

Structure optimization in the novel inductor using a probabilistic algorithm

Project Representative

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Abstract

This project has established the structure optimization technique in order to design magnetic devices (i.e. inductor) using the Earth Simulator (ES). The aim of this project is to find the optimal 3D structure of magnetic devices that satisfies the requirements of electric characteristics. In this study, the probabilistic algorithm has been used for optimization method, and the magnetic characteristics have been analyzed by using Finite Element method (FEM) techniques. However, the huge resources of the computer are necessary to realize the 3D structure optimization due to increasing the number of element for 3D FEM. In order to solve the problem, the 3D structure optimization has been established through this project using the high computational performance of ES.

This is the second year of this project. In order to enhance the efficiency of the program, it has been tried to improve the program and apply the new method in this year.

Keywords: inductor, magnetic devices, structure optimization, probabilistic algorithm