RISC-V GNU Tool Chain Components

Source code

- Ada ✓
- C/C++ ✓
- Fortran ?
- OpenMP ?

RV32GC ✓
RV64GC ✓

GCC ✓

GAS ✓

binutils ✓

objdump

disassemble
target sim

CGEN ✓

compiler libraries

- libgcc ✓
- libstdc++v3 ✓

Newlib ✓
Glibc ✓
Musl ?

GDB ✓

Object code

libc/libm

Complete ✓
In progress ?
Not available ❌
CORE-V GNU Tool Chain Components

- **Source code**: Ada, C/C++, Fortran, OpenMP
- **GCC**: Complete, In progress, Not available
- **GAS**: Complete, In progress, Not available
- **CGEN**: Complete, In progress, Not available
- **binutils**: Complete
- **objdump**: Complete
- **target sim**: Complete
- **GDB**: Complete
- **Object code**: Complete
- **lib/libc**: Glibc, Musl, Newlib
- **compiler libraries**: libgcc, libstdc++v3

RV32GC, RV64GC are supported by CORE-V GNU Tool Chain Components.
CORE-V GNU Tools Project

- ISA extensions to be supported on latest GNU tools (in order)
  - hardware loops
  - multiply accumulate
  - post-increment and register indexed load/store
  - direct branches
  - ALU extensions

- How it will work
  - target `riscv32-corev-elf`
  - additional `-march` architecture specifications `Xcorev` and `Xcorevyy`y
  - instructions will be have the prefix `cv`.
    - `cv.starti, cv.endi, cv.count, cv.counti, cv.setup, cv.setupi`
Getting Involved

● As a user
  − download the latest development tool chains
  − [embecosm.com/resources/tool-chain-downloads](embecosm.com/resources/tool-chain-downloads)
  − pre-built binaries, source code, scripts and test results

● As a developer
  − join the OpenHW Mattermost SW : GNU Tools channel
  − sign up the OpenHW SW mailing list and attend the monthly meeting
  − submit your pull requests against the development branch
    • [github.com/openhwgroup/corev-binutils-gdb](github.com/openhwgroup/corev-binutils-gdb)
    • [github.com/openhwgroup/corev-gcc](github.com/openhwgroup/corev-gcc)
Thank You

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Supplementary: Mary’s Commands

riscv32-corev-elf-as -march=rv32imac_xcorev -o mymemcpy.o mymemcpy.s

riscv32-corev-elf-gcc -march=rv32imac -Os -c demo.c

riscv32-corev-elf-gcc -march=rv32imac -o demo demo.o mymemcpy.o