Multi-Core MIPS64® Processors

OCTEON® II CN67XX Multi-Core MIPS64 Processors
Product Brief

OCTEON® II
CN67XX

OVERVIEW

The OCTEON II CN67XX family of Multi-Core MIPS64 Processors targets high-performance, high-throughput, service-rich applications in secure datacenter, mobile internet, and borderless enterprise applications. The family includes six software and pin-compatible processors, with 8 to 16 cnMIPS64 v2 cores and full pin and software compatibility with the OCTEON II CN68XX processor family which enables scaling up to a 32 cores using the same hardware and software design. The CN67XX also offers over 60 application acceleration engines and the latest standards-based connectivity including PCIe Gen2, XAUI, Double-speed XAUI, RXAUI, and Interlaken and provides major compute performance, throughput, and services performance advantages over alternative solutions.
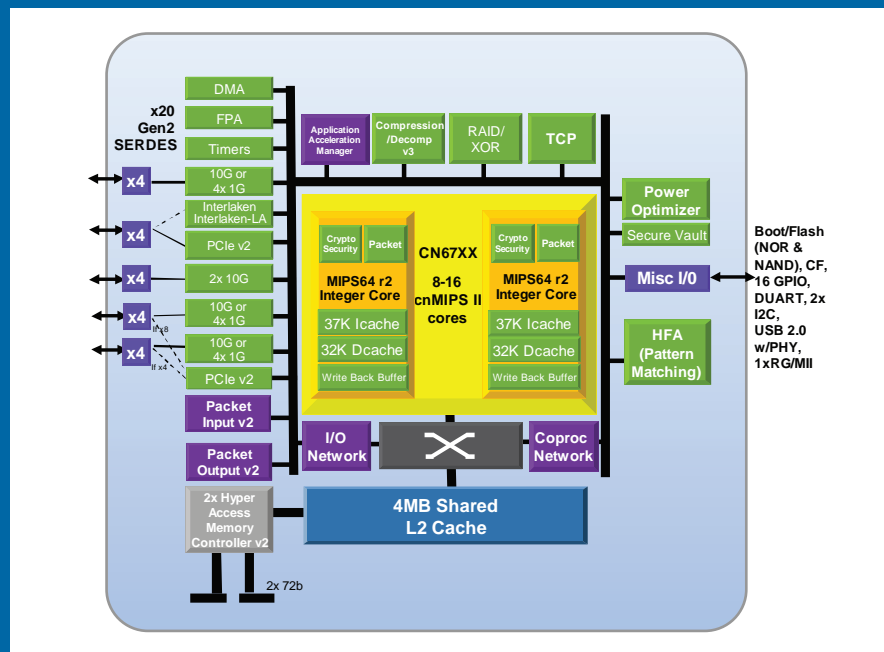
FEATURES

- Up to 16 MIPS64 cores and 2x DDR3 controllers with scalability in the same pinout to 32 cores and 4x DDR3 controllers; SW compatible with OCTEON Plus
- Latest, Highest-Bandwidth Serial I/O's for Standard Connectivity: XAUI/RXAUI, Interlaken, PCIe Gen 2
- New LZS storage compression mode, compression/ decompression performance up to 20Gbps
- Third generation Reg Ex Engine with revolutionary Hyper Finite Automata (HFA) up to 15 Gbps
- High-bandwith, low-latency I/O and coprocessor networks
- Hardware and software virtualization
- Power Optimizer Technology with flexible, dynamic control of device core power consumption
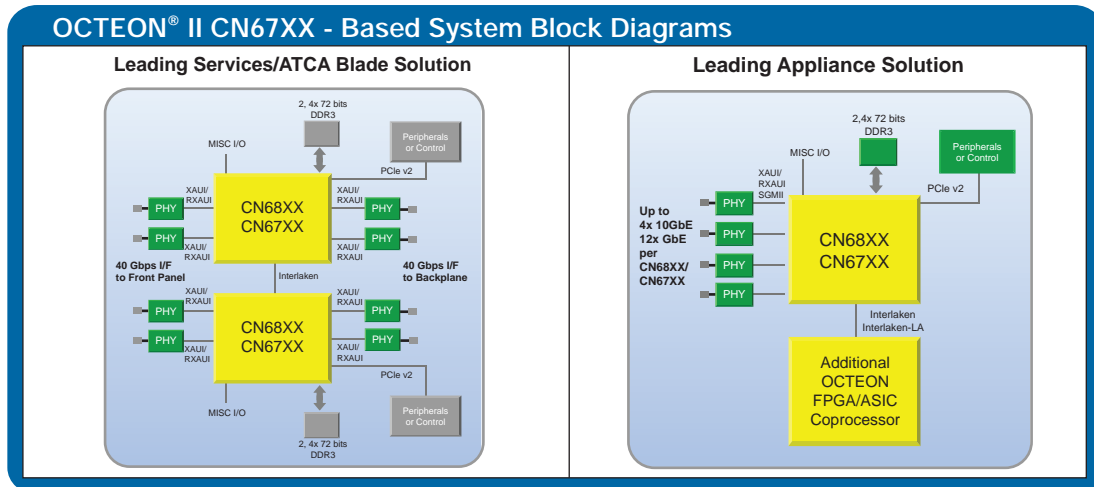
BENEFITS

- Up to 24 GHz of total compute in a single chip > 200Gbps DDR3 bandwidth
- > 40 Gbps packet processing and security processing with seamless connectivity to peripherals
- Accelerates LZS to address additional storage applications in addition to ZIP/PKZIP/GZIP support
- Deterministic pattern matching performance, independent of # of flows and rules, most compact graph size
- Linear performance scaling with full coprocessor services at line rate
- Ability to partition into multiple virtual SoCs
- Flexible, dynamic power control to achieve best performance/Watt

OCTEON® II CN67XX - Block Diagram

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OCTEON® II CN67XX - Based System Block Diagrams

Leading Services/ATCA Blade Solution

Leading Appliance Solution

OCTEON II APPLICATIONS

- Borderless Enterprise
  - High-End Enterprise Switches + Routers
  - Wireless LAN Controllers
  - Unified Threat Management Appliances
  - WAN Optimization Appliances

- Secure Cloud Services
  - Application Delivery Switches
  - Secure Storage switches, FC to IP bridges
  - Load Balancers
  - Security Appliances and Blades

- Mobile Internet
  - 3G/4G/LTE Gateways
  - ATCA Blades and AMC's
  - xGSNs, Evolved Packet Core (ePC)

OCTEON II SOFTWARE SUPPORT

- Cavium SDK includes:
  - Up to 32-way SMP LINUX support
  - Cavium Simple Executive for data plane applications
  - Complete GNU tool-chain, GCC, GDB and DDD
  - Viewzilla, Perfzilla, and Oprofile for performance tuning
  - Optimized C libraries for security, regular expression, de/compression processing offload
  - Support for run-to-completion or pipelined software models

- Complete production quality development toolkits for TCP/IP, IPsec, SSL, SSL-VPN and Deep Packet Inspection available

- Comprehensive Ecosystem support
  - Popular third-party Operating systems and Toolchains
  - Broad range of third-party application software vendors
  - Appliances, AMC, ATCA cards from Cavium's Ecosystem support

- MIPS64/32 support enables thousands of MIPS and other C/C++ applications to be easily ported to OCTEON

OCTEON® II CN67XX - Product Family

Device	Part Number	cnMIPS cores	Max. Available Instructions Per Second	Option AAP	Option CP	L2 Cache	Networking Interfaces	PCI-Express/ SRIO	Memory IO w/ECC	Package
CN6740	CN6740-XXXBG1936- Option Code	8	24B	Y	Y	4MB	Up to 3x [XAUI or 4x SGMII]+ [1x XAUI or 2x RXAUI], Up to 1x Interlaken/LA x4 +1x RG/MII	Up to 1 x8 + 1 x4 PCIe v2	2x 72-bit DDR3	1936 FCB6A
CN6760	CN6760-XXXBG1936- Option Code	16	48B	Y	Y					

Device Options:
Device Speed Grade (800 = 800 MHz, 1000 = 1 GHz, 1200 = 1.2 GHz, 1500 = 1.5 GHz)
Option code for device family listed below:
AAP = Application Acceleration Processor: Includes RAID, encryption, RegEx acceleration, compression/decompression, networking, TCP acceleration, and QoS
CP = Communication Processor: Includes networking, TCP acceleration, and QoS