

# Abstract

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## **LU FACTORIZATION USING MULTITHREADED SYSTEM**

The problem of solving large systems of linear equations of the form  $(Ax = b)$  arises in various applications such as finite element analysis, computational fluid dynamics, and power systems analysis, which is of high algorithms complexities, that takes a lot of execution time. The high computational power required for fast solution of such problem is beyond the reach of present day conventional uniprocessor. Furthermore, the performance of using a system of uniprocessor tends to display an early saturation in relation to their costs. This implies that even modest gains in performance of a uniprocessor come at an exorbitant increase in its cost, that made the use of new technologies mandatory to minimize the execution time. This paper presents a parallel implementation of the classical solution of system of linear equations at high reasonable speed up. The speed up achievement is obtained through the fine granularity in data tasks; asynchronicity to hide latency of memory access