AT75C310 DEVELOPMENT TOOLS

A comprehensive set of tools is available for rapid, low-risk development of applications based on Atmel's AT75C310 Smart Internet Appliance Processor (SIAP™).
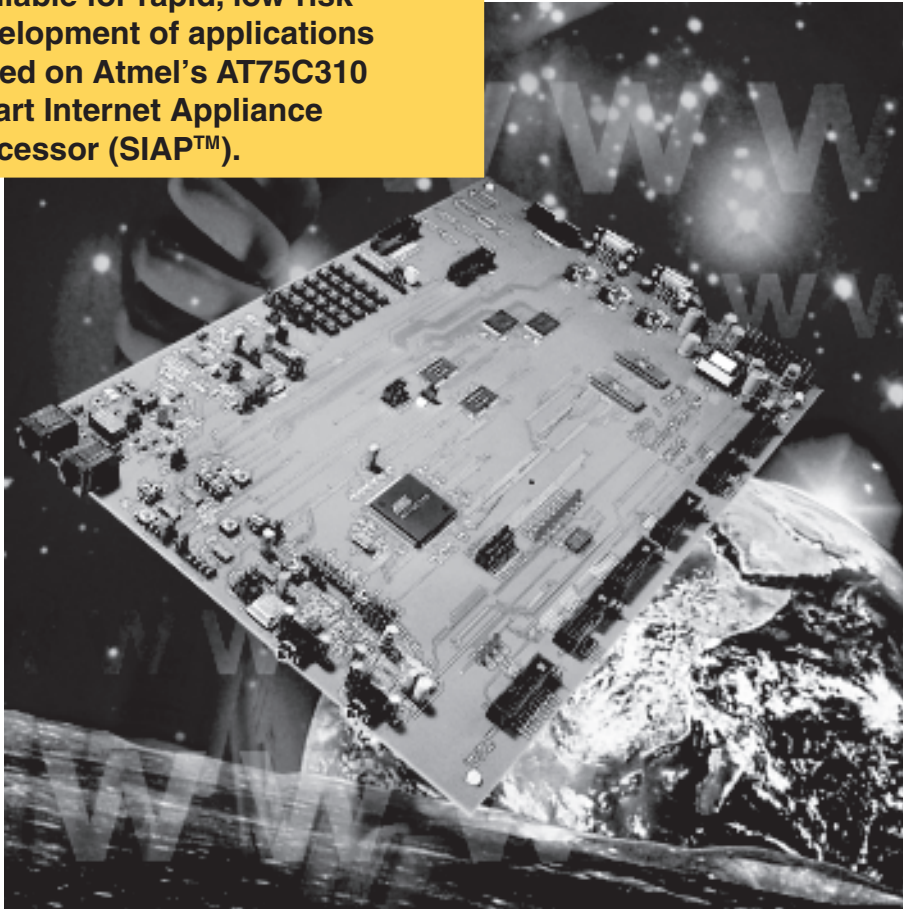
The AT75C310 embeds an ARM7TDMI™ microcontroller and two OakDSPCore® digital signal processing cores. Development tools and pre-qualified application software modules are available for both of these, from Atmel and third-party suppliers.

Image: Cadrage

ARM7TDMI Software Development

Atmel and its partners provide a wide range of tools for developing application code for the embedded ARM7TDMI core, running under the Linux® operating system. The core includes a JTAG interface that gives non-intrusive access to in-circuit emulators (ICE) and hardware debuggers. The ARM7TDMI development environment includes:

- **Embedded Linux Operating System**
- **Compiler, Linker and Debugger from GNU Free Software Foundation**
- **JEENI® Emulator from Embedded Performance Inc.**
- **AT75C310Dev Board from Atmel**

OakDSPCore Software

Software modules for most common DSP applications are available for the AT75C310 IC, making it unnecessary to develop code for the OakDSPCore in most instances. These modules include:

- **V.34 modem emulation**
- **G.723.1 and G.729A voice codecs**
- **Silence compression**
- **Echo cancellation**

Other application-specific modules can be developed in collaboration with Atmel.

The recommended environment for the development of applications running on the AT75C310 consists of an AT75C310 Development Board, connected via its JTAG port to a JEENI Ethernet-enabled Emulator. This in turn is connected, via an Ethernet LAN, to one or more development workstations. This configuration permits parallel development of software modules, and allows for rapid download of code onto the target IC.

APPLICATION DEVELOPMENT STATION
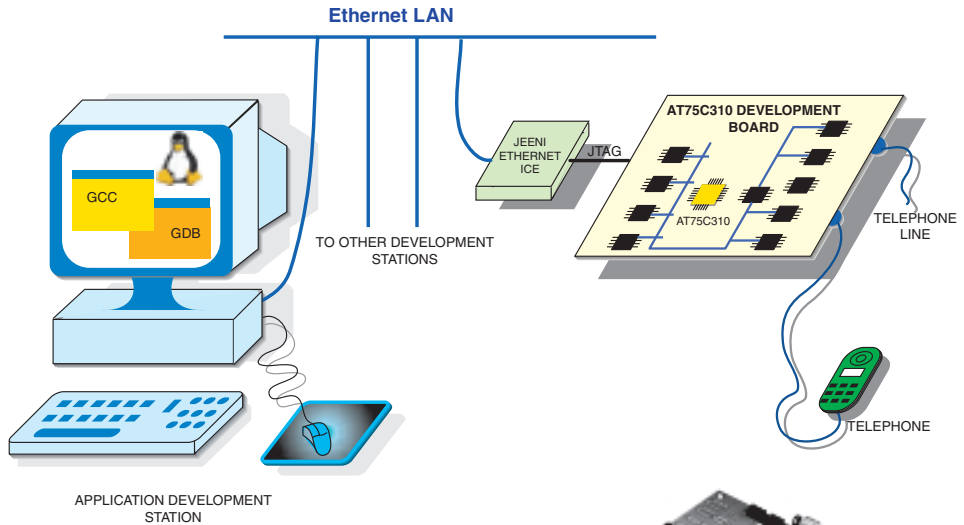
AT75C310Dev Board

Atmel's AT75C310Dev board provides an AT75C310 IC and all the peripherals required to develop and test a telephony or VoIP application. All signals and buses are placed on external I/Os, including the ARM7TDMI JTAG connections for a direct link to an Emulator. It provides Codec, SLIC and DAA connections for full system testing.
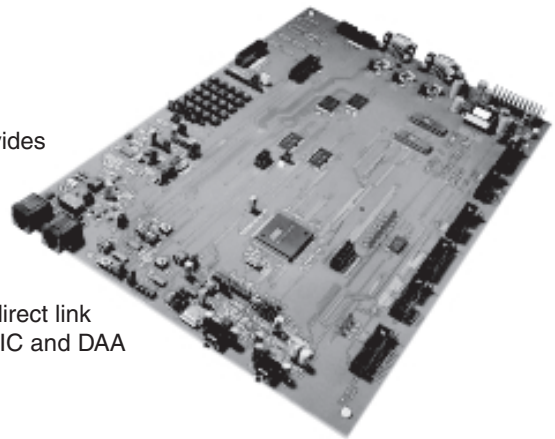
JEENI Emulator (Embedded Performance Inc.)

JEENI (JTAG Embedded ICE Ethernet Interface) communicates with the AT75C310 Development Board via the JTAG port of the ARM7TDMI core. It provides non-intrusive debugging, using no target resources. It features two hardware breakpoints, unlimited software breakpoints, Ethernet and serial I/O ports for a fast, flexible host interface and high-speed download of application code.

Its Flash memory allows easy firmware upgrades to future generations of ARM cores. It has been fully tested from a Linux development workstation.

JEENI Emulator

PC- or Workstation-based Development Tools

An AT75C310 Development station runs under Linux (e.g. Red Hat Linux V6.2), supporting the ARM-GCC and ARM-G++ cross compilers for C and C++ source code, and the ARM-GDB debugger. These allow AT75C310 code to be developed, debugged and tested in a full operational environment.

The extensive support provided for the AT75C310 Smart Internet Appliance Processor has one aim: right-first-time end-user applications.