

Scheduling Algorithm Based on Load-Aware Queue Partitioning in Heterogeneous Multi-Core Systems

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Abstract : There are inefficient global scheduling parallelism and local scheduling parallelism prone to processor starvation in current scheduling algorithms. Regarding this issue, this paper proposed a load-aware queue partitioning scheduling strategy by first allocating the queues according to the number of processor cores, calculating the load factor to specify the load queue capacity, and it assigned the awaiting nodes to the appropriate perceptual queues through the precursor nodes and the communication computation overhead. At the same time, real-time computation of the load factor could effectively prevent the processor from being starved for a long time. Experimental comparison with two classical algorithms shows that there is a certain improvement in both performance metrics of scheduling length and task speedup ratio.

Keywords : load-aware, scheduling algorithm, perceptual queue, heterogeneous multi-core

Conference Title : ICSLP 2023 : International Conference on Speech and Language Processing

Conference Location : Stockholm, Sweden

Conference Dates : July 06-07, 2023