THE DIVISION FREE PARALLEL ALGORITHM
FOR FINDING DETERMINANT

Sharmila Karim[*], Zurni Omar and Haslinda Ibrahim

School of Quantitative Sciences
College of Arts and Sciences
Universiti Utara Malaysia
06010 Sintok, Kedah, Malaysia
e-mail: mila@uum.edu.my

Abstract

A cross multiplication method for determinant was generalized for any size of square matrices using a new permutation strategy. The permutation is generated based on starter sets. However, via permutation, the time execution of sequential algorithm became longer. Thus, in order to reduce the computation time, a parallel strategy was developed which is suited for master and slave paradigm of the high performance computer. A parallel algorithm is integrated with message passing interface. The numerical results showed that the parallel methods computed the determinants faster than the sequential counterparts particularly when the tasks were equally allocated.

1. Introduction

A determinant plays an important role in many applications of linear algebra. The method for finding determinant can be classified into two main categories: the division free method (DFM) and the non-division free