Together for RISC-V Technology & applications (TRISTAN)

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Presented by: RESEARCH @ ECLIPSE FOUNDATION & OW2

Content

How it
all started

The TRISTAN
consortium
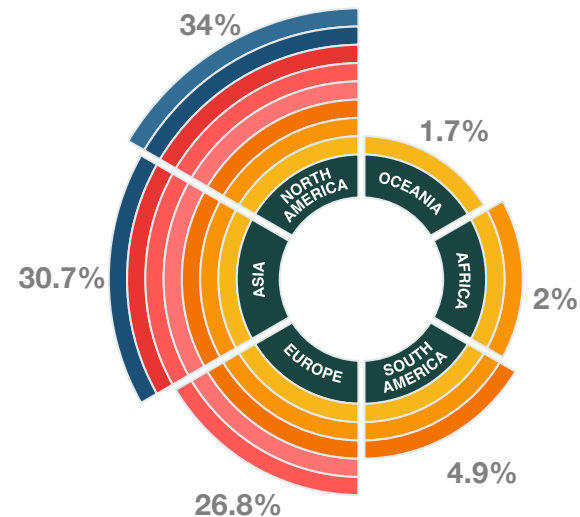
Contribution to
RISC-V and
Open-Source

Conclusions

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How it all started

Europe to urgently catch up with China

"For China, open source is an industrial policy tool and important part of its push for technological autonomy"

merics.org

34%

1.7%

30.7%

2%

26.8%

4.9%

NORTH AMERICA

OCEANIA

ASIA

AFRICA

EUROPE

SOUTH AMERICA

Top Ranked Nations

1st		USA 22.7%
2nd		CHINA 9.67%
3rd		INDIA 5.2%

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How it all started

Why RICS-V in Europe?

Europe must develop the RISC-V supply chain to support autonomy in critical market sectors and reduce its dependency on US & China

STRENGTHS
- Easy access & low barrier for SoC design
- Ability to customize
- Accessible data for safety & security analysis (whitebox)
- Availability of SW ecosystem
- Lower export control restrictions
- Less vulnerable to geo-political risks
- Strong academic support ; educational use
- Steers Innovation

WEAKNESSES
- Not Industrial Quality IP yet (HW/SW)
- Long-term guaranteed support to industrial users not yet established
- Risk of maintenance
- Lack of some IP (e.g. interconnect)

OPPORTUNITIES
- Customization opportunities
- Sharing development costs
- Sharing support costs
- New licensing models
- Support to SME's
- New industrial leaders

THREATS
- Risk not to create enough critical mass in Europe
- US/China competitors are running fast, with large investments and acceptance by leading end-user companies

How it all started

EU WG to create recommendations & roadmap

Members & Participants of the Open Source HW/SW Working Group

Patrick Pype
Chairman

NXP

antmicro	BOSCH	cea	CERN	COBHAM ADVANCED ELECTRONIC SOLUTIONS
Michael Gielda	Andreas Mauderer & Jan-hendrik Oetjens	Marc Duranton	Javier Serrano	Jan Andersson
ETH zürich	GREENWAVES TECHNOLOGIES	Infineon	NANO X PLORE Performance Through Carbon Chemistry	NXP
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SIEMENS	SYSGO EMBEDDING INNOVATIONS	TECHNISCHE UNIVERSITÄT DARMSTADT	Technolution	THALES
Sven Beyer & Herbert Taucher	Holger Blasum	Andreas Koch	Edwin Hakkennes	Jérôme Quévremont

How it all started

Defining a RISC-V Eco-System : IP to SoC Landscape

Tristan Consortium

FINLAND

NETHERLANDS
GERMANY
POLAND

BELGIUM

FRANCE
SWITZERLAND
AUSTRIA
ROMANIA

ITALY

TURKEY

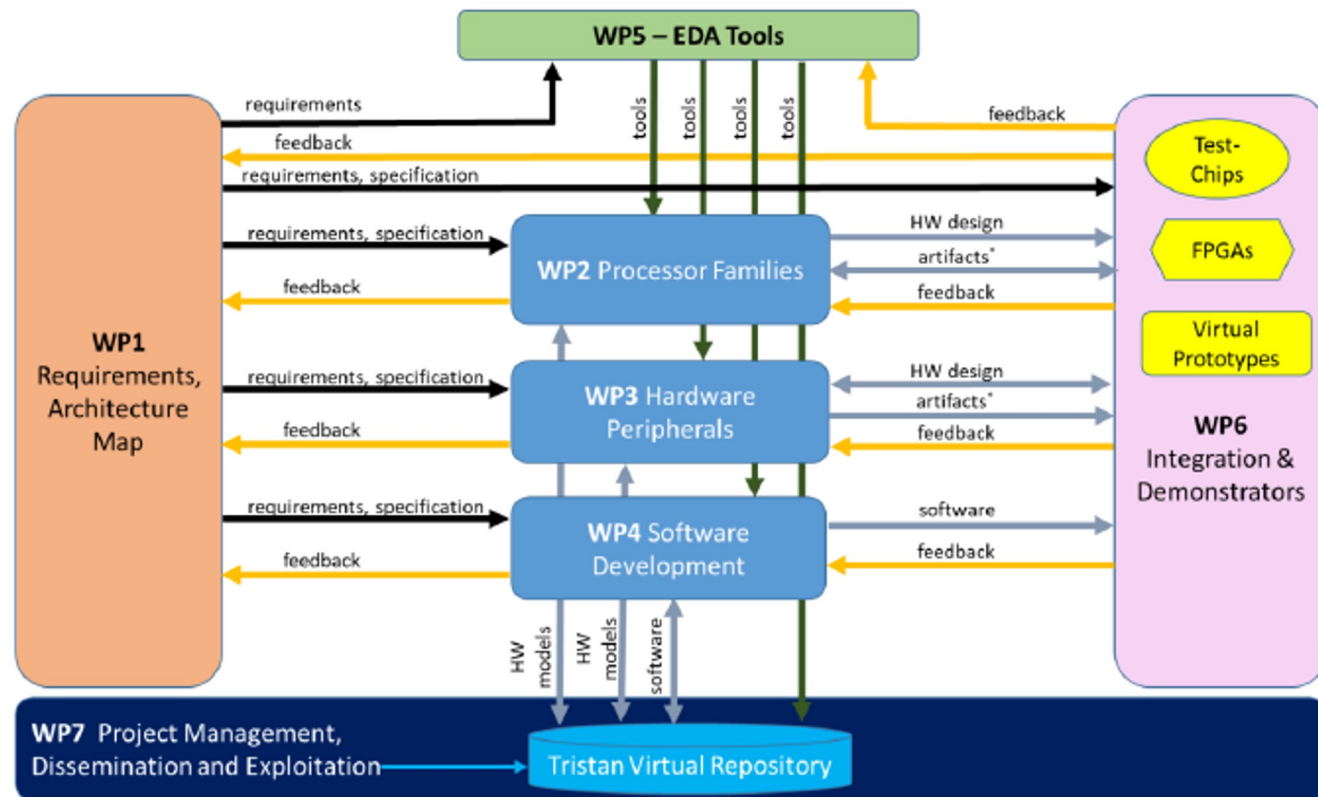| 46	€54m	2022	NXP
Partners	Budget	Start date	Lead

Contribution to RISC-V and Open-Source

Expand & mature the European RISC-V ecosystem in order to compete with existing commercial/proprietary alternatives

- leveraging the Open-Source community to gain in productivity and quality

- defining a European strategy for RISC-V based designs including the creation of a repository of industrial quality building blocks to be used for SoC designs in different application domains (e.g. automotive, industrial, etc.)

- applying a holistic approach, covering both electronic design automation tools (EDA) and the full software stack

- exposing a large number of engineers to RISC-V technology, which will further strengthen adoption.
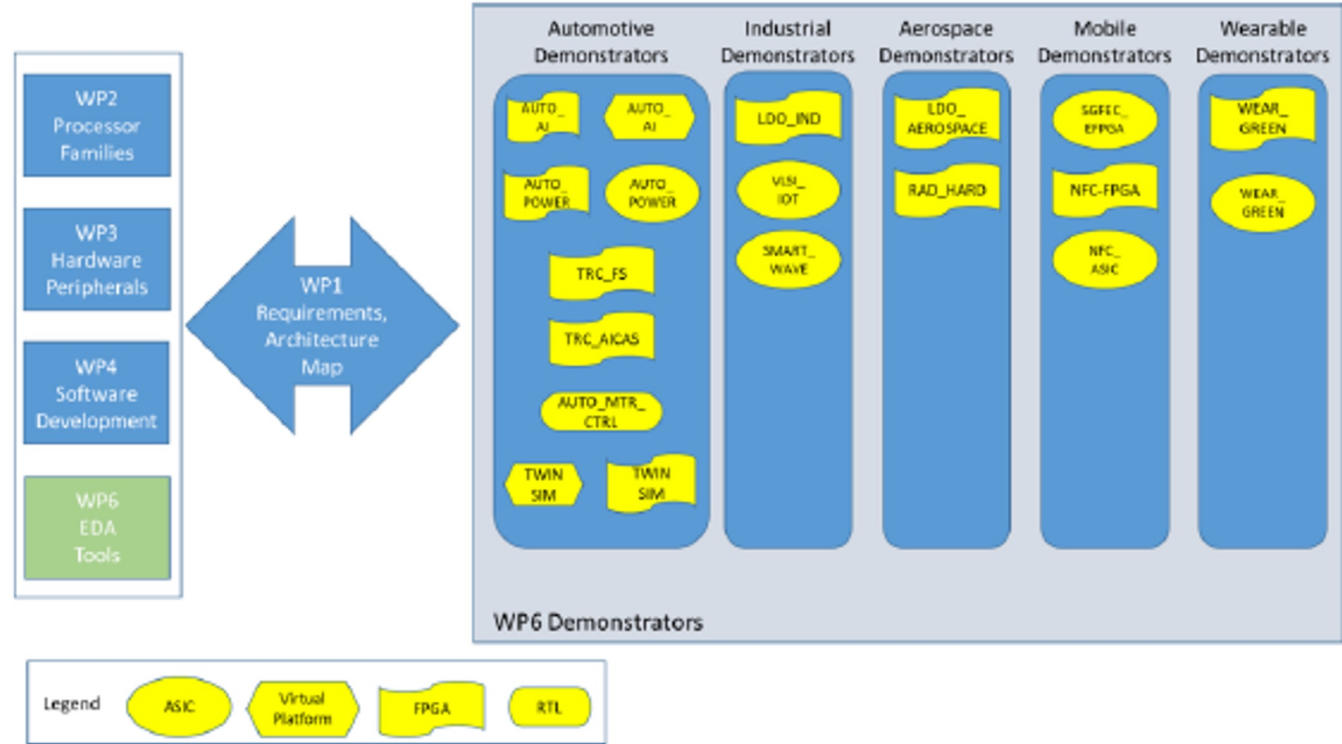
TRISTAN Implementation Plan & WP Structure

Contribution to RISC-V and Open-Source

* artifacts = files accompanying a design (eg. placement constraints) or generated by a EDA tool (eg. generated code)
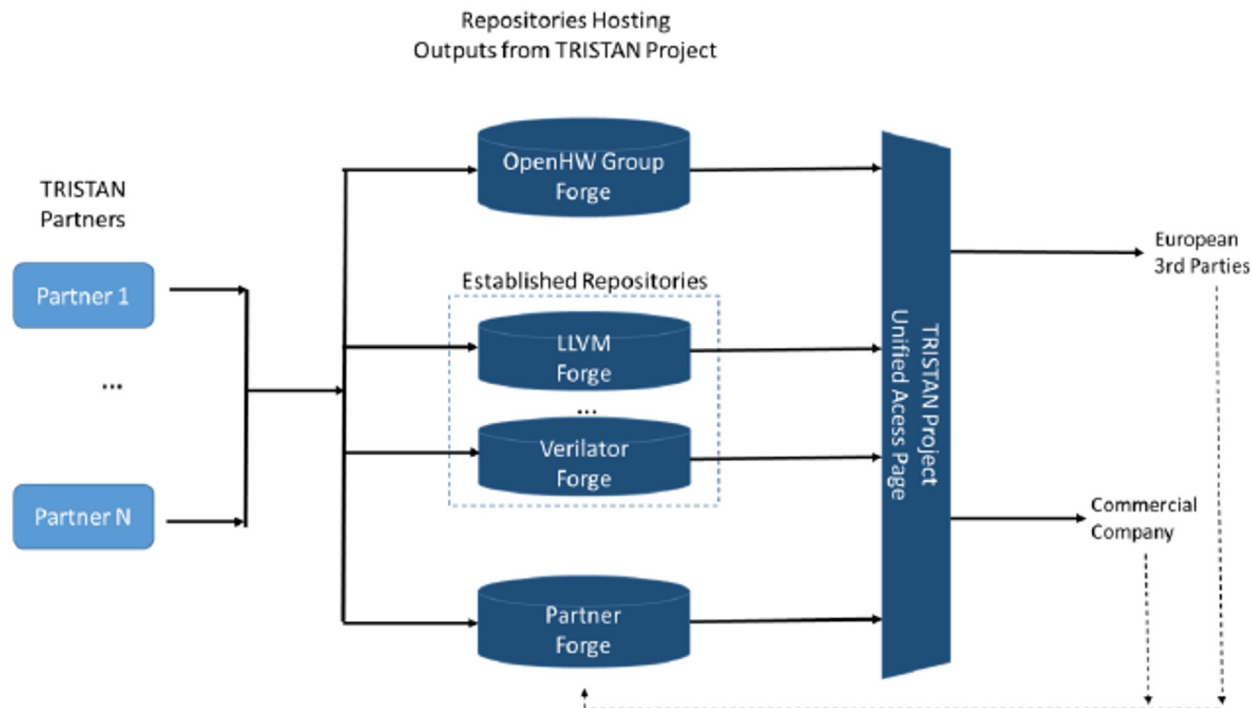
TRISTAN building block & demonstrators

Contribution to RISC-V and Open-Source

TRISTAN Virtual Repository

Contribution to RISC-V and Open-Source

Repositories Hosting
Outputs from TRISTAN Project

TRISTAN Partners

Partner 1

...

Partner N

OpenHW Group Forge

Established Repositories

LLVM Forge

...

Verilator Forge

Partner Forge

TRISTAN Project Unified Acess Page

European 3rd Parties

Commercial Company

Where to find us?

- WWW.TRISTAN-PROJECT.EU

- https://github.com/openhwgroup/tristan-unified-access-page

- rob.wullems@nxp.com

Contribution to RISC-V and Open-Source

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Thank you!

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