## 64K DYNAMIC RANDOM ACCESS MEMORY COMPONENTS FROM JAPAN

Determination of the Commission in Investigation No. 731-TA-270 (Preliminary) Under the Tariff Act of 1930, Together With the Information Obtained in the Investigation

## **USITC PUBLICATION 1735**

AUGUST 1985

## UNITED STATES INTERNATIONAL TRADE COMMISSION

## COMMISSIONERS

Paula Stern, Chairwoman Susan W. Liebeier, Vice Chairman Alfred E. Eckes Seeley G. Lodwick David B. Rohr

Staff Assigned:

George L. Deyman, Office of Investigations Nelson J. Hogge, Office of Industries Howard L. Gooley, Office of Economics Richard Laulor, Office of Investigations Wayne Herrington, Office of the General Counsel

Lynn Featherstone, Supervisory Investigator

Address all communications to Kenneth R. Mason, Secretary to the Commission United States International Trade Commission Washington, DC 20436

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Note: Data which would disclose confidential operations of individual concerns may not be published and therefore have been deleted from this report. Deletions are indicated by asterisks.

#### UNITED STATES INTERNATIONAL TRADE COMMISSION Washington, DC

Investigation No. 731-TA-270 (Preliminary) 64K DYNAMIC RANDOM ACCESS MEMORY COMPONENTS FROM JAPAN

#### Determination

On the basis of the record  $\underline{1}$ / developed in the subject investigation, the Commission determines, pursuant to section 733(a) of the Tariff Act of 1930 (19 U.S.C. § 1673b(a)), that there is a reasonable indication that an industry in the United States is materially injured,  $\underline{2}$ / or threatened with material injury,  $\underline{3}$ / by reason of imports from Japan of 64K dynamic random access memory components (64K DRAM's), of the N-channel metal oxide semiconductor type, provided for in item 687.74 of the Tariff Schedules of the United States, which are alleged to be sold in the United States at less than fair value (LTFV).

#### Background

On June 24, 1985, a petition was filed with the Commission and the Department of Commerce by Micron Technology, Inc., Boise, ID, alleging that an industry in the United States is materially injured, or threatened with material injury, by reason of LTFV imports of 64K DRAM's from Japan. Accordingly, effective June 24, 1985, the Commission instituted preliminary antidumping investigation No. 731-TA-270 (Preliminary).

Notice of the institution of the Commission's investigation and of a public conference to be held in connection therewith was given by posting

<sup>1</sup>/ The record is defined in sec. 207.2(i) of the Commission's Rules of Practice and Procedure (19 CFR § 207.2(i)).

 $<sup>\</sup>underline{2}$ / Vice Chairman Liebeler determines that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of the subject imports.

<sup>3</sup>/ Commissioners Eckes and Lodwick determine that there is a reasonable indication that an industry in the United States is materially injured by reason of the subject imports.

copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the <u>Federal</u> <u>Register</u> of July 3, 1985 (50 FR 27498). The conference was held in Washington, DC, on July 15, 1985, and all persons who requested the opportunity were permitted to appear in person or by counsel.

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#### VIEWS OF THE COMMISSION

We determine that there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury 1/by reason of imports of 64K dynamic random access memory components from Japan which are allegedly sold at less than fair value (LTFV). 2/

#### Like product and the domestic industry

Section 771(4)(A) of the Tariff Act of 1930 defines the term "industry" in an antidumping duty investigation as "[t]he domestic producers as a whole of a like product, or those producers whose collective output of the like product constitutes a major proportion of the total domestic production of that product . . . . " 3/ Section 771(10) defines "like product" as "[a] product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to [the]

investigation . . . ." 4/

The imported articles subject to this investigation are 64K dynamic random access memory components (64K DRAMs). A 64K DRAM is composed of an integrated circuit memory chip which has been wire bonded to lead frames and then encapsulated (final sealed) for installation into printed circuit

<sup>1/</sup> Material retardation is not an issue in this case.

<sup>&</sup>lt;u>2</u>/ Chairwoman Stern and Commissioner Rohr determine that there is a reasonable indication that the domestic industry is materially injured or threatened with material injury by such imports. <u>See</u> Views of Chairwoman Stern and Commissioner Rohr. Commissioner Eckes and Commissioner Lodwick determine that there is a reasonable indication that the domestic industry is materially injured. Vice Chairman Liebeler determines that there is a reasonable indication that there is a injury. <u>See</u> Additional Views of Vice Chairman Liebeler.

<sup>&</sup>lt;u>3/ 19 U.S.C. § 1677(4)(A).</u>

<sup>4/ 19</sup> U.S.C. § 1677(10).

boards. <u>5</u>/ Since 64K DRAMs are produced in the United States, they are the "like product" in this preliminary investigation.

The petitioner, Micron Technology, Inc. (Micron), produces most of its 64K DRAMs entirely in the United States and sells in the commercial market. <u>6</u>/ Two other firms produce 64K DRAMs in the United States and consume all their production. They do not make commercial sales. Still other firms produce their 64K DRAMs partly outside the United States. Thus, several questions have been raised as to whether certain firms are "producers" within the meaning of statute. Those questions are:

- (1) Whether firms which produce for their own consumption and not for commercial sale are "domestic producers."
- (2) Whether firms which produce their 64K DRAMs in whole or in part outside the United States are "domestic producers."

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(3) Whether any firms should be excluded under the "related parties" provision of the statute.

These questions are discussed separately below.

#### 1. <u>Captive production</u>

The petition alleges that the domestic industry should be limited to the "merchant" producers of 64K DRAMS, i.e., those who produce for sale in the commercial market. <u>7</u>/ Two firms, ATT Technology Systems (ATT) and IBM Corp. (IBM), produce for their own consumption and do not make commercial sales.

5/ Report of the Commission (Report) at A-2-A-3. The Customs Service has regarded the country of origin of an imported 64K DRAM as the country where final sealing is done, regardless of where wafer fabrication was done. This means, for example, that where wafer fabrication is performed in Japan, but final sealing is done in Singapore (perhaps by a related company), Customs would regard the resulting 64K DRAM as being a product of Singapore, not Japan. <u>See Id</u>. at A-3.

 $\underline{6}$  However, some have been assembled abroad. Id. at A-6.  $\underline{7}$  Petition at 3.

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The question is whether these two firms are "producers" within the meaning of 19 U.S.C. § 1677(4)(A) and thus part of the "industry in the United States" for which material injury and threat must be assessed under 19 U.S.C. § 1673b(a).

The Commission has addressed this question in previous cases and has consistently included captive producers in the domestic industry, evaluating injury both with respect to all producers and with respect to merchant producers. <u>8</u>/ Thus, for the purposes of this preliminary investigation, we considered ATT and IBM "domestic producers."

#### 2. Firms producing wholly or partly abroad

Advanced Micro Devices (AMD), Intel Corporation (Intel), Mostek Corporation (Mostek), Motorola, Inc. (Motorola), National Semiconductor Corp. (National Semiconductor), Texas Instruments, Inc. (TI), Fujitsu Microelectronics, Inc. (FMI), Hitachi Semiconductor America, Inc. (HISUS), and NEC Electronics, Inc. (NEC USA), manufacture some or all of their 64K DRAMs partly outside the United States. The question is whether any of these firms can be regarded as "domestic producers."

The Commission has recently addressed this question in several investigations. <u>9</u>/ In <u>Pagers</u>, the Commission specifically held that "[A]ll production related activity need not occur in the United States for a firm to

<sup>&</sup>lt;u>8</u>/ Iron Ore Pellets from Brazil, Inv. No. 701-TA-235 (Preliminary), USITC Pub. No. 1640 (Feb. 1985) at 5-6; Melamine from Brazil, Inv. No. 731-TA-107 (Preliminary), USITC Pub. No. 1303 (Oct. 1982) at 4.

<sup>9/</sup> Certain Radio Paging and Alerting Receiving Devices from Japan, Inv. No. 731-TA-102 (Final), USITC Pub. No. 1410 (Aug. 1983) ("Pagers"); Pads for Woodwind Instrument Keys from Italy, Inv. No. 731-TA-152 (Final), USITC Pub. No. 1566 (Aug. 1984) ("Pads") and Color Television Receivers from the Republic of Korea and Taiwan, Invs. Nos. 731-TA-134-135 (Final), USITC Pub. No. 1514 (Apr. 1984) ("Color Televisions").

qualify as a domestic producer of a like product." <u>10</u>/ Rather, the Commission was to determine each case on its own facts, making "an analysis of the overall nature of . . . production related activities in the United States." <u>11</u>/ This analysis included a consideration of domestic value added.

A similar analysis was made in <u>Pads</u> and <u>Color Televisions</u>, the Commission noting in <u>Color Televisions</u> that consideration of domestic value added is important, but not in itself dispositive, i.e., the importance of the domestic activity relied on in the overall production process must be considered. <u>12</u>/ In <u>Color Televisions</u>, the Commission also referred to the "apparent commitment to a permanent U.S. production facility." <u>13</u>/

Motorola, AMD, National Semiconductor, Intel and Mostek perform all their wafer fabrication in the United States but perform assembly abroad. Motorola and Mostek also do some assembly in the United States. <u>14</u>/ While TI apparently does some wafer fabrication and/or assembly in the United States, most of its 64K DRAMs are imported. NEC USA performs wafer fabrication and assembly in the United States; FMI and HISUS perform assembly in the United States. <u>15</u>/ All three Japanese-owned firms also import 64K DRAMs.

All these firms assert that the 64K DRAMs they produce have considerable domestic content share, based on the final value of domestic shipments.  $\underline{16}$ / An alternative calculation of domestic content based on cost of goods sold is

12/ Pads at 4-6; Color Televisions at 8.

14/ Report at A-5-A-7.

15/ Id.

<sup>10/</sup> Pagers at 10.

<sup>&</sup>lt;u>11</u>/ <u>Id</u>. at 10-11. <u>See also</u> separate views of Chairwoman Stern.

<sup>&</sup>lt;u>13</u>/ Color Televisions at 9. In Color Televisions, as in Pagers, the analysis was applied to both U.S.-owned and foreign-owned firms which produced or assembled the product in the United States.

<sup>&</sup>lt;u>16</u>/<u>Id</u>. at A-13-A-14. Reported as percent of foreign content. <u>See Id</u>., esp. A-13 n.5.

also set forth in the Report, and, though limited in coverage, more closely approximates the kind of calculation called for in <u>Pagers</u>. <u>17</u>/ The foreign product cost percentages, however, are different from the percentages based on the reported foreign value content as a share of the final value of domestic shipments. The data gathered in this preliminary investigation are insufficient to resolve such discrepancies or possible internal inconsistencies in the data, thus preventing a final assessment of which firms should be treated as "domestic producers." <u>18</u>/ For the purposes of this preliminary investigation, we have treated all these firms as "domestic producers." <u>19</u>/

#### 3. Related parties

The U.S. subsidiaries of Japanese firms (FMI, HISUS, NEC USA), all of which we have treated as "domestic producers," are related to exporters or importers or import themselves. <u>20</u>/ The question therefore arises whether any of these firms should be excluded from the "industry" under the "related parties" provision of the statute, 19 U.S.C § 1677(4)(B):

> When some producers are related to the exporters or importers, or are themselves importers of the allegedly subsidized or dumped merchandise, the term 'industry' may be applied in appropriate circumstances by excluding such producers from those included in that industry.

#### 17/ Id. at A-28.

<u>18</u>/ With regard to the domestic content share figures, the figures are based on the final value of domestic shipments, not costs, and there are possible inconsistencies in the methodologies used by the various firms to make their respective domestic content calculations. With regard to foreign product cost percentages, there are possible inconsistencies in how firms report foreign product cost and total cost of goods sold. The Commission intends to resolve this matter in a final investigation, should one be instituted.

<u>19</u>/ These firms are listed in the Report at A-4-A-7. In addition, Mitsubishi Semiconductor of America, Inc., apparently began limited production of 64K DRAMs in Durham, North Carolina, in April, 1985. <u>Id</u>. at A-9. <u>20</u>/ The question may also arise with respect to other firms.

The provision calls for exercise of the Commission's discretion, and its primary purpose is to avoid the distortion in the aggregate data which might be created by including data of related producers which are shielded from imports.

In this particular case, domestic industry performance trends are the same whether these firms are included or not. Furthermore, the data in this preliminary investigation are insufficient to justify exclusion of these firms as domestic producers.  $\underline{21}/$ 

#### Condition of the domestic industry

In assessing the condition of the domestic industry, the Commission considers, among other factors, consumption, production, capacity, capacity utilization, inventories, employment, wages, sales, and profitability. <u>22</u>/

Both total and open-market domestic consumption increased dramatically from 1982 to 1984. <u>23</u>/ In the first quarter of 1985, however, consumption had leveled off compared with the first quarter of 1984. <u>24</u>/

Production of 64K DRAMS also increased dramatically, from 33.1 million units in 1982 to 269.8 million units in 1984. <u>25</u>/ Though consumption had leveled off, production in the first quarter of 1985 was 71 million units, a

<u>25/ Id. at A-15.</u>

<sup>&</sup>lt;u>21</u>/ Chairwoman Stern notes that the nature of production in this and other high-tech industries strains traditional definitions of "production" and, therefore, of domestic producers. In any final investigation, the various inputs into the production process for 64K DRAMs must be closely examined to determine which are the most relevant and where they are performed. It may be that a fuller record on such factors would require a different treatment of "domestic industry." <u>22</u>/ 19 U.S.C. § 1677(7)(C)(iii). <u>23</u>/ Report at A-9. <u>24</u>/ Id.

substantial increase over production in the first quarter of 1984, which was 45.7 million units. 26/

Capacity, defined as capacity to produce final-sealed 64K DRAMs in the United States and expressed in terms end-of-period capacity, increased similarly, from 18 million units in 1982 to 171.9 million units in 1984 and from 23.5 million units in the first quarter of 1984 to 55.3 million units in the first quarter of 1985. <u>27</u>/

Capacity utilization, however, though increasing from 31.8 percent in 1982 to 58.6 percent in 1983, declined to 51.5 percent in 1984. <u>28</u>/ Capacity utilization declined from 58.9 percent in the first quarter of 1984 to 56.6 percent in the first quarter of 1985. <u>29</u>/

Domestic shipments increased from 25.9 million units in 1982 to 107.6 million units in 1983 and 200.1 million units in 1984. <u>30</u>/ Domestic shipments increased from 38.6 million units in the first quarter of 1984 to 43.3 million units in the first quarter of 1985. <u>31</u>/ Domestic open-market shipments followed a similar trend. <u>32</u>/ Average unit values have continuously declined since 1982. Average unit values declined 34 percent from 1982 to 1984, and declined 44 percent in the first quarter 1984-85 comparison.

The increasing gap between production and shipments has resulted in an increase in inventories. <u>33</u>/ While producers' inventories declined slightly

26/ Id. 27/ Id. at A-16. 28/ Id. 29/ Id. 30/ Id. at A-17. 31/ Id. 32/ Id. at A-18.

<u>33</u>/ The gap between production and shipments may also reflect the fact that a number of 64K DRAMs produced may have been found to be defective, hence were not shipped, and the fact that the production data include some production that became "drop shipments" to foreign countries and never entered U.S. consumption channels.

from 4.7 million units in 1982 to 4.6 million units in 1983, they nearly doubled to 8.4 million units in 1984.  $\underline{34}$ / In the first quarter of 1985, producers' inventories stood at 14.3 million units, nearly three times the figure for the first quarter of 1984, which was 5.5 million units.  $\underline{35}$ / Producers' inventories as a share of producers' domestic shipments during the preceding period in the first quarter of 1985, equaled 8.3 percent, more than twice the figure for the first quarter of 1984.  $\underline{36}$ /

The average number of production and related workers, their hours worked, their wages, total compensation, average hourly wages, and their average hourly compensation increased from 1982 to 1984 and in the first quarter of 1985 as compared to the first quarter of 1984. <u>37</u>/ However, these data are complete only through the first quarter of 1985. Several firms have reported plant closures and permanent reductions in the second quarter of 1985. <u>38</u>/ A number of firms have apparently ceased production of 64K DRAMs.

Net sales of 64K DRAMS rose from 1982 to 1984, but the first quarter of 1985 shows a decline compared to the first quarter of 1984. The aggregate financial experience of the seven producers who provided useable income-and-loss data shows continuing improvement from 1982 to 1984, but a sharp decline in profitability in the first quarter of 1985. Thus, the first quarter of 1985 shows an operating loss of \$8.3 million compared to an operating profit in the first quarter of 1984. <u>39</u>/ As a share of net sales, the first quarter of 1985 shows an operating loss of 5.8 percent, compared to

<sup>&</sup>lt;u>34</u>/ Report at A-24. <u>35</u>/ <u>Id</u>. <u>36</u>/ <u>Id</u>. at A-25. <u>37</u>/ <u>Id</u>. at A-26-A-28. <u>38</u>/ <u>Id</u>. at A-21. <u>39</u>/ <u>Id</u>. at A-29.

an operating profit of 23.1 percent in the first quarter of 1984. <u>40</u>/ Although the financial performance of the firms within the industry was mixed, rapidly declining prices in the market have resulted in substantial losses for the industry as a whole.

Based on our overall assessment of the condition of the industry, 41/ we conclude that there is a reasonable indication that the domestic industry is experiencing material injury. 42/43/44/

40/ Id.

41/ Arguments were raised by both petitioners and respondents concerning the impact of product life-cycle on producers of 64K DRAMs. Most high-tech products are characterized by a life-cycle, starting with initial research and design, moving to product introduction, reaching a mature level, and finally replacement by a newer generation product. Previous generations of DRAMs (1K, 4K, and 16K) appear to have had life cycles of 8 years. Data on the record of this investigation suggest that 64K DRAMs are nearing the end of their life cycle and arguments were made that this is premature. The duration of life-cycles may not be the same from generation to generation. The degree to which the duration of the life-cycle of semiconductors is a function, for example, of pricing in the current market or pressure from the next generation of semiconductors is unclear. The Commission will explore these relationships further if this case returns for a final investigation.

42/ Chairwoman Stern does not believe it necessary or desirable to make a determination on the question of material injury or threat separate from the consideration of causality. She joins her colleagues by concluding that the domestic industry is experiencing economic problems.

 $\underline{43}$ / Commissioner Eckes believes that the Commission is to make a finding regarding the question of material injury in each investigation. The Court of International Trade recently held that:

The Commission must make an affirmative finding only when it finds <u>both</u> (1) present material injury (or threat to or retardation of the establishment of an industry) <u>and</u> (2) that the material injury is 'by reason of' the subject imports. Relief may not be granted when the domestic industry is suffering material injury but not by reason of unfairly traded imports. Nor may relief be granted when there is no material injury, regardless of the presence of dumped or subsidized imports of the product under investigation. In the latter circumstances, the presence of dumped or subsidized imports is irrelevant, because only one of the two necessary criteria has been met, and any analysis of causation of injury would thus be superfluous.

American Spring Wire Corp. v. United States, 590 F. Supp. 1273, 1276 (Ct. Int'l Trade 1984) (emphasis supplied), <u>aff'd sub nom</u>., Armco Inc. v. United States, 760 F.2d 249 (Fed. Cir. 1985).

<u>44</u>/ Vice Chairman Liebeler does not concur that the industry is currently experiencing material injury. <u>See</u> Additional Views of Vice Chairman Liebeler.

#### Reasonable indication of material injury by reason of allegedly LTFV imports

When making a determination as to whether there is a reasonable indication of material injury or threat thereof "by reason of" allegedly LTFV imports, the statute provides that:

[T]he Commission shall consider, among other factors:

- (i) the volume of imports of the merchandise which is the subject of the investigation,
- (ii) the effect of imports of that merchandise on prices in the United States for like products, and,
- (iii) the impact of imports of such merchandise on domestic producers of like products. <u>45</u>/

Imports of 64K DRAMs from Japan increased dramatically from 17.2 million units in 1982, to 94.7 million units in 1984. <u>46</u>/ In the first quarter of 1985, imports leveled off compared with the first quarter of 1984. <u>47</u>/ However, the average unit value for the first quarter of 1985 was \$1.75, compared to \$2.94 for the first quarter of 1984. 48/

Though declining somewhat in 1984 and the first quarter of 1985, the ratio of imports from Japan to total domestic consumption was large throughout the period investigated. <u>49</u>/ The ratio of imports to total apparent consumption was 37.9, 38.9, and 33.0 percent in 1982, 1983, and 1984, respectively. <u>50</u>/ The ratio was 34.7 percent in the first quarter of 1984 and 32.2 percent in the first quarter of 1985. <u>51</u>/ The ratio of imports to

 $\frac{45}{19} \text{ U.S.C. } 1677(7)(B).$   $\frac{46}{\text{Report at } A-35.}$   $\frac{47}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{49}{\underline{1d}}.$   $\frac{50}{\underline{1d}}.$ 

apparent U.S. open-market consumption was also large and followed a similar trend.

Weighted average net selling prices by both U.S. producers and Japanese importers to three classes of customers (original equipment manufacturers, authorized distributors, and spot-market purchasers) show that in nearly all cases by June, 1985, prices had dropped to a fraction of what they had been in the first quarter of 1983. The declines appeared to accelerate in late 1984 and early 1985. 52/

For most quarters, these data show overselling by the Japanese, sometimes by very wide margins. 53/ There are fewer quarters showing underselling, but some of this is by wide margins as well. 54/ Indications are that this market is one of intense competition and wildly varying price fluctuations even as prices overall trend downward.

A further problem has been the existence of apparently substantial sales by the "grey market," for which reliable data were scarce. <u>55</u>/ This market consists of firms who offer 64K DRAMs for sale outside the normal distribution channels. These items are originally purchased from both foreign and domestic sources, in most cases from excess inventories. They are then offered in the U.S. market at substantially reduced prices. The presence of these goods in the market has made price competition more intense. This has caused us to question the usefulness of weighted average pricing in this investigation. 56/

54/ Id.

56/ We shall inquire into pricing on a transaction basis in any final investigation.

<sup>52/</sup> Id. at A-36-A-49.

<sup>53/</sup> Id. at A-49-A-56.

<sup>55</sup>/ The use of the term "grey market" is a particular term of art in this industry and should not be confused with the term as it is used to describe unauthorized sales of trademarked goods.

The Commission did confirm many instances of lost revenues resulting from domestic producers being forced to reduce prices in the face of competition. <u>57</u>/ <u>58</u>/ Here too we have been hampered in our analysis because many instances of lost sales or lost revenues are ascribed to purchases of "Japanese product," without identifying whether it was an import from Japan or manufactured by a Japanese company outside Japan (perhaps even in the United States) or whether the quote came through normal distribution channels or the "grey market." However, imports from Japan were identified in several instances as the reason for price reductions.

There is no doubt that the 64K DRAM market has experienced a dramatic price decline, particularly in the latter half of 1984 and 1985. The profitability of U.S. producers has also declined during this period. Although prices of both U.S. producers and Japanese importers declined, it is difficult to ascertain whether U.S. producers or the Japanese led the downward price spiral, or whether the downward price spiral was forced by market

#### 57/ Report at A-58-A-63.

58/ Commissioner Lodwick notes that several firms import from Japan and also perform at least some of the following activities in the United States: research and development, wafer fabrication, assembly, and testing and marking. These firms thus claim to be both importers and domestic producers. Since January 1984, total U.S. shipments of finished products from the companies which import from Japan have accounted for roughly half of apparent U.S. consumption of 64K DRAMS. At least some of these companies do not distinguish among their 64K DRAMS on the basis of where various production activities occurred in making offers to sell, so an analysis under these circumstances of whether imports undersell or oversell the domestic product is futile.

In addition, the actual volume of combined domestic and import shipments from these companies more than doubled from 1983 to 1984, and their market penetration increased substantially. During the first quarter of 1985, both the actual volume of shipments and the market penetration grew relative to year earlier levels. These results create a presumption that these companies compete aggressively in the market, and are not mere price followers trying to retain a flagging market position.

conditions other than the presence of the allegedly LTFV imports. However, in view of the large percentage of the market occupied by the allegedly LTFV imports and evidence of apparent lost sales and lost revenues, we find that there is a reasonable indication that those imports have caused material injury.

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VIEWS OF CHAIRWOMAN STERN AND COMMISSIONER ROHR ON A REASONABLE INDICATION OF THREAT OF MATERIAL INJURY BY ALLEGEDLY LTFV IMPORTS

The Trade and Tariff Act of 1984 provides specific guidance to the Commission on factors it should consider in analyzing the existence of a threat of material injury. These same factors are relevant in determining whether there is a reasonable indication of such threat.

First, the present investigation concerns injury by reason of allegedly LTFV rather than subsidized imports. Therefore, the first factor, the nature of the subsidy is not relevant.

Second, the best information available to the Commission at this stage of the investigation is that there has been a substantial increase in production capacity in Japan for 64K DRAMS since 1982. This has led to a serious oversupply situation in that country.  $\underline{1}$ / In the present circumstances of oversupply in the United States as well, the result of the Japanese overcapacity has been a tendency to decrease the price of imports rather than to increase their volume. The capacity situation in Japan indicates that this is likely to continue.

The third indicator of threat are the trends in the volume of imports and in import market penetration. The absolute volume of imports of 64K DRAMS from Japan increased rapidly until the first quarter of 1985 in which a slight decline from first quarter 1984 levels was reached. In contrast to absolute volume, Japanese import market penetration dropped by as much as 5-7 percentage points in 1984 and continued to show declines in 1985.

1/ Report at A-12. While there may be some reduction in the capacity to produce 64K DRAMs as that capacity is shifted to the production of other products, such as 265K DRAMs, we do not have sufficient reliable information at this time concerning such shifts.

In the particular circumstances of this case, the significance of the lack of increases in imports is less than in most cases. First, as noted in the Report, we know that import statistics and domestic consumption statistics are understated. Second, although their market share has declined, Japanese imports continue to retain a very large portion, over one-third, of the domestic market. Third, the threat we see facing the domestic industry is not a function, as it is in many cases, of the volume of imports. Rather, due to the current oversupply situation in the market, it is a function of the effects of the continually decreasing prices.

The fourth element of our threat consideration is the probability that imports will enter the United States at prices that will have a depressing or suppressing effect on domestic price. The current trend in import prices clearly indicates that imports are one of the major factors in the current price decline for 64K DRAMS. <u>2</u>/ Our analysis of market conditions, particularly the current significance of grey market segment of the market, which contains significant quantities of imports, indicate that the current trends are likely to continue.

The fifth element of our threat analysis concerns increases in inventories of merchandise in the United States. U.S. importers' inventories increased from 2.1 million units in 1982 to 2.5 million units in 1983 and then increased dramatically to 8.3 million units in 1984. In the first quarter of 1985, importers' inventories were over four times what they were in the first quarter of 1984, 7.2 million units compared to 1.6 million units. The ratio

2/ We note that allegations were made that petitioner itself initiated the current round of price declines in the market in October 1984. While this may be true, it is not sufficient to explain the subsequent price declines to the current level.

of total importer's inventories to producers' domestic shipments during the preceding period declined from 8.2 percent in 1982 to 2.3 percent in 1983, but rose to 4.1 percent in 1984. In the first quarter of 1985, the ratio was 4.1 percent compared to 1.1 percent for the first quarter of 1984. The ratio of total importers' inventories to producers' domestic open market shipments during the preceding period followed a similar trend.

The sixth element in the analysis of threat of material injury specified by Congress is the presence of underutilized capacity in the exporting country. As noted previously, there is evidence of significant underutilized capacity for the production of 64K DRAMs in Japan.

The seventh element specified by Congress for consideration by the Commission in its analysis of threat is the existence of any other demonstrable adverse trends indicating the probability that imports will be a cause of actual injury. In this context we note that most of the significant indicators of the injurious condition of this industry are based on developments in the first and second quarters of 1985. The amount of confidence with which this data, which is not generally as reliable as annual data, can be viewed varies. Whether it is deemed sufficiently probative to support a finding of a reasonable indication of actual injury, it is clearly sufficient to provide a reasonable indication of trends which threaten to cause injury.

The eighth factor in our threat analysis is the potential for product shifting. We do not believe there is sufficient information at this time to consider this a relevant factor.

Based on our analysis of all the factors discussed above, we conclude that there is a reasonable indication that there is a threat of material injury to the domestic industry producing 64K DRAMs from allegedly LTFV imports from Japan. Additional Views of Vice Chairman Liebeler

I determine that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of 64K dynamic random access memory components (64K DRAMS) from Japan which are allegedly sold at less than fair value (LTFV). I join in my colleagues' discussion of like product, domestic industry, and condition of the industry. I provide some additional observations on like product and domestic industry and my separate views on threat of material injury.

#### I. Like Product and Domestic Industry

Although the like product has been defined as the final sealed 64K DRAM integrated circuit chip, producers of the unencapsulated chip have been included as part of the domestic industry. I have two questions with this approach which I hope will be addressed by the parties if this case proceeds to a final investigation. First, should the like product also include unencapsulated chips? Second, if the unencapsulated chips are not part of the like product definition, then should the domestic industry include

producers of unencapsulated chips?<sup>1</sup>

## II. <u>Reasonable Indication of Threat</u>

I find a reasonable indication of threat rather than material injury in this case because it has only been in the first quarter of 1985 that any evidence of injury appears. In general, the factors that I consider indicative of injury or threat of injury are: (1) large and increasing market share, (2) high dumping margins, (3) homogeneous products, (4) declining prices and (5) barriers to entry to other foreign producers (low elasticity of supply of other imports).<sup>2</sup>

<sup>2</sup><u>Certain Red Raspberries from Canada</u>, Inv. No. 731-TA-196 (Final), USITC Pub. No. 1707 (June 1985) (Additional Views of Vice Chairman Liebeler).

<sup>&</sup>lt;sup>1</sup> In the preliminary determination of <u>Live Swine</u> and Pork from Canada, Inv. No. 701-TA-224 (Preliminary), USITC Pub. No. 1625 (December 1984), the Commission majority found that live swine were like fresh, chilled, and frozen pork. It would appear that unencapsulated chips and final sealed chips are no less similar in characteristics and uses than swine and pork. In the final investigation for Live Swine, Inv. No. 701-TA-224 (Final), USITC Pub. No. \_\_\_\_ (1985) the Commission unanimously determined that live swine and fresh, chilled, and frozen pork were different like products and that that the producers of swine were not part of the domestic pork producing industry. The fact that encapsulation takes place on opposite ends of the globe from wafer fabrication suggests that there may be two distinct industries in this case. As indicated by Live Swine, the Commission is not adverse to changing its definition of the domestic industry at the final determination.

In the present investigation, the import penetration ratio has remained steady at about one-third of apparent U.S. consumption. Although the share has not been increasing according to Commission data, our data is not as reliable as usual because the import data was gathered by questionnaire, rather than from Commerce Department data. There is, however, a reasonable indication that the share is large.

The alleged dumping margin is approximately ninety-four percent of the U.S. price. The products appear to be very similar, although there have been allegations of quality differences. There is substantial evidence that prices have been declining significantly in the recent past. Japan appears to be the main supplier of 64K DRAMS. These factors provide support for a finding of a reasonable indication of a threat to the domestic industry.

## INFORMATION OBTAINED IN THE INVESTIGATION

#### Introduction

On June 24, 1985, an antidumping petition was filed with the United States International Trade Commission and the U.S. Department of Commerce by Micron Technology, Inc., Boise, ID, on behalf of merchant manufacturers of 64K dynamic random access memory components (64K DRAM's). The petition alleges that an industry in the United States is materially injured, or is threatened with material injury, by reason of imports from Japan of 64K DRAM's of the N-channel metal oxide semiconductor type, provided for in item 687.74 of the Tariff Schedules of the United States (TSUS), which are alleged to be sold in the United States at less than fair value (LTFV). Accordingly, the Commission instituted a preliminary antidumping duty investigation (investigation No. 731-TA-270 (Preliminary)) under section 733(a) of the Tariff Act of 1930 to determine whether there is a reasonable indication that an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports from Japan of 64K DRAM's of the N-channel metal oxide semiconductor type.

Notice of the institution of the Commission's investigation and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the <u>Federal</u> <u>Register</u> of July 3, 1985 (50 F.R. 27498). <u>1</u>/ The conference was held in Washington, DC, on July 15, 1985. 2/

On July 19, 1985, Commerce instituted an antidumping duty investigation to determine whether 64K DRAM's from Japan are being, or are likely to be, sold in the United States at LTFV. 3/

The Commission's briefing and votes on this investigation were held on August 2, 1985. The statute directs that the Commission make its determination within 45 days after its receipt of the petition, or in this case, by August 8, 1985.

#### Previous Commission Investigations

The Commission has not previously conducted an investigation specifically on 64K DRAM's. However, the Commission conducted investigations in 1978-79 and in 1984-85, as discussed below, which included DRAM's among the subject products.

On December 7, 1978, pursuant to a request by the Subcommittee on Trade of the Senate Committee on Finance and the Subcommittee on International Finance of the Senate Committee on Banking, Housing, and Urban Affairs, the Commission instituted investigation No. 332-102 under section 332 of the Tariff Act of 1930 to examine the competitive factors influencing world trade in integrated circuits. A report on this investigation was transmitted, with confidential information included, to the Senate Committees on October 31, 1979. The Commission released a public report on the investigation on

1/A copy of the Commission's notice of institution is presented in app. A. 2/A list of witnesses appearing at the conference is presented in app. B. 3/A copy of Commerce's notice of institution is presented in app. C. November 16, 1979. 1/ The report examines developments in the integrated circuit industry, especially during 1974-78, on various topics including research, investment, shipments, exports, and imports. It outlines conditions of competition faced by U.S. producers in certain foreign markets and the influence of governments on the industry. The report identifies the principal economic factors that affect the growth of the U.S. industry, and compares the U.S. industry with the industry in Japan in several important aspects of performance during 1974-78.

On October 19, 1984, at the direction of the President, the United States Trade Representative (USTR) requested that the Commission prepare advice concerning the probable economic effects of providing duty-free treatment for U.S. imports of certain high-technology products (including 64K DRAM's). On October 26, 1984, in response to the request from the USTR, the Commission instituted investigation No. 332-199; subsequently, upon enactment of the Trade and Tariff Act of 1984 into law, it changed the cited investigation authority and instituted investigation No. TA-131(b)-9, effective October 30, 1984. A classified report and other classified information were transmitted to the USTR on December 14, 1984. After receiving authorization from the USTR, the Commission released a public version of the report in June 1985. 2/

#### The Product

#### Description and uses

A 64K DRAM is a monolithic integrated circuit with 65,536 storage cells (bits), each of which contains a miniature transistor and capacitor. The 64K DRAM is one of a series of DRAM's that have been produced with increasing densities since the 1K DRAM was first introduced in 1970. Following the introduction of the 4K and 16K DRAM's during the 1970's, the 64K DRAM was introduced around 1980. 64K DRAM's are now in the process of being superseded by 256K DRAM's. A 1 megabit (1 million bit) DRAM is also in process; pilot samples of the 1 megabit DRAM have been shipped to original-equipment manufacturer (OEM) users by at least one \* \* \*.

Information is stored in each 64K DRAM cell as an electrical charge (voltage) impressed on the capacitor that is connected to one of the transistor elements. Storage requires two different levels of energy—one to represent the binary digit "O" and another to represent the digit "1." The storage cells in the DRAM's are arranged in a rectangular matrix of columns and rows, which allows each cell to be accessed independently (random access). When a column or row is selected and activated, the cell transistor acts as a solid—state switch that connects the capacitor to the column or data

1/ Competitive Factors Influencing World Trade in Integrated Circuits, Report to the Subcommittee on International Trade of the Committee on Finance and the Subcommittee on International Finance of the Committee on Banking, Housing, and Urban Affairs of the United States Senate on Investigation No. 332-102 Under Section 332 of the Tariff Act of 1930, as Amended, USITC Publication 1013, November 1979.

2/ Probable Economic Effect of Providing Duty-Free Treatment for U.S. Imports of Certain High-Technology Products, Report to the President on Investigation No. TA-131(b)-9 Under Section 131(b) of the Trade Act of 1974, USITC Publication 1705, June 1985. line. The simultaneous selection of a row and column determines the specific cell address. The speed at which the cell can be addressed is called access time (expressed in nanoseconds (ns), or one-billionths of a second). DRAM's sold in the U.S. market are largely designed with an access time of either 150 ns or 200 ns.

The information stored on cell capacitors must be regenerated after each address (read sequence), since the charge is attenuated by the sharing of the cell capacitance with the capacitance of the data line. The charge is also attenuated by leakage across the cell capacitor plates. Because of the leakage, the energy on the cell capacitors is constantly sampled and maintained at a predetermined charge level by "threshold" amplifiers. A threshold amplifier is required to maintain the charge level on the cell capacitors connected to each data line. The required regeneration of the charge on cell capacitors makes the device "dynamic." Other random access memory devices called static RAM's (SRAM's) do not require the sampling and refresh charges, but SRAM's are more costly to produce because tight cell densities cannot be achieved.

DRAM's are produced in large numbers on a single silicon wafer; each of the uncased DRAM's is called a chip or a die. The process needed to produce the chips includes repeated photolithographic steps and the controlled introduction of impurity atoms (dopants) into the silicon crystal. After production and separation, the chips are wire bonded to lead frames and encapsulated (final sealed) for installation into printed circuit boards.

The production of 64K DRAM's is divided into three separate operations. The production of the chips on the wafer, called wafer fabrication, is the most difficult and costly operation. The process of wire bonding and encapsulation/final sealing (or installation into a plastic or ceramic case) is called assembly. Assembly operations are labor intensive and, for a number of producers, occur in developing countries. The final operations include testing and marking.

Pursuant to statute (19 U.S.C. 1304) and regulations (19 CFR 134.1), the U.S. Customs Service has determined the country of origin of an imported 64K DRAM is the location of the encapsulation (final sealing) operations, as constituting a substantial transformation to a new article of commerce. Chips produced in the United States and final sealed abroad do not bear the marking "Made in USA," but rather bear the marking of the country in which they were final sealed. Under customs regulations of the European Community and Japan, the country of origin is determined by the location of the wafer fabrication.

The 64K DRAM's imported into the United States from Japan and those produced by the petitioner and other domestic and foreign firms are essentially interchangeable. The devices are 16-pin dual inline packages and are pin-to-pin compatible; pin spacings and encapsulation are standard. The largest uses for 64K DRAM's are in computers, office machines, data processing equipment, and telecommunications equipment where digital information storage is needed.

#### U.S. tariff treatment

Imports of 64K DRAM's are classified under item 687.74 of the Tariff Schedules of the United States (TSUS). This tariff item provides for monolithic integrated circuits, including metal oxide semiconductor (MOS) memory devices containing transistor cells capable of storing retrievable data. DRAM's containing more than 40,000 transistor cells (bits) but not over 80,000 bits are classified under statistical annotation 687.7441.

Effective March 1, 1985, the column 1 rate of duty on imports of 64K DRAM's and certain other semiconductors was eliminated by Presidential Proclamation No. 5305 of February 21, 1985. Prior to that date, the rate of duty applied to imports of 64K DRAM's was 4.2 percent ad valorem. The elimination of the import duty was supported by domestic producers representing a large share of U.S. semiconductor production. <u>1</u>/ The rate of duty on imports into Japan of 64K DRAM's and other semiconductors was also eliminated on March 1, 1985. The U.S. rate of duty applied to imports from certain Communist countries (col. 2) is 35 percent ad valorem.

#### Nature and Extent of Alleged Sales at LTFV

According to the petition, imports from Japan of 64K DRAM's are being sold in the United States at LTFV. The petitioner constructed the Japanese foreign market value of a 64K DRAM to be \$1.36, 2/ and the U.S. price (allowing for the necessary statutory adjustments) of a Japanese 64K DRAM to be \$0.70. 3/ The resulting dumping margin, as alleged by the petitioner, is \$0.66 per unit, or 94 percent of the U.S. price.

#### The Domestic Market

#### Producers

The Commission sent producer's questionnaires to nine major firms known to produce either final-sealed 64K DRAM's or 64K DRAM chips in the United States. Questionnaires were also sent to eight other firms known to import final-sealed 64K DRAM's from Japan; it was believed that some of these firms also had some U.S. production of 64K DRAM's. Completed responses to the producer's questionnaire were received from all nine of the known producers and from three of the other firms. As guestionnaire returns were compiled and analyzed, it became apparent that the location and nature of "production" of 64K DRAM's varied widely from one firm to another. Some firms reported that their wafer fabrication, assembly, and final sealing occurred entirely in the United States; other firms reported that their wafer fabrication occurred in the United States, with assembly and final-sealing operations occurring in one of various developing countries; still other firms reported that their wafer fabrication took place in Japan, with assembly and final-sealing operations in the United States; and one firm reported that its wafer fabrication occurred in Japan, with assembly and final sealing in Singapore. A number of firms had a combination of one or more of the wafer fabrication/assembly/final-sealing

1/ The petitioner opposed the elimination of the duty, maintaining that the tariff elimination should be deferred until foreign countries remove their trade restrictions.

2/ Petition for the imposition of an antidumping duty on 64K DRAM's from Japan, June 24, 1985, p. 18.

3/ Ibid, p. 19.

combinations addressed herein. Each of the known "producers" and the nature of their production operations are discussed below.

Advanced Micro Devices (AMD), Austin, TX, produced 64K DRAM chips in facilities in Austin, TX, and Sunnyvale, CA, until May 1985, when production was \* \* stopped, reportedly (according to AMD's questionnaire response) owing to "\* \* \*." The chips produced in these facilities were shipped to an AMD facility in the Philippines, where they were wire bonded and final sealed. Testing and marking operations of the final-sealed units were also performed in the Philippines. AMD reported that in 1984 the foreign-content share of the final value of its domestic shipments of 64K DRAM's was \* \* \* percent. AMD supports the petition in this investigation.

<u>AT&T Technology Systems</u> (AT&T), Berkeley Heights, NJ, produces 64K DRAM's for captive use at its \* \* \*. AT&T's 64K DRAM's are transferred to AT&T plants that manufacture telephone switching equipment and other end products. AT&T reported \* \* \* foreign content for its production of 64K DRAM's. Its average annual production capacity for 64K DRAM's \* \* \*. In addition to \* \* \* produced 64K DRAM's, AT&T has been a significant purchaser of \* \* \* 64K DRAM's. AT&T stated in its response to the Commission's questionnaire that it takes no stance on the petition in the subject investigation.

<u>Fujitsu Microelectronics, Inc.</u> (FMI), is wholly owned by Fujitsu, Ltd. (Japan). FMI final seals 64K DRAM's in its San Diego, CA, facility from chips produced in Japan by Fujitsu, Ltd. Operations performed in the San Diego facility include wire bonding, final sealing, and testing. In 1984, the facility had an average capacity to final seal \* \* \* 64K DRAM's. Capacity on an annual basis \* \* \* during January-March 1985 to \* \* \* units. FMI reported that in 1984 the foreign-content share of the final value of its domestic shipments of its 64K DRAM's final sealed in the United States was approximately \* \* \* percent. FMI is also an importer of 64K DRAM's that are final sealed in Japan. FMI does not support the petition in the subject investigation, claiming (in its questionnaire response) that "\* \* \*."

<u>Hitachi Semiconductor America, Inc.</u> (HISUS), Irving, TX, is fully owned by Hitachi, Ltd. (Japan). HISUS reported an average capacity to final seal \* \* \* 64K DRAM's in Irving, TX, in 1984, having \* \* \* the size of that facility in August 1982. The 64K DRAM's final sealed by HISUS are from chips produced in Japan by Hitachi, Ltd. HISUS reported that in 1984 the foreign-content share of the 64K DRAM's final sealed at its Irving, TX, facility amounted to \* \* \* percent of the total value. The units final sealed at the Irving, TX, facility are \* \* \*.

IBM Corp. (IBM), Armonk, NY, produces 64K DRAM's for captive use at its \* \* IBM produces (1) \* \* \* 64K DRAM's, (2) \* \* \*, and (3) 64K chips \* \* \*. <u>1</u>/ IBM's average annual domestic production capacity for 64K DRAM's went from \* \* \* in 1982 to \* \* \* units by 1984, and was \* \* \* units during January-March 1985 on an annualized basis. IBM reported \* \* \* foreign content for its domestically produced 64K DRAM's. In addition to producing

1/ IBM does not consider these \* \* \* to be \* \* \* 64K components, since the \* \* \* have \* \* \* that distinguish them from \* \* \* 64K DRAM's. Therefore, the data provide by IBM in its response to the Commission's questionnaire in this investigation do not include data on such \* \* \*.

64K DRAM's, IBM is a \* \* \* purchaser of \* \* \* 64K DRAM's. IBM also produces 64K DRAM's in \* \* \* and in \* \* \*, but \* \* \* the United States. IBM stated in its response to the Commission's questionnaire that "we have no opinion on this investigation."

Intel Corp., Santa Clara, CA, produced 64K DRAM chips at its Hillsboro, OR, facility until March 1985. After fabrication, the chips were shipped to Intel facilities in Malaysia and Barbados for wire bonding and final sealing. Intel reported that in 1984 the foreign-content share of the final value of its domestic shipments of 64K DRAM's was \* \* \* percent. Intel has withdrawn from the 64K DRAM N-channel market because (as reported in its questionnaire response) "\* \* \*." Intel supports the petition in this investigation, stating in its questionnaire response that "\* \* \*."

<u>Micron Technology, Inc.</u>, Boise, ID, is the petitioner in this investigation. Micron produces 64K DRAM's in a vertically integrated facility in Boise, ID. All operations are performed at the Boise facility, including wafer fabrication, assembly, final sealing, and testing. Micron has subcontracted a share of the wire bonding, assembly, and final-sealing operations to assemblers in the Philippines (in \* \* \*) and in the Republic of Korea (\* \* \*). In 1984, \* \* \* percent of the quantity of Micron's production of 64K DRAM's was final sealed in the Republic of Korea. Micron reported that in 1984, the foreign-content share of the final value of its domestic shipments of 64K DRAM's final sealed in the Republic of Korea was between \* \* \* and \* \* \* percent. Micron reported that in 1984, the foreign content share of the final value of all its domestic shipments of 64K DRAM's was less than \* \* \* percent.

<u>Mostek Corp.</u>, Carrollton, TX, is a division of United Technologies Corp., Hartford, CT. Mostek produces 1/ 64K DRAM chips at facilities in Carrollton, TX, and Colorado Springs, CO. Wire bonding and final sealing are mainly done at two Mostek facilities in Malaysia and a Mostek facility in the Republic of Ireland; however, Mostek also final seals some of its 64K DRAM's in the United States. Annual production capacity at Mostek's two domestic facilities was reported to be \* \* \* final-sealed units during \* \* \*. The foreign-content share in 1984 of the final value of Mostek's domestic shipments of 64K DRAM's final sealed abroad was \* \* \* percent. Mostek reported in its questionnaire response that it reduced its workforce in May 1985 "due to \* \* \* 64K DRAM's." Recent reports indicate that \* \* \*. Mostek supports the petition in the subject investigation.

<u>Motorola, Inc.</u>, Schaumburg, IL, produces 64K DRAM chips in facilities in Austin, TX and Chandler, AZ. Prior to July-September 1984, the chips were shipped to a Motorola facility in Malaysia, where the wire-bonding and final-sealing operations were performed. Since that time, a share of these final-sealing operations has been performed in Arizona. At yearend 1984,

1/ Mostek produces \* \* \* and also \* \* \*. Data for Mostek appearing in this report include the 64K DRAM's in \* \* \*, although a spokesman for Mostek stated that the \* \* \* has a totally different \* \* \* than a \* \* \*. Mostek's \* \* \* accounted for \* \* \* percent of the quantity of its domestic shipments of all 64K DRAM's in 1982, \* \* \* percent in 1983, \* \* \* percent in 1984, and \* \* \* percent in January-March 1985.
Motorola reported that the practical annual capacity in the United States to final seal 64K DRAM's \* \* \* units. Capacity \* \* \*. The foreign-content share in 1984 of the final value of Motorola's domestic shipments of 64K DRAM's was \* \* \* percent. Motorola supports the petition in the subject investigation, and claimed in its questionnaire response that "\* \* \*."

<u>National Semiconductor Corp.</u>, Santa Clara, CA, produced 64K DRAM chips in a facility in West Jordan, UT, and performed wire bonding and final sealing in Thailand. The foreign-content share in 1984 of the final value of National's domestic shipments of 64K DRAM's was \* \* \* percent. The Utah facility was effectively closed in early 1985. The chips produced at the facility were manufactured under a license from Oki Semiconductor Group of Oki America, Inc. National reported that during 1984, about \* \* \* percent of its production was purchased by Oki, but Oki \* \* \*. In 1984, National also \* \* \* Micron; however, National reportedly never \* \* \* Micron \* \* \* because of market price deterioration. National supports the petition in the subject investigation.

<u>NEC Electronics, Inc.</u> (NEC), Mountain View, CA, wholly owned by NEC Corp., Tokyo, Japan, produces 64K DRAM's at facilities in Mountain View, CA, and Roseville, CA. 64K DRAM chips are produced at both facilities, but the chips produced in \* \* \*. NEC reported that in 1984 the foreign-content share of the final value of its domestic shipments of 64K DRAM's final sealed at its U.S. facilities was \* \* \* percent; the foreign-content share \* \* \* in January-March 1985. NEC is also a \* \* \* importer of final-sealed 64K DRAM's produced in Japan. NEC does not support the petition in the subject investigation.

Texas Instruments, Inc. (TI), Dallas, TX, final seals only \* \* \* 64K DRAM's in the United States, \* \* \*. Most of TI's 64K DRAM chips are produced in Miho, Japan, by Texas Instruments Japan, Ltd.; wire bonding and final sealing are generally done in Singapore by Texas Instruments Singapore, Ltd. Most of TI's 64K DRAM's sold in the United States are final sealed in Singapore. A small share of TI's 64K DRAM chips produced in Japan \* \*\*. TI estimates that in 1984, the foreign-content share of the final value of its domestic shipments of 64K DRAM's final sealed in Singapore was \* \* \* percent. The foreign-content share of the final value of TI's domestic shipments of 64K DRAM's \* \*.

TI states that it experienced a \* \* \* of over \* \* \* percent in 64K DRAM volume from 1982 to 1983, and again from 1983 to 1984. TI accommodated \* \* \* by opening wafer fabrication facilities in Miho, Japan, and \* \* \*. \* \* \* was satisfied through an upgrading of a facility in \* \* \*, coupled with improved utilization of its other facilities. However, TI stated that severe conditions have affected the industry, both in the United States and worldwide. TI has determined that as a result of market conditions, it will \* \* \*.

TI supports the petition in this investigation. TI stated in its questionnaire response that it considers itself to be "part of the relevant industry alleged to be injured."

#### U.S. importers from Japan

Information provided by the U.S. Customs Service identified approximately 75 importers of 64K DRAM's from Japan during fiscal years 1983, 1984, and 1985 (up to April 1985). Commission questionnaires were sent to eight of the importers, believed to account for over 90 percent of total imports from Japan, classified under statistical annotation 687.7441 of the Tariff Schedules of the United States Annotated (TSUSA) during the period covered by this investigation. Seven of the eight importers responded to the importer's questionnaire sent by the Commission. In addition, a "sister company" of one of the importers responded to the importer's questionnaire, and data on imports from Japan from another source (\* \* \*) were obtained from \* \* \*. Eight of the ten known importers are subsidiaries of companies in Japan, one is a U.S. importer/ distributor, and the remaining importer is \* \* \*. Each of the companies is discussed below.

<u>Cal-Circuit ABCO, Inc.</u> (CALABCO), Woodland Hills, CA, is a U.S. distributor that imports 64K DRAM's directly from Japan. CALABCO refused to respond to the Commission's questionnaire, stating that the information requested is the subject of litigation and is subject to a stipulated protective order. Industry sources indicated that CALABCO is being sued by NEC Electronics, Inc.

<u>Fujitsu Microelectronics, Inc.</u> (FMI), Santa Clara, CA, is wholly owned by Fujitsu, Ltd., Tokyo, Japan. FMI imports final-sealed 64K DRAM's produced in Japan and also final seals 64K DRAM's in San Diego, CA. Final-sealed units imported and sold by FMI from Japan are \* \* \* percent Japanese content. \* \* \* also produces final-sealed 64K DRAM's, but FMI \* \* \* that source during the reporting periods.

<u>Hitachi America</u>, (HAL), Tarrytown, NY, is wholly owned by Hitachi, Ltd., Tokyo, Japan. HAL is an importer of final-sealed 64K DRAM's from Japan. It also imports final-sealed 64K DRAM's from \* \* \*, \* \* \*, and \* \* \*. In 1984, HAL imported from Japan \* \* \* 64K DRAM's, valued at \$\* \* \*, and imported \* \* \* 64K DRAM's, valued at \$\* \* \*, from countries other than Japan. HAL reported that the foreign-content share of the final value of its domestic shipments of 64K DRAM's imported from Japan was \* \* \* percent in 1984 and \* \* \* percent in January-March 1985. HAL's questionnaire response also indicates that the foreign-content share of its domestic shipments of 64K DRAM's imported from Japan was \* \* \* percent in 1984 and in January-March 1985, indicating that shipments were \* \* \* the original foreign-content share.

<u>Hitachi Semiconductor (America), Inc.</u> (HISUS), Irving, TX, is wholly owned by Hitachi, Ltd., Tokyo, Japan. HISUS imports final-sealed 64K DRAM's from its parent company in Japan, and it also final seals 64K DRAM's in its Irving, TX, facility. **\* \* \***.

<u>Mitsubishi Electronics America</u> (MELA), Sunnyvale, CA, is wholly owned by Mitsubishi Electric America, Inc. (MEA). MELA imports final-sealed 64K DRAM's from Japan and also obtains final-sealed 64K DRAM's from \* \* \*. MELA's reported foreign-content share of its imports of 64K DRAM's in 1984 was \* \* \* percent; however, the reported foreign-content share of the final value of its domestic shipments of its imports of 64K DRAM's in 1984 was \* \* \* percent. <u>Mitsubishi Semiconductor of America, Inc.</u> (MSAI), Durham, NC, is wholly owned by Mitsubishi Electric America, Inc. The parent company of MEA is Mitsubishi Electric Corp. (MELCO), Tokyo, Japan. MSAI imports final-sealed 64K DRAM's from Japan. The units imported from Japan are \* \* \* percent Japanese content. MSAI tests and ships \* \* \*. In November 1983, as part of a plan to produce 64K DRAM's in the United States, MSAI began to final-test certain 64K DRAM's ultimately \* \* \*. MSAI apparently began limited production of 64K DRAM's in Durham, NC, in April 1985. 1/

<u>NEC Electronics, Inc.</u> (NEC), Mountain View, CA, is wholly owned by NEC Corp., Tokyo, Japan. NEC Electronics imports final-sealed 64K DRAM's from NEC Corp. NEC Electronics reported that in 1984 the foreign-content share of the final value of its U.S. shipments of its 64K DRAM's imported from Japan was \* \* \* percent. Final-sealed 64K DRAM's are also produced by NEC Corp. \* \* \*, but NEC \* \* \* from that source during the period under investigation.

<u>Nissei Sangyo America, Ltd.</u>, Rolling Meadows, IL, is a wholly owned subsidiary of Nissei Sangyo Co., Ltd., Tokyo, Japan, which in turn is approximately \* \* \* percent owned by Hitachi, Ltd. All of the 64K DRAM's imported by Nissei Sangyo were final sealed \* \* \*. In 1984, the foreign-content share of the final value of Nissei Sangyo's U.S. shipments of 64K DRAM's imported from Japan was \* \* \* percent.

Oki Semiconductor Group of Oki America, Inc. (Oki), Sunnyvale, CA, is wholly owned by Oki Electric Co., Ltd. (Japan). Oki reported that in 1984 the foreign-content share of the final value of its domestic shipments of 64K DRAM's imported from Japan was \* \* \* percent. On \* \* \*, 1982, Oki entered into a contract with National Semiconductor Corp., Santa Clara, CA, in which Oki licensed National to produce 64K DRAM's in West Jordan, UT (wire bonding and final sealing were done in Thailand). In 1984, over \* \* \* percent of Oki's domestic sales of 64K DRAM's consisted of National's product. The National facility was effectively closed early in 1985.

\* \* \*.

#### Apparent U.S. consumption

The following tabulation, compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, presents information collected on the total apparent U.S. consumption (including captive consumption) and apparent U.S. open-market (merchant market) consumption of 64K DRAM's (in thousands of units):

Period	Total apparent consumption	<u>Apparent</u> <u>open-market</u> <u>consumption</u>
1982	45,425	***
1983	150,454	***
1984	287,211	***
January-March		
1984	59,017 <sup>*</sup>	***
1985	59,396	×××

The consumption data in the above tabulation are composed of reported shipments of 64K DRAM's, whether domestic or imported, in the U.S. market by each of the known major entities (producers and importers) supplying 64K DRAM's to the market. The consumption totals exclude shipments from smaller producers and importers that were not surveyed by the Commission's questionnaires, and exclude resales such as sales from inventory by customers and so-called grey market sales. <u>1</u>/

Total apparent U.S. consumption of 64K DRAM's increased from 45.4 million units in 1982 to 150.5 million units in 1983, or by 231.2 percent, and increased to 287.2 million units in 1984, or by 90.9 percent. Total apparent consumption in January-March 1985 increased by 0.6 percent from the level in the corresponding period of 1984.

Apparent U.S. open-market consumption of 64K DRAM's increased from \* \* \* units in 1982 to \* \* \* units in 1983, or by \* \* \* percent, and increased to \* \* million units in 1984, or by \* \* \* percent. Apparent U.S. open-market consumption in January-March 1985 decreased by \* \* \* percent from the level in the corresponding period of 1984.

# Channels of distribution

Producers of 64K DRAM's cover the merchant market through three channels of distribution: (1) sales to end users, i.e., original-equipment manufacturers, (2) sales to distributors, and (3) sales on the spot market. Sales to OEM's are either factory direct or through a factory representative. So-called sales to house accounts bypass the factory rep system and are usually direct factory sales to large OEM's. Micron's "house accounts" include such purchasers as \* \* \*, \* \* \*, and \* \* \*, and amount to about \* \* \* to \* \* \* percent of Micron's total shipments. Factory sales through manufacturers' reps account for \* \* \* to \* \* \* percent of its total shipments and sales to distributors amount to \* \* \* to \* \* \* percent. Casual sales, i.e., "spot market" sales, account for the balance. 2/

Factory direct sales to OEM's are long-term contract sales. Such contracts range from 3 months to 1 year and call for scheduled deliveries, usually monthly, during the contract period.  $\underline{3}$ / Most factory direct contract sales provide for renegotiating price on the downside of the market.  $\underline{4}$ /

1/ Smaller importers not surveyed by the Commission's questionnaires include brokers who are importers of record, wholesalers, and some OEM's. At least some of these importers may be active in the low-priced "grey market."

2/ According to Micron, the distribution of sales volume among the three channels for most of the industry \* \* \*. Micron estimates that the general pattern is \* \* \* to \* \* \* percent of shipments are factory direct (to house accounts and sales through factory reps), \* \* \* to \* \* \* percent to distributors, and the balance (\* \* \* to \* \* \* percent) are casual sales.

3/ The third quarter of the year is the usual time for negotiating contracts with OEM's.

4/ Contract sales to \* \* \*. Prices to \* \* \* are rarely renegotiated during the contract period. \* \* \*. In contrast, \* \* \* renegotiate price during the contract period.

Sales to distributors provide broad market coverage and access to smaller accounts. Although authorized distributors have both stocking and reporting requirements, they also have price protection. The relatively short life cycle of a particular DRAM (because of the fast-paced technology) and the volatile "boom and bust" nature of the market for DRAM's strongly affect price. Consequently, the industry practice is to offer price protection to authorized distributors. Such protection takes the form of "meet competition" allowances, or as Micron terms it, "ship and debit" authorizations. This policy enables distributors to quote and sell competitively and supply from inventory purchased at higher prices. \* \* \* estimates that 30 percent of the memory business flows through distributors. At this time, says \* \* \*, the distribution network accounts for the largest share of the 256K DRAM market. The switch-over to 256K DRAM's has been faster for smaller accounts than for the large OEM's. \* \* \* explains that "product qualification" procedures to be "approved" by OEM's involve a longer time span.

The casual or spot market is the third channel of distribution. This market includes sales to "board stuffers," brokers, small OEM's, and so forth, and so-called walk-ins. These purchasers are making a one-time purchase for quick delivery. Terms are usually cash, but can be on credit. This market is sometimes called the "grey market," especially referenced to sales to brokers. Brokers take a position (take title) and look for a price to enable them to resell at a profit. Such spot-market purchasers may call direct to the factory, call a manufacturer's rep, call a distributor, or buy over the counter. \* \* \* characterizes the grey market as a "wheeler-dealer" channel of distribution. Brokers "find a need, seek out a vendor, take the product, and ship it." In times of shortage, \* \* \* believes that the "grey market" can amount to 20 percent of the market. In times of low prices on the downside of the demand cycle, because of inventory overhang, \* \* \* states that "you see a lot of the Japanese DRAM's coming in through the grey market." 1/ According to \* \* \*, Japanese producers such as NEC, Fujitsu, and Hitachi insulate their participation in the grey market by selling to trading companies who, in turn, sell to the brokers and wholesalers who resell to minor OEM's, board-stuffers, and others. \* \* \* asserts that it does not operate in the grey market.

Hitachi, queried by Commission staff as to the marketing pattern of Japanese producers, explained that the three channels of distribution are utilized by importers as well as by producers to cover the market.

#### The Industry in Japan

Approximately 10 firms produce 64K DRAM's in Japan. The largest of these firms is Hitachi, Ltd., which accounted for 25 percent of Japanese shipments of 64K DRAM's in 1983, followed by Nippon Electric Co. (with 24 percent), Fujitsu, Ltd. (17 percent), and Toshiba Corp. (11 percent). Along with Mitsubishi Electric Co. (11 percent) and Oki Electric Co. (6 percent), these firms accounted for 94 percent of 64K DRAM production in Japan. <u>2</u>/ Texas Instruments also produces 64K DRAM's in Japan, although wire bonding and final sealing are performed in Singapore. Texas Instruments accounted for an

1/ It is believed that the grey market also includes significant quantities of domestically produced 64K DRAM's.

<u>2/ The Japanese Semiconductor and IC Industry</u>, Yano Research Institute, Ltd., April 1984, p. 41. estimated 3 percent of Japanese shipments of 64K DRAM's. Producers in Japan reportedly export in excess of 50 percent of their 64K DRAM production to the United States.

Official Japanese statistics do not separately provide for 64K DRAM's. Data published on semiconductors are disaggregated to the level of MOS memories that include read-only memories, SRAM's, and DRAM's other than 64K DRAM's (such as 16K DRAM's and 256K DRAM's). Based on information published by the Yano Research Institute, DRAM's accounted for approximately 31 percent of MOS memory devices produced in Japan in 1983, and 64K DRAM's accounted for a large share of total DRAM production. Data on production of MOS memories in Japan are shown in table 1.

	:		~: ·			
Item	:	1982	:	1983	:	1984
			:		:	·.
	* •		':-		:	<i>.</i>
Quantity1,000 un:	its—:	-311,477	7 :	740,621		1,152,252
Valuemillion	yen—:	140,873	3 .:	367,256	:	753,711
Unit valueyen per u	nit—:	452	2:	496	:	654
	:		•	5		

.

Table 1.—MOS memories: Production in Japan, 1982-84

Source: Electronics Industries Association of Japan.

Production of MOS memories in Japan increased by 137.8 percent between 1982 and 1983, and by 55.6 percent between 1983 and 1984. The ability of producers in Japan to increase production of MOS memory from 311 million units in 1982 to 1.15 billion units in 1984 indicates that a significant increase in production capacity may have occurred during the period. In a study of Japanese semiconductor producers, John J. Laszlo, Jr., of the investment advisory firm Hambrecht & Quist, stated that:

> "Since 1982, the major Japanese semiconductor companies have added capacity at a faster rate than have the major U.S. semiconductor suppliers. The majority of the spending has been allocated to MOS memory production. . . Currently, there is excess capacity in Japan. Capital spending increased an estimated 100% in 1984 over 1983 and is expected to increase 25% or more in 1985, further aggravating the over-capacity situation. The severe imbalance between supply and demand should result in further sharp price declines in 1985, particularly for commodity devices such as 64K DRAM's . . . " <u>1</u>/

According to the research firm Dataquest, San Jose, CA, Japanese production in 1984 of 64K DRAM's was 485 million units...2/ Japanese

1/ John J. Laszlo, The Japanese Semiconductor Industry: Aggressive Capital Expansion Could Deleteriously Impact Industry Profitability in 1985, January 1985, as quoted in the postconference brief of Dewey, Ballantine, Bushby, Palmer & Wood in the subject investigation, July 18, 1985, p. 22.

<u>2</u>/ Postconference submission of Dr. William F. Finan, Quick, Finan & Associates, July 18, 1985, p. 3.

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manufacturers of 64K DRAM's and 256K DRAM's reportedly began increasing production of 256K DRAM's and substantially cutting production of 64K DRAM's in 1984. 1/ In the first quarter of 1985, Japanese production was at an annual rate of 442 million, 2/ or a decrease from the 1984 level of 8.9 percent. 3/

### Consideration of Alleged Material Injury

The information in this section of the report has been compiled from responses to questionnaires of the U.S. International Trade Commission. The 12 producing firms  $\underline{4}$  that provided completed questionnaire responses accounted for an estimated over 90 percent of total U.S. production of final-sealed 64K DRAM's in 1984.

Some of the problems associated with identifying "production" and "producers" in the 64K DRAM industry are discussed in the section of this report entitled "Producers." However, to further complicate the situation, upon analyzing the questionnaire responses, it became apparent that the domestic-content share 5/ based on the final value of domestic shipments of 64K DRAM's varies widely from one company to another, and sometimes even varies widely for given companies from one year or period to another.

In order to concisely yet comprehensively present the data collected on producing firms' production, shipments, exports, and inventories, data in this section of the report are presented separately for each firm, and data for firms are also grouped into three categories. The first category consists of those firms for which the reported domestic-content share of the final value

<u>1</u>/ <u>Solid State Technology</u>, November 1984, p. 14, as cited in the postconference brief in this investigation of Metzger, Shadyac & Schwarz, p. 34.

2/ Postconference submission of Dr. Finan, p. 3.

 $\underline{3}$ / Ibid. The postconference submission of Dr. Finan adds that (based on Dataquest's data), the annualized first quarter production of U.S. 64K DRAM producers decreased by 40 percent from that of 1984.

4/ National's questionnaire response was received too late to be included in the tables appearing in this section of the report. National accounted for approximately \* \* \* percent of producers' total domestic shipments in 1984.

5/ The Commission's producer questionnaire requested producers to report the "share (in percent) of final value (of domestic shipments) accounted for by foreign value content." All producers provided these data as requested. The term "domestic--content share" referred to in this report is simply the reciprocal of the reported share of foreign-value content. For example, if a producer reported that its share of foreign-value content was 30 percent, then the domestic-content share is reported in this report as 70 percent. However, assuming that the reciprocal of the share of foreign-value content is the domestic-content share may overstate domestic content if the 64K DRAM was sold at a gross profit (in which case the gross profit portion of the final value of shipments would be included in the domestic-content share), and the domestic content may be understated if the 64K DRAM were sold at a loss. Another method of determining domestic content would be to examine the domestic- and foreign-content proportions of the cost of goods sold. These proportions are reported in the section of this report entitled "Financial experience of producers," and in several instances differ significantly from the domestic-content share based on the reciprocal of the reported share of foreign-value content.

of domestic shipments of their final-sealed 64K DRAM's in 1984 exceeded 90 percent; there are \* \* \* such firms: \* \* \*. The \* \* \* firms collectively are addressed in the text as the "over-90-percent group." The second category consists of those firms for which the domestic-content share of the final value of domestic shipments of their final-sealed 64K DRAM's in 1984 ranged from over 50 percent to \* \* \* percent; there are \* \* \* such firms: \* \* \*. These \* \* \* firms are collectively referred to in the text as the "50-to-90-percent group." The third category consists of \* \* \*, for which the domestic-content share of the final value of domestic shipments of \* \* \* final-sealed 64K DRAM's in 1984 was \* \* \* percent. The over-90-percent group and the 50-to-90-percent group combined will be referred to in the text as the "over-50-percent group." The selection of the percentage "breaks" for each group was not arbitrary, but rather the result of a natural break that was manifested when each firm's domestic-content share of the final value of its domestic shipments in 1984 was listed.

### Production, capacity, and capacity utilization

Data on production obtained from responses to the Commission's questionnaire sent to producers are presented in table 2. Production of final-sealed 64K DRAM's by the over-90-percent group, the over-50-percent group, and all producers increased by \* \* \* percent, \* \* \* percent, and 302.3 percent, respectively, between 1982 and 1983. Between 1983 and 1984, production increased by \* \* \* percent, \* \* \* percent, and 102.4 percent, respectively. Comparing January-March 1984 with January-March 1985, production by the over-90-percent group, the over-50-percent group, and all producers increased by \* \* percent, \* \* \* percent, and 55.4 percent, respectively.

Capacity data requested in the Commission's questionnaire consisted of end-of-period (and also average-for-period) capacity to produce final-sealed 64K DRAM's in the United States in 1982, 1983, 1984, January-March 1984, and January-March 1985. Ten of the companies that reported production of 64K DRAM's reported that they also had capacity to final seal 64K DRAM's in the United States; the other company (\* \* \*) reportedly final seals all of its 64K DRAM's abroad. Data on U.S. production, capacity, and capacity utilization of final-sealed 64K DRAM's are shown in table 3.

End-of-period and average-for-period capacity to final seal 64K DRAM's in the United States increased by 208.4 percent and 239.7 percent, respectively, in 1983, and by 210.3 percent and 169.2 percent, respectively, in 1984. Capacity on March 31, 1985, was 135.4 percent above capacity on March 31, 1984, and average capacity for January-March 1985 was 170.4 percent above the average capacity for January-March 1984.

End-of-year capacity utilization was 31.8 percent in 1982, 58.6 percent in 1983, and 51.5 percent in 1984. Capacity utilization as of March 31, 1985, was 56.6 percent, representing a decrease from the 58.9 percent capacity utilization as of March 31, 1984. Average-for-period capacity utilization was 50.5 percent in 1982, 84.5 percent in 1983, 85.7 percent in 1984, and 59.8 percent for the first quarter of 1985 compared with 71.5 percent for the corresponding quarter of 1984.

	(In tl	nousands of	<sup>*</sup> units)				
: Them	1002	. 1000	: 1004	January-	January-March		
1. tem ::	1982		: 1984 :	1984	1985		
: Over 90 percent domestic- : content share: * * *	***	: : : <del>XXX</del>	: : : <del>XXX</del>	: : : <del>***</del>	: : : <del>***</del>		
Subtotal	***	: <del>***</del>	: ***	: ***	: ***		
Over 50 to 90 percent : domestic content- : share: :		: :`	:	: : :	: :		
* * * 2/:	***	: ***	: ***	: ***	: <del>***</del>		
Subtotal	***	: <del>XXX</del> : :	: <del>***</del> : :	: *** : :	: <del>***</del> : :		
content share	***	: <del>***</del>	: <del>***</del> :	: <del>***</del>	: *** :		
content share: : * * *:	***	: : <del>***</del>	: <del>***</del>	: <del>***</del>	: : <del>***</del>		
Total:	***	: <del>XXX</del>	: ***	: <del>***</del>	: ***		
Grand total	33,129	: 133,265	: 269,756	: 45,713 :	: 71,040		

Table 2.—64K DRAM's: Production, by domestic-content shares <u>1</u>/ and by producers, 1982-84, January-March 1984, and January-March 1985

<u>1</u>/ Production is grouped on the basis of the domestic content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984. <u>2</u>/ \* \* \* production data include \* \* \* amounts of production in 1984 and January-March 1985 that were "drop shipped" mainly to foreign countries directly from \* \* \* facilities in \* \* \*.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

### Producers' domestic shipments

Data on producers' domestic shipments obtained from responses to the Commission's questionnaire are presented in table 4. Shipments of final-sealed 64K DRAM's by the over-90-percent group, the over-50-percent group, and all producers, increased by \* \* \* percent, \* \* \* percent, and 315.6 percent, respectively, between 1982 and 1983. Between 1983 and 1984, shipments increased by \* \* \* percent, \* \* \* percent, and 86.0 percent, respectively. Comparing January-March 1984 with January-March 1985, shipments by the over-90-percent group, the over-50-percent group, and all producers increased by \* \* \* percent, \* \* \* percent, and 12.2 percent, respectively.

The trends for domestic shipments of merchant producers are similar to the trends for overall shipments (table 5). Merchant producers' domestic shipments of final-sealed 64K DRAM's by the over-90-percent group, the over-50-percent group, and all producers, increased by \* \* \* percent, \* \* \* percent, and 345.4 percent, respectively, between 1982 and 1983. Between 1983 and 1984, open-market shipments increased by \* \* \* percent, \* \* \* percent, and

Table 3.—Final-sealed 64K DRAM's: U.S. production, end-of-period capacity, average-for-period capacity, and capacity utilization, 1982-84, January-March 1984, and January-March 1985

		: 1002 :		January-March		
Ltem :	1982 :	1983	1984 :	1984	1985	
Production-1,000 units-:	: 5,705 :	: 32,434 :	: 88,5 <u>65</u> :	: 13,838 :	31,304	
End-of-period capacity : 1,000 units:	17,960 :	: 55,389	171,864	: 23,510 :	55,331	
Capacity utilization : percent:	: 31.8 :	: 58.6 :	: 51.5 :	58.9 :	56.6	
Average-for-period : capacity-1,000 units-:	11,300 :	: 38,386 :	: 103,321 :	: 19,349 :	52,328	
Capacity utilization : percent:	: 50.5 :	: 84.5 :	: 85.7 :	: 71.5 :	59.8	
•	•	•	•	•		

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

75.8 percent, respectively. Comparing January-March 1984 with January-March 1985, open-market shipments by the over-90-percent group, the over-50-percent group, and all producers increased by \* \* \* percent, \* \* \* percent, and 4.7 percent, respectively.

The value of merchant producers' domestic shipments of final-sealed 64K DRAM's by the over-90-percent group, the over-50-percent group, and all producers, increased by \* \* \* percent, \* \* \* percent, and 228.2 percent, respectively, between 1982 and 1983 (table 6). Between 1983 and 1984, the value of open-market shipments increased by \* \* \* percent, \* \* \* percent, and 57.6 percent, respectively. Comparing January-March 1984 with January-March 1985, producers' open-market shipments by the over-90-percent group, the over-50-percent group, and all producers decreased by \* \* \* percent, \* \* \* percent, and 41.9 percent, respectively; the decreases in value for each of the three groups contrast with the increases in the quantities of the groups' open-market shipments.

Unit values of domestic shipments of 64K DRAM's by merchant producers are shown in table 7. The unit values declined for each of the groups in each of the years and periods covered by this investigation. The declines in unit values are especially large for January-March 1985 compared with those in the corresponding period of 1984.

5, 4° .

#### Producers' exports

Data on producers' exports obtained from responses to the Commission's producer questionnaire are presented in table 8. Exports of final-sealed 64K DRAM's by the over-90-percent group, the over-50-percent group, and all

Table 4.—64K DRAM's: Quantity of producers' total domestic shipments (including captive shipments), by domestic-content shares <u>1</u>/ and by producers, 1982-84, January-March 1984, and January-March 1985

:	:	: :	:	January-March		
Item :	1982	1983	1984 - : :	1984	1985	
: Over 90 percent domestic- : content share: :	: : : :	: : : 	:::::::::::::::::::::::::::::::::::::::	: : : :	***	
Subtotal	<del>***</del>	*** :	*** :	<del>***</del>	***	
Over 50 to 90 percent : domestic content :	:	:	:			
Sildre * * *	<del>×××</del> ·	<del>***</del> ·	<del>***</del> ·	<del>***</del>	***	
Subtotal	***	**** *** :	**** : : :	**** : *** :	***	
content share: 1 to 50 percent domestic- : content share:	**** : :	**** : :	<del>****</del> **** :	××× : :	***	
* * *:	*** :	*** :	***	***	***	
Total:	*** :	<del>***</del> :	*** :	*** :	***	
Grand total	25,890 :	107,590 :	200,092 :	38,604 :	43,323	

(In thousands of units)

1/ Producers are grouped on the basis of the domestic-content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

producers increased by \* \* \* percent, \* \* \* percent, and 468.2 percent, respectively, between 1982 and 1983. Between 1983 and 1984, exports increased by \* \* \* percent, \* \* \* percent, and 186.7 percent, respectively. Comparing January-March 1984 with January-March 1985, exports by the over-90-percent group, the over-50-percent group, and all producers increased by \* \* \* percent, \* \* \* percent, and 118.3 percent, respectively.

The value of producers' exports of final-sealed 64K DRAM's by the over-90-percent group, the over-50-percent group, and all producers increased by \* \* percent, \* \* \* percent, and 293.1 percent, respectively, between 1982 and 1983 (table 9). Between 1983 and 1984, exports increased by \* \* \* percent, \* \* \* percent, and 153.4 percent, respectively. Comparing January-March 1984 with January-March 1985, exports by the over-90-percent group, the over-50-percent group, and all producers increased by \* \* \* percent, \* \* percent, and 20.8 percent, respectively.

The unit value of producers' export shipments of 64K DRAM's decreased for each group during each period for which data are presented (table 10). The unit values of exports are well below the unit values of producers' domestic open-market shipments. Table 5.—.64K DRAM's: Quantity of producers' domestic open-market shipments, by domestic-content shares <u>1</u>/ and by producers, 1982-84, January-March 1984, and January-March 1985

	•			January-March		
Item	1982	1983	1984 -	1984	1985	
Over 90 percent domestic- :	:	:	:	:		
content share: :	:	•	:	:		
* * *:	*** :	<del>***</del> :	<del>***</del> :	***	***	
Subtotal	*** :	*** :	*** :	*** :	***	
Over 50 to 90 percent :			:	:		
domestic content :	:	:	:	:	-	
share: :	:	:		:		
* * * 2/:	*** ;	*** :	*** :	<del>***</del> :	***	
Subtotal:	*** :	*** :	<del>***</del> :	*** :	***	
Total, over 50 :	:	:	:	:		
percent domestic- :	· •	•		:		
content share:	*** :	*** :	*** :	*** :	***	
1 to 50 percent domestic- :	:	•	:	:		
content share: :	:		•	:		
* * *	*** :	*** :	<del>***</del> :	*** :	***	
Total:	*** :	*** :	*** :	<del>***</del> :	***	
Grand total:	*** ;	*** :	*** :	*** :	***	

(In thousands of units)

<u>1</u>/ Producers are grouped on the basis of the domestic-content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984. 2/ \* \* \*.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

### Producers' inventories

Producers' inventories of 64K DRAM's decreased from 4.7 million units, as of December 31, 1982, to 4.6 million units, as of December 31, 1983, or by 1.6 percent (table 11). Inventories increased to 8.4 million units, as of December 31, 1984, or by 81.7 percent. Inventories on March 31, 1985, amounted to 14.3 million units, an increase of 161.2 percent compared with the level of inventories on March 31, 1984, and an increase of 70.4 percent compared with the level of inventories on December 31, 1984.

Analysis of the data presented herein on production, producers' domestic shipments, producers' exports, and producers' inventories, indicates that end-of-period inventory data plus production in the following period, minus producers' domestic shipments and producers' exports, do not result in the following period's end-of-period inventories shown in table 11. Among the reasons for the discrepancies are (1) data reported as "production" may include an undetermined number of 64K DRAM's that were found to be defective and were not reported as shipments, exports, or inventories, and (2) \* \* \*'s production data includes production that was dropped shipped mainly to foreign countries. Table 6.—-64K DRAM's: Value of producers' domestic open-market shipments, by domestic-content shares <u>1</u>/ and by producers, 1982-84, January-March 1984, and January-March 1985

	:	:	:	January-March		
Item	1982 <sup>:</sup>	1983 :	1984	1984	1985	
Over 90 percent domestic- : content share: : * * *	**** ****	: : : : : :	: : **** :		***	
Subtotal	***	***	*** :	***	***	
* * * 2/:	<del>***</del> :	<del>***</del> :	***	<del>***</del>	***	
Subtotal	***	*** :	*** : : :	*** :	***	
content share: 1 to 50 percent domestic- : content share:	*** :	*** :	*** : :	***	***	
* * *:	***	<del>***</del>	***	***	***	
Total:	***	*** :	<del>***</del> ;	*** ;	***	
Grand total:	124,852 :	409,743 :	645,608 :	140,997 :	81,948	

(In thousands of dollars)

<u>1</u>/ Producers are grouped on the basis of the domestic-content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984. 2/ \* \*.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

As a share of producers' total domestic shipments during the preceding year, inventories decreased from 18.2 percent, as of December 31, 1982, to 4.3 percent, as of December 31, 1983, and decreased to 4.2 percent on December 31, 1984 (table 12). The share was 8.3 percent, as of March 31, 1985, compared with 3.6 percent, as of March 31, 1984.

### Producers' employment and wages

The average number of production and related workers producing 64K DRAM's or 64K DRAM chips increased from 2,975 in 1982 to 4,340 in 1983, or by 45.9 percent, and increased further to 6,308 in 1984, or by 45.3 percent (table 13). The number of workers in January-March 1985 was 6,152, representing an increase of 11.8 percent from the 5,501 workers in the corresponding period of 1984, but a decrease of 2.5 percent from the average number of workers in calendar year 1984.

Table 7.—64K DRAM's: Unit value of producers' domestic open-market shipments, by domestic-content shares <u>1</u>/ and by producers, 1982-84, January-March 1984, and January-March 1985

	. (Pe	r unit)				
<b>T4</b>	:	:	:	January-March		
1 tem :	1982 : :	1983	1984	1984	1985	
: Over 90 percent domestic- : content share: :	:	• :				
* * * <sup>*</sup> *:_	<u> </u>	<u>\$*** :</u>	<del>\$***</del> :	\$ <del>***</del> ;	<u>\$***</u>	
Average:	<del>***</del> ;	<del>***</del> ;	<del>***</del> :	***	***	
Over 50 to 90 percent :	. :	:	· · · · ·	•		
domestic-content :	:	:	:	: 		
share: :	:	:	:	: · · · · :		
* * *:	· *** :	*** :	<del>***</del> :	*** :	y <del>XXX</del>	
Average:	*** :	<del>***</del> :	××× :	*** ;	***	
Average, over 50 :	:	:	:	· · · · · · · ·		
percent domestic- :_	:	:	. :			
content share:	<del>***</del> :	*** :	*** :	. <del>XXX</del> :	***	
1 to 50 percent domestic- :	:	:	:	:	. · ·	
content share: :	:	:				
* * *;	· · · · · · · ·	<del>***</del> ;	*** :	*** :	***	
Average:	*** :	*** :	***	*** :	***	
Average	*** :	*** :	***	· *** :	***	

1/ Producers are grouped on the basis of domestic-content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The total number of hours worked by production and related workers producing 64K DRAM's or 64K DRAM chips increased from 3.8 million in 1982 to 6.6 million in 1983, or by 74.5 percent, and increased further to 9.7 million in 1984, or by 47.8 percent. The total number of hours worked in January-March 1985 was 2.6 million, representing an increase of 17.7 percent from the 2.2 million hours worked in the corresponding period of 1984.

Total wages paid to production and related workers producing 64K DRAM's or 64K DRAM chips increased to \$74.5 million in 1983, and increased further to \$120.5 million in 1984, or by 61.8 percent in that year (table 14). Total wages paid in January-March 1985 amounted to \$33.0 million, representing an increase of 24.9 percent from wages paid in the corresponding period of 1984. The trends for total compensation were similar to those for wages paid.

Average hourly wages paid to production and related workers producing 64K DRAM's or 64K DRAM chips amounted to \$7.74 in 1982, \$8.04 in 1983, \$9.23 in 1984, \$9.19 in January-March 1984, and \$9.46 in January-March 1985. The trend in average hourly compensation is the same as that for wages paid.

Table 8	.—-64K	DRAM'	s: (	Quan	tity	of	pro	oducers'	export	shipment	cs, by	domestic-
conte	nt shai	res <u>1</u> /	and	by	produ	ıcer	٦s,	1982-84,	Januar	y-March	1984,	and
Janua	ry-Mar	ch 198	5									

	<u>(</u>		<u> </u>			
Ttom	:	:		January-March		
Item : :	1982	1983 :	1984	1984	1985	
: Over 90 percent domestic- : content share: :	:	:	:	:		
* * *:	<u>*** :</u>	<u>*** :</u>	<u>*** :</u>	<u>***</u> :	***	
Subtotal: Over 50 to 90 percent :	*** : :	<del>***</del> :	*** : :	**** : :	***	
domestic-content : share: :	:	:	:			
* * * 2/:	<del>***</del> :	<del>***</del> :	<del>***</del> :	<del>***</del> :	***	
Subtotal: Total, over 50 :	*** : :	<del>****</del> :	<del>***</del> : :	<del>***</del> : :	***	
percent domestic :_	• •	:	:	•		
content share: 1 to 50 percent domestic :	*** : :	<del>***</del> : :	*** :	• <del>***</del> :	***	
content share: :	:	:	:	:		
* * *:	*** :	<del>***</del> :	<del>***</del> :	<del>***</del> :	***	
Total	<del>***</del> :	*** :	*** :	<del>***</del> :	***	
Grand total:	2,348 :	13,342 :	38,245 :	5,406 :	11,801	

(In thousands of units)

1/ Producers are grouped on the basis of the domestic-content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984. 2/ In addition to the data reported, \* \* \* reported "drop shipments" mainly to foreign countries; the drop shipments were 64K DRAM's final-sealed in \* \* \*. The quantities of drop shipments reported were \* \* \* in 1982, \* \* \* units in 1983, \* \* \* units in 1984, \* \* \* units in January-March 1984, and \* \* \* units in January-March 1985.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

In response to a question on the Commission's questionnaire, several companies reported that they reduced the number of production and related workers producing 64K DRAM's by at least 5 percent or by 50 workers during January 1982 to June 1985. AMD reported a \* \* \* reduction of \* \* \* workers in May 1985 owing to the "\* \* \*." Intel reported \* \* \* reductions of \* \* \* workers on February 18, 1985, and \* \* \* workers on June 26, 1985, owing to a "\* \* \*;" the reductions reported by Intel may include worldwide reductions, since Intel employed an average of only \* \* \* workers on 64K DRAM's in the United States in 1984. Micron reported \* \* \* reductions of \* \* \* workers between February 15, 1985, and March 15, 1985, and \* \* \* workers between March 15, 1985, and April 15, 1985, all because of "\* \* \*." Mostek reported \* \* reductions of \* \* \* workers in February 1982 and \* \* \* workers in May 1985, all because of "\* \* \*;" the May 1985 reduction may include workers on other than 64K DRAM's, since Mostek's average number of workers producing 64K

Table 9.—	-64K DRAI	M's:	Value of	f producers	' export	shipments,	by do	mestic-
content	shares	<u>1</u> / and	by proc	lucers, 198	2—84, Ja	nuary-March	1984,	and
January-	-March 1	985						

			:	January-March		
Item	1982	1983	1984	1984	1985	
Over 90 percent domestic- : content share: : * * *:	: : : *** :	***	****	: : : : : :	***	
Subtotal	*** : : :	***	*** : : :	*** : :	***	
snare: : * * * 2/:	: <del>***</del> :	: <del>***</del> :	: <del>***</del> :	: <del>***</del> :	***	
Subtotal: Total, over 50 : percent domestic- :	*** :	*** :	*** : : :	*** : : :	***	
content share: 1 to 50 percent domestic- : content share:	***	*** :	*** :	*** `	***	
* * *:	*** :	***	*** :	*** :	***	
Total:	*** :	*** :	*** :	*** :	***	
Grand total	10,975 :	43,138 :	109,302 :	16,879 :	20,385	

(In thousands of dollars)

<u>1</u>/ Producers are grouped on the basis of the domestic-content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984. <u>2</u>/ Excludes \* \* \*'s drop shipments (\* \* \* reported quantities, but not values, for drop shipments).

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

DRAM's during January-March 1985 was only \* \* \*. Motorola reported \* \* \* reduction of \* \* \* workers between January and June 1985 owing to "\* \* \*." National reported \* \* \* reductions of \* \* \* workers on March 10, 1985, and \* \* \* workers on June 11, 1985, owing to "\* \* \*;" National's employment data do not appear in the tables because National's questionnaire response was received too late for inclusion in the data presented. Texas Instruments reported \* \* \* reductions of \* \* \* workers in January 1985 and \* \* \* workers in June 1985, all owing to the "\* \* \*."

Of the 11 producers responding to the Commission's questionnaire, only AT&T has production and related workers represented by a union. AT&T's workers are represented by the International Brotherhood of Electrical Workers. Table 10.--64K DRAM's: Unit value of producers' export shipments, by domesticcontent shares 1/ and by producers, 1982-84, January-March 1984, and January-March 1985

	<u>(</u> )	er unit)				
Item	:		: :	January-March		
	1982	1983	1984 : :	1984	1985	
Over 90 percent domestic- : content share: : * * *:	\$ <del>***</del>	\$ <del>×××</del>	: : : : : : : \$ <del>***</del> :	: : \$ <del>***</del> :	\$ <del>***</del>	
Average Over 50 to 90 percent : domestic-content : share:	***	***	*** : : : : : : : : : : : : : : : : : :	*** :	***	
* * *:	*** :	***	: <del>***</del> ;	*** ;	***	
Average Average, over 50 : percent domestic- :	*** :	***	**** : : :	*** : : :	***	
content share	***	***	**** : : : :	*** :	***	
* * *:	***	***	: <del>***</del> :	*** :	***	
Average	***	XXX	: <del>***</del> :	*** :	***	
Average:	4.67	3.23	2.86 :	3.12 :	1.73	

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1/ Producers are grouped on the basis of domestic-content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

# Financial experience of U.S. producers

Seven firms, 1/ which accounted for \* \* \* percent of the value of producers' open-market shipments in 1984 of 64K DRAM's, furnished usable income-and-loss data on their operations producing 64K DRAM's.

Operations on 64K DRAM's. --- Aggregate net sales of 64K DRAM's for the seven firms grew to \$356.2 million in 1983, and then increased by 81.9 percent to \$648.0 million in 1984 (table 15). During the interim period ended March 31, sales for five of the producers declined from \$153.3 million in 1984 to \$142.8 million in 1985, or by 6.9 percent. Aggregate operating losses were incurred in 1982 and 1983, which amounted to \$47.8 million and \$33.3 million, respectively. The operating loss margins were 48.8 percent in 1982 and 9.3 percent in 1983. In 1984, operating income surged to \$123.2 million, or 19.0 percent of sales. During the interim period ended March 31, 1984, in which only one of five firms reported an operating loss, operating income was \$35.3 million, or 23.1 percent of sales. During the 1985 interim period, however, with four of five producers reporting operating losses, the aggregate operating loss was \$8.3 million, or 5.8 percent of sales.

1/ The seven firms are AMD, Fujitsu, Intel, Micron, Mostek, Motorola, and TI.

Table 11.—64K DRAM's: Producers' inventories, by domestic-content shares 1/ and by producers, 1982-84, January-March 1984, and January-March 1985

	(In chous	dinus un uni	[]			
Item	As	of Dec. 31-	· · · · · · · · · · · · · · · · · · ·	As of Mar. 31-		
	1982	1983	1984	1984	1985	
: Over 90 percent domestic- : content share: : * * *:	: : ***	: : : ****	: : <del>: ***</del>	: : : <del>: ****</del> :		
Subtotal: Over 50 to 90 percent :	**** ****	<del>***</del> :	<del>***</del>	***	***	
domestic content : share: * * *	: : 2/ <del>XXX</del> ·	: : 2/ <del>XXX</del> ·	: : ***	3/ <del>XXX</del> ·	3/ ***	
Subtotal	<del>***</del>	<del>****</del> : ::	**** **** :	<del>***</del> :	***	
content share: 1 to 50 percent domestic- : content share:	***	***	***	***	***	
* * *:	*** :	*** :	<del>***</del> :	*** :	***	
Total	*** :	<del>***</del> ;	*** :	**** :	***	
Grand total:	4,706 :	4,632 :	8,415 :	5,491 :	14,340	

(In thousands of units)

<u>1</u>/ Producers are grouped on the basis of the domestic-content share of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984.

2/ These inventory data include inventories of \* \* \* that are not actual recorded inventories, but rather are apparently residual data and estimates developed by \* \* \*.

3/ Does not include an undetermined amount of inventories of 64K DRAM's to be sold by \* \* \* in \* \* \*. These data were not available.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Income-and-loss data are also presented for three different categories of firms: 2 firms (\* \* \* and \* \* \*) which reported that the domestic-content share of their final value of domestic shipments of 64K DRAM's in 1984 was \* \* \* percent (table 16); four producers with domestic-content shares \* \* \* percent (table 17); and \* \* \* (table 18). \* \* \* is presented separately because it is \* \* \*. However, \* \* \*'s income-and-loss statement in its questionnaire response indicates that the domestic content of its cost of goods sold averaged \* \* \* \* percent during 1983-84 and was about \* \* \* percent in the 1985 interim period. Table 12.—64K DRAM's: Producers' inventories as a share of producers' domestic shipments during the preceding period, by domestic-content shares, 1/ 1982-84, January-March 1984, and January-March 1985

	(In p	ercent)			
: Item -	As	of Dec. 31-	As of Mar. 31		
	1982	1983	1984	1984	1985
: Over 90 percent domestic- : content share	: : ***	: : ***	: : <del>***</del> :	: : <u>2</u> / <del>***</del> :	<u>2</u> / <del>***</del>
Over 50 to 90 percent : domestic-content share: Average, over 50 : percent domestic	**** **** :	: *** :	: *** : :	<u>2</u> / <del>***</del> : :	<u>2</u> / ***
content share:	*** :	*** :	*** :	<u>2</u> / *** :	<u>2</u> / ***
content share:	***	: *** :	***	<u>2</u> / <del>***</del> :	<u>2</u> / ***
Average	<u>:</u> 18.2 : :	4.3 :	4.2:	<u>2/3.6</u> :	2/ 8.3

1/ Producers are grouped on the basis of the domestic-content shares of each producer's final value of domestic shipments of final-sealed 64K DRAM's in 1984. 2/ Based on annualized shipment data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Operating income or (loss) margins for individual producers on their operations producing 64K DRAM's are presented in the following tabulation (in percent): min noniod

				Interim	<u>perioa</u>
	<u>1982</u>	<u>1983</u>	1984	1984	1985
Producers in table 16:					
* * *	***	<del>XXX</del>	***	***	***
* * *	×××	***	***	<del>XXX</del>	***
Producers in table 17:					
* * *	***	<del>***</del>	***	***	***
* * *	<del>×××</del> ′	***	×××	×××	***
* * *	***	***	***	***	***
* * *	<del>***</del>	***	<del>XXX</del>	×××	***
Producer in table 18:	`				
* * *	***	×××	***	***	***

1/ \* \* \*.

2/ Data are for \* \* \*.

3/ Data not available.

4/ Accounting year ends \* \* \*.

5/ \* \* \* reported an operating loss of \$\* \* \* on negative sales of \$\* \* \* in \* <del>\*</del> \*.

Table 13.—Average number of production and related workers producing 64K DRAM's or 64K DRAM chips in U.S. establishments and hours worked by such workers, by types of producers, 1982-84, January-March 1984, and January-March 1985

				January-March	
Item	1982	1983	1984	1984	1985
	:		· ·	:	:
Average number of production	:	:	: •	:	:
and related workers pro-	:	•	:	:	:
ducing 64K DRAM's or	•	•	:	:	:
64K DRAM chips in U.S.	:	:	•	:	:
establishments:	• · · ·	• t.	:	•	:
Merchant producers	-: <del>XXX</del>	***	***	: ***	: ***
Captive producers-	-: <del>XXX</del>	***	***	***	: ***
Total	-: 2.975	4.340	6.308	: 5.501	: 6.152
Hours worked by production	:		:	:	:
and related workers pro-	•	•	•	•	•
ducing 64K DRAM's or	•	•	•		•
64K DRAM chins in U.S.	•	•	•	•	•
ostablishmente:	•	•	•	•	•
estabilishments:	•	•	•	•	
merchant producers 1/		- 19 - 19 - 19 - 19 - 19 - 19 - 19 - 19	: s.	;	:
1,000 hours-	-: <del>***</del>	: <del>***</del>	: ***	: ***	: ***
Captive producersdo	-: ***	<u>; XXX</u>	: ***	: ***	<u>: ***</u>
Total <u>1</u> /do	-: 3,778	: 6,591	: 9,742	: 2,242	: 2,638
the second s	:		•	:	:

1/ Excludes data for \* \* \*, which was unable to report data on hours worked.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

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Foreign product costs (i.e., cost of foreign parts and/or labor) reported by each producer are presented in the following tabulation (in thousands of dollars):

			*	Interi	n period
· · · · ·	<u>1982</u>	1983	1984	1984	1985
Producers in table 16:	4. T				
* * *	<del>***</del>	***	***	***	***
* * * * *	<del>***</del>	***	***	***	***
Producers in table 17:					
* * *		***	***	***	×××
* * * *	<del>***</del>	***	***	<del>XXX</del>	***
* * *	<del>***</del>	***	***	***	***
* * * *	<del>***</del>	***	<del>×××</del>	<del>×××</del>	***
Producer in table 18:					
* * *	<del>***</del>	***	***	<del>XXX</del>	***
			•		

1/ Data not available.

÷.,

2/ Estimated.

3/ Accounting year ends \* \* \*.

Table 14.—Wages paid to production and related workers producing 64K DRAM's and 64K DRAM chips in U.S. establishments, total compensation paid to such workers, average hourly wages, and average hourly compensation, by types of producers, 1982-84, January-March 1984, and January-March 1985 1/

	: : : : :			January-March		
Item	1982 : :	1983	1984	1984	1985	
Wages maid to production and	; ;					
related workers produc-	: :					
ing 64K DRAM's or	: :	•	•			
64K DRAM chips in U.S.	: :					
establishments:						
Merchant producers	: :			: :		
1,000 dollars-	: 1/ ***	×××	***	***	***	
Captive producersdo	: <del>***</del> :	***	***	<del>***</del> :	***	
Totaldo	:1/29,243 :	74,461	: 120,491	: 26,420 :	32,990	
Total compensation paid to	: :		•	:		
production and related	: :		•	: :		
workers producing	: :		•	: :		
64K DRAM's or 64K DRAM	: :		:	: :		
chips in U.S. establish-	: ;		:	: :	10	
ments:	: :		:	: :		
Merchant producers	: :		•	: :		
1,000 dollars-	: 1/ *** :	***	: <del>***</del>	: <del>***</del> :	***	
Captive producersdo	: <del>***</del> :	***	; ***	: <del>***</del> ;	***	
Totaldo	:1/36,910 :	93,323	: 147,140	: 33,785 :	43,041	
Average hourly wages paid to	: :		•	: :		
production and related	: :	· · ·	•	: :		
workers producing	: :			: ; ;		
64K DRAM's or 64K DRAM	: :			: :		
chips in U.S. establish <del>.</del>	: :		:	: :		
ments:	: :		•	: :		
Merchant producers <u>2</u> /	: :		:	: :		
per hour-	: <b>\$***</b> :	\$ <del>***</del>	: \$ <del>***</del>	: \$ <del>***</del> :	\$ <del>***</del>	
Captive producersdo	: <del>***</del> ;	***	<u>***</u>	<u>: *** ;</u>	***	
Average <u>2</u> /do	: 7.74 :	8.04	: 9.23	: 9.19 :	9.46	

See footnotes at end of table.

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Table 14.—Wages paid to production and related workers producing 64K DRAM's and 64K DRAM chips in U.S. establishments, total compensation paid to such workers, average hourly wages, and average hourly compensation, by types of producers, 1982-84, January-March 1984, and January-March 1985 1/— Continued

	1982 1983	:	January-	January-March	
ltem		1983	1984 :	1984	1985
	· · · · ·				
Average hourly compensation :		:	4	;;	م
paid to production and :		:	•	: :	
related workers producing :		:	:	: , :	
64K DRAM's or 64K DRAM :		•	•	: :	
chips in U.S. establish- :		:	•	•	
ments: :		:	• • • • •	: :	
Merchant producers 2/ :	~	:	:	: :	
per hour-:	\$ <del>***</del>	: \$ <del>***</del>	: \$ <del>***</del>	: \$ <del>***</del> :	
Captive producersdo:	XXX	: ***	: ***	: <del>***</del> :	***
Average <u>2</u> /do:	9.77	: 10.03	: 11,.41	: 11.98 :	12.42
		•	•	•	

1/ Excludes data for \* \* \*, which was unable to report data on wages paid in 1982.

2/ Excludes data for \* \* \*, which did not report data on hours worked.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission

\*

The following tabulation contains the ratio of foreign product costs to the total cost of goods sold for each producer (in percent):

				Tureli	<u>a perioa</u>
	<u>1982</u>	<u>1983</u>	1984	1984	1985
Producers in table 16:					
* * *	<del>***</del>	***	XXX	***	***
* * *	<b></b>	***	<del>×××</del>	<del>×××</del>	×××
Producers in table 17:		4 F			· :
* * *	<del>***</del>	XXX	XXX	<del>×××</del>	XXX
* * *	<u> </u>	<del>***</del>	×××	×××	***
* * *	<del>***</del>	***	<del>×××</del>	<del>x x x</del>	***
* * *	<del>X X X</del>	×××	×××	***	***
Producer in table 18:		. r-			
* * *	<del>XXX</del>	***	***	***	***

1/ Data not available.

2/ Estimated.

3/ Accounting year ends \* \* \*.

•

As explained in the section of this report entitled "Consideration of Alleged Material Injury," the foreign product cost percentages shown in the above tabulation are different from the percentages based on the reported foreign-value content as a share of the final sales value of domestic shipments.

	:	:	:	Interim period		
Item	1982 <u>1</u> /	1983	1984 :	1984 2/		
;	:	:	:	153 315	:	
Net sales	97,973	350,230	047,950 :	103,310	. 142,004	
	118,981 :	317,743	401,085	93,193	122,073	
Gross profit or (loss)-do:	(21,008):	38,493 :	246,8/1 :	60,122	: 20,731	
General, selling, and : administrative	:	:	:			
expensesdodo	26 840 ·	71 764 ·	123 676	24.774	. 29.036	
Operating income or		, , , , , , , , , , , , , , , , , , , ,			:	
(loss)do:	(47,848):	(33,271):	123,195 :	35,348	: (8,305)	
Depreciation and amorti- :	:	:	:	-	:	
zation expense :	:	:	:		:	
included above 3/do:	30,844 :	37,645 :	48,861 :	12,531	: 21,721	
As a share of net sales: :	:	:		·	:	
Cost of goods sold :	:	:	:		:	
percent:	121.4 :	89.2 :	61.9 :	60.8	: 85.5	
Gross profit or (loss) :	:	:	:		:	
do:	(21.4):	10.8 :	38.1 :	39.2	: 14.5	
General, selling, :	:	:	:		:	
and administrative :	:	:	:		:	
expensesdo:	27.4 :	20.1 :	19.1 :	16.2	: 20.3	
Operating income or		:			:	
(loss)do:	(48.8):	(9.3):	19.0 :	23.1	. (5.8)	
Number of firms reporting		(2,2),			:	
operating losses	م •	Б·	2 :	1	. 4	
Number of firms reporting	ι 	J . 7 ·	7 .	5	5	
number of itims reporting	J.		· · ·	5		

Table 15.—Income-and-loss experience of 7 U.S. producers on their operations producing 64K DRAM components, accounting years 1982-84 and interim periods ended Mar. 31, 1984, and Mar. 31, 1985

1/ Does not include \* \* \*; 1982 data not available. The only \* \* \* data included are front-end startup costs of \$\* \* \*.

2/ Interim data for \* \* \* and \* \* \* are not included; their accounting year ends on \* \* \*. \* \* \*'s data are for interim periods ended \* \* \*.

3/ Depreciation and amortization expense was not provided by \* \* \* and \* \* \*.

Tton	1002	1002	1004	Interim period	
I Cem	: 1982 :	1983	1964 :	1984 <u>2</u> /	1985 <u>2</u> /
	· · · · · · · · · · · · · · · · · · ·		:		
Net sales:	: :		:	:	;
* * *1,000 dollars	; <del>***</del> ;	*** :	*** :	***	***
* * *do	: <del>***</del> ;	*** :	<del>***</del> :	***	***
Totaldo	: *** ;	*** :	*** :	***	***
Cost of goods sold:	: :	:	:	:	:
* * * <u>*</u> 1,000 dollars	: <del>***</del> :	<del>***</del> :	*** :	***	***
* * *do	: <del>***</del> :	*** :	<del>***</del> :	***	***
Totaldo	: *** :	***	*** :	***	***
Gross profit or (loss)	:	:	:	:	:
* * *1,000 dollars	: <del>***</del> :	<del>***</del> :	*** :	***	***
* * *do	: <del>***</del> :	*** :	<del>***</del> :	. <del>XXX</del>	***
Totaldo	: *** :	*** :	*** :	***	***
General, selling, and	: :	:	:	:	
administrative expenses:	: :	:	:	:	
* * *1,000 dollars	: <del>***</del> :	<del>***</del> :	<del>***</del> :	<del>***</del> :	***
* * *do	: <del>***</del> :	<del>***</del> :	*** :	*** :	***
Totaldo	: *** :	*** :	*** :	*** :	***
Operating income or (loss):	: :	:	:	:	1
* * *1,000 dollars	: <del>XXX</del> :	<del>***</del> :	*** :	***	***
* * *do	: <del>***</del> :	***	***	***	***
Totaldo	: *** :	***	*** :	***	***
Depreciation and	: :		:	· .	:
amortization:	: :	:	: :	:	:
* * * 3/1,000 dollars	: <del>***</del> :	***	***	***	: <del>***</del>
* * *do	: <del>***</del> :	<del>XXX</del>	***	***	: ***
Totaldo	: *** :	***	***	***	: ***
As a share of net sales:	: :	·	: :		:
Gross profit or (loss):	: :		: :		•
* * *percent	: ***	XXX	***	***	: <del>***</del>
* * *,do	: ***	***	: <del>***</del> ;	***	: <del>***</del>
Totaldo	: <del>***</del>	***	: <del>***</del>	***	: <del>***</del>
Operating income or (loss):	: :		: :	:	:
* * *percent	<b>***</b>	***	: <del>***</del>	; <del>***</del>	: <del>***</del>
* * *do	: ***	***	: <del>***</del>	***	: <del>***</del>
Totaldo	: ***	***	: <del>***</del>	***	: ***

Table 16.—Income-and-loss experience of 2 U.S. producers <u>1</u>/ on their operations producing 64K DRAM components, accounting years 1982-84 and interim periods ended Mar. 31, 1984, and Mar. 31, 1985

<u>1</u>/ Both firms reported that the domestic-content share of their value of domestic shipments of 64K DRAM's in 1984 was \* \* \*.

2/ \* \* \*'s data are for interim periods ended \* \* \*.

3/ Estimated.

4/ \* \* \*

: Item	:	:	1004	: Interim period :_ended Mar. 31— 3/	
	1982 27	1903 :	1304	1984	1985
:	:	:	<u>M.M.M.</u>	: : 	***
Net sales	××× :	***	XXX XXX	· · · · · · · · · · · · · · · · · · ·	, <del>XXX</del>
Cost of goods sold-do	××× .	***	***	***	***
Gross provid or (1058)			~~~		~~~
deneral, selling, and	•	•			
administrative :	***	***	***	. <del></del>	***
expenses do	<u> </u>	· · ·		<u> </u>	
(loca) do to to to the second se	***	***	***	***	***
(1055)		~~~ .	~~~~		
preclation and :	***	***	XXX	***	XXX
	~~~ ;		AAA 		~~~
As a snare of net sales: :					
Lost of goods sold :	:	:		: 	~~~
percent-:	*** :	*** :	. ***	*** ;	***
Gross profit or (loss) :	:	:			
do:	*** :	*** :	***	***	***
General, selling, :	:	:		: :	
and administrative :	:	:		:	
expensesdo:	<del>***</del> ;	*** :	***	: <del>***</del> :	***
Operating income or :	:	· <b>:</b>	:	: :	
(loss)do:	***	*** :	XXX	; <del>***</del> ;	***
Number of firms reporting :		;	:	: · · ·	
operating losses:	*** :	*** :	***	; <del>***</del> ;	***
Number of firms reporting:	*** :	*** :	***	***	***

Table 17.—Income-and-loss experience of 4 U.S. producers <u>1</u>/ on their operations producing 64K DRAM components, accounting years 1982-84 and interim periods ended Mar. 31, 1984, and Mar. 31, 1985

1/\*\*\*, \*\*\*, \*\*\*, and \*\*\*. Each of the 4 firms reported that the

domestic-content share of their final value of domestic shipments of 64K DRAM's in 1984 was \* \* \*.

2/ Does not include \* \* \*; 1982 data not available.

3/ Interim data for \* \* \* and \* \* \* are not included; their accounting year ends on \* \* \*.

4/ Depreciation and amortization expense was not provided by \* \* \*.

Table 18.—Income-and-loss experience of \* \* \* on its operations producing 64K DRAM components, accounting years 1982-84 and interim periods ended Mar. 31, 1984, and Mar. 31, 1985

					1. Sec. 1. Sec		
-	:	:	:	Interim period			
Ltem :	1982	1983	1984	1984	: 1985		
	·	÷	·	• • •			
Net sales1 000 dollars	<del>***</del>	***	***	<del>***</del> ·	***		
Cost of goods solddo	1/ ***	2/ <del>***</del>	***	***	3/ ***		
Gross profit or (loss)-do	***	***	***	***	***		
General selling and							
administrativo	•						
administracive .	· <del>***</del>	***	***	· <del>×××</del> ·	***		
Operating income or	<u> </u>						
(lass) de			<u>www</u>	MMM			
(1055)	***	***	~~~	<b>KKK</b>	XXX		
Depreciation and :	:	:	•				
amortization expense :	:	:		·			
included abovedo:	*** ;	*** :	***	*** :	***		
As a share of net sales: :	:	:	:	`:			
Cost of goods sold :	:			:			
percent:	***	<del>***</del> :	***	*** :	***		
Gross profit or (loss) :	:	:	• •	. :			
do:	<del>***</del> :	*** :	***	***	***		
General, selling,		•	•				
and administrative :	:	:	:	•			
expensesdo:	***	***	*** :	***	***		
Operating income or			• • • •				
(loss)do:	***	***	***	***	· <del>×××</del>		
	•	•			1 V		

1/ Front-end startup cost.

10

2/ Includes \$\* \* front end startup cost.

3/ Includes \$\* \* \* excess inventory writeoff.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Capital expenditures and research and development expenses.—Six U.S. producers supplied information on their capital expenditures for land, buildings, and machinery and equipment used in the production of 64K DRAM's, and six also furnished data on their research and development expenses. Capital expenditures increased from \$61.3 million in 1982 to \$97.4 million in 1983, then rose to \$152.4 million in 1984. Capital expenditures decreased 47.6 percent from \$45.8 million during the interim period in 1984 to \$24.0 million in the corresponding period of 1985. Research and development expenses fell from \$15.2 million in 1982 to \$8.1 million in 1983 and then increased to \$11.1 million in 1984. Research and development expenses amounted to \$2.9 million and \$4.5 million during the interim periods of 1984 and 1985, respectively.

Capital expenditures and research and development expenses are shown in the following tabulation (in thousands of dollars):

	<u>Capital</u> expenditures	Research and development expenses
1982 1983 1984	1/ \$61,335 2/ 97,375 2/ 152,408	<u>1</u> / \$15,162 <u>1</u> / 8,149 5/ 11,074
January-March 1984 1985	<u>3/</u> 45,768 <u>4</u> / 23,994	<u>4/</u> 2,859 . <u>4/</u> 4,475
1/ Data are for 6 of 7 firm 2/ Data are for 7 of 7 firm 3/ Data are for 5 of 5 firm 4/ Data are for 3 of 5 firm 5/ Data are for 5 of 7 firm	S. S. S. S.	

<u>Capital and investment</u>.—Several U.S. producers provided questionnaire comments as to the actual and potential negative effects of imports of 64K DRAM's from Japan on their firm's growth, investment, and ability to raise capital. Their verbatim comments follow:

\* \* \* \* \* \* \*

#### Consideration of Alleged Threat of Material Injury

Among the relevant economic factors that may contribute to the threat of material injury to the domestic industry are the ability of producers in Japan to increase the level of exports of 64K DRAM's to the United States and the likelihood they will do so, any substantial increases in inventories of imports of Japanese 64K DRAM's in the United States, and any rapid increase in penetration of the U.S. market by the imports.

The available data concerning the production and export of 64K DRAM's in Japan are presented in the section of this report entitled "The Industry in Japan." The available data concerning U.S. importers' inventories of 64K DRAM's from Japan are presented in table 19. Inventories increased from 2.1 million units on December 31, 1982, to 2.5 million units on December 31, 1983, or by 19.0 percent, and increased to 8.3 million units on December 31, 1984, or by 228.3 percent compared with the level one year earlier. Importers' inventories on March 31, 1985, amounted to 7.2 million units, representing an increase of 335.0 percent from the level on March 31, 1984, and representing a decrease of 13.3 percent from the level on December 31, 1984.

A discussion of the level of imports and their market penetration is presented in the following section of this report.

Table 19.—64K DRAM's: U.S. importers' inventories of merchandise produced in Japan, by importers, as of Dec. 31 of 1982-84, Mar. 31, 1984, and Mar. 31, 1985

· · · . · ·	As	of Dec.	As of Mar. 31—			
item and importer	1982	1983	1984	1984	1985	
	<i>.</i>	, , ,	: :	:		
Inventories: :		:	: :	:		
* * *	***	: <del>***</del>	: <del>***</del> :	*** :	<del>***</del>	
* * *do:	1/ <del>***</del>	: 1/ ***	: 1/ *** :	1/ <del>***</del> ;	1/ <del>***</del>	
* * *do:	— <del>×××</del>	- <del>***</del>	: <del>***</del> :	<del>***</del> *	— <del>×××</del>	
* * *do:	***	<del>. ***</del>	: <del>***</del> :	*** :	***	
* * *do	<del>×××</del>	<del>. ***</del>	: <del>***</del> :	*** :	***	
* * *do;	2/	***	<del>***</del>	*** :	· <del>XXX</del>	
* * *do	×××	***	: <del>***</del> :	***	***	
* * *	***	***	<del>. ***</del> :	***	***	
* * *do	2/	: 2/	: 2/ :	2/:	2/	
Totaldo:	2.114	2.516	8.261	1.646 :	7.160	
Ratio of total inventories to	_,,	· _;			.,	
producers' domestic ship		•				
monte (including contino		•		· ·		
shipmonte) during the		•	• •	• •		
shipmenes) during the			· · ·		2/ 4 1	
preceding period-percent-:	8.2	2.3	: 4.1 :	3/ 1.1 :	3/ 4.1	
Ratio of total inventories to :			:			
producers domestic open-			:			
market snipments during :		:	: :	:		
the preceaing period :	~~~		: : 			
percent:	***	: ***	: ***	3/ ***	3/ ***	

1/May include inventories of imports from countries other than Japan.

2/ Not available.

3/ Annualized.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

## Consideration of the Causal Relationship Between Imports Allegedly Sold at LTFV and the Alleged Material Injury or Threat Thereof

#### U.S. imports

The only available data on U.S. imports of 64K DRAM's are data compiled from responses to the Commission's questionnaires in this investigation; these data are presented in table 20. Official import statistics of the U.S. Department of Commerce for item 678.7441 of the TSUSA (the item under which imports of 64K DRAM's are classified) include data for SRAM's as well as DRAM's. U.S. imports of 64K DRAM's from Japan increased from 17.2 million units in 1982 to 58.5 million units in 1983, or by 240.4 percent. Imports

a in the second s	· · · · · ·			January-March				
Importer	: 1982 :	1983	: 1984	1984	1985			
		Quant	ity (1.000 u		• •			
· · ·	:			:	:			
* *	• <del>***</del>	***	***	****	· . <del>xx</del>			
* *	1/	***	***	***	**			
* *	***	***	***	***	: <del>*</del> *			
* *	• <del>***</del> •	***	***	***	<b>:</b> <del>X)</del>			
* *	. <del>***</del>	***	***	· ***	: <del>x</del> >			
* *	· <del>***</del>	***	***	***	. <del>X)</del>			
* *	· · · · ·	***	***	***	. <del>x</del> *			
* *	· <del>***</del> ·	<del>×××</del>	***	***	. <del>x</del> *			
* *	***	***	***	· ***	. <del>x</del> >			
Total	: 17,198 :	58,536	: 94,664	: 20,487	: 19,15			
, <b>9</b> -	•	Va	lue (1,000 d	ollars)	<sup>2</sup>			
	•		•					
* *	: <del>***</del> :	***	: ***	: <del>***</del>	: **			
* *	: 1/ :	<b>***</b>	: ***	: ***	: **			
* *	: <del>xxx</del> :	***	: ***	: ***	. <del>x</del> *			
* * .	: <del>XXX</del> :	***	***	: <del>***</del>	: <del>x</del>			
* *	***	***	***	***	<b>.</b> <del>X</del> )			
* *	***	***	***	***	<del>. XI</del>			
* *	***	***	***	***	<b>*</b>			
* *	· · · · · · · · · · · · · · · · · · ·	***	***	***	. <del>.</del>			
* *	• • • • • • • • • • • • • • • • • • •	***	***	: <del>***</del>	: <del>X)</del>			
Total	: 74,199 :	189,131	: 266,611	: 60,142	: 33,58			
· .	:	4 · .	Unit value					
	• <u></u>		:	:	•			
* *	: \$ <del>***</del> :	\$ <del>***</del>	\$ <del>***</del>	: \$ <del>***</del>	: \$**			
* *	: 1/ :	<del>XXX</del>	<b>:</b>	.: <del>XXX</del>	: <del>x)</del>			
* *	: <del>***</del> :	***	: <del>***</del>	: <del>***</del>	: *)			
* *	: <del>***</del> :	***	: ***	: <del>***</del>	: <del>x)</del>			
* *	: <del>***</del> :	***	***	***	; <del>x)</del>			
* *	****	<b>***</b>	• <del>***</del>	: <del>***</del>	<del></del> .			
* *	***	***	***	: ***	; *)			
* *	***	***	***	***	. <del>X</del> )			
* *	***	***	: ***	: <del>***</del>	; <del>X</del> )			
Average	: 4.31 :	3.23	: 2.82	: 2.94	: 1.7			
1/ Net susilshis								

Table 20.—64K DRAM's: U.S. imports from Japan, by importers, 1982-84, January-March 1984, and January-March 1985

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

: ...

increased to 94.7 million units in 1984, or by 61.7 percent. Imports in January-March 1985 totaled 19.2 million units, representing a decrease of 6.5 percent from the level of imports in the corresponding period of 1984.

The value of U.S. imports of 64K DRAM's from Japan increased from \$74.2 million in 1982 to \$189.1 million in 1983, or by 154.9 percent. The value of imports increased to \$266.6 million in 1984, or by 41.0 percent. The value of imports in January-March 1985 totaled \$33.6 million, representing a decrease of 44.2 percent from the value of imports in the corresponding period of 1984. The unit value of imports of 64K DRAM's from Japan was \$4.31 in 1982, \$3.23 in 1983, and \$2.82 in 1984. The unit value was \$1.75 during January-March 1985, a decrease of 40.5 percent from the unit value of \$2.94 during the corresponding period of 1984.

#### Market penetration of imports

The share of total apparent U.S. consumption (including captive consumption) accounted for by U.S. imports from Japan increased from 37.9 percent in 1982 to 38.9 percent in 1983, and then decreased to 33.0 percent in 1984 (table 21). Imports from Japan accounted for 32.2 percent of total apparent U.S. consumption in January-March 1985, a decrease from the 34.7-percent share in the corresponding period of the previous year.

The share of apparent U.S. open-market consumption accounted for by U.S. imports from Japan decreased from \* \* \* percent in 1982 to \* \* \* percent in 1983 and \* \* \* percent in 1984. Imports from Japan accounted for \* \* \* percent of apparent U.S. open-market consumption in January-March 1985, a decrease from the \* \* \*-percent share in the corresponding period of the previous year.

### Prices

Demand for 64K DRAM's is a derived demand dependent on the demand for end products that incorporate such memory devices in their design and function. These end products include, by category: (1) mini, micro, and mainframe computers, (2) electronic business and office equipment, (3) industrial process-control equipment, including scientific instruments, (4) telecommunications equipment, and (5) consumer electronic products, including personal computers. The tabulation below shows an estimated distribution of demand for 64K DRAM's by end-use product markets in 1984 (in percent): 1/

<u>Item</u>	<u>Percentage</u> distribution
Personal computers and peripherals	
Computers (minis and mainframe)	- 30
Telecommunications	20
Other industrial and consumer products	
(excluding personal computers)	- 10
Total	- 100

1/ Estimated by \* \* \* on the basis of \* \* \*, by quantity.

	•	:		January-March			
Item	1982 : :	1983 :	1984 : :	1984	1985		
: Imports from Japan : 1,000 units:	: : 17,198 :	: 58,536 :	: 94,664 :	: : 20,487 :	19,152		
Total apparent U.S. : consumptiondo:	45,425 :	: 150,454 :	: 287,211 :	: 59,017 :	59,396		
Apparent U.S. open	***	: ***	***	: <del>XXX</del> :	***		
Ratios of imports from : Japan to : Total apparent U.S.	:	:		:			
consumption—percent—: Apparent U.S. open— :	37.9 : :	38.9 :	33.0 :	34.7 :	32.2		
marкеt consumption : percent—:	: : <del>***</del> :	***	***	: **** :	<del></del>		

Table 21.—64K DRAM's: U.S. imports from Japan and apparent U.S. consumption, 1982-84, January-March 1984, and January-March 1985

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

In the past decade, demand for computer and electronic products has exhibited sharp growth punctuated by pauses that mirror the vulnerability of those industries to the business cycle as it reflects the ups and downs of business and industrial investment and the pattern of consumer confidence. <u>1</u>/

During 1983 and 1984, the driving force in creating demand for 64K DRAM's was the growth in the overall level of economic activity, but particularly the strong surge in demand for personal computers. As demand increased, the book-to-bill ratio for the semiconductor industry climbed and was at a level of over 1.5 to 1 in January 1984 (see the following figure). This period of strong demand was characterized by firm and rising prices (in some market segments premium prices), long-term contracts to ensure supply, double ordering to guarantee adequate supply, allocations from domestic and import suppliers, and investments by producers to expand capacity. As the economy began to slow in 1984, the book-to-bill ratio declined and prices softened. By December, the ratio had fallen to 0.6 to 1 and price competition had sharpened. Micron, in October, cut its long-term contract price for 200 ns 64K DRAM's to \$1.85 per unit. 2/ This period was characterized by a sharp downturn in demand for OEM products that use 64K DRAM's, heavy inventory buildups that increased "grey market" activity in offers of low prices, downward price adjustments to long-term contracts, push backs in scheduled delivery dates, and large cancellations of scheduled deliveries. 3/ By yearend 1984 it was increasingly clear that demand for personal computers had fallen far short of forecasts and

1/ San Jose Mercury News, "Chips the Struggle to Survive," sec. D, June 10, 1985.

2/ Micron's petition, p. 11.

<u>3/ Electronic News</u>, Jan. 14, 1985, p. 1; Feb. 11, 1985, p. 19; and Mar. 4, 1985, p. 1.

Figure--The book-to-bill ratio of the semiconductor industry, by months, January-December 1984.



BOOK-TO-BILL RATIO

SOURCE: SEMICONDUCTOR INDUSTRY ASSOCIATION

expectations, resulting in heavy inventories in producers' warehouses. 1/ As noted in the "Channels of Distribution" section of this report, 64K DRAM's are sold through three channels of distribution: (1) on a long-term contract basis to OEM's, (2) to authorized distributors, and (3) to spot-market purchasers. These three channels reflect different pricing policies and different sized purchases and purchasers. 2/ In order to compare domestic and import price trends and measure margins of underselling (or overselling) by imports from Japan, the Commission asked domestic producers and importers for the net selling prices of factory direct contract sales to OEM's, sales to authorized distributors, and sales to spot-market purchasers. These transaction prices were requested to be representative of the lowest selling prices to each class of customer during the quarterly periods from January-March 1983 to July-September 1984, and monthly for the period from October 1984 through June 1985. 3/

<u>Trends in prices</u>.—The Commission asked domestic producers and importers for the prices of two types of 64K DRAM's, a 150 ns device and a 200 ns device and, for comparison of prices and trends, for prices of the same two types of 256K DRAM's. 4/ Weighted averages of the prices received are the basis for the trend analysis that follows. Domestic producers' selling prices are f.o.b. plant, net of all discounts and allowances. Importers' selling prices are duty-paid prices, ex-dock, port of entry (or importer warehouse), net of all discounts and allowances and excluding U.S. inland freight.

The weighted-average net selling prices reported by domestic producers and importers are presented in absolute terms and as indexes in tables 22 through 27. 5/

Prices of 150 ns 64K DRAM's, sold to OEM's.—The general price trend in factory direct domestic sales of quantities of 10,000 units or less to OEM's was rather steadily downward. Prices increased irregularly in 1983 to peak at \$4.00 (Oct.—Dec. 1983) then fell to a low of 76¢ at period end (June 1985), a level 77 percent below the \$3.32 base—period price (table 22). The import price trend for sales of this quantity to OEM's reflects a steady downtrend with no uptrend in 1983. Prices declined from \$3.79 in January-March 1983 to \$0.88 in June 1985, or by almost 77 percent.

Factory direct domestic sales prices to OEM's of quantities of 10,000 to 100,000 units also trended downward sharply. Prices fell from a peak of \$4.44 (July-September 1983) to a low of \$0.74 (May 1985), or by 78 percent from the base-period price of \$3.40 (table 23). The largest single downturn occurred

1/ See, for example, Fortune, Aug. 5, 1985, "Behind the Fall of Steve Jobs," p. 2.

2/ Long-term contracts generally are subject to price renegotiations at the purchaser's option. Distributor prices are adjusted on a "meet competition" basis to enable sales of in-stock product at competitive prices without a distributor selling below cost and absorbing a loss.

3/ Monthly data from October 1984 were requested in order to track the sharp downturn in prices that began at that time.

4/ Data received from domestic producers on 256K DRAM prices were inadequate for trend analysis.

5/ Domestic price data include those producers with domestic-content shares of over 50 percent which provided usable data: \* \* \*. Importers' price data include: Hitachi (HAL), Mitsubishi (MELA), NEC, Nissei Sangyo, and Oki. Table 22.--64K DRAM's (150 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 10,000 units or less to three classes of customers, and indexes of those prices, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

		ប	.S. produc	ers' pric	e	: Japanese importers' price							
: Period : :	Factory direct sales to OEM's		Sales to Frect Sales to BH's authorized distributors		: Spot-m : price :	: Spot-market : prices :		y direct to OEM's	Sale: autho distri	s to rized butors	: : Spot-market : prices		
:	Weighted:		:Weighted:		:Weighted:		:Weighted		:Weighted:		:Weighted:		
:	average:		: average:		: <u>average</u> :		: average	:	: average:		: <u>average</u> :		
	price :	Index 1/	: price :	Index 1/	: price :	Index 1/	: price	Index 1/	: price :	Index 1/	: price :	Index 1/	
:	:		: :		: :		:	:	: :		: :		
1983: :	:		: :		: :		:	:	: :		: :		
January-March:	\$3.32 :	100	: \$4.00 :	100	: \$5.00 :	100	: \$3.79	: 100	: \$3.95 ;	100	: \$4.00 :	100	
April-June:	3.38:	102	: 3.57 :	. 89	: 3.95 :	79	: 3.63	: 96	: 3.96 :	100	: 3.35 :	84	
July-September:	3.14 :	95	: 3.73 :	93	: 3.25 :	65	: 3.46	: 91	: 3.69 :	93	: 3.50 :	88	
October-December:	4.00 :	121	: 4.00 :	100	: 3.90 :	78	; 3.56	: 94	: 3.78 :	<b>96</b>	: 3.43 :	86	
1984: :	:		: :		: :	·	:	:	: :		: 1		
January-March:	3.60 :	108	: 3.74 :	94	: 3.90 :	· 78	: 3.47	92	: 4.03 :	102	: 3.55 :	89	
April-June:	3.50 :	105	: 3.89 :	97	: 3.90 :	78	: 3.45	91	: 3.94 :	. 100	: 3.50 :	88	
July-September:	3.57 :	108	: 2.98 :	75	: 3.33 :	67	: 3.46	91	: 4.13 :	105	: 3.50 :	88	
October:	2.94 :	89	: 2.27 :	57	: 1.95 :	39	: 3.19	84	: 3.50 :	89	: 3.35 :	84	
November:	2.80 :	84	: 2.69 :	67	: 2.30 :	46	: 3.03	80	: 3.17 :	80	: 3.00 :	75	
December:	2.37 :	71	: 2.39 :	60	: 2.35 :	47	: 2.88	76	: 2.98 :	75	: 2.90 :	73	
1985: :	•		: :		: :		: :	1	: :		: :		
January:	2.28 :	69	: 1.68 :	42	: 1.96 :	39	: 2.19	58	: 2.90 :	73	: 1.85 :	46	
February:	1.72 :	52	: 1.62 :	40	: 1.75 :	35	: 2.18	58	: 1.88 :	48	: 1.40 :	35	
March:	1.43 :	43	: .99 :	25	: 1.67 :	33	: 1.54	41	: 1.39 :	35	: 1.20 :	30	
April:	.99 :	30	: .62 :	16	: .88 :	18	: 1.10	29	: 1.01 :	26	: 1.10 :	28	
May:	2.20 :	66	.72 :	18	: 1.04 :	20	: 1.00	26		24		23	
June:	.76 :	23	: .57 :	14	.85 :	17		23	96 :	24			
	:		<u> </u>						: :	- •			

1/ January-March 1983=100.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

1.1

	:	U.S. producers' price									: Japanese importers' price					
: : Period :	Factor sales	Factory direct sales to OEM's			Sales to authorized distributors		Spot-market : prices :		: Fac sal	Factory direct sales to OEM's		: Sales to authorized distributors		: : Spot-market : prices		
	Weighted	:	:	weighted:		:Weighted	<u>l</u> :		:Weigh	ted	:	:Weighted	:	:Weighted	:	
	average	: • Index 1	:	average:	Index 1/	: average	: • Index	21	: avera	age	: : Index 1/	: average	: • Index 1/	: average	: • Index 1/	
	price	· 11100A 1			Index 17	:	:		:		:	: .	:	: <u>PL100</u>	: 11100A 17	
1983:		:	:	:		:	:		:		:	:	:	:	:	
January-March	\$3.40	: 100	):	\$3.80 :	100	: -	:		: \$3.	74	: 100	\$3.80	: 100	<b>\$4</b> .25	: 100	
April-June	3.40	: 100	):	3.50 :	92	: -	:		: 3.1	B6	: 103	: 3.95	: 104	: 3.50	: - 82	
July-September	4.44	: 131	:	4.40 :	116	: -	:	-	: 3.	52	: 94	: 4.64	: 122	: 3.50	: 82	
October-December:	4.17	: 123	: :	4.03 :	106	: -	:	-	: 3.3	35	: 90	: 4.21	: 110	: 3.50	: 82	
1984:	:	:	:	:		:	:		:		:	:	:	:	:	
January-March:	3.74	: 110	) :	3.69 :	97	: \$3.80	: 10	0	: 3.3	22	: 86	: 4.32	: 114	: 3.68	: 87	
April-June	3.75	: 110	):	3.58 :	94	: –	:	-	: 3.3	32	: 89	: 4.17	: 110	: 3.50	: 82	
July-September	2.92	: 86	: :	2.36 :	62	: 3.25	: 8	6	: 3.3	32	: 89	: 3.96	: 104	: 3.50	: 82	
October	3.30	: 97	':	2.84 :	75	: 1.95	: 5	1	: 3.3	19	: 85	: 3.63	: 96	: 3.00	: 71	
November	3.09	: 91	:	2.50 :	66	: 1.95	: 5	1	: 3.0	01	: 80	: 2.80	: 78	: 3.30	: 78	
December:	2.61	: 77	:	2.05 :	54	: 1.95	: 5	1	: 2.	79	: 75	: 2.40	: 63	: 3.00	: 71	
1985:	:	:	:	:		:	:		:		:	:	:	:	:	
January	: 1.92	: 57	1:	1.53 :	40	: 2.02	: 5	3	: 2.3	21	: 59	: 2.38	: 63	: 1.95	: 46	
February	: 1.51	: 44	: (	1.12 :	30	: 2.25	: 5	9	: 1.1	84	: 49	: 1.65	: 43	: 1.50	: 35	
March	: 1.04	: 31	:	.80 :	21	: 1.06	: 2	8	: 1.4	46	: 39	: 1.27	: 33	: 2.90	: 68	
April	. 88	: 25	i :	1.00 :	26	: .61	: 1	6	: 1.4	11	: 38	: 1.29	: 34	: 1.10	: 26	
May:	.74	: 22	: :	.61 :	16	: .79	: 2	Q	: .1	B2	: 22	: 1.11	: 29	: 1.01	: 24	
June	1.12	: 23	: :	.49 :	13	: .37	: 1	0	: .:	76	: 20	: .70	: 18	: .91	: 21	
		:	:	:		:	:		:		;	;	:	:	:	

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Table 23.--64K DRAM's (150 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities over 10,000 to 100,000 units to 3 classes of customers, and indexes of those prices, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

1/ January-March 1983=100.

2/ January-March 1984=100.

		U	I.S. produc	cers' pric	e	Japanese importers' price						
Period	Factory sales t	/ direct to OEM's	Sale autho distri	es to orized lbutors	: Spot-t : pric	Spot-market : prices :		y direct to OEM's	Sale autho distri	es to prized lbutors	: : Spot-market : prices	
:	Weighted	*****	:Weighted	*****	:Weighted		:Weighted	:	:Weighted		:Weighted	:
	average	:	: average	;	: average	•	: average	:	: average	:	: average	:
	price	Index 1/	: price	Index 2/	: price	Index 3/	: price	: Index 4/	: price	Index	: price	Index 5/
	•	3	:	:	:	<b>I</b>	:	:	:		:	:
1983: :	: :	1	:	1	: :	:	:	:	: :	\$	:	•
January-March:	- :	-	<b>: \$4.</b> 40 :	: 100 :	: - :	-	:	:	: - :	-	: - :	
April-June:	\$3.40 :	100	: - :	: -	: - :	-	: -	: -	: - :	:. —	: - :	: -
July-September:	3.40 :	100	: -:	: - :	: - :	-	: \$3.50	: 100	: - :		<b>:</b> - :	: -
October-December:	3.70 :	109	: - :	: - :	: \$3.95 :	100	: 3.75	: 107	: - :	-	: - :	: -
1984: :	:		: :	:	: :	:	:	:	: :	8	:	:
Janua ry-March:	4.16 :	122	: - :	: - :	: - :	-	: 3.31	: 95	: -:	-	: - :	: -
April-June:	3.80 :	112	: - :	: - :	: - :	-	: 3.38	: 97	: - :	- :	: - :	: -
July-September:	3.08 :	90	: 3.23 :	73 :	: - :	· · · ·	: 3.35	: 96	: - :		: - :	: –
October:	2.61 :	77	: - :	: - ;	: - :	-	: 3.44	: 98	: -:	÷ -	: - :	: -
November:	2.36 :	69	: - :	- :	: - :	-	: 3.64	: 104	: -:	· -	: - :	: -
December:	2.51 :	74	: -:		: - :	-	: 2.99	: 85	: -:	-	: - 3	: -
1985: :	:		: :				:	:	: :	:	: - :	
Ja nua ry:	2.54 :	75	: - :			-	: 2.87	: 82	: - :		: - :	: -
February:	1.50 :	44	: -:				: 2.83	: 81	: - :	-	: - :	: -
March:	1.45 :	43	: - :	-	1.56	40	: 2.44	: 79	: - :	-	: - :	
April:	1.32 :	39	: - :	-		-	: 1.65	: 47	: - :	-	: \$0.60	: 100
Mavessessessesses	1.10	32	70 .	16	_	_	: 1.52	: 43		-	1	
	.90 :	27	: .67 :	15	. 41	10	: 1.39	: 40		-	: - :	-
								•	1 1		•	

Table 24. ---64K DRAMs (150 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of over 100,000 units to 3 classes of customers, and indexes of those prices, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

1/ April-June 1983=100. 2/ January-March 1983=100. 3/ October-December 1983=100.

4/ July-September 1983=100.

5/ April 1985=100.
		U	.S. produc	cers' pric	e		:	Ji	apanese imp	orters' p	rice	****
Period	Factory sales t	direct co OEM's	Sale autho distri	es to prized ibutors	: : Spot-m : pric :	arket es	: Facto sales	ry direct to OEM's	Sale autho distri	es to prized .butors	: : Spot- : pri :	market ces
:	Weighted: average:		:Weighted: : average:	;	:Weighted: : average:		:Weighte : averag	<u>d</u> : <u>e</u> :	:Weighted: : average:		: <u>Weighted</u> : <u>average</u>	:
	price :	Index 1/	: price :	Index 1/	: price :	Index 1/	: price	: Index 1	: price :	Index 1/	: price	: Index 1/
:	:		: :	:	: :		:	· :	: :		:	:
1983: :	:		:		:		:	:	: :		:	:
January-March:	\$3.32 :	100	: \$3.47 :	100	: \$3.25 :	100	: \$3.98	: 100	: \$4.20 :	100	: \$3.50	: 100
April-June:	3.13 :	94	: 3.20	92	: 3.25 :	100	: 3.48	: 87	: 4.18 :	100	: 3.50	: 100
July-September:	3.49 :	105	: 2.25 :	: 94	: 3.40 :	105	: 3.34	: 84	: 4.01 :	96	: 3.50	: 100
October-December:	3.22 :	97	: 3.62 :	104	: 3.50 :	108	: 3.50	: 88	: 3.63 :	86	: 3.50	: 100
1984: :	:		: :	:	: :		:	:	: :		:	:
January-March:	3.58 :	108	: 3.48 :	100	: 3.50 :	108	: 3.29	: 83	: 4.18 :	100	: 3.50	: 100
April-June:	3.42 :	103	: 3.82 :	110	: 3.50 :	108	: 3.43	: 86	: 4.57 :	109	: 3.50	: 100
July-September:	2.70 :	81	: 3.13 :	90	: 3.00 :	92	: 3.24	: 81	: 4.15 :	99	: 3.50	: 100
October:	2.79 :	84	: 2.23 :	64	: 1.85 :	57	: 3.36	: 84	: 3.50 :	83	: 3.00	: 86
November:	2.02 :	61	: 2:25 :	65	: 1.85 :	. 57	: 2.91	: 73	: 3.26 :	78	2.65	: 76
December:	2.62/:	79	: 1.91 :	55	: 1.82 :	56	: 3.10	: 78	: 3.29 :	78	2.55	73
1985: :	· :		: :		: :		:	:	: :	•	:	1
January:	2.02 :	61	: 1.98 :	57	: -:	-	: 2.99	: 75	: 2.95 :	70	1.90	: 54
February:	1.40 :	42	: 1.31 :	38	: 1.50 :	46	: 2.30	: 58	: 1.77 :	42	1.60	: 45
March:	1.25 :	38	: 1.33 :	38	: 1.43 :	. 44	: 1.65	: 42	: 1.75 :	42	1.40	40
Apri1:	.79 :	24	: .73 :	21	: -:	-	: 1.30	: 33	: 1.50 :	35	.90	26
May:	.77 :	23	: .66 :	19	: .40 :	12	: 1.10	: 28	: .80 :	19	.90	26
June	1.32 :	40	: 1.09 :	31	: .42 :	13	: .83	: 21	: - :	- :		
:	:		: :		: :		:	:	: :			

Table 25.--64K DRAM's (200 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 10,000 units or less to 3 classes of customers, and indexes of those prices, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

1/ January-March 1983=100.

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Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

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of imports		
products and for sales o	dexes of those prices,	
ices for sales of domestic	classes of customers, and i	er 1984-June 1985
Weighted-average net selling pr	r 10,000 to 100,000 units to 3	mber 1984, and by months, Octob
Table 2664K DRAM's (200 ns): 1	from Japan in quantities of over	by quarters, January 1983-Septer

		<b>U</b> .	S. produc	ers' price				Jap	anese impo	rters' pr	ice	
Period	Factory sales to	direct : ORM's :	Sale autho distri	is to rized butors	Spot-n pric	larket : :es ::	Factory sales to	direct : o OKM's :	Sale: authoi distril	t to : ized : utors :	Spot-mai prices	rket s
	Weighted: average:		Weighted: average:		Weighted: average:		Weighted: average:		Weighted: average:		<u>Weighted:</u> average:	
	price :	Index 1/:	price :	Index 1/:	price :	Index 2/:	price :	Index 1/:	price :	Index 1/:	price :	Index 1/
1983:	•• •	•• •	••••			•• •	•• •	•• •	•• •	•• •	•• •	
January-March:	\$3.23:	100	\$3.60	100	1	••••	\$4.01 :	100 :	\$3.75 :	100 :	\$3.70 :	100
April-June:	3.00 :	93:	3.28 :	91	•		3.40 :	85 :	3.70 :	: 66	3.65 :	66
July-September-~:	3.00	93:	3.41 :	95	1		3.40 :	85 :	4.07 :	: 601	3.56 :	96
October-December:	3.37 :	104 :	3.38	: 46	\$3.10 :	100 :	3.38 :	84 :	4.13 :	110 :	3.66 :	66
1984:	•••••						•••				•••	Ş
January-narco		108	0.01	801	3.10	001			3.80 :		3.00.5	16
April-June:	3.36 :	104	3.53	 86	3.10 :	1001	3.18 :	: 6/	<b>4</b> .00 :	107 :	3./1 :	100
July-September:	2.99 :	93	2.08:	28	3.00 :	: 16	3.22 :	 80	••	••	3.17 :	86
October:	2.28 :		2.98:		••	•• •	3.04 :	· 9/	 1	 1	••	1
November:	2.65:	82	1.85 :	21:	1.85 :	9	3.06 :	76 :	 1	 1	4.05 :	109
December:	2.11 :	65:	1.87 :	52 :	2.50 :	81:	3.13 :	78 :	••	 1	2.65 :	72
1985:	••	•• .1	••			••	••	••	••	••	••	
January:	1.85 :	57 :	1.43 :		1.85 :	: 9	2.21 :	55 :	•• 1	 1	 1	I
February:	1.51 :	47 :	1.40 :	39 :	1.85 :	ę0 :	2.06 :	51:	•• 1	••	 1	i
March:	1.30 :	40	. 75 .	21 :	1.29 :	42 :	1.78 :	44 :	 I	••	1.50 :	41
April:		27 :	1.22 :	34 :	. 55 :	18:	1.33 :	33 :	 I		1.10 :	30
May:	. 73 :	23 :	. 86	24:	. 69	22 :	. 95 :	24 :	••	••	•• 1	I
Junei	. 68 .	21 :	. 72 :	20	. 34 :	11 :	: 67.	20 :	••	••	 1	I
••	••	••						••		••	••	
<u>1</u> / January-March	1983=100.	• •		;		:	•	×				
<u>2</u> / October-Decemb	er 1983=10											

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

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Table 27.--64K DRAM's (200 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of over 100,000 units to 3 classes of customers, and indexes of those prices, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

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•• ••		D.	S. produc	ers' price		••••		Jap	anese impo	rters' p	rice	
Period	Factory d sales to	lirect OEM's	sale autho distri	s to rized butors	Spot-mai price	rket :	Factory sales to	direct : o OEM's :	Sales author distrib	to ized utors	: Spot-m : pric	arket es
• •• •	<u>Weighted:</u> average:		Weighted:		<u>Weighted</u> : average:		Weighted: average:		Weighted: average:		:Weighted: : average:	
• ••	price : I	ndex 1/:	price :	Index 1/:	price : ]	Index 2/:	price :	Index 1/:	price :	Index	: price :	Index
**	••		••	••	••	••	••	••	••		••	į
1983:	••		••	••	••	••	••	••	••		••	
January-March:	\$3.05 :	100	\$3.50 :	100	•• 1	••	\$4.10 :	100 :	•• 1	1		1
April-June:	 1	1	•		•• 1	•• 1	3.39 :	83:		1		1
July-September:	3.53 :	116			••	••	3.55 :	87 :	 1	1		t
October-December:	3.51 :	115	1	1	 1	••	3.55 :	87 :	 1	1	••	I
1984:	••		••	••	••	••	••	••	••		••	
January-March:	3.88 :	127	1		••		3.20 :	78 :	•••	1		I
April-June:	3.65 :	120	4.15 :	: 611	 1	 1	3.14 :	: 11 :	 1	I		I
July-September:	3.12 :	102	3.30	: 46	 1	••	3.21 :	78 :	•• 1	I		ı
October:	2.77 :	 06	2.50	71 :	••	••	3.11 :	76 :	 1	1		1
November:	2.89 :	95	1	1	 1		3.07 :	75 :	 1	1	••	i
December:	2.66 :	87	1.80 :	51 :	 1		3.00 :	73 :	•• 1	ı		I
1985:	••				••	••	••	••	••			
January:	2.40 :	78	: 1.80 :	51	••	••	3.25 :	: 6/	 1	1		1
February:	1.50 :	49	1	1	••	•• 1	 1		 1	i		<b>I</b>
March:	1.12 :	37	1	1	 1	•• . 1	 I		••	I		I
April:		1	1	1		••	 1	••	•• 1	I		1
May	. 75 :	25	1	1		 1	 1	••	 1	I		1
June:	.62 :	20	1	1	\$0.23:	100 :	 1		•• 1	1		1
••	••				••		••	•	••			
1/ January-March	1983=100.							•				

2/ June 1985=100.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

in January 1985 when the index fell 20 points as the price dropped from \$2.61 to \$1.92 per unit. Sales to OEM's of this quantity of 64K DRAM's imported from Japan also reflect a steady downtrend. The import price fell from a peak of \$3.86 (April-June 1983) to a low of \$0.76 at period end (June 1985), almost 80 percent lower than the base-period price of \$3.74. The sharpest decline was in January 1985, when the index fell 16 points as the price slid from \$2.79 to \$2.21 per unit, and again in May 1985, when the index fell 16 points as the price slid from \$3.86 the price slid from \$1.41 to \$0.82 per unit.

Domestic prices of sales to OEM's of more than 100,000 units reflect an initial uptrend in 1983 to a peak of \$4.16 in January-March 1984, 22 percent above the base-period price of \$3.40 per unit (table 24). At that point a steady downturn began that extended to the subject period end. Prices fell to a low of \$0.90, 73 percent below the base-period price. The largest single price drop occurred in February 1985, when the price fell 31 index points from \$2.54 to \$1.50 per unit. Factory direct sales of 64K DRAM's imported from Japan and sold to OEM's in this quantity reflect a steady downtrend but one not so steep. The price of imported units from Japan peaked in October-December 1983 at \$3.75, then fell to a low of \$1.39 at period end, or by 60 percent from the base-period price of \$3.50. The largest decline, 32 index points, occurred in April 1985 as the price fell from \$2.44 to \$1.65 per unit.

Prices of 150 ns 64K DRAM's, sold to distributors.—Domestic prices to distributors in quantities of 10,000 units or less trended irregularly downward from a base-period price of \$4.00 to a low at period end of \$0.57, or by 86 percent (table 22). The sharpest downturn was in January 1985, as the price slid almost 18 index points from \$2.39 to \$1.68 per unit. Import prices for sales of this quantity to distributors reflect a stronger trend in 1983-84, peaking in July-September 1984 at \$4.13 (up from \$3.95 in the base period), before turning steadily downward over the remainder of the subject period to reach a level of \$0.96 (June 1985), 76 percent below the base-period price.

The domestic sales prices to distributors in quantities of 10,000 to 100,000 units also trended downward after an uptrend in 1983. Prices fell from a peak of \$4.40 (July-September 1983) to a low of \$0.49 in June 1985, representing a decline of 87 percent from the base-period price of \$3.80 (table 23). Import prices peaked at \$4.64 (July-September 1983), but stayed above the base-period price level through July-September 1984 before they turned steadily downward. The sharpest declines were in November 1984, as prices fell 18 index points from \$3.63 to \$2.80, and again in February 1985, when the index dropped 20 points as prices slid from \$2.38 to \$1.65. The downtrend continued to a low of \$0.70 in June 1985, a price level 82 percent below the base-period price of \$3.80.

Limited data on domestic sales prices to distributors in quantities of over 100,000 units shows a downtrend from \$4.40 in January-March 1983 to \$0.67 in June 1985, or by 85 percent (table 24). No importers reported sales to distributors in this quantity.

Prices of 150 ns 64K DRAM's, sold to spot-market purchasers.—Domestic prices in the spot market in quantities of 10,000 units or less reflect an irregular downtrend during the subject period. From a base-period high of \$5.00, the price fell to a 1983 low of \$3.25 (July-September), then plateaued at \$3.90 through April-June 1984 before declining sharply to \$1.95 in October 1984 (table 22). The period low of \$0.85 (June 1985) was 83 percent lower than the base-period price. Import prices show a steadier downturn, sliding from the base-period level of \$4.00 to \$2.90 in December 1984, or by 27 percent. The sharpest drop followed in January 1985 from December 1984, as the index fell 27 points to a price of \$1.85. A period low of \$0.90 in May 1985 was 77 percent below the base-period price.

Domestic spot sales in quantities of 10,000 to 100,000 units reflect an irregular downtrend. The price fell from a base level of \$3.80 (January-March 1984) to \$3.25 in July-September 1984 then plummeted to \$1.95 in October-December, crept upward in January and February 1985, then dropped almost 50 index points to end the period at \$0.37, 90 percent below the base-period price (table 23).

The spot-market prices of imports from Japan sold in this quantity show a more stable trend, holding rather firm through July-September 1984 at a level of \$3.50, then declining to a low at period end of \$0.91, 79 percent below the base-period price of \$4.25.

The few domestic spot prices for sales in quantities of over 100,000 units show a sharp drop in prices from \$3.95 in October-December 1983 to \$0.41 in June 1985 (table 24). A single Japanese import price of \$0.60 was reported for April 1985.

Prices of 200 ns 64K DRAM's, sold to OEM's.—Domestic prices to OEM's in quantities of 10,000 units or less reflect an irregular uptrend of 8 percent to a period high of \$3.58 in January-March 1984. At that point the trend turned downward to a period low of \$0.77 in May 1985, 77 percent below the base-period price of \$3.32 (table 25). The sharpest quarterly decline occurred in July-September 1984, as the price fell from \$3.42 to \$2.70, or by 22 index points, and the sharpest month-to-month decline occurred in November 1984, when the price slid from \$2.79 to \$2.02, for a 23-point drop. Import prices to OEM's also show an irregular but pervasive downtrend. The price fell from the base-period high of \$3.98 to a period low of \$0.83 in June 1985, 79 percent below the base-period price. The sharpest decline occurred from January to March 1985, as prices fell 33 index points from \$2.99 to \$1.65.

Domestic prices to OEM's in quantities of over 10,000 to 100,000 units reached a period high of \$3.49 in January-March 1984 after softening in 1983 (table 26). The trend turned downward and prices declined steadily to a low of \$0.68 in June 1985, 79 percent below the base-period price of \$3.23 per unit. Import prices in these quantities reflect a steady downtrend, declining from \$4.01 in January-March 1983 to \$0.79 in June 1985, a price 80 percent lower than the base-period price. The sharpest decline was in January 1985, when the price fell 23 index points from \$3.13 to \$2.21.

Domestic prices to OEM's for sales in quantities of over 100,000 units reflect a strong uptrend in 1983 and early 1984. Prices climbed to a period high of \$3.88, representing an increase of 27 percent over the base-period price of \$3.05 (table 27). Prices trended steadily downward beginning in April-June 1984 to a period low of \$0.62 in June 1985, 80 percent below the base price. Data reported by importers on sales to OEM's in this quantity cover a shorter period, ending in January 1985. The price trend is steadily downward from a base-period price of \$4.10 to a period low of \$3.00 in December 1984, representing a 27-percent decline.

Prices of 200 ns 64K DRAM'S, sold to distributors.—Domestic prices to distributors in quantities of 10,000 units or less show an irregular uptrend that peaked at \$3.82 in April—June 1984 (table 25). Prices then trended sharply downward to a period low of \$0.66 in May 1985, 81 percent below the base—period price of \$3.47. The sharpest month—to—month price drop occurred in October 1984, when the index fell 26 points as the price slid from \$3.13 to \$2.23. Import prices in this quantity reflect an irregular pattern of price decline in 1983, then an uptrend to a peak price of \$4.57 in April—June 1984. Prices then trended down to a period low of \$0.80, 81 percent lower than the base—period price of \$4.20.

Domestic sales to distributors in quantities of over 10,000 to 100,000 units also show a softening of prices in 1983, which dropped the index to 94 as prices fell from \$3.60 to \$3.38 per unit (table 26). From a peak-period price of \$3.87 in January-March 1984, the price trend spiraled downward to an end-of-period level of \$0.72, 80 percent below the base-period price of \$3.60. The sharpest drop in price occurred in November 1984, as the domestic price index fell 32 points and the price slid from \$2.98 to \$1.85 per unit. Prices of imports from Japan sold in this quantity cover only the first six quarters of the subject period and reflect the market strength by an irregular trend of prices that were as much as 10 index points above the base-period price.

Domestic prices to distributors in quantities of over 100,000 units were reported for only January 1983 through January 1985. The prices show the early uptrend to a peak-period price of \$4.15 in April-June 1984, 19 points above the base-period price level (table 27). Prices turned down at that point to reach a level of \$1.80 in December 1984, 49 percent below the \$3.50 base-period price.

Prices of 200 ns 64K DRAM's, sold to spot-market purchasers.—Domestic spot sales in quantities of 10,000 units or less reflect a price trend similar to those previously noted. Prices were on the uptrend in 1983 and part of 1984. The index peaked in October-December 1983 and held through April-June 1984 at a price of \$3.50, eight points above the base-period price of \$3.25 (table 25). The downtrend that began at that time was sharp, with the index falling 35 points from 92 in July-September to 57 in October as the price dropped to \$1.85. Prices continued to decline and ended the period at a level of \$0.42, 87 percent below the base-period level. Imports from Japan show a steady trend from base period to July-September 1984 at a price level of \$3.50. The downtrend at that point was less severe, but prices fell steadily to a period low of \$0.90, 74 percent below the base-period price.

Spot sales of domestic DRAM's in quantities of over 10,000 to 100,000 units do not span the entire subject period. Prices held firm at \$3.10 from the October-December 1983 base period to April-June 1984, then trended downward to end the period at \$0.34, 89 percent below the base-period level (table 26). Import prices show an erratic trend that peaked in November 1984 at a price of \$4.05, 9 index points above the base-period price of \$3.70, then fell to a period low of \$1.10 in April 1985, 70 percent lower than the base-period level. A single reported domestic spot sale of 100,000 units or more was reported in June 1985 at a price of 23¢ per unit, the lowest price reported for 64K DRAM's in questionnaire responses (table 27).

<u>Margins of underselling</u> — Quarterly and monthly comparisons of weighted-average net selling prices for the two representative 64K DRAM devices (tables 22 through 27) provided the basis for the margins of underselling (or overselling) presented in tables 28 through 33. The margins of underselling or overselling by imports from Japan are shown in dollars per unit and as a percentage. Margins based on quarterly comparisons were possible for most quarters and months of the subject period and are presented by class of customer and by quantity sold. Although there is a mixed pattern of underselling and overselling, imported 64K DRAM's from Japan generally were priced above the domestic product.

<u>150 ns 64K DRAM's</u>.—Quarterly and monthly comparisons of prices for these DRAM's to OEM's in quantities of 10,000 units or less show that the imported Japanese product undersold the domestic DRAM's in six instances, by margins that ranged from 1.6 to 54.6 percent or \$0.05 to \$1.20 per unit (table 28). The domestic product undersold the Japanese DRAM's in 10 comparisons by margins of 7.5 to 26.7 percent or 25 to 46 cents per unit. For sales to OEM's in quantities of over 10,000 to 100,000 units, overselling by the Japanese products occurred in 9 instances. Margins ranged from 6.7 to 61.5 percent or from \$0.17 to \$0.54 per unit. Underselling appeared in 7 instances, at margins that ranged from 2.6 to 31.9 percent or \$0.08 to \$0.36 per unit. Sales of over 100,000 units to OEM's reveal a dominant pattern of overselling. Only 2 of 16 comparisons revealed underselling. Margins ranged from 11.0 to 20.4 percent or \$0.42 to \$0.85 per unit. Overselling margins ranged from 1.6 to 88.7 percent or \$0.06 to \$1.33 per unit.

Weighted-average price comparisons for 150 ns 64K DRAM's sold to distributors indicate a solid pattern of overselling by imports from Japan. Thirteen of 16 comparisons of sales in quantities of 10,000 units or less show overselling, by margins that ranged from 1.3 to 72.6 percent or \$0.05 to \$1.22 per unit. Margins of underselling ranged from 1.2 to 5.4 percent or \$0.04 to \$0.22 per unit. Overselling occurred in 15 of 16 comparisons of prices to distributors for quantities of over 10,000 to 100,000 units. Margins of overselling ranged from 4.5 to 80.2 percent or \$0.18 to \$0.49 per unit (table 29). There were no possible comparisons of margins for sales of over 100,000 units to distributors.

Comparisons of weighted—average prices for spot sales in quantities of 10,000 units or less indicate a mixed pattern of underselling and overselling by imports of 150 ns 64K DRAM's. Nine instances of underselling by Japanese imports appear, at margins of 5.7 to 28.2 percent or \$0.11 to \$0.47 per unit. In six comparisons there is overselling, at margins that range from 5.2 to 71.8 percent or \$0.17 to \$1.40 per unit. Comparisons of spot—market prices for sales in quantities of over 10,000 to 100,000 units show overselling in 8 of 11 instances. Margins of overselling ranged from 7.7 to 173.4 percent or from \$0.25 to \$1.84 per unit. Underselling margins ranged from 3.2 to 33.3 percent or \$0.12 to \$0.75 per unit. There were no comparisons possible for spot sales of over 100,000 units.

<u>200 ns 64K DRAM's</u>. — Price comparisons of these DRAM's sold to OEM's reveal a broad pattern of overselling by imports from Japan in all three sales

Table 28.—64K DRAM's (150 ns) sold factory direct to original-equipment manufacturers: Average margins by which imports of Japanese DRAM's undersold or oversold 1/ U.S.-produced DRAM's based on weighted-average net selling prices of representative low-priced sales, by sizes of sales, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

: Period	10,000 or	units less	Over 10 to 100,00	,000 0 units	0ve 100,000	er ) units
	Amount :	Percent	: Amount :	Percent	: Amount :	Percent
	Per unit:		: Per unit:		: Per unit:	
1983: :	:		: - :		:;	
January-March:	-\$0.46 :	-13.84	: -\$0.34 :	9.96	: - :	
April-June:	25 :	-7.45	:46 :	-13.58	: - :	
July-September:	31 :	-9.96	: .92 :	20.71	: -\$0.10 :	-2.94
October-December:	.44 :	11.11	: .82 :	19.68	:06 :	-1.57
1984:			: :		: :	
January-March:	.13 :	3.63	: .53 :	14.06	: .85 :	20.37
April-June:	.05 :	1.57	: .43 :	11.35	: . 42 :	11.00
July-September:	.11 :	2.98	:40 :	-13.68	:27 :	-8.63
October:	24 :	-8.28	: .11 :	3.42	:83 :	-31.93
November:	23 :	-8.16	: .08 :	2.59	: -1.28 :	-54.38
December:	51 :	-21.40	:17 :	-6,66	: 48 :	-19.22
1985: :	· · · :		: :		: :	
January:	.09 :	3.90	:29 :	-15.04	:33 :	-13.15
February	46 :	-26.65	:33 :	-21.91	: -1.33	-88.65
March:	12 :	-8.25	:42 :	-40.10	:98 :	-67.41
April:	:11 :	-11.03	:54 :	-61.46	:33 :	-25.22
May:	: 1.20 :	54.57	:08 :	-10.88	: 42	-38.58
June	13 :	-17.05	: .36	31.86	: —.49 :	-54.83

1/ Overselling is shown with a negative (-) sign.

Table 29.—64K DRAM's (150 ns) sold factory direct to authorized distributors: Average margins by which imports of Japanese DRAM's undersold or oversold <u>1</u>/ U.S.-produced DRAM's based on weighted-average net selling prices of representative low-priced sales, by sizes of sales, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

: Period :	10,000 or	) units less	Over 10 to 100,00	),000 00 units	Ove 100,000	units
:	: Amount :	Percent	: Amount :	Percent	: : : Amount :	Percent
······	Per unit:		: <u>Per unit</u> :		: <u>Per unit</u> :	
1983: :			: :		: :	
January-March:	\$0.05 :	<b>1.28</b> .	: - :		: -:	
April-June:	39 :	-11.07	:45 :	-12,96	: -:	
July-September:	.04 :	1.20	:24 :	-5.39	: ′ – :	
October-December:	. 22 :	5.43	:18 :	-4.54	: - :	
1984: :	:		: :		: :	
January-March:	29 :	-7.63	:63 :	-17.00	: - :	
April-June:	05 :	-1.27	:59 :	-16.50	: -:	
July-September:	-1.16 :	-38.85	: -1.60 :	-67.71	: - :	
October:	-1.22 :	-53.68	:79 :	-27.73	: - :	
November:	47 :	-17.56	:29 :	-11.78	: -:	
December:	59 :	-24.64	:35 :	-17.17	: -:	
1985: :	:		: :		: :	
January:	-1.22 :	-72.61	;85 :	-55.61	: -:	
February:	26 :	-16.37	:52 :	-46.74	: - :	
March:	40 :	-39.85	:47 :	-58.12	: – :	
April:	39 :	-61.83	:29 :	-29.13	: - :	
May:	24 :	-33.13	:49 :	-80.24	: - :	-
June:	39 :	69.47	:21 :	-43.74	: -:	-

1/ Overselling is shown with a negative (-) sign.

Table 30.—64K DRAM's (150, ns) sold factory direct to spot-market purchasers: Average margins by which imports of Japanese DRAM's undersold or oversold <u>1</u>/ U.S.-produced DRAM's based on weighted-average net selling prices of representative low-priced sales, by sizes of sales, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

Period	10,000 or	units less	Over 10 to 100,00	),000 00 units	Ove 100,000	r units
	: Amount :	Percent	: : : Amount :	Percent	: : : Amount :	Percent
	: Per unit:		: Per unit:		: Per unit:	
1983:	: :	•	; ;		: :	10 g
January-March	: \$1.00 :	20.00	: -:	·	:	
April-June	: .60 :	15.19	: - :		: -:	
July-September	:25 :	-7.69	: -:	-	: -:	
October-December-	: .47 :	11.93	: - :		: - :	
1984:	: :		: :	:	: :	*
January-March	: .35 :	8.93	: \$0.12 :	3.22	: -:	
April-June	: . 40 :	10.26	: -:		: '-':	, 
July-September	:17 :	-5.23	:25 :	-7.69	: -:	·
October	: -1.40 :	-71.79	: -1.05 :	-53.58	: -:	· ',
November	: –.70 :	-30.43	: -1.35 :	-69.23	: -:	····
December	: –.55 :	-23.25	: -1.05 :	-53.85	: -:	•
1985:	: :		: ; ;	:	: :	
January	: .11 :	5.69	: .08 :	3.70	: - :	
February	: .35 :	20.00	: .75 :	33.33	: - :	· · ·
March	: .47 :	28.16	: -1.84 :	-173.58	: - :	·
April	:22 :	-25.71	49	-78.95	: -:	
May	: .14 :	13.54	:22	: 27.44	: -:	:
June	: - :	_	:54	-143.95	: - :	
	: -		•		• • • • •	

1/ Overselling is shown with a negative (-) sign.

Table 31.—64K DRAM's (200 ns) sold factory direct to original-equipment manufacturers: Average margins by which imports of Japanese DRAM's undersold or oversold 1/ U.S.-produced DRAM's based on weighted-average net selling prices of representative low-priced sales, by sizes of sales, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

: : Period :	10,000 or	units less	Over 10 to 100,00	0,000 00 units	Ove 100,000	r units
	: Amount :	Percent	: : : Amount :	Percent	: : : Amount :	Percent
	Per unit:		: <u>Per unit</u> :		: <u>Per unit</u> :	
	•		• •		· · ·	
January-March:	-\$0.66 :	-19.80	:\$0.78 :	-24.16	: -\$1.05 :	-34.43
April-June:	35 :	-11.05	:40 :	-13.21	: -:	
July-September:	.15 :	4.37	:40 :	-13.31	:02 :	62
October-December:	28 :	-8.73	:02 :	50	:04 :	-1.07
1984: :	:	·.	:		: :	
January-March:	. 29 :	8.13	: .33 :	9.58	: .67 :	17.38
April-June:	02 :	45	: .18 :	5.39	: .51 :	13.93
July-September:	54 :	-19.96	:23 :	-7.52	:09 :	-2.89
October:	57 :	-20.31	:76 :	-33.28	:33 :	-12.05
November:	89 :	-43.76	:41 :	-15.31	:18 :	-6.38
December:	48 :	-18.30	: -1.02 :	-48.59	:34 :	-12.80
1985: :	:		:		: :	
January:	97 :	-48.14	:35 :	-19.06	:85 :	-35.18
February:	91 :	-65.04	:55 :	-36.49	: -:	
March:	40 :	-32.47	: 48 :	-36.97	: -:	·
April:	51 :	-64.38	:45 :	-50.43	: - :	••••
Mav:	33 :	-42.78	:21 :	-29.01	: -:	
June:	. 50 :	37.53	: –. <b>11</b> :	-15.55	: -:	

1/ Overselling is shown with a negative (-) sign.

Table 32.—64K DRAM's (200 ns) sold factory direct to authorized distributors: Average margins by which imports of Japanese DRAM's undersold or oversold <u>1</u>/ U.S.-produced DRAM's based on weighted-average net selling prices of representative low-priced sales, by sizes of sales, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

Period	10,000 or	units less	Over 10 to 100,00	0,000 00 units	Ove 100,000	r units
$(f_{\mu} \circ f_{\mu})^{\mu}$	: Amount :	Percent	: Amount :	Percent	: Amount :	Percent
	: Per unit:		: Per unit	, ,	: Per unit:	
1983:	:		:		:	
January-March	:\$0.73 :	-21.00	: -\$0.15	-4.17	: -:	'
April-June	:98 :	-30.53	: 42	-12.72	: - :	
July-September	: –.76 :	-23.54	66	-19.34	: _ :	
October-December-	; –.01 :	40	:'74	-21.97	: - :	
1984:	: .		:		:	
January-March	:70 :	-20.15	: .07	: 1.83	: - :	
April-June	:75 :	-19.61	:47	-13.23	: - :	
July-September	: -1.02 :	-32.68	: -		: - :	
October	: -1.27	-56.74	: –	:	: - :	:
November	: -1.02	-45.27	: -		: - :	:
December	; -1.38	-72.20	:	: -	: - :	:
1985:		:	:		:	:
January	:97 :	-49.06	: -	: –	: - :	;
February	: - 46	-34.93	: -	: -	: - :	:
March	:43	-32.26	: -	: –	:	: -
April	:77	-104.22	: –	: -	:	-
May	:14	-21.44	: -	: –	:	-
June	: -	: -	: -		:	: -

1/ Overselling is shown with a negative (-) sign.

Table 33.—64K DRAM's (200 ns) sold factory direct to spot-market purchasers: Average margins by which imports of Japanese DRAM's undersold or oversold <u>1</u>/ U.S.-produced DRAM's based on weighted-average net selling prices of representative low-priced sales, by sizes of sales, by quarters, January 1983-September 1984, and by months, October 1984-June 1985

: Period :	10,000 or	units less	Over 10 to 100,00	),000 00 units	0ve 100,000	r units
:	: Amount :	Percent	: Amount :	Percent	: Amount :	Percent
	Per unit:	******	: <u>Per unit</u> :		<u>Per unit</u> :	
	•	•	· · ·			
January-March:	-\$0.25 :	-7.69	: :		: :	
April-June:	25 :	-7.69		·	: _ :	
July-September:	10 :	-2.94	: -:	·	: - :	
October-December-:	- :		: -\$0.56 :	-18.17	: – :	
1984: :	:		: :	:	: :	
January-March:	- :	:	: 50 :	-16.13	: - :	
April-June:	- :		:61 :	-19.65	: - :	
July-September:	50 :	-16.67	:17 :	-5.74	: - :	
October:	-1.15 :	-62.16	: - :		: :	
November:	80 :	-43.24	: -2.20 :	-118.92	: - :	
December:	73 :	-40.37	:15 :	-5.80		
1985: :			: :			
January:	- :				· · ·	
February:	10 :	-6.34			• _ •	
March:	.03	2 22	• - 21 •	-16 09	•••••••••••••••••••••••••••••••••••••••	
April			- 55	-100.00	· _ ·	
Mav	- 50	-125 00	· · · · ·		•	
June	· · · · · ·	120,00	· _ ·		• • •	
			: - :	_	. – .	

1/ Overselling is shown with a negative (-) sign.

quantities. For sales of 10,000 units or less, underselling appears in 3 of 16 instances, with margins that range from 4.4 to 37.5 percent or \$0.15 to \$0.50 per unit (table 31). Overselling margins were from 8.7 to 65.0 percent or \$0.28 to \$0.91. Only 2 of 16 comparisons of weighted—average prices for sales to OEM's in quantities of over 10,000 to 100,000 units show underselling. The margins were 5.4 and 9.6 percent or \$0.18 and \$0.33, respectively. For sales quantities of over 100,000 units the comparisons show only 2 instances in 10 of underselling. Margins were 13.9 and 17.4 percent or \$0.51 and \$0.67 per unit. Overselling margins ranged from 0.6 to 35.2 percent or \$0.02 to \$0.85 per unit.

Sixteen comparisons of weighted-average prices for sales of 200 ns 64K DRAM's to distributors in quantities of 10,000 units or less revealed no instances of underselling. Overselling margins ranged from 0.4 percent to 104.2 percent or from \$0.01 to \$0.77 per unit (table 32). Five of six comparisons of prices for sales to distributors in quantities of over 10,000 to 100,000 units show overselling. Margins ranged from 4.2 to almost 22 percent or from \$0.15 to \$0.74.

Prices for spot-market sales in quantities of 10,000 units or less show nine instances of overselling, three of no margin, and a single instance of underselling by a slim 2.2 percent (\$0.03) margin (table 33). Margins of overselling ranged from 2.9 to 125.0 percent or from \$0.10 to \$0.50 per unit. Eight price comparisons for spot sales in quantities of over 10,000 to 100,000 units all show overselling, by margins that ranged from 5.7 to 100.0 percent or from \$0.17 to \$0.55 per unit.

#### Lost sales

19 July 1

Domestic producers were requested in the Commission's questionnaire to provide specific instances of lost sales of 64K DRAM's to imports of these products from Japan. Micron provided 20 allegations of such lost sales. 1/The Commission staff investigated eight of these allegations, representing a possible sales volume of \* \* \* units and revenue of \$\* \* \*. 2/

Micron named \* \* \* as the purchaser involved in an alleged lost sale of \* \* \* 64K DRAM's in \* \* \*. Micron's quote of \$\* \* \* allegedly was rejected in favor of Japanese product offered at \$\* \* \* per unit. \* \* \*, purchasing manager for the firm, stated that the sale in question was lost to \* \* \* (a domestic producer). \* \* \* explained that in prior months—\* \* \* through \* \* \* —grey-market brokers selling Japanese product were setting the price. After that—as early as \* \* \* and \* \* \*\_U.S. manufacturers began to meet these low prices. Micron was very competitive for a while, but then lost out, \* \* \* said. In \* \* \*, Japanese 64K DRAM's were offered at the \$\* \* \* to \$\* \* \* range and \* \* \* was at or a little below that range. The Koreans were 20 percent

1/ Intel and Mostek, respectively, listed 2 and 7 relevant lost sales allegations, but did not provide adequate purchaser information. Motorola and TI, respectively, listed 1 and 23 lost sales allegations, but these submissions were received too late for full consideration by the staff. below \* \* \*. \* \* \* named CALABCO, Toyota Giken (TG), and ISC (International Service Center) as key brokers in the "grey market." 1/

Commenting on the current market, \* \* \* stated he recently placed an order with \* \* for \* \* 64K DRAM's at \$\* \* per unit. In \* \* \*, he bought an unspecified quantity of 64K DRAM's from \* \* \* at \* \* \*. He can't buy Japanese units currently at that low a price level. The Japanese 64K DRAM's he has bought were not purchased direct from Japanese producers but through the broker intermediaries. Although \* \* \* sees the 64K DRAM as a commodity product, some of the firm's customers prefer the Japanese product.

\* \* other alleged lost sales involved \* \* \*. Micron alleged that it lost \* \* in \* \* \*. Micron's \* \* \* price of \$\* \* \* allegedly was rejected in competition with a quote of \$\* \* \* per unit for Japanese units. In \* \* \*, the Japanese DRAM's were allegedly offered at \$\* \* \* and Micron's bid was refused. \* \* \*, executive of the firm, confirmed the facts as alleged. He stated that Micron wanted \* \* \*. Offer prices for units made by Oki, Toshiba, Fujitsu, Hitachi, and NEC were priced lower on the spot market, sold through what \* \* called "wholesalers." 2/ He said these vendors were not distributors in the accepted definition. Distributor prices were higher than prices in this "spot market." \* \* \* decided not to buy \* \* \* but to "buy spot from Japanese sources at lower prices."

Micron identified \* \* \* in an alleged lost sale of \* \* \* 64K DRAM's in \* \* \*. Micron's quote of \$\* \* \* per unit was rejected in favor of Japanese DRAM's offered at \$\* \* \*. \* \* \*, buyer, explained the facts concerning this transaction. In \* \* \*, he thought the \$\* \* \* price level would hold for some time so he considered \* \* \* Micron for a \* \* \*. As prices spiraled downward, he was offered very attractive prices for Japanese product from vendors in the so-called grey market. \* \* \* named CALABCO, Newport Components, and Centon as "nonauthorized distributor sources" of \* \* \*. CALABCO in particular has given excellent terms, delivery, and quality product to the firm. Most of \* \* \*'s purchases beginning in \* \* \* have been in this spot market. The volume involved amounts to about \* \* \*. 3/

Another alleged lost sale involved the alleged purchase of \* \* \* 64K DRAM's in \* \* \* by \* \* \*. Micron's quote of \$\* \* \* per unit allegedly was rejected in favor of Japanese product offered at \$\* \* \*. \* \* \*, a principal of the firm, confirmed buying Japanese 64K DRAM's, as well as Korean product from Tri-Star (Samsung). The latter he asserts, bought at low price, was very poor quality. He paid \$\* \* \* for \* \* \* 64K DRAM's and bought \* \* \* to \* \* \* per month. \* \* \* has also bought Hitachi DRAM's through distributors, but not

1/ CALABCO is a fairly large distributor that goes to Japan "with dollars" and, says \* \* \*, buys heavily at the end of the month when Japanese DRAM producers unload unsold inventory at reputedly below-cost prices. Toyota Giken, located in San Francisco, is based out of Japan, has entree to the large Japanese producers of DRAM's, and has strong financial backing in Japan. TG stocks heavily and, \* \* \* says, can fill orders of 10,000 to 15,000 Japanese DRAM's at any time. ISC is a smaller broker, formerly with TG, that split off to form the new company.

2/ \* \* \* named several \* \* \* wholesalers: \* \* \*.

3/ \* \* \* is a \* \* \*. The firm competes with \* \* \*. Its demand for 64K DRAM's stems from \* \* \*. \* \* \*.

direct. His firm also buys from Mostek and TI, said \* \* \*, and is "\* \* \* Micron."

\* \* \* was named in an alleged lost \* \* \* sale for \* \* \* 64K DRAM's in \* \* \*. Micron's offer price of \$\* \* \* allegedly lost out to a competing bid of \$\* \* \* per unit for Japanese product. \* \* \*, the firm's owner, stated that only recently had a Japanese source, \* \* \*, offered a lower price than that of Micron. \* \* \* has been purchasing from Micron, buying \* \* \* at \* \* \*. \* \* \* is quoting \* \* \* and \* \* \* is considering that offer. He has also approached \* \* \*, but that vendor was unable to beat Micron's price on 64K, although it did quote better prices on 128K (stacked 64K units) and on 256K. \* \* \*'s price for 256K DRAM's was \* \* \* percent below Micron's quote on a recent purchase by \* \* \*.

Micron identified \* \* \* in an alleged instance of a lost sale for \* \* \* 64K DRAM's in \* \* \*. Micron's quote to this \* \* \* firm allegedly was \$\* \* \* per unit and was undercut by a \$\* \* \* offer price for Japanese DRAM's. \* \* \*, owner of the firm, confirmed the facts as alleged. He is trying to be competitive and "shops for the best prices." His sources for the lower priced Japanese DRAM's are local distributors and "grey-market sources." The products are manufactured by NEC and Hitachi.

\* \* \*, \* \* \* located in \* \* \*, was cited in an alleged lost sale of \* \* \* 64K DRAM's in \* \* \*. Micron alleged that its offer price of \$\* \* \* was rejected in favor of a competing bid of \$\* \* \* for Japanese DRAM's. \* \* \*, an executive of the firm, explained that this piece of business that \* \* \* sought was \* \* \*. The foreign (Japanese) vendor for this purchase supplied the 64K DRAM's \* \* \*. \* \* \*. \* \* \* noted that the Japanese price could have come from a U.S. source or \* \* \*. The distributor does not know how the product was \* \*.

#### Lost revenue

Domestic producers were requested to provide specific instances in which they had to reduce prices in order to avoid losing sales to competitors selling 64K DRAM's imported from Japan. Micron provided 18 allegations of such lost revenue. 1/

\* \* \* was named in an alleged instance of lost revenue involving the purchase of \* \* \* 64K DRAM's in \* \* \* after Micron allegedly reduced its price from \$\* \* \* to \$\* \* \* per unit in competing with lower priced Japanese product. \* \* \*, buyer for \* \* \*, confirmed the facts as alleged but noted that the \* \* \* price was actually \$\* \* \*. The \* \* \* because of the sharp downturn in prices. \* \* \* buys 64K DRAM's from five Japanese firms <u>1</u>/ as well as from Micron, Motorola, Texas Instruments, and Mostek. With lower prices offered for Japanese DRAM's, \* \* \* told Micron \* \* \*. Micron reduced its price and \* \* \* continued to \* \* \*. Currently, competition is keen and prices are even lower, \* \* \* noted. Last week \* \* \* bought \* \* 64K DRAM's

1/ Motorola and TI, respectively, listed 8 and 11 allegations of lost revenue, but these submissions were received too late for full consideration by the Commission staff.

2/ Hitachi, NEC, Toshiba, Panasonic, and Mitsubishi.

from \* \* \* at \* \* \* per unit after shopping the market. A Japanese source quoted \* \* \*, and \* \* \* was offered Korean product priced in the \* \* \* range. According to \* \* \* there is no appreciable quality differential among the 64K DRAM's \* \* \* purchases from its qualified vendors. \* \* \* uses as few as \* \* \*. The firm is gearing up to use 256K DRAM's and has a target date \* \* \* for the switchover. Lost revenue in this instance amounted to \$\* \* \*.

Another allegation of lost revenue named \* \* \* as purchaser of \* \* \* 64K DRAM's in \* \* \* after Micron reduced its price from \$\* \* \* to \$\* \* \* per unit to save the sale. \* \* \*, director of purchasing, confirmed the allegation. \* \* \* had \* \* \*. \* \* \* explained that as market prices dropped \* \* \* was offered much lower prices by \* \* \* approved Japanese sources so \* \* \* had to go back to Micron and ask for \* \* \*. Micron reduced the price to \$\* \* \*. \* \* \* noted that since then, Japanese prices from all the \* \* \* sources have dropped further and recently are as low as 52¢ per unit. <u>1</u>/ Nevertheless, \* \* \* is honoring the \$\* \* \* price as a matter of policy. It will pay off, \* \* \* adds, in long-term benefits. \* \* \* has had no quality problems with Micron DRAM's. Lost revenue in this transaction amounted to \$\* \* \*.

Micron cited \* \* \* in an instance of lost revenue. This allegation involved \* \* \* for \* \* \* 64K DRAM's (\* \* \*) in \* \* \* after Micron reduced its offer price from \$\* \* \* to \* \* \* per unit in order to meet lower Japanese price quotes. At that time, \* \* \*, purchasing manager, had lower price offers from Japanese vendors and other domestic producers. 2/ \* \* \* called Micron, requesting that they \* \* \*. As a result, the \* \* \* price was cut to \* \* \*, as alleged. Periodically since then, as prices dropped, Micron has reduced its \* \* \* price to \* \* \* per unit and, quite recently, to \* \* \* to cover the \* \* \*, \* \* \* emphasized that, among vendors, Hitachi has been "very competitive and aggressive in their pricing." As a result of the first price reduction, the lost revenue amounted to \$\* \* \*.

Micron named \* \* \* in an allegation of lost revenue that involved a \* \* \* for \* \* \* 64K DRAMS (\* \* \*) in \* \* \*. Micron alleged that it reduced its initial offer price of \$\* \* \* to \* \* \* per unit in the face of a lower price quoted by Japanese vendors. \* \* \* acknowledged that \* \* \* did decide to "go with Micron" in this instance rather than the Japanese vendors. The decision was made by \* \* \*. \* \* \* explained that Micron did reduce its first offer price as alleged. Typically, contracts with U.S. producers are for 1 year, and price can be renegotiated. The product is \* \* \*. \* \* \* \* \* uses \* \* \* 64K DRAM's in \* \* \*. Commenting on quality, \* \* \* stated that "after qualification as an approved vendor, price is the key consideration." <u>3</u>/ Lost revenue totaled \$\* \* \*.

1/ \* \* \* buys 64K DRAM's from Mitsubishi, NEC, Hitachi, and Toshiba. \* \* \* is in a "candidate" position currently. All have offered lower prices than Micron with no minimum quantity stated.

2/ \* \* \* buys 64K DRAM's from Hitachi, Fujitsu, Mitsubishi, Mostek, Motorola, National, AMD, Fairchild, Signetonics, Texas Instruments, and Micron. 3/ \* \* \* buys 64K DRAM's from Motorola, Mostek, TI, Hitachi, Mitsubishi, OKI, NEC, Toshiba, and Matsushumi, as well as from Micron. \* \* was identified as a purchaser involved in an alleged instance of lost revenue, \* \* \*. 1/ This \* \* \* for \* \* \* 64K DRAM's was made after Micron allegedly reduced its initial offer price of \$\* \* \* to \$\* \* \* per unit to meet the offer price for imports from Japan. \* \* \*, a principal in the firm, affirmed the facts as alleged. The \* \* \* was for \* \* \* and was \* \* \*. \* \* \* buys 64K DRAM's direct from Micron, National Semiconductor, and TI, but buys the Japanese product through distributors that offer the imported units. The firm sells \* \* \*. \* \* \* emphasized that his firm must be able to compete with \* \* \*. The market price has continued downward, \* \* \* noted. Recently, \* \* \* made a spot purchase of \* \* \* 64K DRAM's from TI at \$\* \* \* per unit. \* \* \* buys Japanese 64K DRAM's from several distributors that he classed as handling so-called grey market product, among them CALABCO 2/, a large-volume firm well known for its low prices. 3/ Finally, \* \* \* stated that he can buy 64K DRAM's in \* \*-lot quantities from many sources at 40¢ per unit. The lost revenue involved in this contract amounted to \$\* \* \*.

Micron named \* \* \* in another alleged instance of lost revenue related to a \* \* \* sale of \* \* \* 64K DRAM's (\* \* \*) in \* \* \*. Micron alleged that it reduced its initial offer price from \$\* \* \* to \$\* \* \* per unit in competition with Japanese produce offered at prices as low as \$\* \* \* per unit. \* \* \*, buyer, confirmed the facts as alleged. The \* \* \* price was \* \* \* downward on \* \* \*--first, after \* \* \* units were shipped, to \$\* \* \* and again, in \* \* \*, to \$\* \* \* per unit because of lower price offers that included quotes on Japanese product. \* \* \* also receives offers from "grey market" brokers whose prices are "quite a bit lower on 64K DRAM's coming from Japan directly." \* \* \* does not buy from brokers. 4/ \* \* \* noted that Micron matched the import prices being quoted at the time of price \* \* \*. The lost revenue attributable to the first cut in price amounted to \$\* \* \*.

Another alleged instance of lost revenue cited \* \* \*. 5/ This \* \* \* sale for \* \* \* 64K DRAM's (\* \* \*) in \* \* \* 1984 called for delivery of \* \* \* units \* \* \*. Micron received the order after allegedly reducing its initial quote of \$\* \* \* per unit to \$\* \* \* to meet Japanese competition. \* \* \*, president of the firm, confirmed the facts but stated that it is unclear whether Japanese or U.S. producers were leading or following the price down. <u>6</u>/ This is a very difficult question, he says. He believes that the brokers (grey market) with Japanese product set the price level, especially on the downside

1/\*\*\* buys \* \* \*. There are an estimated \* \* \* firms offering \* \* \* that incorporate 64K DRAM's in their \* \* \*.

2/ During January-October 1984, CALABCO was \* \* \* for MOS memory devices (TSUSA item 687.7441). CALABCO's imports totaled almost \$\* \* \* in value. CALABCO refused to complete and return the Commission's questionnaire, citing the protective order in a current lawsuit as its reason for failure to comply. CALABCO repeatedly was identified by purchasers as their source of low-priced 64K DRAM's.

3/ NEC has a current lawsuit against CALABCO for unauthorized sale of NEC products, among them 64K DRAMs.

4/ Approved vendors that supply \* \* \* include TI, National Semiconductor, Micron, Mostek, NEC, Mitsubishi, Fujitsu, and Hitachi.

5/ \* \* \* sells its products through \* \* \*, as well as to \* \* \*, such as \* \* \* and \* \* \*.

6/ \* \* \*, and commented that \* \* \* was very sensitive about price leadership.

of the market. \* \* \*'s customers say they will buy only \* \* \* if \* \* \* cannot meet the \* \* prices. \* \* \* stated that they buy a commodity product, but he thinks that the Japanese DRAM's have "a bit better reliability." His approved sources are Mitsubishi, Fujitsu, Tri-Star (Samsung), TI, and Micron. Currently, \* \* \* is paying \$\* \* \* to \$\* \* \* for 64K DRAMs and \$\* \* \* to \$\* \* \* for 256K DRAM's. The lost revenue on this contract amounted to \$\* \* \* per month.

\* \* \* lost revenue allegation by Micron cited \* \* \* as the purchaser involved in a \* \* \* sale for 64K DRAM's, \* \* \*, \* \* \*. This was a \* \* \* (with \* \* \*) \* \* \* at a time in \* \* \* (\* \* \*) that made the \* \* \* price quite attractive to \* \* \*. The \* \* \* about \* \* \* units \* \* \*. The alleged value of the \* \* \* was \$\* \* \* based on \* \* \* of \* \* \* units at a price of \$\* \* \* per unit. The accepted value amounted to \* \* \* \* based on an alleged price reduction to \$\* \* \* per unit in the face of Japanese competition quoting \* \* \* with Micron and that it had \* \* \* on price and on scheduled delivery quantities. \* \* \*'s annual \* \* \* supply of \* \* \* did not \* \* \*, said \* \* \*. The \* \* \* did not meet expectations and a \* \* \* in \* \* \* pointed toward a significantly softened market. \* \* \* cut its orders, said \* \* \*, and aware of the \* \* \* downtrend in 64K DRAM prices, began \* \* \* prices. Micron had shipped \* \* \*. \* \* \* stated that the price was \* \* \* down in \* \* \* to \$\* \* \* 1/ for the \* \* \* of \* \* \* units \* \* \*. In \* \* \* the price was \* \* \*. \* \* \* stated that \* \* \* agreed to accept a quantity of the units in \* \* \* with the caveat that Micron keep in step with the market. At that time, said \* \* \*, the Japanese price was at the 85¢ level and dropped a bit below that price in \* \* \*. The final price \* \* \* by Micron of \* \* \* units (in \* \* \*) was negotiated at \* \* \*. At that time, \* \* \* had \* \* \* 64K DRAM's in storage. In previous months, \* \* \* had bought Japanese DRAM's through \* \* \*. According to \* \* \*, \* \* \*, \* \* \* "is in competition" with the \* \* \*. \* \* \* has good relations with all the major Japanese producers. \* \* \* believes that the 64K DRAM's were purchased from \* \* \* at a price of about \$\* \* \* per unit. \* \* \* noted that \* \* \* "hammered down" the Micron price to \$\* \* \* and subsequently lower by using the leverage of Korean offer prices as well as Japanese prices. \* \* \* added that in his view the biggest problem was Korea's entry with lower prices. 2/

\* \* described the Japanese producers' structure as two tier. The top-ranked producers, for example Fujitsu and NEC, sell to the \* \* \* at prices similar to \* \* \*. The second tier, he says, citing Oki and Hitachi as examples, sell to \* \* \*. These Japanese firms are more aggressive in selling to those kinds of customers. \* \* \* recalled that early in the fall of 1984, the top tier pricing was at about \$\* \* \* and the second tier was seeking sales at about \$\* \* \*. It was at this point, said \* \* \*, that Micron quoted \$\* \* \* to \* \* \*. The lost revenue associated with the first price cut by Micron amounted to \$\* \* \* of the \* \* \* shipments of \* \* \* units \* \* \*.

\* \*  $\underline{3}$  was named by Micron as the purchaser of \* \* \* 64K DRAM's after Micron allegedly reduced its price from \$\* \* \* to \$\* \* \* per unit because of competing offer prices for Japanese units. \* \* \*, buyer for the firm,

- 1/ According to Micron, the price \* \* \*.
- 2/ \* \* recently bought a spot order of Korean 64K DRAM's at \$\* \* per unit. Mostek has offered \* \* \* a price of \$\* \* \* recently.
  - 3/ \* \* \* manufactures.

recalled that the Micron \* \* \*. The price was \* \* \* down for \* \* \* units of that \* \* \*. The price reductions were periodic, dropping first to \$\* \* \* then to \$\* \* \* and to a low of \$\* \* \* per unit. Micron never \* \* \* because \* \* \* has switched to 256K DRAM circuitry for their products. <u>1</u>/ According to \* \* \*, after Micron's first round price drop to \$\* \* \*, Hitachi, Fujitsu and Mitsubishi did lead the price down with their offer prices to \* \* \*. Motorola, TI, and Mostek lagged in the spiral. \* \* \* adds that "to this date those (latter) companies have not equalled the Japanese price levels" in quotes received by \* \* \*. Lost revenue from these renegotiated prices totaled \$\* \* \* over a 6-month delivery period.

Another alleged instance of lost revenue by Micron cited \* \* \* as the purchasing firm. \* \* \* allegedly contracted for \* \* \* 64K DRAM's after \* \* \* price from Micron down from \$\* \* \* to \$\* \* \* per unit in competing with lower offer prices on imported units from Japan. \* \* \*, buyer, acknowledged the facts as alleged. \* \* \*. The firm uses about \* \* \* 64K DRAM's per month. <u>2</u>/ \* \* \* shops the market for best prices. The last time \* \* \* polled the market, earlier in the year, the "Japanese came in with real low prices" in the \$0.75 to \$0.85 range. Micron, asked by \* \* \* to \* \* \*, \* \* \* reasonably close to the Japanese price with an offer price of \$\* \* \*, so \* \* \* continued \* \* \*. \* \* \* noted that service and product quality from Micron were good. <u>3</u>/

\* \* was named as purchaser in a lost revenue allegation involving \* \* for \* \* 64K DRAM's \* \*. The price allegedly was \* \* downward beginning in \* \* in competition with Japanese prices to a low of \$\* \* \*. \* \* \*, purchasing manager, confirmed the periodic drop in price to a level of \$\* \* \* as a reflection of competing market prices including Japanese offers. \* \* \* buys from an approved vendor list that includes TI, Micron, Hitachi, and Fujitsu. There has been some field failure with Micron 64K DRAM's; \* \* \* does not have that problem with the Japanese product.

\* \* the Micron price down in \* \* \* to \* \* \*. The lost revenue as a result of this price reduction pattern amounts to \* \* \* over the \* \* -month delivery schedule through \* \* \*.

Micron identified \* \* \* in an alleged instance of lost revenue in a sale for \* \* \* 64K DRAM's \* \* \* in \* \* \*. 4/ The price was allegedly reduced from \$\* \* \* to \$\* \* \* because of competing offer prices for Japanese product.

1/ \* \* acknowledged that \* \* \* has a heavy inventory of 64K DRAM's in stock. Although the usage now is minimal for these memory devices, \* \* \* emphasized that at current market prices he "would not off-load this excess inventory now held," but would opt to work it off rather than take a heavy loss.

2/ \* \* \* has not yet switched over to 256K DRAM's and noted that it would never altogether stop using 64K DRAM's.

3/ \* \* \* stated that for a long time people (end-users) wouldn't buy Micron DRAM's because of market talk that the product was poor quality. But, he added, all during this time \* \* \* and \* \* \* were buying the Micron product but wouldn't tell anyone because they were getting a good deal and did not want to reveal their source. This forced the market talk about poor product, said \* \* \*. He views the Micron DRAM's as "high quality product." Micron gets more yield of quality dies per wafer than other producers, he says.

4/ \* \* \* makes.

\* \* \*, buyer for \* \* \*, confirmed that the \* \* \* was \* \* \* both on price and to reduce "on order" quantity. After Micron cut its price to \$\* \* \*, vendor prices were reduced all over the industry, said \* \* \*. Prices kept spiraling down. "Even after Micron backed off," he emphasized, "the offer prices continued to drop." Based on both Japanese and other domestic producer prices, <u>1</u>/ \* \* \* asked Micron for \* \* \* price. Micron, as alleged, dropped the price to \$\* \* \* per unit. \* \* \*, purchasing manager for \* \* \*, added that since then the firm has cut its order for 64K DRAM's for two reasons. One reason is that the firm has converted \* \* \* to 256K DRAM's. <u>2</u>/ \* \* \* is using Japanese 256K DRAM's but also buys some from \* \* \*. Another reason is that overall demand for the end products is down. Lost revenue to Micron attributable to the price reduction on the \* \* \* units delivered amounted to \$\* \* \*.

### Exchange rates

Table 34 presents the nominal and real-exchange-rate indexes for U.S. dollars per Japanese yen. The real-exchange-rate index that is displayed represents the nominal-exchange-rate index adjusted for the difference in the relative inflation rates between the United States and Japan.

As can be seen from the table, the nominal value of the Japanese yen depreciated against the nominal value of the U.S. dollar by 9.4 percent between January-March 1982 and January-March 1985. The real (inflation-adjusted) index, however, shows that the Japanese yen actually depreciated by 13.6 percent during that period.

1/ All of the Japanese and U.S.-based producers are approved vendors for \* \* \*

2/ According to \* \* \*, the only reason the crossover from 64K to 256K DRAM's has not been made by more firms was because 64K DRAM's prices continued to spiral down. Still, the price for 256K DRAM's is more than four times the 64K price. As a result, he states, the 256K crossover has been set back at least 6 months.

	: U.S. dollars per : U.S. do	llars per
Period	: Japanese ven : Japar	lese ven
	:(nominal rate indexed):(real rate	te indexed)
1982:	: : : : : : : : : : : : : : : : : : :	5 2 <b>7</b>
January-March		100.0
April-June		95.8
July-September	: 90.2 :	90.9
October-December		90.4
1983 :	: :	
January-March	: 99.0 :	97.6
April-June		95.6
July-September		92.9
October-December	: 99.7 :	95.1
1984:	:	• .
January-March	: 101.1 :	95.6
April-June	: 101.7 :	95.4
July-September	: 95.9 :	90.9
October-December	: 94.9 :	89.9
1985:	<b>:</b>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
January-March	: 90.6 :	86.4
	· · · ·	

Table 34.—U.S.-Japanese exchange rates: Indexes of the nominal and real exchange rates between the U.S. dollar and the Japanese yen, by quarters, January 1982-March 1985

Source: International Monetary Fund, <u>International Financial Statistics</u>, June 1985.

# APPENDIX A

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# NOTICE OF THE COMMISSION'S INSTITUTION OF A PRELIMINARY ANTIDUMPING INVESTIGATION

Investigation No. 731-TA-270 (Preliminary)]

### 64K Dynamic Random Access Memory **Components From Japan**

**AGENCY:** International Trade Commission.

**ACTION:** Institution of a preliminary antidumping investigation and scheduling of a conference to be held in connection with the investigation.

SUMMARY: The Commission hereby gives notice of the institution of preliminary antidumping investigation No. 731-TA-270 (Preliminary) under section 733(a) of the Tariff Act of 1930 (19 U.S.C. 1673b(a)) to determine whether there is a reasonable indication that an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports from Japan of 64K dynamic random access memory devices (64K DRAMs), of the N-channel metal oxide semiconductor type, provided for in item 687.74 of the Tariff Schedules of the United States, which are alleged to be sold in the United States at less than fair value. As provided in section 733(a), the Commission must complete preliminary antidumping investigations in 45 days. or in this case by August 8, 1985.

For further information concerning the conduct of this investigation and rules of general application, consult the Commission's Rules of Practice and Procedure, Part 207, subparts A and B (19 CFR Part 207), and Part 201, subparts A through E (19 CFR Part 201, as amended by 49 FR 32569, Aug. 15, 1984).

EFFECTIVE DATE: June 24, 1985.

FOR FURTHER INFORMATION CONTACT: George L. Deyman (202-523-0481), Office of Investigations, U.S. International Trade Commission, 701 E Street NW., Washington, DC 29438. Hearing-impaired individuals are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on 202-724-0002.

#### SUPPLEMENTARY INFORMATION:

Background.—This investigation is being instituted in response to a petition filed on June 24, 1985, by Micron Technology, Inc., Boise, ID, on behalf of merchant manufacturers of 64K DRAMs.

Participation in the investigation -Persons wishing to participate in this investigation as parties must file an entry of appearance with the Secretary to the Commission, as provided in § 201.11 of the Commission's rules (19 EFR 201.11), not later than seven (7) days after publication of this notice in

the Federal Register. Any entry of appearance filed after this date will be referred to the Chairwoman, who will determine whether to accept the late entry for good cause shown by the person desiring to file the entry.

Service list.—Pursuant to § 201.11(d) of the Commission's rules (19 CFR 201.11(d)), the Secretary will prepare a service list containing the names and addresses of all persons, or their representatives, who are parties to this investigation upon the expiration of the period for filing entries of appearance. In accordance with § 201.16(c) of the rules (19 CFR 201.16(c), as amended by 49 FR 32569, Aug. 15, 1984), each document filed by a party to the investigation must be served on all other parties to the investigation (as identified by the service list), and a certificate of service must accompany the document. The Secretary will not accept a document for filing without a certificate of service.

Conference.—The Commission has scheduled a conference in connection with this investigation for 9:30 a.m. on July 15, 1985, at the U.S. International Trade Commission Building, 701 E Street NW., Washington, DC. Parties wishing to participate in the conference should contact George L. Deyman (202-523-0481) not later than July 11, 1985, to arrange for their appearance. Parties in support of the imposition of antidumping duties in this investigation and parties in opposition to the imposition of such duties will each be collectively allocated one hour within which to make an oral presentation at the conference.

Written submissions.—Any person may submit to the Commission on or before July 18, 1985, a written statement of information pertinent to the subject of the investigation, as provided in § 207.15 of the Commission's rules (19 CFR 207.15). A signed original and fourteen (14) copies of each submission must be filed with the Secretary to the Commission in accordance with § 201.8 of the rules (19 CFR 201.8, as amended by 49 FR 32569, Aug. 15, 1984). All written submissions except for confidential business data will be available for public inspection during regular business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary to the Commission.

Any business information for which confidential treatment is desired must be submitted separately. The envelope and all pages of such submissions must be clearly labeled "Confidential **Business Information."** Confidential submissions and requests for confidential treatment must conform with the requirements of § 201.6 of the

Commission's rules (19 CFR 201.6, as amended by 49 FR 32569, Aug. 5, 1984).

Authority: This investigation is being conducted under authority of the Tariff Act of 1930, title VII. This notice is published pursuant to § 207.12 of the Commission's rules (19 CFR 207.12).

Issued: June 28, 1985. By order of the Commission.

Kenneth R. Mason.

Secretary.

[FR Doc. 85-15960 Filed 7-2-85; 8:45 am]

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APPENDIX B

# CALENDAR OF WITNESSES AT THE COMMISSION'S PUBLIC CONFERENCE

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### CALENDAR OF PUBLIC CONFERENCE

# Investigation No. 731-TA-270 (Preliminary)

## 64K DYNAMIC RANDOM ACCESS MEMORY COMPONENTS FROM JAPAN

Those listed below appeared as witnesses at the United States International Trade Commission's conference held in connection with the subject investigation at 9:30 a.m. on July 15, 1985, in the Hearing Room of the USITC Building, 701 E Street, NW, Washington, DC.

## In support of the imposition of antidumping duties

Micron Technology, Inc. Boise, ID

> Joseph L. Parkinson, President, Micron Technology, Inc.

> > Larry L. Grant-OF COUNSEL

Covington & Burling Washington, DC on behalf of

Motorola, Inc.

Dr. William F. Finan, <u>1</u>/ Quick, Finan and Associates

David Hixson, Counsel, Motorola, Inc.

Steve Sparks, Director, MOS Memory Marketing, Motorola, Inc.

0. Thomas Johnson, Jr. --- OF COUNSEL

Dewey, Ballantine, Bushby, Palmer & Wood Washington, DC on behalf of

> Intel Corporation Mostek Corporation

> > R. Michael Gadbaw-OF COUNSEL

1/ Dr. Finan testified on behalf of Motorola Inc., Intel Corporation, and Mostek Corporation.

In opposition to the imposition of antidumping duties

Baker & McKenzie Washington, DC on behalf of

> Mitsubishi Electric Corporation Mitsubishi Electronics America, Inc. Mitsubishi Semiconductor America, Inc.

> > William D. Outman, II-OF COUNSEL

Mudge Rose Guthrie Alexander & Ferdon Washington, DC on behalf of

> Toshiba Corporation Toshiba America, Inc.

> > Jeffrey S. Neeley-OF COUNSEL

Fenwick, Davis & West Palo Alto, CA, and Washington, DC on behalf of

> Fujitsu Microelectronics, Inc. Fujitsu Limited

> > L. Daniel O'Neill-OF COUNSEL

Coudert Brothers New York, NY, and Washington, DC on behalf of

> NEC Corporation NEC Electronics, Inc.

> > Kenneth W. Taylor, <u>1</u>/ Senior Electronics Consultant, SRI International

John Marck, 1/ Director, Memory Marketing, NEC Electronics USA, Inc.

Michael Calvey-OF COUNSEL

<sup>1/</sup> Messrs. Taylor and Marck testified on behalf of all the respondents.

# In opposition to the imposition of antidumping duties—Continued

Metzger, Shadyac & Schwarz Washington, DC <u>on behalf of</u>

> Hitachi, Ltd. Hitachi America, Ltd. Hitachi Semiconductor (America), Inc.

> > Carl W. Schwarz ) William H. Barrett) OF COUNSEL

# APPENDIX C

# THE DEPARTMENT OF COMMERCE'S NOTICE OF INSTITUTION OF AN ANTIDUMPING INVESTIGATION

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# Federal Register / Vol. 50, No. 139 / Friday, July 19, 1985 / Notices

United States at less than fair value. We are notifying the United States International Trade Commission (ITC) of this action so that it may determine whether imports of this product are causing material injury, or threaten material injury, to a United States industry. If this investigation proceeds normally, the ITC will make its preliminary determination on or before August 8, 1985, and we will make ours on or before December 2, 1985.

### EFFECTIVE DATE: July 19, 1985.

FOR FURTHER INFORMATION CONTACT: Patrick J. O'Mara: Office of Investigations. Import Administration International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, D.C. 20230; telephone: (202) 377–1779.

## SUPPLEMENTARY INFORMATION: .

#### The Petition

On June 24. 1985, we received a petition in proper form filed by Micron Technology, Inc. (Micron). In compliance wth the filling requirements of § 353.36 of the Commerce Regulations (19 CFR 353.36), the petition alleged that imports' of the subject merchandise from Japan are being, or are likely to be, sold in the United States at less than fair value within the meaning of section 731 of the Tariff Act of 1930, as amended (the Act), and that these imports are causing material injury, or threaten material injury, to a United States industry.

The petitioner based the United States price upon bid and price quotations made to an independent third party by authorized U.S. distributors and authorized manufacturer representatives of Japanese companies.

Petitioner based foreign market value upon local distributor prices, reports appearing in the Japanese press, and local market reports translated and forwarded by the office of Micron Technology, Inc. in Japan. Petitioner also alleged that these home market sales of 64K DRAMs were made at prices below the cost of production.

Petitioner constructed a value for Japanese 64K DRAMs based on both a 1982–83 Integrated Circuit Engineering Corporation ("ICE") report, as adjusted to take into account progress in the industry, and petitioner's actual costs since the ICE report and a 1983 report by the Semiconductor Industry Association which concluded that Japanese costs of production do not vary significantly form those of U.S. manufacturers. Adjustments were made as necessary to account for general expenses, interest expense, and the statutory minimum for profits. Based on the comparison of United States price and foreign market value, petitioner alleges an average dumping margin of 94 percent.

#### Initiation of Investigation-

Under section 732(c) of the Act, we must determine, within 20 days after a petition is filed, whether it sets forth the allegations necessary for the initiation of an antidumping duty investigation and further, whether it contains information reasonably available to the petitioner supporting the allegations.

We examined the petition on 64K DRAMs from Japan and have found that it meets the requirements of section 732(b) of the Act. Therefore, in accordance with section 732 of the Act, we are initiating an antidumping duty investigation to determine whether 64K DRAMs from Japan are being, or are likely to be, sold in the United States at less than fair value. We are also investigating the allegation of sales below the cost of production. If our investigation proceeds normally, we will make our preliminary determination by December 2, 1985.

### Scope of Investigation

The merchandise covered by this investigation are all 65.536 bit dynamic random access memory components of the N-channel metal oxide semiconductor type (64K DRAMs) from Japan. This merchandise is currently provided for in item 687.7441 of the Tariff Schedules of the United States. Annotated.

#### Notification of ITC

Section 732(d) of the Act requires us to notify the ITC of this action and to provide it with the information we used to arrive at this determination. We will notify the ITC and make available to it all nonprivileged and nonconfidential information. We will also allow the ITC access to all privileged and confidential information in our files, provided it confirms that it will not disclose such information either publicly or under an administrative protective order without the consent of the Deputy Assistant Secretary for Import Administration.

### **Preliminary Determination by ITC**

The ITC will determine by August 8, 1985, whether there is a reasonable indication that imports of 64K DRAMs from Japan are causing material injury, or threaten material injury, to a United States industry. If its determination is negative, the investigation will terminate; otherwise, it will proceed according to the statutory procedures.

#### [A-588-503]

### 64K Dynamic Random Access Memory Components (64K DRAMS) From Japan; Initiation of Antidumping Duty Investigation

AGENCY: International Trade Administration, Import Administration, Commerce.

### ACTION: Notice.

**SUMMARY:** On the basis of a petition filed in proper form with the United States Department of Commerce, we are initiating an antidumping duty investigation to determine whether 64K dynamic random access memory components (64K (DRAMs) from Japan are being, or are likely to be, sold in the Federal Register / Vol. 50, No. 139 / Friday, July 19. 1985 / Notices

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Dated: July 15, 1985. Gilbert B. Kaplan, Acting Deputy Assistant Secretary for Import Administration. [FR Doc. 85–17258 Filed 7–18–85; 8:45 am] SILLING CODE 3510-08-16

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