Serial Adapter Cable Kit
CBL-PWR	Power Adapter Cable Kit

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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04.11 GFA-1710