

SiGen Granted Key Strained-Silicon Substrate Patent

October 4 2004

Silicon Genesis Corporation ([SiGen](#)) announced today that it has received a key patent in the area of fabricating [strained silicon](#) and silicon-on-insulator (SOI) substrates **using a layer transfer process used in next-generation high-speed and low-power semiconductor applications.**

The patent (US patent # 6,790,747) issued on September 14, 2004.

The technology covered by the patent utilizes SiGen's proprietary layer-transfer technologies to transfer a film of stressed silicon onto a target substrate with exceptional quality and efficiency. In prior strained silicon technologies, the silicon film is stressed through its epitaxial growth onto a relaxed silicon-germanium layer. Limitations that have kept this technology from mainstream adoption and use include the continued presence of germanium in the substrate and high device film defect levels. The new patented process uses a layer transfer method to mount a film of strained silicon onto a target substrate. The resulting substrate is free of germanium and defect levels can be reduced through donor process optimization. The process is also flexible in allowing either strained-silicon films to be transferred on a silicon substrate (resulting in a strained silicon-on-silicon or sSi-on-Si) or onto an oxidized substrate for making a strained-SOI or s-SOI substrate. The low-temperature processing inherent in the method also limits the germanium diffusion and defect propagation effects present in other higher-temperature methods.

Francois J. Henley, President and CEO of Silicon Genesis, said, "We are pleased with the grant of this patent that covers sSi-on-Si and s-SOI structures fabricated using layer-transfer processes. This is an important addition to our Intellectual Property portfolio of patents and process know-how in this quickly expanding field of engineered substrates. Coupled with our high-yield layer-transfer process and our new uniaxial strain technology, this new capability will allow SiGen to offer the best solutions for manufacturing next-generation engineered substrates. We believe that these structures will be utilized in mainstream next-generation semiconductor applications."

This latest patent brings SiGen's U.S. issued patents at over 75. Together with industry-leading layer-transfer process know-how, SiGen is offering a full spectrum of layer-transferred engineered substrate process and manufacturing solutions to the electronic, MEMS, and photonic industries.

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