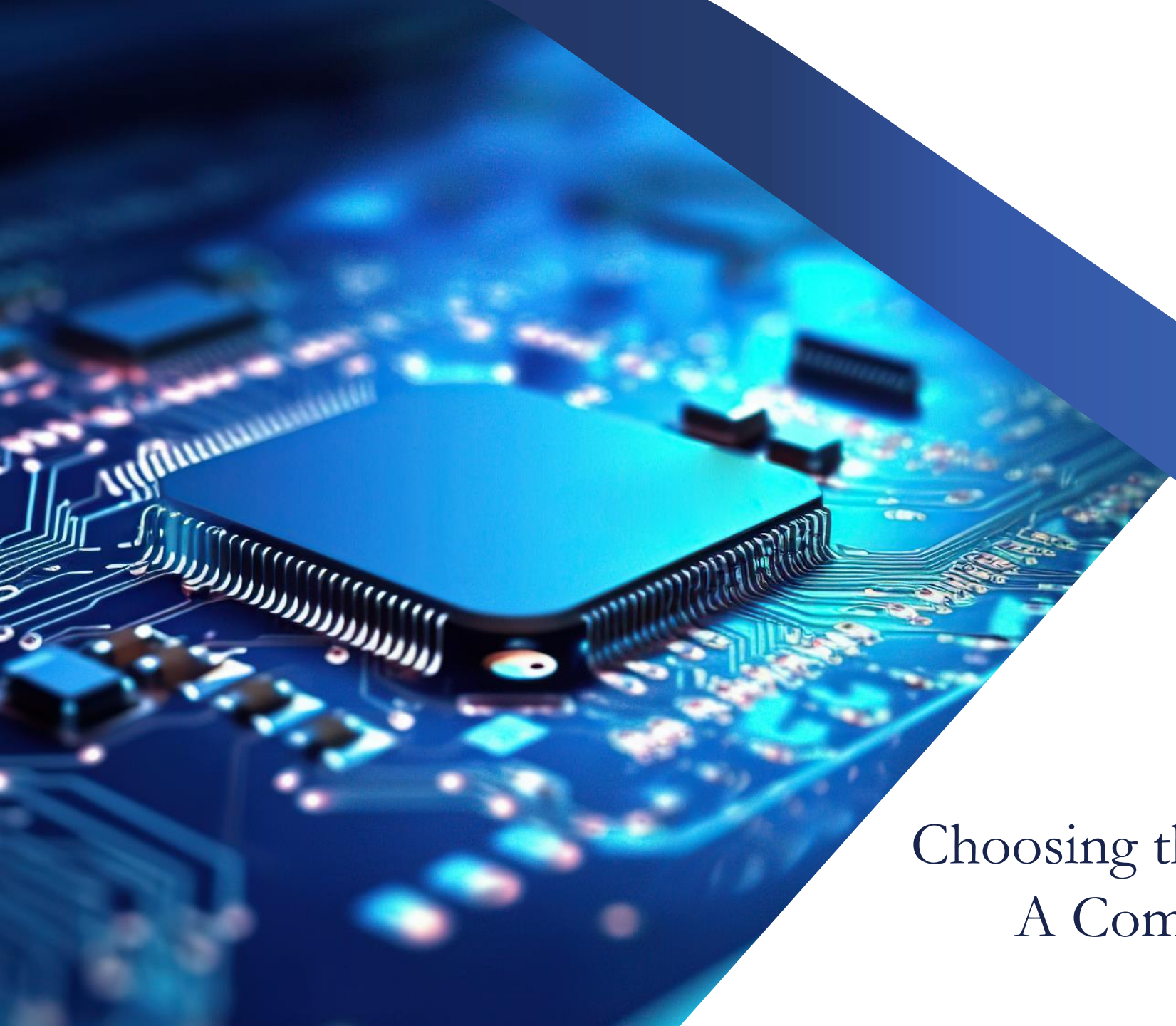


iWave Global

Choosing the Right RFSoC Platform: A Complete Selection Guide

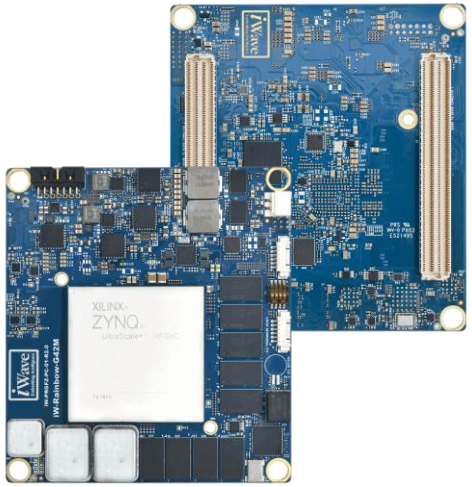
RFSoC System On Modules

iG-G60M®

ZU48/47/43/28/27/25DR

82mm x 100mm

iG-G42M®



ZU49/ZU39/ZU29DR

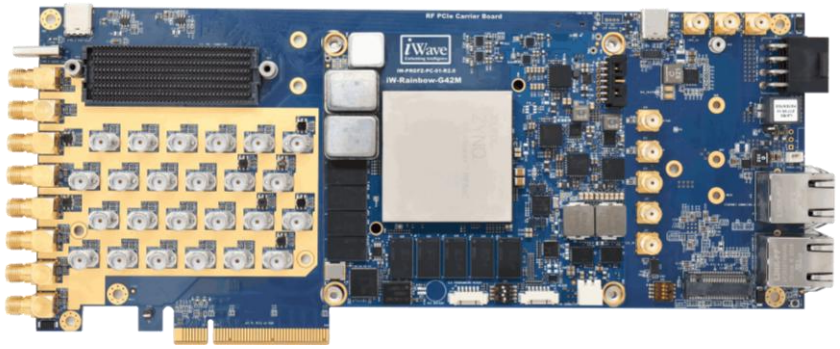
90mm x 100mm

iG-xxM®

Versal RF Series

RFSoC PCIe ADC-DAC & 3U VPX Card

iG-G42P®



ZU49/ZU39/ZU29DR

218mm x 111.15mm (¾ Length PCIe)

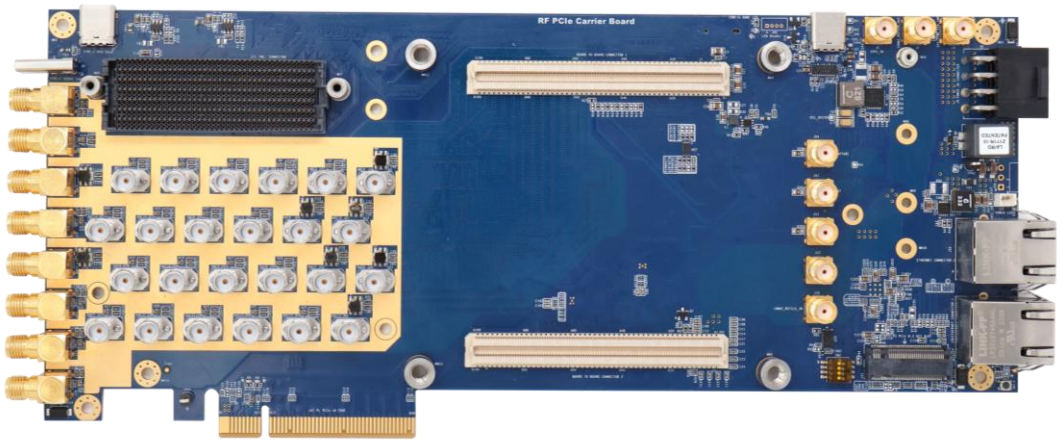
iG-G60V®

ZU48/47/43/28/27/25DR

160mm x 100mm (3U VPX)

RFSoC Development Platform

iG-G42P®/ iG-G60P®



ZU49/ZU39/ZU29DR
ZU48/ZU47/ZU45/ZU28/ZU27/ZU25

218mm x 111.15mm (¾ Length PCIe)

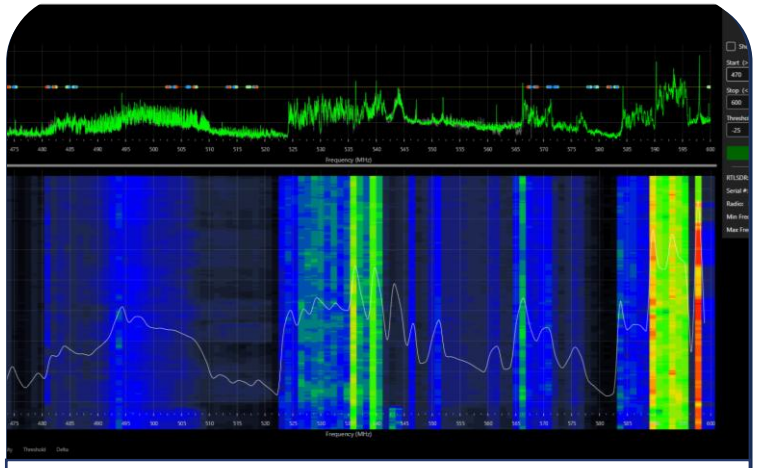
Success Stories & Case Studies of iWave RFSoC Products

5G and LTE Wireless

Phased Array RADAR

Test & Measurement

Satellite Communications



Software Defined Radios

Electronic Warfare

iG-G60M® - Zynq™ UltraScale+™ RFSoC SOM (BRYNc)

		FPGA/SoC Name	ZU48DR				ZU47DR				ZU43DR				ZU28DR				ZU27DR				ZU25DR			
On-SOM Features	Programmable Logic (PL)	Package	G1517				G1517				G1517				G1517				G1517				G1517			
		Speed Grade	-1L	-1	-2L	-2	-1L	-1	-2L	-2	-1L	-1	-2L	-2	-1L	-1	-2L	-2	-1L	-1	-2L	-2	-1L	-1	-2L	-2
		FPGA Logic cells	9,30,300				9,30,300				9,30,300				9,30,300				9,30,300				6,78,318			
		LUTs	4,25,280				4,25,280				4,25,280				4,25,280				4,25,280				3,10,088			
		DSP Slices	4,272				4,272				4,272				4,272				4,272				3,145			
		SD-FEC	8				0				0				8				0				0			
		RAM Memory1 (GByte)	8GB DDR4 (Upgradable upto 16GB)				8GB DDR4 (Upgradable upto 16GB)				8GB DDR4 (Upgradable upto 16GB)				8GB DDR4 (Upgradable upto 16GB)				8GB DDR4 (Upgradable upto 16GB)				8GB DDR4 (Upgradable upto 16GB)			
		Number of bits | Speed (Mbps)	64bit | 2133	64bit | 2400		64bit | 2666	64bit | 2133	64bit | 2400		64bit | 2666	64bit | 2133	64bit | 2400		64bit | 2666	64bit | 2133	64bit | 2400		64bit | 2666	64bit | 2133	64bit | 2400		64bit | 2666	64bit | 2133	64bit | 2400		64bit | 2666
	Processing System (PS)	Application Processing Unit	Quad-core Arm® Cortex®-A53 MPCore™				Quad-core Arm® Cortex®-A53 MPCore™				Quad-core Arm® Cortex®-A53 MPCore™				Quad-core Arm® Cortex®-A53 MPCore™				Quad-core Arm® Cortex®-A53 MPCore™				Quad-core Arm® Cortex®-A53 MPCore™			
			1200 MHz		1333 MHz		1200 MHz		1333 MHz		1200 MHz		1333 MHz		1200 MHz		1333 MHz		1200 MHz		1333 MHz		1200 MHz		1333 MHz	
		Real-Time Processing Unit	Dual-core Arm Cortex-R5F MPCore				Dual-core Arm Cortex-R5F MPCore				Dual-core Arm Cortex-R5F MPCore				Dual-core Arm Cortex-R5F MPCore				Dual-core Arm Cortex-R5F MPCore				Dual-core Arm Cortex-R5F MPCore			
			500 MHz		533 MHz		500 MHz		533 MHz		500 MHz		533 MHz		500 MHz		533 MHz		500 MHz		533 MHz		500 MHz		533 MHz	
		RAM Memory (GByte)	8GB DDR4				8GB DDR4				8GB DDR4				8GB DDR4				8GB DDR4				8GB DDR4			
		Number of bits | Speed (Mbps)	64bit | 2400				64bit | 2400				64bit | 2400				64bit | 2400				64bit | 2400				64bit | 2400			
		eMMC Flash Memory (GByte)	32GB (Upgradable upto 128GB)				32GB (Upgradable upto 128GB)				32GB (Upgradable upto 128GB)				32GB (Upgradable upto 128GB)				32GB (Upgradable upto 128GB)				32GB (Upgradable upto 128GB)			
		QSPI Flash Memory (MByte)	256MB				256MB				256MB				256MB				256MB				256MB			
	RF Clock	Integrated Clock Synthesizer	Supported				Supported				Supported				Supported				Supported				Supported			
		JESD204B Compatible Clock Cleaner	Supported				Supported				Supported				Supported				Supported				Supported			
		JESD204B Compatible RF PLLs	Supported				Supported				Supported				Supported				Supported				Supported			
Board to Board Connector Interfaces		**Board to Board Connector 1 (400 Pin)**	**Compatible**																							
	RF	ADC Input	Gen3				Gen3				Gen3				Gen1				Gen1				Gen1			
		# of ADCs	8				8				4				8				8				8			
		# of bits	14				14				14				12				12				12			
		Max Rate (GSPS)	5				5				5				4.096				4.096				4.096			
		DAC Output	Gen3				Gen3				Gen3				Gen1				Gen1				Gen1			
		# of DACs	8				8				4				8				8				8			
		# of bits	14				14				14				14				14				14			
		Max Rate (GSPS)	9.85				9.85				9.85				6.554				6.554				6.554			
	PL	FPGA IOs	164				164				164				164				164				164			
		HP Bank IOs | Variable IO Voltage	140 | 1V to 1.8V				140 | 1V to 1.8V				140 | 1V to 1.8V				140 | 1V to 1.8V				140 | 1V to 1.8V				140 | 1V to 1.8V			
		HD Bank IOs | Variable IO Voltage	24 | 1.2V to 3.3V				24 | 1.2V to 3.3V				24 | 1.2V to 3.3V				24 | 1.2V to 3.3V				24 | 1.2V to 3.3V				24 | 1.2V to 3.3V			
		ADC Input Pins	16 | 10bit, 200KSPS				16 | 10bit, 200KSPS				16 | 10bit, 200KSPS				16 | 10bit, 200KSPS				16 | 10bit, 200KSPS				16 | 10bit, 200KSPS			
		Board to Board Connector 2 (400 Pin)	**Compatible**																							
	PS	GTR Transceiver (PCIe|DP|USB3.0|SATA| SGMII)	4				4				4				4				4				4			
		USB 2.0 with PHY	1 x USB 2.0				1 x USB 2.0				1 x USB 2.0				1 x USB 2.0				1 x USB 2.0				1 x USB 2.0			
		Ethernet with PHY	1 x 1Gbps				1 x 1Gbps				1 x 1Gbps				1 x 1Gbps				1 x 1Gbps				1 x 1Gbps			
		Ethernet RGMII Interface	1				1				1				1				1				1			
		SDHC interface	1				1				1				1				1				1			
		SPI Interface	-				-				-				-				-				-			
		UART Interface	2				2				2				2				2				2			
		I2C Interface	2				2				2				2				2				2			
		CAN Interface	1				1				1				1				1				1			
		JTAG	1				1				1				1				1				1			
	PL	GTY Transceivers	16				16				16				16				16				8			
		Speed (Gbps)	12.5	25.785	28.21	28.21	12.5	25.785	28.21	28.21	12.5	25.785	28.21	28.21	12.5	25.785	28.21	28.21	12.5	25.785	28.21	28.21	12.5	25.785	28.21	28.21
Spec		Temperature Range (Industrial)	–40°C to +85°C				–40°C to +85°C				–40°C to +85°C				–40°C to +85°C				–40°C to +85°C				–40°C to +85°C			
		Temperature Range (Extended)	0°C to +85°C				0°C to +85°C				0°C to +85°C				0°C to +85°C				0°C to +85°C				0°C to +85°C			
		SOM Dimension (mm)	90 x 100				90 x 100				90 x 100				90 x 100				90 x 100				90 x 100			
		Supported Operating System	Linux				Linux				Linux				Linux				Linux				Linux			
			Baremetal				Baremetal				Baremetal				Baremetal				Baremetal				Baremetal			
		Estimated Product Lifetime	2035+				2035+				2035+				2035+				2035+				2035+			

Note: In this whole document, Red font in table indicates changes from left side column

iG-G42M® - Zynq™ UltraScale+™ RFSoC SOM (BRYN)

		FPGA/SoC Name	ZU49DR				ZU39DR				ZU29DR			
On-SOM Features	Programmable Logic	Package	F1760				F1760				F1760			
		Speed Grade	-1L	-1	-2L	-2	-2L	-2			-1L	-1	-2L	-2
		FPGA Logic cells	9,30,300				9,30,300				9,30,300			
		LUTs	4,25,280				4,25,280				4,25,280			
		DSP Slices	4,272				4,272				4,272			
		RAM Memory1 (GByte)	8GB DDR4 (Upgradable upto 16GB)				8GB DDR4 (Upgradable upto 16GB)				8GB DDR4 (Upgradable upto 16GB)			
		Number of bits | Speed (Mbps)	64bit | 2133	64bit | 2400		64bit | 2666	64bit | 2400	64bit | 2666			64bit | 2133	64bit | 2400		64bit | 2666
	Processing System (PS)	Application Processing Unit	Quad-core Arm® Cortex®-A53 MPCore™				Quad-core Arm® Cortex®-A53 MPCore™				Quad-core Arm® Cortex®-A53 MPCore™			
			1200 MHz	1333 MHz			1333 MHz				1200 MHz	1333 MHz		
		Real-Time Processing Unit	Dual-core Arm Cortex-R5F MPCore				Dual-core Arm Cortex-R5F MPCore				Dual-core Arm Cortex-R5F MPCore			
			500 MHz	533 MHz			533 MHz				500 MHz	533 MHz		
		RAM Memory (GByte)	8GB DDR4				8GB DDR4				8GB DDR4			
		Number of bits | Speed (Mbps)	64bit | 2400				64bit | 2400				64bit | 2400			
		eMMC Flash Memory (GByte)	32GB (Upgradable upto 128GB)				32GB (Upgradable upto 128GB)				32GB (Upgradable upto 128GB)			
		QSPI Flash Memory (MByte)	256MB				256MB				256MB			
	RF Clock	Integrated Clock Synthesizer	Supported				Supported				Supported			
		Integrated JESD204B Compatible Clock Cleaner	Supported				Supported				Supported			
		JESD204B Compatible RF PLLs	Supported				Supported				Supported			
Board to Board Connector Interfaces		Board to Board Connector 1 (400 Pin)	**Compatible**											
	RF	ADC Input	Gen3				Gen2				Gen1			
		# of ADCs	16				16				16			
		# of bits	14				12				12			
		Max Rate (GSPS)	2.5				2.22				2.058			
		DAC Output	Gen3				Gen2				Gen1			
		# of DACs	16				16				16			
		# of bits	14				14				14			
		Max Rate (GSPS)	9.85				6.54				6.54			
	PL	FPGA IOs	192				192				192			
		HP Bank IOs | Variable IO Voltage	144 | 1V to 1.8V				144 | 1V to 1.8V				144 | 1V to 1.8V			
		HD Bank IOs | Variable IO Voltage	48 | 1.2V to 3.3V				48 | 1.2V to 3.3V				48 | 1.2V to 3.3V			
		ADC Input Pins	16 | 10bit, 200KSPS				16 | 10bit, 200KSPS				16 | 10bit, 200KSPS			
		Board to Board Connector 2 (400 Pin)	**Compatible**											
	PS	GTR Transceiver (PCIe|DP|USB3.0|SATA| SGMII)	4				4				4			
		USB 2.0 with PHY	1 x USB 2.0				1 x USB 2.0				1 x USB 2.0			
		Ethernet with PHY	1 x 1Gbps				1 x 1Gbps				1 x 1Gbps			
		Ethernet RGMII Interface	1				1				1			
		SDHC interface	1				1				1			
		SPI Interface	-				-				-			
		UART Interface	2				2				2			
		I2C Interface	2				2				2			
		CAN Interface	1				1				1			
		JTAG	1				1				1			
	PL	GTY Transceivers	16				16				16			
		Speed (Gbps)	12.5	25.79	28.21	28.21	28.21	28.21			12.5	25.79	28.21	28.21
Spec		Temperature Range (Industrial)	–40°C to +85°C				–40°C to +85°C				–40°C to +85°C			
		Temperature Range (Extended)	0°C to +85°C				-				0°C to +85°C			
		SOM Dimension (mm)	90 x 100				90 x 100				90 x 100			
		Supported Operating System	Linux				Linux				Linux			
			Baremetal				Baremetal				Baremetal			
		Estimated Product Lifetime	2035+				2035+				2035+			

Note: In this whole document, Red font in table indicates changes from left side column

Modular & Scalable Architecture

- Zynq UltraScale+ RFSoC SoMs compatible with ZU49/ZU39/ZU29DR and ZU48/ZU47/ZU43/ZU28/ZU27/ZU25DR devices
- Pin-compatible SoMs enabling scalability
- Single Carrier Card for evaluation of RFSoC SoMs from ZU49DR to ZU25DR

RF Expertise

- Proven implementation of Multi-Tile Synchronization (MTS) and Multi-Board Sync (MBS)
- Expertise in low-jitter clock design using PLLs and Synthesizers
- High-speed interface integration: JESD204B/C, SFP+, QSFP, PCIe Gen3

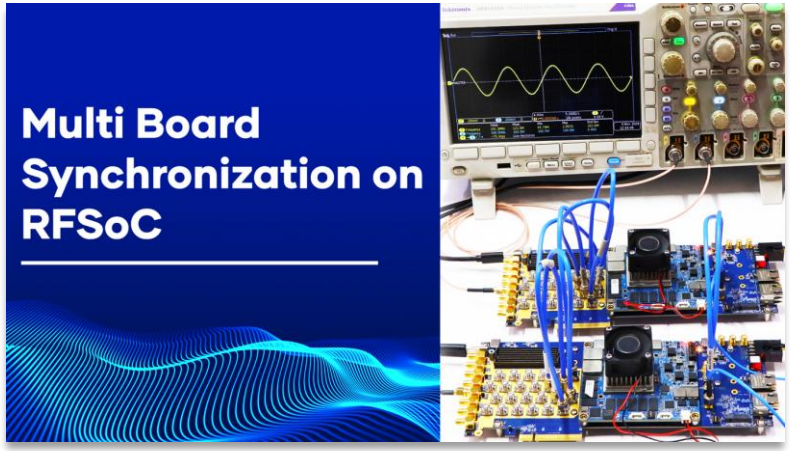
Custom Design

- Rugged, conduction-cooled 3U VPX chassis and RF connector design
- Carrier + SoM integration tailored for SDR, EW, and radar deployments
- Full ODM services: schematic, layout, thermal, mechanical, and enclosure

Qualification, Production & Validation

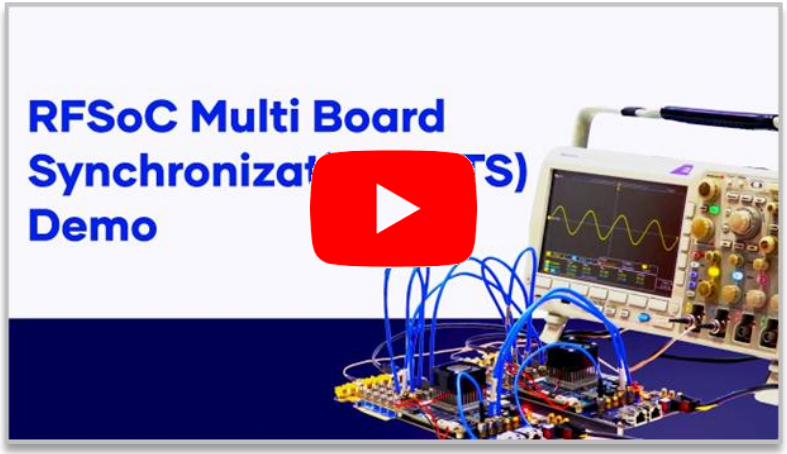
- Turnkey production support: SoM + Carrier + Enclosure + Testing
- Robust supply chain, procurement planning, and EOL management
- System-level validation, Military grade qualification, and 15+ years of long-term support

RFSoC Related News



[Article - Demonstration of Multi Board Synchronization on RFSoC Board & Systems]

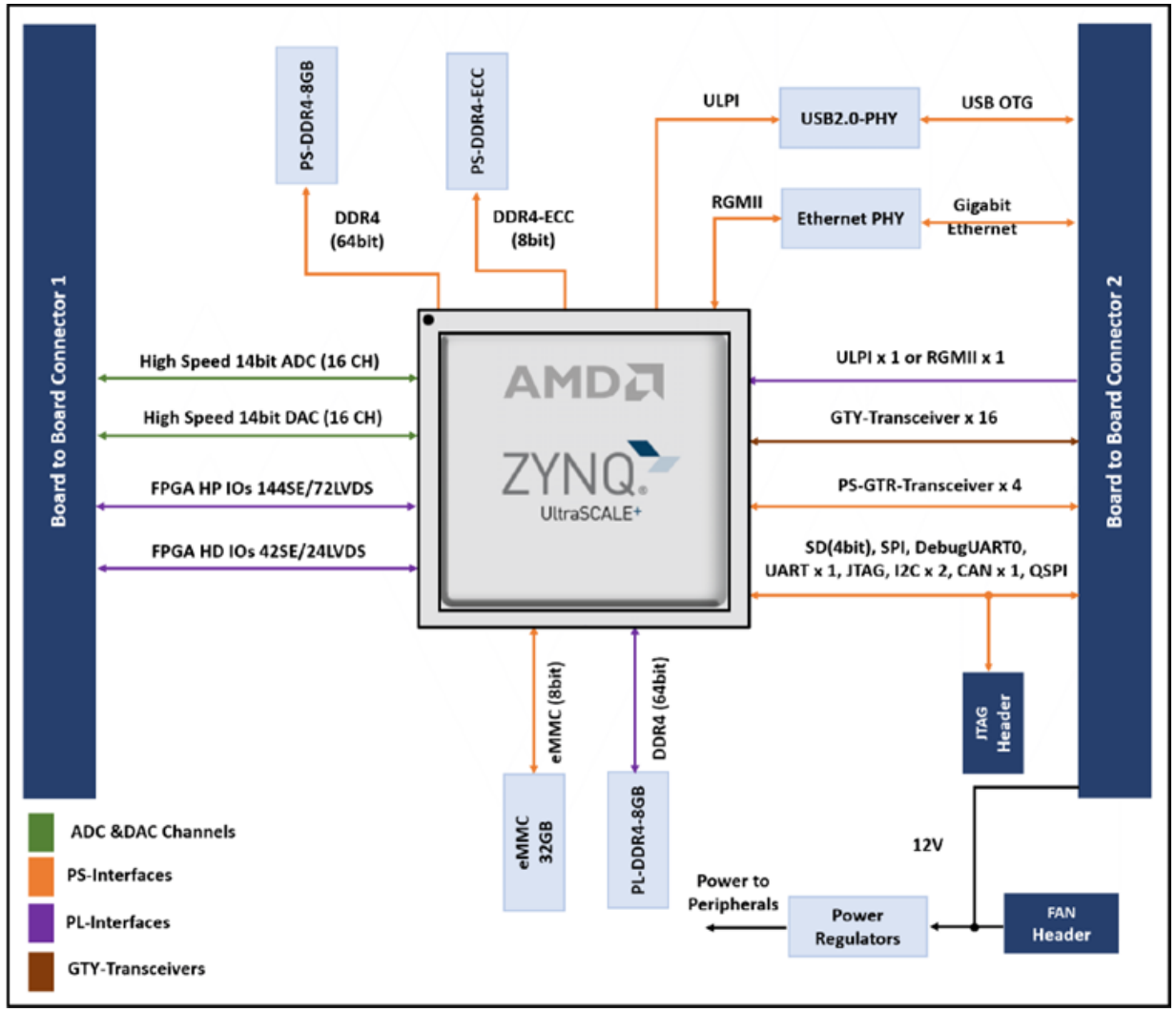
[Article - Designing Software Defined Radio (SDR) with RFSoC System on Module]



[Video - Achieving Multi-Board MTS Synchronization with ZU49DR RFSoC SOM]

[Case Study - Radio Telescope using ZU49/ZU39/ZU29DR Zynq UltraScale+ RFSoC SoM]

iG-G42M®: ZU49/ZU39/ZU29DR RFSoC SoM



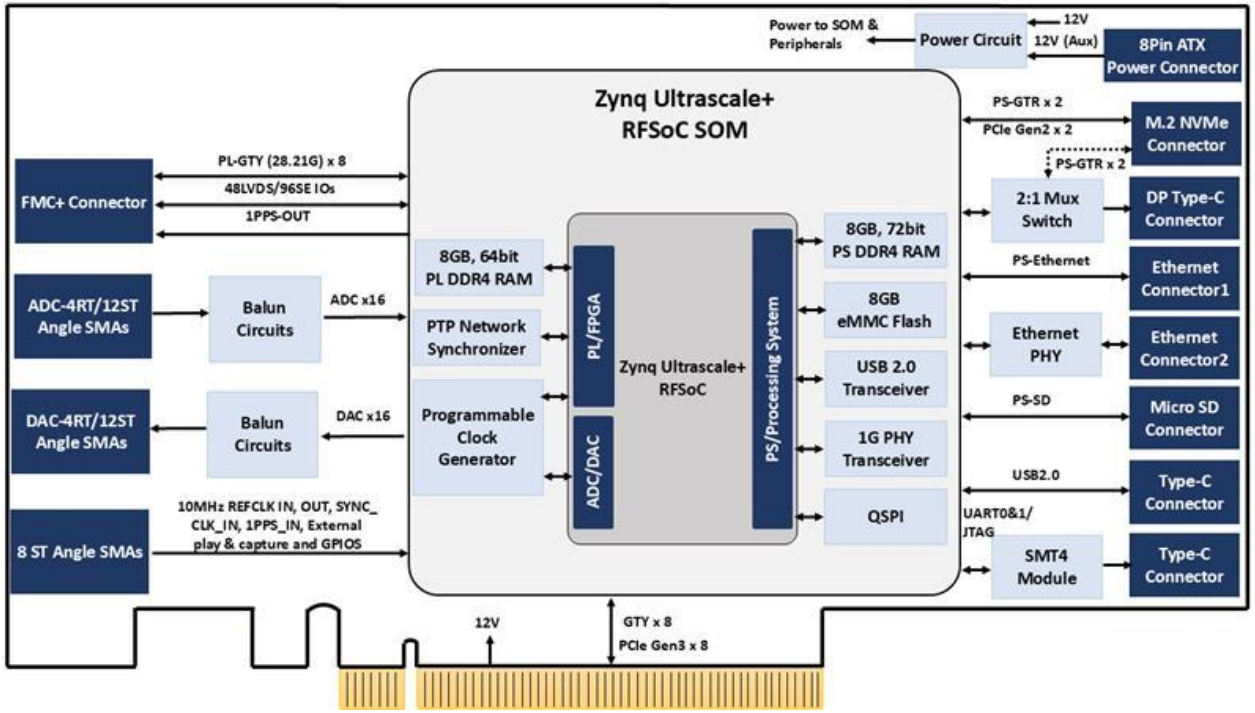
Product Highlights

- Zynq™ UltraScale+™ RFSoC family with FFVF1760 Package
- Compatible with ZU49/ZU39/ZU29 Devices
- 4 x Arm Cortex-A53 @1.3GHz, 2 x Arm Cortex-R5F @533MHz
- 8GB DDR4 for PS with ECC, 8GB DDR4 for PL, 32GB eMMC Flash
- 16 ADC Channels up to 2.5Gsps, Up to 16 Channel DAC up to 10Gsps
- Up to 930 Logic cells & 425K LUTs
- Dual 400 Pin Board to Board connectors
- Industrial grade SoM with form factor of 90mm x 100mm

Interfaces

- 4 x PS-GTR High-Speed Transceivers up to 6Gbps
- 16 x PL-GTY High-Speed Transceivers up to 28.21Gbps
- 94 LVDS/140 SE from HP Bank, 48 SE from HD Bank
- 1 x Gigabit Ethernet, 1 x USB 2.0 OTG
- 1 x CAN, 2 x I2C, 1 x SD, 2 x UART, JTAG Header, FAN Header
- 1 x RGMII / ULPI, 1 x Debug UART, 1 x Data UART
- 188 FPGA IOs

iG-G42P® / iG-G60P®: ADC & DAC RFSoC PCIe Card



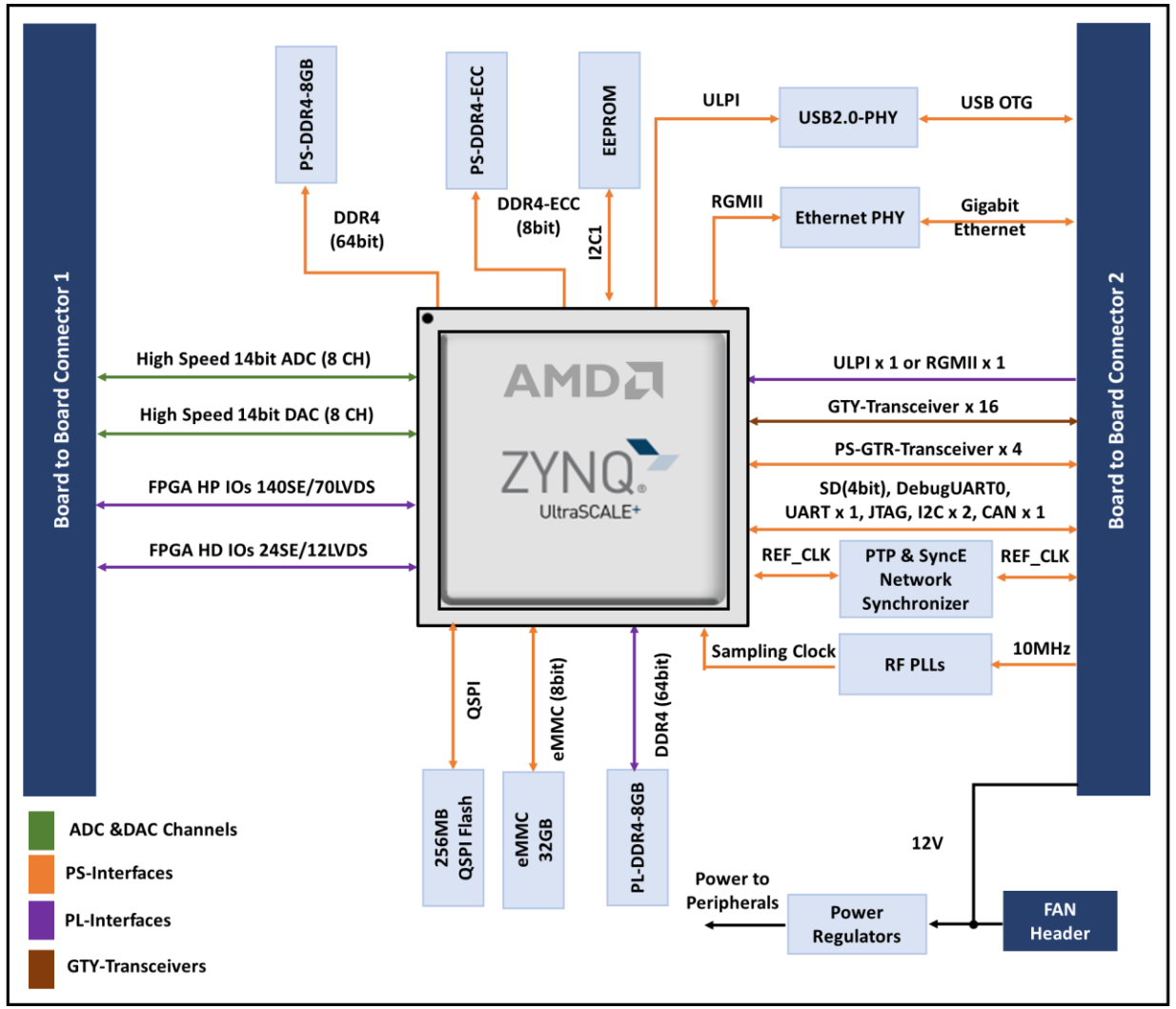
Product Highlights

- Compatible with AMD ZU48/47/43/28/27/25DR and ZU49/39/29DR Zynq™ UltraScale+™ RFSoC System on Modules
- 8GB, 64bit DDR4-2400 RAM with ECC for PS
- 8GB, 64bit DDR4-2666 RAM for PL (Expandable)
- Up to 16 DAC channels through SMA connector up to 10Gsps
- Up to 16 ADC channels through SMA connector up to 2.5Gsps
- 3/4 Length PCIe Gen3 x8 Host Interface
- Integrated ultra low-noise programmable RF PL

Interfaces

- PCIe Gen3 x8 Edge Connector
- FMC+ High serial Pin connector (HSPC) Connector
- RJ45 1GbE Ethernet Port on Back Panel from PS
- Display port through USB-Type-C connector from PS
- RTC Battery Holder
- Integrated JTAG Programming/Emulator Module
- USB Type C Debug Port on Front Panel for PS Debug, DATA UART & JTAG

iG-G60M®: ZU48/47/43/28/27/25DR RFSoC SoM



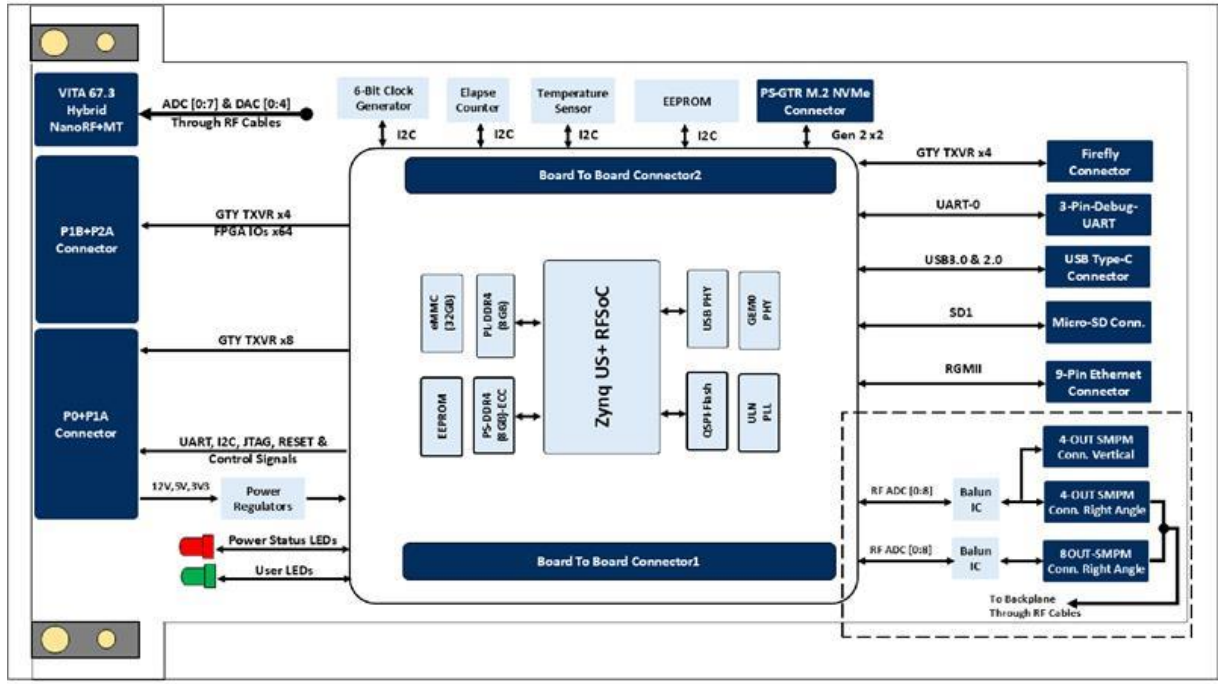
Product Highlights

- Zynq™ UltraScale+™ RFSoC family with FFVG1517 Package
- Compatible with ZU48/47/43/28/27/25DR Devices
- 4 x Arm Cortex-A53 @1.3GHz, 2 x Arm Cortex-R5F @533MHz
- 8GB DDR4 for PS with ECC, 8GB DDR4 for PL, 32GB eMMC Flash
- With integrated SD-FEC IP Block
- 8 ADC channels up to 5Gsps & 8 DAC Channels up to 9.85Gsps
- Up to 930 Logic cells & 425K LUTs
- Industrial grade SoM with form factor of 82mm x 100mm

Interfaces

- 16 x PL GTY High-Speed Transceivers up to 28.21Gbps
- 4 x PS GTR High-Speed Transceivers up to 6Gbps
- 82 LVDS/140 SE from HP Bank, 24 SE from HD Bank
- 1 x Gigabit Ethernet, 1 x RGMII, 1 x USB 2.0 OTG, 1 x SD
- 1 x CAN, 2 x I2C, 1 x PS JTAG, 1 x Data UART, 1 x Debug UART
- Dual 400 Pin Board to Board connectors
- FPGA IOs 169

iG-G60V®: ZU+ RFSoC RF 3U-VPX Plug-In Module



3U Slot Profile - SLT3-SWH-4F1U7U1J-14.8.7-n
3U Module Profile - MOD3-SWH-4F1U7U1J-16.8.7-n

Product Highlights

- Compatible with ZU48/ZU47/ZU43/ZU28/ZU27/ZU25DR Devices
- 64 bit, 8GB PS-DDR4 with 8-bit ECC
- NanoRF+MT Ferrule Hybrid Connector (P2B) based on VITA 67.3
- Vita 67.3 NanoRF Optical Hybrid Ferrule with 10 RF Channels and 100G Optical
- Integrated Ultra low noise programmable RF PLLs
- Ruggedized Conduction cooled
- Designed in alignment of SOSA Standard

Interfaces

- 3U VPX Connector - P0+P1A: Data Plane Port, Data Switch Port, Utility Plane
- 3U VPX Connector - P1B+P2A: Data Plane Port, Control Plane Port, Utility Port, Maintenance Port
- NanoRF +MT Ferrule Hybrid Connector
- USB3.0 & USB 2.0 through USB Type-C Connector x 1, 3-Pin Debug UART Header x 1
- 10/100/1000Mbps Ethernet x 1

Thank You

We are here to
Accelerate Embedded Innovation

mktg@iwave-global.com