Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures
Call for Proposal of Joint Research Projects in Fiscal Year 2023

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Outline

The Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures (hereafter as JHPCN) is the network-type joint usage and research center, certified by the Ministry of Education, Culture, Sports, Science and Technology, 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 system (hereafter called member institutions) affiliated with Hokkaido University, Tohoku University, University of Tokyo, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, 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 researches in many fields. .

JHPCN calls for joint research projects for fiscal year 2023. The joint research has to have two or more research members and be managed by a researcher of organizations in Japan. You have to use at least one of the computer resources of the member institutions or have a researcher of the member institutions in the research group. Projects are welcome from any research area.

The researchers of accepted projects will be able to use the computer resources of the member institutions and the "mdx" for free in the scope of the rule. (See Appendixes for the details of available resources) The "mdx" is an information infrastructure created mainly to accumulate and utilize knowledge related to data science, which is comanaged by nine universities and 2 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 in abroad, the expenses to publish books on research results and to hold symposiums related to the research. Accepted research projects will also be a chance to make networks or expand your research/invention by joining or doing presentations in JHPCN symposiums.

Since the member institutions have enrolled leading researchers, acceleration of joint research projects is possible through collaboration with these researchers. You can get introductions to the researchers of the member institutions, if you hope to, please contact the JHPCN office in advance. If you have in mind a researcher with whom you want to conduct joint research, you can ask the member institution of the researcher in question.

These joint research projects for the fiscal year 2023 will be implemented from April 2023 to March 2024. The web application deadline is 5 PM (JST), 6 January, 2023. We expect and appreciate as many applications as possible.

1. Theme Areas

This Joint Research Project calls for joint research projects in the two theme areas: (1) Large-scale computational science area and (2) Data science/data usage area. We are expecting groups of researchers in different fields will propose interdisciplinary research. Applicants are required to choose an appropriate area from the two in accordance with the research theme they propose. Applicants can use any computer resource regardless of the theme they choose. The titles or reports of the projects in the previous calls can be found on the website of the JHPCN.

Theme Area (1): Large-scale computational science area
What this area expects are large-scale researches on computing science by interdisciplinary research teams of leading researchers in diverse fields, which make active use of the large-scale information infrastructures, especially supercomputers and large storages, provided by the member institutions.

Theme Area (2): Data science/data usage area
What this area expects are diverse projects on data science/data usage making use of unique computational resources of each member institution, such as the data science platform "mdx" comanaged by 11 organizations including the member institutions. Research themes are welcome on a wide range of areas and with different methods, which can go beyond the work the JHPCN has tackled, such as collection and arrangement of data of humanity and social science, biological science, science and engineering, data sharing or development of platforms in research communities, and data analysis based on leading methods of data science like machine learning.

2. Available Computer Resources

Some of the computer resources of the JHPCN member institutions constitute the computing environment of the Innovative High Performance Computing Infrastructure (HPCI: https://www.hpci-office.jp/), which is a shared computing environment infrastructure. JHPCN, in cooperation with HPCI, provides a portion of these computer resources for JHPCN joint research. These are called HPCI resources.

On the other hand, the computer resources that are not provided through HPCI and are operated independently by each member institution are called non-HPCI resources (including mdx: Platform for the Data-Driven Future).

The list of available resources is shown in Appendixes 1 and 2.

Please note that the application procedure differs depending on whether you are applying to use HPCI resources or not.

3. Types of Joint Research Projects

Please choose one of the three types below in accordance with the organization and type of your project when you apply. A research proposal submitted as (2) International Joint Research Project or (3) Industrial Joint Research Project can be selected as (1) General Joint Research Project in some cases.

(1) **General Joint Research Projects (approximately 80% of the total number of accepted projects will be of this type)**

(2) **International Joint Research Projects (approximately 10% of the total number of accepted projects will be of this type)**

International joint research projects are interdisciplinary joint research conducted in conjunction with researchers outside Japan to address challenging issues that may not be possible to resolve or clarify only with the help of researchers within Japan. For such research projects, there will be subsidy paid to cover travel expenses necessary for holding meetings with foreign joint researchers and so on. For details of the subsidy, please contact our office after your research project has been accepted. For application requirements, see art.3.

(3) **Industrial Joint Research Project (approximately 10% of the total number of accepted projects will be of this category)**

Industrial joint research projects are projects focused on industrial applications. For application requirements see art.3.

4. Application Requirements

A research group must meet the following conditions.

(1) The research group must have one Project Representative and one or more Deputy Representatives, and any joint researchers can be included.

(2) The Project Representative must belong to an institution in Japan (university, national laboratory, private enterprise, and so on.)

(3) Graduate students can participate in the project as joint researchers, but undergraduate

students cannot. However, graduate students cannot participate as Project Representative or Deputy Representative.

(4) If a non-resident member or a resident of "specific category", defined by the Foreign Exchange and Foreign Trade Act (See page 5 or later of "Clarification of deemed export control" by METI), intends to use computers, a researcher of the member institutions where the computer is operated (any member institution is acceptable for the use of mdx) must participate in the research group as a joint researcher.

International joint research projects must, in addition to the above-mentioned (1) – (4), fulfill the following conditions ((5) and (6)).

(5) At least one researcher belonging to a research institution outside Japan must be in charge of Deputy Representative. Furthermore, an application must be made using the English application form.

(6) A researcher of the member institutions must participate in the research group as a joint researcher.

Industrial joint research projects must, in addition to the above-mentioned (1) – (4), fulfill the following conditions ((7) and (8)).

(7) The Project Representative must belong to a private enterprise.

(8) At least one researcher of the member institutions must be in charge of a Deputy Project Representative.

5. Joint Research Period

April 1, 2023 to March 31, 2024.

Depending on conditions for preparing computer accounts, the commencement of computer use may be delayed.

6. Facility and Resource Use Fees

The research resources and other facilities can be used within the scope of use permitted at the screening free of charge. (They can only be used for the joint research project)

7. Points to Note for Writing Application Forms and Available Resources
7.1 Points to note for writing application forms

Screening of the submitted proposals will be conducted by the Joint Research Project Screening Committee, which comprises faculty members belonging to JHPCN member institutions as well

as external members. Proposals that make use of HPCI resources will also be screened by the HPCI Project Screening Committee, which comprises experts in industry, academic, and government. Research project proposals will be reviewed comprehensively, taking into consideration scientific and technological relevance, feasibility of usage and development, necessity of their facility/equipment requirements, consistency with the research topics and themes presented in 1, and their interdisciplinary nature. In addition, relevance of use of resources at the member institutions which conduct the projects together and cooperation and collaboration with the institutions are considered. Moreover, for projects continuing from the previous fiscal year and projects determined to have continuity in their essence, the previous year's interim report and the previous usage of computer resources may be considered during the screening process.

When you make the application form, please note the points below.

- The format of the application form has been changed, thus please make sure to use the latest version.
- Please explain in the way that is easy to understand for those Screening Committee members who may be unfamiliar with your research topic.
- In the screening process of projects for theme area (1) "Large-scale computational science area", weather the plan of use of resources is appropriate or not will be emphasized. Please clarify the plan of use and the basis for estimate of the necessary amount.
- In the screening process of projects for theme area (2) "Data science/data usage area", it is not required to clarify the basis for estimate of amount of the resources you use, but it is required to show that those resources are necessary to complete the research.

7.2 Research Projects to be appreciated

We will appreciate research projects that have the following features. Please clearly show in the application forms if the project has any of the features.

(1) Points that are emphasized regardless of theme areas

Interdisciplinary organization:

JHPCN promotes interdisciplinary joint research projects on many kinds of themes that are done by researchers who specialize in the area of informatics, which include computer science and data science, and of its application. For this purpose, those projects are valued highly which have an interdisciplinary research team.

Promotion of usage of the software and data:

We appreciate highly those projects that aim to make the software developed or the database constructed as a result of the projects more accessible for as many people as

possible. The research teams are required not just to open those software and databases to public, but also to make them recognizable to be actively used.

Development of IT infrastructure technology:

We appreciate highly those projects that lead to infrastructural studies of IT, such as architecture, system software, and security. The projects can also be implemented in collaboration with researchers of the member institutions specializing in IT infrastructure technology.

Research projects in close cooperation with multiple JHPCN member institutions:

We appreciate highly those projects that use research resources and/or employ researchers from multiple member institutions. For example, research topics include, but are not limited to, large-scale and geographically distributed information systems and implementations of multi-platform for applications using research resources provided by multiple member institutions.

Research projects using both large-scale data and large-capacity networks:

We appreciate highly those projects that have massive data transfer, using a very wide-bandwidth network, between the researcher's research site and the resources provided by the member institution, or between the researcher's site and the member institutions. Available research resources include those that can be directly connected to a very wide-bandwidth network provided by SINET5, including L2VPN, in cooperation with the National Institute of Informatics. Therefore, research that depends upon a very wide-bandwidth network can be conducted. What is specifically intended here is shown in Appendix 2.

(2) Points that are emphasized in Theme Area (1) "Large-scale computational science area"

Proposals which mainly aim to perform research activities are accepted. In other words, proposals that just attempt to use the provided computer resources, so called "product run projects', are not acceptable.

(3) Points that are emphasized in Theme Area (2) "Data science/data usage area", the following points are emphasized and valued.

Impacts on the real world:

Proposals that will lead to solution of significant but hard to solve problems in the real world are valued highly, including realization of Society 5.0 or accomplishment of the SDGs, by applying data.

Promotion of data usage:

Proposals which attempt to promote data usage in research areas where data have not been widespread and sufficiently used yet are valued highly, as well as proposals that make use of different research data, including books and articles, to integrating them and give it sophisticated analysis in order to bring about new discoveries.

Security and personal data protection:

Those proposals are valued highly which create brand new worth making use of socially significant data, such as those on medical and health matters, education, and economy, or which promote development and popularization of techniques on secure use of those data, like techniques on personal data protection. Please consult with the member institutions which provide the resources you plan to use and confirm if the resources meet the requirements of your project. If you are going to use medical information, whether or not your project follows the Act on the Protection of Personal Information and/or the three guidelines set by Ministry of Health, Labour and Welfare, Ministry of Public Management, Home Affairs, and Ministry of Economy, Trade and Industry has to be made sure of in addition to the function and capacity of the available hardware and software.

7.3 The maximum amount of resources

The maximum amount of resources is defined as below. The amount of resources applied for must be reasonable in light of the research plan.

We provide a wide range of computer resources, including computers and others, so we define the maximum amount that can be applied for based on fee. Please estimate the amount of resources you apply for by calculating their fees. The maximum amounts that can be applied for are as follows.

- When applying to use only the resources provided by one institution: Up to 3 MJPY
- When applying to use resources provided by multiple institutions ("mdx" is regarded as a single institution): Up to 3.6 MJPY

A part of the conversion formulas of resources into fees (will be added to Appendix 1) and the application form of Excel sheet that performs automatic calculations will be available around November 28. Please note that the usage fee rates used in the formulas may differ from the rates for general use, etc. of the resources at each institution.

The amount of resources that can actually be used after the proposal is accepted may be adjusted or reduced in consideration of the overall budget, screening results, and resource usage. In addition, for proposals that have been continued from the previous fiscal year or proposals that have been determined to have substantial continuity, if the resources from the previous fiscal year are underutilized or unutilized, the research resources may be reduced after adjustments are made.

8. Application Process

8.1 Outline and matters to be attended

Please note that you have to take one of the two kinds of application procedures depending on whether your proposal uses HPCI resources or not.

Category A projects:

Projects that only use HPCI resources, or that use both HPCI and non-HPCI resources.

Category B projects:

Projects that only use non-HPCI resources, or that do not use computational resources.

*Application must be done in either Category A or B. To apply for both categories is not allowed.

For application of international joint research projects, the English application forms must be used.

8.2 Application procedure

Category A: Application procedure of "Research projects with the use of HPCI resources", including those projects that also make use of non-HPCI resources

*For the detailed procedure, please see the Beginner's Guide on the JHPCN website (https://jhpcn-kyoten.itc.u-tokyo.ac.jp/en/cfp).

What to prepare:

JHPCN application form1 and JHPCN application form 2 (After download, fill them out. They are downloadable on JHPCN website, https://jhpcn-kyoten.itc.u-tokyo.ac.jp/en/cfp.)

HPCI application form (Fill it out on the HPCI website, https://www.hpci-office.jp/entry/)

Where to submit: The HPCI website.

(1) Download the application forms 1 and 2 on the JHPCN website and fill them out.

(2) The Research Project Representative (and the Deputy Representative who will submit the

proposal or who will be in charge of the HPCI face-to-face identity vetting on behalf of the Project Representative) and all joint researchers who will use the HPCI resources have to get their HPCI-IDs, unless they already have one.

(3) Visit the JHPCN website. When you choose "use HPCI resources" on the application page, you automatically jump to the application system of HPCI. Complete the HPCI application from on the website and upload the JHPCN application forms you complete at step (1).

Because an e-mail is sent to your institutional head to ask to confirm the information submitted at the application system of HPCI on step (4), an available email address for the confirmation is necessary. By institutional head are meant heads of department, such as Deans or Directors of institutions, for applicants who belong to universities, and their equivalents for applicants who belongs to National institutes or private companies. The address you propose has to be the one provided to the post in principle, but in case an administrative office has to be in charge of the contact, an email address of the office is also permitted. If any address is not provided to the post of your institutional head, submit an address of an administrative officer or a secretary in addition to a personal address of the institutional head. Concrete procedure is provided in section.12(2).

At the application system of HPCI you need to choose one of the following categories.

(1) Very large-scale numerical computation
(2) Very large-scale data processing
(3) Very large-capacity network technology
(4) Very large-scale information technology research systems

(4) Because an e-mail is sent to your institutional head to ask to confirm the information submitted at step (2) after the deadline, get the permission of the institutional head on the project in advance.

When the proposal is accepted, follow the guideline for procedures after acceptance set by HPCI. In particular, the Project Representative or the Deputy Representative has to take responsibility to complete the HPCI face-to-face identity vetting. In this process, there could be a case where the copies of ID cards with photo of all the joint researchers who use the resources are required. If the HPCI face-to-face identity vetting is necessary, please consult with HPCI after making sure if the center you are going to go is in charge of it.

You can check a list of the member institutions on the HPCI website (https://www.hpci-office.jp/pages/nearcenter).

Category B: Application procedure of "Research projects with the use of non-HPCI resources"

*For procedure of those with the use of HPCI resources, see Category A.

What to prepare:

JHPCN application form 1 and JHPCN application form 2 (After download, fill them out. They are downloadable on the JHPCN website, https://jhpcn-kyoten.itc.u-tokyo.ac.jp/en/cfp.)

Where to submit: The JHPCN website.

(1) Download the application forms 1 and 2 on the JHPCN website and fill them out.

(2) First go to the application page of the JHPCN website. From there you can go to the application page for Research projects with the use of non-HPCI resources. Enter the required information and upload the PDF files of the application forms you prepared at step (1). An acceptance notice will be sent to the email address you submitted on the application webpage.

*Please note that you do not use the application system of HPCI when applying for the "Research projects with the use of non-HPCI resources". The HPCI ID is also not necessary in this case.

8.3 Points to remember when filling out the research project proposal application forms

(1) Research resources must be only used for the purpose of the accepted research project.

(2) The proposal must be for peaceful purposes.

(3) Human rights and profit must be protected. Please consult with the member institutions which provide the resources you plan to use and confirm if the resources meet the requirements of your project. If you are going to use medical information, whether or not your project follows the Act on the Protection of Personal Information and/or the three guidelines set by Ministry of Health, Labour and Welfare, Ministry of Public Management, Home Affairs, and Ministry of Economy, Trade and Industry has to be made sure of in addition to the function and capacity of the available hardware and software.

(4) If ethical guidelines are prepared in the research fields of the proposal, please follow it. In particular, the proposals that need a research ethics review must get ethical approval for conducting them at reviews of the organizations to which the researchers belong.

(5) Projects seemingly identical with other proposed projects does not get accepted, for example, projects, the organizations or themes of which are substantially same, and projects that just the research objects are different.

9. Important Dates

1) Application

- Web application deadline: 5PM (JST), 6 January 2023
- Confirmation by the institutional head (necessary only in applications for "Research projects with the use of HPCI resources"): After the deadline, we ask applicants' institutional heads to confirm applicants' proposal. Applicants need to explain their projects to their institutional head and make sure that they check our email.
- Screening result announcement: The JHPCN is planning to announce the result until mid-March 2023.

2) Research-related events

- Joint research commencement: 1 April 2023
- 15th JHPCN symposium (Introduction of research): Early July 2023
- Progress report deadline: Mid-October 2023
- End of the research period: 31 March 2024
- Final report deadline: Mid-May 2024
- 16th JHPCN symposium (Report of research results): Early July 2024

10. Other Important Notices After Your Proposal Gets Accepted

(1) Submission of a written oath

Research groups whose research projects are accepted will be expected to submit a written oath pledging adherence to the contents of the above-mentioned "Points to remember when filling out the Research Project Proposal Application Form" of Section 8 "Application Process". The specific process of submission will be provided if your project gets accepted. A sample of the process is provided on the website so please check it out in advance.

(2) Regulations for use of the 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.

(3) Submission of reports and presentation at the JHPCN symposiums

A) 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 will not be 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.

B) Symposiums:

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 give presentations about their research projects carried out in the previous year of each symposium and those in progress. 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 submit before the symposium and are published on the JHPCN website.

The symposiums can be held online or in a hybrid way of online and onsite participation. It will be decided taking into account the situation of COVID-19. The symposiums were held online in 2021 and hybrid in 2022.

(4) Disclaimer

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

(5) Handling of 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.

(6) RCR training

Every joint researcher, including the Project Representative and the Deputy Representatives of an accepted project (excluding students), must be confirmed to have completed a program pertaining to RCR or equivalent (for example, eligibility for the Japanese Grant-in-Aid for Scientific Research that is accepted by the Ministry of Education, Culture, Sports, Science and Technology, or the Japan Society for the Promotion of Science or proof of acquisition of

a research fund which qualifies only those who have finished PCR training.

Those who have not completed such program need to take an e-Learning or a workshop which their institutes carry out, including the e-Learning program of The Association for the Promotion of Research Integrity. In case there are not any workshop taking place at your institution, please consult with the JHPCN office. Researchers with eligibility for the Japanese Grant-in-Aid for Scientific Research that is accepted by the Ministry of Education, Culture, Sports, Science and Technology or the Japan Society for the Promotion of Science because they have passed kinds of RCR training will be considered as qualified by writing their "Kakenhi" Researcher Code, and those who have acquired a research fund which qualifies only those who have finished PCR training will be considered as qualified by presenting the proof. If the confirmation is not possible within three months of the start of the joint research period, the joint researchers must be deleted from the list.

(7) 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.

(8) 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).

(9) Others

A) Personal information provided in the proposal shall only be used for screening research projects and providing system access.

B) After the acceptance of a research project, however, the project name and the name and affiliation of the Project Representative will be disclosed.

C) After the acceptance of a research project, changes cannot be made to the JHPCN member institutions you desire to work with or the computers you will use.

D) 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 about application, etc.)

- For inquiries about application

Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures Office

E-mail address: jhpcn.adm@gs.mail.u-tokyo.ac.jp

- 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 institution, please feel free to directly contact the following.

JHPCN member institutions	e-mail address
Information Initiative Center, Hokkaido University	kyodo@oicte.hokudai.ac.jp
Cyberscience Center, Tohoku University	joint_research@cc.tohoku.ac.jp
Information Technology Center, The University of Tokyo	jhpcn.adm@gs.mail.u-tokyo.ac.jp
Global Scientific Information and Computing Center, Tokyo Institute of Technology	jhpcn-kyoten@gsic.titech.ac.jp
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
Cybermedia Center, Osaka University	system@cmc.osaka-u.ac.jp
Research Institute for Information Technology, Kyushu University	zenkoku-kyodo@iii.kyushu-u.ac.jp
mdx (Comanagement in which all the member institutions participate)	mdx-help@mdx.jp

12. Additional Explanation on How to Get Confirmation of Institutional

Heads

2, New flow
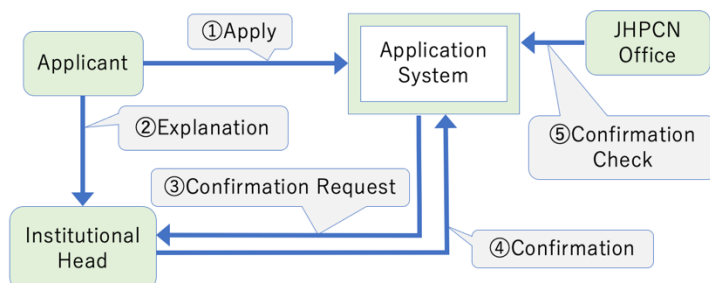
①Applicant applies on the application system.

②Applicant explains his/her project to his/her institutional head and ask him/her to respond to a confirmation request described in ③ after the application is done.

③The request to confirm the project proposed is sent to each institutional head by email, and a notice of the request to the Project Representative, the Deputy Representative and the researcher in charge of administrative procedure.

④The institutional head confirms the projects. When confirmation is done, a notice is sent to the Project Representative, the Deputy Representative and the researcher in charge of administrative procedure.

⑤The JHPCN office makes sure that the projects have got confirmed.

Appendix 1: List of the research resources available at the JHPCN member institutions for the Joint Research Project

- The research resources that can be directly connected via SINET5 L2VPN provided by National Institute of Informatics are annotated as "L2VPN ready."
- In filling in the section for the plan of resource usage of application forms, please consult the JHPCN about whether the quantity of resources you desire to use is acceptable and confirm it if needed.

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 system")

JHPCN Institution	Computational Resources, Type of Use (The underline parts are resource names)
Information Initiative Center, Hokkaido University	[Basic service charge according to the number of users] General: 12,960 JPY Students: 2,160 JPY 1. Supercomputer Grand Chariot (Subsystem A) [Hardware resources] 　(Max 8 node years per 1 project, Storage: Max 30TB, 3TB unit (common to system A and B)) 　1,004 nodes, 40,160 physical cores, Total main memory capacity 386TB, 3.1 PFLOPS 　(Shared with general user) [Resource usage fee calculation formula] For details, please see Application Form 1. [Software resources] 　Compilers: Intel Compiler (Fortran/C/C++), GNU Compiler, Java, Python 　Libraries: ARPACK, EigenExa, FFTW, HDF5, Intel MKL, Intel MPI, NetCDF, OpenCV, PETSc, PLASMA, SALS, SLEPc, SuperLU, PARPACK, Trilinos, z-Pares 　Application software : ABINIT-MP, BLAST, Chainer, FrontFlow/blue, FrontFlow/red, FrontISTR, GAMESS, Gaussian, GENESIS, Gfarm, Ghostscript, GIMP, Globus Toolkit, Gnuplot, GROMACS, HΦ, Intel Vtune

Amplifier, Meep, MODYLAS, NAMD, NTChem, OpenFOAM, OpenMX, ParaView, PHASE, PHASE/0, R, SALMON, SMASH, TensorFlow, VisIT, WRF, Xcrypt, Arm DDT, V-FaSTAR, MyPresto, Caffe, Intel DAAL

2. Supercomputer Polaire (Subsystem B)

[Hardware resources]

(Max. 9 node years per 1 project, Storage: Max 30TB, 3TB unit (common to system A and B))
About 288 nodes, 19,584 physical cores, Total main memory capacity 28TB, 877TFLOPS
(Shared with general user)

[Resource usage fee calculation formula]
For details, please see Application Form 1.

[Software resources]

Compilers: Intel Compiler (Fortran/C/C++), GNU Compiler, Java, Python
Libraries: ARPACK, EigenExa, FFTW, HDF5, Intel MKL, Intel MPI, NetCDF, OpenCV, PETSc, PLASMA, SALS, SLEPc, SuperLU, PARPACK, Trilinos, z-Pares
Application software: @ABINIT-MP, BLAST, Chainer, FrontFlow/red, GAMESS, Gfarm, Ghostscript, GIMP, Globus Toolkit, Gnuplot, GROMACS, Intel Vtune Amplifier, Meep, NAMD, OpenFOAM, ParaView, PHASE, R, TensorFlow, VisIT, WRF, Xcrypt, Arm DDT, MyPresto, Caffe, Intel DAAL

3. Inter Cloud System
[Hardware resources]

1) Physical server
5 nodes (Core:20x2, Memory:256GB, DISK:2TB)
Additional storage (per 1TB possible to add)
2) Intercloud package
1 set (Physical servers each of which is installed at Hokkaido University, University of Tokyo, Osaka University, and Kyushu University, connected via SINET VPN)
3) Virtual server
8 nodes (Core:10 Memory:60GB, DISK:500GB)
Additional storage (per 1TB possible to add)
[Resource usage fee calculation formula]

	For details, please see Application Form 1. **[Usage]** L2VPN Ready (negotiable)
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-C and AOBA-S(temporary name) are separate 1. Supercomputer AOBA Subsystem AOBA-A(72nodes) (2023.04-2024.03) **[Hardware resources]** About 1.48PFLOPS(DP), Main memory 45TB, Maximum number of nodes 32, Shared use [Resource usage fee calculation formula] CPU:1NH = 125 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 2. Supercomputer AOBA Subsystem AOBA-B(68nodes) (2023.04-2024.03) **[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, VASP, Quantum ESPRESSO, OpenFOAM, GROMACS, LAMMPS, ABINIT-MP, PHASE/0, GENESIS, MODYLAS, NTChem, SALMON, HΦ, OpenMX, SMASH, mVMC, ALAMODE, Phonopy, AkaiKKR, FrontFlow/blue, FrontISTR Container virtualization: Singularity(Docker image supported) 3. Supercomputer AOBA Cloudservice AOBA-C(106nodes) (2023.04-2023.06) **[Hardware resources]** About 2.39PFLOPS(DP), Main memory 66.25TB, Maximum number of nodes 64, Shared use [Resource usage fee] CPU:1NH = 125 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

	4. Supercomputer AOBA Subsystem AOBA-S(temporary name) (504nodes) (2023.08-2024.03) **[Hardware resources]** About 21.05PFLOPS(DP), Main memory 504TB, Shared use **[**Resource usage fee**]** CPU:1NH = TBD in late November, 2022 Strage:1TB・year = TBD in late November, 2022 **[Software resources]** Compilers : Fortran Compiler, C/C++ Compiler Libraries : NEC MPI, NEC Numeric Library Collection(including BLAS, FFTW, LAPACK, ScaLAPACK) , Ftrace Viewer, PROGINF/FTRACE
Information Technology Center, the University of Tokyo	TBD in late November, 2022

Global Scientific Information and Computing Center, Tokyo Institute of Technology	1. Cloudy, Big-Data and Green Supercomputer "TSUBAME3.0"
	 [Hardware resources]
	 TSUBAME3.0 system includes 540 compute nodes, which provides 12.15PF performance (CPU 15,120 cores, 0.70PF + GPU 2,160 slots, 11.45PF) in total. Maximum system available at a time is 50% of full-system. (Shared use)
	
	 [Conversion formulas of resources into fees]
	 Please apply *quarterly* for computing resources and *monthly* for storage.
	 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 TSUBAME3.0.
	
	 Computing resources: 1000NH = 1 Unit = 110,000 JPY
	     * Maximum computing resources per 1 project in 4th quarter: 4,000NH (= 440,000 JPY)
	 Storage: 1TB Month = 0.01 Unit = 1,100 JPY
	     * Maximum storage per 1 project: 300TB (= 3Unit/Month = 330,000 JPY/Month)
	
	 [Software resources]
	 OS: SUSE Linux Enterprise Server

	Language Compiler: Intel Compiler (C/C++/Fortran), PGI Compiler (C/C++/Fortran, OpenACC, CUDA Fortran), NVIDIA HPC SDK, Arm FORGE, GNU C, GNU Fortran, CUDA, Python, Java SDK, R Libraries: OpenMP, MPI (Intel MPI, OpenMPI, SGI MPT), BLAS, LAPACK, CuDNN, NCCL, PETSc, fftw, PAPI Linux container: Docker (Available images: sles12sp2-latest, centos7-latest), Singularity

Information Technology Center, Nagoya University	1. <u>Supercomputer "Flow" Type I subsystem FX1000</u>
	[Hardware resources]
	7.782 PFLOPS (2,304 nodes, 110,592 cores (+4,800 assistant cores), 72TiB memory)
	
	[Conversion formulas of resources into fees]
	CPU: 1NH = 31 JPY
	Hot Storage: TB x year= 4,900 JPY
	
	[Software resources]
	OS: Red Hat Enterprise Linux 8
	Development Environment: Fujitsu Technical Computing Suite
	Libraries: BLAS, LAPACK, ScaLAPACK, FFTW, SuperLU, SuperLU M, SuperLU DIST, METIS, MT-METIS, ParMETIS, Scotch, PT-Scotch, PETSc, MUMPUS, Xabclib, ppOpen-APPL, ppOpen-AT, ppOpen-MATH, LINSYS_V, DHPMM_F
	Application software: NetCDF, Parallel netCDF, HDF5, JHPCN-DF, OpenCV, Geant4, Caffe, Chainer, Keras, PyTorch, TensorFlow, Theano, Mxnet, ONNX, conda, Numpy, Scipy, scikit-image, pillow, matplotlib, jupyterlab, OpenFOAM, FrontISTR, AMBER, Gaussian, Gromacs, LAMMPS, NAMD, Modylas
	
	2. <u>Supercomputer "Flow" Type II subsystem CX2570</u>
	[Hardware resources]
	7.489 PFLOPS (221 nodes, 8,840 CPU cores+2,263,040 FP64 GPU cores)
	
	[Conversion formulas of resources into fees]
	CPU: 1NH = 154 JPY
	Hot Storage: TB x year= 4,900 JPY
	
	[Software resources]
	OS: CentOS 7.7
	Development Environment, Libraries: Intel Compiler, PGI Compiler, Arm Forge Proffesional, NVIDIA CUDA SDK, Singularity, FFTW, SuperLU, SuperLU MT, SuperLU DIST, METIS, MT-METIS, ParMETIS, Scotch, PT-Scotch, PETSc, MUMPUS, Xabclib, ppOpen-APPL, ppOpen-AT, ppOpen-MATH, LINSYS_V, DHPMM_F
	Application software: NetCDF, Parallel netCDF, HDF5, JHPCN-DF, OpenCV, Geant4, Caffe, Chainer, Keras, PyTorch, TensorFlow, Alphafold, Theano, Mxnet, ONNX, Conda, Numpy, Scipy, scikit-image, pillow, matplotlib, jupyterlab, OpenFOAM, LS-Dyna, FrontISTR, AMBER, Gaussian, Gamess, Gromacs, LAMMPS, NAMD, Modylas, HyperWorks
	
	● Maximum resource allocation amount per issue
	  ➤ Type I : 96,000 NH
	  ➤ Type II: 19,400 NH
	  ➤ Hot Storage: 600 TB x year
	  ➤ Login node Occupied: 1 unit x year
	  ➤ Visualization System: 1 set x year
	
	All resources are shared with general users.

Academic	1. <u>Camphor3 (Intel Xeon)</u>

Center for Computing and Media Studies, Kyoto University	**[Hardware resources]** 　① Year-round use 96 nodes, 10,752 cores, 498.24 TFLOPS x 6 months (From Early October, 2023 to the end of March 2023, maximum 32 nodes per project x 6 months) 　② Intensive use 96 nodes, 10,752 cores, 498.24 TFLOPS x 8 weeks (maximum 96 nodes per project x 4 weeks) 　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). **[Conversion formulas of resources into fees]** 　　　1　1NH = 34.7 JPY 　　2　1NH = 89.2 JPY 　　3　10 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
Cybermedia Center, Osaka University	TBD in late November, 2022
Research Institute for Information Technology, Kyushu University	1.　ITO Subsystem A (Fujitsu PRIMERGY) [Until February 2024] **[Hardware Resources]** 　1.1　(Fixed-node) The maximum resources allocated for 1 project are 32 nodes for a year. Most of resources are dedicated to the project. 　　32 nodes (1,152 cores), 110.59 TFLOPS 　1.2　(Shared-use) Up to 64 nodes can be used at the same time per project. It is shared with general users. 　　64 nodes (2,304 cores), 221.18 TFLOPS **[Conversion formulas of resources into fees]** 　1.1　32 nodes month = 192,000 JPY 　1.2　64 nodes month (≒5000NH per month) = 48,000 JPY **[Software Resources]** 　Compilers: Intel Cluster Studio XE(Fortran, C, C++), Fujitsu Compiler 　2.　ITO Subsystem B (Fujitsu PRIMERGY) [Until February 2023] **[Hardware Resources]** 　(Fixed-node) The maximum resources allocated for 1 project are 16 nodes for 10 months. Most of resources are dedicated to the project. 　16 nodes (576 cores), CPU 42.39TFLOPS + GPU 339.2TFLOPS, including SSD **[Conversion formulas of resources into fees]** 　16 nodes month = 272,000 JPY **[Software Resources]** 　Compilers: Intel Cluster Studio XE (Fortran, C, C++), Fujitsu Compiler, CUDA

23

[Software Resources]
  Compilers: Intel Cluster Studio XE (Fortran, C, C++), CUDA

Storages per project: 10 TB, (possible to add Max 100TB)
[Conversion formulas of resources into fees]
  10 TB month = 350 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.
"Shared-use" and "Fixed-node" can not apply together.

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

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

JHPCN Institution	Computational Resources, Type of Use (The underline parts are resource names)	Estimated number of Projects accepted
mdx	TBD in late November, 2022	
Information Initiative Center, Hokkaido University	1. **Large-format printer** [Hardware resources] Large-format printer **[Software resources]**	12
Cyberscience Center, Tohoku University	1. **Large-format printer** **[Hardware resources]** Large-format printer **[Software resources]** **[Usage]**	10
Information Technology Center, The University of Tokyo	TBD in late November, 2022	
Global Scientific Information and Computing Center, Tokyo Institute of Technology	1. **Remote GUI environment:** **[Hardware resources]** The VDI (Virtual Desktop Infrastructure) system If you are planning to use the VDI system, please contact us in advance. **[Software resources]** **[Usage]**	
Information Technology Center, Nagoya University	1. Login node **[Hardware Resources]** A login node dedicated to Type I subsystems or Type II subsystems. It can be connected from off-campus via L2VPN and can be used exclusively. Individual connection and settings are required for use, so please contact us in advance. https://icts.nagoya-u.ac.jp/ja/sc/overview.html#login **[Usage]** L2VPN Ready **[Conversion formulas of resources into fees]** Login node Occupied: unit x year= 570,000 JPY 2. Visualization system **[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]** L2VPN Ready **[Conversion formulas of resources into fees]** Visualization System: set x year= 20,000 JPY	
Academic Center for Computing and Media Studies, Kyoto University	1. **Virtual Server Hosting** **[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 = 39,000 JPY Resource increase: ① CPU 2 cores = 4,500 JPY ② Memory 4GB = 4,500 JPY ③ Disk 100GB = 7,500 JPY **[Software resources]** Hypervisor: VMware OS: CentOS7 (AlmaLinux8 is negotiable) **[Usage]** SINET L2VPN is available	
Cybermedia Center, Osaka University	TBD in late November, 2022	
Research Institute for Information Technology, Kyushu University	1. **Tiled Display Wall system** **[Hardware resources]** ・Tiled Display Walls system consists of 4K Monitor x 12 displays（4 x 3） ・Panel Driver PC x 4 ・Server PC x 1 **[Software resources]** The ChOWDER System* for Tiled Display Walls system * https://github.com/SIPupstreamDesign/ChOWDER **[Usage]** L2VPN Ready	

Appendix 2: Outline of mdx and possible examples of
"Research projects using both large-scale data and large capacity networks"

mdx:

### Information Initiative Center, Hokkaido University

   High performance virtual private cloud systems (isolated system for research project) can be deployed using physical and virtual machines in the intercloud system. Also, nation-wide scale distributed systems can be easily deployed by using the intercloud packages.

Available resources
Supercomputer system, Intercloud system (c.f. Attachment 1.)

How to use
Dedicated systems can be developed for the collaborative research projects employing physical and virtual machines as dedicated virtual private clouds. Distributed systems can also be developed by using intercloud packages consisting of physical servers in Hokkaido University, University of Tokyo, Osaka University and Kyushu University connected by SINET L2VPN. The users can access the systems not only via ssh/scp but also with virtual console, which provided by Cloud Middleware, through web browsers and with RESTful web service APIs.
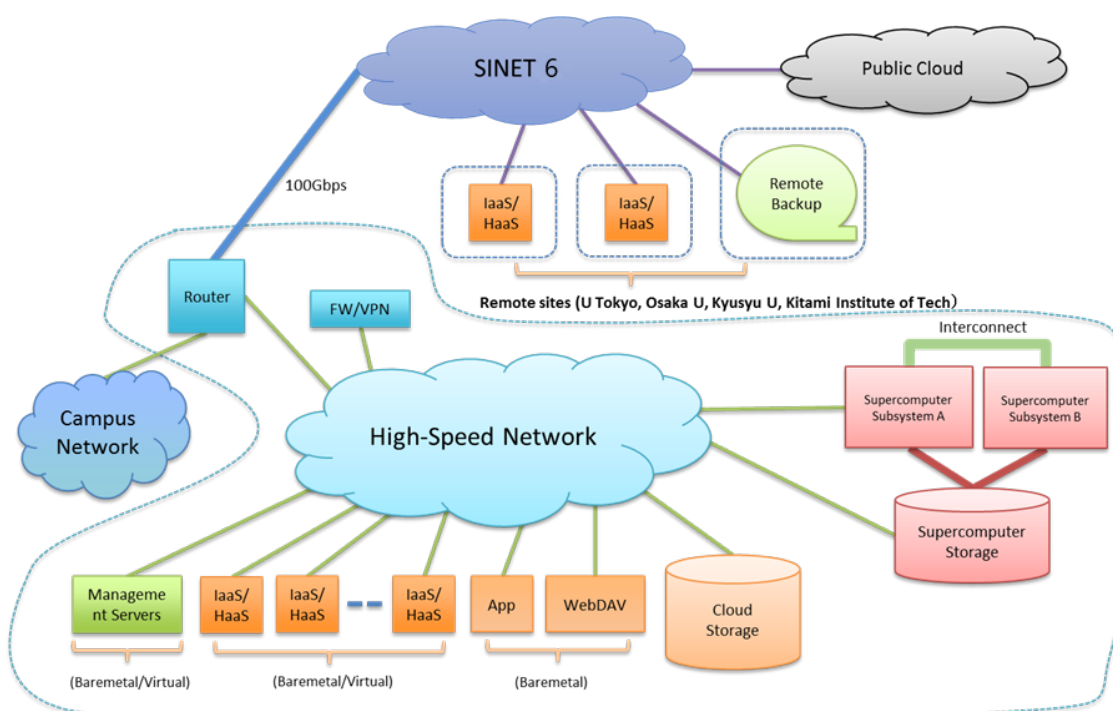
Overview of "Hokkaido University High-performance Intercloud"

Email address for inquiring about resource usage and joint research
  kyodo@oicte.hokudai.ac.jp

Details of anticipated projects
- Experiment data analysis platform in the intercloud environment: constructing a data store, analysis, and sharing infrastructure employing virtual/real machines and storages of the intercloud system of Hokkaido University connected to computational resources of the other universities via SINET L2VPN.
- Building nation-wide large-scale distributed systems over the SINET6 ultra high speed network: their performance evaluations using real intercloud environment. We are planning to collaborate with mobile networks using SINET wide-area data collection environment.
- Development of a large-scale pre/post-processing environment federating supercomputers and intercloud systems: developing a large-scale distributed processing environment such as performing analysis of big data generated by supercomputers using Hadoop clusters to visualize at the other universities' remote systems.
- An always-on platform to support network-oriented research projects: development of a nation-wide distributed high-speed networking platform employing the cloud system / data science cloud system of Hokkaido University and private clouds of the other universities connected via SINET6 L2VPN.

ng/migrating required software to our system. (Please contact us in advance.)

How to use

Supercomputers (AOBA-A, AOBA-B, AOBA-C, AOBA-S(temporary name))

  log in to the compute nodes using ssh

  transfer files to the node using the scp / sftp

Network

  Possible to build L2VPN on SINET6

Storage

  Possible to use remote mount by NFS through L2VPN

**Email address for inquiring about resource usage and joint research**
  joint_research@cc.tohoku.ac.jp

Details of anticipated projects (in Japanese)
  http://www.ss.cc.tohoku.ac.jp/jhpcn_network/

Cyberscience Center, Tohoku University

Cyberscience Center provides vector parallel and scalar parallel supercomputers, a distributed data sharing environment through on-demand L2VPN. These environments allow users to share and analyze vast amounts of observed data obtained by sensors or IoT devices. We strongly invite proposals that try to exploit the potential of these environments. For example, joint research regarding the real-time analytics using supercomputers, and storage/network architectures for a large-scale distributed data sharing.
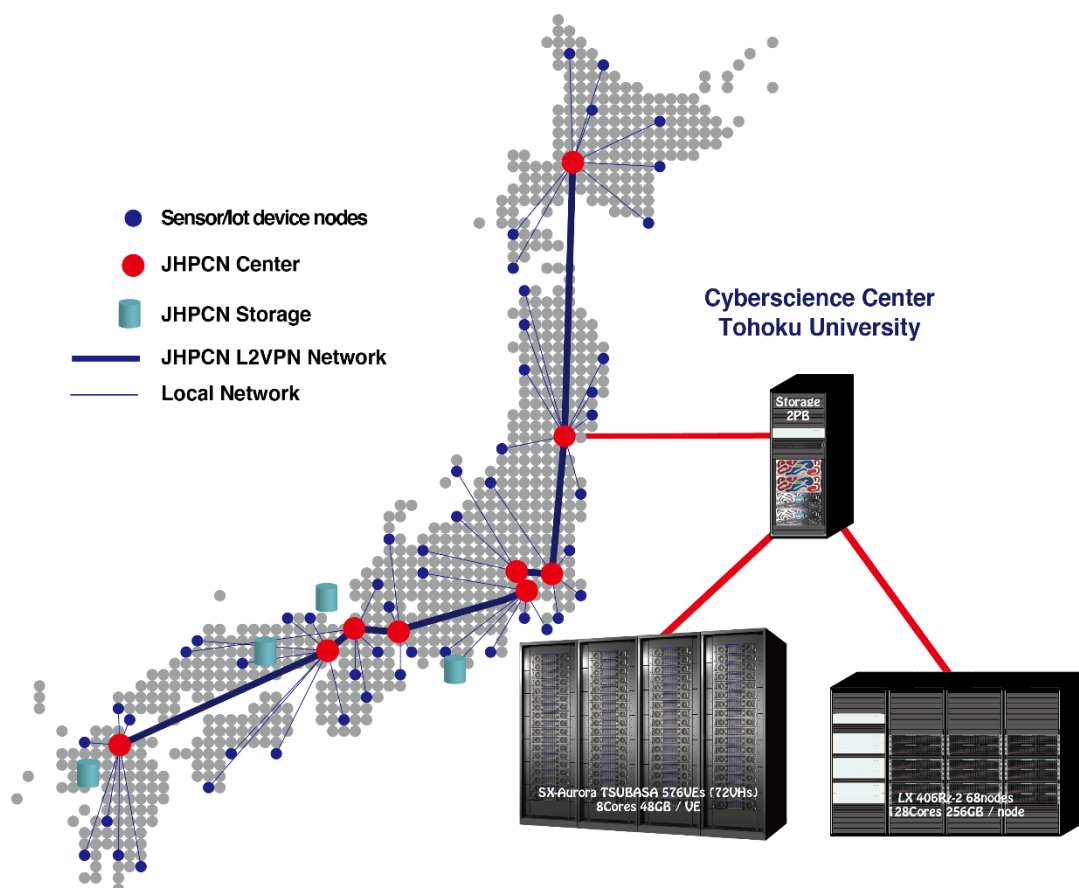
Available resources

[Hardware resources]

Storage (100TB / project)

Supercomputer AOBA

On-demand L2VPN

[Software resources]

OS : Rocky Linux, RedHat Linux

Programing languages :

AOBA-A, AOBA-C,AOBA-S(temporary name) : Fortran, C, C++

AOBA-B : Fortran, C, C++, Ruby, Python, java, etc.

Application software :

Basic applications provided by Cyberscinece Center and original codes developed by users. We also support installing/migrating required software to our system. (Please contact us in advance.)

How to use

Supercomputers (AOBA-A, AOBA-B, AOBA-C, AOBA-S(temporary name))

log in to the compute nodes using ssh

transfer files to the node using the scp / sftp

Network

Possible to build L2VPN on SINET6

Storage

Possible to use remote mount by NFS through L2VPN

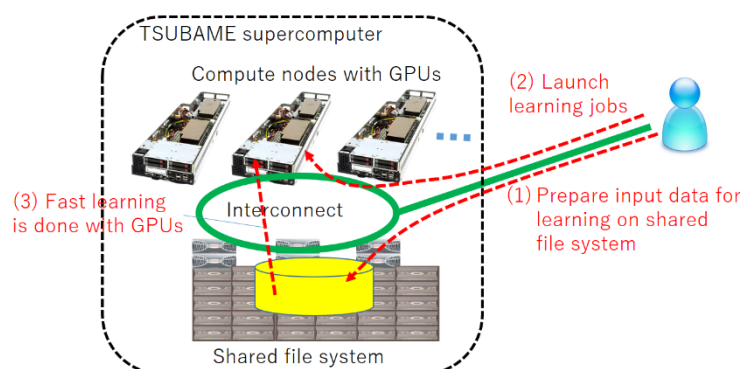### Email address for inquiring about resource usage and joint research

joint_research@cc.tohoku.ac.jp

Details of anticipated projects (in Japanese)

http://www.ss.cc.tohoku.ac.jp/jhpcn_network/

GSIC, Tokyo Institute of Technology

Machine learning jobs, especially in deep learning which recently attracts great attention, require both storage resources for storing large scale I/O data and high performance computation resources. For these jobs, we provide environment for large-scale high-performance machine learning by using lots of GPUs (>2,000 in the whole system) and large storage (up to 300TB per user group) equipped by the TSUBAME3.0 supercomputer. By using pre-installed frameworks that harnesses GPUs, acceleration of research projects of large scale machine learning is expected.

Available Resources

[Hardware resources]

Refer to description of TSUBAME3.0 in Appendix 1. Especially, 4 Tesla P100 GPUs per node are available.

[Software resources]

Refer to description of TSUBAME3.0 in Appendix 1. The followings are highly related items to this page:

- OS: SUSE Linux Enterprise Server
- Programming Languages: Python, Java SDK, R

Application software: Caffe, Chainer, TensorFlow

How to use

TSUBAME3.0

Same as regular usage.

Email address for inquiring about resource usage and joint research

jhpcn-kyoten@gsic.titech.ac.jp

Details of anticipated projects

http://www.gsic.titech.ac.jp/en/jhpcn/dl-en

Information Technology Center, Nagoya University

We provide Hotstorage system and visualization system of Supercomputer "Flow" for very large scale data processing research field. Type III subsystem of "Flow" is available for visual processing. Type III subsystem consists of interactive (visualization) node connected to visualization system and batch node. Each node has 24 TB large scale shared memory and

connected to Hotstorage system like as other subsystems. Additionally, interactive node equips 100TB NVMe SSD. Type III subsystem is also suitable for visualization of the calculation result of Type I and Type II subsystems. It is not assumed to calculate large scale computation on Type III subsystem.

We provide up to 40GBASE network connection for very large bandwidth network technology research field. You can use login node of Supercomputer "Flow" and create very large bandwidth network experiment environment by creating L2 flat network via SINET L2VPN for external university and internal university VLAN.
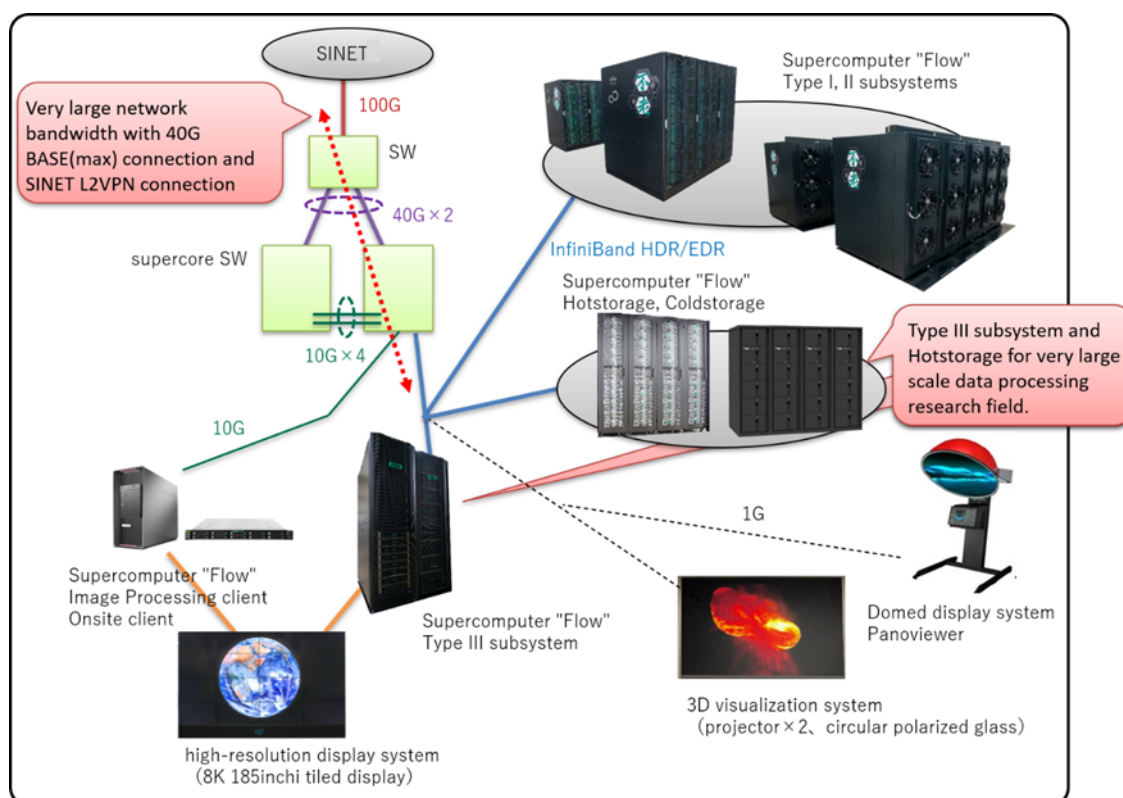
Available Resources

《Hardware resources》

1. Supercomputer "Flow" Type III subsystem: HPE Superdome Flex (Intel Xeon Platinum 8280M 28 cores x 16 sockets, 24TiB shared memory, NVIDIA Quadro RTX6000x4, 500TB external local storage) x 2 nodes, Interactive node equips 104TB NVMe SSD

2. Visualization subsystem: high-resolution display system (185inch 8K tiled display), 180inch 3D visualization system, Domed display system, Image Processing client and Onsite client of Supercomputer "Flow"

3. Network connection up to 40GBASE (with internal university VLAN and SINET L2VPN configuration)

《Software resources》

1. Supercomputer "Flow" Type III subsystem

【OS】Red Hat Enterprise Linux 7.7

【Development Environment】Intel Parallel Studio XE 2019, CUDA 10.2, etc.

【Application software】OpenFOAM, FrontFlow blue/red, FrontISTR, Pointwise, NICE DCV, FieldView, AVS/Express, Paraview, POV-Ray, VMD, 3D AVS Player, ffmpeg, ffplay, IDL, ENVI , etc.

2. Visualization system

【Visualization software】NICE DCV, FieldView, AVS/Express, Paraview, POV-Ray, VMD, 3D AVS Player, ffmpeg, ffplay, IDL, ENVI, etc.

How to use

- Remote login with ssh through login node.
- File transfer with scp / sftp through login node.

**Email address for inquiring about resource usage and joint research**

kyodo@itc.nagoya-u.ac.jp

- **Details of anticipated projects**

https://www.icts.nagoya-u.ac.jp/en/center/jhpcn/suppl/

Academic Center for Computing and Media Studies, Kyoto University

We will provide the infrastructure for collecting large scale data from laboratory equipment and observation equipment possessed by researchers via large capacity network or internet such as Kyoto University internal LAN (KUINS) or SINET5 L2VPN for 24 hours a day, 365 days and analyzing them with a supercomputer system in real time or periodically then offering information of the results on the Web.
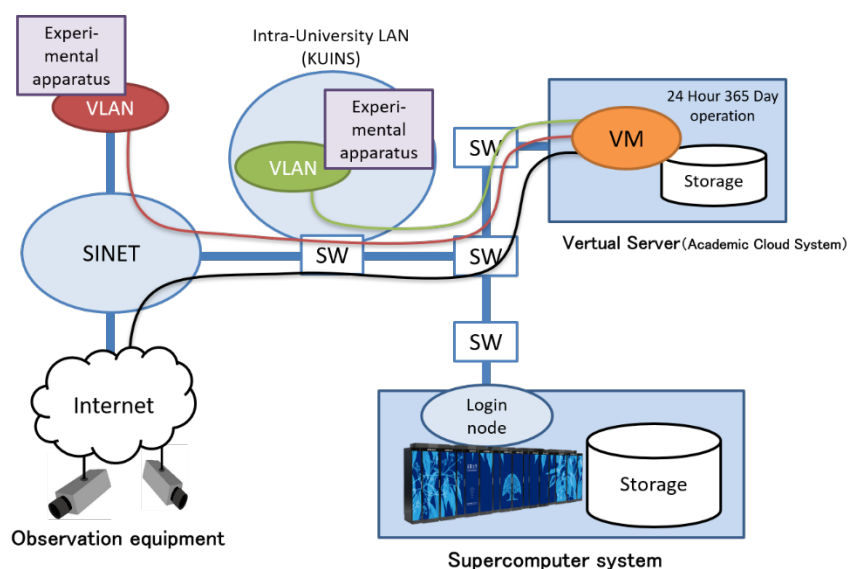
Available resources

[Hardware resources]

- Supercomputer system (From early October 2023)

    Camphor3 (Intel Xeon). Maximum 32 nodes per project x 6 months

    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).

- Academic Cloud System Virtual Server Hosting

    Virtualized environment: VMware

    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

[Software resources]

- Supercomputer system (From early October 2023)

    OS: Red Hat Enterprise Linux 8

    Compilers: Intel oneAPI (Fortran, C/C++, OpenMP)

    Libraries: Intel oneAPI MKL (BLAS, LAPACK, ScaLAPACK)

    Application software: Gaussian16, GaussView

- Academic Research Cloud System Virtual Server Hosting

    Standard OS: CentOS7 (AlmaLinux8 is negotiable)

How to use

- Supercomputer system

    Login with SSH (Key authentication)

- Academic Research Cloud System Virtual Server Hosting

    Login with SSH (Granting Root authority)

    Access by various service port such as HTTP (80/TCP) or HTTPS (443/TCP)

    Multiple virtual domains are available

    SINET5 L2VPN can be housed directly in VM

Email address for inquiring about resource usage and joint research

    kyoten-8gm@media.kyoto-u.ac.jp

Research Institute for Information Technology, Kyushu University

We provide a remote visualization and data analytic infrastructure that researchers can use from remote sites. The provided system allows us to process generated large-scale data without moving, thus efficient processing is possible. Besides, if available, L2VPN enables the combined usage of resources between end users and bases. The provided resources are assumed to be used for research subjects that visualize and analyze large-scale parallel simulation and/or observation data. Available user scenarios are batch mode (use the back-end nodes), interactive mode (use the front-end nodes), and in-situ mode (use both the front-end and the back-end nodes simultaneously).

If the data you generated does not correspond to the data format of the provided software or the supplied system does not have the analysis function you want, consultation is available.
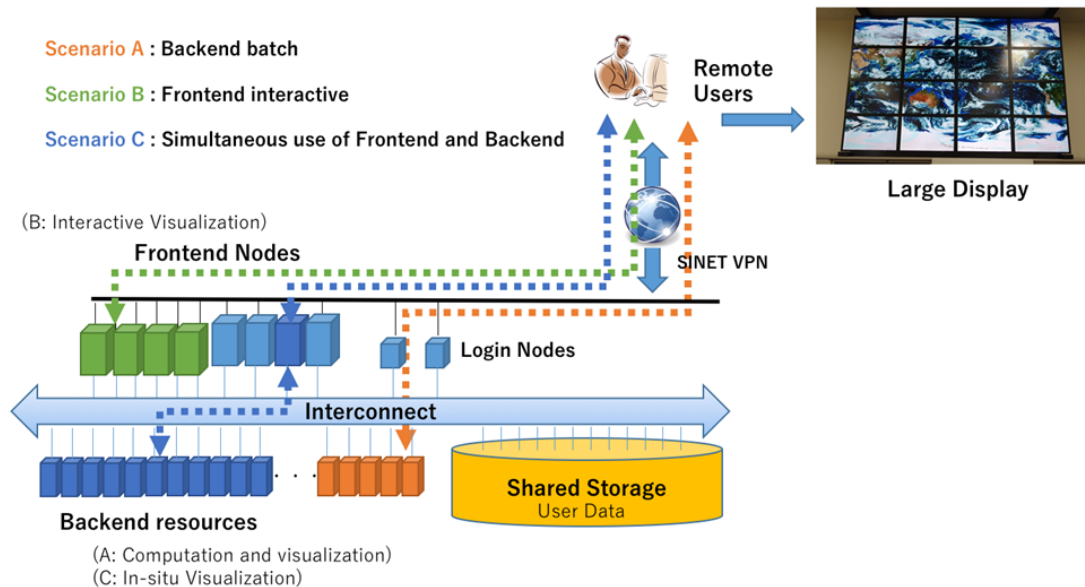
Available resources

Hardware resources

ITO Subsystem A, ITO Subsystem B, Standard Frontend (c.f. Appendix 1.)

Software resources

OS: Linux

Programming languages: Python, R

Application software: Tensor Flow, OpenFOAM, HIVE(Visualization)

How to use

Batch environment

- Direct login is possible to the node using ssh via the network.

- File transfer is possible to/from the node using scp/sftp via the network.

- Conventional batch usage.

Interactive environment

- Login is possible to the front-end node using ssh.

- Real-time parallel visualization and data analysis are performed using visualization application that runs on the front-end. In the situation where a job is running on the back-end node, it provides an interactive visualization environment through the file information between the back-end and the front-end. The interactive rate is assumed to be on the order of several to 0.1 fps depending on the communication bandwidth and the amount of transferred data.

Email address for inquiring about resource usage and joint research

zenkoku-kyodo@iii.kyushu-u.ac.jp

Details of anticipated projects

https://www.cc.kyushu-u.ac.jp/scp/service/jhpcn/jhpcn.html (in Japanese)