How to access HPC infrastructure and Training Opportunities

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EuroCC Cyprus HPC National Competence Center

THE CYPRUS INSTITUTE
RESEARCH·TECHNOLOGY·INNOVATION

EURO

Accessing Resources and Training Opportunities

- Accessing Resources
  - Via the CaSToRC National Competence Center and The Cyprus Institute
    - Preparatory Access, Production Access
  - European Resources - PRACE
    - Preparatory Access, DECI, Project Access
    - EuroHPC Calls

- Training Opportunities
  - CaSToRC National Competence Center
    - Training Events, Seminar Series
  - Other Training Events
    - PRACE Training Events, PRACE SoHPC, CoE Trainings, Other

CaSToRC NCC, CyI – Access to Resources

- Access to The Cyprus Institute's National HPC System Cyclone
  - Preparatory Access
  - Production Access

Cyclone Specifications

Peak/Sustained Performance	~600 TFlop/s
Number of Nodes	17 forty-core compute nodes 16 forty-core compute nodes, each with 4 NVidia V100 GPUs
Processors/node	2 twenty-core sockets per node, each is Intel Xeon Gold 6248
Memory/node	96 GB memory per cpu node 192 GB memory per compute node Approximately 5 TBytes
Scratch disk storage	135 TB NVMe Storage
Disk storage	3.2 PB Storage
Node-node interconnect	HDR 100
accelerators	GPUs available
OS info	OS, Compute Node: CentOS OS, Front End & Service Nodes: CentOS

CaSToRC NCC – Preparatory Access

- Call for Preparatory Access is Open!
  - Apply here: https://ssl.linklings.net/applications/Cyclone/
    - Make sure preparatory access is selected in top left hand corner drop down list
  - For limited allocation of computer time
    - Code scalability testing
      - To obtain scalability plots required when applying to future project call
    - Code development and optimisation – without support
    - Code development and optimisation – with support
      - Please **first contact** castorc.support@cyi.ac.cy for availability of support for your project
  - Application procedure is simpler – live demo of application form
    - Proposals are assessed technically
    - Accounts created mostly within a week of submission (upon a positive review)

CaSToRC NCC – Production Access

- Call for Production Access occurs twice per year.
    - Next call should open between July-September
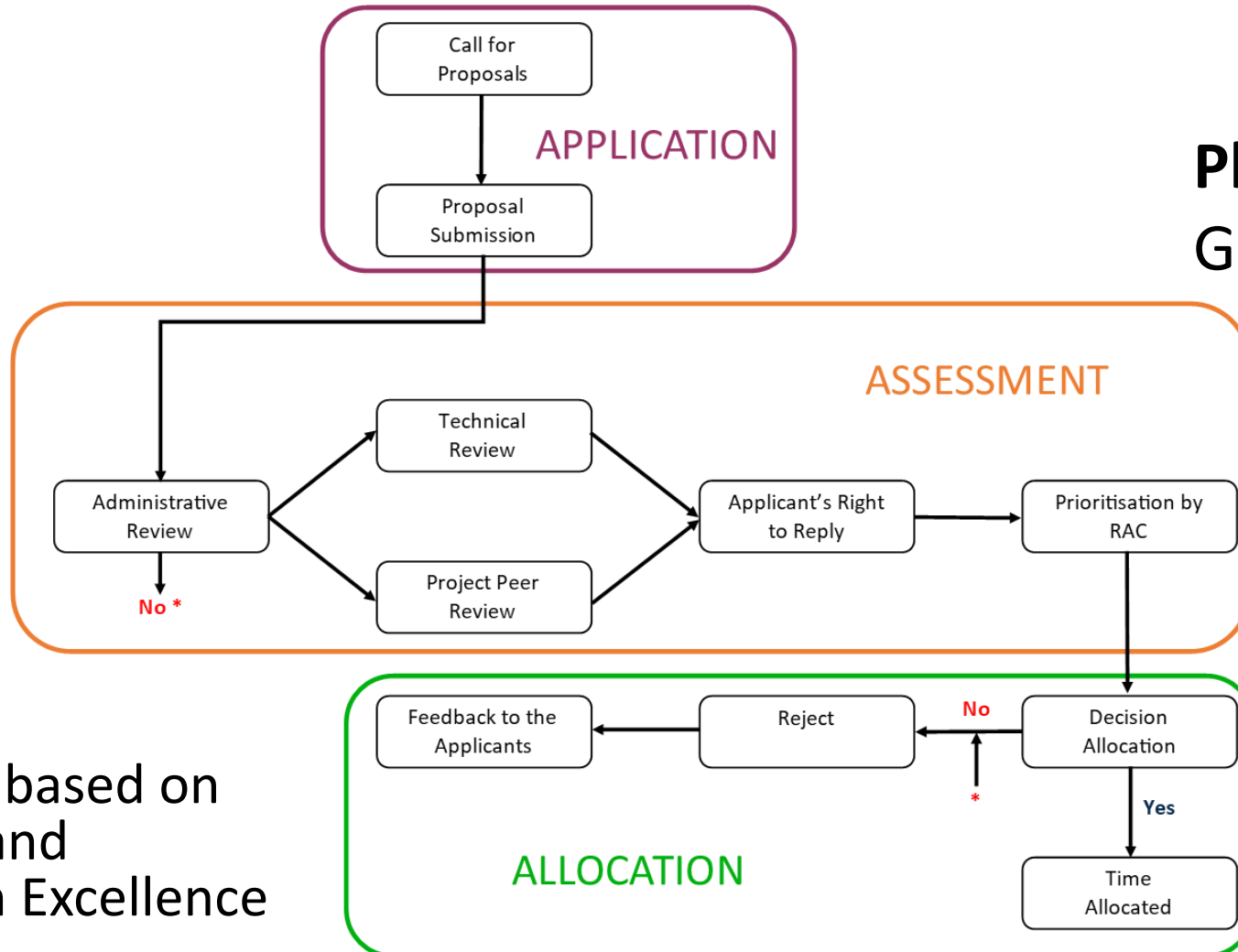   - For mature projects which require large amounts of computational resources

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CaSToRC NCC – Production Access

Please read
Guideline for Applicants

Allocation based on Scientific and Innovation Excellence

CaSToRC NCC – Production Access

- Application Form and Detailed description document – Demonstration

- Reviews
  - Technical Reviews
    - Carried out by The Cyprus Institute HPC Operations Staff
    - Need to show scaling plots, justification of resources requested (total core hours and nodes to be used), timeplan of resource usage (which experiments will be carried out throughout the year)
  - Project Reviews
    - Carried out by **international experts** who work in the **same field and topic** as application
    - Proposals should be novel, proposing research demonstrating scientific excellence and innovation potential
      - Treat this in the same way as you would an article/paper submission at a conference

CaSToRC NCC – Production Access: Project Review

Reviewer will assess the following:

- How well the proposal matches the call

- Review of the quality of the proposal

- Potential impact

- Applicant/Team Assessment

- Resources and management

- Overall Judgement Scored Questions

- Comments for Authors

CaSToRC NCC – Production Access

- Recommendations
  - Treat your applications in the same way as paper submission
    - Applications needs to be scientifically and technically sound
    - Provide as much concise detail as possible
      - Don't allow the reviewers to question your application in any way
    - Address any and all reviewer comments in the right to reply
  - Look at the example applications provided
    - [Insights into the molecular basis of action of the AT1 antagonist losartan using Molecular Dynamics simulations. Principal Investigator: Dr. Paraskevi Gkeka](#)
    - [Nucleon structure with twisted mass fermions including fermion loops. Principal Investigator: Prof. Constantia Alexandrou](#)

European Resources - PRACE

- Preparatory Access
  - Similar to CaSToRC Preparatory Access but on bigger European systems
  - Applications process is simple and straightforward
  - Apply at any time, decisions on applications every three months
  - For more details: https://prace-ri.eu/hpc-access/preparatory-access/

- DECI - https://prace-ri.eu/hpc-access/deci-access/
  - Similar to CaSToRC Production but for more powerful European systems
  - Application process similar too, and competitive
  - For projects which require millions of CPU hours (around 2 and up to around 5)

European Resources - PRACE

- PRACE Project Access Calls
  - Highly competitive calls for Access to the most powerful HPC Systems in Europe
  - 2 calls per year – next opens March 2021
  - https://prace-ri.eu/hpc-access/project-access/

European Resources - EuroHPC

- Calls for the EuroHPC Petascale and Pre-exascale machines
  - Will open in late 2021, possible with the next PRACE call too

- Competition among applications is expected to be very high

- Calls will be similar to PRACE Project Access
  - But requesting higher number of resources
  - Some other types of access may also be made available
  - These have yet to be confirmed to be made public

Scheme	Extreme Scale	Enabling & General Access	Fast Track	Development Access	Benchmark Access
Duration	1y renewable	1y renewable	< 6 months	1y renewable	2 to 6 months
Periodicity	1 or 2x / y	3 or 4x / y	Continuous call, cut-offs every 2w/1m	Continuous call, weekly cut-offs	Continuous call, weekly cut-offs
Project size (core hours)	> 75 M	20 M to 75 M	Up to 75 M	1 M to 5 M	50 k
Proposal type	Full proposal	Full proposal	Light request + support documents	Technical proposal	Technical proposal
Prerequisite	Benchmark	Benchmark	Previous allocation or Benchmark	None	None
Submission period	2 months	1 to 2 months	N/A	N/A	N/A
Duration of evaluation process	5 months	2 months	≥2 weeks <1 month	≥1 week <2 weeks	≥1 week <2 weeks
Reporting	Full report	Full report	Full report	Light report	Light report

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CaSToRC NCC: Training Opportunities

- The NCC created a survey to better understand the competences of the Cyprus computational community
  - We thank all those who provided their feedback
  - This has helped us create our training curriculum

- Training Events – Currently online events
  - [EuroCC NCC HPC Beginner Training Event](#) - Monday 15 - Wednesday 17 February 2021
  - [EuroCC Industry Week](#) - Monday 1 - Friday 5 March 2021
  - [EuroCC NCC HPC Intermediate Training Event](#) - Monday 19 - Wednesday 21 April 2021
  - [EuroCC NCC Hackathon](#) - Monday 17 - Friday 21 May 2021
  - [EuroCC NCC Training for Industry](#) - Monday 28 - Wednesday 30 June 2021
    - We need your input for this training event. Please contact: castorc.support@cyi.ac.cy
  - Eurocc NCC/SIMEA HPC Advanced and Simulation Event – September 2021

NCC/SIMEA HPC Advanced and Simulation

- Day 1
  - GPU programming (CUDA, OpenACC)
- Day 2
  - Data Analytics / Machine Learning
  - Use of AI and Deep Learning frameworks within HPC applications
- Day 3
  - Simulation Training Day 1
- Day 4
  - Simulation Training Day 2

CaSToRC NCC: Training Opportunities

- Training events have been designed to build the HPC competences of the community
  - Please follow them all if you can
    - Beginner, Intermediate, Advanced
  - These will be repeated next academic year so please direct people who may be interested to our website

- Seminar Series
  - There will be two seminars per month with various talks on how HPC has enabled science to take place
  - These are scheduled to occur Tuesdays 16:00 Cyprus Time
  - For more details on these visit the following page frequently as more events will be scheduled throughout time
    - https://castorc.cyi.ac.cy/news-and-events
    - Program too

European Training Opportunities

- For PRACE Training Events and MOOCs see:
  - https://training.prace-ri.eu/
  - For more details and to register for the events: https://events.prace-ri.eu/
- PRACE Summer of HPC Programme
  - Summer internship programme for undergraduates to work on a computational project
  - 2020 was held online, previous years on site at various European HPC Centers
  - 2021 projects will be announced soon: https://summerofhpc.prace-ri.eu/
    - Applications accepted from 15th January 2021
- Focus CoE Training Events
- All European Training Events will soon be available under the new HPC in Europe Portal: https://hpc-portal.eu/

Important Links

- For Access to Resources
  - https://castorc.cyi.ac.cy/access-to-resources
- For Training Events and Seminars
  - https://castorc.cyi.ac.cy/news-and-events
- For any support with your projects please contact
  - castorc.support@cyi.ac.cy
- Please subscribe to the CaSToRC mailing list to be kept up to date with CaSToRC news and opportunities
  - https://castorc.cyi.ac.cy/subscribe-to-castorc

Thank you for your attention