



AHEAD OF WHAT'S POSSIBLE™

# AD9371 INTEGRATED WIDEBAND RF TRANSCEIVER

*Simplify Your System Design and  
Standardize Your Radio Platform*



## High Performance and Integration

- ▶ Replaces as many as 20 high performance, discrete radio components with one system on-chip solution providing simple, reliable connections.
- ▶ Direct conversion, high linearity, and self calibration maintain best performance levels under varying environmental and operating conditions.
- ▶ Large-scale integration and zero IF allows for wide frequency range and eliminates interconnection losses while reducing broadband matching concerns.

## Versatility

- ▶ Offers a common platform for a wide range of applications, reducing development time and inventory costs.
- ▶ Operates from 300 MHz to 6 GHz.
- ▶ Supports receiver bandwidths up to 100 MHz.
- ▶ Supports operating transmit bandwidths up to 100 MHz and observation receiver and transmit synthesis bandwidths up to 250 MHz for digital correction algorithms.

## Size, Weight, and Power (SWaP)

- ▶ Reduced component count enables radios to be installed on buildings, light poles, office walls, and more.
- ▶ A power consumption level at less than 5 W under normal operating conditions reduces the need for cooling, increases reliability, and reduces operating costs.
- ▶ JESD204B data interface minimizes input/output lines, making remote location of the radio more feasible.

## Ease of Use

- ▶ ADI radio technology design expertise reduces development costs and time to market (TTM).
- ▶ Complete API (application program interface), software user guides, and a standard serial peripheral interface (SPI) simplify development.
- ▶ On-chip tracking calibration maintains performance with little user control required.

## Applications



- ▶ 3G/4G macrocell, microcell, and picocell base stations
- ▶ FDD and TDD active antenna systems
- ▶ Microwave non-line-of-sight (NLOS) backhaul systems
- ▶ Electronic test and measurement
- ▶ Drones/UAVs
- ▶ Satellite communications
- ▶ Electronic warfare
- ▶ Military communications



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 **RadioVerse™**  
CONCEPT TO CREATION AT LIGHT SPEED

## AD9371 Functionality

- ▶ Dual differential transmitters (Tx)
- ▶ Dual differential receivers (Rx)
- ▶ Observation receiver (ORx) with two inputs
- ▶ Sniffer receiver (SnRx) with three inputs
- ▶ Tunable range: 300 MHz to 6 GHz
- ▶ Transmitter synthesis bandwidth: up to 250 MHz
- ▶ Receiver bandwidth: 7.5 MHz to 100 MHz
- ▶ Supports frequency division duplex (FDD) and time division duplex (TDD) operation
- ▶ Fully integrated independent fractional-N radio frequency (RF) synthesizers for Tx, Rx, ORx, and clock generation
- ▶ JESD204B digital interface

## RadioVerse Technology and Design Ecosystem

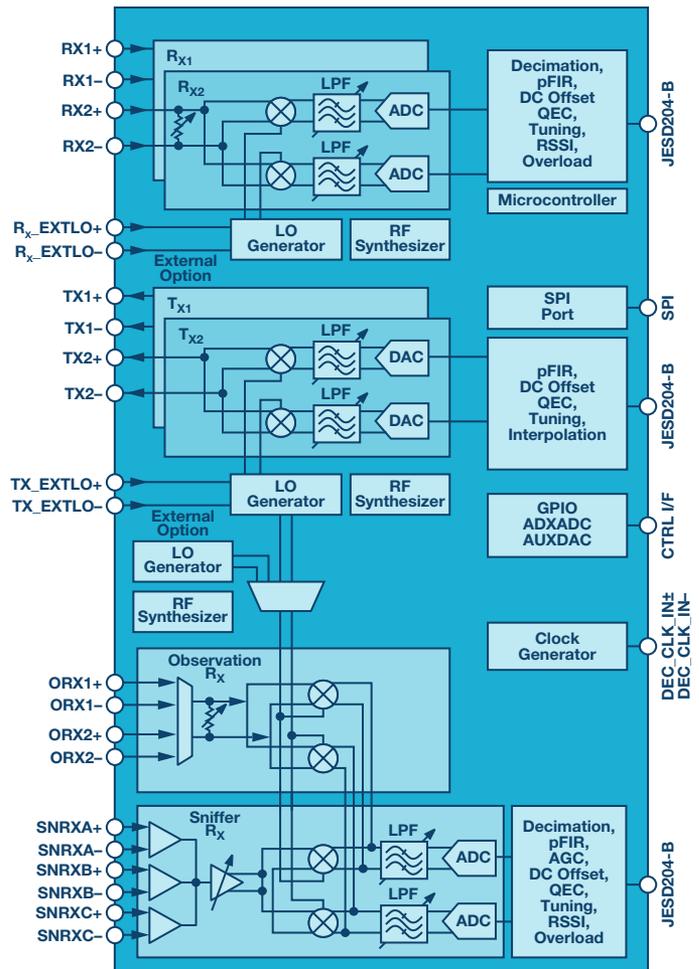
ADI recognizes the challenges associated with RF design and integration, and what it takes to bring a high performance radio solution to market quickly.

The RadioVerse™ technology and design ecosystem gets our customers through the entire radio design process—from idea, to proof of concept, to production—as fast as possible.

In addition to ADI's market-leading integrated transceiver technologies, RadioVerse offers a choice of evaluation options, software user guides, complete API, a standard serial peripheral interface (SPI), training, an active technical support community, and a growing ecosystem of industry-leading ODM partners.

## Evaluation Options

There are several evaluation options available for the AD9371 integrated RF transceiver. Both the full product evaluation system and the prototyping platform are available in narrow tuning (ADRV9371-N-EBZ) or wide tuning (ADRV9371-W-EBZ) range options.



AD9371 functional block diagram.

	FMC-Compatible Mezzanine Cards	FMC Motherboards	FPGA Design	Control and Data Capture
<i>Evaluation System</i>	<ul style="list-style-type: none"> <li>▶ ADRV9371-N-EBZ</li> <li>▶ ADRV9371-W-EBZ</li> </ul>	<ul style="list-style-type: none"> <li>▶ Xilinx® ZC706</li> </ul>	<ul style="list-style-type: none"> <li>▶ Provided binary, verified with Xilinx JESD204B IP</li> <li>▶ Binary used to characterize IC performance</li> </ul>	<ul style="list-style-type: none"> <li>▶ Operating system-agnostic API source in ANSI C</li> <li>▶ Command/control and data capture via Windows GUI</li> </ul>
<i>Prototyping Platform</i>	<ul style="list-style-type: none"> <li>▶ ADRV9371-N-EBZ</li> <li>▶ ADRV9371-W-EBZ</li> </ul>	<ul style="list-style-type: none"> <li>▶ Variety of Xilinx development boards</li> </ul>	<ul style="list-style-type: none"> <li>▶ Publicly available HDL on GitHub, verified with Xilinx and Altera JESD204B cores</li> </ul>	<ul style="list-style-type: none"> <li>▶ Open-source GUI, Windows®, Linux®, and OS-X</li> <li>▶ Open-source Linux IIO device driver</li> <li>▶ Streams data to GNU radio, MATLAB, and Simulink</li> </ul>
<i>Software Simulation Tools</i>	<b>Filter Designer</b> Determine frequency settings, setup ADC coefficients and sample rates, and design filters with minimal trial and error. Easily create custom filters, examine filter performance, and quickly generate coefficient for implementation, input into Simulink model or hardware.			

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