

SPARK-100

Altera Cyclone® V-based System on Module

→ Focus on your product IP with a ready to use SOM

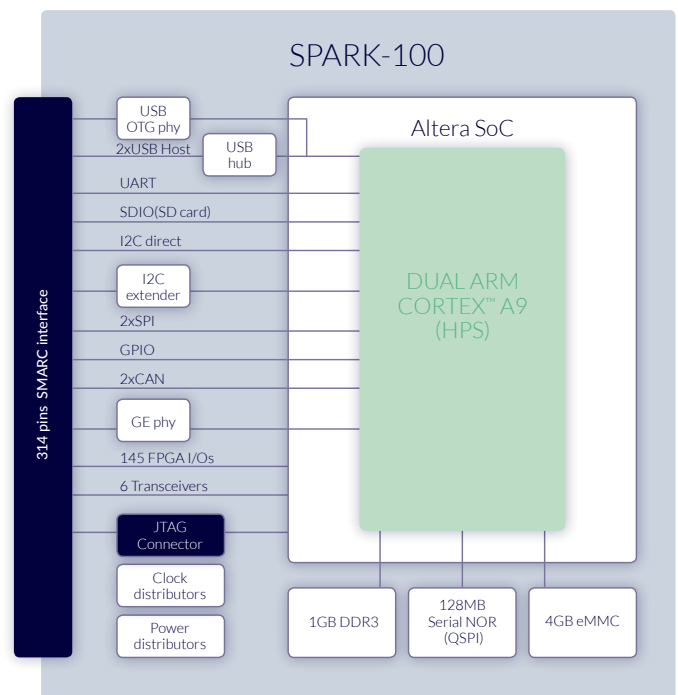
Ready to use full featured ARM environment

Complete FPGA configurability including I/O, clocks and power options

Standard SMARC® connector



→ BLOCK DIAGRAM



→ The Spark-100 is a ready to use industrial embedded System-On-Module (SoM) based on Altera Cyclone® V SOC. The SOC integrates a dual-core ARM Cortex®-A9 processor (HPS), peripherals and memory controllers with a large FPGA fabric.

Using the FPGA's configurable logic, the Spark enables unlimited possibilities to add customized accelerators and virtually any peripheral set, giving the developer the power and flexibility to design the optimal solution for his application.

ARM and FPGA signals are routed to the SMARC® interface as per standard definitions, yet FPGA interfaces can be freely configured according to user application. The SOM has a single 5V input with all power sequencing done internally, developers can set the FPGA's I/O voltage to any required voltage supported by the SOC. The device has a comprehensive clocking mechanism, including a built-in clock distribution mechanism.

Spark-100 uses a standard SMARC® interface, which is supported by key industry vendors, offering compatibility with other vendor's platforms.

SPARK-100

Altera Cyclone® V-based System on Module

MAIN FEATURES

GENERAL

- Based on Altera CycloneV SoC, U672 package

PROCESSOR (HPS)

- Single or dual Cortex A9 @ 800/925MHZ
- Per core:
 - NEON™ SIMD coprocessor
 - Floating Point Unit VFPv3
- Connectivity between ARM and FPGA
 - Three AXI bridges for high speed connectivity between FPGA and ARM

MEMORY

- 1G DDR3, 32bits wide @400Mhz, expandable to 2GB with optional ECC
- 32MB NOR Flash
- 4GB eMMC

HPS CONNECTIVITY

- 1G Ethernet with built-in PHY
- Two USB V2.0 Host or single USB OTG port
- SD Card interface
- Four I2C buses
- Up to 2 USART ports (TX, Rx, CTS, RTS)
- Up to two SPI buses
- Up to two CAN interfaces
- GPIOs

DEBUG

- On board JTAG interface for byte blaster

FPGA CAPABILITIES

- From 25KLE and up to 110KLE
- 145 I/Os
- 6x3.125G transceivers
- Configurable I/O bank voltage
- Enhanced built in clock distribution
- Support for external 16 bits wide DDR3
- PCIe Gen1 x1 and x4

POWER

- Single input power 5V

MECHANICAL

Standard SMARC form factor:

- Dimensions: 82mm x 50mm (3.22 x 1.96 inch)
- 314 pin edge connector

OS SUPPORT

- Linux distribution

CARRIER BOARD

- CB-52
- Kontron SMARC™ Evaluation Carrier - 51100

CB-52A carrier board

The CB-52A is a full-featured development board for the Shiratech Spark-100, with an emphasis on. It provides extensive connectivity to both HPS and FPGA, with built in networking and connectivity interfaces along with an HSMC slot for expansion modules. Quick start up with pre loaded Linux software as well as sample FPGA firmware for the available interfaces. CB-52A schematics can be used free of charge for reference design. The device can be used also as a complete platform to be integrated in your device.

