

**high-fidelity analysis tools development for aerodynamic cascade design / tuning  
UPACS for JSS**

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Subject Category: Aeronautical Technology

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● **Responsible Representative**

Tatsuya Ishii, Aviation Technology Directorate, Aviation Environmental Sustainability Innovation Hub

● **Contact Information**

Junichi Kazawa, Aeronautical Technology Directorate, Aviation Environmental Sustainability Innovation Hub(kazawa.junichi@jaxa.jp)

● **Members**

Junichi Kazawa, Yoshinobu Yamade

● **Abstract**

It contributes to the design of jet engines by improving the accuracy of stall point prediction in numerical analysis in multi-stage compressor blade rows.

● **Reasons and benefits of using JAXA Supercomputer System**

To improve calculation speed in JSS of the CFD program which we used.

● **Achievements of the Year**

The speed of the numerical analysis program used by JSS was investigated. The tuning for calculation speed improvement was conducted and its effect was confirmed .

● **Publications**

N/A

● **Usage of JSS**

● **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	OpenMP
Number of Processes	4
Elapsed Time per Case	1.6 Hour(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	12.75	0.00
TOKI-ST	0.00	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	7.04	0.01
/data and /data2	4,551.11	0.04
/ssd	222.96	0.03

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 <sup>*2</sup> (%)
ISV Software Licenses (Total)	0.00	0.00

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