
Worst-Case Analysis of LPT Scheduling on Small Number of Non-Identical Processors

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Abstract

The approximation ratio of the longest processing time (LPT) scheduling algorithm has been studied in several papers. While the tight approximation ratio is known for the case when all processors are identical, the ratio is not yet known when the processors have different speeds. In this work, we give a tight approximation ratio for the case when the number of processors is 3, 4, and 5. We show that the ratio for those cases are no more than the lower bound provided by Gonzalez, Ibarra, and Sahni (SIAM J. Computing 1977). They are approximately 1.38 for three processors, 1.43 for four processors, and 1.46 for five processors.

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