

# Development Kit iW-RainboW-G42P Zynq UltraScale+ RFSoc SOM



iWave's Zynq UltraScale+ RFSoc development kit comprises of the Xilinx UltraScale+ RFSoc SOM and a PCIe-based RFSoc Carrier board. The SOM is equipped with a 64-bit 8GB DDR4 RAM with 8-bit ECC for the PS (Processing System) and a 64-bit 8GB DDR4 RAM for the PL (Programmable Logic). The Zynq UltraScale+ RFSoc development kit carrier board is equipped with 4 right-angle SMA connectors, 12 straight-angle SMA connectors, and balun circuits to validate the ADC (Analog-to-Digital Converter) interface, as well as 4 right-angle SMA connectors, 12 straight-angle SMA connectors, and balun circuits to validate the DAC (Digital-to-Analog Converter) interfaces.

Additionally, a required set of features, including an HPC FMC+ connector, a DisplayPort connector, an M.2 NVMe PCIe connector, and a Gigabit Ethernet connector. These features are designed to validate high-speed PL & PS interfaces.

**Applications:** 5G and LTE Wireless, satellite communication, Aerospace & Defense.

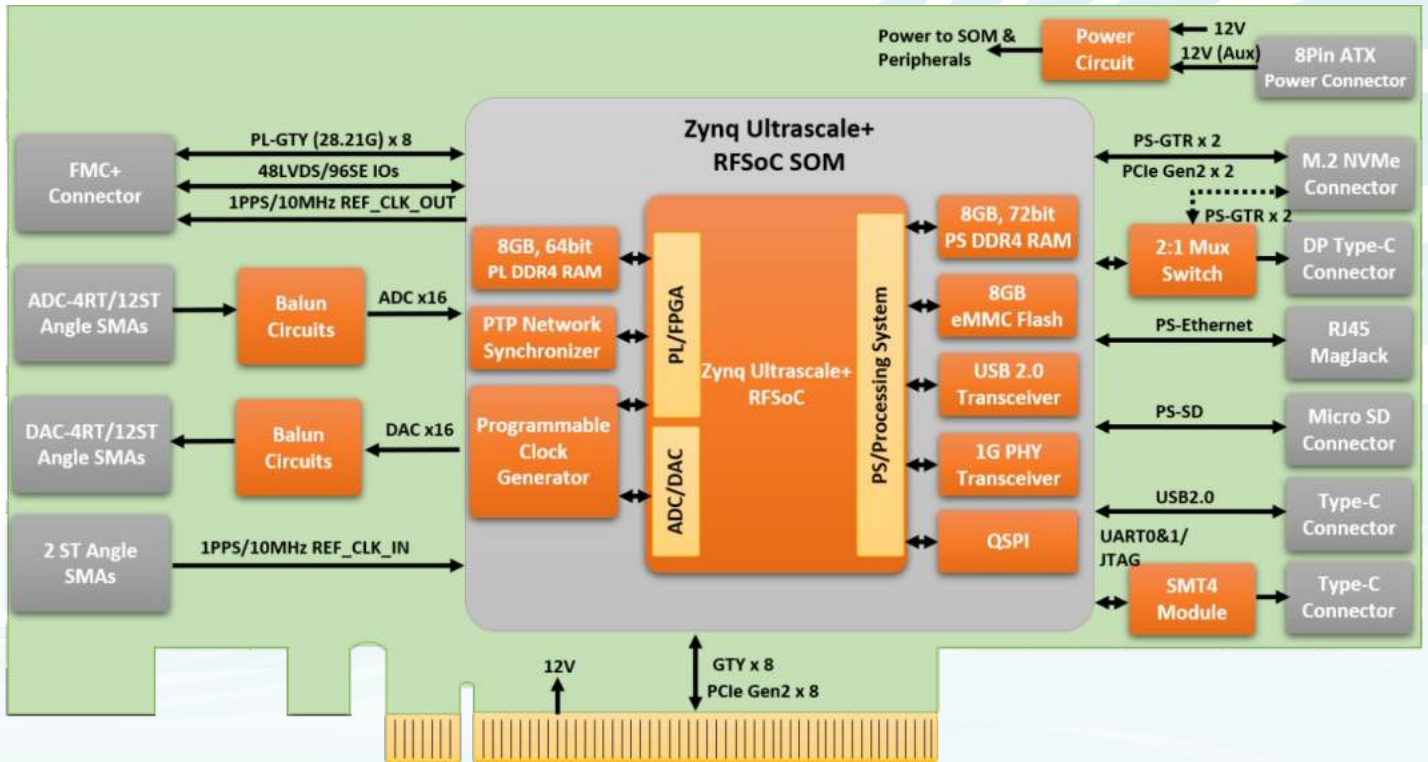
## iW-RainboW-G42P HIGHLIGHTS

- Xilinx's ZU49/39/29 Zynq Ultrascale+ RFSoc
- Quad-core ARM Cortex-A53 MPCore upto 1.3GHz
- Integrated SyncE & PTP Network Synchronization
- Integrated Ultra low-noise programmable RF PLL
- 3/4 Length PCIe Gen4 x8 Host Interface
- M.2 NVme slot for high performance storage
- 16 SMA Connectors with balun circuits for ADC
- 16 SMA Connectors with balun circuits for DAC

## SPECIFICATIONS

<b>ZU49/ZU39/ZU29 Zynq US+ RFSoc SOM</b>	<b>Front Panel</b>
<b>Processing System (PS/Processor)</b>	4 Right angle SMA with balun circuits for ADC
Quad Arm Cortex A53 @ 1.3GHz	4 Right angle SMA with balun circuits for DAC
Dual Cortex R5F upto 533MHz	USB Type-C Debug Port for PS
16 ADC Channels support upto 2.5Gsps	<b>SMA Connectors</b>
16 DAC Channels support upto 10Gsps	12 Straight angle SMA with balun circuits for ADC
<b>Programmable Logic (PL/FPGA)</b>	12 Straight angle SMA with balun circuits for DAC
Up to 930K Logic cells & 425K LUTs	1 PPS IN & 10MHz Reference clock IN through straight angle SMA Connector
<b>RAM Memory</b>	<b>FMC+ Connector</b>
64bit, 8GB DDR4RAM with 8bit ECC for PS	8 GTY Transceiver @28.21Gbps
64bit, 8GB DDR4 RAM for PL	48 LVDS/96 SE PL IOs
<b>On Board Flash</b>	10MHz Reference Clock Out
32GB eMMC Flash (Upgradable)	1 PPS Out
256MB QSPI Flash (Upgradable)	<b>Back Panel</b>
Micro SD	Rj45 1GbE Ethernet for PS
<b>Host Interface</b>	<b>Power</b>
PCIe Gen4 x 8	75W Max from PCIe x 8 Host
<b>Low Speed Interfaces</b>	8 Pin ATX Power Connector in Back Panel
M.2 NVMe Slot with PCIe Gen2 x 2	Droop Sharing (as per power requirement)
4K Display Port	<b>Form Factor</b>
<b>Clock Generators</b>	254mm x 111.5mm (3/4 Length PCIe)
Integrated SyncE & PTP Network Synchronization	<b>Operating Temperature</b>
Ultra Low-noise Programmable RF PLL	-40°C to +85°C (Industrial grade)
	<b>Compliance:</b>
	RoHS Compliant , REACH Compliant & CE*
	* Under Progress

## Zynq UltraScale+ RFSoc SOM Development Kit Block Diagram



### OS SUPPORT

Linux version 5.15.36  
Xilinx-v2022.2

### DELIVERABLES

Zynq UltraScale+ RFSoc Development Kit  
12V AC-DC Adapter  
Peta Linux BSP with Example FPGA Design

### OPTIONAL KITS/Modules

SMA Cables  
FMC+ Loopback Modules

### CUSTOM DEVELOPMENT

BSP Development/OS Porting  
Custom SOM/Carrier Development  
Custom Application/GUI Development  
Design Review and Support

iWave Systems Technologies is an ISO 9001:2015 certified company, head quartered in Bangalore India established in the year 1999. The company focuses on providing embedded solution and services for Industrial, Medical, Automotive and various other Embedded Computing applications. iWave Systems offers wide range of System On Modules and Single Board Computers built using wide range of CPU and FPGA SoC platforms with different form factors such as Qseven, SMARC, SODIMM and HPC by closely working with Tier-1 silicon companies such as NXP, Xilinx, Intel etc.

iWave Systems offers various state of art ready ODM solutions such as Connected Telematic Control Unit / OBD II devices for the automotive edge analytics, Comprehensive ARINC818 solutions for the low latency Aerospace applications and Rugged IP rated performance scalable HMI solutions for Industrial applications.

iWave Systems also provides comprehensive Engineering design services involving Embedded Hardware, FPGA and Software development. iWave offers carrier board and custom hardware development with manufacturing and certification services. iWave's Hardware expertise spans complex board design up to 30 layers; Analog, Digital & RF Designs; FPGA Development up to 3+ million gates and VHDL / Verilog RTL Development & Verification. Our Software expertise ranges from OS Porting, Firmware & Device Drivers Development and Wireless & Protocol

*\*Optional items not included in the standard deliverables.*

*Note: iWave reserves the right to change these specifications without notice as part of iWave's continuous effort to meet the best in breed specification. The registered trademarks are proprietary of their respective owners.*

### Zynq UltraScale+ RFSoc SOM & Development Kit

The device can be ordered online from the iWave Website  
<https://www.iwavesystems.com/product/zynq-ultrascale-rfsoc-som/>  
Or from our Local Partners in your region  
<http://www.iwavesystems.com/about-us/business-partner.html>

#### INDIA

iWave Systems Technologies Pvt Ltd.  
#7/B, 29th Main, BTM Layout  
2nd Stage,  
Bangalore - 560 076  
mktg@iwavesystems.com

#### JAPAN

iWave Japan Inc.  
8F Kannai Sumiyoshi Building,  
3-29 Sumiyoshi-cho, Naka -ku,  
Yokohama Kanagawa, Japan  
mktg@iwavesystems.com

#### EUROPE

International Sales & Marketing Europe  
Venkelbaan 55 2908KE Capelle  
aan den IJssel,  
The Netherlands  
info@iwavesystems.eu

#### USA

iWave USA  
1692 Westmont Ave. Campbell  
Ca95008  
USA  
info@iwavesystems.us