

Efficiency improvement of aerodynamic model building and comparison.

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● Abstract

The air flow rate in the engine nacelle is adjusted using annular plugs placed in the nacelle to evaluate the effect of the air flow rate in the engine nacelle on the aerodynamic characteristics of the aircraft.

● Reasons and benefits of using JAXA Supercomputer System

It is necessary to perform CFD computation including flow around a whole aircraft because it requires highly parallelized computation. Additionally, the JSS3 was chosen because the FaSTAR CFD solver is optimized, as well.

● Achievements of the Year

Because we did not perform any computation using the JSS3 in this year, we have no new results to show.

● Publications

- Peer-reviewed papers

Numerical Study on Variation in Drag Difference by Adding Annular Plug into Flow-Through Nacelle with Integrated Configuration

- **Usage of JSS**

- **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	N/A
Number of Processes	25
Elapsed Time per Case	12.5 Hour(s)

- **JSS3 Resources Used**

Fraction of Usage in Total Resources*1(%): 0.03

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage*2(%)
TOKI-SORA	732,797.15	0.03
TOKI-ST	4,886.66	0.01
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	603.54	0.50
/data and /data2	116,642.85	0.72
/ssd	0.00	0.00

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage* ² (%)
J-SPACE	30.29	0.11

*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.

● ISV Software Licenses Used

ISV Software Licenses Resources		
	ISV Software Licenses Used (Hours)	Fraction of Usage* ² (%)
ISV Software Licenses (Total)	91.10	0.04

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