Process analysis of additive manufacturing

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Responsible Representative

Natsuki Tsushima, Aviation Technology Directorate, Aviation Environmental Sustainability Innovation Hub

Contact Information

Natsuki Tsushima(tsushima.natsuki@jaxa.jp)

Members

Masao Ohishi, Natsuki Tsushima

Abstract

This study aims to develop a numerical analsysis scheme to evaluate the additive manufacturing process.

Reasons and benefits of using JAXA Supercomputer System

Analysis of additive manufacturing process involves finite elements for thermal analysis during the process as well as structural analysis of fabricated materials. Due to the scale difference between the thermal conduction/convection and material geometries, the simulation cost will be increased. JAXA Supercompute System offers the capability to solve models with such high computational costs.

Achievements of the Year

The study have been presentation for international conferences. In addition, journal articles have been published.

Publications

N/A

Usage of JSS

Computational Information

Process Parallelization Methods	MPI
Thread Parallelization Methods	Automatic Parallelization
Number of Processes	2 - 8
Elapsed Time per Case	10 Minute(s)

- **JSS3 Resources Used**

Fraction of Usage in Total Resources[*1](%): 0.00

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage[*2](%)
TOKI-SORA	0.00	0.00
TOKI-ST	772.39	0.00
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	0.00	0.00
TOKI-TST	0.00	0.00
TOKI-TGP	0.00	0.00
TOKI-TLM	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage[*2] (%)
/home	122.50	0.10
/data and /data2	0.00	0.00
/ssd	0.00	0.00

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage[*2] (%)
J-SPACE	0.00	0.00

[*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.

- **ISV Software Licenses Used**

ISV Software Licenses Resources		
	ISV Software Licenses Used (Hours)	Fraction of Usage[*2] (%)
ISV Software Licenses (Total)	72.40	0.03

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