CIRRUS LOGIC®

CS22230

PRODUCT BULLETIN

Wireless Mini PCI Controller

CS22230 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
- DMA control blocks

Memory Controllers

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

Integrated PLL

- Single crystal oscillator system design

Forward Error Correction

- 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

- ACPI host compliant
- Four power saving modes
- Programmable sleep timer

SYSTEM INTERFACES

High Speed Digital Radio MAC Interface

- Glueless direct interface to 11 Mbps digital radio transceiver (802.11b PHY)
- Variable power control DAC
- 32 D-Word TX/RX FIFO

Host Bus Interfaces

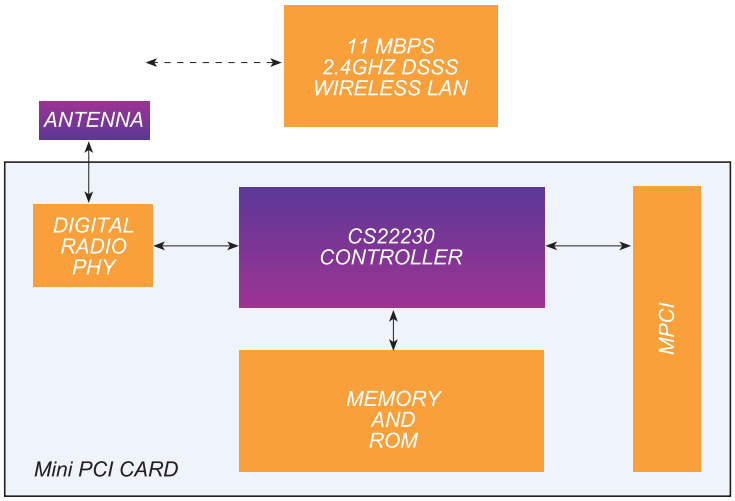
- Mini PCI 1.0 compliant bus interface

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 CS22230 Wireless Mini PCI 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 CS22230 supports our multimedia and quality of service (QoS) extensions to distribute entertainment content wirelessly throughout the home network – with unparalleled performance.

High Speed Wireless Network Internet Connections

The Cirrus CS22230 Wireless Mini PCI Controller enables high performance, reliable, embedded wireless network interface connections (NICs) for mobile devices, such as PC notebooks and web pads that utilize a Mini PCI form factor interface.

The CS22230 delivers an optimal level of flexibility in cost, functionality, and performance. It is a highly integrated, single chip device that provides 11 Mbps wireless connectivity. On-chip interfaces include Mini PCI and high speed digital 802.11b wireless radio. The CS22230 also includes an embedded ARM7TDMI processor for executing networking protocols and network management functions. This programmable architecture enables a firmware upgrade path to new features and to track changes in standards specifications.

CS22230

Products enabled by the CS22230 include low cost, small footprint, Mini PCI adapters (any form factor) and embedded wireless client devices. The products operate in the 2.4 GHz ISM frequency band using DSSS technology.

Reliable Wireless Multimedia

The Cirrus CS22230 integrates state-of-the-art Forward Error Correction (FEC) to enable high performance and reliable wireless networking. Unlike other error detecting mechanisms, FEC actually improves throughput by correcting corrupted data “on the fly.” This is essential for multi-media applications, since retransmission would disrupt the user experience.

The CS22230 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 11 Mbps digital radio PHY circuits.

The CS22230 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 Whitecap and provides all the advanced functionality necessary to distribute entertainment throughout the wireless network.

Applications

The Cirrus CS22230 enables mainstream NIC products for mobile PCs and other embedded mobile client devices. Products include PC notebooks and web pads. Typical applications enabled by the CS22230 include:

- High speed (11 Mbps) mobile PC wireless LANs for multi-PC households and SOHO markets
- Mobile access of broadband content through a laptop, web pad, or PDA

Related Products

- Cirrus CS22210 Wireless PCI/USB Controller
- Cirrus CS22220 Wireless PCMCIA Controller
- Cirrus CS22250 Wireless 10BT Controller
- Cirrus CS22270 Wireless Multi-Link Controller
- Cirrus Whitecap™2 Network Protocol

Reference Designs

- Cresta3 Radio Design
- Cirrus Bodega Mini PCI Reference Design

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