

Parallel optical switching system by using planar micro lens

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Abstrak

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A parallel optical switching system using array structure of planar microlens was developed. The optical switching device is much simpler and low costly compared with the electronic one because it is not necessary to convert optical signals to the electronics, execute the interchange and then reconvert back to optics. The concept of parallel optical switching is constructed by using array structure of planar microlens. Aligning on array form and making match between each lens input-output pairs of planar microlens array achieved parallel coupling of optical lines.

Two sliding mirror pairs functions as optical signal switch, four 2x2 planar microlens array for focusing and collimating elements, two pairs of solenoids as magnetically force sources and a microcomputer to run control mechanism automatically between IFO ports used, are being constructed to develop a new optical networking switch. This switching system is equipped with controlling mechanism of switching direction by microcomputer. It uses parallel port of a PC and an interface that changes parallel output of PC data into the condition of voltage and current needed by moving Unit.

(Solenoid). The switching performance was applied on transmission of digital modulated signal from signal generator and serial port of personnel computer. Using one input port and three output ports, the system perform four I/O ports of 2x2 parcel optical switching with 6,98 dB and 5,75 dB insertion losses for switched state and bypass state respectively and less than -- 57 dB cross talk obtained.