Abstract: The semiconductor industry is moving towards heterogeneous integration for three primary reasons namely, 1) monolithic integration using large dies in advanced nodes is becoming uneconomical, 2) time to market using monolithic integration is becoming long because of design, yield and integration complexity, and 3) systems today are driven by heterogeneity where use of a single transistor process alone is insufficient to meet the requirements. But how does the landscape look like for heterogeneous integration? What are the advanced packaging platforms available for both 2.5D and 3D integration? What are the technologies available today and what are the emerging technologies? How does one compare the various technologies? What is the minimum chiplet size that can be assembled and the largest package size that can be supported? How does heterogeneity affect signal integrity and power delivery? In this presentation these questions will be answered where the various categories of advanced packaging technologies will be described and compared along with details on construction, line dimensions, form factor, bandwidth density, data rate, power delivery metrics, thermal management solutions, and system integration potential. Details on emerging technologies such as glass interposer will also be presented.

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