

# **The benefits of European supercomputer networking**

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# Supercomputing in a nutshell

- The same age as computing
- The de-facto tool for scientific research today
- In-silico research = scientific computing
- New possibilities, reduced costs
- Widely used in all scientific fields
- Needs large scale (costly!) infrastructure (Pflops, Ebytes)
- Fast race between countries, IT vendors, organizations
- Top500 – the list of the most powerful

# PRACE

- Partnership for Advanced Computing in Europe
- EU initiative to create a European HPC ecosystem
- Part of the European e-Infrastructure
- Hierarchical topology
  - Tier 0 – Pflops systems (6 systems in 4 countries – DE, FR, ES, IT) some in the top 10
  - Tier 1 – National resources (23 systems)
  - Tier 2 – institutes', organizations' own systems
- Interconnected resources, standardized environments, high level user support

# HPC related calls in H2020

- The EU invests a lot in the development and usage of HPC
- Targeting the Exascale range – very ambitious
- Flagship projects: Human Brain project, PRACE IP projects
- EINFRA calls
  - EINFRA 4 – PRACE call
  - EINFRA 5 – HPC CoEs call
  - EINFRA 6 – HPC Networking call
- FET (Future and Emerging Technologies) calls
  - FET HPC1

# Main challenges

- Technical advancement and quality – reduce power, heat dissipation and size
- Sustainability
- Cooperation and joint projects between academic and industrial partners
- Boosting innovation

**Thank you!**