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"Minimizando Processadores em Escalonamentos LogP"

The principal objective of task scheduling is to find a schedule with a minimal makespan, for a given program representation and communication model on a bounded or unbounded number of processors. A secondary objective, though perhaps just as important, is to minimize the cost (i.e. number of processors) required to achieve this makespan. Boeres and Rebellho proposed a two-stage replication-based design methodology was proposed for designing LogP scheduling heuristics. While scheduling heuristics based on this design methodology have been shown to generate schedules with good makespans, their implementation costs tend to be expensive. This thesis focusses on redesigning the second stage of the design methodology and describes the mechanisms employed by the algorithm RNP to reduce the number processors required to implement the schedules generated by these heuristics. The results show that a significant reduction in the number of processors required can be achieved without degrading makespan. Furthermore, these mechanisms can also be used to tradeoff quality, in terms of an increase in the makespan, for quantity in terms of a further reduction in the number of processors required.