



Applications

- RF Signal Sampling/Generation
- Radar
- Beamforming
- MIMO (5G) communications Tx and Rx
- Signal Detection/Jamming

Summary

The **ADM-XRC-9R1** is a high performance System On Module (SOM) based on the Xilinx Zynq Ultrascale+ RFSoC, which combines FPGA Fabric, ADC and DAC interfaces and ARM CPU cores in a single low-power device.

The module is provided in rugged XMC format and is available in Industrial temperature grades with Air- or Conduction Cooling.

Target Devices

Xilinx Zynq Ultrascale+
XCZU27DR-2, XCZU28DR-2, XCZU47DR-2,
XCZU48DR-2 (FFVE1156 or FSVE1156)

FPGA Specification

Logic Cells = 930k DSPs = 4272
BRAM = 38Mb(38Mb) URAM = 22.5Mb(22.5Mb)

- 4x ARM® Cortex™-A53 MPCore™ - 1.5GHz
- 2x ARM® Cortex™-R5 MPCore™ - 533MHz
- 8x 12 bit 4/5 GSPS RF-ADC
- 8x 14 bit 6.5/10 GSPS RF_DAC
- 8x SD-FEC cores (ZU28/ZU48 only)
- 1x PCIe Gen3x8 in Fabric
- 1x PCIe Gen2x4 to ARM PS

Application Data Memory

- 1 banks each of 16Gb DDR4
- 2x 8Gb DDR4

Configuration Memory

QSPI 512Mbit Flash Memory

Configuration Modes

PS - Configured via QSPI or uSD

Deliverables

- ADM-XRC-9R1 Board
- One Year Warranty
- One Year Technical Support

Board Features

- On-board microcontroller accessible via USB

Host Interface

- PS - PCI Express Gen2 x4 (P5)
- PL - PCI Express Gen3 x8 or 10 Gigabit Ethernet (P6)

Board Format

XMC (Switched Mezzanine Card, VITA 42)

Input/Output Interfaces

High-Frequency Analogue Inputs

- 8x 12-bit 4/5GSPS RF-ADC
- Resolution: 14-bit
- Max Sample Freq: 4/5Gsp/s
- Connector: CMM Micro connectors

High-Frequency Analogue Outputs

- 8x 14-bit 6.5/10GSPS RF-DAC
- Resolution: 14-bit
- Max Sample Freq: 6.5/10Gsp/s
- Connector: CMM Micro connectors

Low-Speed Digital IO

- 19x GPIO

High-Speed Serial IO

- 2x 1 Gigabit Ethernet

Low-Speed Serial IO

- 2x USB Interfaces
- 2x Serial Comms Ports

High-Speed Serial IO

- 8x HSSIO Links - 10G Ethernet or PCI Express Gen3 x8

Onboard USB Comms

- 1x USB Interface

Support

ARM centric Targeted Reference Design and Board Support Package
Gen3x8 example PCIe reference design (via P6) compatible with the
ADXDMA driver and API for Windows and Linux.

Environmental Specification
Temperature Ranges

Cooling Option	Operating Temperatures		Storage Temperatures	
	Min	Max	Min	Max
AC1	-40°C	70°C	-55°C	100°C
CC1	-40°C	70°C	-55°C	100°C

Operating Humidity : Up to 95% (non-condensing)

EMC Standards

FCC 47CFR Part 2
EN55022:2010 Equipment ClassB

Conformal Coating Options

Acrylic or Polyurethane
Contact sales for specification of coatings.

Ordering Information
Order Code: ADM-XRC-9R1(d)(c)(a)

Option	Code	Description of Options
Device	d	/Z27 = XCZU27DR-2, /Z28 = XCZU28DR-2, /Z47 = XCZU47DR-2, /Z48 = XCZU48DR-2
Cooling	c	/AC1 = air cooled industrial, /CC1 = conduction cooled industrial
Conformal Coating	a	blank = no conformal coating, A = Acrylic, P = Polyurethane

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