

Implementation and Acceleration of the Domain Decomposition Method with Complex Data Types

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Authors are developing a numerical library based on the Domain Decomposition Method (DDM) for post peta-scale high performance computing. Since many of application areas use real numbers, the library has been developed to real data type so far. However, because the terms in the magnetic field analysis are often represented by complex numbers, we should also implement the library with complex data type, and accelerate these computations for post peta-scale computing. In this study, some implementation techniques of complex data type for the DDM are shown, and numerical examples are demonstrated.

Keywords: Domain Decomposition Method, Complex Data Type, Magnetic Field Analysis, High Performance Computing