

Marvell® OCTEON TX2™ CN913X

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

Overview

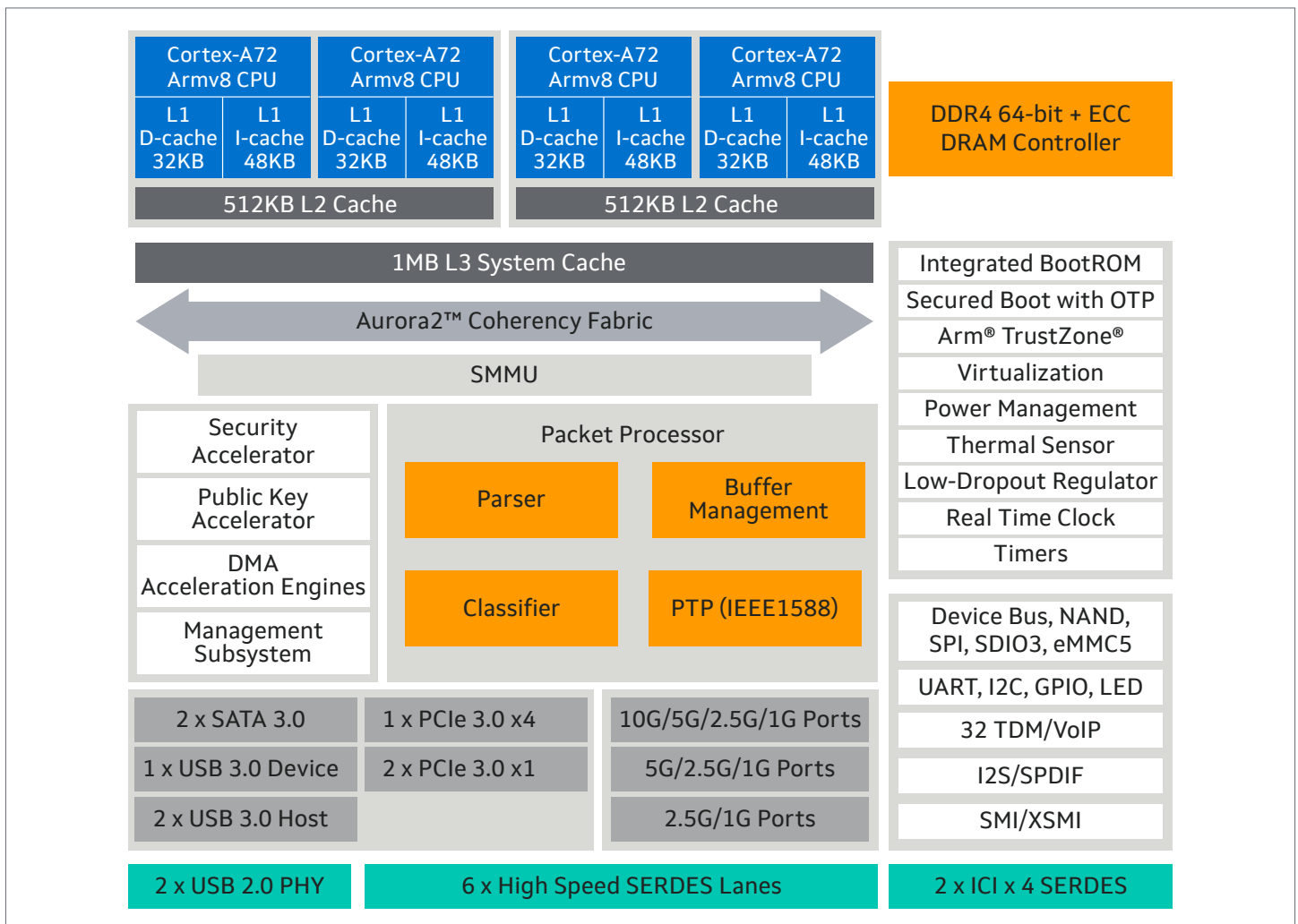
The Marvell CN9130 family is a complete system-on-chip (SoC) solution based on the Armv8 high-performance CPU technology, ideally suited for a wide range of SOHO, SMB and Enterprise class applications. The CN9130 integrates two dies in a single multi-chip module (MCM) package: an application processor (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">• Macro base stations• Transport• C-RAN, 5G DU, 5G CU |
| Network and Security Appliances | <ul style="list-style-type: none">• Next gen firewall• UTM, IPS/IDS• WLAN controller• Routers & gateways |
| Edge Computing | <ul style="list-style-type: none">• Edge servers• IoT/Fog servers and gateways |
| Control Plane Processing | <ul style="list-style-type: none">• Enterprise and datacenter switches• SDN switches• Blades/appliances |
| Storage | <ul style="list-style-type: none">• Network Attached Storage• Software defined storage• Distributed storage |

Software & Ecosystems

Feature-Rich SDK with Standard development tools

- GCC
- GNU
- Java

Carrier and Commercial-Grade Distros

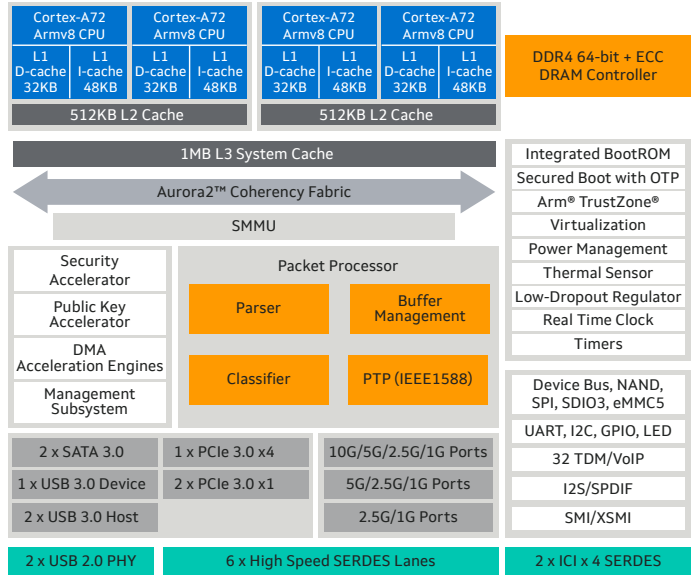
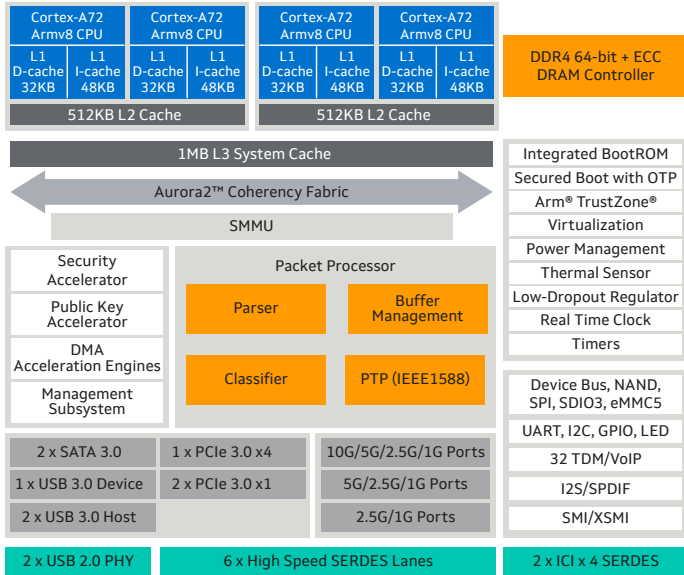
- Ubuntu
- Red Hat*
- CentOS
- SUSE
- MontaVista and Wind River
- Cavium SDK Linux

Virtualization & Containers

- KVM
- Xen
- OVS
- Docker

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

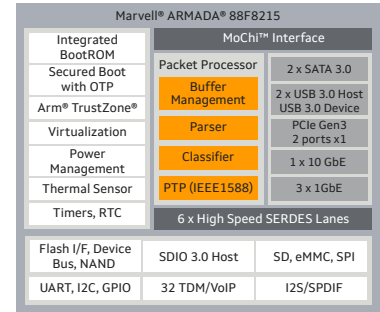
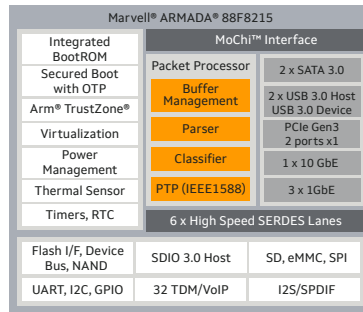
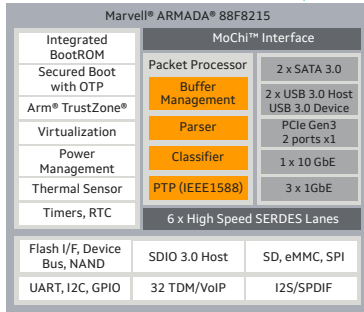
*Actual release subject to distro schedule



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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