

Development of active control method for wing noise based on highly efficient flow information reduction technique

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● **Abstract**

This study focuses on trailing edge noise (TE noise), which is one of the noises generated by aircraft wings, and examines efficient suppression methods for TE noise by understanding the flow field structure on the wing surface when noise is generated.

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

The application of modal analysis to time-series spatial experimental data requires large-scale memory and high computing power.

● **Achievements of the Year**

Modal analysis was applied to time-series pressure data on the wing surface during TE noise generation measured in a wind tunnel test. The flow field structure on the wing surface was able to extract. In addition, the parameters for the modal analysis were also studied. Pressure data was unsteady PSP data, which were time-series images, so that their data size was huge. Mode analysis on a common PC needed extremely long time and JSS3 contribution was remarkable.

● **Publications**

N/A

● Usage of JSS

● Computational Information

Process Parallelization Methods	N/A
Thread Parallelization Methods	N/A
Number of Processes	1
Elapsed Time per Case	4 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	0.00	0.00
TOKI-ST	66.22	0.00
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	1,052.09	0.08
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	501.11	0.50
/data and /data2	30,720.00	0.33
/ssd	5,131.11	1.33

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)	0.00	0.00

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