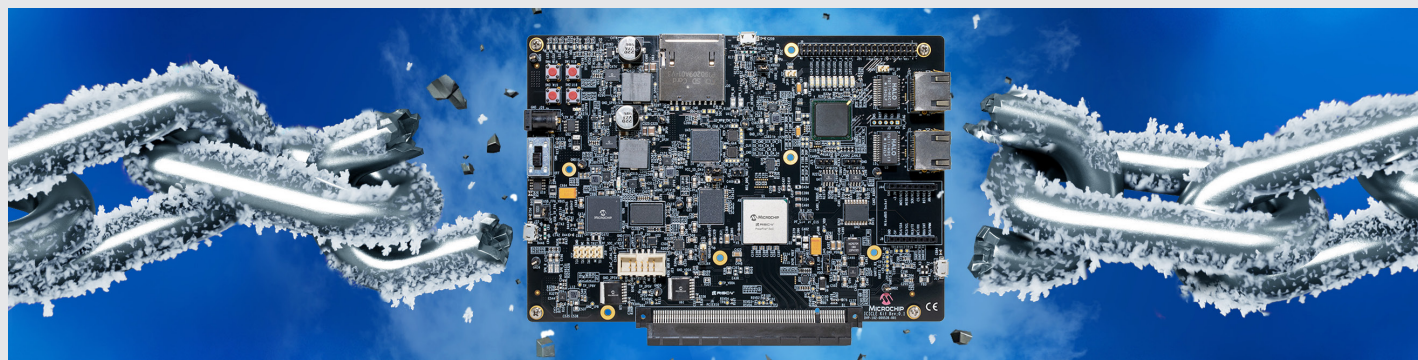# PolarFire® SoC Icicle Kit

PolarFire® SoC Icicle Kit is the Development Platform for the Industry's First RISC-V Based SoC FPGA

Summary

The PolarFire SoC Icicle kit is a low-cost and low power development platform that enables evaluation of the five-core Linux® capable RISC-V microprocessor subsystem, innovative Linux and real-time execution, low-power capabilities and the rich set of peripherals of the PolarFire SoC FPGA.
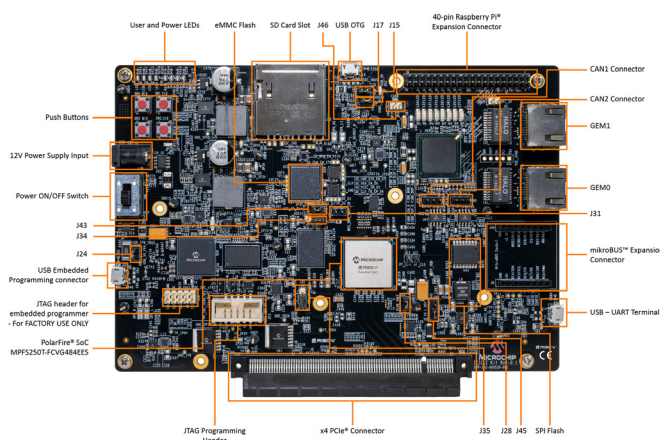
PolarFire SoC is ideally suited for secure, reliable and power-efficient compute across a wide range of applications including Imaging, AI/ML, industrial automation, IoT, wireline access networks, aerospace and defense & automotive.

The PolarFire SoC Icicle kit opens up access to a standard product that embeds RISC-V technology and is available commercially. The PolarFire SoC FPGA family delivers an unparalleled combination of low power consumption, thermal efficient and defense grade security for smart, connected systems. With Asymmetric Multi-Processing (AMP), it delivers Linux and deterministic real time performance.

Key Features and Specifications

- PolarFire SoC (MPFS250T-FCVG484EES) with 1× RV64I-MAC core and 4× RV64GC cores by SiFive, 4× 12.7 Gbps SERDES ad Secure boot
- Memory and Storage
  - 2 GB LPDDR4 × 32
  - 1 Gb SPI Flash
  - 8 GB eMMC Flash or SD card slot (multiplexed)
- Interfaces
  - 2× Gigabit Ethernet
  - Raspberry Pi-compatible 40-pin header
  - mikroBUS socket
  - PCIe® Gen 2, Micro USB 2.0 Hi-Speed OTG, 4× UART (via single micro USB), 2× CAN, SPI, I²C
- Programming and Debugging
  - UART via micro USB
  - Onboard JTAG connector or embedded FlashPro6 (multiplexed)
  - 52× test points

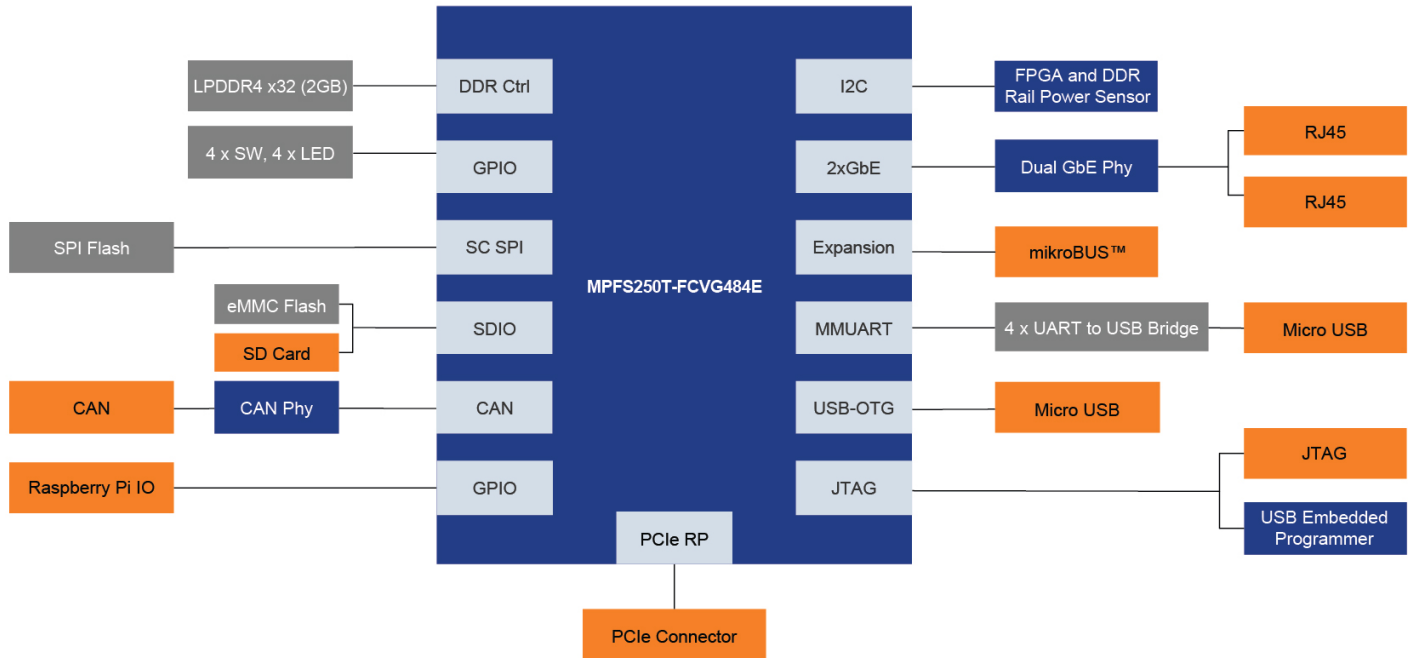## PolarFire SoC Icicle Kit

MICROCHIP

Kit Contents

- PolarFire SoC MPFS250T-FCVG484EES Icicle Board
- Ethernet Cable
- Micro USB cable
- 12V, 5A AC power adapter and cord
- Quickstart card

Kit Name	Part number
PolarFire SoC Icicle Kit	MPFS-ICICLE-KIT-ES

For more information on the PolarFire SoC Icicle kit, visit
microchip.com

PolarFire SoC Icicle Kit Block Diagram

MICROCHIP