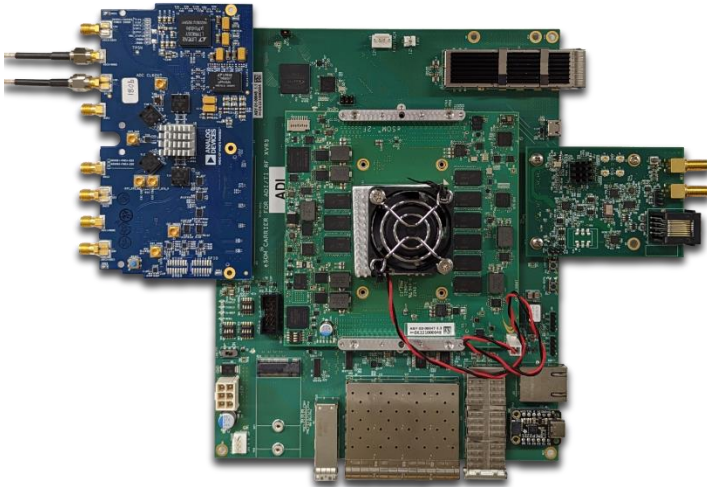




Agilex eSOM7 Wideband Wireless Development Platform Analog Devices (ADI)

Supported ADI Development Kits

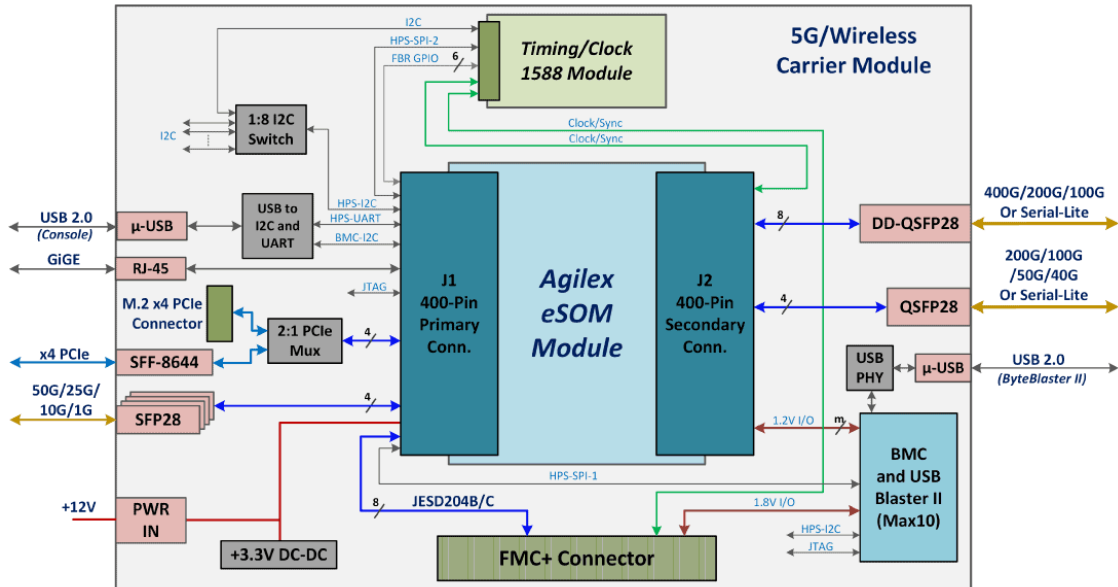
- AD9081, AD9082, AD9986, AD9988 MxFE
- AD9081, AD9082, AD9986, AD9988 MxFE



The Agilex eSOM7 5G/Wireless development platform provides a quick evaluation and prototyping platform for 5G ORAN and wireless solutions based on the Intel's latest high performance 10nm Agilex F-Series FPGAs. The development platform consists of two modules, an Agilex 7 F-Series FPGA based eSOM7 (embedded System On Module) board with two 400-pin high speed mezzanine connectors and a carrier board which implements breakout of the FPGA serdes and I/Os. The carrier module provides a VITA57.4 FMC+ connector with level translation and control logic to interface with ADI wide channel bandwidth Mixed-Signal Front Ends (MxFE), ADC and DAC evaluation boards.

Features

- Compact 8.5" x 7.0" carrier for Agilex eSOM7 FPGA module
- Supports interchangeable eSOMs with different Agilex devices; primarily designed for Agilex 7 series FPGAs with 1x and 2x F-Tiles
- Designed to provide End-to-End connectivity for 5G, Wireless and Satellite-Hub developments
- VITA57.4 FMC+ connector for RF transceiver evaluation modules
- 8 Serdes lanes up to 32 Gbps for JESD204B/C connectivity
- JESD clocks and SYSREF signals mapped to FPGA's true LVDS IOs
- Control, configuration and I/O with level translation mapped through Max10 CPLD on carrier to support targeted evaluation modules
- Network interface connectors
 - 4 x SFP28 connectors with support for 10G/25G/50G Ethernet and eCPRI interfaces
 - One QSFP28 4 QSFP28 connector for networking up to 200G Ethernet
 - One QSFP-DD connector for high performance networking up to 400G Ethernet
- Selectable x4 Gen4 (16Gbps) PCIe Gen4 interface
 - SFF-8644 connector for x4 PCIe target to Agilex FPGA
 - x4 PCIe master interface through a M.2 connector
- Resistor steering based highly configurable carrier clocking network
- Integrated USB Blaster II debug interface through micro-USB connector
- 50-pin connector for network synchronizer and interface expansion modules
 - Signals mapped to eSOM HPS to support SPI, I2C and UART interfaces
 - Differential clock and synchronization signals to support PTP/1588 and SYNCE based network synchronization including JESD 204B/C clock generation
- Processor and debug interfaces
 - HPS Ethernet 1000Base-T via RJ45 connector
 - HPS UART and BMC I2C to the USB2.0 connector via USB to UART+I2C bridge
 - HPS I2C to the carrier I2C expansion switch and carrier CPLD
 - HPS master SPI to the carrier CPLD with support for FMC+ SPI expansion
- 6-pin ATX connector for +12V power input



eSOM Wireless Platform Block Diagram

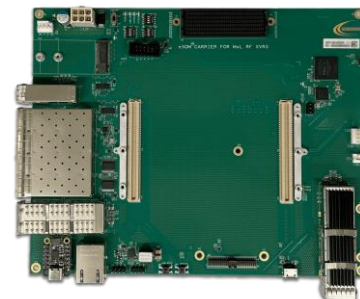
eSOM7-2F Features

- Agilex 7 F-series 24C package FPGA with 2x F-tiles
- Supported FPGAs: 027/022 and 014/012
- Onboard FPGA fabric memory: 2 banks of 72-bit 4/8GB DDR4 memories, 2GB SDM QSPI for FPGA image
- On board HPS memory: 72-bit 4/8GB component DDR4 memory, 16/32GB eMMC and μSD card debug slot
- Two 400 pin connectors (Primary and secondary)
- Primary Connector (J1)
 - F-Tile based Serdes interface; 16 NRZ (32Gbps) or 12 PAM4 (58.125Gbps) transceivers
 - HPS Interfaces: Ethernet (1000Base-T/MDI), USB 2.0 host, UART, I2C and SPI
 - BMC Interfaces: UART, I2C, board control I/O
 - Single +12V power input the module
- Secondary Connector (J2)
 - F-Tile based Serdes interface; 16 NRZ (32Gbps) or 12 PAM4 (58.125Gbps) transceivers
 - Fabric side true-differential (LVDS), 1.2V differential, 1.2V single-ended GPIO for control, interface and clock management
- Debug support: FPGA JTAG access, console access to HPS, UART and I2C interfaces to BMC FPGA, extensive temperature and voltage sensors for board telemetry
- Up to 120A core rail supply using multi-phase controller and DrMOS power stages

Platform Boards



[Agilex eSOM7-2F](#)



[eSOM ADI Carrier](#)

Optional Add-Ons



[Skyworks Si5518](#)

[Renesas RC38612](#)

