STREET SMART

A competitive New Yorker, Jerry Fishman moves Analog Devices from staid to standout

When Jerald Fishman became president and chief operating officer of **Analog Devices Inc.,** in 1991, he and CEO Ray Stata had a special conference room built at ADI's corporate headquarters, in Norwood, Mass. The room has soundproof walls and one window, made of stained glass.

Employees dubbed the room "the chapel," and not only because of the stained glass. "We built it to be a place where Ray and I could go to iron out our differences in private," says Fishman. "Nobody in the company would know what went on in that room, and when we emerged, it would be with one voice, the voice of God."

Stata, a cofounder of ADI, and Fishman, his heir apparent, had a lot of differences. Stata was more a technologist than a businessman. Since cofounding the company, in 1965, he had fashioned ADI into a Nirvana for talented engineers. Designers came to ADI to develop some of the most high-performance, cutting-edge technology in signal processing, and the company's military and industrial markets ate it up. ADI was like a close-knit family of MIT whiz kids, with Stata as their professorial father. Fishman, on the other hand, was more businessman and lawyer than engineer. Born and raised in a tough New York City neighborhood (see "Humble Beginnings," page 44), he'd been brashly challenging ADI's management ever since he joined the company in 1971. Pragmatic, bottom-line oriented and aggressive, Fishman stood in stark contrast to the kinder, gentler Stata. "Every day you've got to wake up knowing there's somebody after your lunch," he says. "And if you don't think that, somebody will take your lunch."

Nevertheless, Stata handpicked Fishman to succeed him. And the results show that it was the right choice. Fishman has guided the growth of ADI from an elite engineering enclave into a $2.7 billion semiconductor powerhouse. Since Fishman became CEO, in 1996, revenue has more than

PHOTO BY STEVE EDSON

By Tam Harbert

doubled and the company's cash has increased from $300 million to $2.7 billion as of the third quarter of 2004. Such financial strength has allowed Fishman to keep the company focused; to continue spending during the worst semiconductor downturn in history; and, through it all, to maintain profitability. "Jerry's biggest contribution is that he's kept a very steady hand on the helm, through both great ups and great downs," says John Doyle, an ADI board member and retired Hewlett-Packard executive. "He's run a tight, but very innovative, ship, and the financial results have been first-class."

The company has gone from being considered a "second-tier analog play" to being "one of the best-positioned large-cap chip companies," says Mark Grossman, a partner at investment firm America's Growth Capital. Today, ADI is entrenched in one of the most profitable segments of the chip business, high-performance analog, where it has some 40 percent of the market. It has a footing in one of the fastest-growing parts of the chip business, digital signal processors. And it's a leader in the emerging microelectromechanical systems (MEMS) sensor business.

For all these reasons, ELECTRONIC BUSINESS names Fishman as its 2004 CEO of the Year. Behind this strong performance is a complex tale of how Fishman is changing a corporate culture from the inside. It's the story of how two strong personalities found common ground; how a technology-oriented founder successfully handed off the reins to a business-oriented CEO; and how that CEO has melded the best of a culture of engineering excellence with a stronger focus on markets, financial results and competition.

"In technology companies, it's all about transitions," says Fishman. "Transitions in leadership, transitions in technology, transitions in markets. It's how you manage across those transitions, I think, that more than anything separates the companies that are going to last from those that don't."

"He was not afraid to ask the CEO and top management whether they had their heads screwed on straight."

—Ray Stata, chairman, Analog Devices

A boy from the Bronx

It didn't take long for executives to notice Fishman when he joined ADI as a product marketing engineer in 1971. "He was kind of hard to ignore," quips Stata. Raised in the Bronx and Queens areas of New York City, Fishman got in people's faces. "He was not afraid to ask the CEO and top management whether they had their heads screwed on straight," says Stata.

"A lot of people were extremely deferential to Ray. I just was never one of them," says Fishman. "If I thought he was wrong, I'd just tell him, and I'd be blunt. What people always failed to recognize about Ray was that that's what he wanted."

Indeed, in some companies, questioning the CEO gets you fired. Instead, Stata rewarded Fishman's chutzpah, giving him larger and larger chunks of responsibility. Stata suspected that beneath that brash exterior lay a keen intellect; strategic insight into the business; and a results-oriented management style—qualities that might serve ADI well if they were properly harnessed. What's more, the man was often right, which wasn't easy for the founder to take. "I either have a great capacity to take abuse or I have a strong desire to hear the truth," says Stata.

In 1991 CEO Stata named Fishman president and COO, and their differences were both enshrined and isolated within the chapel. It was in that room that the two hashed out the strategy for ADI, in private, so that their debates would not fracture the company. Their biggest argument? "There were so many," Fishman replies, "but one of the major ones was about the management process. Ray was always a management scientist, very curious about innovative management techniques. He experimented a lot. I was always more of a pragmatist. I would always say, 'OK, let's get down and do something.'" What got them through all the debating was their mutual respect. And at heart, they both shared the same values: integrity, a desire to stay on the leading edge of innovation and the attitude that ADI needed to remain a great place for engineers to work. They also had the same goal: building ADI into a large chip company with staying power. But it was Fishman who would crystalize these ideas and put together a plan for how to reach them.

And they saw the same trend that would enable ADI to get there: the move of the mainstream market toward ADI. As more of the analog world went digital, mainstream consumer products such as cell phones, TVs and audio players would require high-performance signal processing, particularly analog-to-digital conversion, ADI's specialty. The opportunities to apply its expertise would be almost unlimited—it could cherry-pick the vertical applications where it could deliver the most value and, as a result, earn good profits.

"I want to build this into a really large company," says Fishman, who is aiming to reach $5 billion in revenue within the next five years. "We have a lot of fundamental technology, but we were aiming it at an area that was to some degree self-limiting in terms of how large we could grow."

A sense of security

But Fishman wasn't about to go chasing new markets before making sure his foundation was strong. Despite his fearless persona, Fishman is careful and conservative. "I actually have a higher capacity for risk," says Stata, who had started a corporate venture fund that Fishman later killed. "Jerry is less willing to go as far out on a limb." First Fishman tightened ADI's financial performance

ANALOG DEVICES INC. AT-A-GLANCE

Corporate Headquarters: Norwood, Mass.
Founded: 1965
Went public: 1979
Web site: *www.analog.com*
CEO and president: Jerald Fishman
Chairman: Ray Stata
Exchange/Ticker Symbol: NYSE/ADI
Employees: about 9,000

Business: Analog Devices Inc. is a semiconductor company specializing in high-performance analog, mixed signal and digital signal processing ICs.

For fiscal year's first business day of November	2001	2002	2003
Revenue (in millions of $)	2,276	1,707	2,047
Net income (in millions of $)	356	105	298
Return on average operating assets*	17%	5%	15%

* Calculation excludes the company's $2.7 billion cash balance.

SOURCE: COMPANY REPORTS

Humble beginnings

Fishman brings chutzpah, and several college degrees, to ADI

JERRY FISHMAN is one well-educated man. Not only does he have bachelor's and master's degrees in electrical engineering but he also holds an MBA from Northeastern University and a law degree from Suffolk University. But ask him how that's helped him be a better CEO, and he shrugs. The only reason he has them, he says, is because he was casting about in his youth, trying to find a profession. All those degrees help him "just a little bit" in his job. What has helped him more is the competitive, aggressive nature he developed while growing up in New York City.

Jerry Fishman's high school classmate Millard Drexler also grew up to be a CEO, even though "we were B students," Drexler says now.

Born in the Bronx, Fishman grew up in the Flushing neighborhood of Queens, which was "a half-step up from some of the really tough neighborhoods of New York." His father, an immigrant from Eastern Europe, worked in the garment district and taught his children that education was the only way to move up the economic ladder. When young Jerry won a scholarship to the tony Phillips Academy in Andover, Mass., in a contest held among *New York Post* delivery boys, his father was thrilled. Jerry wasn't. "I did a little research and figured out that there weren't a lot of people up there like me." (Hint: George H. W. Bush as well as his two sons, George W. and Jeb, are graduates.) He turned down the scholarship and, to compromise with his father, took and passed the rigorous entrance exam for the best school that was close to home and free: the Bronx High School of Science.

But Jerry wasn't thrilled about Bronx Science either. His commute was one and three quarters hours by subway each way. "I had to get up at 5 in the morning, didn't get home till 6 p.m., and had a ton of homework." Only one other kid from his neighborhood went to Bronx Science. Used to being one of the smart kids at his old school, he says, "now I was in an environment where everybody was smarter than or at least as smart as I was."

But he stuck it out—through sheer stubbornness, to hear him tell it. "Once I start things, I really hate to give up. More than anything, that's why I stayed."

High school wasn't completely grim, however. "Every once in a while, we'd cut class and go to the Yonkers Raceway and bet on the horses," says Millard Drexler, a classmate of Fishman's who also grew up to become a CEO, first of Ann Taylor, then the Gap, and now J. Crew. There was nothing about either of them to indicate they'd go on to become the CEOs of major corporations, says Drexler. "We were B students." However, "you take a New York subway one and three quarters hours to and from school every day—that's the best education you're going to get in terms of being tough and street-smart," he points out.

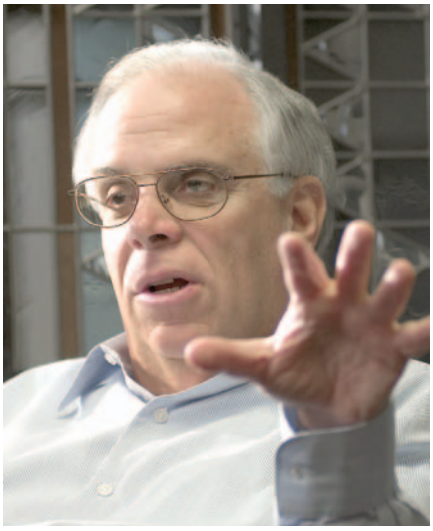
And it just could be that all those college degrees help Fishman more than he realizes. Among his strongest attributes are his breadth of knowledge, from the technical front to the business front, and his ability to communicate with various groups, including engineers, executives and customers, says Joe McDonough, **ADI**'s CFO. With a master's degree in electrical engineering, he can certainly talk his engineers' language. The MBA almost certainly helped him develop his bottom-line orientation and helps him talk to Wall Street. As for the law degree? It no doubt has helped the brash New Yorker win a few arguments.—*T.H.*

and salted away plenty of cash. That cash cushion was important, in that it would enable him to stick with his strategy, he says. "Consistency is important. Changing every time the market blows a certain way—you can't build a technology company that way. You have to have a business model that can get you through the cycles of this business without trashing the most important strategies of your organization."

And Fishman's tight control of the finances did enable ADI to do that during the last downturn. Specifically, when the company's sales dropped by more than 30 percent between 2000 and 2002, the company continued its R&D spending, allowing that spending to rise as high as 25 percent of revenues. Although it had to cut manufacturing jobs, it kept hiring new engineering graduates, as well as 200 new field applications engineers to help it develop relationships with newly emerging customers around the world, according to CFO Joe McDonough. It also continued capital expenditures to upgrade its fabs and consolidate back-end manufacturing, which has resulted today in a lower cost structure, he notes.

"You have to give Fishman and his management team a lot of credit," says Grossman. "They've really stuck to their knitting."

"In technology, it's all about transistions. How you manage across those transitions separates the companies that are going to last from those that don't."



A big part of that is how Fishman has preserved and protected what the company calls its "horizontal franchise." Over the years of serving the military and scientific markets, the company built an incredibly broad analog product line and customer base. ADI sells 10,000 different products to 60,000 different customers. That fragmentation insulates the business from extreme volatility within any particular market or from any one customer. In 2003, for example, ADI derived only 12 percent of its revenue from its 10 largest customers, and its top 10,000 customers accounted for only 41 percent of its revenue. And once an ADI part is designed in, it often has a long life cycle, generating revenue for years (see the chart, "Vintage Analog," right). The gross margins on analog products average around 65 percent. Certain industrial parts have margins as high as 90 percent, according to Adam Parker, an analyst at Sanford C. Bernstein & Co.

ANALOG IC MARKET SHARES, 2003

Texas Instruments	10.9%
ST Microelectronics	10.8%
Infineon	5.1%
Analog Devices	4.9%

Although Analog Devices ranks fourth in the overall analog IC market, it dominates the high-performance segment of the market, particularly in high-performance converters, where it holds 42 percent of the market, according to Gary Grandbois, an iSuppli analyst.

SOURCE: iSUPPLI

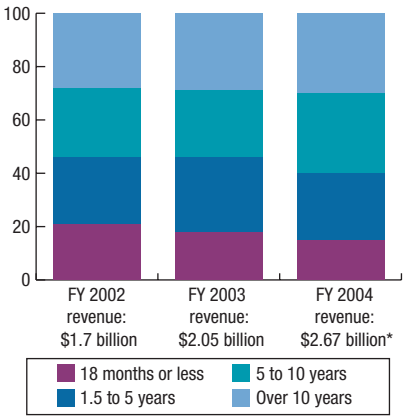
Leveraging the cash cow

Working from this high-margin base, ADI could take the technology it had developed in its horizontal franchise, such as A/D converters, and quickly customize it for particular vertical market applications, such as mobile phones or digital cameras. "It turns out that a lot of the fundamental technology for these vertical market solutions comes out of these horizontal businesses. So we want to keep that engine whirring," Fishman explains. "First, it produces a large part of our profits. Second, it produces a large part of our technology."

The trouble is, that very useful engine also created a corporate culture that limited ADI's ability to strike out for these new markets. The company prided itself on hiring and developing the best and brightest analog circuit designers in the world—some 3,200 of its 9,000 employees are engineers. Design teams in Boston; Greensboro, N.C.; and Limerick, Ireland, all designed similar products and even competed against each other to develop the highest-performance parts, according to Brian McAloon, group vice president for DSP, media and communications products. "We had a very simple cost structure," says Fishman. "We took our cost and multiplied it by some number. And that was the price."

VINTAGE ANALOG

percent of sales by age of product



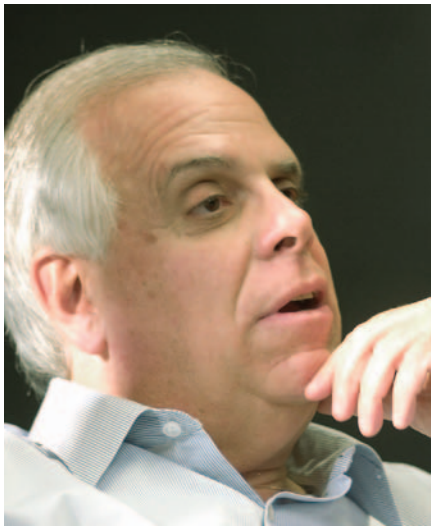
Analog Devices continues to get from 25 to 30 percent of its revenues from products that are at least 10 years old.

*Estimated. Percentage breakdown is based on sales through the third quarter of 2004.

SOURCE: ANALOG DEVICES

But in markets such as consumer electronics, low cost and short time to market rule. Fishman had to get ADI engineers focused on competing as a team against other companies rather than competing with each other. Within a year of becoming president, Fishman had consolidated engineering teams, eliminated overlapping product development between divisions and revamped the product development process, says McAloon. He restructured the organization into teams focused on ADI's core technologies—analog, digital signal processing and MEMS—and charged them with figuring out how to apply those technologies in particular markets, such as cell phones, base stations or digital cameras, notes McAloon. Fishman brought customers in to talk to engineers and sent engineers to customer sites. He also required the teams to document their development process, recording their assumptions, forecasts, development schedule and costs. "Just the process of doing this made the engineers start thinking, 'My God, this must be important,'" says Fishman.

Fishman's tough New York persona was ideal for a CEO trying to rouse a company into a competitive stance. He was loud. He was direct. He wanted results, not excuses. "In New York, if you're not in somebody's face, they're in yours. It's just a question of survival," he says. Similarly, "building a technology company is not a gentlemanly sport." This was the attitude ADI needed for markets in which "product cycles are shorter, competition is harder,



"I had this logical, interrogating style that was very intimidating. It's a style of getting information—it's not a personal attack."

the room for error is less and you've got to fight for the margins."

At the same time, he had to be careful not to alienate his staff. "I had this logical, interrogating style and that was very intimidating," Fishman admits. He learned to tone it down while ADI employees simultaneously realized that "it's a style of getting information—it's not a personal attack," says Fishman.

Slow and steady

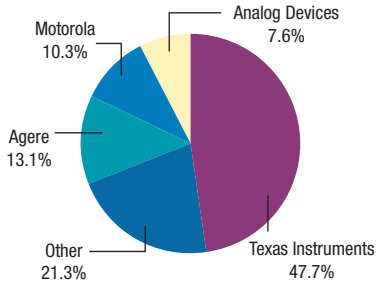
Fishman's goal of changing ADI's culture and steering the company into new markets has not exactly been reached overnight. The effort is more than a decade old, and he's still working at it. The company has remained strong in its industrial market, which makes up about 40 percent of revenues, while diversifying into the communications, PC and consumer markets, which now make up 35 percent, 15 percent and 10 percent of revenues, respectively. It has made successful forays with its analog chips into several specific vertical markets, including the cell phone, digital camera and wireless base station markets. But analog still makes up 78 percent of its revenue. In DSPs, which make up the other 22 percent, the company has yet to achieve a market share of more than 10 percent. When ADI entered the DSP market, in the early 1990s, its aim was to do in digital signal processing what it had done in analog processing: fill the emerging need for high-performance parts in a broad range of vertical applications, says McAloon. The problem was that those applications never developed. Instead, one application (cell phones) and one vendor (**Texas Instruments**) came to dominate the market.

But the DSP market may finally be starting to fragment. "DSPs are getting to the low price points and high performance points where they are going to be used in many places they haven't been before," Fishman says. Whereas ADI had only about 100 DSP customers three to four years ago, the company will have 10,000 customers designing with its DSPs by the end of 2004, says Fishman. "We're hopeful that the characteristics of the DSP business will become a lot like those of the analog business."

Meanwhile, Fishman keeps plugging away, prodding his engineers and guiding ADI to new markets. He's still building new processes into the company to encourage engineers to think more about customers' needs than the technology. "We still tend to look at the technologies within the company in silos, rather than across customer or market segments," he says. To break down those silos, Fishman earlier this year instituted quarterly reviews among the technology groups to focus on specific application segments. They discuss, for example, how they can combine analog, DSP and MEMS technologies to help lower costs and increase performance for ADI's digital camera customers.

Fishman's goal of hitting $5 billion seems plausible. Bernstein's Parker figures that ADI can grow at an average annual rate of 12 to 15 percent over the next five years, with revenue reaching $3.9 billion in fiscal 2008. Fishman, who turns 59 this month, plans to stick around for a while, at least until he's found the right balance between horizontal and vertical markets and built a structure into ADI that will keep that balance. "Very few companies have navigated both types of businesses simultaneously," he says. "That would be a great legacy for this management group."

DSP VENDOR MARKET SHARES
for calendar year 2003



Total = $6.13 billion

SOURCE: FOREWARD CONCEPTS

ADI REVENUE BY PRODUCT CATEGORY
as of third quarter 2004

Data converters	41%
DSPs	21%
Amplifiers	19%
MEMS	5%
Power management	5%
Interface	4%
Other linear	3%
Special consumer	2%

SOURCE: SANFORD BERNSTEIN & CO.

ADI REVENUE BY END MARKET
as of third quarter 2004

Communication	
Wireless:	18%
Wireline:	17%
PC	15%
Consumer	10%
Industrial and instrumentation	40%

SOURCE: ADI AND DRESDNER KLEINWORT WASSERSTEIN ESTIMATES.

Do you think ADI can be successful in vertical as well as horizontal markets? **Send your thoughts to feedback@eb-mag.com**.

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