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## Nanotech firm makes imprint

Molecular Imprints closes on \$15M in funding, gears up for more space, more employees

Stacey Higginbotham  
Austin Business Journal Staff

With half of a \$30 million second round of funding under its belt, Molecular Imprints Inc. is preparing to double in size.

The company closed on \$15 million of an anticipated \$30 million round earlier this month and will use that money to double its workforce and office space, says Norm Schumaker, chairman, president and CEO of Molecular Imprints.

Molecular Imprints will have raised a total of \$42 million once it closes the rest of its second round of funding in December. None of the lead investors was disclosed, but he says existing investors such as private equity firm Draper Fisher Jurvetson and high tech giant Motorola Inc. participated again.

With the new funding, Molecular Imprints will open distribution centers in Germany and Japan for its machinery that is cutting edge technology for imprinting on semiconductor chips.

Molecular Imprints plans to grow from its current 38 employees to 75 by the end of 2004. It also plans to take 19,000 square feet near its current 16,000 square feet at 1807 W. Braker Lane in Northwest Austin.

So far, the company has three customers for its semiconductor lithography, which range in price from \$400,000 to \$2 million each. Motorola is using a machine at a research lab in the Phoenix area. A Silicon Valley chip manufacturer and a Korean research lab are the other customers.

Schumaker says the company has seven other potential customers in the wings. All of Molecular Imprints' manufacturing is done in Austin. It takes four to six months to build and ship a machine.

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He declines to give current revenue. But in 2002, Molecular Imprints posted revenue of at least \$2.4 million thanks to a federal contract with the Defense Advanced Research Projects Agency, the research arm of the U.S. Defense Department.

Molecular Imprints was incorporated in 2001 after licensing technology developed at the University of Texas. That technology allows Molecular Imprints to manufacture imprint lithography tools for chip manufacturing.

During chip manufacturing, the lithography process creates the design on a wafer. As the lines etched on each chip become smaller, lithography becomes more complicated.

Molecular Imprints' tool produces a mold of the wafer, then injects fluids onto the surface of the wafer, stamps the mold down and lets ultraviolet exposure harden the fluids into the design on the chip.

In an industry in which smaller is better, Schumaker says Molecular Imprints' machinery can imprint lines on a chip more than 75 percent smaller than most of the industry is trying to achieve.

The process is more cost-effective and faster than many of the other developmental lithography methods, Schumaker says.

Walt Trybula, a senior fellow at Austin-based Sematech International, says the imprint technology is viable but still has some issues to overcome. Sematech is a nine-member chip industry research consortium.

Like any developmental technology, imprint lithography must address issues related to full-scale production. For example, he says, imprint lithography doesn't deal adequately with the layering needed to make most of today's chips.

He also says the chances look good for imprint lithography to make it onto the Sematech International Technology Roadmap, which lays out manufacturing objectives for the industry. Appearing on the roadmap can validate a developmental technology and encourage other companies to use it.

Finding new lithography technologies for the industry is important, Trybula says, because lithography is integral to the manufacture of chips, and the smaller imprinting that chipmakers seek allows devices to become smaller and perform more functions.

But Molecular Imprints' technology isn't aimed just at semiconductor manufacturing. The company has identified five other potential markets, including liquid crystal displays and microelectromechanical systems.

In fact, Molecular Imprints board member Jennifer Fonstad, managing director of investor Draper Fisher Jurvetson, says the company is in discussions with several Draper Fisher Jurvetson portfolio companies about using the tools for other types of nanomanufacturing.

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