A Survey And Comparison Of Wormhole Routing Techniques In A Meshnetworks

Al-Tawil, K.M. Abd-El-Barr, M. Ashraf, F.;King Fahd Univ. of Pet.Miner., Dhahran;
Network, IEEE;Publication Date: Mar/Apr 1997;Vol: 11,Issue: 2
King Fahd University of Petroleum & Minerals

http://www.kfupm.edu.sa

Summary

The growing demand for high processing power in various scientific and engineering applications has made multiprocessing architectures increasingly popular. These multiprocessing systems consist of processing elements or nodes which are connected together by interconnection networks in various topologies. One of the design methodologies used for parallel machines has fed to the development of distributed memory message-passing concurrent computers, commonly known as multicomputers. They consist of many processing nodes that interact by sending messages (containing both data and synchronization information) over a communication link, between nodes. Thus, efficient communication in multicomputers is one of the important research areas in parallel computing today, and it depends on the underlying scheme for routing. For this reason it is essential to know which routing techniques are suitable and practical. Although an extremely wide number of routing algorithms have been proposed and implemented in hardware and software, it is difficult for the designer of a multicomputer to choose the best routing algorithm given a particular architectural configuration. In an attempt to overcome this difficulty, we present a survey and comparison of wormhole routing techniques in mesh interconnection networks. The mesh topology is important because of its scalability. Moreover, it has already been implemented in many commercial multicomputers