Supercomputer Fugaku Service Level Agreement/Service Level Objectives

Introduction

The supercomputer Fugaku is operated with the following service level objectives. Although the following service levels are not guaranteed, we make every effort to maintain the objectives through improvement.   This document has been prepared, considering the service level objectives of commercial cloud services and other HPC centers.

Availability

Time of Service Provision

For the operation of Fugaku, up to 7% of the node hours of a fiscal year (from April 1 to March 31) is saved for maintenance, such as regular maintenance, and the remaining of them is offered for services.   Even if the node hours for services does not reach 95%, the allocated computational resources are not necessarily compensated. In case of fee-based access projects (general/industrial) and fee-based trial access projects (general/industrial), however, the computational resources are, if necessary, compensated according to the amount of the allocated resources. In addition, the following cases are not eligible for compensation.

- When a user violates the rules of use or laws and ordinances, etc., and the service cannot be used.
- Service is unavailable due to the acts or omissions of users or third parties.
- In the event of failure or malfunction of facilities other than those provided by us for this service (user environment, communication paths, etc.)
- If we are unable to provide the service due to factors beyond our control (e.g., natural disasters, soaring utility costs, riots, terrorism, war, acts of government agencies and etc.)
- Other reasons not attributable to us

In addition, the total number of hours in which the number of available nodes is less than 65% of the total number of nodes is to be less than 264 hours in the fiscal year.

Planned Service Suspension

In case of the planned suspension of services, such as for maintenance, a notification will be given on the Fugaku website about two weeks in advance.

Emergency Maintenance

For security measures or if failure which may greatly influence the operation of the system occurs, emergency maintenance will be conducted.   A notification will

be given on the Fugaku website within three hours after the maintenance is started.

Support
Support Hours and the Method of Communication
Support for trouble, maintenance, inquiry, etc. is offered from 9:00 till 17:00 weekdays.　The request for support is accepted through web form (email will be available for a while).
* The support hours exclude the year-end and New Year holidays and other holidays specified by RIKEN.

System Failure
Failure Detection and Measures
The system is monitored for the detection of system failure 24 hours a day throughout the year.　Failure notification to the users and the system recovery operations are conducted within the support hours described above.

Notification
As for any failure which may influence the whole system, the notification of the situation will be given on the Fugaku website within three hours after its detection if it occurs and is detected within the support hours.　If it has occurred outside the support hours, the notification of the situation will be given within three hours after the support hours start the next day.

Data
Storage of Data
The users' data is stored in storage with redundancy (RAID 6).

Backup of Data
No backup of data is provided to the users.

Deletion of Data
The data storage allocated to a project is deleted one month after the end of the project period.

Restriction of Data Access
Any user's data is stored in the data storage shared with other users, and access to the storage is restricted by the access control function of UNIX.

Computational Resources
Amount of Used Resources
The amount of computational resources used by a user is given as node hours,

which is calculated by multiplying the number of allocated nodes by the elapsed time (in hours) of the jobs.　If the job execution is terminated abnormally because of, for example node failure, the elapsed time until the termination is considered as the elapsed time.

Recovery of Resources

In principle, the computational resources used by a user is not recovered. However, we will consider recovering the computational resources if any of the following apply:
・Hardware failure response measures (e.g., checkpoints) do not work due to system problems (In principle, hardware failures are not eligible for recovery.)
・In case of system software (Technical Computing Suite) failure (Open source or RIKEN provided software is not eligible for recovery.)
・In other cases where there is no way for users to resolve or avoid the problem on their own and R-CCS deems that it is appropriate to recover the computing resources.

Priority

The job executions are scheduled on a first-come-first-served basis, according to the priority of each project in principle.

Security

Measures

"Security White Paper" is disclosed to the public for the users to understand our security measures for Fugaku and the related facilities.

Measures Against Security Vulnerability

If any vulnerability is found in the software used by the system, we apply security patches to it or take other measures, according to the countermeasure standards specified by R-CCS.

Encryption

Communication between Fugaku and the users is encrypted through SSH or HTTPS.　The stored data of any user, however, is not encrypted.