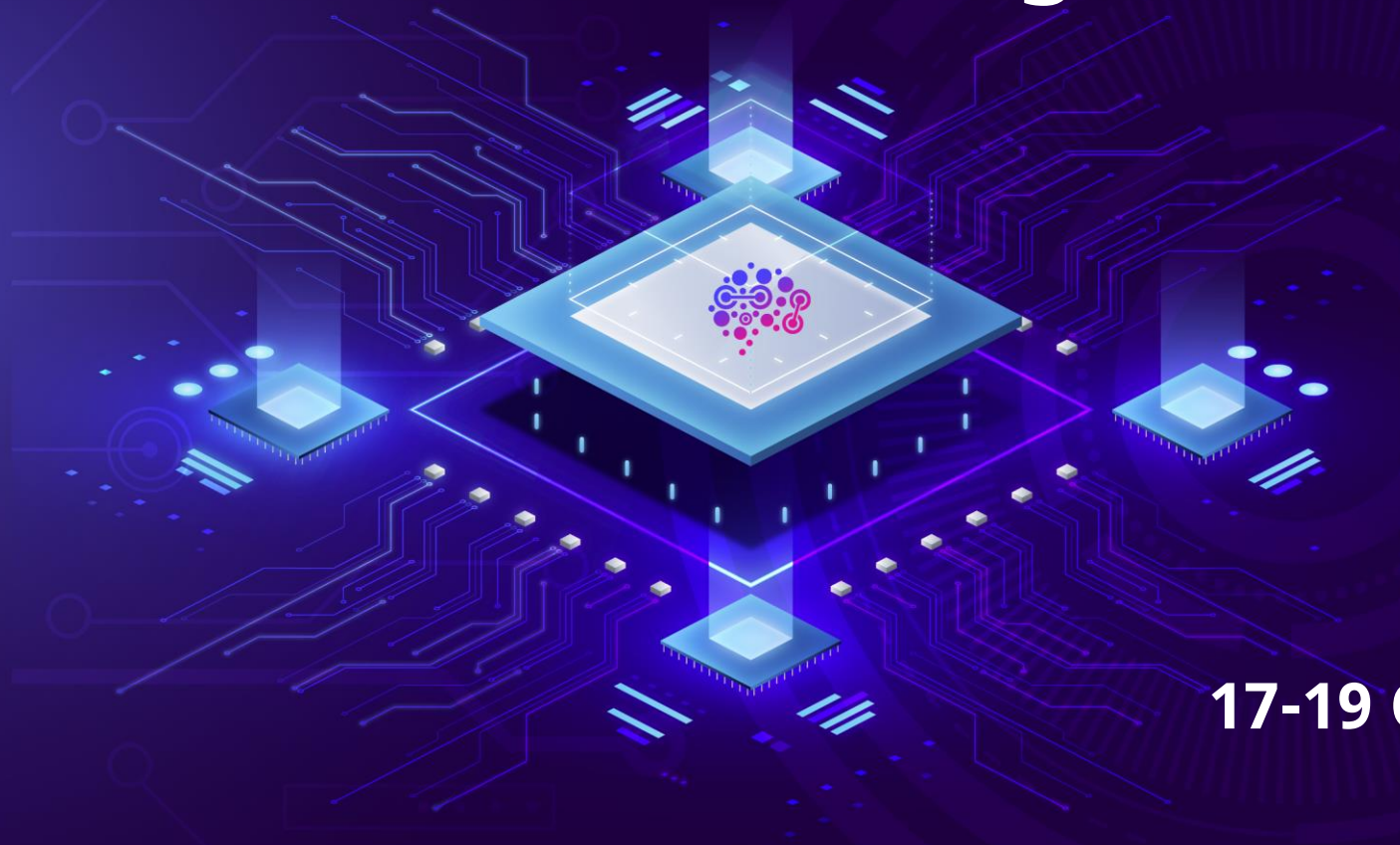
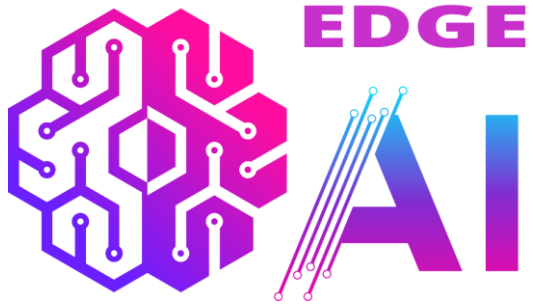
European Conference on EDGE AI Technologies and Applications - EEAI



Advancing emerging edge AI technologies and driving next generation intelligent applications.

17-19 October 2023, Athens, Greece

European Conference on EDGE AI Technologies and Applications - EEAI



REBECCA

Reconfigurable Heterogeneous Highly Parallel Processing Platform for safe and secure AI

Yannis Papaefstathiou
Exascale Performance Systems – EXAPSYS

17-19 October 2023 Athens, Greece

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REBECCA requirements

As we have heard in yesterday's and today's keynotes there is a clear need for

- Domain-specific SoCs and platforms integrating manycore CPUs, vector processors, hardware accelerators and FPGAs,
- Hardware Design Tools, Programming environments, aimed at efficiently designing and programming such domain-specific heterogeneous platforms,
- Complete software stacks from application programming to runtime systems to satisfy hard real-time, safety and security requirements, wherever possible, in a formal way.

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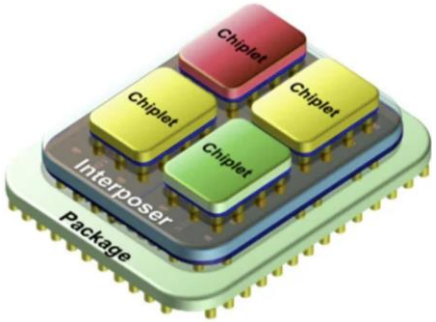
Identity of REBECCA

- 24 Partners from 8 Countries: €8.5 of EC and Member States Funding
- 42 Months of active research and development (now on M7)

Hardware

- Low-power RISC-V multi-core processor
- Low-power modular chiplet technology
- Security and AI accelerators (CNN, ML, Neuromorphic)
- REBECCA System comprising of REBECCA chip + IO FPGA



Software

- 3 Different Tool-suites for Design Space Exploration, Safety and Security Modelling and Development
- 2 Hypervisors
- 2 Runtimes
- 4 Real World Use Cases

kubernetes

Use Cases & Benchmarks

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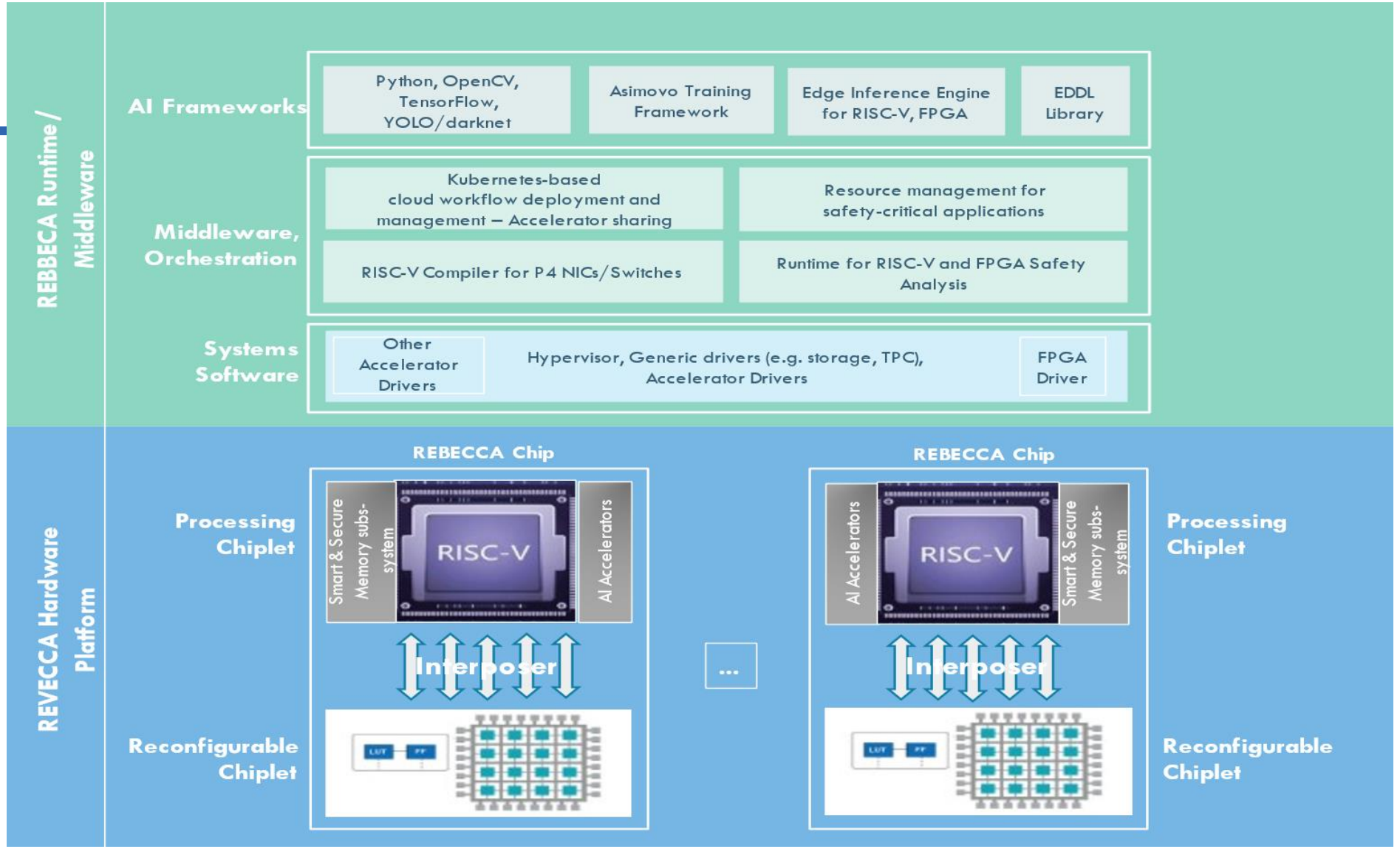
REBECCA Solution

Holistic Approach

- Runtime & Middleware
- Kubernetes
- RISC-V Compiler

- RISC-V processor
- Chiplets
- REBECCA Chip
- REBECCA System



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Want to learn more ?

I will be around and really glad to discuss REBECCA with you

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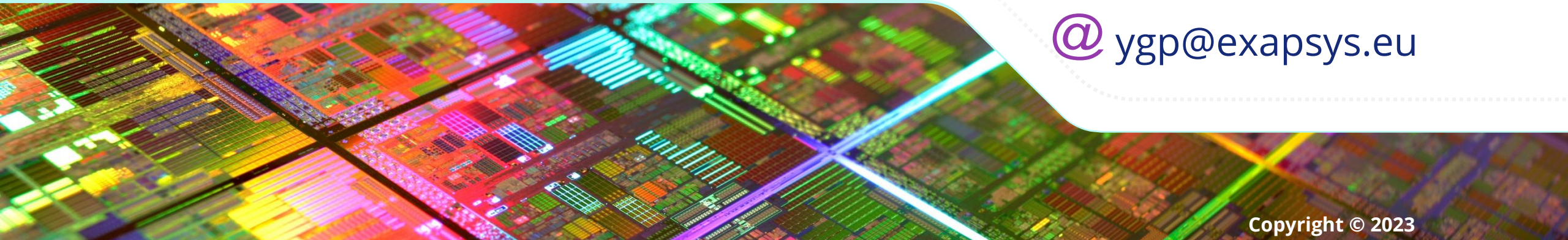
EDGE AI

Thank You

For your attention



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