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

2023年04月13日·第055次

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

Host: 李威威

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

1. Milk-V Pioneer 将在4月15日15:00进行产品发布会直播
2. ACT SIG迎来新的chair：来自Alibaba的史青浩（James ）
3. Pine4首款RISC-V单板计算机正式发售，搭载赛昉JH7110
4. RVTE征文延期至5月29日，欢迎大家投稿
5. 跃昉科技完成亿元A轮融资
6. openEuler RISC-V 23.03创新版本亮相，全面提升硬件兼容性和桌面体验
7. 算能正式加入RISC-V基金会
8. AMD VPU中的管理处理器已从ARM转移到RISC-V
9. 芯易荟发布全球首款领域专用处理器生成工具FARMStudio

RISC-V 韩语社区的同步与八卦

- SemiFive是SiFive创始人在韩国成立的公司，也是三星电子的DSP设计解决方案合作伙伴
- FuriosaAI是三星电子支持的做基于RISC-V的SoC的公司，
  - 本月5日Semifive宣布，三星Foundry代工的14纳米SoC开始批量生产
  - 生成的是FuriosaAI的第一代Warboy
    - “Warboy将成为数据中心NPU市场上具有竞争力的AI芯片”

PRODUCT SPECIFICATIONS

Peak Performance	**64 TOPS**
On-chip SRAM	**32 MB**
Host Interface	**PCIe Gen4 8-lane**
Form Factor	**Full-Height Half-Length** **Half-Height Half-Length**
Thermal Solution	**Passive and Active Fan**

TDP	**40 - 60W (Configurable)**
Operating Temperature	**0 - 50°C**
Clock Speed	**2.0 GHz**
DDR Speed	**4266 Mbps**
Memory Type	**LPDDR4X**
Memory Size	**16 GB (max. 32 GB)**
Peak Memory Bandwidth	**66 GB/s**

RISC-V 日语社区的同步与八卦

- RISC-V Day Tokyo Spring (June 20 (Tue) , 2023 12:00 - 19:30 JST (UTC+9))
- 地点：东大
- 其他：有日语也有英语演讲，还有online streaming和QA
- RISC-V Day在日本春秋各有一次，往年都是持续三天。秋会在11月中下旬，有兴趣的老师可以准备一下proposal。

Other Notes:

Renesas: R9A06G150, Andes D25, 100MHz CPU with DSP instructions, floating-point extension and cost-optimised specification, 音频 DSP 用

Kenta IDA 10/04/2023 08:45
Sipeedがこの前言ってた TH1520 (C910 x4) のボードのPreorder開始してるっぽいですね。
https://sipeed.com/licheepi4a

> **sipeed 矽速科技 官网**
> 深圳矽速科技有限公司矽速科技致力于开源智能硬件、人工智能、边缘计算、图像处理等产品的研发、生产和销售，面向企业提供 AIoT 软硬件产品的行业整体解决方案，面向开发者提供开源软硬件平台，发布的一系列开源软硬件深受国内外开源社区开发者的广泛关注

rizkubo 10/04/2023 13:32
おっ、性能良さそう

tetsu_koba 10/04/2023 13:45
このボードもWiFiとBT内蔵だな。技適通してー
ひと昔前にArmベースのシングルボードコンピュータを作っていた中国勢は全部RISC-V にシフトする感じでしょうね。
Core Marksのスコアに

```
Blue:
Compiled with RV64GC toolchain
Light blue:
Compiled with optimized toolchain
```

となっているのですが、このoptimized toolchainというのがrisc-v bit manipulation extension をサポートしているかどうかの違いなのでしょうかね。 (edited)

- 看起来之前提到的Sipeed TH1520（C910 x4）板已经开放预购了哈
-
- 喔，性能好像不错
-
- 这个板子还内置了WiFi和BT。符合《技術基準適合証明》。
- 会觉得很久以前所有的中国公司都在做基于 Arm的单片儿机，现在都在转向RISC-V。
-
- 关于Core Marks的得分：
- Blue:
- Compiled with RV64GC toolchain
- Light blue:
- Compiled with optimized toolchain
-
- 我想知道这个optimized toolchain是不是就是指支持 risc-v bit manipulation extension还是有啥不同

RISC-V 俄语社区的同步与八卦

最近没有八卦

AOSP for RISC-V 进展

- Google AOSP upstream PR
  - Android (RISC-V) Review 双周报 第 14 期（in Chinese）：https://zhuanlan.zhihu.com/p/621530337
    - 内核主线 rebase 到 6.2
    - Bionic 主要是一些清理动作，包括继续为 SCS 修改
    - ART 部分改动也不大，主要是一些小的清理工作
    - Berberis: dynamic binary translator 这个专门为 riscv 创建的新项目这个周期更新特别频繁，比较活跃。
- RVI Android SIG upstream:
  - Chromium for Android apk 从 93/96 升级到 109.0.5414.87 Status update
    - 可以运行 content shell，加载静态页面，但还无法播放视频流媒体
    - https://github.com/aosp-riscv/chromium/pulls?q=is%3Apr+is%3Aclosed
- 技术文章
  - 静态链接可执行程序的入口分析: https://zhuanlan.zhihu.com/p/619674333
  - 介绍一个方便 riscv for aosp 测试的开发环境：https://zhuanlan.zhihu.com/p/620131525
  - RISC-V 中的 global pointer 寄存器：https://zhuanlan.zhihu.com/p/620412728
  - 学习笔记：Position-Independent Executables：https://zhuanlan.zhihu.com/p/620935366
  - ……

RISC-V GCC进展

- RVV完成了gcc Intrinsic的支持，目前处于debug阶段，自动向量化支持工作已经展开,ESWIN,Intel也参与其中
  https://gcc.gnu.org/pipermail/gcc-patches/2023-April/615355.html
  https://github.com/riscv-non-isa/riscv-toolchain-conventions/issues/33
- Profiles在工具链中支持的草案
  https://docs.google.com/document/d/1TZXRIgVfQHWQ6xrZflHXUCSav6xNmliojrW2bEsvPno/edit
- ZC*扩展的patch正在review中:
  https://gcc.gnu.org/pipermail/gcc-patches/2023-April/615287.html
- Atomic A.6 映射支持，对应LLVM:
  https://gcc.gnu.org/pipermail/gcc-patches/2023-April/615264.html
- GCC13将在五月正式release,目前所有回归测试发现的RISC-V后端错误均提交了修复patch:
  https://gcc.gnu.org/pipermail/gcc-patches/2023-April/615358.html
- RISC-V GNU Toolchain会议slides链接:
  https://docs.google.com/presentation/d/1kukeALDHajqYovY3xFbvaQAXS9N5G_8CmZILL13r3ns/edit#slide=id.g22bb7b804d2_1_0

Clang/LLVM 进展 (PLCT)

- [RISCV] Add DAG combine to fold (sub 0, (setcc x, 0, setlt)) -> (sra x , xlen - 1) https://reviews.llvm.org/D147538
- [CodeGenPrepare][RISCV] Reverse transform in CGP to use zero-compare branchhttps://reviews.llvm.org/D147789

Clang / LLVM 社区的更新（廖春玉、陆旭凡）

- [RISCV] Add Smaia and Ssaia extensions support https://reviews.llvm.org/D148066
- [RISCV] Support LLVM IR intrinsics for XSfvcp extension.https://reviews.llvm.org/D147934
- [RISCV][MC] Add support for experimental Zvfbfwma extension https://reviews.llvm.org/D147612
- [RISCV][MC] Add support for experimental Zvfbfmin extensionhttps://reviews.llvm.org/D147611
- [RISCV][MC] Add support for experimental Zfbfmin extensionhttps://reviews.llvm.org/D147610
-

QEMU/Spike/Sail/ACT进展 (PLCT)

- QEMU
  - 更新PM相关修复到v6
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00024.html
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00269.html
  - 更新RVH相关检查优化以及代码格式修复到v3
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00087.html
  - 更新ACT相关支持到v4
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00094.html
  - 修复MPP相关问题
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00195.html
  - 添加Zdinx 对Zfinx的依赖性检查
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00266.html
  - 尝试解决priv version兼容性问题
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00199.html
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00276.html
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00432.html
  - 添加对BF16的支持
    - https://lists.gnu.org/archive/html/qemu-riscv/2023-04/msg00423.html

V8 for RISC-V 更新（邱吉、陆亚涵）

- 上游日常维护：
  - 4380614: [riscv][builtins] Link up various offset for api calls | https://chromium-review.googlesource.com/c/v8/v8/+/4380614
  - 4394902: Reland "[riscv][api] Always use the-hole as default return" | https://chromium-review.googlesource.com/c/v8/v8/+/4394902
  - 4394942: [riscv] Using s8 as backtrack_stackpointer reg and optimize BranchShortHelper | https://chromium-review.googlesource.com/c/v8/v8/+/4394942
  - 4397342: [riscv][builtins] Streamline API calls | https://chromium-review.googlesource.com/c/v8/v8/+/4397342
  - 4394982: [riscv] Implement Label::Distance in Baseline | https://chromium-review.googlesource.com/c/v8/v8/+/4394982
  - 4405040: [riscv][code] Merge kind_specific_flags with flags | https://chromium-review.googlesource.com/c/v8/v8/+/4405040
- 实现rvv vslide指令 from jingpeiyang@eswincomputing.com:
  - 4380702: [riscv] Implement vfmerge instruction and test | https://chromium-review.googlesource.com/c/v8/v8/+/4380702
  - 4323700: [riscv]Remove duplicate source files in riscv architecture | https://chromium-review.googlesource.com/c/v8/v8/+/4323700

Spidermonkey for RISC-V更新（邱吉、陆亚涵）

- 上游日常维护:
  - [riscv]Using illegal instructions to implement the WASM trap. https://phabricator.services.mozilla.com/D175022
  - [riscv] Enable jit by default https://phabricator.services.mozilla.com/D174871

OpenJDK for RISC-V 更新(RV64及upstream) 杨飞

1. Authored jdk-mainline PRs:
- Update RISC-V for JDK-8291555: https://github.com/openjdk/jdk/pull/10907/commits/d1c88261ac5f08e32d77ba9b1408c48a363df34a

2. Reviewed jdk-mainline PRs:
- https://github.com/openjdk/jdk/pull/13245 (8305247: On RISC-V generate_fixed_frame() sometimes generate a relativized locals value which is way too large)
- https://github.com/openjdk/jdk/pull/13244 (8305236: Some LoadLoad barriers in the interpreter are unnecessary after JDK-8220051)
- https://github.com/openjdk/jdk/pull/12682 (8302908: RISC-V: Support masked vector arithmetic instructions for Vector API)
- https://github.com/openjdk/jdk/pull/13079 (8304265: Implementation of Foreign Function and Memory API (Third Preview))
- https://github.com/openjdk/jdk/pull/13368 (8305728: RISC-V: Add test_bit for power-of-two bit mask testing)

3. Reviewed/Merged riscv-port-jdk17u backport PRs:
- https://github.com/openjdk/riscv-port-jdk17u/pull/33 (8305512: RISC-V: Enable RVC extension by default on supported hardware)
- https://github.com/openjdk/riscv-port-jdk17u/pull/34 (8290137: riscv: small refactoring for add_memory_int32/64)
- https://github.com/openjdk/riscv-port-jdk17u/pull/35 (8293474: RISC-V: Unify the way of moving function pointer)
- https://github.com/openjdk/riscv-port-jdk17u/pull/36 (8294430: RISC-V: Small refactoring for movptr_with_offset)
- https://github.com/openjdk/riscv-port-jdk17u/pull/37 (8294492: RISC-V: Use li instead of patchable movptr at non-patchable callsites)
- https://github.com/openjdk/riscv-port-jdk17u/pull/38 (8295270: RISC-V: Clean up and refactoring for assembler functions)
- https://github.com/openjdk/riscv-port-jdk17u/pull/39 (8295968: RISC-V: Rename some assembler intrinsic functions for RVV 1.0)
- https://github.com/openjdk/riscv-port-jdk17u/pull/40 (8293050: RISC-V: Remove redundant non-null assertions about macro-assembler)

OpenJDK for RISC-V 更新（RV64及upstream）张定立

Merged & New JDK-mainline PRs:

- https://github.com/openjdk/jdk/pull/12682 | (8302908: RISC-V: Support masked vector arithmetic instructions for Vector API)(as co-authur)

Backport jdk17u:

- https://github.com/openjdk/riscv-port-jdk17u/pull/34 | (8290137: riscv: small refactoring for add_memory_int32/64)
- https://github.com/openjdk/riscv-port-jdk17u/pull/35 | (8293474: RISC-V: Unify the way of moving function pointer)
- https://github.com/openjdk/riscv-port-jdk17u/pull/36 | (8294430: RISC-V: Small refactoring for movptr_with_offset)
- https://github.com/openjdk/riscv-port-jdk17u/pull/39 | (8295968: RISC-V: Rename some assembler intrinsic functions for RVV 1.0)

OpenJDK for RISC-V 更新（RV64及upstream）曹贵

Merged & New JDK-mainline PRs:

- https://github.com/openjdk/jdk/pull/12682 | (8302908: RISC-V: Support masked vector arithmetic instructions for Vector API)(as co-authur)

Backport jdk17u:

- https://github.com/openjdk/riscv-port-jdk17u/pull/37 | (8294492: RISC-V: Use li instead of patchable movptr at non-patchable callsites)
- https://github.com/openjdk/riscv-port-jdk17u/pull/38 | (8295270: RISC-V: Clean up and refactoring for assembler functions)
- https://github.com/openjdk/riscv-port-jdk17u/pull/40 | (8293050: RISC-V: Remove redundant non-null assertions about macro-assembler)
- https://github.com/openjdk/riscv-port-jdk17u/pull/42 | (8302776: RISC-V: Fix typo CSR_INSTERT to CSR_INSTRET)

OpenJDK8 backporting（章翔）

- Add rv64 for debugger
- Add rv64 for test about .java
- Fix for jtreg cachedSocket becauseof JDK-8169041
- Add jdk_tier2
- Add rv64 for MetaspaceShared::generate_vtable_methods
- Add rv64 for test
- Fix LIR_Address::verify0() by adding rv64
- Fix cmove for NO_FLAG_REG
- Fix __ branch about gen_source_check
- Fix record_klass_in_profile_helper
- Fix generic_arraycopy
- Fix resolve_jobject
- Fix verify_oop_array

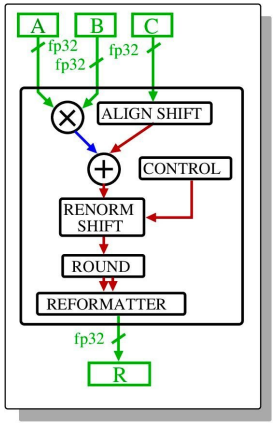
openEuler RISC-V

- openEuler runs successfully on **Sophgo SG2042** news
- openEuler RISC-V 23.03 released : download news
  - QEMU/D1(NezhaD1&LicheeRV)/Unmatched/VisionFive V1/ VisionFive V2/Sophgo SG2042
  - the 23.03 upgrade Linux Kernel to 6.1
  - Added support for multiple desktop environments, such as XFCE、UKUI、DDE、Kiran、GNOME、Cinnamon
  - Added isulad container support
  - updates the previous optimizations related to firefox and mesa
- PR（7个）
  - wpa_supplicant:Fix insecure cipher related wireless connectivity issue @jchzhou merged
  - vdo:增加riscv架构支持 @laokz open
  - rocksdb:增加riscv构建支持 @laokz open
  - openEuler-rpm-config:[手工sync] PR-124: 修复riscv64上brp-ldconfig失效问题 @laokz open
  - mariadb-connector-c:修复riscv64下的pkgconfig目录 @laokz merged
  - libvpx:增加riscv构建支持 @laokz open
  - eggo:Fix riscv64 support @misaka00251 open
- openEuler Techday EP04 — Leap into the future with the openEuler RISC-V SIG

Gentoo for RISC-V 的情况更新（Gentoo 小队）

- Support statistics (7788/18718, 41.61%)：https://whale.plctlab.org/riscv/support-statistics/
- A total of 48 keywording commits: https://whale.plctlab.org/riscv/RISC-V-双周会/20230413/commits.txt
  - dev-ruby/rails: Keyword 7.0.4.3-r1 riscv
  - www-client/firefox: keyword 111.0 for ~riscv
  - www-servers/puma: Keyword 6.1.1-r1 riscv
  - keyworded for OpenCL related packages
- VisionFive 2 Running Gentoo a GPU that supports OpenCL
  - https://forum.rvspace.org/t/experimental-gentoo-image/1807

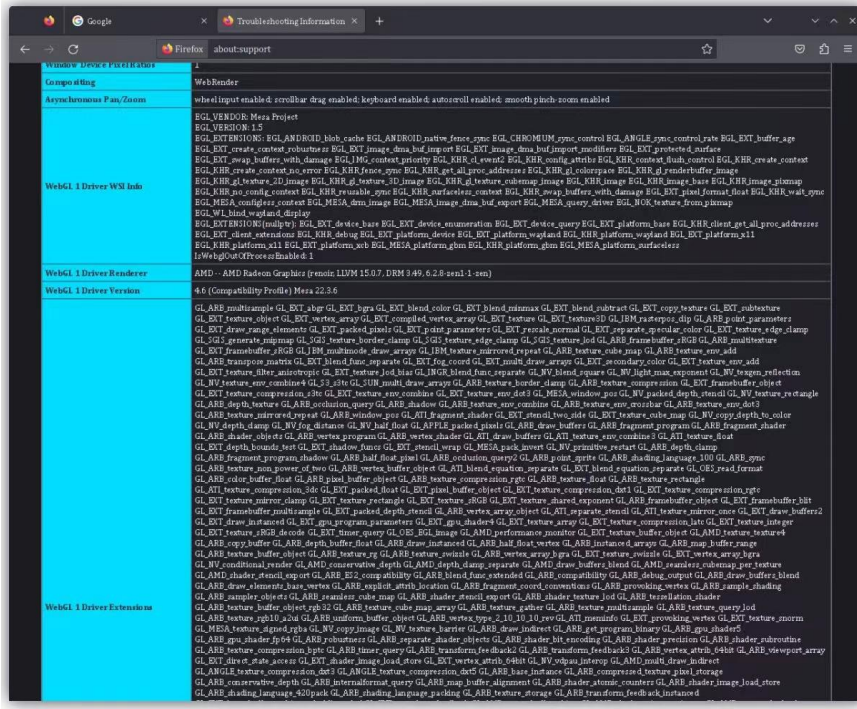
Arch Linux RISC-V（潘瑞哲）



- https://github.com/felixonmars/archriscv-packages
- opencolorio: FMA issue
  - https://github.com/AcademySoftwareFoundation/OpenColorIO/issues/1784
  - C code: `pixel[2] * blu[0] + blu[1]`
  - asm1: `fmul.s <a>, <a>, <b>; fadd.s <result>, <a>, <c>`
  - asm2: `fmadd.s <result> <a> <b> <c>`
  - diff: `float(a * b + c)` vs `float(float(a * b) + c)`
  - IEEE754 The operation `fusedMultiplyAdd(x, y, z)` computes (x×y)+z as if with unbounded range and precision, rounding only once to the destination format.
  - `x86_64` manually enable: `-mfma`
  - `riscv64` manually disable: `-ffp-contract=off`
- deno:
  - Support for unconventional builds https://github.com/denoland/rusty_v8/pull/1209
  - turned off `V8_SHARED_RO_HEAP` and also turned off `V8_COMPRESS_POINTERS`, as they are not yet implemented for RISC-V.
  - But V8 insists at least either of this should be turned on, so we also comment out https://github.com/denoland/rusty_v8/blob/5dce1eaeef6457b7571b12c9c6170a362a62bb38/src/binding.cc#L2910
  - Availability after applying patches: REPL have minor issues (`TSLS: can't find ~/$deno$repl.ts`), other functions works fine
- linux:
  - turned on `I2C_HID_OF` to enable OpenCores I2C controller driver (And I2C-HID driver, if it's not yet enabled) in the kernel config. OpenCores I2C hw is present (at least) on the Unmatched board, various SiFive SoCs and in emulators.

Arch Linux RISC-V（潘瑞哲）

- qemu-user:
  - https://lists.gnu.org/archive/html/qemu-devel/2023-04/msg01259.html
  - linux-user: Add some ioctls for mesa amdgpu support
  - Xiongchuan Tan (3):
  - `linux-user: Add compile flag for amdgpu drm support`
  - `linux-user: Add more drm ioctls for mesa`
  - `linux-user: Add amdgpu specific drm ioctls for mesa`
- This image shows we rendered firefox with an AMD Radeon Graphic Card, in qemu-user



Fedora for RISC-V（傅炜）

- **RPM packaging**
  - Status: Fedora 37 done, **Building Fedora 38**
  - F38：6400+ srpm have been built[test build].
- **main package version:**
  - **Toolchain(up-to-date for F38)**
    - **gcc-13.0.1-0.12[DONE]**→ 13.0.1-0.13
    - **glibc-2.37.1**[DONE][rawhide]
    - **Binutils 2.39-11**[DONE] → 2.40-2[rawhide]
  - **libffi-3.4.4-2(up-to-date)**
  - java-latest-openjdk-19.0.1.0.10-3(up-to-date)→**20**
  - **perl-5.36.0-495(up-to-date)**
  - **Python 3.11.2-1(up-to-date)**
  - LLVM/Clang 15.0.7-2(up-to-date) →16.0.0-2
  - Go 1.20.3-1(up-to-date) **无额外patch**
  - **rust-1.68.2-1(up-to-date)**

- **App packaging**
  - firefox-110.0-3[DONE]→ **112**[ONGING]
  - Libreoffice 7.4.5.1-1[DONE] MOCK
  - Chromium-110.0.5481.177 [ONGING]

- **Image :** Sophgo SG2042 EVB / TH1520 Light
- **ROS/ROS2 porting is DONE, demo testing**

Debian for RISC-V（于波）

- Official porting update
  1. Still wait add unstable
  2. Updated ports/riscv64 wiki
  3. Will remove all non-official buildd machines at the right time
- Debci update

  New issued package debvm
- Some works
  1. Firefox 111.0.1 can be built on Unmatched #1012218
  2. Chromium 111 built from Eric Long
  3. Bootstrap sbcl 2.2.2
  4. Rebootstrap scripts support riscv32(arch-test & linux)

Deepin for RISCV

- 本期暂无更新

FW相关更新（王翔）

- opensbi
  - 优化重定位删除一条不必要的load
  - 优化重定位避免不必要的跳转
  - 分析uart的clocks获取时钟信息，如果clock-frequency不存在
  - tlb ipi的优化终于开始review了

固件相关更新（洛佳）

- RustSBI生态库的更新
  - RustSBI-QEMU：添加DBCN(#50)，PMU计划中，仍以独立包方式支持
  - 原型设计系统更新：aw-soc（组件化驱动）和d1-rom-rt转至gitee管理(#19)，bl-rom-rt开始开发
  - aw-soc组件化驱动：spi功能和测试模块(#16,#17)，spi驱动功能(#14,#15)
  - RustSBI镜像静态分析工具：完善BL808芯片支持(#2)，增加D1芯片支持(#1)
  - 国产芯片支持转至gitee管理(已得到所有贡献者批准#18)
- 支持SBI 2.0-rc1扩展
  - sbi-spec（链接）已发布0.0.6版本；sbi-rt（链接）已发布0.0.3-rc.2版本
- 开源支持计划
  - 在高校内部组织本硕博学生参与RustSBI项目
  - 目前清单内有27个子项目，两个项目开始开展，一个项目已完工
  - 成功组织开源工坊（workshop）一场，参与学生给出10分好评

RISCV性能跟踪小队 - 陈小欧

本期无更新

香山开源RISC-V处理器 - ICT / PCL

- 南湖进展

  * 本周前端设计无进展，后端正在进行物理设计

- 昆明湖进展
  - 前端：L2 FTB 和 BATAGE 均实现完成，进行性能调优
  - 后端：乱序执行引擎重构完成，遗留一些性能 feature 待补充；持续增加向量指令的支持与验证
  - 访存：loadqueue 拆分完成设计，性能达到原版水平，探索参数调优
  - 缓存：新版 l2 完成去 set 阻塞设计，开始性能评测等待合入主线

MLIR 结合 RISC-V 相关工作 - 张洪滨

注:提交人不在线 hongbin2019@iscas.ac.cn

完善 MLIR Vector Dialect Dynamic Vector Length Support Proposal

（又更新了一版 Draft RFC，将会和 Google 和 Arm 团队讨论）

- **Integrate vector length configuration with the current mask operation.**
- **Create a standalone vector length operation.**
- **Integrate dynamic vector representation into ODS.**

[WIP] RVV 和 Gemmini 的功能和性能测试

- https://github.com/sequencer/vector/issues/205
- https://github.com/sequencer/vector/issues/200
- https://github.com/sequencer/vector/issues/189
- https://github.com/buddy-compiler/buddy-mlir/pull/130

Chisel and Additional Technology / Sequencer

- RVV uarch documentation
  - collaborate with buddy compiler team
- New Chisel SRAM API
  - https://github.com/chipsalliance/chisel/pull/3131
  - https://github.com/llvm/circt/pull/5009
- RVV development
  - test: new ELF loader
  - uarch change: vcsr will follow instructions
  - simulation with rocket!!!

OpenHW & OpenHW Aisa Working Group

- BSOC加入OpenHW会员

ROCm bootstrapping for RISC-V (陆言, PLCT Tariser)

- AMD ROCm™ : an open software ecosystem for accelerated compute, supporting HPC & machine learning
- 基础工具链出包，正在验证中
  - rocm-llvm, rocm-cmake, roct-thunk-interface, rocm-device-libs, rocminfo, rocr-runtime, rocm-compilersupport and hip
- 第二阶段：数值库与增强工具：rocFFT, rocBLAS, etc.，大约 30 个包（预期五月初）
- 第三阶段：Tensorflow, Pytorch, GROMACS 等应用软件（TBD）
- 验证平台： Ubuntu 22.04 LTS, HiFive Unmatched and Radeon VII
  - RDNA/RDNA 2 非 x86 下驱动不稳定、CDNA 难以获取
  - Polaris 需要 PCIe 3.0 Atomics（增加不稳定因素）、Vega 可选，Hawaii 即将 EOL
- ROCm 不太成熟，需要更多测试，未来计划测试更多发行版与硬件
- 其他加速框架？oneAPI / Xilinx Runtime Library / NEC SX…?

自由讨论 / AOB

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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