

# Eight to Twenty Four Core ARMv8 Embedded Processors with Hardware Virtualization

## OCTEON TX<sup>®</sup> CN82XX and CN83XX

### Product Brief

#### OVERVIEW

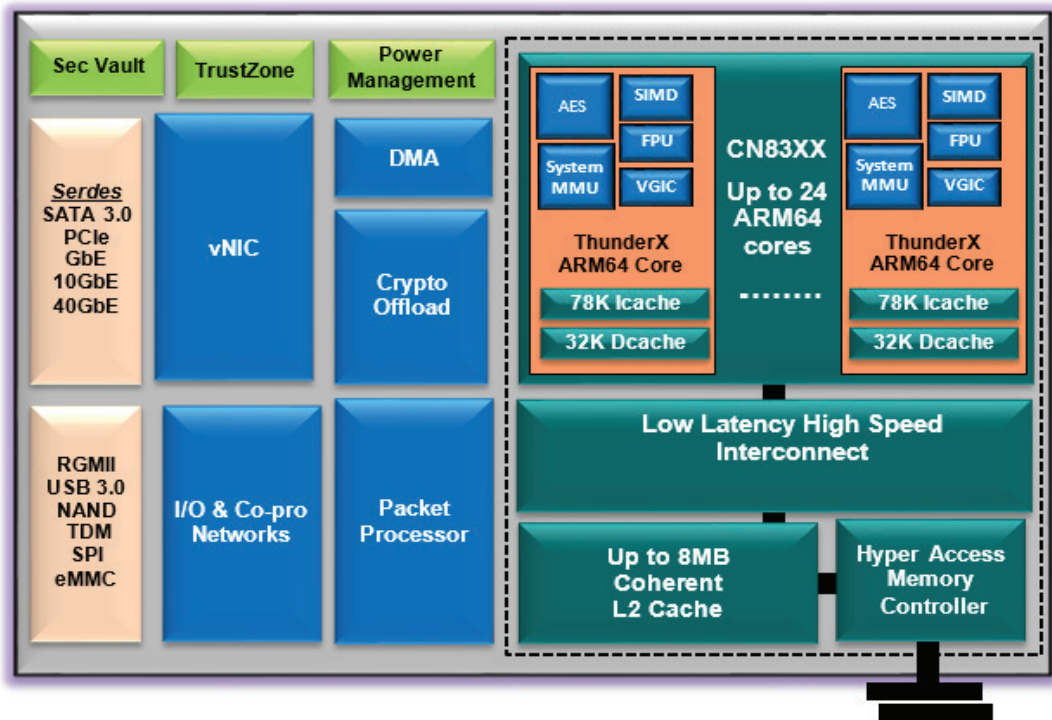
The OCTEON TX CN82XX/CN83XX families of Multi-Core Processors target Integrated Routers, Security Appliances, Storage Controllers, Storage appliances, SD-WAN, vCPE, Control Plane for Routers and Switches, SDN and Data Center Accelerators, Virtualized Storage, Virtualized Cable and Wireless Infrastructure 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 Cavium's most advanced networking and security application hardware acceleration.

#### FEATURES

- 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
- Rich I/O interfaces including DDR3/4, 40GE XLAUI, 10GE (XFI, 10G-KR, XAUI), QSGMII, SATA3.0, USB 3.0, and PCIe Gen3
- High performance security acceleration engines without additional memory requirements
- Low power down to 15W
- Integrated acceleration for networking, QoS, RAID, De-Dup and multicore scaling
- Per Core Floating Point Unit and Hardware Virtualization
- Up to 2 x 72b DDR3/4 up to 2133MT/s

#### BENEFITS

- Virtualization support enables legacy OS and applications to be firewalled
- Full SOC virtualization
- Unified Packet Processing for both NFV workloads and high performance networking applications
- 80M Packets Per Second of Networking Performance
- 240K Coremarks with gcc compiler
- Twenty Four core scalability for performance and feature headroom. Single platform for variety of applications and OEM SKU
- High performance SDN and fully virtualized Services accelerator cards



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#### OCTEON TX CN82XX/83XX APPLICATIONS

- Switch control plane processors
- Control plane processors for blades/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
  - OpenDataPlane (ODP) support

#### Product Table

Device	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 PCIev3 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 PCIev3 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				