

Aug 8, 2024 | 📅 RV Performance Events TG

Attendees: tech.meetings@riscv.org Dmitry Ryabtsev Beeman Strong

Notes

- **Attendees:** Dmitry, Beeman, Snehasish, Bruce, Victor, Andrea, Chun
- **Slides/video** [here](#)
- Opens
 - Didn't close on MEMORY_BOUND sub-events last time
 - Will add them to PR, can review them in the mailing list or future meeting
- RVV events
 - Have identical retired and speculative events
 - Implementations have option to implement either or both. Retired preferred, but costlier.
 - Don't have memory loads/stores yet, could add RVV_*.MEMORY
 - Would also be counted by RVV_*.ALL
 - Should name ELEMENT events that only count unmasked elements as UNMASKED, rather than the events that ignore the mask
 - Then call those that ignore the mask ANY? Or IGNMASK?
 - **AI:** Should factor in [RISC-V Bfloat16](#) spec
 - Better to use 32 vs 64 rather than single vs double?
 - Best to use the terminology used in the spec for the name, but include the details in the desc
 - **AI:** Dimitriy to check on this
- RVV metrics
 - **AI:** Is it supported to include metric formulas within metric formulas? Will check
 - If vector is the bottleneck, how will we see that from events?
 - E.g., uarch isn't wide enough to efficiently support the SW flow
 - Would be CORE_BOUND, perhaps could see high FLOPS rate and infer
 - Could break down CORE_BOUND to VEC_BOUND, etc, but gets tricky. Dependency on a vector load could cause another RS to fill.
- Are there vector operations that are interesting or complex (likely to be slow) that we want to count?
 - We had VSETVL, for instance
 - Probably should count those
 - May consider divide/sqrt, crypto, conversions, ...
- May want broader categories, so don't have to count every lower level event
 - E.g., FP ops, instead of FP_SINGLE + FP_DOUBLE
 - Have metrics for those, an implementation could make them events instead
 - Should make clear that these json files are just an example, the written spec is really the final work product of the TG

Action items

- ☐ rdb197@gmail.com - Aug 8, 2024 - Add MEM_BOUND breakdown to PR for review
- ☐ rdb197@gmail.com - Aug 8, 2024 - Include Bfloat16
- ☐ rdb197@gmail.com - Aug 8, 2024 - Check on single/double vs 32/64 terminology for FP events
- ☐ rdb197@gmail.com - Aug 8, 2024 - Check on including metrics in metric formulas
- ☐ rdb197@gmail.com - Aug 8, 2024 - Consider adding events for VSETVL, div/sqrt, etc
- ☐ Beeman Strong - May 23, 2024 - check on idea to count remote HITMs locally
- ☒ ~~Beeman Strong - Apr 25, 2024 - check on how perf uses ScaleUnit~~
 - Answer:
<https://elixir.bootlin.com/linux/v6.10/source/tools/perf/util/metricgroup.h#L53>