AR5005UX

802.11a/b/g Universal WLAN Solution via USB 2.0

Multi-standard 802.11a/b/g support for universal wireless connectivity to any 802.11 network via a convenient and portable USB 2.0 solution

ATHEROS®
COMMUNICATIONS

AR5112
2.4/5 GHz dual band
Radio-on-a-chip

AR5523
Multiprotocol MAC/
baseband processor

AR5005UX Solution Highlights

- Support for IEEE 802.11a, 802.11b, 802.11g
- Universal wireless connectivity for seamless roaming between any 802.11-based network
- Uses digital CMOS technology exclusively, minimizing power consumption and cost while maximizing reliability
- Highly integrated 2-chip set
- 2.4/5 GHz dual band Radio-on-a-Chip (RoC)
- Integrated 32-bit MIPS R4000-class processor with multiprotocol MAC/baseband processor that supports the RoC
- Wireless Multimedia Enhancements Quality of Service support (QoS)
- Super AG™ mode delivers 108 Mbps raw data rate with typical end-user throughput exceeding 60 Mbps TCP/IP
- Super AG utilizes Adaptive Radio to automatically identify clear channels for maximum throughput and standards compatible operation
- Hardware encryption for the Wi-Fi Protected Access (WPA) and IEEE 802.11i security specifications, provides Advanced Encryption Standard (AES), Temporal Key Integrity Protocol (TKIP) and Wired Equivalent Privacy (WEP) without performance degradation
- Extended tuning range (2.300-2.500 & 4.900-5.850 GHz) for worldwide use
- Dynamic Frequency Selection/Transmit Power Control (DFS/TPC) for international operation
- Support for draft IEEE 802.11e, h, i and j standards
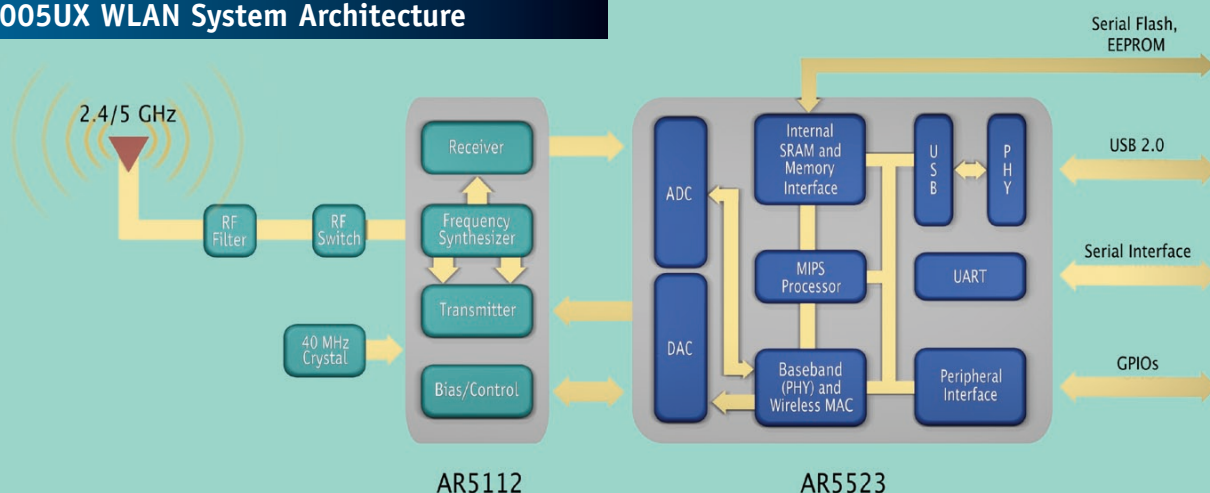- Atheros XR™ eXtended Range technology to give Wi-Fi products twice the range of existing designs

AR5112 Dual Band Radio-on-a-Chip

- All CMOS dual band radio chip
- Dynamic IF Dual Conversion architecture provides super-heterodyne performance at Zero IF prices
- Support for IEEE 802.11a, 802.11b, 802.11g
- Operates from 2.300 - 2.500 GHz and 4.900 - 5.850 GHz
- Integrated power amplifier (PA) and low-noise amplifier (LNA)
- External PA and/or LNA can be used for special applications
- Eliminates all IF filters and most RF filters; no external voltage-controlled oscillators (VCOs) or surface acoustic wave (SAW) filters needed
- Increased sensitivity and multipath tolerance
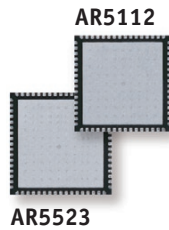- Enhanced transmit and receive chains

AR5523 Multiprotocol MAC/baseband processor

- Integrated MIPS processor
- Supports both 2.4 GHz and 5 GHz RoCs
- Super AG mode includes dynamic 108 Mbps capability, real-time hardware data compression, Fast Frames™ and standards-compliant bursting
- eXtended Range (XR) technology
- USB 2.0 compatible interface
- High speed UART with DMA supports data rates up to 1 Mbps
- Integrated analog-to-digital and digital-to-analog converters
- Serial FLASH/EEPROM, LEDs, GPIOs peripheral interfaces
- Low power operational and sleep modes

AR5005UX WLAN System Architecture

AR5112   AR5523

AR5112

AR5005UX

AR5523

AR5005UX Chipset Specifications

Frequency Band	4.900 to 5.850 GHz and 2.300 to 2.500 GHz
Network Standard	802.11a, 802.11b, 802.11g
Modulation Technology	OFDM with BPSK, QPSK, 16 QAM, 64 QAM; DBPSK, DQPSK, CCK
FEC Coding Rate	1/2, 1/3, 1/4
Hardware Encryption	AES, TKIP, WEP
Quality of Service	802.11e draft
Media Access Technique	CSMA/CA
Host Interface	USB 2.0
Communication Interface	High Speed UART
Peripheral Interface	GPIOs, LEDs
Memory Interface	Serial FLASH/EEPROM

Supported Data Rates

IEEE 802.11a	6 to 54 Mbps
IEEE 802.11b	1 to 11 Mbps
IEEE 802.11g	1 to 54 Mbps
Atheros Super AG Mode	Up to 108 Mbps

Chip Specifications

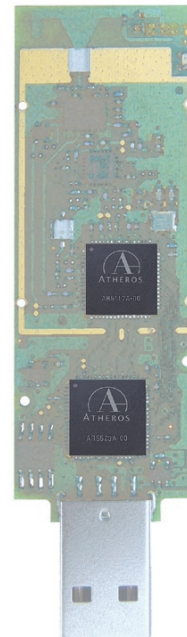|	AR5112	AR5523
Operating Voltage	2.5V +/-5%	3.3V +/-5%
	3.3V +/-10%	
Package Dimensions	9mm x 9mm	10mm x 10mm
Package	64 Leadless Plastic Chip Carrier	68 Leadless Plastic Chip Carrier

Atheros Communications, Inc.
tel: 408-773-5200   fax: 408-773-9940

Atheros Communications, KK – Japan
tel: +81-3-5501-4100   fax: +81-3-5501-4129

Atheros Communications, International LLC – Hong Kong
tel: 852.82061131   fax: 852.82061301

Atheros Communications, International LLC – Taiwan
tel: 886 2 8751 6385   fax: 886 2 8751 6397

AR5005UX 802.11a/b/g USB 2.0

- Windows® drivers for Windows XP, Windows 2000, Windows ME and Windows 98 SE
- A single driver and firmware code base supports all Atheros USB chipsets
- Integrated WPA supplicant supports Windows XP, Windows 2000, Windows ME and Windows 98 SE
- Client utility supports configuration profiles, current link status, statistics and diagnostics