Abstract

A parallel algorithm for finding the inverse of the matrix using Gauss Jordan method in OpenMP. The Gauss Jordan method has been chosen for this project because it provides a direct method for obtaining inverse matrix and requires approx. 50% fewer operations unlike other methods. Hence forth it is suitable for massive parallelization. Then, authors have analyzed the parallel algorithm for computing the inverse of the matrix and compared it with its perspective sequential algorithm in terms of run time, speed-up and efficiency. Further, the obtained result is used to propose a new method of Message Sharing (called Coding Theory). The proposed method is simple and has a great potential to be applied to other situation where the exchange of messages is done confidentially such as in military operation, banking transactions etc.

References

1. S.F.McGinn, R.E.Shaw, “Parallel Gaussian Elimination Using OpenMP and


3. Martin Hudik, Michal Hodon, “Modelling, optimization and performance prediction of parallel algorithms”, European Regional Development Fund and the Slovak state budget for the project “Research Centre of University of Zilina”, ITMS 26220220183


5. “Inverse and determinant of a square matrix by order expansion and condensation”


Index Terms

Computer Science

Algorithms

Keywords
Gauss-Jordan Elimination, LU Decomposition, QR Decomposition, Cholesky decomposition, 3D transformations, OpenMP, Message Sharing