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KLA-Tencor Announces New Suite of Reticle Inspection Technologies

Teron Inspection Systems and Reticle Decision Center Enable Qualification of the IC Industry's Most Complex Masks

MILPITAS, Calif., Aug. 16, 2016 /PRNewswire/ -- Today, [KLA-Tencor Corporation](#) (NASDAQ: KLAC) introduced three advanced reticle inspection systems that address 10nm and below mask technologies: the Teron™ 640, Teron™ SL655 and Reticle Decision Center (RDC). All three systems are key to enabling both current and next-generation mask designs, so that mask shops and IC fabs can more efficiently identify lithographically significant and severe yield-damaging defects.



Utilizing innovative Dual Imaging technology, the Teron 640 inspection system offers the sensitivity necessary for mask shops to accurately qualify advanced optical masks. The Teron SL655 inspection system introduces new STARlightGold™ technology, helping IC manufacturers assess incoming reticle quality, monitor reticle degradation and detect yield-critical reticle defects. The comprehensive reticle quality measurements produced by the Teron inspectors are supported by RDC, a data analysis and management system that provides a wide array of capabilities that drive automated defect disposition decisions, improve cycle time and reduce the reticle-related patterning errors that can affect yield.

"Today's complex patterning techniques, such as spacer assist quadruple patterning (SAQP), utilize increasingly complex masks, making it crucial to qualify and maintain the reticle state to achieve optimal wafer patterning," stated Yalin Xiong, Ph.D., vice president and general manager of the Reticle Products Division (RAPID) at KLA-Tencor. "Our team has developed state-of-the-art reticle inspection and data analysis technologies that address

both current and next-generation mask designs. By tying the rich datasets generated by the Teron 640 and Teron SL655 to RDC's evaluation capabilities, mask shops and IC fabs can more efficiently identify lithographically significant reticle defects, thereby improving mask quality control and obtaining better production patterning."

Built on the industry-leading Teron reticle inspection platform for mask shops, the Teron 640 supports inspection of advanced optical masks through the utilization of 193nm illumination with Dual Imaging mode—a combination of high resolution inspection and aerial imaging with printability-based defect dispositioning. Additionally, the Teron 640 includes enhancements to advanced die-to-database inspection algorithms to further maximize defect sensitivity as well as a new higher throughput option to decrease time to results. Multiple Teron 640 reticle inspection systems have been installed at foundry and logic manufacturers where they are being used for high-performance reticle quality control.

The Teron SL655's core technology, STARlightGold, generates a golden reference from the mask at incoming quality check and then uses this reference for mask re-qualification inspections. The unique technology enables full-field reticle coverage and maximizes the detection of defects, such as haze growth or contamination, on a full range of mask types, including those that utilize highly complicated optical proximity techniques. The Teron SL655's industry-leading production throughput supports the fast cycle times required to qualify the increased number of reticles associated with advanced multi-patterning techniques. In addition, the Teron SL655 is EUV-compatible, allowing collaboration with IC manufacturers on in-fab EUV reticle inspection requirements. Teron SL655 systems are under evaluation with IC manufacturers for incoming reticle quality control and reticle re-qualification during chip production.

RDC is a comprehensive data analysis and storage platform that supports multiple KLA-Tencor reticle inspection and metrology platforms for mask shops and IC fabs. RDC provides several applications including Automatic Defect Classification (ADC), which runs concurrently with the inspection station, and Lithography Plane Review (LPR), which analyzes the printability of defects detected by reticle inspectors. These applications automate defect disposition decisions, resulting in improved cycle time and reduction in critical errors. RDC has been adopted by multiple foundry and memory manufacturers for data management and analysis during mask qualification.

The Teron 640, Teron SL655 and RDC join the [LMS IPRO6](#) reticle pattern placement metrology system and [K-T Analyzer®](#) advanced data analysis system in providing a comprehensive reticle qualification solution for advanced mask and IC manufacturers. The Teron 640, Teron SL655 and RDC are also critical components in KLA-Tencor's 5D Patterning Control Solution™, which helps IC manufacturers obtain better patterning performance through process monitoring and control throughout the fab and mask shop. To maintain the high performance and productivity demanded by leading-edge mask and IC manufacturing, the Teron 640, Teron SL655 and RDC are backed by [KLA-Tencor's global comprehensive service network](#). More information can be found on the [5D Patterning Control Solution web page](#).

About KLA-Tencor:

KLA-Tencor Corporation (NASDAQ: KLAC), a leading provider of process control and yield management solutions, partners with customers around the world to develop state-of-the-art inspection and metrology technologies. These technologies serve the semiconductor, LED,

and other related nanoelectronics industries. With a portfolio of industry-standard products and a team of world-class engineers and scientists, the company has created superior solutions for its customers for 40 years. Headquartered in Milpitas, Calif., KLA-Tencor has dedicated customer operations and service centers around the world. Additional information may be found at <http://www.kla-tencor.com> (KLAC-P).

Forward Looking Statements:

Statements in this press release other than historical facts, such as statements regarding the expected performance of the Teron 640 and Teron SL655 reticle inspection systems and the Reticle Decision Center; the extendibility of the Teron 640 and Teron SL655 reticle inspection systems and Reticle Decision Center to future technology nodes; trends in the semiconductor industry and the anticipated challenges associated with them; expected uses of the Teron 640 and Teron SL655 reticle inspection systems and Reticle Decision Center by KLA-Tencor's customers; and the anticipated cost, operational and other benefits realizable by users of the Teron 640 and Teron SL655 reticle inspection systems and Reticle Decision Center, are forward-looking statements, and are subject to the Safe Harbor provisions created by the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on current information and expectations, and involve a number of risks and uncertainties. Actual results may differ materially from those projected in such statements due to various factors, including delays in the adoption of new technologies (whether due to cost or performance issues or otherwise), the introduction of competing products by other companies or unanticipated technological challenges or limitations that affect the implementation, performance or use of KLA-Tencor's products.

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