

# Marvell® OCTEON TX2™ CN913X

Four Core Arm®v8 Multi-Core SoC for Intelligent Networking, Security, control plane, and Edge Computing

## Overview

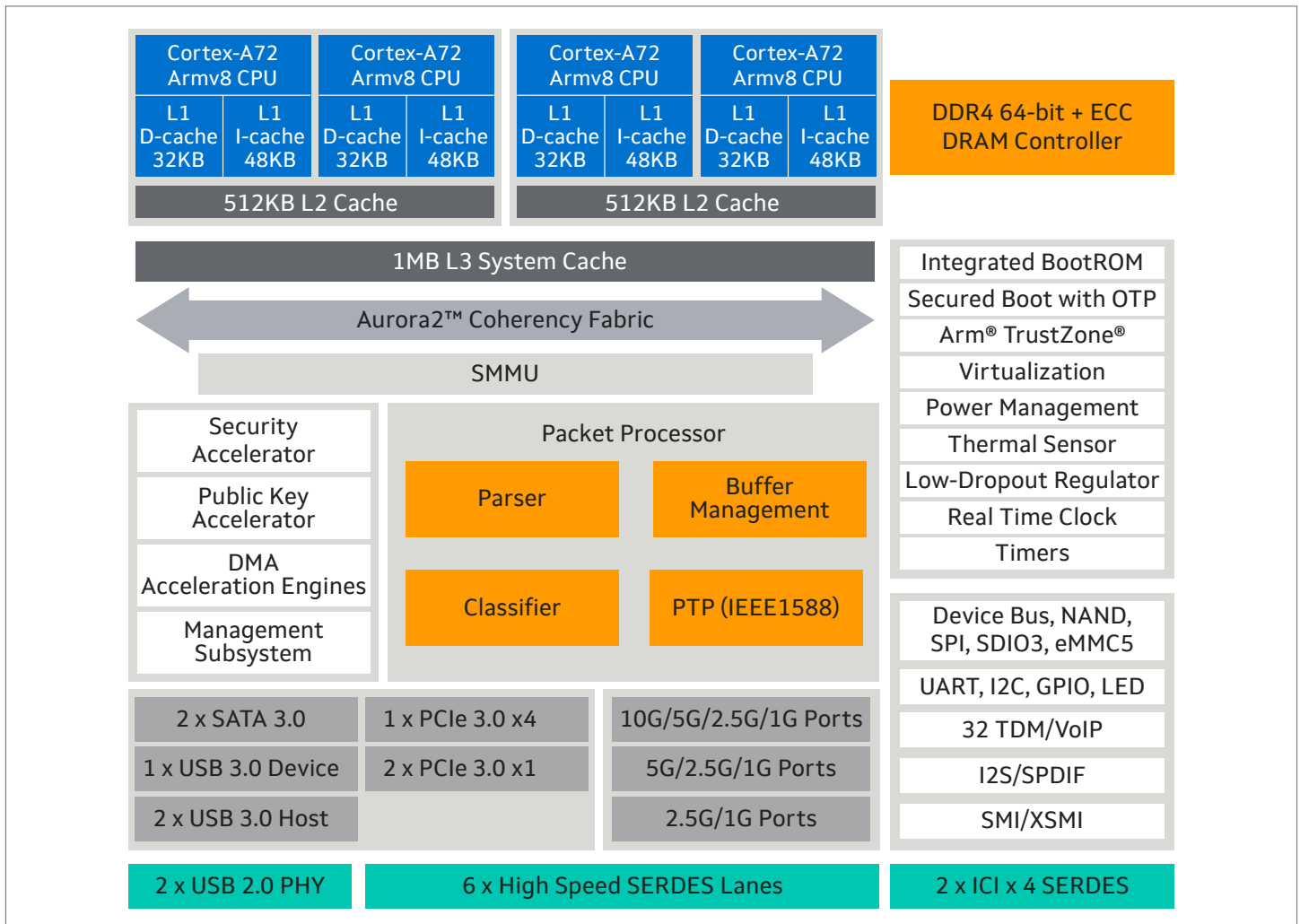
The Marvell CN9130 family is a complete system-on-chip (SoC) solution based on the Armv8 high-performance CPU technology, ideally suited for a wide range of SOHO, SMB and Enterprise class applications. The CN9130 integrates two dies in a single multi-chip module (MCM) package: an application processor (AP) and a Southbridge (SB).

The CN9130 includes a quad-core Arm Cortex-A72. Based on advance technology, this SoC provide the highest performance Infrastructure processor quad core offering.

With extra Southbridge connection, CN913X based design can be scale from 6 SERDES to 18 SERDES IO.

Higher performance in fan-less power envelope at industrial temperature range

## Block Diagram



OCTEON TX2™ CN913X Block Diagram

## Key Features

Features	OCTEON TX2 CN9130	OCTEON TX2 CN9131	OCTEON TX2 CN9132
CPU	Quad Core Armv8 Cortex-A72, CPU frequency up to 2200 MHz		
L1 Cache	48 KB I-cache, 32 KB D-cache		
L2 Cache	1 MB total divided into two clusters of 512 KB ECC shared cache		
L3 Cache	1 MB with ECC		
DDR4	64-bits + ECC at 1200Mhz clock		
PCIe 3.0	1 Port x4 + 2 Ports x1 Total of 3 controllers and up to 6 lanes	1 Port x4 + 1 Ports x2 + 4 Ports x1 Total of 6 controllers and up to 10 lanes	1 Port x4 + 2 Ports x1 Total of 3 controllers and up to 6 lanes
Ethernet Ports	1x 10/5 GbE port + 2x 1/2.5 GbE Ports or 2x 5 GbE Port + 1x 1/2.5 GbE Port	2x 10/5 GbE port + 4x 1/2.5 GbE Ports or 4x 5 GbE Port + 2x 1/2.5 GbE Port	3x 10/5 GbE port + 6x 1/2.5 GbE Ports or 6x 5 GbE Port + 3x 1/2.5 GbE Port
USB 3.0	2 x USB 3.0 (Host/Device)	4 x USB 3.0 (Host/Device)	6 x USB 3.0 (Host/Device)
SATA 3.0	2 x SATA 3.0	4 x SATA 3.0	6 x SATA 3.0
SERDES Lanes	6 Lanes	12 Lanes	18 Lanes
CN9130	CN9130 - HFBCGA 24x24 mm, 0.8 mm pitch		
88F8215		88F8215 – TFBGA 12x12 mm 0.5 mm pitch	2x 88F8215 – TFBGA 12x12 mm 0.5 mm pitch

## KEY FEATURES

### Core Complex

- 4 highly optimized 64-bit Cortex A72 cores, up to 2.2 GHz
- 2 MB L2/L3 caches
- 64b DDR4 with ECC, up to 2400 MT/s
- High-bandwidth, low-latency Aurora2™ Coherency Fabric
- Arm TrustZone® support

### Network Subsystem

- Configurable packet processor
- I/O Virtualization Flexible parsing and classification
- IPv4 and IPv6 N-Tuple classification
- QoS, Buffer Management
- Energy Efficient Ethernet

### Connectivity

- G shared high-speed SERDES interfaces
- 10 GbE port
- Up to 2 x 5 GbE ports
- Up to 3 x GbE/2.5 GbE ports
- 2 x USB 3.0 (Host/Device)
- 2 x SATA 3.0
- PCIe: 1 port 4/x2/x1 + 2 ports x1
- HDLC/TDM, MMC/SD 3.0, serial and parallel Flash interfaces

### Virtualization

- Armv8-A virtualization
- IO virtualization, sing SMMUv2 with stage 1 and stage 2 translations
- Virtualized DMA engines
- Virtualized Security engine
- Virtualized packet processor
- PCIe with SR-IOV support

## Applications

5G small cell control plane	<ul style="list-style-type: none"><li>• Macro base stations</li><li>• Transport</li><li>• C-RAN, 5G DU, 5G CU</li></ul>
Network and Security Appliances	<ul style="list-style-type: none"><li>• Next gen firewall</li><li>• UTM, IPS/IDS</li><li>• WLAN controller</li><li>• Routers &amp; gateways</li></ul>
Edge Computing	<ul style="list-style-type: none"><li>• Edge servers</li><li>• IoT/Fog servers and gateways</li></ul>
Control Plane Processing	<ul style="list-style-type: none"><li>• Enterprise and datacenter switches</li><li>• SDN switches</li><li>• Blades/appliances</li></ul>
Storage	<ul style="list-style-type: none"><li>• Network Attached Storage</li><li>• Software defined storage</li><li>• Distributed storage</li></ul>

## Software & Ecosystems

### Feature-Rich SDK with Standard development tools

- GCC
- GNU
- Java

### Carrier and Commercial-Grade Distros

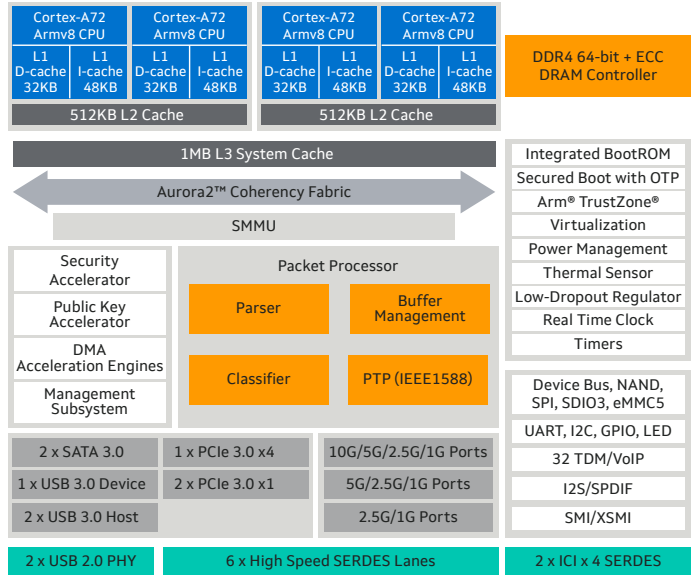
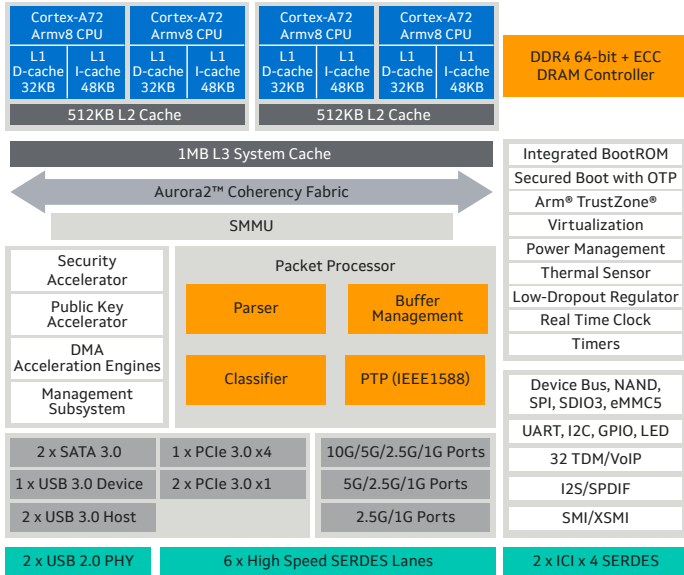
- Ubuntu
- Red Hat\*
- CentOS
- SUSE
- MontaVista and Wind River
- Cavium SDK Linux

### Virtualization & Containers

- KVM
- Xen
- OVS
- Docker

### Standard DPDK, VPP, FD.io, and OpenDataPlane (ODP) APIs

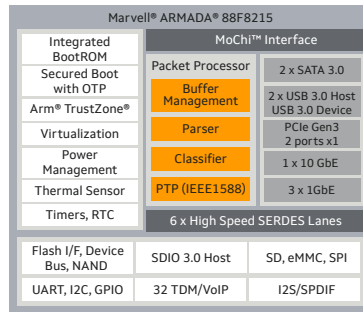
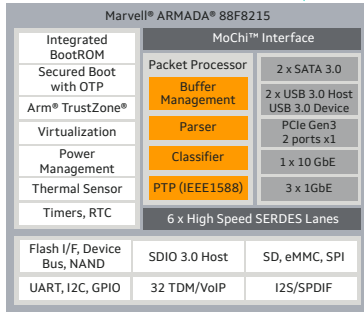
\*Actual release subject to distro schedule



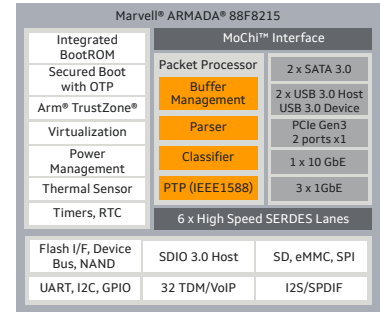
88F8215 Block Diagram

88F8215 Block Diagram

88F8215 Block Diagram



KT-CN9132 Config



KT-CN9131 Config



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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