

## Embedded ARM Processors

# STAR CNS11XX and CNS12XX Connected Home and Office Processors

### Product Brief



### OVERVIEW

The STAR CNS11XX/CNS12XX family of ARM processors target intelligent, gigabit networking, storage and wireless applications in next-generation home and office equipment. STAR CNS11XX/12XX offers GbE Gigabit Smart Hardware NAT support and Wireless LAN bridging accelerator for Wireless 802.11n. By integrating two USB 2.0 hosts, STAR CNS11XX/12XX is ideal for multifunction router related applications. Cavium's proven networking technology and flexible Linux development environment significantly benefits OEM/ODM developers and assures fast time-to-market.

### FEATURES

- 32-bit ARM Core
- Higher performance ARM922-compatible RISC (with 16K I-cache, 16K D-cache, 8K I-scratchpad, 8K D-scratchpad) and MMU support
- Available in 200-250 MHz versions
- Proprietary advanced system bus architecture achieving superior networking performance
- Supports TRACE32 and/or Multi-ICE JTAG debugging interfaces
- Built-in intelligent power management for normal and power-saving mode of operations
- Support IRQ/FIQ interrupt modes
- Support little-endian ordering

#### Network I/O and Hardware Offload Engines

- Embedded 2-port 10 Base-T/100 Base-TX/1000Base-T MAC's
- Gigabit rate Hardware network address translation (HNAT) accelerator supporting L3/L4 fast-path routing
- DMA engines with burst mode support for efficient data transfer among CPU and WAN/LAN ports
- 1K entries address lookup table
- Support IPv4 packet filtering and TCP/UDP/IP checksum off-load for incoming and outgoing packets

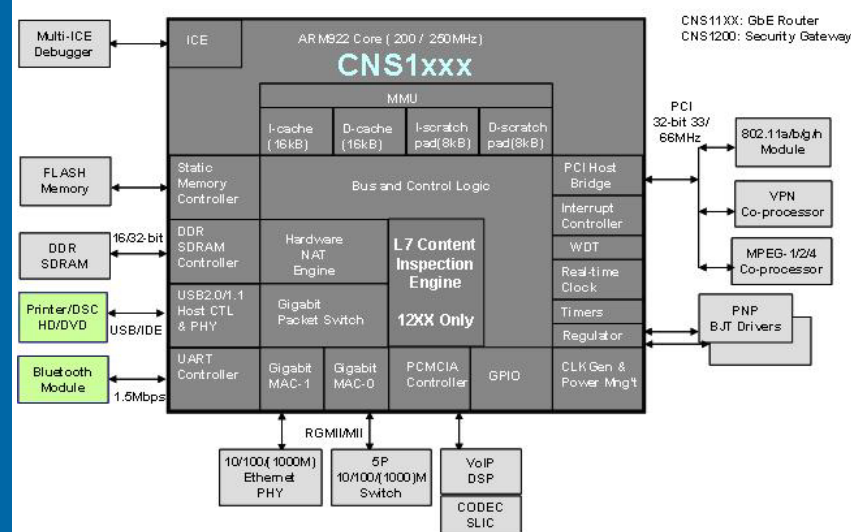
#### External Interfaces

- Up to two RGMII/MII interfaces (MAC or PHY mode) for external transceivers or single-chip switch
- Embedded USB2.0-compliant host PHY and EHCI/OHCI controller supporting two external USB devices simultaneously for low-/full-/high-speed operations (for printer, digital camera and storage, etc.)
- 8/16-bit external I/O interface supporting PCMCIA interface or generic DSP/CPU host interfaces

### BENEFITS

- High performance SoC with hardware acceleration
- Wire speed Gigabit hardware NAT support
- Hardware based IPS engine with deep packet inspection
- Stream-based anti-virus detection/protection
- IM/P2P application management
- Automatic signature database upgrade
- Optional high-throughput Layer 7 hardware content inspection engine
- Wireless LAN bridging accelerator for Wireless 11n module
- Glueless support for switching and WLAN
- Two high-speed USB 2.0 ports enable printer, storage and user device connectivity
- Low-power design with intelligent power management
- Low-power consumption: within 2 watts

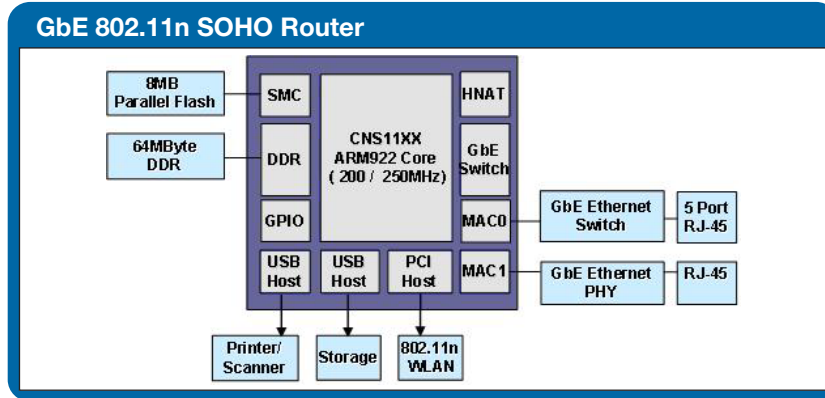
## CNS1XXX - Block Diagram



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### CNS11XX Applications

- FE/GbE 802.11n SOHO Router
- 802.11n GbE AP
- VDSL Broadband Router/Gateway
- Home Media/Entertainment Gateway
- Printer Server
- Wire/Wireless IP CAM
- Network Attached Storage (NAS)
- P2P Download Station
- UWB Hub

### Software Support

- Nucleus and Linux BSP supports
- Technical documents
- Application packages

### CNS12XX Applications

- Secure wired or wireless FE/GbE router

## STAR CNS11XX and CNS12XX - Product Family

Device	Part Number*	Parallel Flash	Memory I/O	Content Inspection Engine	Embedded Switch	Hardware NAT/NAPT	Interfaces			PCI 2.2 Host	Package
							USB 1.1/2.0 PHY/CTL	PCMCIA	Ethernet		
CNS1101	CNS1101-XXXFP208-Option Code	8/16-bit	16-bit		X	X			1 x MII	32-bit/66 MHz up to 2 devices	PQFP-208
CNS1102	CNS1102-XXXBG304-Option Code	8/16-bit	16/32-bit		X	X			2 x RGMII/MII	32-bit/66 MHz up to 3 devices	BGA-304
CNS1104	CNS1104-XXXBG257-Option Code	8/16-bit	16-bit		X	X	2 ports	X	2 x MII		LFBGA-257
CNS1105	CNS1105-XXXBG304-Option Code	8/16-bit	16/32-bit		X	X	2 ports	X	2 x MII	32-bit/66 MHz	BGA-304
CNS1109	CNS1109-XXXFP208-Option Code	8/16-bit	16-bit		X	X	2 ports	X	1 x RGMII/MII	32-bit/66 MHz up to 2 devices	PQFP-208
CNS1202	CNS1202-XXXBG304-Option Code	8/16-bit	16/32-bit	X	X	X	2 ports	X	2 x RGMII/MII	32-bit/66 MHz up to 3 devices	BGA-304
CNS1205	CNS1205-XXXBG304-Option Code	8/16-bit	16-bit	X	X	X	2 ports	X	2 x MII	32-bit/66 MHz up to 3 devices	BGA-304

\*Part Number Options:

XXX = Device Speed Grade (200 = 200 MHz, 250 = 250 MHz)