KLA TENCOR CORP
Form 10-K
August 06, 2012
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K
(Mark One)

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Fiscal Year Ended June 30, 2012

OR

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Transition Period from to

Commission File Number 000-09992
KLA-TENCOR CORPORATION
(Exact name of registrant as specified in its charter)

Delaware	04-2564110
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)
One Technology Drive, Milpitas, California	95035
(Address of Principal Executive Offices)	(Zip Code)

Registrant's Telephone Number, Including Area Code: (408) 875-3000
Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.001 par value per share	The NASDAQ Stock Market LLC

Securities Registered Pursuant to Section 12(g) of the Act:
None
(Title of Class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes x No o
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No x
Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this

Form 10-K. x

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer x	Accelerated filer o
Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No x

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the registrant based upon the closing price of the registrant’s stock, as of December 31, 2011, was approximately $8.0 billion.

The registrant had 166,516,316 shares of common stock outstanding as of July 19, 2012.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement for the 2012 Annual Meeting of Stockholders to be held on November 7, 2012 (“Proxy Statement”), and to be filed pursuant to Regulation 14A within 120 days after the registrant’s fiscal year ended June 30, 2012, are incorporated by reference into Part III of this report.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements other than statements of historical fact may be forward-looking statements. You can identify these and other forward-looking statements by the use of words such as “may,” “will,” “could,” “would,” “should,” “expects,” “plans,” “anticipates,” “relies,” “believes,” “estimates,” “predict “potential,” “continue,” “thinks,” “seeks,” or the negative of such terms, or other comparable terminology. Forward-looking statements also include the assumptions underlying or relating to any of the foregoing statements. Such forward-looking statements include, among others, forecasts of the future results of our operations; orders for our products and capital equipment generally; sales of semiconductors; the allocation of capital spending by our customers (and, in particular, the percentage of spending that our customers allocate to process control); growth of revenue in the semiconductor industry, the semiconductor capital equipment industry and our business; technological trends in the semiconductor industry; future developments or trends in the global capital and financial markets; our future product offerings and product features; the success and market acceptance of new products; timing of shipment of backlog; the future of our product shipments and our product and service revenues; our future gross margins; our future research and development expenses and selling, general and administrative expenses; our ability to successfully maintain cost discipline; international sales and operations; our ability to maintain or improve our existing competitive position; success of our product offerings; creation and funding of programs for research and development; attraction and retention of employees; results of our investment in leading edge technologies; the effects of hedging transactions; the effect of the sale of trade receivables and promissory notes from customers; our future income tax rate; future payments of dividends to our stockholders; the completion of any acquisitions of third parties, or the technology or assets thereof; benefits received from any acquisitions and development of acquired technologies; sufficiency of our existing cash balance, investments and cash generated from operations to meet our operating and working capital requirements; and the adoption of new accounting pronouncements.

Our actual results may differ significantly from those projected in the forward-looking statements in this report. Factors that might cause or contribute to such differences include, but are not limited to, those discussed in Item 1A, “Risk Factors” in this Annual Report on Form 10-K, as well as in Item 1, “Business” and Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in this report. You should carefully review these risks and also review the risks described in other documents we file from time to time with the Securities and Exchange Commission, including the Quarterly Reports on Form 10-Q that we will file in the fiscal year ending June 30, 2013. You are cautioned not to place undue reliance on these forward-looking statements, and we expressly assume no obligation and do not intend to update the forward-looking statements in this report after the date hereof.

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PART I

ITEM 1. BUSINESS

The Company

KLA-Tencor Corporation ("KLA-Tencor" or the "Company" and also referred to as "we" or "our") is a leading supplier of process control and yield management solutions for the semiconductor and related nanoelectronics industries. Our products are also used in a number of other high technology industries, including the light emitting diode ("LED"), data storage and photovoltaic industries, as well as general materials research.

Within our primary area of focus, our comprehensive portfolio of products, services, software and expertise helps integrated circuit ("IC" or "chip") manufacturers manage yield throughout the entire semiconductor fabrication process—from research and development to final volume production. These products and solutions are designed to help customers accelerate their development and production ramp cycles, to achieve higher and more stable semiconductor die yields, and to improve overall profitability.

KLA-Tencor's products and services are used by the vast majority of bare wafer, IC, lithography reticle ("reticle" or "mask") and disk manufacturers in the world. These customers turn to us for inline wafer and IC defect monitoring, review and classification; reticle defect inspection and metrology; packaging and interconnect inspection; critical dimension ("CD") metrology; pattern overlay metrology; film thickness, surface topography and composition measurements; measurement of in-chamber process conditions, wafer shape and stress metrology; computational lithography tools; and overall yield and fab-wide data management and analysis systems. Our advanced products, coupled with our unique yield management services, allow us to deliver the solutions our customers need to accelerate their yield learning rates and significantly reduce their risks and costs.

Certain industry and technical terms used in this section are defined in the subsection entitled "Glossary" found at the end of this Item 1.

KLA-Tencor was formed in April 1997 through the merger of KLA Instruments Corporation and Tencor Instruments, two long-time leaders in the semiconductor equipment industry that originally began operations in 1975 and 1976, respectively.

Additional information about KLA-Tencor is available on our website at www.kla-tencor.com. Our Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge on our website as soon as reasonably practicable after we electronically file them with or furnish them to the Securities and Exchange Commission ("SEC"). Information contained on our website is not part of this Annual Report on Form 10-K or our other filings with the SEC. Additionally, these filings may be obtained through the SEC's website (www.sec.gov), which contains reports, proxy and information statements, and other information regarding issuers that file electronically. Documents that are not available through the SEC's website may also be obtained by mailing a request to the U.S. Securities and Exchange Commission, Office of FOIA/PA Operations, 100 F Street N.E., Mail Stop 2736, Washington, DC 20549, by submitting a request via email to the SEC at foiapa@sec.gov or by sending a fax to the SEC at 1-202-772-9337.

Industry

General Background

The semiconductor industry is KLA-Tencor's core focus. The semiconductor fabrication process begins with a bare silicon wafer—a round disk that is six, eight or twelve inches in diameter, about as thick as a credit card and gray in color. The process of manufacturing wafers is in itself highly sophisticated, involving the creation of large ingots of silicon by pulling them out of a vat of molten silicon. The ingots are then sliced into wafers. Prime silicon wafers are then polished to a mirror finish. Other, more specialized wafers, such as epitaxial silicon ("epi") and silicon-on-insulator ("SOI"), are also becoming common in the semiconductor industry.

The manufacturing cycle of an IC is grouped into three phases: design, fabrication and testing. IC design involves the architectural layout of the circuit, as well as design verification and reticle generation. The fabrication of a chip is accomplished by depositing a series of film layers that act as conductors, semiconductors or insulators on bare wafers. The deposition of these film layers is interspersed with numerous other process steps that create circuit patterns,

remove portions of the film layers, and perform other functions such as heat treatment, measurement and inspection. Most advanced chip designs require hundreds of individual steps, many of which are performed multiple times. Most chips consist of two main structures: the lower structure, typically consisting of transistors or capacitors which perform the “smart” functions of the chip; and the upper “interconnect”

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structure, typically consisting of circuitry which connects the components in the lower structure. When all of the layers on the wafer have been fabricated, each chip on the wafer is tested for functionality. The wafer is then cut into individual devices, and those chips that passed functional testing are packaged. Final testing is performed on all packaged chips.

Current Trends

The rapid growth of consumer demand for mobile devices, including smartphones, tablets and portable PCs, is currently driving the electronics industry and, as a result, the semiconductor industry as well. Contained within each of these latest consumer devices are advanced semiconductors that are helping enable the features consumers want in device performance, such as battery management and speed, at a lower cost. Alongside this market growth, the industry continues to witness a high rate of change in technology, with the emergence of new techniques and architectures such as three-dimensional (“3-D”) transistors, advanced patterning lithography, and semiconductors with critical dimensions at 28 nanometer and below in production today. KLA-Tencor's inspection and measurement technologies play a key role in enabling the success of our customers' advanced semiconductor manufacturing processes.

Companies that anticipate future market demands by developing and refining new technologies and manufacturing processes are better positioned to lead in the semiconductor market. Accelerating the yield ramp and maximizing production yields of high-performance devices are key goals of modern semiconductor manufacturing. Ramping to high-volume production ahead of competitors can dramatically increase the revenue an IC manufacturer realizes for a given product. During past industry cycles, semiconductor manufacturers generally contended with a few key new technologies or market trends, such as a specific design rule shrink. In today’s market, driven by consumer demand for low-cost electronic goods, the leading semiconductor manufacturers are investing in simultaneous production integration of multiple new process technologies, some requiring new substrate and film materials, new geometries and advanced lithography techniques.

While many of these technologies have been adopted at the development and pilot production stages of chip manufacturing, significant challenges and risks associated with each technology have affected their adoption into full-volume production. For example, as design rules decrease, yields become more sensitive to the size and density of defects, while device performance characteristics (namely speed, capacity or power management) become more sensitive to parameters such as linewidth and film thickness variation. New process materials, such as high-k dielectrics, SOI wafers and immersion lithography-capable photoresists, require extensive characterization before they can be used in the manufacturing process. Moving several of these advanced technologies into production at once only adds to the risks that chipmakers face.

The continuing evolution of semiconductor devices to smaller geometries and more complex multi-level circuitry has significantly increased the performance and cost requirements of the capital equipment used to manufacture these devices. Construction of an advanced wafer fabrication facility today can cost over $5 billion, substantially more than previous generation facilities. In addition, chipmakers are demanding increased productivity and higher returns from their manufacturing equipment and are also seeking ways to extend the performance of their existing equipment.

By developing new process control and yield management tools that help chipmakers accelerate the adoption of these new technologies into volume production, we enable our customers to better leverage these increasingly expensive facilities and significantly improve their return on investment (“ROI”). Once customers’ production lines are operating at high volume, our tools help ensure that yields are stable and process excursions are identified for quick resolution. In addition, the move to each new generation’s smaller design rules, coupled with new materials and device innovation, has increased in-process variability, which requires an increase in inspection and metrology sampling.

KLA-Tencor systems not only analyze defectivity and metrology issues at critical points in the wafer, reticle and IC manufacturing processes, but also provide information to our customers so that they can identify and address the underlying process problems. The ability to locate the source of defects and resolve the underlying process issues enables our customers to improve control over their manufacturing processes. This helps them increase their yield of high-performance parts and deliver their products to market ahead of their competitors—thus maximizing their profit.

With our broad portfolio of application-focused technologies and our dedicated yield technology expertise, we are in position to be a key supplier of comprehensive yield management solutions for customers’ next-generation products,

helping our customers respond to the challenges posed by shrinking device sizes, the transition to new production materials, new device and circuit architecture, more demanding lithography processes, the transition from 300 millimeter to 450 millimeter wafers, and new back-end packaging techniques.

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Products

KLA-Tencor is engaged primarily in the design, manufacture and marketing of process control and yield management solutions for the semiconductor and related nanoelectronics industries.

KLA-Tencor's offerings can be broadly categorized into the following groups: Chip Manufacturing, Wafer Manufacturing, Reticle Manufacturing, Complementary Metal-Oxide-Semiconductor ("CMOS") Image Sensors Manufacturing, Solar Manufacturing, LED Manufacturing, Data Storage Media/Head Manufacturing, Microelectromechanical Systems ("MEMS") Manufacturing, and General Purpose/Lab Applications. We also provide refurbished KLA-Tencor tools as part of our K-T Certified™ program for customers manufacturing larger design-rule devices, as well as comprehensive service and support for our products. The more significant of these products are included in the product table at the end of this "Products" section. Every year, we introduce a number of new products; some of the new products we introduced in the fiscal year ended June 30, 2012 are described below.

Chip Manufacturing

KLA-Tencor's comprehensive portfolio of defect inspection, review, metrology, in-situ process monitoring and lithography modeling tools help chip manufacturers manage yield throughout the entire fabrication process—from research and development to final volume production. These products and solutions are designed to help fabs accelerate their development and production ramp cycles, to achieve higher and more stable semiconductor die yields, and to improve overall profitability.

Front-End Defect Inspection

KLA-Tencor's front-end defect inspection tools cover a broad range of yield applications within the IC manufacturing environment, including: research and development; incoming wafer qualification; reticle qualification; and tool, process and line monitoring. Patterned and unpatterned wafer inspectors find particles, pattern defects and electrical issues on the front surface, back surface and edge of the wafer, allowing engineers to detect and monitor critical yield excursions. Fabs rely on our high sensitivity reticle inspection systems to identify defects in reticles at an early stage, to prevent reticle defects from printing on production wafers. The defect data generated by our inspectors is compiled and reduced to relevant root-cause and yield-analysis information with our suite of data management tools. By implementing our front-end defect inspection and analysis systems, chipmakers are able to take quick corrective action, resulting in faster yield improvement and better time to market.

During the fiscal year ended June 30, 2012, we launched several front-end defect inspection products that help accelerate yield for next-generation design node devices:

Patterned Wafer Inspection

- The 2900 Series broadband optical wafer defect inspectors feature a second generation laser-pumped plasma light source, high resolution optics, and new apertures and optics modes to capture yield-critical defect types and die areas.
- The Puma™ 9650 Series narrowband optical wafer defect inspection systems provide improved sensitivity and noise control to capture and monitor excursions in yield-critical die areas.
- The eS800 Series electron-beam wafer defect inspection systems capture physical and electrical defects on a wide range of layers and structures and feature a new electron gun, smaller pixels and patented optics for increased sensitivity.

Macro Inspection

- The CIRCL, a macro defect inspection, metrology and review cluster tool, monitors the front side, back side and edge of the wafer for defects and, in parallel, measures wafer edge profile, edge bead concentricity and macro overlay error.

Unpatterned Wafer/Surface Inspection

- The Surfscan® SP3 inspection system is designed with deep-ultraviolet illumination to increase sensitivity and a new stage technology for higher throughput.

The products that we launched during the fiscal year ended June 30, 2012 further strengthened our broad range of offerings that support the front-end defect inspection market. In the field of patterned wafer inspection, we offer our 2900 Series, 2830 Series, 2820 Series and 2810 Series systems (for broadband optical defect inspection); our Puma 9650 Series, Puma 9500 Series and Puma 9100 Series systems (for narrowband optical defect inspection); and our eS800 system (for electron-beam defect inspection). In the field of unpatterned wafer and surface inspection, we offer

the Surfscan® SP3 Series and the Surfscan SP2 Series (wafer defect inspection systems for process tool qualification and monitoring using blanket films and bare wafers); and the SURFmonitor™ (integrated on the Surfscan SP3 Series and an

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optional module for the Surfscan SP2 Series), which enables surface quality measurements and capture of low-contrast defects. For reticle inspection, we offer our TeraFabHT™ products, which are photomask inspection systems that allow IC fabs to qualify incoming reticles and inspect production reticles for contaminants and other process-related changes. In addition, we offer a number of other products for the front-end defect inspection market, as reflected in the product table at the conclusion of this "Products" section.

Back-End Defect Inspection

KLA-Tencor offers standalone inspection systems for various applications in the field of semiconductor packaging (i.e., at the back-end of the semiconductor manufacturing process). Our Component Inspector ("CI") products inspect various semiconductor components that are handled in a tray, such as microprocessors or memory chips. Component inspection capability includes 3-D coplanarity inspection, measurement of the evenness of the contacts and two-dimensional surface inspection. The ICOS® CI-T620 offers scalability to a wide range of packages and sizes and increased system throughput.

Defect Review

KLA-Tencor's defect review systems capture high resolution images of the defects detected by inspection tools. These images enable defect classification, helping chipmakers to identify and resolve yield issues. Our complete line of defect review and classification tools spans optical and electron-beam technologies, from bench-top research systems to production-worthy tools having full factory automation. KLA-Tencor's suite of defect inspectors, defect review and classification tools and data management systems form a broad solution for finding, identifying and tracking yield-critical defects and process issues. In August 2011, we introduced the eDR™-7000, an electron-beam wafer defect review and classification system that utilizes a third generation immersion column and an advanced stage to quickly and accurately re-locate, image and classify yield-critical defects.

Metrology

KLA-Tencor's array of metrology solutions addresses IC, substrate, photovoltaic solar cell and medical device manufacturing, as well as scientific research and other applications. Precise metrology and control of pattern dimensions, film thicknesses, layer-to-layer alignment, pattern placement, surface topography and electro-optical properties are growing in importance in many industries as critical dimensions narrow, film thicknesses shrink to countable numbers of atomic layers and devices become more complex. The Archer™ 300 LCM platform includes both imaging- and scatterometry-based measurement modules that enable characterization of overlay error and CD on lithography process layers for advanced patterning technologies. The SpectraShape™ optical CD and shape metrology systems fully characterize and monitor the critical dimensions and 3-D shapes of geometrically complex features incorporated by some IC manufacturers in their latest generation devices. Finally, the Aleris™ family of film metrology tools provides reliable and precise measurement of film thickness, refractive index, stress and composition for a broad range of film layers. In addition, we offer a number of other products for the metrology market, as reflected in the product table at the conclusion of this "Products" section.

In-Situ Process Monitoring

KLA-Tencor's SensArray® SensorWafers series provides a unique method, not available from conventional equipment monitors, to capture the effect of the process environment on production wafers. In December 2011, we launched a new portfolio of SensArray advanced wireless temperature monitoring wafers that implement time-based, in-situ temperature monitoring of production wafers. SensArray products are used in many semiconductor and flat panel display fabrication processes, including lithography, etch and deposition.

Lithography Modeling

KLA-Tencor's PROLITH™ product line provides researchers at advanced IC manufacturers, lithography hardware suppliers, track companies and material providers with virtual lithography software to explore critical-feature designs, manufacturability and process-limited yield of proposed lithographic technologies without the time and expense of printing hundreds of test wafers using experimental materials and prototype process equipment.

During the fiscal year ended June 30, 2012, we introduced PROLITH X4.0, which enables large-scale lithography simulations to troubleshoot challenging issues in extreme ultra-violet ("EUV") and advanced optical lithography technologies.

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Wafer Manufacturing

KLA-Tencor's portfolio of products focused on the demands of wafer manufacturing companies includes inspection, metrology and data management systems. Specialized inspection tools assess surface quality and detect, count and bin defects during the wafer manufacturing process and as a critical part of outgoing inspection. Wafer geometry tools ensure that the wafer is extremely flat and uniform in thickness, with precisely controlled surface topography. Specifications for wafer defectivity, geometry and surface quality are tightening as the dimensions of transistors become so small that the geometry of the substrate can substantially affect transistor performance.

Our wafer inspection portfolio is anchored by the Surfscan SP3 Series launched in July 2011. The Surfscan SP3 Series and the Surfscan SP2 Series are defect inspection systems designed to enable development and production monitoring of polished wafers, epi wafers and engineered substrates. The SURFmonitor module characterizes wafer surface quality and captures the low-contrast defects. The WaferSight™ platform offers wafer geometry and nanotopography metrology capabilities. Other products that we offer for the wafer manufacturing market are highlighted in the product table at the conclusion of this "Products" section.

Reticle Manufacturing

Error-free reticles, or masks, are necessary to achieving high semiconductor device yields, since reticle defects can be replicated in every die on production wafers. KLA-Tencor offers high sensitivity reticle inspection and metrology systems for mask shops, designed to help them manufacture reticles that are free of pattern defects that could print on the wafers and meet pattern placement and critical dimension uniformity specifications.

Our reticle inspection portfolio includes the Teron™ 600 Series for development and manufacturing of advanced optical and EUV masks, the TeraScan™XR system for mask shop production of reticles for the 32nm node and above and our TeraFabHT products for reticle defect monitoring capability for IC fabs. These products include the capability for mapping critical dimension uniformity across the reticle. In September 2011, we introduced a new reticle metrology system, the LMS IPRO5, the latest in the LMS IPRO line of tools that measures pattern placement error. If the pattern on the reticle is displaced from its intended location, overlay error can result on the wafer, which can lead to electrical continuity issues affecting yield, performance or reliability of the IC device.

CMOS Image Sensors Manufacturing

Image sensors are devices that convert light into electrical signal, for use primarily in cameras. As yield-limiting defects can occur at any step in the assembly process, inspecting the filter or micro-lens layers can help reduce materials waste and cycle time.

CMOS image sensor manufacturing is supported by our 8900 defect inspection system. The 8900 is designed to enable capture of a wide variety of defect types, with adjustable sensitivity and throughput settings for cost-effective defect management from initial product development through volume production of color filter arrays.

Solar Manufacturing

Photovoltaic or "solar" cells are used to produce electrical power from light. The continuing growth of the solar industry is closely related to the production cost of solar cells, as economic viability increases with lowering prices. To address our customers' needs in this industry, KLA-Tencor offers solar wafer and cell inspection modules, yield management software, and surface profilers which are integrated in different stages of the solar wafer and cell production lines to increase yield and lower production costs.

KLA-Tencor's ICOS PVI inspection modules are designed for high speed, automated, optical in-line inspection of both the front and backside of monocrystalline and polycrystalline solar wafers and cells, as well as optical classification of solar cells at the final stage of the production flow.

LED Manufacturing

LEDs are becoming more commonly used in solid-state lighting, television and notebook backlighting, and automotive applications. As LED device makers target aggressive cost and performance targets, they place significant emphasis on improved process control and yield during the manufacturing process.

KLA-Tencor offers a portfolio of three systems to help LED manufacturers reduce production costs and increase product output: Candela® 8620, Klarity® LED and ICOS WI-2250. The Candela 8620 substrate and epi wafer inspection system provides automated inspection and quality control of LED substrates, detecting defects that can impact device performance,

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yield and field reliability. Klarity LED is an automated defect data management and analysis system for LED yield enhancement. The ICOS WI-2250 is a patterned wafer inspection tool that offers automated optical inspection and metrology of microelectonic devices on a variety of wafer substrates, surface inspection, and two-dimensional bump inspection.

Data Storage Media/Head Manufacturing

Advancements in data storage are being driven by a wave of innovative consumer electronics with small form factors and immense storage capacities, as well as an increasing need for high-volume storage options to back up new methods of remote computing and networking (such as cloud computing). Our process control and yield management solutions are designed to enable customers to rapidly understand and resolve complex manufacturing problems, which can help improve time to market and product yields. In the front-end and back-end of thin-film head wafer manufacturing, we offer the same process control equipment that we serve to the semiconductor industry. In addition, we offer an extensive range of test equipment and surface profilers with particular strength in photolithography. In substrate and media manufacturing, we offer metrology and defect inspection solutions with KLA-Tencor’s optical surface analyzers.

MEMS Manufacturing

The increasing demand for MEMS technology is coming from diverse industries such as automotive, space and consumer electronics. MEMS have the potential to revolutionize nearly every product category by bringing together silicon-based microelectronics with micromachining technology, making possible the realization of complete systems-on-a-chip. KLA-Tencor offers the tools and techniques such as defect inspection and review, optical inspection and surface profiling, first developed for the integrated circuit industry, for this emerging market.

General Purpose/Lab Applications

A range of industries, including general scientific and materials research and optoelectronics, require measurements of surface topography to either control their processes or research new material characteristics. Typical measurement parameters that our tools address include flatness, roughness, curvature, peak-to-valley, asperity, waviness, texture, volume, sphericity, slope, density, stress, bearing ratio and distance (mainly in the micron to nanometer range).

K-T Certified

K-T Certified is our certified refurbished tools program that delivers fully refurbished and tested KLA-Tencor tools to our customers with guaranteed performance. In addition to high-quality pre-owned 300mm and sub-200mm tools for the integrated circuit, reticle, substrate, MEMS and data storage markets, K-T Certified also offers system software and hardware performance upgrades to extend the capabilities of existing equipment. When a customer needs to move to the next manufacturing node, K-T Certified can help maximize the value of the customer's existing assets through K-T Certified's repurchase, trade-in and redeployment services.

K-T Services

Our K-T Services program enables our customers in all business sectors to maintain the high performance and productivity of our products through a flexible portfolio of services. Whether a manufacturing site is producing integrated circuits, wafers or reticles, K-T Services delivers yield management expertise spanning advanced technology nodes, including collaboration with customers to determine the best products and services to meet technology requirements and optimize cost of ownership. Our comprehensive services include: proactive management of tools to identify and improve performance; expertise in optics, image processing and motion control with worldwide service engineers, 24/7 technical support teams and knowledge management systems; and an extensive parts network to ensure worldwide availability of parts.

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Product Table

The following table presents a representative list of the products that we offered during the course of the fiscal year ended June 30, 2012:

MARKETS	APPLICATIONS	PRODUCTS
Chip Manufacturing		
	Patterned Wafer	2900 Series, 2830 Series, 2820 Series, 2810 Series
		Puma™ 9650, Puma 9500 Series, Puma 9100 Series
		eS800
Front-End Defect Inspection		CIRCL
	Macro and Edge	VisEdge® product family
		LDS Series
	Unpatterned Wafer/Surface	8900
		Surfscan