

研发、设计、测试

一种基于MPICH的高效矩阵相乘并行算法

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摘要 根据MPICH并行编程环境中任务间通信的特点, 设计了一种基于MPICH的矩阵相乘并行算法。根据运行在COW(工作站机群)上的进程数目将矩阵A按行划分成相应数目的子矩阵, 每个进程完成一个子矩阵与矩阵B的相乘运算。实验结果表明, 该算法提高了机群并行环境中资源的利用率, 提高了程序的运行效率。

关键词 [一种消息传递接口的实现 \(MPICH\)](#) [矩阵相乘并行算法](#) [工作站机群](#)

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Effective matrix multiplication parallel algorithm based on MPICH

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Abstract

An effective matrix multiplication parallel algorithm based on MPICH is designed according to the features of task communication on MPICH parallel programming environment. Divide matrix A into corresponding submatrices by line according to the quantity of process in COW (Cluster of Workstations), each process is responsible for the multiplication of a line block in A with matrix B. Experimental results show that the algorithm improves utilization of resources in cluster parallel environment as well as the operating efficiency of procedures.

Key words [Implementation of the Message-Passing Interface \(MPICH\)](#) [matrix multiplication parallel algorithm](#) [Cluster of Workstations \(COW\)](#)

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