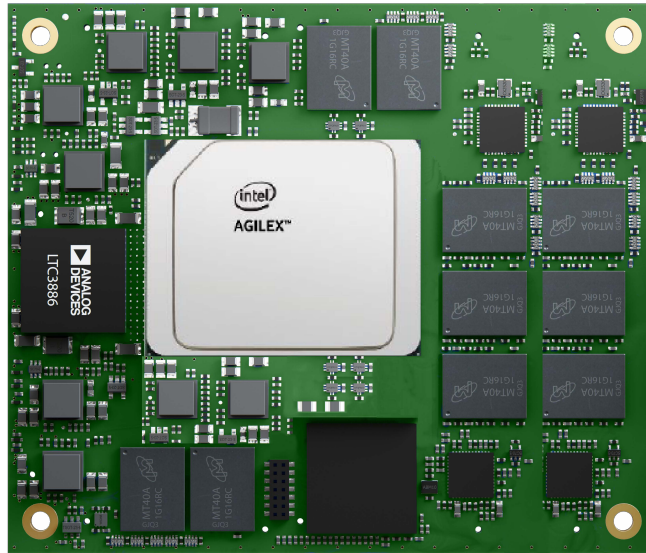
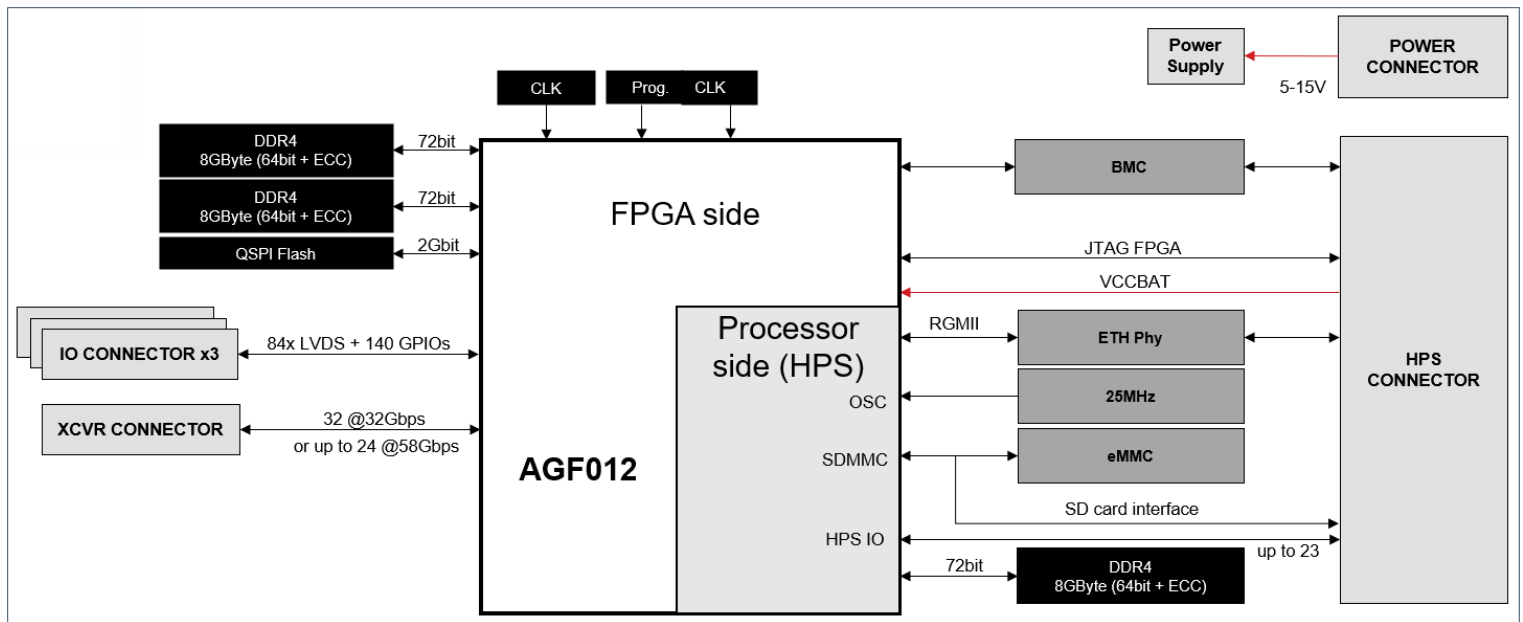


Ares Agilex™ 7 FPGA SoC F-Series System-on-Module



(Drawing view)



- Intel® Agilex™ 7 FPGA SoC F-Series
 - AGF012
 - PCIe Gen4 x4 Root Complex
 - PCIe Gen4 x16 End Point
 - Quad-Core ARM Cortex A-53

- 84x LVDS + 140 FPGA GPIOs
- 32 transceivers @32Gbps NRZ
OR up to
24 transceivers @58Gbps PAM4
 - Industrial Temp Grade
 - Long Term Supply

- Bioscience
- High Precision Measurement
 - Radar Systems
 - Electronic Warfare
 - "Customizable"

Features	Ares Agilex™ 7 FPGA SoC F-Series	
FPGA SoC	Agilex™ 7 FPGA SoC F-Series AGF012, AGFB012R24C2I2V, R24C package 1178 KLE, M20K 110Mbit, 3743 DSP Blocks Quad Core Arm Cortex-A53 up to 1.43GHz Transceiver speed grade 2, Core speed grade 2 Industrial Temp Grade	
DDR4 Memory	3 banks DDR4, 24 Gbyte total	HPS= 1 bank DDR4 x72bit bus, 8GByte, @2666MT/s
		FPGA= 2 banks DDR4 x72bit bus, 8GByte each, @2666MT/s
Connectors	Transceiver Mezzanine Connector	32 transceivers @32Gbps NRZ OR up to 24 transceivers @58Gbps PAM4 (example: 16 transceivers @32Gbps NRZ + 16 @58Gbps PAM4)
	IO Mezzanine Connector	LVDS = 42 RX pairs and 42 TX pairs @1400Mbps FPGA GPIOs = 140 HPS IO = up to 23 depending used interfaces
FPGA Configuration	2Gbit Quad SPI Flash (store up to 2 images)	
Software Configuration	128Gbyte NAND Flash eMMC (Stores U-Boot, Linux Kernel, and RootFS) (SD Card support on the carrier board)	
HPS Communication	1GbE RGMII, I2C, UART, USB 2.0 OTG, SPI slave and master, HPS IO	
Mechanical & Environmental Specification	Module rugged for shocks and high vibration IEC/EN61000 (EMI immunity), EN61000 + EN55032 (EMI emission), EN60068 (Vibration: sinusoidal, 10Hz - 2KHz, +/- 0.15mm, 2g ; Shock: half-sinusoidal, 11ms, 15g) 5-15V Power Input Industrial temperature grade -40°C to +70°C (to be qualified)	
Power & Dissipation	Typ 113W, active airflow cooling (heat spreader + heatsink + fan) fan noise < 50dB	
Board Management Controller	Communication with Carrier board: I2C, PWM, JTAG Communication with FPGA : 1x UART to FPGA Monitoring : Current, voltages, temperature, ID information Programming : Clock Control: Power, temperature protection, Fans	
Module dimensions	TBC: 107mm x 85mm (4.2 x 3.4 inches) 12mm+ thickness (38.6mm with active heatsink and heat spreader)	
Deliverables	<ul style="list-style-type: none"> • Ares module & its active heatsink system • Board Support Package (to download from our online technical support) after purchase of a module and its carrier board: Starter Guide, module and carrier board Reference Manuals, Interconnect pinout file Mechanical drawings, assembly files FPGA GHRD/GSRD Test Designs by interface (Quartus Prime Pro Edition 22.4) BMC Software API HPS Software: -- Built with Yocto Project version 4.1 (langdale) -- U-Boot bootloader (v2022.07), ATF Linux kernel (v5.15) and linux Poky distribution • 1-year technical support and 1-year warranty • Online support at support.reflexces.com (after purchase of a kit) 	
Ordering Information	RXCAGF012PR24-SOM001 Availability: Samples End Q4-2023	
MOTS = Modified version on request	<ul style="list-style-type: none"> • Pin compatible from 800KLE (AGF008) up to 2.7MLE (AGF027) • Conformal coating (option on request) • Custom heatsink system (option on request) • Contact sales for customization 	

Related products

Carrier board = Flyer to come June 2023