En-Core Project / Turbine internal cooling analysis

● **Responsible Representative**

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● **Members**

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● **Abstract**

We will contribute to strengthening international competitiveness by demonstrating technologies for high-temperature, high-efficiency turbines and ultra-low NOx lean burn combustors that reduce nitrogen oxide (NOx) and CO2 emissions.

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

There are many large-scale analyses and case studies for turbine cooling in En-Core porject to avoid schedule delay of the project.

● **Achievements of the Year**

Flow analyses of the turbine internal cooling of the test rig were carried out.

● **Publications**

N/A

● **Usage of JSS**

● **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	N/A
Number of Processes	120 - 168
Elapsed Time per Case	720 Hour(s)

● **Resources Used(JSS2)**

Fraction of Usage in Total Resources[1](%): 0.15

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage[2](%)
SORA-MA	0.00	0.00
SORA-PP	258,441.29	2.03
SORA-LM	141.94	0.08
SORA-TPP	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage[2](%)
/home	8.40	0.01
/data	84.01	0.00
/ltmp	1,720.61	0.15

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.

● **Resources Used(JSS3)**

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

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage[*2](%)
TOKI-SORA	0.00	0.00
TOKI-RURI	177.00	0.00
TOKI-TRURI	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage[*2](%)
/home	10.10	0.01
/data	100.98	0.00
/ssd	100.98	0.05

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.