

ASIA IS A BUSINESS IMPERATIVE... NOW MORE THAN EVER

ASIAN TECHNOLOGY NEWSLETTER

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A bimonthly newsletter of developments in the computer, semiconductor, and telecoms sector

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INTRODUCTION

We hope that you find the *Asian Technology Newsletter* informative. BDA is a corporate finance advisory firm that helps clients identify and execute acquisitions and JVs in Asia. We have developed a focus on the technology sector, in pace with the growing level of M&A and other investment initiatives within this sector in Asia.

If you think that BDA's services may be useful to you, please contact us in New York at (212) 265-5300, or in Singapore at (65) 533-8500.

Andrew Huntley
Director

CHINA/HK

China Telecom is expected to be split into four separate companies. The companies would each be responsible for a different sector: telephone, paging, cellular and satellite services. China's telecommunications industry grew 36.1% in 1998. (January 22, 1999)

Civilink Web Hosting will establish 10,000 websites with independent domain names for corporate users on China's mainland. This will include 1,000 online magazines for domestic newspapers, magazines and other media and 100 online malls for commodity stores. The plan promotes the three main services offered by Civilink: web hosting, e-commerce and domain name registration. The company obtained a license in 1998 from CNNIC, the Chinese equivalent of InterNIC, to handle registrations for Chinese domain names. (January 27, 1999)

KRONE, the UK telecommunications company, has installed its Telecell-H wireless local loop systems to provide Plain Old Telephone Services (POTS) to a rural county near Qingyuan city in Guangdong Province. Utilizing the wireless local loop supplied by KRONE is more viable than installing telephone lines, given the geography of the county and the local costs involved. (January 26, 1999)

The Legend Group, China's largest PC manufacturer, has set up a JV software company with US software developer **Computer Associates (CA)**. This is Legend's second major move to boost its exposure to the software business, after a cooperation agreement with IBM in early 1998. Du Yongbo, General Manager of the JV, says that the company

will release a Chinese software package called "Wending" in H1 1999 for Chinese-language speakers all over the world. (December 28, 1998)

Thakral Corporation, of Singapore, has established two more electronics companies in China. The company owns 60% of **Shanghai CAV Thakral Home Entertainment**, which has a registered capital of RMB500,000 (US\$60,000). The remaining 40% is owned by state-linked company **Shanghai CAV Audio & Video**. Thakral also owns 50% of **Beijing Wenlu Laser Technology**, which has a registered capital of RMB35m (US\$4.2m). (December 18, 1998)

INDIA

The **Karnataka State Government** is targeting overseas software sales of US\$2.85bn in the years 2002 to 2003. Ananth Nag, the State minister responsible for developing Bangalore, has launched 20 projects to upgrade Bangalore's infrastructure in 1999. There are plans to build an IT city across 200 hectares. **Microsoft, Compaq, Sony** and **Samsung** are among the 78 foreign firms to have set up offices in Bangalore. (December 29, 1998)

Apple Computer has reduced the price of its iMac in India from Rps85,000 (US\$1,999) to Rps 73,000 (US\$1,716). Apple has laid out an India-specific strategy for its iMac series which includes: entering the consumer market, exploring opportunities in education and research institutions, choosing the right partner for distribution, and reselling and establishing infrastructure support for after-sales service and spare parts. (January 26, 1999)

Quark, the US-based company which develops software for electronic publishing, has set up **Quark Media House India**. The company is planning a marketing program in India, and is setting up a development center in Chandigarh. (December 31, 1998)

Satyam Infoway of India has formed an alliance with **Intel Asia Electronics**, which will enable Satyam to offer its internet connectivity and e-commerce products software to Intel customers by bundling the services with Intel-based desktops. Satyam Infoway, a subsidiary of software firm **Satyam Computer Services**, is India's first private ISP. (December 19, 1998)

JAPAN

Fujitsu has announced plans to increase production of hard disk drives by 10% in 1999. By year end, production should reach 20 million units. Most of the increase will come from factories in the Philippines and Thailand, where Fujitsu intends to invest more than US\$100m this year. (January 6, 1999)

Hitachi will sell its semiconductor silicon crystal business to **Shin-Etsu Chemical**, Japan's leading maker of silicon for semiconductors. Hitachi aims to focus its semiconductor operations on the semiconductor device business and to withdraw from the semiconductor silicon crystal sector, which includes semiconductor silicon wafers. (December 21, 1998)

Mitsubishi Electric will team up with **Matsushita Electric Industrial** and its 100%-owned unit **Matsushita Electronics** to develop jointly advanced semiconductors. Plans include next generation large scale integrated (LSI) circuits that integrate logic technology and embed dynamic random access memory (DRAM) technology. The agreement is aimed at reducing costs and shortening the development period. The companies plan to invest Y50bn (US\$430m) by 2004 to develop the chips, with half the amount coming from Matsushita, and half from Mitsubishi. (December 21, 1998)

Mitsubishi Electric will freeze and soon phase out production of plasma display panels (PDPs) as part of its corporate restructuring program. The company said it would concentrate its resources on R&D for

higher resolution panels. The company will cease production in April. (January 8, 1999)

Sony is focusing on new flat-panel display technologies, one of which is known as field-emission display (FED). Sony is developing FEDs in a new partnership with **Candescent Technologies** of the United States, but does not expect to produce 14-inch displays for another 2 years. It will not decide whether to mass-produce the devices until that time. (December 11, 1998)

KOREA

Fairchild Semiconductor has announced that it will acquire the power-device division of **Samsung Electronics** for US\$455m. The purchase includes all the worldwide business and assets of the power-device division. (December 21, 1998)

LG Semicon, an affiliate of the LG Group, has agreed to sell all its equity to **Hyundai Electronics Industries (HEI)** after a damaging ten-day stand-off with the government. The sale will result in HEI becoming the world's second-biggest producer of DRAM chips in terms of market share. LG had previously refused to submit to the government-favoured merger despite an unavailability of bank loans. (January 6, 1999)

Samsung Electronics is selling 65% of **AST**, its unprofitable US personal computer manufacturing subsidiary, to a group of US investors. Samsung will sell its stake in AST for US\$12.5m, although it has invested nearly US\$600m to date. The move was part of restructuring efforts by Samsung to reduce debts and concentrate on profitable core businesses, including the production of memory chips and telecom equipment. The US investor group will incorporate the computer-maker as a new entity, AST Computer, and will take over the management from Samsung, which will retain a 35% stake in the JV. (January 12, 1999)

MALAYSIA

Celcom (Malaysia), as part of its objective of becoming a total telecom provider, is planning to launch a new website, MoNET (Malaysia-on-Net). The website marks Celcom's first foray into the multimedia business, and Celcom expects it to be the premier source of information on Malaysia. (December 11, 1998)

Hutchison Paging, a telecom subsidiary of the Hong Kong-based **Hutchison-Whampoa**, will launch two new paging services in Malaysia during 1999: an international roaming service and a financial news service. **Hutchison Serting** is the local operator for Hutchinson Paging in Malaysia. This partnership launched Malaysia's first peninsular-wide paging service in 1991, concentrating initially on Kuala Lumpur and later expanding to the whole country. (January 24, 1999)

PHILIPPINES

The Philippines government has suspended the plans of the **Philippines Long Distance Telephone Co (PLDT)** to switch from a flat rate to mandatory metered call charging for local calls. (January 26, 1999)

SINGAPORE

Circuits Plus has launched an initial public offer (IPO) on the SESDAQ, which was 134 times over-subscribed at its close on January 14, 1999. The printed circuit board maker had offered a total of 21.6 million shares at S\$0.16 apiece. The shares carry a forecast price-to-earnings ratio of 6.3 times. (January 16, 1999)

Computer Sciences (CSC) has announced and succeeded in its takeover offer for **CSA Holdings (CSA)**, a leading IT company listed on the Singapore Stock Exchange. The bid price is S\$1.02 (US\$0.62), a 56% premium over its average trading price from November 30 to December 4. CSA will gain from CSC's good reputation globally. CSC has, however, declared its intention to seek a voluntary delisting of CSA from the Stock Exchange of Singapore, apparently upsetting some shareholders. (December 11, 1998)

Datacraft Asia, a leading regional communications and network systems integrator listed on the Singapore Stock Exchange, has clinched a US\$4m contract from **Fujian Post and Telecommunications Administration (FPTA)**, of Fujian Province in China. Under the contract, Datacraft China has been appointed to design and build a high-speed pilot Asynchronous Transfer Mode (ATM) network for FPTA. (December 21, 1998)

Epson (Singapore) has announced an offer to acquire a 10% stake in the cash-strapped **Sahaviriya OA Group** in Thailand. SVOA has marketed Epson printers in Thailand for more than 15 years and sales in 1998 exceeded Bht2bn (US\$48m). Epson aims to become the market Thai leader in inkjet printing by the end of 1999. (December 18, 1998)

GES International is seeking to raise money through a public listing, approval for which was granted by the Stock Exchange of Singapore in November 1998. GES has been listed on the Australian Stock Exchange since August 1997. Proceeds from the listing will be used both to expand its current production capacity and to invest overseas in JVs and/or acquisitions. GES, best known for its *Datamini* brand of computers, has also diversified into OEM services and the distribution of electronics peripherals. (January 16, 1999)

The **Institute of Microelectronics (IME)** has joined forces with twelve other Singapore-based semiconductor companies to begin new R&D in semiconductor packaging technologies. The other members of the consortium are **Advanced Micro Devices, Gul Technologies Singapore, Hewlett-Packard Singapore, Hitachi Chemical Asia-Pacific, Johnson Matthey Singapore, Lucent**

Technologies Microelectronics, Philips Singapore, Sumitomo Bakelite, ST Microelectronics, Siemens Microelectronics (Asia-Pacific), ST Assembly Test Services, and Micron Semiconductor Asia. (December 20, 1998)

The **Online Technologies Consortium (OTC)**, comprising more than 180 companies and sponsored by online industry players in Singapore, has forged alliances with 12 international and local partners. International partners include **Community Connect, FortuneCity.com, TRUSTe, CommTouch Software, and Paralogic Software.** Local partners include **Aretae Interactive, Cybersource, Educom, Ednovation, International Application Solutions, Kent Ridge Digital Labs, and Net Megastore.** These partnerships are expected to create ten virtual communities in six months and attract 10 million online visitors per month. (December 18, 1998)

Singapore Telecommunications (SingTel) announced the signing of a S\$206m (US\$120m) deal with **Sterling TV**, a unit of the Sterling group, for the leasing of satellite transponders. SingTel will lease transponders to Sterling TV for 12 years beginning the second half of 1999, to be used to provide education-to-home (ETH) services in India. The transponders are located on the ST-1 satellite, which is jointly owned by SingTel and Taiwan's **Chunghwa Telecom.** (January 13, 1999)

Western Digital (WDC), the US disk drive maker, intends to shut down one of its plants in Singapore in order to cut costs and return WDC to profitability. WDC is also moving part of its desktop computer production to Malaysia, where costs are considerably lower and a new cleanroom has just been built. (January 20, 1999)

TAIWAN

Afreey, the Taiwanese CD-ROM manufacturer, has announced that it will build two new factories. One factory will be located near Hsinchu, Taiwan, and will produce 50 speed CD-ROM drives, slim type CD-ROM drives, and DVD-ROM drives. Afreey is also

searching for a suitable site to set up operations in China, Malaysia, or Thailand. The company's first factory has a monthly capacity of 250,000 units of CD-ROM drives. Afrey currently produces 40, 45 and 50 speed CD-ROM drives. It is the first manufacturer in the world to produce 50 speed CD-ROM drives. (January 24, 1999)

Intel has invested in **Inforian**, a Taiwan based software company specializing in Internet search engines, e-commerce and online pager services software. Inforian developed the *Quest* search engine software. This is Intel's first investment in a Taiwanese software company. Under the terms of the deal, Inforian will receive Intel technology and will benefit from Intel's marketing strategies. (January 28, 1999)

Ulead Systems and **Ares International**, Taiwanese software makers, are likely to list on the Taiwan Stock Exchange in early 1999. New rules for listing issued from the Securities and Futures Commission in December 1998 will allow more of Taiwan's software companies to list in 1999, giving them greater access to capital. (December 21, 1998)

United Microelectronics (UMC) has laid out an ambitious plan to surpass **Taiwan Semiconductor Manufacturing's** leading position worldwide in made-to-order "foundry" chipmaking by the year 2000. Chairman of the group, Robert Tsao, said that United Micro's group sales would rise to about NT\$50bn (US\$1.5bn) in 1999. Taiwan Semiconductor's sales totaled NT\$50.2bn in 1998. Tsao also intends UMC to be the largest manufacturer of the three most basic components of electronics, sensors, displays and ICs. (January 29, 1999)

Rambus has signed agreements granting authority to produce Rambus interface memory to Taiwan's semiconductor, logic IC chipset and DRAM manufacturers, including **Vanguard International Semiconductor**, **Winbond Electronics**, **Acer Laboratories**, **Taiwan Semiconductor Manufacturing** and **United Microelectronics**. The companies all expect mass production to begin in Q2 1999. (January 26, 1999)

Toshiba, the world's largest maker of laptop computers, is expected to acquire a Taiwanese

notebook computer producer, **Chaplet Systems**, to set up a manufacturing base in Taiwan. Chaplet, a subsidiary of the financially troubled **Panvest** group, has a capacity to turn out 70,000 notebook computers monthly. (January 20, 1999)

THAILAND

Shinawatra Computer and Communication has sold an 80% stake in its subsidiary **Shinawatra International** to another wholly owned subsidiary **Shenington Investment** in a bid to streamline its organization. The group plans to reduce the number of its core business units from five to three (wireless, advertising media, and satellite), reducing its focus on computers and international business. (January 22, 1999)

VIETNAM

The links of the international undersea optical fiber cableline, SMW3, and the continental ground optical fiber cableline, CGC, with Vietnam, are expected to be operational in 1999. The 39,000 km-long SMW3 stretches from Western Europe to the Middle East, Australia, Southeast and Northeast Asia, and is the largest international optical fiber system ever to be linked to Vietnam. The project is an investment totalling US\$1.4bn and involves 92 telecommunications companies around the globe as well as the Vietnamese Government. The 7,000 km-long CGC runs through Indo-China, Malaysia, and Singapore. (January 22, 1999)

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FOCUS:

Integrated circuits in Taiwan

Taiwanese technology companies together rank as the world's third-largest makers of personal-computer equipment and fourth-largest producers of microchips. Technology products account for 37.5% of all Taiwan's industrial output. Taiwan's PC-equipment industry thrived in 1998 as brand name Western companies switched production offshore to cut costs amid the popularity of computers costing less than US\$1,000. The production value of Taiwan-made PC equipment, including shipments from local companies' overseas plants, climbed 12% in 1998 from a year earlier to US\$34bn, according to the local industry-backed Market Intelligence Center. 25% of **Compaq's**, 40% of **IBM's**, 50% of **Packard Bell's** and 60% of **Dell's** desktop computers are made in Taiwan.

Trends in the Taiwan IC Industry

The Taiwan IC industry will continue to experience healthy growth. The IC industry encompasses IC design, fabrication, packaging, and testing.

The **IC design** business has slowed since its boom in 1997. That year electronic pets had taken the market by storm and contributed greatly to the growth of the industry, generating 10% of total Taiwan IC design revenues. PC-related ICs remain the focus of the Taiwan IC design business, but more firms are likely to investigate opportunities in the multimedia ICs and telecommunications ICs as well.

The **IC fabrication** business is forecasted to reach US\$10bn in sales by the year 2000. It is expected that there will be more new entrants in the foundry business, which enjoys higher profit margins than other areas. Also, more research will be invested in embedded ICs, which combine logic and memory circuitry into a single chip. Memory products, on the other hand, experience lower margins and manufacturers are expected to broaden their product

lines to lower their risks.

The shrinking of die sizes and the increase in fabrication capacity has led to more shipments of dies, helping the growth of the **IC packaging** industry. Prosperous growth is anticipated in this business, and total revenues are expected to reach US\$2bn by year 2000.

In the past, the contribution of **IC testing** to the total IC industry in Taiwan compared to other businesses was insignificant. However, the trend towards outsourcing has spurred on the growth of the local testing business. Greater demand is expected in the future as firms realize the benefits attached to subcontracting testing services. New entrants will almost certainly appear on the scene hoping to catch the wave of this business.

Taiwan's IC industry benefits from engineering proficiency, competitive cost structure and the foundry know-how accumulated throughout the years, and as a whole will enjoy considerable growth in the years to come. Below, we profile some leading Taiwanese companies involved in the ICs business.

Etron Technology

Year of Establishment: 1991

Products: High density synchronous DRAM (SDRAM & SGRAM), wide bandwidth FPM and EDO DRAM, pipelined burst SRAM and high speed synchronous/asynchronous SRAM.

Revenues: 1998 – NT\$638m (US\$20m)

Management: Nicky C.C.Lu (CEO); Steve Ou (BC); Dave Cherng (SM)

Realtek Semiconductor Corp

Year of Establishment: 1987

Products: The company is involved in the design, testing and distribution of ICs and ASICs. Realtek specializes in system development rather than simple chip design – keeping the whole system in mind when it designs a chip for its customers.

Revenues: 1997 - US\$61m

Management: Chin-Chien Huang (GM)

Silicon Integrated Systems Corp (SiS)

Year of Establishment: 1987

Products: Hybrid ICs, including chips for desktop, multimedia, and network applications.

Revenues: 1997 - NT\$861m (US\$27m)

Management: Eugene C.Y.Duh (CEO); Samuel Liu (GM); Ken Huang (SM)

Revenues: 1996 - NT\$ 1.5bn (US\$55.9m)

Management: Chou Chye Huang (CEO); Chou Chye Huang (BC); Hank Chen (SM)

Syntek Semiconductor Co Ltd

Year of Establishment: 1981

Products: Wide range of ICs, including hybrid ICs, custom ICs, CMOS, voltage regulating ICs, and ICs for telecommunications systems.

Revenues: 1997 - NT\$92m (US\$3m)

Management: Peter Chen (CEO); David Wang (BC); June Cheng Liu (SM)

Sunplus Technology Corp

Year of Establishment: 1990

Products: Semi-custom/custom semiconductor (ASICs in general), Audio ICs, and ICs for telecommunications systems

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ABOUT BDA

Business Development Asia is a corporate finance advisory firm which assists US companies in expanding their businesses in Asia. BDA helps clients to find local business and has senior advisors in Bangkok, Jakarta, Kuala Lumpur, Manila, Seoul, Shanghai, Taipei and Tokyo. For further information on BDA's services or on any of the articles in this newsletter, please contact Euan Rellie or Charles Maynard, through our New York office, or Andrew Huntley in Singapore.

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