Abstract

In machine scheduling, a major challenge is to determine the job sequence for each machine involved, especially in non-preemptive one machine settings without idle times. Meanwhile, maintenance activities have to be performed to enhance the reliability of the machine, which makes the schedule more challenging. In this paper, we take the maintenance activity as an extra job and formulate the problem as a classical scheduling problem of minimizing the total weighted completion time on a single machine with the constraint that one specific job (maintenance job) must be scheduled at a specified position. We give dynamic programs with pseudo-polynomial running time, and a fully polynomial-time approximation scheme (FPTAS).

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Research Interests: Scheduling; Combinatorial Optimization