The UK's Specialist in Silicon & Glass Interposers "Leading the Future of Semiconductor Packaging"

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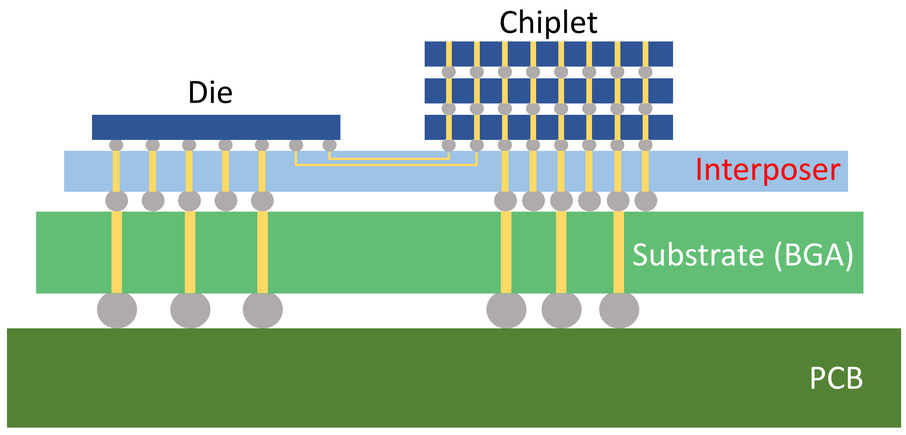
Introduction

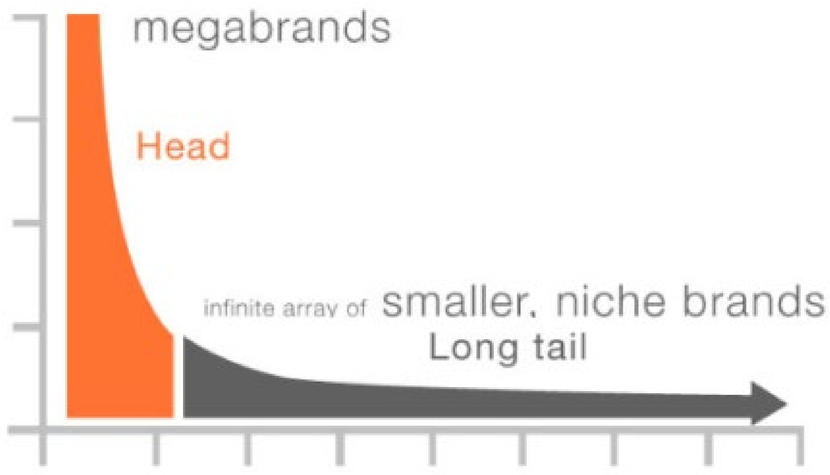
Today's demanding applications, AI components, quantum computing systems, photonics integrated circuits etc require dedicated platforms that can meet their specific performance needs. As feature sizes approach their physical limits, it has become increasingly challenging and costly to integrate multiple technologies on a single chip. Heterogeneous Integration offers a promising solution by allowing the effective combination of dissimilar components with diverse functionalities, sourced from different foundries, design houses, and technology platforms.



Schematic use of Interposer to bond Die / Chiplets to PCB

Our Objective

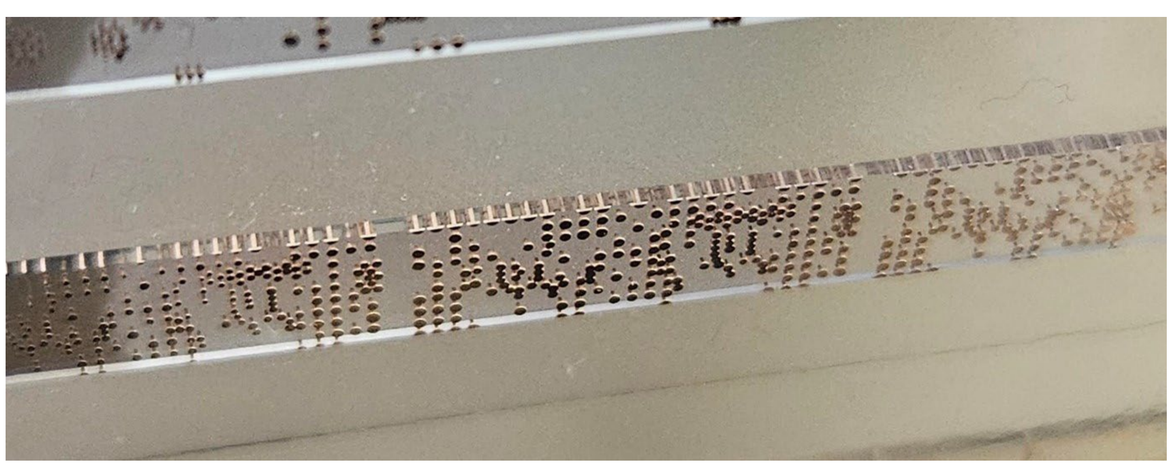
Our objective is to develop Heterogenous Integration capability, in particular Silicon and Glass Interposers targeting the long tail of SMEs in the UK and Europe who don't have access to this technology. We are developing a comprehensive suite of design rules and Process Design Kits (PDKs), along with demonstrator devices, to enable wider adoption and easy access.



Packaging Market Long Tail Strategic Approach – Reed Electronics Industry 2021-2026

Our Capabilities:

- **Fabrication of Silicon and Glass interposers with through-silicon vias (TSVs) and through glass vias (TGVs) respectively together with redistribution layers (RDLs) of various sizes and substrate thicknesses.**
- **Expertise in planarization and metallization processes for reliable electrical and mechanical connectivity between die and substrates or PCBs.**
- **Advanced prototyping and customization services for tailored interposer solutions.**



Example of TGVs in glass substrate (500 µm thick, 100 µm diameter)

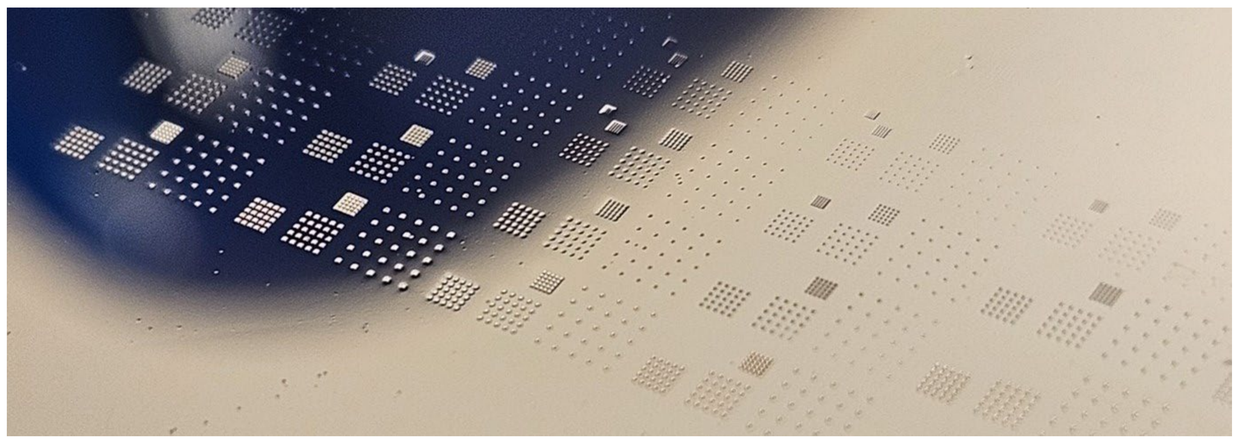
Drivers and Benefits

- **Energy Efficiency: By positioning memory modules proximal to CPUs or GPUs, energy consumption is significantly reduced, contributing to enhanced system efficiency.**
- **Performance Gains: Decreased latency and enhanced computational performance are particularly evident in AI-driven applications, including large-scale language models.**
- **Lightweight and Robust Packaging: Interposers provide a lighter, mechanically robust packaging solution with streamlined manufacturing processes that improve reliability and scalability.**

Benefits of Silicon and Glass Interposers

Silicon: **Superior thermal conductivity and thermal compatibility with integrated circuits, making it ideal for heat dissipation and ensuring reliability.**

Glass: **Adjustable coefficient of thermal expansion, providing tunability for matching diverse materials. Functions as an electrical insulator and offers transparency, making it suitable for optical applications.**



Let's Collaborate!

As leaders in the UK for the development of bespoke Silicon and Glass Interposers, we invite industry and academic partners to collaborate with us in advancing semiconductor packaging technologies. We welcome further discussions.

Contact Us

Join Us in Leading Innovation! **We are committed to pushing the boundaries of semiconductor packaging.**

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