Applied Materials Clears Critical Roadblock to EUV Lithography with New Photomask Etch System

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- **New photomask etch technology meets unique manufacturing challenges at 16nm and beyond**
- **System solves two major requirements of EUVL pattern transfer: pattern accuracy and defect performance**
- **Multiple systems installed at leading mask makers to enable the EUVL inflection**

SANTA CLARA, Calif., September 19, 2011 - Applied Materials, Inc. today advanced the state-of-the art in photomask technology with its new **Applied Centura® Tetra™ EUV** Advanced Reticle Etch system. Overcoming a major hurdle to the adoption of EUV[1] lithography, the new Tetra EUV system solves the critical and unmet challenge of etching the new EUVL photomasks with nanometer-level accuracy and world-class defect performance to enable the fabrication of multiple new generations of high-performance semiconductor chips.

"Our new Tetra EUV system expands the capabilities of Applied's industry-standard Tetra etch platform, which is used by the great majority of advanced mask makers today," said Ajay Kumar, vice president and general manager of the Mask and TSV[2] Etch product division at Applied Materials. "Applied continues to invest in technologies that are important to our customers and will enable next-generation design nodes. We have already shipped multiple systems and we are working closely with virtually every leading mask maker to help the semiconductor industry accommodate this significant technology inflection."

EUVL photomasks are fundamentally different than conventional photomasks that selectively transmit 193nm wavelength light to project circuit patterns onto the wafer. At the 13.5nm wavelength used by EUVL, all photomask materials are opaque, so the mask contains complex multi-layer mirrors to reflect circuit patterns onto the wafer instead. The Tetra EUV system is designed to etch new materials and complex layer stacks to meet the stringent pattern accuracy, surface finish and defectivity specifications required to achieve high lithography yields when operating in this reflected mode.

The Tetra EUV system is part of Applied Materials' comprehensive portfolio of solutions to optimize the productivity and yield of its customers' photomask and lithography operations. The system is supported by Applied Global Services, the industry's most comprehensive service and support network, to maximize system uptime - a vital priority for mask etch tools. For more information on Applied Materials' lithography-enabling solutions, visit www.appliedmaterials.com/advanced-litho.

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. At Applied Materials, we turn today's innovations into the industries of tomorrow. Learn more at www.appliedmaterials.com.

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[1] EUV = extreme ultraviolet
[2] TSV = through-silicon via

A photomask exiting the Tetra EUV system
The Applied Centura Tetra EUV photomask etch system

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