Riser

RISC-V for cloud services

coordinated by

FORTH
INSTITUTE OF COMPUTER SCIENCE

RISER will develop the first all-European RISC-V cloud server infrastructure, significantly enhancing Europe's open strategic autonomy.

Develop & validate open-source designs for standardized form-factor system platforms

• PCIe Acceleration Card, Microserver (Blade)
• Use cases: acceleration, networked storage, containerized execution

Enabling the path towards a European-based cloud infrastructure

The first Cloud architecture using RISC-V processor technology being developed within the EPI and EUPILOT projects. Key technologies:
• RISC-V processors, PCI Express/CXL,
• Cache-coherent Chip-to-Chip links

Open hardware interfaces

Expand the interface possibilities of EPI/EUPILOT processors:

• High-speed network & storage capabilities
• Essential support for cloud applications and services deployment

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Use Cases

Use Case 1
Acceleration

Use Case 2
Key-value store

Use Case 3
Containers

Systems Software

Cloud Software

OS & Drivers

Firmware

Hardware Platforms

FPGA Emulation

PCIe Acceleration

Microserver

••• Consortium Skills & Contributions •••

RISC-V Processor

Source: EPI and EUPilot projects (chips)
*Currently operating on system boards designed for dev/test purposes

Server Boards (PCB + firmware)

Standard form factors (PCIe accelarator card, Microserver)
*Following industry standarts to utilize server I/O peripherals

-100 Gbps Ethernet
-NVM-Express Storage
-DRAM Memory

Boot Firmware

Initialization of execution platforms,
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 enviorment

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