ADRV9008/ADRV9009 INTEGRATED WIDEBAND RF TRANSCEIVER PLATFORM

200 MHz Bandwidth, Software-Defined Radio (SDR) Solution with Enhanced Frequency Agility

Widest Bandwidth, Highest Performance Integrated Radio Solution
- Supports wideband applications while delivering the high performance required for narrow-band applications, from 75 MHz to 6 GHz
- Improved phase noise and linearity delivers MC-GSM and NB-IoT performance
- Single-chip TDD solution replaces over 20 discrete radio components, reducing power by 50% and size by 60%

Common Platform Design for 2G/3G/4G/5G Reduces Complexity, Costs, and Time to Market
- Reduces product development cycles for band and power variants by half
- Complete development toolkit, including JESD204B interface framework
- Enables modular architecture for scalable SDR solutions

Simplified Digital Beamforming for Massive MIMO and Phased Array Radar
- Supports multichip phase synchronization with internal LO
- On-chip user-programmable gain, phase, and digital filter blocks
- Enables high performance, digital beamforming with reduced SWaP-C and development time

Enhanced Frequency Agility
- Reduces system downtime with fast frequency hopping and precalibration profiles
- Ensures link security, situational awareness, and spectrum efficiency

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Applications

- Macro base stations
- Massive MIMO
- Active antenna systems
- Phased array radar
- Electronic warfare
- Military communications
- Portable test equipment

Single-Chip TDD Solution

Two-Chip FDD Solution
ADRV9008/ADRV9009 Functionality

- Dual transmitters
- Dual receivers
- Dual input shared observation receiver
- Tuning range: 75 MHz to 6 GHz
- Max receiver BW: 200 MHz
- Max transmitter synthesis BW: 450 MHz
- Max observation receiver BW: 450 MHz
- Fully integrated fractional-N RF synthesizer
- Fully integrated clock synthesizer
- 12 Gbps JESD204B data path interface
- ADRV9009: TDD operation
- ADRV9008-1: FDD receiver operation
- ADRV9008-2: FDD transmitter operation

**Evaluation and Prototyping Options**

The table below outlines the full set of software and hardware tools available from ADI for evaluation, prototyping, and reference design.

<table>
<thead>
<tr>
<th>FMC Mezzanine Cards</th>
<th>Carrier Boards</th>
<th>Software and Driver</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Xilinx Zynq UltraScale+ MPSoC ZCU102 evaluation kit</td>
<td>Xilinx Zynq UltraScale+ MPSoC Xilinx JESD204B IP</td>
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<tr>
<td>Prototyping Platform</td>
<td>ADRV9009-W/PCBZ, ADRV9008-1W/PCBZ, ADRV9008-2W/PCBZ</td>
<td>Xilinx Zynq UltraScale+ MPSoC ZCU102 evaluation kit, Intel® Arria® 10 SoC development kit</td>
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<tr>
<td>System on Module (Available 2018 Q4)</td>
<td>ADRV9009-ZU11EG</td>
<td>Dual ADRV9009 connected to a Zynq UltraScale+ MPSoC, Quad-core ARM® Cortex®-A53 MPCore™</td>
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ADRV9009 block diagram.
RadioVerse Ecosystem and Partnerships
RadioVerse® is a design and technology ecosystem for advanced radio design and development. We offer market leading integrated radio platforms, software tools, evaluation and prototyping platforms, a range of reference designs, and full radio solutions. RadioVerse is building up an ADI approved radio technology global partnership network to provide customers additional support, including partners with ADRV9009-based products such as:

- Epiq Sidekiq X4, a dual ADRV9009 FMC mezzanine card
- Panateq FMC-ZU2RF-A, a single ADRV9009 FMC mezzanine card

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EngineerZone® Online Support Community
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Circuits from the Lab Reference Designs
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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