

ISOLDE - High Performance, Safe, Secure, Open-Source Leveraged RISC-V Domain-Specific Ecosystems

- Expand, mature, industrialize the European high-performance RISC-V ecosystem
- ISOLDE Project will have high performance RISC-V processing systems and platforms
- At least at TRL 7 for the vast majority of building blocks
- Two years after completion ISOLDE's high performance components will be used in industrial quality products.



Targeted Application Domains



Automotive



Cellular IoT



Smart home

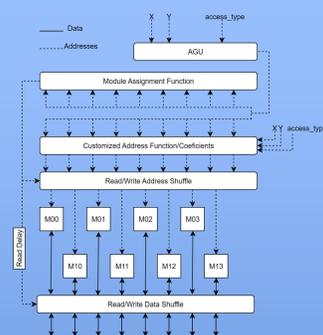


Space

ISOLDE IP Examples

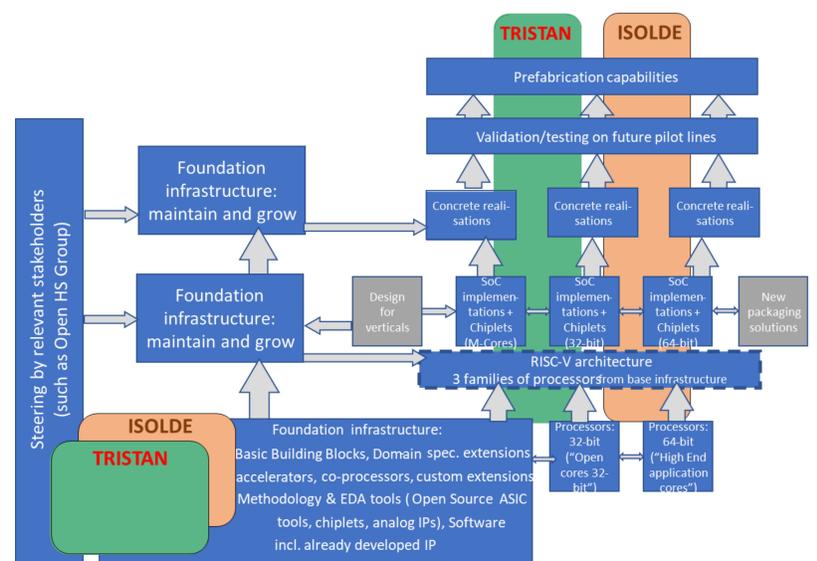
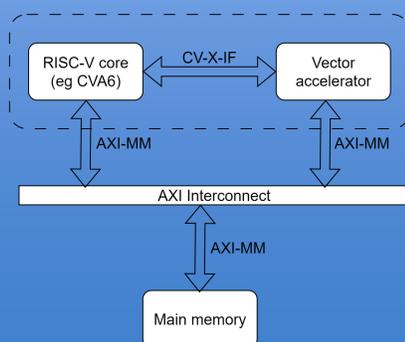
Scratchpad memory

- Based on PolyMem
- Parallel and conflict free multi lane access to data
- Multiple multi-view parallel access schemes
- Supports rectangle, column, row, transpose, main diagonal, Second diagonal
- Multiport design



Vector Accelerator

- Tightly-coupled accelerator
- Connected to a RISC-V core with CoreV-eXtension-Interface (CV-X-IF)
- This interface allows access to core registers
- Has dedicated memory interface
- Designed to accelerate matrix operation
- Has dedicated RISC-V instructions



Contact details

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Automotive Demonstrator Example



The demonstrator will feature:

- Two or more RedMulE¹ (Reduced-Precision Matrix Multiplication Engine) instances.
- A RISC-V core: ibex (fork)
- Compiler² support for splitting the original GEMM operation in two or more sub-GEMMs. The sub-GEMMs will be executed in parallel, using the multiple RedMulE instances available in the system.
- Investigation of using OpenMP for allocating the sub-GEMMs to RedMulE instances (in collaboration with NXP-RO).

¹TRISTAN IP ²available as open-source project

Partners

The 37 partners are from Austria, Czechia, France, Germany, Italy, Romania, Spain, Sweden and Switzerland.

