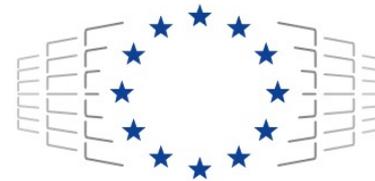


HPC, PRACE and EuroHPC in Portugal



Pedro Alberto

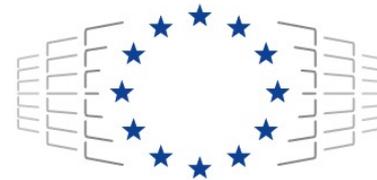


EuroHPC
Joint Undertaking

Laboratório de Computação Avançada
da Universidade de Coimbra

HPC in Portugal

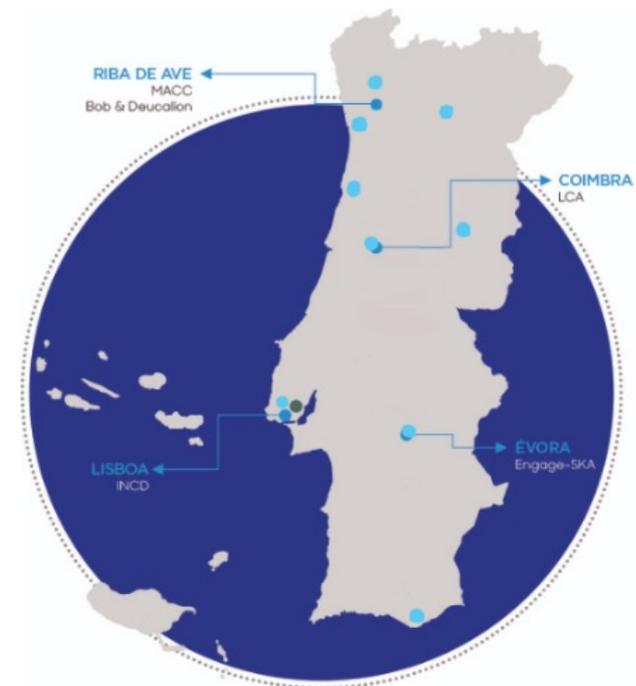
PRACE and EuroHPC



EuroHPC
Joint Undertaking

HPC in Portugal

- ❑ The Nacional Network of Advanced Computing (RNCA) has 4 operational centers, including MACC, the Laboratory for Advanced Computing of University of Coimbra (UC-LCA), INCD and HPC Évora.
- ❑ RNCA, managed by the PT national research agency FCT, launches national calls for HPC and cloud computing time. Three access modes exist:
 - ❑ A0 – Experimental Access
 - ❑ A1 – Preparatory Access
 - ❑ A2 – Project Access (subject to scientific evaluation)



● Advanced Computing Competence Centres (CC)
● Advanced Computing Operation Centres (OC)
● Fundação para a Ciência e a Tecnologia (FCT)

HPC in Portugal



- ❑ MACC is going to host Deucalion, a 10 PFlop/s machine with 3 partitions belonging to the EuroHPC supercomputer network.
- ❑ PT is part of the MARENOSTRUM V consortium
- ❑ Training activities have been setup within the EuroCC project, including NVIDIA bootcamps, a GROMACS workshop and local training regarding HPC tools and applied software.
- ❑ UCoimbra leads the Portuguese participation in the EUMaster4HPC to design a pan-European HPC MSc program
- ❑ **Examples of industry collaboration**
 - ❑ The European Digital Innovation Hub ATTRACT has just been approved (HPC, AI, Big Data). Three of the RNCA operational centers are involved.
 - ❑ A PRR (Programa de Recuperação e Resiliência) for collaboration with Mould and Tools Industry in the Centro Region has been approved (follow-up of a PRACE SHAPE project)

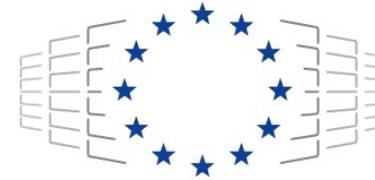


PRACE

- ❑ PRACE is the European HPC infrastructure which is a landmark ESFRI infrastructure. The last IP project is finishing this year.
- ❑ UC-LCA has been representing Portugal in **PRACE** since its beginning in 2008.
- ❑ The Portuguese participation in PRACE includes 4 linked third parties: UMinho, UPorto, IST and UÉvora.
- ❑ UC-LCA has participated in PRACE DECI calls for CPU time allocation and has worked with a SME in a PRACE SHAPE project.



EuroHPC



EuroHPC
Joint Undertaking

The EuroHPC Joint Undertaking 2018-2026

A legal and funding agency (Article 187 of TFEU)

- **33 Participating States + EU + 2 Private Members (ETP4HPC & BDVA)**
- **Budget (2019-2020): ~1.5 B€ (536 M€ from EU + matching funds from Participating States)**

Mission: Establish an integrated world-class supercomputing & data infrastructure and support a highly competitive and innovative HPC and Big Data ecosystem

Infrastructure + Operations

EU funding: 346 M€

Procurement of 3 top-range and 5 mid-range supercomputers

R&I + Applications & Skills

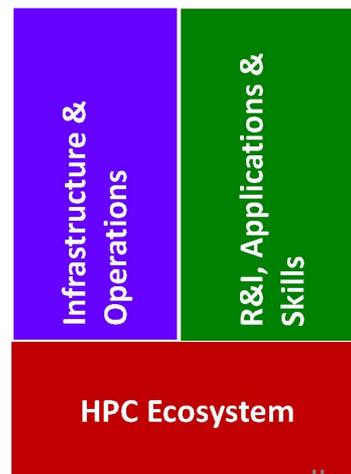
EU funding: 180 M€

R&I: supporting exascale technologies and systems (incl. low-power processor); and, innovative applications

Skills: widening HPC use

Administrative costs

EU funding: 10 M€



#EuroHPC (high performance computing) Joint Undertaking

The European High Performance Computing Joint Undertaking (EuroHPC JU) will pool European resources to develop top-of-the range exascale supercomputers for processing big data, based on competitive European technology.

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, the Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and Turkey.



+ Malta (New member)



EuroHPC - EuroCC



EUROCC – Setting up the National Competence Centres



- EuroCC to set up National Competence Centres (NCCs), taking into account the different levels of maturity and the different available tools and mechanisms within each nation
- Similar setup for each NCC to allow for better overview and management of the overall activity
- Commonalities in terms of aims, as identified at the preparation of the concept:
 - Training and Skills Development
 - Technology Transfer/Business Development
 - Industrial Collaboration
 - Competence Mapping
 - Facilitation of access to scientific and technical expertise and knowledge pools
 - Awareness Creation

EuroHPC - EuroCC



EuroHPC
Joint Undertaking

- The PT participation in EuroCC is lead by FCT. Five Universities and a Research Center (LIP) participate, including all 4 RNCA operational centers.
- EuroCC will end this this year, but a new project EuroCC2 is on its way
- Twinning and collaboration between NCCs is very much encouraged. Joint initiatives with NCC Sweden and NCC Italy have been setup.
- The INFRAG advisory committee to EuroHPC Joint Undertaking includes a Portuguese member



PRACE vs EUROHPC



❑ Bottom-up vs Top-down approach



❑ Dialog ongoing about PRACE participation in EuroHPC

- ❑ Collaboration in training, HPC Portal, Peer Review for HPC systems access already in place.
- ❑ Collaborations with user fora, connection to European scientific communities, joint initiatives with other continent HPC organizations among other "knowledge services" are possible.
- ❑ Extensive experience and knowledge of the European HPC ecosystem is an added value for EuroHPC
- ❑ Participation as PRACE in future EuroHPC projects (training, collaboration with other scientific infrastructures, etc)

Thank you for your attention