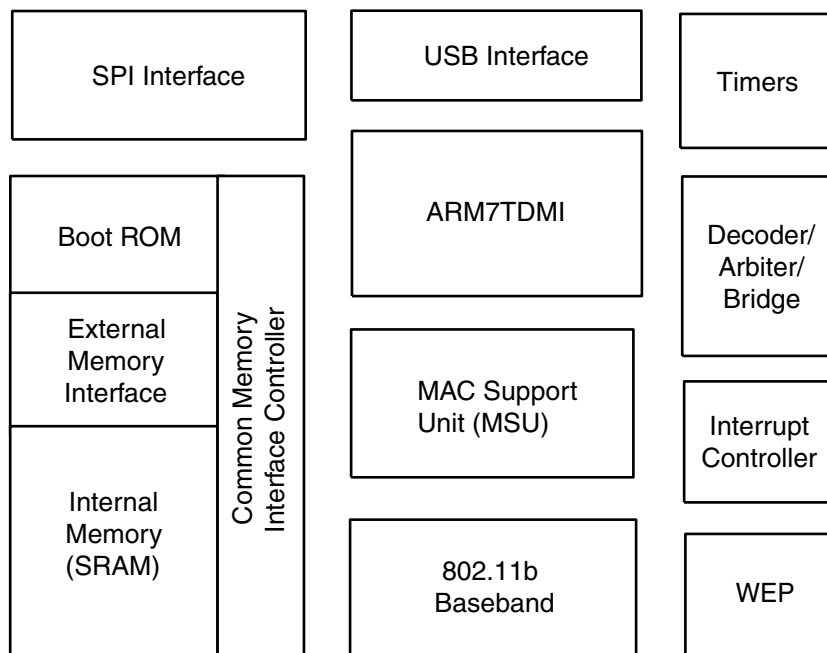


## Features

- IEEE 802.11b MAC and Baseband for Supporting Standard Rates Up to 11 Mbps
- Wireless Interface Following the IEEE 802.11b Standard
- Wireless LAN MAC Unit with ARM7TDMI® RISC Processor
- Integrated 128-byte Transmit and 128-byte Receive FIFOs for Wireless MAC Layer Functions
- Delivers Standard Wireless Networking to Any Host that Supports a Full-speed (12 Mbps) USB Interface
- The On-chip Boot-ROM Implements the Device Upgrade Protocol (DFU) Spec Making the AT76C505 Ideal for Low-cost Terminal Adaptors without Requiring External Program Flash Since the Host Driver Downloads the Code During the Start-up Phase
- Support of an External Serial EEPROM for Configuration Settings
- Glueless SRAM Interface for All MAC Operations, Supporting Up to 1M Byte of External Memory
- Integrated 6K x 32-bit Internal SRAM, Used for Fast Program Code Execution and Temporary Storage of Data
- Glueless Flash Memory Interface, Supporting Up to 1M Byte of Nonvolatile Memory for Permanent Storage of Program Code
- Wired Equivalency Privacy (WEP) in Hardware Supporting 64-bit and 128-bit Encryption
- Hardware Implementation of Time Critical MAC Functions by the MAC Support Unit (MSU) Guarantees Maximum Robustness
- The WLAN and Inter-networking Functions can be Changed and Updated Easily to New Requirements Since They are Implemented in Microcode
- Supports 11 Mbps Rates with Automatic Fallback to 5.5, 2 and 1 Mbps
- 128-ball BGA Package
- Low-voltage 3.3V Operation
- SPI Interface and 8 GPIO Pins
- Baseband Supports Antenna Diversity Algorithm
- Baseband Supports Japan Filter
- Baseband Supports Differential or Single-ended I- and Q-Baseband Signals
- Integrated 802.11b Baseband Processor

## Block Diagram



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

## AT76C505

## Summary

Rev. 2364AS-WLAN-08/02



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



## Description

The AT76C505 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 AT76C505 is a full-speed USB device that can support up to 4 configurable Endpoints (EP) plus one Control EP. The AT76C505 USB interface can support Suspend and Resume bus condition for saving power during host idle periods.

Besides the USB interface unit, the AT76C505 chip contains a WEP engine block, a MAC Support Unit (MSU), a 802.11b baseband controller, a memory controller 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 Headquarters

### *Corporate Headquarters*

2325 Orchard Parkway  
San Jose, CA 95131  
TEL 1(408) 441-0311  
FAX 1(408) 487-2600

### *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>

### © Atmel Corporation 2002.

Atmel Corporation makes no warranty for the use of its products, other than those expressly contained in the Company's standard warranty which is detailed in Atmel's Terms and Conditions located on the Company's web site. The Company assumes no responsibility for any errors which may appear in this document, reserves the right to change devices or specifications detailed herein at any time without notice, and does not make any commitment to update the information contained herein. No licenses to patents or other intellectual property of Atmel are granted by the Company in connection with the sale of Atmel products, expressly or by implication. Atmel's products are not authorized for use as critical components in life support devices or systems.

ATMEL® is the registered trademark of Atmel.

ARM7TDMI® and ARM® and Thumb® are the registered trademarks of ARM, Ltd. Other terms and product names may be the trademarks of others.



Printed on recycled paper.