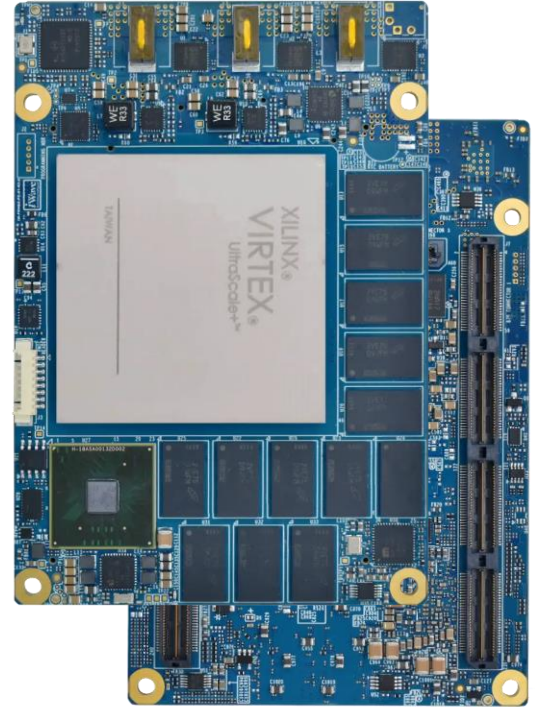


iG-G47M

Virtex UltraScale+ System on Module

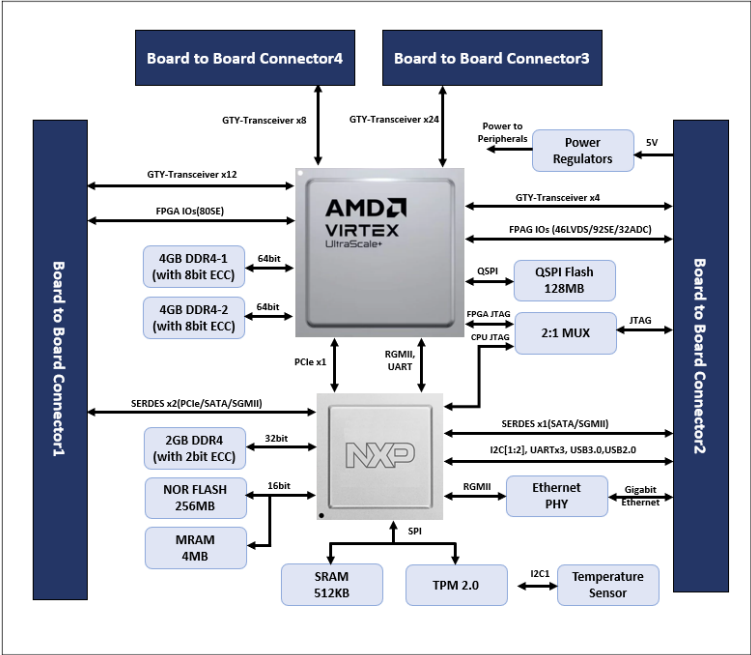
The Virtex UltraScale+ System-on-Module features AMD's Virtex UltraScale+ FPGA and NXP's dual ARM Cortex-A7 LS1021A processor for configuration and control. The module supports Virtex UltraScale+ VU13P/ VU11P/ VU9P/ VU7P/ VU5P and Virtex UltraScale VU080/ VU095/ VU125/ VU160/ VU190 FPGA SoC with B2104 package. The module comprises high-bandwidth DDR4 memory devices for both the FPGA and the processor. It brings out high-speed transceiver channels and high-performance I/Os through board-to-board connectors in a compact 110 mm × 75 mm form factor.



Highlights

- ❖ Virtex UltraScale+ FPGA with B2104 package
- ❖ System Logic cells up to 3,780K Logic cells and up to 3,456K Configurable Logic Blocks
- ❖ Dual ARM Cortex – A7 Core processor (Up to 1.2GHz)
- ❖ Dual 64bit, 4GB DDR4 with 8bit ECC for FPGA
- ❖ 32bit, 2GB DDR4 with 8bit ECC for CPU.
- ❖ Up to 48 GTY Transceiver and 172 FPGA I/Os
- ❖ Gen3 x16 Integrated PCIe block and 100G Ethernet MAC cores
- ❖ 10+ Years long term support

Block Diagram



Technical Specifications

SoC/ FPGA	• AMD's Virtex UltraScale+/ UltraScale FPGA with B2104 package • Compatible with VU13P/VU11P/VU9P/VU7P/ VU5P/VU080/VU095/VU125 /VU160/VU190 devices • System Logic cells up to 3,780K Logic cells and up to 3,456K Configurable Logic Blocks • Gen3 x16 Integrated PCIe block • 100G Ethernet MAC cores for high-speed connectivity	On SOM Features	• Gigabit Ethernet PHY Transceiver • TPM 2.0 Module • Temperature Sensor • Clock Synthesizer • Fan Header
CPU	• QorIQ LS1021A processor • Dual core Arm® Cortex®-A7 up to 1.2 GHz • 32 KB instruction and data L1 cache • Up to 512 KB coherent L2 cache	Board to Board Connector interfaces	From FPGA: • 48 GTY Transceiver channels up to 32Gbps • 46 LVDS/172SE FPGA Ios • FPGA JTAG x1 From CPU: • 2 SerDes lane for high-speed peripheral (PCIe/SATA/SGMII) • Gigabit Ethernet x 1 • USB2.0 x 1 • USB3.0 x 1 • UART x2 • I2C x 2 • JTAG x1
Memory	From FPGA: • Dual 64bit, 4GB DDR4 with 8bit ECC • 128MB QSPI Flash for FPGA From CPU: • 32bit, 2GB DDR4 with 8bit ECC • 512KB SRAM via SPI • 16bit, 256MB NOR Flash • 16bit, 4MB MRAM	OS Support	Linux 5.4.3 and Vivado 2024.2 or above
FPGA to CPU Interfaces	• RGMII x1 • UART x1 • PCIe x1 Gen2 (Optional)	Operating Temp.	-40°C to +85°C
		Form Factor	110mm x 75mm (OREN+)
		Power Input	5V input through B2B Connector
		Environment Spec.	REACH & RoHS3 Compliant

Ordering Information

iW-G47M-V13P-4E008GQ128M-LIG

Virtex UltraScale+ VU13P(-1I) FPGA (XCVU13P-1FHGB2104I) with Dual 4GB FPGA DDR4,128MB QSPI Flash and LS1021A CPU with 2GB DDR4, 256MB NOR Flash -SOM with Linux

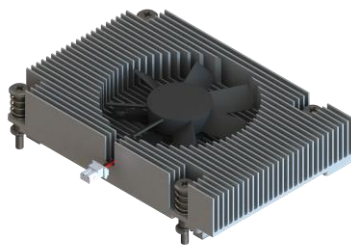
iW-G47M-V09P-4E008G-Q128M-LIF

Virtex UltraScale+ VU09P(-2I) FPGA (XCVU9P-2FLGB2104I) with Dual 4GB FPGA DDR4,128MB QSPI Flash and LS1021A CPU with 2GB DDR4, 256MB NOR Flash without MRAM -SOM with Linux

iW-G47M-V07P-4E008G-Q128M-LIF

Virtex UltraScale+ VU07P(-2I) FPGA (XCVU7P-2FLVB2104I) with Dual 4GB FPGA DDR4,128MB QSPI Flash and LS1021A CPU with 2GB DDR4, 256MB NOR Flash -SOM with Linux

Product accessories



Thermal Solutions

For a High-Power System on Module such as the Virtex UltraScale+ based SOM, thermal design is very important factor. iWave Supports Heat Sink Solutions for the SOM.

Applications

- High-Performance Compute Acceleration
- AI Inference and Machine Learning Acceleration
- Advanced Network Processing and Offload
- Next-Generation Wired Communication Systems
- 5G Baseband and Wireless Infrastructure
- Radar and Electronic Sensing Solutions
- Precision Test and Measurement Equipment
- Hardware Emulation and Rapid Prototyping

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.

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