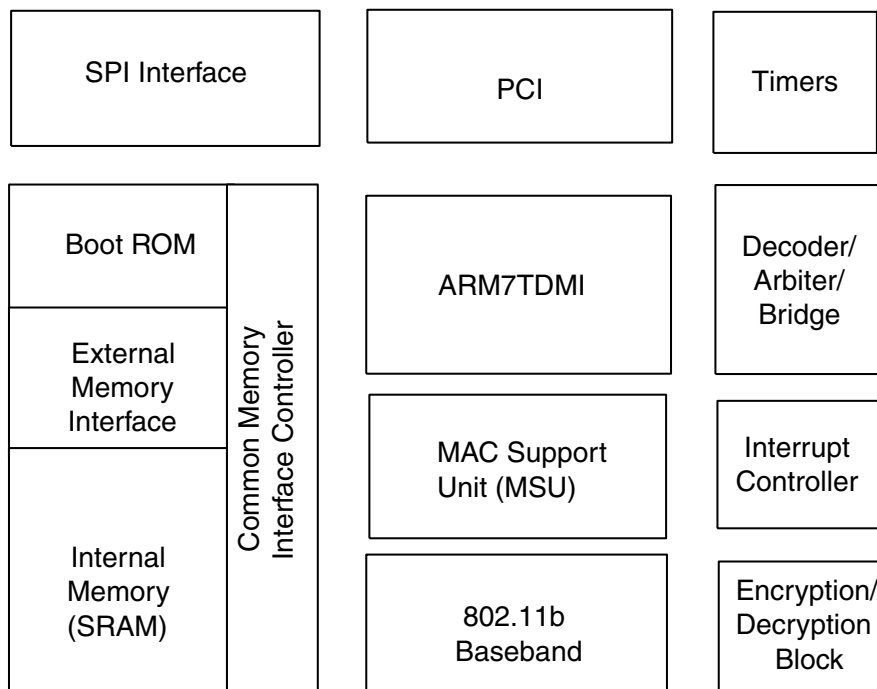


Features

- Integrates the IEEE 802.11b Physical Layer (Baseband) and the Media Access Controller (MAC) for Supporting Standard Rates up to 11 Mbps
- Supports Antenna Diversity Algorithm, Automatic Receive Gain Control, Transmit Gain Control, Transmit Filter for Japanese Regulatory and Differential or Single-ended I- and Q- Baseband Signals
- Integrates 160 KBytes of SRAM Organized in Five Banks of 32 KBytes Each, Offering the Flexibility for Individually Configuring Each of Them as Program or Data Memory
- Zero Wait States for Program Execution
- Fast Data Transfers through DMA Channels
- Low-power ARM7TDMI® RISC Processor
- The BootsTrap Code Supports External SPI EEPROM for the Custom Configuration Parameters Used during the Device Enumeration Phase as Well as Default Parameters for First Time EEPROM Programming
- Glueless Parallel Flash Memory Interface, Supporting up to 128 KBytes of Nonvolatile Memory
- Glueless External SRAM Interface for All MAC Operations, Supporting up to 128 KBytes of External Memory
- Wired Equivalency Privacy (WEP) in Hardware Supporting 64-bit and 128-bit Keys
- Hardware Implementation of TKIP
- Hardware Implementation of AES Encryption Supporting Various Modes (CCM/CTR/CBC)
- The WLAN Functions Can Be Easily Changed or Updated to New Requirements Since They are Implemented in Microcode
- Supports 11 Mbps Rates with Automatic Fallback to 5.5, 2 and 1 Mbps
- SPI Interface and 13 GPIO Pins
- 176-ball LFBGA Package
- Low-voltage 1.8V Core Operation

Block Diagram



802.11b Media Access Controller (MAC) and Baseband with PCI Interface

AT76C506A Summary

Rev. 2390BS-WLAN-07/03



Note: This is a summary datasheet. A complete document is available under NDA. For more information, please contact your local Atmel Sales Office.

Description

The AT76C506A is a single-chip baseband controller that can handle IEEE 802.11b standard compliant data rates of up to 11 Mbps and provides all processing and functionality needed for the MAC protocol of IEEE 802.11b. The AT76C506A is a slave PCI device that allows Host access to any memory location of the device. Power management support conforming to PCI Power Management Specification v1.1 is also provided so that the device can be used for mini PCI applications.

The AT76C506A incorporates an ARM7TDMI processor using a sophisticated architecture to control the on-chip peripherals, manage the internal memory and allocate data queue buffers as well as to communicate with the host through the PCI parallel bus. The processor peripheral logic consists of a PCI bus interface, a Serial Peripheral Interface (SPI), a MAC unit, a 802.11b baseband controller, a WEP/TKIP engine block, an AES engine block, two memory controllers and the ARM® subsystem consisting of an Interrupt Controller, two 32-bit timers and an address decoder unit.

The ARM7TDMI core supports two alternative instruction sets. Powerful 32-bit code can be executed by the processor in ARM operating mode. However, a 16-bit instruction subset is also available in Thumb® mode. Thumb mode can be selected to exploit full processor power with limited external memory resources. Note that ARM7TDMI operating mode can be changed at run time with negligible overhead.



Atmel Corporation

2325 Orchard Parkway
San Jose, CA 95131
Tel: 1(408) 441-0311
Fax: 1(408) 487-2600

Regional Headquarters

Europe

Atmel Sarl
Route des Arsenaux 41
Case Postale 80
CH-1705 Fribourg
Switzerland
Tel: (41) 26-426-5555
Fax: (41) 26-426-5500

Asia

Room 1219
Chinachem Golden Plaza
77 Mody Road Tsimshatsui
East Kowloon
Hong Kong
Tel: (852) 2721-9778
Fax: (852) 2722-1369

Japan

9F, Tonetsu Shinkawa Bldg.
1-24-8 Shinkawa
Chuo-ku, Tokyo 104-0033
Japan
Tel: (81) 3-3523-3551
Fax: (81) 3-3523-7581

Atmel Operations

Memory

2325 Orchard Parkway
San Jose, CA 95131
Tel: 1(408) 441-0311
Fax: 1(408) 436-4314

Microcontrollers

2325 Orchard Parkway
San Jose, CA 95131
Tel: 1(408) 441-0311
Fax: 1(408) 436-4314

La Chantrerie
BP 70602
44306 Nantes Cedex 3, France
Tel: (33) 2-40-18-18-18
Fax: (33) 2-40-18-19-60

ASIC/ASSP/Smart Cards

Zone Industrielle
13106 Rousset Cedex, France
Tel: (33) 4-42-53-60-00
Fax: (33) 4-42-53-60-01

1150 East Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906
Tel: 1(719) 576-3300
Fax: 1(719) 540-1759

Scottish Enterprise Technology Park
Maxwell Building
East Kilbride G75 0QR, Scotland
Tel: (44) 1355-803-000
Fax: (44) 1355-242-743

RF/Automotive

Theresienstrasse 2
Postfach 3535
74025 Heilbronn, Germany
Tel: (49) 71-31-67-0
Fax: (49) 71-31-67-2340

1150 East Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906
Tel: 1(719) 576-3300
Fax: 1(719) 540-1759

Biometrics/Imaging/Hi-Rel MPU/ High Speed Converters/RF Datacom

Avenue de Rochepleine
BP 123
38521 Saint-Egreve Cedex, France
Tel: (33) 4-76-58-30-00
Fax: (33) 4-76-58-34-80

e-mail

literature@atmel.com

Web Site

<http://www.atmel.com>

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