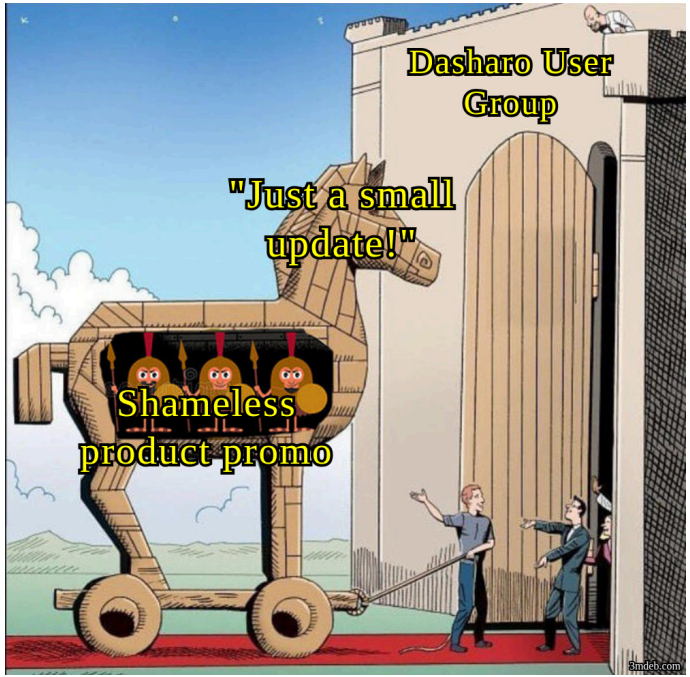
👋 Dasharo User Group #11 🎉 and Developers vPub 0x10 🍻

👋 DUG#11 Shameless Plug 👋



- 🌱 **Growth & Transparency:** Showcasing our evolution and commitment to open-source.
- 📚 **Historical Record:** A resource for 3mdeb, future customers, and the privacy/security community.
- 📈 **Explore Business Model:** Learn from our open-source firmware journey, including potential pitfalls.

What we will talk about

- Hardware,
- Services,
- Pace Enterprise Training,
- Dasharo Pro/Enterprise Package
- Accessories
- Everything available in 3mdeb shop: https://shop.3mdeb.com

Hardware

SDWire

89,00 €
(ex. VAT)

Overview

SDWire allows to flash SD card connected to the DUT (Device Under Test), without physical contact with the device. It serves as a SD card reader and SD card mux in one device. The PCB board is designed in such a way that it fits into micro SD card slots. Thanks to this, there is no need for special cables with a micro SD adapter, like in the muxPi product.

Documentation:

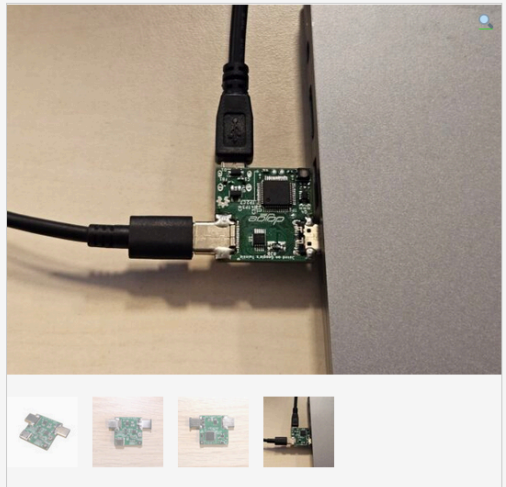
- Getting started
- Specification
- Usage
- FAQ Section

28 in stock

1 ADD TO CART

Enquiry for this product

https://shop.3mdeb.com/shop/open-source-hardware/sdwire/



Twonkie – USB-C sniffer

112,00 €
(ex. VAT)

Overview

An exclusive USB-PD sniffer/injector/sink inspired by the renowned Google project, Twinkie. It has been reimagined to be accessible to all enthusiasts. Twonkie is an excellent open-source solution for:

- Sniffing USB Power Delivery traffic on both Control Channel lines (CC1/CC2)
- Transparent interposer on a USB Type-C connection
- Monitoring VBUS and VCONN voltages and currents (Supports USB PD 3.1 EPR voltages up to 48V)
- Injecting PD packets on CC1 or CC2
- Putting Rd/Rp/Ra resistors on CC1 or CC2

The hardware design of Twonkie by Joachim "dojoe" Fenkes is licensed under CC BY 4.0.

Documentation:

- Twonkie Introduction at Dasharo Universe
- GitHub documentation

12 in stock

1 ADD TO CART

Enquiry for this product

https://shop.3mdeb.com/shop/open-source-hardware/twonkie-usb-c-sniffer/

Dasharo Supported Hardware

ASRock SPC741D8-2L2T/BCM with Dasharo (coreboot+UEFI) Pro Package for Servers

BUY NOW

Full Build ASRock SPC741D8-2L2T/BCM with Dasharo (coreboot+UEFI) Pro Package for Servers

BUY NOW

https://shop.3mdeb.com/product-category/dasharo-supported-hardware/

Gigabyte MZ33-AR1 with Dasharo (coreboot+UEFI) Pro Package for Servers

BUY NOW

Full Build Gigabyte MZ33-AR1 with Dasharo (coreboot+UEFI) Pro Package for Servers

BUY NOW

https://shop.3mdeb.com/product-category/dasharo-supported-hardware/

Dell OptiPlex 7010 SFF with Dasharo (coreboot+UEFI) Pro Package for Desktop

165,00 € – 435,99 €
(ex. VAT)

BUY NOW

Dell OptiPlex 9010 SFF with Dasharo (coreboot+UEFI) Pro Package for Desktop

210,00 € – 480,99 €
(ex. VAT)

BUY NOW

https://shop.3mdeb.com/product-category/dasharo-supported-hardware/

Hardkernel Odroid H4+ with Dasharo (coreboot+UEFI) Pro Package for Network Appliance

290,00 € – 529,50 €

(ex. VAT)

BUY NOW

Hardkernel Odroid H4+ for Pace Enterprise Training (PET) – DS09SBL

381,00 € – 498,00 €

(ex. VAT)

BUY NOW

OST2 Hardkernel Odroid H4+ with Dasharo (coreboot+UEFI) Pro Package for Network Appliance

335,50 € – 452,50 €

(ex. VAT)

BUY NOW

https://shop.3mdeb.com/product-category/dasharo-supported-hardware/

NS70 Series 17.3" Dasharo laptop by NovaCustom

BUY NOW

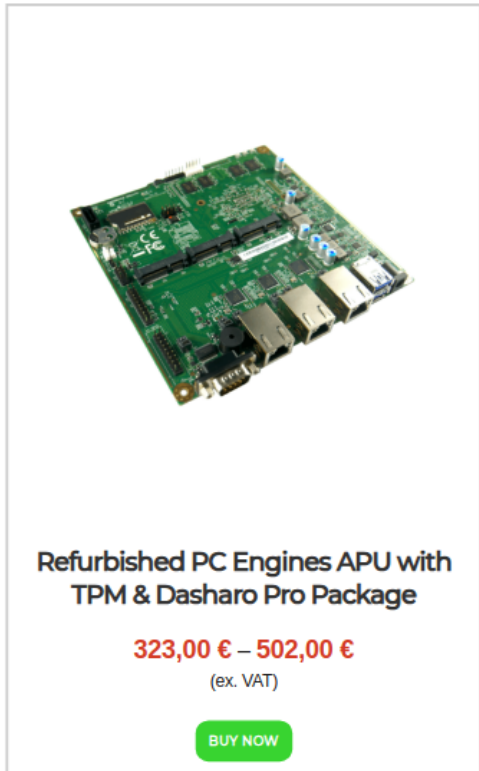
V54 Series 14" Dasharo laptop by NovaCustom

BUY NOW

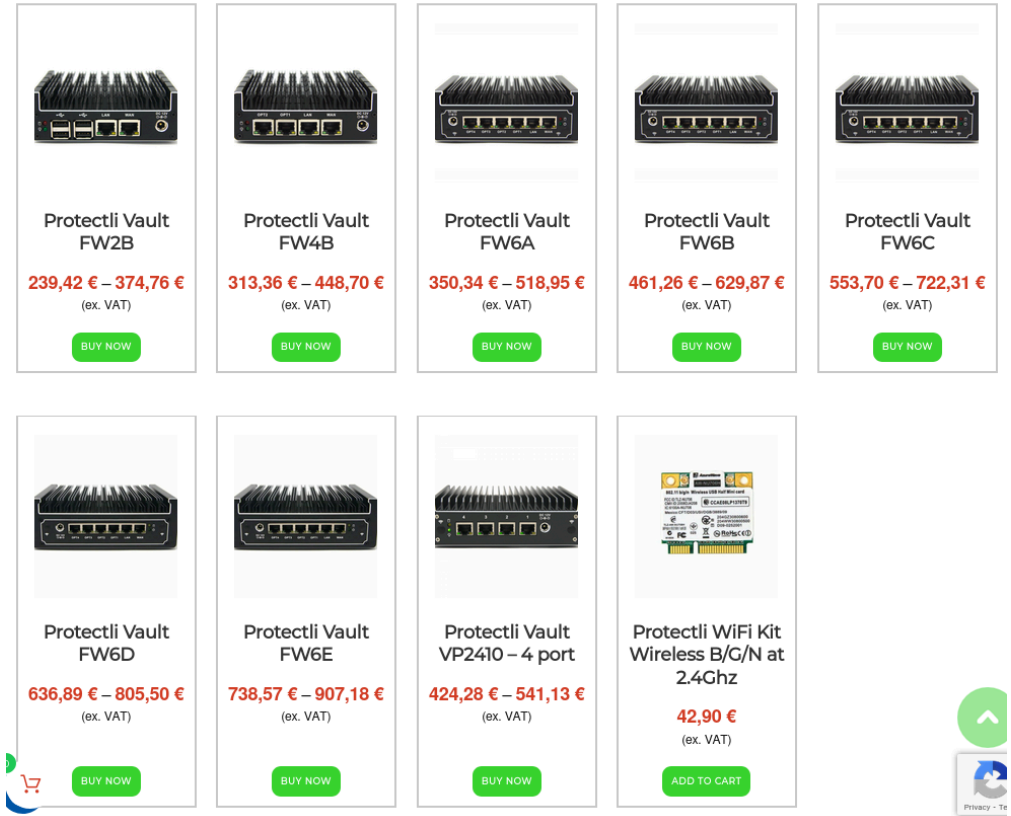
V56 Series 16" Dasharo laptop by NovaCustom

BUY NOW

https://shop.3mdeb.com/product-category/laptops/



https://shop.3mdeb.com/product-category/system-boards/



https://shop.3mdeb.com/product-category/vaults/

Pace Enterprise Training

Client Type	Individuals		Business		
Cooperation Models	OST2	Public Security Conferences		Remote PET / On-site PET	PET Corporate Program
Target Audience	Community	Individual Clients	Business Clients	Corporate, NGO and Public Sector	Corporate**
Primary Use	Self-paced Education	Individual Employees Education		Teams Education	Division Education
Access to Materials	Open	Limited to Students		Limited to Students*	Limited to Division
Support Level	Community Support and Occasional Support from Instructor	Direct Support from Instructor		Extended Direct Support from Instructor	Direct Support from Team of Instructors
Customization	-	Limited		High	High
Pricing Model	Free	Pre-Paid to Conference Organizers		Pre-Paid to 3mdeb	Annual Contract
Additional Features	-	Pace and Content Adjustment According to Audience Needs Access to Instructure during Breaks and Afterhours		Material Adjustment According to Organization Needs Analysis of Indivudal Needs of Organization	Custom Curricullum for Whole Division

* - Unless direct agreement available, including recording, speaker notes etc.

- x86, Arm and POWER9/10
- All open-source firmware topics for each available framework (coreboot, EDKII, U-Boot, TrustedFirmware, OpenBMC, Yocto etc.)
- Closed source firmware components: ME/CSME/TXE/SPS, PSP/ASP, microcode, Intel ACMs
  - based on publicly available materials
- Low-level security mechanisms with example CVE exploitation (UEFI Secure Boot, Intel Boot Guard, closed source firmware etc.)
  - vulnerability class analysis
- Trusted Computing Technologies
  - BitLocker/LUKS/Heads
  - Measured Boot
  - SRTM/DRTM and other Root of Trust for Measurement
- Firmware development life-cycle from considerations at hardware design stage to long term maintenance.
- Your topic not on the list? Feel free to contact us: `contact<at>dasharo<dot>com`

DS01CBI: coreboot for embedded linux developers

Overview

- modern x86 architecture
- firmware design principles by examples
- boot flow from power on to system take off
- Coreboot walk through
- firmware build process based on Coreboot
- coreboot developer workflow
- remote testing environment
- SPI flash theory of operation
- flashing and debugging tools
- writing payloads hands-on workshop
- FSP – from theory to integration
- firmware security basics in Coreboot ecosystem
- MinnowBoard – hands-on workshop using previously
- gained knowledge

Duration

5 days

40 hours (8h/day)

70% lectures

30% hands-on workshop

https://paceenterprisetraining.com/

DS02RTA: Intel Root of Trust training

Overview

- Based on OST2 Arch4001, Arch4021, TC3001, TC3011 and TC3211
- UEFI introduction
- Modern x86 architecture
- Where is firmware and why blobs
- Intel x86 feature set and boot process
- Intel Root of Trust Technologies
- Other Root of Trust technologies overview
- Intel Management Engines features, vPRO, me_cleaner
- Workshops using Intel Skylake-based COMe module showing the process of enabling Boot Guard and practical examples of its features

Duration

4 days

17 hours (8h/day)

100% lectures

Materials

All training materials presentations and source code will be available for the client's internal usage.

https://paceenterprisetraining.com/

DS03SSI: System Security training

Overview

- Based on OST2 Arch2001, Arch4001 and Arch4021
- x86 assembly
- x86 operating system internals
- x86 boot process
- PCI and PCI Express
- Modern Intel system architecture
- DMA and IOMMU
- ISA and Plug and Play
- Debugging with GDB and core dumps
- System emulation with QEMU
- UEFI introduction
- UEFI Secure Boot
- Introduction to Roots of Trust and Trusted Computing Technologies

Duration

9 days

37 hours (4h/day usually, except for once 5h/day)

of lectures with hands-on labs

Materials

All training materials presentations and source code will be available for the client's internal usage.

Language

English

https://paceenterprisetraining.com/

ZH01ELI: Building and Development of Embedded Linux Systems

Overview

- Open source development overview
- Brief history of Linux
- Linux kernel introduction
- Using Git for source code management
- Introduction to Embedded Linux
- Getting kernel source code
- Linux kernel configuration and compilation
- Cross development
- Linux kernel modules
- Character device drivers
- Linux kernel debugging
- Device Tree files
- Typical Embedded Linux bootloaders
- Introduction to Build Systems
- Building custom Embedded Linux system for typical hardware target
- Embedded Linux tools
- Embedded Linux application development and debugging

Duration

4 days

32 hours (8h/day)

50% lectures

50% hands-on workshop

Materials

All training materials presentations and source code will be available for customer internal usage.

https://paceenterprisetraining.com/

ZH02YPI: Yocto Project Development

Overview

- Overview of an Embedded Linux system architecture
- Overview of the Yocto Project and OpenEmbedded ecosystem
- Using Yocto Project documentation
- Building emulation image
- Building image for the development board
- Board Support Packages and Yocto Project metadata
- Customizing the build with layers
- Image customization
- Extending existing recipes
- Overview of some of the existing build systems (Autotools,
- CMake, Meson)
- Creating a custom recipe
- Creating a custom image

yocto PROJECT

Duration

4 days

28 hours (7h/day)

40% lectures

60% hands-on workshop

Materials

All training materials presentations and source code will be available for customer internal usage.

https://paceenterprisetraining.com/

DS08MSA: Mastering UEFI Secure Boot and Intel Root of Trust Technologies

Overview

- Understand the theoretical concepts behind UEFI Secure Boot, root of trust, and chain of trust technologies.
- Hands-on exploitation and defensive management of UEFI Variables and Authenticated Variables.
- Implement and validate UEFI Secure Boot through practical exercises.
- Identify, analyze, and exploit vulnerabilities, including BootHole and BitPixie (CVE-2023-21563).
- Dive into BootKitty, Hydrophobia, [Feb 2025 GRUB2 CVEs] and recent Gigabyte SMM vulnerabilities. (New)
- Implement and circumvent Intel Root of Trust, with a detailed case study on CVE-2017-5705 and a practical demonstration.

Audience

Embedded Developers, Firmware Developers, Platform and System Architects, Medical and Defense Product Owners, Hardware Hackers, Pen Testers, Operating Systems Security Researchers, Developers, and Maintainers.

Duration

3 days

21 hours (7h/day)

30% lectures

70% hands-on workshop

Materials

All training materials presentations and source code will be available for customer internal usage.

https://paceenterprisetraining.com/

DS09SBL: Dasharo TrustRoot Training

Overview

- Understand and explain the core concepts and functionalities of the Slim Bootloader boot flow and Intel Root of Trust.
- Apply practical skills in setting up, configuring, and troubleshooting Slim Bootloader boot flow and Intel Root of Trust technology.
- Integrate and provision advanced security technologies effectively in real-world scenarios.

Audience

Firmware / BIOS / Bootloader Developers, Platform Security Architects, Hardware and Embedded Engineers, Pen Testers & Security Researchers, open-source Firmware Community Contributors

Duration

4 days

21 hours (7h/day)

30% lectures

70% hands-on workshop

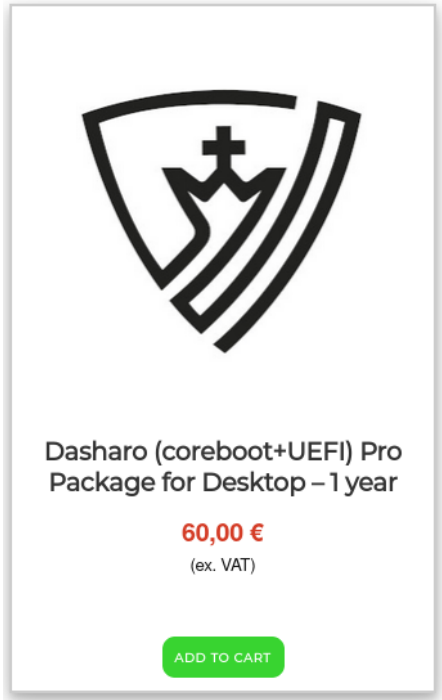
Materials

All training materials presentations and source code will be available for customer internal usage.

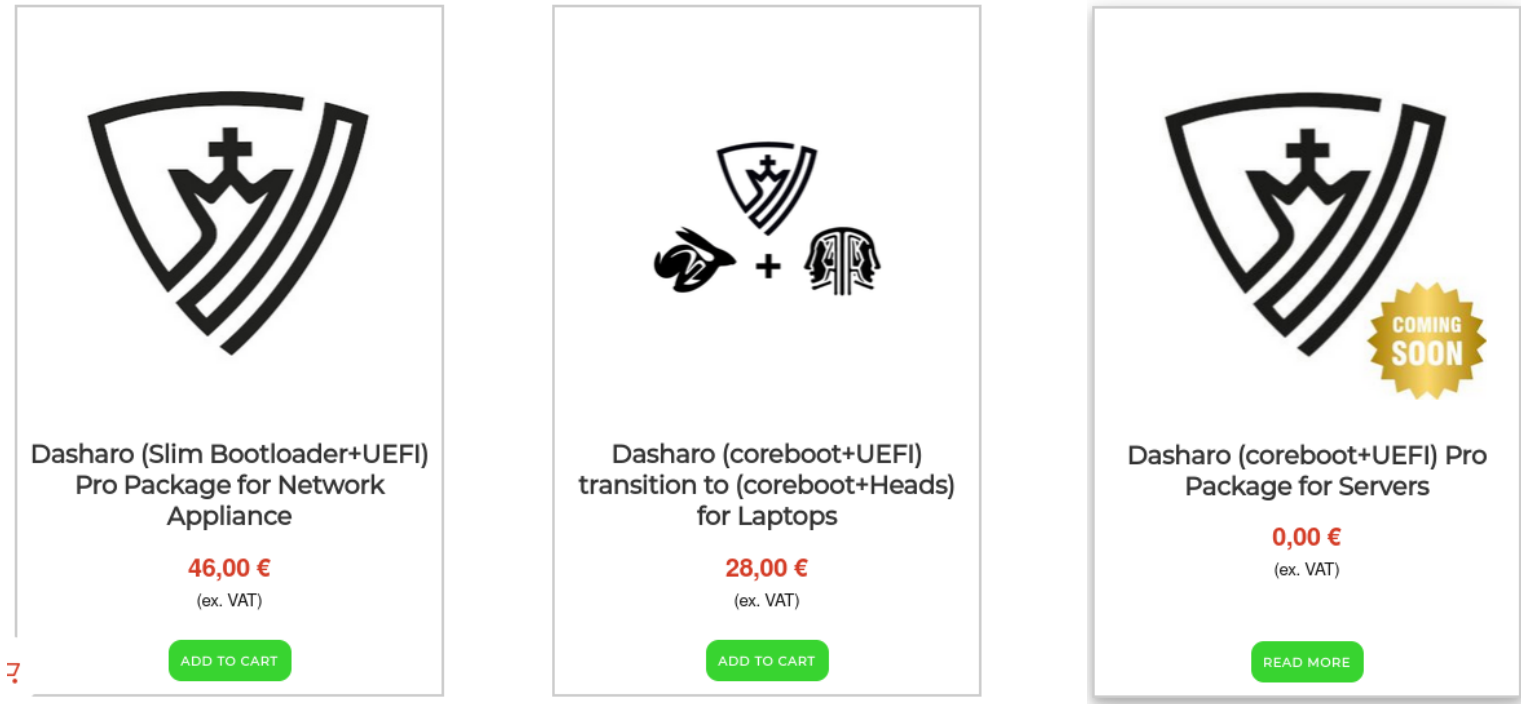
https://paceenterprisetraining.com/

https://hardwear.io/netherlands-2025/training/mastering-uefi-secure-boot-and-intel-root-of-trust-technologies.php

Dasharo Pro/Enterprise Package



https://shop.3mdeb.com/product-category/dasharo-pro-package



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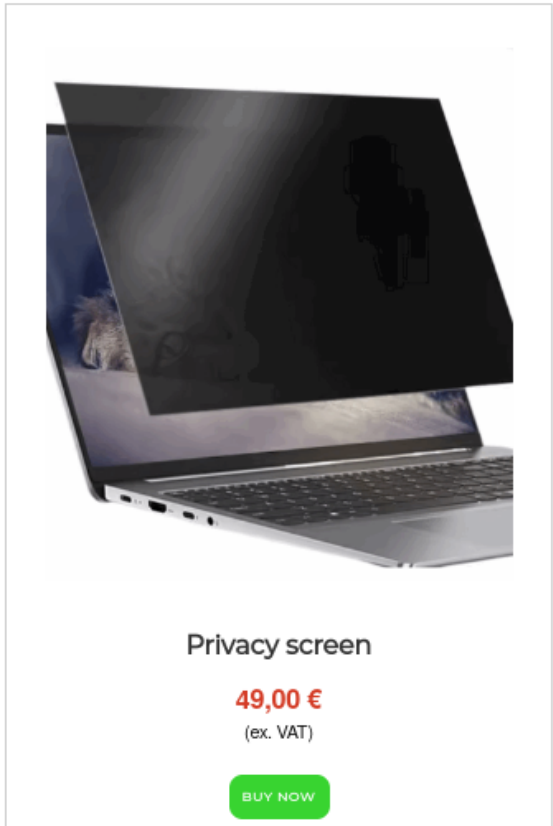
Accessories



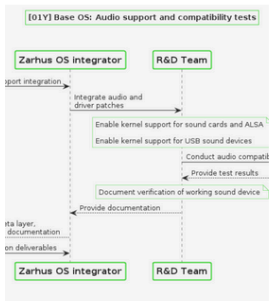
https://shop.3mdeb.com/product-category/accessories/

https://shop.3mdeb.com

Backlog

Services

Zarhus Services



Zarhus OS: Base OS – Audio support and compatibility tests

4200,00 €

(ex. VAT)

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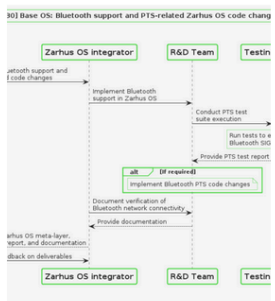

Zarhus OS: Base OS – Bluetooth support and PTS-related Zarhus OS code changes

5900,00 €

(ex. VAT)

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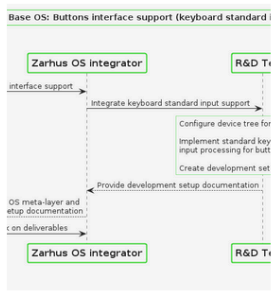

Zarhus OS: Base OS – Buttons interface support (keyboard standard input)

2450,00 €

(ex. VAT)

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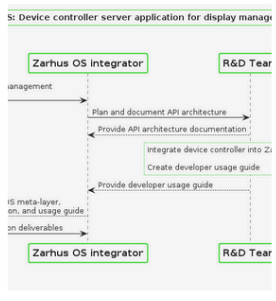

Zarhus OS: Base OS – Device controller server application for display management (HTTP)

6300,00 €

(ex. VAT)

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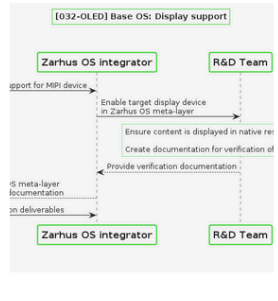

Zarhus OS: Base OS – Display support (3x OLED mono/color)

2450,00 €

(ex. VAT)

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