

iG-G42P®

ZU49/ZU39/ZU29DR RFSoc ADC & DAC PCIe Card

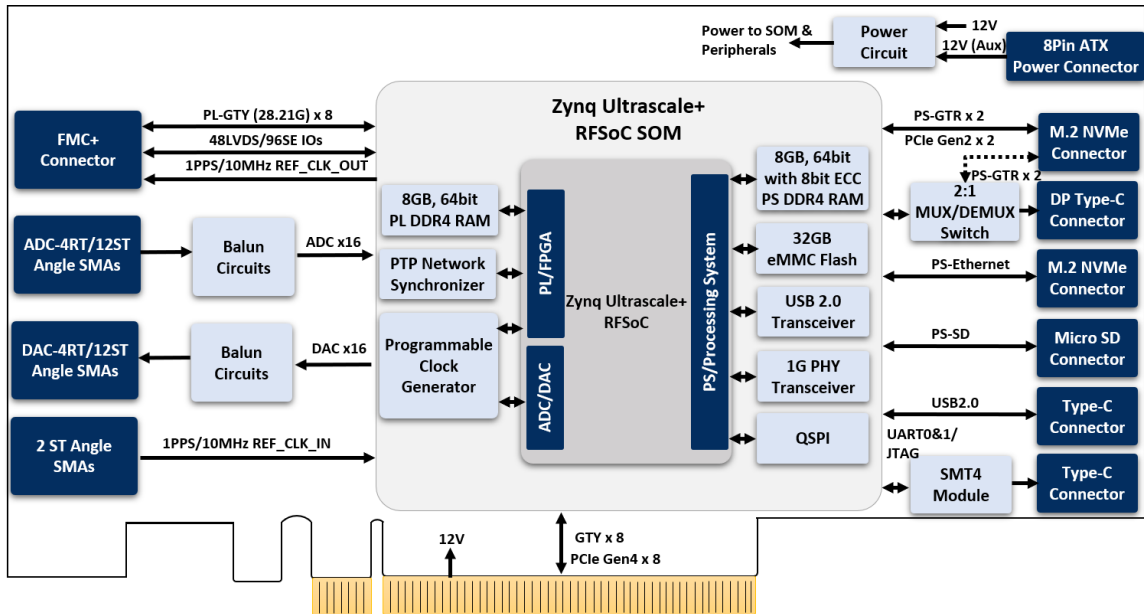
Zynq UltraScale+ RFSoc based System On Module features the Zynq UltraScale+ RFSoc ZU49/ZU39/ZU29 devices with FFVF1760 package. RFSoc supports Quad Cortex A53 up to 1.3GHz and Dual Cortex R5F up to 533MHz. SOM supports upto 16 channels of RF-ADCs @ 2.5Gsps and 16 channels of RF-DACs @ 9.85Gsps, all with excellent noise spectral density. SOM has integrated syncE & PTP synchronization and ultra low-noise programmable RF PLL. SOM also supports high speed connectivity peripherals such as PCIe, USB3.0, SATA3.1, Display port, Gigabit Ethernet through GTR high speed transceivers from RFSoc and 64-bit 8GB PL DDR4 and 64-bit 8GB PS DDR4 with ECC. Furthermore, it supports 16 GTY high speed Transceivers which can support up to 28.21Gbps to run demanding applications.



Highlights

- ❖ AMD Zynq™ UltraScale+™ RFSoc PCIe Card based on ZU49/ZU39/ZU29DR devices
- ❖ 16-Channel RF DAC up to 9.85GSPS for Signal Generation
- ❖ 16-Channel RF ADC up to 2.5GSPS for Data Acquisition
- ❖ 16 × GTY High-speed Transceivers up to 28.21Gbps
- ❖ ¾-Length PCIe x8 up to Gen4 High-Bandwidth Host Interface

Block Diagram



Technical Specifications

Zynq™ Ultrascale+ ™ RFSoc ZU49DR/ZU 39DR/ZU29 DR	Processing System (PS/Processor) - Quad/Dual Arm Cortex-A53 @1.3GHz - Dual Cortex-R5F @533MHz 16 x DAC Ports support max data up to @9.85Gbps 16 x ADC Ports support max data up to @2.5Gbps - PL GTY High Speed Transceivers x 16 @28.21Gbps	DAC Channels (x16) 1 x Right Angle SMA connector on Front Panel with Balun (BW 10MHz to 3GHz) 3 x Right Angle SMA connectors on Front Panel with Balun (BW 3.1GHz to 5.8GHz) 3 x Straight SMA connectors with Balun (BW 10MHz to 3GHz) 9 x Straight SMA connectors with Balun (BW 3.1GHz to 5.8GHz)
RAM Memory	8GB, 64bit DDR4 RAM with ECC for PS 8GB, 64bit DDR4 RAM for PL	Clock & PLL 1 x Right Angle SMA connector on Front Panel with Balun (BW 10MHz to 3GHz) 3 x Right Angle SMA connectors on Front Panel with Balun (BW 3.1GHz to 5.8GHz) 3 x Straight SMA connectors with Balun (BW 10MHz to 3GHz) 9 x Straight SMA connectors with Balun (BW 3.1GHz to 5.8GHz)
Flash Memory	256MB QSPI Flash for Booting 32GB eMMC Flash for Storage - Micro SD slot from PS - M.2 NVMe slot with PCIe Gen2 x2/x4 interface	Host Interface PCIe Gen4 (Up to)x 8 Edge Connector
ADC Channels (x16)	1 x Right Angle SMA connector on Front Panel with Balun (BW 10MHz to 3GHz) 3 x Right Angle SMA connectors on Front Panel with Balun (BW 3.1GHz to 5.8GHz) 3 x Straight SMA connectors with Balun (BW 10MHz to 3GHz) 9 x Straight SMA connectors with Balun (BW 3.1GHz to 5.8GHz)	Expansion - FMC+ High serial Pin connector (HSPC) Connector 8 channel GTY Transceivers @ up to 28.21Gbps 2 GTY Reference Clock 48 LVDS IOs/96 Single ended (SE) IOs from PL Banks

Others	- Two RJ45 1GbE Ethernet Port on Back Panel from PS - Display port through USB-Type-C connector from PS - RTC Battery Header 4 x GPIO SMA Straight Connectors	Operating Temperature	-30°C to +85°C (Industrial)
Debug	- Integrated JTAG Programming/Emulator Module - USB TypeC Debug Port on Front Panel for PS Debug UART, DATA UART and JTAG	Power	75W max from PCIe x 8 Host 8Pin ATX Power Connector in Back Panel Power Droop Sharing (to maximize power when needed) - Power dissipation is application dependent
Thermal	Fan sink (by default)	Form Factor	254mm x 111.15mm (¾ Length PCIe)
		Compliance	RoHS Compliant REACH Compliant CE*

Product accessories



Thermal Solutions

Thermal design is a crucial factor for highly integrated System on Modules. iWave offers Heat Spreader and Fan Sink solutions for RFSoc-based SoMs to ensure optimal thermal management.

Applications

Software-Defined Radio (SDR)

Enables flexible, multi-band radio systems by implementing radio functions in software for rapid adaptation to evolving communication standards.

Wireless Communications

Supports high-speed, low-latency wireless networks, including 5G/6G infrastructure, private networks, and advanced connectivity solutions.

Radar

Delivers real-time signal processing for high-resolution radar systems used in surveillance, target detection, tracking, and imaging applications.

A Global Leader in Embedded Systems Engineering and Solutions

Since 1999, we have pioneered leadership in embedded systems technology, establishing ourselves as a strategic embedded technology partner for advanced solutions. Our comprehensive portfolio encompasses ARM and FPGA System on Modules, COTS FPGA solutions, and ODM solutions which include Telematics, Gateways & HMI Solutions.

Beyond our robust product ecosystem, we provide comprehensive ODM support with specialized custom design and manufacturing capabilities, enabling customers to accelerate and optimize their product development roadmaps. With a strategic focus on industrial, automotive, medical, and avionics markets, we deliver innovative technology solutions to global clients.

mktg@iwave-global.com

iWave Global
Bangalore, India

iWave Global
Ras Al Khaimah, UAE.

iWave Global GmbH
Ratingen, Germany.

iWave Europe
Rotterdam, Netherlands.

iWave USA
California, USA.

iWave Global East Coast LLC
New Jersey, USA.

iWave APAC
Taipei City, Taiwan.

iWave Korea
Gyeonggi,-do, Korea.

iWave Japan
Yokohama, Kanagawa.

Sakura Global
Kagoshima, Japan.

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