



2.4 GHz & 5 GHz 11n/ac/ax Transceiver

General description

The Catena transceiver includes two transmitters and two receivers to support dual band operation. It uses a direct conversion architecture for both RX and TX. The receive chain has low noise and high dynamic range. The analog baseband filters supports a large range of modulation bandwidths ranging from 10 to 80 MHz.

An internal crystal oscillator is implemented to enable usage of a low cost crystal. The reference frequency can be fine-tuned to minimize the frequency error. A clock output is included to provide an external reference clock.

An auxiliary ADC is included for calibration purposes. It can also be used to serve various external functions like power and temperature measurements.

The transceiver is controlled via a four wire SPI interface. A high speed parallel interface is provided to support fast gain control, RX/TX switching and frequency hopping.

The transceiver is optimized for high performance applications and is compliant with the IEEE 802.11ac/ax standards and its flexibility makes it ideal for proprietary ISM band solutions. The TSMC 28nm HPM technology enables novel design techniques for a robust and flexible solution, which makes the transceiver suitable for high-end, large volume applications like access points and wireless routers.

Features**General**

- 2.4 & 5 GHz transceiver supporting IEEE 802.11ac/ax
- High performance RF front-end providing excellent EVM performance
- Easy to use with autonomous calibration routines and digital baseband interface
- Internal auxiliary ADC for calibration purposes, RF power and temperature measurements
- Fractional-N synthesizers with small frequency step size and integrated loop filter

Key specifications

- 1.8 V analog supply with integrated regulators
- 0.9 V digital core supply
- 1.8 V IO voltage
- Supported frequency band:
 - 2.4 – 2.5 GHz
 - 4.9 – 6.0 GHz
- Supply current (analog)
 - Receive mode (2 receivers active): 310 mA
 - Transmit mode (2 transmitters active): 450 mA
- 10, 20, 40 and 80 MHz modulation bandwidth
- 40 dB TX gain control
- 5 dB noise figure
- -6 dBm linear OFDM transmit power
- 70 dB RX gain control range
- EVM performance (chBW 80MHz)
 - Receive mode: -40 dB
 - Transmit mode: -39 dB

Specifications in this datasheet are subject to change without notice.

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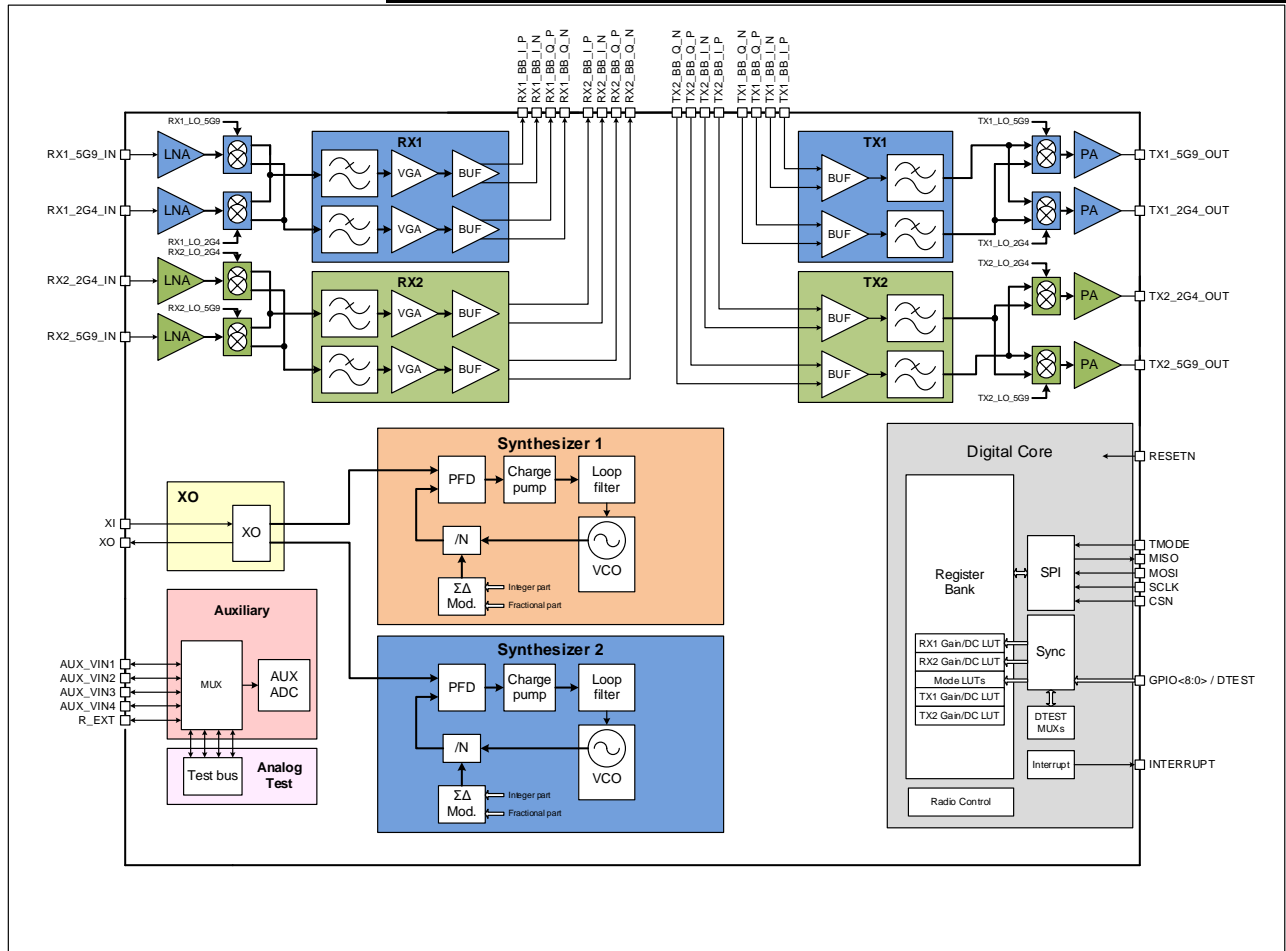


Figure 1 Transceiver system block diagram.

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