Production Scheduling in Assembly/Disassembly System

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Abstract

This research considers three scheduling problems concerned with systems having non-serial but partially serial features. The first two problems are concerned with an assembly system and a disassembly system, respectively. The last one is a combined system in which both assembly and disassembly operations are performed. The objective is to find the schedule which minimizes the maximum completion time of all jobs in each of the systems.

In the problem analysis, several solution properties are characterized, based upon which it is proved that the first and second problems are equivalent. Heuristic algorithms are developed and tested.

The results of this research will provide the underlined scheme and insight that can be useful for the more complex systems including similar features and are expected for applying to the flow-control in various manufacturing facilities and parallel data-processing shops.