



## Applied Materials Announces New Quantum System for All High Current Sub-0.18 Micron Ion Implantation Applications

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SANTA CLARA, Calif.--(BUSINESS WIRE)--July 12, 1999--

Quantum(TM) Performs Entire Range (200eV to 80keV) of High Current Implants With Unmatched Productivity

Applied Materials, Inc., the world's leading supplier of high current ion implanters, announces the new Quantum(TM) ion implantation system that extends high current implant technology to 0.1 micron device geometries and 300mm wafer sizes. Built on a new, small footprint platform that bridges 150mm, 200mm or 300mm wafers, Quantum operates with exceptionally high throughput and productivity at the low energies (to 200eV) required for advanced chip designs.

"Quantum surpasses the capabilities of other high current implanters with a multitude of new technology and productivity features that make it an ideal system for the critical implants used in 0.18 micron and below devices," said Craig Lowrie, general manager of Applied Materials' Implant Division. "The system's superior capabilities are essential as chipmakers move to new device designs using ultra-shallow junction transistors. Quantum's productivity at low energies is nearly double that of our groundbreaking xR LEAP(TM) system, to handle even more of a fab's implant workload."

According to market researcher Dataquest, the market for high current ion implant systems was \$215 million in 1998, and is projected to grow to \$520 million by 2004, for a compound annual growth rate (1998-2004) of 15.9 percent.

Low energy implantation is an essential technology for the fabrication of semiconductors using 0.18 micron and below features. Nearly 100 Applied Materials implant systems using the xR80(TM) and xR LEAP (Low Energy Advanced Processing) technology are currently in use by advanced chipmakers around the world, including over 40 xR LEAP systems. Quantum system shipments are scheduled to begin in the third calendar quarter of 1999.

Designed for 300mm wafers, the Quantum's evolutionary platform is easily adaptable to 200mm and 150mm wafer sizes. The system incorporates a 300mm compatible factory automation module for fully automatic wafer handling, yet remains almost the same size as the company's compact 200mm xR LEAP system.

Maximum 200mm mechanical throughput range has been extended from the xR LEAP to doses of 1E15, while the system achieves a 60 percent throughput increase when used for quad implants. Quantum's extremely short source-to-wafer beam path, which minimizes beam "blow up" and energy contamination, has been further optimized to improve precision at all energies. New technology ensures excellent energy accuracy and improved energy control for ultra-low energy implants to a remarkable +/- 7.5 volts.

"Quantum continues Applied Materials' leadership in implanters for the most critical, advanced applications," said Jay Sorochin, global product manager of the Quantum system at Applied Materials. "The xR80 was the first implanter to successfully address low energy boron, and the xR LEAP was the first sub-keV implanter.

"Our work with Applied Materials' RTP (rapid thermal processing) Centura system created the industry's first integrated, high-performance, ultra-shallow junction (USJ) module, making it possible for chipmakers to reliably form the complex junctions needed for next-generation devices. Quantum extends the capabilities of the USJ module even further, enabling significant gains in productivity."

Quantum is initially available in three models for customers with different device and energy requirements. The Quantum LEAP for ultra-low energies offers a range of 200eV to 80keV, enabling customers to implant ultra shallow junctions in the most advanced devices. The Quantum 80 offers a range of 2keV to 80keV, covering virtually all of the high current implants used in 0.25 micron to 0.18 micron designs. For customers requiring an extended upper energy range, the Quantum 120 is available with an optional package that boosts energy to 120keV.

Applied Materials, Inc. is a Fortune 500 global growth company and the world's largest supplier of wafer fabrication systems and services to the global semiconductor industry. Applied Materials is traded on the Nasdaq National Market System under the symbol "AMAT." Applied Materials' web site is <http://www.appliedmaterials.com>.

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