

# Wireless PCMCIA Controller

## CS22220 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
- Three power saving modes, including Standby and Sleep Mode
- Programmable sleep timer
- Independent Module and ARM Complex Control

### 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

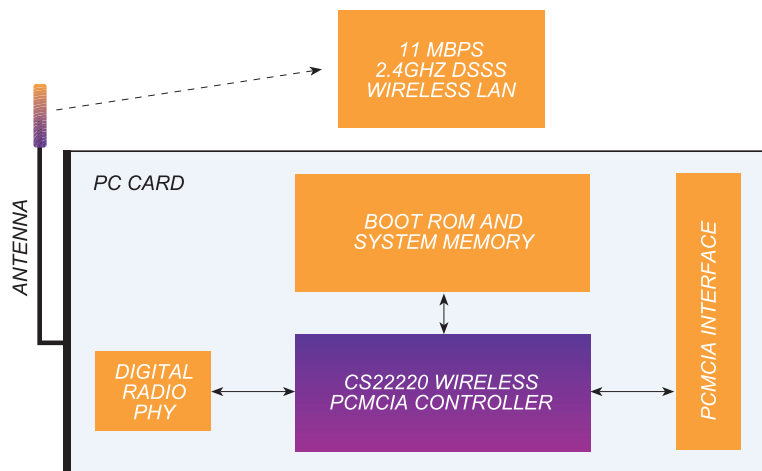
- PCMCIA Type II
- PCMCIA 2.1 Compliant/JEIDA 4.2
- 16-Bit I/O of Memory Mapped
- Little of Big Endian Support

#### 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 CS22220 Wireless PCMCIA 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 CS22220 supports our multimedia and quality of service (QoS) extensions to distribute entertainment content wirelessly throughout the home network – with unparalleled performance.

### High Speed Mobile Wireless

The Cirrus CS22220 Wireless PCMCIA Controller enables a high performance, reliable, wireless network interface connection (NIC) for mobile devices, such as PC notebooks and web pads.

The CS22220 delivers an optimal level of flexibility in performance, power management, and cost. It is a highly integrated, low profile single chip device that provides 11 Mbps wireless connectivity. On-chip interfaces include PCMCIA and high speed digital 802.11b wireless radio. The CS22220 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 CS22220 include low cost, low profile, PCMCIA cards and embedded wireless mobile clients. The products operate in the 2.4 GHz ISM frequency band using DSSS technology.

### Power Management

The Cirrus CS22220 has two integrated DACs for radio power management and allows for transmit, receive, and stand-by states. In common applications, power management can result in more than 90% savings over a full transmit state. The CS22220 can respond to host controller power management requests and is fully ACPI compliant. It is also designed for self initiated power management of specific functional blocks within the chip.

### Reliable Wireless Multimedia

The Cirrus CS22220 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 disrupt the user experience.

The CS22220 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 CS22220 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 CS22220 enables mainstream NIC products for mobile PCs and other embedded mobile client devices. PCMCIA products based on the CS22220 make an ideal "bundle" offering with other products based on our bridge and multi-link controllers. Typical applications enabled by the CS22220 include:

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

### Related Products

- Cirrus CS22210 Wireless PCI/USB 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 PCMCIA 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  
F (858) 450-8550  
www.insight-electronics.com

**Nu Horizons**  
70 Maxess Road  
Melville, NY 11747  
USA  
T (631) 396-5000  
F (631) 396-5060  
www.nuhorizons.com

### Asia, Europe, and Japan:

Please access our website,  
www.cirrus.com, for your  
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](http://www.cirrus.com)