Zephyr® Project

Developer Summit 2022

June 8-9, 2022

Mountain View, CA + Virtual

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Zephyr™

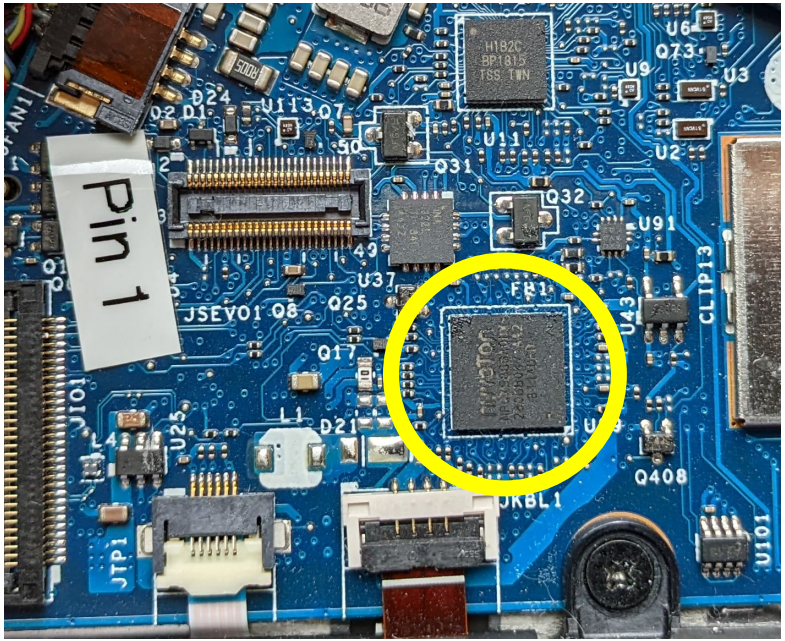
Towards an Industry-Standard EC

Zephyr Developer Conference 2022

Simon Glass, Google LLC

What is an EC?

- "Embedded Controller" for laptop
- Just a microcontroller
  - Often ARM, with RISC-V appearing also
  - Around 120 pins
- Designed for controlling a laptop / PC
- May have some special features



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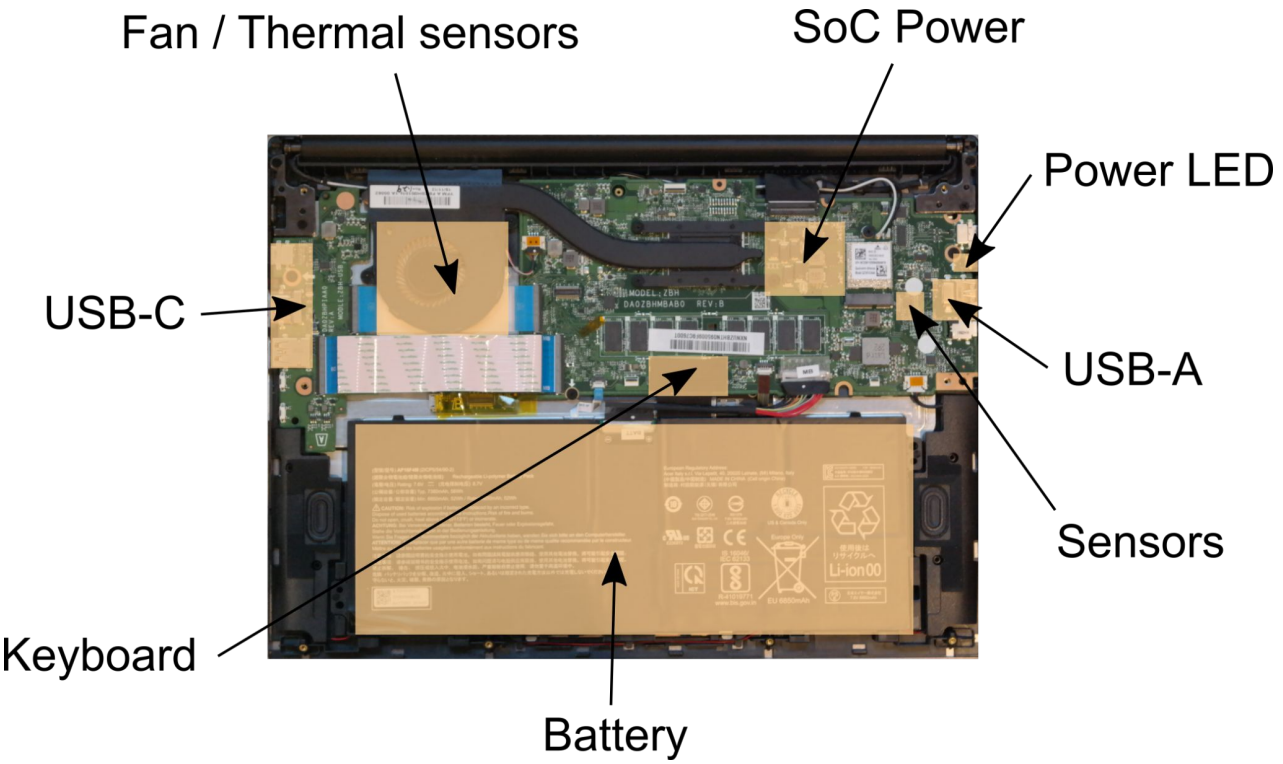
EC is critical to laptop function



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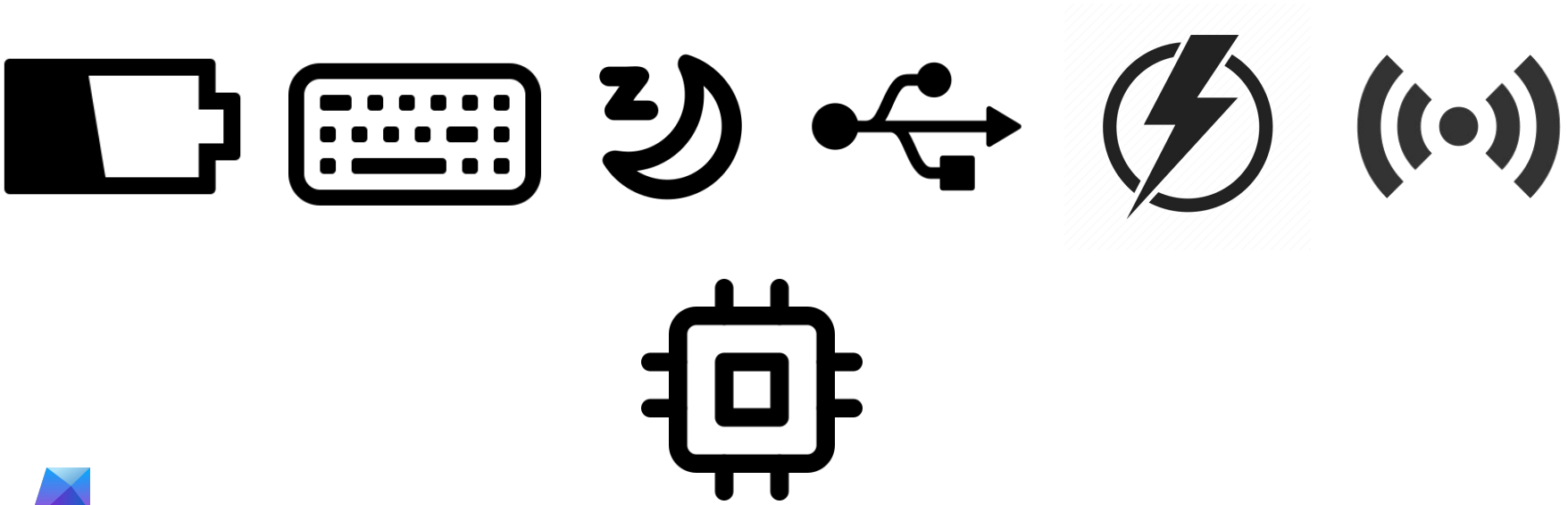
Common functions



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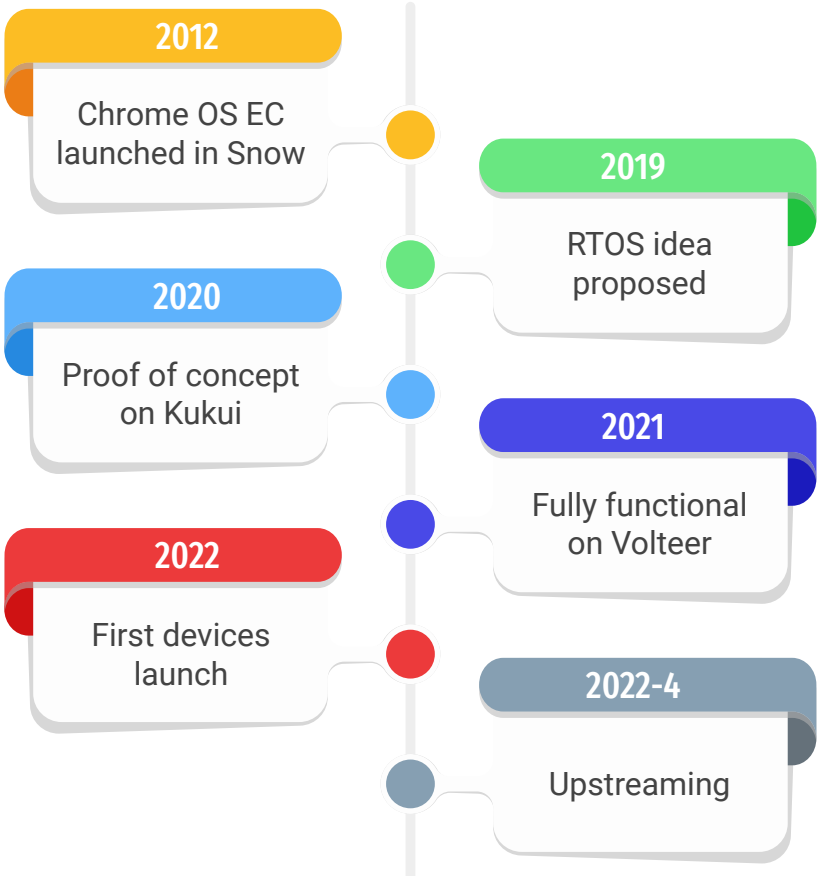
Some history, and the move to Zephyr



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Why have an industry-standard EC implementation?

- Unified code base for Chrome OS, Windows
- Chip vendors write a driver once
- Shared test investment
- Expands market for EC vendors
- Allows OEMS to second-source EC parts more easily
- OEMs/ODMs can focus on innovation

- Collaborate around a single RTOS (Zephyr)

Zephyr community advantages

- Infrastructure including code base, issue tracker, Discord
- Very active engagement among participants
- The project can make decisions (TSC, etc.)
- Zephyr OS is technically attractive

Vision for EC on Zephyr

- Enable EC functionality by selecting a Kconfig
- Support EC functionality on any suitable microcontroller
- Full suite of native_posix emulator-based tests for CI
- 90% code coverage
- Support vendor-specific EC functionality in closed-source app

Next steps

- Attend the technical talks today from these Googlers:
  - 11:50 Using Zephyr for Embedded Controllers Keith Short
  - ??:?? Create a USB-C Sink Device with Zephyr Samuel Hurst
- Watch the virtual sessions today:
  - 05:40 Android's CHRE and OS Frameworks Yuval Peress
  - 14:15 Zephyr Unit Tests and Emulators at Google Yuval Peress
- Thursday virtual:
  - 14:50 USB-C Power Delivery Overview Diana Zigterman
- Collaborate on Zephyr EC: designs, issues, PRs
- Connect with us to see how you can get involved

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Credit: Slidesgo