

Attendees of 2018Sept05 Compliance Meeting

Allen (Esperanto) [Chair]

SimonD (Imperas)

Lee Moore (Imperas)

Radek Hajek (Codasip)

Jeremy Bennett (Embecosm)

Marnie Dunsmore (individual)

Jeremy Ralph (Xtreme-EDA)

Ramprasad Chandrasekaran (Xtreme-EDA)

Ben Selfridge (Galois)

Simon (Imperas) Imperas Compliance Suite donation (checked into the riscv-compliance repo).

This includes updated RV32I, RV32IM, 64I, 64IM, 32C test suites. Some framework enhancements as well.

Lee (Imperas) showed how the Imperas coverage tool (mutating test fault simulator) and how it explores how good the tests are in covering instructions.

(Imperas uses internally to improve of hand-written directed test quality- measures effectiveness of test suit).

RFQ discussion: The Risc-V Foundation Board has authorized funds to further the compliance work, and are requested to define what should it be spent on.

Allen introduced some of the issues.

Jeremy - what is the big picture... "what is compliance".? We can't write all the thoughts of the last year - but we do need to document the context of the work (framework & conventions, feature model, existing tests, etc), so that bidders know what is expected of them beyond the actual work descriptions

Simon: needed work is split into two parts: the actual test suites themselves, and the test framework

(Simon) RFQ: suites:

1) add F&D - need resource to do work

2) add riscv-tests (port them to compliance framework)

3) add S+M+U mode implementations (start of privilege testing)

4) coverage (not needed funding): solicit volunteers to use their own tools to report coverage issues - to get others to add new tests

(Simon) RFQ: framework:

A) YAML config options for device (formal)

B) Memory layout options

C) Enable version control of suites based on specs/tests

D) Add SW emulation ability to framework to allow system test, not just HW (ie system compliance)

E) Other targets:

Add in ri5cy/verilator target to demonstrate running the tests with RTL

Add in commercial RTL simulator, eg: Mentor Questa as target

Jeremy - issue of model accuracy... we need to ensure the compliance suite is accurate... the software tools teams (like LLVM) need to be aware of compliance and need to ensure that they use models that have been tested using the compliance suite

Spike is not good as golden simulator as it is too specific and is not configurable in enough detail.

RFQ should have "must work under the direction of the compliance group" requirement

Jeremy & Marnie – both greed that \$100K will fund 50-80 days of work, which should get good way into first few suite points...

Goal should also be developing the reference demonstrator of how to use the compliance suite with RTL (eg Verilator and Mentor Questa)

Simon and Allen will work on the RFQ