



Cloud Server Infrastructure:
Perspectives on Hardware and
Software from the RISER project

Online Workshop
Wednesday, 27 November 2024

[13:00 – 16:45 CET]



Organized by the RISER project [<https://riser-project.eu>]

Note: The workshop will be recorded.



Workshop: “Cloud Server Infrastructure: Perspectives on Hardware and Software from the RISER Project”

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November 27, 2024



Grant agreement: 101092993
Start date: 1/1/2023 (duration: 3 years)



Main Challenge (Mission Statement)

Can we design and build data-center system platforms based on open standards in Europe today?

Open standards for ISA

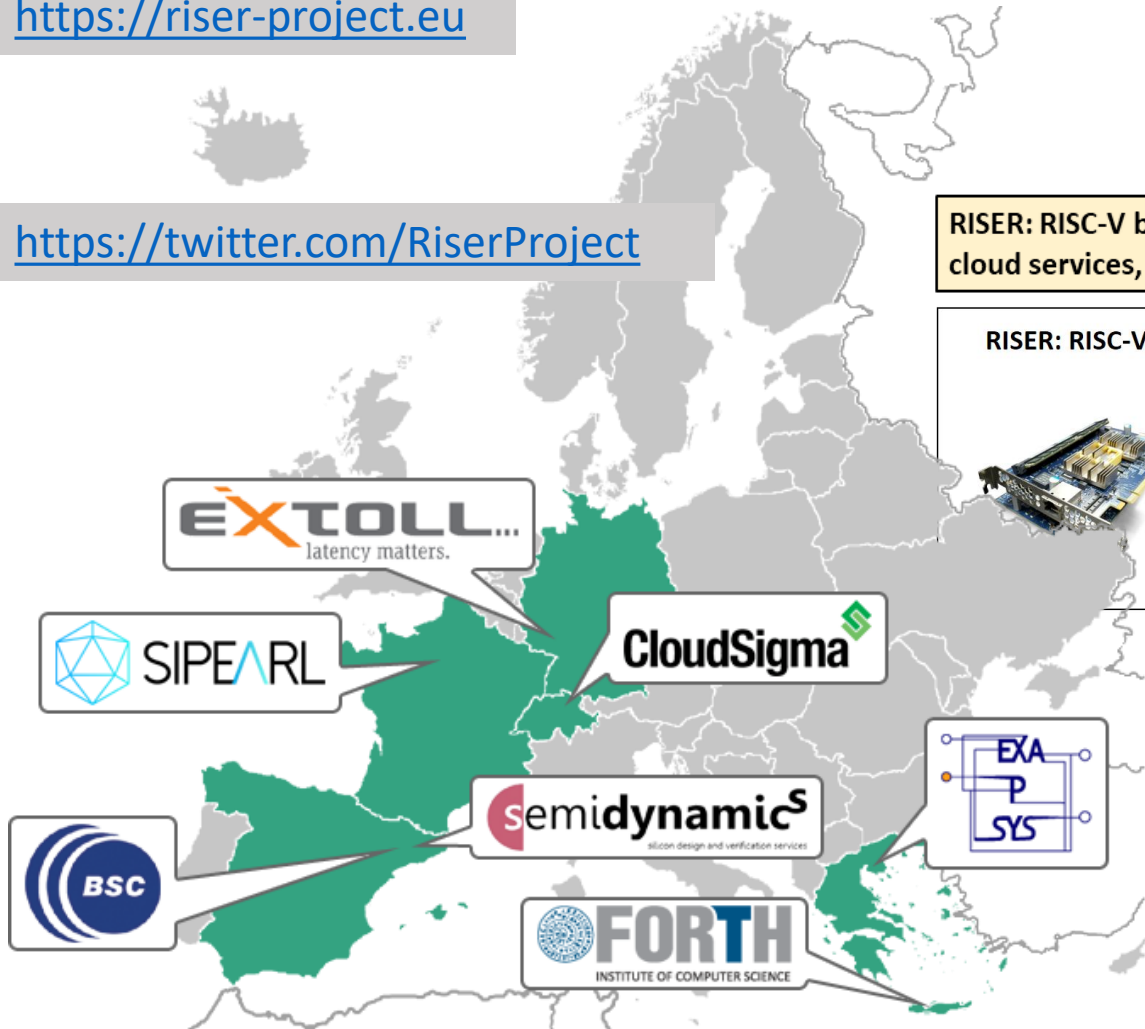


+ Arm ISA (sovereignty-focused projects funded by EuroHPC Joint Undertaking, mainly for HPC)

+ Cloud roadmap

<https://riser-project.eu>

<https://twitter.com/RiserProject>



RISER: RISC-V based Linux server for cloud services, built on open interfaces

RISER: RISC-V for Cloud Services



RISC-V Processors

Source: EPI and EUPilot projects (chips)

* Currently operating on system boards designed for dev/test purposes

Server Boards (PCB + firmware)

Standard form factors (PCIe accelerator card, Microserver)

* Following industry standards to utilize server I/O peripherals

DRAM Memory

NVM-Express Storage

100 Gbps Ethernet

Boot Firmware

Initialization of execution platform, including high-speed I/O peripherals (storage, networking)

OS, drivers, runtime

Configured/adapted for cloud services: workload acceleration, networked storage, containerized execution

* Integration in IaaS environment

Integrated all-European Hardware and Open-Source Software for Cloud Services and Applications

RISER Workshop - 27/11/2024

Overview of workshop agenda

+ Q&A and Panel [40']

- **Arm Server Roadmap for Cloud [40']**
 - Roberto Mostallino – SiPEARL (project partner)
 - Cloud roadmap for Arm SoC
- **RISC-V Server Software Landscape [45']**
 - Oliver Perks -- Rivos Inc & RISC-V Software Ecosystem (RISE)
 - Current state of software readiness for server class RISC-V CPUs
- **Tools for RISC-V Platform Bring-up [30']**
 - Nick Kossifidis – FORTH (project partner)
 - Linux environment for early-stage bring-up & verification (incl. no-mmio)
- **RISC-V Server SoC [45']**
 - Ved Shanbhogue -- Rivos Inc & RISC-V International
 - Key hardware capabilities, collaborative efforts and partnerships

Next workshop: Jan. 22, 2025 (in conjunction with HiPEAC'25 @ Barcelona)

- **“CompContinuum: Computing Continuum of Cloud, Edge, and IoT Technologies” – Half-day workshop on Jan. 22, 2025**
 - Co-organized by ensemble of 4 "sibling" projects (AERO, openCUBE, RISER, VITAMIN-V)
 - workshop webpage:
<https://www.hipeac.net/2025/barcelona/#/program/sessions/8199/>



RISC-V for Cloud Services

Thank you for your attendance today. See you at HiPEAC'25 !



Thank you for your attention

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