

A Tour of the RISC-V ISA Formal Specification

RISC-V Foundation ISA Formal Spec Technical Committee

At RISC-V Summit, San Jose
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In this hands-on tutorial, we would like to familiarize a broad RISC-V community with the RISC-V ISA Formal Specification, with a view to encouraging its use on a daily basis. We hope to cover the following: (1) A reading tour of the spec, so people are subsequently able to consult the spec on their own; (2) How to build and execute the spec on RISC-V binaries (from ISA tests to operating systems) to produce reference executions; (3) How to build and execute the spec on the Compliance Suite. If there is time and interest, additional topics are: (4) How to extend the spec for new and custom ISA extensions; and (5) A description of how the spec is being used for formal proofs of compiler and OS correctness, and hardware implementation correctness. The target audience for this tutorial are people who are NOT specialists in formal methods, but who wish to use the spec in daily practice (e.g. use cases 1-3 above). Attendees who can run Linux on their laptops (natively, in a VM, or remotely) will be able to follow the speaker in a hands-on manner.

Under Construction

- The slides for this tutorial are in preparation, and will be made available in time for the tutorial presentation on December 12, 2019 at the RISC-V Summit.
- Please prepare for the tutorial in advance by following the instructions in the separate slide deck `Slides_Installation.pdf` on how to download the spec, and optionally to build an executable version of the spec.