Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures (JHPCN)
Call for Proposal of Joint Research Projects in Fiscal Year 2026

JHPCN Office

Release note

December 11, 2025

Version 2: Details of resources provided by Nagoya University were updated in the Appendix

November 15, 2025

Version 1

Important Notice

In the event of any discrepancy between the Japanese and English versions, the Japanese version shall prevail. The English version is provided for convenience and reference only.

Revision from the Last Call

Addition of mdx Ⅱ

mdx Ⅱ has been newly added and is now available as a computational resource. With the addition of mdx Ⅱ, the existing mdx has been renamed mdx I, and the collective term "mdx" now refers to both mdx I and mdx Ⅱ.

Change in page limit for Application Form 1 (English version)

The page limit for the English version of Application Form 1 (Description Form) has been changed from three pages—the same as the Japanese version—to four pages. The Japanese version remains at three pages as before.

Simplification of procedures for the Letter of Commitment

Previously, a Letter of Commitment signed by the head of the applicant's affiliated institution was required after acceptance. From this call onward, the letter (attached to the Application Form) should instead be submitted by the Principal Investigator (PI; formerly referred to as "Project Representative") at the time of application. Accordingly, submission of a letter by the head of the affiliated institution is no longer necessary; only a confirmation process will be required.

CONTENTS

Appendices
- (1) List of the HPCI Resources (The resources provided as "HPCI-JHPCN system")
- (2) List of the Non-HPCI Resources

Outline

The Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures (hereafter referred to as JHPCN) is a 'Network-Type' joint usage and research center, certified by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), on the basis of the Ordinance for Enforcement of the School Education Act. The joint usage and research center aims to make the most use of the potential that universities have for the research to produce a system which offers chances of joint research for researchers. It is made up of institutions with large-scale computing systems (hereafter called member institutions) affiliated with Hokkaido University, Tohoku University, The University of Tokyo, Institute of Science Tokyo, Nagoya University, Kyoto University, The University of Osaka, and Kyushu University, and the center promotes joint usage by providing the computer resources of the member institutions and joint research by introducing researchers of each member institution to help the development of research in many fields.

JHPCN calls for joint research projects for fiscal year 2026. We welcome proposals for interdisciplinary research conducted by groups of researchers with different areas of expertise, aiming to create new fusion fields among the three pillars of computational science, data science, and computer science, or between these pillars and applied research fields (see Fig. 1).

The researchers of accepted projects will be able to use the computer resources of the member institutions and the "mdx" for free in the approved range (See Appendices for the details of available resources). The "mdx" is an information infrastructure created mainly to accumulate, utilize and apply knowledge related to data science, which is co-managed by nine universities and two research institutions, within which the member institutions are included. There are cases where the expenses for publishing research results are supported, for example, the travel expenses to join conferences abroad, the expenses to publish books on research results, and to hold symposia related to the research. Through participation and presentation at the annual JHPCN Symposium, accepted projects can contribute to building new research networks and the further advancement of research and development. Expenses for overseas presentations of research results, publications, and the organization of related symposia or similar events may also be supported.

Since the member institutions include leading researchers, joint research projects can be further accelerated through collaboration with these researchers. If you wish to be introduced to researchers at the member institutions, please contact the JHPCN Office in advance.

These joint research projects for fiscal year 2026 will be implemented from April 2026 to March 2027. The web application deadline is 10:00 (JST) on January 6, 2026. We look forward to receiving many applications.
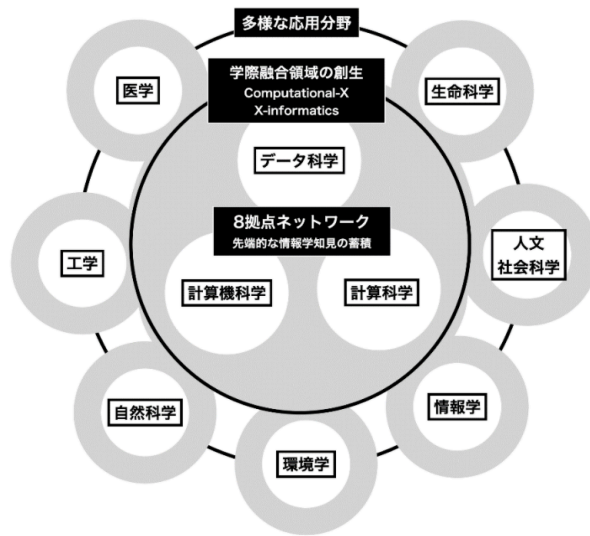
Figure 1   Conceptual diagram (in Japanese) of the three pillars of information science and their application fields, illustrating the promotion of interdisciplinary research through the creation of new fusion fields. Japanese labels correspond to: 「データ科学」(Data Science), 「計算機科学」 (Computer Science), 「計算科学」(Computational Science), 「工学」(Engineering), 「医学」(Medical Science), 「自然科学」(Natural Science), 「環境学」(Environmental Science), 「情報学」(Informatics), 「人文・社会科学」(Humanities and Social Sciences), 「生命科学」(Life Science), 「多様な応用分野」 (Various Applied Fields), 「学際融合領域の創生」(Creation of Interdisciplinary and Fusion Research Areas), and 「8 拠点ネットワーク」(Network of Eight Member Institutions).

1   Merits for Accepted Projects

If your proposal is accepted for this joint research, you will gain the following benefits:

- Free use of computer resources
  Within the range approved through the project review process, computer resources can be used free of charge. For details on available computing and related resources, please refer to Section 3.
- Advancement of research through the establishment of an interdisciplinary joint research group
  The program supports the establishment of a broad research framework through exchanges at symposia and researcher matching opportunities.
- Subsidies
  The following subsidies are provided. For the latest information or application formats of the subsidies, see User's Page on the JHPCN website (User's Page (https://jhpcn-kyoten.itc.u-tokyo.ac.jp/en/user)
    - Expenses for peer-reviewed presentations at international conferences (only for young or female researchers) since FY2025 projects
    - Paper publication fees

    – Facility fees for research meetings, workshops, and similar events.

2   Joint Research Period

April 1, 2026 – March 31, 2027.

Depending on the procedures for preparing computer accounts, the start of computer use may be delayed. For the detailed schedule, including the application and final report, please refer to Section 9.

3   Available Computer Resources

Two types of resources are available for this joint research project. Please note that the application procedures differ depending on the type of resources used (see Section 8). In addition, the HPCI System Resources and Non-HPCI System Resources may be used in combination.

3.1   HPCI System Resources

HPCI (High Performance Computing Infrastructure) is a shared computational environment that connects the computing systems and storage facilities of universities and research institutions in Japan through a high-speed network. Within JHPCN, part of the computing resources provided by HPCI (the HPCI–JHPCN System) can be used for joint research projects. These resources are referred to as HPCI System Resources. A list of available resources is provided in Appendix (1).

3.2   Non-HPCI System Resources

The Non-HPCI System Resources include mdx, a platform for building a data-empowered society, as well as other resources. A list of available resources is provided in Appendix (2).

4   Research Areas

In this call for proposals, joint research projects are invited under two research areas: (1) the Large-scale Computational Science Area, and (2) the Data Science / Data Usage Area.

We welcome proposals for interdisciplinary research conducted by groups of researchers with different areas of expertise, aiming to create new fusion fields among the three pillars of computational science, data science, and computer science, or between these pillars and applied research fields. Please apply under the most appropriate research area according to the research topic of your proposal.

All computing resources are available regardless of the selected research area. Information on previously accepted projects and their reports is available on the JHPCN website. If an obviously inappropriate research area is selected, the proposal may be reassigned, in which case the review criteria of the new research area will be applied.

4.1　Research Area (1)：Large-Scale Computational Science Area

We invite a wide range of research related to computational science. Interdisciplinary large-scale research projects conducted by teams of leading researchers from diverse fields are welcome. Research that uses real data to improve models for computational scientific simulations should be submitted to this research area (including continuation applications for projects that were implemented in the Data Science / Data Usage Research Area in the previous fiscal year).

4.2　Research Area (2)：Data Science / Data Usage Area

A wide range of research proposals related to data science and data usage are invited. We welcome research topics covering a broad spectrum from basic to applied studies, including the development of advanced data science methodologies, the collection and analysis of diverse datasets across the humanities and social sciences, life sciences, and physical and engineering sciences, as well as the sharing of data and the development of platforms within research communities. Please note that even if real data are used, studies that utilize such data for improving computational models or simulations should be submitted under the Large-scale Computational Science Area.

5　Types of Joint Research Projects

Please select one of the three types below in accordance with the organization and nature of your project when applying.

1. General Joint Research Project
   For projects that do not fall under items 2 or 3 below, please select the General Joint Research Project.

2. International Joint Research Project
   The International Joint Research Project is interdisciplinary joint research conducted in collaboration with researchers outside Japan to address challenging issues that cannot be resolved or clarified solely by researchers within Japan. For application requirements, see Section 6. Note that the application form must be written in English.
   For research projects of this type, subsidies are provided for travel expenses necessary for meetings with overseas joint researchers and related activities. For the latest information and application forms for the subsidies, please refer to the User's Page (https://jhpcn-kyoten.itc.u-tokyo.ac.jp/en/user) on the JHPCN website.
   JHPCN concluded a Memorandum of Understanding (MoU) with NHR(Nationales Hochleistungs Rechnen), (https://www.nhr-verein.de/en), Germany, in 2024 to further promote International Joint Research Projects. As a result, the number of projects accepted as an International Joint Research Project has been increased, and proposals involving researchers from NHR as co-PIs (formerly referred to as "Deputy Project Representatives") are encouraged. Please note that

proposals submitted as (2) International Joint Research Projects may, as a result of the review process, be accepted as 1 General Joint Research Projects.

3. Industrial Joint Research Project

   The industrial joint research project is joint research focuses on industrial applications. For application requirements, see Section 6. Please note that proposals submitted as (3) Industrial Joint Research Projects may, as a result of the review process, be accepted as 1 General Joint Research Projects.

6 Application Requirements

A joint research project may be proposed by a group of two or more researchers, with the PI belonging to a domestic institution.

1. Conditions for all projects.
   - The research group must have one PI and one or more co-PI, and co-Investigators (formerly referred to as "Joint Researchers") can be included.
   - The PI must belong to an institution in Japan, such as a university, national research institute, or private company.
   - Students enrolled in graduate schools, universities (including junior colleges), colleges of technology, or university-level institutions certified by the National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE) as providing education equivalent to that of universities or graduate schools may participate as co-Investigators. However, they cannot serve as PIs or co-PIs.
   - If a non-resident member or a resident of a "specific category," as defined by the Foreign Exchange and Foreign Trade Act (see page 4 or later of "Clarification of Deemed Export Control" by the Ministry of Economy, Trade and Industry (METI): https://www.meti.go.jp/policy/anpo/law_document/minashi/jp_daigaku.pdf), intends to use computers provided by JHPCN, at least one researcher from the member institutions operating the computer systems must participate in the research group as a co-Investigator. For the use of mdx, participation by a researcher from any member institution is acceptable.

2. Additional conditions for International Joint Research Projects.
   - At least one researcher affiliated with a research institution outside Japan must serve as a co-PI. For proposals in which researchers from NHR are designated as co-PIs, "International Joint Research Project (NHR)" must be selected as the research type in Application Form 2.
   - A researcher from one of the member institutions must participate in the research group as a co-Investigator.
   - The application must be submitted using the English application form.

3. Additional conditions for Industrial joint research projects
   - The PI must belong to a private company.
   - At least one researcher from the member institutions must serve as a co-PI.

7 Notes for Preparing Application Forms, Evaluation Criteria, and Available Resources

To apply, applicants are required to submit the Application Form, which consists of two files: "Application Form 1" and "Application Form 2".

7.1 Notes for Preparing Application Forms

Research project proposals will be reviewed comprehensively, taking into account their scientific and technological relevance, feasibility of implementation and development, necessity of facility and equipment requirements, consistency with the research topics and research areas, and their interdisciplinary nature. In addition, the relevance of resource use at the member institutions conducting the projects, as well as cooperation and collaboration with those institutions, will be considered. Moreover, for projects continuing from the previous fiscal year or those determined to have essential continuity, the progress report and the previous use of computer resources may be taken into consideration during the review process.

When preparing the application form, please note the following points.

- The format of the application form has been revised from the one used in the previous call. Please make sure to use the latest version.
- Please provide explanations that are easy to understand for the Review Committee members who may not be familiar with your research topic.
- Applications are limited to proposals for peaceful purposes.
- Multiple applications by the same PI are allowed; however, projects that are considered to be essentially identical, such as those with nearly the same research structure and theme, or those differing only in research targets, will not be accepted.

7.2 Research Projects to be Prioritized

Priority will be given to research projects that have the following features. Please clearly indicate in the application form if your project includes any of these features. If two or more proposals receive equivalent evaluations in the review process, the proposal requesting a smaller amount of resources (in monetary equivalent) may be selected from the standpoint of efficient use of the budget.

- Points Emphasized Regardless of Research Areas
    - Interdisciplinary Research Group: JHPCN welcomes proposals for interdisciplinary research conducted by groups of researchers with different areas of expertise, aiming to create new fusion fields among the three pillars of computational science, data science, and computer science, or between these pillars and applied research fields.
    - Promotion of the Use of Software and Data: Projects that aim to make the software developed

or the databases constructed as a result of the research more widely accessible to the public are highly valued. Research teams are encouraged not only to release such software and databases to the public, but also to promote and publicize them so that they can be actively used by many users.

- Development of IT Infrastructure Technology: Projects that contribute to research on IT infrastructure, such as architecture, system software, and security, are highly valued. These projects may also be implemented in collaboration with researchers from the member institutions who specialize in IT infrastructure technology.

- Cooperation with Multiple JHPCN Member Institutions: Projects that utilize research resources and/or involve researchers from multiple member institutions are highly valued. For example, such projects may include, but are not limited to, research on large-scale and geographically distributed information systems, or multi-platform implementations of applications using research resources provided by multiple member institutions. The simultaneous use of mdx I and mdx II is regarded as cooperation among JHPCN member institutions. The same applies to research projects conducted in collaboration with multiple researchers belonging to different JHPCN member institutions.

- Usage of Large-Scale Data and High-Capacity Networks: Projects involving large-scale data transfer through high-bandwidth networks between the researcher's site and the computing resources provided by member institutions are highly valued. Available research resources include systems that can be directly connected to the high-speed network provided by SINET5, including L2VPN, in collaboration with the National Institute of Informatics. Such environments enable research that requires high-bandwidth network connections.

- Points Valued in Research Area (1) "Large-Scale Computational Science Area"
  - Proposals primarily aiming to conduct research activities will be accepted. In other words, proposals that merely intend to use the provided computing resources for production runs will not be accepted.

- Points Valued in Research Area (2) Data Science/Data Usage Area
  - Impacts on the Real World: Proposals that aim to address significant real-world challenges are highly valued, particularly those that contribute to realizing Society 5.0 or achieving the Sustainable Development Goals (SDGs) through the application of data.
  - Promotion of Data Usage: Proposals that aim to promote data usage in research fields where data circulation and utilization are still insufficient are highly valued. In addition, proposals that integrate diverse research data, including books, articles, and other materials, and conduct sophisticated analyses to generate new discoveries are also highly valued.
  - Security and Personal Data Protection: Proposals that create new value by utilizing socially significant data, such as medical, health, educational, or economic data, are highly valued. Proposals that promote the development and dissemination of technologies for the secure use of such data, including techniques for personal data protection, are also highly valued. Please consult with the member institutions providing the resources you plan to use and confirm that the resources meet the requirements of your project. When using medical information, please

ensure not only that the hardware and software meet the necessary functional and performance requirements, but also that the project complies with the Act on the Protection of Personal Information and the three guidelines established by the Ministry of Health, Labour and Welfare (MHLW), the Ministry of Internal Affairs and Communications (MIC), and METI.

7.3 Amount of Computing Resources

7.3.1 Maximum Amount of Resources per Project

The maximum amount of resources for a project is defined as follows. The amount of resources requested in the proposal must be reasonable in light of the research plan. A wide range of computing resources, including various computer systems, are available. The maximum amount that can be applied for is defined in terms of the corresponding monetary value. Please estimate the amount of resources to be requested by calculating their equivalent fees. The maximum applicable amounts are as follows.

1. When applying for the use of resources provided by a single center (excluding mdx): up to JPY 3 million
2. When applying for the use of mdx only (including mdx I only, mdx II only, or both mdx I and mdx II): up to JPY 1 million
3. When applying for the use of resources provided by multiple centers: up to JPY 3.6 million

When filling out Application Form 2, the amount of the fees will be automatically calculated based on the conversion formulas for resources into fees (see Appendix 1). Please note that the usage fee rates used in these formulas may differ from the standard rates for general use of the resources at each institution.

The actual amount of provided resources may be adjusted or reduced from the proposed amount according to the overall budget, review results, and resource usage. In addition, for proposals continuing from the previous fiscal year or those determined to have substantial continuity, if the resources from the previous year were underutilized or unused, the amount of HPCI resources to be provided may be reduced after adjustment.

7.3.2 Justification for the Requested Resources

See below for the "Justification for the Requested Resources" required in Application Form 1. Even if this justification is not required, the purpose of usage must still be stated.

1. Proposals for Research Area (1): Large-Scale Computational Science Area
   The justification for the requested amount of all resources (both HPCI and non-HPCI) must be clearly stated, as it is an important evaluation criterion in the review process. If this description is insufficient, the overall evaluation of the project may be lowered. Due to the system of the application form, JPY 1 million is allocated by default to the section for the requested amount of mdx resources. This amount should be adjusted in accordance with the actual research plan.
   However, the justification is not required for any resources if the proposal is new and the total amount of requested resources is less than JPY 1 million.

2. Proposals for Research Area (2): Data Science / Data Usage Area
   (a) Application including the use of HPCI resources

   The justification for the requested amount of HPCI resources must be clearly stated, as it is an important evaluation criterion in the review process. If this description is insufficient, the overall evaluation of the project may be lowered. Even if non-HPCI resources are also used, the justification for those resources is not required.

   If the proposal is new and the total amount of requested resources is less than JPY 1 million, the justification for HPCI resources is not required.

   (b) Application without the use of HPCI resources

   The justification is not required.

7.3.3 High-Priority Resource Setting (to be filled in only if necessary)

As mentioned in Section 7.3.1, the amount of HPCI resources allocated may, in principle, be reduced from the amount requested. However, if such a reduction would prevent the project from being carried out, certain resources may be designated as "High-Priority Resources." When high-priority resources are specified, reductions will first be applied to resources that are not designated as high priority. The total amount of reduction (determined based on the equivalent fee) will remain the same regardless of whether high-priority resources are designated. This means that if the reduction applied to non-priority resources does not reach the specified amount, reductions will also be applied to high-priority resources.

- Please set the priority only when the resource is indispensable. Whether or not priority is given does not affect the total amount of allocation or reduction.
- Projects that use only one resource cannot designate that resource as high priority.
- In principle, the amount of resources that can be designated as high priority should be less than 50% of the total amount of proposed resources. Priority may be assigned to more than 50% of the total, but a warning message will appear on the application form, and there is a higher possibility of an extremely unbalanced distribution of resources.
- Additional review is required to change the distribution of resources after the proposal has been accepted, regardless of whether the resources were given priority or not.
- Priority can be assigned only to HPCI resources.
- No detailed conditions for the reduction of resources can be specified, except for setting priority to the resources.

7.4 Selection of the Review Section

When filling out Application Form 2, applicants are required to select the "Desired Review Section" as shown below. This information will be used to assign members of the Review Committee who evaluate the proposed projects. Please ensure that your explanations are clear and easy to understand, as the review is conducted from the perspectives of informatics and the research areas where informatics is

applied.

- The KAKENHI review areas are used for the classification.
- From the viewpoint of informatics, up to five "examples of content" (formerly called "keywords") may be selected from Medium-sized Sections 60 and 61, with at least one required.
- From the viewpoint of applied fields, up to two Small Sections may be selected optionally.

8 Application Process

Outline and Important Notes

Please note that you must follow one of the two application procedures depending on whether your proposal uses HPCI resources or not.

- Category A projects: Projects that use only HPCI resources, or both HPCI and non-HPCI resources.

  Please apply following the application procedure described in Section 8.1.
- Category B projects: Projects that use only non-HPCI resources, or that do not use any computational resources.

  Please apply following the application procedure described in Section 8.2.

Note that the application must be made in either Category A or Category B. Applications for both categories will not be accepted.

8.1 Application Procedure for Category A: Research Projects Using HPCI Resources
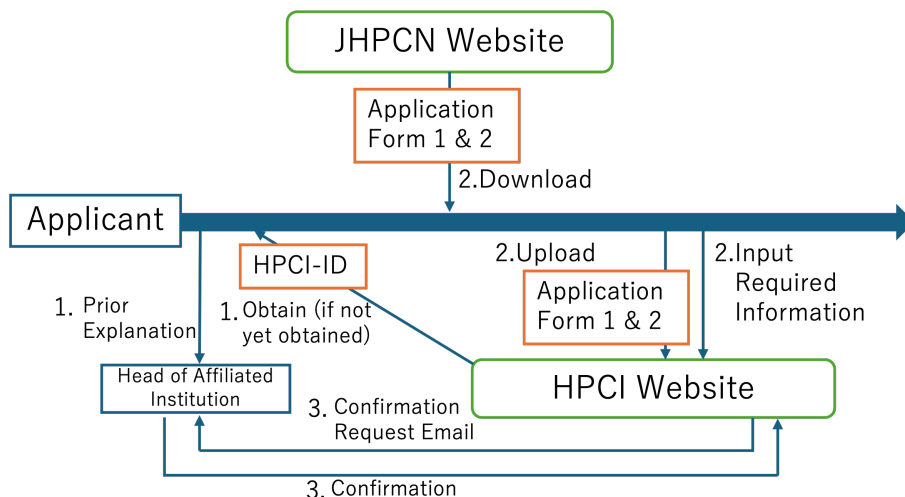

Figure 2   Application Procedure for Application Category A

This is the application procedure for "Research Projects Using HPCI Resources" (including those that also use non-HPCI resources). For detailed procedures, please refer to the "JHPCN Application Guide for HPCI Resource Usage" available on the JHPCN Call for Proposals website (https://jhpcn-kyoten.itc.u-tokyo.ac.jp/ja/cfp). *Available only in Japanese.

8.1.1 Procedures Required Before Application

- Creation of an HPCI-ID

  Apply for the ID on (HPCI website (https://www.hpci-office.jp/entry/login/index?lang=en)

  All researchers who will use HPCI resources are required to obtain an HPCI-ID, unless they already have one. More specifically, the following researchers fall into this category.

  1. PI
  2. At least 1 co-PI (All the co-PIs who will submit the proposal or be responsible for face-to-face identity verification are required to obtain HPCI-IDs)
  3. co-PI and co-Investigators who will use the HPCI resources

- Explanation to the head of your affiliated institution

  Since a confirmation procedure will be conducted after the application is submitted, please explain your application in advance to the head of your affiliated institution and obtain their consent. The "head of the affiliated institution" refers to the dean, director, or equivalent position in the case of universities, and to a person holding an equivalent position to a university dean in the case of national research institutes or private companies.

8.1.2 Application

- Upload Application Form 1 and Application Form 2

  Download them on the JHPCN website, and upload completed form onto the HPCI website when applied. Please note that Application Form 1 includes the Letter of Commitment, in which applicants agree to comply with the instructions described in this call for proposals. Please sign the form and upload it together with the application documents.

- HPCI Project Application

  Please fill in the required information on the HPCI website.

The e-mail address of the institutional head should, in principle, be the address officially assigned to the position. If an administrative office is responsible for handling communications, the e-mail address of that office may be used instead. If no official address is assigned to the position, please provide both the personal e-mail address of the institutional head and the e-mail address of an administrative officer or secretary.

8.1.3 Procedures Required After Application

A confirmation request email will be sent directly to the head of your affiliated institution. Please follow the instructions in the email to complete the confirmation process.

8.1.4 Procedures Required After Proposal Acceptance

When the proposal is accepted, follow the guidelines for procedures after acceptance of HPCI. In particular, the PI or the co-PI must take responsibility for completing the HPCI face-to-face identity vetting. In this process, copies of photo identification cards of all co-Investigators who will use the resources may be required. If the HPCI face-to-face identity vetting is necessary, please consult with HPCI after confirming that the center you plan to visit is responsible for conducting the vetting. A list of the centers is provided in Section 11.

8.2 Application Procedure for Category B: Research Projects Without the Use of HPCI Resources

This is the application procedure for research projects that do not use HPCI System Resources. If HPCI System Resources are to be used in combination, please follow the procedure for Application Category A.

8.2.1 Procedures Required Before Application
- Explanation to the Head of the Affiliated Institution
  Since a confirmation process will be conducted after the project has been accepted, please explain the application in advance to the head of your affiliated institution and obtain their approval. The head of the affiliated institution refers to a dean or director in the case of a university, or a person holding an equivalent position in a national research institute or a private company.

8.2.2 Application
- JHPCN application form 1 and 2
  Download them on the JHPCN website, and upload completed form onto the JHPCN website when applied. Please note that Application Form 1 includes the Letter of Commitment, in which applicants agree to comply with the instructions described in this call for proposals. Please sign the form and upload it together with the application documents. Please note that acquisition of an HPCI ID is not required.

When specifying the email address of the head of your affiliated institution at the time of application, please use, in principle, the official address associated with the position of the head (or the address of the administrative department if it serves as the contact point). If no official address is available, please include both the personal address of the head of the affiliated institution and the address of an administrative staff member or secretary.

8.2.3 Procedures Required After Project Acceptance

A "Confirmation Form" will be sent to the head of your affiliated institution. Please have it completed and submitted.

9 Schedule

- Application
  1. Online briefing session for Principal Investigators (PIs) on how to apply: 13:00 (JST) on November 27, 2025
  2. Application opens: December 11, 2025
  3. Deadline: 10:00 (JST) on January 6, 2026
- Project
  1. Review result announcement: The JHPCN plans to announce the results by mid-March 2026
  2. Commencement of joint research: April 1, 2026
  3. 18th JHPCN Symposium (Introduction of research): Early July 2026 (tentatively scheduled for July 9–10)
  4. Progress report deadline: Mid-October 2026
  5. End of the research period: March 31, 2027
  6. Final report deadline: Mid-May 2027
  7. 19th JHPCN Symposium (Report of research results): Early July 2027

10 Points to Note When Filling Out the Application Forms

- Please pay due attention to the protection of human rights and interests. Before applying, consult with and confirm with the resource-providing center whether the computing resources you plan to use meet the necessary requirements for your research. In addition to hardware and software functions and performance, for example, when handling medical information, compliance with the Act on the Protection of Personal Information and the three-ministry guidelines issued by MHLW, MIC, and METI may be required.
- If ethical guidelines or codes of conduct exist in the research field of your proposal, please comply with them. In particular, for projects that require an ethical review, implementation must be approved through the review process conducted by the researcher's affiliated institution or an equivalent organization.
- Regulations for the use of facilities
  While using the facilities, you are expected to follow the regulations for use pertaining to the research resources stipulated by the JHPCN member institutions with which you will work.
- Reports:
  Both progress and final reports must be submitted in the middle and after the end of the research period, respectively. The final report will be published on the JHPCN website in principle. If these reports are not submitted, then the Project Representative may be prohibited from applying to and participating in new projects. The report of international projects must be written in English.
- Symposia:

The JHPCN holds JHPCN symposiums in July every year, so that we can create research communities which aim at development of interdisciplinary research on computational science, data science, and computer science. We ask each research team of this Joint Research Project to present a poster on the research plan when the research is in progress and to make an oral presentation on the result after the research is completed (If the project has been going on from the previous year, it is allowed to present the content of the poster at the oral presentation). The presentations have to be given by the Project Representatives or the Deputy Representatives in principle, but in case either of them cannot join the symposium, one of the joint researchers can instead. The presentations on the research projects in the previous year can be used when evaluating the projects. The travel expense will be borne by the JHPCN office. All the pdf files of poster presentations are required to be submitted before the symposium and are published on the JHPCN website. Presentations are, in principle, to be given on site.

- Disclaimer:
  Each JHPCN member institution assumes no responsibility for any inconveniences that affect applicants as consequence of joint research projects.

- Intellectual property rights
  In principle, every intellectual property that arises as results of a research project will belong to the research groups involved. However, it is presumed that recognition will be provided to the inventors in accordance with each institution's policy concerning intellectual property rights. Please contact each JHPCN member institution for details and handling of other exceptional matters.

- Research Ethics Education
  Please submit a certificate of completion of research ethics education, if applicable to the project (i.e., if it includes co-researchers who are required to complete such training).
    - Cases where submission of the certificate is not required
      Participants affiliated with institutions that receive allocations of competitive research funding (domestic universities, public research institutions, and certain private companies). [*1]
    - Cases where submission of the certificate is required
      Those who do not fall under the above category (such as researchers or students affiliated with certain private companies or overseas research institutions) must submit one of the following certificates of completion.
        * A certificate of completion of research ethics education conducted independently by the applicant's affiliated institution
        * Materials available on the website of the affiliated institution that confirm the implementation of research ethics education (such as regulations or codes of conduct related to research ethics)
        * A document certifying completion of the training materials provided by the JHPCN Office.

[*1] Institutions that receive allocations of competitive research funding are obligated to provide research ethics education or equivalent training to their researchers; therefore, submission of a certificate is not required.

If confirmation is not possible within three months of the start of the joint research period, the joint researchers must be deleted from the list.

- Abuse of research ethics

  If the institute of participating research member(s) admits that the member(s) have violated research ethics in any research activity, including projects other than that of JHPCN, , the JHPCN may take the following actions: removal of the member from the project, ending of the offending project, and disqualification for application of new projects.

- Acknowledgements in presentations and publications

  Upon publication of results of an accepted project, the author(s) should indicate in the Acknowledgements that the project was supported by JHPCN (see the JHPCN website for an example sentence).

- Others
  - The personal information provided in the proposal shall only be used for screening research projects and providing system access. In addition, when necessary for the use of HPCI System Resources, information may be shared with the Research Organization for Information Science and Technology (RIST), which operates the HPCI.
  - After the acceptance of a research project, however, the project name and the name and affiliation of the Project Representative will be disclosed.
  - After the acceptance of a research project, changes of the JHPCN member institutions and computers are not available.
  - If you wish to discuss your application, please contact us at the E-mail address listed in Section 11. (Please note in advance that we are not able to respond to telephone-based inquiries.)

11   Contact Information (For Inquiries Regarding Applications, etc.)

11.1   Inquiries Regarding Applications

Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures Office E-mail address: `jhpcn.adm@gs.mail.u-tokyo.ac.jp`

11.2   Inquiries Regarding Computer Resources

For available resources, how to use resources, details of eligibility, faculty members who can participate in joint research projects, and the handling of intellectual property of each instituion, please feel free to directly contact the following.

- Information Initiative Center, Hokkaido University

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*2 If research ethics education has not been implemented at your institution, the JHPCN Office will provide the training materials. Please contact the JHPCN Office as soon as possible.

```
kyodo@oicte.hokudai.ac.jp
```
- Cyberscience Center, Tohoku University
  ```
  joint_research@cc.tohoku.ac.jp
  ```
- Information Technology Center, The University of Tokyo
  ```
  https://www.cc.u-tokyo.ac.jp/support/reference.html
  ```
- Center for Information Infrastructure, Institute of Science Tokyo
  ```
  https://www.t4.gsic.titech.ac.jp/contact-t4
  ```
- Information Technology Center, Nagoya University
  ```
  kyodo@itc.nagoya-u.ac.jp
  ```
- Academic Center for Computing and Media Studies, Kyoto University
  ```
  kyoten-8gm@media.kyoto-u.ac.jp
  ```
- D3 Center, The University of Osaka
  ```
  system@cmc.osaka-u.ac.jp
  ```
- Research Institute for Information Technology, Kyushu University
  ```
  request@iii.kyushu-u.ac.jp
  ```
- mdx Ⅰ : `mdx-help@mdx.jp`
- mdx Ⅱ : `mdx2-system@cmc.osaka-u.ac.jp`

Appendix 1(1): List of the HPCI resources available
at the JHPCN member institutions for the Joint Research Project
(The resources provided as "HPCI-JHPCN")

・When filling out the Resource Utilization Plan section of the project application form, consult and confirm with the Resource Center as necessary before completing it.

For a description of the resources, please refer to the website of the respective institutions.

JHPCN Institution	Computational Resources, Type of Use (The underline parts are resource names)
Information Initiative Center, Hokkaido University	Website URL: https://www.hucc.hokudai.ac.jp/en/ 1. Supercomputer Grand Chariot 2 **[Hardware resources]** 1) CPU nodes - Node Info: Intel Xeon Gold 6548Y+ (Emerald Rapids, 32cores, 2.5GHz)×2, 512GiB memory - 480 nodes (theoretical peak performance: 2.457 PFLOPS), Shared with general users, Acceptable Job: up to 64 nodes - Maximum computing resources per 1 project: 42,000 CPU-Hours 2) GPU nodes - Node Info: Intel Xeon Gold 6548Y+ (Emerald Rapids, 32cores, 2.5GHz)×2, 512GiB memory, NVIDIA H100×4 - 24 nodes (theoretical peak performance: 6.55 PFLOPS), Shared with general users, Acceptable Job: up to 8 nodes - Maximum computing resources per 1 project: 13,000 GPU-Hours 3) Storage system (common to CPU nodes and GPU nodes) - Lustre 16.95PB (All-flash) - In units of 4TB, Maximum resources per 1 project: 40TB **[Resource usage fee calculation formula]** - CPU-Hours: Wall time in hours multiplied by the number of CPU sockets used. - GPU-Hours: Wall time in hours multiplied by the number of GPU cards used. - For details, please see Application Form 2. **[Software resources]** Compilers: Intel oneAPI Base & HPC Toolkit, NVIDIA HPC SDK, NVIDIA CUDA Toolkit, GNU Compiler, Java, Python Libraries: Intel oneMKL, Intel MPI, OpenMPI, NVIDIA HPCX, cuBLAS, cuSPARSE, cuFFT, cuDNN, NCCL, MAGMA, FFTW, HDF5, NetCDF Application software : ABINIT-MP, BLAST, FrontFlow/blue, FrontFlow/red,

ABINIT-MP, OpenFOAM, GAMESS, WRF, PHASE, GROMACS, LAMMPS, NAMD, MEEP, MyPresto, Quantum ESPRESSO, VMD, GrADS, OpenMX, TensorFlow, Keras, PyTorch, Horovod, MXNet, Gaussian, V-FaSTAR

2. Research Cloud

[Hardware resources]

1) Shared Kubernetes Cluster

   (Up to 600 virtual CPU cores (with 1200GB memory), 1 physical GPU, and 20TB of persistent volumes can be allocated for each project.)

   The total resources available across all JHPCN projects are limited to 1200 virtual CPU cores, 2 physical GPUs, 80TB of persistent volumes. This cluster is shared among JHPCN projects and other non-JHPCN users.

2) Dedicated Kubernetes Cluster

   (Up to 1 dedicated cluster, consisting of 3 physical nodes, and 20TB of persistent volumes can be allocated for each project.)

   The maximum number of dedicated clusters across all projects is limited to 1. The 3 nodes are exclusively reserved for this cluster.

[Resource usage fee calculation formula]

   For details, please see Application Form 2.

[Software resources]

   Applications, such as MariaDB, Apache Spark, and Istio, are provided through Rancher offering application catalogs. Installment of other applications is negotiable (At least, availability of reliable and/or official Helm repository is required).

[Usage]

SINET L2VPN to mdx I is negotiable (dedicated cluster only).

Cyberscience Center, Tohoku University	**[Remarks]** Storage : 20TB / project (per 1TB possible to add), common to Subsystem AOBA-A, AOBA-B(Maximum storage capacity : negotiable), AOBA-S are separate **1. Supercomputer AOBA Subsystem AOBA-S(504nodes)** **[Hardware resources]** About 21.05PFLOPS(DP), Main memory 504TB, Maximum number of nodes 256, Shared use **[Resource usage fee]** CPU:1NH = 100 JPY Strage:1TB・year = 3,000 JPY **[Software resources]** Compilers : Fortran Compiler, C/C++ Compiler Libraries : NEC MPI, NEC Numeric Library Collection(including BLAS, FFTW, LAPACK, ScaLAPACK) , Ftrace Viewer, PROGINF/FTRACE Application software : Quantum ESPRESSO, FPSEID[21], ABINIT-MP, PHASE/0, SALMON, HΦ, FrontISTR, FFX Container virtualization: Singularity(Docker image supported) **2. Supercomputer AOBA Subsystem AOBA-A(72nodes)** **[Hardware resources]** About 1.48PFLOPS(DP), Main memory 45TB, Maximum number of nodes 32, Shared use **[Resource usage fee calculation formula]** CPU:1NH = 75 JPY Strage:1TB・year = 3,000 JPY **[Software resources]** Compilers : Fortran Compiler, C/C++ Compiler Libraries : NEC MPI, NEC Numeric Library Collection(including BLAS, FFTW, LAPACK, ScaLAPACK) , Ftrace Viewer, PROGINF/FTRACE Application software : Quantum ESPRESSO, ABINIT-MP, PHASE/0, HΦ, FrontFlow/blue, FrontISTR **3. Supercomputer AOBA Subsystem AOBA-B(68nodes)** **[Hardware resources]** About 278.5TFLOPS(DP), Main memory 17TB, Maximum number of nodes 16, Shared use **[Resource usage fee]** CPU:1NH = 22 JPY Strage:1TB・year = 3,000 JPY **[Software resources]** Compilers : AOCC (AMD Optimizing C/C++ Compiler), GNU Compiler Collection(Fortran, C/C++), Intel Compiler(Fortran, C, C++) Libraries : AMD uProf, AMD Optimizing CPU Libraries, Open MPI Application software : Gaussian16, GRRM17, MATLAB, Quantum ESPRESSO, OpenFOAM, GROMACS, LAMMPS, ABINIT-MP, PHASE/0, GENESIS, MODYLAS, NTChem, SALMON, HΦ, OpenMX, SMASH, mVMC, ALAMODE, Phonopy, AkaiKKR, FrontFlow/blue, FrontISTR, FFX, FFVHC-ACE Container virtualization: Singularity(Docker image supported)
Information Technology Center, the University of Tokyo	**Wisteria/BDEC-01(Odyssey)**: Supercomputer System for Integration of "Simulation+Data+Learning", Simulation Nodes, 7,680 nodes of Fujitsu A64FX **[Hardware resources]** • Maximum tokens for each project: 276,480 Node-Hour's • Storage: (2TB/(8,640 Node-Hour's)) are automatically provided according to awarded tokens (Maximum: 64TB), Additional Storage Space on "Ipomoea-01" :(0.300TB/(8,640 Node-Hour's)) • Acceptable Job: up to 2,304 nodes **[Conversion formulas of resources into fees]**

1 Node-Hour = 10.41 JPY

[Software resources]
Compilers: Fortran, C, C++
Libraries: MPI, BLAS, LAPACK/ScaLAPACK, FFTW, PETSc,
METIS/ParMETIS
Application software: OpenFOAM, ABINIT-MP, PHASE, FrontFlow/Blue,
FrontISTR, REVOCAP, ppOpen-HPC
Container: singularity (docker image possible)

2. **Wisteria/BDEC-01(Aquarius: Shared Use)**: Supercomputer System for
Integration of "Simulation+Data+Learning", Data/Learning Nodes, 45
nodes of (Intel Xeon Platinum 8360Y + NVIDIA A100) (8
GPU's/node, Total 360 GPU's)
[Hardware resources]
- Maximum tokens for each project: 95,040 GPU-Hour's
- Storage: (6TB/(8,640 GPU-Hour's)) are automatically provided according to
  awarded tokens (Maximum: 66TB), Additional Storage Space on "Ipomoea-
  01" :(0.900TB/(8,640 GPU-Hour's))
- Acceptable Job: up to 8 nodes (64 GPU's)
[Conversion formulas of resources into fees]
1GPU-Hour = 31.25 JPY

[Software resources]
Compilers: Fortran, C, C++
Libraries: MPI, BLAS, LAPACK/ScaLAPACK, FFTW, PETSc,
METIS/ParMETIS
Application software: OpenFOAM, ABINIT-MP, PHASE, FrontFlow/Blue,
FrontISTR, REVOCAP, ppOpen-HPC (Some of them don't work on GPU), MATLAB
(*)
　(*) Available for academic users only
Container: singularity (docker image possible)

3. **Wisteria/BDEC-01(Aquarius: Occupied Use)**: Supercomputer System
for Integration of "Simulation+Data+Learning", Data/Learning Nodes, 45 nodes of
(Intel Xeon Platinum 8360Y + NVIDIA A100) (8
GPU's/node, Total 360 GPU's)

[Hardware resources]
- Maximum tokens for each project: 69,120 GPU-Hour's,
- Storage: (6TB/(8,640 GPU-Hour's)) are automatically provided according to
  awarded tokens (Maximum: 48TB), Additional Storage Space on "Ipomoea-
  01" :(0.900TB/(8,640 GPU-Hour's))
- Options for occupying "1, 2, 4 or 8" GPU's are available Please specify number of
  GPU's which you want to "occupy" in the application. Moreover, please make
  sure the total GPU-Hour's to be 1x, 2x, 4x or 8x of 8,640. If occupation for 8
  GPU's is accepted, you can bring customized login node. Please contact
  uketsuke@cc.u-tokyo.ac.jp if you plan to apply to "Aquarius: Occupied Use".

[Conversion formulas of resources into fees]
1GPU-Hour = 42.19 JPY

[Software resources]
Compilers: Fortran, C, C++
Libraries: MPI, BLAS, LAPACK/ScaLAPACK, FFTW, PETSc,

METIS/ParMETIS
Application software: OpenFOAM, ABINIT-MP, PHASE, FrontFlow/Blue, FrontISTR, REVOCAP, ppOpen-HPC (Some of them don't work on GPU), MATLAB (*)
   (*) Available for academic users only
Container: singularity (docker image possible)

Attention!! If you want to use both of "Odyssey" and "Aquarius",
please apply for 1 and 2 or 3. You can apply for all of 1, 2 and 3. Please
feel free to contact uketsuke@cc.u-tokyo.ac.jp if you have any
questions.

4. **Wisteria/BDEC-01(Additional Storage)**:
[Hardware resources]
Maximum additional space for each project: 100 TB
[Conversion formulas of resources into fees]
   1 TB/Year= 6,480 JPY

5. **Miyabi-G**: Supercomputer System of JCAHPC/Node Group with Accelerators, 1,120 nodes of NVIDIA GH200 (Grace Hopper Superchip) ((1CPU+1GPU)/node, Total: 1,120 CPUs + 1,120 GPUs)
[Hardware resources]
- Maximum tokens for each project: 86,400 GPU-Hour's
- Storage: (5TB/(8,640 GPU-Hour's)) are automatically provided according to awarded tokens (Maximum: 50TB), Additional Storage Space on "Ipomoea-01" :(0.750TB/(8,640 GPU-Hour's))
- Acceptable Job: up to 256 nodes (256CPUs+256GPUs),
- By using MIG (Multi-Instance GPU), it is possible to use the computer resources equivalent to 1/4 node.

[Conversion formulas of resources into fees]
   1GPU-Hour = 34.72 JPY

[Software resources]
Compilers: Fortran, C, C++
Libraries: MPI, BLAS, LAPACK/ScaLAPACK, FFTW, PETSc, METIS/ParMETIS
Application software: OpenFOAM, ABINIT-MP, PHASE, FrontFlow/Blue, FrontISTR, REVOCAP, ppOpen-HPC (Some of them don't work on GPU), Container: singularity (docker image possible)

6. **Miyabi-C**: Supercomputer System of JCAHPC/Node Group with only CPUs, 190 nodes of Intel Xeon Max 9480 with only HBM, Total: 380 CPUs)
[Hardware resources]
- Maximum tokens for each project: 103,680 Node-Hour's
- Storage: (4TB/(8,640 Node-Hour's)) are automatically provided according to awarded tokens (Maximum: 48TB), Additional Storage Space on "Ipomoea-01" :(0.600TB/(8,640 Node-Hour's))
- Acceptable Job: up to 64 nodes (128 CPUs)

[Conversion formulas of resources into fees]
   1GPU-Hour = 27.78 JPY

[Software resources]
Compilers: Fortran, C, C++

Libraries: MPI, BLAS, LAPACK/ScaLAPACK, FFTW, PETSc, METIS/ParMETIS
Application software: OpenFOAM, ABINIT-MP, PHASE, FrontFlow/Blue, FrontISTR, REVOCAP, ppOpen-HPC (Some of them don't work on GPU), MATLAB (*)
   (*) Available for academic users only
Container: singularity (docker image possible)

7. Miyabi-G/Miyabi-C (Additional Storage):
[Hardware resources]
Maximum additional space for each project: 50 TB
[Conversion formulas of resources into fees]
   1 TB/Year= 6,480 JPY

Details of the systems are available at the following URL's :
• **Wisteria/BDEC-01**:https://www.cc.u-tokyo.ac.jp/en/supercomputer/wisteria/service/
• **Miyabi**: https://www.cc.u-tokyo.ac.jp/en/supercomputer/miyabi/service/
• **Ipomoea-01**:https://www.cc.u-tokyo.ac.jp/en/supercomputer/ipomoea01/service/

Center for Information Infrastructure, Institute of Science Tokyo	1. TSUBAME4.0
	[Hardware resources]
	TSUBAME4.0 system includes 240 compute nodes, which provides 66.84PF performance (CPU 46,080 cores + GPU 960 slots) in total. (Shared use)
	
	[Conversion formulas of resources into fees]
	Please apply *quarterly* for computing resources. For storage, also please apply for each capacity of HDD (in units of 1TB) and SSD (in units of 100GB) at the beginning of fiscal year.
	Computing resources and storage are rounded up after totaling in Unit.
	The rounded up portion is provided as additional computing resources.
	"Unit" is a unit for resource management at TSUBAME4.0.
	*For details on the amount per unit, please refer to application form (2).
	
	Computing resources: 400NH = 1 Unit
	   * Maximum computing resources per 1 project in 4th quarter: 1,600NH
	Storage: HDD 1 TB-year = 6 NH = 0.015 Unit
	         SSD 100 GB-year = 2.4 NH = 0.006 Unit
	   * Maximum storage per 1 project: HDD 100TB (= 1.5 Unit)
	                                   SSD 3 TB (= 0.18 Unit)
	
	[Software resources]
	 OS: Red Hat Enterprise Linux
	Language Compiler: Intel oneAPI, NVIDIA HPC SDK, Arm Forge, CUDA, GNU compiler Collection, g++, Python, ruby, perl, PHP
	Libraries: Gaussian, Gauss View, AMBER (only for academic user), VASP (compiled binaries are available only to licensed academic users), GAMESS, QUANTUM ESPRESSO, Tinker, GROMACS, LAMMPS, NAMD, CP2K, OpenFOAM, Alphafold, PyTorch, TensorFlow, POV-Ray, ParaView, VisIt, vmd, VESTA, Hadoop, gimp, gnuplot, R
	Linux container: Apptainer
	
	[URL]
	https://www.t4.cii.isct.ac.jp/docs/handbook.en/#top

Information Technology Center, Nagoya	The service is scheduled to commence under a new system in October 2026. Accordingly, the details are subject to change. ● Supercomputer "Flow" NEXT Type I subsystem (tentative name)

University	**[Hardware resources]**
	7.07PFLOPS (256 nodes,98,304cores, 194,304GiB (253nodes) + 18,432GiB (3nodes) memory)

[Conversion formulas of resources into fees]
   CPU: 1NH = 122 JPY
   Hot Storage: TB x year= 3,500 JPY

[Software resources]
   OS: Rocky Linux9
Development Environment: Intel oneAPI base & HPC Toolkit, AMD Zen Software Studio
   Libraries: FFTW, SuperLU, SuperLU M, SuperLU DIST, METIS, MT-METIS, ParMETIS, Scotch, PT-Scotch, PETSc, MUMPUS, Xabclib, ppOpen-APPL/BEM, ppOpen-APPL/FEM, ppOpen-AT, ppOpen-APPL/FDM, ppOpen-MATH/MP, ppOpen-APPL/FDM-AT, ppOpen-APPL/DEM-util, ppOpen-APPL/AMR-FDM, ppOpen-APPL/BEM-AT, ppOpen-APPL/FVM, ppOpen-MATH/VIS
   Application software: OpenCV, Geant4, NetCDF, Parallel netCDF, HDF5, TensorFlow, PyTorch,Keras, conda, Numpy, Scipy, scikit-learn, scikit-image, pillow, matplotlib, jupyterlab, Singularity, ABINIT-MP, Quantum ESPRESSO, CHARMM, OpenFOAM, FrontISTR, AMBER, GRNESIS, GENESIS-US, Gromacs, LAMMPS, NAMD, CP2K, Amber, Gaussian, VASP, Chimera, 3D AVS Player, OVITO, VMD, ParaView, POV-Ray・POV-Ray parallel, ffmpeg, ffplay, VTK, RyMOL, meshlab, VisIt, AVS/Express Developer, IDL, ENVI, Amber

- <u>Supercomputer "Flow" NEXT Type II subsystem (tentative name)</u>

[Hardware resources]
   9.03PFLOPS (FP64)
   (54 nodes (1per node：NVIDIA GB200 NVL4 (GraceCPU x 2 + B200 x 4 Memory 960GiB (CPU) + 692.8GiB (GPU)))

[Conversion formulas of resources into fees]
   CPU: 1NH = 316 JPY
   Hot Storage: TB x year= 3,500 JPY

[Software resources]
   OS: Rocky Linux9
   Development Environment, Libraries: Compiler NVIDIA HPC SDK, NVIDIA CUDA Toolkit, FFTW, SuperLU, SuperLU MT, SuperLU DIST, METIS, MT-METIS, ParMETIS, Scotch, PT-Scotch, PETSc, MUMPUS, Xabclib, ppOpen-APPL/BEM, ppOpen-APPL/FEM, ppOpen-AT, ppOpen-APPL/FDM, ppOpen-MATH/MP, ppOpen-APPL/FDM-AT, ppOpen-APPL/DEM-util, ppOpen-APPL/AMR-FDM, ppOpen-APPL/BEM-AT, ppOpen-APPL/FVM, ppOpen-MATH/VIS
   Application software: OpenCV, Geant4, NetCDF, Parallel netCDF, HDF5, TensorFlow, PyTorch, Keras, conda, Numpy, Scipy, scikit-learn, scikit-image, pillow, matplotlib, jupyterlab, Singularity, ABINIT-MP, Quantum ESPRESSO, CHARMM, OpenFOAM, Front-Flow/bule, Front-Flow/red, GENESIS, GAMESS-US, Gromacs, LAMMPS, NAMD, CP2K,Parabricks, nvidia-container-toolkit, cuQuantum, CUDA-Q, AlphaFold, ColaboFold, RELION, DeePMD-kit, cryoSPARC, Amber, Gaussian

- Maximum resource allocation amount per issue
  - ➢ Type I : 24,500 NH
  - ➢ Type II: 9,490 NH

- Hot Storage: 600 TB x year

- Type II Subsystem node Occupied 2 unit x use Month

[Hardware Resources]
   Node-occupied use of Type II subsystems. You can connect with L2VPN from out of campus and use it for occupancy. Since equipment, consumables, connections, and

	settings are required for your use, please contact us before submitting your project. **[Usage]** Others **[Conversion formulas of resources into fees]** 　Type II subsystem node Occupied: unit x use Month= 330,000 JPY All resources are shared with general users.
Academic Center for Computing and Media Studies, Kyoto University	1.　Camphor3 (Intel Xeon) **[Hardware resources]** 　　①　Year-round use 96 nodes, 10,752 cores, 652.8 TFLOPS x 12 months (From 1st, April, 2026 to the end of March 2027, maximum 32 nodes per project x 12 months) ※However, the maximum number of nodes that can be used per job will be determined after the job is selected. 　　②　Intensive use 96 nodes, 10,752 cores, 652.8 TFLOPS x 8 weeks (maximum 96 nodes per project x 4 weeks, Weekly) 　　③　Storage Provides a minimum of 10 TB per one project. Storage capacity is increased according to the node hours used for the full term (approximately 1 TB per 720 node hours). Only storage capacity can be added in 10TB increments (maximum storage capacity is negotiable). 　　④　Flash Storage Can be added in 2TB increments (maximum flash storage capacity is negotiable). **[Conversion formulas of resources into fees]** 　　1　1NH = 20.8 JPY 　　2　1NH = 53.5 JPY 　　3　10 TB = 10,000 JPY 　　4　2 TB = 10,000 JPY **[Software resources]** OS: Red Hat Enterprise Linux 8 Compilers: Intel oneAPI (Fortran, C/C++, OpenMP) Libraries: Intel oneAPI MKL (BLAS, LAPACK, ScaLAPACK) Application Software: Gaussian16, GaussView, MATLAB For more information on resources, please refer to the following URL: https://www.iimc.kyoto-u.ac.jp/en/services/comp/supercomputer/system/specification.html
D3 Center, Osaka University	SQUID(https://www.hpc.cmc.osaka-u.ac.jp/en/squid/) **[Hardware resources]** -　Resource per project: 　　General purpose CPU nodes: up to 13.01 node years (Shared Use) 　　　　　　　　　　　　　　　up to 1.97 node years (Dedicated Use) 　　GPU nodes: up to 2.05 node years 　　Vector nodes: up to 3.42 node years 　　Storages: up to HDD 500 TiB, SSD 10 TiB -　Computational node: 　　General purpose CPU nodes: 1,520 nodes (380 TiB memory) will be provided up to 304 node years in shared use and dedicated use. 　　GPU nodes: 42 nodes (21 TiB memory, 8 NVIDIA A100 per 1 node) will be provided up to 6 node years in shared use.Vector nodes: 36 nodes (4.5 TiB memory, 8 SX-Aurora TSUBASA Type 20A per 1 node) will be provided up to 5 node years in shared use. 　　Storages: Lustre 20.0 PB (HDD) + 1.2 PB (NVMe). In the case of SSD, specify it in the application form. **[Conversion formulas of resources into fees]**

General purpose CPU nodes [Shared Use]:
1 node hour = 28.1 JPY
General purpose CPU nodes [Dedicated Use]:
1 node month = 126,500 JPY
GPU nodes [Shared Use]: 1 node hour= 171.6 JPY
Vector nodes [Shared Use]: 1 node hour= 105.8 JPY
HDD: If up to 5 TB, 0 JPY. If over 5 TB, 1 TB /year= 2,200 JPY
SSD: 1 TB /year = 5,500 JPY

[Software resources]
    [Development environment]
    Intel Compiler(FORTRAN, C, C++), NEC SDK for VE(FORTRAN, C, C++), GNU Compiler(FORTRAN, C, C++), NVIDIA HPC SDK, OpenJDK, Intel OneAPI, NEC Parallel Debugger, Arm Forge, Python, R, Julia, Octave, CUDA, Jupyter notebook
    [MPI Library]
        Intel MPI, OpenMPI, NEC MPI
    [Library]
        NEC Numeric Library Collection(BLAS, LAPACK, ScaLAPACK, FFT etc),
    Intel Math Kernel Library, GNU Scientific Library, NetCDF, Parallel netcdf, HDF5, FFTW
    [Application software]
    TensorFlow, Keras, PyTorch, pbdR, Gaussian, IDL, Paraview, Gnuplot, ImageMagick, NcView, AVS/Express, GROMACS, OpenFOAM, LAMMPS, GAMESS, ABINIT-MP, Relion, ADIOS, VisIt, НФ, MODYLAS, NTChem, OpenMX, SALMON, SMASH, FFX, PHASE/0, FrontISTR, GENESIS, mVMC, FrontFlow/blue, FFVHC-ACE, Phonopy, ALAMODE, AkaiKKR, GENESIS, PHASE/0, FrontISTR

OCTOPUS(https://www.hpc.cmc.osaka-u.ac.jp/octopus2/)
[Hardware resources]
-     Resource per project:
        General purpose CPU nodes: up to 7.42 node years (Shared Use)
        Storages: up to HDD 100 TiB
-     Computational node:
        General purpose CPU nodes: 140 nodes (103 TiB memory) will be provided up to 28 node years in shared use and dedicated use.
        Storages: Lustre 3.58 PB (HDD).

[Conversion formulas of resources into fees]
        General purpose CPU nodes [Shared Use]:
1 node hour = 49.4 JPY
      HDD: If up to 5 TB, 0 JPY. If over 5 TB, 1 TB /year= 2,000 JPY

  [Development Environment]
    Intel oneAPI Base & HPC Toolkit (Fortran, C, C++), GNU Compiler Collection (Fortran, C, C++), Python, OpenJDK, R, Julia
  [Communication Library]
    Intel MPI, Open MPI
  [Scientific Computing Library]
    Intel oneMKL, GNU Scientific Library, NetCDF, Parallel NetCDF, HDF5
  [Machine Learning Framework]
    TensorFlow, Keras, PyTorch, pbdR
  [Application]
    Gaussian, IDL, AVS/Express, ParaView, Gnuplot, ImageMagick, NcView, GROMACS, OpenFOAM, LAMMPS, GAMESS, ABINIT-MP, ReLion, ADIOS, VisIt, CTFFIND, FLASHcode, FreeFem++, GENESIS, MotionCor3, SMASH, Quantum ESPRESSO, ResMap, NEC Vector Annealing

Research Institute for Information Technology, Kyushu University	**1. NodeGroup A**
	[Hardware Resources]
	    1.1 (Fixed-node) The maximum resources allocated for 1 project are 8 nodes for 12 months. Most of resources are dedicated to the project.
	    1.2 (Shared-use) 16,000 node-hours (approx. value). It is shared with general users.
	[Node Info]
	CPU: Xeon Platinum 8490H 1.9GHz / 60C x 2
	MEM: 512GB
	[Conversion formulas of resources into fees]
	    1.1 8 nodes month = 144,000 JPY
	    1.2 16,000 node-hours = 480,000 JPY
	
	[Software Resources]
	  Please see the WEB page.
	
	https://www.cc.kyushu-u.ac.jp/scp/system/Genkai/software/
	
	2. NodeGroup B
	[Hardware Resources]
	  (Shared-node) 4,000 node-hours (approx.. value). It is shared with general users.
	[Node Info]
	CPU: Xeon Platinum 8490H 1.9 GHz / 60C x2
	GPU: NVIDIA H100(SXM5) x4
	MEM : 1,024GB
	GPU mem : 94GB/GPU
	[Conversion formulas of resources into fees]
	  4,000 nodes-hours = 480,000 JPY
	
	[Software Resources]
	  Please see the WEB page.
	
	https://www.cc.kyushu-u.ac.jp/scp/system/Genkai/software/
	
	3. Large storage
	1TB of large storage is provided per issue. Additional storage can be added in increments of 10TB if desired. (Up to a maximum of 100TB)
	[Conversion formulas of resources into fees]
	  10TB month = 1,300 JPY
	
	4. Fast storage
	Fast storage can be added in 1TB increments up to a maximum of 10TB per issue.
	[Conversion formulas of resources into fees]
	  1TB month = 420 JPY
	
	  If you intend to use multiple resource, please contact us before applying, because the resource limit of one project may be reached
	  If you wish to use multiple resources, please use a common usage period.
	
	If you require more storage capacity than the maximum, please contact us.

Appendix 1(2): List of the non-HPCI resources available
at the JHPCN member institutions for the Joint Research Project

mdx and mdx II are comanaged by multiple institutions including the member institutions, and it is treated here as an independent institution.

JHPCN Institution	Computational Resources, Type of Use (<u>The underline parts are resource names</u>)
mdx I	**<<Hardware resources as a whole of the mdx I system>>** ● General-purpose (CPU) node: <u>PRIMERGY CX2550 M6</u> : Intel Xeon Platinum 8368 (IceLake 38 cores, 2.4GHz x 2 sockets) x 368 nodes ● GPU node: <u>PRIMERGY GX2570 M6</u> : (Intel Xeon Platinum 8368 (IceLake 38 cores, 2.4GHz × 2 sockets) + NVIDIA A100 GPU × 8) × 40 nodes ● Storage for virtual disk: Approx. 444 GB ● High-speed internal storage: Approx. 9.3 PB, Lustre file system ● High-capacity storage: approx. 15.6 PB: Approx. 15.6 PB, Lustre file system ● AWS S3 compatibleobject storage: Approx. 9.4 PB ● External connection: 400 Gb/s (SINET6 connection), L2VPN available (on request) ● Internal network: Overlay network with Virtual eXtensible LAN (VXLAN), project-specific VLANs assigned (multiple assignments possible) ● Please check out https://mdx.jp/en/mdx1 for more information on mdx I, including an overview of mdx I, the virtual machine services available through mdx I, the concept of resource allocation, and usage fees **<<How to use mdx I resources>>** The mdx I's resources are provided by the 'shared wallet'. When using mdx I, purchase mdx points (1 point = 1 yen) from these wallets to apply for resources such as VMs. The validity period for points granted by JHPCN is until March 31. Additionally, it is possible to purchase additional points with self-funding in case of insufficient points from JHPCN (in such cases, the validity period for mdx points is either six months from the date of grant or until the end of the fiscal year,

whichever is earlier).

  ➢ Select 'Use mdx I only' or 'Use both mdx I and mdx II' on Form 2 of the mdx's sheet.

  ➢ On the application form, the budget will be the lower of '1 million yen' and '3.6 million yen - the estimated amount at other locations,' it does not require a detailed estimate.

  ➢ The total of the above budgets for all projects using mdx I and mdx II becomes the shared wallet (to be precise, the amount excluding the 100,000 yen mentioned below becomes the shared wallet), which is available for shared use in all projects.

  ➢ Even if the shared wallet is depleted, each project can use 100,000 yen.

<<Resource Allocation Application>>

- The range of resources available in the entire mdx I.

- Project users apply for the amount of resources they need within the range of available resources in the entire mdx I, and when they are no longer needed, they are released.

- However, the application may be rejected after taking into account the amount of available resources for the entire mdx I and the shared budget, and the amount of resources allocated to each project may be reduced during use if the overall amount of resources is tight. In this case, users will be notified in advance by e-mail or other means.

- The reserved VM should be requested through the user portal.

- The spot VM needs no request (the project member specifies it when using spot VM).

- In JHPCN projects, the reserved VM for the GPU pack is not recommended. However, if it is necessary for the project's execution, please describe the reason in Form 1.

<<Allocatable resources for each project>>

The following computing resources are applied for each project and allocated to the activated VMs.

- General-purpose (CPU) node: 1 CPU pack (1 core (vCPU). Approximately 1.5 GB per core)

- Compute-accelerated (GPU) node: 1 GPU pack (1 GPU + 18 cores (vCPU), approx. 57 GB memory)

- Storage for virtual disk, high-speed internal storage, mass

	storage, object storage: Apply in 1 GB increments ● Global IP address: Apply in units of 1 IP <<Software resources>> ● Virtual machines will run on virtualization software: VMware vSphere (vCenter, ESXi). The software (including OS) necessary for the project will be installed on the virtual machine by each project. In addition, a template of a virtual machine with OS and software packages pre-installed will be provided. ● Users can allocate and use the necessary computing resources and networks from the resources allocated to the project to the VMs through the portal. ● If you need to consider linking with resources other than mdx, such as L2VPN, please contact the support desk (mdx-help@mdx.jp) in advance.
mdx II	Please refer to the following for an overview of mdx II: https://mdx.jp/en/mdx2/p/system Also, please check the following for the usage image of Interoperable nodes: https://mdx.jp/en/mdx2/p/vmware <<Hardware resources provided to JHPCN>> ・ Interoperable node group: 6 nodes (43.008 TFLOPS in total) 　　[Per-node configuration] 　　- CPU: Intel Xeon Platinum 8480+ processor (2.0 GHz, 56 cores) × 2 sockets 　　- Main memory: 512 GB 　　- Theoretical performance: 7.168 TFLOPS ・ Lustre file storage 　　Available capacity: NVMe 1,106.48 TB <<Allocatable resources for each project>> The following computing resources can be applied for each project on a three-month basis: ・ Virtual Machines on Interoperable node 　　Configurable from 16 CPU packs (16 vCPUs, 32 GB memory) up to 224 CPU packs (224 vCPUs, 498 GB memory) per Virtual Machine. 　　Storage capacity: in increments of 1 TB ・ Lustre file system: Apply in increments of 1 TB ・ Global IP address: Apply in units of 1 IP <<Software resources>> ・ Virtual machines on Interoperable nodes run on VMware ESXi. Each project installs the software required for their research on their own VMs.

	· If it is necessary to consider linkage with resources other than mdx II, please consult mdx II Operations Office (mdx2-system@cmc.osaka-u.ac.jp) in advance. **<< Shared wallet system>>** · The usage of mdx II resources follows the "shared wallet" together with mdx I. · When using mdx II, users apply for VMs and storage from the "shared wallet." The validity period of the "shared wallet" provided by JHPCN is until March 31. If additional budget is required, it is possible to add self-funding. **<<How to apply>>** · Select 'Use mdx II only' or 'Use both mdx I and mdx II' on Form 2 of the mdx's sheet. · On the application form, the budget will be the lower of '1 million yen' and '3.6 million yen - the estimated amount at other locations,' it does not require a detailed estimate. · The total of the above budgets for all projects using mdx I and mdx II becomes the shared wallet (to be precise, the amount excluding the 100,000 yen mentioned below becomes the shared wallet), which is available for shared use in all projects. · Even if the shared wallet is depleted, each project can use 100,000 yen. **<<Resource allocation>>** · Project users apply for the amount of resources they need within the range of available resources across the entire mdx II. However, the application may be rejected after taking into account the amount of available resources for the entire mdx II and the shared budget. In this case, users will be notified in advance by e-mail or other means.
Information Initiative Center, Hokkaido University	1. Large-format printer [Hardware resources] Large-format printer [Software resources]
Cyberscience Center, Tohoku University	**1. Large-format printer** **[Hardware resources]** Large-format printer **[Software resources]** **[Usage]**
Information Technology Center, The University of Tokyo	N/A
Center for Information Infrastructure, Institute of Science Tokyo	N/A

Information Technology Center, Nagoya University	1. <u>Visualization system</u> **[Hardware Resources]** 185-inch 8K tiled display, 180-inch 3D visualization system, Domed display system, Image Processing client and Onsite client of Supercomputer "Flow" (Remote visualization using NICE DCV is available.) https://www.icts.nagoya-u.ac.jp/en/sc/ **[Usage]** **[Conversion formulas of resources into fees]** Visualization System: set x year= 20,000 JPY
Academic Center for Computing and Media Studies, Kyoto University	<u>Virtual Server Hosting</u> [Hardware resources] Standard configuration: CPU 2 cores, memory 4GB, disk 100GB Resource increase: CPU is up to 8 cores in 2 cores units. Memory is up to 64GB in 4GB units. Disks is up to 1TB in 100GB units. Total resources provided: CPU 32 cores, memory 256GB, disk 8TB [Conversion formulas of resources into fees] Standard configuration: 1VM = 38,400 JPY Resource increase: ① CPU 2 cores = 3,600 JPY ② Memory 4GB = 3,600 JPY ③ Disk 100GB = 7,200 JPY [Software resources] Hypervisor: VMware OS: AlmaLinux8 [Usage] SINET L2VPN is available For more information on resources, please refer to the following URL: https://www.iimc.kyoto-u.ac.jp/en/services/comp/vm/
D3 Center, Osaka University	1. <u>ONION (object storage)</u> <u>Object storage that can be linked with large-scale computer systems, cloud storage, etc. via S3 API.</u> [Hardware resources] <u>Cloudian HyperStore</u> <u>up to HDD 80TB per project</u> [Conversion formulas of resources into fees] 1 TB /year = 13,200 JPY
Research Institute for Information Technology, Kyushu University	N/A