

# Single to Quad-Core ARMv8 Embedded Processors with Hardware Virtualization

## OCTEON TX™ CN80XX and CN81XX

### Product Brief

#### OVERVIEW

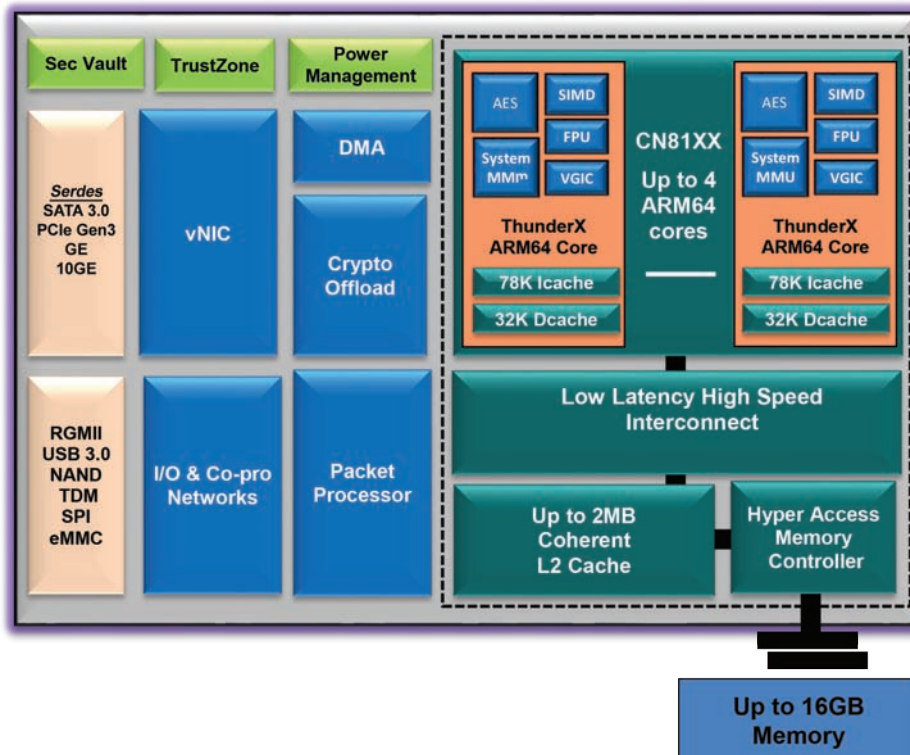
The OCTEON TX CN80XX/CN81XX families of Multi-Core Processors target SMB and entry-level Enterprise platforms for networking and storage including Service Provider Gateways, Switches Controller, Routers, Security Appliances, Network Attached Storage (NAS), Mainstream Control Plane, Enterprise WLAN Access Points, Industrial and Military/Aero. The families includes four software and pin-compatible processors, with one to four 64-bit ARMv8 cores on a highly-integrated SoC that includes a rich set of I/O's including 9 x GbE controllers, 8 x 10GbE controller, PCIe Gen3, USB 3.0, and SATA 3.0 along with Cavium's most advanced networking and security application hardware acceleration.

#### FEATURES

- Up to 4 custom designed 64-bit ARMv8 ThunderX cores at 2.0GHz per core with large 78K/32K L1 cache and shared up to 2MB L2 cache
- Rich I/O interfaces including DDR3/4, XFI, KR, Q/SGMII, RXAU, SATA3.0, USB 3.0, and PCIe Gen3
- High performance security acceleration engines without additional memory requirements
- Very low power down to <4W
- Integrated acceleration for networking, QoS and multi-core scaling
- Per Core Floating Point Unit and Hardware Virtualization
- 36b/72b DDR3/4 up to 2100MT/s

#### BENEFITS

- Low power - suitable for fanless and POE designs
- Virtualization support enables legacy OS and applications to be firewalled
- >11M Packets Per Second of Networking Performance
- 40K 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



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#### OCTEON TX CN80XX/81XX APPLICATIONS

- Switch control plane processors
- Control plane processors for blades/appliances
- Next-generation service provider gateways
- 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 and ODP Support

**Product Table**

Device	ThunderX cores	Max Frequency (MHz)	Networking I/F	Other System I/F	Memory I/O w/ ECC
CN8020	2	800, 1000, 1200, 1500	Up to 6x (SGMII/XFI) or 1x QSGMII + 1 x RGMII	Up to 3x PCIev2 + 2x USB 3.0 + 2x SATA 3.0	1x 36-bit DDR3/4 with ECC
CN8030	4	800, 1000, 1200, 1500			
CN8120	2	1200, 1500, 1800, 2000	Up to 8x (SGMII/XFI) or 2x QSGMII + 1 x RGMII	Up to 3x PCIev3 + 2x USB 3.0 + 2x SATA 3.0	1x 72-bit DDR3/4 with ECC
CN8130	4	1200, 1500, 1800, 2000			