



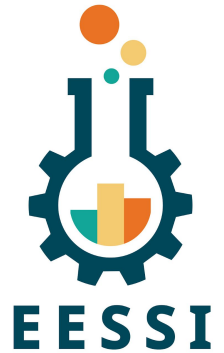
## Status on RISC-V support

EESSI Community Meeting @ Amsterdam

15 Sept 2022

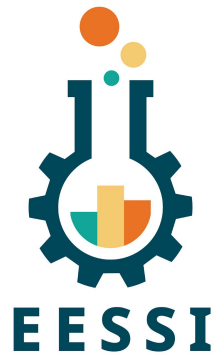
Kenneth Hoste (HPC-UGent) + Guilherme Amadio (CERN) + Atharva Amritkar

# What is RISC-V ?



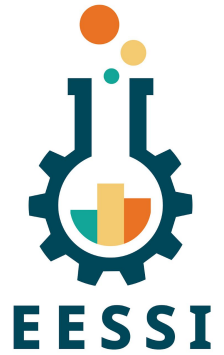
- Yet Another CPU Architecture: riscv64 (next to x86\_64, aarch64, ppc64le, ...)
- “Open Source Hardware”
  - No need to pay someone to be allowed to design & produce RISC-V CPUs (!)
  - Processor design details *can* be made publicly available
- RISC-V International: a Swiss nonprofit business association
  - Defines RISC-V standard + extensions (vector instructions, ...)
- Originally mostly used for embedding computing,  
but that’s changing (and *fast*)
- Already supported by various Linux distros, GCC, ...

# Why should we care about RISC-V ?

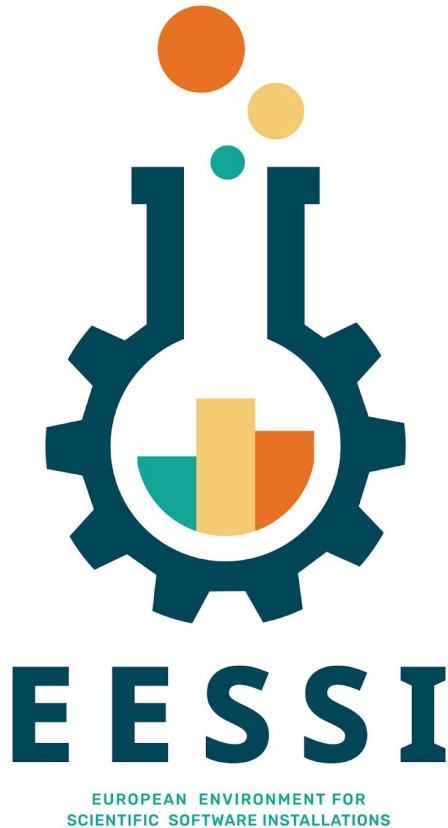


- A lot of interest in EU for RISC-V
  - [European Processor Initiative](#) (EPI) project is just one example
- Capable hardware is not there yet, but it's coming (soon?)
  - [Kickstarter for StarFive VisionFive 2 SBC](#) (open until 22 Sept'22 - 6 more days)
  - [RISC-V Vector Extension \(RVV\)](#)
- [RISC-V Special Interest Group \(SIG\) for HPC](#)
- RISC-V momentum is growing fast (see also [NASA using RISC-V](#))
- EESSI can try to provide a software stack for RISC-V to hit the ground running...

# What should be done to support RISC-V?



- Filesystem layer
  - Install CernVM-FS on RISC-V (client only)
  - Is expected to already work, but needs to be tested...
- Compatibility layer
  - Bootstrapping Gentoo Prefix on RISC-V: works (cfr. [GSoC 2022 project](#))
  - Required additional packages have been “keyworded” for RISC-V: should work
  - Port our build container to RISC-V: which OS? Singularity/Apptainer works on RISC-V?
  - Build compat layer for RISC-V: bootstrap Prefix + install additional packages
- Software layer
  - EasyBuild support for building software for RISC-V: initial steps already done
  - See which (scientific) software builds/works on RISC-V...



**Paper (open access):** <https://doi.org/10.1002/spe.3075>

Website: <https://www.eessi-hpc.org>

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<https://www.eessi-hpc.org/join>

Documentation: <https://eessi.github.io/docs>

GitHub: <https://github.com/eessi>

Twitter: [@eessi\\_hpc](https://twitter.com/eessi_hpc)

[youtube.com/channel/UCKLS5X7\\_oMWhUrAZuzSwBxQ](https://youtube.com/channel/UCKLS5X7_oMWhUrAZuzSwBxQ)

Monthly online meetings (first Thursday, 2pm CEST)