An Introduction to the Arch Linux RISC-V Port and Related Works

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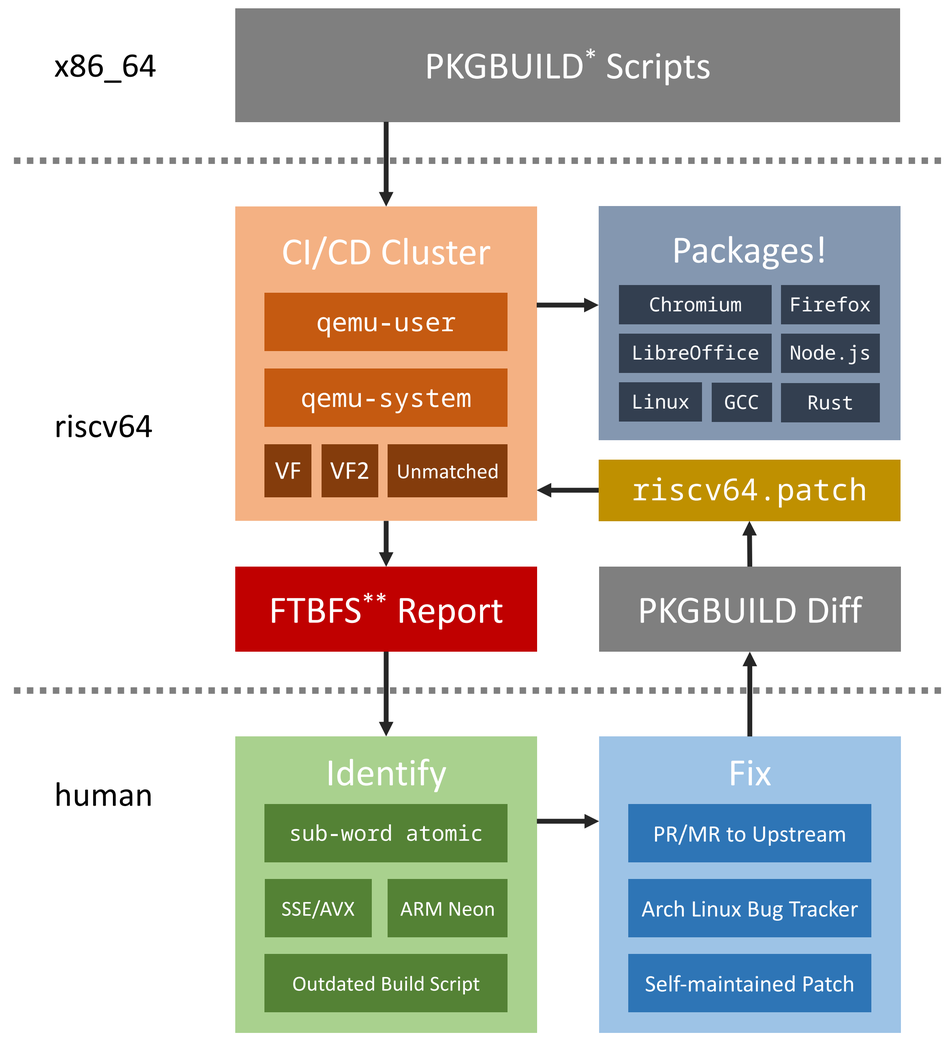
Motivations & Goals

- In order to promote the use of RISC-V devices among end users, we look forward to have a **feature-rich distribution** to meet their daily needs.
- Here, we'd like to introduce the Arch Linux RISC-V port which is currently one of the most integrated ports among all architecture ports of Arch Linux, include but not limited to aarch64 / armv7h / loong64.
- With LibreOffice, Chromium, Firefox and other necessary software ported and packaged, users can have nearly consistent experiences in comparison with x86_64.
- We also actively contribute to the open source community to help developers and maintainers get their project ready for riscv64, as well as providing easier access to riscv64 development environments, including but not limited to containers spawned with QEMU, and SSH access to real physical boards.
- Our ultimate goal is to merge the RISC-V port into upstream Arch Linux, so that **riscv64gc** becomes an officially supported architecture of Arch Linux.

Workflow



*: PKGBUILD is the build script of every package in the Arch Linux world.

**: Failed to Build From Source, an abbr. taken from the Arch Linux Upstream.

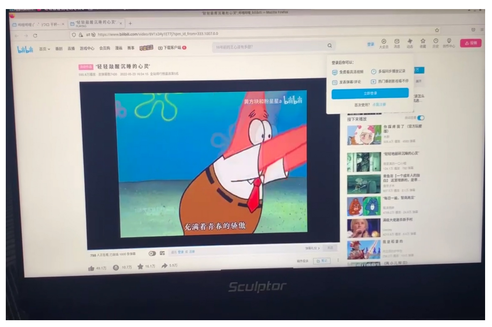
Porting Progress

Arch	[core]			[extra]		
	Up-to-date (Ratio%)	Outdated	Missing	Up-to-date (Ratio%)	Outdated	Missing
x86_64	264	0	0	13222	0	0
i486	163 (61.74%)	93	8	4813 (36.4%)	4688	3721
i686	162 (61.36%)	97	5	5805 (43.9%)	6067	1350
pentium4	166 (62.88%)	93	5	5857 (44.3%)	5958	1407
aarch64	241 (91.29%)	10	13	10927 (82.64%)	161	2134
armv7h	240 (90.91%)	10	14	10650 (80.55%)	275	2297
riscv64	**243 (92.05%)**	13	8	10072 (76.18%)	2092	**1058**
loong64	165 (62.5%)	91	8	5051 (38.2%)	4529	3642

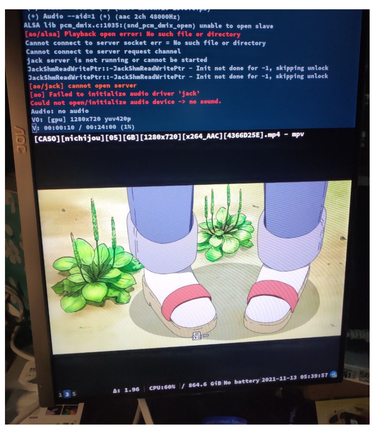
- Among all Arch Linux ports, riscv64 already has the highest up-to-date ratio for [core] repo packages. For the [extra] repo, the riscv64 port also has the fewest missing packages. We are actively working on reducing the count of outdated packages.
- The comparison info can be grabbed from the following url: https://archriscv.felixc.at/.status/compare.html
- Arch Linux RISC-V also provide routine builds of images and rootfs, as well as build scripts for crafting an Arch Linux RISC-V image from scratch. The image can be booted using qemu-system. It also can work well out-of-the-box with most of the RISC-V development boards that are available now, such as Unmatched, All Winner D1 and Vision Five 2.
- Official images and rootfs can be found in the following url: https://archriscv.felixc.at/images/

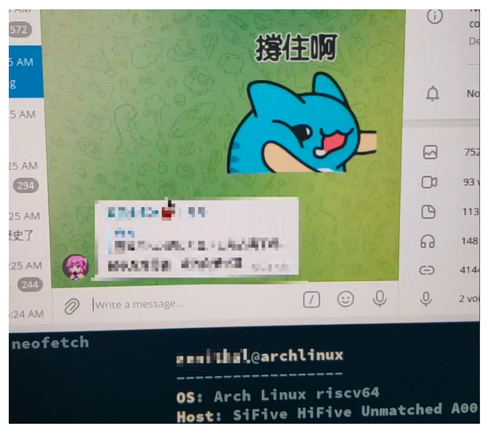
Showcases

- Watching videos on Bilibili with Firefox using VisionFive:

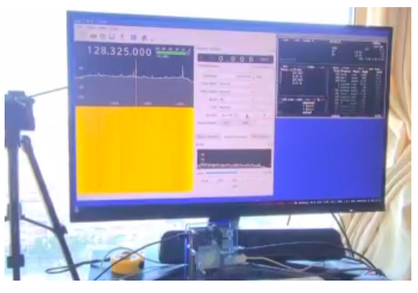


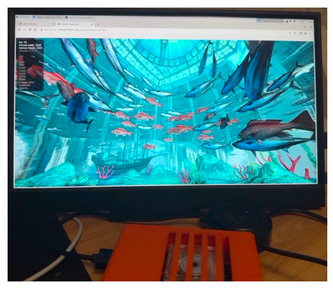
- Watching local videos with mpv and using Telegram on Unmatched:





- Monitoring ATC with gnuradio, and trying WebGL prototypes on VisionFive 2:





- LibreOffice and Box64 are also usable, but we currently have no screenshots for them.