



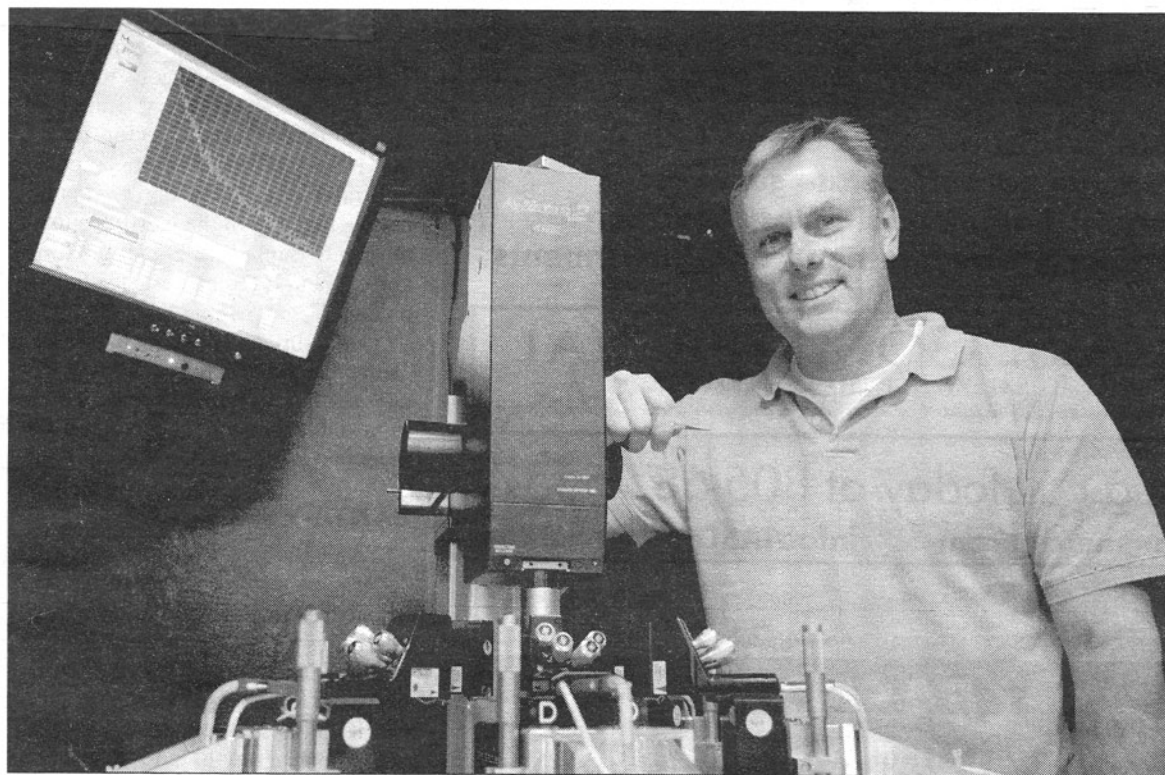
BUSINESS TIMES

DECEMBER 21-27, 2007

PROUDLY SERVING SANTA BARBARA, VENTURA AND SAN LUIS OBISPO COUNTIES

\$1.50

VOL. 8, No. 41



Andy Erickson, president and founder of Santa Barbara-based MultiProbe, shows one of his company's atomic-force probes. Used to test semiconductors, the device's probes can take electrical measurements while positioned nanometers apart.

STEPHEN NELLIS PHOTO

MultiProbe's niche

Company is breaking into the Asian market

BY STEPHEN NELLIS
Staff Writer

MultiProbe, based in Santa Barbara, serves what Andy Erickson, its founder and president, calls a "niche within a niche within a niche."

Erickson's company designs atomic-force nanoprobers for taking precise electrical measurements at billionths of a meter. Some of the MultiProbe's

big-name clients include Intel, IBM and Toshiba.

Semiconductor firms find the tools indispensable in testing and analyzing their ever-shrinking chip designs. Chipmakers in Japan, other parts of Asia, Europe and the United States use MultiProbe's devices, which are made at the company's 20,000-square-foot headquarters near downtown Santa

Barbara.

Erickson recently inked a deal with publicly traded, Santa Clara-based Agilent Technologies to expand the distribution of MultiProbe's devices in Asia.

MultiProbe's tools will help bring Agilent's ultra-sensitive measuring devices down to the nanometer scale. A nanometer is a billionth of a meter; a

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MULTIPROBE

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human hair, by contrast, is about 100 millionths of a meter thick.

"It's really hard to do business in Asia," Erickson said. "Agilent will help us in Asia because they already have the sales, service and distribution. They're obsessed with electrical measurement, and so are we."

In some ways, MultiProbe's devices work like standard atomic-force microscopes, much like the arm and stylus of a record player moving along the grooves of a vinyl record.

Atomic force microscopes map microscopic terrain in a similar manner, dragging a stylus across a surface whose features in turn move a stylus-like probe and arm. A laser is reflected off the back of the probe and into a digital sensor. As the probe moves along a surface, the laser beam's point of impact on the sensor varies. Computers can translate that information into two-dimensional images.

To get a third dimension, atomic force microscopes press the needle-like probe into a surface, bending the arm slightly. The amount of energy needed to keep the arm at a uniform bend while it crosses dips and rises yields data to map depth.

MultiProbe's devices throw in a new twist: the ability to place up to six probes as close as 50 nanometers apart.

To understand how chipmakers use MultiProbe's devices, imagine a volt meter, a gadget commonly available at hardware stores. Usually a small yellow

MULTIPROBE

- **Founded: 2001**
- **2002 revenue: \$100,000**
- **2006 revenue: \$6 million**
- **2001 employees: 1**
- **2006 employees: 28**
- **Current employees: About 40**

box, volt meters come equipped with two needle-like points to detect how much current or voltage flows through an object placed between the points.

Now imagine being able to drag those needle-like points across a surface to locate rises and dips only a few atoms high or deep. MultiProbe's tool can find and place its probes onto such features at 60 nanometers apart, passing electricity from one probe to another to measure how much current the sample allows to pass between the two probes.

"It's really using a volt meter at a nano scale," said Peter Harris, MultiProbe's chief technology officer. "People have been doing this for a long time, just never at this scale."

Devices that use a single probe can't take such electrical measurements. To take the readings with a single-probe device, engineers must place a platinum contact on the chip and run a wire from it, altering the semiconductor they're trying to test. Electron microscopes could be used, but their beam of electrons damages the surface of chips.

"If you're going to do good measure-

ments, your tool can't be part of them," Erickson said.

MultiProbe, founded by Erickson in 2001, has been growing by leaps and bounds. In 2002, the company had just \$100,000 in revenue. By 2004, the company had made its first million dollars and turned its first profit.

In 2006, MultiProbe had sales of \$6 million and employed 28 people. Nearing the end of 2007, the company has boosted its headcount to about 40 people and is still hiring. All of that expansion earned MultiProbe a No. 68 spot on Entrepreneur Magazine's "Hot 500 Companies" list earlier this year.

Back in early 2001, Erickson started MultiProbe in his garage with a \$50,000 loan from his mother. He eventually moved to a larger garage and finally completed his first atomic-force probing device in an old dentist's office on Islay Street in Santa Barbara.

Erickson's hands-on approach still shows. Walking MultiProbe's halls, the chief executive is just as at ease giving a worker advice on how to grind down a bolt as he is at sealing a multinational distribution deal.

Now that he's escaped the garage, Erickson keeps pushing forward to make MultiProbe the company he envisioned.

On a tour of MultiProbe's headquarters, he stops to point out a company gym replete with weight machines, cardio-bikes and treadmills. After giving up a few years of his life to get his business started, Erickson said, "I built that [gym] to lose the entrepreneurial gut. Anyone who's been an entrepreneur understands what I mean."