

A Heterogeneous SIP Solution for RF Applications

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Abstract

An interposer with embedded IC's has been fabricated in support of BAE Systems and Georgia Tech Research Institute using a Heterogeneous System In a Package (HSIP) technology for the purpose of creating a new and highly integrated RF MCM solution. The HSIP technology is based on well-established FOWLP (Fan-Out Wafer Level Packaging) technologies consisting of a double sided interconnect wafer fabrication process with the target IC's embedded in the HSIP interposer core. Signals are carried from front to back of the device using through-mold-via. The resulting interposer is stackable and can receive a BAE Systems MMIC die by flip chip assembly, and be subsequently stacked to a RF printed circuit main board.

In this paper, we discuss some of the key fabrication details of the HSIP device construction itself. We present an overview of selected design for manufacturability considerations, as well as the geometrical and mechanical properties of the resulting HSIP interposer devices.