

基于串行 RapidIO 的 Buffer 层设计

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摘 要: RapidIO 是一种新兴的高性能互联总线, 主要应用于嵌入式系统. 作为串行 RapidIO 结构的重要组成部分, Buffer 层负责保证数据包的可靠传输, 并且在链路级流量控制中起着重要作用. 对此提出了一种改进的 buffer 层结构, 同时支持发送端流量控制和接收端流量控制两种模式. 仿真结果表明, 该 buffer 层有效地提高了 buffer 的空间利用率和传输效率. 该设计在高性能嵌入式系统中具有一定的工程应用价值.

关键词: buffer; RapidIO; 流量控制

A Buffer Layer Design in Serial RapidIO

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Abstract: RapidIO is an emerging high-performance interconnect technology for embedded system interconnection. As a very significant part of serial RapidIO, buffer layer helps to guarantee reliable packet delivery and plays an important role in link level flow control. In this paper, the design of an improved buffer layer in serial RapidIO endpoint is described in detail. Both transmitter-controlled flow control and receiver-controlled flow control are supported in this design. Simulation results show that the proposed buffer layer has better space utilization and higher transmission efficiency, compared with the referenced designs. It is valuable for high performance embedded system applications to some extent.

Key words: buffer; RapidIO; flow control

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