Proposal Preparation Instructions

Call for Proposals for Fugaku Projects via National Supercomputing Centre Singapore

Introduction

The National Supercomputing Centre Singapore (hereafter, "NSCC") is opening a call for proposals to access Japan's flagship supercomputer, Fugaku*, to Singapore researchers with Singapore residency status under an agreement between NSCC and the Research Organization for Information Science and Technology of Japan (hereafter, "RIST").

The following instructions for proposal preparation describe the eligibility, conditions of use, procedures of application, selection of projects, procedures for utilization and so on for the call for proposals for Fugaku projects via NSCC.

Information about this call is available on the NSCC website at www.nscc.sg.

The supercomputer Fugaku is a part of Japan's High Performance Computing Infrastructure called HPCI [1].

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[1] https://www.hpci-office.jp/en/about_hpci

1. **Outline of the Call**

Available Resources:	RIKEN R-CCS Supercomputer Fugaku.
Computational Resources:	1M Node-Hours^ in total (or up to ~400,000 Node-Hours per project), whichever is achieved first.
Storage Resources:	Fugaku local storage will be allocated by default, without being input in the system. Information is located in the resource information page [2]. The storage area can be increased gradually per request after the project starts. The data will be retained for one month after the project ends. The projects can also request to use the HPCI Shared Storage after they are awarded.
Number of Projects:	Approval of up to a maximum of 5 projects (or 1M Node-Hours in total), whichever is achieved first.
Application Period:	One call per year.
Validity of Project Period:	Up to one year.
Usage Fee:	None.
Submissions:	The same proposal cannot be submitted by the same researcher more than once.
Announcement of Awards:	The results of the project call will be announced once the screening process at NSCC and final approval by RIST is completed. (Estimated to be within 3 month after the end of the project call.)
Submission of User Report:	A user report must be submitted within sixty days after the project is completed. The reports will be published in the NSCC and HPCI Portal site.

^1 Node-Hour on the Fugaku is 48 core hours

Available Resources

Information about Fugaku and available application and software such as numerical libraries can be found in the "List of Hardware and Software Available in FY2023 Projects [2]".

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2. Eligibility

Applicants for this call must meet the following criteria for the proposed project (hereafter, "the Project"):

2.1 The Representative of the Project (hereafter, "Project Representative")

1) The Project Representative is a person who is responsible for carrying out the Project or the principal investigator or equivalent.

2) The Project Representative must belong to a Singapore entity with Singapore residency status.

3) A person belonging to private companies cannot be the Project Representative, since this call targets projects for academic purposes.

2.2 Members of the Project

1) Members of the Project must belong to Singapore entities with Singapore residency status or belong to Japanese entities with Japanese residency status.

2) Persons belonging to private companies cannot be the members of the Project.

2.3 Project

1) The Project must be approved by the organization representative (or a senior manager at a similar level) of the Project Representative.

2) It is prohibited to apply for the HPCI projects including Fugaku on the theme more than once except Fee-based Access Projects. The research theme shall be different.

3. Conditions of Use

The Project must satisfy the conditions as shown in the table below.

Conditions of Use
1. Projects need to be scientifically excellent or socially significant.
2. Execution of the Project can lead to creation of research achievements, accomplishment of research goals, or the full-fledged use of Fugaku.
3. Projects need to be small-scale projects which conduct research or preparatory work on Fugaku, such as implementation, performance evaluation, or execution of software.
4. Project implementation and utilization of the results are limited to non-military purposes. The Project should be appropriate in terms of societal benefits and values.

4. Procedures for Application

The Project Representative should submit the application.

1) Download the word format of the application form[(3)].

2) Submit the completed application form to projects-admin@nscc.sg with the email title *"Application: Call for Proposals for Fugaku Projects"*.

3) The NSCC Project Screening Committee will review the applications. After the application has passed the preliminary review, RIST will notify the Project Representatives to register the project information in the HPCI Online Application System[(4)].

4) Follow the instructions by RIST to register the project information in the HPCI Online Application System.

5) After the selection (Section 5), the procedures for utilization should be followed via the HPCI Online Application System (Section 6).

5. Selection of Projects

5.1 Screening Process

Submitted project proposals will be screened by the NSCC Project Screening Committee consisting of experts from Singapore and Japan. The criteria include the significance of research, necessity of Fugaku, validity of research plan, validity of project implementation and quantitative evaluation of the computational resources requested.

5.2 Notification of Awards

NSCC will send out the results of the application to all applicants via email.

After the selection process, when the projects are registered through the HPCI Online Application System, the procedure guide on how to access Fugaku will be done by RIST.

5.3 Handling of Personal Information

All personal information such as name, email address, and contact number that are submitted will be used by NSCC, RIST and R-CCS to facilitate the processing of the application and the subsequent

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[3] https://www.nscc.sg/wp-content/uploads/2021/11/fugaku_application_form_for_NSCC-r01_2.docx

[4] https://www.hpci-office.jp/entry/login/index?lang=en

use of Fugaku.

5.4 Disclosure of Project Application Form

By applying to this call, users will agree to the disclosure of the application forms and all information contained within to NSCC, RIST and R-CCS.

6. Procedures for Utilization

Usage of Fugaku will be via the HPCI Online Application System. The selected project proposal should be registered and the procedures for utilization should be followed. RIST will inform successful applicants about the details.

6.1 HPCI-ID Registration

Applicants need an HPCI-ID to register the project. If you do not have one, please obtain your HPCI-ID via the HPCI Online Application System [5]. Refer to the "HPCI Quick Start Guide [6]" for how to use the system.

HPCI-ID is necessary for both the Deputy Representative(s) and members who participate in the Project. Information entered during the registration process (including e-mail addresses) will be used for the notification of results or other correspondence. Please keep the information updated. (Only one HPCI-ID is issued per person and is valid for 10 years.)

6.2 Project Proposal Registration

The selected project information must be registered by the Project Representative or Deputy Project Representative(s) in the HPCI Online Application System. The instructions on how to register the information will be notified by RIST.

Cautionary Notes

- Except where the Project consists of only one member, please specify a Deputy Project Representative. The Deputy Project Representative can also be the Contact Person described below.

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[5] https://www.hpci-office.jp/entry/login/index?lang=en
[6] https://www.hpci-office.jp/materials/hpci-startguide_e.pdf?0930

- In principle, all the Project members must be listed on the application form.

6.3 Assignment of a Contact Person

RIST contacts the Project Representative to inquire about the registration contents or to send him/her other important notifications. Please indicate a Contact Person, who is expected to be different from the Project Representative, so that important notices can reach the Project Representative. The Contact Person does not need to have an HPCI-ID.

7. Publication of Research Achievements and Reporting Requirements

Publication of user reports is necessary as a part of the HPCI projects. The user reports should be submitted to both NSCC and RIST.

In order to further develop and promote high-performance computing, the research achievements of HPCI projects should be made available to the public.

7.1 User Report

A user report must be submitted within 60 days of the completion of the Project. However, in cases where intellectual property rights are sought, disclosure of the Project information may be postponed for two years if the request is approved.

If the finished Projects do not comply with this obligation by the deadlines, the following penalties will be imposed on all the Project members in principle:

   (a) suspension of proposal submissions as a Project Representative

   (b) suspension of participation in any new Projects.

7.2 Acknowledgement

When publishing press releases and papers on the research achievements with this project, it is required to acknowledge that the research is carried out using Fugaku [*7]. Relevant HPCI project numbers must also be clearly indicated in the acknowledgement.

[*7] https://www.hpci-office.jp/pages/e_acknowledgement

7.3   HPCI Publication Database

Project representatives are strongly encouraged to register their achievements (refereed papers, non-refereed papers, conference presentations, presses, databases, patents, etc.) related to research projects using Fugaku to the HPCI Publication Database, during or after the project periods as needed.

(https://www.hpci-office.jp/pages/e_procedure_achievements?tab=database)

7.4   Information Management

The following information will be publicly disclosed:

   (a) After awarding

      Project ID, Project name, Project Representative's name, affiliation, name of country, awarded resource name, and awarded node-hours (NH)

8.   Intellectual Property Rights

8.1   In principle, any intellectual property right resulting from utilization of Fugaku shall belong to a user or an organization to which the user belongs.

8.2   However, in a case where the user does not reside in Japan or does not have the Japanese citizenship, among intellectual property rights related to achievements resulting from utilization of the facilities, if the user attempts to receive protection by law for an invention, such as patent acquisition, he or she shall notify in advance RIST accordingly. Shares and cost burdens shall be determined according to a degree of contribution of an inventor and RIST.

9. Others

9.1 Notes

1) User Policies for Fugaku

For the use of Fugaku, user policies set by RIKEN R-CCS must be complied with.

(https://www.hpci-office.jp/materials/f_riken_fugaku_kitei_en.pdf?a)

2) Pledge and Export Control

The users are required to submit a written pledge for using Fugaku (for taking out the user accounts). In addition, it is possible that the projects are not accepted in terms of the security export control of Japan and/or Singapore.

(https://www.hpci-office.jp/pages/e_fugaku_documents)

(https://www.hpci-office.jp/materials/f_pledge_en.pdf)

3) Breach

The adoption of a Project may be cancelled in cases where false information is found in the proposal, the Project violates the Proposal Preparation Instructions or the specified rules upon execution, or the Project breaks relevant laws.

4) Withdrawal of the Project by the Project Representative

If the Project Representative wishes to withdraw the Project after the award has been granted due to unexpected reasons, he or she shall notify the Help Desk (helpdesk@hpci-office.jp) within 10 days of the awarding in principle.

5) Jobs submitted by projects in Fugaku Government-Initiated Category or Fee-based

Access projects will run with priority higher than jobs submitted by projects without usage fee. However, higher priority will not be set in March or September, during the periods when job congestion is expected.

9.2 Changes after Commencement of the Usage

In cases where a change of the Project Representative or members are requested, NSCC will assess and approve of the change. After determination by NSCC, the Project Representative or members

should perform the change procedure via the HPCI Online Application System. Since it is necessary to perform the procedure for issuing the user accounts, it is required that they should immediately notify the Help Desk of the new project structure.

9.3   Exemption

1) Requested Computational Resources

Depending on the budgetary situation and competitiveness of other proposals, the requested amount of resources may not be awarded. Also, the awards do not themselves guarantee the amount of resources to be used. Well-planned use of the resources is recommended, as the computer tends to be heavily loaded toward the end of the term of half a year.

2) Measures Taken during System Issues and Emergencies

The awarded resources may not be fully provided due to issues, disasters, or other reasons. In such cases, lost computational resources will not be compensated. Furthermore, users will not be compensated in the case of data disappearance or any other damage due to unexpected failures. Please refer to the "Supercomputer Fugaku Service Level Agreement/Service Level Objectives" for details.
(https://www.hpci-office.jp/materials/f_sla_slo_en.pdf)

10. Contact Information

 E-mail: projects-admin@nscc.sg

Appendix : the performances of open-sourced software on Fugaku

You may refer to the following links for more information on the performances of open-sourced software on Fugaku to help in the estimation of resources required.

  a) GROMACS (Simulation of Molecular Dynamics)

       https://www.hpci-office.jp/documents/appli_software/Fugaku_Gromacs_performance.pdf

  b) LAMMPS (Simulation of Molecular Dynamics)

       https://www.hpci-office.jp/documents/appli_software/Fugaku_LAMMPS_performance.pdf

  c) OpenFOAM (Simulation of Fluid Dynamics)

       https://www.hpci-office.jp/documents/appli_software/Fugaku_OpenFOAM_performance.pdf

  d) Quantum Espresso (Simulation of Solid-State Physics)

       https://www.hpci-office.jp/documents/appli_software/Fugaku_QE_performance.pdf

  e) FDS (Simulation of Fire Dynamics)

       https://www.hpci-office.jp/documents/appli_software/Fugaku_FDS_performance.pdf

  f) Other applications

       https://www.hpci-office.jp/en/using_hpci/hardware_software_software?expand=1&select=rsc0000089