

# Wireless 10BT Controller

## CS22250 Features

### PROTOCOL SUPPORT

#### Cirrus Whitecap™2

- Wi-Fi (802.11b)
- Multimedia and QoS

### ON-CHIP SYSTEM

#### Processor Complex

- 77 MHz ARM7TDMI RISC processor core
- 4 KB integrated L1 cache

#### Optimized Data Flow

- DMA Engines for each external interface

#### Memory Controllers

- 16-bit 100MHz SDRAM/FLASH memory interface
- 4MB addressable memory space

#### Integrated PLL

- Single crystal oscillator system design

#### Forward Error Correction (FEC)

- High-performance Reed-Solomon codec
- Wire-like bit error rate performance for wireless transfers ( $10^{-11}$  BER performance for typical  $10^{-5}$  BER environment)

#### Power Management

- Four power saving modes
- Programmable sleep timer

### SYSTEM INTERFACES

#### High Speed Digital Radio MAC Interface

- Glueless direct interface to 802.11b baseband processor
- Three power management levels for radio control

#### Bridging Interfaces

- 7-Pin serial Ethernet interface over AUI or twisted pair

#### High Speed Parallel Interface

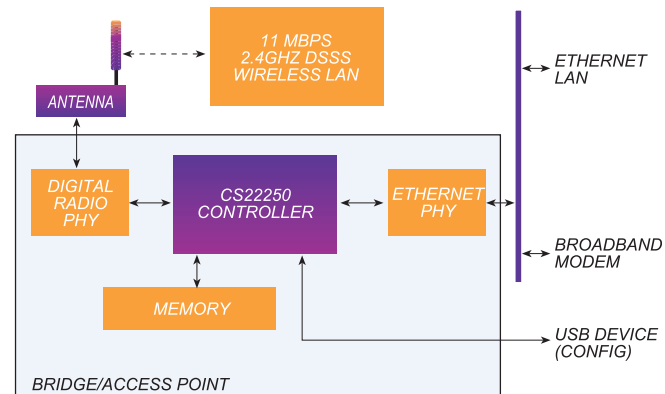
- High speed parallel bus
- 32-Bit multiplexed address/data
- Two independent DMA channels

#### Configuration Interface

- USB 1.1 Compliant Device

#### Reserved I/O

- Network status indicators
- I/O registers for custom applications



### Package/Technology

- 1.8 V Core, 3.3 V I/O
- 0.18 micron CMOS process
- Packaging Type: 208 FPBGA

The Cirrus CS22250 Wireless 10BT (10Base-T) Controller incorporates the IEEE 802.11b media access controller (MAC) to enable Wi-Fi compliant wireless network devices providing industry-wide interoperability. In addition, the CS22250 supports our multimedia and quality of service (QoS) extensions to distribute entertainment content wirelessly throughout the home network – with unparalleled performance.

### High Speed Wireless Bridging

The Cirrus CS22250 Wireless 10BT Controller provides high performance, robust wireless connectivity to common wired home networking technologies, such as cable, xDSL, Ethernet, and phoneline (HPNA) networking. It is a highly integrated, single chip device containing several high performance communications processing elements and industry standard system and network connectivity options.

The CS22250 delivers an optimal level of flexibility in cost, functionality, and performance for point-to-multi-point home LAN bridging and routing products. It includes an embedded ARM7TDMI processor for executing system control functions, networking protocols, network management, and bridging services.

It also incorporates an Ethernet MAC and an 802.11b digital wireless radio MAC for wired and wireless network connectivity. A high speed parallel interface provides a 32-bit interface to connect to other networking devices and codecs designed into the wireless bridge product. This programmable architecture enables a firmware upgrade path to new features and to track changes in standards specifications.

### Reliable Wireless Multimedia

The Cirrus CS22250 integrates state-of-the-art Forward Error Correction (FEC) to enable high performance and reliable wireless networks. Unlike other error detecting mechanisms, FEC actually improves throughput by correcting corrupted data "on the fly." This is essential for multimedia applications, since retransmission would disturb the user experience.

The CS22250 includes a digital wireless radio MAC supporting a transmission rate of 11 Mbps. The radio MAC provides the necessary hardware functions for interfacing with low cost 802.11b digital radio PHY circuits. The high speed parallel interface provides the flexibility to accommodate other networking media, for example HPNA 2.0.

The CS22250 is designed to operate with Cirrus' Whitecap™2 network protocol, which addresses the requirements for wireless distribution of high speed data as well as entertainment content (video, audio, and voice). Whitecap2 establishes a highly efficient, reliable, and easy to use wireless network that is compliant and interoperable with the Wi-Fi (802.11b) high speed wireless industry standard. Additionally, Whitecap2 is backward compatible with previous versions

of Cirrus' Whitecap and provides all the advanced functionality necessary to distribute entertainment throughout the wireless network.

### Applications

#### ■ Broadband access throughout the home

The Cirrus CS22250 easily connects to high speed broadband modems. Wireless bridging allows distribution of broad-band content and digital media to other devices within the home. Our solution provides the infrastructure and performance for sharing broadband content and services. A CS22250 wireless bridge product, combined with client nodes using our technology, provides a complete broadband and digital entertainment home networking solution.

#### ■ Extending existing home networks

The Cirrus CS22250 wireless bridge allows untethered access to an existing wired network within the home. With Cirrus' Whitecap2 protocol, the existing home network is enhanced with capabilities for emerging entertainment applications.

### Related Products

- Cirrus CS22210 Wireless PCI/USB Controller
- Cirrus CS22220 Wireless PCMCIA Controller
- Cirrus CS22230 Wireless Mini PCI Controller
- Cirrus CS22270 Wireless Multi-Link Controller
- Cirrus Whitecap™2 Network Protocol

### Reference Designs

- Cresta3 Radio Design
- Cirrus Bodega Bridge/Access Point Reference Design

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