

## Atheros XSPAN™ Technology

Expanding performance. Expanding possibilities.

Atheros offers the most innovative and complete portfolio of 802.11n wireless LAN chipset solutions. The new AR9001 family of chipsets, the second-generation of Atheros' XSPAN 802.11n technology, builds upon the company's first-generation XSPAN products – with enhanced performance, higher integration, smaller form factors and lower overall cost – to meet the needs of the rapidly growing 802.11n market. Like the first-generation XSPAN products, all AR9001 chipsets are compliant to the latest IEEE 802.11n draft specification.

Atheros' AR9001 chipsets feature:

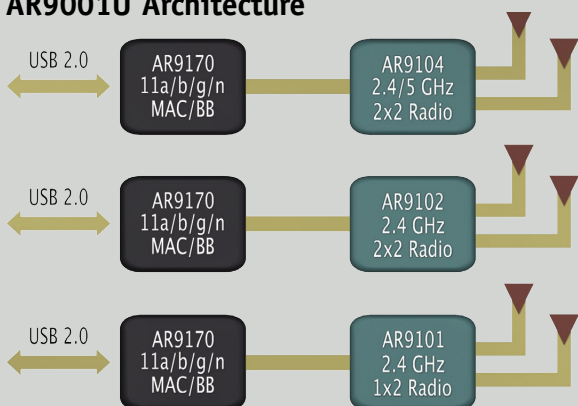
- **Leading Integration** that delivers end product cost and form factors to drive broad market adoption of 802.11n products;
- **Single- and Dual-Band, and Multiple MIMO Configurations** that enable OEMs to tailor product price/performance for specific application and market segment requirements;
- **Rich Media & Peripheral Interfaces** that anticipate the requirements for advanced media networking applications and allow end-product feature differentiation;
- **Simple Setup via Atheros' JumpStart for Wireless**, the company's simple network configuration software which supports both the PIN and push-button setup methods complying to the Wi-Fi Protected Setup specification;
- **Worldwide 5 GHz Full-Spectrum Support** for state-of-regulatory requirements with Atheros' Dynamic Frequency Selection (DFS).

## Product Overview

Atheros offers the industry's most comprehensive 802.11n client product portfolio with the addition of the AR9001U series of 802.11n USB chipsets. USB wireless LAN adapters are now the most popular method for adding after-market wireless connectivity to a variety of consumer devices – laptop and desktop PCs, gaming consoles, PVRs/home gateways, NAS storage devices and printers. Atheros has added additional flexibility to connect in any wireless environment with the industry's first dual-band USB solution. The AR9001U chipsets and reference designs support single- and dual-band operation with options for 2x2 and 1x2 MIMO radio configurations. Most notable is an extremely small footprint – the industry's smallest – that enables USB thumb-drive sized products to meet consumer popular demand.

- **AR9001U-2NX: 2.4/5 GHz Dual-Band, 2x2 MIMO radio**
- **AR9001U-2NG: 2.4 GHz Single-Band, 2x2 MIMO radio**
- **AR9001U-NG: 2.4 GHz Single-Band, 1x2 MIMO radio**

## AR9001U Architecture



# AR9001U-2NX AR9001U-2NG AR9001U-NG

Featuring the industry's first  
802.11n dual-band USB



## Solution Highlights

- Next generation, high-performance 802.11n draft compliant USB wireless adapter chipset solutions:

### AR9001U-2NX

- AR9170: 802.11n draft compliant MAC/Baseband with USB 2.0
- AR9104: 2x2 MIMO Dual-band 2.4/5 GHz Radio

### AR9001U-2NG

- AR9170: 802.11n draft compliant MAC/Baseband with USB 2.0
- AR9102: 2x2 MIMO Single-band 2.4 GHz Radio

### AR9001U-NG

- AR9170: 802.11n draft compliant MAC/Baseband with USB 2.0
- AR9101: 1x2 MIMO Single-band 2.4 GHz Radio

- Small footprint enables popular thumb-drive sized wireless adapters
- Enables data rates up to 300 Mbps – nearly six times that of 802.11g
- Supports auto-install operation with optional external flash memory
- Complies with IEEE 802.11a, b, g and draft 802.11n; 802.11d, e, h, i and j
- OS Support: Windows 2000, XP and Vista, Linux and MAC OSX
- Lead-free RoHS-compliant

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## UB81 Single-Band USB Reference Design Highlights

- Based on the AR9001U-2NG chipset, supports 2x2 MIMO
- May be configured for 1x2 MIMO operation with the AR9001U-NG chipset
- 20 mm x 57.5 mm form factor
- Supports auto-install with optional external flash memory device



**UB81**

## UB82 Dual-Band USB Reference Design Highlights

- Based on the AR9001U-2NX chipset, supports 2x2 MIMO
- 20 mm x 70 mm form factor
- Supports auto-install with optional external flash memory device



**UB82**

## AR9170 802.11n MAC/Baseband with USB 2.0

- 802.11n MAC/Baseband with USB 2.0 client interface
- Intelligent MIMO spatial multiplexing techniques
- Backwards compatibility with legacy 802.11
- Hardware encryption engine to support WEP, TKIP & AES
- Supports 1x2 and 2x2 MIMO configurations
- 88-pin, 10 mm x 10 mm QFN package

## AR9001U-2NX, AR9001U-2NG and AR9001U-NG Specifications

Frequency Band	2.300 to 2.500 GHz and 4.9 to 5.925 GHz
Network Standard	802.11a, 802.11b, 802.11g, 802.11n draft compliant
Modulation Technology	OFDM with BPSK, QPSK, 16 QAM, 64 QAM; DBPSK, DQPSK, CCK
FEC Coding Rate	1/2, 2/3, 3/4, 5/6
Hardware Encryption	AES, TKIP, WEP
Quality of Service	802.11e
Communication Interface	USB 2.0
Peripheral Interface	GPIOs, LEDs
Memory Interface	EEPROM
Supported Data Rates	
IEEE 802.11a	6 - 54 Mbps
IEEE 802.11b	1 - 11 Mbps
IEEE 802.11g	6 - 54 Mbps
XSPAN	6.5 - 300 Mbps (per band)

Contact your local Atheros representative and ask about the AR9001 series of semiconductor products or other solutions from Atheros:

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