

# AR5004X

802.11a/b/g Universal WLAN Solution



Multi-standard 802.11a/b/g support for universal wireless connectivity to any 802.11 network, future-proofs WLAN deployments and delivers the highest performance.



## AR5004X 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)
- Multiprotocol MAC/baseband processor that supports the RoC
- Wireless Multimedia Enhancements Quality of Service support (QoS)
- Super AG mode delivers up to 108 Mbps raw data rate with typical end user throughput exceeding 60 Mbps
- 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
- eXtended Range (XR) technology to give Wi-Fi products twice the range of existing designs
- Power-saving design improvements reduce system power consumption by 60%

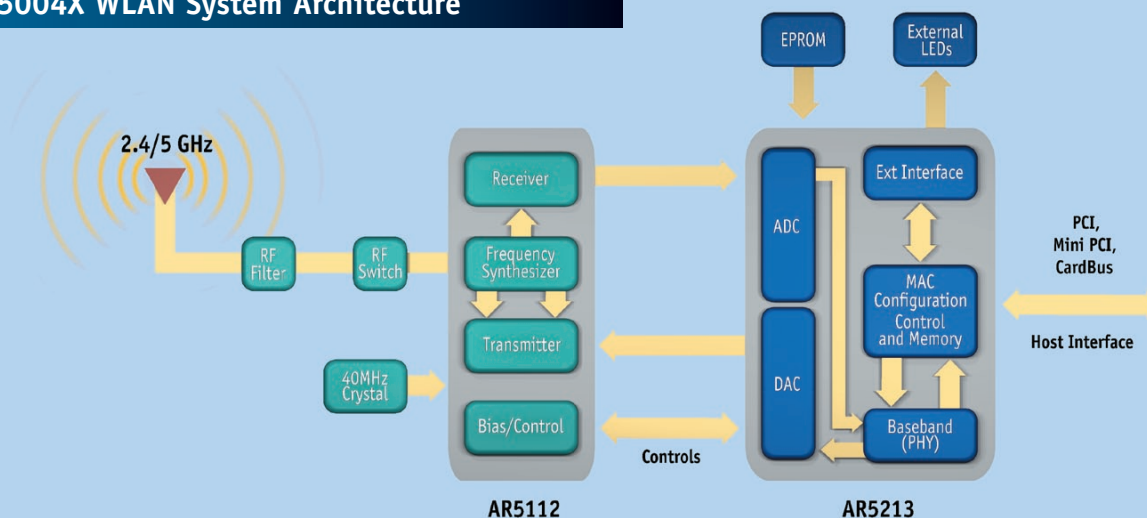
## AR5112 Dual Band Radio-on-a-Chip

- 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

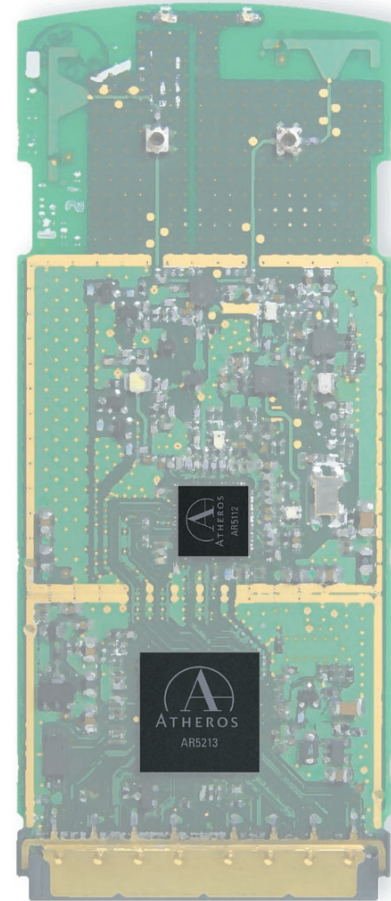
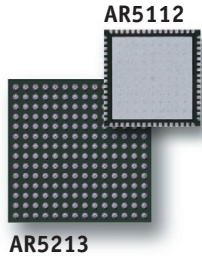
## AR5213 Multiprotocol MAC/baseband processor

- 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
- No external FLASH or RAM memory needed
- PCI 2.3 and PC Card 7.1 host interfaces with DMA support
- Integrated analog-to-digital and digital-to-analog converters
- Serial EEPROM, LEDs, GPIOs peripheral interfaces
- Low power operational and sleep modes

## AR5004X WLAN System Architecture



AR5004X



AR5004X 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	Mini PCI, CardBus, PCI	
Peripheral Interface	GPIOs, LEDs	
Memory Interface	EEPROM	

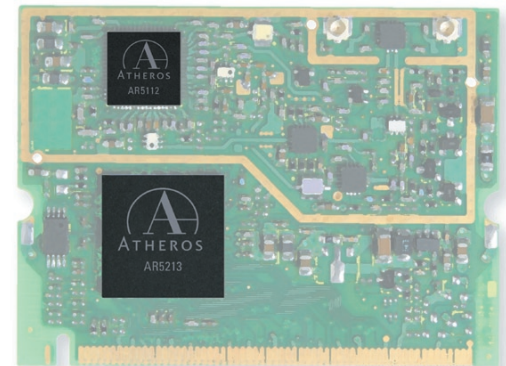
Supported Data Rates

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	AR5213
Operating Voltage	2.5V +/-5%	1.8V +10%, -5%
	3.3V +/-10%	3.3V +/-10%
Package Dimensions	9mm x 9mm	15mm x 15mm
Package	64 Leadless Plastic Chip Carrier	196 Plastic Ball Grid Array

AR5004X 802.11a/b/g Mini PCI



- Windows® drivers for Windows XP, Windows 2000, Windows ME, Windows 98 SE and Windows NT 4.0
- A single driver and firmware code base supports all Atheros chipsets, and provides both backward and forward compatibility with Atheros previous and next-generation multi-standard designs.
- Integrated WPA supplicant supports Windows XP, Windows 2000, Windows ME, Windows 98 SE and Windows NT 4.0
- Client utility supports configuration profiles, current link status, statistics and diagnostics