

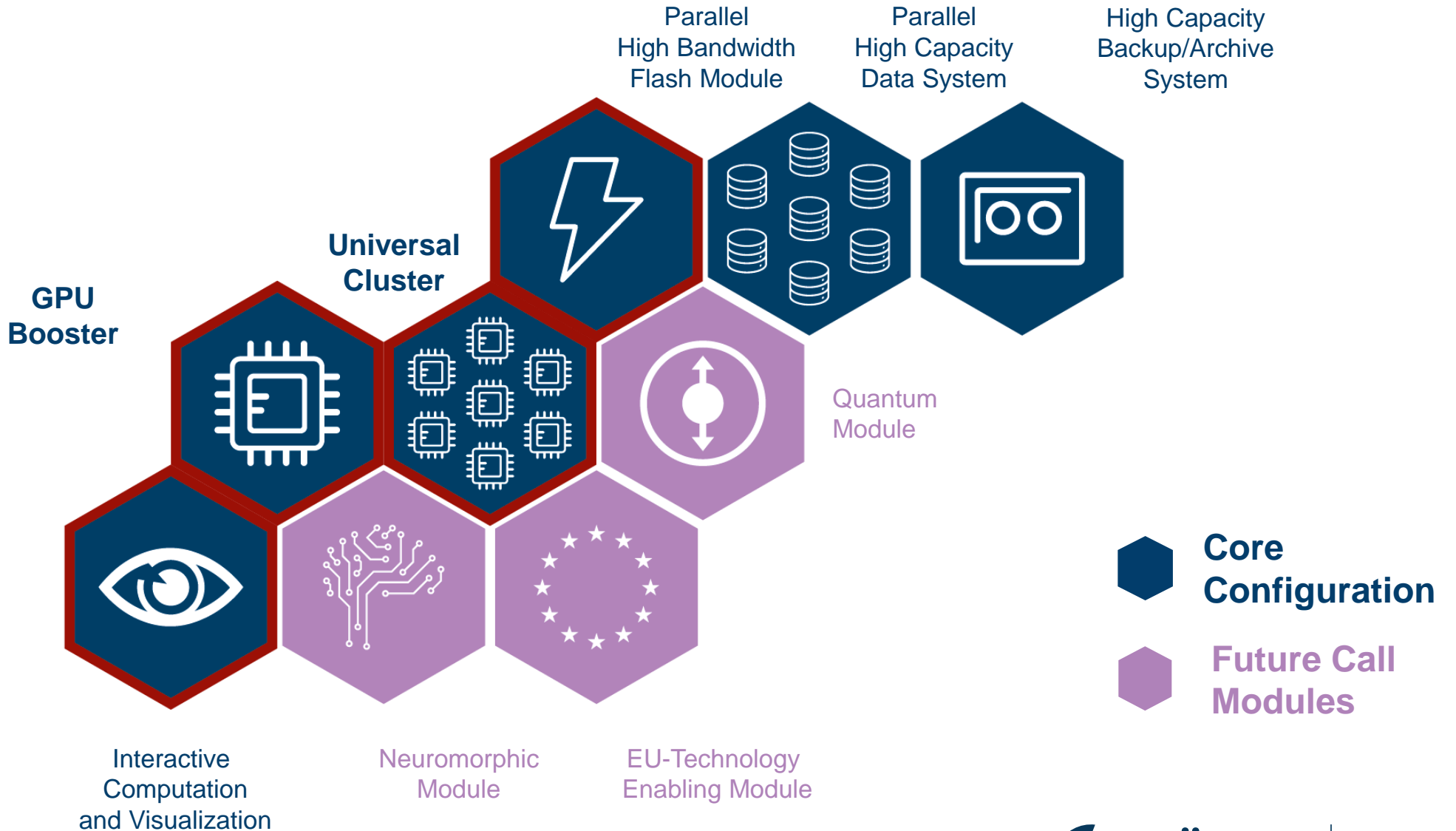


# Jülich Supercomputing Centre

CURRENT STATUS AND FUTURE DIRECTIONS

05 SEPTEMBER 2024

# JUPITER – high-level Architecture

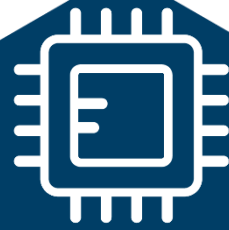


# JUPITER – high-level Architecture

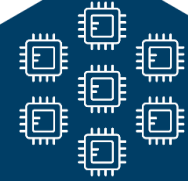


Powered by Open MPI, OpenSHMEM, OpenSMP, OpenXDMAP, OpenXDMAP2, OpenXDMAP3, OpenXDMAP4, OpenXDMAP5, OpenXDMAP6, OpenXDMAP7, OpenXDMAP8, OpenXDMAP9, OpenXDMAP10, OpenXDMAP11, OpenXDMAP12, OpenXDMAP13, OpenXDMAP14, OpenXDMAP15, OpenXDMAP16, OpenXDMAP17, OpenXDMAP18, OpenXDMAP19, OpenXDMAP20, OpenXDMAP21, OpenXDMAP22, OpenXDMAP23, OpenXDMAP24, OpenXDMAP25, OpenXDMAP26, OpenXDMAP27, OpenXDMAP28, OpenXDMAP29, OpenXDMAP30, OpenXDMAP31, OpenXDMAP32, OpenXDMAP33, OpenXDMAP34, OpenXDMAP35, OpenXDMAP36, OpenXDMAP37, OpenXDMAP38, OpenXDMAP39, OpenXDMAP40, OpenXDMAP41, OpenXDMAP42, OpenXDMAP43, OpenXDMAP44, OpenXDMAP45, OpenXDMAP46, OpenXDMAP47, OpenXDMAP48, OpenXDMAP49, OpenXDMAP50, OpenXDMAP51, OpenXDMAP52, OpenXDMAP53, OpenXDMAP54, OpenXDMAP55, OpenXDMAP56, OpenXDMAP57, OpenXDMAP58, OpenXDMAP59, OpenXDMAP60, OpenXDMAP61, OpenXDMAP62, OpenXDMAP63, OpenXDMAP64, OpenXDMAP65, OpenXDMAP66, OpenXDMAP67, OpenXDMAP68, OpenXDMAP69, OpenXDMAP70, OpenXDMAP71, OpenXDMAP72, OpenXDMAP73, OpenXDMAP74, OpenXDMAP75, OpenXDMAP76, OpenXDMAP77, OpenXDMAP78, OpenXDMAP79, OpenXDMAP80, OpenXDMAP81, OpenXDMAP82, OpenXDMAP83, OpenXDMAP84, OpenXDMAP85, OpenXDMAP86, OpenXDMAP87, OpenXDMAP88, OpenXDMAP89, OpenXDMAP90, OpenXDMAP91, OpenXDMAP92, OpenXDMAP93, OpenXDMAP94, OpenXDMAP95, OpenXDMAP96, OpenXDMAP97, OpenXDMAP98, OpenXDMAP99, OpenXDMAP100

- JUPITER Management Stack
  - Modular System Architecture
  - ParTec ParaStation Modulo
  - Eviden SMC xScale
- Scheduler: Slurm
- Scientific Software: EasyBuild
- Jobreporting: LLview



- >1 ExaFLOP/s FP64 HPL
- >70 ExaFLOP/s FP8 AI
- ~6000 Nodes
- ~24000 NVIDIA Grace-Hopper
- NVIDIA Mellanox NDR
- BullSequana XH3000



Capacity  
/Architecture

- >5 PetaFLOP/s FP64 HPL
- ~1300 Nodes
- ~2600 SiPearl Rhea1
- BullSequana XH3000



- 210 PB useable SAS
- ~1,5 TB/s
- 22\* IBM SSS6000



- 23 Login Nodes
- NVIDIA Hopper/A40
- 200 Gbit/s connectivity



EU-Tech  
Enabling

- 21 PB useable Flash
- ~2,5 TB/s
- 20\* IBM SSS6000

Core Configuration

Future Call Modules

Association

# JUPITER – The 1<sup>st</sup> European Exascale System

- **JUPITER - JU Pioneer for Innovative and Transformative Exascale Research**
  - Selected on June 14, 2022 as the 1<sup>st</sup> EuroHPC Exascale system
  - Installation and first operation in Jülich in 2024
  - Test system JEDI #1 on Green500 May 2024! modular data centre is being built
  - 500 Mio. € Total Costs, equally shared between EuroHPC and Germany (federal and state of North Rhine-Westfalia funding)
- **JUPITER Access**
  - 50% of resources allocated via GCS processes in Germany: peer reviewed, free of charge
  - 50% of resources allocated by a similar process governed by EuroHPC



**EuroHPC**  
Joint Undertaking

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