

**Which
Phone
to get to run
Mobile Linux
on?**

Outline

- Introduction
- What is this about?
- What is this not about?
- Devices
- Let's discuss!

Who am I?

- Peter, 39
- Blog: <https://linmob.net> (Weekly Updates on #LinuxMobile)
- Side project: <https://linuxphoneapps.org> (talk later today)
- Contributing to [mobile-config-firefox](#)

Who's here?

Raise your hand if

1. This is my first exposure to running desktop-ish Linux on a handheld device
2. I have been to this dev-room in the years before (or attended similar things before and feel somewhat familiar with the topic)
3. I have ported a device to \$OS and it's going great
4. I am building my own hardware, suckers!

(if new people)

Common Problems

1. Be warned: Reliable audio is a challenge, still
2. some Bluetooth profiles (e.g., the one for in car-use, HFP) are often not properly supported
3. VoLTE (Voice over LTE/5G) depends on your carrier, so just because VoLTE works with \$device on \$other_carrier, that does not mean it will work for you
4. No RCS (Rich Communication Services, SMS/MMS successor) support on any #MobileLinux OS so far
5. While GPS works on many devices, without AGPS (and similar tricks) you'll wait a few minutes to get a fix and see that dot on the map

What is this session about?

- Discussing hardware options
- Sharing knowledge
- Finding the right device for you (hopefully)
- If new: Knowing what you are getting into (maybe)

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What this (IMHO) should not be about

1. Placing blame on people who did the hard work to port a device
2. Finding the 100% libre, blob-free unicorn device (it does not exist and sadly does not seem too feasible)

Devices

Intro

“ In 2020/2021 the answer was easy: Get a PinePhone, or if you have pre-ordered it or are made of money, get a Librem5.

Since then, it's gotten more difficult.

And then a little less difficult.

Maybe.

1. Devices sold with Linux

a) "Close to Mainline" Devices

Purism Librem 5

- Late 2017 Crowdfunder, Modular, NXP i.MX 8M Quad, 3GB RAM, 32 GB eMMC
- massive delays, software/hardware enablement initially behind a certain popular device we will talk about next
- USA-made variants for patriots or people who want 4GB of RAM (SoC maximum) and 128 GB eMMC
- development paused after "PureOS Byzantium" (\approx Debian Bullseye) was considered ready - or due to financial issues?
- lately there's a small (but steady) investment in software dev again, seemingly stuck
- you can join a subscription to fund software development if you want to, follow <https://social.librem.one/@dos> for progress (including awesome camera improvements)

PINE64 PinePhone

- https://pine64.org/documentation/PinePhone/_full/
- Widely delivered since 2020
- GPU: Mali 400 / OpenGL ES 2.0 only
- Ships with outdated, unmaintained distribution pre-installed
- The web has not become lighter since 2020, and as everything else becomes so much
- Declining developer interest
- Likely be sold for another two years
- No longer recommended (fight me)

The PINE64 Model ...

1. PineStore Ltd: Comes up with and sells devices
2. pine64.org Community: Enthusiasts and Developers that try to make these devices work

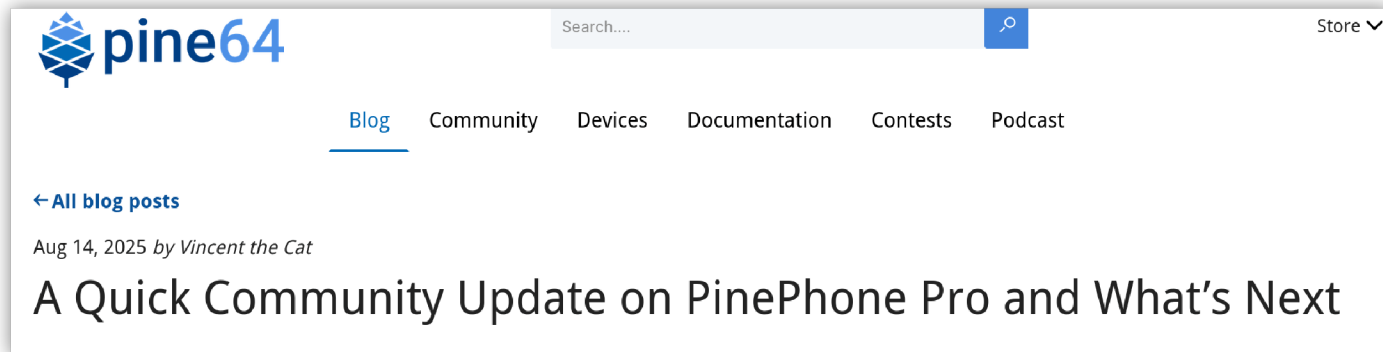
These two parts are not entirely disconnected, before PineStore goes public with a new device, select Community Members know about/have devices and start working on them.

This did not always go well:



PINE64 PinePhone Pro

- Introduced in late 2021, started shipping in 2022.
- poor battery life (and keyboard dock (had issues) no longer on sale)
- thermal throttling
- probably never ready
- ~~get it if you won't listen~~



The screenshot shows the pine64 website header with the logo, a search bar, and a navigation menu. The 'Blog' link is underlined. Below the navigation, there is a link to '← All blog posts' and a post entry for 'Aug 14, 2025 by Vincent the Cat' with the title 'A Quick Community Update on PinePhone Pro and What's Next'.

https://pine64.org/2025/08/14/august_2025_short_update/

b) Haliu Devices

- Various devices by Volla sold with Ubuntu Touch preinstalled (*Mediatek chipsets, select devices have VoLTE support!*)
- FuriLabs FLX1 (Good reviews, but not available since ~February, "sister device in planning")
- Jolla C2 (*Unisoc*)

if new people: What does Halium/libhybris mean?


Why? What's the difference?

Problem

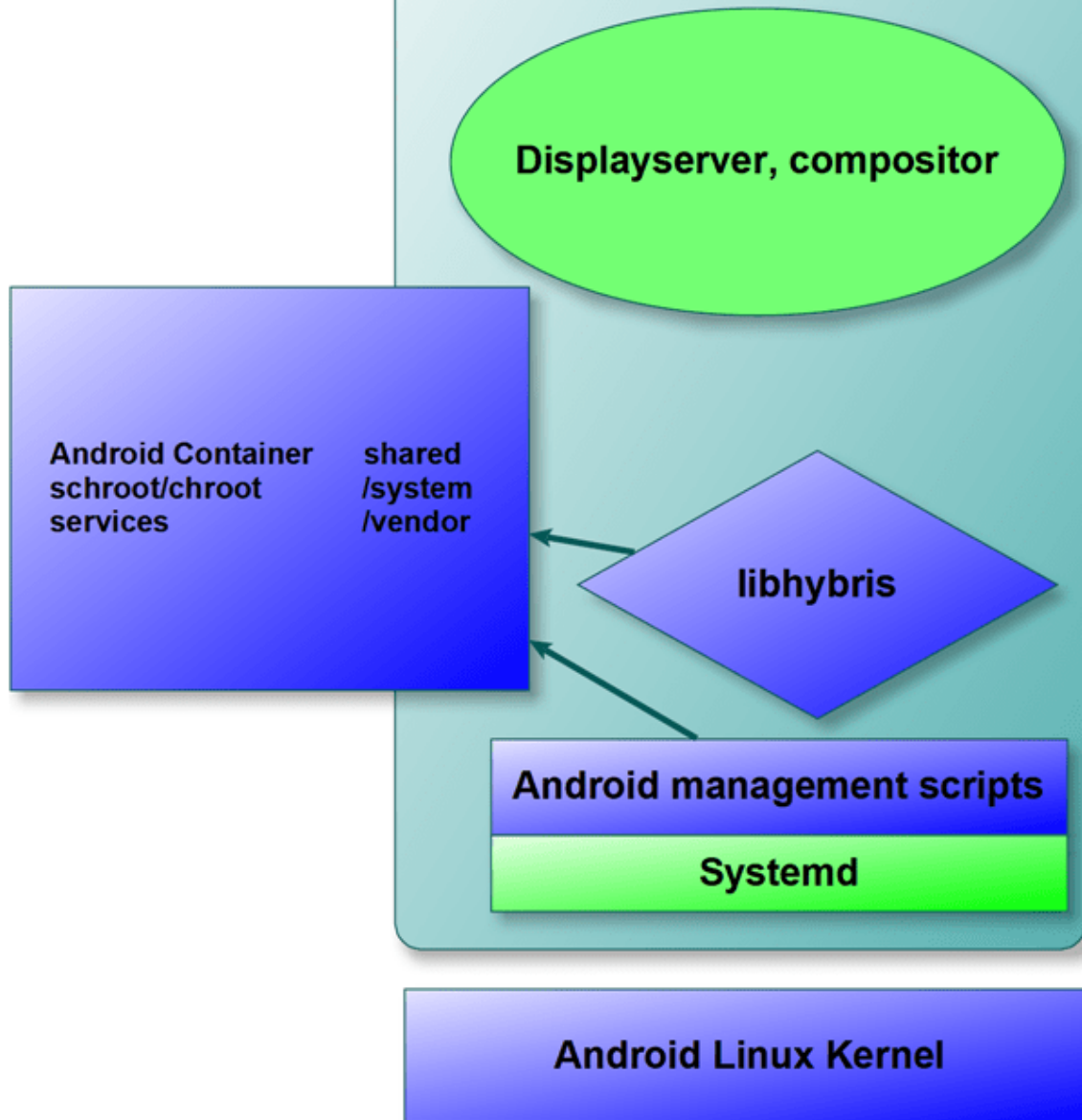
- Chipset vendors do provide drivers for Android
- These are usually not ready to be integrated in the proper kernel.org kernel: Userspace blobs, code style, ...

Solution

- There are two ways to fix this:
 - Re-implement drivers so they get accepted into Linux
 - Or go another route

-  Distribution Parts
-  Halium Parts

Linux Distribution



Halium architecture

Source:
<https://halium.org/>

Watch List

- RK3588s
 - Liberux Nexx (failed crowdfunder, but still going)
 - Dawndrums Divine D

2. Devices sold with some other OS (usually Android)

Software projects have device support lists, e.g., for mainline distros:

- <https://wiki.postmarketos.org/wiki/Devices>
- <https://wiki.debian.org/Mobian/Devices>

and for distributions that (usually) make the vendor kernel work with a Linux stack

- <https://devices.droidian.org/#/devices>
- <https://devices.ubuntu-touch.io/>
- <https://forum.sailfishos.org/t/community-hardware-adaptations/14081>

Mobian Devices

Supported Devices

Mobian primarily targets Linux-first devices, i.e. mobile devices made with the intent of running a Linux as the primary operating system, such as Pine64 devices and Purism's Librem 5. Those devices rely on software components widely used in the embedded software ecosystem, such as the u-boot bootloader and a (lightly patched) mainline Linux kernel. As such, their installation procedure is quite simple and similar to those used for other development boards and SBCs.

Supported Linux-first devices are currently:

- [Pine64 PinePhone](#)
- [Pine64 Pinephone Pro](#)
- [Pine64 PineTab](#)
- [Pine64 PineTab2](#)
- [Purism Librem 5](#)

Thanks to the work of the Linux mobile community, we are also able to support a few Android-based smartphones. Those can run a mainline kernel and usual Linux userspace software, however they still rely on the Android bootloader

Officially supported Android devices are:

- [OnePlus 6/6T](#)
- [Pocophone F1](#)

Mobian also provides experimental support for the following devices (Please be aware that the devices in experimental support likely only have "demonstration" support, and is not suitable for daily driving. Without further community development, these devices will not move into "daily driving status".):

- [Fairphone 4](#), Fairphone 5
- [Pine64 PineTab-V](#)
- [Pixel 3a](#)
- [SHIFT6mq](#)

x86-based devices are also supported. See [here for installation instructions](#).

Highlights (close to mainline)

- Pixel 3a (XL)
- OnePlus 6 (T), XIAOMI Poco F1, Shift 6mq
- Fairphones 4, 5

Halium/libhybris? You tell me!

**And with that, let's
discuss**

Thank you!

Notes

from the discussion afterwards:

- I tried to explain why running Linux on ARM is harder than x86_64
- Guido mentioned that there may be a nlnet-funded RCS project soon
- Healthcare issues: Hearing implants, Insulin pumps, all devices that need Bluetooth connections and companion apps to work. Waydroid pass through would be really important for this
 - alternatively: Re-implement apps with Bluetooth LE support natively; may be less hard than assumed as BLE protocols are not too complicated and similar across devices
- There was also talk about Android-based options, and VMs on Android