A Parallel Four Points AOR Iterative Algorithm for Solving Poisson Problem on Shared Memory Architecture

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Abstract: The Modified Explicit Group (MEG) method and their parallel implementation on shared memory architecture for solving two dimensional (2D) Poisson equation were developed and discussed in [5] and [6], respectively. Both sequential and parallel implementations were shown to be the most superior as compared to the EDG and EG methods, [1–4]. Recently, the four points MEG Accelerated Over-Relaxation (AOR) iterative method was introduced by Othman et al., [7] and the results were shown that the method was superior as compared to the four points EG- and EDG- AOR methods. In this paper, we present the implementation of four points MEG AOR iterative method with the chess board strategy for solving the same equation on shared memory architecture. The experiment results of the test problem were included and compared with the parallel EG- and EDG- AOR methods.

Keywords: Accelerated Over-Relaxation (AOR), Modified Explicit Group (MEG) method, Parallel Iterative Algorithm, Distributed Memory Architecture.

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