

# PM8800 WiZIRD 2x2

## WiMAX Zero Intermediate Frequency Radio Device

Released  
Product Brief

### PRODUCT OVERVIEW

The PM8800 WiZIRD 2x2 is an ultra-integrated single-chip WiMAX Zero Intermediate Frequency (ZIF) Radio Device. It is designed for Fixed and Mobile WiMAX applications and supports both IEEE 802.16-2004 and IEEE 802.16e-2005 standard requirements. The PM8800 WiZIRD 2x2 has two independent radio paths (2Tx and 2Rx) and supports operation in the 2.3 - 2.7 GHz or the 3.3 - 3.8 GHz licensed bands.

The PM8800 WiZIRD 2x2 enables manufacturers of WiMAX Femto BS, CPE, and MS User Equipment to build low-cost, high-performance, 2x2 MIMO equipment today.

### PRODUCT HIGHLIGHTS

#### ULTRA-INTEGRATION

Integration of key transmit and receive path components dramatically reduces the cost of materials and manufacturing, at the same time improving system reliability.

The PM8800 WiZIRD 2x2 features:

- Two independent radio paths (2Tx and 2Rx) supporting all Wave 2 MIMO features and enabling the radio path for uplink MIMO enhancements
- Zero-IF architecture removes the cost associated with external SAW filters
- Integrated DCXO supports AFC with no additional components, except for a low-cost 40 MHz crystal
- Integrated synthesizer loop filter improves noise immunity and reduces board space requirements
- 40 MHz reference is available for use by the Baseband MAC Processor
- Diagnostic loopback circuits for radio calibration and baseband diagnostics
- Integrated DAC/ADCs for digital I/Q designs allow Baseband MAC Processors to scale with Moore's Law without being burdened with analog circuits
- Integrated transmit baluns, digital temperature monitor, and Rx DC offset capability

#### DESIGN FLEXIBILITY

Design flexibility is essential for equipment manufacturers, allowing them to react and adapt to changes in market requirements with minimal changes.



For flexibility, the PM8800 WiZIRD 2x2 includes:

- Multi-band support for operation in the 2.3 - 2.7 GHz or the 3.3 - 3.8 GHz licensed bands, enabling system designs that are suitable for use across multiple geographies
- The choice of selecting an analog or digital I/Q interface to an external Baseband MAC Processor. This lets designers use the best-in-class Baseband MAC Processor or ASIC available both now and in the future. The digital I/Q interface is compliant with JEDEC JESD207, Radio Front End - Baseband Digital Parallel Interface standard.
- Configurable channel bandwidths of 3.5 MHz, 5 MHz, 7 MHz, 8.75 MHz, 10 MHz, 14 MHz, and 20 MHz
- Programmable transmitter gain control for mobile applications

#### RELIABLE PERFORMANCE

PMC-Sierra has supplied and supported high performance semiconductor solutions to the communications industry for over a decade. The same performance philosophy applies to our WiMAX products.

##### Transmit Path

- EVM (measured after integrated balun): -36 dB @Pout = 0 dBm (2.5 GHz), -34 dB @Pout = 0 dBm (3.5 GHz)
- Tx power control range: 70 dB (1 dB steps)
- -140 dBm/Hz noise floor

##### Receive Path

- EVM: -36 dB (2.5 GHz), -34 dB (3.5 GHz)
- RFIC noise figure: 2.9 dB (2.5 GHz), 3.3 dB (3.5 GHz)
- Rx gain control: 93 dB range (1.5 dB steps), 106 dB max gain
- Adjacent channel rejection: 26 dB (64 QAM)
- Alternate channel rejection: 34 dB (64 QAM)

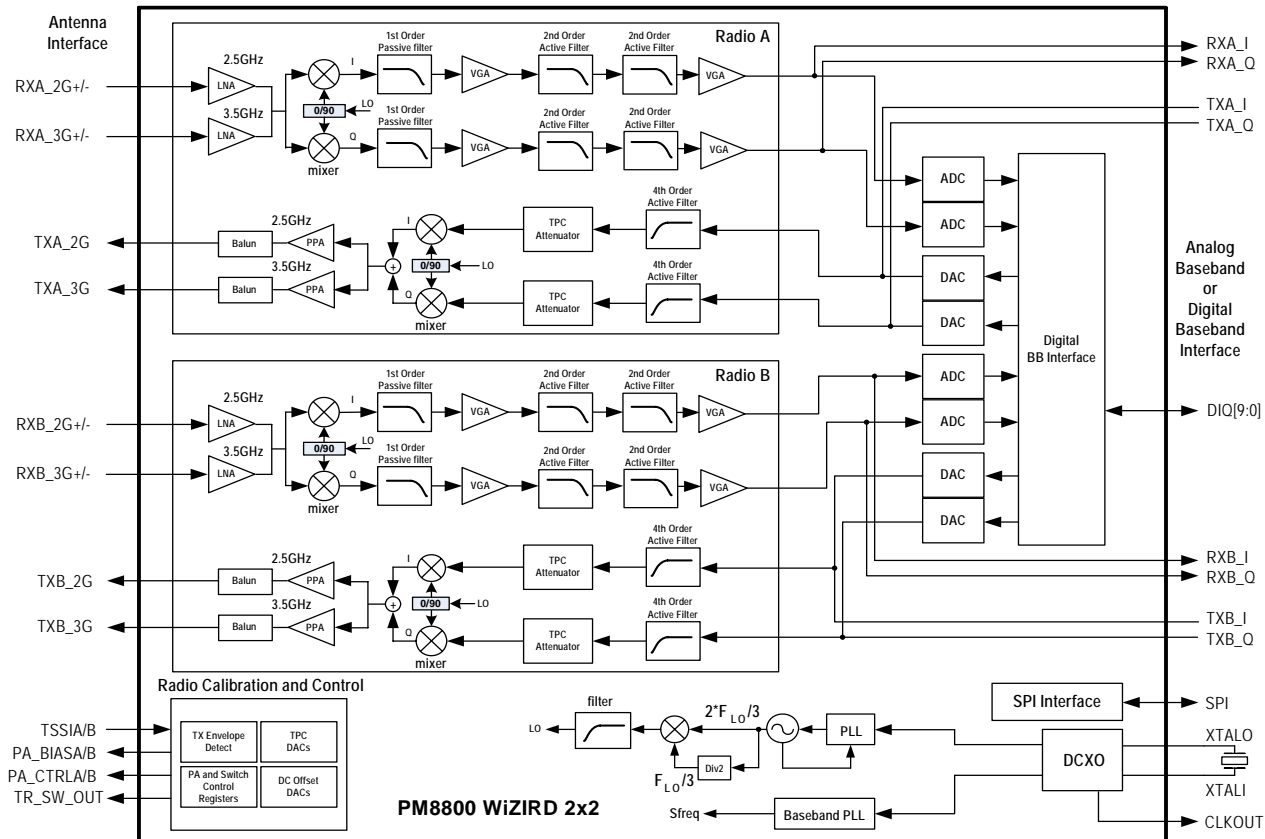
## GENERAL DEVICE INFORMATION

- Control interface conforms to industry standard SPI specifications used by Baseband MAC Processors
- 1.8V  $\pm$  5% and 2.5V  $\pm$  5% supply voltages
- Industrial temperature range [-40 °C to +85 °C]
- 108-pin Dual Row 0.65 mm pitch Micro Lead Frame (MLF/QFN) [11 x 11 mm body]

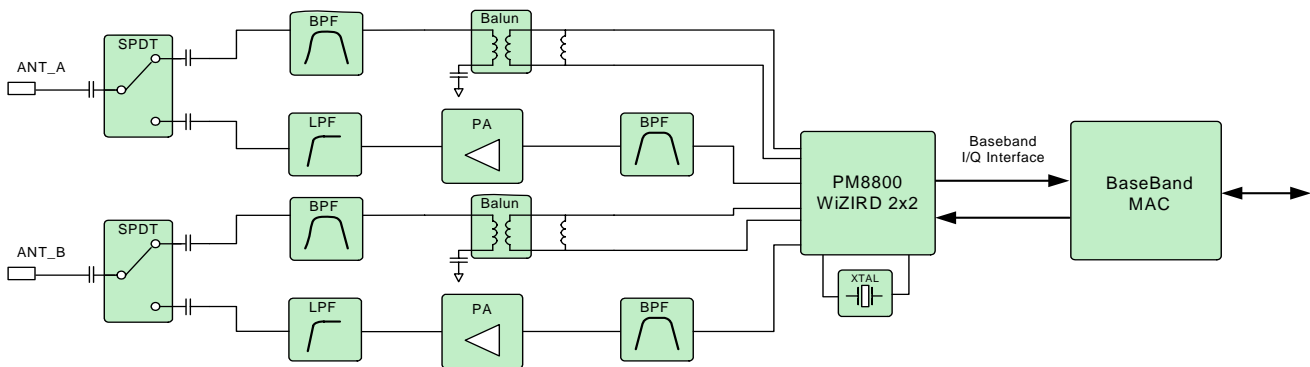
## APPLICATIONS

- PCMCIA Cards, PC Express Cards, USB Dongles
- Customer Premises Equipment (CPE)
- Femto Base Stations

## PM8800 DEVICE BLOCK DIAGRAM



## APPLICATIONS DIAGRAM



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