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SEMICONDUCTOR DEVICE ASSEMBLIES AND PACKAGES INCLUDING MULTIPLE SEMICONDUCTOR DEVICES AND METHODS

ABSTRACT OF THE DISCLOSURE

A multidie semiconductor device (MDSCD) package includes a generally planar interposer comprising a substrate with a central receptacle, upper surface conductors, and outer connectors on the lower surface of the interposer. Conductive vias connect upper surface conductors with outer connectors. One or more semiconductor devices may be mounted in the receptacle and one or more other semiconductor devices mounted above and/or below the interposer and attached thereto. The package may be configured to have a footprint not significantly larger than the footprint of the largest device and/or a thickness not significantly greater than the combined thickness of included devices. Methods for assembling and encapsulating packages from multidie wafers and multi-interposer sheets or strips are disclosed. Methods for combining a plurality of packages into a single stacked package are disclosed. The methods may include use of somewhat laterally extending intermediate conductive elements, flip-chip style electrical connection, or both within the same package.

[Figure 2]