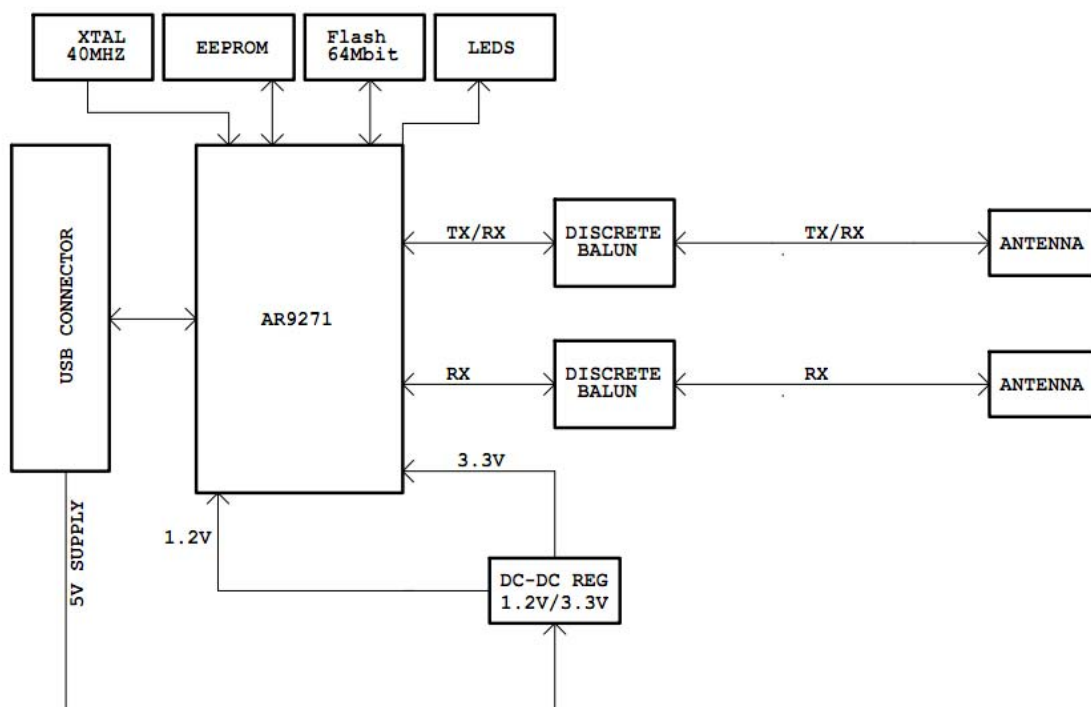


1. WU5108 HW Block Diagram

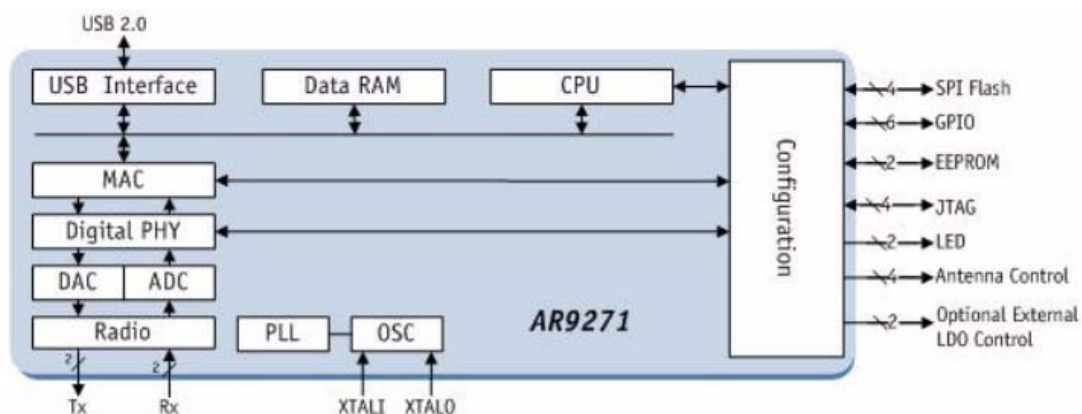


2. WU5108 HW Operation Description

2.1 WiFi Chipset

The module, WU5108 uses AR9271 which is produced by Atheros Communications, INC.

<Functional Block Diagram>

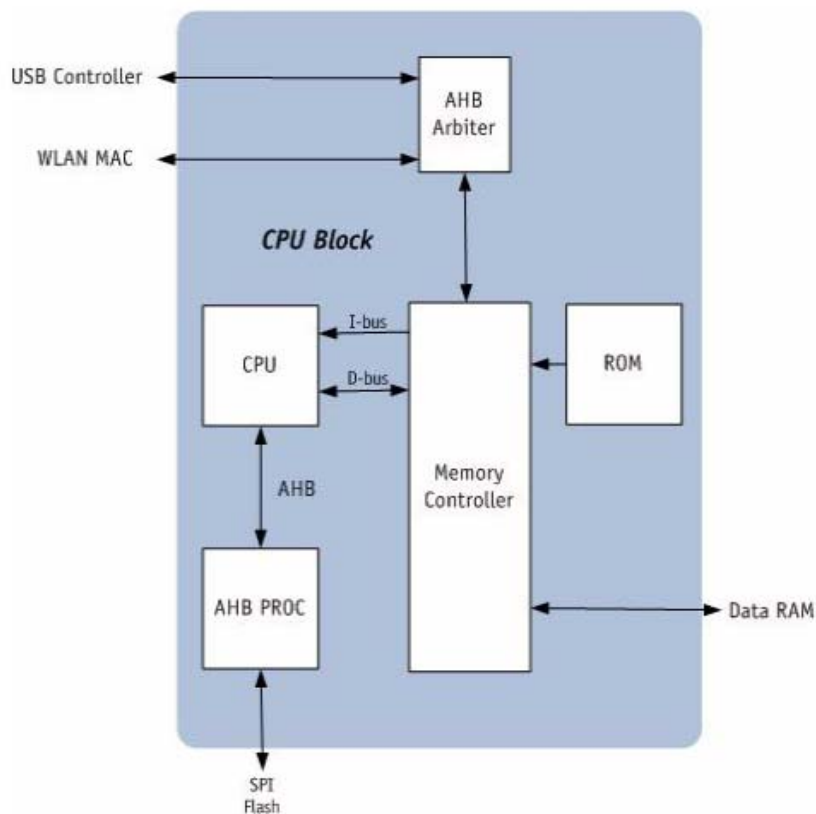


The chipset consists of five major functional blocks : CPU, USB2.0, MAC, Digital PHY, and Radio

2.1.1 CPU Block

The CPU block includes five major parts: CPU, Memory Controller, AHB Arbiter, internal memory and the AHB process.

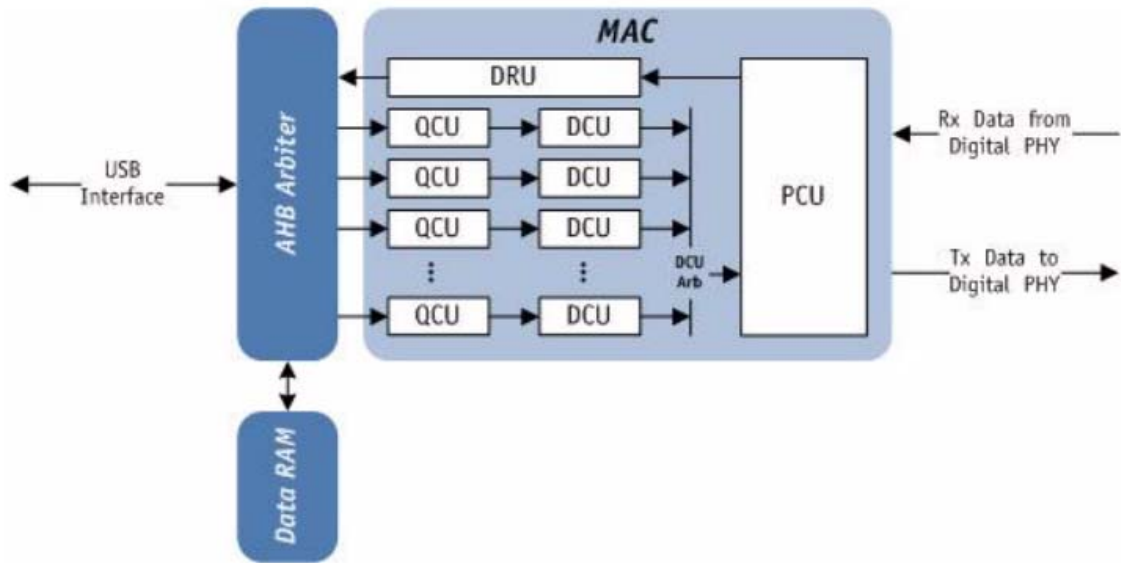
- Main Clock is 117MHz
- Memory controller provides MAC DMA and USB DMA
- Two internal memories(ROM-24KB, and RAM-160KB)
- AHB is to access the external Flash memory



2.1.2 Medium Access Control(MAC)

The MAC consists of the following major functional blocks: 10 queue control units(QCUs), 10 distributed coordination function(DCF) control units(DCUs), a single DMA Rx unit(DRU) and a single protocol control unit (PCU)

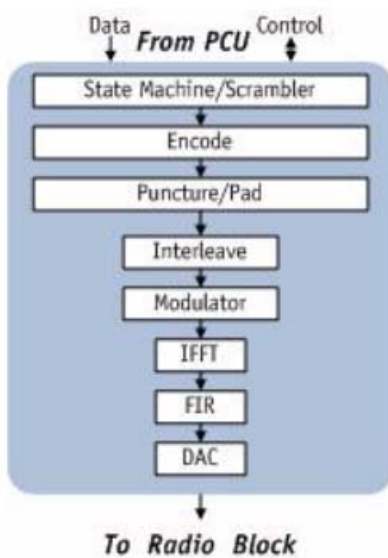
- Tx frame data transfer from the host to the radio block using the USB interface
- Rx frame data transfer from the radio block to host using the USB interface
- Registers access to all AR9271 registers
- Interrupt generation and reporting
- Sleep-mode(power-down) sequencing



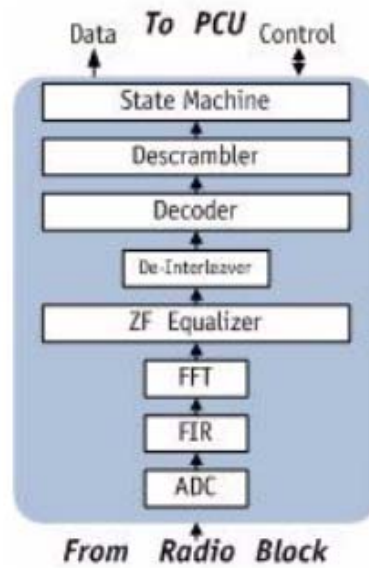
2.1.3 Digital PHY Block

- A half-duplex, OFDM, CCK, DSSS baseband processor compatible with IEEE 802.11n and 802.11b/g.
- PHY data rates up to 72.2Mbps in 20MHz Channel mode
- All data rates defined by the IEEE802.11b/g standard(1-54Mbps)

<Tx Path digital PHY 802.11n block>

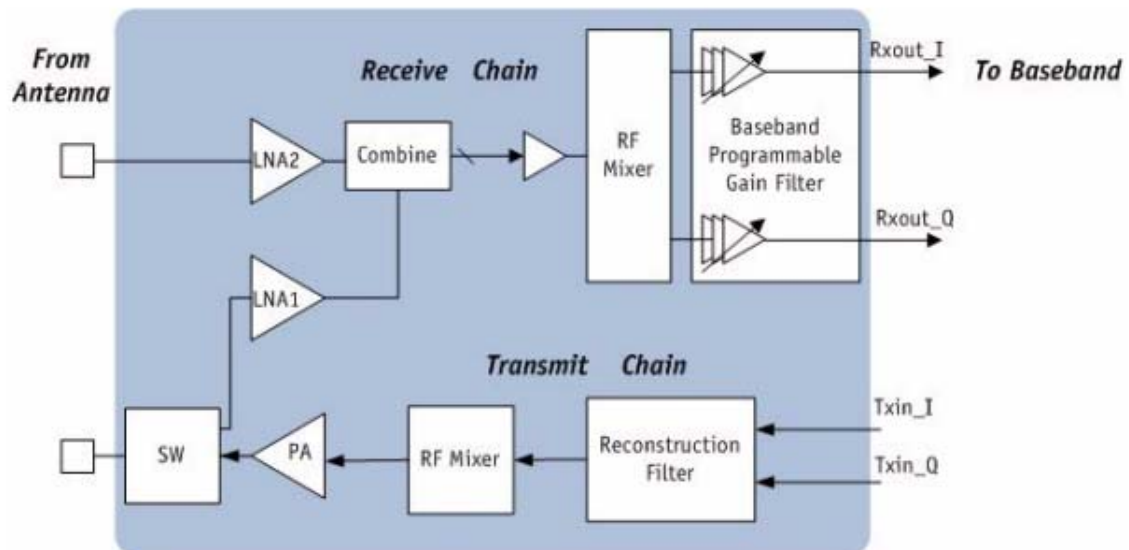


<Rx Path digital PHY 802.11n block>



2.1.4 Radio Block

- Two LNAs – LNA1 and LNA2
- The Receiver converts an RF signal to baseband I and Q outputs
- It operates 2.4GHz bands to support CCK and OFDM signals for 802.11 b/g/n
- The I and Q signals are low-pass filtered and amplified by a baseband gain filter.



2.1.5 USB2.0

- USB standard 2.0 Host interface

2.1.6 Antenna

- Two Internal Antennas
- RF signal : 2.4GHz

2.1.7 Power Supply

- Main power is from Host USB : 5V
- DC-DC converter : 3.3V and 1.2V for WIFI chipset AR9271

2.1.8 Reference Clock

- Crystal 40MHz reference clock for WiFi Chipset AR9271