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CS 0868  
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December 28, 1987

Algy Tamoshunas, Esq.  
North American Philips  
580 White Plains Road  
Tarrytown, NY 10591

Dear Al:

Enclosed are pages 58, 146, 164-166, 168, 169-172, 174-176, 178, 180, 182 and 184 from the December 1987 issue of Asian Sources Electronics. In the event that you have not seen these before, they should be of interest.

Best wishes for the New Year!

Very truly yours,

SANDERS ASSOCIATES, INC.

Richard I. Seligman  
Director  
Patents & Licensing

RIS:nd

Enclosures

dropped continuously over this period.

Manufacturers are not keen to launch new models, and production resources are geared toward items with higher prices, and volume orders. One maker plans to develop a high-end microphone but has not decided on a completion date because the project is low priority.

This passive attitude is due primarily to keen competition from Taiwan and Japan, both well-established microphone producers. Only low-end units, which are less subject to competition from regional rivals, are available locally. Thin profit margins on these items have reinforced the decisions by local manufacturers to divert to more lucrative items.

One trading company offers a wide range of more upmarket microphones sourced from Taiwan and Japan. Its sales are restricted to the local and China markets at present, but inquiries from overseas buyers are welcomed.

For this survey, *Asian Sources Electronics* contacted Peter Lam Corporation, Sanda and Company Ltd and Eastern Sound Electronics Company Ltd.

Manlex International Company Ltd and Golden Eagle also manufacture microphones, but executives were not available for comment.

Peter Lam Corporation is a trading company handling microphones, walkie-talkies, telephones, portable cassette recorders, CB radios, remote-control toys, equalizers, amplifiers and hi-fi accessories.

Products are imported from Japan and Taiwan, and sales split evenly between Macau, from where goods are mostly shipped to China, and Hong Kong. About 1,500 microphones are sold each month, Taiwanese models being more popular.

"Japanese microphones used to be widely preferred by our buyers, but sales have been adversely affected by the strong yen in the last two years," said sales manager Peter Chan.

"Buyers began to accept the quality standards of Taiwanese items, except for high-end microphones for video cameras. Locally made models are too downmarket to compete with overseas products."

Both dynamic and condenser microphones, and models designed for use with video cameras or CB radios, are available. The majority of sales are of the firm's cheaper dynamic models. FOB prices range from \$5.13 to \$25.64 per unit. Chan predicted prices would rise as a result of the strong Japanese yen and New Taiwan (NT) dollar.

Model EM-603 is an omnidirectional electret condenser tie-clip microphone, available in seven

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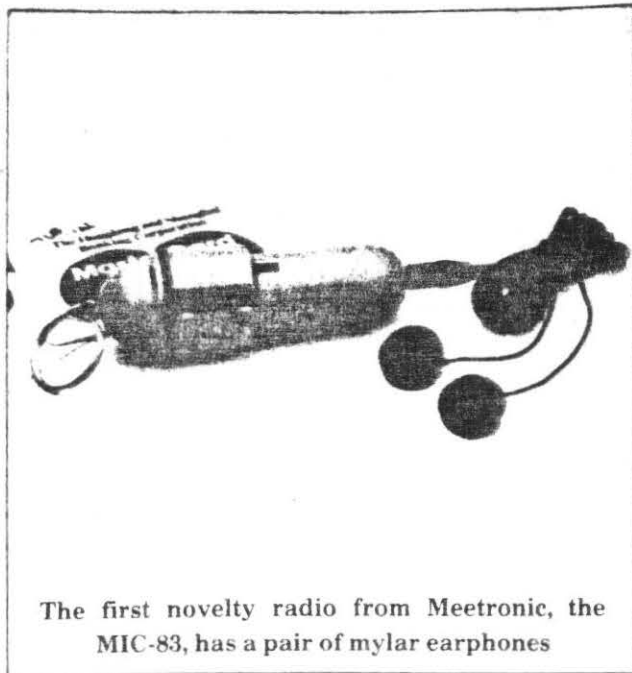
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The first novelty radio from Meetric, the MIC-83, has a pair of mylar earphones

exported to European buyers.

The unit has a yellow ABS housing and is designed for FM reception. A pair of stereo mylar earphones is supplied. Power output is 400mW, and power is supplied by three button cells, which are expected to operate for 40 hours. Standard colors include blue, white and red, but nonstandard colors are accepted.

FOB prices have dropped from \$4 to \$3.50 per unit, while \$3 is quoted for orders larger than 50,000 units.

"Prices are unlikely to see further big cuts, otherwise product quality may be affected," said general manager Michael Yung.

Meetric plans to launch another medium-sized FM novelty unit next year. It will be designed for desktop use but will be portable. Further details are not yet available.

ICs are obtained from Japan, while other components are purchased from local vendors. Supplies were tight in the first half of 1987 because manufacturers were attracting volume orders. The situation later improved, and Yung said costs of components are negotiable for quantity purchases.

In addition to launching a new novelty radio, the firm intends to place more emphasis on RCRs and mini portables, which carry better profit margins. Low-priced clock radios are made to keep the production lines running.

"Competition in the novelty radio industry is fierce, and it is vital to obtain more orders before a product idea is copied by other manufacturers. Sales prospects for 1988 are not as good as this year's, so we are planning to promote our products on the premium market," said Yung.

The minimum order is 1,000 maker's brand units or

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# Video Arcade Games

## Battles continue among regional competitors as makers launch upmarket products

**M**AKERS throughout the region say exports are up, and new models are constantly being introduced as they try to keep pace with increasing demand. The burden is on the manufacturer to keep offering more complex and sophisticated video arcade games to maintain interest. The market life of a video game is very short, and competition is tough as makers battle to be the first in the market with a new model.

Japanese manufacturers are continuing to lead the industry with superior quality models and improved technology. Simulation games seem to be a major trend. Stereo sound systems are also coming to the fore for high-end games.

Some production is carried out offshore, and marketing offices are handling sales in the United States and Europe. Despite pirating problems, producers are optimistic, and sales are good.

Only a few Korean manufacturers are engaged in exporting in quantity. Makers say the volume exported is increasing steadily as buyers turn from Japan in search of cheaper suppliers.

Software and programs are mostly copied directly

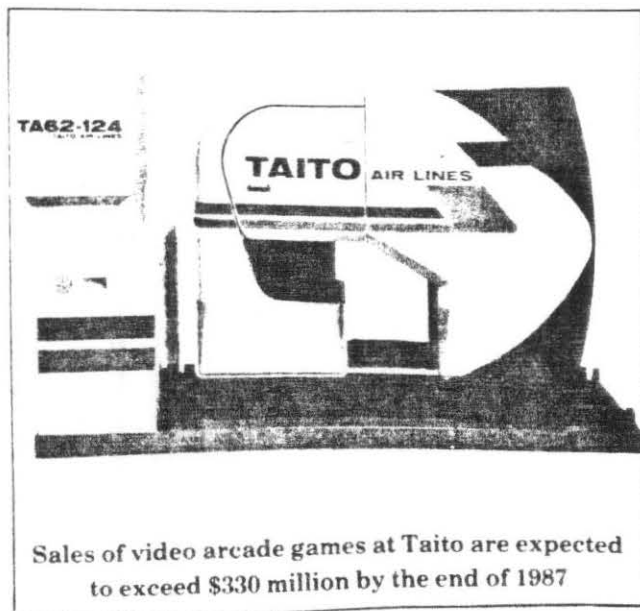
from those produced by foreign countries. Makers cite lack of capital and expertise as the reasons for this.

Most items are exported without the housing in order to save on shipping costs. No OEM or private label orders are accepted.

Manufacturers in Taiwan are also duplicating or redesigning original programs and software produced by firms in Japan and Europe. Customers are left to solve any copyright difficulties in their own countries. Major outlets are in developing countries in Southeast Asia and Latin America.

### COUNTRIES SURVEYED

Japan .....	this page
Korea .....	page 174
Taiwan .....	page 180



### JAPAN

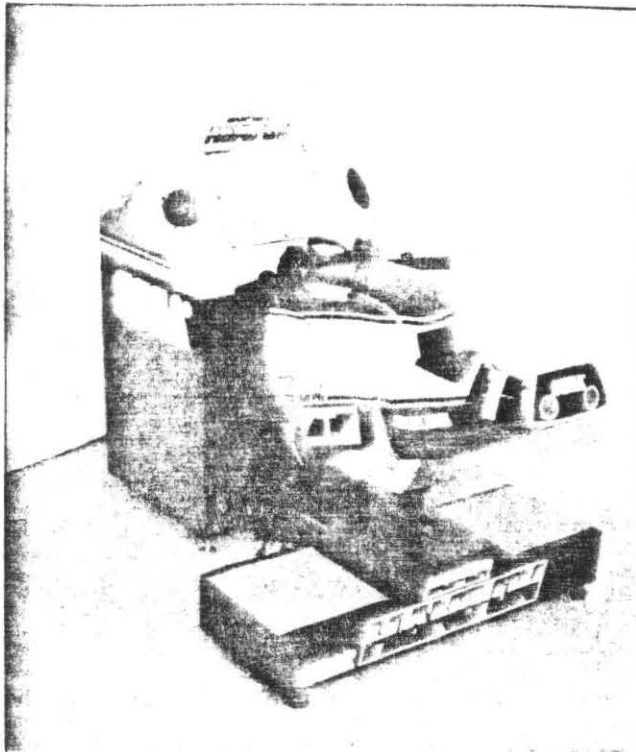
#### Still leading the industry

Superior graphics, stereo sound effects and high-resolution color CRTs are just some of the reasons why Japan remains a leader in the field of coin-operated video games. Makers are maintaining interest by constantly producing more sophisticated new games with improved technology and broad market appeal.

Simulation games now available aim at recreating realistic surroundings for the operator, while powerful new stereo sound systems are being incorporated into higher-end models.

More than 20 makers are actively engaged in production, some with offshore factories and marketing offices operating in the United States and Europe. Pirating continues to be a problem, and the yen's strength has affected business. Nonetheless, all companies contacted reported healthy sales and were optimistic about the future.

For this survey, *Asian Sources Electronics* contacted Taito Corporation, Sega Enterprises Ltd,



The top-selling mini ride-on motorcycle racing game, the Super Hang-on, from Sega

Namco Ltd, Data East Corporation and Jaleco Ltd.

Taito Corporation was established in 1953 as a trading company and entered the amusement machine business a year later. Production of video arcade games began in the late 1970s, with Space Invaders becoming an international hit. The firm has since diversified its business interests to include designing, importing, exporting, distributing, leasing and servicing amusement game machines. It also develops and markets software for home-oriented video games. In addition, it operates video game centers at 5,000 locations throughout Japan.

The company employs more than 1,600 employees, 200 of which are engaged in R&D. Manufacturing and development are done in Kanagawa Prefecture, and about 20 games are introduced each year.

Production increased by more than 20 percent during the past year. Exports account for 25 percent of output, with North America taking 65 percent of export sales. Europe absorbs 25 percent, and the remainder is shipped to Southeast Asia, Latin America, the Middle East and Oceania.

PCBs are shipped to local game machine distributors in other parts of the world directly from Japan. The firm's Chicago-based sales company, Taito America Corporation, handles production and marketing of Taito video arcade games in North America.

The Darius, a full-scale simulation game, was

introduced to the domestic market in June and will be made available to overseas operators in the last quarter of 1987. This battle game uses three high-resolution CRT's laid side by side, providing panoramic scenes before the players. Also featured is dynamic stereo sound that can be played over a built-in speaker system or through headphones.

The Rastan is a one-player game. By operating a joystick, the player manipulates a sword in different directions. The game comprises six patterns with three scenes each, and it has computer graphics.

Minimum orders vary. Shipments are usually within 21 days of receipt of a letter of credit. Export prices have been stable over the past year. Although the yen's appreciation has caused difficulties, a spokesman for the firm said if a new product is interesting enough, there is always demand for it overseas.

Sales amounted to \$276 million in 1986, and this year's figure is expected to top that amount by at least 20 percent. The company aims to boost its annual sales to \$670 million within five years, and expansion of the game machine line figures prominently in those plans.

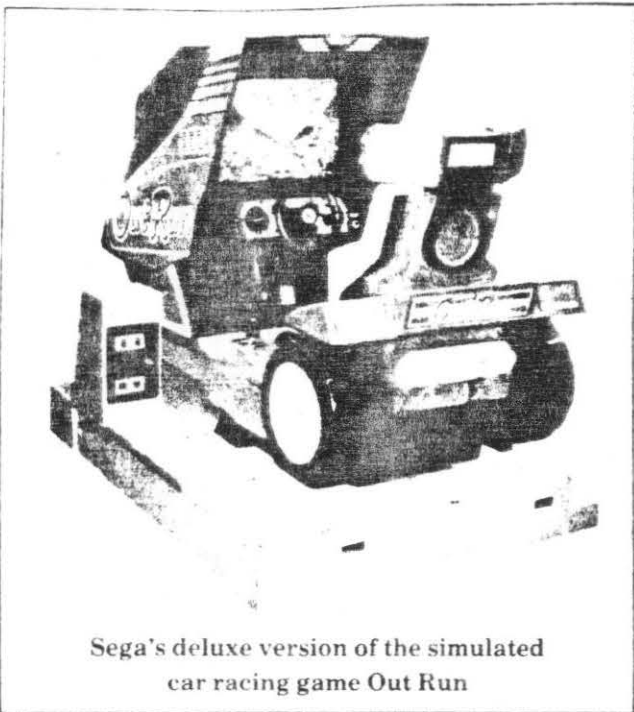
Sega Enterprises, established in 1960, produces, markets and leases video arcade games. It also produces and markets home video games and educational software, and has made massive investments in information network systems, value-added networks and other information-oriented lines.

In recent years, it has been promoting highly sophisticated simulation games.

One of the top sellers in the firm's line of simulation games is Super Hang-on, a motorcycle racing game that offers realism by using the latest simulation technology. The player selects any one of four courses according to his playing ability. Surrounding scenes are depicted on the screen to create an authentic atmosphere. A supercharger feature enables the player to accelerate the motorbike rapidly to pass a competitor if the road ahead is clear. The handlebars vibrate in conjunction with the motorcycle's on-screen movements, and stereo background music matches the image of each course's environment. The course includes curves, slopes and various other road conditions. The model comes in two versions: mini ride-on and upright.

Out Run simulates car racing on world-famous racing roads. The cockpit accurately follows the movements of the steering wheel, thus allowing the player to experience the feel of driving a sports car in a race against the clock. Any one of three tunes, with an improved stereo sound system, can be selected.

Three models are available: deluxe, standard and



Sega's deluxe version of the simulated car racing game Out Run

upright. On the deluxe model, a 26-inch color monitor is used to show lifelike, colorful scenes. Acceleration and cornering have been simulated. The course follows five stages with a total of 15 scenes.

The company's main production plant is located in Japan. In 1985, the firm began offshore production in

the United States, Ireland and Britain. PCBs and other parts are shipped from Japan. Items such as cabinets and monitors are produced locally.

Offshore production has cut delivery time, reduced production costs and generally made it easier for local distributors to obtain new products. Simulation games, however, are shipped as finished products from Japan.

About 65 percent of output is sold on the domestic market. In the United States, products are marketed through the firm's sales company, Sega Enterprises Incorporated, of San Jose, California. In Europe, the London-based sales company, Sega Europe Ltd, is in charge of sales.

"Export prices have been rising because of the growing demand for more sophisticated games," said Keizo Hamahara, manager of the overseas division.

"Sales of finished products have also been increasing lately, whereas those of kits have been decreasing. Overseas buyers have to pay more for finished products than for kits, but advanced game machines in finished form bring in more money," he said.

Namco Ltd, established in 1955, was one of the early entrants in the video arcade game field. The firm developed its first original game in 1978. In 1980, it introduced Pac Man, which achieved worldwide

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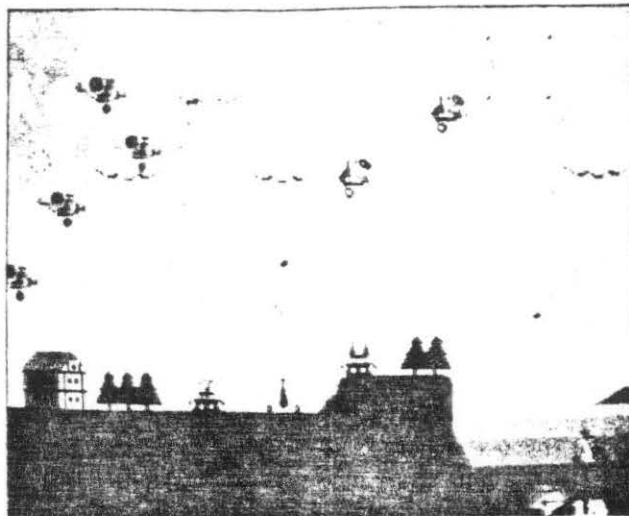
popularity. The company also manages amusement arcades and is active in home video games.

At present, several models are available.

Rolling Thunder is an action-packed, spy game. The player uses a joystick and jump and shoot buttons to make his way to the end of each area. The game's play fields are made up of such things as tall buildings, warehouses and caves. The player must reach the exit before his life gauge timer reaches zero. The shoot button fires his weapon. Ammunition is limited, and more is obtained by entering doors marked "bullets." If a door marked "arms" is entered, the player receives a more powerful machine gun. The jump button is used to attack the enemy. There are seven phases.

The V.S. Sky Kid is a space shooting game for one or two players. The player must take off from the base, pick up a bomb, drop the bomb on the designated target and return to the base safely without getting shot down. The player manipulates an eight-position joystick and two buttons to fly a fighter airplane and fight against enemy planes.

All video arcade games are developed in-house and manufactured by subcontractors. Five to 10 new models are introduced per year. However, the company reported no significant change in production volume during the past year.

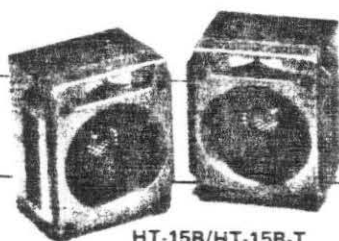


A display from the V.S. Sky Kid space shooting game available from Namco

Products are sold domestically and also exported to many major countries, particularly those in the United States and Europe.

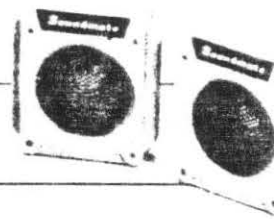
Export business is conducted in various forms — through licensing agreements, shipping parts and components on a knockdown basis, and supplying PCBs or finished products. In order to combat the effects of the strong yen, the company is now exporting secondhand PCBs and mother boards that

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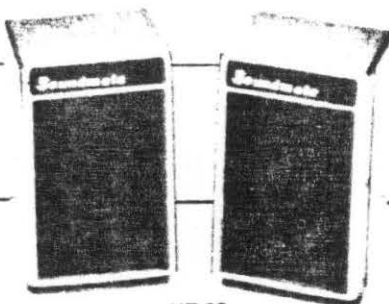
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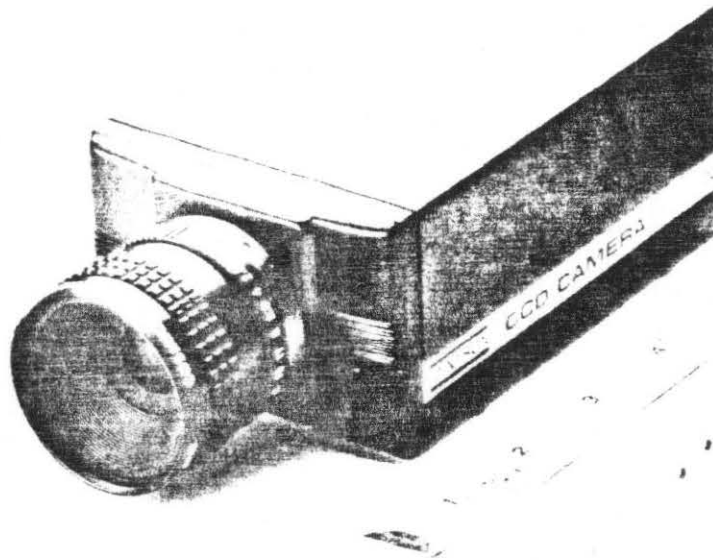
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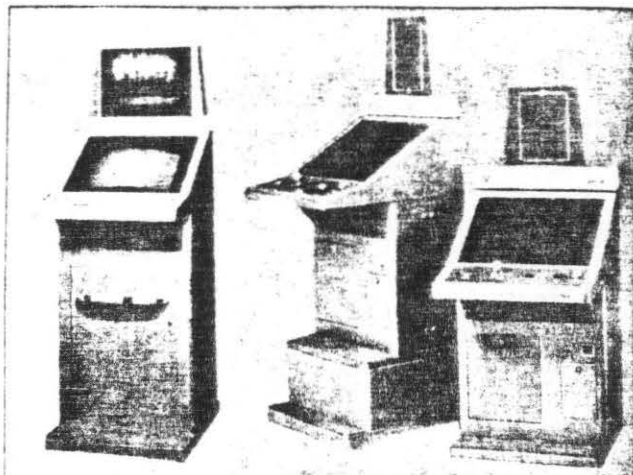
Pirating is a problem. Director Ryuji Hashiguchi said those products illegally copied by makers in other Asian countries are shipped mostly to Europe. The company is making an effort to deliver new products promptly and to provide comprehensive after-sales service as a means of discouraging European clients from buying pirated versions.

Prices have been relatively stable. Buyers have been asking for PCBs costing less than \$690 and finished products priced below \$2,070, so Namco has been trying to produce video games within these ranges. At the same time, highly sophisticated games, such as simulation games, are also in demand. They are more expensive and take up more space than table-type games.

Data East Corporation was set up in 1976 as an import agent for a foreign manufacturer of measuring equipment. In the following year, it developed its first coin-operated model, and by 1978, a table-type video arcade game was introduced. Since then, more than 10 games a year have been released.

The Gondomania is a fighting game for two players who mount air bikes and invade the land of the Gondos. An eight-way joystick is employed to control the air bike.

The Ring King is an interactive two-player game in



Video arcade game products from Jaleco include a range of upright video game cabinets

which the players challenge each other to a championship boxing match. Player one or two can win the match and become the title holder by either scoring a knockout or by winning the rounds on points. The boxers and the challengers in both the one-player and two-player games are from around the globe, and each has his own style of boxing.

About 40 percent of output is sold in Japan, and the balance is shipped to other countries. The United States is the largest overseas market, where the



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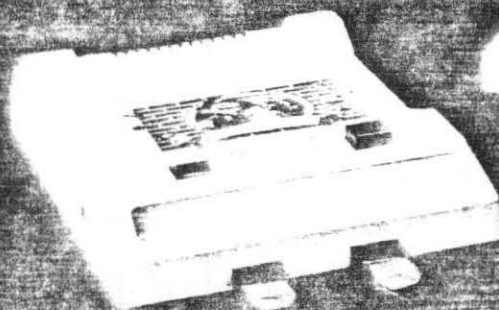
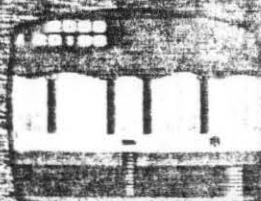
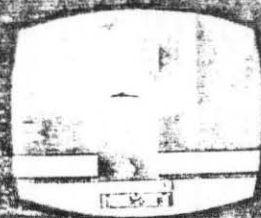
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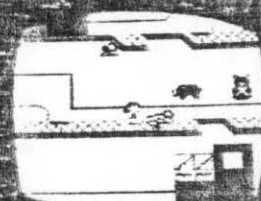
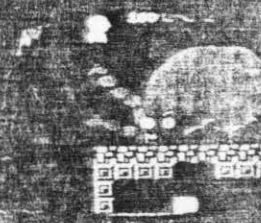


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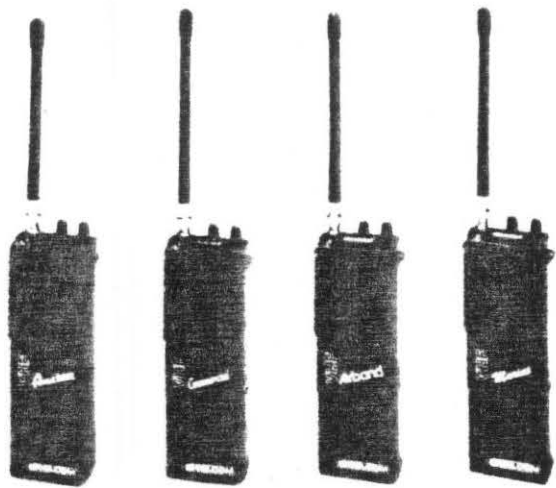


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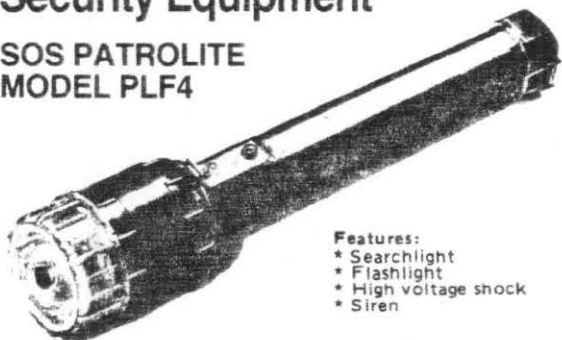


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## Video Arcade Games

company offers both PCBs and finished products. PCBs are sold to firms in Europe. Marketing in the United States and Europe is conducted through regional offices Data East USA Incorporated and Data East Europe Ltd, respectively.

Masahiro Nishimura, manager of the overseas division, said small orders are accepted. Delivery is within two to 21 days of receipt of a letter of credit.

No drastic changes in export prices have occurred in the past 12 months, but profit margins have been down. As a result, engineers are striving to reduce production costs.

As with other leading suppliers, Data East has suffered from pirating. Nishimura said with a copyright law now in force in Korea, it remains to be seen how effective it will prove in eradicating the problem in that country.

Jaleco Ltd has been in business since 1971. Today it manufactures and exports video arcade games, manufactures and markets software for home video machines in Japan and imports amusement and entertainment equipment. As far as video arcade games are concerned, products include universal-type cabinets for video games and PCBs for various games.

According to Hiroyuki Saigusa, import/export manager for the firm, the Pony MKII is the most popular video game cabinet in Japan in terms of price and quality. It has an 18-inch color monitor and optional extras include an acrylic panel placed on top of the cabinet to hold an instruction sheet, an ashtray holder and an upright stand.

The Exerizer is a space fighting game that requires a vertically placed monitor, an eight-way joystick and two buttons to fire missiles and beams. The missiles can be fired at all times. Five hits in a weak point destroy the largest enemy. Beams, which are more destructive, consume more power and become useless when power is exhausted. The power status is shown on the bottom of the screen. The rocket slows down as power is consumed.

Another new game is Ken, a one-player game in which the hero tries to rescue his sweetheart from the monstrous space kidnaper. The game consists of seven phases. It includes an eight-way joystick and two buttons for attack and jump functions.

About five new models are introduced per year. Some games are marketed solely in Japan. Only those games with universal appeal are exported.

Jaleco reported that overall, demand for video arcade games, especially finished products, has been shrinking in recent years. The company said it planned to rekindle interest by developing games

that cater to different skill levels, that had broad consumer appeal and that could sustain long market life.

All exports are sold direct. The company has one distributor in the United States and several exclusive and nonexclusive agents in Europe. Shipments to Southeast Asia, the Middle East and Oceania are limited. Delivery is within 21 days of receipt of a letter of credit.

Japan still leads the way in the field of arcade games, with manufacturers continuing to produce sophisticated games developed on the strength of the latest technology. Competition is keen worldwide, and exchange rates are a detriment, but makers are optimistic about the future of the business.

## KOREA

### Export markets improving

According to the Electronics Industries Association of Korea (EIAK), only 40 makers of video arcade games were registered in 1981, including small firms in Chunggaechun, an area famous for the copying of electronics products. Now there are more than 100 manufacturers, of which only 25 or so are exporting their products and only three or four export more than \$300,000 worth. In spite of this low export

volume, the market is worldwide.

EIAK's bureau chief, H.K. Baik, said all software and programs used by Korean companies are duplicated from overseas versions. Moreover, because there is only a small market for ICs for video arcade games, most Korean IC manufacturers do not produce them, again resulting in the copying of US and Japan-made ones.

Japanese manufacturers, however, are trying to prevent this piracy by customizing the ICs they use and incorporating materials that are difficult to make.

"Most big conglomerates whose subsidiaries produce computers do not engage in video arcade game manufacturing because they say the line has neither merit nor marketability," said Baik.

In early 1980, the ban on the sale of video arcade games on the domestic market was not imposed, and sales were good. But now, according to some, the industry is declining.

"Most of the video arcade games and programs are out of date and are no longer fun. Owners of video arcades are not making a lot of money, which has resulted in a recession in the arcade game business."

Most makers disagree with this opinion, however. Since 1984, when PCBs for video arcade games were first shipped overseas, the export volume has

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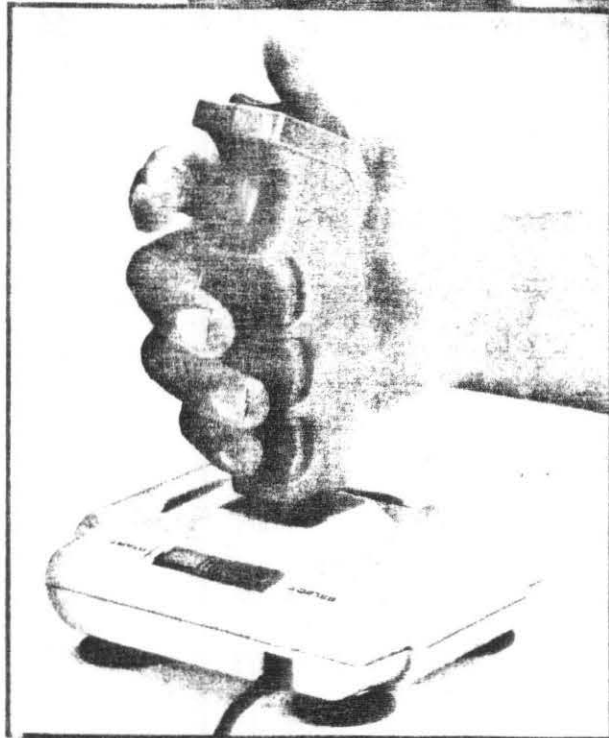
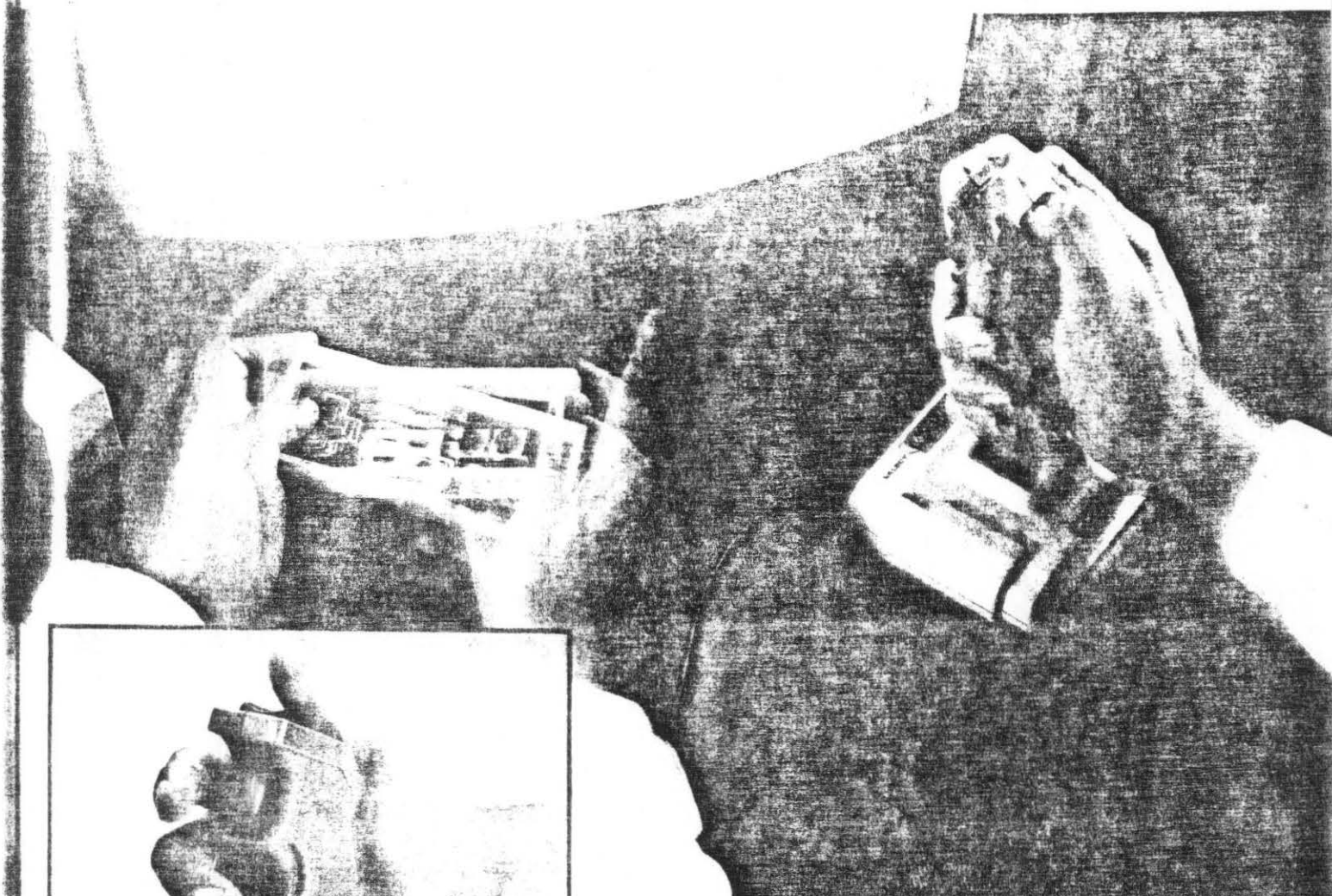
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increased steadily. Last November, it had reached \$33 million worth and is expected to climb to \$60 million this year. Industrial sources say that video arcade games are a better export line than textiles.

The games are becoming much more complex and upmarket with the development of more sophisticated ICs such as 516K DRAM.

The aim of each manufacturer is to produce a game as quickly as possible. The market life of an arcade game is so short, averaging 90 days, that any maker who delays will fall behind the competition.

In order to save on freight costs, almost all makers ship their products without housings. The games are placed in either table-top or upright housings at their destination. OEM orders and buyers' labels are not accepted. CKD or SKD items are also not exported by Korean manufacturers.

The effects of the rising value of the Japanese yen and high price of components from that country have been countered by the increase in orders from buyers seeking a cheaper market.

For this survey, *Asian Sources Electronics* contacted Dooyong Industrial Company Ltd, Seo Jin Corporation, Alpha Electronics Company and Philko Corporation.

Dooyong Industrial Company began exporting video arcade games in April 1986 and now offers more than 100 models. Last year's export turnover totaled \$1.6 million and is expected to reach \$3.5 million this year and \$5 million by 1988. All output is exported.

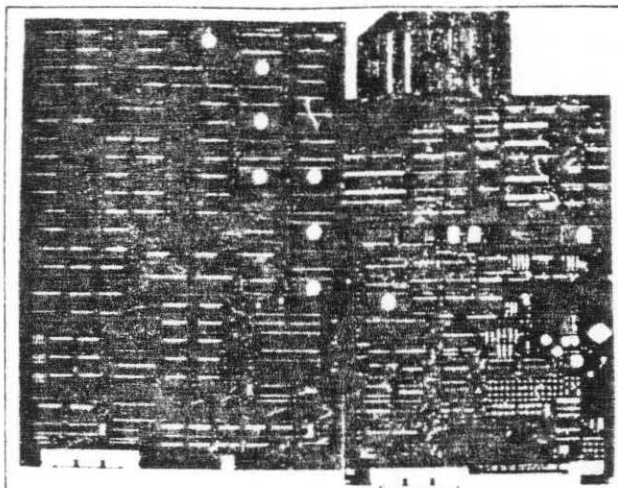
K.R. Choi, general manager of the exporting department, said video arcade game makers have contributed to the development of related domestic industries such as the semiconductor industry.

"The technology required for some of the video games is more sophisticated even than that used in computers," he said.

Dooyong buys ICs from such major semiconductor makers as Samsung, Hyundai and GoldStar. "We have cooperated to develop ICs that are not yet produced in Korea. The drawback, however, is that video arcade game manufacturers only require small quantities of parts because they are small-sized companies," said Choi.

Production capacity is 3,000 sets a month, valued at \$600,000 to \$700,000, but output average is between \$300,000 and \$400,000. In the summer season, however, sales of video arcade games reach only \$150,000 to \$200,000, said Choi.

"Prices depend on when the product is put on the market. If we can introduce a model before any other maker, we are in a position to charge more. But if we enter the market later than other versions, the price drops substantially."



The PCB for a basketball video arcade game manufactured by Seo Jin

The firm has regular buyers, and the minimum order is \$1,000 units. The firm also accepts some custom orders.

Seo Jin Corporation, one of the largest makers in the business, produces games specifically to suit individual countries. Claiming to be a forerunner in the field, the company is actively engaged in developing its own programs.

"We have acquired a lot of experience in catering for individual markets, so we are confident in developing programs that people like," said D.Y. Kim, manager of the trade department.

The company began producing video arcade games in July 1984 and was the first Korean manufacturer to begin exporting. Exports amounted to \$100,000 in 1984, \$850,000 in 1985 and \$7.5 million in 1986. Its 1987 export goal is set at \$13 million.

Although the firm has benefited, Seo Jin does not intend to expand the line any further. Instead it will concentrate on industrial equipment, sports equipment and computers.

"When the game programs are developed by the end of this year, we will focus on selling them only to our existing buyers," said Kim.

He declined, however, to give any details on quotes.

"The prices vary and often depend on the volume purchased. We can produce all games that Japan offers that are priced between \$100 and \$850."

Seo Jin's production capacity is a \$2 million total, but output fluctuates and drops to \$1 million in the low-demand months of July and August.

More than 100 video arcade game versions are available. The minimum order is 10 pieces priced at \$1,000. Below that, products are dealt with on a sample basis.

Delivery time is three days after receipt of a letter of credit, and packaging is standard. Major export

outlets include Europe, South America and South Africa.

Alpha Electronics Company, established in 1984, began exporting video arcade games in May 1985. Turnover for the first year was \$70,000 in exports, and this increased to \$1 million in 1986. This year's revenue in exports is expected to reach \$2.2 million.

"When the Japanese started to manufacture video arcade games, they also copied US versions. Here in Korea we should develop our own games, of course, but we need time because local makers are so small that they do not have enough money or man power," said B.Y. Shin, manager of Alpha's trade department.

"On the whole, engineers in this area do not have a lot of experience. They learn technological know-how through books," said K.H. Jeoung, manager of the manufacturing department.

Unlike the majority of local manufacturers that say prices will decrease after the games are developed, Shin believes prices are on the increase.

"Quotes will rise by about 20 percent every year as the preference of arcade game buffs changes to higher and more sophisticated games."

About 10 percent of the parts used by Alpha are imported from Japan. Other items such as condensers, crystals and some ICs are purchased from local manufacturers.

Alpha also aims to export all of its output. About 92 percent is shipped overseas, with 70 percent absorbed by European nations and 20 percent going to South America. Full capacity is 3,000 units per month, but output has recently been amounting to just half this figure.

Arcade games include the Sky Shark priced at \$450, the Legion at \$250, the Ninja Kid at \$240 and the Arkanoido at \$90.

The company cannot afford to develop its own programs but spends between 10 and 15 percent of total sales turnover on research.

"In addition to the technological know-how required, R&D costs are about \$125,000 per program. We cannot offer either," said Shin.

Packaging is standard, and items are shipped two days after receipt of a letter of credit.

Philko Corporation was set up in 1975 and has been developing its own programs. The company declined to reveal what type of software was being produced or when it would be on the market but expected it to be completed by the end of the year.

A spokesman for Philko said all video arcade games produced are exported, but he declined to give prices or any further information about products or the company.

Although there are only a handful of manu-

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facturers of video arcade games exporting their products, makers claim the market is improving. The copying of overseas software and programs still predominates, but some makers are beginning to develop their own. Lack of capital and expertise, however, are the main stumbling blocks.

**TAIWAN**

**Piracy hinders exports**

Copyright problems, brought about by a government crackdown on arcade video game piracy, have made the development of copyright-free games an expensive investment for Taiwan manufacturers. As a result, makers still prefer to copy or redesign the originals produced by firms in Japan and Europe. Overseas manufacturers are, therefore, naturally reluctant to export game PCBs and complete sets to Taiwan.

Two executives interviewed said they are only concerned with production and shipment affairs and rely on their overseas customers to solve any copyright problems, implying that their customers normally just buy and sell the games without permission from the original designers. This explains the industry's heavy reliance upon export outlets in many developing countries.

Despite the copyright situation, sales to markets in Southeast Asia, Latin America and other developing nations still make up 30 to 40 percent of total exports from the two suppliers contacted.

The two makers contacted for this report offer both game PCBs and complete SKD kit sets. Trade terms are flexible, and delivery is prompt.

For this survey, *Asian Sources Electronics* contacted Shin Tai Company and LN Life Company Ltd.

Loson Electrical Company Ltd is one of the few active suppliers in Taiwan, but executives at the firm declined to be interviewed.

Shin Tai Company was set up as a maker of video arcade games nine years ago. In recent years, the firm diversified production to include electronic and electric arcade games without video screens, as well as game cartridges for use with Atari, Sega and most other popular Japanese home TV game consoles.

The firm offers more than 100 types of commercial video game in both upright and table-type cabinets. More than 80 percent of the PCBs used are direct copies of Japanese originals, while the remainder are created from Japan-made games by the firm's own R&D engineers.

"Most games developed or redesigned are for gambling," said company manager L.S. Tzeng. "This

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is partly because such games enjoy a healthy demand from markets in most developing countries in Latin America and Southeast Asia and partly because development costs are much lower than those necessary for more sophisticated amusement games."

Most game PCBs available from Shin Tai fall into the \$100 to \$500 price range, but several up-to-date units similar to the latest Japanese game PCBs cost as much as \$2,000 each.

A 20-inch color monitor with power supply, on/off switch, lock, push-buttons, joystick and coin box could cost buyers between \$217 and \$267 per set, depending on order quantities, specifications and trade terms. The coin slot and the starting mechanism can be designed to meet the requirements of buyers in different countries.

Trial orders of any quantity are accepted, and the standard minimum order is 100 game PCBs or 50 complete SKD sets, per model. A 20-foot container usually carries 50 complete SKD sets of an upright-style game. Delivery is 14 days after receipt of a letter of credit.

Shin Tai exports 40 percent of its total monthly output of 3,000 PCBs and 1,000 complete games to customers in Malaysia, Singapore, Indonesia, the United States and about a dozen other countries in Latin America and Europe. The copyright issue limits

the firm's sales to Western nations, however, said Tzeng.

One factory handles production of PCBs and another takes care of assembly and packaging of SKD parts. Capacity is 5,000 PCBs and 1,500 complete SKD or fully assembled sets monthly. The company hopes to export up to 50 percent of total output within the next six months.

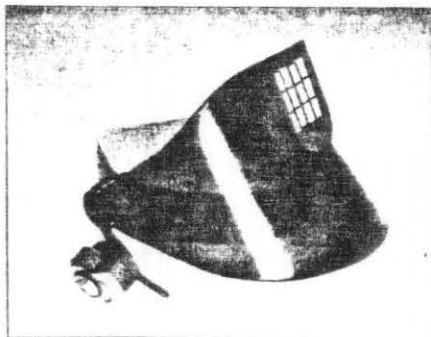
LN Life Company was formed two years ago by four share holders with more than 10 years experience in the manufacturing and exporting business of commercial video arcade games. Products include all types of electronic and electric commercial game consoles and PCBs, as well as cartridges for home TV games.

The firm has a work force of 40. The QC department comprises seven engineers, and a team of five technicians handles R&D.

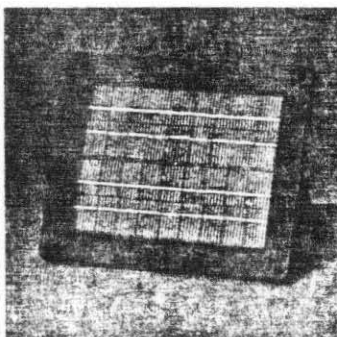
President Nelson C.H. Wu said all ICs and blank PCBs are purchased for insertion by a subcontractor. Most other parts are ready-made items obtained from local producers for final assembly at LN Life's own factory in Taipei.

"We offer more than 100 coin-operated video arcade games, including the most popular Japan-made games sold in the past 10 years, as well as all the latest games originated by both leading Japanese

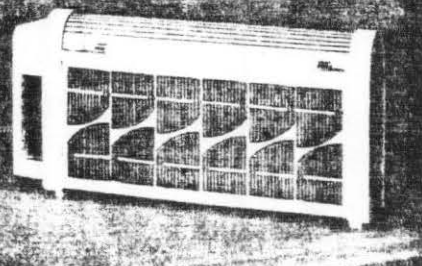
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firms and LN Life's own R&D engineers," said Wu.

"We handle production and shipping, and our customers are responsible for solving the copyright problems. This explains our limited exports to markets in the United States, Japan and most European countries because most buyers there are reluctant to get involved in the copyright issue."

Wu said the firm has direct business relations with buyers in the United States, Hong Kong and Malaysia, and relies on trading firms in Taiwan for channeling exports to Argentina, Brazil, Singapore and countries in the Middle East, Oceania, Africa and Central and South America.

Export sales bring in 40 percent of the firm's monthly revenue of \$170,000 to \$200,000. Wu expected to see a 50 percent increase within the next six months.

Monthly capacity is 1,000 units each of PCBs and complete SKD or fully assembled sets. There is no minimum order. Delivery is within seven to 45 days of confirmation for orders of less than 500 PCBs or complete sets.

Warranty terms allow for the replacement of malfunctioned PCBs and supply of spare parts. An improved customer service scheme, which will include dispatching service engineers to buyers' home markets, is due to be established soon.

Forthcoming coin-operated video arcade games from the firm include a Lucky Eight-Line game that is said to provide more game functions at just one-fifth the price of a conventional mechanical counterpart. Other models will include a score game with an LCD and three copyright-free venture games derived from a Japan-originated Nintendo home TV game software series.

"Software design patents for the three venture games without copyright involvement will also be applied for in Taiwan," said Wu.

"The worldwide market potential for both commercial and home TV games is huge if Taiwan makers can obtain enough order support. This is due mainly to the island's abundant supply of microprocessor-based software and hardware engineers."

A limited number of makers are operating in Taiwan, offering a fair range of items with new models due to be released. Exports are still limited because many potential buyers are unwilling to shoulder the copyright problems arising out of purchasing software that is largely copied from Japanese originals. □

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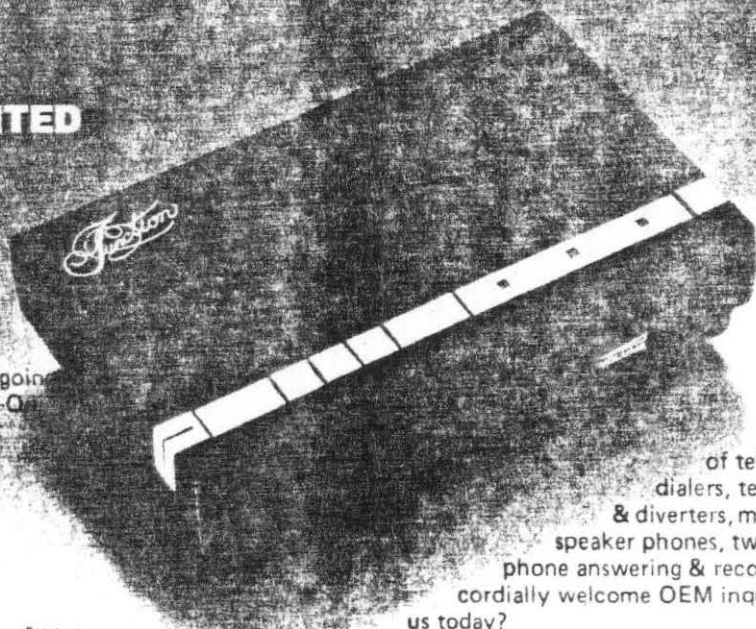
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