Episode 12

Outbreak of Japan-US Semiconductor War

In 1984, the global semiconductor market was booming and the annual growth rate reached a fabulous figure of 48%. This year was the year of the Los Angeles Olympic Games, and it came to endorse a popular belief at the time that “the semiconductor market peaks in the year of the Olympics.”
Hitachi’s memory business under my responsibility also made a quantum leap in performance, and a lot of credit was given to me both from inside and outside of the company. And as mentioned before, I came to be listed as a company presidential candidate in weekly magazine articles. However, in the field of semiconductors, such a booming economy does not last so long.
As a reaction to the boom of the previous year, a big and hellish depression began in 1985. Prices fell dramatically, especially in memory, and the total semiconductor world market fell by (-) 16% compared to 1984.
With this background, the SIA (Semiconductor Industry Association) in the US filed a lawsuit against the memory manufacturers in Japan for dumping violation. This became the trigger, and the Japan-US semiconductor war started firing.
My semiconductor life would also fall to the bottom of the valley in this depression.

The first sign of Japan-US semiconductor war dates back to the late 1970’s when DRAM exports to the US from Japan began to rise. SIA was formed in 1977 with the increasing wariness against Japan. The members included many famous semiconductor executives such as Robert Noyce(Intel), Charles Sporck (National Semiconductor), Wilf Corrigan (Fairchild), John Welch (Motorola) and Jerry Sanders (AMD), and influence of their words and deeds was enormous.
The SIA made active lobbying and insisted on the elimination of tariff barriers and other actions in trade with Japan. In addition, they took up the VLSI project in Japan which had started in 1976 as a symbol of a back-scratching alliance of government and industry, and called it “Japan Inc.”, accusing it as an unfair mechanism.
Such activities were also taken up by the mass media, and in 1978 Fortune magazine posted an article titled “Japanese Spies in Silicon Valley” and cautioned against Japan. On the title page there was a grotesque figure like a big kite with binoculars looking into Silicon Valley from the sky.

As the matter of fact, the US was still leading in the field of DRAM in the latter part of the 1970’s, but as the 1980’s started, there came the time of reversal.
Anderson’s bomb remarks in March of 1980 symbolized the process of such reversal game. Anderson was at the position of General Manager of Hewlett-Packard’s Data Systems Division. On the occasion of the Japan-US semiconductor seminar held in Washington, he presented an extremely shocking data for US manufacturers.
His point was as follows. “When we adopted Japanese products due to the shortage of 16K DRAM, their quality was far superior to the US products”. He compared the quality of each of the three companies in the United States and Japan, and found that the quality of the lowest ranked

manufacturer in Japan was superior to the quality of the top manufacturer in the US. This was later called “Anderson’s bomb remark”.
Although it was an objective statement of the capabilities of the two countries at the time, it was conveyed as a very shocking message to the semiconductor industry in the US.
In 1981, 64K DRAM business began to rise, and Japan overwhelmed in this generation and after. And the aforementioned Fortune magazine picked up this matter twice, in March and December 1981. The first article in March was titled “Japanese Chip Challenges”. On the top page alongside the title was the illustration of a Japanese Sumo Wrestler and an American wrestler staring at each other on the do-hyo (Japanese wrestling ring) which imitates a silicon wafer.

Also, the article in December was titled “Ominous Victory of Japanese Semiconductor”. As shown in the figure below, it reported that Japan took 70 % of market share in 64K DRAM and won the game overwhelmingly. And it set alarm bells ringing, by asserting that “If we were to lose to Japan in the leading-edge memory products, it might not only be the defeat of semiconductor alone, but the computer industry, the key industry of the US, is also at stake.”

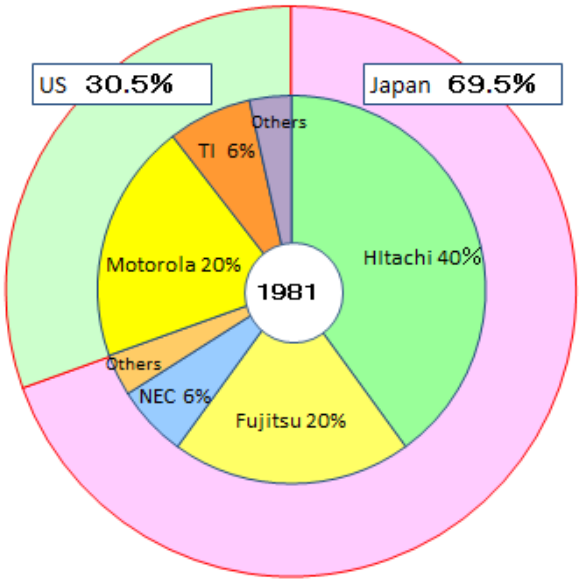

Fig. 12.1 Market share of 64K DRAM

In 1983, Business Week magazine assembled a special feature covering 11 pages with the title of “Chip War / Japan's Threat”, and reported the details of the threat of Japanese semiconductor. The term of “war” was used for semiconductor competition between the two countries.

Well, in 1985 the price of DRAM suddenly started to drop day after day, and semiconductor business got into a serious situation, regardless of Japan and the United States.
In such a circumstance, in June of that same year, the SIA in the US filed a suit to USTR (United States Trade Representative) against Japanese semiconductor products for dumping violation, based on Article 301 of the Trade Act (countermeasures against unfair trade practices). At the same time, Micron also filed a lawsuit to the Department of Commerce against Japanese 64 Kbit DRAM for dumping violation.

Semiconductor friction finally developed into intergovernmental issues between the two countries. Official consultations on semiconductor issues began in August of the same year between the US and Japanese governments, followed by severe negotiations over the next year.

There were two main requests from the US side. One was to increase the market share of foreign-made semiconductors in Japan, and the other was to take various measures to prevent dumping.
In September 1986, the Japan-U.S. Semiconductor agreement which incorporated these requirements was concluded. After that, the framework was continued for a period of as long as ten years, and Japanese manufacturers were forced to do their business within the difficult constraints. Important clauses in the agreement are summarized in the following two points:

(1) Improve access to the Japanese market:
Increase the purchase of foreign-made semiconductor products in the Japanese market. As an effective means for it, the Japanese government should monitor the domestic market share of foreign-made semiconductors on a regular basis.
At that time the market share of foreign made semiconductor was less than 10%, but the goal was to make it more than 20%.
Later on, this numerical value of “20%” would become a controversial matter. That is, it became an issue of different interpretation, whether this was a mere challenge or an intergovernmental promise. Although the truth about it was never clarified, the numerical value of “20%” continued to stand on its own for the next ten years. And it became an example of “numerical targets” in trade negotiations to follow.

(2) Dumping prevention
As a measure to prevent dumping of Japanese products, Japanese manufacturers should submit their quarterly cost and sales data to the Japanese government.
Regarding DRAM and EPROM, the US government was to decide FMV (fair market value) and to instruct it to each manufacturer.

I will revisit later on the impact of the Japan-U.S. Semiconductor agreement over 10 years on the semiconductor industry in Japan, but it is undeniable that it has become one of the far-reaching causes of the degradation of competitiveness of today’s Japanese industry.

The great depression of 1985 forced semiconductor companies around the world to rebuild their business for survival.
Its symbolic case would be that DRAM pioneer Intel withdrew from DRAM. The market situation of DRAM was really so severe.
Gordon Moore (Former Intel Chairman) reminisced at that time in the book “My Life with Intel” (Edited by Naoji Tamaoki) and stated as follows.
“It was at the beginning of 1985. President Grove and I were to discuss and to finalize whether we would build a new DRAM plant. Grove asked me, “If you were a manager who was scouted from the outside to run Intel, would you invest in DRAM?” “No, I will not do that,” I replied. Grove agreed

to me, “I will not, either.” So, we decided to withdraw from DRAM. This decision was really hard and stressful.”

Also in the semiconductor sector of Hitachi, the great depression in 1985 gave us a strong impact.
At that time, I was the Deputy General Manager of the Musashi Factory in charge of design and development under the GM, Masao Uchihashi. Although various countermeasures were taken at the spearhead of the factory GM, those actions could not keep up with the sharp market deterioration. In the previous year, our factory raised the largest profit in Hitachi, but it finally came to deficit and its performance became the worst this year.
In February 1986, new personnel changes were made. The factory GM Uchibashi was moved to the GM of Semiconductor Division, and I took over the factory GM position to replace him.
Semiconductor recession continued in this year as well, and furthermore, constraints due to the Japan-U.S. Semiconductor Agreement became another burden. The cost of memory was under the supervision of the government, and we had to comply with the FMV notified from the US government. There was no independent decision making power on our side with regard to the selling price. Actually, it was a promotion to the factory GM in the worst timing.

After taking office as a factory GM, one year passed without being able to escape from the deficit, even with all measures such as acceleration of new product development to add to immediate fighting power, as well as reviewing every detailed expense to reduce cost.
I made my mind to take responsibility for the deficit as the factory GM. And in February 1987, the personnel changes of the factory GMs were announced.

Note: The original version of this article was first published, in Japanese, on the Semiconductor Industry News (Sangyo Times Co., Ltd.) from July 12, 2006 to January 9, 2008.