

Nintendo: Enterprise at Play

By Kazuhisa Maeno

"Fami-con," the abbreviation of "family computer," may not be a familiar word to most people outside of Japan. But it is fast becoming a household word to most Japanese. Fami-con is an extension into the home of the video games that made such a hit in amusement arcades after U.S.-based Atari Inc. brought out its famous "Invader" game.

At a time when most video game enthusiasts in the U.S. still must trek to public arcades, in Japan low-cost fami-con have brought the winking lights and electronic music to children at home. The fami-con uses a simple computer to turn an ordinary TV screen into a game display for the antics of such popular characters as the "Super Mario Brothers" and "Hattori-kun, the Ninja."

Fami-con is not the only, or even the first, game machine. But none have proved so popular. Fami-con first appeared on the market in August 1983, and by the end of 1984 sales had surged to 3.8 million units. They have not stopped since. Sales hit 6 million at the end of 1985, and stood at 9,440,000 units in November 1986. The machine was the best-selling merchandise of 1986 in the Japanese market. Bringing in ¥14,800 (\$95 at the rate of ¥155/\$) for each computer and another ¥5,000 for each piece of software sold, it is a veritable cash box. Roughly 80 million pieces of software were sold in 1986 alone.

Nintendo Co. of Kyoto manufactures and markets the fami-con. Headquartered in Kyoto's Higashiyama Ward, it is capitalized at ¥9.8 billion and headed by 59-year-old President Hiroshi Yamauchi. The fami-con may only be a relatively primitive 8-bit machine, but it has made Nintendo into one of Japan's best-known high-tech firms.

A traditional game background

It was not always so. Nintendo started out nearly 100 years ago to manufacture



Nintendo President Hiroshi Yamauchi

hana-fuda, a traditional Japanese game comparable to cards in the West. *Hana-fuda* cards are made of *washi* handmade paper, and flowers, birds, the moon or other natural scenes evocative of the four seasons are painted on the faces.

Fusajiro Yamauchi, the great-grandfather of Hiroshi Yamauchi, established Nintendo in Kyoto in 1889. In 1907 it started producing Japan's first Western-style playing cards. When Hiroshi's grandfather Sekiryō fell ill in 1947, the grandson was appointed president. He was only 22. But in the succeeding years he was to stand by his straightforward management philosophy of never wanting to do what others were already doing.

Nintendo has gone on to develop countless innovative and original products. It produced Japan's first plastic playing cards in 1953. In 1959, it started making playing cards decorated with Mickey Mouse and other Walt Disney characters, pioneering the now immensely popular "character" goods.

Thus a company that had started out making playing cards for adults gradually turned its eyes to the children's market. It was a critical time, as Japan overcame

intense student opposition to renewal of the Japan-U.S. Security Treaty for the second time. Political stability returned, and the Japanese economy began to take off. As the nation prospered, children began getting bigger allowances. President Yamauchi immediately took note of this. As he puts it, company managers must have the insight to identify quickly the market for their products.

Nintendo concentrated on the junior market, and in 1963 started manufacturing games to be played at home. At the same time, the company adopted its present name. "Ninten" means to leave one's fate to heaven. There is a saying in Japan, "Do one's best and leave the rest to Providence." No matter hard one works, there will always be problems beyond one's control. A mediocre person cannot attain a state of mind where he can simply entrust his fate to whatever may come. But President Yamauchi believes he can better concentrate on running his business if he does his best and leaves the rest to Providence. His motto is "Be composed in pride, and calm in disappointment."

By 1970 Nintendo had grown big enough to be listed on the first section of the Osaka Stock Exchange. With the marketing of its "photogun," the first electronic toy developed in Japan, the company evolved into an electronic toy maker. A ray emitted by the gun triggers a solar battery buried in the target, in this case, a lion that roars when it is hit in the forehead. In 1975 Nintendo joined up with Mitsubishi Electric Corporation to start developing video game machines.

Around that time Namco Ltd., another electronic toy maker, created the "Pac-man" video game and began installing it in amusement arcades. The game was a smashing success. But whereas other electronic game makers tried to develop, manufacture and market software for institutional game machines on their own, Nintendo worked together with electronics companies boasting outstanding technological know-how. Such tie-ups proved



Churning out "fami-con" at a Nintendo plant

a big timesaver over training technicians and skilled workers in-house. Nintendo also stood by its policy of developing games that can be played at home. And in 1983, the know-how accumulated over years of steady effort crystallized into the family computer.

At the time, computer makers were busy trying to popularize video game software that could run on the personal computers they had just introduced to the market. But since the computers had been designed to process letters and characters, their graphic displays were slow and poorly colored. They were far from being able to satisfy children used to the brightly colored, swiftly moving displays of arcade games.

That gave Nintendo the idea of developing a computer exclusively for video games which would be able to process pictures swiftly and smoothly. That was the birth of fami-con. The company asked Ricoh Co., which was trying to move into electronics equipment in addition to its main line of business machines, to develop an integrated circuit (IC) exclusively for processing video pictures.

The hard work bore fruit. Nintendo's family computer can produce 52 different tints and shades compared to 10 for the average personal computer. And the game characters are able to move three times faster. The graphics are as smooth and alluring as TV pictures.

Imported technology

Clearly Nintendo's fami-con game machines outshone the products of its rivals. Yet ironically, the technology that made it such an explosive success came originally from the United States. *Secrets of Nintendo's Business Strategy* (Nintendo

Shoho-no Himitsu) written by Kenji Takahashi and published in June 1986 by Shoden-sha, tells the story:

"Ricoh was a late starter in IC manufacturing, but by April 1981 it had built one of the most advanced, up-to-date IC plants in the world. Ricoh had a license to manufacture the 6502 central processing unit (CPU) used by Apple Computer, one of the most sophisticated personal computers. The 6502 CPU had enormous graphic-processing capacity and was able to quickly manipulate beautifully colored pictures."

Rival electronic toy makers were using the TI 9918 IC developed by Texas Instruments for processing alphanumeric characters, rather than developing its own ICs for electronic toys. Clearly fami-con owed its great success first and foremost to its IC.

But that was not the only factor. Nintendo shrewdly set the price of its hardware to fit the market, and then rationalized production processes to meet the target price. The price selected was ¥14,800. It was chosen based on the company's experience with marketing an electronic game called "Ping-pong" at two different prices, ¥9,800 and ¥15,000. The game priced at ¥15,000 sold overwhelmingly well. On New Year's Day, Japanese children traditionally receive small gifts of money from their parents and relatives. The presents can add up. The average primary schoolchild receives slightly more than ¥27,000. Nintendo set its price with that in mind.

In industrial circles, selling price is usually based on manufacturing costs, to which are added distribution expenses and profit margin. But for the highly sophisticated technology of today's information-oriented society, the key is to

determine the price most attractive to consumers. Once that is set, every effort must be made to bring down manufacturing costs to make the target price feasible.

In Nintendo's case, President Yamachi asked Ricoh to produce an IC exclusively for the fami-con, at the impossible price of ¥2,000 a piece. In exchange, he placed an initial order with Ricoh for three million of the still unproven chips. He was confident from the outset that he would be able to sell at least three million of the game computers.

The third secret behind fami-con's success is that Nintendo is profiting more from software than hardware. Nintendo was quick to ask outside software houses to come up with games that could run on fami-con, and now more than 50 firms, led by Hudson of Sapporo City, Hokkaido, are selling more than 190 game software cassettes. With each software package selling for an average ¥4,500, sales of games alone are more than double the sales of the fami-con hardware.

Beyond play

Nintendo began marketing a new magnetic disk system in February 1986 for ¥15,000. This system makes it possible to use magnetic disks instead of cassettes, allowing much more sophisticated games. Moreover, old software can be erased and new software written onto the disk at stores equipped with the company's coin-operated disk writer machine.

When a modem adaptor is used to link this disk system to public telephone circuits, you can start building a fami-con network. And once this fami-con network has been linked to the new disk facsimile now under development, a fami-con facsimile network will have been created that cram schools can use to send corrected exams to their students at home. By then fami-con will no longer be just a toy. It will be used, just as personal computers are today, as a vital link in communications networks.

In 1980, Nintendo established Nintendo of America Inc. in Seattle, Washington, to manufacture and sell institutional software for use with video game machines in amusement arcades. Highly profitable, the subsidiary is now planning to develop a fami-con market on the American west coast.

Nintendo expects sales for the fiscal year ending August 1987 to reach ¥127 billion (about \$820 million), with recurring profits totaling ¥42 billion. It seems that this is one toy company that can look forward to continued high growth. ●