

عنوان مقاله:

Ant Colony Scheduling for Network On Chip

محل انتشار:

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خلاصه مقاله:

It is undeniable that scheduling plays an important role in increasing the network quality on chip. If experts realize the significant of mapping and scheduling in getting rid of delays and increasing performance of these systems, they will ponder over these activities much more scrupulously. The operation scheduling problem in network on chip (NoC) is NP-hard; therefore, effective heuristic methods are needed to provide modal solutions. In this paper, ant colony scheduling was introduced as a simple and effective method to increase allocator matching efficiency and hence network performance, particularly suited to networks with complex topology and asymmetric traffic patterns. The proposed algorithm was studied in torus and flattened-butterfly topologies with multiple types of traffic pattern. For evaluating the performance of the proposed algorithm, specialized simulator network on chip entitled by BookSim working under Linux operation system was used. Evaluation results showed that this algorithm, in many causes, had positive effects on reducing network delays and increasing chip performance compared with other algorithms. For instance, for a complex topologies, this algorithm under maximum injection_rate of up to (10%) increasing throughput .have been observed, injection rate, on average, compared to other existing algorithms

کلمات کلیدی:

On-Chip Interconnection Networks; Switch Allocator; Ant Colony; Scheduling

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