Arasan
The Bus Stops Here

PRODUCT OVERVIEW

AC2200ie SDIO Controller ASSP

Features

- Meets SDIO card v2.0 specification
- Supports SDIO SPI, 1-bit, and 4-bit SD modes
- Host clock rate from 0-50 MHz
- Single SDIO function interface
- SD commands processed in hardware
- Reset output on completion of initialization
- Indication of high speed and high power enabling to application logic
- Maximum block size supported is 1024 bytes
- Three I/O mode selection pins
- CRC7 and CRC16 modules
- Supports direct R/W (IO52) and extended R/W (IO53) commands
- APB bus interface
- Parallel bus interface
- Standard 8051 split bus interface
- Generic 8051 bus interface
- UART interface

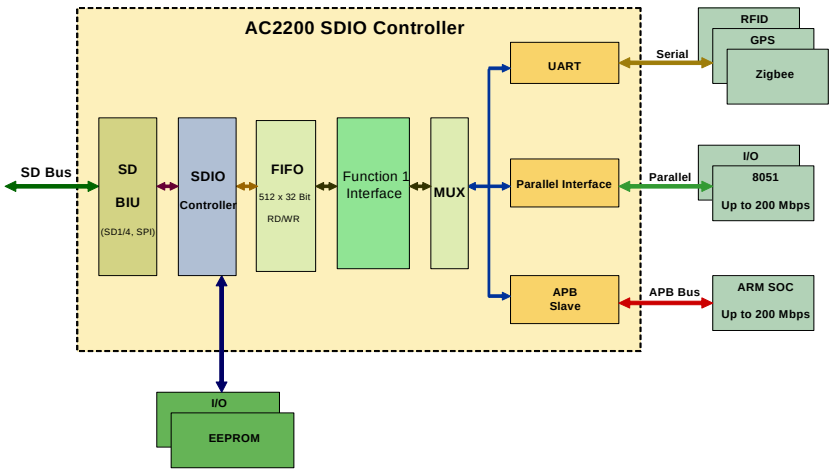
Overview

The Arasan AC2200ie SDIO Controller is an ASSP with an SDIO interface that communicates with devices connected to APB, Parallel, and UART buses. The controller is designed to support a wide range of portable low-power applications such as GPS, UWB, camera, Zigbee, RFID, scanner, etc.

The availability of APB, Parallel, and UART interfaces provides flexibility for implementation of applications that require the conversion of data to feed the SD bus. The AC2200ie SDIO Controller can be configured to operate as a master when the application logic does not have a CPU. The AC2200ie can initiate and control data transfers to application logic. In applications with embedded processors such as ARM or 8051, the AC2200ie can be configured to provide a slave interface. In slave mode, the application CPU controls the initialization of AC2200ie and the setting of its internal registers. An optional EEPROM can be used with the AC2200ie. The EEPROM can either be programmed by the SD host or CPU connected to the AC2200ie, or be used for initializing devices attached to the AC2200ie.

The AC2200ie SDIO Controller ASSP is implemented in 0.25-micron, 3.3 V technology. It is available in 64 TFBGA package with industrial operating temperature. The device is RoHS compliant and is qualified for both industrial and commercial grades. The AC2200ie SDIO Controller is pin compatible with the AC21C00 SDIO Controller. The AC2200ie replaces the AC21C00.

AC2200ie SDIO Controller Functional Block Diagram



Version 1.1

SDIO 2.0 Compliant

AC2200ie SDIO Controller ASSP

SD Bus Interface Unit:

The BIU communicates with the SD host through the SD bus. SDIO SPI, SD1, and SD4 transfer modes are supported. The BIU houses the 16 bit CRC generator and checker for the data lines, 7 bit CRC generator and checker for the command and response lines, transmitter state machine, receiver state machine, interrupt state machine, BIU master state machine, command decoder, and the response generator. The BIU bus capability is determined by bit values programmed in the R/W CCCR registers. At reset, the SD bus is set to SD 1-bit mode.

APB Interface:

The AC2200ie provides an interface for embedded application using the ARM core with an APB bus. The AC2200ie implements an 8-bit APB slave interface. The APB interface supports a maximum data transfer rate of 30 Mbyte/sec and a maximum clock frequency of 60 MHz.

UART:

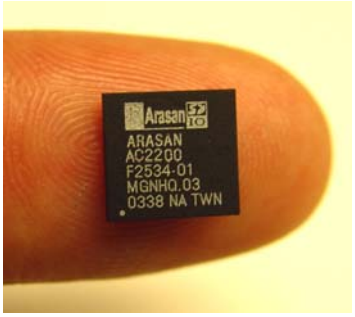
The AC2200ie UART module supports up to 1Mbit/sec. The serial interface is a PC16550D like UART. Features include XON/XOFF modes, 5, 6, or 7 bit selectable characters, even, odd or no-parity bit generation and detection, 1, 1.5, or 2 stop bit generation, 0-1.5 M baud programmable, independent controlled interrupts, and modem control functions.

Parallel Bus Interface:

The general purpose parallel bus provides a high-speed 8-bit or 16-bit interface to I/O devices. The AC2200ie operates in master mode like a processor. The parallel bus supports a maximum data transfer rate of 100 Mbyte/sec and a maximum clock frequency of 60 MHz.

Generic 8051 Bus Interface:

The generic 8051 bus provides a high-speed 8-bit or 16-bit interface to I/O devices of 8051 subsystems. The parallel bus supports a maximum clock frequency of 60 MHz.



Benefits:

- Fully compliant SDIO core
- Premier direct support from Arasan IP core designers
- Customer training available

Availability:

- In volume production
- Commercial and industrial grades
- ROHS Compliant
- 3 V technology
- 64-pin TLFBGA package

Development Platform:

- AC2200 Hardware Development Kit (HDK)
- Concurrent hardware and software development
- Client binary drivers for palm or WinCE OS are provided along with HDKs

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Related Links:

AC2200EX Hardware Development Kit:
http://www.arasan.com/products/prod_overview/AC2200EX-HDK-Flyer-1-0.pdf

For a complete directory of Arasan IPs, please