



Porting Tizen:Common to open source hardware devices

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Agenda

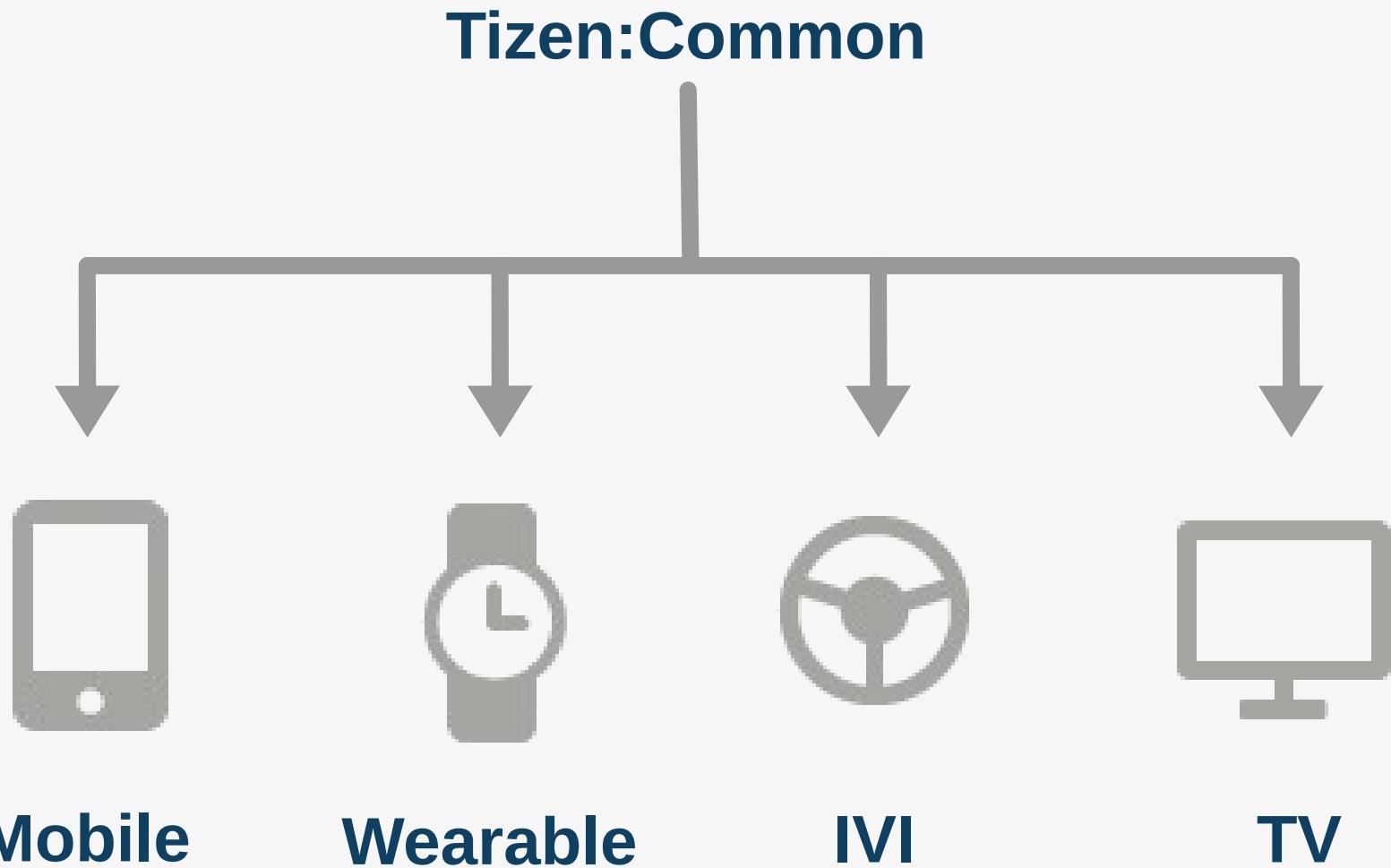
- Definitions
 - Tizen:Common
 - Open Source Hardware
- Case #1: Tizen-sunxi
- Case #2: Tizen-rockchip
- Case #3: Minnowboard max
- Q&A





Definitions

Tizen 3 Profiles



Tizen:Common

- **Profile Agnostic**
 - Ie: Tizen:IVI is based on it (90%)
 - Other public profiles are based on it (OBS)
- **Features**
 - Long term support (Linux 3.14)
 - Security using SMACK
 - Cross arch: x86, x86_64, armv7l, aarch64
 - Cross display: Wayland or X11
 - Accelerated graphics
 - Application framework (native or web apps)
 - Inclusive platform: EFL, Qt, Contribs...



Open Source Hardware

- **What?**
 - Same as FLOSS but different
 - Licenses: Open Source Hardware Association
 - Need accessible tools
 - Examples: Arduino, OLinuXino
- **Why?**
 - Customization
 - Focus on your features, innovate !
 - Community
 - Feedback, experiences, improvement
 - System integrity: FLOSS



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Show case #1: Tizen-sunxi

Tizen-sunxi

Community open-source port of Tizen with Linux-sunxi kernel
for devices with Allwinner SoC.

<https://github.com/leon-anavi/tizen-sunxi>



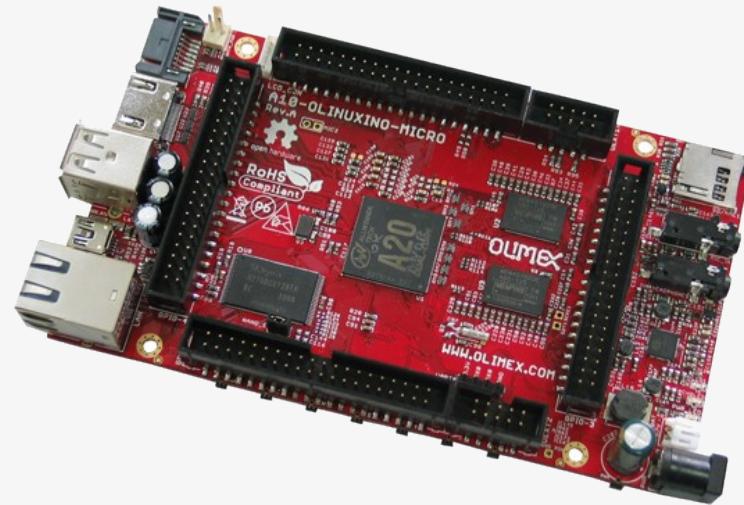
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Compatible Sunxi Devices

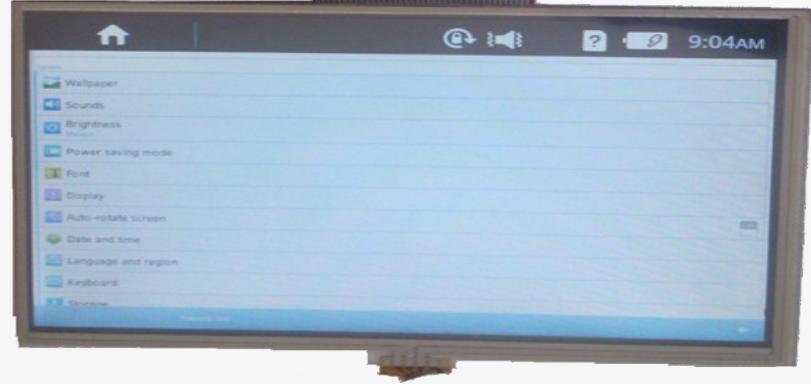
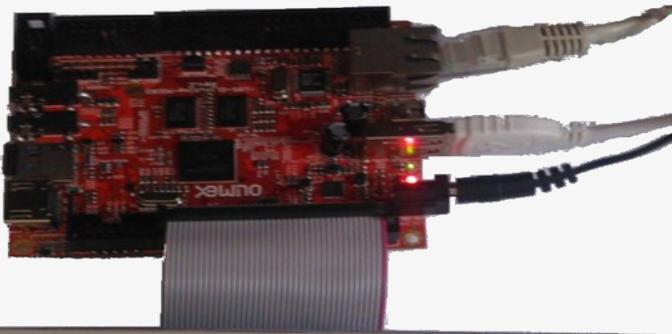
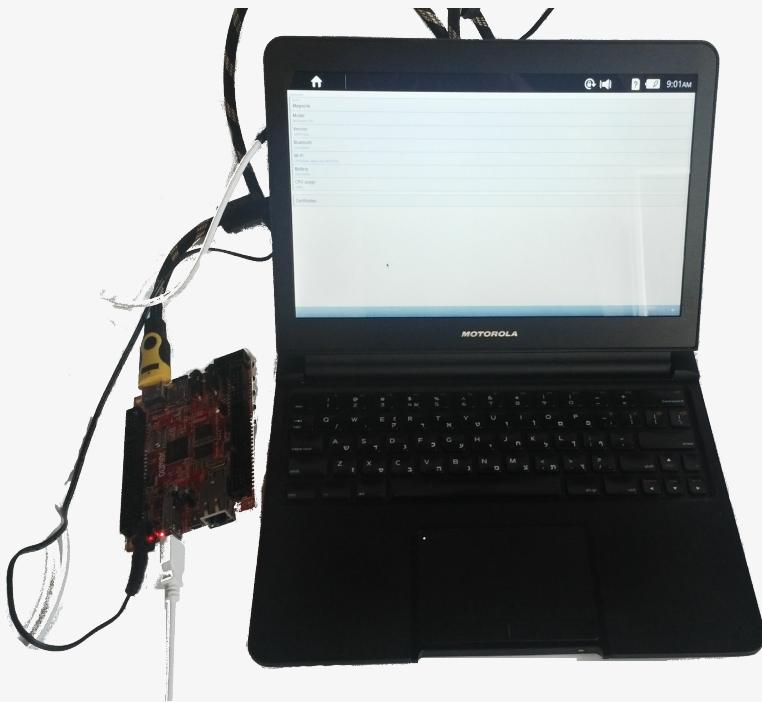
- A1X – A10-OLinuXino-LIME, A10S-OLinuXino-MICRO
- A20 – **A20-OlinuXino-MICRO**, A20-OlinuXino-LIME/LIME2
- A33 – work in progress
- A80T – work in progress
- A83T – work in progress



Building Tizen-sunxi image from scratch

- Build [Das U-Boot](#)
- Build [Linux-sunxi kernel](#)
- Get [Tizen:Common](#) source code using Git
- Build RPM packages using Git Build System (GBS)
- Prepare kickstarter file and create Tizen platform image
- Create bootable microSD card with a FAT and an ext4 partition

DIY Tizen Laptop & Tablet



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Show case #2: Tizen-rockchip



Tizen-rockchip

Community open-source port of Tizen with Linux-rockchip kernel
for devices with Rockchip RK3188 and RK3288 SoC.
Compatible devices: Radxa Rock, Firefly-RK3288

<https://github.com/leon-anavi/tizen-rockchip>



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Building Tizen-rockchip image from scratch

- Obtain proprietary bootloader (alternatively Das U-Boot)
- Build **Linux-rockchip** kernel
- Get **Tizen:Common** source code using Git
- Build RPM packages using Git Build System (GBS)
- Prepare kickstarter file and create Tizen platform image
- Create bootable microSD card





Show case #3: MinnowBoard Max

MinnowMax: Hardware

- Created by CircuitCo Tx USA
- Copyleft: CC-BY-SA
- X86_64: BayTrail Atom E38xx
 - GPU: Intel HD Graphics
- IO: USB3, Ethernet, HDMI, SD, GPIO...
- Expansion cards called Lures
 - Display, Audio, SATA
 - CAN, ADC, PCIE, Gb Ethernet ...



MinnowMax: Software

- **UEFI Firmware or CoreBoot**
- **Mainline Linux Kernel 3.14+ LTS w/ GPU support**
 - Linux Distros : Mint, Fedora, Debian, Ubuntu, RHEL
- **Tizen:Common**
 - **Uses Minnowboard Max as reference target along NUC**
 - **Download EFI images (gummiboot) :**
 - `tizen-common_*_common-wayland-efi-x86_64-sda`
 - **Build Tizen-Yocto ones (meta-intel layer and GRUB-EFI)**





More...

What's going on? Join us!

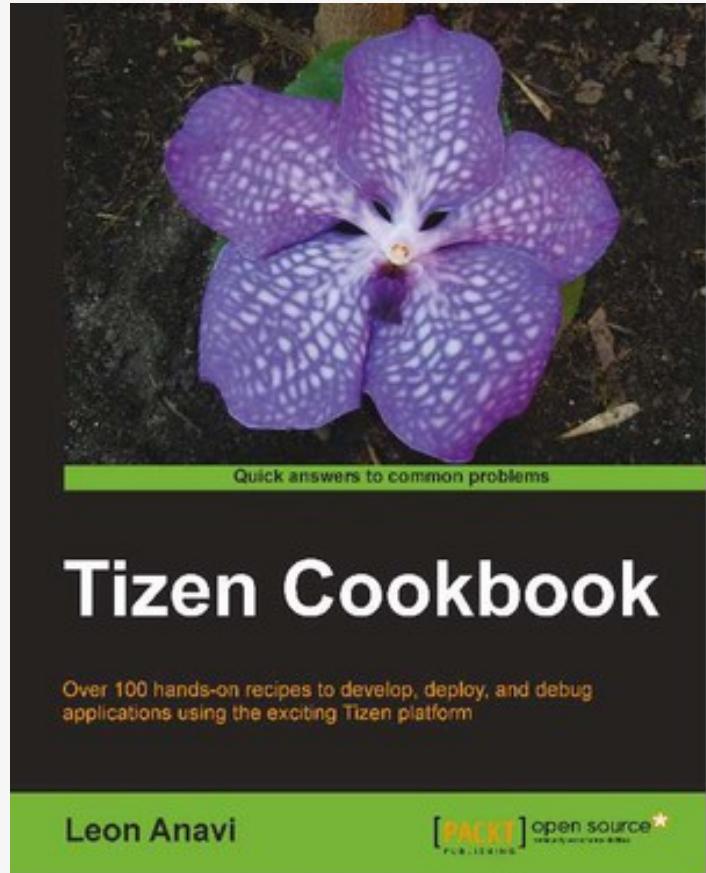
- **Involving communities:**
 - elinux.org (minnowmax)
 - Yocto project (Tizen-yocto)
 - IOC Integration (IoTivity)
 - Hackers and Makers welcome!
- **Challenges:**
 - Port Tizen:Common to more devices:
 - OMAP, I.MX, Galileo2 and yours?
 - GPU driver supports (wayland)
 - More peripheral support (Touch screen, IoT...)



Tizen Cookbook

30% discount codes until 28/02/2015:

- Book: [tcbd30](#)
- eBook: [tceb30](#)



<https://www.packtpub.com/application-development/tizen-cookbook>

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Resources

- Open Hardware
 - http://p2pfoundation.net/Open_Source_Hardware
- Tizen
 - <https://wiki.tizen.org/wiki/Common>
 - <https://wiki.tizen.org/wiki/ARM>
- Tizen-sunxi
 - <http://linux-sunxi.org/Tizen>
- Tizen-rockchip
 - <http://linux-rockchip.info/mw/index.php?title=Tizen>
- MinnowBoard Max
 - <http://www.elinux.org/Minnowboard:MinnowMax>



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Thanks

- FOSDEM team
- Linux Foundation
- Tizen Association
- Allwinner
- Rockchip
- Intel
- Circuit Co
- Olimex
- Tom Cubie
- T-firefly



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Questions?

<http://wiki.tizen.org/wiki/OSHW>