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A Method for Optimal Designation of Switch Sizes in Strictly Nonblocking Clos Three-stage Interconnection Networks

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Abstract

In this article, a method for optimal designation of switch sizes in strictly nonblocking Clos three-stage interconnection network is presented. This method, which has been computed by means of mathematical equations and is simulated and implemented by a program written in C++, computes the maximum parameters that are required for selecting the switch sizes for all sizes of practical interconnectivity networks. Because of the optimal selection of the switch sizes, the final results show a decrease in the crosspoints as well as the complexity of the internal connections of the interconnection network. It is also shown that when the amount of input and output in the network changes, the input amount of for the first stage and the output amount of the third stage become equal and it is only the number of these switches which changes.

Keywords

three-stage interconnection network, Clos, strictly nonblocking, crosspoints