Human Brain Project

HPAC and FENIX:
HPC platform for storage and computing in the HBP

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Content

- HPAC & FENIX
- Services
- How to get access?

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HPAC & FENIX

- HBP *High Performance Analytics and Computing* (HPAC)
  - Brain centric storage, visualisation and simulation technology for supercomputers
  - Run large-scale, data intensive, interactive multi-scale brain simulations up to the size of a full human brain
  - Manage the large amounts of data used and produced by simulations and in experiments
  - Manage complex workflows comprising concurrent simulation, data analysis and visualisation workloads
- FENIX infrastructure is a set of federated e-infrastructure services with HBP as primary use-case provider
  - BSC (Spain), CEA (France), CINECA (Italy), CSCS (Switzerland) and JSC (Germany)

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Services

- End-user
  - Scalable Compute Services (both hybrid CPU+GPU nodes and multicore CPU-only nodes)
  - Interactive Compute Services (including hybrid nodes)
  - SWIFT Object Storage
  - Data Storage Services
- HPAC
  - Data Transfer Service
  - Continuous Integration Services
  - Software Packaging and Deployment Services
  - Visualisation Services

- Other
  - Infrastructure Services (middleware access to HPC resources via Rest APIs)
  - Infrastructure as a Service (e.g. OpenStack) for Virtual Machine Services
  - Data Management Services
  - User and Resource Management Services
  - Service Accounts (currently not available at all sites)

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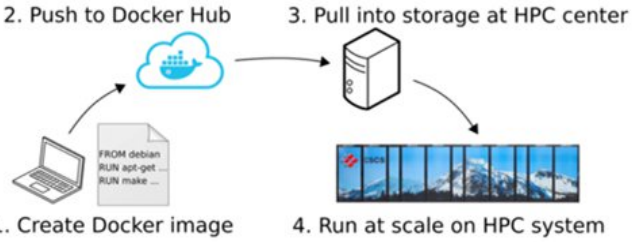
Services

- CSCS (Switzerland) resources are available now
  - 35 VM servers, 650 Nodes, 4000TB+ storage: 25% for HBP
- Other centers are coming online over the coming months

FENIX RESEARCH INFRASTRUCTURE

HPAC Infrastructure



JÜLICH Forschungszentrum

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

cea

CINECA

CSCS
Centro Svizzero di Calcolo Scientifico
Swiss National Supercomputing Centre

ETH zürich

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How to get access?

- Write a proposal using a template
  - icei-coord@fz-juelich.de
- Review process
  - Technical assessment within FENIX
  - Scientific assessment by scientific experts
- FENIX will make the resources available

- Non HBP members can apply for resources via PRACE

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How to get access?

- For small-scale projects the EBRAINS considers a shortened procedure without Scientific Assessment

- FENIX invites especially students and early career researcher to apply!

icei-coord@fz-juelich.de

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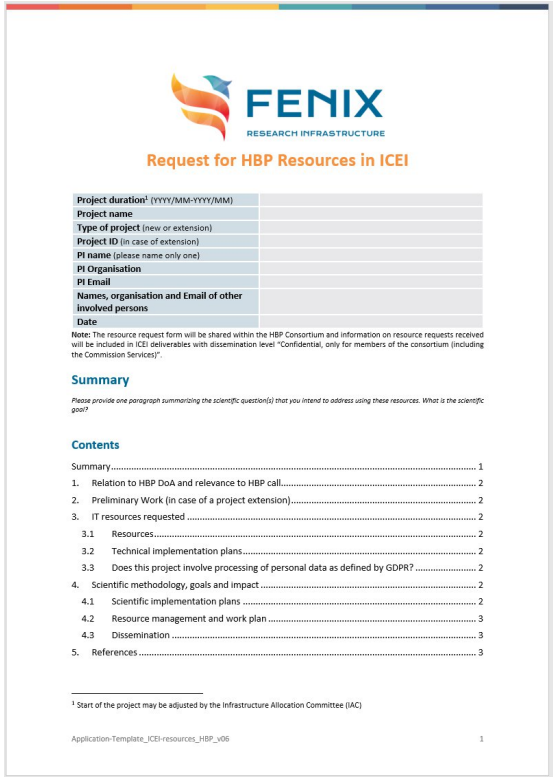
How to get access?



FENIX
RESEARCH INFRASTRUCTURE

Request for HBP Resources in ICEI

Project duration[1] (YYYY/MM-YYYY/MM)	
Project name	
Type of project (new or extension)	
Project ID (in case of extension)	
PI name (please name only one)	
PI Organisation	
PI Email	
Names, organisation and Email of other involved persons	
Date	

Note: The resource request form will be shared within the HBP Consortium and information on resource requests received will be included in ICEI deliverables with dissemination level "Confidential, only for members of the consortium (including the Commission Services)".

Summary

Please provide one paragraph summarizing the scientific question(s) that you intend to address using these resources. What is the scientific goal?

Contents

[1] Start of the project may be adjusted by the Infrastructure Allocation Committee (IAC)

1. Relation to HBP DoA and relevance to HBP call

Please provide information on the related work packages, tasks, CDPs, etc. and explain how the project relates to the goals and objectives of HBP.
How does the project relate to the published HBP call for resources in ICEI?

2. Preliminary Work (in case of a project extension)

Please provide a brief summary of project results obtained from your first resource allocation.

3. IT resources requested

3.1 Resources

Resource	Units	**Quantity** (required in total)
Piz Daint Multicore	node×hour	
Piz Daint Hybrid	node×hour	
OpenStack Cluster	servers	
Store POSIX and Object	TByte	
Tape library	TByte	
Low latency storage tier	TByte×day	

3.2 Technical implementation plans

Please explain why the requested resources are needed to achieve the scientific goal.
What kind of jobs are planned (number and type of nodes, typical job duration)? How much storage needs to be available to execute the jobs? Which software, HBP platform tools and services are needed?

3.3 Does this project involve processing of personal data as defined by GDPR?

Please select "Yes" or "No", if you selected "Yes", please specify what kind of data is processed.

☐ NO
☐ YES

4. Scientific methodology, goals and impact

4.1 Scientific implementation plans

Please explain the methodology that will be used to achieve the scientific goal of the project, highlighting scientific excellence, novelty and potential for high European and international impact of the project.
What are possible transformative aspects and expected advances?

4.2 Resource management and work plan

Please describe how you intend to manage the requested resources.

4.3 Dissemination

Please describe planned channels and resources for dissemination and knowledge exchange. If the requested resources are used to provide EBRAINS services then describe plans for attracting users for these services.

5. References

Please provide recent/most important bibliographic references that are relevant to the project.

[<ref number>] <reference>

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THANK YOU!

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