

Multi-Core MIPS64[®] Processors

OCTEON III[®] CN70XX and CN71XX Single to Quad-Core Embedded Processors with Hardware Virtualization

Product Brief



OVERVIEW

The OCTEON[®] III CN70XX/CN71XX families of Multi-Core MIPS64 Processors target SMB and entry-level Enterprise platforms for networking and storage including Service Provider Gateways, Switches, Routers, Security Appliances, Network Attached Storage (NAS), Mainstream Control Plane, Network Attached Printers, Enterprise WLAN Access Points, Industrial and Military/Aero. The families includes six software and pin-compatible processors, with one to four cnMIPS64 v3 cores on a highly-integrated SoC that includes a rich set of I/O's including PCIe Gen2, 9 GbE controllers, 10GbE, USB 3.0, and SATA 3.0 along with Cavium's most advanced fourth-generation application hardware acceleration.

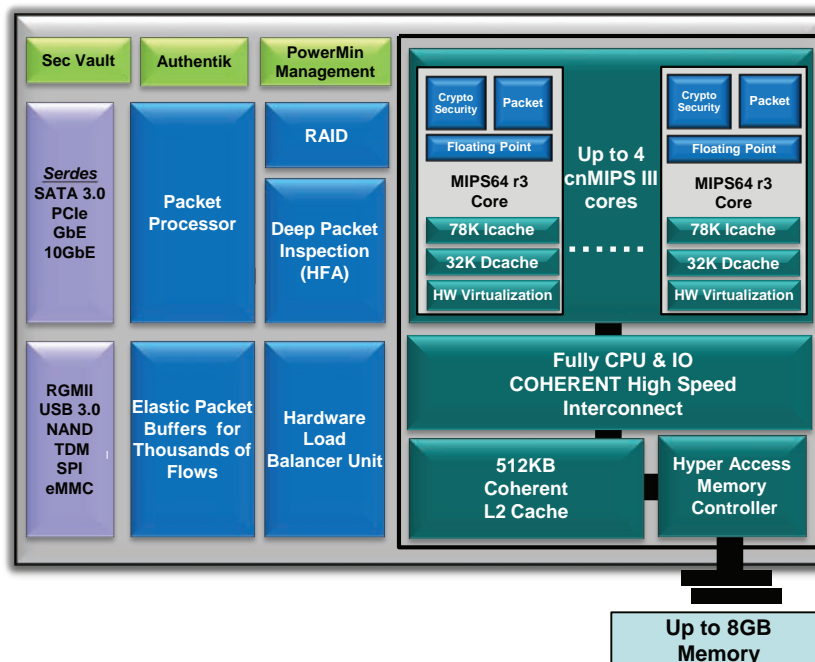
FEATURES

- Up to 4 cores at 1.6GHz per core with large 78K/32K L1 cache and shared 512KB L2 cache
- Rich I/O interfaces including DDR3/4, Q/SGMII, RXAU, SATA3.0, USB 3.0, and PCIe Gen2
- Integrated fourth-generation Deep Packet Inspection (DPI) and security acceleration engines without additional memory requirements
- Very low power down to <3W
- Integrated acceleration for networking, QoS, RAID, and multicore scaling
- Per Core Floating Point Unit and Hardware Virtualization
- 36b DDR3/DDR4 up to 1333MHz

BENEFITS

- Low power - suitable for fanless and POE designs
- Virtualization support enables legacy OS and applications to be firewalled
- >14M Packets Per Second of Networking Performance
- 23K Coremarks with gcc compiler (no special or custom compilers)
- >200MB/s of multi-flow NAS performance
- Quad-core scalability for performance and feature headroom. Single platform for variety of applications and OEM SKU
- Rich set of I/O minimizes BOM cost and enables most flexible system configuration options

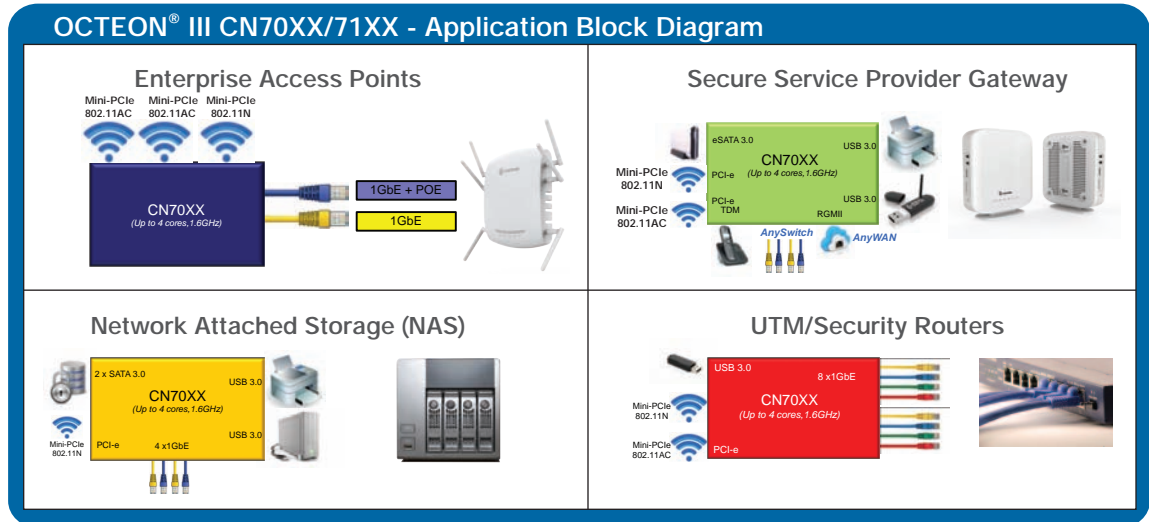
OCTEON[®] III CN70XX/CN71XX - Block Diagram



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OCTEON III CN70XX/71XX Applications

- Enterprise 802.11ac/n/g access points
- Next-generation service provider gateways
- UTM and security appliances
- Network attached storage
- Control plane processors for blades/appliances
- SME Routers and switches
- Network Attached Printers
- Industrial Control
- Military/Aero Applications

Software Support

- Industry's most comprehensive software development kit for embedded applications including
 - Commercial-grade Linux
 - Complete GNU tool-chain, GDB
 - Performance analysis and profiling tools
 - Optimized C libraries for security and DPI
- Integrated Application Development Kits (ADK's) for AP, Gateway, and Router applications
- Production-grade software toolkits for TCP/IP, IPSec, SSL
- OpenWRT for Gateway and Router applications

OCTEON[®] III CN70XX/71XX - Product Family

Device	cnMIPS cores	Max Frequency (MHz)	Networking I/F	Other System I/F	Memory I/O w/ ECC
CN7010	1	800, 1000, 1200	Up to 2 x (QSGMII/SGMII) + 1x RGMII	Up to 3x PCIev2 + 2x USB 3.0 + 2x SATA 3.0	1x 36-bit DDR3/4 with ECC
CN7020	2	800, 1000, 1200			
CN7120	2	1000, 1200, 1500, 1600	Up to 2 x (QSGMII/SGMII) or 1 x RXAUI + 1x RGMII		
CN7125	3	800, 1000, 1200, 1500, 1600			
CN7130	4	800, 1000, 1200, 1500, 1600			