

Utilizing GPUs to Solve Large Instances of the Tasks Mapping Problem

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In this work, we present and analyze a local search algorithm designed to solve large instances of the independent tasks mapping problem. The genesis of the algorithm is the sensitivity analysis of a cellular genetic algorithm, which illustrates the benefits of such an analysis for algorithmic design activities. Moreover, to solve instances of up to 65,536 tasks over 2,048 machines and to achieve scalability, the local search is accelerated by utilizing a GPU. The proposed local search algorithm improves the results of other well-known algorithms in the modern literature.