



# RISE

RISC-V Software Ecosystem

**Kernel and Virtualization Working Group**  
**29/04/2024**



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# Agenda

- Latest Linux updates
- RVA23 profile extensions: Updates on discovery
- 2023-2H: Updates on projects
- 2024-1H: Updates on projects
- Open floor (remaining time)

# Latest Linux updates



- Linux-6.10 merge window is 2 weeks away
- Following things have been queued:
  - Linux RISC-V
    - Added cluster\_pm\_enter()/exit() for riscv-sbi-cpuidle driver
    - HWProbe support Zihintpause
  - KVM RISC-V
    - Ebreak based guest breakpoints
    - Introduce VCPU mp\_state\_lock and reset\_cntx\_lock
    - Virtualize SBI PMU snapshot and overflow interrupts

# RVA23 profile extensions: Updates on discovery

- List of RVA23 profile extensions on wiki in-sync with latest spec
  - <https://wiki.riseproject.dev/display/HOME/RVA23+Profile>
- HWPROBE additions
  - Zihintpause
- KVM ONE\_REG additions
  - Sscofpmf

# RVA23 profile extensions: Overall status



- **Total 83 extensions** (29-04-2024, [wiki](#))
- **Kernel HWPROBE** (29-04-2024)
  - NA - 36 (43.37%)
  - TBD - 15 (18.07%)
  - **COMPLETED - 32 (38.56%)**
- **KVM ONE\_REG** (29-04-2024)
  - NA - 10 (12.05%)
  - TBD - 25 (30.12%)
  - **COMPLETED - 48 (57.83%)**

# 2023-2H: Updates on projects



- **LK\_01\_005** - Native/hosted debug support (aka HW breakpoint)
  - **Development:** Completed, **Upstreaming:** OnGoing
- **LK\_02\_011** - KVM native/hosted debug virtualization
  - **Development:** Completed, **Upstreaming:** TBD
- **LK\_03\_016** - KVMTOOL vector crypto support
  - **Development:** Completed, **Upstreaming:** Completed
- **LK\_03\_016** - KVMTOOL bitmanip support
  - **Development:** Completed, **Upstreaming:** Completed

# 2023-2H: Overall status

- **Total 27 projects** (29-04-2024, [wiki](#))
- **Development** (29-04-2024)
  - **COMPLETED / NOTNEEDED - 27 (100%)**
- **Upstreaming** (29-04-2024)
  - TBD - 2 (7.41%)
  - ONGOING - 6 (22.22%)
  - **COMPLETED / NOTNEEDED - 19 (70.37%)**





# 2024-1H: Updates on projects

- **LK\_01\_015** - PMU snapshot support
  - **Development:** Completed, **Upstreaming:** Completed
- **LK\_01\_030** - ACPI PPTT support
  - **Development:** Completed, **Upstreaming:** OnGoing
- **LK\_02\_010** - KVM PMU snapshot virtualization
  - **Development:** Completed, **Upstreaming:** Completed
- **LK\_02\_022** - KVM Perf sampling support for guest
  - **Development:** Completed, **Upstreaming:** Completed
- **LK\_03\_009** - QEMU-KVM debug console support
  - **Development:** Completed, **Upstreaming:** Completed

# 2024-1H: Overall status



- **Total 43 projects** (29-04-2024, [wiki](#))
- **Development** (29-04-2024)
  - TBD - 7 (16.28%)
  - ONGOING - 1 (2.33%)
  - **COMPLETED - 35 (81.39%)**
- **Upstreaming** (29-04-2024)
  - TBD - 11 (25.60%)
  - ONGOING - 8 (18.60%)
  - **COMPLETED - 24 (55.80%)**

# Open floor

- Any other topics or issues ??