

# Marvell® OCTEON Fusion® CNF73xx: Next Generation Integrated Baseband Processors

Outdoor Micro Cell Base Stations, Indoor Host-Neutral Cells and Public Safety Networks

## Overview

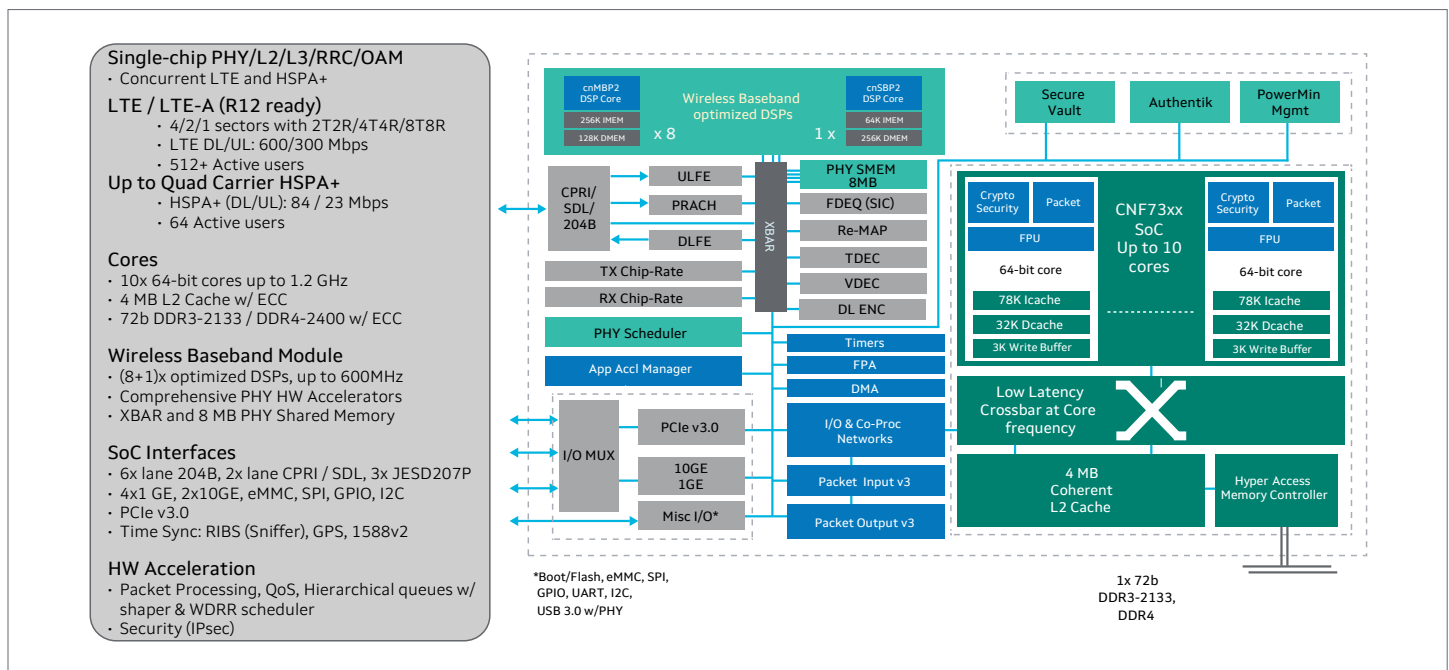
OCTEON Fusion® CNF73xx integrated baseband processors address a growing number of advanced LTE and 3G base station market segments. Typical applications include outdoor micro cells with 200 to 1000 active users, indoor host-neutral base stations / split-RAN deployments and public safety networks. The OCTEON Fusion CNF73xx baseband SoCs combine Marvell's industry-leading network processor technology with an innovative PHY architecture to enable high-performance, multi-mode base stations supporting the latest LTE innovations such as multi-MIMO configurations, LTE-U and LTE-LAA.

As telecommunication operators deploy next-generation networks both the density and the topology of the wireless network must change. The OCTEON Fusion CNF73xx processor family is designed to support existing standards as well as adapt to future network enhancements. The CNF73xx features

a very flexible PHY subsystem supporting up to 8 transmit and 8 receive antennas across 4 separate 20 MHz channels. The channels may be combined to achieve higher throughput or operated independently for more deployment flexibility. Multi-protocol support allows simultaneous operation of all LTE variants (FDD / TD-LTE / LTE-U / LTE-LAA) and WCDMA. The processor's ability to support both high user counts and high output power radios across interfaces including CPRI and JESD204B, allows operators to target CNF73xx-enabled base-stations for macro network fill-in for higher frequency spectrum or for sparse populations in rural settings.

Marvell provides production-level L1 PHY implementations for both LTE and WCDMA as well as a high-quality LTE L2-L3 stack that is fully integrated and tested with the PHY layer. Third party stacks are supported with appropriate APIs and toolkits.

## Block Diagram



## Key Features

Features	Benefits
Innovative PHY subsystem	• Single subsystem supports 2G, 3G and LTE-A protocols-simultaneously (600DL/300UL)
Up to 10 OCTEON III 64-bit cores @ 1.2 GHz	• Enables 500+ active LTE users, headroom for advanced SON, eCIC and O&M features
Up to 4 20MHz channels with a total of 8T8R antenna processing (unlinked)	• Flexibility to support numerous channel and antenna combinations as deployment conditions require
HW-enabled crypto processing	• Highly secure encryption without burdening CPU cores
Integrated timing functionality	• SW-enabled IEEE1588 and GPS reduces system power and BOM cost
CPRI, JESD204B, JESD207P, SerDes Lite RF interfaces	• Supports all common base station radio options for different deployment scenarios
Integrated and tested LTE PHY and stack SW provided	• Simplifies licensing requirements and reduces time to deployment
Base station reference design supplied	• Defines field-deployable components and board layout, eliminating design errors
Well-established partner ecosystem	• Streamlines application integration and manufacturing processes

## Target Applications

- **Outdoor Micro Cell**
  - LTE-only or dual mode
  - 500+ active LTE users
  - High output RF power (2W – 20W)
  - Large cell radius
- **Indoor Host-neutral Cell**
  - LTE-only or dual mode
  - 100+ active LTE users per cell
  - May be stand-alone or split-cell architecture
- **Public Safety**
  - LTE-only or dual mode
  - 100 – 200 active LTE users per cell
  - Private secure networks
  - Network-in-a-box (includes embedded EPC)
- **LTE**
  - L1 PHY (binary)
  - Integrated, tested L2-L3 protocol stack (source and binary)
- **3G**
  - L1 PHY (binary)
  - L2-L3 stack available from 3rd party
- **General**
  - Timing management (GPS, IEEE1588)
  - Northbound APIs (for SON, O&M)
  - TR-069 client and TR-196 data model
  - RF calibration and drivers
  - OCTEON SDK



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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