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Renode - a flexible simulator for CI in complex embedded systems

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Renode is an instruction set simulator with a flexible platform definition language and plug-and-play SoC component library that can be used to compose virtual hardware setups. It allows users to simulate complex systems, including multi-node wired and wireless networked systems, offering automated testing and rich debugging capabilities. It includes support of numerous development boards, SoCs, CPUs and peripherals, as well as provides a number of other features such as Verilator co-simulation, state saving and loading, event hooks, performance metrics and detailed logs, allowing the user to perform architecture exploration as well as prototyping, development and testing of complex systems.

Renode enables development with and around Linux through its support of various architectures and configurations, such as RISC-V, Arm and the recently added POWER ISA. RISC-V, with the weight of the open hardware movement behind it, is actively supported in Renode which offers demos and definitions for a variety of platforms, including Linux capable ones like Kendryte, LiteX/VexRiscv, HiFive Unleashed and PolarFire SoC. The recently released Renode 1.10 comes with support for the RISC-V flagship PolarFire SoC Icicle Kit - the first mass-produced Linux-capable RISC-V implementation. We are going to show how you can run an unmodified Yocto-based Linux BSP on top of a virtual Icicle board, even if you don't have access to a real one yet.

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Primary author: GIELDA, Michael (Antmicro)

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