Abstract

The main objective of task scheduling is to assign tasks onto available processors with the aim of producing minimum schedule length and without violating the precedence constraints. Several algorithms have been proposed for solving task-scheduling problem. The most of them doesn’t take into account the average communication of parents and data ready time. In this paper, a new static scheduling algorithm is proposed called Communication Leveled DAG with Duplication (CLDD) algorithm to efficiently schedule tasks on the heterogeneous distributed computing systems. It solves most limitations of existing algorithms. The algorithm not only focuses on reducing the makespan, but also provides better performance than the other algorithms in terms of speedup, efficiency and time complexity. It consists of three phases, level sorting phase, task-prioritizing phase and processor selection phase. We evaluate the performance of our algorithm by applying it on random DAGs. According to the evolved results, it has been found that our algorithm outperform the others.
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Index Terms

Computer Science

Algorithms

Keywords

Static task scheduling  heterogeneous distributed computing systems  heuristic algorithm.