

## Nov 17, 2022 | 📅 RISC-V Control Transfer History TG Meeting

Attendees: Beeman Strong Bruce Ableidinger tech.meetings@riscv.org

### Notes

- Introductions
  - Sean - UltraSoC now Siemens
  - James - Qualcomm, RVI & RISC-V lead, just curious
  - Fei - Intel, focus on perf analysis on RISC-V, building some performance testing infrastructure
  - Robert - SiFive, Nexus trace chair, interested in perf analysis & trace, 25 years in tools
  - Lukas - Fraunhofer, security researcher, curious
  - Martin - chair J-extension TG, ISA extensions related to JIT compilers
  - John - SiFive, ISA Arch, instruction sampling
  - Stanislav - Arch for Intel Vtune, working closely with Syntacore, working on Vtune-like analysis tool
  - Deepak - Rivos, RISC-V CFI, previously Intel CET and security, interested in analysis features
- Charter
  - Doesn't mention that it's an ISA extension. Is it one?
  - Beeman: I think going with an ISA extension has value for use in a VM, otherwise need (slower) SBI
  - Don't put ISA in charter until we decide
  - Deepak: Agree that it has to be performant, why non-ISA?
  - Robert: Think we're too early in the process to decide this.
  - John: Need to decide on requirements and use cases rather than implementation.
  - Deepak: These features exist on other ISAs, wouldn't we want to match them? Vote for ISA
  - Will leave it out for now, but near term we need to make a call on ISA vs non-ISA. Will plan to review pros and cons next time
  - Robert: CTH name is not clear, doesn't including perf or sampling. Trace groups record control transfer history
  - Names from similar features in other architectures: LBR - Last Branch Record, BRBE - Branch Record Buffer Entry, BHRB - Branch History Rolling Buffer
  - Avoided "branch" because, in RISC-V, that refers only to conditional control flow transfers
  - Martin - thought the name and charter were very clear
  - Sean - not totally comfortable with the same, but understand thinking. Transfer is confusing, could mean a memory transfer.
    - Maybe add control "flow" transfer history?
  - Email list page says ISA, should scrub that until we have a decision

- Next meeting:
  - Approve charter
    - Work offline (mailing list) on changes
  - Discuss requirements
  - ISA vs non-ISA (time permitting)

Action items

