

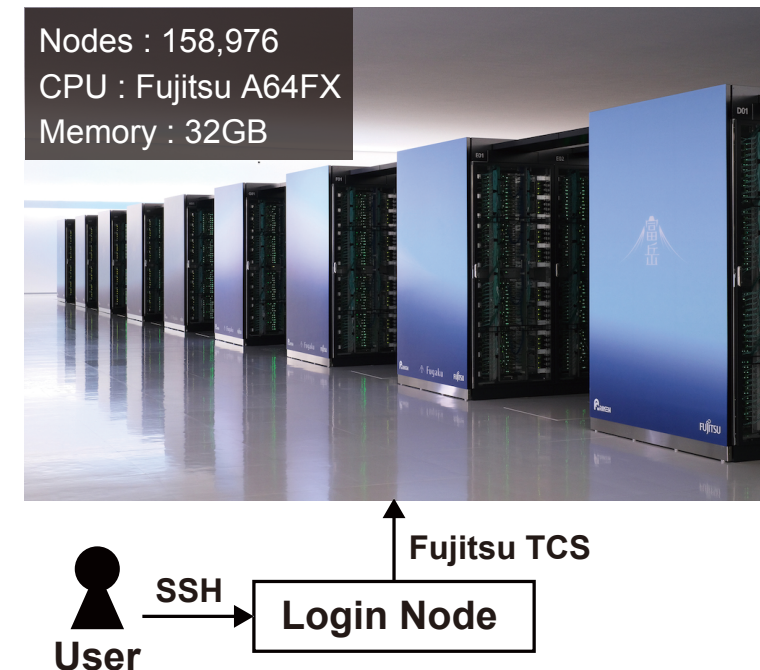


# Open OnDemand on Fugaku

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# The supercomputer Fugaku

- RIKEN Center for Computational Science has operated Fugaku
- The conventional method of using Fugaku is to enter the login node via SSH and submit a job through the job scheduler (Fujitsu TCS)
- The issue with HPC clusters such as Fugaku is that there is a lot of prerequisite knowledge for using HPC clusters, so the learning cost is high for beginners
  - Generate SSH key pair and register public key
  - Command line interface
  - Job scheduler



# Open OnDemand on Fugaku

- Open OnDemand empowers researchers with remote web access to HPC clusters
  - Run entirely in your web browser
  - Support interactive applications (e.g. remote desktop)
- We have customized Fugaku Open OnDemand
  - Support Fujitsu TCS
- Top page to display useful information for users
  - Operational information/calendar
  - Job congestion (from grafana)
  - User resource usage
- Install about 50 applications
- Develop applications for external storages in Japan

Fugaku OnDemand Batch Jobs Interactive Apps Passenger Apps My Sessions [Develop](#) [Help](#) Logged in as a03011 [Log Out](#)

Welcome to the supercomputer Fugaku

RIKEN R-CCS Center for Computational Science

**Link**

- OnDemand Manual
- Fugaku Portal
- Fugaku Schedule
- Fugaku Status
- Fugaku Support

**Message of the day**

**Information**

- July 24, 2023 Operation July 2023 Large-scale job execution period
- July 21, 2023 Operation Resource groups during the large scale job execution period
- July 19, 2023 Operation Occurrence of inaccessibility and poor response at login nodes and jobs due to a file system maintenance(vol0005)

**Pending jobs**

|                       |                     |                       |                   |
|-----------------------|---------------------|-----------------------|-------------------|
| fugaku-small<br>17867 | fugaku-large<br>915 | prepost-gpu1<br>12    | prepost-gpu2<br>0 |
| prepost-mem1<br>22    | prepost-mem2<br>3   | prepost-ondemand<br>0 |                   |

**Accounting** (Updated at 2023/07/25 02:32:10 (JST))

| Group    | Volume   | Disk (oib) |         |         |      | Disk (inode) |             |            |      | Resource (NH) |        |         |      |
|----------|----------|------------|---------|---------|------|--------------|-------------|------------|------|---------------|--------|---------|------|
|          |          | Limit      | Usage   | Avail.  | Rate | Limit        | Usage       | Avail.     | Rate | Limit         | Usage  | Avail.  | Rate |
| rcs-aot  | /vol0400 | 5,120      | 608     | 4,512   | 1%   | 1,500,000    | 265,259     | 1,234,741  | 17%  | 527,360       | 81,666 | 445,693 | 15%  |
| f-op     | /vol0403 | 614,400    | 160,260 | 454,140 | 26%  | 180,000,000  | 144,261,340 | 35,738,660 | 80%  | -             | -      | -       | -    |
| ra030002 | /vol0403 | 5,120      | 1       | 5,119   | 0%   | 1,500,000    | 2           | 1,499,998  | 0%   | -             | -      | -       | -    |
| /home    | /vol0400 | 20         | 5       | 15      | 25%  | 200,000      | 11,619      | 188,381    | 5%   | -             | -      | -       | -    |

**Recently Used Apps**

- Desktop
- OpenFOAM
- SCALE
- Jupyter

**Passenger Apps**

- Active Jobs
- Home Directory
- Gakurin RDM
- HPCI Storage
- Job Composer
- Fugaku Shell Access

# Installed applications

- Interactive application

July 31, 2023

| Category    | Application  |
|-------------|--|
| Development | Desktop, Jupyter, MATLAB*, RStudio, VSCode   |
| Profiler    | NVIDIA Visual Profiler*, NVIDIA Nsight Compute*, NVIDIA Nsight Systems*, Vampir*                                       |
| Viewer      | AVS/Express*, C-Tools, GaussView*, ImageJ, OVITO, Paraview, PyMOL, SALMON view, Smokeview, VESTA, VMD, VisIt, XCrySDen |
| Workflow    | WHEEL  |

\* commercial application

- Batch application

| Category                   | Application   |
|----------------------------|---|
| Climate                    | SCALE   |
| Computer Aided Engineering | FDS, FrontFlow (blue/X), FrontISTR, OpenFOAM (Foundation/OpenCFD)     |
| Condensed Matter Physics   | ALAMODE, AkaiKKR, HΦ, mVMC, OpenMX, PHASE/0, Quantum Espresso, SALMON |
| Molecular Dynamics         | GENESIS, GROMACS, LAMMPS, MODYLAS                                     |
| Quantum Chemistry          | ABINIT-MP, Gaussian*, NTChem, SMASH                                   |
| Quantum Simulation         | braket  |

# How to use Fugaku Open OnDemand

<https://ondemand.fugaku.r-ccs.riken.jp>

Welcome to the supercomputer Fugaku

Message of the day

Information

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Pending jobs

fugaku-small 17867

fugaku-large 915

prepost-gpu1 12

prepost-gpu2 0

prepost-mem1 22

prepost-mem2 3

prepost-ondemand 0

Accounting (Updated at 2023/07/25 02:32:10 (JST))

| Group    | Volume   | Disk (GiB) |         |         |      | Disk (inode) |             |            |      | Resource (NH) |        |         |      |
|----------|----------|------------|---------|---------|------|--------------|-------------|------------|------|---------------|--------|---------|------|
|          |          | Limit      | Usage   | Avail.  | Rate | Limit        | Usage       | Avail.     | Rate | Limit         | Usage  | Avail.  | Rate |
| rccs-aot | /vol0400 | 5,120      | 608     | 4,512   | 1%   | 1,500,000    | 265,259     | 1,234,741  | 1%   | 527,360       | 81,666 | 445,693 | 15%  |
| f-op     | /vol0403 | 614,400    | 160,260 | 454,140 | 25%  | 160,000,000  | 144,261,340 | 35,738,660 | 90%  | -             | -      | -       | -    |
| ra030002 | /vol0403 | 5,120      | 1       | 5,119   | 0%   | -            | -           | -          | -    | -             | -      | -       | -    |
| /home    | /vol0400 | 20         | 5       | 15      | 25%  | -            | -           | -          | -    | -             | -      | -       | -    |

Recently Used Apps

Desktop

OpenFOAM

SCALE

Jupyter

Passenger Apps

Active Jobs

Home Directory

Gakurin RDM

HPCI Storage

Job Composer

Fugaku Shell Access

Desktop

This app will launch an Xfce desktop.

Queue

fugaku-small

Group

rccs-aot

Elapsed time (1 - 72 hours)

1

Number of nodes (1 - 384)

1

Total number of processes (1 - 18,432)

1

Total number of processes <= Number of nodes x 48.

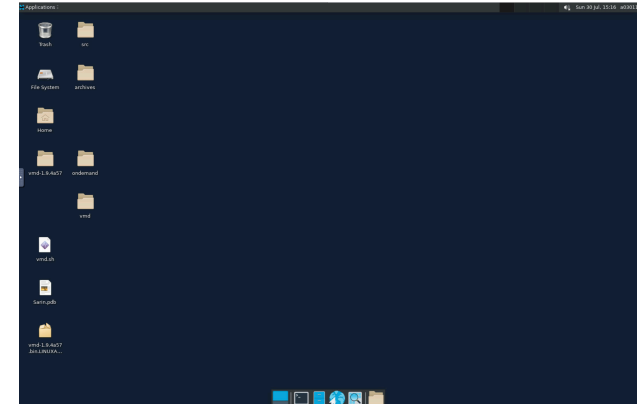
Execution mode

Normal

Please refer to the manual for details (English or Japanese).

Email (You will receive an email when it starts)

Launch



Remote Desktop runs in your web browser

Submit a job to Fugaku though Fujitsu TCS

# Transferring data to external storage

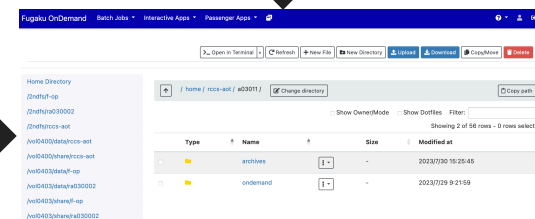
- We develop applications on Open OnDemand to share data for **HPCI Shared Storage** and **GakuNin RDM**
  - **HPCI Shared Storage** is a large-scale data sharing infrastructure for high-speed and secure sharing of research data among Japanese research organizations
  - **GakuNin RDM** is a research data management service for sharing research data with collaborators in Japan
- Users can share data between Fugaku and these storages in your web browser



**HPCI Shared Storage**



GakuNin RDM



Fugaku Open OnDemand

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# Demo