

Intel Agilex 5 Compact Embedded SOM (eSOM5C-Ex)

Features

- Agilex 5 E series group A and Group B FPGAs in B32 package with up to 24 XCVRs
- Supports multiple density devices in the package: **A5E065A/B, A5E043A/B and A5E043A/B**
- One 400-pin, **K-2 socket** mezzanine connector
- Up to 24 transceivers, 28G(A) or 17G(B) NRZ
- Up to 42 SE 1.2V and 12 true-diff LVDS I/Os
- Dual core ARM A76 and Dual core A55 processing complex with Ethernet, USB3.1/USB2.0, UART, SPI, I3C/I2C interfaces and I/Os
- Option for integrated Skyworks Si1518 timing synchronizer based PTP/1588 with JESD clocking
- Max10 Board Module Controller (BMC)
- **Industrial temp design, -40C to 85C**
- Compact 110mm x 82.5mm form factor

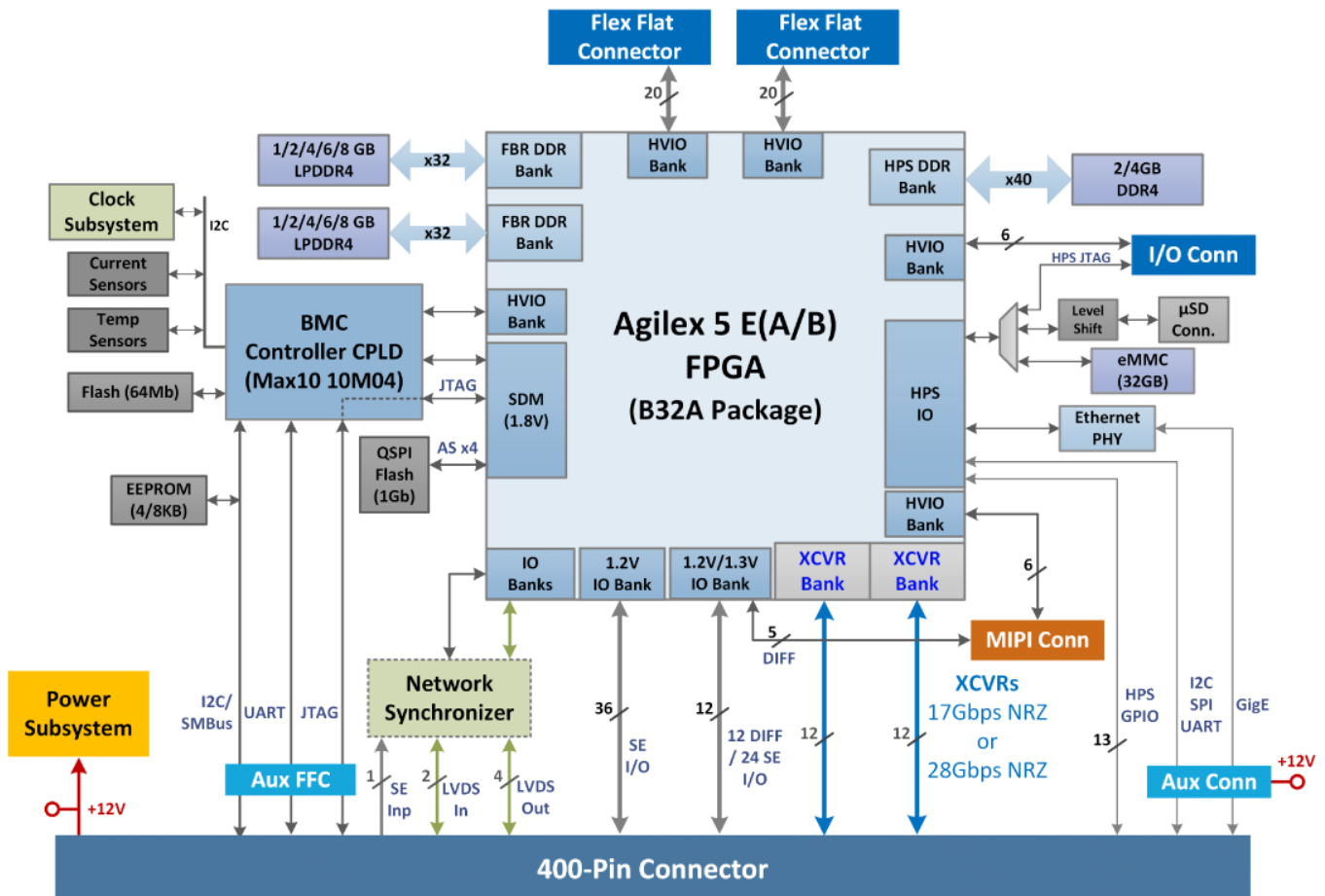


Ready-to-Deploy SOM for low power, low cost FPGA enabled embedded and Edge designs

Intel 7 technology based Agilex 5 Series FPGA based compact embedded SOM (eSOM™) module for embedded, edge AI/ML processing, wireless communication and networking centric designs. Designed for broad range of applications that require high performance, lower power consumption and smaller form factor. Highly flexible interface and clocking architecture with option for high performance integrated network synchronizer. *Drop in compatible with eSOM7C-xF, Hitek's Agilex7 F-Series SOM with single and dual F-Tiles.*

Target Markets

- 5G/ORAN and Satcom wireless systems
- Embedded high performance edge AI/ML systems
- Edge AI/ML image and signal processing
- 100G/50G/40G/25G/10G networking platforms



Carrier module connections

- Up to 24 17Gbps or 28Gbps transceivers
- Up to 42 SE fabric 1.2V single ended I/Os
- 12 fabric true-differential (LVDS) signals
- Reference clock inputs and outputs from on-board Skyworks Si5518 network synchronizer
- HPS Interfaces: Ethernet (1000BASE-T/MDI), UART, I2C, SPI and 13 configureable I/Os
- BMC interfaces: UART, I2C, board and carrier management I/Os
- JTAG debug interface

On-Board Connectors

- 30pin connector for MIPI D-PHY v2.5
- 2 flat-flex cable connectors, each with 20 SE high voltage 1.8V/2.5V/3.3V
- Auxiliary interface and FFC for low cost carrier

HPS interfaces

- 2/4GB DDR4 42-bit chip-down SDRAM
- 32GB onboard eMMC and μSD debug slot
- 1000Base-T Ethernet and I2C interfaces to
- Additional SPI, I2C and USB 3.1/2.0 (via PHY on carrier module)

FPGA fabric interfaces

- Two banks of 1/2/4/6/8GB 32-bit LPDDR4
- 1Gb micron SDM QSPI flash for FPGA image

Clocking and Synchronization

- Flexible low phase noise on-board clocking via Skyworks clock synthesizer
- Option for integrated Skyworks Si5518 network synchronizer

Power Rails and cooling

- Single +12V power input from carrier module
- High performance power tree
- Up to 40A of core power rail

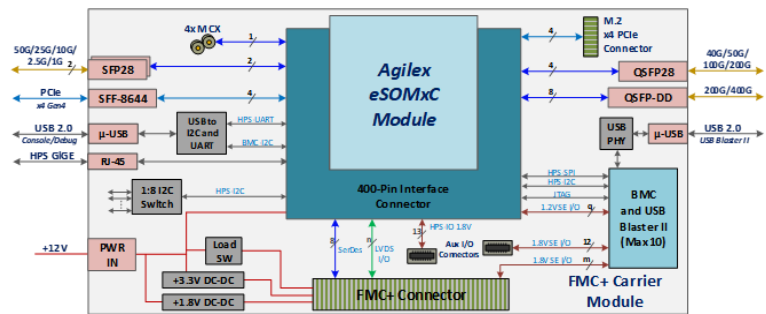
Debug and monitoring interfaces

- JTAG interface from Carrier module
- UART console access to the HPS and BMC
- I2C monitor access to BMC
- Extensive voltage, current and temperature telemetry support

BSP and design support

- Complete Linux BSP support package
- Comprehensive APIs for board management
- Quartus reference projects
- Carrier boards design guide for custom carrier designs

FMC+ 5G/RAN Development Carrier Module for JESD204B/C RF transceivers



- x8 SERDES to the FMC+ connector for JESD204B/C or other network/video interface; up to 28Gbps
- Onboard control and I/O conditioning for interface to high performance FMC/FMC+ RF transceiver development boards from **ADI and TI**
- 2 x SFP28 connectors for 10G/25G Ethernet/eCPRI
- 1 Serdes lane routed to MCX connectors
- One QSFP28 connector; up to 100G Ethernet
- One QSFP-DD connector (4 lanes only) up to 100G Ethernet
- SFF-8644 connector for x1 Gen4 PCIe target
- M.2 connector for x4 Gen4 PCIe root port
- 1000Base-T Ethernet HPS Ethernet and USB console interface
- USB interface for integrated USB-Blaster II
- 20-pin connectors for HPS and fabric I/O signals
- Reference clock input and output interfaces
- 12V power from standard ATX PCIe connector

Links

<https://hiteksys.com/fpga-and-soc-development-boards/intel/agilex-esom5c-ex>

Product Ordering Codes

AG-eSOM5C-EB8-02-01:: AG5 E-Series, B group, 065 Density, ES R0 FPGA, quad core HPS, -5S speed, extended temp, 1GB HPS DDR4, 16GB eMMC 2 banks of 1GB LPDDR4, no network synchronizer support
Contact sales for other configurations, MOQ applies

For sales or more information:



Hitek Systems LLC

Phone: +1-301-528-8074

Email: sales@hiteksys.com