Atheros AR6000 - WLAN Solutions for ROCm
Radio-On-Chip for Mobile (ROCm) WLAN Products

The AR6000 family consists of WLAN solutions based on the Atheros ROCm platform for high-performance mobile and embedded wireless products. The Atheros ROCm platform gives customers unsurpassed ability to:
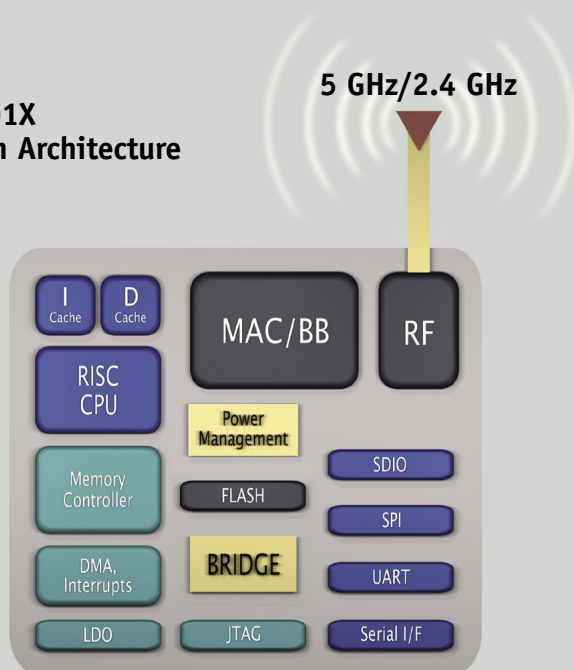- Build the most power-efficient devices
- Design for smallest form factor applications
- Achieve the most cost-effective designs
  – Greater integration of functionality
  – Low-cost chip solution
- Deliver Atheros-class performance in a wide array of mobile devices

AR6101X Technology Overview
The Atheros AR6101X 802.11a/g single-chip solution is the first Voice-Over-Wi-Fi design in Atheros' Radio-on-Chip for Mobile (ROCm) wireless IP platform. With this latest solution, Atheros is building on its history of innovation and success in developing custom-built, low-cost mobile communications products. The Atheros AR6101 family of single-chip solutions integrates multiple complex functions onto a single chip: computing, DSP, memory, power management, keypad, audio and display interfaces, in addition to mixed-signal and RF.

The Atheros ROCm wireless IP platform offers a complete solution, including the user interface, in an energy and memory-efficient package. With the highest level of systems integration, the AR6101X total component count is reduced by approximately 50 percent versus competitive designs, dramatically lowering the total bill-of-materials.
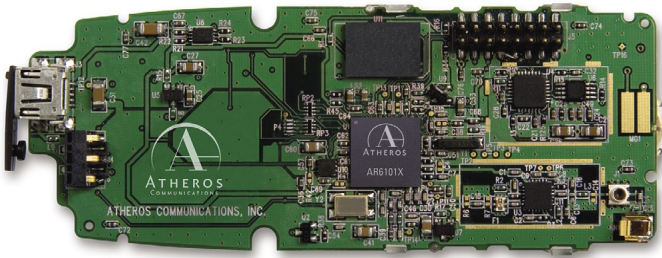
AR6101X

World's Most Integrated, Cost-Effective Single-Chip WLAN Handset Design Brings Voice-Over-Wi-Fi to the Mainstream

AR6101X Chip Features
- Single-chip VoIP handset solution
- All-CMOS single-chip design for IEEE 802.11a/b/g compatible WLANs
- Data rates of 6-54 Mbps for 802.11g, 802.11a and 1-11 Mbps for 802.11b
- 150 MHz MIPS R4KEm CPU
- Integrated 802.11a/b/g MAC/baseband processor and radio
- Ultra low power and energy profile
- Advanced QoS, security features
    11e WMM QoS
    11i, WPA, WPA2, CCXv4
- Advanced energy management for VoIP
- WMM-APSD
- High integration level for compact and low-cost designs
- Multiple expansion interfaces (memory, serial, I^2S)

AR6101X System Architecture

5 GHz/2.4 GHz

AR6101X

WIRELESS FUTURE. UNLEASHED NOW.™

AR6101X Specifications

Frequency Band	5 GHz, 2.4 GHz
Network Standard	802.11a, 802.11b, 802.11g
Modulation Modes	OFDM with BPSK, QPSK, 16 QAM, 64 QAM, CCK
Hardware Security	AES, TKIP, WEP, WPA, WPA2, 802.11i
Quality of Service	Wi-Fi Multimedia, 802.11e EDCF
Media Access Technique	CSMA/CA
Data Path Interfaces	SDIO 1.1, SPI, 8- or 16-bit parallel memory mapped
Control Interfaces	16550-style UART, EJTAG, GPIO, I^{2}S
Memory Interfaces	Serial FLASH, Parallel FLASH, SRAM

Supported Data Rates

IEEE 802.11a	6 to 54 Mbps
IEEE 802.11b	1 to 11 Mbps
IEEE 802.11g	6 to 54 Mbps

Physical Specifications

Package Dimensions	BGA 10mm x 10mm

AR6101X Reference Design - HS22

- Phone applications (log, address book, calendar, configuration profiles, voice memo, calculator)

- VoIP engine (G.711 and G.729 compression, AEC, jitter buffer)

- SIP or XMPP signaling

- 802.11a/b/g WLAN driver with 802.11e, 802.11i support

- Lightweight IP (LWIP) stack

- Wi-Fi Protected Setup™ support

Atheros' wireless IP platform offers a streamlined voice capability. With this implementation, consumers will be empowered to make free or low-cost calls using any available WLAN. The scalable AR6101 platform supports Session Initiation Protocol (SIP) and Extensible Messaging and Presence Protocol (XMPP) for Internet conferencing, telephony, presence and events notification, and instant messaging. XMPP is an open-source, XML-based protocol that has become the industry standard for leading instant messaging platforms and presence technology used by millions of people worldwide.

Contact your local Atheros representative and ask about the AR6101 or other solutions from Atheros:

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