

June 5, 2008



KLA-Tencor Launches New Archer 200 Overlay Metrology System for 32nm Lithography Control

SAN JOSE, Calif.--(BUSINESS WIRE)--

KLA-Tencor (NASDAQ:KLAC) today introduced its latest overlay metrology system, the Archer 200, featuring an enhanced optical system that provides significant performance improvements that are critical to help customers meet the much tighter overlay requirements for double-patterning lithography at the 32nm design rule node.

"Overlay budgets for 32nm designs are stretched to the limit, especially with double patterning technologies, and chipmakers are seeking to increase both accuracy and speed of their overlay systems," said Ofer Greenberger, vice president and general manager of KLA-Tencor's Overlay Metrology group. "Our new Archer 200 system extends the performance advantages of our well-understood optical imaging technology to meet all layer requirements for 32nm lithography control, and many of its enhancements can be upgraded to the large Archer installed base for maximum return on investment. Our close relationship with major lithography suppliers has resulted in key enhancements in high-order overlay control, which is already resulting in more advanced scanner correction and monitoring that can help chipmakers with their double patterning implementation."

As part of KLA-Tencor's continued focus upon advanced imaging technology to serve the company's overlay roadmap going forward, its engineers have made major improvements to the Archer 200 system's core optical design. These developments enable over 50% improvement in tool matching specification and 25% higher productivity over the previous-generation Archer system. Matching is a critical metric in overlay metrology because different systems must achieve virtually identical layer alignment. The enhanced optical system also features a redesigned light path that passes more light, for faster measurement that equates to higher throughput. New camera management algorithms enable faster system operation and lower noise, again improving throughput and accuracy.

The 32nm design rule node brings two unique challenges for overlay metrology; increased chip density and lithography double patterning. To overcome these challenges customers must increase overlay sampling, and utilize advanced overlay targets more effectively. The Archer 200 lets chipmakers use the industry-standard AIM(TM) target, or even smaller "micro-AIM" targets that can be inserted into different locations within the chip itself. This enhanced overlay target capability enables maximum scanner alignment and hence, device yield.

Customers also have the option of adding KLA-Tencor's advanced scatterometry measurement technology to the Archer 200 to provide increased flexibility in meeting their specific 32nm and beyond dimensional metrology requirements. The Archer 200 system

offers an optional module that features advanced scatterometry overlay (SCOL(TM)) measurement. This option, which enables sub-nanometer Total Measurement Uncertainty, allows interested customers to begin working with the SCOL technology without the need for multiple dedicated systems.

Archer 200 systems are already being used by multiple chipmakers in the U.S., Europe and Korea for 45nm production and 32nm development, for both logic and memory fabs.

About KLA-Tencor: KLA-Tencor is the world leader in yield management and process control solutions for semiconductor manufacturing and related industries. Headquartered in San Jose, California, the Company has sales and service offices around the world. An S&P 500 company, KLA-Tencor is traded on the NASDAQ Global Select Market under the symbol KLAC. Additional information about the Company is available at <http://www.kla-tencor.com>.

Archer 200 Technology Summary

Double-patterning lithography (DPL) requires more patterning steps, leading to more overlay measurement steps for multiple exposures. Combined with shrinking design rules, DPL results in a step-function reduction in overlay metrology budgets permissible on the metrology tools.

Redesigned Optical System

The Archer 200's new optical system provides a significant imaging performance improvement, plus high throughput, for tighter specifications across the board.

- Designed to address 32nm node challenges with AIM target technology and microAIM targets with advanced analysis, enabling high-order control and multi-layer metrology for double patterning.
- Higher productivity with 20% faster Move-Acquire-Measure (MAM) time (0.6s)
- Greater than 25% tighter specifications for total measurement uncertainty (TMU) (1.0nm)
- 30-50% better matching
- 20% improved Tool Induced Shift (TIS) (0.8nm)
- Greater measurement repeatability

Improved Higher-Order Overlay Control

Double-patterning in 32nm-generation lithography requires both higher-order, non-linear modeling, as well as better field- and grid-level scanner alignment and efficiency. Recent data has shown that overlay control improves significantly with the transition from linear to higher-order models. High-order grid and field correction enables significantly better metrology cost of ownership than high-order grid correction alone.

Scatterometry Overlay (SCOL) Technology

Standard optical imaging technology reaches very high capabilities in terms of performance

and total measurement uncertainty; however, SCOL-based technology complements classic metrology and mitigates potential risks that might arise in advanced processes. However, since both scatterometry and imaging-based technologies show excellent performance, the use of one over the other should be decided on a case-by-case basis. The combination of optical imaging and SCOL is a unique low-risk configuration with excellent accuracy and matching to AIM targets.

- Combination of imaging and SCOL has best return on investment (ROI) and cost of ownership (CoO): Highest throughput; maintains process-of-record (POR) existing targets; shortens development cycle.
- Provides the flexibility to measure all layers with no tool dedication needed
- Upgrade path from existing installed base
- Extendibility to next-generation products that combine overlay and OCD metrology

Source: KLA-Tencor, Inc.