ANALOG DEVICES
AHEAD OF WHAT'S POSSIBLE™

RadioVerse™
CONCEPT TO CREATION AT LIGHT SPEED

RadioVerse: TECHNOLOGY AND RADIO DESIGN ECOSYSTEM

- Market-Leading Radio Technology
- Robust Design Environment—Boards, Software, Tools, and More
- Reference Designs and Partners
- Market-Specific Technical Insights

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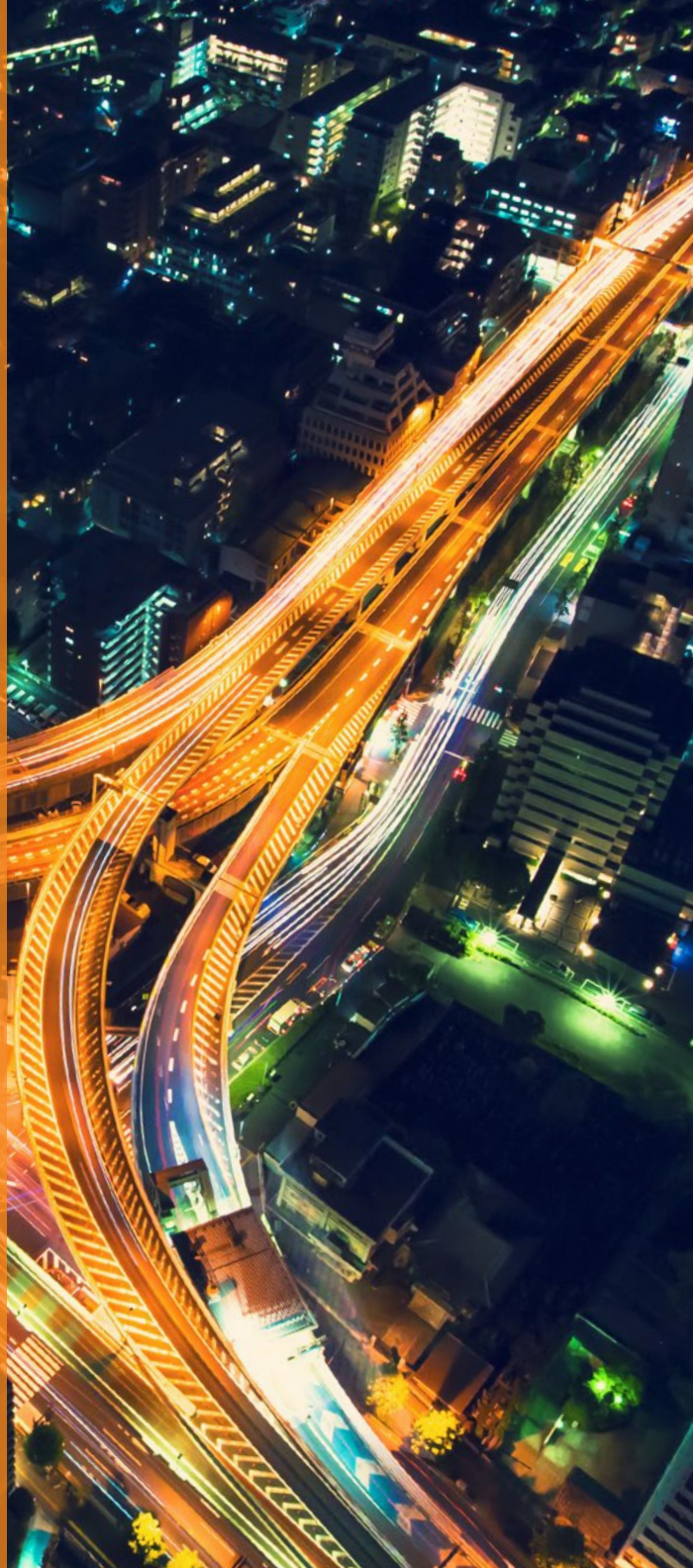
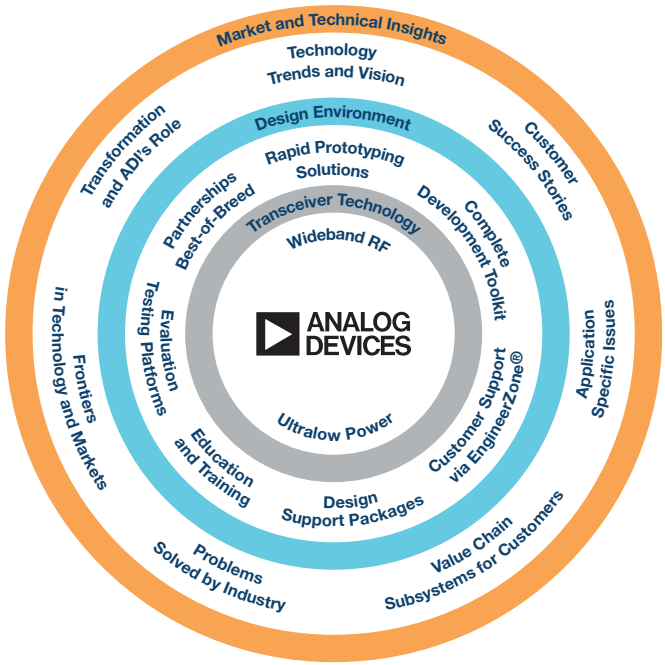


Insatiable consumer appetite for data and connectivity is creating difficult wireless communications problems.

Radio technology is a pervasive and crucial part of wireless communication systems that cuts across many different industries and applications. From base stations, drones, and military communications, to car to car connectivity and IoT networks; radio technology is at the core. Our customers—constrained by faster time to market, slashed R&D budgets, and lack of expertise—need quick radio solutions more than ever before.

Analog Devices launched a radio design and technology ecosystem destination for our customers to solve their toughest radio challenges.

Our goal is to help our customers by listening, anticipating future needs, and communicating key insights to help solve all their radio challenges. We offer a range of technologies, software, tools, evaluation and prototyping platforms, and full radio solutions. And if we can't support customers' needs, we have an ADI approved radio technology global partnership network who can.



RadioVerse™

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RadioVerse Consists of The Three Pillars

Market Leading Radio Technologies

Advanced and innovative RF and mixed-signal solutions targeting applications where robust performance, power consumption, and footprint are critical success metrics. Combining expertise in radio architectures, signal processing, circuit design, and semiconductor process technologies, RadioVerse™ technologies drive breakthroughs in RF connectivity, drastically reducing time to market and total cost while meeting the tough technical challenges of the future.

Radio Design Environment

To get our customers to market as quickly as possible, we provide board support packages, software, tools, reference designs, and modules with the help of many ADI approved partners to simplify radio development across a wide range of applications.

Accessible Expertise

ADI offers support and education with our technical experts. We strive to give customers market and technical insights, and solutions for common radio architecture problems in the form of technical articles, how-to videos, white papers, etc.

Brand Goal: We want customers to think of ADI's RadioVerse as a destination to go first for solving their difficult radio challenges.

3G/4G picocell, SDR, point-to-point, satcom, IoT aggregator

3G/4G picocell, SDR

3G/4G femtocell, UAV, wireless surveillance

3G/4G macro BTS, massive MIMO, SDR

3G/4G small cell BTS, massive MIMO

RadioVerse Wideband Transceiver Design Environment

	AD936x	AD9371	AD9375
Evaluation Kits	*AD-FMCOMMS2* (AD9361), *AD-FMCOMMS3* (AD9361), *AD-FMCOMMS4* (AD9364), *AD-FMCOMMS5* (AD9361)	*ADRV9371-N/PCBZ*, *ADRV9371-W/PCBZ*	ADRV9375-N/PCBZ and power amplifier daughter card
Carrier Platforms	Xilinx® ZC706, ZC702, VC707, KC705, AC701, ZedBoard,™ MITX045	Xilinx ZC706	Xilinx ZC706
Simulation Tools	AD936x Filter Wizard, MATLAB® Simulink® model	AD937x Filter Wizard, MATLAB Simulink model	AD937x Filter Wizard, MATLAB Simulink model
Software Driver and GUI	Linux® driver, IIO Oscilloscope on Linux, No-OS driver	Windows® GUI, Linux driver, IIO Oscilloscope on Linux, API	DPD GUI, Windows GUI, API, Linux driver
Reference Designs	Arrow® ARRADIO, Epiq® Maverick, Ettus® USRP B200/B210, Vanteon® vPrisum, ZeroTech® ZT3024, SIHID wireless video module	Ettus USRP N310—coming soon, HJX AD9371 SDR	Small cell radio reference design, NanoSemi® DPD solution, tested PA program partnered with PA vendors
Customer Support Forum	ADI EngineerZone®—wideband RF transceivers, API, Linux drivers, FPGA reference designs		

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RadioVerse SDR Integrated Wideband Transceivers

Part Number	Bandwidth	Functionality	RF Tuning Range	EVM (dB)	Package Size (mm)	DPD Engine
AD9361	56 MHz	2 Rx, 2 Tx	70 MHz to 6 GHz	–40	10 × 10	N/A
AD9364	56 MHz	1 Rx, 1 Tx	70 MHz to 6 GHz	–40	10 × 10	N/A
AD9363	20 MHz	2 Rx, 2 Tx	325 MHz to 3.8 GHz	–34	10 × 10	N/A
AD9371	100 MHz Rx, 250 MHz Tx, and ORx	2 Rx, 2 Tx ORx and SnRx	300 MHz to 6 GHz	–40	12 × 12	N/A
AD9375	100 MHx Rx, 250 MHz Tx, and ORx	2 Rx, 2 Tx ORx and SnRx	300 MHz to 6 GHz	–40	12 × 12	Linearization BW up to 40 MHz

RadioVerse Ultralow Power Transceivers for IoT

Part Number	Frequency Ranges (MHz)	Modulation Mode	P_{OUT} RF Max (typ) (dBm)	Data Rate Device (max) (kbps)	Channel Spacing (mi) (kHz)	Price 1000 to 4999 ($U.S.)
ADF7030-1	169, 433, 450 to 470, 868, 902 to 928, 950	4 FSK, FSK	17	400	3	1.99
ADF7030	169	4 FSK, FSK	17	6.4	12.5	—
ADF7024	433, 868, 902 to 928	FSK	13.5	300	100	0.99
ADF7023-J	902 to 928, 950	FSK	13.5	300	100	1.79
ADF7241	2400	DSSS to OQPSK	4.8	250	600	1.59
ADF7023	433, 868, 902 to 928	FSK, OOK	13.5	300	100	1.79

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- Smart metering
- Smart machines
- Smart city
- Smart healthcare
- Industrial automation
- Asset tracking

Resources

Visit *analog.com/radioverse-education*

Transceiver Technology Education

- *Where Zero-IF Wins: 50% Smaller PCB Footprint at 1/3 the Cost*
- *Complex RF Mixers, Zero-IF Architecture, and Advanced Algorithms: The Black Magic in Next-Generation SDR Transceivers*
- *AN-1354: Integrated ZIF, RF-to-Bits, LTE, Wide Area Receiver Analysis and Test Result*

Application Notes for System Design

- *A Simple Baseband Processor for RF Transceivers*
- *Digital Filter Design for Integrated RF Transceivers*
- *Developing Multiple-Input Multiple-Output (MIMO) Systems with the AD9361*

Blogs

- *Genesis of AD9361*
- *A Fellow's Path: An Interview with Tony Montalvo*
- *A Screwdriver Can Only Do So Much*

Application Specific—ADEF/SDR

- *Small Form Factor Satcom Solutions*
- *X- and Ku-Band Small Form Factor Radio Design*
- *Transceivers Speed Development of New Military and First Responder Communication Solutions*
- *RF Transceivers Provide Breakthrough SWaP Solutions for Aerospace and Defense*
- *Wirelessly Linking the Aerospace and Defense World*
- *Multiband Military Communications Challenges Overcome by Software-Defined Radio*
- *Advanced RF Transceiver Meets the Demands of SDR Applications*
- *The Evolving Architecture of Military Communication Systems*

Application Specific—Small Cell/BTS

- *Enabling Small Form Factor, High Capacity Small Cell Platforms*
- *Expanding the Role of WiMAX CPE Transceivers into Base Station Applications*

Application Specific—UAV

- *High Definition, Low Delay, SDR-Based Video Transmission in UAV Applications*

Application Specific—IoT

- *Reliable Communication Is a Key to IoT Growth*

Videos

Overview

- *RadioVerse*

Product Specific

- *AD9361*
- *AD9371*

Demonstrations

- *PicoZed SDR*
- *Using Model-Based Design for Software-Defined Radio*

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