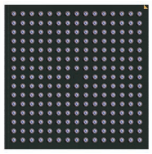
AR5006XS

Single chip 802.11a/b/g WLAN Solution

ATHEROS COMMUNICATIONS



Single-chip 802.11a/b/g solution provides support for universal wireless connectivity to any 802.11 network, future-proof WLAN deployments and delivers the highest performance.

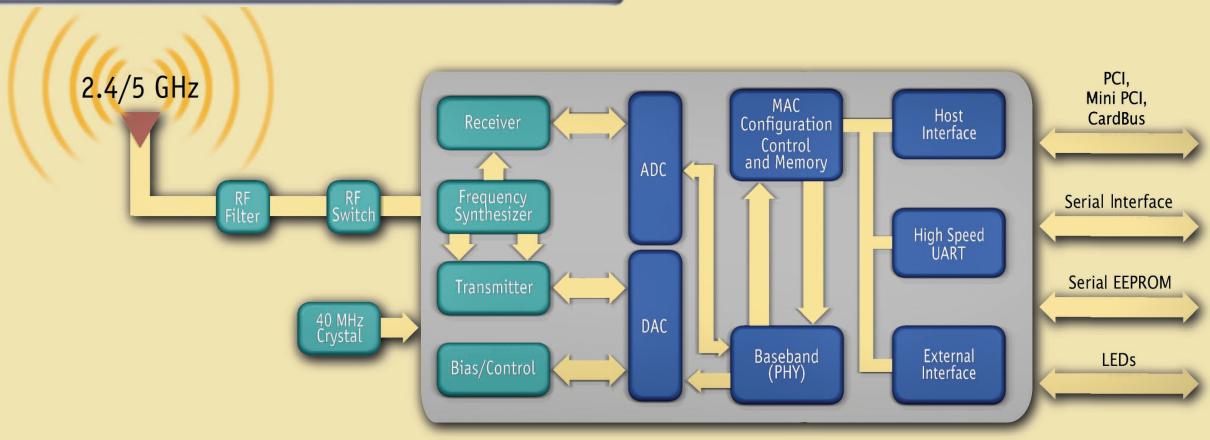
AR5006XS Solution Highlights

- Highly integrated single chip CMOS solution with multiprotocol MAC/baseband processor and 2.4/5 GHz radio
- Uses digital CMOS technology exclusively, minimizing power consumption and cost while maximizing reliability
- Support for IEEE 802.11a, 802.11b, 802.11g
- 802.11e standard compatible bursting
- Super AG™ mode delivers up to 108 Mbps data link 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
- Wireless Multimedia Quality of Service support (QoS)
- 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
- Power-saving design improvements reduce system power consumption by 98%

AR5414 Single-Chip CMOS MAC/Baseband/Radio

- Support for IEEE 802.11a, 802.11b, 802.11g
- Operates from 4.900 to 5.850 and 2.300 to 2.500 GHz
- Advanced wideband receiver with best path sequencer for better range and multipath resistance than conventional equalizer-based designs
- Integrated 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
- Enhanced transmit and receive chains
- Super AG mode includes dynamic 108 Mbps capability, real-time hardware data compression, Fast Frames and standards-compliant bursting
- Atheros XR eXtended Range technology to give Wi-Fi products twice the range of existing designs
- 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
- High speed UART with DMA supports data rates up to 1 Mbps
- Serial EEPROM, LEDs, GPIOs peripheral interfaces
- Low power operational and sleep modes

AR5006XS WLAN System Architecture



AR5414

AR5006XS Solution 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
Communication Interface	High speed UART
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	AR5414
Operating Voltage	1.8V +/-5% 3.3V +/-10%
Package Dimensions	13mm x 13mm
Package	224 Plastic Ball Grid Array

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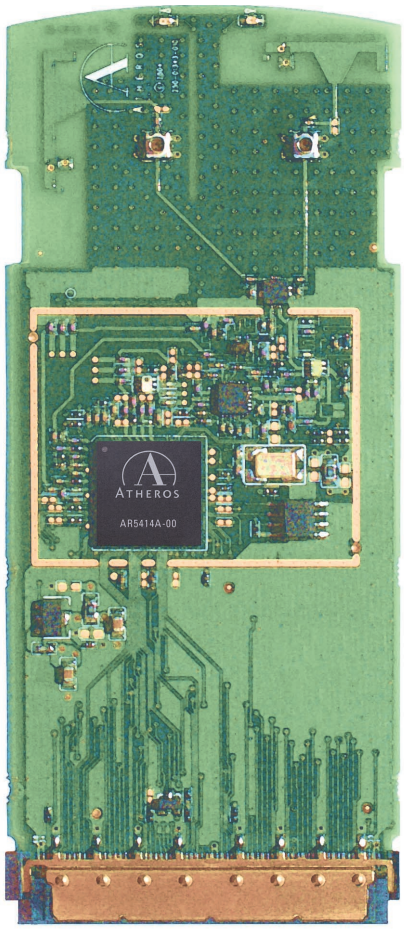
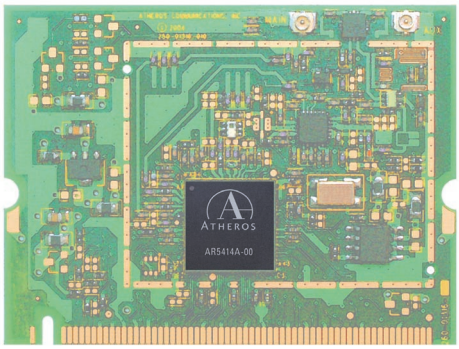
AR5006XS 802.11a/b/g CardBus Card



- 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

AR5006XS 802.11a/b/g Mini PCI



For more information on Atheros and Atheros WLAN Technology please visit www.atheros.com

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