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Innovation, aggressiveness bring success to Freescale

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The Arizona Republic

Jul. 31, 2006 12:00 AM

Freescale Semiconductor Inc. chips are embedded in billions of devices around the world, from automobiles to computer networks to wireless devices. Still, when the company was spun off from Motorola Inc. two years ago, its ability to power itself was uncertain.

Aggressive new management, a revamped product line and an improving semiconductor market have helped make the Austin, Texas-based Freescale a success story.

Earlier this month, Freescale unveiled a new generation memory chip called MRAM that was developed in Chandler and puts the company ahead of its competitors in a race to find more efficient ways to store information. The chip also will be manufactured in Chandler.

On Tuesday, the company announced innovative new packaging technology that allows multiple chips to be integrated on a semiconductor more efficiently and at less cost.

"It is the semiconductor packaging technology of the future," said Morry Marshal, semiconductor industry analyst.

Freescale has surprised investors and analysts who were at first skeptical about its chances.

"It's done better than anyone expected," said Will Strauss, a semiconductor industry analyst whose firm, Forward Concepts, is based in Tempe.

Freescale employs 3,100 people at manufacturing and research and development facilities in Chandler and Tempe, and the company actively is hiring for its Arizona sites.

"These are very important facilities for us," said Lisa Bradley, a spokeswoman for Freescale in Phoenix.

History of innovation

Freescale's predecessor, Motorola, started the tradition of cutting-edge innovation in the Valley in 1949. It pioneered the commercial production of semiconductors at its 52nd Street facility in Phoenix and went on to log many of the industry's key advancements.

By the early 2000s Motorola's Semiconductor Products Sector had suffered big losses from an industry downturn and had lost its edge as an industry leader.

"They were fading," Strauss said.

Motorola moved the headquarters for its semiconductor business from Phoenix to Austin in the late 1990s, but it maintained production and product development facilities in Chandler and Tempe.

"People thought they would eventually close those facilities, too, and move out of Phoenix altogether," noted Jim Feldhan, president of Semico, a semiconductor market research firm based in Phoenix.

Under pressure from Wall Street, Motorola spun its Semiconductor Product Sector, renamed Freescale Semiconductor, off to its stockholders in July 2004.

"People were skeptical," Strauss said. The share price of a \$2.25 billion initial public offering had to be slashed by 30 percent in order to attract buyers.

People also were apprehensive about Michel Mayer, Freescale's new chairman and chief executive officer. He came to the company from IBM and didn't have a lot of experience in the semiconductor industry.

But Mayer has proved he was exactly right for the job. He brought in new management, cut fat, increased spending for research and development and introduced new products.

"Mayer brought fresh blood and ideas to a company that had always promoted from within and had gotten pretty stale," Feldhan said.

In two years, Mayer has transformed Freescale from a company focused on one customer - Motorola - to a highly competitive, diverse business that is an industry leader.

Besides developing new products, Jim Grothe, marketing manager for Freescale's sensor and analog products division in Phoenix, noted that the company has made significant changes to its existing products to make them more generic.

Under Motorola, the business was known for its custom products that were tailor-made for products of specific clients. Now, it is making chips that work in products made by a number of manufacturers.

That enables the company to recover its research and development costs faster and price its chips more competitively.

Those people who did invest in the company's IPO at \$13 have been rewarded for their foresight with a 123 percent return on their investment. Freescale's stock closed up \$1.49, or 5.4 percent July 20 at \$29.02.

On July 20 the company reported second-quarter earnings of \$260 million, more than double that of a year earlier.

"As we celebrate the second anniversary of our IPO, we are starting to see the benefit of our focus on accelerating revenue growth," Mayer said.

Strauss said, "Freescale is a revitalized company. It's evident by their new products and by what we are hearing from their customers."

Easy upgrades

Another change has been to make more powerful chips that work with existing software.

"Customers can upgrade to faster, more efficient chips, without spending 10 man-years writing new software," Feldhan said.

The new design makes its 8-bit microcontrollers compatible with its 32-bit units.

"It gives designers the ability to move effortlessly between 8-bit and 32-bit microcontrollers," said Mike McCourt, vice president and general manager of Freescale's Microcontroller Division. "It's 32-bit performance with 8-bit ease-of-use at 16-bit prices."

Earlier this month, Freescale unveiled a new generation memory chip that puts the company ahead of its competitors in a race to find more efficient ways to store information.

The magnetoresistive random access memory chip, or MRAM, was developed in Chandler and uses a magnetic charge instead of electrical current to store information.

The new MRAM chip is particularly suited to the increasingly sophisticated hand-held electronic devices that are driving much of the growth in the semiconductor industry.

"It has the potential to replace existing memory technology in a vast number of products," Feldhan said.

The MRAM chip is just one of many innovative products Freescale has introduced. The company spends nearly \$1 billion a year on research and development.

"They're putting a lot of money into R&D, and it is showing up in new products," Strauss noted.

One product is a powerful new chip that goes into cellular base stations to control the flow of information over wireless networks. Another is a chip that controls automobile engines.

"A sensor examines the potential for knock in each cylinder and tells a microprocessor what to do," Strauss said.

Freescale is the world's largest producer of the approximately 150 separate computer chips that are now contained in some automobiles.

In Tempe, researchers are working on micro-electro-mechanical systems or MEMS. The devices are sensors and actuators that are integrated on a silicon chip that can shut down a dropped cellphone before it hits the ground or enable iPod users to scroll through playlists.

A product called ZigBee is a new generation short-distance wireless network that could be used to monitor household systems and the health of individuals. In an emergency, a signal could be sent to a patient's wireless phone, which could be programmed to contact the nearest medical center.