The Avalanche Development Kit allows developers to quickly prototype for the lowest power mid-range FPGA platform in the market. At the heart of the kit is a 300k LE (logic element) PolarFire non-volatile FPGA from Microchip. The PolarFire FPGA family is a cost optimized, lowest power mid-range density FPGA family with proven security and exceptional reliability.

The Avalanche Kit is loaded with several key components including the Panasonic WIFI module PAN9420, 64 Mb of User Serial Flash, 4Gb DDR3 Synchronous DRAM, VSC8531 Gigabit Ethernet PHY, Embedded FlashPro5 and UART for USB programming on the MPF300TS. In addition, there is a 6-channel, Delta Sigma Analog to Digital Converter, push buttons and LEDs.

Coupled to the PolarFire FPGA are 3 industry-leading interface standards to enable developers to implement virtually any design they can imagine:

I - Arduino™ shield
II - mikroBUS™ socket
III - PMOD™ Connector/Interface

There are hundreds, if not thousands, of peripherals that can be connected to the Avalanche Kit. Developers can work with all kind sensors, drivers, displays, wireless modules, etc.

The Avalanche board also offers SerDes channels for development purposes.

**Board Components**

The following key components are found on the Microchip Avalanche Board.

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Software Installation

Tools are available for download at https://www.microsemi.com/product-directory/design-resources/1750-libero-soc#downloads. You can download either Windows or Linux Libero SoC development software. Following are instructions for Windows:

- Download and install the latest revision of Libero SoC (and Service Packs) by following Libero SoC – InstallShield Wizard

License Installation

In order to run Libero SoC, you must first request then install a license.

- A Gold license is required to program the PolarFire Avalanche Kit. A Software ID letter enclosed with the kit contains Software ID and instructions on how to generate a Libero Gold license.
- After you register the SWID, your license will arrive by email
- To install a Node Locked disk ID license in Windows, add or update your LM_LICENSE_FILE environment variable so it points to the new License.dat file by following the instruction found in: https://www.microsemi.com/document-portal/doc_download/131602-libero-software-installation-and-licensing-guide

To get schematics, guides, example code, etc., please download from the Product Page of Microchip Avalanche Kit on https://github.com/Future-Electronics-Design-Center/Avalanche-Eval-Board

The Out-of-The-Box demo based on RISC-V architecture for the Avalanche Development Board

This demo uses the RISC-V soft core processor and requires a Terminal (ie. PuTTY) to interact with it.

Upon board power-up, the LED 2 Green will start blinking like a heartbeat at around 2 Hz frequency.

Press Switch 1 to activate / deactivate the Morse code emitter.
- Upon activation, the message “Morse Emitter on!” will be received on your terminal. From that point, any character typed in the Terminal window will be converted in Morse and blinked by LED 1 Red on the board.
- When deactivated, Terminal input will be ignored.

Press Switch 2 to activate the Built-In Test routine
- Different tests will be launch in succession to test different parts of the board (LEDs, DDR3, etc.) and results will be displayed on the Terminal window. The heartbeat of LED 2 Green will be interrupted during the BIT process.

Tips:

Make sure you can see “FlashPro5 Port” under the Ports section in Windows Device Manager. Take note of the COM port assigned to the device. In your Terminal, use a Serial connection at Speed:115200/8/1 with Parity: None and Flow Control: None.