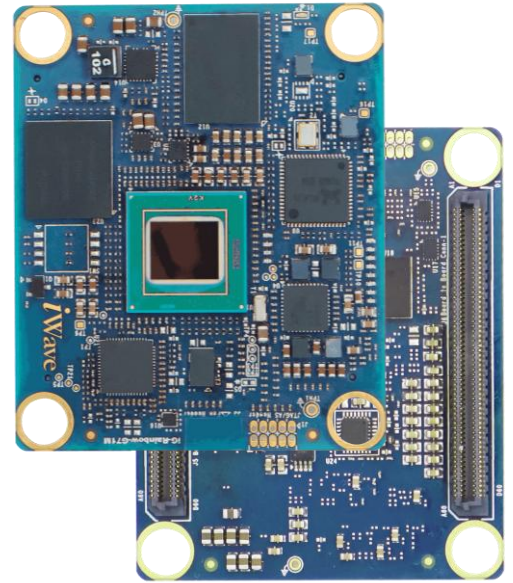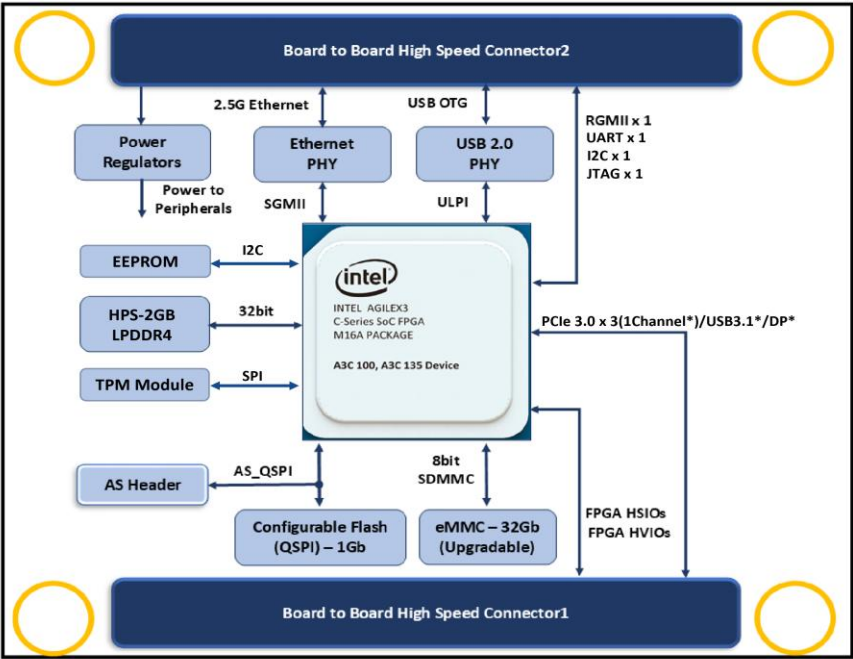# iG-RainboW-G71M

Agilex™ 3 SoC FPGA System on Module

The Altera Agilex™3 M16A SoC FPGA system-on-module combines dual-core Arm Cortex-A55 processors (up to 800MHz) with high-speed connectivity features including PCIe Gen3 and 12.5Gbps transceivers, all packed into a compact 50mm x 60mm form factor. Available in A3C 100 and A3C 135 variants, this module delivers powerful processing and flexible FPGA capabilities ideal for space-constrained applications requiring real-time performance and high-bandwidth connectivity.

Highlights

❖   Dual-core Arm Cortex-A55 Processor up to 800MHz.

❖   Up to 135K Logic cells

❖   HPS LPDDR4 - 32bit 2GB (Expandable up to 8GB)

❖   32GB eMMC (Expandable up to 128GB)

❖   1Gb QSPI Flash

❖   4 x Transceivers up to 12.5Gbps

❖   FPGA HSIO 60 pair/120SE IOs and 32 HVIOs

❖   10+ Years long term support

Block Diagram

Technical Specifications

CPU	• Compatible C-Series M16A Package Family • Group C: A3C 100/A3C 135 • Hard Processing System (HPS) • Dual-core Arm Cortex-A55 up to 800 MHz • Field Programmable Gate Array (FPGA) • Up to 135K Logic elements
Memory & Storage	• HPS LPDDR4 - 32bit 2GB (Expandable up to 8GB) • 32GB eMMC (Expandable up to 128GB) • 1Gb QSPI Flash • EEPROM
On SOM Features	• 2.5G Ethernet PHY Transceiver • USB2.0 ULPI Transceiver • TPM Module • Clock Synthesizer • JTAG Header • FAN Header
▪ Board to Board Connector Features	▪ 4 x GTS transceivers up to 12.5Gbps ▪ FPGA HSIO 60 pair/120SE IOs and 32 HVIOs

Board to Board Connector interfaces	**From HPS (Hard Processor System** • RGMII x 1 • USB2.0 OTG x 1 (through On-SoM USB2.0 transceiver) • Debug UART x 1 • I2C x 1 • SD x 1 (Optional) **From SDM (Secure Device Manager):** • JTAG x 1 • AS x 1 (Active Serial x 4) • AVST x 8 (Optional) **From HPS to FPGA:** • 2.5G Ethernet x 1 (through On-SoM Ethernet PHY) • USB 3.1 x 1(Optional) • I2C/I3C x 1
OS Support	Linux BSP for ARM Cortex
Operating Temp.	0°C to +85°C (Extended Grade)
Form Factor	60mm x 50mm (REN)
Power Input	5V input through B2B Connector
Environment Spec.	REACH & RoHS3 Compliant

Product accessories

Thermal Solutions

For a High-Power System on Module such as the Agilex 3 A3CW100 & A3CW135 based SOM, thermal design is very important factor. iWave Supports Heat Sink Solutions for the SOM.

Applications

- **Industrial :**
  - AI in Smart Factory
  - Smart Factory Automation
  - Sensors/motors/connectivity, functional safety, and security
  - I/O modules and IoT devices
  - Tiny PLC and Edge AI
- **Video Processing**
  - Connectivity and video processing
  - Video over IP
  - Consumer electronics (AR/VR, Drones, Gaming)
- **Medical**
  - Diagnostic imaging & video
  - Patient monitoring

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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