Applied Materials' Next-Generation Defect Review and Classification Technology Improves Yield for Complex 3D Transistors, 1X Nanometer Nodes

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- *SEMVision G6 system's unique multi-dimensional imaging delivers the industry's highest resolution and image quality*
- *Advanced system design and full automation capabilities enable up to 100% faster throughput*
- *Purity ADC dynamic machine learning algorithms deliver exceptional defect capture rate, classification accuracy and throughput*

SANTA CLARA, Calif., July 8, 2013 - Applied Materials, Inc. today announced a suite of new defect review and classification technologies for its market-leading SEMVision(TM) family of products to accelerate time to yield for leading-edge chip manufacturing at 1X-nm and beyond. The Applied SEMVision G6 defect analysis system combines unprecedented high-resolution, multi-dimensional imaging capabilities with revolutionary machine learning intelligence of the Purity(TM) Automatic Defect Classification (ADC) system that sets new performance benchmarks and brings first-of-a-kind DR SEM technology to the semiconductor industry.

"The capabilities of current defect review and analysis tools are being challenged by the requirements of emerging 1X nm design rules and 3D architectures," said Itai Rosenfeld, corporate vice president and general manager of Applied's Process Diagnostics and Control business unit. "Our SEMVision G6 and Purity ADC solve the industry's toughest process control problems for defect review with unmatched imaging technologies and a powerful analysis tool for fast and accurate classification. Multiple market-leading customers have already installed SEMVision G6 and Purity ADC systems and are benefiting from up to 100% faster throughput, advanced imaging and best-in-class classification quality for improved yields."

The SEMVision G6 system's resolution is a 30% improvement over the previous generation, making it the highest available in the industry. This capability and the system's unique e-beam tilt angle make the G6 the industry's superior, field-proven DR SEM for finding, identifying and analyzing defects in 3D FinFET and high aspect ratio structures at 1Xnm nodes. The system's advanced detection assembly and sophisticated processing make possible high-quality topographical images of tiny and shallow defects. High dynamic range detection, collection of back-scattered electrons, and energy filtering enable high aspect ratio imaging. High-energy imaging makes possible "see through" penetration that reveals defects in underlying layers.

The Purity ADC's dynamic machine learning algorithms analyze and classify defects, ensuring accuracy, quality and consistency to enable stable process control and rapid and reliable excursion detection. Smart machine learning algorithms also make possible the separation of real defects from the large number of nuisance defects or false alarms, a challenge that is growing with scaling and device complexity. By establishing a proven intelligent analysis and classification process, Purity ADC gives customers the confidence for the first time to rely on an automatic review system to correctly and quickly identify classes of defects in a production environment and accelerate time-to-yield.

Applied Materials, Inc. (Nasdaq:AMAT) is the global leader in providing innovative equipment, services and software to enable the manufacture of advanced semiconductor, flat panel display and solar photovoltaic products. Our technologies help make innovations like smartphones, flat screen TVs and solar panels more affordable and accessible to consumers and businesses around the world. Learn more at www.appliedmaterials.com.

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Contact:

Ricky Gradwohl (editorial/media) 408.235.4676

Michael Sullivan (financial community) 408.986.7977

PHOTO: The Applied Materials' SEMVision™ G6 defect analysis system

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