XR 802.11ac Radio Board Description

100-0161-00X Radio

Do not distribute.

Summary of hardware design which includes chipsets, interfaces and antenna solutions.

802.11a/b/g/n/ac PCI Express Radio

Modular 3x3, 3 Stream

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Modular 2x2, 2 Stream

Hardware Design Specification

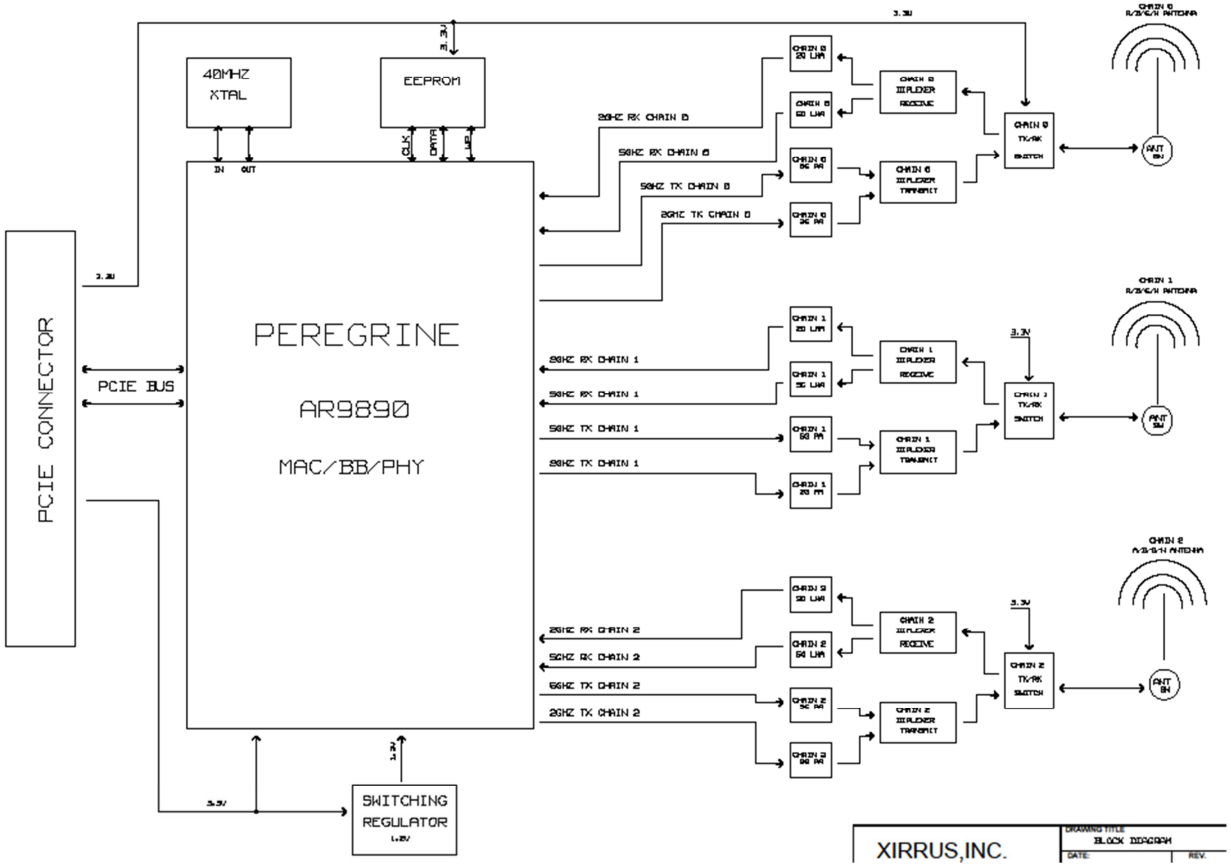
Project Headline

The XR 802.11ac Radio is a member of the XR family of multiple radio access points. The Xirrus Array includes multiple 802.11a/b/g/n/ac 3-chain, 3-stream radio cards, CPU, Gig Ethernet up-link and Service Port. This hardware specification covers the radio board hardware design. The 2x2 radio uses the same PCB but one chain is de-populated.

General Description

The Xirrus 802.11ac MIMO radio boards are based on the Atheros QCA9890 single chip solution. The QCA9890 is used in the Xirrus XR family of arrays. Xirrus Wi-Fi Arrays integrate 2, 4, 8 or 16 dual band radios coupled to a high-gain directional antenna system. These radios are plugged into a CPU which has an onboard multi-gigabit switch, controller, firewall, threat sensor and spectrum analyzer all built on a modular chassis. The radios support legacy 802.11a/b/g as well as 802.11n and the latest 11ac technology. The radio has 3 transmit chains and 3 receive chains with up to 3 spatial streams in 2.4/5GHz mode making it a 3x3 solution. A de-populated version is also available, taking a 3x3 PCB and depopulating the third chain to make a 2x2 (with maximum of 2 spatial streams).

Each radio board is made up of a power supply, Atheros chip (MAC/BB and PHY), EEPROM, 40MHz crystal, RF Front End, 3 SMK RF switches and 3 high-gain, dual band antennas. This radio is loosely based on three Atheros designs, CUS223 (5GHz Radio), XB141 (2.4GHZ Radio) and XB140 (Dual band FEM).


40MHZ
XTAL
EEPROM
CLK
DATA
WP
IN
OUT
PCIE CONNECTOR
PCIE BUS
PEREGRINE
AR9890
MAC/BB/PHY
SWITCHING
REGULATOR
2GHZ RX CHAIN 0
5GHZ RX CHAIN 0
5GHZ TX CHAIN 0
2GHZ TX CHAIN 0
2GHZ RX CHAIN 1
5GHZ RX CHAIN 1
5GHZ TX CHAIN 1
2GHZ TX CHAIN 1
2GHZ RX CHAIN 2
5GHZ RX CHAIN 2
5GHZ TX CHAIN 2
2GHZ TX CHAIN 2
XIRRUS,INC.
BLOCK DIAGRAM