QUALCOMM®

AR9280

Single-chip 2.4/5 GHz 802.11n
WLAN solution for PCI-Express™

Qualcomm offers the industry's most innovative and complete portfolio of 802.11n wireless LAN chip solutions. Building on the company's Wi-Fi leadership – with enhanced performance, higher integration, smaller formfactors and lower overall cost – to meet the needs of today's 802.11n market.

Solution Highlights

- Single-chip, 802.11n compliant wireless LAN client solution with integrated MAC, baseband and dual 2.4/5 GHz radios
- Based on third-generation 802.11n-compliant technology
- Support for 2x2 MIMO with spatial multiplexing and MRC
- Features 1x1 Dynamic MIMO Power Save to conserve system power
- Enables PHY rate of up to 300 Mbps
- Compliant with IEEE 802.11a, 802.11b, 802.11g, 802.11d, 802.11e, 802.11h, 802.11i, and 802.11n
- Lead-free RoHS compliant

AR9280 Architecture

Technology Overview

Qualcomm offers the industry's most innovative and complete portfolio of 802.11n wireless LAN chip solutions. This generation of Qualcomm's 802.11n technology builds upon the company's Wi-Fi leadership – with enhanced performance, higher integration, smaller form factors and lower overall cost – to meet the needs of the rapidly growing 802.11n market. Like all Qualcomm's 11n solutions, the new fourth-generation solutions are compliant to the IEEE 802.11n specification.
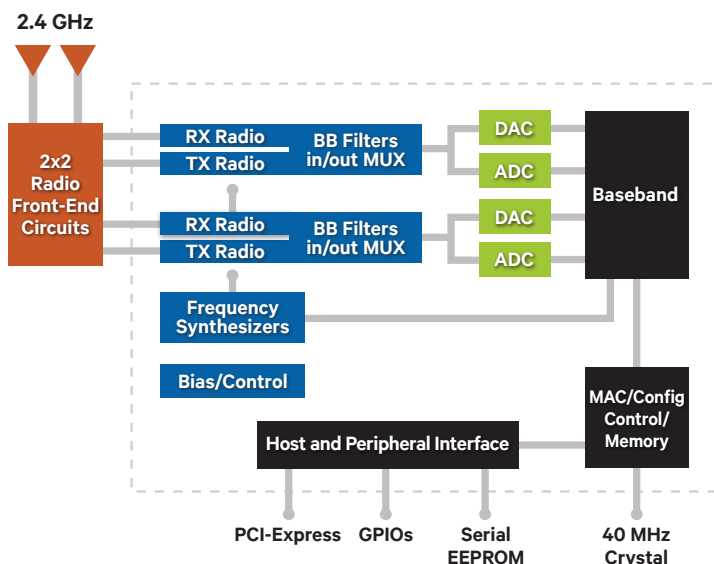
Qualcomm fourth-generation Wi-Fi solutions feature:

- 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 balance product price/performance for specific applications and market segment requirements

- Rich Media and Peripheral Interfaces that anticipate the requirements for advanced media networking applications and allow end-product feature differentiation

- Easy Network Setup with the industry's simple network configuration software that supports both the PIN and push-button setup methods
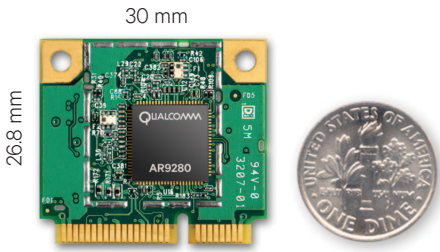
Product Overview

Introducing the AR9280, the single-chip, dual-band (2.4/5 GHz) solution for PCIe in Qualcomm's third generation of products. The AR9280 is the most integrated, most compact 802.11n solution for dual-band PCIe on the market, featuring a Half-Mini Card form factor that is 30% smaller than the nearest competitive 11n. This breakthrough product will drive the transition of legacy Wi-Fi to 802.11n in the mainstream-priced PC market. It offers the optimal balance of performance, power and price with its dual-band, 2x2 MIMO configuration which features downshift to 1x1 MIMO with Dynamic MIMO Power Save.
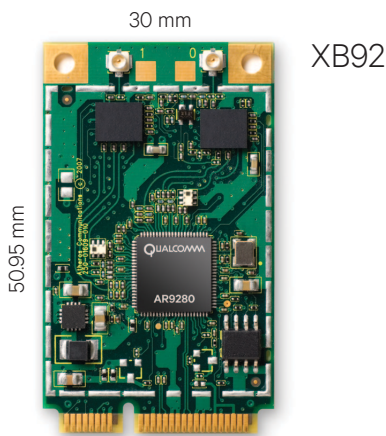
With this dual-band design, consumers will enjoy universal connectivity to any 802.11 network, including legacy 802.11b/g and 802.11a/g. While the 2.4 GHz band readily performs less demanding data applications, the virtually interference-free 5 GHz band supports high-bandwidth, latency-sensitive applications like HD-quality video streams and wireless VoIP. Qualcomm is the leading provider of high-performance, dual-band WLAN solutions in the retail, PC OEM, enterprise and metro Wi-Fi segments worldwide.

In addition, the AR9280 follows Qualcomm's drive toward integration as the company's eighth, single-chip, client solution on the market. The result is a superior package footprint that drives down cost and enhances design flexibility.

30 mm

26.8 mm

AR9280 Reference Design Highlights

- Support for both Half- and Full-Mini Card form factors
- Compliant with PCI-Express Mini Card 1.1 standard
- Line rate WLAN to LAN performance
- Interoperability with 802.11a, 802.11b, 802.11g and 802.11n compliant products
- Driver support for Windows XP, Vista and Linux operating systems
- Worldwide regulatory compliance

30 mm

XB92

50.95 mm

AR9280 Specifications

Frequency Band	2.4 and 5 Ghz
Network Standard	802.11a, 802.11b, 802.11g, 802.11n
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	PCI-Express
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
IEEE 802.11n	6.5 - 300 Mbps

Qualcomm Atheros is a wholly owned subsidiary of Qualcomm Technologies, Inc. and a leading provider of wireless and wired technologies for the mobile, networking, computing and consumer electronics markets. We're focused on inventing technologies that connect and empower people in ways that are elegant and accessible to all.

Our broad connectivity portfolio allows us to offer our global customer base high-performance, end-to-end solutions, featuring Wi-Fi®, GPS, Bluetooth®, FM, Ethernet, HomePlug™ Powerline and PON technologies. By leveraging substantial expertise in RF, signal processing, software and networking we can deliver highly-integrated, low-power, system-level solutions that enable developers to create high-performance, differentiated products.

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