

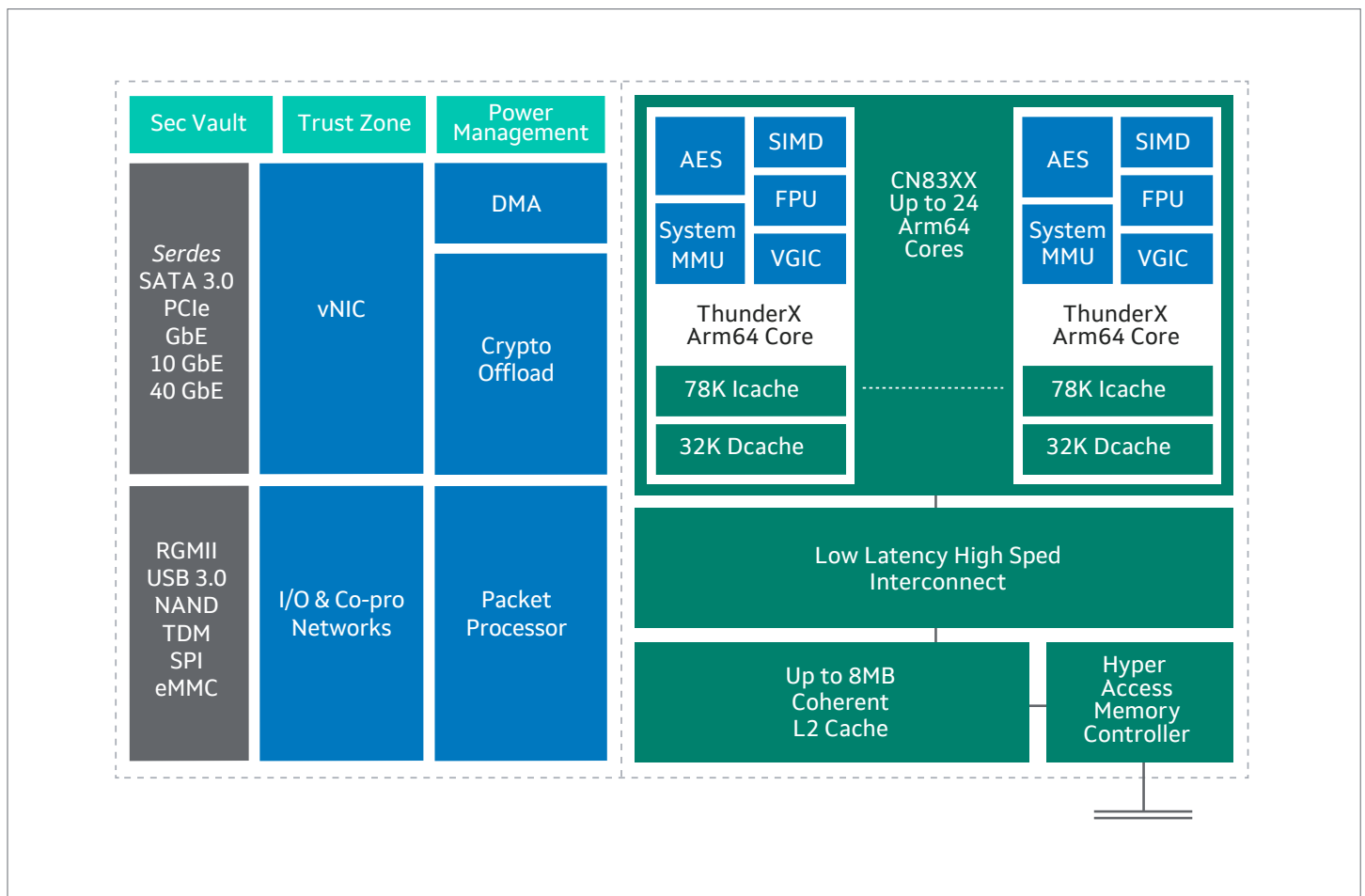
Marvell® OCTEON TX® CN82XX and CN83XX

Eight to Twenty Four Core Armv8 Embedded Processors with Hardware Virtualization

Overview

The OCTEON TX® CN82XX/CN83XX families of multi-core processors target Integrated routers, security appliances, Storage Controllers, Storage appliances, SD-WAN, vCPE, control plane for routers and switches, SDN and data center accelerators, virtualized storage, virtualized cable and wireless infrastructure markets. The families includes many software and pin-compatible processors, with eight to twenty four 64-bit Armv8 cores on a highly- integrated SoC that includes a rich set of I/O's including up to 3 x 40GbE, up to 12 x 10 GbE controllers, up to 12 x 1GbE controller, PCIe Gen3, USB 3.0, and up to 6 x SATA 3.0 along with Marvell most advanced networking and security application hardware acceleration.

Block Diagram



OCTEON TX CN82XX/CN83XX

Key Features

Features	Benefits
Up to 24 custom designed 64-bit Armv8 ThunderX cores at 2.2GHz per core with large 78K/32K L1 cache and shared up to 8MB L2 cache	• Virtualization support enables legacy OS and applications to be firewalled
Rich I/O interfaces including DDR3/4, 40GE XLAUI, 10GE (XFI, 10G-KR, XAUI), QSGMII, SATA3.0, USB 3.0, and PCIe Gen3	• Full SOC virtualization
High performance security acceleration engines without additional memory requirements	• Unified packet processing for both NFV workloads and high performance networking applications
Low power down to 15W	• 80M packets-per-second of networking performance
Integrated multi-core acceleration for networking, QoS, RAID, De-Dup and multicore scaling	• 240K Coremarks with gcc compiler
Per core floating point unit and hardware virtualization	• Twenty four core scalability for performance and feature headroom. Single platform for variety of applications and OEM SKU
Up to 2 x 72b DDR3/4 up to 2133MT/s	• High performance SDN and fully virtualized services accelerator cards

Target Applications

- Switch Control Plane Processors
- Control Plane Processors for Plades/Appliances and top of the Rack SDN Switches
- Firewall (FW), Virtual Private Network (VPN), UTM Security Appliances
- Integrated Routers
- Storage Controllers, Appliances and Accelerators
- Data Center Accelerators
- Storage Security/Compression Appliances
- Wireless Transport and Base Station
- UTM and Security Appliances
- Network attached Storage
- SMB/SME Routers and Switches
- Network attached Printers
- Industrial Control
- Mil/Aero Applications

Software Support

- Industry's most Comprehensive Software Development kit for Embedded Applications Including
 - Commercial-grade Linux
 - Complete GNU tool-chain, GDB, DDD
 - Performance analysis and Profiling Tools
 - Optimized C libraries for Security
 - OpenWRT for Gateway and Router Applications
 - DPDK Support
 - Open Data Plane (ODP) Support

Product Table

Part Number	ThunderX cores	Max Frequency (MHz)	Networking I/F	Other System I/F	Memory I/O w/ECC
CN8240	8	1200, 1500, 1800	Up to 12 XFI/SGMII or 2 x QSGMII	Up to 4 x Clev3 x4 or 2 x 8 + x4 or 6 SATA	1 x 72-bit DDR3/4 with ECC
CN8250	12				
CN8340	8	1500, 1800, 2000, 2200	Up to 3 XLAUI or 12 x (XFI/SGMII) or 1 x QSGMII	Up to 4 x PCIe3 x4 or 2 x 8 + x4 or 6 SATA	2 x 72-bit DDR3/4 with ECC
CN8350	12				
CN8360	16				
CN8365	20				
CN8370	24				



To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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