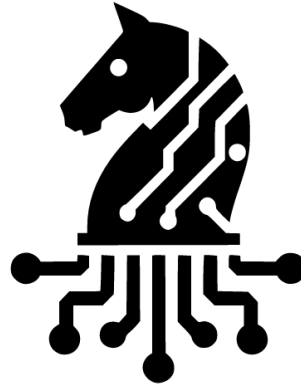


Zarhus: Trustworthy Embedded Linux Distro

👋 Dasharo User Group #5 🎉



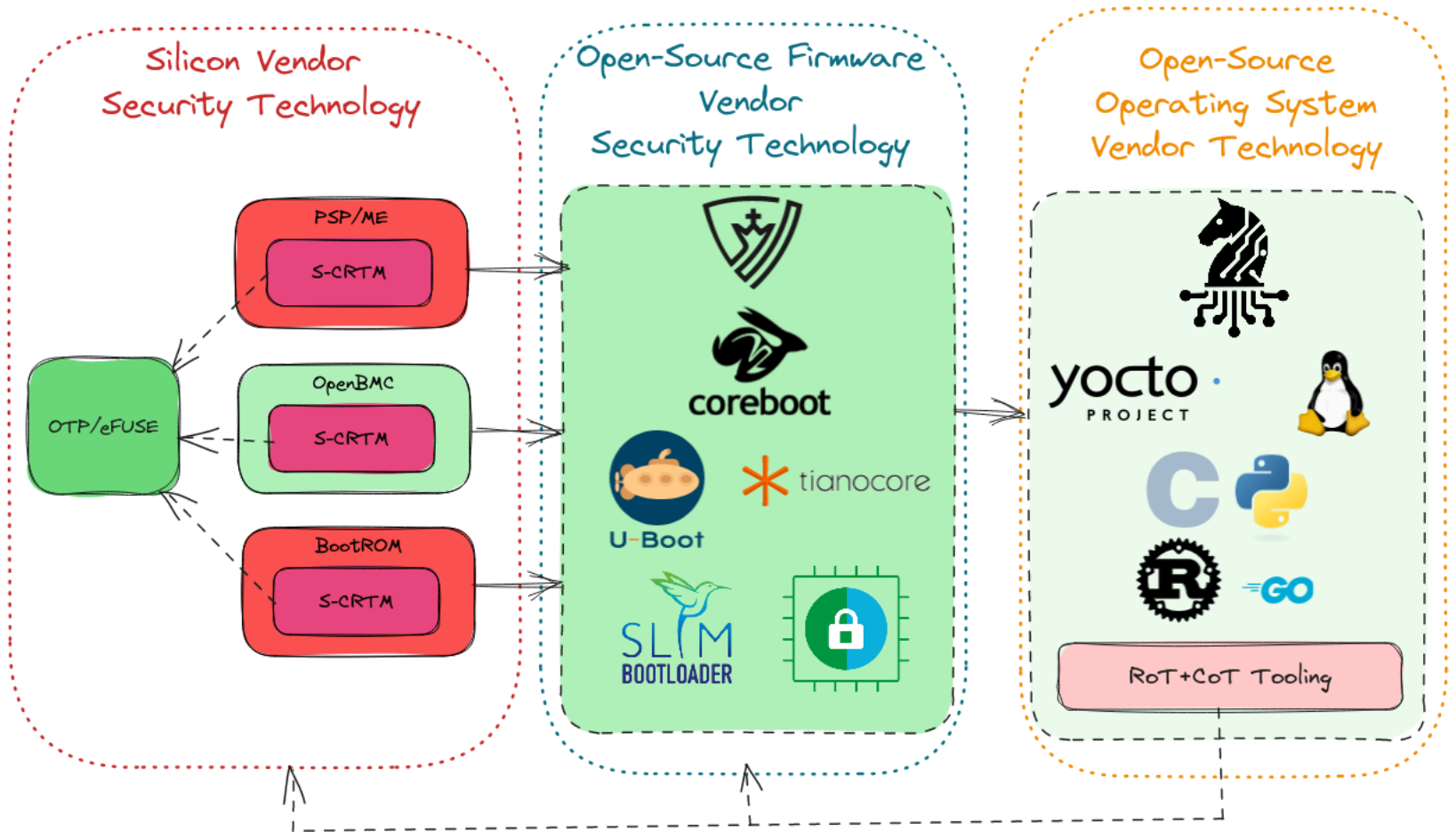
What is Zarhus?



ZARHUS

*Zarhus is an embedded **Linux** distribution based on **Yocto**, developed by 3mdeb. It is designed for the community and customers who want platform security based on an immutable **Root of Trust** tied to their own keys and to run target applications leveraging the **Chain of Trust** of their choice.*

What does it mean in practice?



Relation to Dasharo

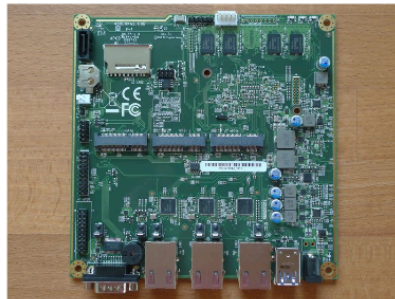


ZARHUS

RTE OS

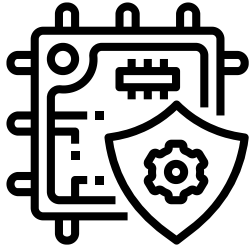


meta-pcengines



Dasharo Tool Suite





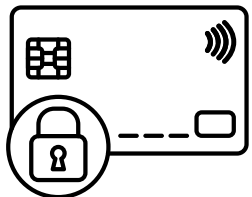
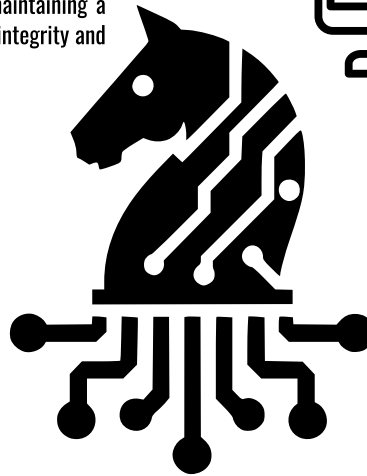
RoT and CoT Toolchain

A seamless experience for Root of Trust and Chain of Trust provisioning, utilizing its sophisticated tooling harmoniously with UEFI BIOS, Dasharo, or other firmware. This enables establishing and maintaining a secure foundation, which is crucial for the integrity and trustworthiness of the entire system.



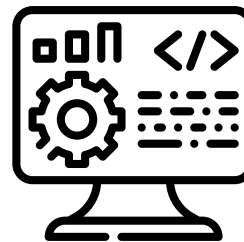
Lifecycle Management

ZarhUS inherits Dasharo's experience in a comprehensive CI/CD pipeline and robust testing framework for lifecycle management, facilitating continuous integration, delivery, and secure updates. This process ensures that security is maintained and enhanced throughout the product's lifecycle.



Secure Elements Support

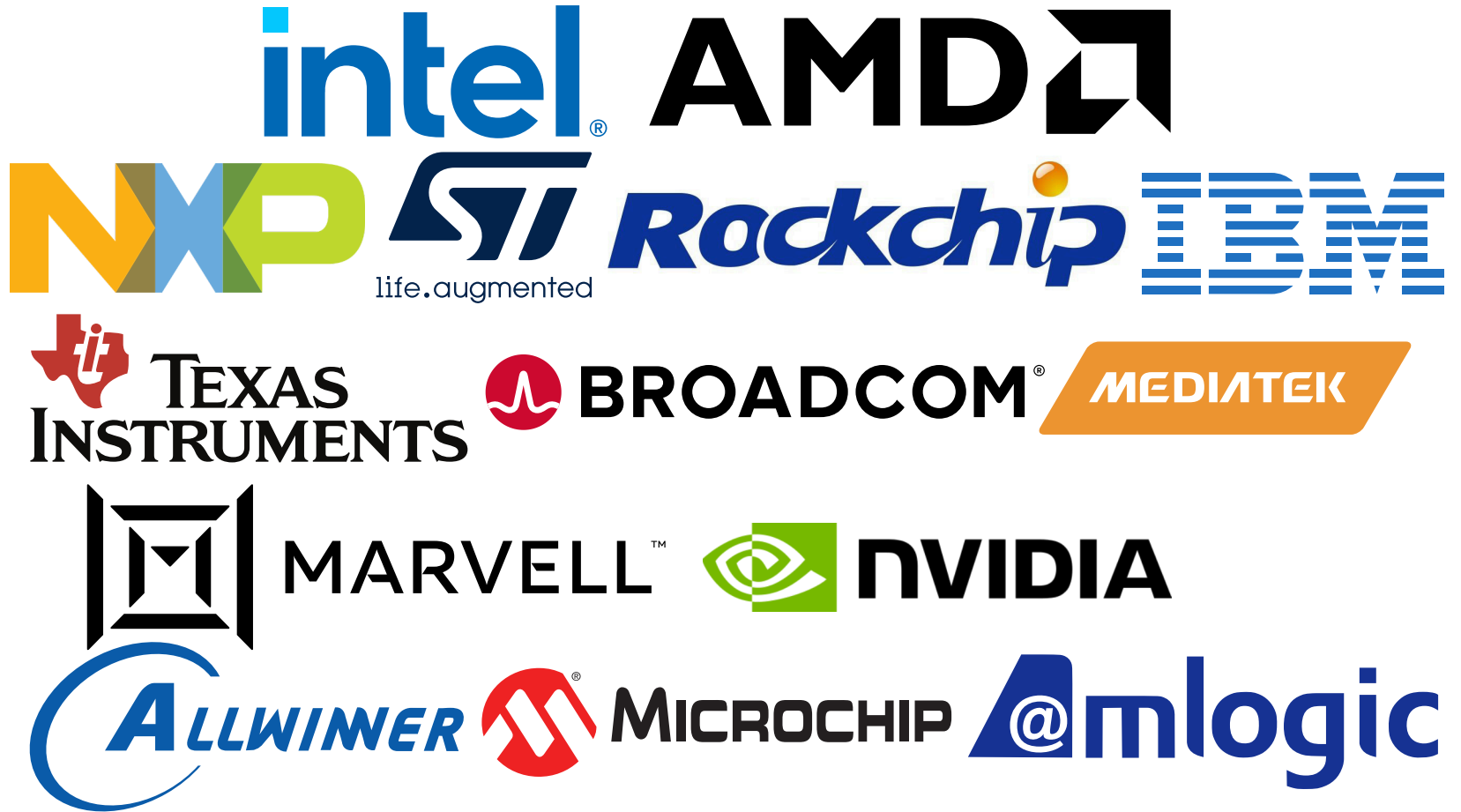
Leveraging secure elements like TPMs, HSMs, or Hardware Unique Keys, ZarhUS ensures the secure storage of secrets and supports encrypted root file systems. This protects sensitive data and fortifies the system against unauthorized access and tampering.



Software Stack Integration

ZarhUS offers flexibility by allowing the integration of any software stack with full control from the toolchain through libraries and target applications as the ultimate goal.

Supported Hardware



How community can use it?

- Prerequisites:
 - At least basic Yocto understanding is required
 - Understanding of kas (setup tool for bitbake based projects) is recommended
- Keep checking progress on:
 - <https://docs.zarhus.com/>
 - <https://github.com/zarhus>
 - we create roadmap under zarhus-issues and will track our progress there
 - we will inform you during DUGs
- Currently most repositories are still in 3mdeb organization (32) in private gitlab (37)
 - <https://github.com/3mdeb> - search for meta keyword
 - most of the code is MIT-licensed
- In total it is 87k lines of code of 17k we already contributed upstream.
- Meanwhile for direct business needs we designed, developed and delivered over 400k lines of code.
 - With Zarhus we want to change this proportions.

Zarhus Team contribution

2019

- During first Qubes OS Summit Maciej (@macpijan) [proposed Yocto as build system for Qubes](#), we have very nice discussion with Marek (@marmarek) then.
- Piotr (@pietrushnic) present at PSEC [Yocto built TrenchBoot demo on PC Engines](#), slightly improved version is show the same year at ELCE.

2020

- During TPM.dev Piotr (@pietrushnic) present improved architecture of [Yocto-based TrenchBoot and safeboot stack](#).
- Norbert (@nkaminski) and Tomek (@tomzy_0) present at our first Yocto Summit talking about [various management tools and how to create wic plugin](#).

Zarhus Team contribution

2021

- During FOSDEM Maciej (@macpijan) first time presented [overview of Secure Boot in the ARM SoCs](#)
- Out second Yocto Summit borough Maciej (@macpijan) talk about [PPC64 architecture support](#) and Tomek (@tomzy_0) [demo of OpenWRT built with Yocto](#)
- Durign Xen Developer and Design Summit Piotr (@pietrushnic) presented approach to [deliver modern WiFi support for BSD-based Firewall VM](#)
- There was also another Yocto Summit that year where Tomek (@tomzy_0) show [how to deal with SELinux in Yocto](#)

2022

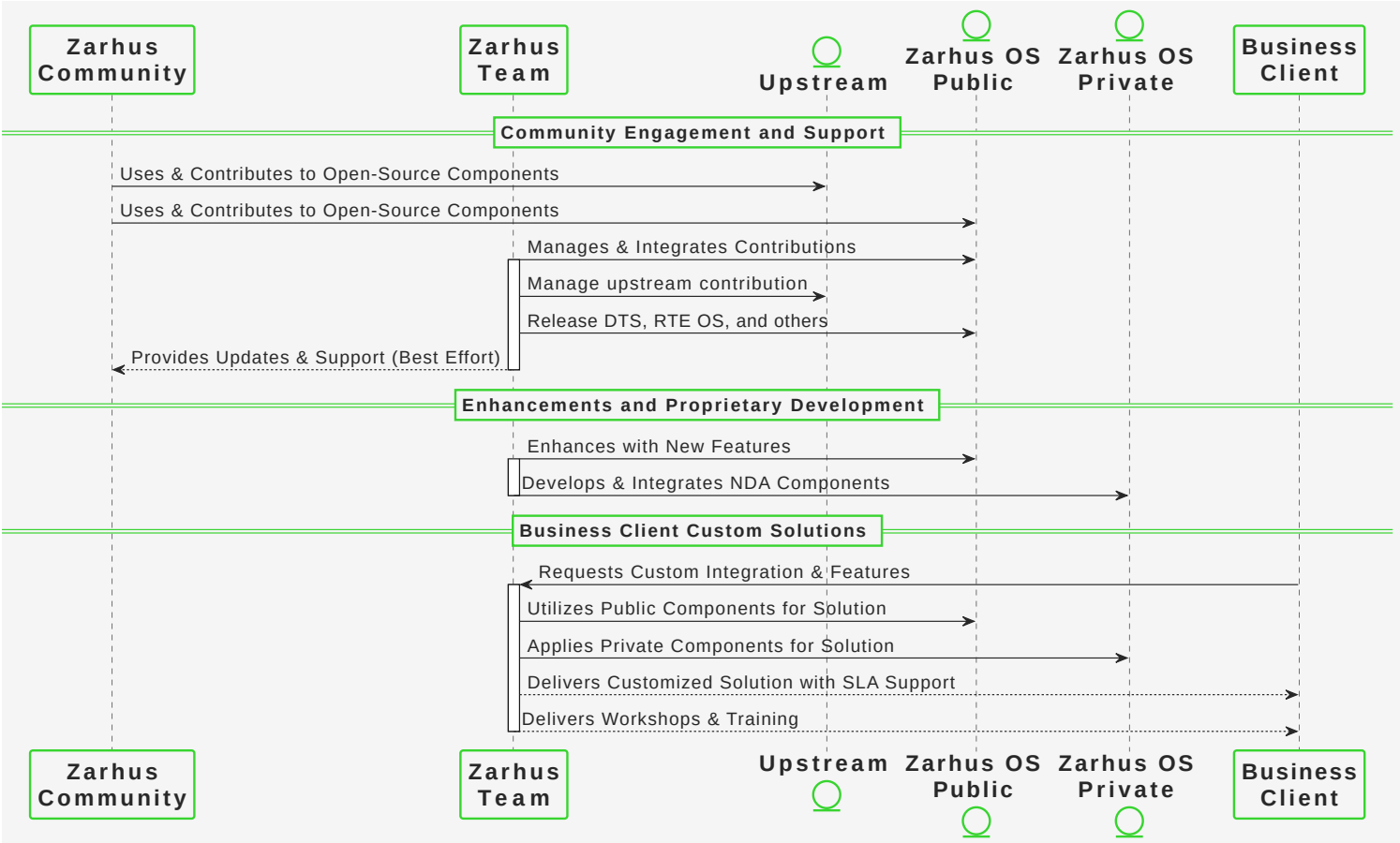
- On Yocto Summit Tomek (@tomzy_0) presented [how to enable UEFI Secure Boot on x86 with Yocto](#) together with Cezary who show [how to enable new platform \(Nezha Allwinner D1\) in Yocto meta-riscv](#)

Zarhus Team contribution

2023

- At FOSDEM Tomek (@tomzy_0) presented update version of [Secure Boot status in ARM SoCs](#)
- At Yocto Project Dev Days Maciej (@macpijan) and Tomek (@tomzy_0) presented two topics, [first related to maintenance and second to building OpenBMC](#)
- During Yocto Project Summit Tomek (@tomzy_0) presented another approach to [UEFI Secure Boot](#) and Tymek (@tym21k) debut with [FIDO Device Onbarding and Yocto story](#).

Business value delivery



How to buy it?

- Indirectly through Dasharo Entry Subscription or obtaining RTE (limited to product needs):
 - <https://shop.3mdeb.com/product-category/dasharo-entry-subscription/>
 - <https://shop.3mdeb.com/shop/open-source-hardware/rte/>
- Through productised services: <https://shop.3mdeb.com/product-category/services/>
 - Secure Boot integration for NXP and Rockchip
 - TPM and UEFI Secure Boot Assessment
 - TXE Secure Boot Assessment
 - Intel Boot Guard Assessment
 - U-Boot Hardening
 - Boot Time Optimization Report
 - Support Package and Workshop
 - and many more
- Through Training:
 - <https://paceenterprisetraining.com>
- Or just contact us: <https://3mdeb.com/contact/#form>



Q&A