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RISC-V MC

The RISC-V software ecosystem continues to grow tremendously with many RISC-V ISA extensions being ratified last year. There are many features supporting the ratified extensions that are under development i.e. svpbmt, sstc, sscopmf, cbo.

We would like to continue the RISC-V MC platform to discuss these issues with a wider community to arrive at a solution as we have done in the past.

In the past, these discussions have been very fruitful resulting in several major milestones. A few of those are described below.

1. KVM upstreaming[1]
2. An agreement on D1 support[2]
3. ACPI/UEFI improvement[3][4]
4. We have a concrete interpretation of what is an errata, according to the ISA specs.

Here are a few of the expected topics and current problems in RISC-V Linux land that we would like to cover this year.

Various specification updates and plans for supporting them, with candidates including SBI, EFI, memory models (WMO, IO, etc), IOMMU, TEE

How we're going to handle user-visible errata, with the most notable current example being the many present in the D1.

How to move forward with support for the V extension, including probing from userspace (VLENMAX, performance, etc). A similar set of issues will likely arise for the B and K extensions.

How we're going to handle runtime probing of various performance knobs in the kernel, like strings.h and locks.

What, if any, rules we're going to have for portable/distro kernels? What about non-portable kernels?

How are we going to deal with the ABI fallout from the pre-formal-model GCC interpretation of WMO (and by the time Plumbers comes around, maybe TSO as well)?

Is using WRS for pthread_mutex() sane? Either way, how do we handle mtime in userspace?

Ongoing development for Nested hypervisor

Possible participant list:

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Come join us and participate in the discussion on how we can improve the support for RISC-V in the Linux kernel.

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[1] https://www.phoronix.com/scan.php?page=news_item&px=Linux-5.16-KVM-RISC-V

[2] <https://lore.kernel.org/lkml/20220331100139.GG23422@lst.de/T/>

[3] <https://github.com/riscv-non-isa/riscv-acpi>

[4] <https://github.com/riscv-non-isa/riscv-uefi>

I agree to abide by the anti-harassment policy

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