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Last Updated: 08/30/2023

Semi
301

Memorandum

From:

ALAN WM. WOLFF

To:

Michael Briggs

"For your information"

Date:

11/22/85

Semi
Conductor
301

Congress of the United States

Washington, DC 20515

October 30, 1985

The Honorable Clayton Yeutter
U.S. Trade Representative
600 Seventeenth Street, N.W.
Washington, D.C. 20506

Dear Mr. Ambassador:

As Members of Congress, we have been particularly concerned with the need to create an environment in which U.S. high technology industries can remain world technological and production leaders. Accordingly, we have long supported measures which will enhance the competitiveness of U.S. semiconductor companies. Foreign unfair trade practices, however, threaten to offset the beneficial effects of the measures we have helped enact.

As you are well aware, on June 14 the Semiconductor Industry Association filed a trade petition with your office, under Section 301 of the Trade Act of 1974, seeking to obtain full participation in the Japanese semiconductor market. This filing was followed later in June by the filing of an antidumping petition against Japanese manufacturers of 64K Drams by Micron Technology, Inc. Then in August, the Department of Justice initiated an investigation of possible antitrust violations by Japanese manufacturers of EPROMs. In September, Micron Technologies filed a private antitrust suit against Japanese 64K DRAM producers. Finally, on September 30, Advanced Micro Devices, Intel Corporation, and National Semiconductor filed an antidumping case against Japanese EPROM manufacturers. We understand that other legal actions are under consideration within the industry.

The pattern of activities that these legal actions are attempting to address clearly represents very serious threats to the future of the United States semiconductor industry. And, as the semiconductor is the central component of all information technologies, this represents a serious threat to the U.S. computer and telecommunications industries as well as our national defense capabilities and readiness.

The Honorable Clayton Yeutter
October 30, 1985
Page Two

The U.S. Government has already determined (in its submission to the U.S.-Japan High Technology Working Group in 1983) that the actions of the Government of Japan have denied access to the Japanese semiconductor market by U.S. semiconductor manufacturers. The fact that this continues to be the case is in direct violation of a number of mutually agreed upon rules and precepts of fair trade.

We are deeply concerned that the United States semiconductor industry obtain open access through the successful resolution of its Section 301 trade case. If U.S. companies are able to achieve full participation in Japanese markets, there will certainly be direct benefits to our manufacturers through increased sales. Furthermore, by piercing the protected home base of Japanese manufacturers, our efforts will constitute a vital blow to the predatory pricing activities by Japanese semiconductor companies. The U.S. industry is already suffering through the worst recession in its history. The layoffs, plant closings, and operating losses being experienced by the U.S. semiconductor industry as a result of a shrinking market are exacerbated by the unfair trade practices being carried out by the Japanese government and the Japanese semiconductor industry.

The bottom line is that U.S. companies continue to be denied access to the Japanese semiconductor market while Japanese companies continue to engage in predatory sales in the open U.S. market -- particularly in key product lines. The injury to the U.S. industry from these unfair acts will prove irreversible if not redressed.

We would appreciate your keeping us informed on a regular basis of developments during the 301 process. Ira H. Goldman, counsel to Senator Wilson, is available to coordinate this effort with your staff. In order to facilitate this dialogue, it would also be helpful if you would meet with us to discuss the status, timetable for resolution, and elements of a settlement of the SIA section 301 case.

We commend your efforts to negotiate an agreement with the Japanese that will bring an end their trade barriers. Please be assured that we are ready to provide you with our full support in achieving the access sought by the U.S. semiconductor industry.

The Honorable Clayton Yeutter
October 30, 1985
Page Three

We look forward to meeting with you.

Sincerely,



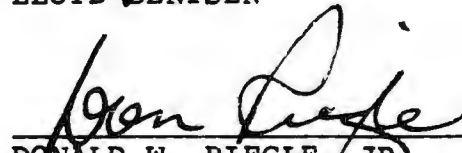
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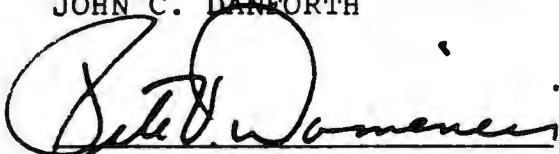
LLOYD BENTSEN



JOHN C. DANFORTH



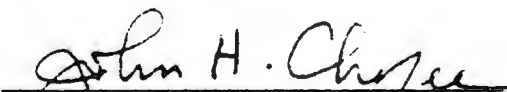
DONALD W. RIEGLE, JR.



PETE V. DOMENICI



GEORGE A. MITCHELL



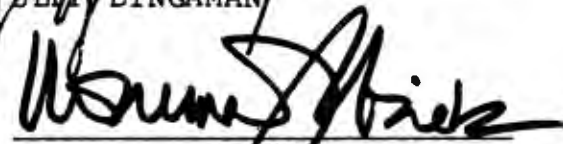
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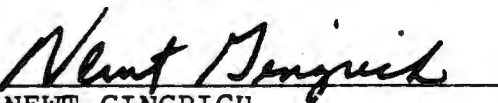
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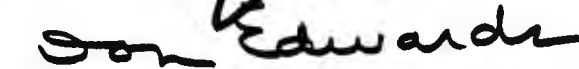
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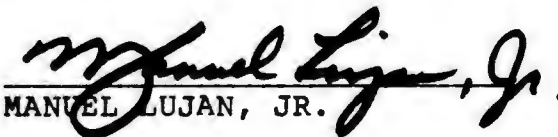
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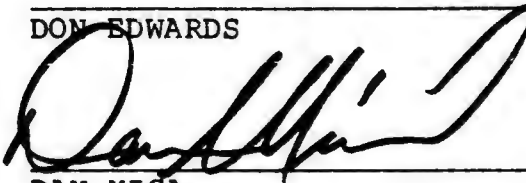
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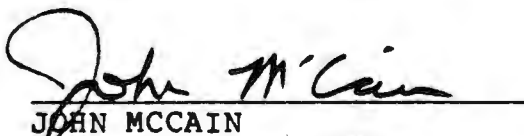
DON EDWARDS



MANUEL LUJAN, JR.



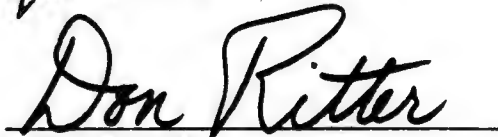
DAN MICA



JOHN MCCAIN



J. J. PICKLE



DON RITTER



LES AUCOIN

United States Senate

WASHINGTON, D.C. 20510

October 8, 1985

The Honorable Clayton B. Yeutter
U.S. Trade Representative
600 - 17th Street N.W.
Washington, D.C. 20506

Dear Mr. Ambassador:

The Semiconductor Industry Association (SIA) has filed a petition under Section 301 of the Trade Act of 1974. The petition requests that the United States Government take the steps necessary to eliminate unfair trade practices which have been pursued by the Japanese government.

We believe that the industry's petition, which calls for access to the Japanese market while making no request for limiting semiconductor imports, is responsible and justified. American access to the Japanese semiconductor market is essential if the American semiconductor industry is to remain competitive.

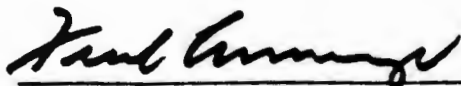
The SIA has indicated that Japanese market barriers in the semiconductor industry are costing the U.S. up to 27,000 jobs. Although the Japanese "officially" ended protective measures against semiconductors in 1975, major structural barriers continue to prevent U.S. producers from achieving a more than marginal share of the Japanese market.

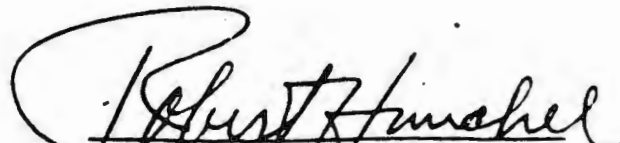
It is evident that this lack of performance is due to Japanese barriers, because the American industry consistently out-performs the Japanese in neutral markets by a four to one margin.

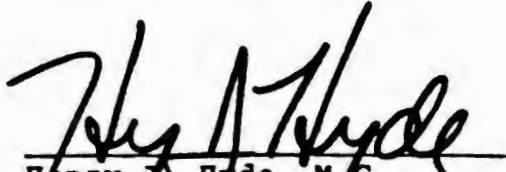
The protected Japanese market has provided Japanese producers with a secure demand base and has contributed to the phenomenon of expanding their capacity with little reference to market conditions, leading to great surges of low-priced Japanese semiconductors on the world market.

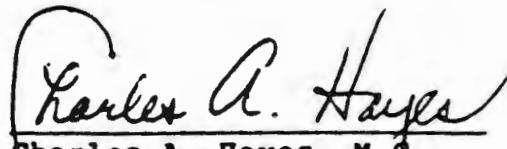
The American industry is highly competitive and is being injured by these practices. Use of the Section 301 provisions of the Trade and Tariff Act of 1984 is appropriate and should be given your prompt and favorable consideration.

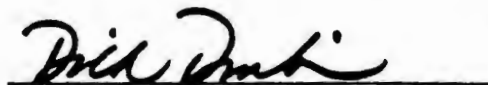
Section 301 provides American companies with a remedy against foreign government actions which deny "fair and equitable market opportunities" to them. This case presents an outstanding example of the types of market barriers which this new law permits American companies to address.

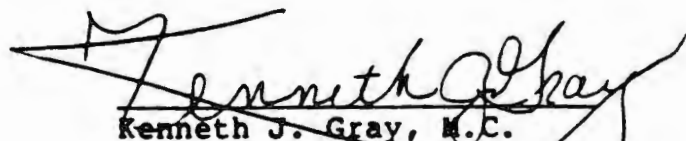

Frank Annunzio, M.C.


Robert H. Michel, M.C.

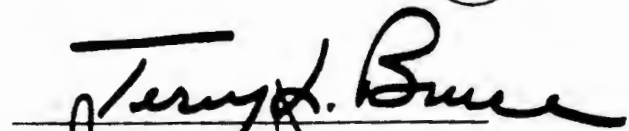

Henry J. Hyde, M.C.

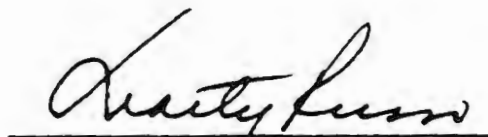

Charles A. Hayes, M.C.

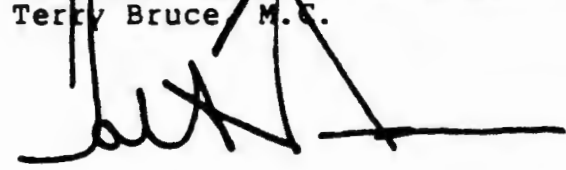

Richard J. Durbin, M.C.

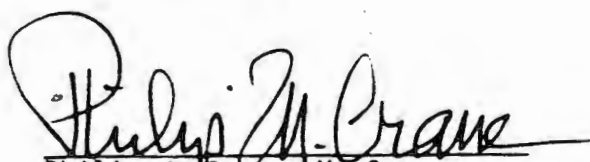

Kenneth J. Gray, M.C.

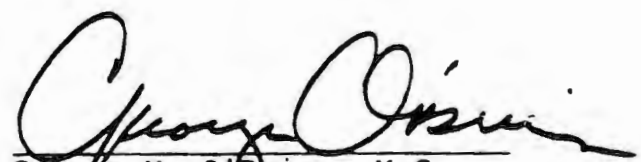

Mel Price, M.C.


Terry Bruce, M.C.


Marty Russo, M.C.


John E. Porter, M.C.


Philip M. Crane, M.C.


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November 15, 1985

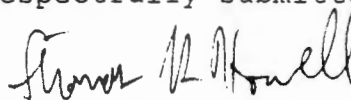
Ms. Jeanne Archibald
Associate General Counsel
Office of the United States
Trade Representative
600 - 17th Street, NW
Room 219
Washington, DC 20506

Re: Investigation of Semiconductors
Under Section 301 of the Trade
Act of 1974

Dear Ms. Archibald:

I am forwarding to you for inclusion in the record
of this proceeding the Semiconductor Industry Association's
Reply Brief, which responds to a brief filed
by the Electronic Industries Association of Japan.

Respectfully submitted,



Thomas R. Howell
Counsel to the Semiconductor
Industry Association

Investigation of Semiconductors
Under Section 301 of the Trade
Act of 1974, as amended

Daryl G. Hatano
Semiconductor Industry
Association
4320 Stevens Creek Blvd.
Suite 275
San Jose, CA 95129

Thomas R. Howell
Steven F. Benz, Economist
R. Michael Gadbaw
Timothy J. Richards, Economist
Alan Wm. Wolff

Dewey, Ballantine, Bushby,
Palmer & Wood
1775 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

November 15, 1985

MARKET BARRIERS IN JAPAN

THE FACT THAT MANY JAPANESE [SEMICONDUCTOR] FIRMS THAT ARE
LARGE CONSUMERS ARE ALSO LARGE PRODUCERS MAKES THE JAPANESE
MARKET MORE DIFFICULT TO PENETRATE.

ADVERTISEMENT BY 15
JAPANESE FIRMS IN SCIENTIFIC
AMERICAN, OCTOBER 1982

COLLUSION

 MITSUBISHI AND OKI ELECTRIC INDUSTRY ESTABLISHED THE
 "mitsubishi-OKI SEMICONDUCTOR CONSULTATIVE COUNCIL IN ORDER
 TO STRENGTHEN THEIR COOPERATIVE STRUCTURE IN THE IC SECTOR
 FURTHER...THOSE COMPANIES HAVE THE POLICY OF UTILIZING THE
 COUNCIL IN HOLDING OVER-ALL TALKS OVER THE INTERCHANGE OF
 TECHNICAL INFORMATION ON ICs AND THE ALLOTMENT OF PRODUCTION
 AND SALES IN DUE COURSE...IT IS VIEWED THAT DOMESTIC IC
 INDUSTRY CIRCLES, WHICH WERE THROWN INTO CONFUSION, WILL
 CONSOLIDATE THEIR STRUCTURE STEP BY STEP IN AN ATTEMPT TO
 CONSOLIDATE THEIR COUNTER-ATTACK STRUCTURE BEFORE THE LIB-
 ERALIZATION.

-- NIKKAN KOGYO,
 March 20, 1974

ELEVATION PLANS

ELEVATION PLANS ARE NOT A MERE DOCUMENT DESCRIBING PROSPECTS, BUT THEY SHOW AMBITIOUS VISIONS POINTING OUT DESIRABLE DIRECTIONS FOR THE MACHINE AND INFORMATION INDUSTRIES TO TAKE. THEY ALSO PROVIDE THE BASIS FOR CARRYING OUT POLICIES AND FOR ORGANIZING MEASURES BASED ON THE ACT...THE PURPOSE OF THE [SUBSIDIZED JDB] LOANS IS TO PROVIDE NECESSARY EQUIPMENT FUNDS TO ACHIEVE OBJECTIVES...PRESCRIBED IN THE ELEVATION PLANS FOR THE APPARATUS TO ENHANCE INDUSTRIALIZATION AND RATIONALIZATION, THUS SMOOTHLY PROPELLING THE ELEVATION OF THE SAID INDUSTRIES.

-- MITI COMMENTARY
ON THE KIJOHU, 1979

ROLE OF JAPANESE GOVERNMENT AID

THE [VLSI] PROJECT ENABLED JAPANESE SEMICONDUCTOR MANUFACTURERS TO OVERTAKE U.S. FIRMS. PARTICULARLY IN HIGH-DENSITY MEMORY DEVICES THE JAPANESE PRODUCTS CAME TO DOMINATE THE AMERICAN MARKET... THE GREAT IMPROVEMENT IN JAPANESE INTERNATIONAL COMPETITIVENESS IN THE SEMICONDUCTOR FIELD BROUGHT ABOUT BY THE PROJECT IS AN ELOQUENT DEMONSTRATION OF THE LEADERSHIP WHICH MITI PROVIDED.

-- JAPAN SEMICONDUCTOR
ALMANAC FOR 1984
IN PURESU JANARU,
MARCH 20, 1984

DUMPING

FIND AMD AND INTEL SOCKETS...

QUOTE 10% BELOW THEIR PRICE...

IF THEY REQUOTE,

GO 10% AGAIN...

DON'T QUIT TILL YOU WIN!...

25% DISTI PROFIT MARGIN.

GUARANTEED

-- HITACHI MEMORANDUM TO U.S.
DISTRIBUTORS OF EPROMs FEBRUARY
1985

BEFORE THE
SECTION 301 COMMITTEE
OFFICE OF THE UNITED STATES TRADE REPRESENTATIVE
WASHINGTON, D.C.

Investigation of Semiconductors)
Under Section 301 of the Trade)
Act of 1974, as amended)
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REPLY BRIEF OF THE SEMICONDUCTOR
INDUSTRY ASSOCIATION

"Ten years ago, Japan exported only modest quantities of semiconductors, mainly to other Asian nations. But government protectionism, combined with Japan's overall growth created sizable domestic markets."¹

Introduction

U.S. semiconductors manufacturers comprise one of America's most competitive and innovative industries -- an industry which has adapted readily to product generations which are of startlingly brief duration. It exists in an extremely vigorous competitive environment -- the prices of

¹ Appendix V of the EIAJ Reply Brief. Charles H. Ferguson "the Microelectronics Industry in Distress", Technology Review, August/September 1983, p. 29.

many of its key products decline, on the average, 30% per year, every year. In this environment, the misalignment of exchange rate constitutes a burden, but is not determinative of competitive outcome. Similarly, while other longer term questions pose challenges which must be dealt with -- such as the lower cost of capital in Japan, or the relative shortage of electrical engineers in this country -- they are not critical for the present.

The principal challenge to this industry's health comes from Japan, but it is not due to superior Japanese innovativeness (the principal product innovations in this sector have been almost exclusively American), nor to Japanese effectiveness in DRAM production technology where they have benefitted from learning curve efficiencies. The more fundamental problem is the fact that Japan's market lies beyond the reach of free competition. This protective environment fosters overinvestment, and the resultant excess capacity inevitably leads to pervasive dumping.

A few salient facts are dispositive of this inquiry: (1) No matter what measure is used, American semiconductor sales in Japan are a small fraction of their sales in any other market -- despite head-to-head U.S.-Japan competition in every market. (2) This depressed market share has no ready explanation except the effectiveness of the "liberalization countermeasures" widely reported in Japan -- in the form of Government organized and supported restrictive business practices. (3) As a result of the Government

of Japan's policies, dumping of high density memory chips from Japan has become epidemic, and American producers have been deprived of enormous volumes of sales of chips in the Japanese market. Both of these factors have caused serious injury to the American industry.

It has been evident for some time that such consequences would occur, the U.S. industry first raised these concerns with the U.S. Government in 1977. In 1982 and 1983, the Government conducted an extensive survey of semiconductor trade problems with Japan. In talks with the Japanese Government, U.S. negotiators cited a number of barriers to U.S. sales in Japan, including "formal or informal market sharing arrangements not open to foreigners," and commented that the apparent "intent of the GOJ and its policies over the past several years has been to use other measures to offset the effects of formal liberalization." The U.S. Government representatives cited a long list of subsidies and other measures that the Japanese government had used to create competitive advantages for its industries. On the basis of these findings, the U.S. Government negotiated an agreement with the Government of Japan pursuant to which the Japanese Government undertook to improve access to its market and to take steps to forestall anticompetitive and predatory conduct by Japanese companies.

By the beginning of 1985, it was clear that this agreement -- like earlier agreements in this sector -- was not working. The U.S. market share in Japan was actually

declining and Japanese firms began a predatory pricing drive to expand their market share in the United States, Hitachi's so-called "10 percent rule." SIA filed this case to request the U.S. Government to secure Japan's adherence to its commitments under the 1983 accords. The Japanese Government has responded by seeking and obtaining a de novo factual inquiry into the questions reviewed in earlier talks, but has not provided the information requested by the U.S. with respect to Japan's market structure, cartels, or liberalization countermeasures. The Japanese industry, for its part, rather than seeking to resolve the problems raised, has brought forth a long series of legal and policy objections to the U.S. Government's inquiry, which SIA believes to be completely unfounded. As this process has unfolded since June, one major U.S. semiconductor company, Mostek -- a principal victim of Japanese dumping -- has ceased operations, and large segments of the U.S. 64K dynamic RAM industry have disappeared.

In this case the U.S. Government confronts the erosion of a dynamic and innovative industry which is fully competitive internationally:

- U.S. firms remain superior in logic chips, communications circuits, discrete devices, and most other semiconductor product areas.
- Despite their current difficulties, two U.S. firms have this month introduced 32-bit microprocessors -- one of many product areas where U.S. firms enjoy a significant technological lead over Japan.

- Notwithstanding EIAJ's assertions, overall U.S. semiconductor quality is equal to or better than that of the Japanese industry (see Attachment D).

U.S. firms' basic problems are not a lack of competitiveness, but (1) the fact that they are largely excluded from the Japanese market, representing nearly one third of world consumption, with associated scale and learning disadvantages; and (2) the fact that their presence in "technology driver" commodity product lines (EPROMs, RAMs) is rapidly being eroded by massive Japanese dumping.

The Japanese Government has marshalled resources which have enabled its industry to achieve superiority -- so far -- in one product area, high density memory devices. However, because a continued presence in these high volume, highly complex "technology driving" product areas is essential to remaining competitive in all other areas of semiconductor technology, U.S. companies' withdrawal from such product areas has serious implications for their overall competitive position -- a fact which the U.S. Government should regard as profoundly troubling. Not only are semiconductors increasingly critical to the economy as a whole, but they form an essential element of our defense posture. We are already becoming dependent upon a foreign source for components for the supercomputers that control our missile systems and other critical elements of our defense base. As Lloyd M. Thordyke, President of ETA Systems, a major U.S. manufacturer of supercomputers, has stated:

If you want high performance memory chips, you have no choice but to buy from Japanese sources. It has been our experience that the Japanese vendors do not make their advanced products available for use in the U.S. until they are in full production, assuring them of a substantial lead in the end products. This emphasizes again that the lack of domestic component sources must be of concern when we are dealing with an item of such strategic importance. (Emphasis added.) (Attachment C)

It is important to all concerned that the process which has been undertaken in this proceeding be pursued vigorously. The U.S. Government should make a determination whether unreasonable or unjustifiable Japanese Government acts, policies or practices burden or restrict U.S. commerce. We submit that a very full factual record exists compelling that such a finding be made. Failure of the U.S. Government to take appropriate action to enforce U.S. rights under these circumstances would not only result in a major economic and strategic setback for this country, but would demonstrate our increasing inability to maintain an international trading order based on reciprocal commitments in an era where mercantilist policies of the sort documented here are increasingly determining competitive outcomes.

SIA does not seek retaliation against Japan, but a resolution of the issues which it has raised in its Petition -- a settlement which provides for market access in Japan, and the elimination of anticompetitive practices and dumping. A comprehensive resolution of this case should permit vigorous competition, within the bounds of accepted interna-

tional conduct, and the functioning of free market forces in all world markets.

Response to EIAJ Reply Brief

On November 8, 1985, the Electronic Industries Association of Japan (EIAJ) submitted a Reply Brief in this proceeding. This reply sets forth a short, point-by-point response to the major points in the EIAJ paper.

Liberalization Countermeasures

In its submissions in this case, SIA has presented evidence that between 1971 and 1974 the Japanese government implemented a series of "liberalization countermeasures" designed to nullify the practical effect of import and investment liberalization. EIAJ's total failure to come to grips with this subject is one of the more significant aspects of this proceeding, particularly in light of its repeated insistence that SIA has presented "no evidence." SIA's evidence includes numerous press accounts describing the countermeasures which may well have been "firmly denied in all relevant respects" (EIAJ Brief, p. 16), but which have not been satisfactorily explained (or even discussed) by EIAJ in any significant respect.

The mainline Japanese business press is not known for fabricating major, wholly fictitious stories about government industrial policies. In fact, these publications generally enjoy good relations with the Ministries upon which they report, and would be highly reluctant -- as well

as lacking in any apparent motivation -- to publish a long series of highly detailed, totally false articles about those Ministries, quoting Ministry and industry sources. Yet EIAJ in effect states that for a period of four years between 1971 and 1974, most of Japan's leading business publications were printing major stories which were completely untrue.

That a broad spectrum of such publications -- many different newspapers and reporters -- would collectively engage in such wholesale fabrication is even more improbable. There is no record that denials were issued by MITI or EIAJ either at the time of publication or at any subsequent point until SIA filed its Section 301 case in 1985. In the face of such evidence, EIAJ's mere sweeping denials -- without any explanation whatsoever as to why these articles appeared and why, if false, they were not investigated and denied at the time -- are wholly inadequate.

Significantly, EIAJ seems to concede (pp. 3-4) that the Japanese government did do something in the form of "countermeasures" to restrict imports² when it "liberalized" imports, although it is ambiguous as to what, exactly, was done:

² EIAJ's own characterization of the term "countermeasure" (footnote 5, p. 7) as an inducement to gain support of an affected constituency to a particular measure indicates that such steps are designed to "counter" or offset the effect of the original measure.

It accompanied the liberalization. . . .
with the kinds of trade adjustment assistance to firms afforded in [sic] by the United States under its trade adjustment laws to domestic industries [citing tariffs, quantitative restraints, and orderly marketing arrangements].

EIAJ's apparent admission that some form of import restrictions were implemented in conjunction with liberalization contradicts the Japanese submission on the same subject given to the U.S. Government. The U.S. Government's inquiry would have been better served if EIAJ had devoted more space to an elucidation of the nature of Japan's "trade adjustment assistance" than to its repetitious insistence that no evidence exists of such policies.

EIAJ's ambiguity merely underscores the fact that in contrast to the Japanese liberalization countermeasures, U.S. import relief measures under Section 201 (a) are fully transparent; (b) are implemented pursuant to agreed GATT principles and procedures, after a formal finding of injury; and (c) are not secretly implemented in conjunction with a public commitment to market liberalization. If Japan, in conjunction with the liberalization, implemented measures similar to those cited by EIAJ -- such as quantitative restraints -- without following GATT prescribed procedures, then those measures are clearly actionable under Section 301.

Paradoxically, EIAJ states that confronting liberalization (p. 3) "the companies comprising the Japanese semiconductor industry had good reason in the early 1970s to

be concerned for the industry's survival." But if the industry was so weak in the early 1970s, as EIAJ suggests, and if the market was really opened in 1974, as EIAJ vehemently insists, why did U.S. firms' market share in Japan show virtually no increase in the years immediately following liberalization? As the U.S. Government concluded in 1983, U.S. firms' low market share "suggests that government policies effectively limit foreign access."³

Relevance of Past Government Actions

Let us assume for the purposes of argument that all Japanese Government actions in this matter occurred in the past. EIAJ contends (p. 6) that taking action under the trade laws against past government actions which have terminated would constitute unsound policy. In fact, the United States and other GATT members already routinely take such action, as for example under the countervailing duty laws -- past subsidies which have helped to finance production fa-

³ It is true, as EIAJ notes (p. 16) that the cartel activity cited by SIA has been "firmly denied" by EIAJ, and that the reports of cartel activity cited by SIA date back to the early 1970s. That should not end the inquiry. In soda ash, U.S. companies alleged that a cartel of Japanese firms was restricting U.S. imports. That allegation was denied by MITI and the industry (Japan Lawletter, April 1983). The Japan Fair Trade Commission (JFTC) subsequently found, however, that an illegal cartel had been established in 1973 by four Japanese soda ash producers, following liberalization of imports in that industry. The JFTC also found that in 1983 this cartel was restraining U.S. imports, in violation of the Antimonopoly law, ten years after it was first established. JFTC, "Recommendation to Four Soda Ash Manufacturers," March 11, 1983.

cilities are countervailed with duties on current imports, a policy which has not "opened Pandora's box" but rather has served to close it somewhat. Failure to act against past foreign actions which have undercut concessions made to the U.S. government and which still adversely affect U.S. industries would establish a dangerous precedent -- that is, that commitments to the U.S. Government can be circumvented through the adept use of "countermeasures."⁴

Japan Fair Trade Commission Investigation

SIA's Section 301 Petition requests, inter alia, an investigation by the Japan Fair Trade Commission into the question of whether the Japanese semiconductor producers have violated the Antimonopoly Law. EIAJ appears to endorse such an investigation (pp. 17-18), and it would therefore be appropriate for the President to direct the U.S. Department of Justice to request the JFTC to conduct an investigation as one element, of, but by no means the sole, relief granted pursuant to Section 301.⁵

⁴ In the Trade and Tariff Act of 1984, Congress gave the President a sweeping mandate to pursue aggressively the reduction of foreign barriers to U.S. high technology products, as well as broadening section 301's scope substantially. A ruling which, in effect, holds that foreign governments can circumvent commitments to liberalization through the deft use of "countermeasures" would be inconsistent with this mandate.

⁵ EIAJ suggests (p. 17) that SIA must first "exhaust" this antitrust remedy before seeking relief pursuant to Section 301. This is not required by law; the exhaustion of remedies doctrine applies to judicial review of administrative action, not to the exercise of Presidential authority. The President is given a mandate under Section 301 to
(Footnote continued)

Actionability of Foreign Cartels under Section 301

When Section 301 was enacted, the Senate Finance Committee stated that "restrictive business practices" documented by the U.S. Tariff Commission would be deemed actionable; these included trade barriers created by private organizations including "those engaged in by the collective restraint of competition by independent organizations (cartels)." (SIA Brief, pp. 12-13). EIAJ's discussion of the subject (pp. 11-13) ignores this legislative history, which is central to defining the scope of actionable conduct under Section 301.

EIAJ misinterprets Alan Wm. Wolff's April, 1983 Congressional testimony that Japanese industrial targeting "is not explicitly prohibited under either international trade agreements or domestic U.S. law." (p. 22) Wolff's statement is factually accurate, with emphasis on the word explicit. The concept of industrial targeting is not addressed in explicit terms in U.S. law. Wolff's testimony did note, however, the possibility of relief under interna-

(Footnote 5 continued from previous page)
take all action within his power to eliminate an offending act, policy or practice -- he is not constrained, by the implementation of one remedial measure, from taking other appropriate measures. The experience to date with JFTC investigations into import-restricting activities indicates that such an investigation, while useful, will not in itself resolve the problem. Therefore, the best approach appears to be to make a JFTC investigation one element of a larger remedial package.

tional agreements and the implicit Presidential authority to conclude that the foreign government practice was unreasonable under Section 301. Second, Wolff was testifying in favor of several House trade reforms bills which eventually became the Trade and Tariff Act of 1984. Among the reforms Wolff and SIA supported that later became law were: 1) making the denial of fair and equitable market access explicitly "unreasonable" under Section 301; 2) establishing as an explicit U.S. negotiating objective the elimination of and compensation for distorting effects of foreign government practices affecting U.S. exports and investments of high technology industries; and 3) requiring the Administration to study foreign government targeting. The U.S.T.R. study performed pursuant to this statutory mandate concluded that U.S. share in Japan would double if Japan had not restricted direct investment.⁶

Japanese Sovereignty

SIA has not asked the U.S. Government "to interfere with Japanese national sovereignty" (EIAJ Brief, p. 7). Japan, like the United States and other sovereign nations, is free to pursue any policies it wishes as long as, for example, they do not impair concessions granted to the

⁶ Finan & Amundsen, An Analysis of the Effects of Targeting on the Competitiveness of the U.S. Semiconductor Industry, May 1985.

United States and to others with respect to market access and do not result in injurious, anticompetitive conduct such as dumping and predatory pricing. Policies which have those effects, however, are actionable under our trade laws; and the U.S. government is pledged to react to such policies, in conjunction with internationally agreed norms and procedures, without infringing any nation's sovereignty.

Elevation Plans

EIAJ states (p. 29) that elevation plans "were purely forecasts of hoped-for developments coupled with estimates of expenditures required from the relevant sectors of the economy in order to reach the targets laid out." MITI, however, in its 1979 Commentary on the Kijoho, stated that the Kijoho

"enacts, as in the case of the Kidenho, measures according to actual conditions of target industries such as instructions for joint acts, recommendations for how to initiate a large scale business, how to secure funds, and tax measures. These measures, however, are interrelated and they will attain the desired objective only when they are implemented on the basis of coherent and unified plans. . . . [E]levation plans are not a mere document describing prospects, but they show ambitious visions pointing out the desirable direction for the machine and information industries to take. They also provide the basis for carrying out policies and for organizing measures based on the Act". . . . The purpose of the [subsidized Japan Development Bank] loans is to provide necessary equipment funds to achieve objectives such as to begin industrial production or to increase production output, to improve product performance or quality, or to decrease

production costs as prescribed in the elevation plans for the apparatus to enhance industrialization and rationalization, thus, smoothly propelling the elevation of the said industries. (emphasis added) ⁷

Proper Role of U.S. Government

SIA believes that the proper role of the U.S. Government in this case is that of an advocate of legitimate U.S. commercial interests, not, as suggested by EIAJ (note 9, p. 21), an impartial adjudicator. SIA agrees that the U.S. Government must first be convinced of the facts before assuming the role of an advocate. However, in this case, there is an extensive history on which to base the necessary finding: the U.S. Government conducted a comprehensive fact-finding effort in 1982-83 and concluded that the facts of this case were essentially those set forth in SIA's Petition. Under EIAJ's view, SIA's filing of a case would have the effect of turning the clock back by three years, putting the U.S. Government in a position where it must act as if it knew no facts and had not yet conducted an extensive factual inquiry.

⁷ A translation of MITI's Commentary is the second document contained in SIA's Japanese Protection and Promotion of the Semiconductor Industry; This excerpt is taken from pp. 23-24, "Significance and Nature of the Elevation Plans."

Enforcement of U.S. GATT Rights

EIAJ argues (p. 14) that the U.S. cannot act to enforce U.S. rights under the GATT without first resorting to GATT arbitration, which, as a practical matter, would relegate the U.S. to years of protracted litigation under the GATT.⁸ This view is not correct. The fact that a foreign act infringes U.S. rights under the GATT is a per se indication of unreasonableness for purposes of Section 301, warranting timely remedial action by the President.⁹ If Japan believes that Presidential action breaches Japan's GATT rights, it may seek redress pursuant to the GATT.

Elements of the Japanese Market Structure

EIAJ states (p. 8) that SIA comments on the elements of the Japanese market structure separately and "seems to admit that each, separately, is neither unfair nor illegal."¹⁰ SIA made no statement to this effect. Several

⁸ In May 1984 the GATT council found Japan's 21-year-old leather quotas to be inconsistent with the GATT and recommended their elimination. After the GATT finding, Japan announced in July 1985 that it would simply replace its leather quotas with higher tariffs. Thus, after years of pursuing this matter in the GATT, the issue is still unresolved.

⁹ The requirement that the President take into account the international obligations of the United States in acting under Section 301 was specifically deleted from the statute in 1974. Trade Act of 1974, Senate Report No. 93-1298, 93rd Cong. 2nd Sess., 1974 U.S.C.C.A at 7304.

¹⁰ Having noted that SIA "seems" to make this admission, EIAJ proceeds to conclude in the next sentence that SIA has admitted that the separate elements are neither unfair nor illegal. SIA has made no such admission. SIA
(Footnote continued)

elements of the Japanese market structure, such as the horizontal ties between producers, would clearly not be permitted under U.S. law. The pertinent point, however, is that for purposes of determining the existence of market barriers, the characteristics of the market should be examined as a whole -- as a functioning system rather than a series of isolated elements.

Vertical Integration

EIAJ insists in both its brief and reply brief (p. 8) that SIA takes the position that vertical integration is unfair. SIA, which itself contains vertically integrated companies, does not and would not take such a position. SIA's concern is not with vertical integration, but with the multiple horizontal relationships between vertically-integrated Japanese firms, coupled with their demonstrated desire to exclude outsiders.

U.S. Antitrust Laws

EIAJ states (p. 5) that "SIA now retreats from its initial contention that the Government of Japan has condoned specific behavior that would 'never be tolerated under U.S. antitrust laws.'" SIA has not retreated from that position. EIAJ's witness told the U.S.I.T.C. in 1979 that "in semi-

(Footnote 10 continued from previous page)
states in its Memorandum of June 14, 1985 that "The joint activities practiced by the Japanese would never be tolerated in the United States".

conductor manufacture they are doing things we will be put in jail for if we do this in the United States right now."¹¹

Buy Japan Computers

EIAJ's brief contains an extraordinarily odd paragraph (p. 19) which suggests that if Japan had a "buy Japan" policy for computers in effect, it could only raise the sales volume of U.S. semiconductor firms. It is difficult to discern the point being made in this passage;¹² suffice it to say that past "buy Japan" computer programs were implemented in conjunction with strict local content rules that limited U.S. semiconductor sales,¹³ and that a present "buy Japan" policy in computers could not in any way help U.S. sales of semiconductors.

U.S. Defense Programs vs. Japanese R&D Projects

EIAJ has for many years analogized U.S. Defense-related R&D projects to Japan's government-sponsored R&D projects. The U.S. military projects are designed to help maintain a common defense umbrella from which Japan bene-

¹¹ Testimony of Ivars Gutmanis on behalf of EIAJ, U.S.I.T.C. Inv. No. 332-102, May 31, 1979, Tr. at 329.

¹² It is possible that EIAJ is raising the same sort of argument made by the Japanese in the cigarettes case, when it was contended that U.S. sales of tobacco in Japan were dependent upon Japanese protection of the domestic cigar and cigarette industry. In fact, however, in that situation, U.S.-made cigarettes contained three times more U.S.-grown tobacco than did Japanese cigarettes.

¹³ Japan Economic Journal, April 9, 1968.

fits, and to which the United States is the principal contributor.

The Japanese R&D projects, by contrast, have national commercial objectives and have benefited the Japanese industry to the severe detriment of the U.S. industry. As the Japanese Semiconductor Annual for 1984 stated,

The [VLSI] project enabled Japanese semiconductor manufacturers to overtake U.S. firms. Particularly in high-density memory devices, Japanese products came to dominate the American market.¹⁴

No U.S. defense project has had a similar impact on Japan -- that is, the virtual elimination of a major segment of its industry -- and no U.S. defense project is likely to do so, since their objectives are defense related.

There have been recent suggestions that the early emphasis in the United States on military and other government end-use semiconductors may now be having a serious negative impact on the commercial side of the U.S. industry. In a 1985 article in the Antitrust Law and Economics Review entitled "Antitrust, Industrial Policy, and Technological Predation," H. William Tanaka cites the "internal or structural problem in the United States stemming from our emphasis on defense and space research during the Cold War period of the '50s and early '60s -- the funding of NASA after 1958

¹⁴ Reproduced in Puresu Janaru, March 20, 1984. Extracts from this publication were submitted to USTR on October 25, 1985.

-- and the huge defense budget it produced." This had the effect, according to Tanaka, of "draining our best engineers and administrators . . . into the higher-paying and more dramatic jobs with firms like RCA, GE, and so on in the defense and space sectors."

In Appendix V of EIAJ's brief, an article (The Microelectronics Industry in Distress) by Charles H.

Ferguson states:

"[I]n the United States . . . the military . . . has become a negative factor. . . . [D]uring the seventies not only did the military become a smaller share of the market, but the basic computational power it needed was more widely available. . . . Although the Defense Advanced Research Projects Agency finances some basic VLSI research, a large fraction of military-sponsored research directly on semiconductor circuitry is commercially useless."¹⁵

EIAJ is certainly incorrect in its assessment (p. 23) that the Department of Defense (DOD) is the "single most influential player in the world in setting the computer and microelectronics technology agenda." In reality, it is the commercial market which drives the U.S. semiconductor industry. During 1984, defense procurement of semiconduc-

¹⁵ The United States Government's defense-related research in semiconductors are carried out under severe restrictions. In the largest such program, the Very High Speed Integrated Circuit (VHSIC) program of the Department of Defense, the transfer of the fruits of government-sponsored research to commercial applications is forbidden by contract.

tors comprised only about 10% of the U.S. market. Moreover, since the mid-1960s virtually all major technological innovations in the semiconductor industry have been first exploited in the commercial marketplace.

Manufacturing Strategies

The EIAJ argument in the section "Divergent Manufacturing Strategies Chosen by Japanese and U.S. Semiconductor Producers Account in Part for their Relative Degree of Success in the Japanese Market" (pp. 31-32) provides a biased, inaccurate comparison of the manufacturing procedures utilized by U.S. and Japanese semiconductor companies. EIAJ focuses on the Japanese companies' decision to assemble and test semiconductors in automated facilities, but errs in its implication that U.S. companies are not also utilizing such automated procedures for products in which the changeover to such techniques is economically warranted.

EIAJ also chooses not to make any comparison between U.S. and Japanese companies in the wafer fabrication portion of the production process. In that area, U.S. companies obtained a significant technological lead through the early use of stepper technology in 1982-83. The use of steppers made it possible for U.S. companies to improve their wafer yields due to cleanliness advantages with pellicles, local alignment and smaller die sizes.

Mostek Closing

EIAJ attributes the shutdown of Mostek (p. 48) to the "failure of management to diversify out of DRAM production until it was too late." In effect, EIAJ says that U.S. companies that wish to survive should disinvest in product areas which Japanese firms have elected to dominate by pricing below cost. This is not an adequate or acceptable resolution of the problems which are at issue in this case.

U.S. Commitment to Japanese Market

EIAJ notes in its brief (p. 37) that the survey of 31 material procurement officials of leading semiconductor purchasers (conducted by Nomura Research Institute) indicated "U.S. suppliers tend to place a higher priority on supplying their U.S. suppliers when market demand is up." In fact, U.S. semiconductor companies have given the Japanese market a higher priority than other markets during the 1980s. SIA's quarterly survey of its members' experiences in the Japanese market shows that during the period of most severe semiconductor shortage in 1983 and 1984, U.S. companies sustained the highest percentage ever of sales in Japan as a percentage of total sales.

In other words, in a very tight supply situation, U.S. semiconductor manufacturers increased their percentage allocation of parts to the Japanese market (and decreased it to other world markets). The full results of the most recent quarterly survey are attached as Attachment A. Note that during the period of tightest semiconductor supply

(third quarter 1983 through fourth quarter 1984) U.S. companies allocated a significantly higher percentage of their scarce products to the Japanese market than during the preceding or subsequent periods, when Japanese companies cut back on purchases of U.S. products.

Sales in Europe

EIAJ argues (p. 39) that the percentage increase in Japanese semiconductor exports to Europe is evidence that Japanese companies are relatively more competitive than U.S. companies. In fact, U.S. companies' sales in Europe increased by \$1 billion between 1982 and 1984 while Japanese companies' sales increased by only by \$.3 billion. The fact that the percentage increase by Japanese companies was so dramatic is only a result of their very low base share of that market.

EIAJ also argues (p. 40) that "were it not for the fact that European producers are losing market share to both Japanese and U.S. producers, the U.S. share in Europe might actually be declining." In fact, European semiconductor users would have the same opportunity to choose U.S. or Japanese chips regardless of the presence of European producers in the market. Given that choice, the overwhelming decision has been to purchase the product of U.S.-based companies (be it by \$1.6 billion U.S. to \$.2 billion Japanese products in 1982 or by \$2.6 billion U.S. to \$.55 billion Japanese products in 1984).

EIAJ Statistics

EIAJ attempts to demonstrate (pp. 42-43) that the WSTS program is not a reliable data base. In fact, the WSTS program is the most reliable and comprehensive source of data on semiconductor trade in standard semiconductor parts (i.e., the product relevant to this proceeding). Non-standard parts produced solely for a company's internal use are not included in the data base because they could not be supplied by another company and are therefore not a part of the available market. When a previously captive producer begins to sell semiconductors on the open market, that producer will be asked to join the WSTS program, as is the case with AT&T.

Contrary to the EIAJ claims, WSTS data is "hard company data." It is accurate, accepted by all participants (including Japanese companies) as the international standard, and, most importantly, is highly consistent.

EIAJ also argues (p. 30) that because U.S. companies' direct exports to Japan have increased 432.8% between 1975 and 1984 that "U.S. semiconductor manufacturers have prospered to an unusual degree in their Japanese sales since 1975." This is not a credible claim for two reasons:

1. From 1975 to the first half of 1985, U.S. companies' share of the Japanese market has actually declined from 10.5% to 9%. While it may be true, as EIAJ states, that U.S. exports to Japan increased by 432.8 percent between 1975 and 1984, Japanese semiconductor consumption in-

creased by 741 percent during the same period.¹⁶

2. Even if direct exports from the United States to Japan were a reasonable indication of relative success in the Japanese market, EIAJ's own data in Appendix I, Table 3 of its Reply Brief (Attachment B) graphically illustrates the fact that U.S. companies have not enjoyed success in the Japanese market. During the January through September, 1985, exports to Japan from the United States have declined 19.7% as compared with the same period of 1984. This is occurring although the size of the overall Japanese market is expected to decline by only 5-10% in 1985. A similar picture is illustrated by the overall U.S.-based company sales figures (which would include production in Japan and imports from other nations as well as direct imports from the U.S.)

Investment Levels

Japanese semiconductor investment levels will be undertaken at a rate of 30% to 40% of sales through 1988 (p. 46). This means, based on a highly conservative turnover ratio of 1.1, that over the next three years Japanese semiconductor companies are planning a rate of sales growth of 33% to 44% per year (as compared with a worldwide market growth trend of 16.5% per year). SIA has not ignored "the fact that only a portion of [Japanese companies] investments

¹⁶ This disparity in growth rates did not cause an even sharper drop in U.S. market share because U.S. sales into Japan from local and offshore subsidiaries also increased.

are for capacity expansion." (p. 46) The turnover ratio, which predicts how much sales will grow based on investment levels, does not require that investment be for expansion; it predicts sales growth on the basis of all types of investment, whether for expansion, replacement, or retooling.

Japanese Company Profitability

EIAJ notes that "except for NEC and Matsushita, all of the other major Japanese IC producers have reported declines in profit in the first half of 1985" (p 49). SIA acknowledges that Japanese pricing practices will result in a short-term reduction of profitability for the Japanese firms. SIA encourages the Japanese companies involved to make public the financial statements of their semiconductor operations during the first half of 1985.

Conclusion -- The Purpose of this Proceeding

SIA's purpose in this proceeding -- and that of the U.S. Government -- is not to document any unfair trade practices on the part of the Japanese Government or industry for its own sake. Vindication is not required; what is needed is real access to the Japanese market for U.S. companies and immediate direct actions against dumping. Such actions will promote an open international environment in which, to the extent possible, all manufacturers, U.S. and Japanese, have an equal opportunity to sell in each other's markets.

Respectfully submitted,

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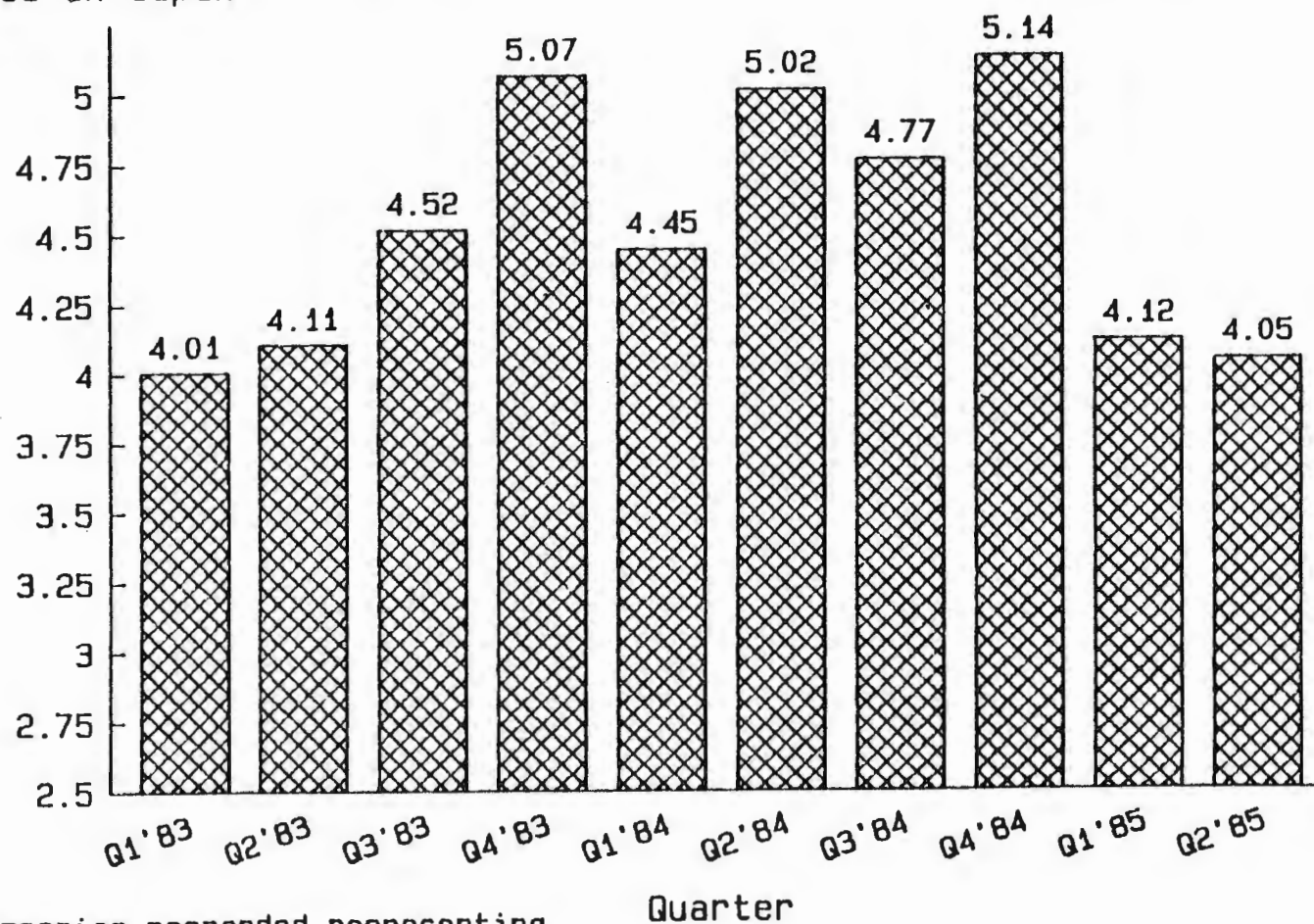
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Counsel for the Semiconductor
Industry Association

November 15, 1985

PERCENTAGE OF WORLDWIDE BILLINGS MADE
IN THE JAPANESE SEMICONDUCTOR MARKET --
Weighted Avg. of 10 U.S. Companies

% Sales in Japan



Ten companies responded representing
53% of total U.S.-based semiconductor
billings during 1984

Table 3

JAPANESE IC IMPORTS FROM THE U.S. BY MONTH
1983 - 1985

(Millions of Yen)

	<u>1983</u> (% in Compari- son to previ- ous month)	<u>1984</u> (% in compari- son to previ- ous month)	<u>1985</u> (% in compari- son to previ- ous month)	<u>85/84 (%)</u>
January	6,705 (+ 5.8)	11,800 (- 5.3)	11,615 (- 6.1)	- 1.6
February	6,502 (- 3.1)	12,840 (+ 8.8)	9,314 (-19.9)	-27.5
March	8,574 (+31.8)	12,442 (- 3.1)	12,024 (+29.0)	- 3.4
April	7,095 (-17.3)	12,592 (+ 1.2)	10,598 (-11.9)	-15.9
May	8,194 (+15.4)	15,100 (+19.9)	12,121 (+14.3)	-19.8
June	8,595 (+ 4.8)	13,924 (- 7.8)	10,773 (-11.2)	-22.7
July	8,076 (- 6.1)	14,537 (+ 4.4)	11,046 (+ 2.5)	-24.1
August	9,719 (+20.3)	13,815 (+ 8.7)	10,494 (- 5.0)	-33.7
September	9,438 (- 2.9)	12,798 (-19.1)	9,823 (- 6.4)	-23.3
October	9,634 (+ 2.0)	13,882 (+24.0)		
November	12,530 (+30.0)	13,303 (-16.3)		
December	12,453 (- 0.7)	12,364 (- 7.1)		

SOURCE: Ministry of Finance

SUPERCOMPUTER SYSTEMS MARKETS

LLOYD M. THORNDYKE

ETA SYSTEMS, INCORPORATED
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COMMERCIALIZING STRATEGIC DEFENSE TECHNOLOGIES:
PROMISES AND PROSPECTS

UNIVERSITY OF TEXAS AT AUSTIN
AUSTIN, TEXAS

OCTOBER 28-29, 1985

OF VERY LARGE, VERTICALLY INTEGRATED ENTERPRISES WITH THE CAPABILITY TO PRODUCE ALL ELEMENTS OF THE SYSTEM, INCLUDING THE LOGIC AND STORAGE COMPONENTS. ON THE OTHER HAND, THE AMERICAN SUPERCOMPUTER SUPPLIERS ARE SMALL BY ANY STANDARDS OF MEASUREMENT.

IN PRIOR YEARS, WHEN THE U.S. HAD A MONOPOLY ON COMPUTER TECHNOLOGY, THIS WAS NOT A SERIOUS CONCERN, SINCE ONE COULD FIND COOPERATIVE DOMESTIC SEMICONDUCTOR VENDORS CAPABLE OF DELIVERING HIGH PERFORMANCE COMPONENTS. TODAY WE FIND OURSELVES IN THE SEMICONDUCTOR DESIGN BUSINESS IF WE WISH TO BUY THE LOGIC CHIPS FROM DOMESTIC SOURCES. IF YOU WANT HIGH PERFORMANCE MEMORY CHIPS, YOU HAVE NO CHOICE BUT TO BUY FROM JAPANESE SOURCES. IT IS HAS BEEN OUR EXPERIENCE THAT THE JAPANESE VENDORS DO NOT MAKE THEIR ADVANCED PRODUCTS AVAILABLE FOR USE IN THE U. S. UNTIL THEY ARE IN FULL PRODUCTION, ASSURING THEM OF A SUBSTANTIAL LEAD IN THE END PRODUCTS. THIS EMPHASIZES AGAIN THAT THE LACK OF DOMESTIC COMPONENT SOURCES MUST BE OF CONCERN WHEN WE ARE DEALING WITH AN ITEM OF SUCH STRATEGIC IMPORTANCE.

THE PLACE TO INITIATE OUR LINE OF STRATEGIC DEFENSE OF SUPERCOMPUTER TECHNOLOGY IS AT THE VERY FOUNDATION OF THE BUSINESS - THE COMPONENTS. THIS IS NOT AN APPROPRIATE FORUM TO DEBATE THE RELATIVE MERITS OF ONE TECHNOLOGY OVER ANOTHER, BUT IT IS APPROPRIATE TO IDENTIFY SOME

Chip Makers Claim U.S. Victory

By John Eckhouse

After losing a few well-publicized battles, U.S. semiconductor companies say they finally have won the war of quality with their Japanese counterparts.

"The Japanese are very tough competitors, but we are better now," said John Montesi, vice president of quality and reliability at National Semiconductor Corp. in Santa Clara.

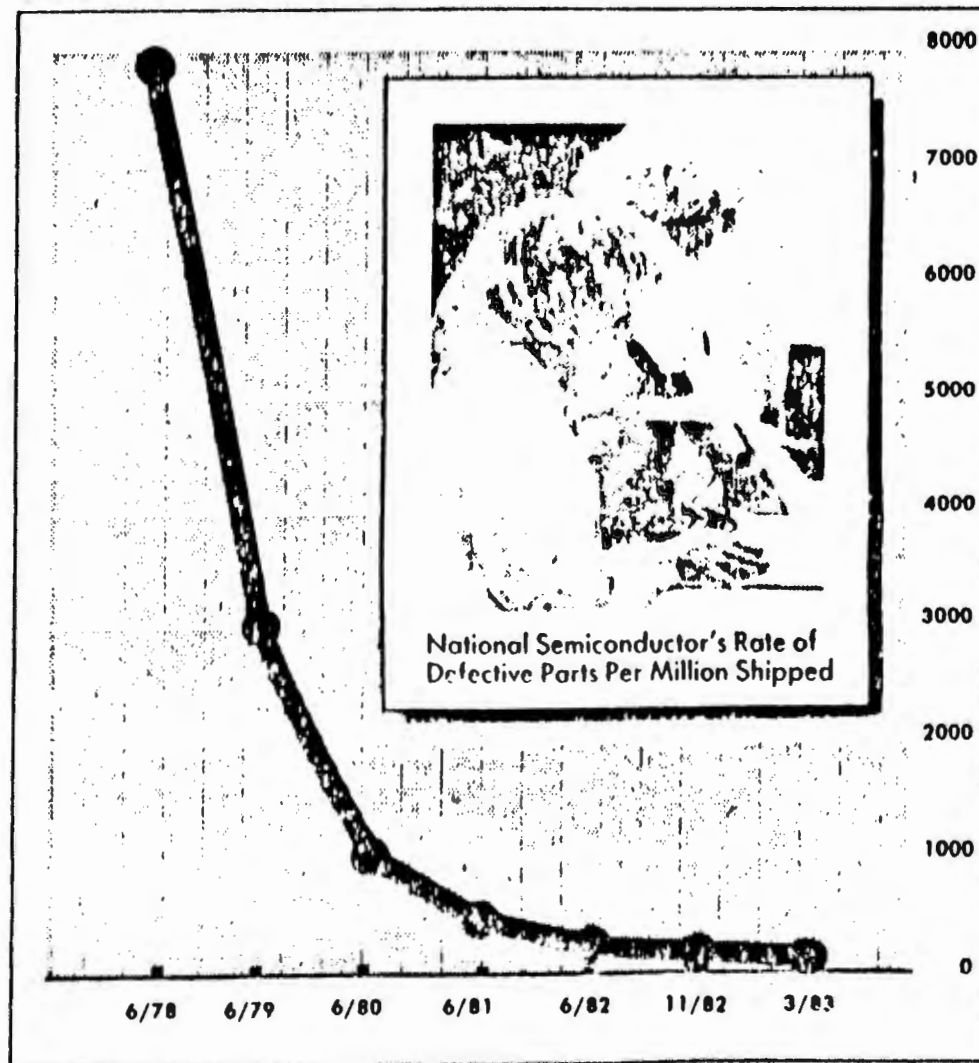
Silicon Valley companies such as National, Signetics, Advanced Micro Devices and Intel have reduced the number of their defective computer chips by 98 per cent in the past five years.

National, for example, claims to have cut the number of defective parts from 8,000 per million shipped in 1978 to 122 parts per million (ppm) shipped last month. Although the figures may not be completely comparable due to differing testing standards, Signetics said its defect rate has dropped to 147 ppm, while Intel and AMD cite a 500 ppm figure.

"I think it would be difficult to differentiate between the largest U.S. manufacturers," said Malcolm Smith, corporate procurement manager for Hewlett-Packard Co. in Palo Alto. "The U.S. industry now has a deservedly higher reputation for quality than it did a few years ago."

Ironically, it was electronic industry heavyweight HP that originally tarnished the U.S. reputation for quality.

DRIVING DOWN CHIP DEFECTS



quality as one of three criteria in hiring the size of its executives' pay.

Although all the companies made great strides, the image of no quality persists. In a heavily publicized case, National Semiconductor pled earlier this year to a charge of military contractors inadequately testing chips and paid the government a million fine to settle the case.

"There's no excuse for that at all. That will never happen again," Montesi said.

Semiconductor company executives say they cannot estimate the costs of improving quality, because much of the savings from buying automated equipment purchased primarily to improve productivity. But the managers can document immense savings from their quality improvement programs.

John Wood, manager of quality improvement at Signetics in Sunnyvale, said the company has saved more than \$20 million by reducing scrap parts, the re-working and re-testing of defective chips.

"You could say the savings to a company is almost infinite," said Montesi of National. "If you're not among the top three in quality, you don't get business from many customers."

Indeed, quality has become a marketing issue, with U.S. semiconductor companies spending heavily to improve their improved defect rates.

U.S. Chip Makers Claim Victory

From Page 56

takes a backseat to no one," said James Lynch, vice president of quality assurance and reliability.

"We feel we're number one in the industry," said Montesi of National.

Wood at Signetics refused to be drawn into the "who's number one?" controversy. He simply said that Signetics intends to drop its defect rate to zero by refusing to ship customers any lot in which even one reject part is found during testing.

Quality has made such giant strides in the past few years that many electronics companies no longer test incoming chips from certain trusted suppliers — a great leap of faith compared to past years.

"We are in the middle of a true corporate revolution," said Larry Regis, director of components quality and reliability at Intel. "We are putting whole corporate organizations devoted to testing incoming parts out of business."

That saves the buyers huge amounts of money, since a typical machine used for testing today's complex

semiconductor components may cost \$1 million or more.

Getting to this point was not easy. Regis called it a matter of painstaking detective work.

"We were analyzing every reject," he said. "It's painfully tedious, but nothing replaces a good post mortem."

The problem with controlling quality is that semiconductor products are so tiny that a stray speck of dust can have the same destructive impact as a rock crashing through a plate glass window.

As part of its detective work, Intel learned that its automatic handling equipment had a defect that caused it occasionally to send good parts to the reject bin and vice versa. "We raised hell with that vendor when we found out," Regis said.

The company also discovered that many good parts were ruined by stray electrostatic discharges. Intel then equipped its production workers with expensive smocks that have metallic fibers woven in to discharge static electricity.

"We're constantly changing our production process to correct quality problems," Regis said.

Survey Finds Rise in Price Of Gasoline

Los Angeles

The overall average price of gasoline, including taxes, rose more than a penny a gallon during a three-week period, to 120.59 cents, industry analyst Dan Lundberg said yesterday.

The average wholesale price, without taxes, was 89.41 cents, up 1.47 cents a gallon.

United Press

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