

# EPI Forum

Paris, 6–7 October, 2025







# European Processor Initiative

Framework Partnership Agreement In European Low-power Microprocessor Technologies



# AGENDA



- Why EPI
- Where are we?
- Perspectives

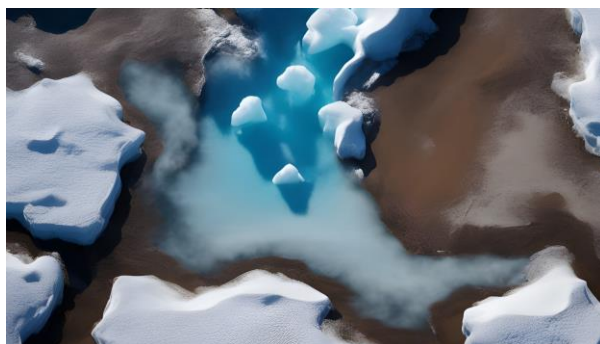


# WHY EPI



# HPC, THE LEADING EDGE FOR A BRILLIANT PHYGITAL FUTURE

Anticipate climate changes



Study earthquakes



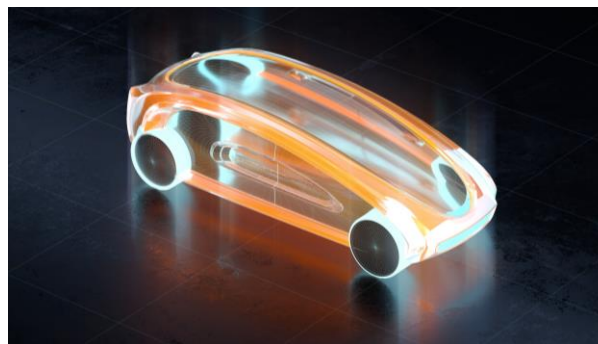
Control epidemics



Care for aging population



Innovate without limit



Secure energy resources



## EU AMBITION : ACHIEVE AUTONOMY IN STRATEGIC PROCESSING TECHNOLOGIES

20%

Production (worldwide value) in Europe of cutting-edge and sustainable semiconductors including processors (instead of 10%)

5 to  
2nm

Manufacturing capacity

x10

Energy efficiency improvement from 2020



# THE DRAGHI REPORT (2024) : A CALL TO ACTION

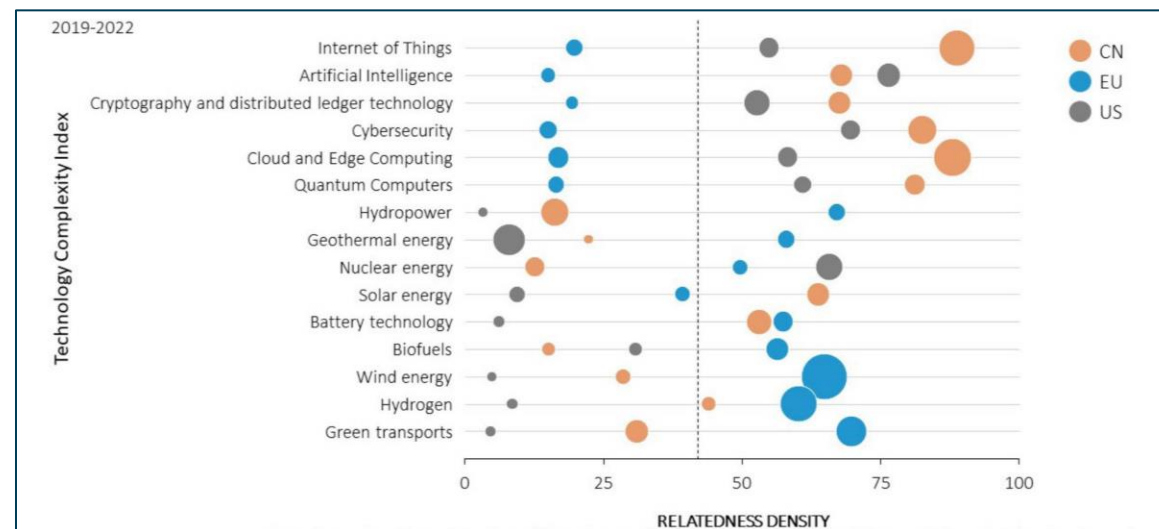
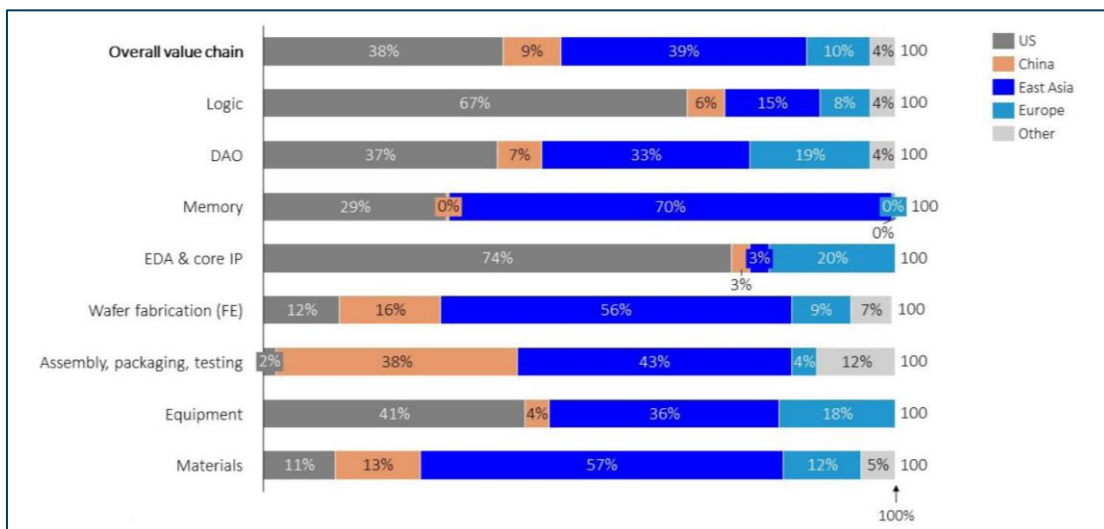


“Strategic dependencies also extend to critical technologies for the digitalisation of Europe’s economy (...) Dependencies are particularly acute, however, for semiconductors owing to the structure of the industry, which is dominated by a small number of large players.

The US has specialised in chips design, Korea, Taiwan and China in chips manufacturing, and Japan and some EU Member States in key materials and equipment – optics, chemistry and machinery. Europe has little domestic capacity in many parts of the supply chain. For example, the EU currently has no foundry producing below 22 nm process nodes and relies on Asia for 75% to 90% of wafer fabrication capacity (as does the US).

Europe has become dependent on non-EU countries for chips design, packaging and assembly as well”

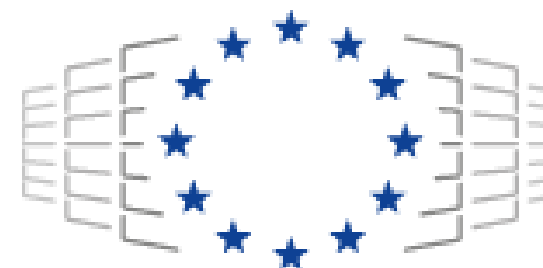
“The EU must de-risk its strategic dependencies and improve its capabilities in semiconductors (...).



## TWO PILLARS TO MAKE EUROPEAN AMBITION A REALITY



Empowering Europe's  
Semiconductor Future, uniting  
innovation and driving Progress



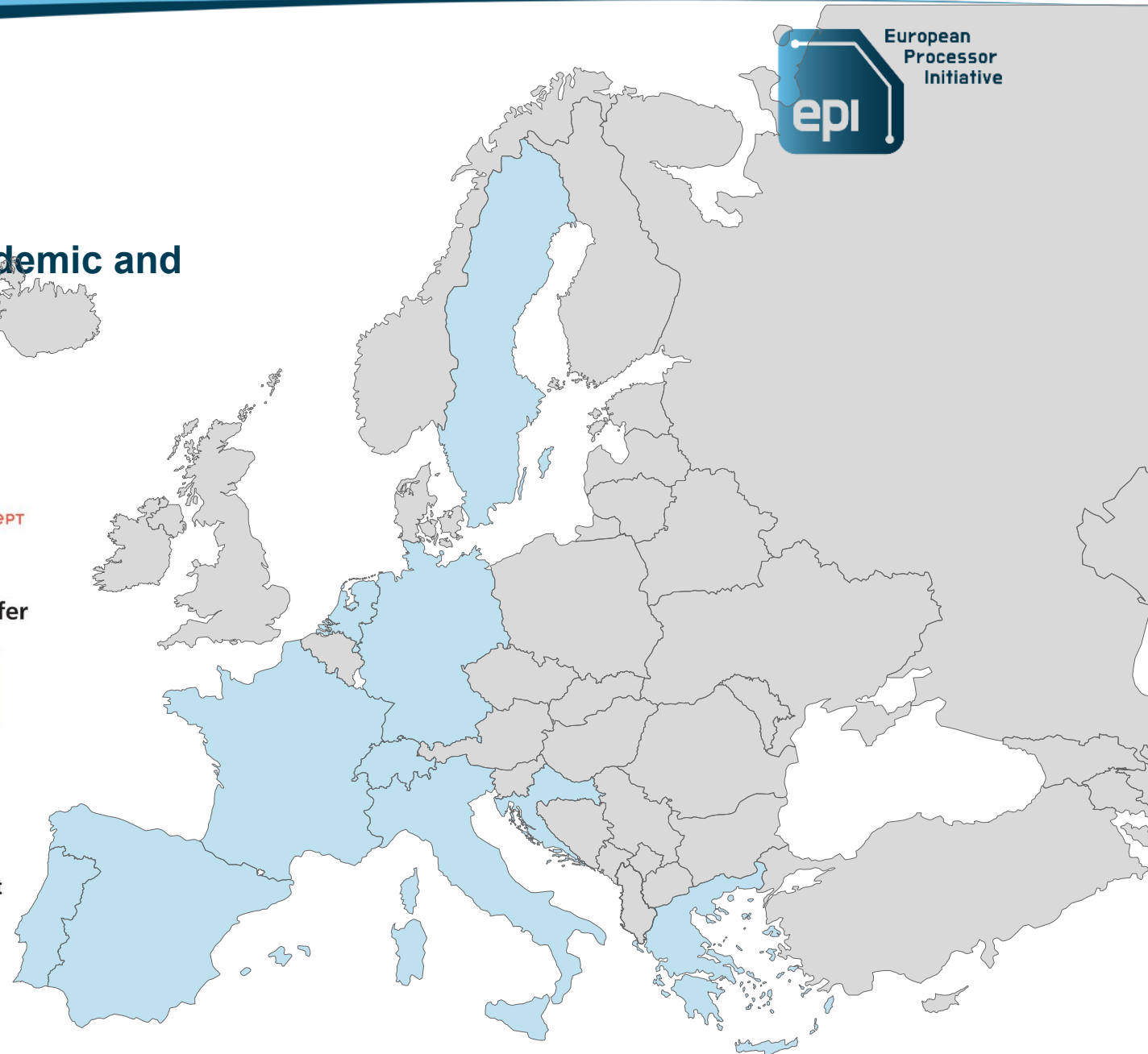
**EuroHPC**  
Joint Undertaking

Leading the way in European  
Supercomputing, developing a World  
Class Supercomputing Ecosystem



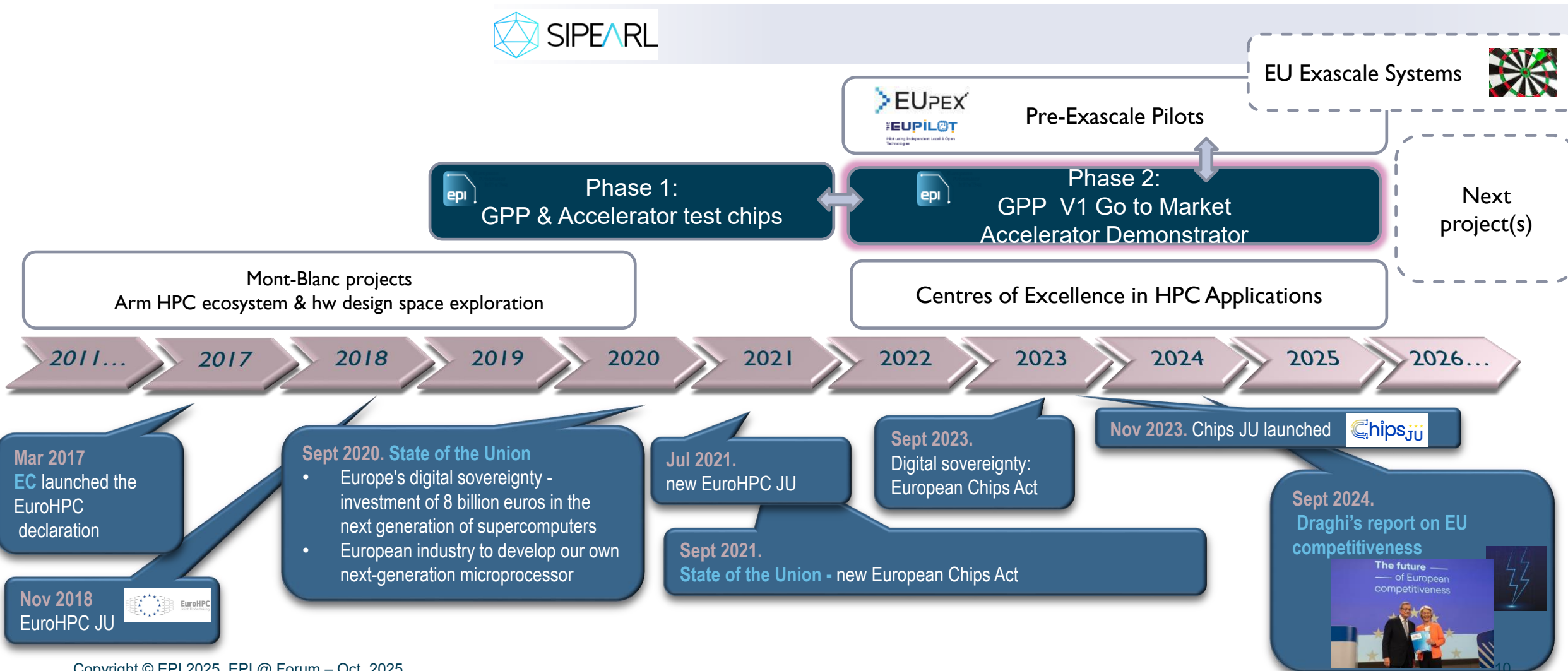
# EPI CONSORTIUM

- 27<sup>(\*)</sup> strategically chosen key European academic and industrial partners
- 10 EU countries



(\*) For EPI SGA2 action

# EPI MEETS THE EU TIMELINE







# WHERE ARE WE?

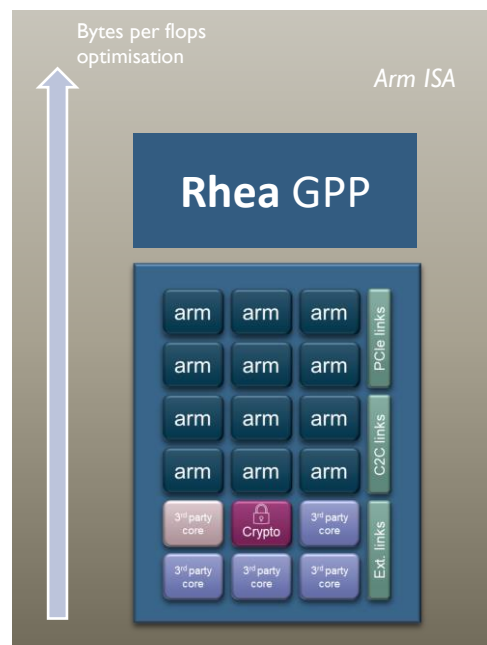


# EPI : MAIN OBJECTIVES

EU chips fit for HPC usage - at Exascale level

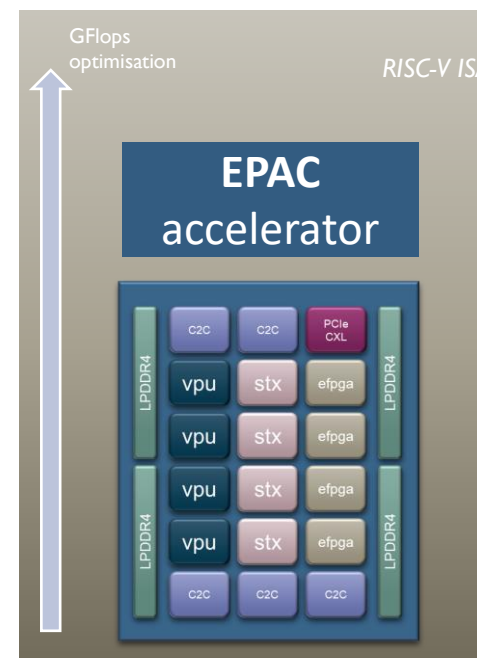
arm

**General Purpose Processors:**  
Legacy & programmability



**Accelerators:**  
Computing force

RISC-V

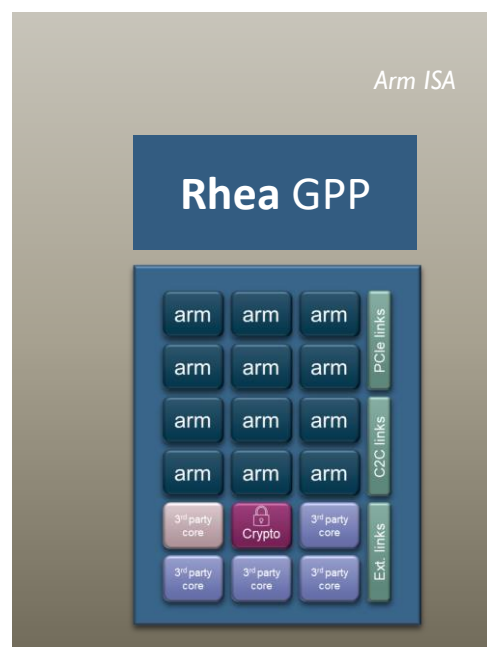




# TWO PROCESSOR FAMILIES : RHEA

arm

**General Purpose Processors:**  
Legacy & programmability



Rhea General Purpose family:

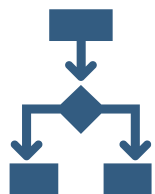
- Arm Neoverse V1 cores
- Arm NoC
- Dedicated crypto IP



# RHEA CHIP NOW IN PRODUCTION



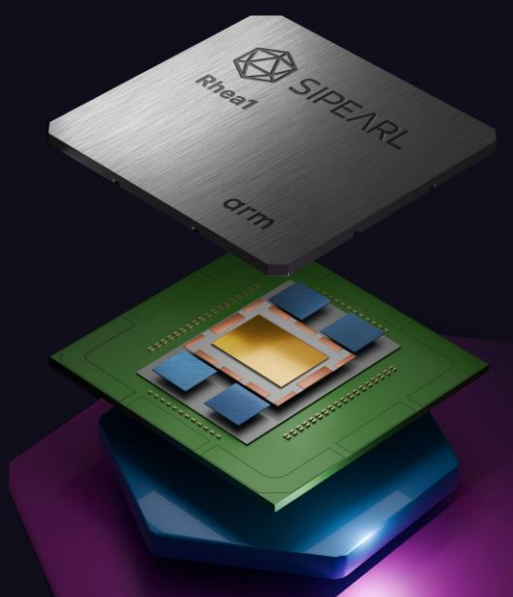
SiPearl Serie A  
funding completion



Rhea1 Design finished



Tests & full emulation  
(continuing)



**RHEA1**  
HPC and AI processor

Designed with

- 80 arm® Neoverse V1 cores with 2 x 256 SVE each
- 4 x HBM
- 4 x DDR5 interfaces



# TWO PROCESSOR FAMILIES - EPAC

EPAC accelerator family :

- vpu – Vector Processing Unit
- Stx – Stencil/Tensor accelerator
- Vrp : variable precision unit
- ...

**Accelerators:**  
Computing force

 **RISC-V®**



# EPAC DEVELOPMENT STATUS



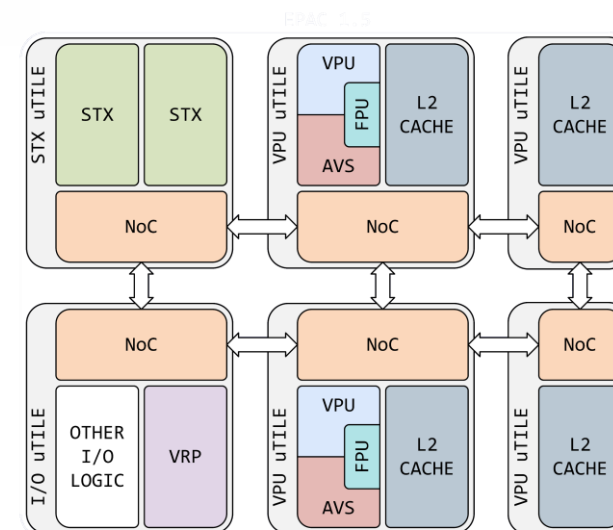
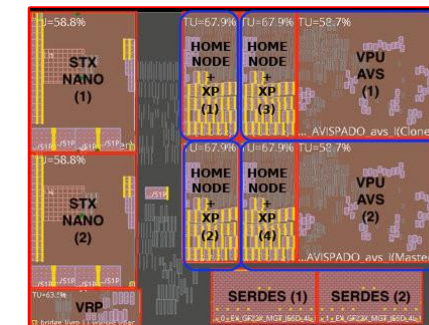
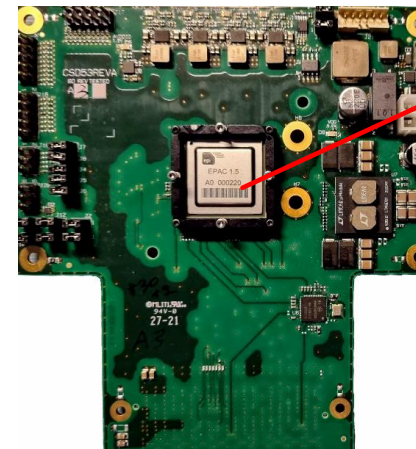
EPAC 1.5 test chip  
(2023) showcased



Software  
Development Vehicle  
(SDV) extensively  
used



Further IP  
development



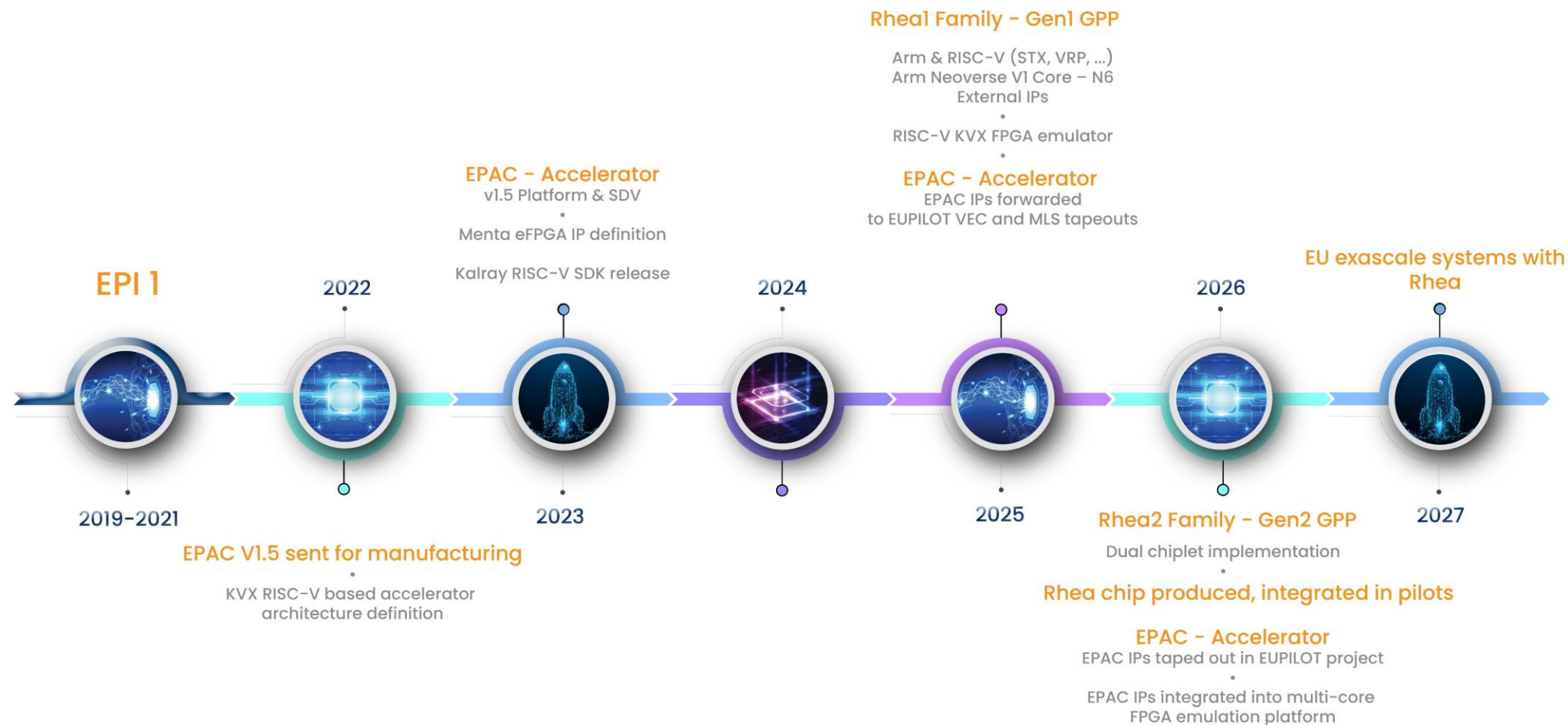




# OUR PERSPECTIVE

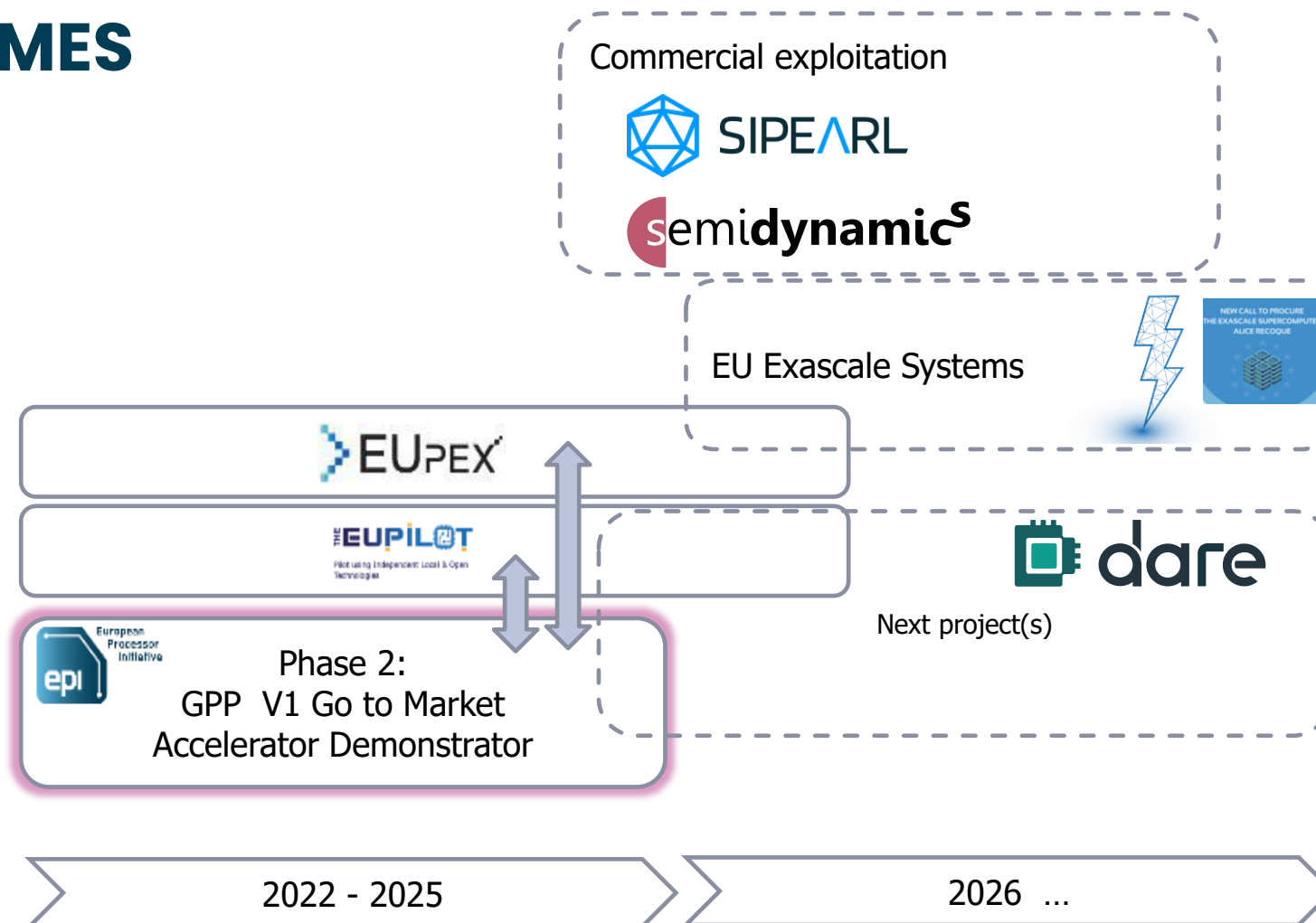


# ROADMAP





# EPI OUTCOMES

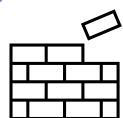


# SOME KEY TAKEAWAYS



Our DNA: R+D+U : Codesign fueled by Research + Development + Users

- Ensure sustainability and impacts beyond the project's timeframe.



Solid assets creation for research and industrial partner's businesses

- SiPearl startup, products, Intellectual Properties, Open Source and know-how.



Our Initial Sovereignty Motivation Remains, More Than Ever:

- HPC is a niche, but a very key niche: It is at the deepest edge of deep-techs and serves as a critical enabler in every domains.
- The raise of HPC / AI / Edge computing / IoT continuum is an opportunity.

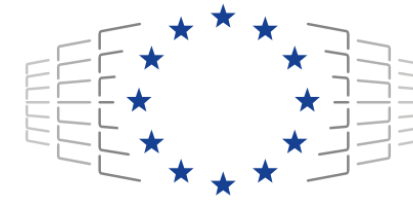




# THANK YOU

EPI – A FOUNDATION FOR EU SOVEREIGNTY

# EPI FORUM



**EuroHPC**  
Joint Undertaking

## PLATINUM SPONSORS



EVIDEN

## GOLD SPONSORS

AMD



**E4**  
COMPUTER  
ENGINEERING



SIPEARL