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SIA SEMICONDUCTOR INDUSTRY ASSOCIATION

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SEMICONDUCTOR TRADE ISSUES

U.S. Semiconductor Industry

The U.S. semiconductor industry is the nerve center of the U.S. electronics industry. Its research and technology set the foundation for tomorrow's new technology developments.

Preserving this industry is critical to the technological competitiveness and national security of the United States.

Technological advances in semiconductors and electronics are interdependent--increasing the capabilities of semiconductors fosters advances in electronics which than necessitates further improvements in semiconductors, and so on.

If one component, such as consumer electronics, of this cycle slows down it directly effects the ability of the other areas to advance. For example, as a result of the decrease in production of U.S. consumer electronics, the U.S. semiconductor companies were forced to forego or delay volume production of such technologies as complementary metal oxide silicon circuits(CMOS) and liquid crystal displays (LCD).

Increasing market access is essential to the survival of the U.S. semiconductor industry.

The U.S. semiconductor industry wants access to foreign markets, specifically the world's largest semiconductor market, Japan, not protection.

U.S.-Japan 1986 Semiconductor Trade Agreement

The Agreement, negotiated by Clayton Yeutter, and signed on September 2, 1986, is almost at the half-way mark. The five year agreement is due to expire in 1991.

Prior to the Agreement in 1986, the U.S. Government had concluded that Japan was dumping chips into the U.S. and Third Country markets.

In addition, the U.S. Government had negotiated for 14 years to increase market access in Japan with virtually no success. Since the Japanese market has structural barriers to foreign suppliers, increasing market access can only succeed if Japanese firms increase their purchases from foreign suppliers.

In exchange for U.S. government suspension of Section 301 and semiconductor antidumping trade cases, the Japanese government committed to halt dumping in the U.S. and Third Countries and accepted as reasonable the U.S. expectation that foreign access would increase gradually and steadily to a 20% share of the Japanese market. The Japanese Government committed to impress upon Japanese producers and users the need to achieve that 20% level by 1991. U.S. chips are the primary foreign source of supply.

Status of Commitments in the Agreement

After the imposition of trade sanctions, Japan halted the dumping of semiconductors on the world's markets but, although increasing somewhat semiconductor purchases, is still far short of its commitments under the Agreement.

U.S. semiconductor market share in Japan at the end of 1988 is estimated to be at 11.1% -- about the same level it has been for the last 15 years. Under the agreement, the U.S. market share should be 14.1% at this point.

The U.S. market share was 8.5% when the agreement was signed and only rose to the present level when $165 million worth of sanctions were threatened and then imposed on Japanese products in April 1987.

Semiconductor dumping did not cease until $135 million worth of sanctions (100% tariffs) were imposed on Japanese goods. While these sanctions have been lifted, there is the potential for renewed Japanese dumping if there is a semiconductor downturn in 1989.

Effects of Lack of Market Access on the U.S. Industry and Economy

Injury to the U.S. semiconductor industry has a direct adverse impact on the U.S. computer, television, video and all consumer electronics producers as well as many defense components.

Japanese noncompliance with the market access provisions of the Agreement has serious implications in terms of lost sales and fewer U.S. jobs.

A projection of the current U.S. market share in Japan through 1991 translates into a loss of about $2.2 billion in sales and about 12,500 fewer U.S. jobs compared with what would otherwise exist if the Japanese lived up to their commitment.

Conclusion -- Actions Needed

President Bush recognized the need to honor commitments when he stated in his Inaugural Speech, "Great nations...must keep their word."

The United States should stand firm in its resolve to achieve access to the Japanese semiconductor market and continue to maintain the sanctions until Japan honors its commitment to a 20% foreign market share by 1991. U.S. credibility is at stake.

Former President Reagan was committed to maintaining the sanctions until there was "firm and continuing evidence...that access to the Japanese market has improved." Clayton Yeutter reaffirmed that position within the last three weeks.

U.S. Trade Representative Hills indicated in her confirmation hearings that USTR's "strategic goal is to open markets." She acknowledged to Senator Bentsen that the U.S. Government is "very disappointed with how the Japanese have carried out their agreement" to increase market access under the Agreement, and that it would be difficult for them to "get to the 20 percent level by 1990 at their current rate."

In his confirmation hearing, Commerce Secretary Mosbacher stated:"...the foreign market share of the Japanese semiconductor market is still no better than the historical level...because of this situation I support the continuation of sanctions."

Significant policy decisions toward Japan ought not to be taken without clearly defined objectives and an opportunity to consult with Congress as well as with full consideration by the new Trade Representative, Mrs. Hills, and Secretary Mosbacher.

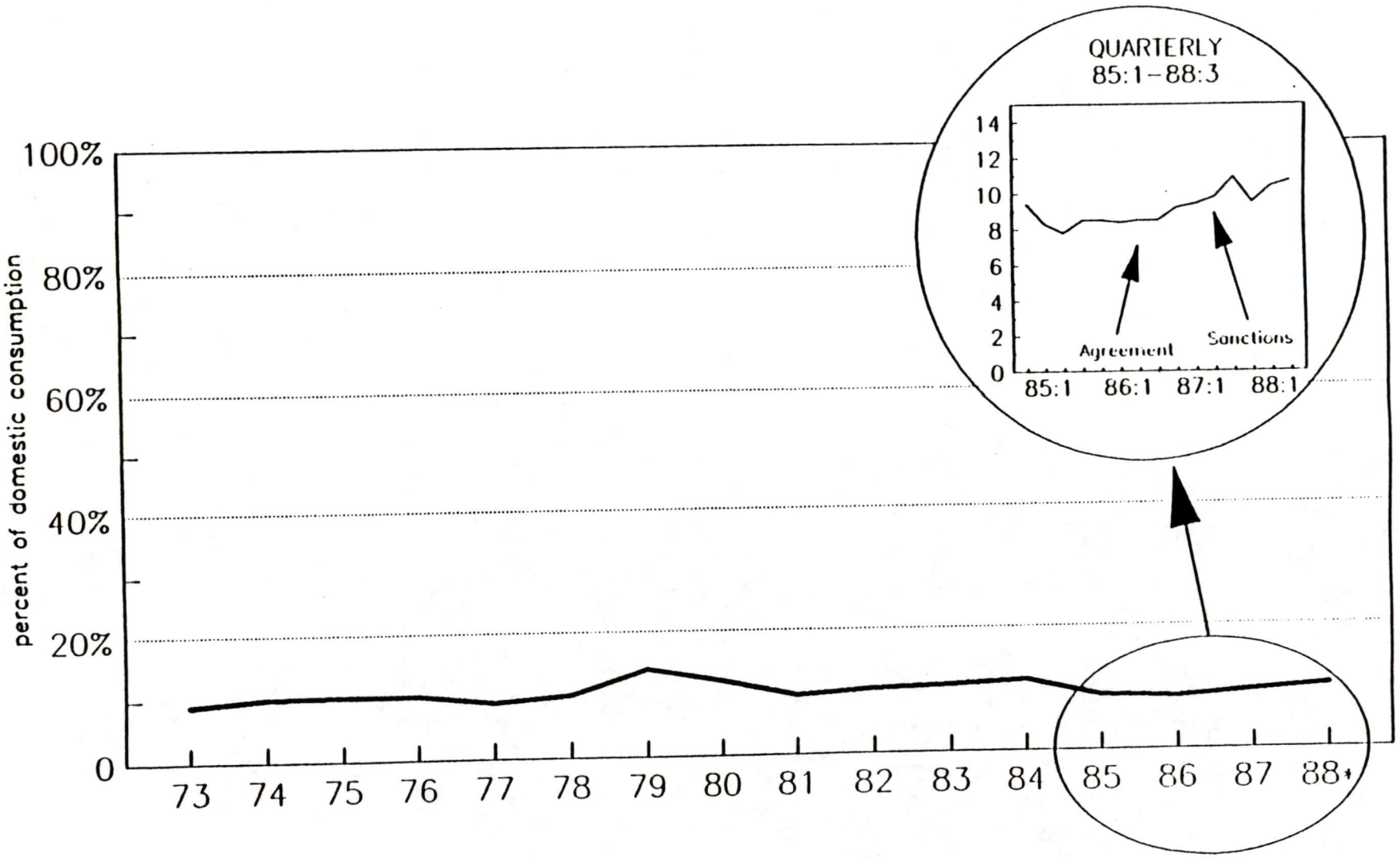
Given the high priority for the United States of its trade relationship with Japan, it is important that the Bush Administration include Japan, and in particular, semiconductors on the "Super 301" list.

The U.S. Government needs to maintain a strong antidumping monitoring system. If there is a downturn in the market, renewed dumping by Japanese producers is a very real possibility.

Industry consortia efforts to improve research and production, such as SEMATECH, as well as efforts to revitalize consumer electronics, through HDTV, should be encouraged by the U.S. Government.

2/1/89

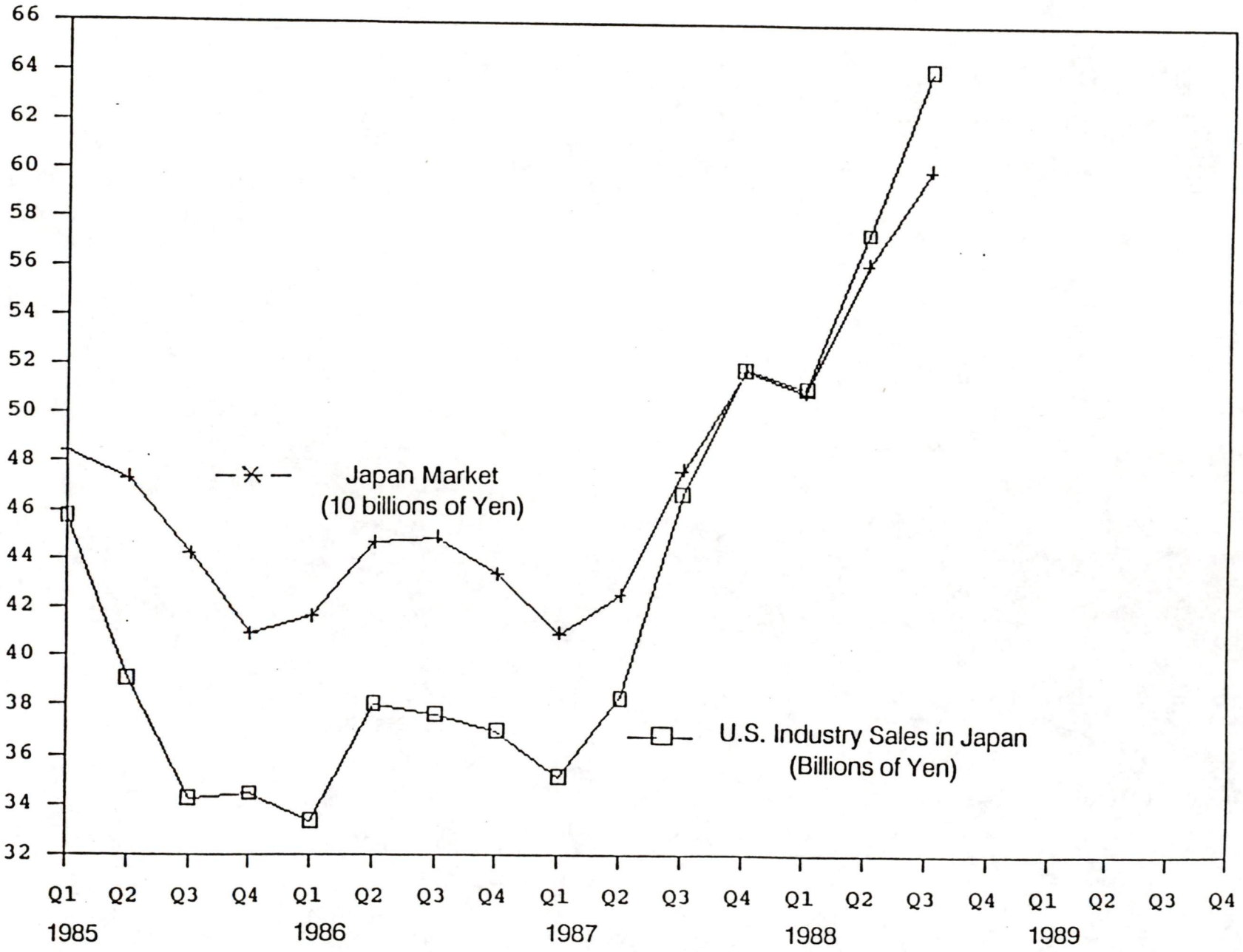
U.S. PENETRATION OF THE JAPANESE SEMICONDUCTOR MARKET



Source: SIA/WSTS.

*Based on first three quarters of 1988.

U.S. SALES IN JAPAN AND JAPAN MARKET



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JAMES C. GOULD, STAFF DIRECTOR AND CHIEF COUNSEL
ED MINALSKI, MINORITY CHIEF OF STAFF

United States Senate

COMMITTEE ON FINANCE
WASHINGTON, DC 20510-6200

January 26, 1989

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

It has come to my attention that the Prime Minister of Japan, Mr. Takeshita, has asked to visit you soon, and that you have accepted. While I encourage an early and comprehensive dialogue with the Government of Japan, I urge you not to make decisions on economic and trade relations with Japan before there has been appropriate policy review, including consultations with the Congress in accordance with the new Trade Act President Reagan signed last summer.

Many complex issues are involved. The Government of Japan has made it plain it wishes President Reagan's sanctions for violation of the existing semiconductor agreement lifted, even though the previous Administration concluded that Japan has not fully complied with the agreement. It is also evident that the Government of Japan wishes to be exempted from section 301 of our trade laws, which was strengthened by the new Trade Act. I believe that the semiconductor sanctions ought to remain in place until the Japanese Government performs in accordance with its commitment on semiconductor market access; and that you should make no commitment to Mr. Takeshita on bilateral trade relations before your Cabinet has an opportunity to formulate its recommendations to you, and to consult with Congress as required by law.

Sincerely,

Lloyd Bentsen

01. 26. 89 03:34PM *FINANCE COMMITTEE254 P02

FRANK J. GUARINI
14TH DISTRICT
NEW JERSEY

COMMITTEE ON WAYS AND MEANS

SUBCOMMITTEE ON TRADE

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NARCOTICS ABUSE AND CONTROL

Congress of the United States
House of Representatives
Washington, DC 20515

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(201) 823-2900

January 23, 1989

Hon. Carla Hills
U.S. Trade Representative-designate
1988 Presidential Transition Office
1825 Connecticut Ave., N.W.
Washington, D.C. 20270

Dear Ms. Hills:

Congratulations on your nomination. Many challenges and opportunities lie ahead. One of the most pressing of these challenges is confronting Japanese trade practices which are adversely impacting the U.S. semiconductor industry.

As you know, the U.S. semiconductor industry which forms the very heart of the U.S. electronics industry has been severely damaged by unfair trading practices. Preserving the health of our semiconductor industry is critical to the technological competitiveness and national security of the U.S.

Over two years ago, President Reagan negotiated a landmark agreement with the government of Japan which was designed to end unfair Japanese practices in semiconductor trade -- both dumping and denial of market access. Because Japan has limited American sales in the Japanese market, a formula was devised to allow U.S. semiconductor makers to gain a greater share of the Japanese domestic semiconductor market. Japan is the world's largest semiconductor market. Access to it is essential to the health of U.S. semiconductor manufacturers.

This agreement has halted injurious dumping by Japanese producers; however, the market access goals have not been achieved. U.S. semiconductor market share in Japan is about 11.2%. Under the agreement it should be 14.1%.

It is important that the Bush Administration maintain these sanctions until (in President Reagan's words) there is "firm and continuing evidence ... that access to the Japanese market has improved." The U.S. must stand firm in its resolve to achieve access to the Japanse semiconductor market. U.S. credibility is at stake. We must enforce this trade agreement if we are to succeed in breaking down other foreign market barriers that are endangering U.S. competitiveness. We strongly urge the new Administration to resist any entreaties to lift sanctions.

Sincerely,

Bruce A. Morrison Frank Guarini Robert J. Mrazek

MAX BAUCUS
MONTANA

WASHINGTON DC
(202) 224-2651

MONTANA TOLL FREE NUMBER
1-800-332-6106

United States Senate

WASHINGTON, DC 20510-2602

January 25, 1989

The Honorable James A. Baker
Secretary-Designate
U.S. Department of State
2201 C Street, N.W.
Room 1208-A
Washington, D.C. 20520

Dear Mr. Secretary-Designate:

Prime Minister Takeshita's request for a meeting with President Bush on February 2 or 3 raises serious concerns if it is the intent of the Japanese government to take advantage of the transition period to affect key issues before the new administration is prepared to make major decisions.

To take a case in point, Japanese trade practices have had a very serious adverse impact on the U.S. semiconductor industry. Preserving this industry which is the nerve center of the U.S. electronics industry is critical to the technological competitiveness and national security of the United States.

Japan has failed to live up to its commitments under the 1986 Semiconductor Trade Agreement. It is important that the Bush administration maintain the sanctions imposed by President Reagan until the Japanese honor their commitments. President Reagan stated that the sanctions would be maintained until there was "firm and continuing evidence...that access to the Japanese market has improved." Clayton Yeutter reaffirmed this position within the last two weeks.

The United States must stand firm in its resolve to achieve access to the Japanese semiconductor market. U.S. credibility is at stake. If we are to succeed in breaking down other offering market barriers that are endangering U.S. competitiveness, we must enforce this trade agreement and maintain the sanctions. President Bush recognized this when he stated during the campaign, "the Bush administration will keep the heat on" to make sure that Japan lives up to its agreement.

The Japanese government may also seek to launch negotiations toward a broad framework agreement of some kind. I personally think the idea has great merit. In fact, I have suggested that the U.S. and Japan negotiate such an agreement. But the U.S. must have clearly defined objectives and be willing to commit considerable resources to the undertaking before it enters into these negotiations. I strongly urge you to consult fully with Congress before undertaking such a negotiation.

If I can be of any help to you, please do not hesitate to get in touch with me.

With best personal regards, I am

Sincerely,

Max Baucus

BILLINGS (406) 657-6790 · BOZEMAN (406) 586-6104 · BUTTE (406) 782-8700 · GREAT FALLS (406) 761-1574 · HELENA (406) 449-5480 · MISSOULA (406) 329-3123

Thomas J. Campbell
599 North Mathilda Avenue, Suite 105
Sunnyvale, CA 94086
408-245-4835
415-321-9154

January 18, 1989

The Honorable Carla A. Hills, Esquire
Weil Gotshal & Manges, Suite 700
1615 L Street, N.W.
Washington, D.C. 20036

Dear Carla,

In early February, Prime Minister Takeshita will visit the United States. He may claim progress in implementing the Semiconductor Agreement of 1986 by the rise since then in U.S. chip-makers' share of the Japanese market from 8% to 10.7%. The enclosed graph may help put that claim in perspective: the 10.7% number came immediately after President Reagan's sanctions, and the overall trend of the last fifteen, ten, five, or even three years has shown virtually no progress. Sadly, the goal of 20% by 1991 seems quite remote.

I hope this graph is of some use. Please don't forget your friends in Silicon Valley! (No response needed, please.)

Warmest regards,

Tom

Thomas J. Campbell

enclosure

bcc: Mike Maibach
Andy Procassini
Ben Anixter

Commerce-Designate Mosbacher Vows Policies to Boost U.S. Competitiveness

By EDUARDO LACHICA
Staff Reporter of THE WALL STREET JOURNAL

WASHINGTON—Commerce Secretary-designate Robert Mosbacher vowed to employ a vigorous mix of trade and technology-promotion policies to help make the U.S. more competitive in global markets.

Most of what the wealthy Texas oil man said pleased the Senate Commerce, Science and Transportation Committee, and his confirmation by early next week as a member of the Bush administration's trade team appears assured. "I don't think you'll have a bit of trouble," Sen. Ernest Hollings (D., S.C.), the committee chairman, said at the end of the confirmation hearing.

Mr. Mosbacher, insisting that trade should be a "two-way street," said foreign access to the U.S. market should be linked to reciprocal privileges for U.S. exporters. He also assured the panel that he will be a tough enforcer of laws penalizing unfairly priced or subsidized foreign imports.

In reply to a committee member's question, he said he favors retaining the current trade sanctions against Japan for falling short of its commitments to buy more U.S. semiconductors.

Moreover, Mr. Mosbacher indicated he wants the department to play a leading role in shaping technology policy. He said one of the department's "high priorities" will be to determine how the administration could help U.S. industry catch up with Japan and Western Europe in commercializing technology for manufacturing high-definition television, or HDTV. Some tout HDTV as a future household best-seller with perhaps billions of dollars in annual sales within two decades.

He said, in response to questions, that the department will consider whether the federal government should provide "seed money" to a consortium of U.S. companies working on HDTV technology and authorize members of the group to pool resources without risking antitrust penalties.

The nominee said he is considering a number of candidates with "strong credentials in technology and trade" for the department's newly created post of undersecretary of technology. And, disagreeing with a Defense Department advisory panel, he argued that his department, rather than the Pentagon, should have the prime responsibility for promoting research in commercial technologies.

Mr. Mosbacher said he favors free investment flows between the U.S. and its trading partners, except in cases where a foreign takeover of a strategically important U.S. plant would raise national-security concerns. Such transactions should be "carefully examined," he urged.

Earlier, Common Cause, the self-styled citizens' lobby group, raised questions about Mr. Mosbacher's role, as chief financier of the Bush campaign last year, in gathering "soft money"—that is, large political contributions made directly to state party organizations to skirt the $25,000 limit on those made at the federal level. But Sen. Hollings said the nominee shouldn't be blamed for loopholes in the election law.

The panel's chairman said the committee will meet Tuesday to vote on Mr. Mosbacher's confirmation and that of Transportation Secretary-designate Samuel Skinner.

THE NEW YORK TIMES, MONDAY, NOVEMBER 28, 1988

Trade Tussle Inside the Computer

Japan's negotiators last week asked Washington to lift the sanctions imposed against its electronic products, a request the Administration could only rebuff. Sanctions are a regrettable way for friendly nations to conduct business. But so is Japan's behavior. Its markets are still only barely open to American computer chips, and Japan now wants to exclude an important kind of American software — operating systems — from new classroom computers.

American companies invented the computer chip and possessed a natural advantage in making them. But Japan targeted semiconductors as a key industrial technology and set about establishing a dominant position. To gain volume, its companies have flooded the American market, while keeping home markets essentially closed to American competitors. As a result, American merchant producers of computer memory chips have almost all quit production.

Aided by a shortage of memory chips and their position of virtual monopoly, Japanese companies were able to raise their prices sharply. Though prices are now beginning to ease, American computer manufacturers have received an unpleasant reminder of how totally dependent they have become on chip makers owned by their chief Japanese rivals.

In 1986, Japan signed an agreement promising to stop the dumping of memory chips and Eproms, a kind of programmable chip, and to open its market to American manufacturers. Finding the agreement was not being followed, the Administration applied punitive tariffs in April last year to $300 million of Japanese products.

The sanctions have worked in part: Japan has stopped dumping chips in American and other markets, and President Reagan has twice cut back the tariffs. But $165 million of sanctions remain, and Japan says these, too, should be lifted because American access to its chip market has increased.

Yes, but only to a mere 10.4 percent, far less than American products would gain in a free market. In Europe, for example, America has 46 percent of the market compared with Japan's 12 percent. In Japan, America's share of the semiconductor market has stayed at 10 percent, give or take a point, since 1973. As Clyde Prestowitz notes in his book "Trading Places," neither the substantial appreciation of the yen nor half a dozen American negotiating "victories" have made any difference.

Japan seems to be applying the same methods to producers of computer operating systems, the housekeeping software with which computers manage disk drives and other components. To reduce Japan's dependence on American systems like Unix and MS-DOS, the Ministry of Education has insisted on a novel Japanese system for the 700,000 computers it plans to buy for high school students, and has chosen a Japanese company as sole supplier. That, Washington has complained, could "unfairly restrict" American access.

After Japan's accumulation of enormous trade surpluses with the United States, it is surprising that it would continue to take such advantage of its trading partner. The 15-year history of computer chips makes clear that negotiations do not change Japan's regrettable behavior. There is no case for lifting the present tariffs until American chip makers have free access to Japan's markets.



BY JAMES K.W. ATHERTON—THE WASHINGTON POST

Carla Hills is photographed yesterday before the start of a Senate hearing on her nomination as U.S. trade representative.

Panel Backs Hills as Trade Representative

Bush Nominee Promises to Work With Congress on the Issues

By Stuart Auerbach
Washington Post Staff Writer

The Senate Finance Committee yesterday unanimously recommended the confirmation of Carla Hills as U.S. trade representative after she said she faces no conflict-of-interest problems from her past legal representation of foreign companies and promised to root out unfair trade practices "with a crowbar if necessary."

Hills, a former secretary of Housing and Urban Development and one of two women nominated for the Bush Cabinet, passed the first hurdle in the confirmation process after pledging to work with Congress on trade issues to the point where "you may complain in the future that I am taking up too much of your time."

She appeared for less than two hours before the committee, fielding questions with crisp, short answers. The committee quizzed her on broad trade issues and ones of particular concerns to individual senators, such as disputes involving lumber and plywood with Canada, farm subsidies, textiles and European subsidies of Airbus Industrie.

Taking hold of a potentially sticky matter with the committee, Hills said she and her husband, former Securities and Exchange Commission chairman Roderick Hills, will resign from all businesses and corporate boards and sell all their investments that could be seen as posing a conflict with her government job.

She said she would bow out of all trade complaints before the USTR where there is an appearance of a conflict, and her husband would clear existing and planned business activities with the trade agency's general counsel, Josh Bolten, and not proceed with projects that Bolton and the Office of Government Ethics feel would present a conflict.

But Hills told Finance Committee Chairman Lloyd Bentsen (D-Tex.) the

See HILLS, D12, Col. 6

Panel Backs Carla Hills Nomination

HILLS, From D11

trade agency would not be deprived of her services because "there are virtually no conflicts."

In fact, Bolton said later, this would involve three "narrow" areas: cases in which she personally represented two foreign clients, a South Korean steel company and Canadian lumber interests; cases brought to her agency by her former law firm, Weil, Gotshal & Manges, which rarely handles trade policy issues, and cases directly involving nine companies on whose boards she or her husband had sat during the past two years.

The conflict of interest issue was raised soon after Hills' nomination, and the only testimony against her confirmation came from a conservative business group, the U.S. Business and Industrial Council, because of past activities on behalf of foreign clients by Hills, her husband and her former law firm.

On trade issues, Hills promised to take a tough line in talks with Japan, the country with the largest trade surplus with the United States, and said she would recommend retaliation and trade sanctions against the Japanese if negotiations failed.

On a specific dispute with Japan, she said, "We are disappointed, very disappointed with the way the Japanese have carried out" a 1986 agreement to buy more semiconductors from American companies.

"It is difficult to imagine how they can get to 20 percent by 1990," Hills added, referring to the share of the Japanese market that U.S. semiconductor makers were to get as a result of that pact. This was the first public admission by a U.S. official that the agreement called for a specific market share for American companies, which the Japanese now deny.

The Reagan administration levied the first trade sanctions against Japan in 40 years over Tokyo's failure to fully comply with that pact, and Prime Minister Noburo Takeshita is expected to ask President Bush to withdraw those sanctions during Takeshita's visit here next week.

Hills also promised to push negotiations to end large government subsidies to the Airbus, which is hurting sales of American-made planes, and said if talks fail to budge the Europeans, "The credible threat of retaliation provides essential leverage in our market-opening efforts."

Two Years of Experience Under the U. S. - Japan Semiconductor Agreement

Second Annual Report
to the President
by the
Semiconductor Industry Association

SIA SEMICONDUCTOR INDUSTRY ASSOCIATION

Two Years of Experience Under the U. S. - Japan Semiconductor Agreement

Second Annual Report
to the President
by the
Semiconductor Industry Association

September 1988

SIA SEMICONDUCTOR INDUSTRY ASSOCIATION

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Fulfillment of the objectives and commitments in the [semiconductor] Agreement is of critical importance. Therefore, I hereby determine that any future failure by the Government of Japan to meet the commitments and objectives of the Agreement would be inconsistent with the trade agreement or an unjustifiable act that would burden or restrict U.S. commerce.

--President Reagan,
August 4, 1986,
Federal Register, p. 27811

STATEMENT ON BEHALF OF THE SIA BOARD

Summary

September 2, 1988 marks the second anniversary of the signing of the U.S.-Japan Semiconductor Agreement ("Agreement"). It also marks nearly one and one-half years of imposition of sanctions on imports from Japan for Japan's failure to comply with its commitments under the Agreement. The results under the two-year-old Agreement have been at the same time important and limited. This does not detract from the need to maintain the Agreement. In fact, additional efforts are required by all concerned to achieve the Agreement's objectives:

Increase in Japanese market access. After conclusion of the Agreement and with the subsequent application of sanctions by the United States, the foreign producers' share of the Japanese semiconductor market recovered to the 10% level historically occupied by foreign producers during the last two decades, but despite intensive efforts has not increased above this level. While this is up from 8.5% in early 1985, it is well below the levels expected under the Agreement. Thus, Japanese compliance with the Agreement with respect to market access has been, and remains, inadequate.

Prevention of dumping. Although the Agreement and the related Department of Commerce antidumping monitoring system (the FMV system) were successful in halting Japanese dumping of EPROMs and DRAMs in the U.S. market fairly rapidly, it was only after the application of sanctions against Japanese exports to the United States, coupled with an improvement in demand for semiconductors generally, that compliance with the third-country antidumping provisions of the Agreement was achieved and Japanese dumping of DRAMs and EPROMs in third country markets was brought to an end.

Full recognition of user interests. The Agreement was entered into only after very extensive consideration was given to avoiding interference with supplies needed by semiconductor users. Floor price mechanisms, production controls, and division of markets by price or allocation of quantities, were all firmly rejected in the process of negotiation. Nevertheless, there have been persistent complaints of each of these activities and repeated reports of Japanese interference with critical supplies. These practices have been condemned by the U.S. government, and wherever they occur are in direct violation of Japanese government commitments. They continue to be the subject of consultations under the Agreement.

Market Access

Foreign market share in Japan remains well below that expected under the Agreement, and recognized by the Government of Japan as that which should reasonably occur. The impact of a continued denial of additional access to the Japanese market is very serious. For example, if foreign market share in Japan through 1991 remains at the levels which prevailed during the first two years of the Agreement, as opposed to rising to expected levels, in 1991 the U.S. semiconductor industry would lose $1.4 billion in sales and 8,000 jobs, and the industry would be able to invest about $157 million less in R&D, as compared with the levels expected under the Agreement.

Given the failure to achieve increased market access, the question arises whether the market access portions of the Agreement should be retained. For a number of reasons, retention of these provisions of the Agreement and their enforcement are vital to the U.S. national interest. First, the alternative to achieving access to the Japanese market is to close the U.S. market generally to Japanese electronic products. This protectionist option is contrary to both the U.S. semiconductor industry's and the nation's philosophy. It is a policy option that should be avoided if at all possible. The preferred course is still a full opening of the Japanese market.

It is the sincere wish of SIA to work cooperatively with Japanese customers, within the framework of the Agreement, to resolve the problems of access to the Japanese market for semiconductors -- problems which have plagued U.S.-Japanese relations for the last two decades. SIA continues to work closely with the Electronics Industries Association of Japan (EIAJ), and other Japanese organizations, to foster linkages with the Japanese electronics industry to obtain access to the Japanese market and advance various international cooperation programs.

Antidumping

There has been public debate about whether the antidumping portions of the Agreement should be maintained. Although Japanese compliance was only achieved when U.S. sanctions were imposed and market conditions tightened, the antidumping provisions are now being respected. It is essential that effective antidumping measures under the Agreement be maintained in order to provide U.S. semiconductor producers with vital assurances that the U.S. as well as the Japanese governments are committed to the proposition that dumping will not recur, enabling U.S. producers to invest in memory chip production. Non-Japanese

users will remain vulnerable to supply manipulation as long as a limited number of producers retain a dominant supply position and market forces are not allowed to operate. Moreover, commodity memory devices are technology drivers, and their production in large commercial quantities within the United States is essential to the long-term health of the U.S. electronics industry. Unless a strong antidumping mechanism is in place, irreparable damage will be caused to the U.S. production base.

User Interests

SIA pursued the negotiation by the United States of a Semiconductor Agreement with Japan in large part because U.S. unilateral antidumping measures, available as of right to American producers, if applied would disadvantage American semiconductor users. The result of imposition of antidumping duties would have been to increase the prices of semiconductors only in the United States, reducing the competitiveness of the American customer base. As a direct result of these concerns, a global approach to the prevention of dumping was negotiated.

While production controls, two-tier pricing, and discriminatory allocation of product were all rejected by the U.S. government in the negotiation of the Agreement, the implementation of the Agreement has given rise to many reports of manipulation of supply. Moreover, a number of the measures employed by the Japanese government in the name of dumping prevention have been condemned in the GATT. In addition, the use of the FMV system has provoked serious user concerns that Japanese firms, ostensibly acting in order to avoid dumping, were taking advantage of tighter market conditions to further limit supplies for export and raise prices to unreasonable levels. Finally, a major concern of many users is that the FMV system could transfer profit to Japanese producers, who themselves compete in downstream products against U.S. systems producers, rather than to the U.S. government or industry.

Over the last half year, SIA and the American Electronics Association (AEA) have been working intensively to meet these user concerns. Significant modifications to the FMV system were proposed to the Department of Commerce and were recently adopted. On September 8, in a meeting of Board members from each of the two associations, it was agreed that a successor mechanism would be developed to allow for the simultaneous suspension and replacement of the FMV system. The new mechanism would be cost-based and would be designed to be more effective in preventing dumping. In addition, it would include more flexible remedies for singling out individual company violators, and taking actions

against downstream products where appropriate. Early progress is sought toward the goal of achieving this replacement mechanism.

As the replacement FMV system is fashioned, and after it is put into place, the U.S.-Japan Semiconductor Agreement will continue to provide a mechanism for the U.S. government to monitor for and oppose the use by Japan of production controls, discriminatory pricing, and/or preferential allocation of commodity memory chips. Thus, preservation of the Agreement, in conjunction with the implementation of the steps outlined above, remains in the best interests of both the semiconductor producer and user communities.

Future Measures

Because the Agreement is not sufficient in itself to assure a more healthy and diversified world semiconductor industry, SIA is working closely with the AEA to encourage long-term efforts between semiconductor users and producers, in recognition of the "food chain" structure of the electronics industry, and thus avoid the erosion of the U.S. electronics industry. Included in these efforts are not only consideration of response mechanisms to problems of dumping and market access, but also the development of responses to the challenge of creating an adequate domestic supply of DRAMs, and, moreover, increasing U.S. worldwide market share in DRAM production. SIA is also working with the European Electronic Component Manufacturers Association (EECA) to explore areas of mutual interest between Europe and the United States.

U.S. Public Policy

The U.S. Government continues to impose $165 million in sanctions on Japan as an incentive to achieve full compliance with the Agreement's market access provisions. Clearly, the current sanctions have played a key role in preventing further erosion of foreign market share in Japan. Given the current shortfall between the actual foreign share in Japan and that expected under the Agreement, however, the current sanctions fall short by over $300 million of that level necessary to maintain the balance of concessions.

The U.S. and Japanese governments must continue to consult actively on semiconductor issues -- on achieving the stated goals of market access in terms of improved market share; on assuring that dumping is prevented without unwarranted interference with market forces; and on avoiding artificial supply constraints and manipulation of the market through exploitation of a dominant supplier position.

At the same time, in the hope of achieving Japanese compliance with the Agreement, the U.S. industry and government must press ahead in their programs with Japanese industry and government for improved access to the Japanese market.

U.S. industry efforts must and do include more than questions of trade policy. The industry is working with the government in SEMATECH in its drive to restore the U.S. industry to an undisputed world leadership position. Users and producers are working together to find means of expanding the U.S. production base. U.S. public policies, including trade policy, must provide the positive context in which these efforts can succeed.

Irwin Federman
Chairman
SIA Board of Directors

MARKET ACCESS

> **The remaining $165 million in sanctions will remain in effect because of the lack of sufficient progress to date on access to the Japanese market for foreign-based semiconductor makers.**
>
> **-- President Ronald Reagan, November 4, 1987, after lifting those sanctions related to the antidumping provisions of the 1986 U.S.-Japan Semiconductor Agreement**

After two years under the U.S.-Japan Semiconductor Agreement, U.S. producers' share of the Japanese market, at 10%, is far short of the level expected under the Agreement. This is despite exceptional efforts made by the U.S. industry to pursue sales in Japan aggressively. The impact of this shortfall in sales is significant in terms of lost jobs, reduced ability of U.S. producers to fund R&D, loss of U.S. government credibility and higher costs to U.S. semiconductor users. This situation requires immediate Japanese government and industry efforts to increase foreign producers' access to the Japanese market. The U.S. industry will continue to pursue sales in the Japanese market, and calls upon the U.S. government to press vigorously for full access to the Japanese market.

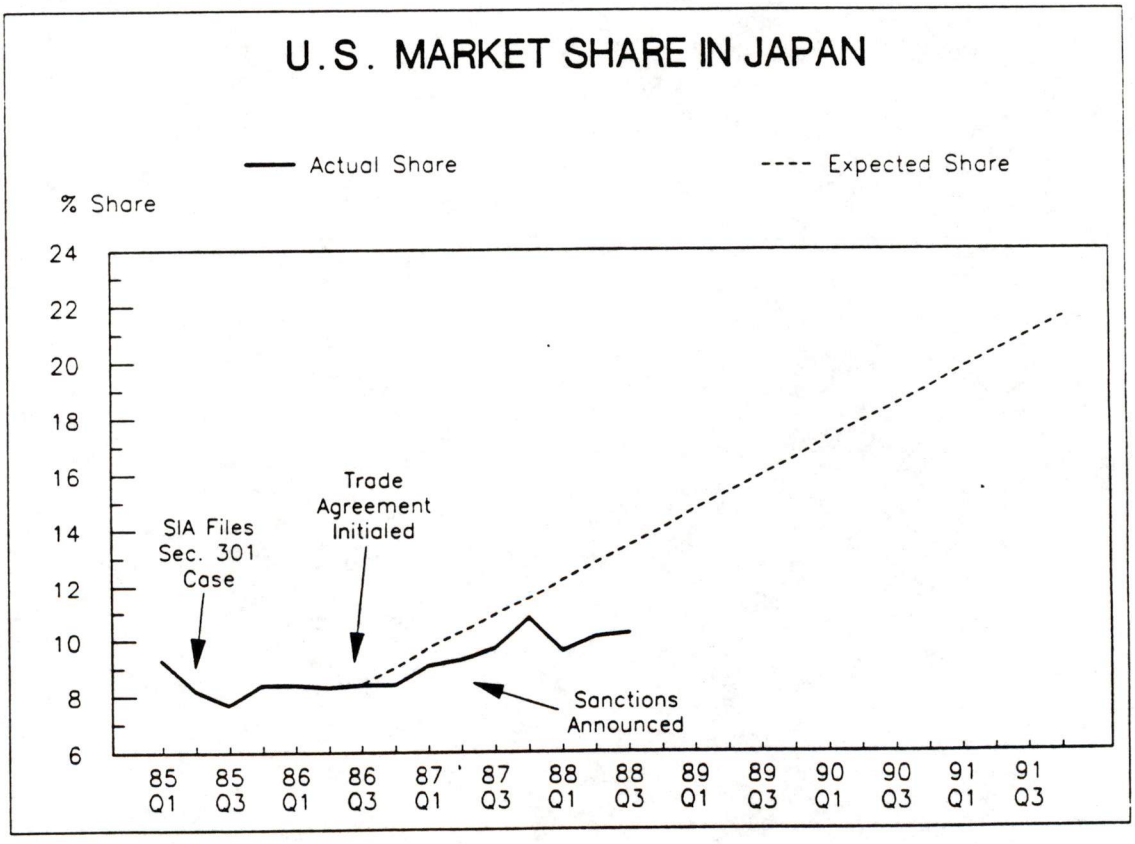
U.S. SHARE IN JAPAN REMAINS SHORT OF EXPECTATIONS

Under the market access provisions of the U.S.-Japan Semiconductor Agreement, the Government of Japan agreed to impress upon Japanese producers and users of semiconductors the need to create increased market access opportunities in Japan for foreign-based firms. The two governments agreed that these efforts should produce gradual and steady improvement in foreign companies' access to the Japanese semiconductor market over the period of the Agreement.

When the Agreement was concluded in 1986, it was understood by all parties that the United States

semiconductor industry would only consider the Agreement successful if the foreign-based industries' market share in Japan increased to a level slightly above 20% by 1991. The Government of Japan recognized this expectation when it signed the Agreement. As noted in Figure 1.1, U.S. share in Japan remained flat after the signing of the Agreement, increased slightly after the U.S. government began to consider the possibility of sanctions in the second quarter of 1987, and has leveled off to approximately 10% -- the historical average level of the last two decades. This present level is far short of the expectation that the Government of Japan recognized when it signed the Agreement. **In fact, the gap between foreign companies' actual share in Japan and the share expected under the Agreement has been steadily increasing.** (Note: SIA charts U.S. companies' share in Japan because "foreign-based" share numbers are not available. SIA estimates that European- and Korean-based companies' share in Japan is less than half of one percentage point.)

Figure 1.1



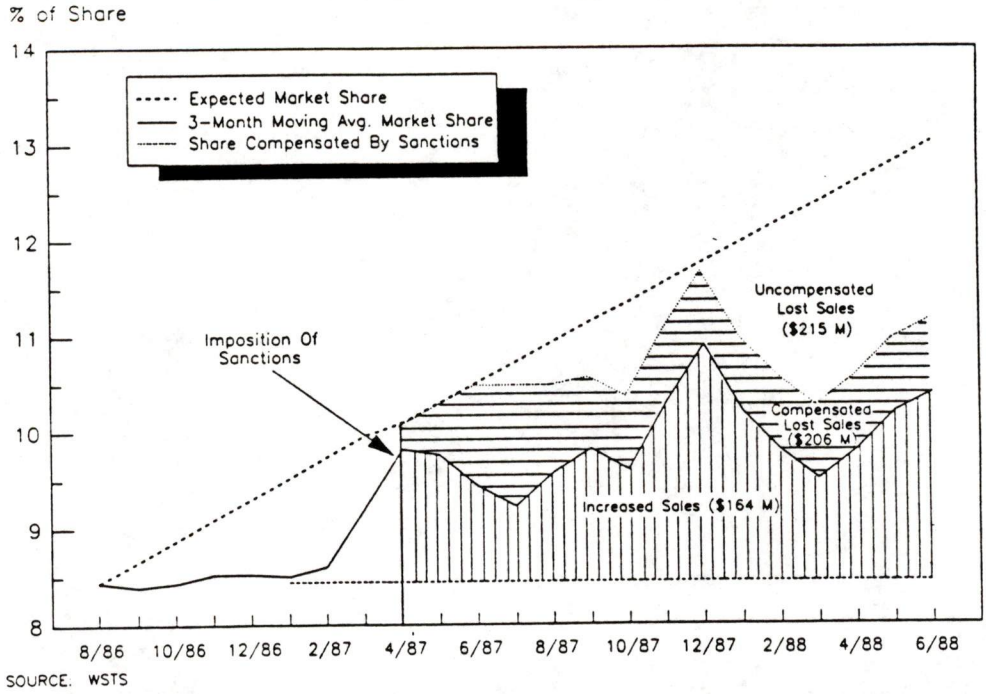
the Section 301 case brought by SIA and two antidumping cases covering imports of DRAMs and EPROMs, with the result that hundreds of millions of dollars in duties were not collected from Japanese firms found to have been dumping in the U.S. market. In exchange for the suspension of these cases, the Government of Japan agreed to grant foreign producers increased access to the Japanese semiconductor market and to prevent Japanese producers from dumping semiconductors in the U.S. and third country markets. By early 1987, it became clear that Japanese performance had fallen short of expectations in providing increased market access, and on April 17, 1987, the United States imposed 100% additional duties on imports from Japan valued at $300 million per year. Of this total, the sanctions on $165 million worth of trade were designed to restore the balance of concessions for lack of market access. The remaining $135 million was in compensation for continued Japanese dumping in third country markets.

Figure 1.2 provides a more detailed analysis of U.S. share in Japan since the Agreement was negotiated. U.S. share began to improve in March 1987 as sanctions began to be a serious prospect. In the year following the imposition of sanctions, U.S. producers' share returned from 8.5% to the 10% level, a level which has rarely been exceeded since the early 1970's. The return to a 10% market share represents an estimated additional $260 million in cumulative sales for U.S. companies in calendar year 1988.

U.S. sanctions during this period theoretically affected $206 million in Japanese goods. **However, the sanctions would have to have been $215 million higher to compensate the United States fully for the shortfall in expected access to Japan's semiconductor market. During the most recent quarter, the shortfall was running at a $357 million annual rate.** Moreover, Japanese firms have been able to circumvent the sanctions by relocating their assembly operations. To restore the balance of concessions, an additional upward adjustment of the sanctions would be required. As described in the Cooperation section of this report, the SIA and AEA have agreed that the current sanctions should be maintained and are investigating increasing the sanctions to ensure compliance with the Japanese commitments.

Figure 1.2

CUMULATIVE INCREASED SALES AND LOST SALES (Both Compensated and Uncompensated)



SOURCE: WSTS

THE U.S. INDUSTRY IS AGGRESSIVELY PURSUING SALES IN JAPAN

Insufficient progress has been made with regard to market access despite strenuous sales efforts by U.S. suppliers. In June, 1988, SIA released a study entitled, "Increasing Customer Anshinkan (Confidence): U.S. Company Efforts to Serve the Japanese Semiconductor Market," which reveals the U.S. semiconductor industry's substantial strategic investments made to bolster manufacturing capabilities and technical resources in Japan.

This study of 22 U.S. chipmakers, conducted by the SIA, documents the extensive efforts made by U.S. producers to increase their sales in Japan. Over the last three years, U.S. companies have increased employment in Japan by 27%; technical support personnel in Japan by 20%; and facilities in Japan dedicated to manufacturing, design, quality, and testing by 68%.

Specifically, since the signing of the trade agreement, the surveyed U.S. companies have:

- Opened 18 design centers and 27 test and quality assurance centers in Japan;

- Maintained 46 sales offices throughout Japan;

- Increased selling expenditures in Japan by more than 100 percent;

- Boosted total personnel in Japan by 27 percent; and

- Expanded technical applications personnel by 32 percent.

Furthermore, U.S. companies operating in Japan have conducted over 400 technical seminars in the first quarter of 1988 alone, and have planned 225 additional seminars during 1988 for new customers and another 380 seminars for customers other than "top-tier" companies. (See Appendix C for a matrix of specific company actions.)

Even if there were no new investment by U.S. semiconductor manufacturers in 1988, U.S. chipmakers -- which now are using less than 70 percent of their available semiconductor manufacturing capacity -- would still be able to support a minimum of a 14.5 percent market share in Japan in 1988.

To demonstrate the U.S. industry's continuing commitment to the Japanese market, on June 3, 1988, SIA's Board of Directors held a second Board of Directors' meeting in Tokyo. SIA has had its staff participate in intensive meetings in Tokyo to work with EIAJ on developing a market access program. In addition, SIA is in the process of opening a Tokyo office with the assistance of the U.S. Department of Commerce.

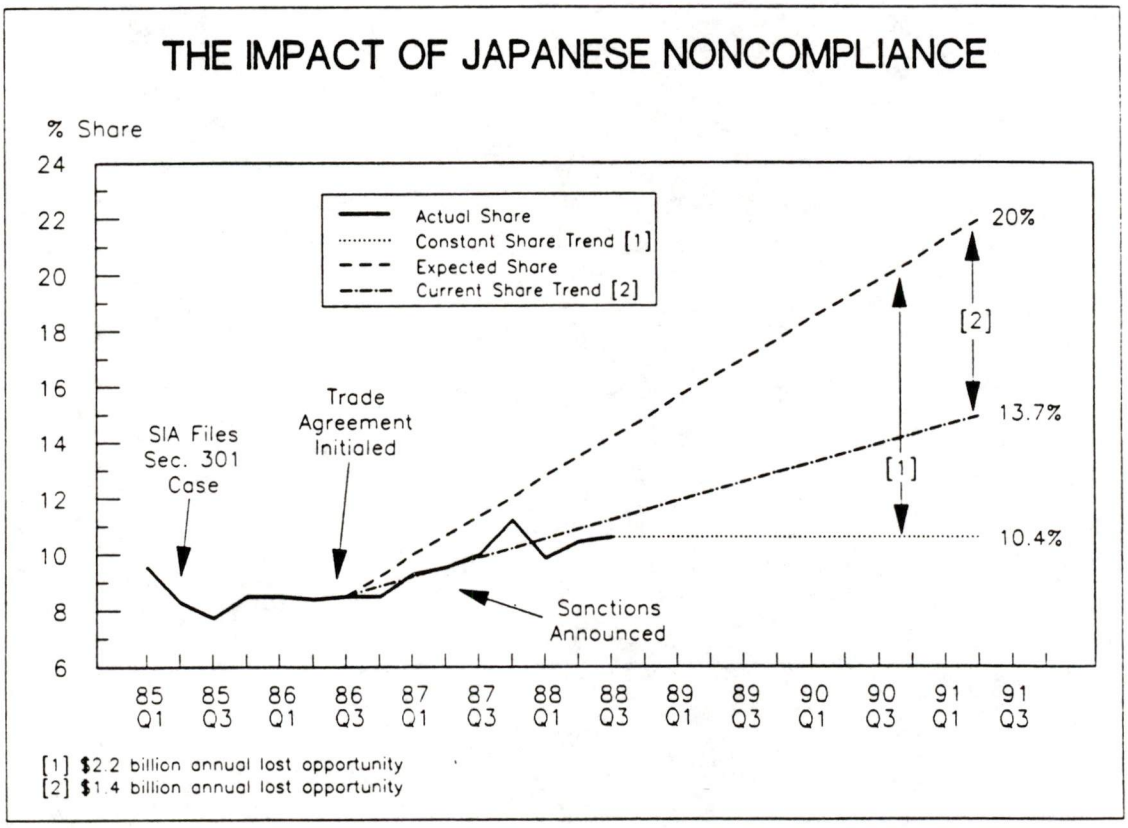
THE IMPACT OF JAPANESE NONCOMPLIANCE

Japan's continued noncompliance with the U.S.-Japan Semiconductor Agreement's market access provisions has numerous adverse effects on the U.S. semiconductor industry, the broader U.S. electronics industry, and U.S. employment levels.

SIA has analyzed the impact of Japan's noncompliance by postulating two scenarios shown in Figure 1.3. The first scenario assumes that the U.S. share in Japan does not improve over the current 10.4% level. Such a constant share trend would mean a shortfall of 9.6 percentage points from the expected level. The second scenario assumes more optimistically that continued U.S. government and industry efforts result in a greater level of Japanese compliance for the next three years. Such a level would be similar to the growth rate experienced in the rebound from 8.5% experienced during the first two years of the Agreement. Under this second scenario, a linear regression of the quarterly market

share during the first two years of the Agreement projects that U.S. share in Japan would be 13.7% in 1991. This second scenario results in a shortfall of 6.3 percentage points below the 20% which would be expected if Japan were in full compliance with the Agreement.

Figure 1.3



A 13.7% share is about the same share that SIA calculated in 1986 would be achieved if MITI's market access efforts were restricted to the top 10 Japanese users. MITI made such an offer in April-May of 1986 and the U.S. Government rejected the offer as insufficient. It would be disturbing to achieve only an outcome which was rejected at the outset of the negotiations between the two countries.

Given that the Japanese market in 1991 is projected to be $22.82 billion, if U.S. share were 10.4% in 1991, U.S. sales would be $2.2 billion less than would be attained if the U.S. share in Japan were 20% in 1991. Under the second scenario, if U.S. share were 13.7%, U.S. sales would be $1.4 billion less than would be attained at a 20% market share level. This loss of sales is substantial under either of the scenarios.

Lost Jobs

In 1991, the average worldwide sales per employee figure is projected to be between $66,000 and $75,000.

SIA estimates that the first scenario shortfall of $2.2 billion in sales represents over 12,500 fewer jobs in the United States merchant semiconductor industry than would exist under a full-compliance scenario. Under the second scenario, the shortfall in sales of $1.4 billion represents over 8,000 fewer jobs. These jobs can be expected to be distributed as follows:

	Sales Shortfall	
	$2.2 Billion	$1.4 Billion
California	4,290	2,790
Texas	3,140	2,040
Arizona	2,070	1,340
Oregon	1,000	670
Others	2,060	1,340
Total (jobs)	12,560	8,180

In addition, a $2.2 billion shortfall in semiconductor sales would lead to some 7,900 fewer jobs in semiconductor materials, equipment, and other support industries; and a $1.4 billion shortfall in semiconductor sales would lead to some 5,160 fewer jobs in these support industries. The total employment effect in the U.S. semiconductor industry and its support industries (not including macroeconomic multiplier effects) is thus over 20,000 jobs in the first scenario and 13,000 jobs in the second scenario.

Lost R&D

The U.S. semiconductor industry annually invests about 12% of sales on research and development. The U.S. semiconductor industry has spent a greater percentage of sales on R&D than any other industry surveyed by Business Week for the past nine years.

A loss of $2.2 billion in sales through 1991 means that the industry will have $242 million less to invest in R&D, and a loss of $1.4 billion in sales translates into $157 million less invested in R&D.

The $157 to $242 million reduction in R&D spending represents a significant percentage of the $1.7 billion total in R&D spent by the industry today. It can also be compared with the $125 million in industry contributions or the $100 million in Federal Government contributions to the SEMATECH cooperative research program in Austin, Texas.

U.S. Government Credibility

The U.S. Government has placed great emphasis on achieving negotiated settlements to trade disputes. This policy makes sense only if our trading partners comply with the agreements reached. The U.S.-Japan Semiconductor Trade Accord is a bellwether agreement involving a competitive U.S. industry which is the linchpin of the computer, telecommunications and defense electronics industries. The U.S. semiconductor industry has specifically rejected protectionist solutions in favor of opening foreign markets. A central question for U.S. trade policy is: If the United States is unable to enforce this agreement, what agreement can it enforce?

Higher Costs to U.S. Semiconductor Users

Access to the Japanese market is necessary for American semiconductor producers to drive down their costs. With a $12.7 billion chip market, Japan is the largest consumer of semiconductors in the world. By 1991, the Japanese market will be 36% bigger than the U.S. market. Since semiconductor costs traditionally follow an experience curve where cost reductions in the order of 30% are achieved for every doubling of cumulative volume, the continued cost competitiveness of the U.S. semiconductor industry depends on access to the volumes associated with the Japanese market.

A 1985 study commissioned by the U.S. Trade Representative, the Department of Commerce, and the Department of Labor quantified this effect for DRAMs. The study's model demonstrated that for a five percent gain in volume in the Japanese market, U.S. producers' share of their own market would increase by approximately 2.5 market share points. This increase in U.S. market share would result from a 4% decline in U.S. producers' prices, due to cost reductions stemming from the increased production volumes permitted by their expanded Japanese market participation.

Continued semiconductor cost declines have led to continued price declines which benefit U.S. semiconductor users. Without access to the volumes associated with the Japanese market, U.S. semiconductor firms are less likely to achieve the desired cost declines. Instead, Japanese firms

will be able to move more quickly down their learning curves. Concerns have been raised by American semiconductor users that internal Japanese semiconductor users will reap the benefits of these cost declines, giving them a competitive advantage vis-a-vis U.S. chip users.

Finally, access to the Japanese market is critical if U.S. manufacturers are to have the revenues necessary for further reentry into the DRAM market. Expansion of the U.S. DRAM production base is viewed by many as critically important to the long-term competitiveness of the U.S. electronics industry, as described in the DRAM Market Conditions section of this report.

Prevention of Dumping

Japanese compliance with the market access provisions of the trade agreement is also necessary to discourage Japanese dumping. The original SIA 301 petition in 1985 argued that:

> the existence of a protected domestic base representing nearly one third of total world semiconductor consumption substantially reduces the risk of intensive investments for Japanese companies -- they know that if they undertake such investments, a demand outlet for their products will exist... At present, a new Japanese expansion effort is under way...[and] a price collapse may be imminent. (Japanese Market Barriers in Microelectronics: Memorandum in Support of a Petition Pursuant to Section 301 of the Trade Act of 1974, as amended -- Summary, p. 6)

The "imminent price collapse" ultimately led to three antidumping cases and Department of Commerce determinations that Japanese producers were dumping semiconductors by margins of up to 188%. While the U.S.-Japan Semiconductor Agreement's antidumping provisions, in conjunction with the EPROM and DRAM antidumping suspension agreements, directly address the dumping issue, it is also important to deal with the fundamental causes behind Japanese dumping. Full Japanese compliance with the U.S.-Japan Semiconductor Agreement's market access provisions is necessary to address the dumping problem first identified in the SIA 301 petition.

JAPANESE GOVERNMENT AND INDUSTRY EFFORTS ARE NEEDED TO INCREASE MARKET ACCESS

To reverse long-standing policies against foreign access to the Japanese semiconductor market, SIA and the United States government have encouraged the Japanese government and Japanese semiconductor users to undertake special programs to

promote the purchase of foreign semiconductors. The U.S. government met with MITI over an extended period to develop a market access program. The SIA met with the Electronics Industries Association of Japan (EIAJ) in Monterey in March, and again in Tokyo in June, to expand upon this market access program.

As a result of these discussions, the EIAJ formed the Users of Foreign Semiconductors Committee on May 17. The Committee includes 56 Japanese user companies, and is seen as a positive development because it should increase Japanese user industry involvement in market access issues. In the past, Japanese semiconductor producers (i.e., the divisions which compete with foreign semiconductor products) were the primary industry advisors to the Japanese government on access issues. Eleven members of this Committee released papers on their firms' activities to increase foreign procurement. Many positive activities are occurring within these 11 firms, and it is hoped they will lead to increased foreign purchases. The EIAJ should be encouraged to release similar reports every 6 months, and over time, increase the number of EIAJ users making these reports.

SIA's discussions with the EIAJ in June collapsed over the issue of the refusal of the Japanese industry to recognize that the measure of success of a market access program will be increased foreign market share in Japan. SIA is extremely disappointed by Japan's unwillingness to recognize that joint market access efforts should naturally lead to an increased foreign market share in Japan.

It should be made clear that SIA did not ask EIAJ for a guaranteed share of the Japan market, and in fact SIA opposes such an approach. Under a "guaranteed share" approach, foreign suppliers would gain share in Japan regardless of the level of their efforts, technological capabilities, quality levels, or other aspects of their competitiveness. SIA has sought a market share in Japan commensurate with the demonstrated competitiveness of foreign suppliers in open markets. If Japan had been an open market for the last 20 years, the U.S. share would be significantly above the minimum 20% level for foreign producers which the Government of Japan recognized could reasonably be expected if the Trade Agreement's market access provisions were fulfilled.

It is a cause for considerable concern when the Government of Japan backs away from its commitments under an agreement with the U.S. government. SIA members have relied on those commitments in making significant investments in facilities and personnel in Japan to support an increased level of sales. Continued investments in Japan are made more difficult to justify by Japan's refusal to recognize that the

objective of increased market access efforts is an increase in foreign market share in Japan.

While neither the U.S. government nor SIA was willing to agree to a market access program without an understanding on the objective of such a program, there was considerable consensus on what activities would be included in the program. The SIA\EIAJ Market Access Program is found in Appendix B. The program focuses on five areas:

1) Establishing Long Term Relationships
2) Design-In Cooperation
3) Continued Expansion in the Area of Existing Products
4) Expanding the Range of Users and Suppliers
5) Expanding into Consumer Products and Automotive Areas

Thus far, some progress has been made in expanding foreign market share with respect to the ten largest Japanese semiconductor users. **In the tiers of semiconductor users below the top ten, however, there has been little or no progress on market access.** As Figure 1.4 indicates, the percentage of sales to semiconductor users other than the top ten companies has decreased from the beginning of 1985 through the present. Correspondingly, the percentage of sales to the top 10 companies, now at 56%, surpasses the 1985 level. Expansion of U.S. share in Japan will require an increase in access to companies outside of the top ten Japanese semiconductor users, for even if the top ten Japanese chip users, which represent about half of the market, were all to achieve a 20% foreign content, foreign share in Japan would only increase to 13%, a level far short of the expected 20% level.

Moreover, there has not yet been an adequate expansion in the breadth of purchases by Japanese companies or a sufficient increase in designing U.S. products into new Japanese systems. Such purchases are necessary if full access is to be achieved. Figure 1.5 demonstrates the importance of expanding purchases of foreign products in additional sectors. As this graph conceptually demonstrates, increases in the foreign share of the commodity product and proprietary computer/industrial market will not be sufficient to meet the market access objectives of the Agreement. This means that the foreign share in other segments, such as the consumer and automotive segments, of the Japanese market will have to increase. The current U.S. share in the consumer sector of the Japanese market (which accounts for 40% of the entire Japanese market) is about 3%, and the U.S. share in the rapidly growing automobile end-use market remains less than 1%. There is considerable room for

improvement in these two segments, but as the graph depicts, these segments require design-in to occur now so as to contribute to increased U.S. sales in Japan within the timeframe of the Agreement.

Figure 1.4

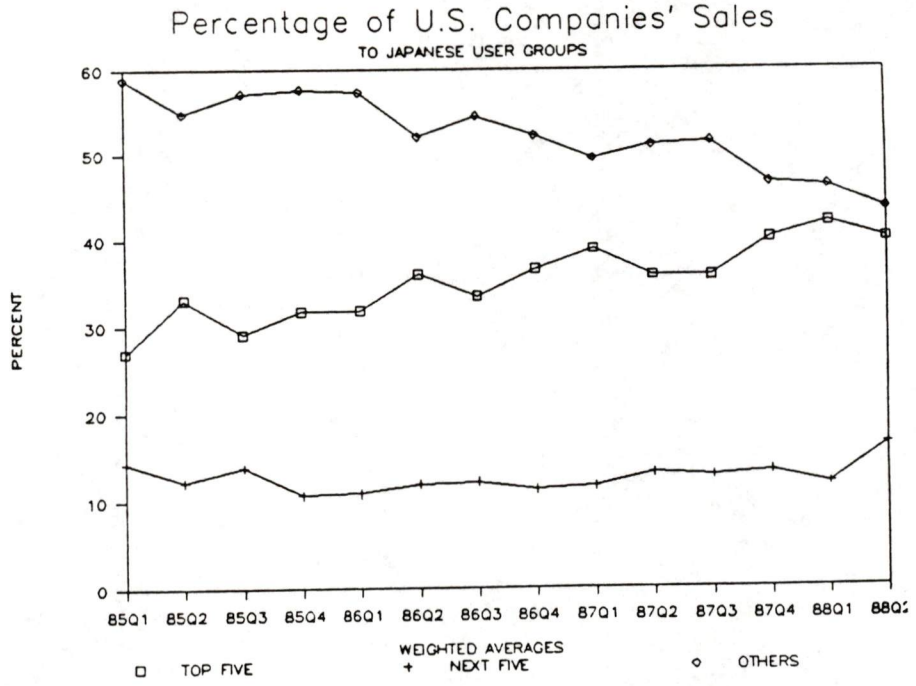
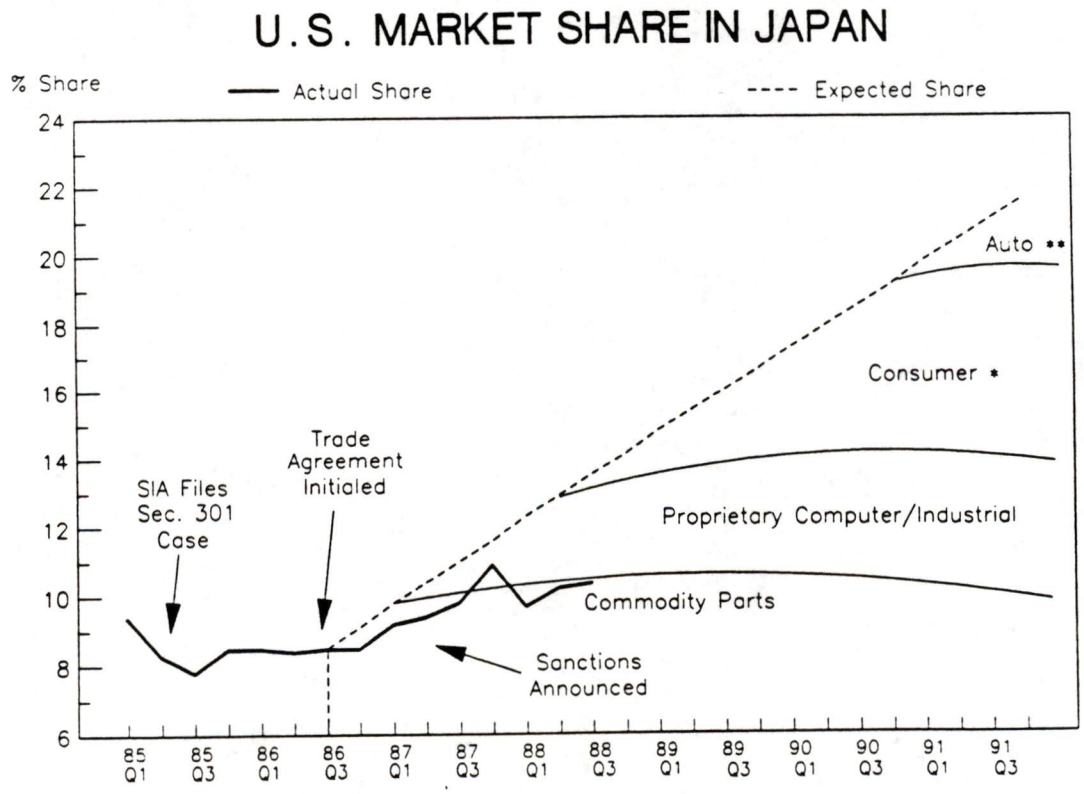


Figure 1.5



* 1989 Sales Require Design-in Now.
** 1990-91 Sales Require Design-in Now.

The period between product design and actual production is generally one to two years in the consumer end-use sector, and two to three years in the automobile end-use sector. Thus, design-ins (the process of designing chips into a new end product) must take place today if foreign companies are to sell consumer or automobile end-use chips in Japan in 1990 and 1991.

Unfortunately, there have not been sufficient Japanese design-in efforts in these areas, despite the fact that foreign companies have a clear technological capability for certain types of consumer end-use chips and are the leading suppliers of semiconductors to the automobile end-use markets in both the United States and Europe. In fact, technological developments are making many types of chips in which foreign companies specialize competitive for consumer end-use applications.

The only measure of success of this Agreement is results, not activity level. While it is possible to have an increase in activities with no increase in share, it is impossible to have an increase in share without an increase in activities. In this context, SIA encourages Japanese companies to develop action programs which are likely to lead to long-term relations with foreign semiconductor suppliers. SIA members intend to pursue actively the U.S. action items in the market access program.

NEXT STEPS

The gap between the expected foreign share of the Japanese market and the actual foreign share has been widening since November 1987. The existing level of market access sanctions no longer corresponds to the difference between anticipated performance under the Agreement and actual experience because:

1) the gap between the expected and actual foreign share in Japan has increased, making the level of trade nominally covered by the sanctions less than the value of sales lost by U.S. companies in Japan; and

2) the sanctions have been circumvented by Japanese companies through shifting more production to the United States. The sanctions therefore no longer cover the volume of trade they are intended to cover.

The U.S. semiconductor industry remains committed to a continued increase in its share of the Japanese semiconductor market. U.S. companies are making, and will continue to

make, the efforts necessary to achieve the industry's objectives, and have identified a number of areas in which additional Japanese efforts are warranted. Unfortunately, in recent months the progress on market access has been well below the expectations of both the U.S. industry and government under the Agreement.

President Reagan, in announcing the imposition of sanctions in April, 1987, stated, "The health and vitality of the U.S. semiconductor industry are essential to America's future competitiveness. We cannot allow it to be jeopardized by unfair trading practices." He also stated that sanctions would only be lifted after "we have firm and continuing evidence" that access has improved. The Reagan Administration, and the succeeding Administration entering office in January, 1989, must continue to pursue vigorously the goal of improved access to the Japanese market.

THE PREVENTION OF DUMPING

> **Before the investigations of EPROMs and 256K (and above) DRAMs were completed, the Department of Commerce and the Japanese producers/exporters of these computer chips entered into agreements to suspend the outstanding antidumping cases on these products... Under these suspension agreements, the Japanese producers of DRAMs and EPROMs agreed to sell their products in the United States at prices at or above the applicable foreign market value (FMV), that is, at prices which eliminate any margins of dumping. In short, they agreed not to violate U.S. antidumping law.**
>
> **-- Jan Mares, Assistant Secretary of Import Administration**
> **Business America, August 1988**

Following the imposition of sanctions for noncompliance by Japanese companies, the U.S.-Japan Agreement, together with an increase in demand relative to supply, finally succeeded in bringing an end to Japanese dumping of DRAMs and EPROMs. Six and one half months after he imposed the sanctions, President Reagan suspended the sanctions associated with Japanese dumping of semiconductors. The U.S. government is continuing to monitor Japanese semiconductor sales to ensure that dumping will not recur, especially as analysts predict a softening in the market for memory devices in 1989.

U.S. SANCTIONS AND THE END OF JAPANESE DUMPING OF DRAMs AND EPROMs

Under the terms of the U.S.-Japan Semiconductor Agreement, the Japanese government undertook an obligation to prevent below-cost sales of DRAMs, EPROMs and other semiconductor products by Japanese companies in the United States and third country markets. To enforce this obligation, the Government of Japan monitors individual companies' semiconductor costs and export prices. Under the related EPROM and DRAM antidumping case suspension agreements, Japanese producers have committed not to sell these products below cost in the United States. The United States Department of Commerce determines "foreign market values" (FMVs) for the various Japanese producers' EPROM and DRAM products sold in the United States. These FMVs are

calculated for each producer based on its costs of production. The Department of Commerce then compares U.S. prices with the FMVs of these products to ensure that they are not dumped. The Department also conducts independent monitoring of prices of these products sold in third countries to ensure that the third-country antidumping obligations undertaken by the Japanese government are met.

When the Agreement was first signed, Japanese dumping of EPROMs and DRAMs in the United States stopped relatively rapidly -- not surprising, given the large antidumping penalties that would have been imposed if the Japanese companies had violated the suspension agreements by continuing to dump these products. However, there was little immediate change in dumping activity in third country markets. In fact, third country dumping persisted despite the fact that U.S. government officials raised this concern several times with senior Government of Japan officials.

As a result, on April 17, 1987, President Reagan imposed 100% additional tariffs on $300 million worth of imports from Japan to enforce the trade agreement and to compensate for the adverse effects of Japanese third country dumping and lack of progress on market access. (Of this amount, $135 million was related to the third country dumping violations and $165 million to the market access violations.)

Japan's response to the sanctions was gradual -- slowly following their imposition, Japanese third country semiconductor dumping eased. In response, at the economic summit on June 8, 1987, President Reagan suspended $51 million of the dumping-related sanctions.

Unfortunately, the improvement with respect to dumping was accompanied by reports that the Government of Japan was controlling semiconductor production levels, imposing floor prices for semiconductor exports (rather than ensuring cost-based pricing on a company-by-company basis), and placing restrictions on the issuance of export licenses for semiconductors based on factors other than price in relation to cost. These actions, clearly inconsistent with the negotiated settlement between the United States and Japan, resulted in the disruption of exports of fairly-priced semiconductors to U.S. users. In response, on September 9, 1987, the SIA Board of Directors passed a resolution urging that sanctions remain in effect until Japan ceased these practices.

On November 2, 1987, then Under Secretary of Commerce Bruce Smart announced that Japanese third country dumping of semiconductors had ceased. On November 3, 1987, Japan's Ministry of International Trade and Industry (MITI) publicly

stated that it was imposing no quantitative or other restrictions on Japanese semiconductor production, shipment or supply. MITI further stated that it would continue to monitor company specific costs and export prices to prevent subsequent semiconductor dumping. With these assurances, SIA requested that the President suspend the remaining dumping-related sanctions. On November 4, 1987, President Reagan issued the following statement suspending the remaining dumping-related sanctions imposed on Japan:

> The Japanese Government has given me assurances that this positive pattern with respect to third county dumping will continue. If these assurances prove not to be the case, I will not hesitate to reimpose the partial sanctions that have been suspended. I have also been assured by the Government of Japan that no quantitative or other kinds of restrictions exist on the production, supply or shipment of semiconductors, and that it is not engaged in allocation schemes that might disadvantage foreign purchasers of semiconductors...

Since the suspension of the antidumping sanctions, there has been no evidence that widespread dumping of DRAMs or EPROMs has resumed. (Indeed, the shortage conditions that have persisted in the DRAM market over the past year, as described in the DRAM Market Conditions section, make DRAM dumping highly unlikely in the current environment.) However, there continue to be disturbing reports of discriminatory pricing and allocation of semiconductors by Japanese producers, and some questions have been raised about dumping of other types of semiconductors. The reports of Japanese supply manipulation are discussed in the DRAM Market Conditions section of this report.

CONTINUED MONITORING NECESSARY

An effective means of preventing future dumping of semiconductors, such as that provided by the Agreement and the Department of Commerce FMV system (or a successor cost-based system that is stronger and more effective), must continue to exist. Such measures provide the "safety net" needed both to encourage new entry by U.S. merchant semiconductor producers and to protect investments currently being made in semiconductors against a renewed threat of dumping.

The Commerce Department's FMV system has been the focus of much attention. As described earlier, this is the

monitoring system employed by the Department to administer the EPROM and DRAM suspension agreements, under which Japanese producers have committed not to sell these products below cost in the U.S. market. Since implementation of the trade agreement in September 1986, and in particular after conditions in the DRAM market began to tighten in 1987, U.S. semiconductor user companies have been criticizing the FMV system, arguing that it was causing artificially high prices and sporadic supply during a protracted period when the major Japanese companies were the only viable sources of supply of advanced DRAMs, such as 256K and 1M. The SIA has maintained that the FMV monitoring system, coupled with the sanctions against third-country dumping, enabled the U.S. merchant suppliers to withstand the "bloodbath" of low-priced Japanese exports during the severe demand slump of 1985-86, with the result that Motorola has now joined Texas Instruments and Micron Technology in ramping once again to volume DRAM production. Despite persuasive arguments on both sides, a "perception gap" between U.S. users and producers regarding the DRAM situation and the merits of the FMV system has remained.

As a consequence, senior executives of the AEA and SIA have met frequently since January, leading initially to the forging of a joint Nine-Point Position Statement in March (a copy of which is included in the Cooperation section of this report). The Nine-Point Position Statement recommends that the U.S. Government engage in several activities related to dumping: ensuring fair allocation of 1M DRAMs in the United States; enforcing the antidumping laws; and consulting with users and producers on modification of FMV procedures.

Within the context of the Nine Point Position Statement, the SIA and AEA suggested the following modifications to the FMV procedures in a joint letter to Commerce Secretary Verity in June 1988:

- excluding from FMV monitoring products which are not produced by a U.S. industry;
- avoiding an artificially high FMV during the introduction of a new generation product by suspending the issuance of FMVs for the first six months after introduction of the new generation product;
- to encourage increased DRAM production, providing a six-month grace period for incorporating in FMVs start-up costs associated with new production lines;
- extending the time between FMV verifications; and

- considering both users' and producers' concerns regarding alleged dumping of monitored products before imposing FMVs on a monitored product.

On August 9, the Department of Commerce responded to these recommendations (see letter in Appendix D) by agreeing to a number of changes in existing procedures, within the context of the U.S. antidumping law, in its continued administration of the suspension agreements.

As described further in the DRAM Market Conditions and Cooperation sections of this report, the focus of joint user-producer efforts has recently shifted to finding more direct ways to resolve the DRAM supply difficulties, while maintaining an effective deterrent to dumping. On September 8, the AEA and SIA Boards approved a sweeping statement containing recommendations to strengthen the U.S. electronics industry "food chain" (see full text in the Cooperation Section); this agreement goes beyond modification of FMVs and prescribes "simultaneous suspension and replacement of the FMV system with a successor cost-based mechanism that is stronger and more effective in preventing dumping." This agreement attempts to address the concerns of both users and producers not only with regard to dumping prevention, but also with regard to market access and DRAM supply, as described in other sections of this report.

European concern with the agreement has focused on the issue of measures used by the Japanese government to control semiconductor dumping in third countries. This issue was the subject of a case brought in the GATT in which the EC contended that importing countries should have the exclusive responsibility for dealing with dumping in their own markets. As described in the Cooperation section of this report, a GATT panel has issued a report, which has been adopted by the GATT Council, condemning certain features of the Japanese government's monitoring system. The EC, the United States and Japan continue to engage in consultations regarding the implementation of that report. Concurrently, the Europeans are conducting their own antidumping investigations of DRAMs and EPROMs, with provisional determinations expected shortly. For a further discussion of these issues, see the Cooperation section of this report.

MITI is imposing no quantitative or other restrictions on the production, shipment or supply of semiconductors... If any short supply arises under the sharp increase of demand, it should not be attributed to MITI.

-- MITI Statement upon which U.S. government relied in lifting the remaining dumping-related sanctions, 11/3/87

... The allegations [of Japanese manipulations of memory supplies] are sufficiently specific and large in number to cause us serious concern.

-- Timothy Bergan
Acting Deputy Assistant Secretary,
Import Administration,
The Wall Street Journal, 8/22/88

In the view of the semiconductor producer and user communities in the United States, the high degree of U.S. reliance on Japanese DRAMs presents a serious competitive threat to the U.S. electronics industry both in the short and long term. The domestic DRAM supply constraint is largely a result of the curtailment of production by many U.S. producers during the 1985-86 period of severe dumping by Japanese producers, and the fact that the institution of the Agreement's antidumping measures came about too late to preserve a substantial presence in the United States of DRAM producers (as compared with the maintenance of the U.S. EPROM production base). The supply problems experienced by U.S. DRAM users point to the need for U.S. reinvestment in DRAM production and other systematic programs to ensure a strong U.S. industry. According to reports from users, supply problems can also be traced to Japanese production controls and allocation practices.

DRAM SHORTAGE ILLUSTRATES IMPACT ON U.S. USERS OF ABSENCE OF U.S. MERCHANT BASE

For the past year, computer and other electronic systems manufacturers have reported a situation of inadequate supply of crucial memory chips (forcing them in many cases to curtail production, pay more for DRAMs, and reduce profit margins or raise prices) and growing commercial and technological dependence on Japanese DRAM suppliers who are also their competitors in downstream products (such as memory boards and computer systems). Simply put, there are many in the U.S. electronics industry who have concluded that Japanese suppliers' interests may not necessarily lie in fully serving the U.S. DRAM merchant market.

The DRAM shortage also illustrates a more critical long-term threat. Michael Borrus, the Deputy Director of the Berkeley Roundtable on the International Economy, has argued that as a result of its dominance of critical semiconductor markets, Japan will gain an advantage as well in a series of related industries "as the competitive advantage grows for products that incorporate state-of-the-art chips." (See Appendix E.) In essence, not only U.S. semiconductor producers, but also U.S. suppliers of electronic systems (including computers and telecommunications products), will lose their technological and market positions with the erosion of their very infrastructure -- the U.S. microelectronics industry. It is this threat, in addition to the current shortage, that constitutes the essence of the "DRAM problem."

DRAM SHORTAGE DUE TO THE INTERACTION OF MANY FACTORS

A number of factors influencing DRAM supply and demand have constrained DRAM availability. To begin with, U.S. supply was drastically reduced with the withdrawal of six U.S. producers (Mostek, Motorola, Intel, National, AMD, and AT&T) from DRAM production in response to the large losses they sustained during the 1985-86 dumping period. Further, supply has been severely constrained by the technical difficulties associated with moving from fabrication of one generation (the 256K DRAM) to the next generation (1M) of DRAM product.

An additional serious impediment to adequate supply of DRAMs to U.S. users is the apparent misuse of the dominant position Japanese producers have attained in DRAMs as a result of their success in eliminating a large portion of their U.S. competition. Reports by various U.S. companies indicate that Japanese producers are using their market power in DRAMs to engage in discriminatory pricing and allocations of available supplies -- actions which the

Japanese government appears unwilling to take seriously or prevent. Reportedly, their dominant position in DRAMs allows Japanese companies not only to engage in oligopolistic pricing behavior, but also to serve their own internal or preferred (Japanese) customers' needs first in times of shortage. These companies are also in a position to withhold the latest DRAM technology from the merchant market, if there is commercial advantage to be gained from incorporating that technology into their own products before making it available to their U.S. downstream competitors.

In an August 2, 1988, New York Times story (see Appendix E), Andrew Pollack provided the following evidence of such practices:

- A Tektronix official stated that the company has had price increases on memory chips that have not been experienced by its competitors.

- Dataquest reported that contract prices for 1M chips on July 4 were $22 in the U.S. as compared to $16 in Japan.

- One Silicon Valley company official indicated that a Japanese company had cut off his company's supply of memory chips when contract negotiations on a different matter reached an impasse. (The chip supply was restored, though, after a complaint.)

- A Tandy official pointed out that "tie-in" deals have been offered by Japanese companies whereby sales of scarce DRAMs are offered if the customer will also buy another type of chip.

Also contributing to the DRAM supply problem is the fact that DRAM demand has grown dramatically in the last few years. For example, consumption of 256K DRAMs grew some 70% from the beginning of 1986 to the end of 1987. Over the course of last year alone, 1M consumption grew over 200%.

Some critics believe that the shortage of DRAMs is due to the U.S.-Japan Semiconductor Agreement, and the Department of Commerce FMV monitoring system (which, as described in the preceding section, is part of the DRAM and EPROM antidumping case suspension agreements). Certainly neither was designed to have an adverse effect on supply, and interference with market forces (beyond the prevention of dumping) was firmly opposed by both the U.S. government and industry. The extent to which current difficulties are attributable to unwarranted actions by the Japanese government and producers is a subject that merits further inquiry. From the point of view of retaining a U.S.

production base, the Agreement and the FMV system have had a distinctly positive effect: they have encouraged U.S. reinvestment in DRAM production and prevented total dependence on Japanese producers, where supplies have been reportedly uncertain. Moreover, they have succeeded thus far in preventing the "DRAM problem" from spreading to other critical product areas that U.S. companies believe have been targeted by Japanese producers for domination (e.g., EPROMs and ASICs). In addition, the Agreement has given the U.S. government an opportunity for reviewing supply problems with the Japanese government and pushing for their solution.

WHERE THE SHORTAGES HAVE OCCURRED AND WHAT MUST BE DONE

The Department of Commerce FMV system applies to imports of Japanese EPROMs and DRAMs, but not to imports of SRAMs. Yet as Figures 3.1 and 3.2 and Table 3.1 demonstrate, shortage conditions appear to be prevalent in DRAMs and SRAMS, but not in EPROMs:

- In EPROMs, the FMV system was put in place in time to save the embattled U.S. industry. Consequently, U.S. companies were able to retain a significant (over 40%) world market share, enabling supply levels to be sufficient that prices and lead times have remained relatively stable even throughout a period of surging demand.

- In DRAMs, many U.S. producers were driven out of the market before the FMV system went into effect, leaving the U.S. industry with a 1987 worldwide market share of 21% (1.5% in 1M DRAMs), as compared with a 39% share of all DRAMs in 1984. Competition has thus been lessened and Japanese producers are in a position to raise prices, restrict supplies, and the like. Current Japanese DRAM prices are widely acknowledged to be far in excess of FMVs, the prices below which individual Japanese producers who have been found to have dumped have committed not to sell in the U.S. market. Thus, the FMV monitoring system can hardly be viewed as constraining DRAM supply or prices.

- In SRAMs, there is no Commerce Department FMV system (although MITI has committed to monitor these products under the broader trade agreement). Notably, DRAMs and SRAMs share a number of characteristics: they use a similar process; Japanese market penetration levels in the two products are similar (the U.S. worldwide share in SRAMs is 16%); and prices and lead times for SRAMs have behaved more like the DRAM than the EPROM

case -- SRAMs are in tight supply, and Japanese producers have a commanding position in the marketplace.

Figure 3.1

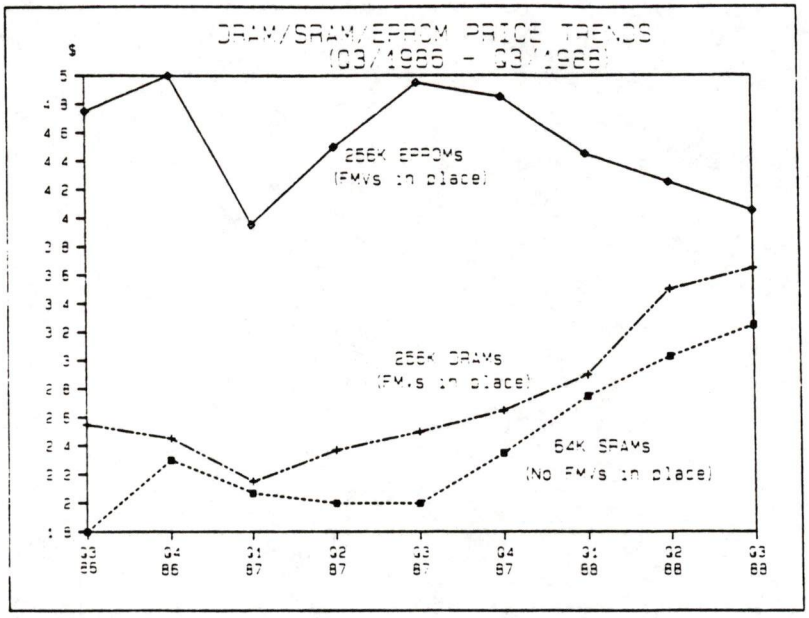


Figure 3.2

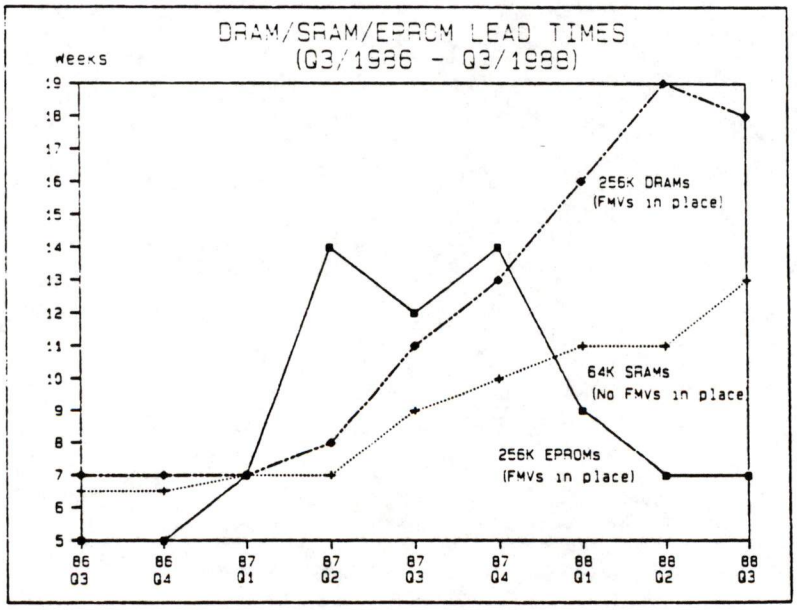


Table 3.1

	FMVs	Japanese Control >60%	Prices Above Learning Curve	Shortage for U.S.
DRAMs	Yes	Yes	Yes	Yes
SRAMs	No	Yes	Yes	Yes
EPROMs	Yes	No	No	No

Although a number of factors in the structure of today's DRAM market are troubling, it should be noted that the current DRAM market conditions are not unprecedented. In fact, in the current period of tight DRAM supply, lead times for 1M DRAMs are shorter than were peak lead times for 64K DRAMs in the previous period of tight supply during 1983-84.

Harvard Business School Professor David Yoffie correctly appraised the DRAM shortage when he wrote:

> the semiconductor agreement is not to blame. DRAMs are scarce partly because of normal industry cycles and partly because the U.S. hasn't been vigilant enough with its trade policy. ("Chip Shortage: Don't Blame the Pact," Wall Street Journal, June 21, 1988.)

The factors described above lead SIA to the conclusion that 1) U.S. government actions are not causing shortages, but Japanese actions taken in the name of prevention of dumping may well have exacerbated the shortages, and 2) U.S. users are especially vulnerable to shortages in product areas where U.S. producers have been driven from the market.

The reports of DRAM supply manipulation by the Japanese industry, with the acquiescence of the Japanese government, are a source of continuing concern, and such practices should be forcefully challenged by the U.S. industry and government. **It is important to recognize, however, that such behavior is likely to exist with or without the Agreement.**

In negotiating the Agreement, the U.S. government explicitly rejected proposals by the Japanese government for production controls and floor price cartels, insisting instead on a company-by-company cost-based approach that would prevent dumping while encouraging competition among Japanese producers. If there is a lack of such competition in the current market, it must be forcefully addressed by the

U.S. electronics industry and the U.S. government. The Agreement provides a framework for the U.S. government to address issues of alleged anticompetitive behavior inconsistent with the terms of the Agreement, and should be utilized for this purpose. Without the Agreement, such practices would be even more difficult for the U.S. government to challenge successfully.

On a positive note, while there is a wide spectrum of opinion on future supply trends, many industry analysts believe that the shortage of memory chips is easing and that memory chip prices will be back down in mid-1989 as the effect of new capacity coming on line is felt. Alleviation of the current supply problem should not lead to complacency, however.

The "DRAM problem" needs to be addressed systematically. As noted later in this report, there is widespread agreement between users and producers that it is important that U.S. merchant vendors be encouraged to return to the DRAM market. One crucial element in creating an environment that will encourage U.S. producers to reenter DRAM production or to expand their existing DRAM capacity is to provide producers with the security that injurious dumping -- pricing below cost of production -- will not recur. Currently, the Commerce Department FMV monitoring system and the Trade Agreement provide the only such assurances to U.S. semiconductor manufacturers. As described below, however, the SIA and AEA have recently committed to develop alternative, more flexible and effective, means to reduce substantially the risks to investment from renewed dumping.

REINVESTMENT AND OTHER SOLUTIONS

The DRAM problem is complicated by the fact that the risks of investment in DRAMs, even without considering the consequences of renewed dumping, are great. The cost of building a DRAM facility today approaches $200 million (not including the costs of employing the necessary design and process specialists required to produce a competitive product). In addition, it takes 18 to 24 months to be able to produce wafers with satisfactory yields. This is a significant commitment on the part of any American or European producer -- who must also factor into the risk equation the history of dumping by Japanese companies, who were found to be violating the Agreement's antidumping provisions for a longer period of time than they have complied with them. To date, despite the risks, three U.S. companies have announced DRAM entry or expansion plans. These include:

- Texas Instruments, which has been ramping up 1M DRAM production at two plants. The plant in Japan is now at volume production, while the U.S. plant is expected to be at volume output by the fourth quarter of 1988. Texas Instruments recently announced that it will locate a $30 million project to develop a prototype production line for 16 megabit DRAMs at its headquarters in Dallas, and anticipates beginning production of the first 16M DRAMs sometime in 1991 or 1992.

- Micron Technology, which will double its DRAM production with the construction of a new fab which will begin producing 256K and 1M DRAMs in the first half of 1989. Through a sales and stock option with Intel Corp., Micron's DRAMs will be offered through Intel's worldwide distributor network beginning in the third quarter of 1988.

- Motorola Inc. is reentering the DRAM business by revamping three of its plants. Two of these facilities will produce 1M DRAMs by the end of this year and an Arizona DRAM facility will reopen in less than a year.

Promoting expansion and reentry into DRAM production by U.S. industry through assurances that dumping will not recur is, however, only part of the solution to the DRAM problem. Other dimensions include: continued support for the SEMATECH initiative to reestablish U.S. leadership in semiconductor manufacturing technology (as described in the Cooperation section); vigorous pursuit of the goal of full access to the Japanese semiconductor market (as outlined in the Market Access Section); and continued exploration by semiconductor users and producers of ways in which to share the risks associated with the semiconductor business cycle.

SIA and AEA have pledged their support for such long-term cooperative efforts by semiconductor users and producers. For example, the SIA-AEA joint Nine-Point Position Statement supports "long term purchase agreements on an individual company basis with U.S. semiconductor suppliers." The advantages of user collaboration with producers would be substantial in that such relationships would allow a chip producer to increase its capacity for assured purchase, while the user would be guaranteed a reliable source of supply. This type of arrangement would also serve to alleviate the current dependence of U.S. users on Japanese suppliers and would offer a more stable long-term solution to the "DRAM problem" than trade and public policy measures alone can provide. There have been reports of numerous discussions concerning potential projects that would

involve user financing for DRAM production or long-term contracts between users and producers. Such discussions appear to be continuing.

The SIA and AEA Boards of Directors recently reaffirmed their support for such efforts. As part of a set of joint recommendations adopted on September 8, 1988 (a copy of which is included in the Cooperation section of this report), the two associations committed to "develop extraordinary measures designed to encourage increased U.S. DRAM production with a view to increasing U.S. worldwide market share; and to seek appropriate U.S. government cooperation."

In developing extraordinary measures, the AEA and SIA will consider a variety of possible strategies. On an individual company basis, options could include long-term procurement contracts and production consortia between producers, and/or between producers and users. Industry activities at the association level will focus on "macro" efforts such as the collection of aggregate information regarding demand and supply conditions, and seeking government facilitation for extraordinary measures in the form of policy or legislative initiatives, e.g., antitrust law exemptions or special tax incentives.

The industry views restoration of a significant U.S. share of the world market for DRAMs as an important goal of these efforts. The objective is to reach a level equivalent to that which U.S. industry would have attained absent Japanese unfair trade practices, based on U.S. competitiveness relative to foreign competition.

Solving the "DRAM problem" poses an enormous challenge to the U.S. electronics industry and the U.S. government. It remains to be seen whether creative, effective solutions can be devised that will reverse the creeping erosion of the U.S. semiconductor industry and preserve U.S. competitiveness in high technology products. It is clear that anything which increases the risks for American reentry into the DRAM market would be highly counterproductive. The American electronics industry needs to reach a stable and widespread consensus that each element of the industry "food chain" -- including semiconductor producers and their suppliers and customers -- has a large stake in the well-being of the other links in that chain. The cooperative efforts that have been undertaken by AEA and SIA in this regard will be critical to this effort.

COOPERATION WITH THE AEA, THE EIAJ, THE EECA, AND WITHIN THE U.S. SEMICONDUCTOR INDUSTRY

AMERICAN ELECTRONICS ASSOCIATION

As discussed in earlier sections of this report, the SIA and AEA Boards of Directors have issued two joint declarations in the past year in furtherance of efforts by the two associations to develop an industry consensus on the trade policy issues that affect the U.S. electronics industry.

In March, the AEA and the SIA issued the following Joint Nine-Point Position Statement:

User-Producer Semiconductor Trade Agreement
Position Statement

- U.S. electronics industry is one continuous "food chain" and is dependent on a strong semiconductor segment.
- We encourage the U.S. Government to gain access to the Japanese market for U.S. producers.
- We encourage the U.S. Government to insure fair allocation of Japanese 1 MEG DRAMs to the U.S. market.
- We encourage the U.S. Government to enforce anti-dumping laws.
- Because of user concerns, we recommend modification of FMV procedures based on consultation with users and producers.
- We encourage U.S. semiconductor suppliers to reenter the DRAM market.
- We support SEMATECH and encourage similar efforts.
- We support long term purchase agreements on an individual company basis with U.S. semiconductor suppliers.
- We encourage a joint government and industry effort to address the longer-term trade policy issues.

At a recent meeting on September 8, the two associations agreed to present to the U.S. government the following set of joint recommendations:

1. To develop and mutually support the adoption of a proposal that would allow the simultaneous suspension and replacement of the FMV system with a successor cost-based mechanism that is stronger and more effective in preventing dumping and that would include flexible remedies for targeting individual company violators and for taking actions against downstream products where appropriate.

2. With respect to the Japanese market:

--to urge that the procedural steps agreed to by SIA and EIAJ be fully implemented and, in addition, that specific sectors of the Japanese industry be targeted for increased purchases of U.S. semiconductors and other electronic products.

--to insist that the Japanese government live up to its commitments under the U.S.-Japan Semiconductor Trade Agreements; and the success of these efforts be measurable in terms of an increased real market share in Japan for U.S.-based companies.

--to support the sanctions that are in place and to investigate increasing sanctions to ensure compliance with the Japanese commitments under the agreements.

3. To develop extraordinary measures designed to encourage increased U.S. DRAM production with a view to increasing U.S. worldwide market share; and to seek appropriate U.S. government cooperation.

An AEA-SIA Joint Steering Committee has been formed to present detailed and documented recommendations to the U.S. government.

To date, the principal joint activity undertaken by the two associations has been the development of recommendations on modifications to the FMV procedures. As discussed in the Prevention of Dumping section, based to a significant degree on the two associations' recommendations, the Commerce Department has modified the FMV procedures.

As the two associations move toward a better shared understanding of the true nature of the problems facing their members, the focus of their attention has shifted from

discussion of the merits of the FMV system toward attempts to develop a consensus solution to the problems that the Agreement and FMV system were designed to address. Thus, cooperative efforts for the near future will include examining alternative antidumping mechanisms to replace the current FMV system, exploring the possibility of additional or modified sanctions in order to obtain electronics industry access to the Japanese market, and devising extraordinary measures to increase U.S. DRAM production (as discussed in the DRAM Market Conditions section).

ELECTRONICS INDUSTRIES ASSOCIATION OF JAPAN

SIA and the EIAJ Users of Foreign Semiconductor Committee have discussed a number of market access activities which both associations feel would be helpful. The two associations plan to pursue these activities independently.

In addition to the discussions with the Japanese semiconductor users, SIA and EIAJ have held talks between semiconductor producers which has led to a five point "International Cooperation" program in March 1988. The five point program was:

(1) Joint sponsorship of an International Semiconductor Roundtable in Tokyo in October 1988.

(2) Joint development of an International Semiconductor inventory model and statistical program.

(3) Joint support for development by government of improved market access statistics.

(4) Joint efforts to clarify and improve the protection of semiconductor intellectual property rights.

(5) Joint market research on new product applications and emerging market trends.

Progress on each of these points was made in the SIA/EIAJ meetings in Tokyo in June 1988, including the first joint position statement on a public policy issue. The joint statement related to the prospects for a semiconductor chip protection treaty within the World Intellectual Property Organization.

THE EUROPEAN COMMUNITY
ANTIDUMPING INVESTIGATIONS, SIA/EECA DISCUSSIONS,
AND GATT PROCEEDING

In 1987, the Commission of the European Communities initiated two antidumping investigations concerning imports

of DRAMs and EPROMs from Japan. These investigations continue and reportedly are near to resolution. A GATT review of the Japanese government's implementation of the Semiconductor Agreement has also taken place. In a separate development, European and American firms have entered into constructive industry talks and continue to explore joint industry research projects.

EC Antidumping Investigations

Following complaints lodged by the European Electronic Component Manufacturers Association (EECA) acting on behalf of practically all European semiconductor manufacturers, in April and July of 1987, the EC Commission initiated antidumping investigations of EPROMs and DRAMs from Japan.[1]

1/ The Commission of the European Communities (the Commission), as the executive branch of the EC, has primary responsibility for administering and enforcing the EC's antidumping investigations. The Council of the European Communities (the Council), consisting of representatives from each Member State, is the decision-making authority for the EC in antidumping cases. The Commission initiates and conducts an antidumping investigation, and makes a recommendation to the Council. The Council then decides whether antidumping duties will be imposed.

The EC's antidumping law, promulgated in 1984, is substantively similar to U.S. law, since both were drafted in accordance with the principles of the GATT, but is not as detailed as the U.S. law. EC antidumping investigation procedures also differ from those employed in the United States in that greater discretion is given to the Commission than is accorded to the U.S. agencies administering the U.S. law.

To impose antidumping duties, the Commission must find that imports have been dumped in the EC, that the dumped goods have caused injury to a Community industry and that the interests of the Community call for Community intervention.

Procedurally, the Commission is responsible for all findings and there is no strict timetable (although one year is considered normal) for a finding. In addition, the Commission bears the burden of proving the alleged injury and dumping. In the course of an investigation, the Commission may make a positive preliminary determination and may impose provisional duties. Definitive collection of these provisional duties is

In both cases, EECA alleges that Japanese dumping has caused European manufacturers to lower their prices to abnormally low levels, thus preventing the recovery of production costs, the proper utilization of production capacity, and the realization of certain necessary investments. EECA also alleges that Japanese dumping has retarded the development of a Community industry, as a result of postponed decisions to build up further production.

Investigation responses having been verified early this year, determinations in each of these cases are upcoming. The Commission is expected to reach decisions on what provisional action, if any, to take in these cases by mid-September. It is expected that there should be ample evidence of dumping to support the imposition of provisional and definitive antidumping duties.

SIA-EECA Discussions

Through ongoing consultations, SIA and EECA seek to further a number of common goals: to promote the growth of the worldwide semiconductor industry to the benefit of both users and producers; to promote healthy international competition while seeking to avoid trade friction; and to foster industry consensus and lasting solutions.

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left for Council determination at the time when the decision whether to impose definitive antidumping duties is made. The Commission will submit a recommendation for Definitive Action to the Council if the requisite findings of dumping, injury and Community interest are made. Definitive Action normally results in the imposition of antidumping duties and the collection of any provisional duties that were imposed. Alternatively, an agreement, or "undertaking," pursuant to which parties agree to raise prices to a level which eliminates the injurious effects of dumping, can be undertaken for individual firms to avoid payment of antidumping duties.

If an antidumping investigation ends in a positive finding then duties are imposed at a level necessary to eliminate the injury found. All exports of the subject merchandise from the investigated country are subject to the stated duty rates, and are subject to the highest duty specified if the company involved was not the subject of the initial investigation. At the time of one year following an investigation, exporters may request a review, but must show that circumstances have changed to justify removal of duties.

Actions to be undertaken by the two groups might include identifying rules to govern the international trading system given the stated aims and policies; promoting the adoption of complementary public policy initiatives in the United States and the EC to promote healthy international competition and cooperation and to prevent unfair trade practices; and participating in regular consultations to inform each other of developing areas of concern.

The United States, EC and Japan will participate in an industry Roundtable in Tokyo in October which will address areas of mutual concern to the three countries.

GATT Review

In October of 1986, the EC formally requested consultations with the United States and Japan under Article 22 of the GATT and Article 15 of the Antidumping Code to address European concerns over the U.S.-Japan Semiconductor Agreement. These concerns included: a fear of discrimination against EC products in the Japanese market due to the Japanese commitment to improve foreign market share; a fear of price increases for semiconductor imports into the EC; and concern regarding the lack of EC involvement in the negotiation of the bilateral agreement between the United States and Japan, despite the implications of the Agreement for the EC. After consultations with Japan failed to result in a satisfactory settlement, the EC, in February 1987, requested the formation of a GATT Panel to study the issue. Through the GATT investigation, the EC sought to obtain information on the market access provisions of the Agreement and to end third country price monitoring arrangements under the Agreement so as to have sole responsibility for addressing dumping in its own market.

The GATT inquiry resulted in the adoption by the GATT Council in May 1988 of the report of a GATT Panel condemning the methods employed by the Japanese government to avoid the dumping of semiconductors (which included the use of production controls as part of a comprehensive monitoring system). No changes in Japanese implementation, however, are expected to take place without prior consultation with interested parties. Discussions concerning how to bring the Japanese system into conformity with the GATT ruling continue.

SEMATECH

SEMATECH is a consortium of semiconductor manufacturers incorporated in August 1987 as a not-for-profit research and development corporation aimed at assuring manufacturing excellence and leadership for the U.S. semiconductor industry.

The mission of SEMATECH is to ensure the manufacturing competitiveness of the U.S. semiconductor industry for the production of commercial and military electronics. SEMATECH's product is manufacturing know-how.

SEMATECH is being led by Dr. Robert N. Noyce, co-inventor of the integrated circuit and a founder and Vice Chairman of Intel, as Chief Executive Officer. Paul P. Castrucci, a former top technical executive with IBM, manages the day-to-day operations of SEMATECH as Chief Operating Officer.

SEMATECH membership has grown to fourteen U.S. semiconductor companies. The member companies are: Advanced Micro Devices, Inc.; American Telephone & Telegraph Company; Digital Equipment Corporation; Harris Corporation; Hewlett-Packard Company; Intel Corporation; International Business Machines Corporation; LSI Logic Corporation; Micron Technology, Inc.; Motorola, Inc.; National Semiconductor Corporation; NCR Corporation; Rockwell International Corporation; and Texas Instruments Incorporated. Semiconductor equipment and materials firms are also participating in SEMATECH through the SEMI/SEMATECH chapter.

The SEMATECH program is based on an estimated annual operating budget of approximately $250 million a year -- far beyond the ability of any company or group of companies to provide. The Congress and the Department of Defense determined that it is in the national economic and security interests of the United States to provide a federal financial investment in SEMATECH for R&D activities in the area of semiconductor manufacturing technology. In 1987, the Congress enacted legislation that authorized and appropriated $100 million in funding for SEMATECH in fiscal year 1988. The Congress anticipated a five-year program for SEMATECH with an annual federal share of $100 million, based on 50-50 industry-government cost-sharing; similar levels of federal funding will be required for fiscal year 1989 and beyond.

SEMATECH has recently concluded an innovative and unique memorandum of understanding with the Defense Department's Advanced Research Projects Agency (DARPA) under which FY 1988

funds are being provided. Prior to DARPA involvement, the President recommended $44.785M in his FY89 Defense Budget for semiconductor manufacturing technology. We now understand that DARPA supports the full $100 million for FY89.

To achieve its technology goals, SEMATECH has set forth an extremely aggressive timetable and has moved quickly to implement it. Construction of a world class demonstration facility is currently underway in Austin, Texas. Technology roadmaps and strategic direction for SEMATECH have begun through a series of workshops held around the country.

In addition, as part of the initial start-up IBM and AT&T have contributed manufacturing demonstration vehicles that utilize their most advanced technology. IBM has transferred to SEMATECH a four-megabit Dynamic Random Access Memory device (DRAM) and AT&T a 64-kilobit Static Random Access Memory device (SRAM). These contributions demonstrate a major commitment to the objectives of SEMATECH by two major participants.

Research and development activities of SEMATECH's manufacturing demonstration facilities located at the SEMATECH site in Austin, Texas will center on equipment, materials, processes, manufacturing systems and procedures. SEMATECH recently launched its national research program, with the identification of ten university centers of excellence. In addition, SEMATECH expects to invite the U.S. Department of Energy's National Laboratories to become research and development centers for SEMATECH.

Quality will be a major emphasis in all of SEMATECH's operations and planning. Total control of quality will be stressed in the manufacturing demonstration area and in all related operations. Quality will be a key indicator of the readiness for transfer of any equipment, process, or system.

The consortium will develop, demonstrate, and deliver to its members and to the Department of Defense the technology for the cost-effective production of leading edge Ultra Large Scale Integration (ULSI) semiconductor devices. This technology will be transferred to SEMATECH member companies on an expeditious basis and will be utilized initially in domestic facilities.

The Defense Department will derive significant benefits from a healthy domestic semiconductor industry which is able to respond to defense needs and provide advanced technology for next generation defense weapons systems.

The industry believes that SEMATECH's joint approach -- with the participants sharing in the results -- will foster more efficient use of R&D dollars and result in wider dissemination of advanced semiconductor manufacturing technology throughout the U.S. industrial base.

CONCLUSION:
THE VIGOROUS ENFORCEMENT OF THE SEMICONDUCTOR ACCORD IS NECESSARY

On the second anniversary of the signing of the U.S.-Japan Semiconductor Agreement and after nearly one and one-half years of maintenance of sanctions on imports from Japan for Japan's failure to comply with the Agreement, it is fair to conclude that there have been some achievements, but much remains to be done before the Agreement can be considered a success.

On the positive side, to date, the following has occurred:

- an increase of just about 1.5 percentage points in U.S. share of the Japanese semiconductor market over the depressed level of 1986;
- the cessation of Japanese dumping of DRAMs and EPROMs in the United States and in third country markets;
- the promotion of reinvestment in memory chip production by U.S. producers;
- the creation of a mechanism for the U.S. Government to monitor for production controls, discriminatory pricing, or preferential allocation of commodity memory chips;
- the promotion of important alliances between SIA and the American Electronics Association (AEA), the Electronics Industries Association of Japan (EIAJ), and the European Electronic Component Manufacturers Association (EECA), as well as among SIA's own member companies, within SEMATECH.

To date, however, Japanese compliance remains inadequate in one central respect -- foreign market share in Japan remains below that expected under the Agreement, and recognized by the Government of Japan as that which should reasonably occur.

The impact of U.S. industry obtaining only limited additional access to the Japanese market has grave consequences in terms of sales, jobs and ability to fund R&D.

The U.S. Government continues to impose $165 million in sanctions on Japan as an incentive to comply fully with the Agreement's market access provisions. Clearly, the current sanctions have played a key role in the progress achieved to

date. Given the current shortfall between the actual foreign share in Japan and that expected under the Agreement, however, the current sanctions fall short of maintaining the balance of concessions.

To promote the continuation of the progress made to date, the U.S. industry and government must press ahead in their programs with Japanese industry and government for improved access to the Japanese market.

The U.S. industry and government must also find ways to address the "DRAM problem," including forceful challenges to Japanese anticompetitive behavior and development of measures to encourage increased U.S. production of DRAMs.

EVENTS SURROUNDING THE U.S.-JAPAN SEMICONDUCTOR AGREEMENT

1985	
June	Section 301 Market Access Case filed by SIA with the United States Trade Representative
June	Antidumping Investigation of 64K DRAMs requested by Micron Technology
September	Antidumping Investigation of EPROMs requested by Advanced Micro Devices, Intel Corporation and National Semiconductor Corporation
December	U.S. Department of Commerce self-initiates an Antidumping Investigation of 256K and above DRAMs
1986	
September	The U.S.-Japan Semiconductor Agreement signed
1987	
April	President Reagan imposes sanctions of $300 million in 100% ad valorem retaliatory tariffs on Japanese goods
June	President Reagan suspends $51 million of the sanctions due to improvement in the situation of DRAM and EPROM third-country dumping
November	President Reagan suspends $84 million of the sanctions due to the cessation of dumping of DRAMs and EPROMs in third countries
1988	
March 3	SIA-AEA issue Nine-Point Position Statement of Joint Program
May 25	SIA-EIAJ issue Joint Market Access Program of actions to increase foreign market share in Japan
August 9	Department of Commerce issues FMV modifications letter
September	SIA opens office in Tokyo
September 8	SIA-AEA issue joint recommendations on FMV successor antidumping mechanism, market access, and extraordinary measures to increase U.S. DRAM production.

EVENTS LEADING TO THE NEGOTIATION OF THE AGREEMENT

This appendix provides background information on the U.S.-Japan Semiconductor Agreement and the significance of the Semiconductor Agreement to the industry. The history of U.S.-Japan trade in microelectronics described in this appendix has been characterized by difficulty in securing Japanese adherence to a variety of commitments to market liberalization and the prevention of dumping.

Access to the Japanese Market

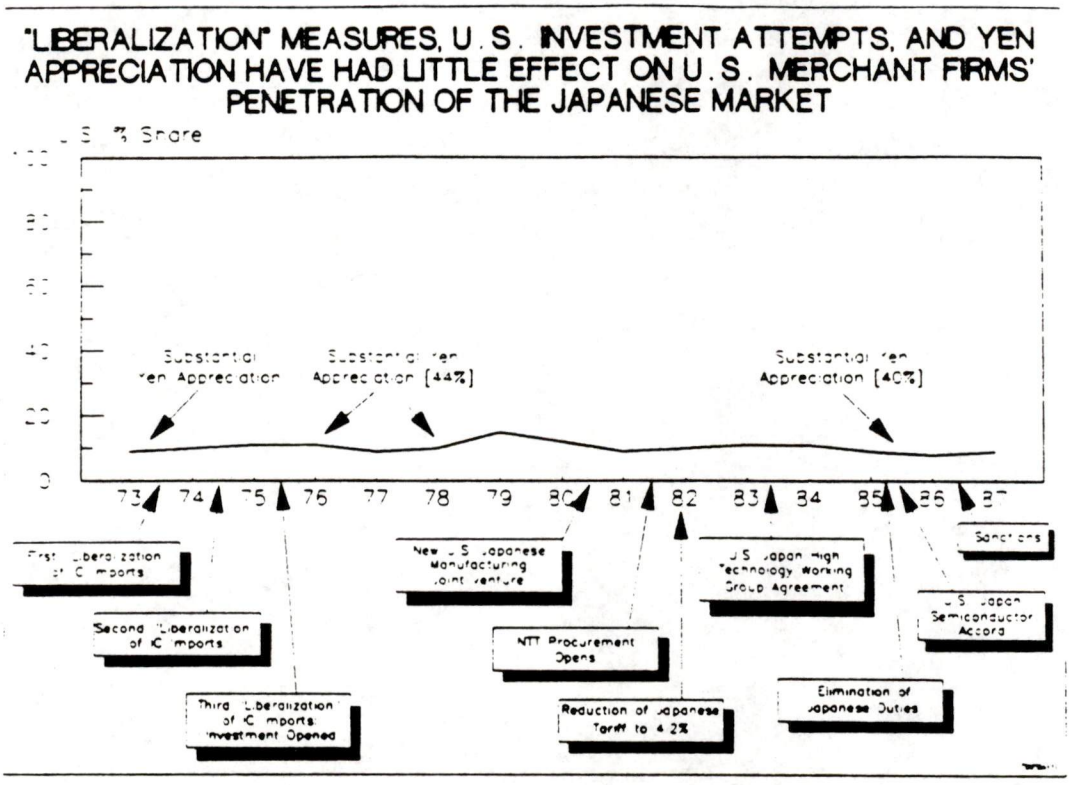
During the 1960s and early 1970s, American semiconductor firms were not permitted to establish subsidiaries in Japan, a policy which was inconsistent with Japan's commitment to national treatment under the U.S.-Japan Treaty of Friendship, Commerce, and Navigation, Article VII(1). (Texas Instruments, an exception to this policy, was permitted to establish a subsidiary in Japan, but on the condition that it license its technology to Japanese firms.) At the same time, the Government of Japan controlled semiconductor imports through quotas and tariff barriers in an effort to encourage the development of indigenous production capability. Market access for U.S. firms was often linked to the transfer of U.S. technology to the Japanese industry. These quantitative restrictions were maintained in violation of Japan's commitments under GATT Article XI.

In 1971, in response to concerns expressed by the U.S. government, Premier Sato pledged to liberalize Japan's restrictions on semiconductor imports and investment. In 1973, the U.S. government expressed concern over the slow pace at which this commitment was being implemented. The Japanese government then set a formal timetable for liberalizing its semiconductor and computer markets in phases between 1974 and 1976. However, at the same time, MITI was encouraging a restructuring of the domestic industry designed to offset the practical effect of liberalization, through measures described in Japan as "liberalization countermeasures."

Following "liberalization," the U.S. share of the Japanese semiconductor market never increased beyond a level of approximately 10 percent for any extended period, despite major commitments by U.S. firms to the Japanese market and a substantial appreciation of the yen against the dollar in the late 1970s. (See Figure A.1.)

By contrast, in all other world markets in which semiconductors were purchased based on the competitive merits of the products, U.S. producers' market shares traditionally were close to or in excess of 50 percent.

FIGURE A.1



In 1983, in the Semiconductor Recommendations adopted by the U.S.-Japan Working Group on High Technology (and approved by the U.S. and Japanese cabinets), the Japanese government agreed to encourage Japanese semiconductors users to enlarge U.S. sales opportunities, so that long-term relationships could evolve with U.S. companies. Such encouragement did occur briefly, but it was not continued. Few long-term relationships developed, and the U.S. share of the Japanese market actually declined after the 1983 accords (following a brief improvement). The most recent Japanese government commitment to improving market access is embodied in the Semiconductor Agreement which, like prior agreements, has thus far not resulted in a significant improvement in U.S. market opportunities.

The impact of restricted U.S. access to the Japanese market is enormous. In a 1985 study, the SIA calculated that an open Japanese market would represent an additional $2 billion in annual U.S. sales in Japan, a figure which represents 27,000 American jobs. However, this figure underestimates the true magnitude of the impact of opening the Japanese market. In the manufacture of semiconductors, volume production drive unit costs down sharply. The U.S. semiconductor industry cannot remain cost competitive on a global basis if its access to what is now the world's largest semiconductor market is severely limited. The U.S. industry

currently spends over 12% of sales on research and development, a high proportion than any other U.S. industry. Access to the enormous Japanese market would allow U.S. firms to spread R&D costs over a greater volume, thereby making American devices more cost competitive in all world markets.

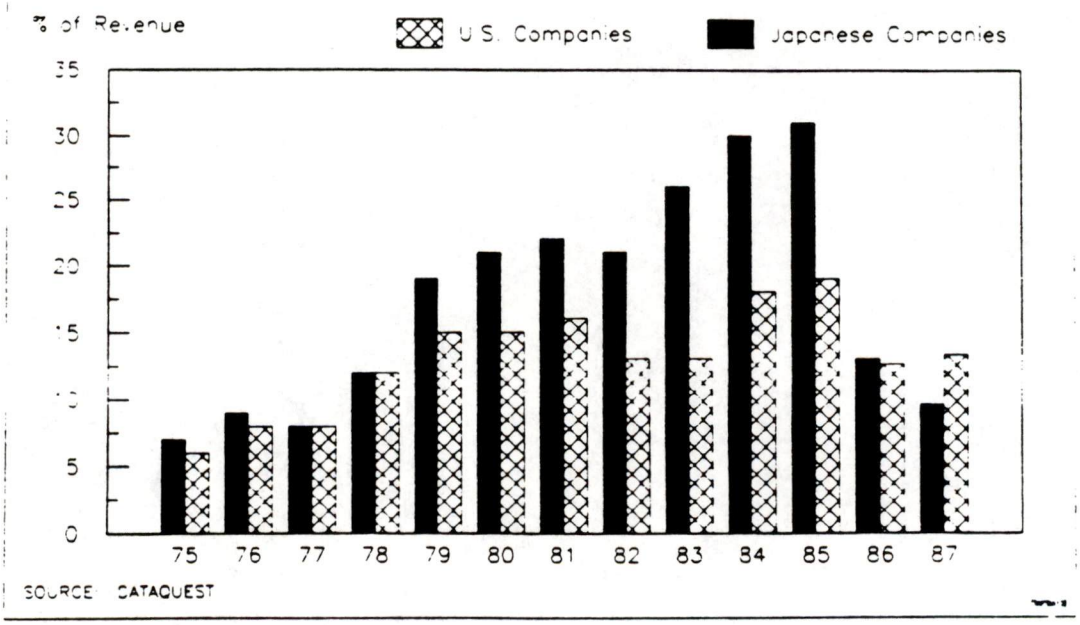
The increased manufacturing volume permitted by increased sales in Japan would also drive down manufacturing costs, thereby making American firms more competitive outside Japan. A 1985 study commissioned by the Office of the U.S. Trade Representative, the Department of Commerce and the Department of Labor concluded that: "for a 5 percent gain in volume in Japan, the U.S. producers' share in the U.S. market would experience an increase of approximately 2.5 market share points."

Japanese Dumping

During the period 1979-1982, Japanese firms invested in capacity expansion, particularly for MOS memory products, at a rate which substantially exceeded U.S. companies' capital expenditures as well as reasonable projections of demand. (See Figure A.2.) During the slump in world demand which began in 1981, Japanese firms expanded production of 16K and 64K DRAMs rapidly, and priced these products aggressively, leading to widespread dumping.

FIGURE A.2

CAPITAL TO REVENUE RATIOS U.S. VS. JAPAN

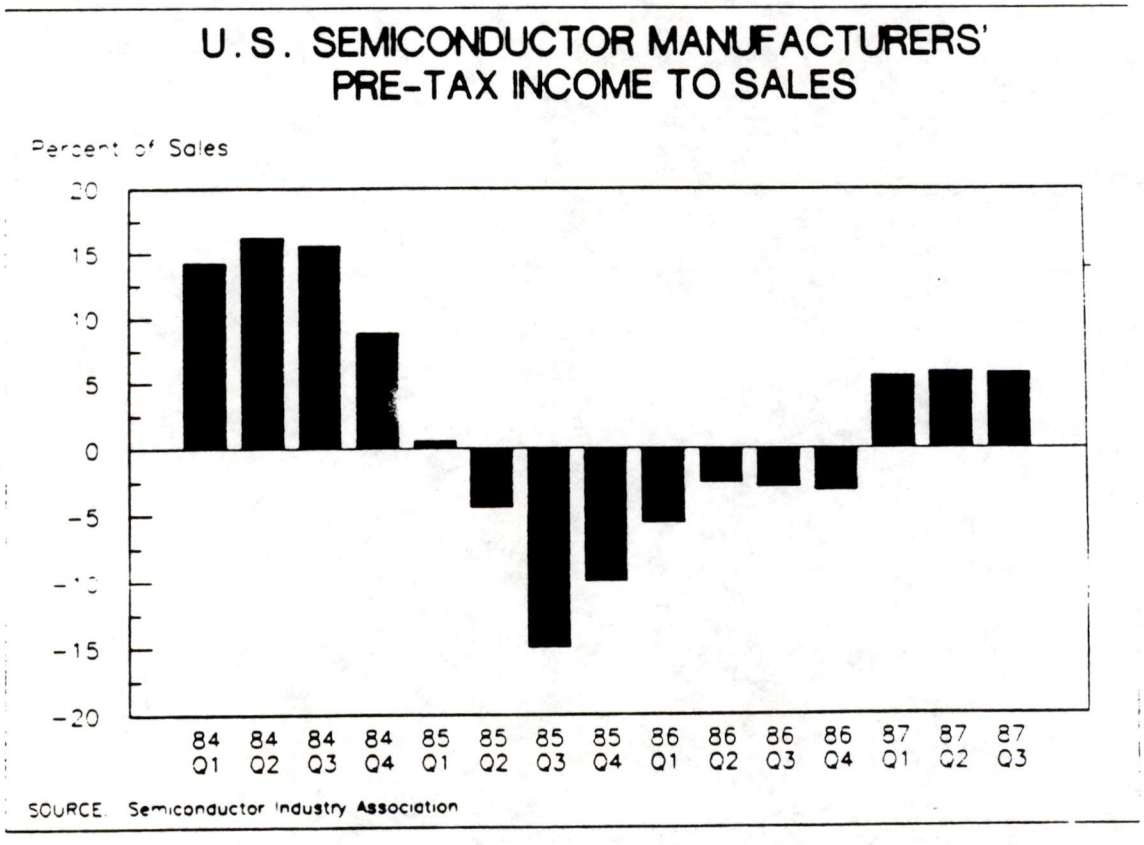


HTWG Agreement

The U.S.-Japan High Technology Working Group (HTWG) was established largely to reduce semiconductor trade friction. In late 1983, the U.S. and Japanese governments reached an accord on semiconductors in which MITI agreed to encourage the purchase of U.S.-made semiconductors and prevent Japanese semiconductor dumping. The U.S.-Japan Data Collection Program was established to monitor semiconductor trade flows between the two nations to provide an early warning of dumping. The Japanese government agreed to "vigorously [safeguard] the rules of the marketplace and [prevent] anticompetitive or predatory practices."

In late 1984, the semiconductor industry entered a severe recession. The U.S. share of the Japanese market began declining sharply, and Japanese producers -- which continued intensive capital investments following the onset of the recession -- again engaged in aggressive pricing of export sales, prompting renewed U.S. charges of dumping. One Japanese firm went so far as to instruct its distributors to undercut U.S. EPROM prices by 10 percent, and to continue undercutting prices by 10 percent until a sale was gained. Regardless of the selling price, the distributor would be guaranteed a 25 percent profit. The Japanese government did not take measures which would halt such practices, and it was apparent by 1985 that the HTWG accord was a dead letter.

FIGURE A.3



This dumping campaign had a devastating effect on the U.S. semiconductor industry. As Figure A.3 indicates, the U.S. semiconductor industry as a whole lost money every quarter from the second quarter of 1985 through the fourth quarter of 1986.

Trade Cases

These developments led to the initiation of a number of formal trade cases in 1985. The SIA filed a Section 301 market access case with the Office of the United States Trade Representative in June 1985. Antidumping petitions were filed with respect to 64K DRAMs by Micron Technology in June 1985 and EPROMs by Advanced Micro Devices, Inc., Intel Corporation, and National Semiconductor Corporation in September 1985. The U.S. government self-initiated an antidumping investigation of 256K and above DRAMs in December 1985.

In preliminary antidumping determinations in all of these cases, and final determinations in two, Japanese companies were found to be dumping semiconductors by margins of up to 188%. The interagency Section 301 Committee also determined that the SIA had a legitimate case.

Rather than pursuing the dumping and Section 301 cases to their final conclusion, which would have involved the imposition of duties on imported Japanese products, the United States and Japanese governments entered into the U.S.-Japan Semiconductor Agreement. This document was signed by Ambassador Clayton Yeutter and Japan's Ambassador to the United States Nobua Matsunaga on September 2, 1986.[1/] The objective of the Agreement is to subject Japanese semiconductor users and producers to market forces. In exchange for suspension of the trade cases by the United States, the Government of Japan committed: 1) to halt U.S. and third country dumping of semiconductors; 2) to provide full market access to foreign firms; and 3) not to undercut the Agreement in Japan.

1/ In addition to the Semiconductor Agreement, which was intended as the settlement document in the Section 301 case, there were separate suspension agreements in two of the antidumping cases -- EPROMs and 256K and Above DRAMs. These suspension agreements were signed by the individual Japanese companies which imported those products, and committed those companies not to sell semiconductors in the United States at less than their cost of production (plus an 8% profit).

APPENDIX

EIAJ/SIA JOINT MARKET ACCESS PROGRAM

(Approved by EIAJ)

I. Establishing a Long-Term Relationship

EIAJ, SIA and their members will undertake the following mutual actions to establish a long-term relationship based upon mutual trust:

[SIA/EIAJ]

1. EIAJ and SIA will hold timely meetings between the industries, for the purpose of building an ongoing relationship, promoting mutual understanding, and creating a vehicle for solving problems arising between the U.S. and Japanese industries represented by SIA and EIAJ.

2. EIAJ and SIA will encourage, and promote meetings among top level management of EIAJ user and SIA supplier members, for the purpose of establishing ongoing business relationships between the U.S. and Japanese companies.

3. SIA and EIAJ will promote the establishment of complementary relationships between U.S. and Japanese semiconductor manufacturers at the design, manufacturing, and marketing stages, for the purpose of improving support systems in the Japanese market.

[SIA]

1. SIA supplier firms will continue to build support systems in Japan that are specifically designed for the Japanese market.

2. SIA supplier firms will develop effective long-term strategies for increasing the access of U.S. suppliers to the Japanese market.

3. SIA supplier firms will take timely steps to grant more autonomy to their Japan offices.

[EIAJ]

EIAJ and its user members, in order to improve the ability of foreign suppliers to predict the future demands of the major trends in the Japanese electronics market, and to plan accordingly, will:

1. Provide foreign suppliers with timely information concerning major trends in the Japanese electronics market:

2. Provide foreign suppliers with information, when available, on long-term future trends or needs of individual EIAJ user members.

II. Design-In Cooperation

Realizing that it is important for SIA suppliers to participate at the design stage so their devices will be designed-in to new strategic products, both sides hereby agree to implement the following actions:

[SIA/EIAJ]

1. SIA will encourage its supplier members to offer timely seminars for EIAJ members on a variety of important new products for various applications. EIAJ user members will support such seminars and will encourage their design engineers and purchasing managers to attend.

2. EIAJ and SIA will promote engineering exchange programs among their members in order to enable users and suppliers to effectively convey their needs to each other, and to encourage and support joint development of new products.

[SIA]

1. SIA will encourage its supplier members to establish additional design centers in Japan designed to meet the needs of Japanese users.

2. SIA supplier firms will provide Japanese users with timely information concerning new designs in order to promote users' design-in.

[EIAJ]

1. EIAJ user firms will provide foreign suppliers with timely information concerning trends and user needs to the maximum extent possible, in the Japanese electronics market.

2. EIAJ users individually will involve themselves, to the maximum extent possible, in special joint projects with foreign suppliers to develop new products.

3. EIAJ will encourage its members to involve suitable foreign suppliers early in the design cycle of strategic new products.

III. Continued Expansion in the Area of Existing Products

Both parties agreeing that foreign products adopted by Japanese users should continue to be available in the Japanese market, users recognizing the importance of maintaining stable purchaser/supplier relationships so long as QCDS remain acceptable and both parties realizing that it is important for foreign suppliers to expand their access in the area of already available products. EIAJ and SIA hereby agree to promote and encourage the following actions by their respective members:

[SIA]

1. SIA member firms will actively promote sales of targeted products in Japan by identifying the special features and merits of those products to the Japanese user, and by publicizing such features through publication and distribution of product literature written in Japanese.

2. SIA supplier firms will communicate to manufacturing personnel and design engineers worldwide, in addition to their Japan sales staffs, both sides' shared desire to improve supplier's quality, cost delivery and service support in the Japanese market.

3. SIA will encourage SIA supplier firms to continue to improve their delivery reliability in Japan through all reasonable methods, including maintaining adequate inventories in Japan, for prompt response to customer orders and accommodating customer's delivery requirements.

[EIAJ]

1. EIAJ will encourage each EIAJ user firm to individually establish a special committee to increase procurement of products of foreign suppliers.

2. EIAJ users will communicate within their companies, to engineering staff, management, and purchasing personnel, both sides shared desire to increase market access by foreign semiconductor suppliers members.

3. EIAJ users will make further efforts, to the fullest extent possible, to expand their qualifications of foreign products, EIAJ users will also provide foreign suppliers with timely

information concerning Japanese users specifications for product quality and conditions.

4. EIAJ will encourage its member companies to engage in long-term relationships with foreign suppliers on the same basis as with domestic suppliers. In the context of any long-term relationships it is understood that replacement of any foreign devices should be governed not by preference for domestic devices but solely by commercial considerations.

IV. Expanding the Range of Users and Suppliers

Realizing the importance of increased participation by a wide range of users and suppliers in order to secure market access, both sides agree to implement the following actions:

[SIA]

1. In cooperation with INSEC, SIA will reach out to a wider range of U.S. suppliers through public relations and educational programs in the U.S., and will encourage U.S. suppliers to increase sales activities specifically targeted to the Japanese market.

2. SIA supplier firms will continue to invest adequate resources to meet the needs of users, and will strengthen and expand their sales activities to reach a broader range of Japanese users through the development of more effective local business operations, including the use of local distribution agents.

[EIAJ]

1. EIAJ will strengthen and expand the functions of the Users Committee of Foreign Semiconductors, and will request cooperation from related groups in order to improve market access.

2. Major EIAJ users individually will encourage their related companies to procure products from foreign-based suppliers.

V. Expanding into Consumer Products and Automobile Areas

EIAJ users understand that SIA suppliers have a special interest in improving their access to the Japanese consumer electronics and automotive industries. SIA

suppliers understand that it is important for them to base marketing efforts on a long term strategy designed to meet Japanese user needs. In consideration of the importance of the aforementioned understanding, both sides agree to implement the following actions:

[SIA/EIAJ]

EIAJ, SIA and their member companies will explore opportunities to nurture mutual understanding at the industry level among member companies on both sides.

[SIA]

1. SIA and its supplier firms will make every reasonable effort to deepen their understanding of the needs of Japanese users in the consumer electronics and automotive industries.

2. SIA supplier firms will specify commodity products specifically designed for consumer goods and automobiles and further increase their sales promotion.

3. SIA supplier firms will demonstrate long-term and reliable capabilities in QCDS (Quality Cost Delivery & Service) by meeting the requirements of the Japanese consumer electronics and automobile markets.

[EIAJ]

1. EIAJ user firms will make all reasonable efforts to deepen understanding of the capabilities of semiconductors offered by foreign suppliers in the field of Japanese consumer electronics and automotive products.

2. EIAJ user firms will make all reasonable efforts to expand qualifications to increase procurement of commodity products of foreign suppliers in the field of consumer electronics and automotive products.

3. EIAJ will encourage EIAJ members to provide foreign suppliers with timely information concerning long-term technological trends and user needs to the maximum extent possible in the Japanese consumer electronics and automotive markets.

VI. Ensuring Competition

While the associations will provide opportunities for company-to-company contacts and information exchange, neither association will discriminate among or restrict the opportunity of any company to obtain information or develop business with any other company. All commercial discussions on particular transactions will occur on a company-to-company basis.

Tracking of 13 U.S. Company Design-In Efforts in Japan

ACTIVITY	TIME PERIOD	TOTAL NUMBER	PERCENT INCREASE	EXAMPLES/ OTHER COMMENTS
NUMBER OF TECHNICAL/ APPLICATIONS PERSONNEL BASED IN JAPAN	1Q86	242		
	1Q88	319	32%	
NUMBER OF VISITS TO JAPAN BY US-BASED PEOPLE	1Q86	45		
	1Q88	113	151%	
NUMBER OF PEOPLE WHO COME FOR SUCH VISITS	1Q86	63		
	1Q88	207	229%	
NUMBER OF TECHNICAL SEMINARS PRESENTED TO JAPANESE CUSTOMERS	1Q86	180		
	1Q88	414	130%	
NUMBER OF REQUESTS FOR TECHNICAL SEMINARS BY CUSTOMERS	1Q86	93		
	1Q88	211	127%	
SIZE OF AVERAGE GROUP/ AUDIENCE TO WHOM SEMINARS WERE PRESENTED	1Q86	9		
	1Q88	20	122%	
NATURE OF APPLICATIONS FOR WHICH SEMINARS IN 1988 WERE PRESENTED OR REQUESTED	1988 varied			Industrial, fiber-optics, general logic, office, memory, instruments, telecom, analog, PC, general, semicustom, linear, ASIC, GPL, DSP, GSP, MPU, MCU, FRAM/VRAM, etc.
NUMBER OF DESIGN CENTERS TECHNICAL SUPPORT CENTERS IN JAPAN	1Q86	18		
	1Q88	34	89%	
NUMBER OF CUSTOMER-INITIATED REQUESTS FOR PRODUCT QUALIFICATION	1Q86	242		
	1Q88	374	55%	
NUMBER OF NEW PRODUCT ANNOUNCEMENTS IN JAPAN MADE PRIOR TO/SIMULTANEOUSLY WITH SAME ANNOUNCEMENT IN U.S.	Since 1986			Varied from 0 to all new products simultaneously announced in both countries (for most companies, all)
MAJOR NEW TECHNICAL APPLICATION INITIATIVES THAT YOU PLAN TO UNDERTAKE IN THE BALANCE OF 1988.	1988			Fiberoptic, linear, ASIC, GPL, CCD, ECL, analog, advanced peripheral, CAD, opto coupler, risc computer, standard cell
HOW MANY SEMINARS GIVEN/PLANNED IN 1988 ARE FOR:				
A.) New Customers	1988	227		
B.) Customers other than "top tier" companies?	1988	383		

Notes: Responses received from AMD-MMI, GE, Gigabit, Harris, HP, Lansdale, LSI, Motorola, National Semiconductor, Precision Monolithics, Raytheon, TI and Zilog;

"Top tier" customers are defined as NEC, Toshiba, Hitachi, Mitsubishi, Fujitsu, Oki, Matsushita, Sony, Sanyo and Sharp.

TRACKING OF 1988 US COMPANY EFFORTS IN JAPAN

COMPANY:	AMD-MMI	AT&T-MICROELEC	GIGABIT LOGIC	HARRIS
INITIATIVE ACTIVITY*				
respond quickly to Japanese consumers' requests by giving more discretion to subsidiary in Japan and by establishing closer communication between head office & Japanese subsidiary	(specify action taken) Filled new position of Vice President of Asia-Pacific division in Tokyo	Tokyo Senior Manager reports directly to U.S. Director of International Sales	Use exclusive distributor; reports to Vice President of Sales and Marketing	President of Harris K.K. moved up one level closer to sector CEO (now 2 levels away)
nominate President of Japanese subsidiary as officer of headquarters' semiconductor division (if appropriate)	(check if done) X			President of Harris K.K. nominated as Vice President of Harris S/C
establish office for Japanese affairs in head office & put under control of President of Japan subsidiary	Manager of Japanese Affairs reports to Vice President in Tokyo			Harris K.K. employee being transferred to Florida
issue policy statement reaffirming company commitment to serving the Japanese market	(give date of statement & attach statement) Internal corporate statement April 1988			In preparation
activate marketing & provide customers w/ product informatn	(specify actions taken) 100 staff members for customer support	Information in both Japan and US		3-week seminar series in Japan in June
improve service, i.e., by establishing local marketing offices	(state location of sales offices maintained in Japan) Tokyo Osaka	Tokyo	exclusive distributor	Tokyo
prepare sales/marketing documents in Japanese	(list major documents available in Japanese) 40 documents on key products	Underway		List to be made available
provide sales & technical support in Japan on a regular basis	(# of quality assurance/testing centers and failure analysis centers in Japan) 3	Yes		2
	(% increase in # of non-manufacturing engineering staff in Japan - from 4086-4087)			12.5
promote relationships with distributors & representatives in Japan	(specify actions taken) 10 years of direct contact with the VP; continuous programs for representatives	Yes, maintain relationship with 4 Japanese trading companies	exclusive distributor; regular follow-up and applications support from Headquarters	Report to be made available
work w/Japanese customers to design devices in new prodcts by establishing offices with design capability in J & by responding quickly to design modification & other requests	(# of design centers maintained in Japan) 1 (list Japanese companies)	1987- began custom designs		1
assure that supplies will be provided on a non-discriminatory basis during shortages	(give date of statement & attach statement) committed to 95% on-time delivery for all; reaffirmed in April 1988 statement			Included in policy statement
reinforce support for INSEC activities	(member?) board member (specify additional support efforts)			Yes

* The listed items were taken from the April draft of the USG-Government of Japan Paper entitled, "Initiative to Increase Foreign Semiconductor Sales and Promote Long-term Relationships -- Japan-US Semiconductor Agreement" These items encompass all points to be undertaken by US suppliers as agreed to in the Monterey "Joint Statement

TRACKING OF 1988 US COMPANY EFFORTS IN JAPAN

COMPANY:	INTEL	INTL RECTIFIER	LANSDALE	LINEAR TECH
INITIATIVE ACTIVITY*				
respond quickly to Japanese consumers' requests by giving more discretion to subsidiary in Japan and by establishing closer communication between head office & Japanese subsidiary	Intel K.K. is 2 levels from CEO	The head of I.R. Far East Company is 2 levels below CEO of I.R.		Have sales manager and Field Applicatns Engineer located in Tokyo
nominate President of Japanese subsidiary as officer of headquarters' semiconductor division (if appropriate)		Yes. Done.		
establish office for Japanese affairs in head office & put under control of President of Japan subsidiary	4 Intel K.K. employees in California, 2 in Arizona	Yes. Provided direct communication between Japanese employees and US headquarters		
issue policy statement reaffirming company commitment to serving the Japanese market	1987 "Japan Focus" program - all employees informed	Considered one of the most important markets for the company	Committed to serve with equal priority	
activate marketing & provide customers w/ product informatn	"Anshinkan" program started February 1987	Periodic visits by engineerng executives with new product info.		Yes, with L.T.C. employees
improve service, i.e., by establishing local marketing offices	Tokyo (2) Nagoya Kawasaki Osaka Atsugi Tsukuba Kamagiya	Tokyo		Tokyo
prepare sales/marketing documents in Japanese	"0188" - 750 pages on products; in 1988 4000 pages expected	Catalog, application, notes, reliability reports		will begin in 1988
provide sales & technical support in Japan on a regular basis	2	1 100.0		FAE and U.S. personnel visit 3 times per year
promote relationships with distributors & representatives in Japan	As of November 1987 distribution manager now reports to Intel K.K. and Intel Headquarters	Appointed 6 sales representatives and agents	Through International Marketing Division, established in March 1988	ongoing; have 4 distributors in Japan
work w/Japanese customers to design devices in new prodcts by establishing offices with design capability in J & by responding quickly to design modification & other requests	1	Close communication with Japanese customers; most manufacturing done in Japan		local FAE in Tokyo
assure that supplies will be provided on a non-discriminatory basis during shortages	Can commit supply for next 2 quarters	Corporate policy: a Japanese customer is equal to the most important customer anywhere else in the world	No shortage; can commit with equal priority	
reinforce support for INSEC activities	Board member	Yes	Yes	

TRACKING OF 1988 US COMPANY EFFORTS IN JAPAN

COMPANY:	PRECSN MONOLTHC	RAYTHEON	ROCKWELL	SIGNETICS
INITIATIVE ACTIVITY*				
respond quickly to Japanese consumers' requests by giving more discretion to subsidiary in Japan and by establishing closer communication between head office & Japanese subsidiary	Nippon PMI in existence for 10 years. NPMI President has broad discretion as to inventory/pricing	Established and named Sales Manager, Raytheon Semiconductor International Co. Japan, 1987.	Upgraded Tokyo sales office to Japanese corporation	Signetics KK assigned one position, specifically to liason with head office.
nominate President of Japanese subsidiary as officer of headquarters' semiconductor division (if appropriate)	NPMI is a separate company		Awaiting appointment of General Manager for Far East Operations	
establish office for Japanese affairs in head office & put under control of President of Japan subsidiary	2 NPMI personnel in California		to occur	Under consideration
issue policy statement reaffirming company commitment to serving the Japanese market	Japanese market understood to be a key market		Yes, 1980 press statement	
activate marketing & provide customers w/ product informatn			In process through sales office	Yes
improve service, i.e., by establishing local marketing offices	Tokyo Osaka	Tokyo, 1987.	Tokyo	Tokyo Osaka
prepare sales/marketing documents in Japanese	all: catalogue, newsletter, ads, applications book	In process	Presentations translated	
provide sales & technical support in Japan on a regular basis	1 - Kashiwa-shi 1 - Taipei to support Asian market	1 Sales Manager Engineer in 1988 Business Plan	1 quality assurance/test center	3 17
promote relationships with distributors & representatives in Japan	NPMI distrbutors have accelerated service; all distributors taken through Taiwan plant	Underway	T-1 seminar held for for distributors & customers; Presentation translated to Japanese	Sales conferences twice a year to inform distributors
work w/Japanese customers to design devices in new prodcts by establishing offices with design capability in J & by responding quickly to design modification & other requests	none	In 1988 Business Plan	authorized Japan Design center; ready end of 1988	1 Established customer service center in February
assure that supplies will be provided on a non-discriminatory basis during shortages	Japanese market given high priority; no discrimination in supply		Same treatment as others; purchasing similar quantities	Inventory system on products with potential high demand. Supply on first come, first serve basis.
reinforce support for INSEC activities	Just learning of INSEC		Yes	Yes

TRACKING OF 1988 US COMPANY EFFORTS IN JAPAN

COMPANY:	TEXAS INSTRUMENTS	UNITED TECHNOLOGY	VLSI	XILINX	ZILOG
INITIATIVE ACTIVITY*					
respond quickly to Japanese consumers' requests by giving more discretion to subsidiary in Japan and by establishing closer communication between head office & Japanese subsidiary	President/Director reports to President of S/C Group. He is Senior Vice Pres. of Group & Manager of World-Wide MOS Memory Operations		VSLI KK President reports directly to VSLI CEO	The new President for Xilinx-Japan reports directly to Xilinx's CEO in California.	Committed to "same day"/ overnight response
nominate President of Japanese subsidiary as officer of headquarters' semiconductor division (if appropriate)	Yes.		VSLI KK President is Director of VSLI Inc. (equal to other Vice Presidents)		Japanese facility head reports directly to chief commercial officer of the company for the area
establish office for Japanese affairs in head office & put under control of President of Japan subsidiary	Yes. Staff of 6 in US reports to President of subsidiary		Japanese affairs office budgeted & paid for by Japan subsidiary. Dotted line management.		
issue policy statement reaffirming company commitment to serving the Japanese market			In preparation. 1984- defined a key strategic market. Equal support.		made
activate marketing & provide customers w/ product informatn	Ongoing for over 20 years		KK has marketing staff in place 1981. Advertising began 1988.		Tokyo office has marketing & applications function
improve service, i.e., by establishing local marketing offices	Kyoto, Miho, Kyushu, Yokohama, Tachikawa, Matsumoto, Kanazawa, Nagoya & Osaka		Tokyo	one office in Tokyo	Tokyo
prepare sales/marketing documents in Japanese	Ongoing		Design software & ASIC products; technical papers.	designing handbook in Japanese.	product information in Japanese
provide sales & technical support in Japan on a regular basis	6 27	Daily interface with representatives	1 100% 12.5		In Tokyo office
promote relationships with distributors & representatives in Japan	Subsidiary has manager for distribution; significant % of business through distribution	Have established representative interfaces	3 distributors; 3 Associated Design Centers (ADC)		relationship with six stocking distributors & 1 manfacturing distributor
work w/Japanese customers to design devices in new prodcts by establishing offices with design capability in J & by responding quickly to design modification & other requests	3 Design Centers & many new programs; e.g. custom design & application specific products		1 complete design center for ASIC with 3 ADC's full design autonomy.		
assure that supplies will be provided on a non-discriminatory basis during shortages	Most products manufactured in Japan & subsidiary President allocates any in short supply	Committed to services	Policy in preparation.		first priority on delivery & failure analysis to Japanese mark
reinforce support for INSEC activities	Board member		Yes		

TRACKING OF 1988 US COMPANY EFFORTS IN JAPAN

COMPANY:	LSI LOGIC	MOTOROLA	NATIONAL	NCR
INITIATIVE ACTIVITY*				
respond quickly to Japanese consumers' requests by giving more discretion to subsidiary in Japan and by establishing closer communication between head office & Japanese subsidiary	Both Japanese subsidiaries are fully autonomous. All management is Japanese.	Japanese subsidiary is autonomous with manufacturing, design, & marketing in Japan	NSJKK President is 2 levels from Executive Vice President of S/C Group and has budget and price authority	Establishing ASIA/Pacific direct reporting to US AVP Marketing
nominate President of Japanese subsidiary as officer of headquarters' semiconductor division (if appropriate)	CEO of Japanese subsidiary is Corporate Vice President of LSI Logic	semiconductor director corporate vice president; reports to corporate CEO	NSJKK President is equal to all division Vice Presidents	
establish office for Japanese affairs in head office & put under control of President of Japan subsidiary	Japanese Affairs under control of & on payroll of Japanese Subsidiary	Japan has own office; liason personnel at corporate & semiconductor HQs	3 NSJKK employees in California; also 2 monthly visits	Asia/Pacific Liaison reports to AVP Marketing in headquarters
issue policy statement reaffirming company commitment to serving the Japanese market		sector imperative; Toshiba agreement reaffirmed	There is a statement	
activate marketing & provide customers w/ product informatn		frequent seminars to customer, full application notes & data sheet support	Monthly seminars on product & applications	
improve service, i.e., by establishing local marketing offices	Tokyo Osaka Tskuba	Tokyo, Osaka, Atsugi, Nagoya, Sendai	Tokyo Osaka	Establishing Hong Kong Headquarters for Asia/Pacific sales & marketing
prepare sales/marketing documents in Japanese	Yes, all.	normal procedure	many data sheets, appliction notes; to double in 1988	
provide sales & technical support in Japan on a regular basis	1 17	growing technology infrastructure is Japan-based; supplemented by US staff |3 |12	routine and very significant	
promote relationships with distributors & representatives in Japan	Yes, numerous.	direct sales and distribution support	Very strong relationship exists	Distributors and representatives in Tokyo under Hong Kong sales director
work w/Japanese customers to design devices in new prodcts by establishing offices with design capability in J & by responding quickly to design modification & other requests	3 Design Centers; Japanese subsidiary has full autonomy for design and manufacturing	Design centers in Tokyo and Osaka (new)	2: Linear Design & ASIC Design centers; minimum of 50 customer visits per month by application engineering specialists	1
assure that supplies will be provided on a non-discriminatory basis during shortages	Excess Japanese capecity - priority to Japanese market	local production for Japan market; highest priority to Japanese customers	Policy gives minimum of equal share during shortage to all Japanese customers	
reinforce support for INSEC activities	Board member	Yes	board member	Considering membership

UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary for International Trade
Washington, D.C. 20230

AUG - 9 1988

Mr. J. Richard Iverson
President
American Electronics Association
1225 Eye Street, N.W. Suite 950
Washington, D.C. 20005

Mr. Andrew A. Procassini
President
Semiconductor Industry Association
10201 Torre Avenue
Cupertino, CA 95014

Dear Messrs. Iverson and Procassini:

I would like to express my continued support for the U.S.-Japan Semiconductor Arrangement and for the efforts of your organizations to maintain an industry consensus on semiconductor issues. I commend you for your constructive contribution to the public policy debate and your efforts to develop private sector responses to the challenges facing both the semiconductor and electronics industries. The health of your industries, which is vital to America's economic future, is a high priority for this Administration.

As you know, the U.S.-Japan Semiconductor Arrangement was designed to address Japanese unfair trade practices in a comprehensive manner. This overall "Arrangement" between our government and the Japanese government consists of provisions to prevent dumping both in U.S. and third country markets and to improve access to the Japanese market for foreign semiconductor producers. As part of this comprehensive approach, the Department of Commerce and Japanese semiconductor producers entered into suspension agreements which suspended the outstanding antidumping investigations on semiconductors. Attached you will find a Business America article by Assistant Secretary Jan W. Mares which outlines the recent development of our semiconductor policy. I encourage you to share this article with the members of your organizations.

We recognize that the current problems with DRAM supply availability represent a serious concern to your organizations. We share this concern. We have voiced our strong opposition to any measures that artificially restrict semiconductor supplies. We have received assurances from the Government of Japan that no quantitative or other kinds of restrictions exist on the production, supply or shipment of semiconductors. We will continue to pursue this issue.

Without question, your organizations have given serious and thoughtful analysis to the complicated issues involved in calculating the FMVs under the suspension agreement. The five recommendations you make in your June 21 letter clearly reflect that thoughtful analysis.

We have carefully evaluated each of the five recommendations with the objective of incorporating them into our methodology in a manner consistent with the dumping law, without prejudice to the legal rights of the parties to the proceedings, and without relieving the signatory companies of their obligations and commitments under the law. Within these legal constraints, we plan to incorporate directly the recommendations we can; where we cannot do so, we have tried to capture the spirit of the recommendation in our efforts to be responsive. A separate document is enclosed which details our responses.

I recognize that your recommendations and our responses involve extremely complicated issues of substance and implementation. We would welcome the opportunity to meet with your organizations, jointly or individually, to answer questions, receive your comments and continue the dialogue you have begun.

In closing, I want to emphasize that the unified approach of your two organizations is an integral element of developing sound public policy choices in administering the Arrangement and addressing the challenges facing the members of your organizations. I encourage you to continue your efforts and look forward to working with you to meet the competitive challenges we face in the future.

Sincerely,

Allen Moore

Enclosures

DEPARTMENT OF COMMERCE RESPONSES TO THE
AEA/SIA RECOMMENDATIONS REGARDING
THE SEMICONDUCTOR ARRANGEMENT

The following are the Department's responses to the recommendations proposed by the AEA/SIA in their letter of June 21, 1988. These represent the Department's effort to address these recommendations within the context of the U.S. antidumping law.

RECOMMENDATION 1

"The issuance of FMVs is designed to prevent injury from dumping to U.S. producers because under U.S. antidumping law, antidumping duties do not apply to products where the like product is not produced by a U.S. industry. Accordingly, where there is no U.S. production of a like product and where no company has firm plans to undertake production, neither antidumping duties, nor FMV-based suspension agreements, are applicable."

RESPONSE

We believe this proposal primarily addresses products covered by the DRAM suspension agreement. In that context, public information reveals that this proposal does not appear to present an issue at this time. Several U.S. companies have announced firm plans to undertake production of new DRAM generations in the United States. Micron Technology and Texas Instruments already produce 256K and 1M DRAMs in the United States. TI has continued with R&D on the 4M DRAM and its Dallas facility was specifically designed and built to cleanroom standards necessary for future commercial production of 4M and future generation DRAM devices. In addition to TI's plans, Motorola has announced publicly that it has plans to undertake production of both 1M and 4M DRAMs in the United States. Also, IBM has donated its 4M DRAM design and technology to Sematech, demonstrating a long-term industry commitment to develop DRAM manufacturing processes.

For products not yet in commercial production, but where there are firm plans to produce the product domestically, see our response to recommendation 2. To the extent that further questions relating to this proposal arise during the life of the suspension agreements, the Department is available to discuss any problems and appropriate means of resolving them.

RECOMMENDATION 2

"With respect to a new generation product the proposal is to revise methodology to avoid an artificially high FMV during introduction of the new generation when yields are traditionally low and a company is trying to enter the market. FMVs would still be calculated and the antidumping obligation would still exist. A company would not be

issued an FMV for the first six months of introduction of such a new generation product as long as there is no evidence of dumping. After this six month grace period, FMVs would be issued on a regular basis."

RESPONSE

By signing the suspension agreement, Japanese producers agreed to eliminate sales of their products in the United States at less than fair value as defined under U.S. antidumping law. To ensure compliance with this agreement, the Department calculates FMVs, which represent the price at or above which the producer must sell to avoid violating the U.S. antidumping law. There is no legal authority to suspend temporarily the application of the antidumping laws nor the application of FMVs to non-sample sales in the United States.

Issuing an FMV does not mean that it automatically applies to all transactions. A signatory is obliged to request and adhere to an FMV only when it intends to, or actually does, make non-sample sales of the product in the United States. Samples, however, can be shipped to the United States under the suspension agreement without being subject to the FMV.

The Department generally issues an FMV whenever a signatory company requests it to do so. Some companies have requested FMVs several quarters before they intend to make non-sample sales of the product in the United States. If a request is made early in the R&D stage of production, the FMVs will be relatively high, because the yields achieved at that time are normally quite low. They will not reflect the yields the company will experience when actual commercial production begins. Accordingly, we believe it makes more sense for a company to request an FMV for new generation products closer to the point in time when shipments to the U.S. will occur.

We recognize, however, that a new generation product may involve initial additional costs associated with its introduction. Accordingly, where costs associated with the start-up of commercial production of a new generation product are identified, the Department is willing to evaluate the amount of these costs and to consider amortizing them over an appropriate period of time or production. Under this methodology, all costs eventually would be captured as they are amortized.

RECOMMENDATION 3

"To encourage increased DRAM production, if a company decides to add a production line to an already existing product line, the company would be allowed to use cost accounting rules to defer certain start-up costs for a six month period, provided that those costs are recouped over an appropriate time period when its volumes from the new lines are higher. Again, after this six month period, FMV would be calculated for the production line in the regular method."

RESPONSE

Under our current methodology, we calculate a product-specific FMV based on the costs of all lines producing that particular product. This considerably dilutes the effect on FMVs of the increased costs associated with a new line. To calculate an FMV, we average the cost of manufacturing the product by the volume produced on each line. Since the production volume of the existing lines is generally much higher than that of the new line, the resulting FMV is greatly weighted toward, and reflects, the lower cost of the existing lines. Therefore, the additional costs associated with a new line normally will only marginally increase the FMV.

We recognize, however, that it is possible that the initial additional costs associated with the start-up of a new line could result in a distortion of the FMV. Accordingly, where additional costs associated with the start-up of a new line are identified, the Department is willing to evaluate the amount of these costs and the appropriate time period over which such costs should be recouped. Any additional costs would be deferred during the start-up period and then allocated over an appropriate period of time or production of the product once the start-up period ends. The duration of the start-up period may vary among companies depending upon their individual experience.

RECOMMENDATION 4

"FMV verification timing would be extended to occur every six months at periods when dumping was not occurring, and was considered unlikely."

RESPONSE

Under the suspension agreement, the Japanese producer/exporter signatories agreed to supply the Department all information it decides is necessary to ensure full compliance with the terms of the suspension agreement. Each signatory agreed to permit full verification of all costs and sales information semi-annually, or more frequently, as the Department deems necessary. Since the signing of the agreement, the Department has conducted quarterly verifications of all companies to ensure the accuracy of the information submitted.

The Department has always anticipated that, at some point, quarterly verifications of every company would be unnecessary. Based on the considerable familiarity with each individual company's cost and sales information, the Department will, when appropriate, verify companies on a selective basis. In August, for example, we intend to verify only three of the company responses. The Department, however,

would like to emphasize that less frequent verifications in no way relieve the Japanese companies from their commitment under the suspension agreements.

RECOMMENDATION 5

"To ensure transparency in the system and that users have full opportunity to input on decisions that might affect them, complaints alleging dumping of products now on the monitoring list would precipitate a regular expedited dumping proceeding. Users' concern is that FMVs might be imposed based on a producers complaint of possible dumping on a monitored product without regular process including input from potentially affected users."

RESPONSE

In conjunction with the suspension agreement, the governments of the United States and Japan entered into a bilateral agreement on semiconductor trade. This overall agreement, known as the U.S.-Japan Semiconductor Arrangement, was designed to prevent the dumping of semiconductors in the United States and third country markets and to improve access to the Japanese market for foreign producers. It sets up provisions for monitored products and provides for immediate consultations if the U.S. Government believes that any of these products are being sold at less than fair value. In the event that consultations take place, the Department will make itself available to discuss concerns of both producers and users and consider such input from all concerned.

FMVs cannot be imposed on monitored products merely on the basis of a complaint by a domestic producer. Neither the imposition of antidumping duties nor the adoption of an FMV-based system can be undertaken without the initiation and conclusion of an antidumping investigation. Such an investigation must include both a determination of dumping by the Department and an injury finding by the ITC.

Under the Arrangement, the U.S. Government retained its full rights to initiate antidumping cases, either in response to a petition or by self-initiation. The Arrangement provides for "fast-track" antidumping investigations. That is, if an antidumping action is filed on any monitored product, the Government of Japan shall encourage the affected Japanese semiconductor exporters to provide the Department with the company and product-specific cost and export price data within 14 days after a questionnaire is presented.

All interested parties will have the opportunity to participate in any expedited dumping investigation on monitored products. Any fast-track antidumping case will not be expedited by eliminating fundamental procedures, such as the injury test. Users will have the opportunity to provide input and comment on both the dumping and injury determinations.

The Wall Street Journal
July 18, 1988

Chip Prices Fall; Easing of Shortage Seen

Computer Firms Hopeful Supply of Crucial Parts Will Rise by Year End

By Brenton R. Schlender
Staff Reporter of The Wall Street Journal

Prices for computer memory chips have begun to fall, prompting computer makers and semiconductor companies to cautiously hope that a nagging shortage of the crucial parts will ease toward the end of the year.

According to Dataquest Inc., an electronics industry market research firm in San Jose, Calif., large-quantity contract prices for 256-kilobit dynamic random access memory, or DRAM, chips have fallen 21% to $3.50 each from their peak in May. Other analysts say anecdotal evidence indicates that spot market prices for 256-kilobit DRAMs have fallen at least 40% in recent weeks to less than $10 apiece.

Moreover, prices for the next generation, one-megabit DRAMs, which hold four times as much information as the 256-kilobit versions and have begun to supplant their predecessors, are falling as well. Since May, large-volume contract prices for one-megabit DRAMs have fallen 20% to $22 as chip makers have become more proficient at making them.

Turnabout for Chips

The trend toward lower prices marks a turnabout for memory chips, whose prices have more than doubled since last fall as booming computer sales caused demand to surge. "There's light at the end of the tunnel now, and it doesn't look like it's coming from a freight train," says Mark Giudici, the market analyst who tracks chip prices for Dataquest.

The lower prices on large contracts indicate that chip makers, who will deliver the chips at those prices in 16 weeks or so, believe the shortage of memory chips, which are used in nearly all computers, will begin to ease later in the year. Besides driving up memory chip prices, the shortage, which began to squeeze computer makers last fall, has constrained production and caused some manufacturers to ship machines with less than a full complement of memory.

Already some computer makers are beginning to breathe a little easier as prices abate. "The worst is probably over for the top vendors in the marketplace," says Michael Swavely, vice president of sales and marketing for Compaq Computer Corp. in Houston. Mr. Swavely says Compaq lately has been able to contract for new supplies of chips for the first time in several months and has reduced its spot market purchases to about 5% of its needs from 20% in the spring. "Things have loosened up some, but it will take a couple of quarters for the benefits to trickle down to the small vendors," he says.

Other computer manufacturers say they are receiving monthly allocations of memory chips earlier and that suppliers are offering to deliver more chips than in past months. "We've been getting surprises on the good side in recent weeks, while a few months back our surprises were bad surprises," says Edward W. Nelson, vice president and general manager of operations at Silicon Graphics Inc., a maker of engineering workstations in Mountain View, Calif.

"It's not a crisis situation anymore," agrees Austin Mayer, director of investor relations for Sun Microsystems Inc., a workstation maker that had curtailed production as a result of the memory chip shortage. Mr. Mayer, however, stops short of saying the shortage is over. "It's still pretty ugly out there," he says. "By our best guess, it will be the end of the calendar year before we're hitting on all cylinders again."

Chip makers themselves are more cautious in their public interpretations of dropping chip prices. "There is movement in the right direction, instead of going in the direction of an increasingly severe shortage," says Jim George, vice president of Motorola Inc.'s memory chip operations. "But we don't see the supply and demand coming into balance until mid-1989."

Causes of Shortage

The shortage resulted from several factors. First there was the booming demand for computer products and the corresponding surge in demand for memory chips. Some also contend that the 1986 trade agreement between the U.S. and Japan setting minimum prices for memory chips encouraged Japanese manufacturers, who produce the bulk of the world's memory chips, to hold back their production. But most analysts say the biggest reason was the industry's transition to denser, harder-to-make one-megabit memory chips.

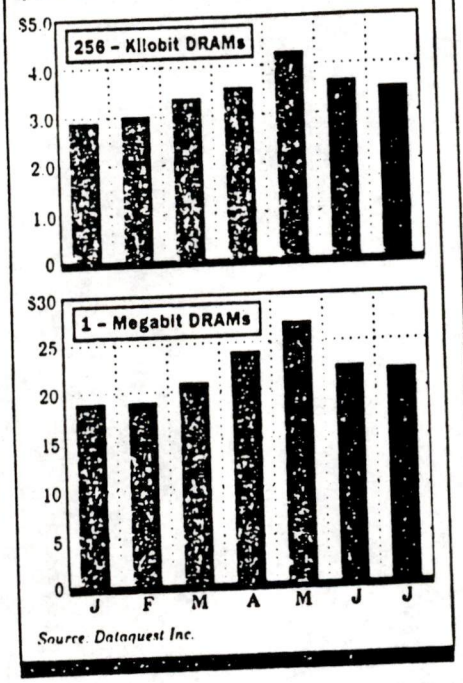
"The switch to one-megabit chips is very tricky, especially at a time when you can sell all the 256-kilobit chips you can make," says a chip industry executive. "You can lose scores of millions of dollars if your timing is wrong, or if you run into problems."

What's more, "It took chip makers longer than they expected to get good yields of one-megabit chips," says Jim Feldhan, vice president of In-Stat Inc., a Scottsdale, Ariz. market research firm that tracks the semiconductor industry. Mr. Feldhan says as many as 90% of all one-megabit chips were defective and had to be discarded as recently as early this year but that lately yields of good chips have improved to around 50%.

And as the year progresses, more companies are learning to make one-megabit chips. Texas Instruments Inc., which makes the big chips in Japan, started ship-

DRAM Prices in the U.S.

Monthly averages for large volume purchases, in dollars per chip



Source: Dataquest Inc.

ping commercial quantities of the new chips in April from its Dallas plant. Motorola will begin shipping one-megabit chips from plants in Japan and Scotland later this year and from a factory in Arizona early next year. Meanwhile, Japanese and South Korean manufacturers are steadily increasing production.

Unfortunately, switching over to one-megabit chip production necessarily means curtailing some 256-kilobit chip production, chip makers say, and that could cause a second shortage of the smaller chips this year and early next year. Drew Peck, an analyst for Donaldson, Lufkin & Jenrette Securities Corp. in New York, expects world-wide production of 256-kilobit chip will drop in 1989 to 770 million parts from 813 million this year. Production of one-megabit chips will more than take up the slack, growing next year to 417 million parts from 174 million, Mr. Peck estimates.

Accommodating Larger Chips

Consequently, computer makers are redesigning their machines to accommodate the larger chips. Compaq, for example, has designed its complete product line to take either size chip so the company can take advantage of the changing mix of available chips.

As prices drop, many worry that lower prices alone will trigger another surge in demand. "The skies are not all blue yet," concedes Mr. Nelson of Silicon Graphics. "Every workstation and computer maker has been shipping machines with less memory than customers wanted for several months. That means there's a backlog of upgrade memory on every company's books."

Still, Mr. Nelson says he feels better than he did a couple of months ago. "I was having nightmares, wondering if my problem finding chips was going to stop us from shipping product," he says. "I've been sleeping a lot better lately."

Forum

OF CHIPS AND BITS

How to Beat Japan at Its Own Game

By MICHAEL BORRUS

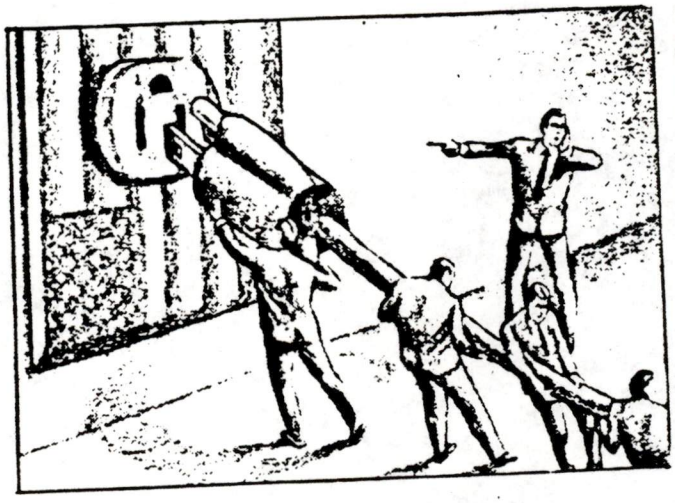
THE American electronics industry is in distress and vulnerable. The distress is most visible in the dwindling market and technological position of the computer chip industry. Vulnerability is clearest in the dependency of most American electronics systems producers on inadequate supplies of Japanese memory chips.

Simply put, the American industry has lost its dominant position in the world market at a time of intensifying competition. It is being beaten technologically by the Japanese, and its highly fragmented structure of small, competitive producers makes long-term solutions difficult.

Control of chip technology is becoming ever more critical. As the competitive advantage grows for products that incorporate state-of-the-art-chips, the Japanese will gain more of an edge. This will come as American companies are increasingly pushed to the sidelines as chip purchasers and as suppliers of leading-edge electronic systems as well.

But the threat isn't confined just to chip producers and smaller American computer, communication and industrial electronics companies. As the American chip industry and its users lose their dominant positions at the forefront of technology and in the world's markets, so too will those domestic companies that supply them with material and equipment. Inevitably, the entire infrastructure supporting this important industry will shrink. Over time, the erosion of the microelectronics industry will threaten the large, highly successful American producers that might otherwise be expected to compete on even terms with the Japanese.

From 1985 to 1987 Japanese producers lost between $3 billion and $5 billion in their push for supremacy in chip production. That kind of loss could not be sustained without cross-subsidies from other company divisions, guaranteed long-term purchases from divisions of the same corporate "family" and an atmosphere of patience from financial institutions — also with close corporate and "family" ties. At the same time, Japanese companies could not have made their gains so efficiently without close links to affiliated suppliers.



To counter such prodigious advantages, the American electronics industry needs to change its structure and business practices. These changes must, at a minimum, address four critical needs:

First, as much as possible, an independent American chip industry must be preserved. Second, a strategy to re-enter consumer electronics must be developed. Third, longer-term, more stable relations must be developed among chip producers, users and suppliers. Finally, long-term strategic thinking must take place throughout the industry, followed by substantive action. Some aspects of this restructuring are already under way.

The Semiconductor Manufacturing Technology Initiative — Sematech — represents a structural innovation aimed at preserving an independent chip industry through cooperation in technology development. This consortium can be of benefit by reducing development costs and cutting research redundancy among otherwise competing companies. But the successful use of Sematech depends on American companies' adapting its technology in competitive low-cost products manufactured in their own plants.

Control of chip technology is vital to the computer industry.

The Japanese production advantage is much less a product of better tooling or better technology than of better implementation. Among other things, the Japanese advantage has been obtained in the careful management and operation of its production processes, in the close working relationships between producer and supplier, in rigorous quality control and in the continuous tinkering that provides slow but sure improvement. The lesson for American companies is that the greatest gee-whiz technology in the world will not substitute for competence in these areas.

The United States must re-enter consumer electronics for more reasons than to avoid being blind-sided by consumer-developed technologies. Consumer markets drive both the development of flexible manufacturing techniques and the achievement of low-cost production. It will be very difficult to defend the core strengths of American electronics — in technology, flexibility and cost — without a re-entry into the field of consumer electronics.

THERE are also substantial advantages to be gained from cooperation among the segments of the domestic electronics industry. Consider, for example, the potential for shared development and production of "commodity" memory chips — like dynamic random access memory chips, or D-RAM's. If several users collaborated with a chip producer to build greater capacity in return for a guaranteed claim on a percentage of the resulting output, the result would be to reverse the current relationship of dependence on Japanese suppliers. In essence, this would marginalize the Japanese suppliers, rather than the American consumer.

Of course, much more is needed. For example, substantial changes in the American policy on technology, trade and investment are needed to safeguard the nation's strategic assets. Industries of great importance, like microelectronics, should be defended by America's trade policies. Likewise, government programs should emphasize stimulating the commercial technology sector, rather than the military technology sector, since the commercial sector offers greater benefits to the economy.

Government and business efforts should not focus on the Japanese as villains. Japan's companies are simply acting out of the same strategic self-interest that is appropriate for (but largely lacking in) the United States. Instead, we must recognize that in an increasingly interdependent world, domestic autonomy and growth can only be preserved by having a sound and fundamentally competitive domestic industrial base.

In the end, American policy must insure that a state-of-the-art industrial base exists and can serve domestic economic needs. If such a base is to be owned and controlled by American companies, the American industry must act to insure that it survives. In that sense, the competitive fate of American electronics is in the industry's own hands. ■

Michael Borrus, deputy director of the Berkeley Roundtable on the International Economy at the University of California, Berkeley, is author of "Competing for Control: America's Stake in Microelectronics."

Business Day August 2, 1988 p.D1

The New York Times

Chip Pact Falls Short of Goals

'Dumping' Is Ended But Objections Arise

By ANDREW POLLACK

Special to The New York Times

SAN FRANCISCO, Aug. 1 — The two-year-old semiconductor trade agreement between the United States and Japan has failed to achieve many of its objectives, and executives of computer companies in the United States want it modified or scrapped.

The accord, hailed as a milestone when it was signed in September 1986, required the Japanese to stop selling computer chips at below their costs, a practice, known as dumping, that was driving American semiconductor companies out of business. The agreement also called for the Japanese to make efforts to increase sales of foreign-made computer chips in Japan.

The List of Shortcomings

While dumping clearly has stopped, some electronics industry executives say the agreement has failed to achieve other goals and has had some undesirable side effects. Among the complaints are these:

¶Computer companies say the trade agreement has contributed to a severe shortage of memory chips, the small pieces of silicon that store information in computers. A shortage of the main kind of memory chip, known as a dynamic random access memory, or DRAM, has forced computer makers to curtail production, pay more and make lower profits or raise prices.

¶American semiconductor companies have not re-entered the memory chip business in the force envisioned when the pact was signed. Re-entry by American chip companies was expected if they were protected from low pricing, but the companies have resisted because of the expense and the risk.

¶The market share of American semiconductor companies in Japan has not increased noticeably in two years.

¶Perhaps most worrisome, some critics say, the trade agreement has led the Japanese Government to limit production, helping to create an environment conducive to the formation of a Japanese cartel that can charge high prices for memory chips. If such a cartel has been formed, they say, it could mean that the tight supplies and high prices will become permanent.

The Cartel Theory

Six Japanese companies, led by the Toshiba Corporation, the NEC Corporation and the Mitsubishi Electric Corporation, will account this year for 80 percent of the market for the one-megabit DRAM, the most advanced DRAM chip and the one that is becoming the industry standard. Moreover, Japan's Ministry of International Trade and Industry limited production to raise prices and thereby bring them into line with the agreement. While the practice has ended, some say that MITI is still trying informally to make sure that excess capacity does not again develop. They say the Japanese companies themselves are being careful to avoid excess capacity because they are enjoying huge profits from the current shortage.

"The trade pact goaded MITI into forming a cartel," said Kenneth Flamm, a researcher with the Brookings Institution in Washington. "Now the cartel has a life of its own. If the present cartel structure is maintained, there's a good chance that price stability will be imposed on the U.S. computer industry, much to its detriment." Normally, increases in

Continued on Page D7

Japanese Dominate Memory Chip Market

The 10 largest producers of dynamic random access memory chips in 1987. Industry revenues that year were $2.6 billion; Japanese companies (in bold) accounted for 70 percent of that total. Dollar values shown in thousands.

Firm	Dollar Value	Market Share
Toshiba	$452,755	17.3%
NEC	368,800	14.1
Mitsubishi Electric	313,780	12.0
Texas Instruments	286,575	11.0
Hitachi	278,662	10.7
Fujitsu	240,431	9.2
Samsung	186,275	7.1
Oki Electric	122,152	4.7
Micron Technology	109,743	4.2
Sharp	47,190	1.8

Source Dataquest Inc

Estimated 1988 Production

Japanese market share of the most advanced memory chips, one megabit DRAMs, is 88%. Shown is the estimated production of such chips, in millions of units. Japanese firms are in bold.

Firm	Units
Toshiba	56.0
NEC	28.5
Mitsubishi	25.5
Hitachi	21.1
Fujitsu	15.8
Texas Instruments	10.9
Matsushita	9.9
Samsung	5.7
Oki Electric	5.4
Micron Technology	2.9
Siemens	2.0
Motorola	0.3
TOTAL	184.0

Source: In-Stat Inc.

.Semiconductor Pact Has Fallen Short of Goals

Continued From First Business Page

production and improvements in technology would mean that chip prices would fall.

The largest American semiconductor manufacturers, which still support the trade agreement, say the agreement is being made a scapegoat for the shortage. They say the shortage was actually caused by rising demand and production problems resulting from a shift to a new generation of chips.

The risk of a cartel, they contend, stems not from the trade agreement but from the prior dumping that drove American companies out of the memory business and that the trade pact has eliminated. They point out that prices have remained stable and supplies adequate for EPROM's, another type of memory chip covered by the trade agreement but one for which there are still enough American suppliers.

The Pressure for Change

Although computer makers acknowledge that abrogating the agreement will do nothing in the short run to ease the shortage, pressure is mounting for a change. "There's a rising tempo of impatience in the user community," said Ralph Thomson, senior vice president of the American Electronics Association, a lobbying group for electronics companies.

The trade group has asked the Commerce Department for modifications in the system of the trade accord that sets minimum prices for chips. But a group of electronic equipment manufacturers led by Tektronix Inc., the Atari Corporation and Apple Computer Inc. are asking that the Government go further and eliminate the whole pricing system.

U.S. Chip Makers' Complaint

Meanwhile, the American semiconductor producers, while defending the floor pricing plan, say Japan has failed to live up to its promise to increase market access for foreign chips.

American chip companies say foreign market share in Japan is just under 10 percent, the same as before the chip agreement was signed. They say the agreement calls for the foreign share to increase to 20 percent by 1991. The Japanese say that market access does not mean guaranteed market share — only that the Japanese make efforts to acquire more foreign chips. Japanese and American executives agree that such efforts are being made but differ on how important they are.

The 20 percent goal is in a vaguely worded side letter signed by the two Governments but never officially released. Drafts that have been leaked state that the Japanese Government "recognizes the U.S. semiconductor industry's expectation" that foreign companies could achieve 20 percent market share in five years.

The Semiconductor Industry Association is considering asking the Government to increase the tariffs that were put on some Japanese imports last year to pressure Japan to increase the foreign share. But Japan, with some support from the United States State Department, is pushing for the tariffs to be eliminated.

Despite the pressures, Government and industry officials say it is unlikely that significant changes will be made in the closing months of the Reagan Administration.

Shortage May Be Easing

The concerns come at a time when the shortage of memory chips, which began late last year, shows some signs of easing. Spot prices have dropped somewhat in recent weeks, and new plants are being built in several countries, primarily in Japan. MITI recently forecast that Japanese production of one-megabit chips would increase 35 percent from the third quarter to the fourth quarter this year.

Still, the shortage is not expected to be over until the end of the year or the first half of next year. The big question now is whether the shortage will be followed by a glut, which has been the pattern in past years, or whether supplies will remain tight.

Some dismiss fears that MITI can or will keep capacity tight because Japanese companies are fierce competitors among themselves.

"There's no industry in Japan that MITI has been able to rein in when the industry is on a roll," said William Finan, a consultant to the Semiconductor Industry Association. He said he would not be surprised to see a crash in memory chip prices around the third quarter of 1989.

Even without MITI, however, the Japanese companies have an interest in keeping capacity tight because they lost billions of dollars in 1985 and 1986 from excess capacity, analysts note.

A Fear of U.S. Dependence

The big fear among American computer companies is total dependence on Japanese suppliers, which are also their competitors in the computer business. The Japanese could gain an advantage in computers by satisfying their own chip demand first in times of shortage or withholding the latest technology from the market until they have used it in their own products.

The 'dumping' has stopped, but U.S. computer makers see side effects.

Some say this is already happening, pointing to the fact that memory chips seem to be more available in Japan than in the United States. "We've had price increases, and our competitors have not," said Roger Majak, director of Federal affairs for Tektronix.

While the United States Government is expected soon to look into whether chips are being fairly allocated, that will be difficult to determine. There does appear to be a difference in prices for memory chips in Japan and in the United States, suggesting that supplies are more abundant in Japan.

The contract price for one-megabit chips on July 4 was $22 in the United States, compared with $16 in Japan, according to Dataquest, a market research firm. But in August 1986, before the trade accord was signed and before the shortage developed, a similar differential existed. A 256K DRAM sold for $4 in the United States and for $3.10 in Japan, the market research firm said.

Concern About Leverage

Another fear is that the Japanese chip companies will use their leverage in memory chips to make gains in other businesses. One Silicon Valley executive, who asked not to be named, said a Japanese company had cut off his company's supply of memory chips when contract negotiations on a different matter reached an impasse. The chip supply was restored after a complaint.

Similar stories are being told about Japanese companies offering to sell DRAM's if the customer will also buy other chips. "There have been some tie-in deals offered," said John V. Roach, chairman of the Tandy Corporation. But he noted that customers can also try that tactic, by offering to buy certain chips only if the supplier also provides memory chips.

A re-entry by American companies into the memory chip business could alleviate such dependence. Currently the only American suppliers of DRAM's are Texas Instruments Inc., Micron Technology Inc. and the International Business Machines Corporation, which produces chips for its own use. Motorola Inc. is returning to the market, but other companies have not followed.

Some Potential Projects

There have been numerous discussions about computer companies helping chip companies build memory chip factories by providing financing or long-term contracts. The Hewlett-Packard Company has talked to Texas Instruments about one such arrangement, according to an industry source. Sun Microsystems Inc. has looked at financing a chip company. Sequoia Capital, a venture capital company, has sought to interest computer makers in investing in a new chip company.

Still, very little has happened. Instead of starting production itself, the Intel Corporation, a chip maker, has given another chip maker, Micron Technology, money to expand production. The National Semiconductor Corporation has been considering reentry but seems to be leaning against it.

The one company that is seriously considering such a move is SGS-Thomson Microelectronics, an Italian-French company that has a large operation in the United States.

Re-entry is expensive and technologically risky. "It's a 10-year commitment and $500 million," said Daniel Queyssac, president of the United States division of SGS-Thomson. He said the company would need financing from customers, a chip design from another company and manufacturing skills from Japan.

There is also a fear that prices might collapse again once the shortage ends, producing more huge losses. For that reason, semiconductor industry officials say, it is necessary to keep the trade agreement's barriers against dumping in place.

APPENDIX

ABOUT THE SEMICONDUCTOR INDUSTRY ASSOCIATION (SIA)

When the Semiconductor industry was in its infancy in the mid-1950s, the value of worldwide shipments by U.S. manufacturers totalled about $5 million annually. Today, that value exceeds $11 billion, and is expected to reach some $20 billion by the end of the decade.

The Semiconductor Industry Association (SIA), which represents U.S.-based semiconductor manufacturers, was created in 1977 as a natural outgrowth of an industry moving to the forefront of national and international prominence. SIA was chartered with two objectives:

- to communicate outward, representing the common interests of the U.S. industry in matters of trade and public policy; and
- to coordinate industry energies inward, solving shared problems and exploring common opportunities, such as safety and education.

The new association's first major emphasis was the international trade situation, particularly opposing unfair trade practices and unequal access for American semiconductor products in world markets.

Today, public policy issues impacting the industry's ability to remain internationally competitive continue to be SIA's main concern. The range of SIA activities has expanded, however, to include the broad spectrum of industry topics, such as occupational health, safety, and environment; industry statistics; government semiconductor procurement; public communications; and industry-oriented publications. And the industry's interest in fostering competitiveness through cooperative ventures has led to the creation of the Semiconductor Research Corporation (SRC), a research consortium, and the formation of SEMATECH, a manufacturing R&D consortium.

MEMBERSHIP

The Semiconductor Industry Association has nearly 70 member companies supporting its objectives. Funding for SIA activities is largely provided through membership dues.

Regular Membership in SIA is available to U.S.-based firms which manufacture semiconductors in the United States. In addition, Manufacturing Associate Membership is available to foreign or U.S. firms which manufacture semiconductors in

the U.S., but do not qualify for regular membership; and Corporate Associate Membership is available to firms which do not manufacture semiconductors, but perform manufacturing or services related to the semiconductor industry.

SIA MEMBERSHIP PROGRAMS

The quality and diversity of today's SIA membership programs demonstrate how the Association has matured during its decade of existence. Major SIA activities now include an extensive executive meeting program as well as committees focused on public policy; government procurement; law; occupational safety, health, environment and facilities and building standards; industry statistics; and public communications.

Executive Meeting Program

To provide a forum for discussion and resolution of issues of common interest, SIA sponsors an Executive Meeting Program which offers opportunities for member company executives to gather together to plan and implement solutions to the various challenges confronting the industry.

Early each year, member company executives journey to Washington, D.C. to engage government officials in a dialogue about how to keep the U.S. semiconductor industry internationally competitive. Maintaining technological leadership is the subject of a second conference at mid-year, bringing SIA directors and senior executives together with those of SIA's research affiliate, the SRC. Participants in the long range planning conference near the end of each year review accomplishments and develop plans and strategies for the future.

Senior executives of SIA member companies periodically may gather at other times during the year to discuss specific topics. These meetings are designed to maximize results and minimize redundant efforts. SIA also sponsors an annual forecast dinner at which the industry's leaders meet to discuss market and product growth projections, as well as other topics of interest.

Public Policy Committee

The SIA Public Policy Committee (PPC) recommends and pursues the public policy objectives of the Association, as determined by the SIA Board of Directors. This committee has developed public policy positions designed to create a climate that will enable the U.S. semiconductor industry to meet worldwide competition in trade, investment, and research. PPC members work with Congress and the Executive Branch of government to address issues such as Japanese unfair trade practices, antidumping law reform, intellectual

property protection, export control regulations, and tax policy.

SIA Japan Chapter

The SIA Japan Chapter is composed of senior SIA member company executives stationed in Japan. The Chapter provides SIA with timely information about Japanese markets, technology, and government policies, while also creating opportunities to brief Chapter members on relevant SIA activities. In this way, SIA is able to assure that its efforts are consistent with the needs of U.S. company personnel in Japan, whose efforts are critical to U.S. industry success in accessing the Japanese market.

Government Procurement Committee

The Government Procurement Committee (OHC) is recognized as the industry's representative in policy discussions relating to U.S. Government procurement of semiconductors, primarily for defense purposes. The Committee's objective is to streamline the procurement process in order to lower costs and improve reliability.

Law Committee

The SIA Law Committee provides guidance to the SIA Board of Directors and the SIA Public Policy Committee on legislative and legal matters. The Committee also files amicus curiae (friend-of-the-court) briefs on precedent-setting cases impacting the industry. SIA retains the legal services of a private law firm to assure full compliance with U.S. laws governing trade associations.

Occupational Safety, Health, and Environment Committees

SIA has substantially expanded the efforts and resources it devotes to occupational health, safety, and environment so that new challenges in these critical areas will be met.

The SIA Occupational Health Committee (OHC) oversees the SIA Occupational Health System, which gathers and reports data on industry safety and health to measure performance and improve industry programs. The OHC also provides technical assistance to the various agencies concerned with the semiconductor industry's health conditions, including the National Institute for Occupational Safety and Environmental Protection Agency (EPA).

The SIA **Facilities and Building Standards (FABS) Committee** works with national and local building and fire

officials to develop new semiconductor fabrication facility codes which recognize engineering controls as an essential element for personnel, fire, and building safety.

The SIA **Environmental Committee** monitors and comments on environmental regulations proposed for the industry, and disseminates technical data regarding solutions to environmental control problems.

Industry Statistics Committee

To provide accurate and timely industry data, SIA developed a statistical reporting system in 1977 covering the U.S. industry. Subsequently, European and Japanese manufacturers joined the program, which is now called World Semiconductor Trade Statistics (WSTS), Inc., and sponsored jointly by SIA, the European Electronic Components Association (EECA), and the Electronic Industries Association of Japan (EIAJ).

WSTS compiles and publishes bookings and billings data on a monthly basis, and twice a year issues an industry forecast. SIA administers the WSTS program in North America.

The SIA Industry Statistics Committee also coordinates SIA's annual Industry Survey of Financial and Economic Ratios. The survey covers about 100 key ratios which enable participants to compare and contrast their performance with the rest of the industry. The survey is available only to those SIA member companies who elect to submit data.

Public Communications Committee

The SIA Public Communications Committee (PCC) positions the industry and its issues in a positive light with key audiences. Identifying themes and audiences, and developing messages and programs to address them, the PCC works closely with other SIA committees and with the SIA Board and staff to assist in the achievement of SIA policy objectives, and to maximize the impact of SIA public communications activities.

Industry-Oriented Publications

SIA publishes industry-oriented books, statistical periodicals, and newsletters. Current titles are described in the "Publications from SIA" flyer.

SEMATECH

The board of directors of SIA has launched SEMATECH, a manufacturing consortium whose goal is to create the most advanced semiconductor manufacturing technology in the world.

SEMATECH is a non-profit corporation in which a wide range of U.S. manufacturers and equipment and materials suppliers will jointly develop advanced semiconductor manufacturing technologies. The results will be shared among member firms for their own use and further development.

SEMICONDUCTOR INDUSTRY ASSOCIATION (SIA)

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VLSI Technology, Inc.

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SEMATECH

SIA REGULAR MEMBER COMPANIES

SIA CORPORATE DESCRIPTION	DIVISION, DEPARTMENT OR SUBSIDIARY
Advanced Micro Devices	
AT&T Technologies	Electronic Components Division
Bendix Microelectronics	Division of Allied Signal, Inc.
Brooktree Corporation	
Cherry Semiconductor	Subsidiary of the Cherry Corporation
Cirrus Logic, Inc.	
Digital Equipment Corporation	
Eastman Kodak Company	
General Electric Company	Solid State Division
Gigabit Logic	
Gould, Inc.	Semiconductor Division (AMI)
Harris Semiconductor	Sector of Harris Corporation
Hewlett-Packard Company	Information Technology Group
Honeywell, Inc.	Solid State Electronic Division
IBM Corporation	
Intel Corporation	
International Rectifier Corp.	
Lansdale Semiconductor	
LSI Logic Corporation	
Micron Technology, Inc.	
Motorola, Inc.	Semiconductor Products Sector
NCR Microelectronics Division	Division of NCR Corporation
National Semiconductor Corp.	
Northern Telecom Electronics, Inc.	Division of Northern Telecom Ltd.
Powerex, Inc.	
Precision Monolithics, Inc.	Subsidiary of Bourns, Inc.
Raytheon Company	Semiconductor Division
Rockwell International	Semiconductor Products Division
Silicon Systems	
Sprague Electric Company	
Tektronics, Inc.	
Texas Instruments, Inc.	Semiconductor Group
United Technologies	Microelectronics Center
VLSI Technology, Inc.	
Xilinx, Inc.	
Zilog, Inc.	Subsidiary of Exxon Corporation

SIA MANUFACTURING ASSOCIATE MEMBER COMPANIES

SIA CORPORATE DESCRIPTION	DIVISION, DEPARTMENT OR SUBSIDIARY
EXAR Corporation	
NEC Electronics	
SEH America	
Siemens	
Signetics	

SIA CORPORATE ASSOCIATE MEMBER COMPANIES

Asea Hafo, Inc.	
Control Data Corporation	
Cincinnati Milacron Semiconductor Materials, Inc.	
Crysteco	
Dewey, Ballantine, Bushby, Palmer and Wood	
Dynamit Nobel Silicon	
Frank B. Hall	
Japan Society of Newer Metals	
Microelectronics Center of North Carolina	
Mitsubishi International Corporation	
Monsanto Electronic Materials Company	
NBK	Sub'y of Kawasaki Steel Corporation
Samsung Semiconductor, Inc.	
Siltec Corp.	Sub'y of Mitsubishi Metal Corporation
Technology Research Group	
Teksel Company Ltd/	
Townsend and Townsend	
Wacker Siltronic Corporation	
Ware and Freidenrich	