欢迎第一次加入的伙伴(开会时请从下一页开始展示)

- 开放编辑，直接点击 request for edit 然后在东亚时区群里at吴伟
- 如果没有找到自己的内容分类，可以添加1-2页在最开始或中间
- 欢迎在开始的前5分钟进行自我介绍
- 日常八卦在东亚时区RISC-V双周同步微信群中，欢迎加入

东亚时区RISC-V双周会

2025年01月09日·第 95 次

https://github.com/cnrv/RISCV-East-Asia-Biweekly-Sync

Host: 程龙灿

Organizer: PLCT Lab plct-oss@iscas.ac.cn

会议议程（15:00 - 16:00）

- 自我介绍、等待参会者接入、非技术话题八卦（没有的话就直接跳过）
- RVI 的更新和八卦（基本上跟东亚双周会群内消息同步）
- Unratified Specs 的参考实现进展
- 东亚地区小伙伴的项目更新
- 自由讨论

RISC-V International 同步、全球开源社区八卦（陈逸轩）

- 用仅0.03美元的 RISC-V 微控制器启动 Acer N30 PDA。
- SiFive P550 开发板介绍视频
- Ubitium将研发集 GPU、DSP 和 FPGA于一体的RISC-V芯片。
- Inspire Semi退市后加大RISC-V AI 芯片投入资金。

RISC-V 中文社区的同步与八卦（张宇溪）

- 香山开源项目在硅谷科技圈引起的反思
  https://mp.weixin.qq.com/s/xey-Ilx1PbaVVOqOWRRDXw

- 发挥标准优势 繁荣产业发展——首届RISC-V产业发展大会在北京亦庄召开
  https://mp.weixin.qq.com/s/HqZoqrEe75HzKh0ZNFRZmw
  2030年规模超500亿元！北京亦庄发布RISC-V产业发展行动计划
  https://mp.weixin.qq.com/s/P3I2XBxBSSjK1-71C7QPvw

- SiFive 正式成立中国分公司，中文名称定为「芯伍科技」
  https://mp.weixin.qq.com/s/sK2Hhs1_JMsmL84Dv8xTng
- 南京！长城汽车成立芯片公司！紫荆半导体落户！
  https://mp.weixin.qq.com/s/AfSBvx2zrafE8a8fv2TRoQ

RISC-V 韩语社区的同步与八卦

-

RISC-V 德语社区的同步与八卦（罗云翔）

- Embedded World Germany, March 11 - March 13, Nuremberg Germany
  https://events.linuxfoundation.org/riscv-at-embedded-world/

- Preparing for HPC on RISC-V: Examining Vectorization and Distributed Performance of an Astrophysics Application with HPX and Kokkos, Date Added to IEEE Xplore: 08 January 2025（Workshops of the International Conference for High Performance Computing, Networking, Storage and Analysis）
  IPVS, University of Stuttgart and some authors from USA
  https://ieeexplore.ieee.org/document/10820750
- SPARKLE: 400 RISC-V GIPS with 1,024 Barrel Processors on a single Datacenter FPGA Card
  , Date Added to IEEE Xplore: 03 January 2025（2024 IEEE 17th International Symposium on Embedded Multicore/Many-core Systems-on-Chip (MCSoC)）
  Department of Engineering, Heidelberg University
  https://ieeexplore.ieee.org/document/10819595
- BRISKI: A RISC-V barrel processor approach for higher throughput with less resource tax, Date Added to IEEE Xplore: 03 January 2025（2024 IEEE 17th International Symposium on Embedded Multicore/Many-core Systems-on-Chip (MCSoC)）
  Department of Engineering, Heidelberg University
  https://ieeexplore.ieee.org/document/10819593
- An FPGA-Based RISC-V Instruction Set Extension and Memory Controller for Multi-Level Cell NVM, Date of Conference: 14-17 December 2024（2024 International Conference on Microelectronics (ICM)）
  Chair for Embedded Systems (CES), Karlsruhe Institute of Technology (KIT)
  https://ieeexplore.ieee.org/document/10815826

RISC-V 日语社区的同步与八卦

-

RISC-V 中国峰会进展（吴伟）

GCC 进展

- 更新了Profiles格式规范，目前与LLVM实现保持一致

  https://github.com/riscv-non-isa/riscv-toolchain-conventions/pull/36

- IFUNC的glibc支持仍在讨论中,预计会在今晚psABI会议中同步

  https://patchwork.sourceware.org/project/glibc/patch/tencent_EA6F621A42D41AFDF99A0561B51F1CB57109@qq.com/

- 更新了新32位的实现说明，会在今晚psABI会议中同步

  https://github.com/riscv-non-isa/riscv-elf-psabi-doc/pull/381

- 新增加了MIPS的两个自定义扩展Xmipscmove与Xmipslsp到RISC-V

  https://github.com/riscv-non-isa/riscv-toolchain-conventions/pull/69/files

Clang/LLVM 进展 (PLCT)

- [RISCV] Add support of Sdext,Sdtrig extentions
  https://github.com/llvm/llvm-project/commit/2fae5bdea7c2
- [RISCV] Add -mcpu=sifive-p550
  https://github.com/llvm/llvm-project/pull/122164
- [RISCV] Add Qualcomm uC Xqciac extension
  https://github.com/llvm/llvm-project/commit/1557eeda738d
- [RISCV] Add Qualcomm uC Xqcicli extension
  https://github.com/llvm/llvm-project/commit/532a2691bc01

QEMU/Spike 进展（呼唤志愿者）

Sail/ACT进展 (PLCT)

- Sail Roadmap

  https://github.com/riscv/sail-riscv/wiki/Roadmap
  - Configuration
  - Testing & Infrastructure
  - Extensions
  - Verification Interface
- Sail configuration system

  ```
  config a.b.c : T
  sail --config c.json <files>
  ```

  https://github.com/rems-project/sail/pull/865

- CTG reproducible

  https://github.com/riscv-non-isa/riscv-arch-test/pull/570
- Add support Zdinx extension（发音为“z-d-in-x”）

  https://github.com/riscv-non-isa/riscv-arch-test/pull/499
- Add support Zhinx extension

  https://github.com/riscv-non-isa/riscv-arch-test/pull/496
- Add support Zcd extension in RV64

  https://github.com/riscv-non-isa/riscv-arch-test/pull/587
- Add support for Zcf and Zcd extension

  https://github.com/riscv-non-isa/riscv-arch-test/pull/497

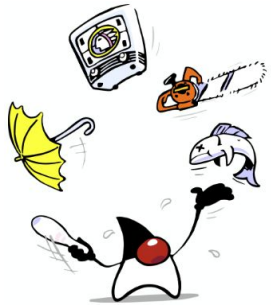
V8 for RISC-V 更新（邱吉、陆亚涵）

1. 6110219: [riscv][maglev] Optimize math.round | https://chromium-review.googlesource.com/c/v8/v8/+/6110219

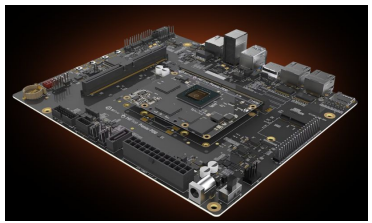
2. 6131699: [riscv] Refactor set target address code | https://chromium-review.googlesource.com/c/v8/v8/+/6131699
3. 6123734: [riscv] Fix invaliad trampoline pos | https://chromium-review.googlesource.com/c/v8/v8/+/6123734

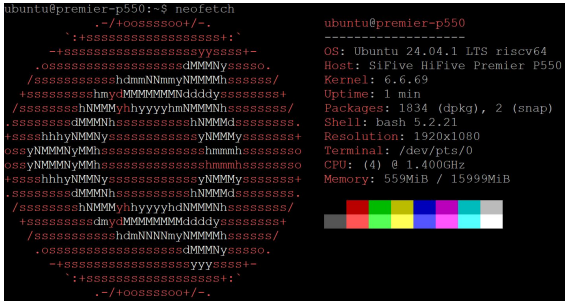
Spidermonkey for RISC-V更新（邱吉、陆亚涵）

OpenJDK on RISC-V (PLCT 杨飞)



1. Authored/Co-authored JDK-mainline PRs:
- https://github.com/openjdk/jdk/pull/21731 (8343115: SkipIfEqual class is not used after JDK-8335946)
- https://github.com/openjdk/jdk/pull/21732 (8343121: RISC-V: More accurate max size for C2SafepointPollStub and C2EntryBarrierStub)
- https://github.com/openjdk/jdk/pull/21733 (8343122: RISC-V: C2: Small improvement for real runtime callouts)
- https://github.com/openjdk/jdk/pull/21777 (8343242: RISC-V: Refactor materialization of literal address)
- https://github.com/openjdk/jdk/pull/21818 (8343415: RISC-V: Increased maximum size of C2EntryBarrierStub by four)
- https://github.com/openjdk/jdk/pull/21822 (8343430: RISC-V: Remove old trampoline call)
- https://github.com/openjdk/jdk/pull/21847 (8343471: RISC-V: compiler/cpuflags/TestAESIntrinsicsOnUnsupportedConfig.java fails after JDK-8334999)
- https://github.com/openjdk/jdk/pull/21863 (8343502: RISC-V: SIGBUS in updateBytesCRC32 after JDK-8339738)
- https://github.com/openjdk/jdk/pull/21966 (8343805: RISC-V: JVM crashes on startup when disabling compressed instructions)
- https://github.com/openjdk/jdk/pull/22025 (8343964: RISC-V: Improve PrintOptoAssembly output for loadNKlassCompactHeaders node)
- https://github.com/openjdk/jdk/pull/22053 (8344074: RISC-V: C1: More accurate _exception_handler_size and _deopt_handler_size)
- https://github.com/openjdk/jdk/pull/22188 (8344371: RISC-V: compiler/intrinsics/chacha/TestChaCha20.java fails after JDK-8343555)
- https://github.com/openjdk/jdk/pull/22202 (8344393: RISC-V: Remove option UseRVVForBigIntegerShiftIntrinsics)
- https://github.com/openjdk/jdk/pull/22096 (8344169: RISC-V: Use more meaningful frame::metadata_words where possible)





Go community work update (2024/11/28)

- Vector instructions
  - cmd/internal/obj/riscv: update references to RISC-V specification #631935 [reviewed]
  - cmd/internal/obj/riscv: rework instruction encoding information #622535 [merged]
  - codegen
    - cmd/internal/obj/riscv: implement vector configuration setting instructions #631936 [reviewed]
    - cmd/internal/obj/riscv: implement vector load/store instructions #631937 [reviewed]
  - runtime [plan]
- Go runtime syscall with ABI internal
  - prerequisites: tools #620056 [merged]
  - runtime: #620755 [merged]
- Misc
  - internal/bytealg: optimize IndexByte for riscv64 #561275 [merged]

RuyiSDK (Xi Jing, PLCT)

- RuyiSDK 包管理器 V0.25 released:
  - 新增了 ruyi config 子命令，方便用户通过命令行或脚本方式查询、修改 RuyiSDK 包管理器配置。该命令用法受到了 git config 的启发，详见 ruyi config --help 输出。
  - 新增了 ruyi telemetry 子命令，方便用户通过命令行或脚本方式查询、变更遥测偏好。详见 ruyi telemetry --help 输出。
    - 特别地：在您表明遥测偏好前，每次运行 ruyi 您都会收到提醒。您现在可以通过 ruyi telemetry off 关闭遥测数据收集，或通过 ruyi telemetry consent 明确接受遥测数据收集与上传了。
  - 修复了搭配 arpy 1.x 使用时，无法解压 Debian 格式软件包的问题。
  - 新增了两篇规范文档：RuyiSDK 官方软件源的包版本规范，以及 RuyiSDK 中的板卡型号、系统镜像命名规范。您可移步 RuyiSDK 包管理器的仓库 docs/ 目录阅读。
- RuyiSDK IDE V0.0.2 版本发布，主要变更如下：
  - 针对 Milk-V Duo example 示例在 RuyiSDK IDE 中的编译器安装配置、构建、目标程序传输、运行等进行验证并创建使用文档。
  - 在 RuyiSDK IDE 的 Welcome 中定制了 RuyiSDK 和 Milk-V Duo 的文档链接。
- 操作系统支持矩阵
  1. CI: Add CI for package index sync ruyisdk/support-matrix#120
  2. fix typo in Duo_S link ruyisdk/support-matrix#121
  3. visionfive2: Add NixOS ruyisdk/support-matrix#123
  4. m0sense: Add RT-Thread ruyisdk/support-matrix#125
  5. BPI-F3: bianbu update to 2.0.4 ruyisdk/support-matrix#126
- 社区：新增QQ交流群，欢迎加入一起交流
- PLCT-RevyOS小队：面向 TH1520 的 RuyiSDK 操作系统新版本发布，内核从5.10 升级到了 6.6。
  - meles最新镜像下载地址：https://mirror.iscas.ac.cn/revyos/extra/images/meles/20241229/
  - lpi4a最新镜像下载地址：https://mirror.iscas.ac.cn/revyos/extra/images/lpi4a/20241229/
  - 乙巳年新目标，RevyOS 许愿清单上线!

详见RuyiSDK双周进展报告：https://github.com/ruyisdk/wechat-articles

RuyiSDK技术001群

群号: 544940413

openEuler RISC-V (周嘉诚)

Status / 20240109

- openEuler 24.03 LTS Service Pack 1:
  - Official (RVA20): Released 🎉 [DL Link]
  - Preview (RVA22+V): Preparing for final launch
- Pkgs & HW
  - kernel: added zicbom & modern amdgpu support
  - ROCm: mostly upgraded to 6.3.0, added llama.cpp & pytorch support
- Following releases in 1H'25
  - Q1 - 24.03 follow-up community release for supporting more devices w/ *vendor kernels, proprietary drivers, etc*.

- Features:
  - 6.6-based common kernel for QEMU, SG2042 (Pioneer) & TH1520 (LPi4A)
  - UEFI-supported Hardware & QEMU images
  - Penglai TEE-enabled firmware variants
- Images:
  - UEFI ISO
  - UEFI qcow2 Image w/ Penglai TEE
  - Legacy-boot Images for Pioneer & LPi4A

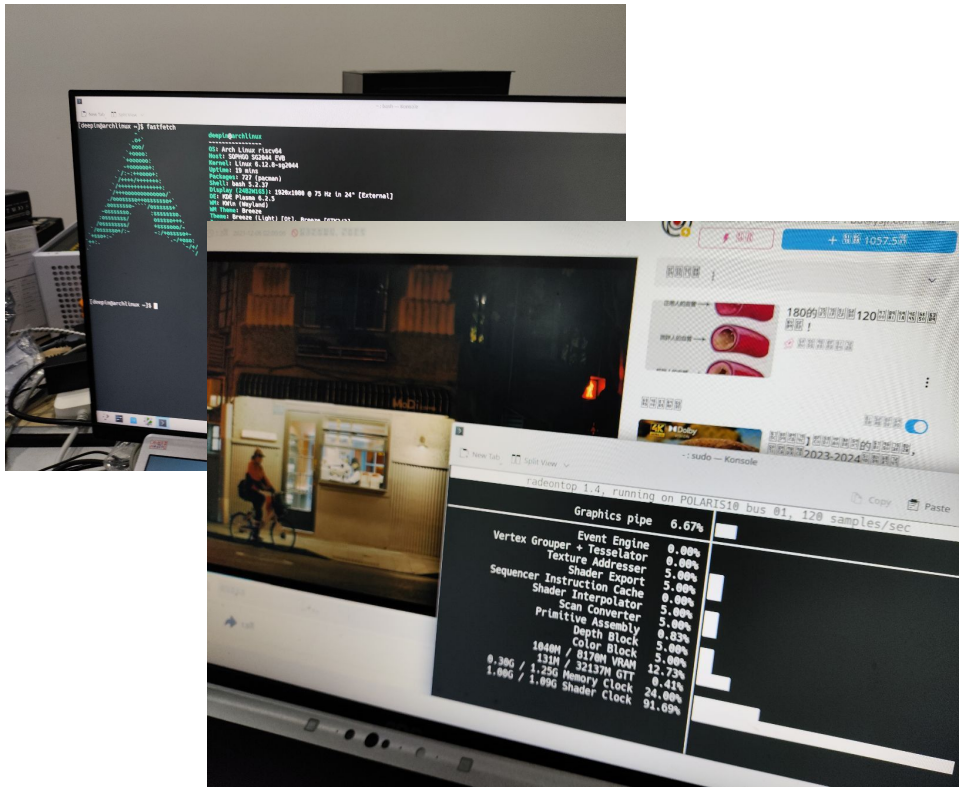
1. rv64gcv_zicbop_zicboz_zicsr_zihintpause_zihpm_zba_zbb_zbs

Gentoo for RISC-V 的情况更新（Gentoo 小队）

Arch Linux RISC-V (Felix & PRZ)

- [core] 260 / 265 (98.11%)
- [extra] 13756 / 14079 (97.71%)

- Python 3.13 rebuild almost finished.
- Rust cross compilers for x86_64-{musl,gnu} are provided now.
- More ROCm 6.2.x components packaged. But upstream refuses to merge incremental changes for clr.
- Intel GPU packages removed from blacklist to allow further porting for Xe graphical cards.
- Experimental Arch devtools support for building packages for unsupported architectures is submitted.
- Arch on SG2044 ——————————————>



Arch Linux RISC-V (Felix & PRZ) - Electron

-

Fedora on RISC-V status update（20250109）

- **RPM packaging**
  - Koji Status: **F41, GA on Nov 12**
    - **F41: 23460/24320[96.46%] srpm**
    - **F42/Rawhide: 0/24532 srpm**
    - **https://www.fedoravforce.com**
- **main package version:**
  - Toolchain: gcc-14.2.1-3、glibc-2.40-4、binutils-2.43.1-3
  - libffi-3.4.6-3
  - java-11-openjdk,java-17-openjdk,java-21-openjdk
  - java-1.8.0-openjdk
  - java-latest-openjdk
  - perl-5.40.0-511
  - python3.13-3.13.0-1
  - llvm-19.1.0-1
  - golang-1.23.3-1
  - rust-1.82.0-1

- Desktop support Fedora41:
  - DONE: **XFCE/LXDE/LXQT/Cinnamon/Sway/Budgie/Sugar/GNOME/Mate**
  - Testing:**KDE/Deepin**
  - **Key Desktop App[need to update]**
    - firefox-131.0-2
    - libreoffice-24.8.3.2-2
    - Thunderbird-115.11.1-1
    - chromium-126.0.6478.182-2
- Image and REPOs :
  - **https://images.fedoravforce.com**
  - https://openkoji.iscas.ac.cn/pub/dist-repos/dl
  - https://mirrors.iscas.ac.cn/fedora-riscv
  - https://dl.fedoraproject.org/pub/alt/risc-v/fedora-remix
- ROS/ROS2 upgraded to F41
- Sail for rawhide[UPSTREAMING]
- function testing for F41:
  - **Podman[pass], Image：fedora-rv64（f41）**
  - Ceph[ONGOING]
  - K8s[ONGOING]

Fedora for RISC-V GRUB

Running on

StarFive JH7110
SpacemiT K1
ES WIN EIC7700
QEMU

Debian for RISC-V（于波）

- Official port update
  0. Python 3.13 as default version
  1. Trixie-security support riscv64
  2. [Warning] Is riscv buildds fast enough? [1][2]
- Debci
  1. New three p550
  2. Running well
- Some works

  RedleafOS integration

```
vimer@d[redacted]:~$ cat /etc/apt/sources.list
deb https://mirror.nju.edu.cn/debian trixie main
deb-src https://mirror.nju.edu.cn/debian trixie main


deb https://mirror.nju.edu.cn/debian trixie-backports  main
deb-src https://mirror.nju.edu.cn/debian trixie-backports  main

deb http://security.debian.org/debian-security trixie-security main
deb-src http://security.debian.org/debian-security trixie-security main

deb https://mirror.nju.edu.cn/debian trixie-updates main
deb-src https://mirror.nju.edu.cn/debian trixie-updates main
```

RevyOS (程龙灿)

- new image
  - LicheePi 4a : 20241229:https://mirror.iscas.ac.cn/revyos/extra/images/lpi4a/20241229/
  - Milk-v meles 20241229:https://mirror.iscas.ac.cn/revyos/extra/images/meles/20241229/
  - new kernel（6.6）、new sdk（2.0.2）
  - Milk-v pioneer20241230: https://mirror.iscas.ac.cn/revyos/extra/images/sg2042/20241230/
- Community Addition
  - wishlist：许愿清单上线
  - known compatibility issue: 新增已知兼容性问题列表
- **ROS2**
  - RevyOS maintains two ROS2 distributions: Humble and Jazzy.
  - jazzy build 1303/1401 > 1388/1481 (93%)
  - humble build 1477/1654 > 1548/1719 (90%）
  - CI test results:

    Pass: (39,312/39,568) > (39,323/39,578)

    Failed: 145, Skipped:110

    Total time: 6.3 hours

RevyOS supported devices

Image download directory

1、LicheePi 4A

2、LicheePi Cluster 4A

3、beaglev-ahead

4、Milk-V Pioneer

5、Milk-V Meles

6、LicheeConsole4A

7、RISC-V Book

8、LicheeBook

SD card support

1、LicheePi 4A

2、beaglev-ahead

3、Milk-V Meles

4、LicheeConsole4A

Mainline support

1、LicheePi 4A

2、Milk-V Pioneer

Alpine for RISC-V（Meng Zhuo -- 不在线）

- Statistic on aports RISC-V support (2025-1-8) [manifest]

Section	aarch64	riscv64(12-25)	riscv64(1-8)
main	5534	5461	5466
community	19755	18388	18451
test	7037	5851	5894

- Progress A-Z (405项已全部完成)
- Enable blocked by:
  - qt6-webqtengine (23) (已提issue）
  - openjdk8 (14)
  - luajit2 (6)（等待PR合并）
  - ocaml (9)（无法bootstrap）
  - R (2)（上游支持
  - picolisp (2)

News:

- Alpine 3.21.2 released in 2025-1-8

Sophgo Linux Upstream Status Update（汪辰）

https://github.com/sophgo/linux/wiki [Last updated: Dec/25/2024]

CV18XX Series

- N/A

SG2042

- 只有一些针对 PCIe driver 的邮件列表讨论

SG2044

- N/A

RT-Thread (RISC-V) Upstream Status Update（汪辰）

PR list：

- bsp: cvitek: doc update: https://github.com/RT-Thread/rt-thread/pull/9836

RFC discussion

- [Feature] RTT 文档优化: https://github.com/RT-Thread/rt-thread/issues/9871
- [Feature] 改进自动化测试以及 ci 看护: https://github.com/RT-Thread/rt-thread/issues/9775

Box64 RISC-V 进展

- 用 RVV 和 XTheadVector 实现了 MMX 指令
- SIMD 指令优化
  - PSLL*, PSRL*
  - PUNPCK*
- 改进 TSO 模拟性能
  - 重做 STRONGMEM 机制，减少栅栏指令数量
- Benchmark
  - 对比扩展指令集对 DBT 性能的影响

FW相关更新（王翔）

- opensbi
  - 修复一处函数申明和函数定义不一致
    https://lists.infradead.org/pipermail/opensbi/2024-December/007890.html
  - fdt_parse_aplic_node函数内数据初始化的修正
    https://lists.infradead.org/pipermail/opensbi/2025-January/007901.html
  - 从DT解析内存区域的权限时保留权限SBI_DOMAIN_MEMREGION_ENF_PERMISSIONS
    https://lists.infradead.org/pipermail/opensbi/2025-January/007903.html

RustSBI团队进展（洛佳）

- HAL组（朱俊星）
  - 为bouffalo-hal（BL808, etc）添加PSRAM初始化功能
  - 为bouffaloader（BL808, etc）添加TF卡初始化与文件加载功能：扫描TF卡加载DTB和bootargs.txt文件，以启动TF卡内的Linux内核
  - 提供命令行界面，支持引导程序的基本调试功能，增加reload、read/write、print、bootargs、boot命令
  - 添加FWFT 扩展支持的 SBI 实现
- 发行版组（邢志昂）
  - 重构prototyper启动逻辑和设备树解析逻辑，支持使用 PMP 保护 prototyper
  - 为 prototyper 提供可重定向代码支持
  - 增加了 FreeBSD 的支持文档
  - 修复一些 bug

RustSBI团队进展（洛佳）

- 大模型组（马铭芮）
  - 实现了对 PDF 文档的向量化存储功能和文档的分块与检索，集成了 Qwen 作为 Embedding 模型进行检索和 Gemma2 作为生成模型进行回答的生成，并建立了用户交互界面/张子涵
  - 调研了系统面向领域的现在文档范围与格式，进行了文档解析部分的优化，实现了对 LaTeX、AsciiDoc 等格式的解析支持/任潇
  - 针对组内建立的 RAG 系统进行了不同开源模型测试和系统故障排查，解决了系统在解析流程中存在的部分逻辑问题/邝嘉诺
- others
  - 举办社区活动：三场 RustSBI 在线分享会
  - 我们将在华中科技大学 (HUST) 举办 WHLUG 线下社区活动，详情见以下链接 https://mp.weixin.qq.com/s/EzOkwHnDTPH7-Qr10DdBKg

香山开源RISC-V处理器 - ICT / PCL（提交人不在线）

香山开源技术讨论群：
879550595 （QQ）

- **功能**
  - 前端
    - 修复一个 MMIO 取指 + 16b 指令下等待 commit 条件的问题 (#4072)
    - 修复一个 ICache MSHR 冲刷后 corrupt bit 未冲刷的问题 (#4112)
    - ICache ECC 故障注入（RAS）(#4044)
  - 后端
    - 修复 CSR 指令未能报出地址翻译异常的问题 (#4118)
    - 修复 hideleg 寄存器中 LCOFI 的读写依赖问题 (#4070)，NEMU 也进行相应修复 (NEMU #733)
    - 修复 CSR 改为部分可流水后未能正确响 应冲刷流水信号的 问题 (#4079)
    - 修复在用 户模式 time 寄存器更新出 错 (#4132)
    - 修复 lui/fld 指令融合在目的寄存器是零寄存器时行为出错的问题 (#4131)
    - 修复 Hint 类指令错误融合的问题 (#4108)
    - NEMU 修复 SGEI 中断优先级异常问题 (#733)
    - 添加 Top-Down 后端相关硬件性能 计数事件 (#4122)

- **功能**
  - 访存与缓存
    - 完成 Svnapot（支持 2 的幂次大小页的地址翻译）扩展的实现并合入主线 (#4107)
    - 修复 UncacheBuffer 有空项时仍无法入队导致卡死的 Bug (#4096)
    - 修复内存返回数据与异常检查错拍导致误报 guest page fault 的 Bug (#4090)
    - 修复若干向量有关的Bug，主要包括非对齐、异常处理和部分边界条件等 (#4084)、(#4085)、(#4086)、(#4101)、(#4103)
    - 修复 LoadUnit 中，因 fast replay 导致的死锁问题 (#4102)
    - 修复一系列 SnpOnce*/SnpStash* 相关的嵌套 Bug (CoupledL2 #306)、(CoupledL2 #308)、(CoupledL2 #309)
    - 修复 MCP2 打开的情况下，替换算法 retry 信号没有维持 2 拍的 Bug (CoupledL2 #303)
    - 修复 VBOP 预取访问 TLB 时 PMP / PMA 检查的连线错误 (CoupledL2 #312)
    - OpenLLC 支持 Top-Down 性能分析 (#4113)
- **PPA优化**
  - 后端
    - 将浮点/向量 Regfile 改为分 4 块 (#4088)
    - 修复 rob 中出队刷新流水线以及向量异常时序问题 (#4075)
    - 将判断向量复杂译码判断信号改为由指令编码直出 (#4066)
    - 将 CSR 输出到前端/访存的读写地址/数据打拍 (#4119)
  - 访存与缓存
    - 删除 MainPipe 中重复信号 (#4117)
    - 减少 LoadQueueReplay 项数，面积减小 2.85%，功耗降低 1.59% (#4082)

banshanjdk-8 让你的 java8 程序在 RISC-V 平台极限加速

Chisel and Additional Technology / Sequencer（提交人不在线）

- Chisel
  - Scala MLIR + CIRCT binding migration
  - zaozi prototype for Scala 3 version of Chisel
- T1
  - HLMC28 tapein
  - Attached matrix roadmap

OpenHW & OpenHW Aisa Working Group

甲辰计划进展(吴伟)

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自由讨论 / AOB

BACKUP

准备加入更多的国际开源组织进行同步观测

欢迎追加或提议