

## Muti-Core ARM® SoC Processors

# ECONA™ CNS3XXX Super Energy Efficient SoC Processors

### Product Brief



#### OVERVIEW

The ECONA CNS3XXX family of highly integrated SoC processors provide a rich set of integrated hardware accelerators and a range of I/Os for glueless voice, video and data connectivity. Sophisticated power management techniques enable super low-power operation starting at less than 1 Watt. With up to two high-performance ARM11 cores and high-level of integration for reducing BOM cost, the ECONA CNS3XXX family is optimized for applications that require high-performance without compromising cost and power.

#### FEATURES

High-performance CPU Cores

- Dual ARM11 cores, 300 – 700 MHz, SMP support
- Integrated support for DSP, Floating Point and Memory Management and multimedia operations
- High-performance integrated cache sub-system
  - 32K each of L1 Instruction and Data cache
  - 256K of L2 cache
  - Advanced cache coherency schemes

Purpose-built hardware accelerators

- Offload engine for L2 – L4 packet processing
  - NAT, QoS, Rate Limiting, IPv4/IPv6 routing
- L7 Content Inspection Engine with support upto 4K signatures
- 5 port Gigabit Switching Engine
- XOR / RAID Engine with parity calculation engine

Seamless wired and wireless connectivity

- 3x GE (RGMII/ GMII/ MII supported)
- Dual SATA, PCIe and USB2.0 with integrated PHYs
- TDM/PCM, I2S, SPI, I2C, UART

Super low power consumption

- Integrated intelligent power management unit
- On-chip power regulators and RealTime Clock unit

Comprehensive Development Environment with Linux, VxWorks and C/C++ support

#### BENEFITS

Market leading performance with industry's best application headroom availability

- Up to 2Gbps 64B IP forwarding
- Over 1.7Gbps of IPSec and SSL
- Up to 16 channels of G.729 voice support
- Over 90% of a single ARM11 CPU core available as headroom, at peak performance
- Flexible architecture to support multi-processing as well as non-multi-processing environments

Accelerated performance to deploy advanced services without compromising power and cost

- Advanced voice / video / data services
- Gateway based security including parental controls, anti-spam, anti-virus, intrusion prevention
- Media server, Home NAS for high-end media
- Media-rich GUI for remote customer service

Glue-less connectivity to a plethora of Consumer Electronics (CE) device

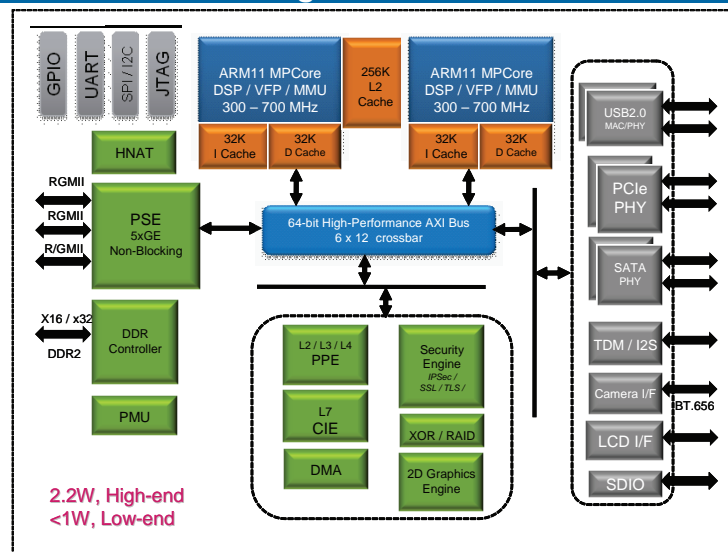
- Wireless Connectivity: 802.11a/b/g/n, Bluetooth, ZigBee
- Wired Connectivity: Ethernet, MoCA, HPNA, HomePlug

Less than 1W of power consumption for low-end, 2.2W (typ) for high-end

- Reduced BOM with cheaper, fewer components, low-cost PCB, single clock rail and other cost reduction

Open platform for seamless integration with best-of-breed 3rd party applications

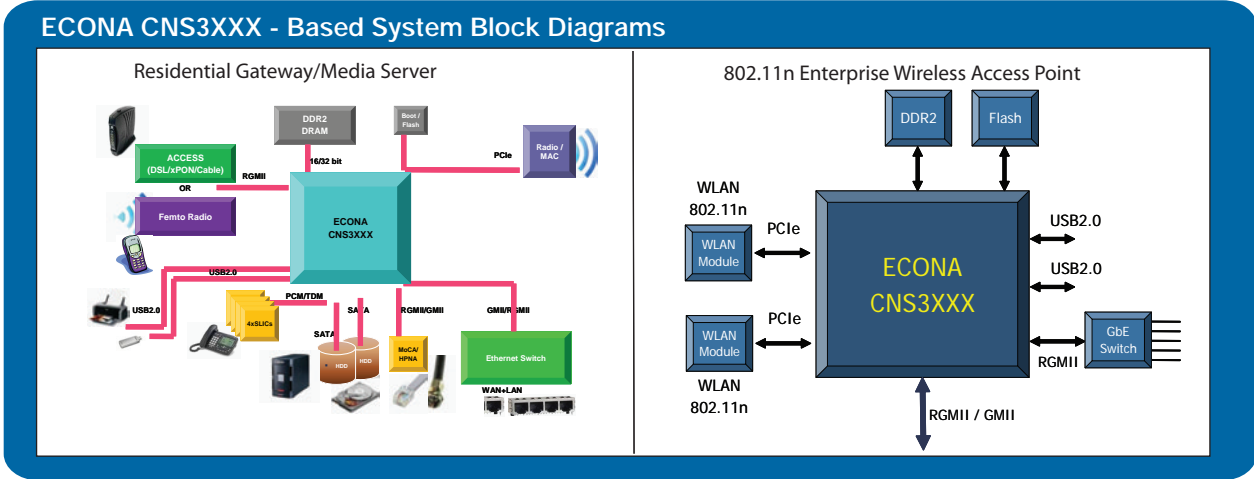
### CNS3XXX - Block Diagram



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ECONA™ CNS3XXX Super Energy Efficient SoC Processors

Product Brief



CNS3XXX Applications

- Residential Gateways
- Wireless Access Points
- NAS / Media Server
- Enterprise Security Gateways
- Voice Gateways
- Femtocell Gateways
- Wired and Wireless Access Gateways
- Smartbooks / Netbooks
- Consumer Electronics
  - Digital Photo Frames
  - Multi-Function Printers
  - High-end Audio Players
  - Streaming Video Players
- Embedded Processing
  - Automotive, Industrial, Medical

CNS3XXX Software Support

- Cavium Networks ECONA SDK includes
- Board Support Package for Linux and VxWorks
  - Optimized APIs and C-libraries for all of the hardware accelerators
  - Complete GNU tool-chain, GDB, DDD and ARM® GCC
  - Support for SMP Linux
  - Realview ICE

Complete production-ready toolkits for IP forwarding, IPSec / SSL security, and Storage applications

Comprehensive Ecosystem support

- Ready-to-market application and middleware stacks to cover a host of applications including remote management, Java Virtual Machine, DLNA / uPnP, VPN / Firewall, IP networking, voice codecs and many more
- Leverages industry's best ecosystem provided by ARM's partners

ECONA CNS3XXX Product Family

Device	Part Number	CPU Speed	# of Cores	DRAM Controller	GMAC	USB 2.0 PHY/CTL	SATA	PCIe v1.1	12S/TDM	SPI/12C	HW NAT Crypto	PCM/TDM	MMC/SD SDIO	UART	GPIO*	Flash	Package
CNS3410	CNS3410-XXX-BG484-AA-OC-G	300MHz 500MHz 700MHz	1	16/32-bit DDR2	1x GMII/RGMII 2x RGMII	2	2	2x PCIe x1	Yes	4/1	Yes	2x PCM buses (w/ TDM)	Yes	3	Up to 64	SPI Serial & Parallel NOR	PBGA & HSBGA-484 (i-Temp), 27 x 27
CNS3420	CNS3420-XXX-BG484-AA-OC-G	300MHz 500MHz 700MHz	2	16/32-bit DDR2	1x GMII/RGMII 2x RGMII	2	2	2x PCIe x1	Yes	4/1	Yes	2x PCM buses (w/ TDM)	Yes	3	Up to 64	SPI Serial & Parallel NOR	PBGA & HSBGA-484 (i-Temp), 27 x 27

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\*Shared with other pins

Device Options:

XXX = Device Speed Grade (300 = 300 MHz, 500 = 500 MHz, 700 = 700 MHz)

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