Method and Apparatus for Flow Control in a Packet-Switched Computer System

Abstract of the Disclosure

This invention describes a link-by-link flow control method for packet-switched uniprocessor and multiprocessor computer systems that maximizes system resource utilization and throughput, and minimizes system latency. The computer system comprises one or more master interfaces, one or more slave interfaces, and an interconnect system controller which provides dedicated transaction request queues for each master interface and controls the forwarding of transactions to each slave interface. The master interface keeps track of the number of requests in the dedicated queue in the system controller, and the system controller keeps track of the number of requests in each slave interface queue. Both the master interface, and system controller a priori know the maximum capacity of the queue immediately downstream from it, and does not issue more transaction requests than what the downstream queue can accommodate. An acknowledgment from the downstream queue indicates to the sender that there is space in it for another transaction. Thus no system resources are wasted trying to send a request to a queue that is already full.

(Figure 1A)