SixLine Semiconductor Successfully Demonstrates Semiconducting Carbon for Commercial Electronics

SixLine Semiconductor is thrilled to announce the deposition of films of semiconducting carbon nanotubes on an 8-inch diameter silicon wafer. Silicon wafers, i.e., thin, polished, disks of silicon, serve as the standard “blank paper” onto which the $12 trillion semiconductor industry prints computer chips. This breakthrough marks the first stage of introducing SixLine’s patented semiconductor technology into the production lines of a commercial chip fabrication facility.

Silicon, the primary semiconducting material for making microchips, will soon be unable to keep up with the rapidly growing energy and computational demands of artificial intelligence, machine learning and cloud computing. Moore’s Law, the legendary 1965 prediction by Intel’s Gordon Moore that the number of transistors (i.e., the tiny switches that allow all electronics to function) in an integrated circuit would double every two years, looks to be nearing its expiration with current materials. But every time Moore’s Law appears on its deathbed, humanity always discovers a new trick to revive it. This is where carbon steps in.

Carbon nanotubes have emerged as nature’s perfect semiconductor. Discovered in 1993, they exist as hollow nanowires 100,000 times thinner than a human eyelash. Electronic signals sent racing down these nanowires achieve speeds far greater than they could in most other materials. A computer chip made of carbon nanotubes instead of silicon would deliver 1000× energy savings.

Even more promising, carbon nanotubes make it possible to build complex electronic circuitry in 3D, unlocking vast computational efficiency in the same way that cities achieve high density through skyscrapers. Current silicon chips can only be patterned in a single 2D layer, which limits possible device architectures and throttles performance and efficiency.

Despite their immense electronic performance, the appearance of carbon nanotubes in electronics has been previously limited by material impurities, the requirement that deposited nanotubes be aligned parallel to one another, and difficulty scaling up nanotube films on a large wafer – **all challenges that SixLine has now solved.**

SixLine is leveraging this important breakthrough to deliver product to fabs and build the next generation of semiconducting, carbon-based electronics.

About SixLine
SixLine Semiconductor is developing next-generation semiconductor materials to power the future of electronics. The company’s proprietary technology enables wafer-scale alignment of semiconducting carbon nanotubes, creating high-performance transistor channels that can surpass the energy efficiency and scaling limits of conventional silicon. By integrating these materials with existing semiconductor manufacturing infrastructure, SixLine is building a

platform for both advanced computing and high-frequency electronics, enabling faster, lower-power logic devices and next-generation wireless components.

For more information on SixLine and its solution, visit SixLine.

For media inquiries, please contact the SixLine Semiconductor team at info@sixlinesemi.com.

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