

## Project support activity using numerical simulation

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### ● Abstract

Utilize the simulation technology of Research Unit III to deal with the technical problem solving in current JAXA project, and respond to the request for the project concerning issue. In addition, it realizes “added value (efficiency improvement, high reliability, cost / period reduction, ripple effect, etc.)” unique to numerical simulation technology.

Ref. URL: <http://www.kenkai.jaxa.jp/eng/research/software/software.html>

### ● Reasons for using JSS2

In order to respond timely to project requirements, it is necessary to simulate complex geometries of actual spacecraft and to analyze a large number of conditions in a short period.

### ● Achievements of the Year

With regard to H3, SLIM, HTV-X projects, evaluation of design and risks as well as studies for improvement were carried out by making full use of the simulation technology of Research Unit III and JSS2.

### ● Publications

- Web

<http://www.kenkai.jaxa.jp/eng/research/software/software.html>

● **Usage of JSS2**

● **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	N/A
Number of Processes	100 - 400
Elapsed Time per Case	500 Hour (s)

● **Resources Used**

Fraction of Usage in Total Resources\*<sup>1</sup> (%): 0.68

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage* <sup>2</sup> (%)
SORA-MA	2,726,354.66	0.33
SORA-PP	208,142.80	1.66
SORA-LM	3,527.37	1.64
SORA-TPP	164,561.04	12.04

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage* <sup>2</sup> (%)
/home	6,530.31	6.76
/data	123,108.92	2.17
/ltmp	22,144.61	1.90

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage* <sup>2</sup> (%)
J-SPACE	119.91	4.20

\*<sup>1</sup>: Fraction of Usage in Total Resources: Weighted average of three resource types (Computing, File System, and Archiver).

\*<sup>2</sup>: Fraction of Usage: Percentage of usage relative to each resource used in one year.