TAIWAN
ASIA'S MICRO DRAGON

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These four black and white photographs are all microcomputer related. They have been appearing in the past three issues. We have been gradually exposing a little more of each, and here is the final exposure. What you have to do is identify the photographs. You can send in as many entries as you like. But remember the competition closes this month so this is your last chance. Try now! The powerful MED-FLY could be yours.

The winner will be the first correct entry opened. Entries will be opened only after the closing date, that is July 31. All entries received so far have been date stamped and lodged with Computer-Asia’s solicitors for safe keeping. Entries will be opened in strict order of receipt. The first correct entry opened will be the WINNER. So, don’t miss out on this last chance to win a super microcomputer.

HOW TO ENTER.

Write what you believe each photograph to be in the lines marked one to four. Send your entry (ies) to us as soon and as often as you like. The competition closes on July 31, 1983 and entries received after that date will be invalid. Judging will commence on August 1, 1983 and the winner will be notified. Results will be published in the September 1983 edition of ComputerAsia.

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(Make sure to mark your envelope "Computer-Asia Jigsaw Competition". Envelopes not so marked, which may be opened in error, will be invalid.)
Put more computers in schools

A yen to solve problems, to be the first to provide solutions and to implement change are among the aspirations of Jai Menon.

The youthful researcher from IBM's San Jose laboratory is inspired in his mission by what he describes as "leeway" and tremendous opportunities to interact with professionals.

Menon has been working on the design and implementation of intelligent backend controllers. While doing his Ph.D in computer science at Ohio State University, Columbus, he worked on the design and analysis of a multi-processor based datamachine for performance enhancement and capacity growth. "I am more of a software person. I enjoy studying performance modelling of existing software, see how it can be improved, modified or made more manageable. Software is becoming so vast that there is a never ending need for research."

While a lot of his work is done on a team basis, IBM also encourages its staff to undertake their own studies. Says Menon: "I continue to research and publish my own work. IBM has plenty of incentives and awards for good work. An employee is judged not only on his contribution to the company but also on how well he does within the industry."

Asked how he came to be in computers, Menon adds laughingly: "I was tired of electronic engineering." Then on a serious note he confessed that his interest in computers began when he was an undergraduate at the Indian Institute of Technology in Madras, where there was an IBM. Menon received his bachelor of Technology in Electrical and Electronic Engineering from the IIT.

On the lookout to tap knowledge and share his skills, Menon soon will start teaching on a part-time basis. He advocates greater use of computers in the classroom. "It allows the student time to orientate with a tool that will play a vital part in the workplace. IBM has an interesting program with one of the universities where every undergrad doing a four-year course has a PC. The cost of the computer is included in the school fees. At the end of the course the student is allowed to keep the PC. But students, like those in the arts stream are not keen to work on PCs. So there is some opposition to the idea. But the issues have to be addressed and only time will tell. People always oppose change. But they are quick to appreciate and adopt a change when the potentials become clearer."

Menon is critical of the software industry. A sore point is the approach to programming. "Learning Basic for instance, the non-structured nature of Basic means a whole group of Basic programmers are thinking the non-structured way. As a result they write programs that are difficult to prove correct. I would like to encourage structured programming, which is the correct programming."

Menon hails from the state of Kerala in India. When asked if his future plans include sharing his skill with his countrymen he said: "Perhaps one day, but the day is not here yet. I have a lot to learn before I can do something worthwhile or be in a position to contribute to the well-being of India. As one gets older, one becomes less selfish and more giving. Now I am young enough to want to do things for myself."

Menon was a speaker at Conference '83 in Singapore.

An aid to teaching

Teachers, trainers, and data processing managers can now create their own computer-assisted instruction courses with an interactive authoring system from McGraw-Hill International Training System.

At the launch of the system in Hong Kong Joseph Hatcher, marketing manager said that people with no knowledge of computer programming could use it. "This means that people with specialist knowledge in any subject, without teaching skills can impart their knowledge through a flexible and adaptable computer program."

He went on to say that the increasing emphasis being placed on the role of the computer in education in Hong Kong makes this the ideal time for the Interactive Authoring System to come on line. "Guided by step-by-step directions on the computer screen, the instructor can easily develop courses which incorporate text, colour graphics, and video tape segments. The resulting lessons test the student as he progresses, identify his areas of weakness and concentrate on improving him in those areas."

Apples for student

Nine Apple IIE's have been installed at the Mun Seng College, Hong Kong. The Apples supplement the school's existing microcomputers, obtained through the Government computer pilot scheme.
The small dragon awakens to computers

The Republic of China, on the island of Taiwan, has been described as one of the four small dragons of the east Asian economic zone. For the past three decades Taiwan has competed with the other small dragons — Singapore, Hong Kong and South Korea — in manufacturing and exporting textiles, garments, footwear, plastics and other low-end products. Now the race is on to get into high technology and, at this stage, Taiwan appears to be striding ahead of the competition.

There are almost 300 companies in Taiwan producing electronic products, up to 80 of them doing small computers, some of which are selling in vast numbers while others are still being test-marketed. Currently, Taiwan has a grip on just 1% of the world electronics market. The plan, over the next few years, is to double that to 2% — but 2% of a greatly expanded market.

Kuo Yun, president of the Institute for Information Industry (the equivalent of a national computer board in other countries), quotes figures to show that Taiwan in 1982 produced $2.96 billion worth of consumer electronics, communications and data processing equipment and components. That represented 1% of the worldwide $292 billion industry. He has other figures which estimate the world market will grow over the next five years to $510 million.

The visitor to Taiwan is left with a strong impression that this country of 19 million people will meet its target. The government has declared computers a strategic industry and no effort is being spared in providing research and production facilities. “We have a special way of doing things,” said L.N. Wu, vice-president of Pan-Asia Electronics. “Our companies are small, but we have a high level of cooperation with the universities. They have the skilled technical people and they are happy to put them to work on research projects that will assist industry. They develop the products and we commercialise them.”

Taiwan is moving away from making electrical consumer products such as radios and television sets into computer-related equipment. This is reflected strongly in some recent trade figures. Exports of consumer products in the first quarter of this year fell by 15% (from $235 million to $199 million) compared with the corresponding period in 1982. Data processing products, on the other hand, enjoyed fantastic export growth — up by 539% from $6.1 million in the first quarter last year to $39 million this year. Telecommunications products were up 36% from $33 million to $45 million.

The showpiece of Taiwan is the Science-based Industrial Park at Hsinchu, about 100 kilometres from Taipei. So far, the government has allocated $75 million to develop the Park. By the time its 10-year development ends in 1990 the Park is expected to be home to 150 companies manufacturing products at the high end of technology. And by then
From peanuts to prosperity

"In the hands of youth lie the hopes of mankind." So reads the inscription on a sculptured award made to Stan Shih, founder and president of Multitech International Corp, by K.T. Li, minister in charge of science and technological development in Taiwan.

The award graces Shih's office in Taipei and a life-size replica stands outside his company's main factory in the Hsinchu Science-based Industrial Park. Multitech, founded by Shih and six colleagues in 1976, is the outstanding success story of Taiwan's electronics industry.

The secret of that success is a hard-headed combination of technical excellence and marketing strategy. "I cannot emphasise too strongly," says Shih, "that we are more than just a technical leader. We set out to commercialise the computer business, to promote our products strongly in the marketplace."

It's a combination that has worked beyond the wildest dreams, probably even of Shih himself. Multitech was launched on $25,000 capital. Within a year that figure was doubled and sales in 1977 were a mere $325,000. This year, with capital increased to $3.3 million, sales are estimated to reach $42 million.

Average annual growth in sales over the past six years has exceeded 120%. The only year when growth fell below 120% was in 1981 when they were ploughing all their energies and spare cash into new products. Even so, they increased their revenues that year by an impressive 78%.

Shih and his co-founders of Multitech gained their foothold in electronics while working for a calculator manufacturer. They scraped together their $25,000 in capital ("Peanuts really," observed one of today's industry leaders) and went into business as traders and consultants. In their first four years they designed 40 micro-based products for other people. Among them was the Esprit terminal which they designed for Disco Electronics, a Taiwan manufacturer. Disco later sold the Esprit technology to Hazeltine and that American manufacturer has taken it to great heights.

Meanwhile, Multitech was working on two products that were to establish it as a manufacturer in its own right — the Dragon terminal to handle Chinese-language input-output and the widely accepted Micro-Professor, an entry-level computer packaged like a student's text book. The first of these, the MPF-I was unveiled in 1981 at the Westcon Show in the United States. Z80-based, it was designed for engineers, students and hobbyists wishing to learn about hardware and software. More than 100 universities in the United States now use it as a teaching aid.

So far, Multitech has produced 40,000 units of the MPF-I and they're still rolling off the com-
At the end of this year, 100 of his employees will be shareholders in the company. Many of the staff haven't yet qualified to become shareholders because they've been with the company less than a year. "There's no outside capital in Multitech," says Shih proudly.

In addition to designing and making its own systems, Multitech is a major importer of integrated circuits for the Taiwan computer industry. Among companies for whom Multitech acts as agent are Advanced Micro Devices, Zilog, Onyx Systems, Hazeltine, Gould Instruments, Monolithic Memories, Rockwell, RCA, Texas Instruments and National Semiconductor. For its own factories, Multitech will spend more than $10 million this year on chips, at prices ranging from less than 20 cents to more than $20.

The Dragon system, already accepted as an industry standard among Chinese computer systems, has absorbed most of the research and development funding of Multitech. But results are coming in now. And the price is falling all the time. "When we introduced the Dragon computer in 1980," said Shih, "we had to price it at $6,000. Our new Dragon 7000 series is much more powerful and retails for only $2,500."

Currently, they're producing only 50 a month, mainly because of a materials supply problem but they're fast getting on top of that. Apart from the domestic market they see good prospects for the Dragon in Singapore and Hong Kong.

Multitech achieved its breakthrough into a Chinese computer system by devising a method to build Chinese characters on a standard ASCII keyboard. Working from the fact that every Chinese character is made up of strokes, (up to five) they managed to assign enough basic strokes to 24 of the standard QWERTY keys to be able to write up to 22,000 different characters. Three hours of instruction is enough to get someone literate in Chinese doing input. After one month, speeds of 30-50 characters a minute are possible and another month can get this to the 60-90 characters a minute range.

Shih is confident about the Chinese system. "At the start, our problems were in the area of input-output. We've conquered those. Now, the problems are software and promotion. The Apple computer has become fantastically successful only in the past few years — because of the availability of software. Two years from now, there'll be applications software available for the Dragon. Then it will really take off."

Acceptance of the Dragon is certain to be stimulated by another Chinese system which Multitech has developed for schools in Taiwan. This is so basic it doesn't even take a floppy disc, let alone a printer. Price: less than $200.

As he contemplates his changing marketplace and the rising cost of R&D, Stan Shih is cautious about future growth of Multitech. "It probably will come down a bit," he ruminates, "maybe down to 100% a year."

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Teaching Chinese to an Apple

Plus & Plus was one of the successful coin-operated video game manufacturers in Taiwan — until the government late last year banned such machines from the domestic market.

Plus & Plus had seen such a move coming and two years ago it swung its engineers over to designing computer products for business use rather than for games. In the past year it has unveiled two products, both of which were designed and developed in-house.

CAN-80 is a microprocessor training kit and development system, suitable for engineers and students. It came on the market in the United States in December and, according to Tony Liao, vice-president, distributors and agents are knocking on their doors wanting to get rights to it. At this stage they’re selling 100 CAN-80s a month in Taiwan and 250 a month in the U.S. It’s only a matter of time, says Liao, before they tie up a big-quantity order. The end-user price is about $120.

The other product on which Plus & Plus is counting to make strong sales is C-Plus II, a Chinese character generator which comes in the form of an Apple-II compatible interface card. “It’s a first for Taiwan, and the world,” says Liao. By plugging in the card, a user can give both Chinese and English language capability to his Apple. Says Liao: “We developed this so that children in Taiwan can begin using computers at similar ages to children in other countries.”

At this stage Plus & Plus is producing 600 of its Chinese character generators each month. They say it’s simple to learn to use. A couple of hours is usually enough, for anyone familiar with the Chinese language that is.

The next step is to make the Chinese character generator compatible with the IBM Personal Computer. That’s not expected to take anything like the 12 man-years of R & D which went into the Apple-compatible model as most of the work is done now. Longer term, they want to develop it for minis and office automation systems. “The most difficult part,” said Liao, “has been to find the way to generate the characters. We’ve done that now so it gets easier.”

Also on the way is the MIART-1000, an Apple-compatible small business system. Plus & Plus has developed its own operating system for this one and it’s now awaiting a report from the United States to back up its claim that it doesn’t infringe any Apple patents.

Waiting for the third Sunrise

Sunrise Computer Service Co has been through two phases in its 18-month history and now it’s planning for the third.

They would rather not talk about it today, but Sunrise started out as a copier of the Apple II, the pioneer in fact of that shady business.

It moved into Phase Two in October last year following a visit to Taiwan by the president of the German company which makes the Basis 108, a major seller in the micro markets of Europe and the United States. Sunrise at that time was developing its own micro, the Apollo 400.

A deal was done to swing its production line over to producing a machine called the Basis Medfly which combines some of the features of the Basis 108 with some of those of the Apollo 400.

“The original idea,” said Paulus Yang of Sunrise, “was to build the entire product in Taiwan. But that idea had to be modified. What we’re actually doing is to make everything except the main board which comes from Germany. We crate all our production off to Hong Kong where the systems are assembled.” The market for the Basis Medfly so far is confined to Asia and Australia and Sunrise currently has a production target of 20,000 units a year.

But it’s Phase Three of Sunrise’s development that really excites Paulus Yang and his colleagues. This will be the Phase when Sunrise produces and markets its own home-grown system. Any day now they hope to start production of their Cat-100, a dual-processor machine using both Zilog Z-80 and Rockwell 6502 chips. The people at Sunrise reckon this system will be even more popular than the Apple II. That’s an optimistic outlook, considering there are an estimated 50,000 Apple-type machines in Taiwan alone.

Why Cat? we asked. An acronym perhaps for Computer-Aided Trainer/Transactor? Something like that? “Not really,” said Yang. “We were looking for a short catchy name. Someone recalled that we’d started out in the micro business as a copycat. So, why not?”

After they get the Cat-100 established, which means full approval from the American Federal Communications Commission, to avoid any problems with Apple, Sunrise will throw its R&D energies into developing a 16-bit micro.
Computer ahoy!

It could be Data General versus Data General when the 12-metre yachts go down to the line in the America's Cup contest off Newport Rhode Island in September. Both the American defender and Australia II, one of three Australian entrants, are equipped with Data General computers.

Australia II has two computers. A microNova MP/100 on board its tender vessel receives data from Australia II's instruments, stores it on magnetic tape and then feeds it into an on-shore Nova 4X.

Data includes such statistics as boat speed, apparent wind angle (the actual wind angle plus the effect of the boat's motion), apparent wind speed, heel angle, heading (direction of the boat), rudder position, trim tab position, water angle, pitch and time.

As well as providing analytical data, the system also accepts navigational input such as crucial details as information on the tides, the yacht's initial position, and the position of marks, for crew purposes.

"The instant analysis of these crucial aspects of 12-metre racing are important technological advances which give the Australia II skipper and crew significant strategic advantages over past Australian challenges for the America's Cup," said syndicate chairman Alan Bond.

"When Australia II returns from training and trials at the end of the day, we can provide this computerised analysis, while events are still fresh in everyone's mind. Previously, we had to wait until the following day when some of the statistical facts could be calculated manually."

Bond said that because the computerised system can also store up to one million pieces of statistical information per day, the crew is able to look back over a whole history of previous trials and races to determine timing of different tackling procedures, boat performance with different navigational variants, overall equipment performance (current sails, masts etc. compared to previous ones) and a host of other data.

This is the first time an Australian challenger for the 132-year-old America's Cup, has had a fully computerised system, adapted specifically for 12-metre sailing purposes, at its disposal. The computerisation was kept a secret until recently, so as not to alert the Americans to the scheme.

Bill Johnston, communications manager of Data General Australia, told Computer-Asia that another major advantage held by the Australia II syndicate is the presence in the crew of Glen Read, a Data General field engineer on loan to the Australia II syndicate with responsibility for all hardware maintenance.

Read is the current world titleholder in Soling, a three-man yachting contest. He is being tipped to represent Australia in yachting events at next year's Olympic Games in Los Angeles.
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