Linux Distros on RISC-V PC/Server

status update

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Nov 19th 2021 @ RISC-V Day Tokyo 2021 Autumn

AGENDA

Distro | **Linux Distros on RISC-V**

Demo info | **Run Fedora on RISC-V Hardware**

Status | **The software component**

Future | **RISC-V PC & Server**

Summary

More and more hardware supported in 2022

rpmbuild on RISC-V
by Richard Jones

The 2nd bootstrap

Koji

For RISC-V build farm

Red Hat
Join RISC-V Foundation

October 15, 2016

March, 2018

Aug, 2018

August 10, 2016

Jan 29, 2018

April 15, 2018

Jul, 2019
IBM is a Founding member of Foundation

The 1st bootstrap

The 3rd bootstrap

Graphic Desktop is enabled on a real RISC-V Hardware

Fedora Bootstrap

Fedora 33

QEMU
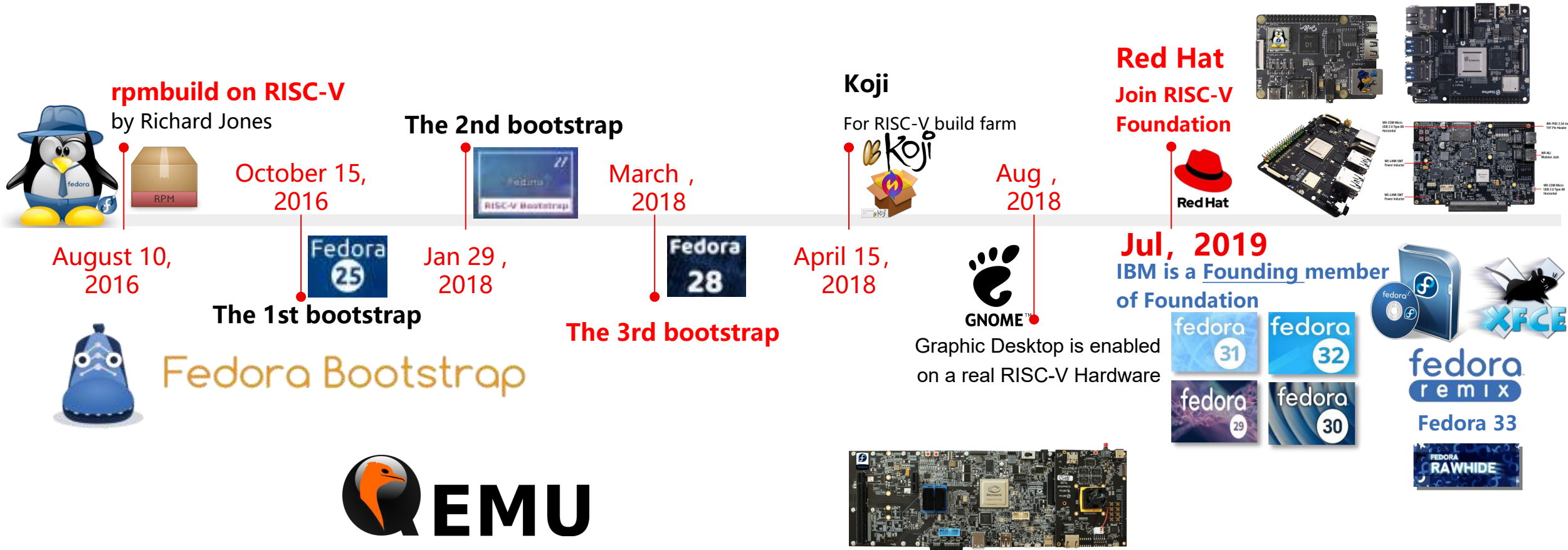
Since Fedora has an **upstream first policy** and it also applies to Fedora/RISC-V.
We need all the key patchsets for **toolchain**, **Linux kernel** and **glibc** to be merged, then we can do the **final** bootstrap on RISC-V.

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Summary

The Status of Fedora on RISC-V

XFCE

Minimal **Developer**

Fedora
Bootable: OpenSBI->U-Boot->GRUB on QEMU&Hardware
package management: dnf + rpm
Build system: Koji
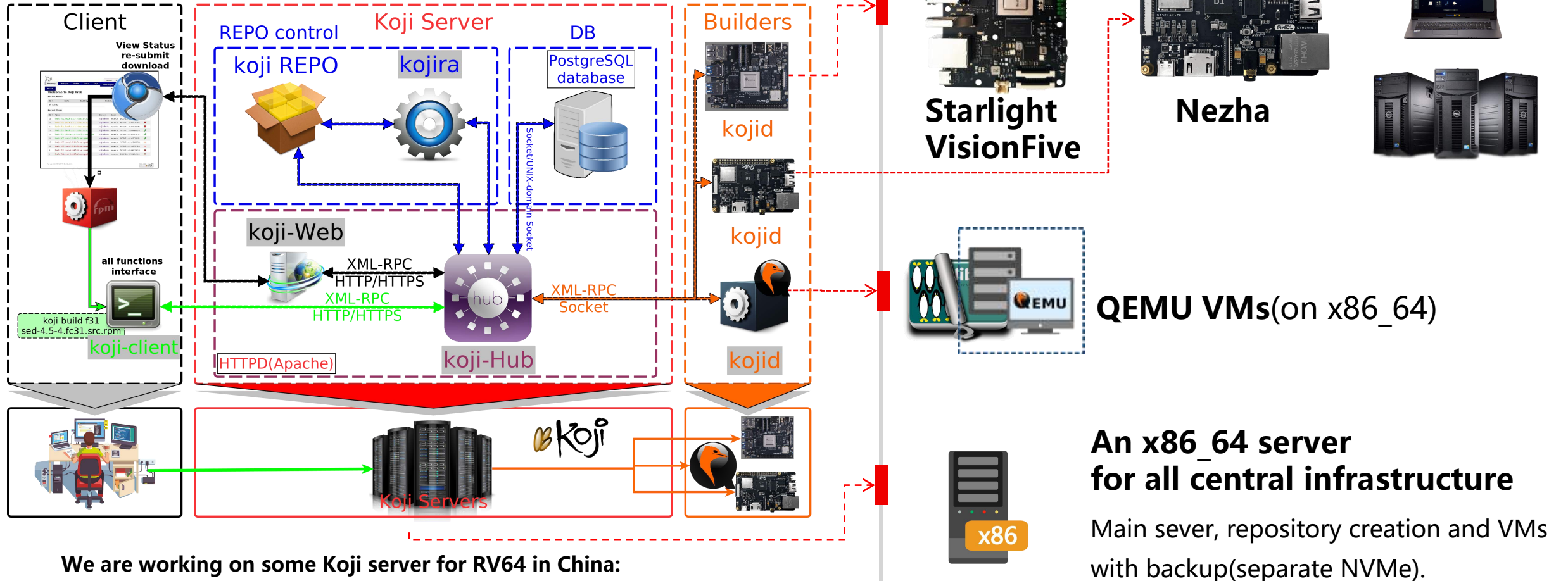Status: In maintenance，**Fedora 33**

Repositories in China

https://isrc.iscas.ac.cn/mirror/fedora-riscv/

http://openkoji.iscas.ac.cn/pub/

Info Source:
http://fedora.riscv.rocks/repos-dist/
https://dl.fedoraproject.org/pub/alt/risc-v/
https://mirror.math.princeton.edu/pub/alt/risc-v/

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Koji Build System for RPMs & Image

Koji builds RPMs for the Fedora Project and EPEL.

We will have MORE, like ...

Starlight VisionFive

Nezha

QEMU VMs(on x86_64)

An x86_64 server for all central infrastructure

Main sever, repository creation and VMs with backup(separate NVMe).

Client

View Status re-submit download

all functions interface

koji build f31 sed-4.5-4.fc31.src.rpm

koji-client

REPO control

koji REPO

kojira

Koji Server

DB

PostgreSQL database

Socket/UNIX-domain Socket

koji-Web

XML-RPC HTTP/HTTPS

XML-RPC HTTP/HTTPS

HTTPD(Apache)

koji-Hub

XML-RPC Socket

Builders

kojid

kojid

kojid

Koji Servers

We are working on some Koji server for RV64 in China:

StarFive: https://fedora.starfivetech.com/koji/

ISCAS: https://openkoji.iscas.ac.cn/koji/

Oepkgs: https://oepkgs.net/

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oepkgs Build System for RPMs & Image

Gitee

Oepkgs User List ①

Packages Config List ②

Oepkgs Client ③

RESTful API
DELETE POST PUT GET

WebHook ④

Packages Source Code ⑤

oepkgs Cloud Server Cluster

oepkgs Server

REST API

UserConfig

Flask

Jenkins

Koji

Apache

Gitee Jenkins Plugin

Koji Builder
（AArch64）

Koji Builder
（x86_64）

Koji Builder
(RV64 QEMU)

RISC-V

REPO

Repo Server

repo.oepkgs.net

Shared Storage

oepkgs

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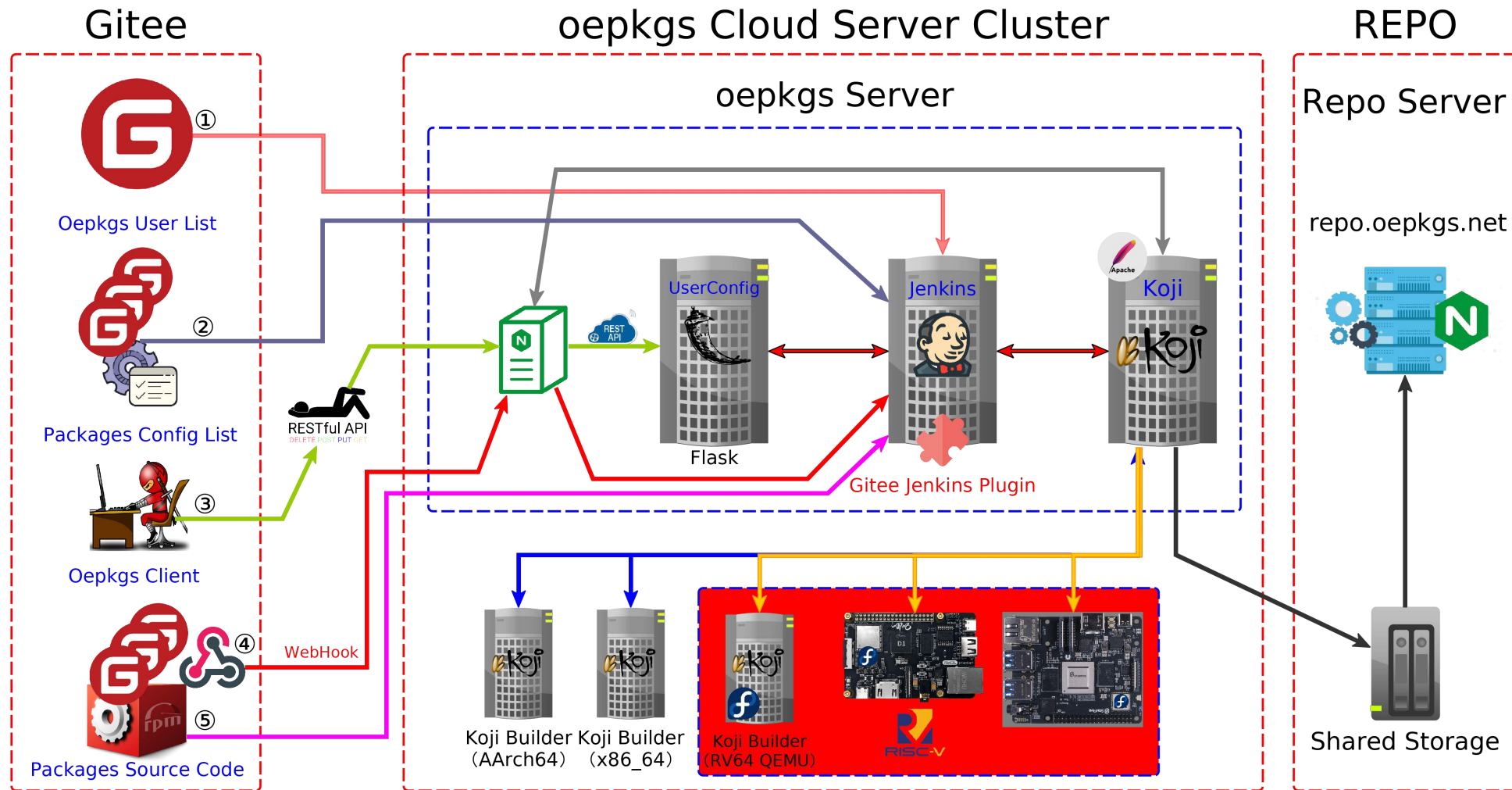
Supported Targets

JingHong Platform - JH7100

Fedora Images can run on Starlight and **ViSionFive**.

U-Boot & Linux kernel are upstreaming.
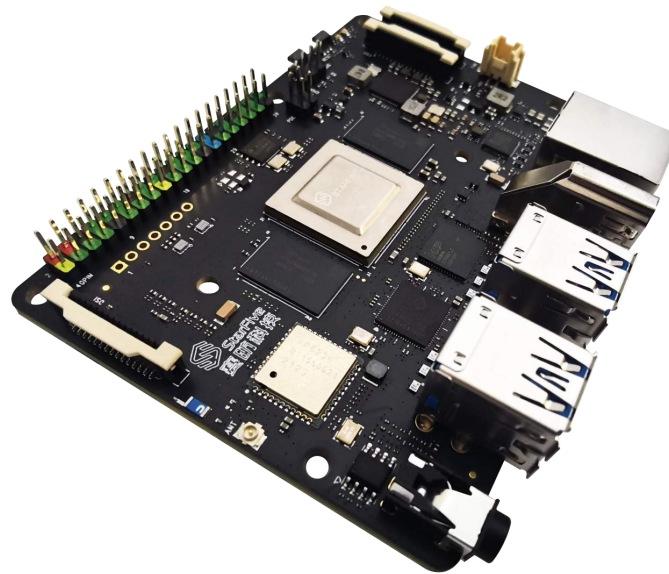
No.	Description
1	RISC-V U74 Dual-Core 64-bit RV64GC ISA SoC
2	2 x 4GB LPDDR4 RAM
3	2.4GHz Wi-Fi and Bluetooth 4.2 (BLE)
4	40 Pin GPIO Header
5	MIPI-DSI Connector
6	PMIC
7	USB Type-C Connector
8	LCD to HDMI IC
9	HDMI 2.0 Connector
10	2 x MIPI-CSI Connector
11	Gigabit Ethernet (RJ45 Connector)
12	4 x USB 3.0 Host Type-A
13	3.5mm Audio Jack (4-pole stereo audio output)
14	Micro-SD SDXC Card Slot

Info Source:

https://www.starfivetech.com/site/newsdetail/568
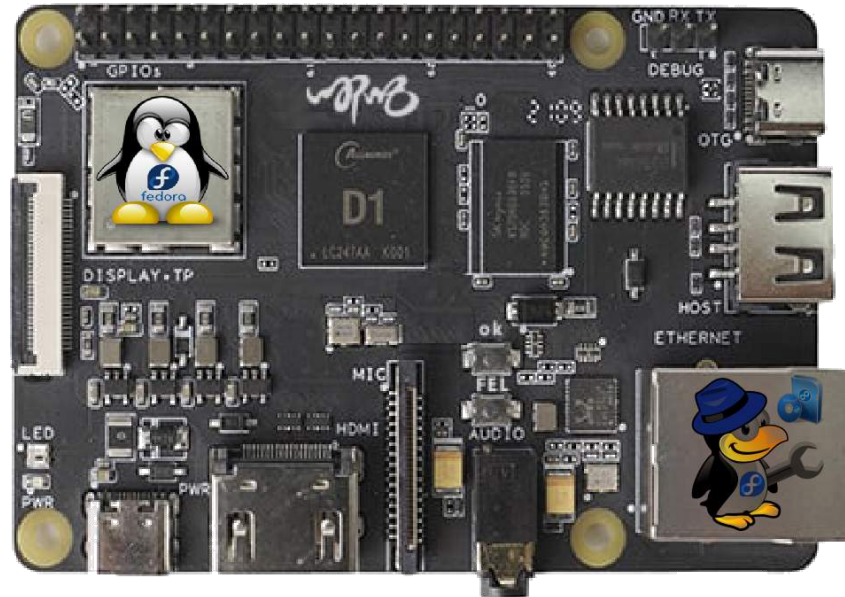
Starlight

Supported Targets

Allwinner D1

Fedora Images can run on this development platform.

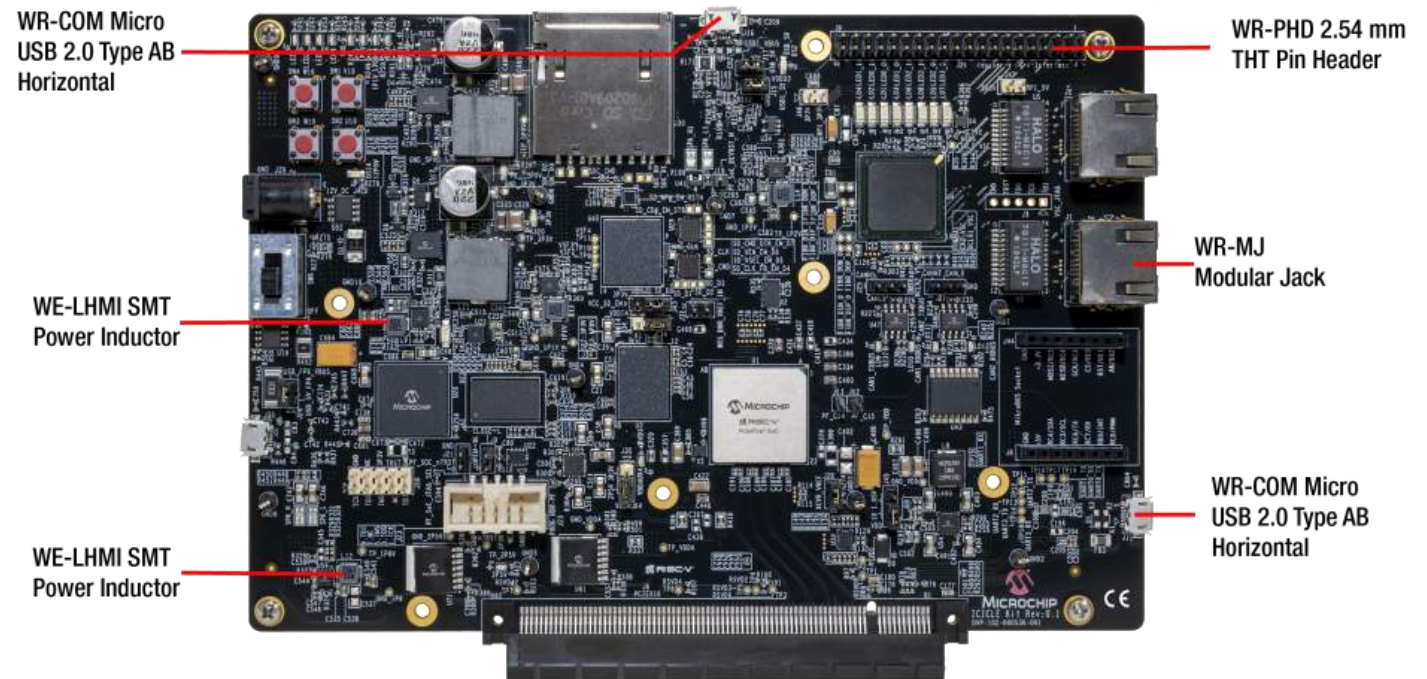U-Boot & Linux kernel are upstreaming.

Supported Targets

PolarFire SoC Icicle Kit

Fedora Image can run on this open-spec FPGA-enabled, SiFive U540 based PolarFire SoC platform. Waiting a new version of hardware.


WR-COM Micro
USB 2.0 Type AB
Horizontal

WE-LHMI SMT
Power Inductor

WE-LHMI SMT
Power Inductor

WR-PHD 2.54 mm
THT Pin Header

WR-MJ
Modular Jack

WR-COM Micro
USB 2.0 Type AB
Horizontal

Info Source:

https://linuxgizmos.com/risc-v-based-polarfire-soc-debuts-on-499-dev-board/

Targets

HiFive Unmatched - SiFive Freedom U740

Fedora Images can run on this high-performance platform in a PC form factor once we get the board.

Info Source:

https://www.sifive.com/boards/hifive-unmatched

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The Status of Linux Distro on RISC-V
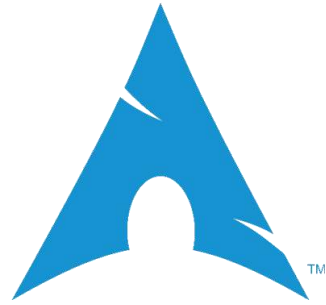
Arch-Linux

Bootable: yes, OpenSBI + U-Boot on QEMU and Hardwares
package management: pacman + bsdtar
Build system: Arch Build System(ABS) , but currently using
devtools (systemd-nspawn)
Status: under development

Debian

Bootable: Yes, on QEMU and Hardware
package management: apt + deb
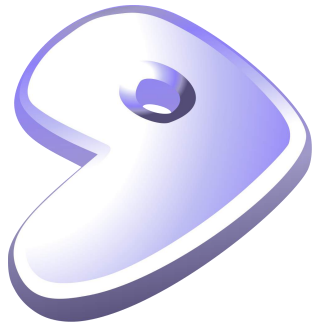Build system: buildd
Status: In maintenance

Info Source:

Arch: Felix Yan(晏然), Sequencer(刘玖阳)

Debian: https://wiki.debian.org/RISC-V

https://riscv.org/exchange/software/

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The Status of Linux Distro on RISC-V

Gentoo

Bootable: Yes, OpenSBI + U-Boot on QEMU&hardware
package management: emerge + portage
Build system: portage
Status: **stage4 bootable Image**

openEuler

Bootable: Yes, OpenSBI + U-Boot on QEMU and Hardwares
package management: dnf + rpm
Build system: OBS, Koji or oepkg
Status: **stage3 bootable image**

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