Access Procedure for the

HPC Systems at SDU

Overview

This document describes the access procedure for the HPC Systems available to SDU researchers provided by DeiC (national systems) and SDU (local HPC resources). The national DeiC HPC systems belong for 50 % to the ministry, and the remaining 50 % of the resources are distributed between the Danish universities. The share of each Danish university in a particular DeiC HPC system is based on the resources requested for the particular system. Each university can adjust their request for HPC every year. This model for the distribution of resources applies to all the three national systems and LUMI (an international EuroHPC system) as well as to any of the future HPC services in DeiC. In the case of LUMI, DeiC owns approximately a ~3% share of the full machine.

The 50% share of the resources, which belong to the ministry, are allocated through regular national calls. These calls follow the rules set by the DeiC National Allocation Committee, where each university is represented by two members.

The HPC resources, which belong to SDU, are allocated by the SDU eScience Center Operational Board, via the procedures described in this document.

The SDU eScience Center Operational Board consists of at least one representative from each faculty at SDU, ensuring that the board can cover a wide range of interests at SDU.

The allocation procedure follows some fairness principles:

* The application procedure should be as lightweight as possible;
* Some resources are allocated to all SDU groups, who submit a valid application;
* the operational board must guarantee a fair distribution of resources among the research groups at SDU;
* for projects who apply for a large amount of resources, it is a requirement that the applicants also apply for national resources on the same system in an equal or larger amount. In case the applicant receives a national grant, this will replace the local request;
* the operational board must operate in a transparent way and inform about the resources available at SDU.

# Application procedure

The HPC resources are allocated in terms of CPU-hours, GPU-hours and storage space. All applicants are required to submit an application to be granted access to the facilities. The only exception to this rule is that SDU staff and students will receive a so-called “bonus” each year, which is described in more details below. The SDU eScience Center Operational Board will evaluate the requests. The requests can be granted as is, rejected or granted with changes from the operational board (e.g. the board can reduce the amount of resources requested in the application).

Principal Investigators (PI) for all applications must be employed at SDU as scientific staff (VIP) and hold at least the position of PhD. Applications where the PI is TAP employee will be evaluated by the Operational Board on a case-by-case basis. PhD students can only apply for projects below 12.000 CPU-hours and 200 GPU-hours. They must refer to their supervisor to be the PI of the application if the amount for the project exceeds 12.000 CPU-hours or 200 GPU-hours.

SDU researchers can apply for two different types of projects: regular projects and large projects. The rules for these two types of applications are described in the next sections.

During the evaluation of the applications, the SDU eScience Center Operational Board can use the advise of the SDU Front Office in relation to the overall technical feasibility of the project. Projects which cannot possibly be accommodated on the HPC systems available to SDU for technical reasons will be rejected. The SDU eScience center will, when possible, try to provide support to resolve the technical issues with these projects.

As a consequence of the limited resources available, even high-quality projects might not be granted all the resources which are requested. The operational board will try to allocate some resources to all valid requests.

The DeiC National HPC Centers will provide access to the infrastructure and the requested resources to the granted projects, and the SDU Front Office will provide the appropriate user support within the scope of the services provided by the eScience Center and the limits of resources available to SDU users.

By submitting the application, the SDU employee agrees that the eScience Center may contact him or her and ask for their permission to use the information provided in the application for promotional purposes (e.g. inspirational stories on eScience.sdu.dk).

All SDU users are encouraged to use the national resources before SDU’s own resources. For large projects it is a requirement that the applicant also apply for national resources. For regular projects, applicants are encouraged to use the DeiC sandbox for smaller projects via the SDU front-office.

Regular projects

Regular projects are projects which do not exceed in total any of these limits: 50.000 CPU-hours, 1000 GPU-hours, 20TB of data.

Regular projects can be submitted at any time and they are evaluated on a continuous basis. Evaluation should be expected within 2 weeks. They are limited to 1 year, but they can be extended.

New regular projects (not extensions) which require less than 1.000 CPU-hours, 100 GPU-hours, 1TB of data, will be approved after checking that PI satisfies the requirements for submitting applications.

Application form for regular projects

For regular projects, SDU researchers must submit the latest version of the application form for regular projects, which is available on the eScience Center’s website.

The application form for spring 2023 can be found in appendix A.

Large projects

Large projects are typically allocated to research groups/PIs with experience in HPC computing and who require a larger amount of resources. It is a requirement of this category that applicants also apply for national resources. Large projects are limited to 6 months, but they can be extended.

|  |  |  |
| --- | --- | --- |
|  | Period 1 | Period 2 |
|  | DeiC | SDU | DeiC | SDU |
| Publication date | January | January | July | July |
| Deadline for applications | March | April | September | October |
| Applicants receives letter of grant or letter of rejection | June | June | December | December |
| Allocated resources available from | 1st of July | 1st of July | 1st of January | 1st of January |

Calls for large projects are announced twice a year in alignment with the DeiC cycle:

If a researcher has received a national grant for the same application sent to SDU, the SDU application will be rejected automatically in order to ensure more local resources to researchers who did not receive a national grant.

In case there are remaining SDU resources for given period after a call has been closed, a new call for the same period can be opened. In this case, it will not be a requirement for the applicant of a large projects to have applied for national resources.

Application form for large projects

For large projects, SDU researchers must send both:

* the template application form for large projects (Appendix B), where they specify the amount of resources asked for. Only one form is needed even if the applicant is asking for compute time on more than one system.
* And the applications (one or more) they used for the DeiC national calls, where the application form can be found [here](https://www.deic.dk/da/Supercomputere/Sog-om-HPC-regnekraft).

The latest version of the application form for large projects is available on the eScience Center’s website. The application form for spring 2023 is attached in appendix B.

In general, PIs and research groups are encouraged to contact the Front Office for help in filling the applications, choice of HPC types and machines, or for example, help with software availability, etc.

Evaluation Criteria

It is the responsibility of the SDU eScience Center Operational Board to guarantee a fair distribution of resources among the groups at SDU.

Common principles are:

* there should be some resources allocated to all SDU groups which have applied;
* encourage the use of HPC resources among new users and new disciplines (e.g. new groups from SAMF, HUM or SUND);
* SDU should use oversubscription to guarantee a good use of resources.

UCloud *bonus* for SDU staff and students

SDU staff and students will receive free credits to spend on UCloud. This “bonus” is given the first time a new user logs into UCloud (account creation). This “bonus” for SDU users will be refilled to the initial amount once per year on 25/12.

Policy for teaching

SDU staff can use UCloud or the SDU own HPC systems for the purpose of teaching. The resources needed for teaching must be applied for and approved via the eScience center ahead of time. Applications for teaching resources will be evaluated under the same conditions as a regular project. If more resources are requested for teaching, the SDU eScience Operational Board must evaluate the application on a case by case basis.

Appendix A: Template application form for regular projects

Project Title
Add a descriptive title for this project (max 128 ch).

# PI

Name, title and affiliation/department

Collaborators

Provide name, title and affiliation/department for collaborators, if any.

Short abstract
Provide a short abstract of your project (max 250 ch).

Description of the specific research activities
Describe the specific calculations you plan to do, the computational methods that you are planning to use, improve or develop, the codes, packages or libraries that you need to undertake the project, and how these will enable the research to be achieved. Justify the computational resources requested. (max 4000 ch).

# Length of the project

Specify the length of the project in months (max 12 months).

System and Resources

Describe the resources you need for your project.

### DeiC Interactive HPC/Type1

|  |  |  |
| --- | --- | --- |
| **CPU Core Hours** | **GPU Core Hours** | **Storage Needs in GB** |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

### DeiC Throughput HPC/Type2

|  |  |  |
| --- | --- | --- |
| **GenomeDK** | **Computerome** | **Sophia** |
|[ ] [ ] [ ]
|  |
| **CPU Core Hours** |  | **Storage Needs in GB** |
| Click or tap here to enter text. |  | Click or tap here to enter text. |

### DeiC Large Memory HPC/Type 3

|  |  |  |
| --- | --- | --- |
| **CPU Core Hours** |  | **Storage Needs in GB** |
| Click or tap here to enter text. |  | Click or tap here to enter text. |

### LUMI

|  |  |  |
| --- | --- | --- |
| **CPU Core Hours** | **GPU Core Hours** | **Storage Needs in GB** |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

# Special needs (optional)

Describe any special need you may have for your project.

Software
Specify if you need support to install new software.

# Use of information

By submitting this application, you agree that the eScience Center may contact you and ask for your permission to use the information provided in your application for promotional purposes (e.g. inspirational stories on eScience.sdu.dk).

Appendix B: Template application form for large projects

Project Title
Add a descriptive title for this project (max 128 ch).

# PI

Name, title and affiliation/department

# Length of the project

Specify the length of the project in months (max 6 months).

System and Resources

Describe the resources you need for your project.

### DeiC Interactive HPC/Type1

|  |  |  |
| --- | --- | --- |
| **CPU Core Hours** | **GPU Core Hours** | **Storage Needs in GB** |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

### DeiC Throughput HPC/Type2

|  |  |  |
| --- | --- | --- |
| **GenomeDK** | **Computerome** | **Sophia** |
|[ ] [ ] [ ]
|  |
| **CPU Core Hours** |  | **Storage Needs in GB** |
| Click or tap here to enter text. |  | Click or tap here to enter text. |

### DeiC Large Memory HPC/Type 3

|  |  |  |
| --- | --- | --- |
| **CPU Core Hours** |  | **Storage Needs in GB** |
| Click or tap here to enter text. |  | Click or tap here to enter text. |

### LUMI

|  |  |  |
| --- | --- | --- |
| **CPU Core Hours** | **GPU Core Hours** | **Storage Needs in GB** |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

# Use of information

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