Characteristics of a Node Coloring Based Load balancing Algorithm for Bus-Oriented Systems

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We study a load balancing algorithm for bus-oriented systems with many processors/cores. Such systems can be modeled by a graph where a node of the graph represents a bus of the system and an edge between two nodes in the graph implies that the two corresponding buses are connected through a common processor/core. In a bus-oriented system multiple buses are used for interconnecting the processors/cores. Every bus is used to interconnect a finite number of processors/cores and every processor/core is connected to a finite number of buses. For each color \(i\) the load is balanced among the group of processors/cores connected to a bus whose corresponding node in the graph is colored \(i\). Results show that the algorithm is efficient and stable.

Keywords: load balancing, node coloring, processors, cores