Lushchakova, I.N.

AFFILIATIONS: Belarusian State University of Informatics and Radioelectronics, 6, P. Brovka str., Minsk 220027, Belarus;

United Institute of Informatics Problems, National Academy of Sciences of Belarus, 6, Surganov str., Minsk 220012, Belarus

Two machine preemptive scheduling problem with release dates, equal processing times and precedence constraints

Abstract

We consider a scheduling problem with two identical parallel machines and n jobs. For each job we are given its release date when job becomes available for processing. All jobs have equal processing times. Preemptions are allowed. There are precedence constraints between jobs which are given by a (di)graph consisting of a set of outtrees and a number of isolated vertices. The objective is to find a schedule minimizing mean flow time. We suggest an $O(n^2)$ algorithm to solve this problem. The suggested algorithm also can be used to solve the related two-machine open shop problem with integer release dates, unit processing times and analogous precedence constraints.

Author keywords

Identical parallel machines; Open shop; Scheduling theory

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