GLOBAL ELECTRONICS

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WATCH THE DATES

Though this is officially the February, 1987 issue of **Global Electronics**, we are finishing the writing in early April. Consequently, this issue covers important events from March and even cites sources carrying April publication dates. We are sorry for the confusion. We plan to catch up later this year.

A VOICE IS NEEDED

With this issue, **Global Electronics** begins its seventh volume. Over the six-plus years that we have been publishing, we feel that we've done a good job monitoring trends in high-tech industry. More important, those of us who study the electronics industry—and most Global Electronics readers meet this qualification to one degree or another—today have a rather clear idea about the state of the industry, where it's going, and how it is affecting our lives.

Today we know enough to challenge assumptions made about high-tech in Washington, state capitals, and other centers of power. It is time for outsiders—that is, people who are not high-tech managers or investors—to establish a voice on high-tech public policy.

On three currently high-profile policy issues, the leadership of America's merchant semiconductor industry has identified its wants with the national interest: the creation of a Pentagon-subsidized consortium for the development of chip manufacturing technology; the unsuccessful attempt of Fujitsu to take control of Fairchild Semiconductor; and the charge that Japanese producers are dumping memory chips in the U.S. and world markets.

Whenever one of these issues comes up, the press and Congress assume that "American" companies provide jobs in the U.S. Protecting the U.S. semiconductor industry is seen as protecting American workers. No one in the national eye has managed to get across the fact that U.S.-based chipmakers have never considered the creation of U.S. jobs a priority.

On the question of reproductive hazards in chip production, a coalition of labor, environmental, and other organizations successfully entered the national debate, but on other issues, such as trade, taxes, and direct subsidies, only the large companies and trade associations are heard.

There is a great need to set up an office, network, or some other policy presence representing views other than those of industry management. If the Integrated Circuit (The National Network for a New High-Tech Agenda) gets funding, then it will be an ideal vehicle. But we can't wait.

PSEUDO-PROTECTIONISM SINKS FAIRCHILD-FUJITSU DEAL

Last October Fujitsu, Japan's largest computer manufacturer, announced plans to acquire eighty percent of Fairchild Semiconductor, Silicon Valley's pioneer chipmaker. (See **Global Electronics**, October-November, 1986.)

This March Defense Secretary Caspar Weinberger, along with Commerce Secretary Malcolm Baldridge, questioned the impact of the sale on both national security and the U.S. economy. When they announced their opposition to the takeover, Fujitsu scuttled the deal.

To many Americans, it appeared that the free trade rhetoric of the Reagan administration was giving in to the reality that American manufacturing was on the decline.

In reality, however, resisting the Faichild-Fujitsu deal does nothing to protect the U.S. economy or strengthen American national defense. The U.S. reaction to the proposed takeover shows that a small group of electronics executives have managed to convince policy-makers and the press that their problems have been caused by unfair Japanese competition. No one, it appears, has seriously examined the impact of the proposal on U.S. trade, employment, or technology.

Fujitsu apparently agreed to buy Fairchild, a company of declining market share and poor financial performance, for two reasons: First, it

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wanted access to certain technologies where Fairchild appears to be moving ahead. Despite the failure to merge, Fujitsu will probably still get the knowhow. It is already arranging a technology-sharing agreement—similar to those linking numerous other U.S. and Japanese high-tech firms —with Fairchild management.

Second, it wanted to expand its capacity to build semiconductors in the U.S. With protectionism on the rise in the U.S. and the Yen on the rise in the world, Fujitsu realized it would be easier and more profitable to sell in the U.S. chips made in the U.S. Such a move would be good for the American economy, since it would reduce imports and provide jobs to American workers, but it threatened Fujitsu's American-owned competitors.

Since the earliest days of integrated circuit production, long before the Japanese became a factor in the chip business, U.S.-based semiconductor companies have gone overseas to assemble and package their chips. Ironically, Fairchild initiated this pattern when it was one of the top three semiconductor firms in the U.S.

Japanese electronics firms, on the other hand, have combined their assembly plants with their more complex wafer fabrication facilities. Historically, this has meant doing assembly in Japan, but it also means doing more assembly in the U.S. In the late 1970's, when Nippon Electric took over Electronic Arrays, just down the road (at the time) from Fairchild's world headquarters, it automated assembly and brought it home from Singapore. It is likely that Fujitsu would have done the same, providing more American production jobs, if it had gained control of Fairchild.

Of course, if Fujitsu were to have moved assembly to the U.S., it would have destroyed the argument of some of its Pentagon-associated critics. Norman Augustine of Martin-Marietta, head of a Defense Science Board task force that recently recommended huge subsidies for the U.S. electronics industry, argued recently on "Nightline" that a Japanese takeover of Fairchild would weaken national security by lengthening the supply lines of critical components. In fact, it probably would have done the opposite.

Throughout the debate over Fairchild, no one ever presented any credible evidence that the takeover would directly threaten U.S. national security. Fairchild is already owned by Schlumberger, a French oil-services company with close ties to President Mitterand's Socialist Party. No one ever suggested that Japan is a less compliant ally than France.

Nor would the deal have given Fujitsu a beachhead from which to assault the pillars of U.S. industry. The company is already here. Baldridge reportedly told the press that ownership of Fairchild would give Fujitsu a network for distributing supercomputers in the U.S, but Fujitsu already does that through another American affiliate, Amdahl. Fairchild is not equipped to support the marketing of supercomputers.

And Fujitsu even sells disk drives in the U.S. with the help of one of the Japanese electronics industry's best known critics, Republican politician Ed Zschau. Zschau's former company, System Industries, markets disk drive systems containing Fujitsu drives plus a circuit board manufactured by System Industries in the U.S. (See **Global Electronics**, October-November, 1986.)

SANCTIONS AGAINST JAPAN

President Reagan announced in March that he planned to impose sanctions against Japanese electronics imports. The Semiconductor Industry Association finally convinced the federal government that the interests of the U.S.-owned merchant semiconductor industry were identical with the national strategic and economic interest, and that Japanese chip exporters were breaking the rules. Specifically, Japanese-made chips were

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being sold in southeast Asia at prices below what the U.S. Commerce Department considered fair, violating an agreement reached last year between the U.S. and Japanese governments and their respective semiconductor industries. (See **Global Electronics**, July, 1986.)

However, The Japanese have accepted the agreement's most important provision. They have raised their U.S. prices. Of course, this part wasn't too hard, since it allows them to make more money, especially in the wake of the Yen revaluation.

As we go to press, it is not clear which, if any, of the announced sanctions, will actually be applied. The purpose of Reagan's sanctions is to punish Japanese firms for their semiconductor pricing practices, but the proposed 100% tariffs would apply to electronics equipment, not chips. This actually makes a little bit of sense, since finished electronics goods from Japan incorporate chips that may have been bought in Japan at low, unregulated prices, while American producers of finished electronics goods have to pay higher prices under the trade agreement.

Ironically, it is possible that some U.S. chip producers may be victims of their own flag-waving hyprocrisy. Executives of National Semiconductor, which long has employed more people in Asia than in the United States, have been among the most militant critics of Japanese trade practices. Yet National makes a good deal of its money by importing IBM-compatible mainframe computers built by Hitachi. Japanese computers were on Reagan's initial target list for sanctions.

When asked about the prospect of being hit by trade sanctions, National's spokeswoman Roseann Clavelli told the **San Jose Mercury News** (March 31, 1987), "We didn't think it was the intention of the [government] to hurt our own industries."

Texas Instrument, one of two U.S. firms still making and selling mass-market random access memory chips, is caught in a similar bind. Though TI is U.S.-owned, it has been supplying most of its RAM's from its Japanese plants.

To reduce the gray market of underpriced Japanese chips, the Japanese Ministry of Internation Trade and Industries (MITI) has required Japanese semiconductor manufacturers to reduce the output of RAM's. In the first quarter of 1987, six Japanese-owned companies complied.

Electronics (April 2, 1987) reports that TI reluctantly bowed to MITI pressure. TI will reduce its Japanese memory chip output by 13%.

STRUCTURAL CHANGE

Ironically, just as U.S.owned merchant semiconductor firms are reaching the zenith of their political influence in Washington, the business press is recognizing what we (and others) have been saying for some time. The multi-product, independent merchant chipmaker is on the way out.

In its April 2 special issue on the future of the semicondutor industry, **Electronics** prejects the industry structure at the turn of the century: "The semiconductor world will be divided into two camps.... One will produce high-volume commodity parts, and the other the many forms of semicustom chips...."

The magazine anticipates that the latter will include small design houses and niche producers, but it concludes, "Straddling the fence between semicustom and commodity markets will be a number of powerful vertically integrated companies. With their deep pockets, design staffs, production capabilities, and extensive research and development facilities, this type of company may hold the ultimate edge in the battle for survival."

Looking at the industry's global structure, **Electronics** documents the current range of linkages between competitors. It summarizes, "By the end of the century, an intricate network of alliances will tie together the semiconductor business in one vast, global web."

Fortune magazine, long a fan of bigness in corporate organization, is overcoming its infatuation with the entrepreneurial style of Silicon Valley. In its (predated) April 13, 1987 issue, technology writer Bro Uttal argues, "The government's multifront war to save the U.S. semiconductor industry won't help much, and could hurt. Producers and buyers of chips must get cozier, or even merge."

Uttal quotes Lewis Branscomb, formerly chief scientist at IBM and now a professor at Harvard: "for some reason the restructuring that should be happening isn't. Most of the chip companies are still run by entrepreneurs with outsize egos."

ENVIRONMENTAL UPDATE

Silane is a potentially explosive toxic chemical used in semiconductor wafer fabrication (see **Global Electronics**, December, 1986). When a leaky cylinder of silane caused a mid-March fire at Motorola's plant in Austin, Texas, the company may have been lucky that it didn't explode. But the

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fire and resulting water damage (from the fire-retarding sprinkler system) put the fab area out of commission. No serious injuries were reported despite the release of of hazardous gases. (**Austin American-Statesman**, March 16 & 127, 1987)

The electronics industry's search for a safe solvent is facing one more obstacle. Learning that previously used solvents, such as TCE and TCA, were believed to be carcinogenic, most companies have switched to a chlorofluorocarbon known as CFC-113. The **San Jose Mercury News** (March 25, 1987) cites a study by SRI International, saying that electronics manufacturers used 55.5 million pounds of the material in 1984, or 37% of the total produced.

Though CFC-113 may be less harmful in the workplace than its earlier alternatives, its release into the atmosphere contributes to the depletion of the planet's ozone layer. This in turn subjects the earth's surface to increased ultraviolet ray exposure and it may contribute to the greenhouse effect, the gradual warming of the earth's environment.

Consequently, the chemical and electronics industry have joined environmentalists and government officials in calling for international restrictions on the production of CFC-113 and similar chemicals, but the controls, once adopted, may be phased in slowly.

VALLEY TRENDS

Despite the protracted slump in many branches of high-tech industry, a casual drive through Silicon Valley shows that the construction of commercial and even industrial buildings continues. Development appears strongest is the historic core of Silicon Valley, in northern Santa Clara County, while the periphery suffers the brunt of the recession.

Mariani Financial, which planned to build a high-priced high-tech office park on the 157-acre site of the old Ford Motor assembly plant in Milpitas, is instead converting the property to light manufacturing and warehouse space. Lockheed and Westinghouse, two of the Valley's largest military contractors, have signed leased to occupy about 12 percent of the development's 1.6 million square feet, but finding other tenants may be difficult. The Valley already has about 5 million square feet of vacant warehouse space. (**San Jose Business Journal**, March 16, 1987)

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