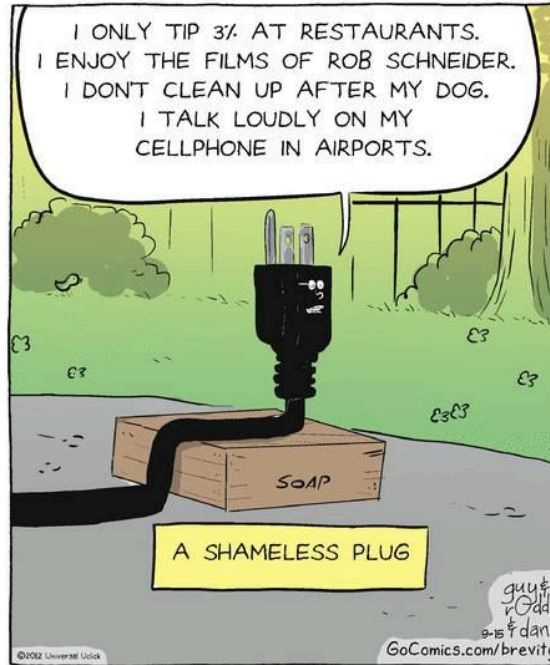





👋 DUG#8 Shameless Plug 👋





-  **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 Entry Subscription (aka Dasharo Pro/Enterprise Package)
- Merchandise,
- Everything available in 3mdeb shop: <https://shop.3mdeb.com>

The background is a dark gray color. In the corners, there are decorative elements resembling circuit board traces. These include thin gray lines that branch out and terminate in small gray circles, mimicking the look of electrical connections or vias on a PCB. The lines are most prominent in the top-left, top-right, and bottom-right corners.

Hardware

TPMs



TPM 2.0

25,00 €
(ex. VAT)

ADD TO CART

Sold out!



TPM 2.0 MSI MS-4462

12,00 €
(ex. VAT)

READ MORE



TPM Module for ASUS KGPE-D16

19,00 €
(ex. VAT)

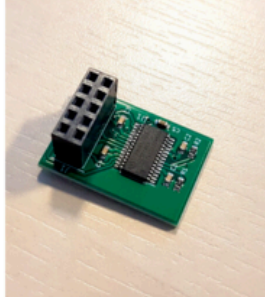
ADD TO CART



TPM 1.2 compatible with Raptor Computing Systems Talos II mainboard

32,00 €
(ex. VAT)

ADD TO CART



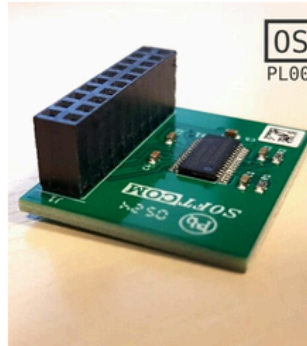
Dasharo TPM 2.0 for PC Engines APU3, APU4, APU6

25,00 €
(ex. VAT)

ADD TO CART

<https://shop.3mdeb.com/product-category/modules/>

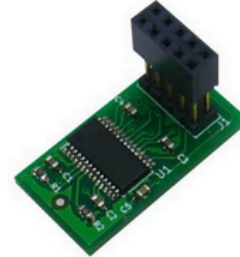
TPMs



Dasharo TPM 2.0 for PC
Engines APU2

25,00 €
(ex. VAT)

ADD TO CART



TPM2 module for Librebox

10,00 €
(ex. VAT)

ADD TO CART

<https://shop.3mdeb.com/product-category/modules/>

Dasharo Supported Hardware



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

156,48 € – 437,46 €
(ex. VAT)

BUY NOW



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

159,48 € – 440,46 €
(ex. VAT)

BUY NOW

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

Dasharo Supported Hardware



Odroid H4 Plus with Dasharo
(coreboot+UEFI) Pro Package for
Network Appliance (Pre-order)

290,00 € – 529,50 €

(ex. VAT)

BUY NOW

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



NS70 Series 17.3" Dasharo laptop by
NovaCustom

BUY NOW



NV41 Series 14" Dasharo laptop by
NovaCustom

BUY NOW



V54 Series 14" Dasharo laptop by
NovaCustom

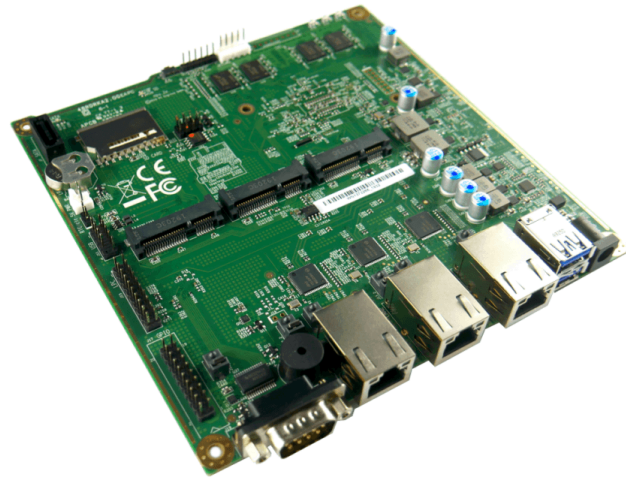
BUY NOW












V56 Series 16" Dasharo laptop by
NovaCustom

BUY NOW

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



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

 <p>Protectli Vault FW2B</p> <p>239,42 € – 374,76 € (ex. VAT)</p> <p>BUY NOW</p>	 <p>Protectli Vault FW4B</p> <p>313,36 € – 448,70 € (ex. VAT)</p> <p>BUY NOW</p>	 <p>Protectli Vault FW6A</p> <p>350,34 € – 518,95 € (ex. VAT)</p> <p>BUY NOW</p>	 <p>Protectli Vault FW6B</p> <p>461,26 € – 629,87 € (ex. VAT)</p> <p>BUY NOW</p>	 <p>Protectli Vault FW6C</p> <p>553,70 € – 722,31 € (ex. VAT)</p> <p>BUY NOW</p>
 <p>Protectli Vault FW6D</p> <p>636,89 € – 805,50 € (ex. VAT)</p> <p>BUY NOW</p>	 <p>Protectli Vault FW6E</p> <p>738,57 € – 907,18 € (ex. VAT)</p> <p>BUY NOW</p>	 <p>Protectli Vault VP2410 – 4 port</p> <p>424,28 € – 541,13 € (ex. VAT)</p> <p>BUY NOW</p>	 <p>Protectli WiFi Kit Wireless B/G/N at 2.4Ghz</p> <p>42,90 € (ex. VAT)</p> <p>ADD TO CART</p>	

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

The background is a dark gray color with a faint, light gray circuit board pattern. The pattern consists of various lines, right-angle turns, and small circular nodes, resembling a printed circuit board (PCB) layout. The text "Pace Enterprise Training" is centered in a bright green, sans-serif font.

Pace Enterprise Training

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/>

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



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/>



<https://hardware.io/usa-2025/training/mastering-uefi-secure-boot.php>

The image features a dark gray background with the word "Services" centered in a bright green, sans-serif font. The corners of the image are decorated with light gray, stylized circuit board traces and nodes, creating a technical or digital aesthetic.

Services

Zarhus Services

[01Y] Base OS: Audio support and compatibility tests

Zarhus OS: Base OS – Audio support and compatibility tests

4200,00 €
(ex. VAT)

ADD TO CART

[02X] Base OS: Bluetooth support and PTS-related Zarhus OS code changes

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

5900,00 €
(ex. VAT)

ADD TO CART

Base OS: Buttons interface support (keyboard standard input)

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

2450,00 €
(ex. VAT)

ADD TO CART

S: Device controller server application for display management

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

6300,00 €
(ex. VAT)

ADD TO CART


[03Z-OLED] Base OS: Display support

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

2450,00 €
(ex. VAT)

ADD TO CART

<https://shop.3mdeb.com/shop/zarhus-services/>

The background features a dark grey color with light grey circuit-like lines in the corners. These lines consist of straight segments connected by right-angle turns, with small circular nodes at the junctions and endpoints. The lines are positioned in the top-left, top-right, and bottom-right corners, framing the central text.

Dasharo Pro/Enterprise Package

(formerly Dasharo Entry Subscription)

Dasharo Pro/Enterprise Package



Dasharo (coreboot+UEFI) Pro
Package for Desktop – 1 year

60,00 €
(ex. VAT)

ADD TO CART



Dasharo (coreboot+UEFI) Pro
Package for Network Appliance – 1
year

46,00 €
(ex. VAT)

ADD TO CART



Dasharo (coreboot+SeaBIOS) Pro
Package for Network Appliance – 1
year

99,00 €
(ex. VAT)

ADD TO CART

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

Dasharo Pro/Enterprise Package



Dasharo (coreboot+UEFI) Pro
Package for Desktop – 2 years

120,00 €
(ex. VAT)

ADD TO CART



Dasharo (coreboot+UEFI) Pro
Package for Desktop – 3 years

180,00 €
(ex. VAT)

ADD TO CART



Dasharo (coreboot+UEFI) transition
to (coreboot+Heads) for NV41PZ
Laptops

24,00 €
(ex. VAT)

ADD TO CART

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

The image features a dark gray background with light gray circuit-like lines in the corners. These lines consist of straight segments connected by right-angle turns, with small circular nodes at the junctions. The lines are positioned in the top-left, top-right, and bottom-right corners, framing the central text.

<https://shop.3mdeb.com>