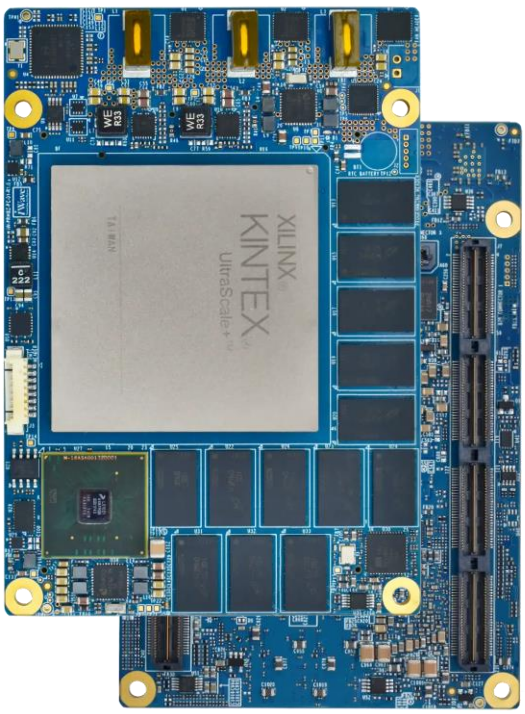
iG-G47M

Kintex UltraScale+ System on Module

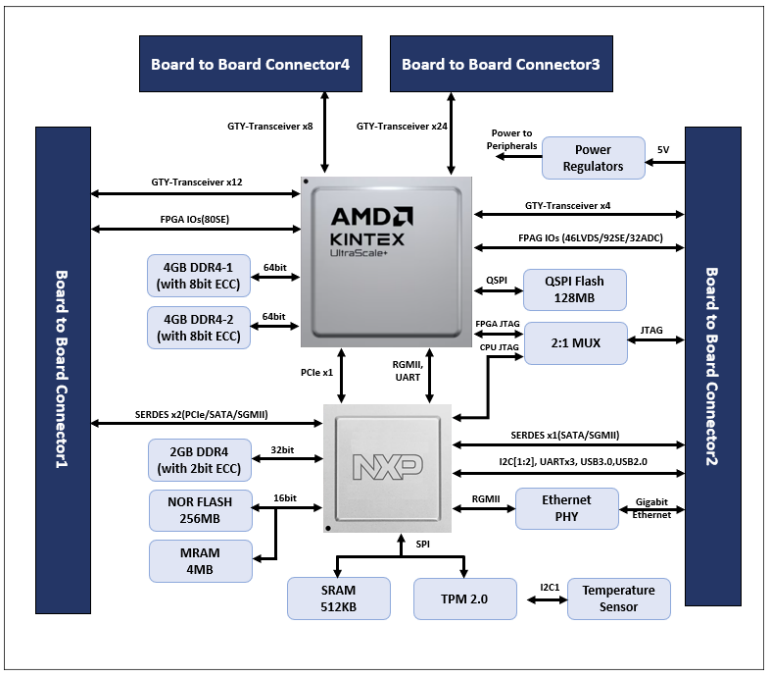


The Kintex UltraScale+ System-on-Module features AMD's Kintex UltraScale+ FPGA and NXP's dual ARM Cortex-A7 LS1021A processor for configuration and control. The module supports Kintex UltraScale+ KU19P and Kintex UltraScale KU095/ KU115 FPGA SoC with B2104 package. System Logic cells up to 1,843K Logic cells and up to 1,685K Configurable Logic Blocks. The module comprises high-density, high-bandwidth DDR4 memory devices for both the FPGA and the processor. It exposes high-speed transceiver channels and high-performance I/Os through board-to-board connectors in a compact 110 mm × 75 mm form factor.

Highlights

- Kintex UltraScale+ FPGA with B2104 package
- System Logic cells up to 1,843K Logic cells and up to 1,685K 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 IOs
- Gen4 x8, Gen3 x16 Integrated PCIe block and 100G Ethernet MAC cores
- 10+ Years long term support

Block Diagram



Technical Specifications

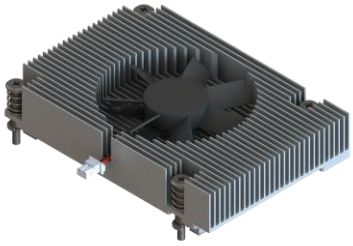
SoC/ FPGA	• AMD's Kintex UltraScale+/ UltraScale FPGA with B2104 package • Compatible with KU13P/KU095/KU115 devices • System Logic cells up to 1,843K Logic cells and up to 1,685K Configurable Logic Blocks • Gen4 x8, Gen3 x16 Integrated PCIe block • 100G Ethernet MAC cores for high-speed connectivity
CPU	• QorIQ LS1021A processor • Dual core Arm® Cortex®-A7 up to 1.2 GHz • 32 KB of instruction and data L1 cache • Up to 512 KB coherent L2 cache
Memory	**From FPGA:** • Dual 64bit, 4GB DDR4 with 8bit ECC • 128MB QSPI Flash **From CPU:** • 32bit DDR4 with 8bit ECC • 512KB SRAM via SPI • 16bit, 256MB NOR Flash • 16bit, 4MB MRAM
FPGA to CPU Interfaces	• RGMII x1 • UART x1 • PCIex1 Gen2 (Optional)

On SOM Features	• Gigabit Ethernet PHY Transceiver • TPM 2.0 Module • Temperature Sensor • Clock Synthesizer • Fan Header
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
OS Support	Linux 5.4.3 and Vivado 2024.2 or above
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-K19P-4E008G-Q128M-LIF	Kintex UltraScale+ KU19P(-2) FPGA (XCKU19P-2FFVB2104I) with Dual 4GB FPGA DDR4,128MB QSPI Flash and LS1021A CPU with 2GB DDR4, 256MB NOR Flash -SOM with Linux
iW-G47M-K095-4E008G-Q128M-LIF	Kintex UltraScale KU095(-2) FPGA (XCKU095-2FFVB2104I) with Dual 4GB FPGA DDR4,128MB QSPI Flash and LS1021A CPU with 2GB DDR4, 256MB NOR Flash - SOM with Linux
iW-G47M-K115-4E008G-Q128M-LIF	Kintex UltraScale KU115(-2) FPGA (XCKU115-2FLVB2104I) 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 Kintex UltraScale+ based SOM, thermal design is very important factor. iWave Supports Heat Sink Solutions for the SOM.

Applications

- **Data Center :**
  - High-Performance Network Acceleration
  - Storage and Data Processing Acceleration
- **Wired Communications :**
  - Passive Optical Network (PON) Access Systems
  - Optical Transport Network Equipment
- **Wireless Communications :**
  - Radio Unit (RU) Processing
  - Automated Machine Vision and Inspection
- **Industrial, Scientific & Medical :**
  - Advanced Medical Imaging Systems
  - Optical Transport Network

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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