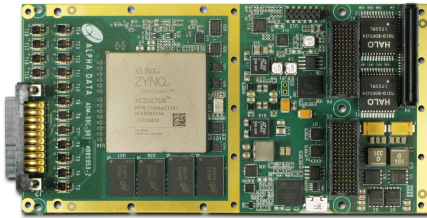


AD01353



## Applications

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

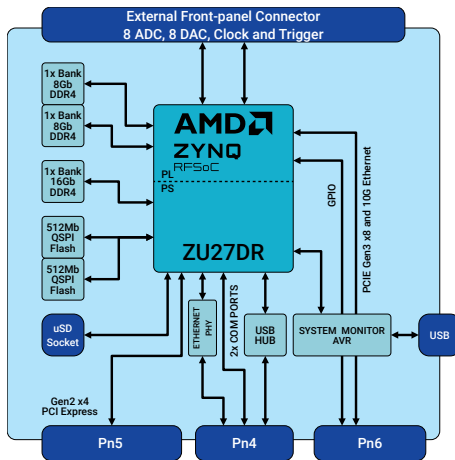
## Board Features

- 8 ADC and DAC channels capable of Multi-Gigasample data conversion
- AMD Ultrascale+ re-configurable logic and DSP processing
- AMD Zynq ARM multi-core control and computation Processing System
- 30MHz to 4GHz front end bandwidth

## Summary

The **ADM-XRC-9R1** is a high performance System On Module (SOM) based on the AMD 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

AMD Zynq UltraScale+  
XCZU27DR-2, XCZU28DR-2, XCZU47DR-2,  
XCZU48DR-2 (FFVE1156)

## FPGA Specification

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

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

## Application Data Memory

- 1x 16Gb DDR4 - 32bits wide (to PS)
- 2x 8Gb DDR4 - 8bits wide (to PL)
- 1x microSD

## Configuration Memory

QSPI 2x512Mb Flash Memory

## Configuration Modes

PS - Configured via QSPI or uSD

## Deliverables

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

## Host Interface

2x1GigE and 2 UART(P4)  
PS - PCI Express Gen2 x4 (P5)  
PL - PCI Express Gen3 x8 (P6)  
or up to 8x10 GigE (P6)  
or up to 2x100 GigE (P6) /V88 option required

## Input/Output Interfaces

**High-Frequency Analogue Inputs**  
12/14-bit 4/5GSPS RF-ADC

Resolution: 12/14-bit  
Max Sample Freq: 4/5GspS  
Connector: CMM Micro connectors

**High-Frequency Analogue Outputs**  
14-bit 6.5/10GSPS RF-DAC

Resolution: 14-bit  
Max Sample Freq: 6.5/10GspS  
Connector: CMM Micro connectors

**High-Speed Digital IO**  
Reference Clocks and Synchronization

**Low-Speed Digital IO**  
GPIO (19 single ended)

**Low-Speed Serial IO**  
Two x 1 Gigabit Ethernet Ports  
2 USB Interfaces  
2 Serial Comms Ports

**High-Speed Serial IO**  
HSSIO Links - 10/25/40/100G Ethernet or PCI Express Gen3 x8

**Onboard USB Comms**  
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.

### Board Format

XMC (Switched Mezzanine Card, VITA 42)

### Environmental Specification

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)(x)(c)(a)**

Option	Code	Description of Options
Device	d	/Z27 = XCZU27DR-2, /Z28 = XCZU28DR-2, /Z47 = XCZU47DR-2, /Z48 = XCZU48DR-2
XMC Connector	x	blank = VITA42 XMC, /V88 VITA88 XMC+
Cooling	c	/AC1 = air cooled industrial, /CC1 = conduction cooled industrial
Conformal Coating	a	blank = no conformal coating, A = Acrylic, P = Polyurethane