

Establishment of Large Scale Analysis Environment for Turbo Machinery using Refiner

Project Representative

Shigeyuki Tomimatsu
DMW Corporation

Authors

Shigeyuki Tomimatsu^{*1}, Yoshinobu Yamade^{*2}, Yuichi Hirokawa^{*3}, Noriaki Nishikawa^{*3}

* 1 DMW Corporation

* 2 Mizuho Information & Research Institute Inc.

* 3 Japan Agency for Marine-Earth Science and Technology

Abstract

In order to conduct a product development of turbo machinery continuously and developmentally, an approach using LES (Large Eddy Simulation) should be one of the mainstream, because it is already essential to utilize CFD (Computational Fluid Dynamics) using RANS (Reynolds Averaged Navier-Stokes Simulation) in industrial field.

For example, in recent years, the demand of a high-efficiency and low-noise jet fan is getting larger and larger for environmental concerns. However, in order to simulate the noise reduction of the jet fan with high accuracy, it needs the high performance computing technique using a super computer such as the Earth Simulator. Thus, the purpose of this project is to establish the high performance computing environment and method which provides a seamless connection between a calculator, such as a PC cluster, in a company and the super computer such as the Earth Simulator.

Keywords: Jet Fan, LES, High Performance Computing, Refiner