



Joint Development Agreement Announced to Advance SCALPEL Lithography For Manufacturing Future Chip Generations

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MURRAY HILL, N.J.--(BUSINESS WIRE)--Nov. 3, 1999--A group of semiconductor device and equipment manufacturers today announced a joint agreement aimed at accelerating the development of SCALPEL(R) technology into a production lithography solution for building future generations of integrated circuits. Participants in the program include: eLith(TM) LLC, a joint venture of Applied Materials, Inc. and ASM Lithography Holding N.V.; Lucent Technologies Inc.; Motorola Semiconductor Products Sector; Samsung Electronics Co., Ltd.; and Texas Instruments Incorporated (TI). The program will remain open to additional companies interested in furthering this technology.

SCALPEL projection electron lithography is being developed as a potential successor to current optical lithography methods for patterning smaller, more powerful chips. Using an electron source instead of a light source, projection electron technology has the capability to print images with features smaller than 50 nanometers (0.05 micron), compared to today's leading-edge 180 nanometers (0.18 micron) technology.

"Motorola is pleased to be part of this group of leading-edge companies which will assure that SCALPEL technology is vigorously pursued," said Joe Mogab, manager of Advanced Process Development for Motorola's DigitalDNA Laboratories. "We feel that SCALPEL can become a strong technology for next generation wafer processing which will help us maintain our leadership in embedded processors."

"We are delighted to be part of the effort to explore this exciting new area of lithography," said Dr. Moon Yong Lee, senior vice president of the Semiconductor R&D Center for Samsung. "Projection electron lithography has already shown significant potential to be the technology of choice to create the circuits that will be needed for advanced DRAMs (dynamic random access memory) as we move to 0.1 micron geometries and beyond."

Dr. Bob Helms, vice president and director of Silicon Technology Research of Texas Instruments said, "TI is pleased to facilitate the commercialization of electron projection lithography through participation in this program. We believe this advanced lithography approach has the greatest potential for our DSP and ASIC market segments in terms of high wafer volume and low cost of ownership. The continuation of this development effort can potentially reduce semiconductor manufacturers' costs and continue technology development at the 100nm (0.1 micron) node and beyond."

"The industry leaders who have joined this program validate our belief that SCALPEL technology, developed at Lucent's Bell Labs, is the most promising route to ICs with 0.1-micron and smaller feature sizes," said Mark Pinto, chief technical officer of Lucent Technologies' Microelectronics Group. "This agreement will help accelerate the realization of commercially viable systems that will allow us to deliver future generations of communications networks and hand-held devices."

To facilitate working on the program, equipment manufacturers Applied Materials and ASM Lithography have formed a joint venture, eLith LLC. "The ultimate goal of this venture is to commercialize electron projection technology as a production-worthy manufacturing tool to enable the migration of chip technology and the continuation of Moore's Law," said Dr. Sass Somekh, senior vice president of Applied Materials. "We are excited to be involved with several of the industry's top semiconductor manufacturers who are supporting this effort."

Martin van den Brink, ASML executive vice president of Marketing & Technology added, "The program offers us an excellent opportunity to work directly with end-users to develop one of the solutions that may be integrated into future manufacturing lines. Our participation in this collaborative effort, which is part of our advanced lithography roadmap activities, affords us an opportunity to contribute our expertise in advanced imaging systems to further the development of electron projection lithography."

About the Companies

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>.

ASM Lithography (ASML) was founded in 1984 and is a world leader in advanced photolithography systems that are essential to the fabrication of modern integrated circuits. The company now has an installed base of more than 1,200 systems at customer sites around the world. Recognized as one of the two largest suppliers of wafer steppers and Step & Scan systems, ASML operates demonstration and application laboratories at its corporate headquarters located in Veldhoven, The Netherlands, and at its U.S. headquarters in Tempe, Arizona. Regional sales and service facilities are located worldwide near its customers' premises. ASML is publicly traded on both the Amsterdam Exchanges and on the Nasdaq Stock Market(R) under the symbol "ASML." Visit the company's web site at <http://www.asml.com> for more information.

Lucent Technologies, Inc. (NYSE: "LU"), headquartered in Murray Hill, N.J., designs, builds and delivers a wide range of public and private networks, communications systems and software, data networking systems, business telephone systems and microelectronics components. Bell Laboratories is the research and development arm for the company. For more information on Lucent Technologies, visit the company's web site at <http://www.lucent.com>. For more information about SCALPEL, including a technical backgrounder, refer to <http://www.bell-labs.com/news/1999/january/25/1.html>, <http://www.bell-labs.com/projects/SCALPEL> or <http://www.bell-labs.com/innovate98/scalpel>.

Motorola is a global leader in providing integrated communications solutions and embedded electronic solutions. Sales in 1998 were \$29.4 billion. Motorola is publicly traded on the New York Stock Exchange under the symbol "MOT." For more information on Motorola, visit the website

www.motorola.com.

Samsung Electronics Co., Ltd., with 1998 sales revenue of US\$16.6 billion, is a world leader in the electronics industry. The Korean-based firm has operations in 46 countries and employs 42,000 people worldwide. The company consists of three main business divisions: Multimedia & Home Appliances, Semiconductors and Information & Telecommunications. For more information visit the website, <http://samsungelectronics.com>.

Texas Instruments Incorporated is a global semiconductor company and the world's leading designer and supplier of digital signal processing and analog technologies, the engines driving the digitization of electronics. Headquartered in Dallas, Texas, the company's businesses also include materials and controls, educational and productivity solutions, and digital imaging. The company has manufacturing or sales operations in more than 25 countries. Texas Instruments is traded on the New York Stock Exchange under the symbol "TXN." More information is located on the World Wide Web at <http://www.ti.com>.