

一种带有均衡策略的无虚通道容错路由算法

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摘 要: 在借鉴已有的容错路由算法基础上, 对故障节点进行扩展, 解除部分节点转向限制、实施一定的均衡策略, 缓解了上述问题. 在 9×9 的 2D mesh 网络中的仿真结果表明: 与未改进的算法相比, 算法在降低数据延迟和过热节点数量等方面有着明显的优势, 在最优情况下能降低 12.7% 的数据延迟和减少 18.5% 的过热节点.

关键词: 虚通道; 容错; 负载均衡; 过热

A Fault-Tolerant Routing Algorithm With Load-Balancing

Strategy for 2D-Mesh Without Virtual Channels

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Abstract: A fault-tolerant routing algorithm with load-balancing for 2D mesh without virtual channels is proposed based on current routing algorithms. The novel algorithm uses a modified fault model and corresponding dissemination mechanism of fault information to remove part of turns limitation and implement load-balance strategy. The simulation results demonstrate that the proposed algorithm outperforms in average package delay and hotspots compared to previous algorithms in the 9×9 2D mesh NoC. In the best case, it reduces 12.7% average delay and 18.5% hotspots.

Key words: virtual channel; fault-tolerance; load-balance; overheating

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