Firmware Transparency: Open All the Way Down

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Introduction

Userspace

Operating system

BIOS/Firmware

Hardware

Userspace

Operating system

Open Source

BIOS/Firmware

Hardware

Userspace

Operating system

BIOS/Firmware

Open Source

Hardware

ØPEN FIRMWARE CONFERENCE

SOURCE

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System on Chip (SoC)

Many additional cores and components

Userspace

Operating system

BIOS/Firmware

SoC Component Firmware

Hardware

Userspace

Operating system

BIOS/Firmware

SoC Component Firmware

Open Source

Hardware

Bringing Open Source
closer to the metal

Audio DSP

Audio DSP

Wake on Voice
Multiple microphones
Output enhancement

SOUND
OPEN
FIRMWARE

Open Source
for
SoC component firmware

Best Practices

Open and Auditable

Developed in the open

Unified codebase for all platforms

Open Source firmware
needs
Open Source tools

Compilers

Emulation

System Emulation
+
Device Emulation

Light and Configurable

Secure

Secure

Privilege separation
Memory protection

Driver architecture supporting firmware innovation

Independently verifiable

Toolchains?

Clear Linux

Publish a release number

mkosi

mkosi
chroot

Thanks

Marc Herbert
Joe Konno

Questions?