

Collaborative open-source infrastructure for open-hardware development around and beyond RISC-V

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Talk goals

- ▶ Nothing about advanced research topics, but about the base-line infrastructure to ensure the open-hardware development in Europe
- ▶ Few ideas and a lot of open questions
- ▶ Identify some of the key points to be addressed along roadmaps and next EU calls

The Prodigious circle: Training ↔ Research ↔ Innovation

- ▶ Improve the collaborative culture on these three basic pillars
- ▶ Include Training on/for open strategies to ensure the evolution from the very beginning
- ▶ Open-hardware requires open-research and close relationship with "T & I"
- ▶ Finally the results of "open-training / research" will benefit innovation and stimulate industries to move into open-source Hw/Sw development/usage
- ▶ Open-source means "Share to Evolve" and we shall ensure the collaborative evolution of these three fundamental pillars



Training for “open” mind/sharing/hardware

- ▶ New strategies, methods and tools for open-hardware based developments
- ▶ Instead of just looking for competition apply open-mind strategies to be more competent, collaborative and generous to share and grow together
- ▶ Open, collaborative and on-line training requires large efforts → larger benefits for the complete “prodigious circle”

Research on/for open-source hardware

- ▶ Today Hw development is based on IP (Hw/Sw) integration
- ▶ Most of the IP blocks are commercial and expensive
- ▶ Research labs and Univs → Large potentials to develop high quality Hw/Sw IPs
- ▶ Why doing open-Hw instead of publishing or even patenting?
- ▶ How can we provide quality assessment/recognition and impact factors to open-Hw?
- ▶ How to stimulate and promote open-Hw dev. and facilitate its usage under specific limitations/NDA's?
- ▶ Will technology/tools providers find-out their own benefits on open-Hw based developments?
- ▶ Can Europractice-like instruments facilitate the cooperation for Open-Hw dev. & usage?



Innovation from/for Open-source

- ▶ Open-mind R&D active and flexible companies
 - Sustainable continuous innovations based on applied R&D
 - Share to receive, grow and be ahead
- ▶ Protective companies
 - Slaves of its patents and trademarks
 - Controlled evolution, often depending on the competitors
- ▶ More companies in the “Prodigious circle” => Bigger innovation capabilities within the Open-Hw ecosystem
- ▶ Training and research success in open-Hw will stimulate companies to move and take profit of it
- ▶ But, we need to clarify how the results from Open-Hw can be reasonably exploited



How to support the global TRI collaborative evolution (co-evolution)?

- ▶ Add "Training" criteria and incentives together with "Research" and "Innovation" in the calls addressing open-source hardware topics
- ▶ Promote/stimulate the development of infrastructure and resources for open-hardware as project outputs and create the EU open-source Hw/Sw resources catalogue of...
 - Teaching video-pills open and easy to reuse for on-line courses
 - IP-blocks from research to open (constrained) sustainable/exploitable catalogue
 - Application notes and successful industry innovation results
- ▶ Qualify, maintain and exploit such EU open-source Hw/Sw resources catalogue
 - Fix qualification/update criteria and provide open access to this resources catalogue
 - Specify easy and applicable conditions for exploitation at training, research and industry
- ▶ For such a catalogue, creation, qualification, maintenance and exploitation policies shall be established and guaranteed by public bodies thought Europractice-like services
- ▶ Above topics shall be addressed within any roadmap to ensure the correct evolution of the three pillars within the prodigious TRI cycle are well combined and balanced.

