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Schiltron and Entrepix Leverage CMP to Enable New Architecture for 3-D Flash Manufacturing

*Effort Achieves Proof of Concept for Creating 3-D Flash Using
Existing Manufacturing Infrastructure*

TEMPE, Ariz. - June 1, 2009 – [Schiltron Corporation](#), a 3-D Flash startup company, has partnered with [Entrepix, Inc.](#), a leading provider of CMP equipment and services for semiconductor and other advanced materials, to develop a method to manufacture 3-D Flash using existing materials, tools and processes, thus enabling a straightforward path to volume scale up. Chemical mechanical planarization (CMP) represented the most critical process step that had to be achieved to prove that Schiltron's approach to 3-D flash was viable. The company's joint development efforts led to the manufacture of the smallest silicon-based TFTs to date, with first silicon proving operational.

The revolutionary transistor architecture and low thermal budget process sequence allow these devices to form the basis of a monolithic 3-D Flash that is projected to gradually displace traditional NAND Flash memory in mass-storage applications such as MP3 players, digital photography and solid-state drives. Schiltron's approach, in which achieving the CMP step proved critical, produced the smallest known silicon-based thin-film transistors with 48 nm gate length, 45 nm gate width and 35 nm channel thickness.

"The scalability of NAND Flash is coming to an end. Monolithic 3-D approaches will take over to fuel this multi-billion dollar market," said Andrew J. Walker, Founder and President of Schiltron. "We at Schiltron wanted to show the feasibility of our approach using existing materials and infrastructure. Entrepix' foundry services, process expertise and integration know-how were key to hitting this milestone."

One of the key goals for Schiltron was to reach proof-of-concept for its device architecture using Entrepix' expertise in advanced CMP processes, which was leveraged at two key points in the device flow: the creation of the first gate and the formation of the ultra-thin channel, both of which are critical for device functionality.

“The novel device integration achieved in this project is a great example of the growing number of applications where CMP is the enabling process step for unique device architectures and whole new families of future products,” said Rob Rhoades, CTO of Entrepix. “The work Schiltron accomplished is a significant advancement for 3-D Flash technology, and is representative of the critical role that CMP will play in new materials and next generation devices.”

Schiltron, of Mountain View, CA, first introduced its device architecture at the most recent [International Electron Devices Meeting \(IEDM\) in San Francisco](#), illustrating how the new device provides significant advantages over alternative approaches.

About Entrepix

Entrepix, Inc. is a leading provider of Chemical Mechanical Polishing (CMP) process outsourcing and equipment services. From its ISO9001:2008 certified foundry in Tempe, AZ, the company provides production, engineering and technology development services to customers in the semiconductor and related industries. Entrepix also supplies CMP and metrology equipment to support customers’ internal processing requirements. The company’s comprehensive processing and equipment capabilities provide complete CMP solutions, from initial integration and optimization, through pilot production and high volume manufacturing. Visit www.entrepix.com for more information.

About Schiltron

Schiltron Corporation was established to develop innovative 3D technologies for the post- NAND Flash era. The company’s founder and president is Andrew J. Walker, who has more than 23 years experience in the semiconductor industry. Dr. Walker’s industrial experience includes inventing and developing an embedded non-volatile memory technology that became the standard solution at a major semiconductor manufacturer. Before starting Schiltron, he worked at Philips Research Labs, Cypress Semiconductor, Artisan Components, and Matrix Semiconductor.

