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(54) Title: EMBEDDING A PHOTONIC INTEGRATED CIRCUIT IN A SEMICONDUCTOR PACKAGE FOR HIGH BAND-WIDTH MEMORY AND COMPUTE

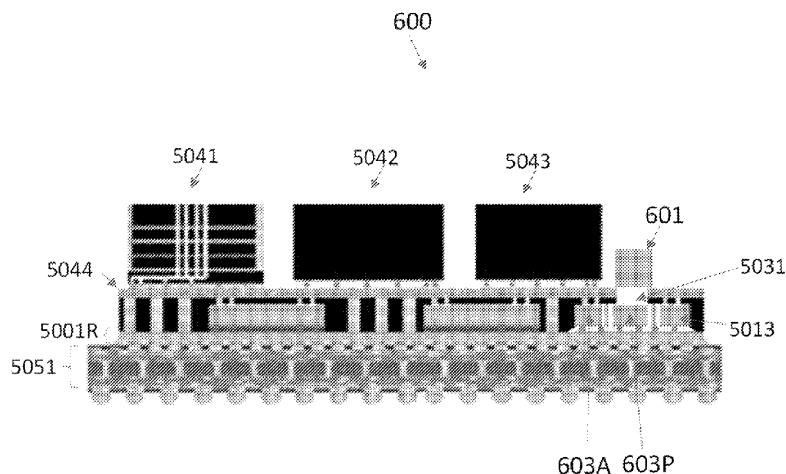


FIG. 6

(57) Abstract: A photonic integrated circuit (PIC) disposed on a substrate and comprising a semiconductor die hosting an active portion and a passive portion mutually coupled, the active portion being configured to consume electrical power when activated, and the passive portion comprising an optical transmission medium configured to propagate an optical signal to or from the active portion of the PIC; an electronic integrated circuit (EIC) electrically coupled to the active portion of the PIC and comprising components that electrically operate on the active portion of the PIC; and a packaging compound at least partially encapsulating the PIC, the packaging compound defining a cavity on a side of the semiconductor die that is opposite from the substrate, the cavity being filled with an optically transparent medium such that the optical signal can be received from or transmitted to the passive portion of the PIC through the cavity.

[Continued on next page]

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