



# DTPM SIG E-Trace-Encap TG

28-May-2024

**Meeting minutes are in the speaker notes for the relevant slide**



# Agenda

- Disclosures
- European Summit
  - Meeting slot on Monday morning
- Self-Hosted Trace TG draft charter
- Event Trace proposal from Bruce
- AOB

**PD** Paul Donahue (Ventana) (Me)

**IR** Iain Robertson (Siemens)

**BS** Beeman Strong (Rivos)


**BA** Bruce Ableidinger (SiFive)

**RC** Robert Chyla (MIPS)

**AY** Alan Young (Qualcomm)

**JG** Jay Gamoneda (NXP)

**MG** Markus Goehrle [Lauterbach]

 Victor Lu (Individual)



Attendees: see screenshot on the agenda slide

# Competitive/Gap Analysis

- Spreadsheet:
  - Located in *for risc-v members/Workgroups/Debug Trace Performance Monitoring* RVI Google Drive
  - <https://docs.google.com/spreadsheets/d/1l0N-E-hTjFj3jkPrjsLitso4hACDajayNwh35F4KUfs/edit#gid=0>
- Priority activities for this year?
  - Self-hosted trace?
  - Trace for performance profiling?
  - Cycle accurate trace?
  - Debug beyond ratification?
  - Separating trace ingress port to a standalone spec?
  - New interface signal to prevent tracing in unauthorized modes (secure debug TG)
  - What else?

# Self-hosted trace

- Review [Draft charter](#) (Beeman, with a little help from Iain)



People haven't had a chance to read it, though a link was sent out. Please make comments in the next day or so.

# Event Trace

- Proposal from Bruce
  - Saved in the DTPM Google Drive folder: [https://drive.google.com/file/d/1Ezg4C3TB-tdiQ6o-BYIRSRJNj12y4rys/view?usp=drive\\_link](https://drive.google.com/file/d/1Ezg4C3TB-tdiQ6o-BYIRSRJNj12y4rys/view?usp=drive_link)



- contextid: Does the Linux kernel support changing context? SiFive has a version that does but it's unclear if that has been upstreamed. For ARM, you have to build a special kernel with a non-default option to get support for this type of thing.
- PPC is a separate set of counters from HPM. When an event happens, you can snapshot all of the counters and put them in the trace without stopping. Counters are saturating and they reset to 0 after being output.
- Event trace vs. N-Trace is a mode. You wouldn't want to enable both at the same time due to lots of duplicated information. N-Trace

doesn't support having the cause CSR, though E-Trace does.

- This is not necessarily lower bandwidth compared to normal trace because event trace has all the calls and returns. It has different information which is useful for different purposes.
- There might be a couple of extensions or chapters here: The overall definition of event trace capabilities. How you do that using N-Trace packets. How you do that using E-Trace packets. What extra information is needed on the ingress port to support this.
- E-Trace and N-Trace do not include which trigger caused a trace-notify. That is something new for event trace. It could be added to the others, too. If new things are added to E/N-Trace, it seems better to have a single TG that handles both updates rather than having two TGs.
- Discussion about combining all the trace specs into a single spec vs. having them all in one place. We do need to reduce duplication and make it easy to find information.
- KUtrace is highly optimized because it doesn't have to work with other trace formats and doesn't need encapsulation, etc. So we can't hope to be that optimized.

- We might not want to use the proposed format. We can use a new format that is more optimal.
- SiFive will generate a document and donate it. A patent on this was filed but not yet granted. The implications of that need to be understood.



# Future Meetings / AOB

- From May, meetings will be 60mins at 10am Pacific every 4<sup>th</sup> Tuesday, starting Jan 9<sup>th</sup>
  - Next meeting is 25-Jun at 10am Pacific (17:00 UTC)
- AOB



# Thank You

