Large tridiagonal or banded linear systems appear in many applications, such as finite elements, difference schemes to differential equations, power distribution systems, etc. Two of the most popular parallel algorithms for solving tridiagonal systems are the Partition algorithm [4] and the Cyclic Reduction (CR) algorithm [1]. These algorithms are suitable especially for massively parallel computers.

The generalized Partition algorithm for banded linear systems is considered in [3] and generalized Block CR algorithm is considered in [7].

In the present work we compare the parallel implementations of the Partition algorithm and the CR algorithm in the cases of tridiagonal and banded linear systems.

The applied programming model could be named as Single Program Multiple Data paradigm and it is based on the most popular library for Message Passing Interface (MPI). The above mentioned algorithms are compared for different system dimensions and changing the configuration of parallel systems in terms of physical processors. The experimental results consider two factors for performance evaluation of parallel solutions: Parallel speedup and Efficiency.

Let us note that in our experiments was taken in advance the stability analysis in [2, 5, 6, 7].

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