En-Core Project / Turbine aerodynamics performance analysis

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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

Large-scale analyses of the turbine stage including the cooling holes are conducted in En-Core porject. To avoid schedule delay of the project, JSS3 is necessary.

Achievements of the Year

Large-scale analyses of the turbine stage including the cooling holes were conducted. The results contributed to the analysis of the test results.

Publications

N/A

Usage of JSS

Computational Information

Process Parallelization Methods	MPI
Thread Parallelization Methods	N/A
Number of Processes	864 - 1152
Elapsed Time per Case	720 Hour(s)

- **JSS3 Resources Used**

Fraction of Usage in Total Resources[*1](%): 0.66

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage[*2](%)
TOKI-SORA	1,109,023.91	0.05
TOKI-ST	4,944,335.33	5.34
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	4.67	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	63.96	0.05
/data and /data2	9,212.69	0.06
/ssd	193.08	0.02

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)	57.52	0.03

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