

## Lightning Talk: The challenges of GNU tool chain support for CORE-V

*Thursday, 27 August 2020 08:15 (10 minutes)*

CORE-V is a family of 32- and 64-bit cores based on the RISC-V architecture, being developed by the Open Hardware Group, a consortium of 50+ companies, universities and other organizations. It is based on the the family of RISC-V cores originally developed under the PULP project at ETH Zürich and the University of Bologna.

PULP cores already have an out-of-tree GNU tool chain, but it is based on GCC of 2017, and as would be expected is developed as a reasearch compiler to experiment with different extensions to the core. This talk will explore the challenges of getting from this tool chain to an up to date GNU tool chain, in-tree. The areas to be explored include

- migrating from a 2017 code base (still a lot of C) to the 2020 code base (C++)
- retrospectively adding tests for 2,700 new instruction variants and their associated compiler optimizations
- upstreaming extensions which, while present in manufactured silicon and products, are not yet approved by the RISC-V Foundation

### I agree to abide by the anti-harassment policy

I agree

**Primary authors:** Dr BENNETT, Jeremy (Embecosm); Dr BLACKMORE, Craig (Embecosm)

**Presenters:** Dr BENNETT, Jeremy (Embecosm); Dr BLACKMORE, Craig (Embecosm)

**Session Classification:** GNU Tools Track

**Track Classification:** GNU Tools Track