# ADRV9009-ZU11EG
RF System-on-Module

Production Ready Hardware for Prototyping and Systems Development
With open source software for industry standard development platforms

The ADRV9009-ZU11EG is highly customisable and offers wide bandwidth and tuning range for a broad range of applications. It contains 2x Wideband ADRV9009 Dual Transceivers and Quad-core ARM® Cortex™-A53 MPCore™. 4GB of DDR4 (with ECC) is dedicated to the Programming System and 2x2GB Banks are dedicated for Programmable Logic giving much flexibility for developing custom applications. 1Gb of flash is provided for image storage, with an additional option to boot over USB or from a removable SD-Card.

Designed for scalability, multiple ADRV9009-ZU11EG's can be synchronised together enabling a complete solution for complex multi-stream applications ensuring end-to-end deterministic latency. The ADRV9009 Transceivers include integrated LO and phase synchronisation. Overall system frequency & phase synchronisation is maintained with a clock tree structure using ADI high performance low jitter HMC7044 devices, making it ideal for applications requiring RF phase alignment with a large number of channels.

The ADRV9009-ZU11EG has extensive I/O capability. Combined with the evaluation carrier board a variety of high speed I/O can be used, including USB3, USB2, PCIe 3.0 x8, QSFP+, SFP+, 1Gb Ethernet x2, and CPRI capability. An additional High Pin Count FMC Daughter Board can be plugged into the carrier board with a further two ADRV9009 Transceivers increasing to a total of eight Tx and Rx streams. A design can easily be evaluated and then integrated seamlessly into a custom carrier for further prototyping, or a final product greatly accelerating time to market.
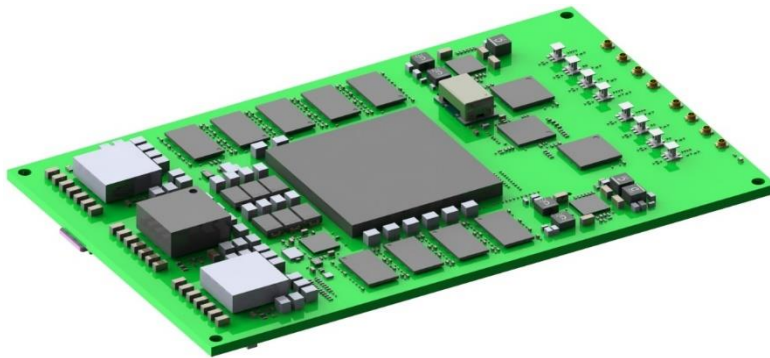
- ► Wide tuning range 75MHz to 6GHz
- ► Max receiver BW 200MHz
- ► Max transmitter synthesis BW 450MHz
- ► Max observation receiver BW 450MHz
- ► Integrated LO and Phase synch between all channels

- ► Platform development environment support includes Industry standard Linux Industrial I/O Applications, MATLAB®, Simulink®, and GNU Radio, and streaming interfaces for custom C, C++, python, and C# applications
- ► HDL reference designs and drivers to allow zero day development
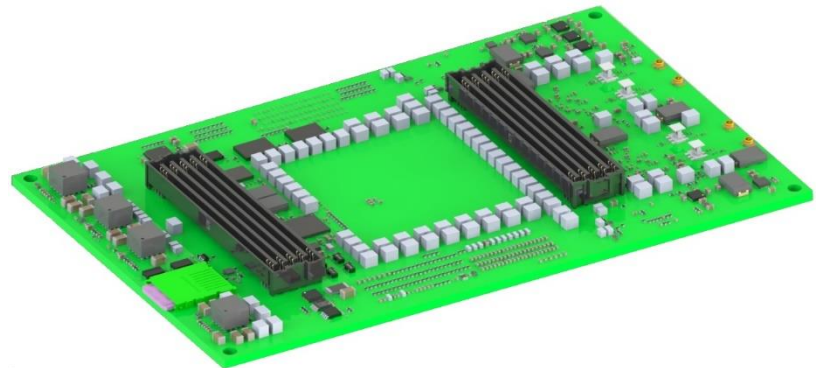
Applications

- ► Macro base stations
- ► MC-GSM
- ► Massive MIMO

- ► Active antenna systems
- ► Phased array radar
- ► Electronic warfare

- ► Military Communications
- ► Portable test equipment

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Specifications	Typical		Specifications	Typical
Power			**Digital**	
DC Input	12v		I/O Options	USB 3.0, PCIe x8 Gen3, SFP+, QSFP+, Dual 1GB Ethernet ports, Displayport, SPI, UART, I2C, Multiple High Speed GPIO
RF Performance				
Tuning Range	75MHz to 6GHz		Core	Quad-core ARM® Cortex™-A53 MPCore™
Max Receiver BW	200MHz		FPGA Logic Cells	600K
Max Transmitter Synthesis BW	450MHz		DSP Slices	2,250
Max Observation Receiver BW	450MHz		DDR4	4G x64 w/ECC PS; 4G (2Gb x32 x2Banks) PL
Number of Transceivers	2 on the RF-SOM Option for 2 more on system board		SD/uSD	Removeable SD Option available
			Flash	QSPI 1Gb
Module Operation Mode	TDD or FDD		**Mechanical**	
Conversion Performance and Clocks			Dimensions	150mm x 94mm, Height is Heatsink dependent
ADC and DAC Sample Rate	upto 491.52 MSPS per channel			
ADC and DAC Resolution	16-bit			
Frequency Accuracy	<1ppm			

ADRV9009-ZU11EG
Engineering Samples available Q4 2018
Further Information – Contact Local Sales

Support for complete system evaluation: The ADRV9009-ZU11EG is part of a complete evaluation system. A Carrier Board will give flexibility in connecting to various IO options for custom prototyping. An expansion high pin count FMC Connector is supported on the Carrier board. An FMC Daughter Board can inserted to enable two additional transceivers in the system giving a total of 8 Tx & Rx Paths. A standardized mechanical interface enables connection of Custom RF front-end Companion Boards.
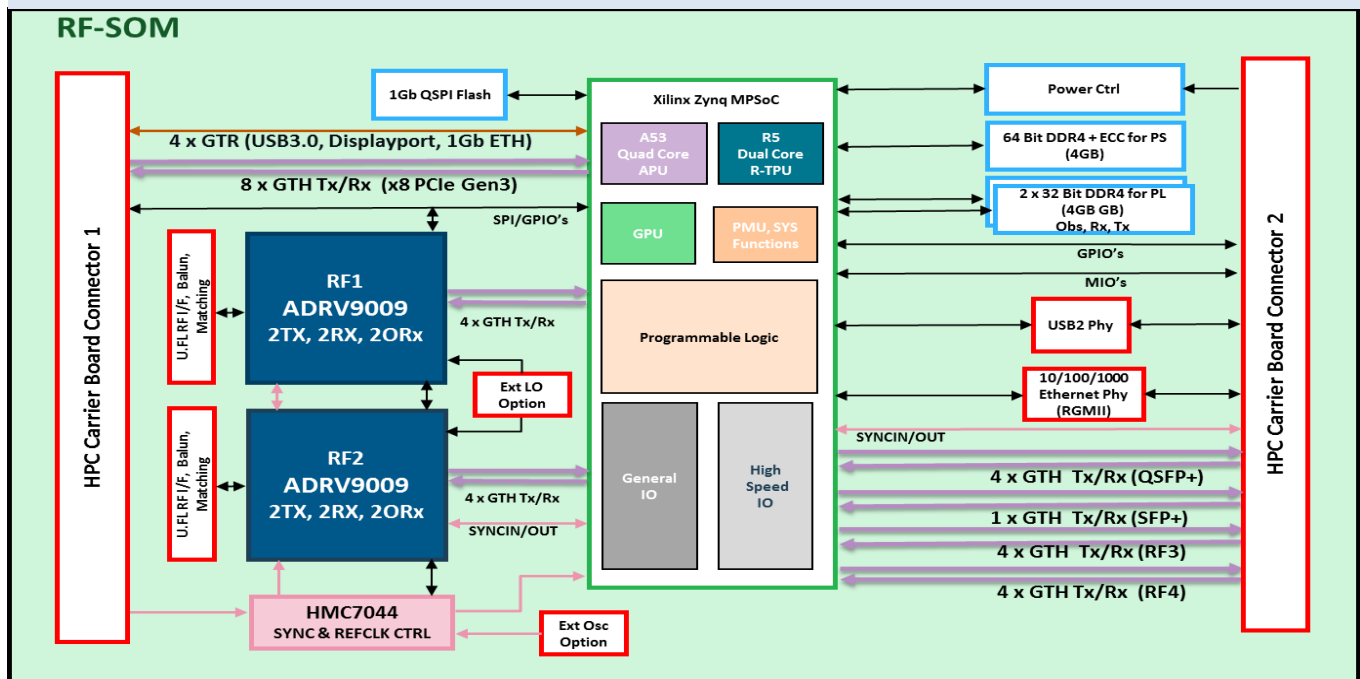
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