

# AR9002UB-1NGB

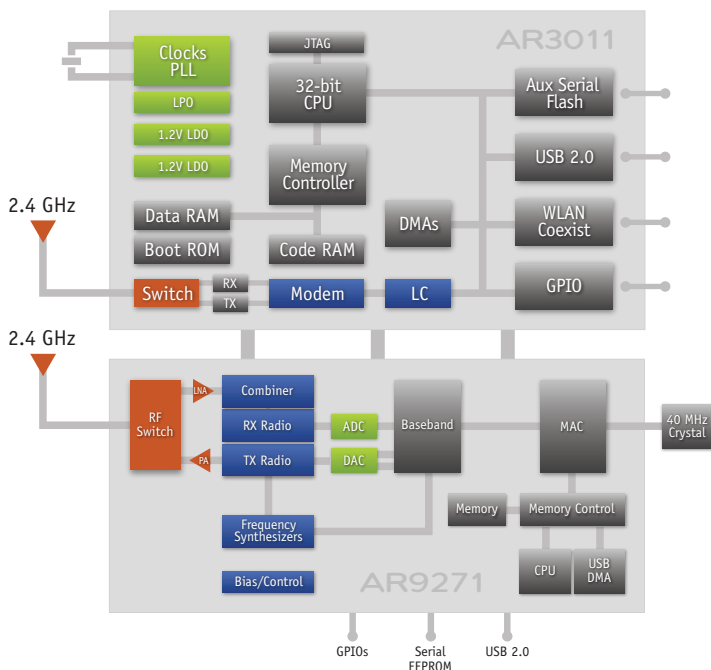
1-stream 802.11n with Bluetooth®



## Solution Highlights

- Combines AR9271 single-chip 1-stream 11n and AR3011 single-chip Bluetooth solutions on a single card
- Atheros Universal Wireless Cooperation™ support for maximum coexistence performance
- Simultaneous WLAN and BT operation
- Seamless end user experience from standalone solutions
- Compact WLAN and BT solution for small PC designs
- Optimal low cost RBOM
- No PCIe socket & antennas required for system site
- Supports up to 150 Mbps for WLAN portion
- Bluetooth 3.0 + HS and Bluetooth 2.1 + EDR
- Optional 3G coexistence and filtering
- BQB and Wi-Fi Alliance certified

## AR9002UB-1NGB Architecture



## Technology Overview

WLAN is ubiquitous in notebooks and netbooks, a standard feature especially in portable computing platforms, meeting user demand for mobile wireless connectivity. Many computers are shipping with 11n technology, and a large proportion of value-class notebooks and netbooks now feature Atheros' popular 1-stream 11n configuration, Align® Bluetooth, the most popular personal area network technology, is contained in nearly half of netbooks shipping today, enabling wireless connectivity with peripherals such as keyboards, mice and headsets. As a result, many portable computing platforms contain both WLAN and Bluetooth capabilities. However, these two wireless technologies are commonly located on separate PCIe cards within the same system, posing size and cost design challenges.



## Product Overview

### Cost-effective 1-stream 11n & Bluetooth design without antenna required

With the growing demand for both WLAN and Bluetooth in portable computing devices, Atheros has developed the cost-effective 1-stream 11n plus Bluetooth combo solution with printed antennas and no extra antennas required for system. The AR9002UB-1NGB delivers the 11n performance of Atheros Align's AR9271, the popular single-chip 11n 1-stream USB solution. This market-leading 11n solution combines with Atheros' Bluetooth 2.1 + EDR solution optimized for computing platforms, which is upgradeable to Bluetooth 3.0.

### Atheros Universal Wireless Cooperation™

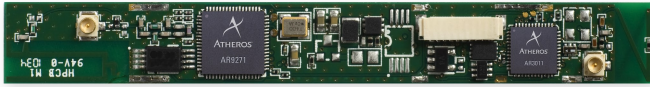
Atheros new WLAN and Bluetooth combo solution goes beyond coexistence to enable cooperation between WLAN, Bluetooth and even 3G technologies co-located on computing platforms. To support this new level of radio coexistence, Atheros has engineered a suite of advanced wireless techniques to deliver Atheros Universal Wireless Cooperation, consisting of channel protection and timesharing mechanisms, custom 3G coexistence optimization, and Atheros' proprietary WLAN/Bluetooth Coexistence Agent.™

### Single-board efficiency

By combining WLAN and Bluetooth on a single board, the AR9002UB-1NGB offers a 20% RBOM reduction vs. separate WLAN and Bluetooth boards. The single board design enables sharing of elements such as the PCB and antennas to reduce duplication. For system site, the AR9002UB-1NGB saves PCIe Socket and extra antennas as well. The AR9271 integrates the MAC/baseband and radio transceiver, as well as the power amplifier, low noise amplifiers and antenna switch – the entire RF front end.

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## UB193

### UB193 Reference Design Highlights

- USB slim form factor.
- Interface: USB 2.0 for WLAN & Bluetooth
- Printed antennas on the board, no external antennas needed
- Worldwide regulatory compliant (country list available on request)
- Single worldwide SKU
- Driver support on Windows XP and Win7, as well as Linux

## AR9271

### Single-Chip 802.11n-Compatible USB CMOS MAC/Baseband/Radio

- Highly compact, small footprint package
- Fourth generation solution with integrated power amplifier and low noise amplifier for best total solution cost
- USB 2.0 compliant
- Low power sleep modes with USB Selective Suspend implemented.

## AR3011

### Single-Chip Bluetooth 2.1 + EDR and 3.0 + HS

- Designed for computing applications
- Integrated Radio and Baseband on a single chip
- 2.4 GHz Class 2 Bluetooth Radio
- Supports both EDR of 2 Mbps ( $\pi/4$ -DQPSK) and 3 Mbps (8-DPSK)
- -87 dBm radio sensitivity
- +4 dBm maximum output power
- Eliminates the need for Balun and matching network

## AR9002UB-1NGB Specifications

### AR9271 Specification

Frequency Band	2.4 GHz
Network Standard	802.11b, 802.11g, 802.11n
Modulation Modes	OFDM with BPSK, QPSK, 16 QAM, 64 QAM; DBPSK, DQPSK, CCK
FEC Coding Rate	1/2, 2/3, 3/4, 5/6
Hardware Security	AES, TKIP, WEP
Quality of Service	802.11e
Media Access Technique	CSMA/CA
Communication Interface	USB 2.0
Peripheral Interface	GPIOs, LEDs
Supported Data Rates	
IEEE 802.11b	1 to 11 Mbps
IEEE 802.11g	6 to 54 Mbps
IEEE 802.11n 1-stream	6.5 to 150 Mbps
Operating Voltage	1.2V +/-5%, 3.3V +/-10%
Package Dimensions	8 mm x 8 mm
Package	68-pin LPCC

### AR3011 Specifications

Frequency Band	2.4 GHz
Bluetooth Standard	BT 3.0 + HS/BT 2.1 + EDR
Modulation Technology	G-FSK, $\pi/4$ -DQPSK, 8-DPSK
Communications Interface	USB 2.0
Peripheral Interface	GPIOs
Auxiliary Memory Interface	Serial Flash
Package Dimensions	6 mm x 6mm QFN

For more information on the AR9002UB-1NGB or other solutions from Atheros contact your local representative:

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