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Single chiplet type versus multiple chiplet types per wafer methods

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As discussed in the previous issue, the term 'chiplet' has gained prominence in semiconductor design and manufacturing as a solution to some of the challenges presented by Moore's Law slowing down. Instead of integrating all functions on a monolithic die, the chiplet method disaggregates the monolithic die into smaller, modular dies or chiplets that can be manufactured separately and assembled on an interposer or package.

There are two ways in which chiplets can be manufactured: single chiplet type per wafer or multiple chiplet types per wafer.

Single chiplet type per wafer method

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 Defect Analysis and Built-In-Self-Test for Chiplet Interconnects in Fan-out Wafer-Level Packaging In the single chiplet type per wafer method, a wafer will carry one chiplet type. This means that every chiplet type has its own wafer flow.

Next, all the different wafers, each with a specific chiplet type, will follow the assembly and testing process before being assembled into a single package via heterogeneous integration. As an example, if a monolithic die is disaggregated into six chiplet types, each of the chiplet types will have its own wafer as well as fabrication, assembly and testing methods.

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