

CORPORATE FOCUS

Solectron Becomes a Force in 'Stealth Manufacturing'

Contractor Turns Out Products That Get Stamped With Big-Name Labels

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MILPITAS, Calif. — A new breed of American company is arising out of the relentless drive to reach global markets more quickly—the stealth manufacturer.

One such company, Solectron Corp., makes computers, printers, cellular phones and other high-tech gear. But you can't buy Solectron-brand merchandise. The famous names stamped on its products, such as International Business Machines Corp., Hewlett-Packard Co. and Cisco Systems Inc., hire it to make major parts.

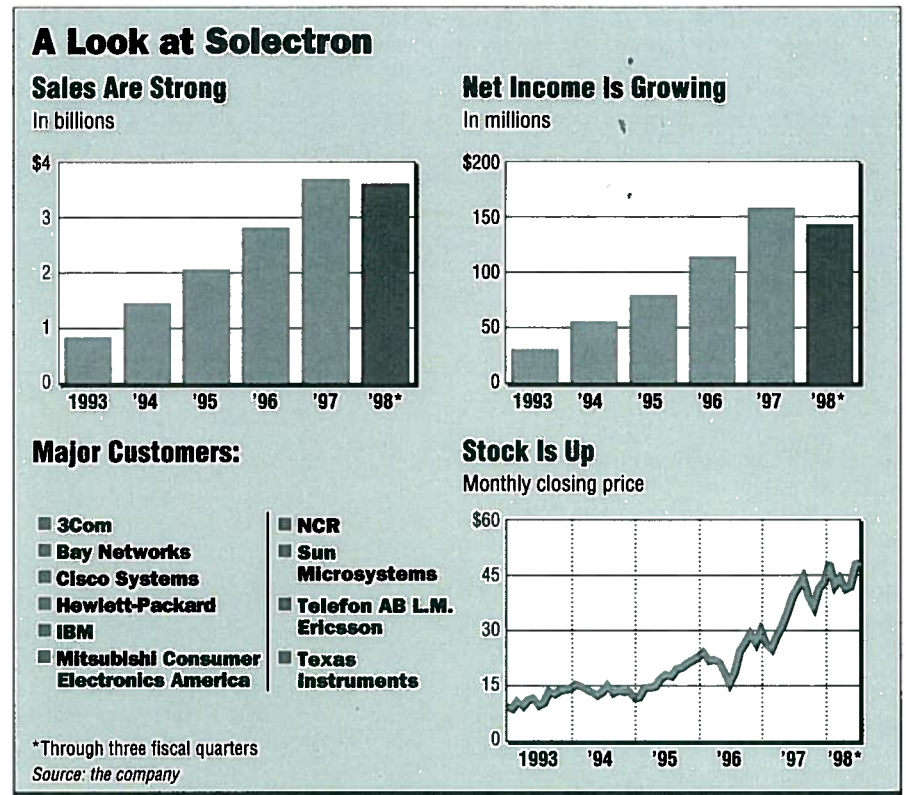
Overseas contractors have been doing such work for years. But Solectron's biggest plant isn't in Asia but here in Silicon Valley. More than 5,600 people work for it in California, in jobs that were supposed to have fled the U.S. a decade ago.

The U.S. contract manufacturers are helping hollow out America's corporations while bolstering its manufacturing base. They land orders because they are considered among the world's most efficient manufacturers, and their proximity is prized because it facilitates quick product development. As a result, electronics manufacturing is thriving in U.S. plants run by contractors such as Solectron, SCI Systems Inc., Jabil Circuit Inc. and Toronto-based Celestica Inc.

The U.S. contractors are the leaders of a \$90 billion global business that is growing about 25% a year, almost twice as fast as the industry they serve. They are so efficient that companies such as H-P, IBM and Texas Instruments Inc. are, in effect, handing over to them their factories.

European companies such as Telefon AB L.M. Ericsson of Sweden and Nokia Corp. of Finland are also outsourcing to the Americans. And last month, a unit of Mitsubishi Electric Corp. sold production lines in Georgia to Solectron and hired it to make cellular phones — perhaps the first time a big Japanese manufacturer hired a U.S. company to do its manufacturing.

American contractors are facilitating the rise of the "virtual company," one that does little besides design and market a product. For example, Terayon Communications Inc., a start-up cable-modem company, has Solectron buy the parts and



assemble, test and ship the modems to cable-TV companies. For many clients, Solectron also does repair work because it knows the machines so well.

Solectron, with annual revenue approaching \$5 billion, is gaining rapidly on the kingpin of electronics contract manufacturing, SCI Systems, of Huntsville, Ala. Solectron exploits ties to its Silicon Valley neighbors. Teams of its engineers sometimes design products for clients that are competitors. The clients don't mind.

"They learn from other customers," says Hans Ahlinder, vice president of production for Ericsson, the Swedish telecommunications giant, which recently sold Solectron a factory in Brazil and hired the company to design new products. "There's technology they can provide better than we can internally. . . . They will always be more efficient."

All this contrasts sharply with the stereotype of contract-electronics companies:

sweatshops where low-paid workers solder tiny parts together. Even so, Solectron itself relies heavily on immigrants and first-generation Americans and pays low wages. New assembly workers, who begin as employees of a temporary agency, start at about \$6.50 an hour.

But Solectron invests heavily in training, even offering English classes. And with its fast growth, salaries can rise rapidly, through bonuses, overtime and promotions. Almost a fourth of its California workers were promoted last year.

As Solectron and other contract manufacturers expand to do everything for everyone, however, they risk losing the very nimbleness behind their success. Solectron has acquired or agreed to acquire six factories in the past year, accelerating its growth and raising questions about its ability to integrate the new capacity. Even some customers say it may become vulnerable to a new generation of Solectrons.

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"I think they need to be very careful on not getting too costly," says Phil Faraci, operations manager for H-P's inkjet-printer division. "They could become like H-P was historically. They get a broader capability but can't focus on every piece. Then new, smaller companies come in."

Sometimes, Solectron helps move jobs out of the U.S. H-P is eliminating 1,000 employees at a printer factory in Vancouver, Wash., by outsourcing the work to Solectron, which will build some printers in Brazil; the remainder will probably be made in Mexico. But Solectron also rejuvenates U.S. factories languishing as small branches of electronics giants. In 1993, Solectron bought a 73-person H-P circuit-board plant in Everett, Wash.; the plant now employs 563, and Solectron expects to double the work force in two years.

By keeping assembly lines running 24 hours a day, Solectron spreads the costs of its buildings and machines across more products. As a \$3 billion-a-year purchaser of electronic components, Solectron gets low prices and precisely scheduled deliveries that minimize inventory. Every efficiency and every expense is meticulously recorded; profits are tracked weekly for the entire company. "We measure the hell out of things," says Jim Daly, manager of the complex-systems division.

It has to. Solectron operates on much thinner profit margins than its customers do. On average, it spends almost 90 cents to make products it sells for \$1, compared with 66 cents for H-P and 35 cents for Cisco. It relies on high volume and low overhead. "If they can build a unit and charge us \$5, it may cost them \$4.80," H-P's Mr. Faraci says. "But they turn it over so many times a month that it's a good deal for them."

And earn good profits. In fiscal 1997, Solectron earned \$158 million, or \$1.36 a diluted share, up from \$30.6 million, or 38 cents a share, in fiscal 1993. Sales over the four-year period more than quadrupled to \$3.69 billion. In the fiscal third quarter, ended May 29, net income rose 18% to \$49.2 million, or 41 cents a diluted share, on a 30% increase in revenue to \$1.28 billion.

However, Solectron's small margins leave little room for error. Quality is more than a buzzword; it's an obsession. The company asks its 150 customers to grade it every week on quality, responsiveness, communication, service and technical support. The grades help determine bonuses for workers and managers alike.

Winston Chen, Solectron's former chief executive officer, imposed the rating system in 1984 to get routine feedback. It generally works. Doug Quach, Solectron's chief test engineer for Terayon, says he rarely gets nasty surprises; he usually learns about any trouble quickly.

Customers praise Solectron's attention to detail. "If you're doing a million a month of something and have a 1% problem, it's a disaster," H-P's Mr. Faraci says. Terayon Chief Executive Zaki Rakib praises what he calls Solectron's "incredible discipline. Every line looks exactly the same everywhere in the world." The result: Solectron can shift jobs or add capacity quickly.

Solectron was founded in 1977 to make solar-energy products but was deep in debt a year later when Mr. Chen, a former IBM manager, took over and focused on serving Silicon Valley's booming electronics companies. By 1984, Solectron had annual sales of \$50 million, but Mr. Chen couldn't persuade the valley's venture capitalists to

help him expand. He ultimately raised \$8 million from a New York fund.

Four years later, Solectron had to cancel its first attempt to sell stock to the public. But a year later, it succeeded. Since then, its stock has risen more than 60-fold; in composite trading on the New York Stock Exchange yesterday, it closed at \$50.0625, up \$1.50 on the day.

"We're playing in the big leagues and we're winning," Senior Vice President Walter Wilson says with relish.

Mr. Chen hired several former IBM colleagues, including Mr. Wilson and the current chief executive, Koichi Nishimura. It took Mr. Chen a decade to coax Mr. Nishimura to join Solectron as chief operating officer in 1988, and three more years to persuade his hard-working protégé to give up an early-morning paper route that Mr. Nishimura took over when his kids went off to college. These days, the 59-year-old Mr. Nishimura wouldn't be a reliable carrier. He now spends about three weeks a month on the road.

To manage growth, Solectron often turns away business. Its executives say they choose clients carefully because of the effort they put into each relationship. For Terayon, that means daily huddles with some or all of the eight Solectron managers on the account. Solectron employees know Terayon's production schedule, revenue targets and plans for new modems.

For a young company still learning its business and tweaking its designs, the help is more valuable than any savings from manufacturing overseas, says Dennis Picker, Terayon's chief operating officer. "We might be able to get a slightly better price in Asia," he says, "but the proximity is worth its weight in gold."