

RadioVerse

Technology and Radio Design Ecosystem



AHEAD OF WHAT'S POSSIBLE™

ADI RadioVerse™



Concept to Creation at Light Speed

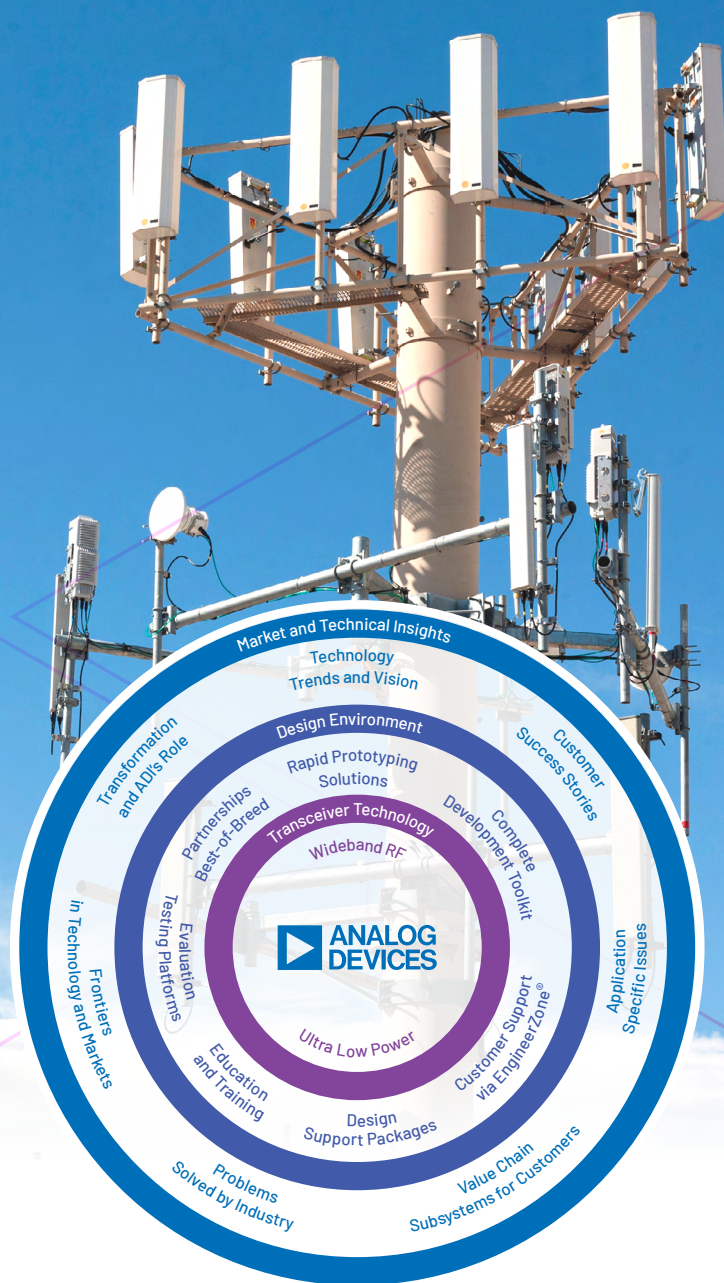


Exponential growth of data and connectivity is expanding the categories of wireless applications and the complexity of solutions.

The critical link in all wireless communication systems is radio technology, whether it is cellular, autonomous vehicles, industrial 5G, or aerospace and defense. Our customers—constrained by faster time to market, tighter R&D budgets, and increased project complexity—need a range of radio solutions more than ever before.

RadioVerse is a radio design and technology ecosystem that our customers can leverage to solve their toughest radio challenges.

Our goal is to help customers by providing resources that support their radio design efforts. We offer a range of technologies, software, tools, evaluation and prototyping platforms, and even full radio solutions. And if we can't support customers' needs, we have an ADI approved radio technology global partnership network that can.



 **ADI** RadioVerse™

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, ADI 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.



AD9364

3G/4G picocell, SDR

AD9371

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

ADRV9009 | ADRV9008-1 | ADRV9008-2

MC-GSM/3G/4G/5G macro BTS, M-MIMO, phased array
radar, EW, milcom, test equipment

ADRV9002

Narrow/wideband
UHF, VHF, cellular SDR

AD9361

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

AD9363

3G/4G femtocell, UAV,
wireless surveillance

AD9375

3G/4G small cell BTS,
massive MIMO

ADRV9026

3G/4G/5G macro BTS,
M-MIMO, small cell

RadioVerse Wideband Transceiver Design Environment

	Evaluation Boards	Carrier Platforms	Simulation Tools	Software Driver and GUI
AD936x	AD-FMCOMMS2 (AD9361), AD-FMCOMMS3 (AD9361), AD-FMCOMMS4 (AD9364), AD-FMCOMMS5 (AD9361)	Xilinx® ZC706, ZC702, VC707, KC705, AC701, ZedBoard™, MITX045	AD936x Filter Wizard MATLAB® Simulink® model	Linux® driver, IIO Oscilloscope on Linux, No-OS driver
AD9371	ADRV9371-N/PCBZ, ADRV9371-W/PCBZ	EVAL-TPG-ZYNQ3, Xilinx ZC706	AD937x Filter Wizard MATLAB Simulink model	Windows® GUI, Linux driver, IIO Oscilloscope on Linux, API
AD9375	ADRV9375-W/PCBZ, ADRV9375-N/PCBZ	EVAL-TPG-ZYNQ3, Xilinx ZC706	AD937x Filter Wizard MATLAB Simulink model	DPD GUI, Windows GUI, API, Linux/No-OS driver
ADRV9008 ADRV9009	ADRV9009-W/PCBZ, ADRV9008-1W/PCBZ, ADRV9008-2W/PCBZ	EVAL-TPG-ZYNQ3, Xilinx ZCU102, Intel® Arria® 10 SoC	Filter Wizard	Windows GUI, API, Linux/No-OS driver
ADRV9026	ADRV9026-HB/PCBZ, ADRV9026-MB/PCBZ, ADRV9026-LB/PCBZ	ADS8-V2EBZ, ADS9-V2EBZ, Intel Arria 10 SoC	Filter Wizard (available in Dec 2020)	Windows GUI, API
ADRV9002	ADRV9002NP/W1/PCBZ, ADRV0992/NP/W2/PCBZ	Xilinx ZC706 (others TBA)	Filter Wizard, MATLAB® Simulink model	Windows GUI, API, Linux/No-OS driver
Customer Support Forum: ADI EngineerZone—wideband RF transceivers, API, Linux drivers, FPGA reference designs				

RadioVerse SDR Integrated Wideband Transceivers

	Bandwidth	Functionality	RF Tuning Range	Digital Interface	Package Size (mm)	Digital Front End
AD9361	56 MHz	2 Rx, 2 Tx	70 MHz to 6 GHz	CMOS/LVDS	10 × 10	N/A
AD9364	56 MHz	1 Rx, 1 Tx	70 MHz to 6 GHz	CMOS/LVDS	10 × 10	N/A
AD9363	20 MHz	2 Rx, 2 Tx	325 MHz to 3.8 GHz	CMOS/LVDS	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	6 Gbps JESD204B	12 × 12	N/A
AD9375	100 MHz Rx, 250 MHz Tx, and ORx	2 Rx, 2 Tx, ORx and SnRx	300 MHz to 6 GHz	6 Gbps JESD204B	12 × 12	DPD (up to 40 MHz IBW)
ADRV9009	200 MHz Rx, 450 MHz Tx, and ORx	2 Rx (1 ORx), 2 Tx	75 MHz to 6 GHz	12 Gbps JESD204B	12 × 12	N/A
ADRV9008-1	200 MHz Rx	2 Rx	75 MHz to 6 GHz	12 Gbps JESD204B	12 × 12	N/A
ADRV9008-2	450 MHz Tx, and ORx	2 Tx, 1 ORx	75 MHz to 6 GHz	12 Gbps JESD204B	12 × 12	N/A
ADRV9026	200 MHz Rx, 450 MHz Tx, and ORx	4 Rx, 4 Tx, 2 ORx	75 MHz to 6 GHz	25 Gbps JESD204B/JESD204C	14 × 14	N/A
ADRV9002	12 kHz to >40 MHz	2 Rx, 2 Tx	30 MHz to 6 GHz	CMOS/LVDS	12 × 12	DPD (Rx 40 MHz OBW)

RadioVerse Ultra Low Power Transceivers for IoT

	Frequency Ranges (MHz)	Modulation Mode	P _{OUT} RF Max (typ) (dBm)	Data Rate Device (max) (kbps)	Channel Spacing (mi) (kHz)
ADF7030-1	169, 433, 450 to 470, 868, 902 to 928, 950	4 FSK, FSK	17	400	3
ADF7030	169	4 FSK, FSK	17	6.4	12.5
ADF7024	433, 868, 902 to 928	FSK	13.5	300	100
ADF7023-J	902 to 928, 950	FSK	13.5	300	100
ADF7241	2400	DSSS to OQPSK	4.8	250	600
ADF7023	433, 868, 902 to 928	FSK, OOK	13.5	300	100

Reference Designs

- ▶ **AD936x:** Arrow® ARRADIO, Epiq® Maverick, Ettus® USRP B200/B210, Vantage® vPrism, ZeroTech® ZT3024, SIHID wireless video module
- ▶ **AD9371:** Ettus USRP N310, HJX AD9371 SDR
- ▶ **AD9375:** Small cell radio reference design, NanoSemi® DPD solution, tested PA program partnered with PA vendors
- ▶ **ADRV9008/ADRV9009:** ADRV9009-ZU11EG system-on-module
- ▶ **ADRV9026:** TBA
- ▶ **ADRV9002:** TBA



Resources

Find additional RadioVerse resources, including system designs and videos.



Visit analog.com/radioverse-education

Engage with the ADI technology experts in our online support community. Ask your tough design questions, browse FAQs, or join a conversation.



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Circuits from the Lab® reference designs are built and tested by ADI engineers with comprehensive documentation and factory-tested evaluation hardware.

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