

# Open Hardware, Open Silicon, Open Firmware, and beyond

Dr Allison Randal

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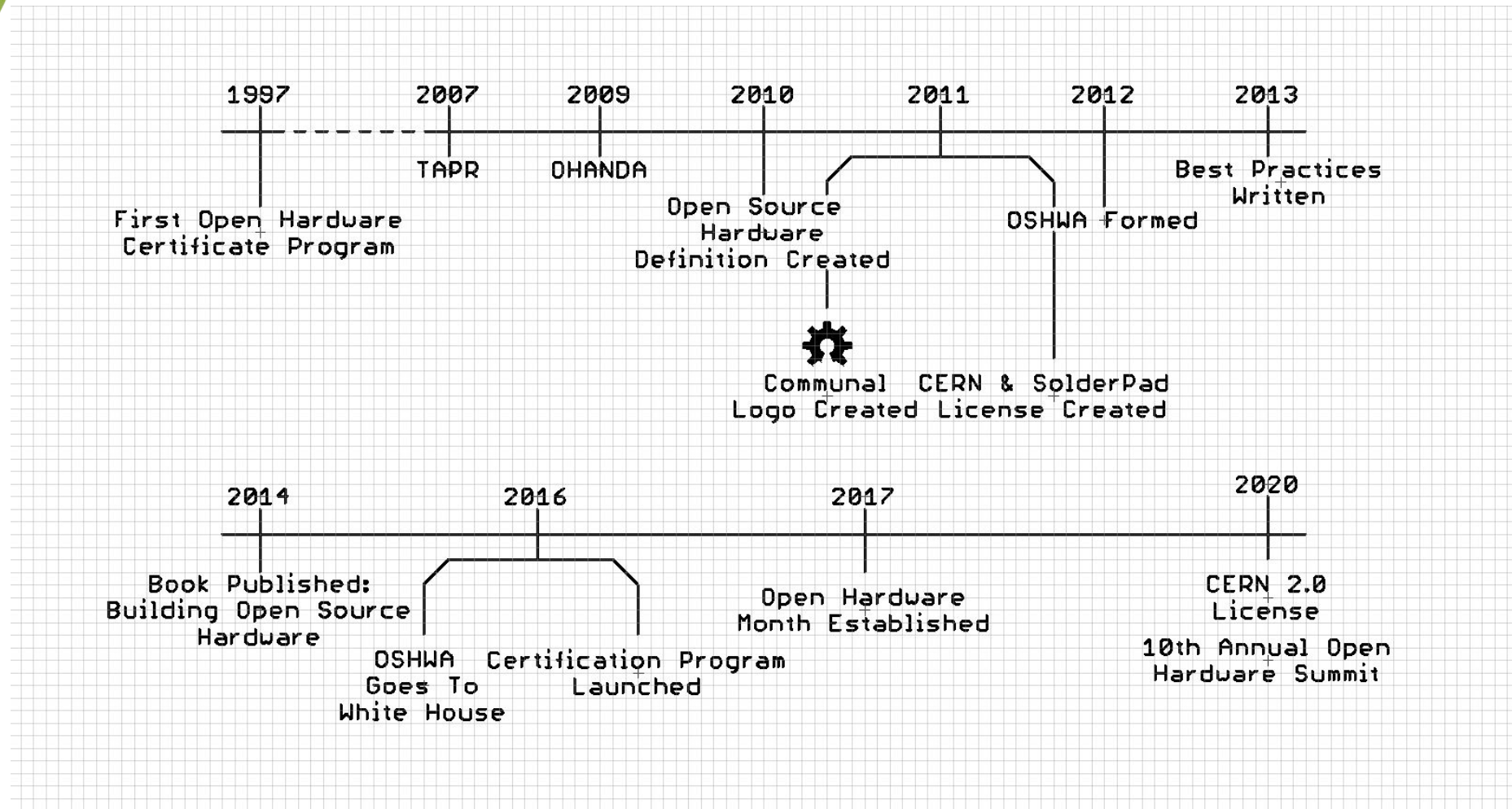
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# What is Open Hardware?





Source: [OSHWA](#) (CC-BY-SA)

“Open Source Hardware (OSHW) is a term for tangible artifacts — machines, devices, or other physical things — whose design has been released to the public in such a way that anyone can make, modify, distribute, and use those things.”

— Open Source Hardware (OSHW) Definition 1.0

# What can you do? (rights)

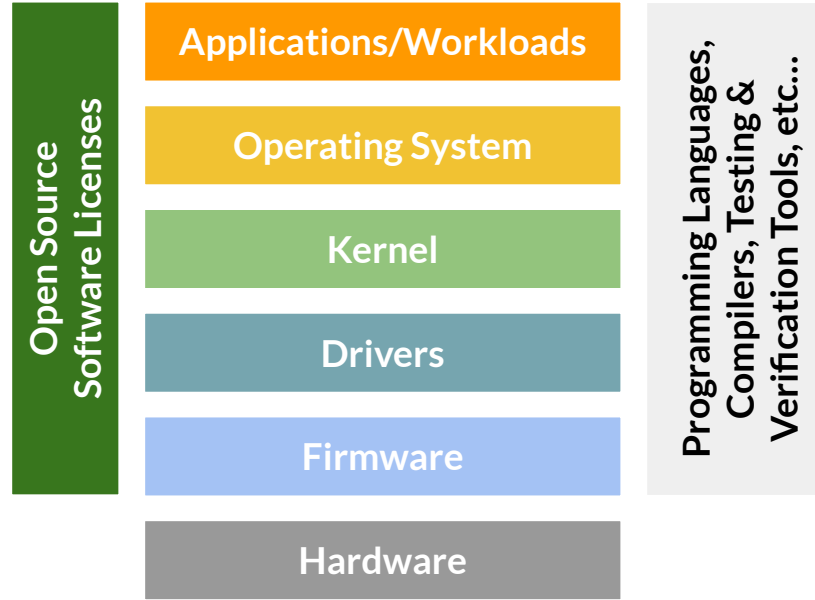
- use
- study
- modify
- redistribute

# What is released?

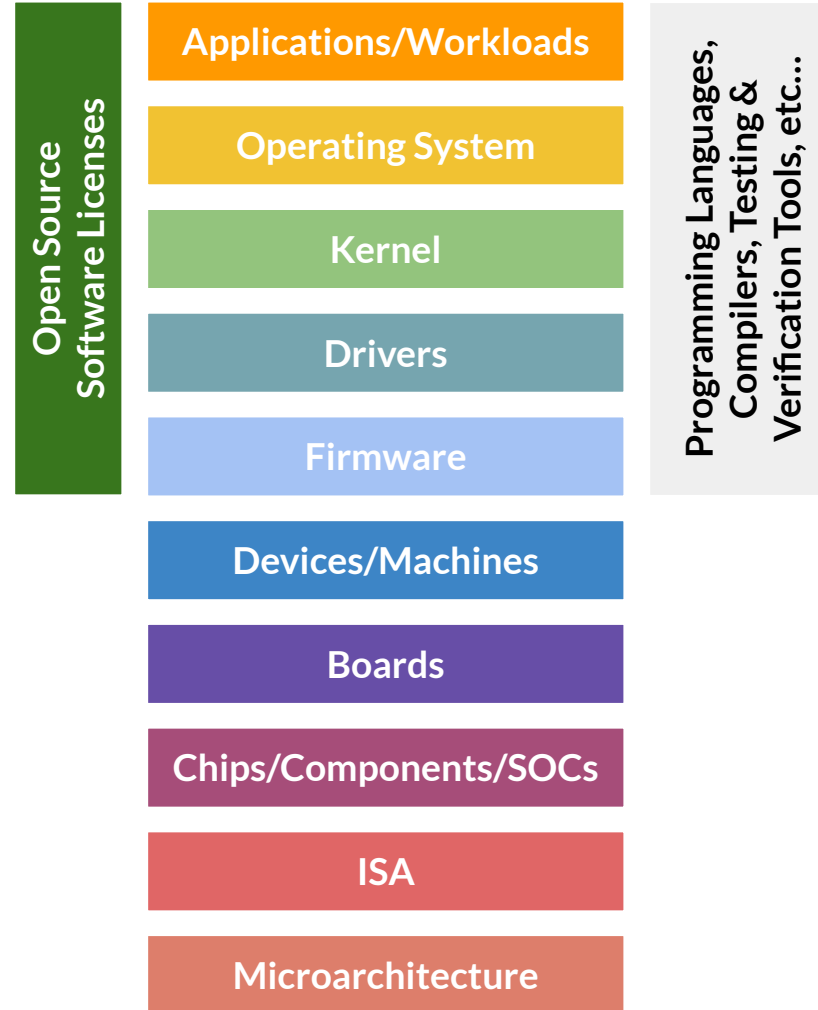
- Anything needed to exercise those rights
- “Source” takes different forms for hardware
- “Available Components” – if some part isn’t open, must at least be available

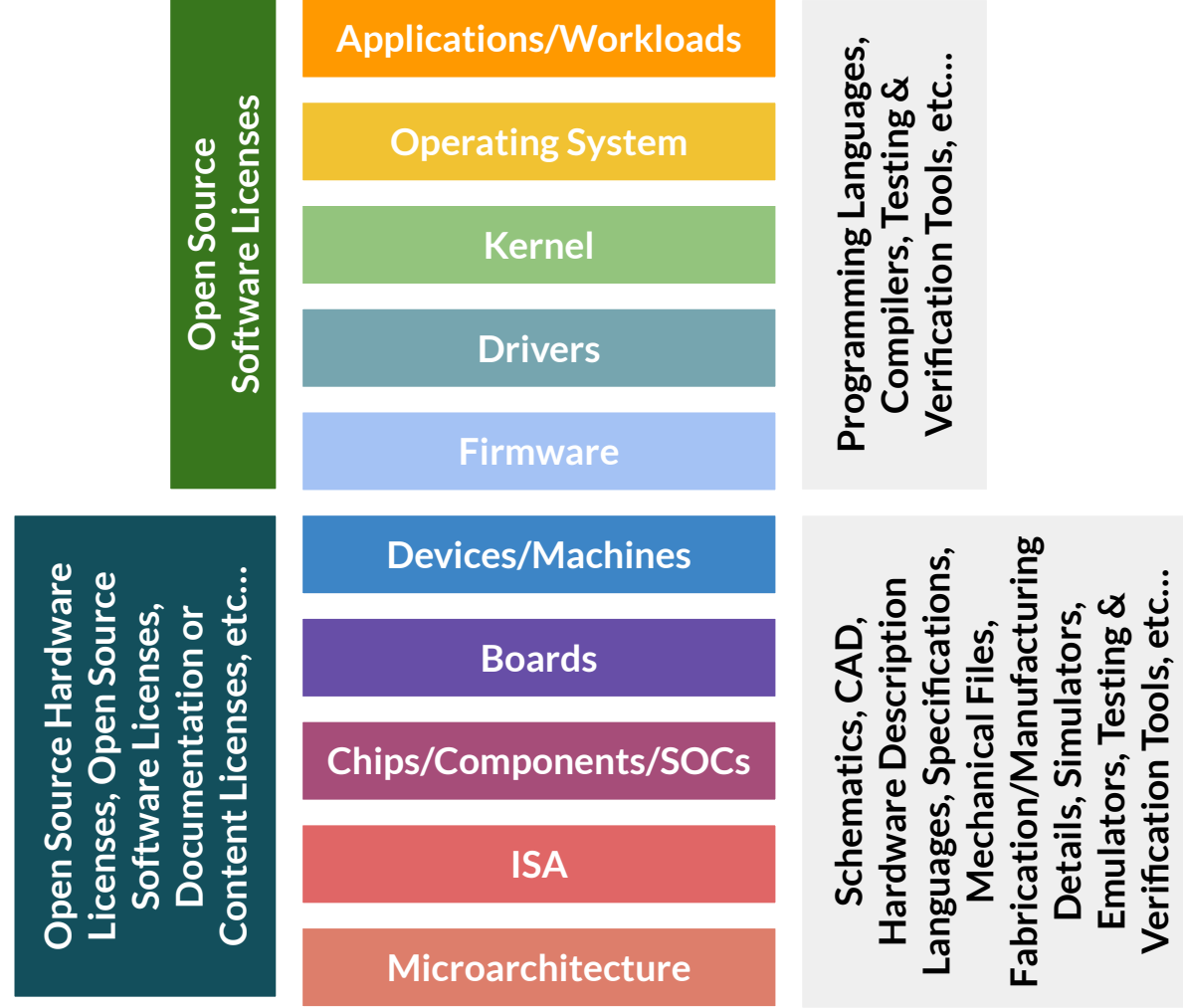
# Benefits

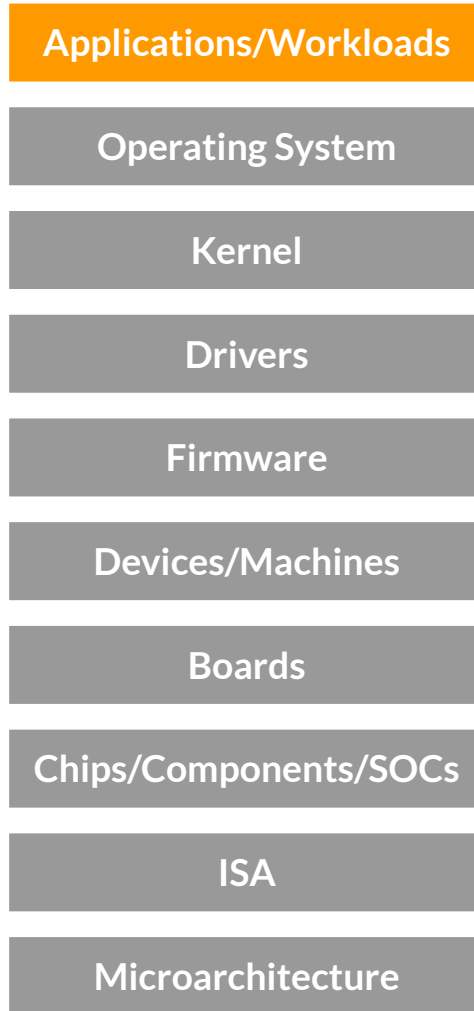
- Open Innovation
  - Share knowledge, experiences, best practices, and code/design/implementation work
  - Leverage innovation ecosystems
- Transparency: open technology, open design, open development, open community, open governance
- Public Good: non-exclusive and non-rivalrous
- etc...





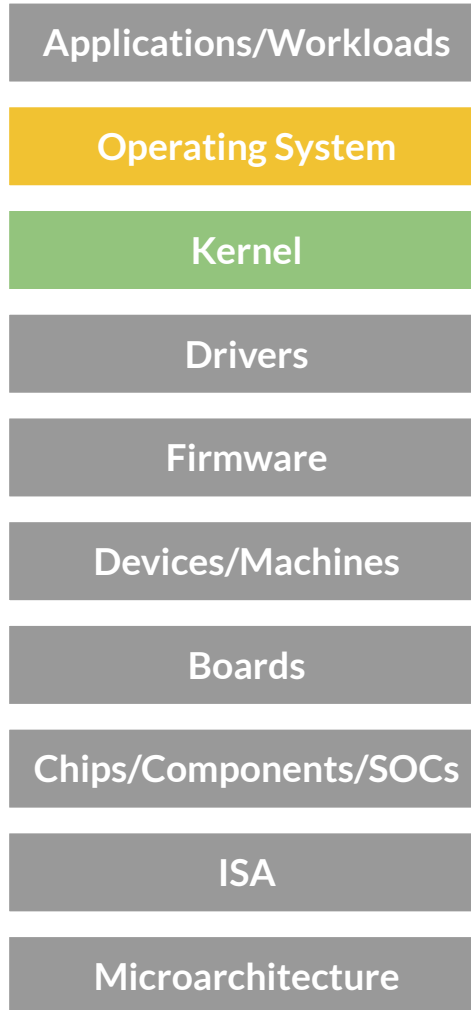




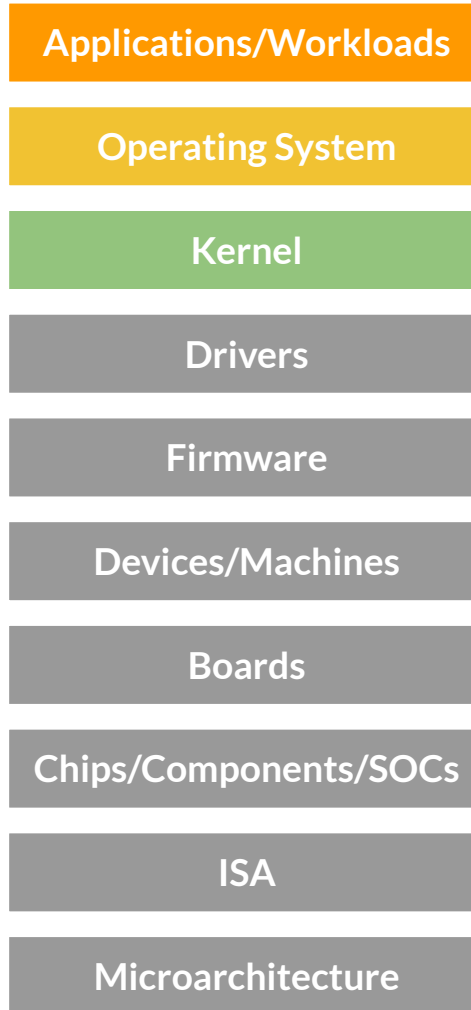


e.g. Firefox on Windows

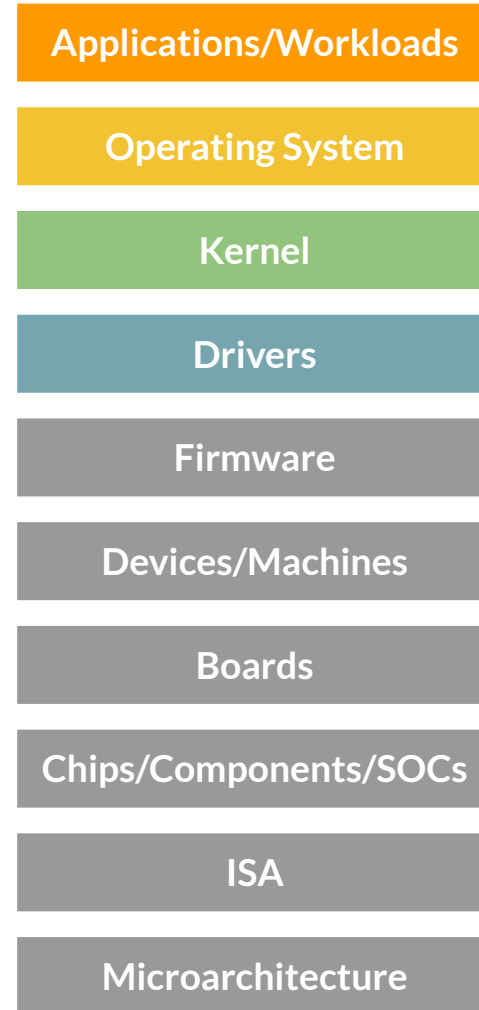




e.g. Zoom on Linux

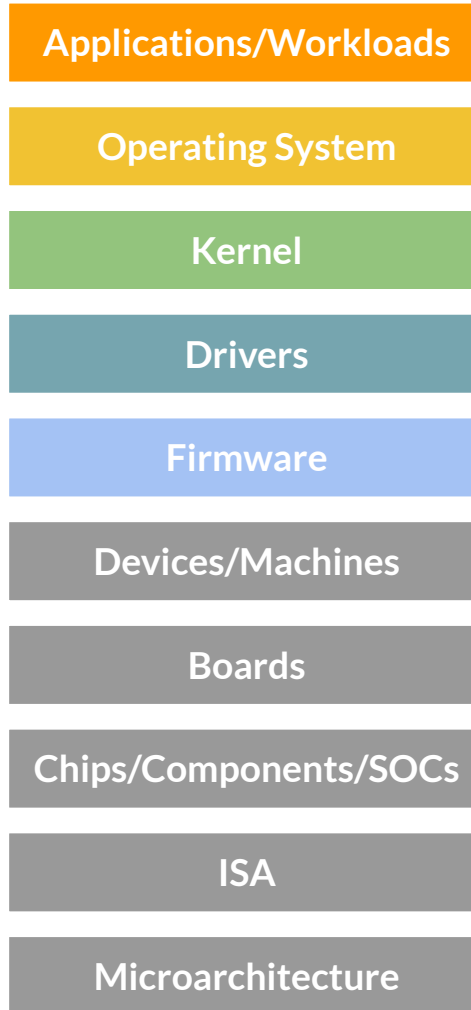


e.g. Linux with  
proprietary  
graphics drivers



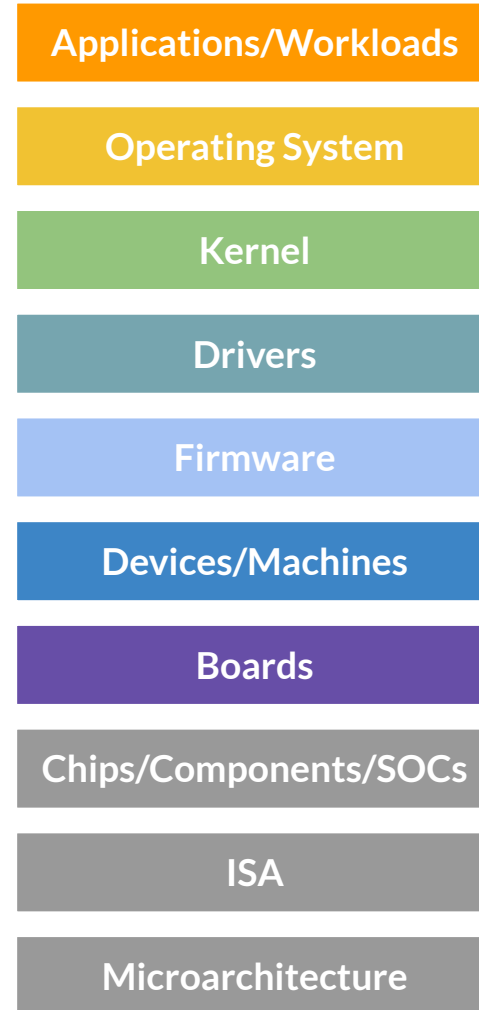
e.g. Linux with  
proprietary  
firmware





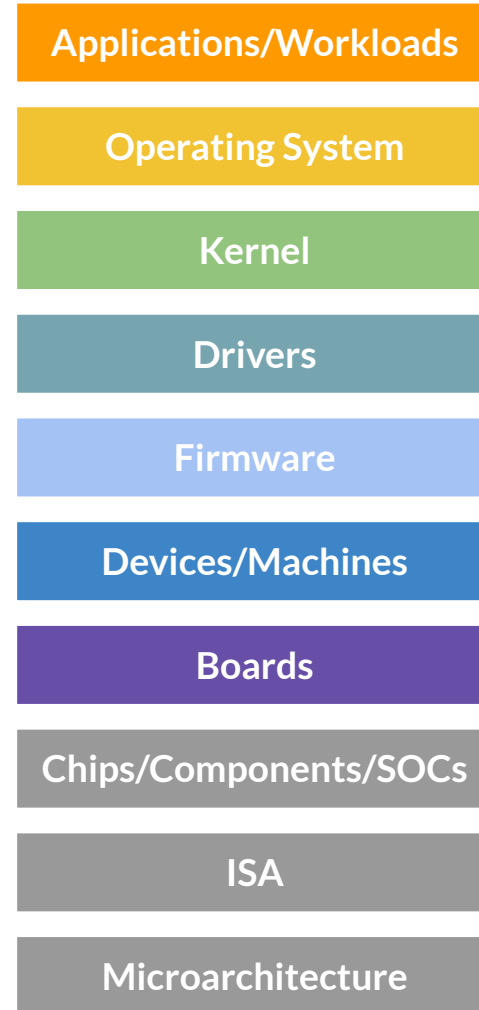
e.g. Linux with  
coreboot

# Open Hardware Certification

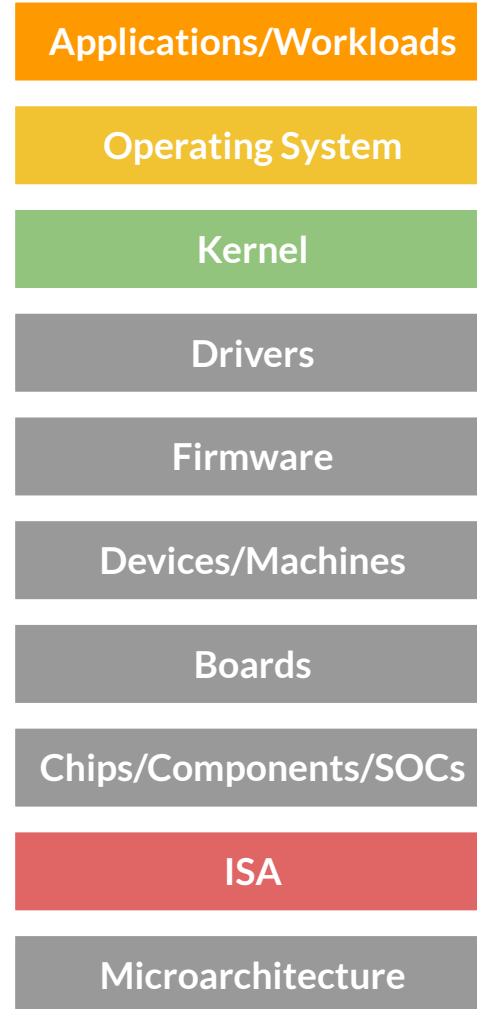




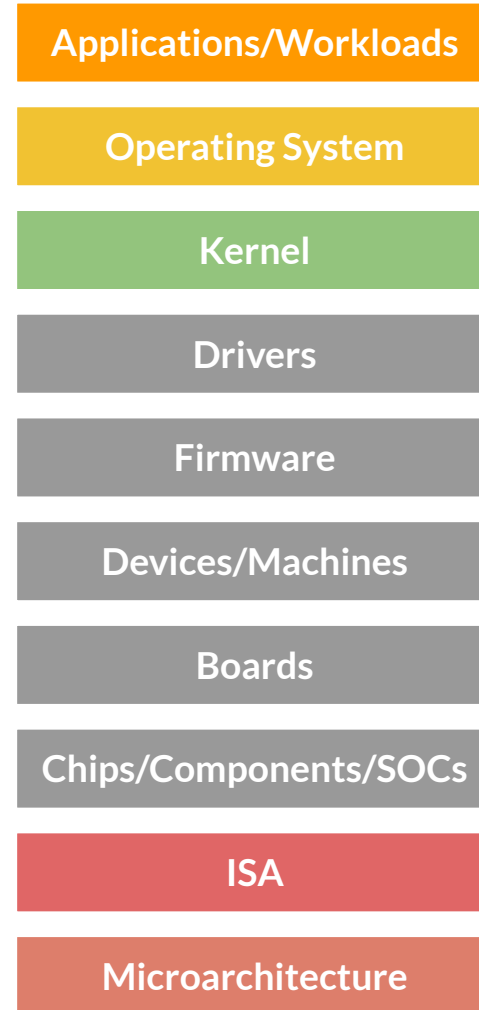
# Open Compute



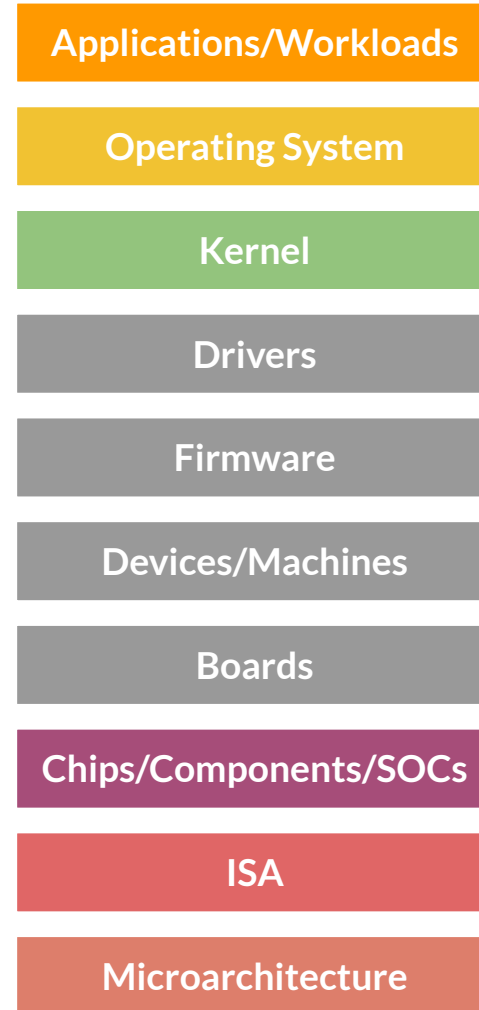
# Open Standards

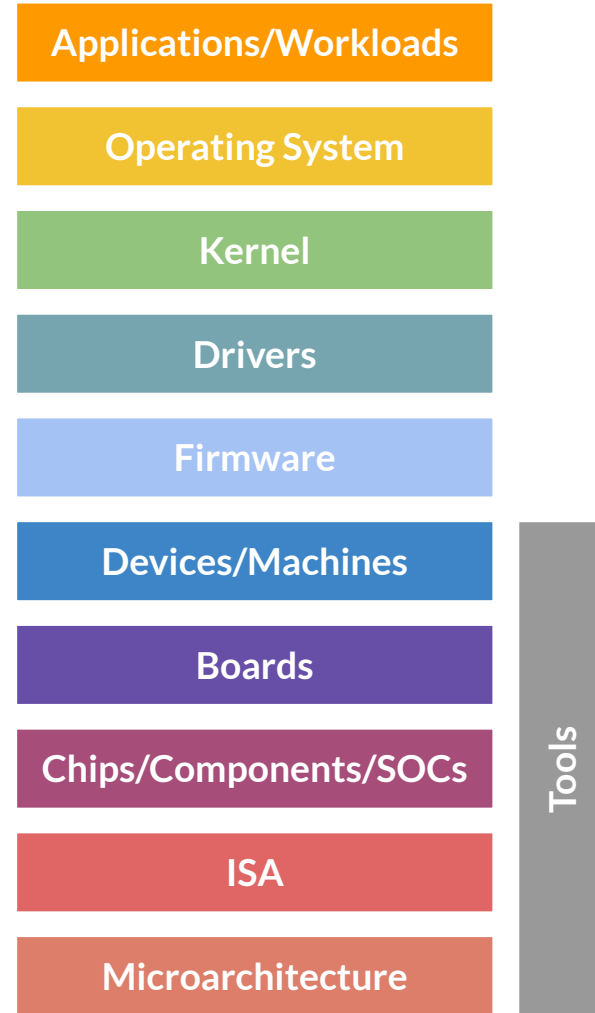


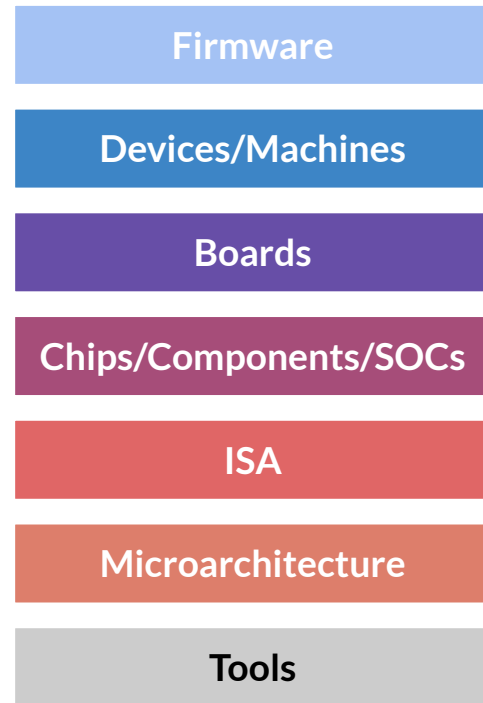
# Open Silicon



# Open Silicon







## Tuesday

- 11:15am: Open Radio Station: carrier-grade Open Source vRAN hardware
- 1pm: Silicon Commons/Open Titan
- 1:30pm: Sonata/CHERI
- 2pm: Open source code linting for chip design and verification
- 2:30pm: RISC-V
- 4pm: Herald V2 modular open source wearable
- 4:30pm: Hardware In-the-Loop Test Operating Platform
- 5pm: Testing in a Box
- 5:30pm: Making Chips work with Open Source

## Wednesday

- 11:30am: OpenUK and UN Data Centre Challenge
- 12pm: Open Source Data Centres
- 12:30pm: Data center industry innovation
- 2pm: Strengthening Open Science Hardware Adoption
- 2:30pm: OpenRAN - a new approach to building mobile networks
- 3:15pm: Screenly's Journey: Raspberry Pi to x86, BIOS, Coreboot, RISC-V
- 3:45pm: Achieving DC Sustainability Through Open Hardware

# Thank you

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**Presents**

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6 & 7 Feb 2024, London  
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