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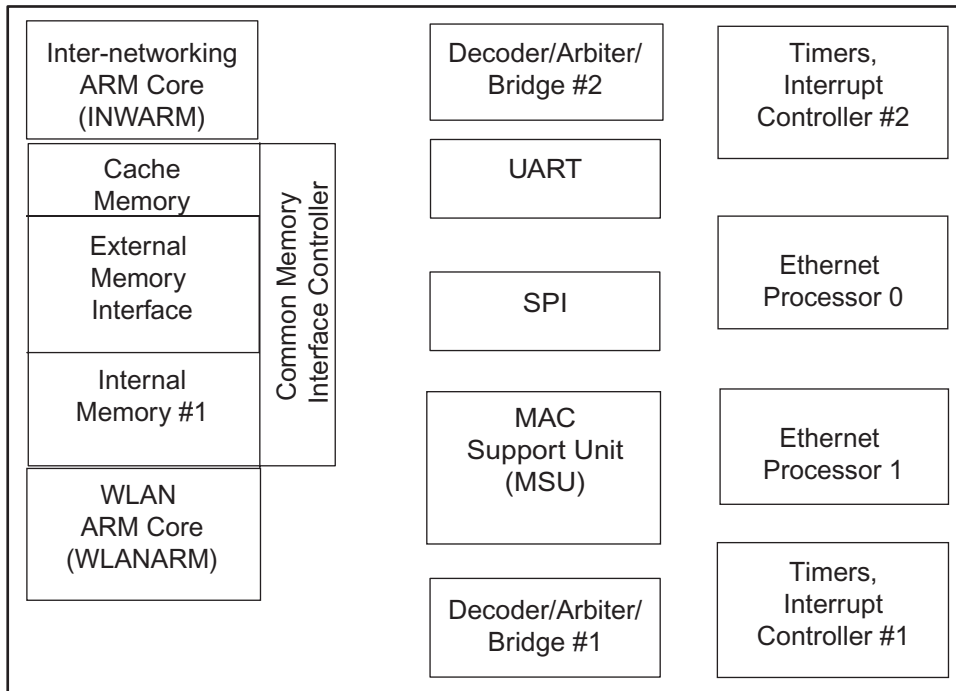
Dual Ethernet to IEEE 802.11b WLAN Bridge-on-a-Chip (DEW-B)

AT76C511 Summary

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 is 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.

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2383BS–WLAN–01/04