CAN *Newsletter Online*

MI-V ECOSYSTEM

SoC FPGA development kit based on Risc-V

Microchip's Icicle development kit for Polarfire SoC (system-on-chip) FPGAs brings together numerous Mi-V partners to accelerate customer design deployment and commercial adoption across industries. The kit comes wit a CAN connector.

(Source: Microchip)

The rising adoption of the free and open Risc-V Instruction Set Architecture (ISA) is driving the need for a standardized development platform that embeds Risc-V technology and leverages the diverse Risc-V ecosystem. To meet this need, Microchip Technology is offering a Risc-V-based system-on-chip field-programmable gate array (FPGA) development kit for Polarfire SoC FPGA. Microchip's Icicle development kit for Polarfire brings together numerous Mi-V partners to accelerate customer design deployment and commercial adoption across a variety of industries.

Designers who want to deploy a programmable RIisc-V-based SOC FPGA are now able to start development and evaluate the broad network of Risc-V ecosystem products such as real-time operating systems (RTOS), debuggers, compilers, system on modules (SOMs), and security solutions. The Mi-V Risc-V partner ecosystem is a suite of tools and design resources developed by Microchip and numerous third parties to fully support Risc-V designs.

The Icicle Kit is centered around a 250 000 Logic Element (LE) Polarfire SoC device and includes a CAN connector. Additionally, to the CAN connector it provides a PCIe connector, Mikrobus socket, dual RJ45 connector, Micro-USB connector, Raspberry Pi header, JTAG port, and SD card interfaces, which allow developers a platform for development. The board is supported by the company's power management and clocking devices, an Ethernet PHY (VSC8662XIC), USB controller (USB3340-EZK-TR), and current sensors (PAC1934T-I/JQ).

The FPGA family is available in a variety of packages and sizes to match the performance and power tradeoffs for the application, enabling customers to implement their solutions in package sizes as small as 11 mm × 11 mm. The Kit for is suited for embedded imaging, IoT (Internet of Things), industrial automation, defense, automotive, and communication applications.

"Microchip is enabling an unprecedented transformation in processor design as the market embraces Risc-V software and silicon," said Bruce Weyer, vice president of the field-programmable gate array business unit at the company. "We are removing barriers to entry through a low-cost evaluation platform that will give embedded engineers, software designers, and hardware developers a vehicle to implement designs that leverage the benefits of the open Risc-V ISA combined with Microchip's best-in-class form factors, thermals, and low-power characteristics of Polarfire SoC FPGAs."

"It's exciting to see a low-power Risc-V board for under $500," said David Patterson, vice-chair of the Risc-V International board of directors and 2017 Turing Award winner. "Microchip's Icicle kit, with an embedded Polarfire SoC, will accelerate advances in the Risc-V software ecosystem and be a boon to applications that need a low-power mid-range SoC FPGA."

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