

Investigation on optical interconnect(OI) link performance using external modulator

ABSTRACT

This paper investigates and analyzes an Optical Interconnect (OI) link using external (indirect) modulation technique. A Continuous Wave (CW) light source with a Mach Zehnder (MZ) modulator is used in the transmitter part and a Si-based waveguide is used as a transmission path. Indium Gallium Arsenide (InGaAs) and Germanium (Ge) materials were applied to observe the performance of Avalanche Photodiode (APD) and P-I-N Photodiode (PIN). In order to evaluate the performance of OI link using external (indirect) modulation, the model of OI link was designed and simulated using OptiSPICE tools. Simulation results on the performance of MZ modulator, power degradation of OI link and receiver sensitivity are reported in this paper.

Keyword: Continuous wave (CW); Mach Zehnder (MZ); Optical interconnect (OI); OptiSPICE