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Fabrication of a DRAM Cube Using a Novel Laser Patterned 3-D Interconnect Process

Vincent Malba*, Vladimir Liberman, and Anthony F. Bernhardt
Lawrence Livermore National Laboratory
P.O. Box 808, M/S L-271
Livermore, CA 94550

Abstract: A new process is described for producing metal traces on three dimensional surfaces. The process, known as Laser Pantography, makes use of a laser to expose a photoresist which is conformally plated onto a thin metal seed layer that covers the various surfaces. Copper is plated onto the seed layer which is exposed after resist development. Finally, the residual resist and seed layer are removed to leave the plated metal traces.

The process produces rugged, reliable, low inductance interconnects for high performance applications, and is sufficiently simple to be applied to high density 3D packaging for consumer electronics.

Laser Pantography has been used to fabricate DRAM memory cubes. Pads on DRAM chips are rerouted to one side of those chips. Cube assembly and test results are presented.

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* telephone (510) 422-7296
fax (510) 422-7309
email malba1@llnl.gov