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Building a future we can all trust

CVA6: Sovereign Open Source HW

Bernhard **QUENDT**

Chief Technical Officer - Thales

2024 key figures

83,000

employees

68 countries

A global footprint

More than €4 bn*

* including €1,1 bn
in self-funded R&D

€20.6 bn

revenues

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Thales group Overview

Space | Avionics | Defense | Communication | Cyber Security

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Geopolitical situation threatens availability of IP / IC

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Digital Sovereignty

Safe
Secure

Open
Source HW

Independent

Thales Innovation and Cooperation

New Spatial Onboard Computer:

- **Reduce development cost and delay by leveraging open source assets**
- **Open source computing platform tailored and hardened for space application**

- **Experimental ASTRAL SoC**: multi-CVA6 Core + OpenTitan (Secure Root of Trust) + Vector accelerator
- **Mix-Criticality Software Platform**

ThalesAlenia Space
a Thales / Leonardo company

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

ETH zürich

Chips-IT
FONDAZIONE

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Thales Innovation

Industrial Grade CVA6 µController released as Open Source

- **CV32A60X**: Low area and High performance CVA6 Core
- 100% Verified, Sovereign, ready for integration into silicon products (TRL5) !
- ***Focus on your Added Value IP / Differentiator, CVA6 comes as a commodity***

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FOUNDATION
OPENHW™
PROVEN PROCESSOR IP

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Call to Action and Innovation !

Join forces between Research / Academia / Industry to mature Open HW IP from TRL 3 to TRL 5

Next step: CVA6 64b Application Core kicked off Q1/2025

- Project CV64A60AX
- CEA targets TRL4 Verification target
- ***Industry is welcome to verify up to TRL5***

FOUNDATION OPENHW™ PROVEN PROCESSOR IP

Contributors to CVA6 OpenHW ecosystem

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10x ENGINEERS · Universidade do Minho · mu ELECTRONICS · PlanV · OPENHW GROUP PROVEN PROCESSOR IP · ETH zürich · AXELERA AI · UC SANTA BARBARA · ALMA MATER STUDIORUM UNIVERSITÀ DI BOLOGNA · BOSCH · Inria · cea · POLYTECHNIQUE MONTRÉAL · Red Hat · Empaiot. · Rumble Development · UNIVERSITY OF CAMBRIDGE · CAPABILITIES LIMITED

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OpenHW CVA6

From Academia to Industry

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Visit our booth !

TRISTAN RISC-V

ISOLDE RISC-V

RISC-V®

Plan V

FOUNDATION OPENHW PROVEN PROCESSOR IP

mu ELECTRONICS

SPARE

Why Thales invests in RISC-V (and open-source HW)?

Share cost instead of purchasing IP
Open-source community

Security
A fully auditable processor

Sovereignty
Possible commercial exploitation without export constraints
Enable strong EU investment

No vendor-locking
Business opportunities for support, customization…

Safety
No black-box

Software
Large ecosystem compatible across implementations

SWaP & customization
Exact fit between features and application needs

Performance
State-of-the-art processor

Thales member of the OpenHW Foundation and RISC-V International

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