

# AR5005VA

HDTV-Quality 802.11a/b/g Multiple Radio  
Smart Antenna Multimedia Solution

Video/Audio Chipset for HDTV-Quality Wireless  
at 2.4 GHz and 5 GHz



## AR5005VA Technology Overview

The Atheros AR5513 introduces HDTV-quality wireless in an integrated video solution. As the core of the AR5005VA chipset, the AR5513 processor combines integrated support for popular HDTV, SDTV, and multimedia processors, along with multiple radio and smart antenna technologies. This enables reliable, high-performance and affordable video/audio solutions.

Video/audio capabilities include direct, glueless connections to existing consumer electronics designs with hardware-based jitter control, MPEG encapsulation, and MPEG-TS aggregation. IR modulator and repeater capabilities complete the CE package.

Multiple radio support is available for two and four antenna configurations with transmit beamforming and receive combining to blanket even extremely large homes with HDTV-quality wireless coverage.

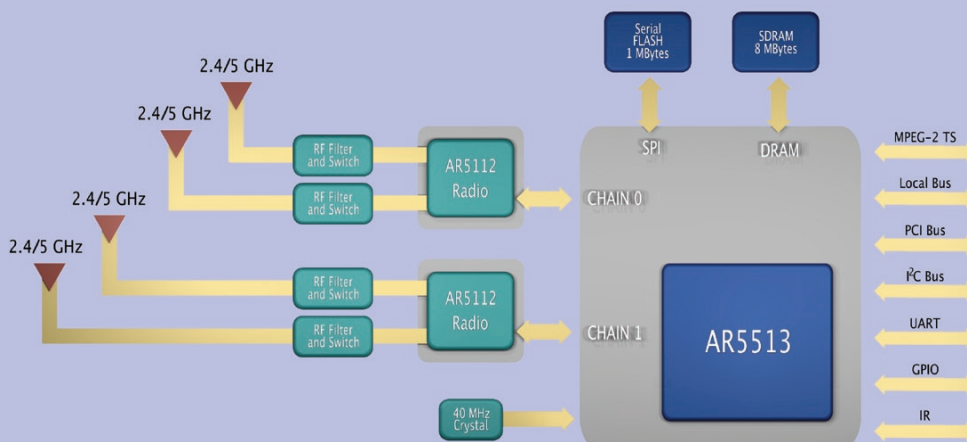
## AR5513 Multi-Radio Smart Antenna Video Processor

- Integrated video/audio controller support with direct interfaces, host capability, MPEG and DMA acceleration to popular HDTV, SDTV, DVR, STB chipsets
- Supports Multiple DVD-quality (6-8Mbps) or combination of HDTV-quality (19-24Mbps) and DVD-quality wireless connections
- Multiple Radio Smart Antenna support with Transmit Beamforming and Receive Combining
- Enhanced Quality of Service with Hardware Packet Jitter Control, MPEG Transport Stream Aggregation, and MPEG Encapsulation
- Hardware accelerated AES encryption provides security and digital media content protection
- Integrated MIPS R4000-class processor (180 MHz)
- Super AG™ support for 108Mbps data links

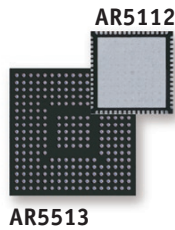
## AR5112 Dual Band Radio-on-a-Chip

- All CMOS dual band radio chip
- Multiple Radio Smart Antenna Support for Two and Four Antenna Configurations
- Support for IEEE 802.11a, 802.11b, 802.11g
- Operates from 2.300 - 2.500 GHz and 4.900 - 5.850 GHz
- Eliminates all IF filters and most RF filters; no external voltage-controlled oscillators (VCOs) or surface acoustic wave (SAW) filters needed
- Industry-leading receive sensitivity, transmit power and multipath tolerance

## AR5005VA WLAN System Architecture



## AR5005VA Chipset



### AR5005VA 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	
Transport Technology	Multiple Radio Smart Antenna, Transmit Beamforming, Receive Combining	
Hardware Security	AES, TKIP, WEP, WPA, WPA2, 802.11i	
Quality of Service	Wi-Fi Multimedia, HW Jitter Control, 802.11e	
Media Access Technique	CSMA/CA	
Data Path Interfaces	MPEG-TS, PCI, Programmable Local Bus	
Control Interfaces	UART, I <sup>2</sup> C, PCI, Programmable Local Bus	
IR Interfaces	IR Input Sampler, IR Output Demodulator	
Other Interfaces	SPI, GPIOs, LEDs, EJTAG	
Memory Interfaces	Serial FLASH, SDRAM	
<b>Supported Data Rates</b>		
IEEE 802.11a	6 to 54 Mbps	
IEEE 802.11b	1 to 11 Mbps	
IEEE 802.11g	6 to 54 Mbps	
Atheros Super AG Mode	Up to 108 Mbps	

#### Chip Specifications

	AR5513	AR5112
Operating Voltage	1.8V +/-5%	2.5V +/-5%
	3.3V +/-10%	3.3 +/-10%
Package Dimensions	15mm x 15mm	9mm x 9mm
Package	261 BGA	64 Leadless Plastic Chip Carrier

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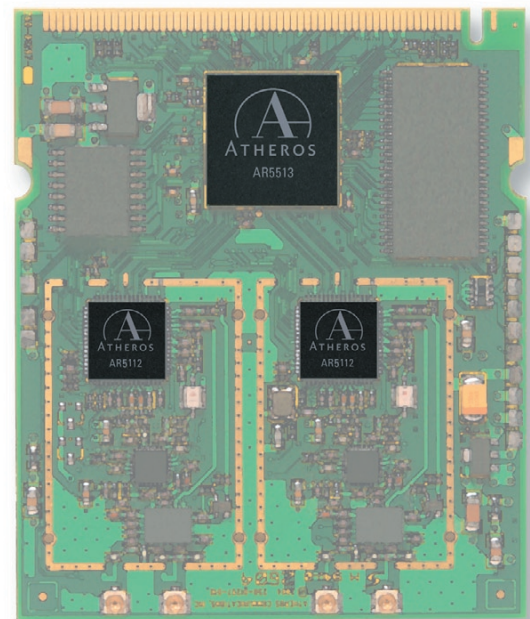
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### Applications

- Wireless HDTV and DTV
  - Flat panel TV without wires
  - Digital Video Recorder (DVR) and Set Top Box (STB)
- Media Gateway/Home Content Server
  - HDTV-Quality and DVD-Quality Wireless Support
  - Quality of Service and Digital Rights Management
- Integrate PC and TV-based Content
  - Photos, music, video, internet access
  - Media Center devices

### AR5005VA-5X 802.11a/b/g Video/Audio Reference Design



### Summary of Benefits

- Multiple DVD-quality (6-8Mbps) or combination of HDTV-quality (19-24Mbps) and DVD-quality wireless connections
- Integrated video/audio controller support with direct interfaces, host capability, MPEG and DMA acceleration to popular HDTV, SDTV, DVR, STB chipsets
- Whole home coverage with multiple radio and smart antenna technologies
- Interoperable with all 802.11a, 11b, 11g wireless networks. Compliant with 802.11 a,b,g,e,h,i,j
- Enhanced Quality of Service with Hardware Packet Jitter Control, MPEG Packet Encapsulation, MPEG-TS Aggregation
- Low-cost, highly-integrated CMOS implementation

For more information on Atheros and Atheros WLAN Technology please visit [www.atheros.com](http://www.atheros.com)  
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