

Guideline for Application Form – Call for Research Project on ASPIRE 2A

V2.0 (27 September 2023)

Application Form

1. Basic Information

1.1. Project Name

Please specify the project title (in the exact form as approved in your grant proposal, if applicable).

1.2. Project Details

Please provide a summary that accurately describes your project, including the following information:

- project objectives;
- scientific rationale;
- innovation potential;
- expected outcomes and scientific advances.

If you are supported by a grant from a funding agency, please use the exact form of your project abstract in your research grant proposal.

1.3. Project Significance (National or Global benchmark)

Please describe the significance of your project in terms of national or global contribution.

1.4. Scientific Area

Please specify the scientific area of research for your project.

1.5. Organisation

Please select the organisation that you belong to.

1.6. System Type

Please select the system that you are applying for resources on.

1.7. Software Applications

Please provide the applications and their versions.

Example:

abyss/2.3.2

bazel/4.2.2

cuda/11.6.2

gcc/8.5.0-nsc

1.8. Type of Computation

Please specify the type of computation involved in your project.

Example: CFD, Modelling Simulation, Density Functional Theory (DFT) etc.

1.9. Project Start and End Date

Please specify the expected start and end date of your entire project that requires computational support from NSCC.

1.10. Principal Investigator (PI) / Project Supervisor

Please provide the contact information of the PI or supervisor. If you are the PI of the project, please provide the contact information of your supervisor (manager, director or the equivalent).

This must be a person different from the Project Applicant.

For users from IHLs (SIT, SMU, SUSS, NP, NYP, RP, SP, TP), the PI / project supervisor must be from the same institute as the applicant.

1.11. Project Team

This section allows you to add users to the project using their NSCC user IDs. You may add users to the project at a later date by sending an email to projects-admin@nsc.sg by specifying the user's NSCC ID and project ID.

2. Project Type

Please fill in the information regarding the type of your project.

For Research projects, **note that your project must be funded either by the government or industry.**

For Education projects, please select **General Project**.

- **Government-funded Project:** projects supported by institutional, national or international grants.
- **Industry-funded Project:** projects that are part of an industrial collaboration.
- **National Initiative Project:** Projects that are part of a national programme.
- **General Project:** all other projects, including training, workshops, student projects, PhD projects, competitions, etc.

2.1. National Initiative Project

Please provide the name of national programme your project is part of and elaborate on the project's contribution to the national programme.

2.2. Government-funded Project

Please provide the following details of the grant:

- Main grant scheme: select from the dropdown menu
- Main grant ID: as given by your funding agency
- Information of the contact person of your funding agency
- Duration of the grant approved by your funding agency

For users with more than one funding agency, please provide the grant scheme, grant ID and contact details under "Additional Funding Agencies".

If you are unable to provide the full details as required above, please state your reasons under "Additional Information".

2.3. Industry-funded Project

For projects with industrial collaborations or partnerships, please elaborate on the industrial support and expected outcomes for the collaboration in this section.

Please provide the name of your industry partner and the estimated dollar value of the collaboration. If you are not allowed to disclose the name of the partner, please provide a description of the company.

Examples of descriptions of the company: "A large multinational engineering company"; "A leading aviation firm".

2.4. General Project

Please provide a justification for the need for an allocation of large-scale resources.

Please note that for individual projects, you can request for additional resources only if you have depleted your personal quota or if your project requires resources that exceeds your personal quota. (Note: all NSCC stakeholder users are entitled to a personal quota of 100,000 SUs)

3. Project Deliverables

Please provide the expected deliverables throughout the *full duration* of your project. Please indicate the number of manpower involved in the project only and not the entire research lab/institute.

4. Resource Request

Please provide the resources you require for the 1-year period of the project cycle. You may request for resources that you require only and there is no need to select every type of resources.

4.1. CPU / GPU

CPU (For ASPIRE 2A)

This refers to the Cray EX CPU Nodes (128 physical cores per node).

Provide the justification for the CPU core hours required, including the calculations and utilisation plan.

Example:

Resources required for molecular dynamics software, e.g., GROMACS, LAMMPS, etc.

(X1 cores) x (Y1 hours) x (Z1 runs) = A core hours

For quantum chemistry software, e.g., Quantum ESPRESSO, BerkeleyGW, etc.

(X2 cores) x (Y2 hours) x (Z2 runs) = B core hours

Total: A + B = C core hours

Utilisation plan over the months:

1st – 3rd month: Production run, 20 cases, x core hours

4th – 6th month: Post simulation analysis, 15 cases, y core hours

7th – 9th month: Consolidation of results and rerun for post-processing, 10 cases, z core hours

GPU (For ASPIRE 2A only)

This refers to the Cray EX 4-GPU Nodes (4 A100 GPUs per node).

Provide the justification for the GPU card hours required, including the calculations and utilisation plan.

Example:

Resources required for molecular dynamics software, e.g., GROMACS, LAMMPS, etc.

(X cards) x (Y hours) x (Z runs) = A card hours

Utilisation plan over the months:

1st – 3rd month: Production run, 20 cases, x card hours

4th – 6th month: Post simulation analysis, 15 cases, y card hours

7th – 9th month: Consolidation of results and rerun for post-processing, 10 cases, z card hours

4.2. AI System (For ASPIRE 2A only)

This refers to the Apollo 4/8-GPU Nodes. These GPU nodes come with local storage. In general, AI applications will benefit from local storage but not traditional HPC applications.

Please provide the justification for the AI System card hours required, including the calculations and utilisation plan.

Example:

Resources required for AI model,

(X cards) x (Y hours) x (Z runs) = A card hours

Utilisation plan over the months:

1st – 3rd month: Production run, 20 cases, x card hours

4th – 6th month: Post simulation analysis, 15 cases, y card hours

7th – 9th month: Consolidation of results and rerun for post-processing, 10 cases, z card hours

4.3. High Performance Storage (GB)

This is for the estimation of the local high performance storage space that is needed. You may use the scratch disk for the storing of temporary data.

Important note for Koppen: Total of 500 TB available inclusive of home, project, and scratch directory. You may use the scratch disk for the storing of temporary data.

Example:

Resources required for molecular dynamics software, e.g., GROMACS, LAMMPS, etc.

(X1 GB per run) x (Y1 runs) = A GB

For quantum chemistry software, e.g., Quantum ESPRESSO, BerkeleyGW, etc.

(X2 GB per run) x (Y2 runs) = B GB

Total: A GB + B GB = C GB