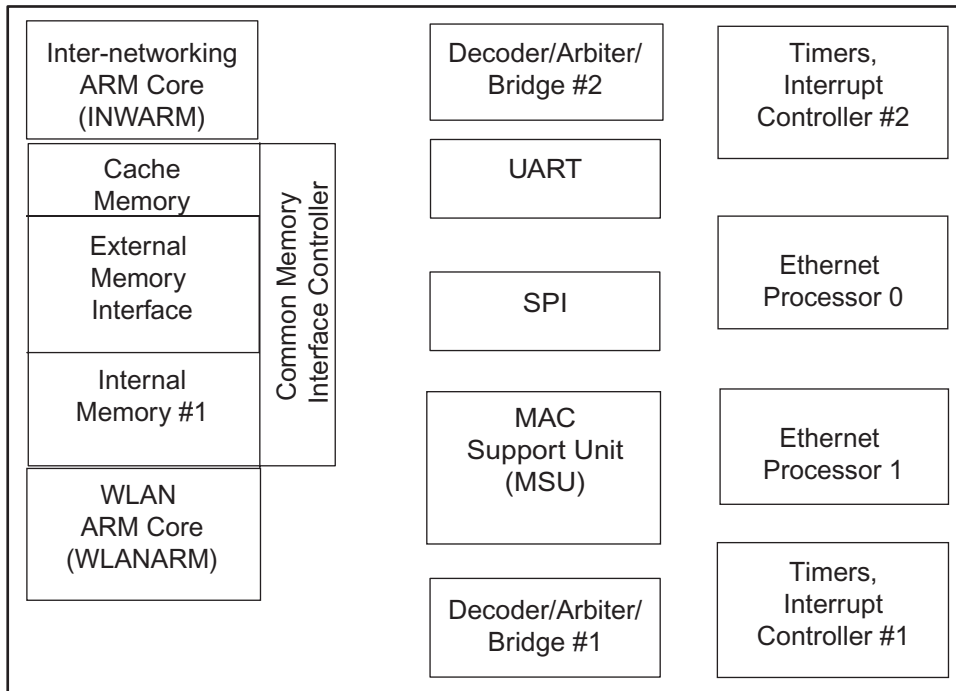


## Features

- Wireless Interface Following the IEEE 802.11b Standard
- Two Ethernet MAC Units (EMU) Interfaces with 10/100 Mbits Ethernet Physical Layer Transceivers through Standard MII Ports
- Dual ARM7TDMI® RISC Processor Architecture
- Inter-networking ARM7TDMI (INWARM) with 16 Kbytes Program and Data Cache Controls the Ethernet MAC Units and Provides the Bridging Functions between Ethernet and Wireless Interfaces
- WLAN ARM7TDMI (WLANARM) with a Dedicated 32 Kbytes Program Memory Coordinates the 802.11b MAC Functionality
- 802.11b MAC Unit with 512-byte Transmit and 128-byte Receive FIFOs
- SDRAM Interface Supporting up to 256 MBytes of External Memory Shared between Both Processors
- 32-bit DMA Channels Are Used for Data Packet Transfers between the SDRAM and the MAC Units
- Enciphering/Deciphering of Wireless Data On-the-fly Ensures Maximum Privacy of Data
- SPI Interface and Eight GPIO Pins that Can Be Used As Slave-Select Pins
- A Bootstrap ROM Is Used in the Initialization Phase by the WLAN ARM® to Execute a Code Downloading Procedure from an SPI Flash to Its Internal Program Memory
- UART with 16-byte Receive and Transmit FIFO and Programmable Baud Rate up to 921 Kbaud
- Supports 802.1f (IAPP) and Tap-Dance™ (Atmel proprietary roaming protocol)
- 2.5 V for Core and 3.3 V for I/O
- Different Packages, Depending on the Requirements

## Block Diagram



## Dual Ethernet to IEEE 802.11b WLAN Bridge-on-a-Chip (DEW-B)

## AT76C511 Summary

2383BS-WLAN-01/04



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



## Overview

The AT76C511 Dual Ethernet to Wireless LAN Bridge (DEW-B) is a single-chip solution for interconnecting a Wireless LAN conforming to IEEE 802.11b standard with other Wireless LANs (WLANs) and legacy LANs.

A DEW-B-based bridge acts as an Access Point (AP) for the 802.11 WLAN and coordinates the traffic of the packets that are destined outside the WLAN using IP over Ethernet. In case the WLAN user is mobile, roaming functions are also supported at the DEW-B bridge. Its Dual Ethernet MAC architecture is useful in applications where bridging or routing is required between a public network through high speed links like an XDSL modem and the customer premises network area where both WLAN and Ethernet connections coexist. Figure 1 shows the topology described above which includes wireless and wired stations communicating through an Ethernet backbone and incorporating the DEW-B, common Ethernet bridges and simple WLAN AP like the VNET-B (AT76C510). It also shows how this Customer Premises Network (CPN) can access the Internet through a modem link (ADSL).

The data transactions over this unified CPN environment are categorized according to the type of end-to-end devices.

## End Stations Transactions

When two end stations communicate (irrespective to the type of network they belong) the inter-networking between the different networks should be transparent.

## Inter-networking Device Transactions

The DEW-B device implements all necessary communication protocols for supporting inter-networking functions, implements logical grouping of users independent of their physical location and provides secure links by implementing encryption algorithms.



## Atmel Corporation

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

## Regional Headquarters

### Europe

Atmel Sarl  
Route des Arsenalux 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, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 436-4314

### Microcontrollers

2325 Orchard Parkway  
San Jose, CA 95131, USA  
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, USA  
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, USA  
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

---

### Literature Requests

[www.atmel.com/literature](http://www.atmel.com/literature)

**Disclaimer:** 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 Corporation 2003. All rights reserved. Atmel® and combinations thereof and DataFlash® are the registered trademarks of Atmel Corporation or its subsidiaries. ARM7TDMI®, ARM®, Thumb®, and ARM7® are the registered trademarks of ARM, Ltd.



Printed on recycled paper.

2383BS-WLAN-01/04