OPTICAL MULTI-DIE INTERCONNECT BRIDGE (OMIB)

ABSTRACT

A package includes a bridging element (an OMIB), and first and second photonic paths, forming a bidirectional photonic path. The OMIB has first and second interconnect regions to connect with one or more dies. Third and fourth unidirectional photonic paths may couple between the first interconnect region and an optical interface (OI). A photonic transceiver has a first portion in the OMIB and a second portion in one of the dies. The first and the second portions may be coupled via an electrical interconnect less than 2 mm in length. The die includes compute elements around a central region, proximate to the second portion. The OMIB may include an electro-absorption modulator fabricated with germanium, silicon, an alloy of germanium, an alloy of silicon, a lll-V material based on indium phosphide (InP), or a lll-V material based on gallium arsenide (GaAs). The OMIB may include a temperature compensation for the modulator.

FIG. 4