

Hermes TWO

Integrated Digital Radio for Energy Efficient Cellular Networks



As a fabless semiconductor company, our unique capability to embed RF and digital sub-systems into a single, advanced CMOS device provides incredible value and performance benefits to cellular networks.

Hermes TWO is a highly integrated, single-die digital radio for 4G/5G cellular networks. It incorporates our patented “Digital-to-RF” radio architecture with integrated power amplifiers and Low-PHY symbol processing that provides tremendous benefit to small cells.

The groundbreaking technology integration enables very efficient small cell systems while also being scalable to support beamforming for larger mMIMO cells and Active Antenna Units (AAUs).



Radio Access
4G / 5G



Duplex Modes
TDD / FDD



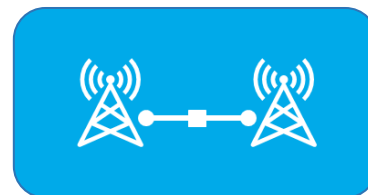
Antennas
2T2R + ObsRx



Power Output
500mW/Tx



Bandwidth
100MHz



O-RAN Support
Split 7.1 Symbols

Product Summary

Hermes TWO (“H2”) integrates InnoPhase’s proprietary radio architecture plus digital processing elements into a single-chip design. The device uses a standard, advanced CMOS technology for increased system integration and efficiency advantages. The result is a simplified, low power architecture for a wide range of cellular network radios.

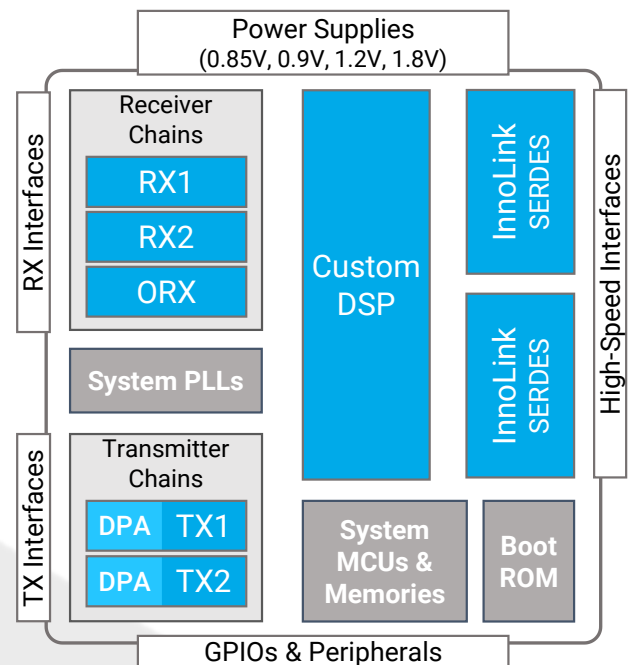
Key Features

- 4G/5G RAN Digital Radio – **SERDES to RF**
- 2T2R + observation Rx, TDD/FDD operation
- 100MHz programmable occupied bandwidth
- **Integrated Digital PA (DPA)** with 500mW avg. (3W max.) P_{out} per Tx
- Supports ORAN Split 7.1 (FFT/iFFT, complex math capabilities)
- Advanced Digital Pre-Distortion (DPD) and Crest Factor Reduction (CFR)
- Supports Carrier-Based time or frequency domain beam steering
- Supports analog (RF) beam steering
- High-speed SERDES interface for O-RAN symbol processing
- Implemented using an advanced standard CMOS process technology

Target Applications

- TDD 4G/5G Small Cells (Indoor/Outdoor)
- In-Building Wireless Applications
- Private Networks
- Network Densification
- High-Efficiency Cells

Block Diagram



Single-Die Radio Architecture

Frequencies Supported

- 3.3GHz to 3.98GHz (INP8027)
- 2.4GHz to 2.8GHz (INP8047)
- 1.7GHz to 2.2GHz (INP8067)

Package

250-pin FCBGA
(7.75mm x 11.25mm x 0.9mm)

Reference Platform

IN DEVELOPMENT

Complete Radio Development Kit (RDK) for a Split 7.2a (4T4R) O-RAN Remote Unit (RU) small cell reference platform