Development of drag reduction technology for rotorcraft

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● **Abstract**

30% of the total drag of rotorcrafts is main rotor hub and mast drag. The hub fairing and the mast cowling were installed on the compound helicopter concept model developed by JAXA, and hub drag reduction effect was verified.

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

A joint research by JAXA and SUBARU can be conducted efficiently by using JSS3. In addition, we use JSS3 to perform tasks that require a large computer memory.

● **Achievements of the Year**

A wind tunnel test was conducted to verify the aerodynamic characteristics of the compound helicopter concept model developed by JAXA with the hub fairing and the mast cowling installed. We used JSS3 for the preliminary examination of the wind tunnel test.

The wind tunnel test was conducted on the specimens examined using JSS3, and hub drag reduction effect of the hub fairing and the mast cowling was confirmed.

● **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	8 Hour(s)

● JSS3 Resources Used

Fraction of Usage in Total Resources[1](%): 0.04

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage[2](%)
TOKI-SORA	0.00	0.00
TOKI-ST	294,968.59	0.29
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	287.24	0.26
/data and /data2	17,357.65	0.13
/ssd	2,937.61	0.41

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.