

Project support activity using numerical simulation

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● Responsible Representative

Eiji Sima, Research and Development Directorate, Research Unit III

● Contact Information

Hideyo Negishi(negishi.hideyo@jaxa.jp)

● Members

Takayuki Ito, Ryoji Takaki, Seiji Tsutsumi, Hiroyuki Ito, Taro Shimizu, Junya Aono, Takanori Haga, Yuhi Morii, Masaharu Abe, Masayuki Kakehi, Mikiroh Motoe, Manabu Hishida, Hideyo Negishi, Yoichi Ohnishi, Miki Nishimoto, Yu Daimon, Ashvin Hosangadi, Takeru Fukuchi, Masaaki Ino, Osamu Fukasawa, Shinji Ohno, Andrea Zambon, Takenori Nakajima, Takashi Amemiya, Yutaka Umemura, Hironori Fujiwara, Hiroumi Tani, Keiichiro Fujimoto, Tetsufumi Ohmaru, Taroh Fukuda, Masashi Toyama, Kei Nishimura, Daiki Muto, Issei Masaie, Susumu Sato, Satoshi Ukai, Hidenao Takahashi, Kota Akai, Takahiro Shimizu, Rika Yamada, Kohki Tao

● Abstract

Utilize the simulation technology of Reserch 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 and benefits of using JAXA Supercomputer System

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 Reserch Unit III and JSS2.

● Publications

N/A

- Usage of JSS2

- Computational Information

Process Parallelization Methods	MPI
Thread Parallelization Methods	FLAT
Number of Processes	100 - 400
Elapsed Time per Case	100 Hour(s)

- Resources Used

Fraction of Usage in Total Resources*1(%): 0.53

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage*2(%)
SORA-MA	3,474,184.09	0.42
SORA-PP	63,846.03	0.41
SORA-LM	2,219.54	0.93
SORA-TPP	80,091.41	4.83

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage*2(%)
/home	10,060.64	8.38
/data	136,556.55	2.34
/ltmp	26,879.49	2.28

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage*2(%)
J-SPACE	123.75	3.11

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

*2: Fraction of Usage : Percentage of usage relative to each resource used in one year.