

Puzzle for RISC-V ifunc

Tuesday, 21 September 2021 10:00 (30 minutes)

ifunc is a widely used mechanism for specialized those performance critical functions in glibc, like memcpy, strcmp and strlen.

It's not used in upstream glibc for RISC-V yet, but with several new extensions becoming ratified soon, users will desire to have vector-optimized routines to boost their program.

It's a generic infrastructure for GNU toolchain, so we don't need too much work to enable that in theory, but the real world isn't so wonderful...

Here is the list of the puzzle for the RISC-V ifunc, some is there and some is missing:

- Relocation for ifunc.
- <https://github.com/riscv-non-isa/riscv-elf-psabi-doc/pull/131>
- Mapping symbol.
- <https://github.com/riscv-non-isa/riscv-elf-psabi-doc/pull/196>
- New asm directive to enable/disable any extension in specific code region (like .option rvc/.option norvc, but more generic one.)
- <https://github.com/riscv-non-isa/riscv-asm-manual/pull/67>
- New function target attribute for C/C++
- e.g. `int sse3_func (void) attribute ((target ("sse3")));`
- hwcap and hwcap2

Most items are toolchain stuff, but last item for hwcap, it should coordinate between glibc and linux kernel to implement a new mechanism to discover the machine capability.

I agree to abide by the anti-harassment policy

I agree

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