ziptronix

3D Integration Made Possible

Ziptronix' 3D integration technology employs standard or existing semiconductor process technology and toolsets, while simultaneously and favorably altering the cost structure of semiconductor production. Ziptronix ZiBond and DBI bonding and interconnection technologies now enable analog, memory and logic die - designed and produced in their optimum technologies - to be integrated as true chip-scale SoCs. This capability eliminates future scaling issues, and designers no longer need to compromise embedded memory or analog circuit functions. 3D integration sidesteps the severe interconnection and cost challenges previously inherent in 2D SoC implementations. Ziptronix enables die-to-wafer alignment and bonding at high-speed production rates. Die sorting occurs prior to integration, ensuring that only known-good die are attached. This eliminates unnecessary yield loss incurred in traditional wafer-to-wafer bonding approaches.

Signal delays between chips impede the development of higher performance systems for data processing and communications. Increasing the amount of high-speed memory is critical, however limitations restrict the amount that can be embedded on a chip with logic. Complex, mixed-signal ICs are imperative in order to advance communication equipment, but are difficult to fabricate. Processes that produce memory with logic, or logic with analog circuits, compromise performance and cost in both domains.

All designs do not scale equally well; doubling transistor density in two dimensions does not yield devices twice as complex as their predecessor, nor will electronic systems markedly improve in performance unless the technology for packaging and interconnection changes dramatically. 3D circuit integration will dramatically improve system speed, save power and reduce production costs. Previous industry attempts to deliver 3D ICs with multiple complete layers of effective devices have been met with substantial challenges. Device interconnect, restrictions in power and ground distribution, mismatches in thermal characteristics, exotic adhesives, and other issues have perpetually plagued development. Ziptronix' innovative 3D circuit technology circumvents these limitations, and is the only viable, low cost method to achieve true 3D integration.