

OCTEON® II CN66XX Multi-Core MIPS64 Processors

Product Brief



OVERVIEW

The OCTEON® II CN66XX family of Multi-Core MIPS64 Internet Application Processors targets mainstream, high-volume applications in enterprise routers, switches, appliances, 3G/4G basestations, and intelligent storage and server adapters up to 15+Gbps. The family includes ten software and pin-compatible processors, with six to ten cnMIPS64 v2 cores on a massively integrated SoC that includes the latest SERDES-based I/O's including PCIe Gen2, XAUI, and sRIO, along with Cavium's most advanced third-generation application hardware acceleration to deliver a major performance, power, and real-estate value proposition over alternative solutions.

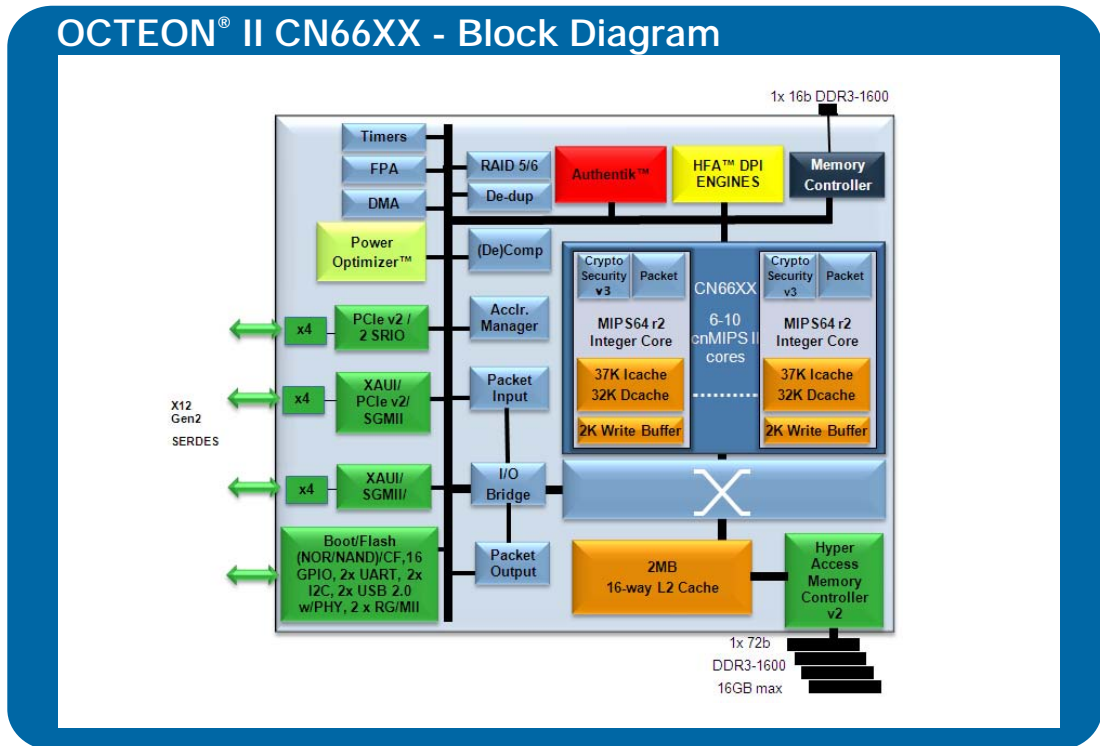
FEATURES

- Up to 1.5 GHz / core with large 2MB L2 cache and enhanced core architecture
- Packet I/O processors and hardware application acceleration manager
- New security acceleration engine with expanded algorithm support (3GSNOW)
- Third-generation pattern search capability with new Hyper Finite Automata (HFA) engines
- Latest memory and I/O Interfaces: DDR3, SRIO PCIe Gen2
- 2 x10GbE & 8GbE
- 12W to 28W max power and power optimizer technology
- Powerful DMA, RAID, and De-dup engines
- Boot from SPI

BENEFITS

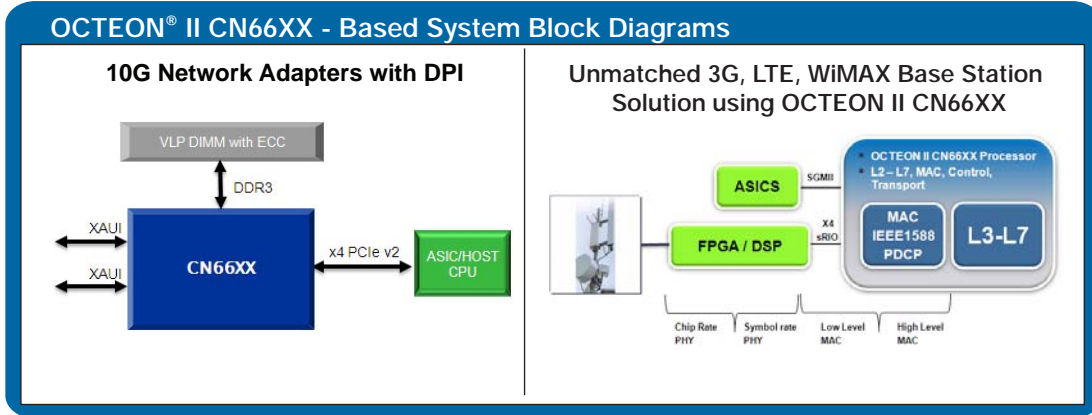
- Foot print and software compatibility with 63XX providing a seamless upgrade path to provide 2x performance
- 2x control plane performance per core with total compute of up to 15 GHz
- Up to 15+Gbps of packet processing with QoS
- Up to 15+Gbps security, addition of encryption support for 4G wireless
- 7Gbps+ Deep Packet Inspection, with mainstream pattern memory and 10X+ reduction in graph size
- Future proof I/O's along with seamless connectivity to DSP's and peripherals
- 3x performance/watt over best alternatives
- Enables 2 x10 Gbps storage HBAs, intelligent server & offload cards

OCTEON® II CN66XX - Block Diagram



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OCTEON II APPLICATIONS

- Next-generation integrated, standalone routers and appliances
- Unified Threat Management (UTM) appliances with Firewall, VPN (IPsec, SSL), IDS, IPS and anti-virus scanning
- Application aware/L4+ content processing and switching
- Network acceleration cards for security, TCP, content processing, compression
- Integrated management and route processor cards
- Switch/router line card and services card control and datapath processing
- TCP, iSCSI, RAID, compression processing for storage applications
- Wireless LAN switch/appliance security and packet processing
- Wireless Infrastructure control, packet, security, Deep Packet Inspection, security for LTE/4G/3G

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, GDB, DDD and viewzilla for 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 IP, IPsec, SSL, TCP, SSL-VPN 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 CN66XX - Product Family

| Device | Part Number | cnMIPS cores | Performance | Option | | L2 Cache | Networking Interfaces | PCI-Express Interfaces | Memory IO w/ECC | Package |
|--------|------------------------------|--------------|--|--------|---|----------|-----------------------|---|---------------------------------|-----------|
| | | | Max. Available Instructions Per Second | A | C | | | | | |
| CN6635 | CN6635-XXXBG900- Option Code | 6 | 18B | Y | Y | 2MB | 2 XAUI or 8x SGMII | 2x [x4 PCIe lanes or 1 x4 SRIO or 2 x2 SRIO | DDR3 up to 1600 MHz, 1 x 72-bit | 900 FCBGA |
| CN6645 | CN6645-XXXBG900- Option Code | 10 | 30B | Y | Y | 2MB | | | | |

Device Options:

Device Speed Grade (800 = 800 MHz, 1100 = 1.1 GHz, 1300 = 1.3GHz, 1500 = 1.5GHz)

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