

Replicant: A fully free Android distribution

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Quick Facts

- ▶ Complies with the Free System Distribution Guidelines (FSDG)
- ▶ Website: replicant.us
- ▶ Exists since September 2009.
- ▶ Currently based on LineageOS.
- ▶ Android versions:
 - ▶ Replicant 6: Android 6, last security update: October 2017[1].
 - ▶ Replicant 11: Android 11, partial port[2].
- ▶ Supports ~ 10 devices (smartphones and tablets).
- ▶ ~ 1 part time equivalent contributor and a small community.



Best effort:

minimum feature set required to support a device:

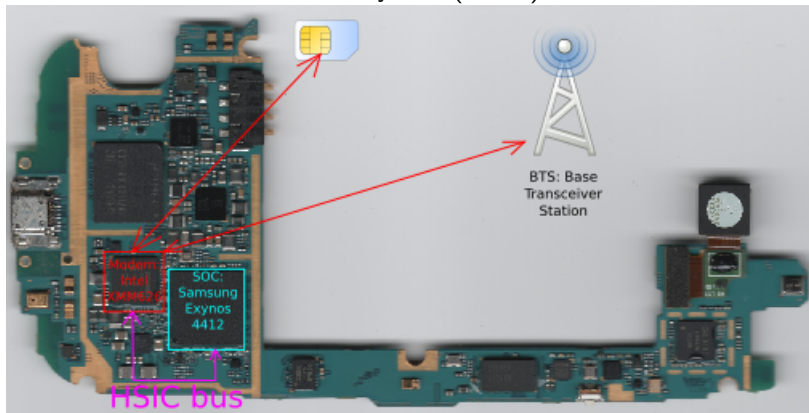
- ▶ Display working and graphics fast enough.
- ▶ Sound working.
- ▶ Be able to make calls.
- ▶ etc.
- ▶ GPS, camera, and other non crucial hardware may not work, or work in later releases.

Fully free distribution on smartphones?

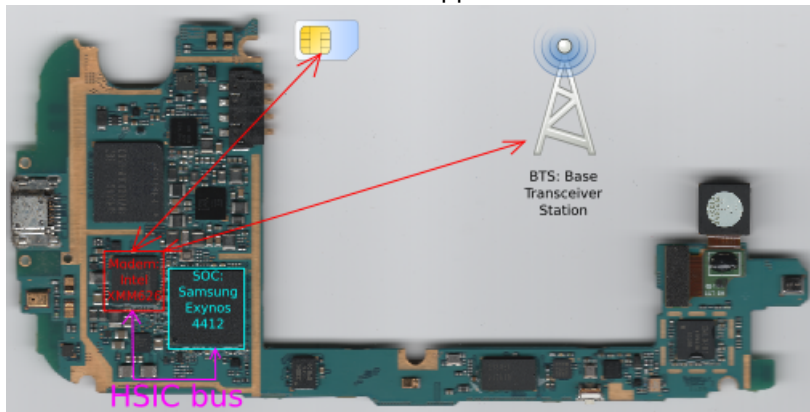
"Present-day cell phones are Stalin's dream."
Richard Stallman[3]

We have a lot of freedom issues...

A Galaxy SIII (I9300):



Freedom issues in supported devices

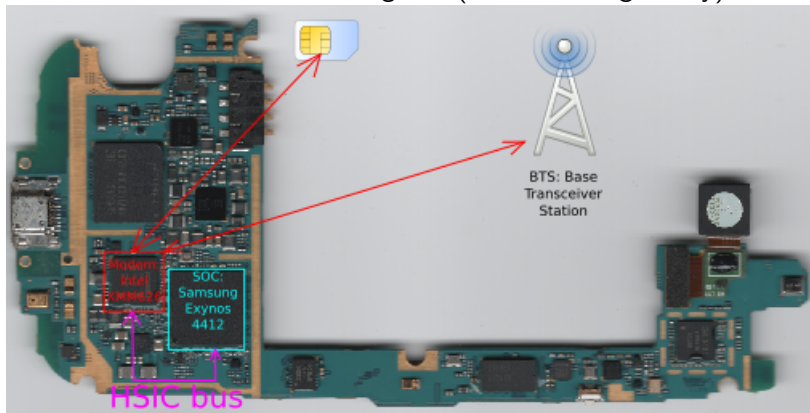


- ▶ The cellular network
- ▶ The modem firmware
- ▶ Other nonfree firmwares
- ▶ Bootloaders and TrustZone
- ▶ Upstream anti-feature and huge code base

Tablets without modem?

- ▶ ~~The cellular network.~~
- ▶ ~~The modem firmware.~~
- ▶ Also possible to "disable" the modem on some devices.

Freedom issues in LineageOS (without Google Play)



- ▶ += Modem control over the device (MSM7K) or shared memory.
- ▶ += Nonfree libraries: RIL backdoor, etc.
- ▶ += Anti-features.

Worst case with stock devices:

- ▶ += Only the kernel is free software.
- ▶ += Users potentially locked out of their devices.
- ▶ += Many anti-features or unwanted applications.
- ▶ → Remaining freedoms: The ability to install F-Droid or other applications.

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So that's why...

Along with the fact that nowadays there is way more surveillance
than in the USSR...

Why Android?

► Advantages:

- GUI and applications adapted to big fingers.
- → Run on devices that:
 - Lack keyboard.
 - Have capacitive touchscreen and no stylus.
 - Have very small displays with very high number of pixels.

► Issues

- Part of the GNU/Linux software architecture is light years away: package management and build system, graphics, audio, etc.
- Huge unknown code from Google
- Meant to run proprietary software, not to empower users.

Future work:

- ▶ Porting to PinePhone (thanks to NLnet/NGI funding)
- ▶ Porting to Android 13+, upstreaming and related graphics work.
- ▶ New Replicant 6 release and fixing bugs:
 - ▶ FSDG distributions and licensing issues (build system)
 - ▶ Modem control GUIs
- ▶ WebView
- ▶ Build system
- ▶ F-Droid freedom issues / Android SDK
- ▶ Infrastructure (migration to MediaWiki, etc.)

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- ▶ This presentation: CC-BY-SA 4.0 International
- ▶ The Galaxy SIII internals: CC-BY-SA 4.0 International
- ▶ The supported devices pictures: CC-BY-SA 3.0 Unported



https://en.wikipedia.org/wiki/Android_Marshmallow#cite_note-2



<https://redmine.replicant.us/projects/replicant/wiki/PortingToAndroid11>



<https://stallman.org/archives/2011-nov-feb.html>