Fast method to find conflicts in optical multistage interconnection networks

ABSTRACT

One undesirable problem introduced by the Optical Multistage Interconnection network is a crosstalk that is caused by coupling two signals within a switching element. To avoid a crosstalk, many approaches have been proposed such as time domain and space domain approaches. Because the messages should be partitioned into several groups to send to the network, some methods are used to find conflicts between the messages. Window Method is used to find out which messages have conflict and should not be in the same group. In this paper, fast window method based on bitwise operations (BWM) is represented. This algorithm applies Omega network. The comparison result shows the good performance of this algorithm. This algorithm reduces the execution time approximately more than ten times compared with previous algorithms.

Keyword: Optical multistage inter-connection networks; Window method; Bitwise window method