Atheros AR3000 - ROCm™ Solutions for Bluetooth®
Radio-On-Chip for Mobile (ROCm) Products

The AR3000 family consists of Bluetooth solutions based on the Atheros ROCm platform for high-performance mobile and embedded wireless products. The Atheros ROCm platform gives customers unsurpassed ability to:

- Build the most power-efficient devices
- Design for the smallest form factor applications
- Achieve the most cost-effective designs
  - Greater integration of functionality
  - Low-cost chip solution
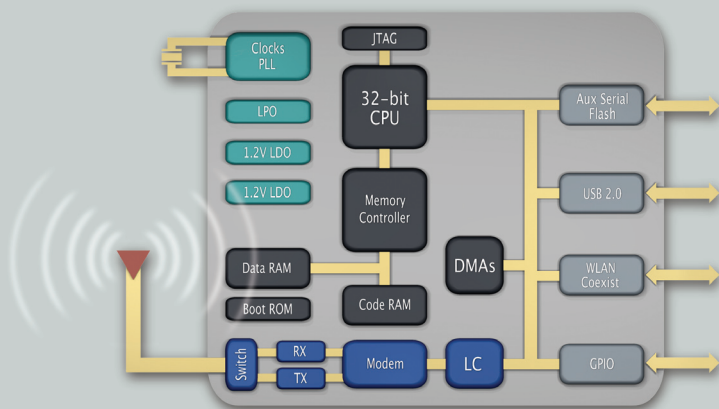- Deliver Atheros-class performance in a wide array of mobile devices

AR3011 Technology Overview

The Atheros AR3011 is a highly integrated, all-CMOS, single chip Bluetooth 2.1 + EDR solution specifically designed for PC applications. It includes a Bluetooth EDR radio, a 32-bit Tensilica CPU, USB 2.0 interface, two 1.2v voltage regulators for analog and digital circuit, auxiliary serial Flash interface, on board PLL, and on board RAM/ROM. It also has a WLAN coexistence interface to ensure coexistence and co-location with a WLAN solution in the same system.

The Atheros AR3011 supports the standard HCI USB interface which makes it compatible with any upper layer Bluetooth stack. It is specially optimized for PC applications and, as a result, eliminates the need for an external Flash, which further reduces the external component count and lowers system BOM cost.* The Atheros AR3011 can provide PC ODMs/OEMs with the lowest-cost Bluetooth solution.

AR3011 utilizes a small, cost-effective 6 mm x 6 mm Quad Flatpack No lead (QFN) package. A Bluetooth Qualification Body (BQB) certified reference design is available to customers for quick turn system integration. Atheros provides a complete BT software solution.

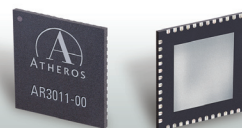## AR3011 System Architecture

AR3011

*Requirement for external Flash depends on the application. Please consult with Atheros to see if your application can benefit from the unique architecture of AR3011 by eliminating the external Flash that is typically needed for PC application.

AR3011
The Only Bluetooth Solution Optimized for PC Applications
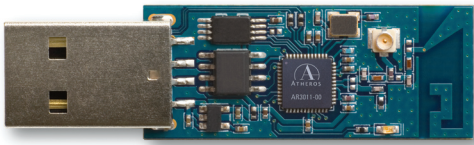
AR3011 Solution Highlights

- Single chip Bluetooth 2.1 + EDR solution
- Integrated 32-bit Tensilica CPU
- USB 2.0 device interface supports standard HCI USB
- GPIOs to drive LEDs and control peripherals.
- Auxiliary serial Flash interface allowing for flexibility and customization
- Two 1.2v Integrated voltage regulators
- On board PLL
- Internal or external low power clock
- Optimal coexistence with WLAN – 2-, 3-, or 4-wire interfaces
- 0.13um CMOS technology

Atheros AR3011

The Industry's First Bluetooth 2.1 + EDR Solution for PCs

AR3011 Additional Information
• Integrated Radio and Baseband on a single chip
• 2.4 GHz Class 2 Bluetooth Radio
• Supports both EDR of 2 Mbps (π/4-DQPSK) and 3 Mbps (8-DPSK)
• -87 dBm radio sensitivity
• +4 dBm maximum output power
• Eliminates the need for Balun and matching network

Bluetooth 2.1 + EDR enhancements
• Secure Simple Pairing
  - Improves ease of pairing of Bluetooth devices while
    implementing strong security

• Encryption Pause and Resume
  - Increases security in the link by ensuring that no user data
    is transmitted without encryption and enables periodic
    update of the keys

• Extended Inquiry Response
  - Provides better filtering of devices before connection

• Sniff Subrating
  - Reduces power consumption when devices are
    in the sniff, low-power mode, increasing battery-life

Atheros Communications is a leading developer of semiconductor system solutions for wireless and other network communications products. Atheros combines its wireless and networking systems expertise with high-performance radio frequency (RF), mixed signal and digital semiconductor design skills to provide highly integrated chipsets that are manufactured on low-cost, standard complementary metal-oxide semiconductor (CMOS) processes. Atheros technology is used by a broad base of leading customers, including personal computer, networking equipment and consumer device manufacturers.

AR3011 Specifications

Frequency Band	2.4000 - 2.4835 GHz
Bluetooth Standard	Bluetooth 2.1 + EDR
Modulation technology	G-FSK, π/4-DQPSK, 8-DPSK
Communication Interface	USB 2.0
Peripheral Interface	GPIOs
Auxiliary Memory Interface	Serial Flash
Physical Specifications	
Package Dimensions	6 mm x 6 mm QFN
Power Supply	Two integrated 1.2v regulators

For more information on the AR3011 or other solutions from Atheros contact your local representative:

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