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Schism: Splitting RV32 from ‘arch/riscv‘ - - We Could Both Be Better as We Part Ways

It’s the elephant in the room: in the Linux kernel, RV64 has become significantly more popular and better supported than its smaller sibling —the RISC-V 32-bit platform.

There have been multiple open discussions about dropping RISC-V 32 support to “liberate” kernel development.

However - - and it’s a big however - - many people actively use RISC-V 32 Linux in production, and some of them urgently need features like HIGHMEM.

Moreover, many RV32 Linux users operate without an MMU, and even without the Atomic Extension : use cases that would greatly benefit from mechanisms like the good old kuser_helpers in ARM pre-v5 and SuperH.

Unfortunately, such proposals are often shrugged off in community discussions.

This has become an agony for companies that actually manufacture RV32 Linux ICs, for example, HPMicro’s HPM63xx series and Allwinner’s V821.

In this session, I will introduce a Proof-Of-Concept that by splitting arch/riscv into arch/riscv32 and arch/riscv64, just like arm and arm64, would benefit everyone involved.

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