

System Operation of the Digital/Analog-Hybrid Wind Tunnel (DAHWIN)

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● Abstract

Through the operation of the JAXA Digital/Analog-Hybrid Wind Tunnel (DAHWIN), we aim to realize complementary use of Experimental Fluid Dynamics (EFD) and Computational Fluid Dynamics (CFD). Specifically, a series of DAHWIN functions (e.g. CFD before wind tunnel testing, test preparation using pre-CFD data, real time EFD/CFD data monitoring, and EFD/CFD data integration) are served to users.

● Reasons and benefits of using JAXA Supercomputer System

DAHWIN requires a number of high-fidelity and large-scaled computations (3D RANS analysis) based on the JAXA 2m x 2m transonic wind tunnel testing, and needs to use the supercomputer.

● Achievements of the Year

For the CFD analysis using DAHWIN, the system was applied to a total of 8 JAXA 2m x 2m transonic wind tunnel tests and functions including test preparation using pre-CFD data and real time EFD/CFD data monitoring were utilized.

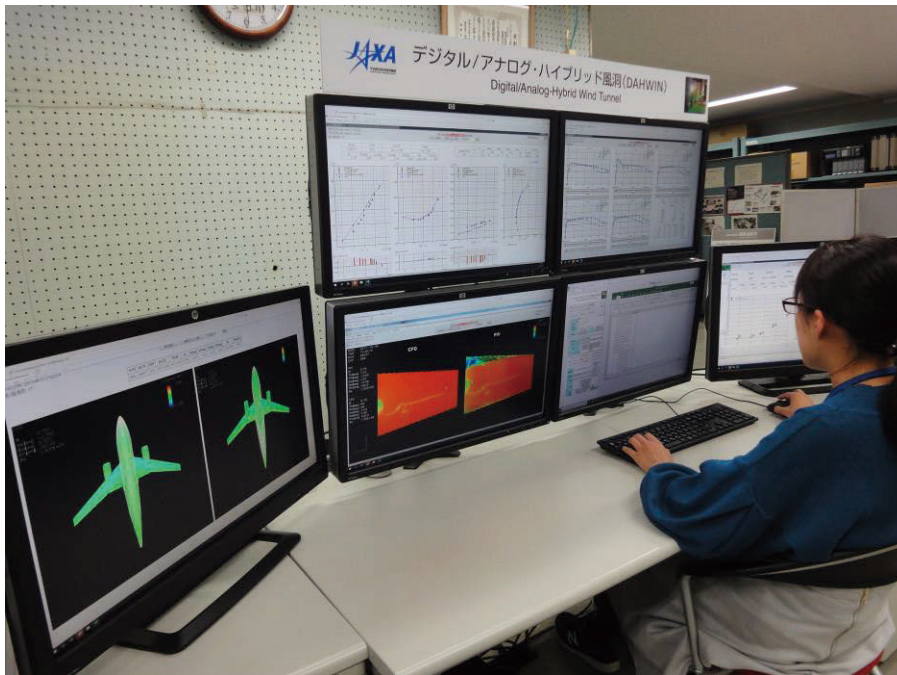


Fig. 1: EFD/CFD real time data monitoring using DAHWIN

- **Publications**

N/A

- **Usage of JSS2**

- **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	Automatic Parallelization
Number of Processes	512
Elapsed Time per Case	30 Minute(s)

- **Resources Used**

Fraction of Usage in Total Resources*1(%): 0.01

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage*2(%)
SORA-MA	0.00	0.00
SORA-PP	16.43	0.00
SORA-LM	0.00	0.00
SORA-TPP	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage*2(%)
/home	766.08	0.64
/data	23,897.37	0.41
/ltmp	7,475.89	0.64

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage*2(%)
J-SPACE	0.50	0.01

*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.