

SiGen Announces Breakthrough in Direct Silicon Bond Substrate Technology

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Silicon Genesis Corporation (SiGen) announced today that it has developed the process modifications to manufacture direct silicon bonded substrates. Direct silicon bond (DSB) substrates are fabricated by bonding and electrically attaching a film of single-crystal silicon of differing crystal orientation onto a base substrate.

As opposed to Silicon-on-Insulator (SOI) substrates, DSB substrates exhibit bulk-like properties and thus are fully compatible with existing EDA and circuit design tools. The attractive cost-of ownership is expected to significantly increase the market opportunity for engineered substrates.

SiGen's main process developments included modifications to the plasma-activated bond process to allow for a thin interfacial layer. In addition, SiGen focused on eliminating the interfacial layer to produce an electrically robust inter-layer connection.

Francois J. Henley, President and CEO of Silicon Genesis, said, "DSB device technology advantages were recently reported by IBM at the 2005 IEDM Conference. The paper generated substantial interest as an enhanced bulk-like substrate for next-generation nodes. We are excited to have built upon earlier work to develop a process to manufacture these substrates in a cost-effective manner. The key was preserving our high-yield plasma-activation bond process by developing a method to dissolve the interfacial layer through a proprietary post-process step. We are now starting to sample device manufacturers and will be reporting on

this technology within the next few months. We believe that the bulk-like properties of DSB substrates combined with its substantial PMOS mobility improvements can generate substantially higher market demand than SOI technology.“

Source: Silicon Genesis

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