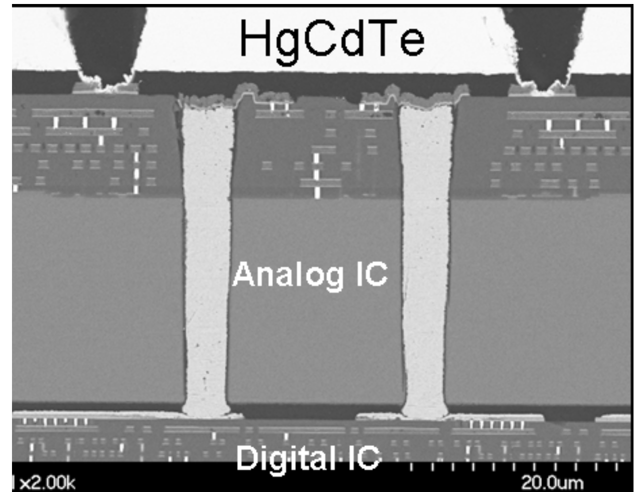
Micross Advanced Interconnect Technology (Micross AIT) is a leader in 3D integration technology, having developed a broad range of 3D process capabilities and achieved successful demonstrations of 3D-integrated IC stacks for IR focal plane arrays and silicon interposer for embedded computing modules. Micross AIT has been conducting research and development in 3D integration since 1999, building on decades of experience in the development of advanced microfabrication and packaging technologies.

2.5D AND 3D INTEGRATION

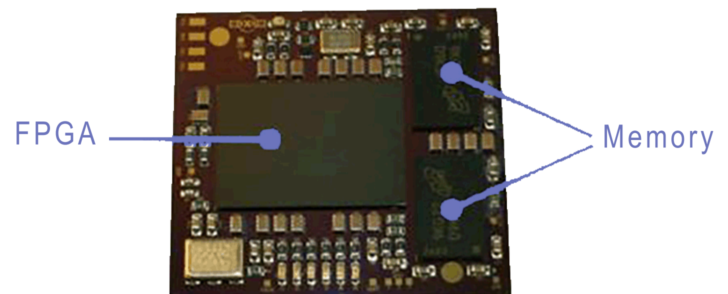
Micross AIT works with a wide variety of clients and partners, bringing integrated process, design, testing and analysis capabilities to projects involving custom application-driven development. Micross AIT is offering access to our 2.5D/3D technology platform through joint development projects, prototyping services and small volume production.

Our 2.5D/3D integration technology platform is based on several enabling process modules, which include:

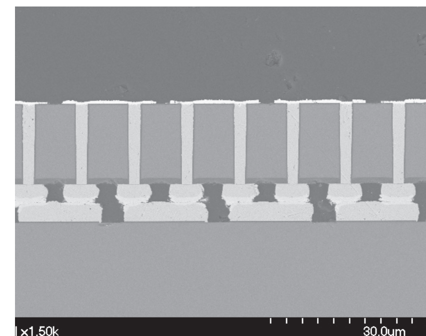
- Through-silicon via (TSV) interconnects
    - High density 3D IC applications, filled 2-10 µm diameter, up to 8:1 aspect ratio and 10-50 µm pitch
    - Lower density 2.5D/3D package architectures, 10-50 µm diameter, aspect ratio of 4:1 to 6:1 and 50-500 µm pitch; vias can be filled or barrel coated
- Wafer thinning (to < 20 µm Si thickness) and processing on temporary carrier wafer
- Flip-chip and high-density metal-metal bonding, down to <10 µm pitch
- Large-area multi-level metal routing with standard RDL (down to 10 µm L/S) or dual damascene process (down to 6 µm L/S)



3D IR focal plane with TSVs in 0.35 µm analog readout IC (with DRS Technologies)



Embedded computing module built with Si interposer



High density TSV test chip bonded to fanout substrate

Clients can take advantage of the 2.5D/3D integration technology platform to realize more highly integrated microsystems with increased functionality, short interconnect length and decreased size, weight and power (SWAP). From design and fabrication of custom test vehicles to application of 3D integration processes modules on fully functional IC wafers, Micross AIT can provide a variety of integration solutions to meet your project needs.

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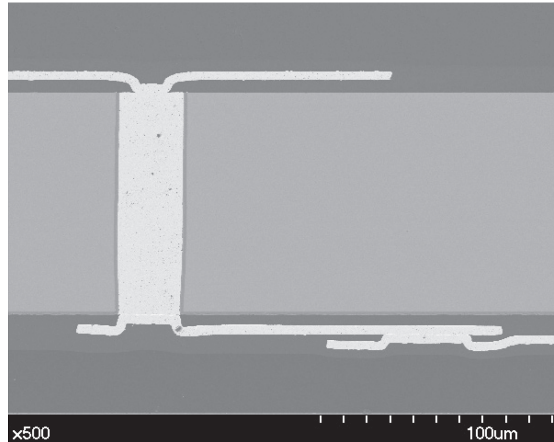
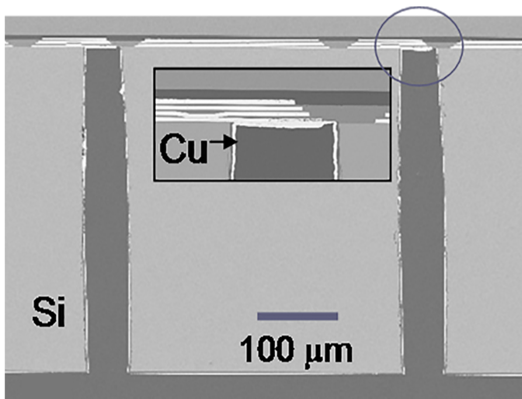
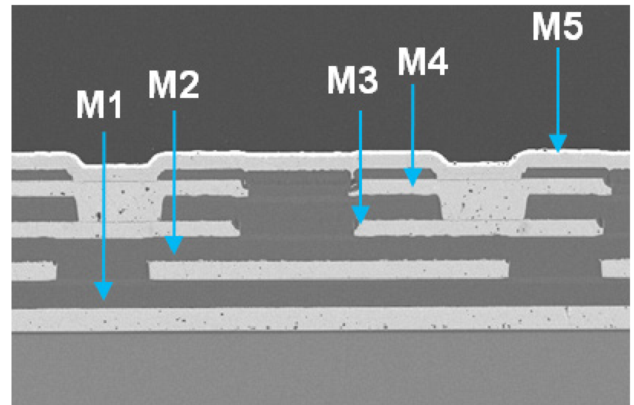


x-SEM of a 100 μm thickness Si interposer with Cu-filled TSVs





x-SEMs of ECM interposer showing TSV contact point (left) and frontside metal stack (right); TSVs are unfilled (barrel coated)

More Information:
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About Micross

Micross is the leading one-source, one-solution provider of Bare Die & Wafers, Advanced Interconnect Technology, Custom Packaging & Assembly, Component Modification Services, Electrical & Environmental Testing and Hi-Rel Products to manufacturers and users of semiconductor devices. In business for more than 35 years, our comprehensive array of high-reliability capabilities serve the global Defense, Space, Medical, Industrial and Fabless Semiconductor markets. Micross possesses the sourcing, packaging, assembly, test and logistics expertise needed to support an application throughout its entire program cycle.