On Minimizing Average Weighted Completion Time of Multiprocessor Tasks with Release Dates *

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Abstract

We consider the problem of scheduling n independent multiprocessor tasks with release dates on a fixed number of processors, where the objective is to compute a non-preemptive schedule minimizing the sum of weighted completion times. For each task, in addition to its processing time and release date, there is given a prespecified, dedicated subset of processors which are required to process the task simultaneously. Following the recent developments [1, 2, 3] on approximation schemes for various scheduling problems with average weighted completion time objective, we propose here a polynomial-time approximation scheme for the above problem. This result can be generalized to the parallel variant of the problem, where each task can be executed by any processor set of a prespecified size, providing an extension of the result in [2] to the multiprocessor setting.

References

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