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基于"包-电路交换"的片上网络回退转向路由算法

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NoC Retrograde-turn Routing Algorithm Based on Packet-circuit Switching

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摘要 采用"包-电路交换"的片上路由器，链路的建立通过发送请求包完成，而数据的传输则采用电路形式。传统的路由算法已经不能很好地适应基于"包-电路交换"的片上网络(NoC)新特性。该文根据"包-电路交换"的NoC的特点，提出了一种新的路由算法——回退转向(RT)路由算法，以改善NoC性能。实验结果表明，与动态XY路由算法相比，回退转向路由算法使得网络平均吞吐量和平均包延迟最大分别改善26.7%和11.6%。

关键词： 片上网络(NoC) 路由算法 "包-电路交换"

Abstract： The routers on chip, which adopt packet-connection circuit switching, establish the links by sending a request packet and transfer data by circuit switching. Conventional routing algorithms are not suitable for the new features of Network on Chip (NoC) system based on packet-circuit switching. According to these new features, this paper proposes a new routing algorithm, namely Retrograde-Turn (RT) routing algorithm, to improve the performance of the NoC network. Compared with the dynamic XY routing algorithm, the experiment results demonstrate that the new routing algorithm can improve the average throughput and the average latency by 26.7% and 11.6% at best, respectively.

Keywords： Network on Chip (NoC) Routing algorithm Packet-connection circuit switching

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