

Wireless PCI/USB Controller

CS22210 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
- 4 MB 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 DACs
- 32 D-Word TX/RX FIFO

Host Bus Interfaces

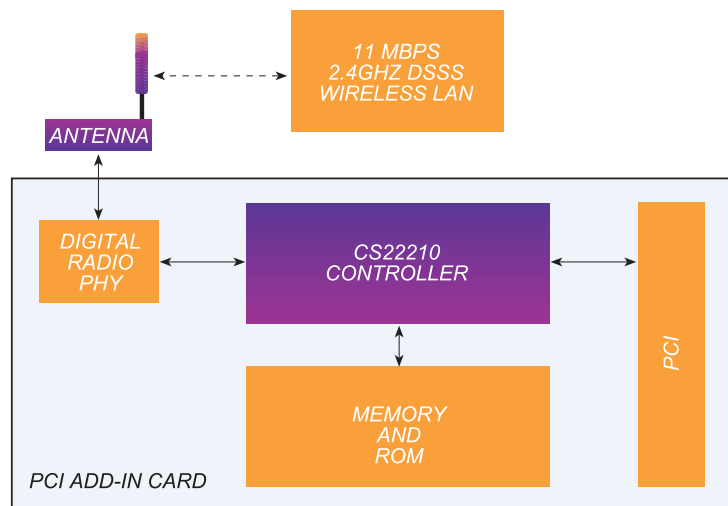
- PCI 2.1 and 2.2 compliant bus interface
- USB 1.1 full speed (12Mbps) compliant interface

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 MQFP



The Cirrus CS22210 Wireless PCI/USB 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 CS22210 supports our multimedia and quality of service (QoS) extensions to distribute entertainment content wirelessly throughout the home network – with unparalleled performance.

High Speed Wireless NICs

The Cirrus CS22210 Wireless PCI/USB Controller enables high performance, reliable, wireless network interface connections (NICs) for PCs and other client devices in the home.

The CS22210 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 USB, PCI, and high speed digital 802.11b wireless radio. The CS22210 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.

Products enabled by the CS22210 include low cost, small footprint, PCI adapters, USB modules, and embedded wireless client devices. The products operate in the 2.4 GHz ISM frequency band using DSSS technology.

Reliable Wireless Multimedia

The Cirrus CS22210 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 multimedia applications, since retransmission would disrupt the user experience.

The CS22210 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 CS22210 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 CS22210 enables mainstream NIC products for PCs and other embedded client devices. Products include plug and play PCI add-in cards or external USB modules. Typical applications enabled by the CS22210 include:

- High speed (11 Mbps) mobile PC wireless LANs for multi-PC households
- Client nodes for accessing broadband content and services through broadband wireless bridges and residential gateways

Related Products

- Cirrus CS22220 Wireless PCMCIA Controller
- Cirrus CS22230 Wireless Mini PCI Controller
- Cirrus CS22250 Wireless 10BT Controller
- Cirrus CS22270 Wireless Multi-Link Controller
- Cirrus Whitecap™2 Network Protocol

Reference Designs

- Cresta3 Radio Design
- Cirrus Bodega PCI Reference Design
- Cirrus Bodega USB Reference Design

Cirrus Logic, Inc. Corporate Headquarters

4210 S. Industrial Drive
Austin, TX 78744
USA
T (512) 445-7222
T (800) 888-5016
F (512) 912-3977
www.cirrus.com

Cirrus Logic, Inc. Wireless Networking Division

5175 Hillside Circle
El Dorado Hills, CA 95762
USA
T (916) 939-9400
F (916) 939-9437

DISTRIBUTORS

Insight Electronics

9980 Huennekens
San Diego, CA 92121
USA
T (800) 677-6011
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Nu Horizons

70 Maxess Road
Melville, NY 11747
USA
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nearest local distributor.

WORLDWIDE SALES

Japan Cirrus Logic K.K.

Aioi Sonpo, bldg 6F
5-6 Niban-cho, Chiyoda-ku
Tokyo, 160 Japan
T 81-3-5226-7390
F 81-3-5226-7677

Asia Cirrus Logic Intl. Ltd.

20F., Ocean Building
80 Shanghai Street
Kowloon, Hong Kong, China
T 852-2376-0801
T 852-2314-9920
F 852-2375-1202

Europe Cirrus Logic UK

4-5 Anglers Court
33-44 Spittal Street
Marlow, Bucks SL71DB
England
T 44-0-1628-472-211
F 44-0-1628-486-114

For more information, visit us at www.cirrus.com