

# Chisachi KATO LAB.

[Software capable of large-scale simulations and its application to basic and applied research]

Center of Research on Innovative Simulation Software

Fluid Flow and Thermal Systems Control

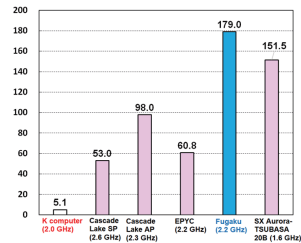
Department of Mechanical Engineering

<http://ckatolab.iis.u-tokyo.ac.jp/>

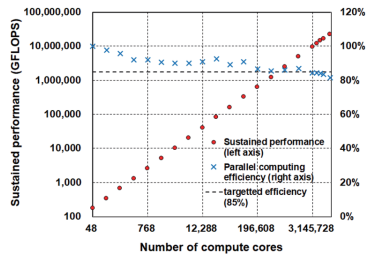
By collaborating with Riken, Fujitsu, and NEC, we are developing a flow solver, named FrontFlow/Blue (FFB), capable of performing a large-scale simulation that uses several hundreds billion cells. With this software, a complex unsteady flow and the resulting sound field can be predicted accurately. With many industrial as well as academic partners, we do applied research aimed at completely replacing various tests by simulations and improving performance and reliability of an industrial product. We also do basic research aimed at understanding the mechanism of a complex phenomenon that could never have been clarified by conventional software

## Development of Flow Solver FFB

Sustained single-node performance in GFLOPS

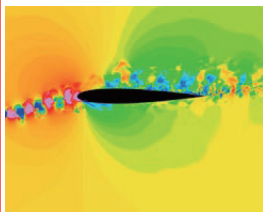


x35 speedup over K-computer

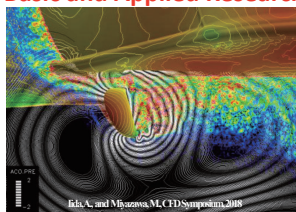


22.6 PF achieved by 7.6 million cores

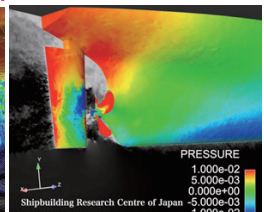
## Basic and Applied Research



Sound radiated from turbulence



Flow and resulting sound around side mirror



Flow around ship

