

>> 2008. Also, the sector is short of qualified management and marketing staff.

Another problem is the lack of wholly owned intellectual property rights. Lacking awareness about intellectual property rights, many Chinese IC companies have become involved in lawsuits in international markets. Chinese IC patent applications accounted only 1.74 percent of the global total and most patents are subordinated to those of the global firms. This means many Chinese IC design companies must pay high patent fees to overseas companies.

Capital restriction also troubles the growth of the promising sector. IC design houses striving for high-end markets require large sums of capital investment for advanced equipment. But many IC design firms have capital of no more than US\$120,000. Still, venture capital shows great interest in the sector. In 2004, over 30 IC design firms received a total US\$353 million venture capital investment and in the third quarter of 2005, US\$99 million investment flowed into ten IC design firms.

Despite optimistic industry prospects - the market is projected to grow to US\$10 billion by 2008 - Chinese IC design firms are facing more challenges than opportunities. Many global firms, including Mentor Graphics and Cadence, have established their presence in China through cooperation with local universities and research institutes. As more global companies localize their operations, Chinese firms will face more fierce head-to-head competition in their home market.

Industry insiders believe an industry consolidation will come sooner or later. "As the restrictions on overseas investment are gradually removed, the competition may force consolidation of the industry and the only companies that will survive are those with a technology leadership or niche and strong management that is focused on customers, execution and profitability," concludes Betty Lin, senior IC analyst with IDC.

IC design firms can only survive when their annual sales exceed 100 million yuan (US\$12.3 million). China has now just 16 companies breaking the threshold. Some industry insiders predict that over 95 percent of the current market players will disappear in five years. ■

SMIC Banks on Local

by XIAO LONG

Armed with a large personal fortune, Richard Chang, a semiconductor veteran who had built several foundry factories across the globe, started his mainland business in a Shanghai suburb in February 2000. The Taiwanese entrepreneur had at that time identified an enormous opportunity in the Chinese mainland's fledging IC industry. Five years later, the sector's development has proved him right.

At that time, China had just opened the door to allowing overseas capital into the IC industry, while at the same time a huge demand for semiconductor chips was emerging as the consumer electronics sector started to boom. Chang's company - Semiconductor Manufacturing International Corporation (SMIC) - quickly attracted investment from Goldman Sachs, Motorola, H&Q Asia Pacific and the Shanghai municipal government.

Over the past five years, SMIC has established ten manufacturing factories in cities such as Shanghai, Beijing and Tianjin, a testing and assembly facility in Chengdu and is ranked as the third largest chipmaker

in the world. In 2005, SMIC posted the largest growth rate (19 percent) in the pure-play foundry industry, earning it 7 percent of the market - a big jump from its 1 percent share in 2002, according to the US-based market research firm IC Insights.

Industry analysts believe SMIC's success is thanks to the support of local governments in China, along with the company's broad cooperation with leading global manufacturers. In Shanghai, Beijing and Chengdu, SMIC certainly benefited from its cooperation with the local authorities in the form of direct investment, tax breaks and low-price land leasing. The company also signed technology transfer agreements with global heavyweights, including Aplus Flash Technology Inc, ARM Ltd and Artisan Components Inc and has updated its technology in a relatively short time frame.

Now, SMIC is seeking to expand its capacity through establishing new factories in Chengdu and Shanghai. Chang recently announced an ambitious US\$1.1 billion capital expenditure plan for 2006. To finance its fast expansion, SMIC launched a dual initial public offering (IPO) in Hong Kong and New York in 2004. In addition to the US\$1.8 billion raised from the IPO, the company also received large-scale loans from local and overseas banks.

Interestingly, SMIC's customer list includes few Chinese buyers, but is instead heavily weighted by global companies such as Samsung, Fujitsu, Texas Instruments, STMicroelectronics and Infineon. This situation has led some to suggest that SMIC could be easily hurt by a global industrial cyclical downturn. However, since 2005, domestic customers have been an important area of growth for SMIC. In the past year, sales from Chinese fab-less companies accounted for more than 8 percent of the company's annual revenues.

The new products SMIC manufactures for those domestic companies include the first 3G baseband chips on 0.13-micron process for the TD-SCDMA, WCDMA, and CDMA2000 standards, a digital satellite receiver chip for set-top boxes, and a HDTV video processor chip. ■

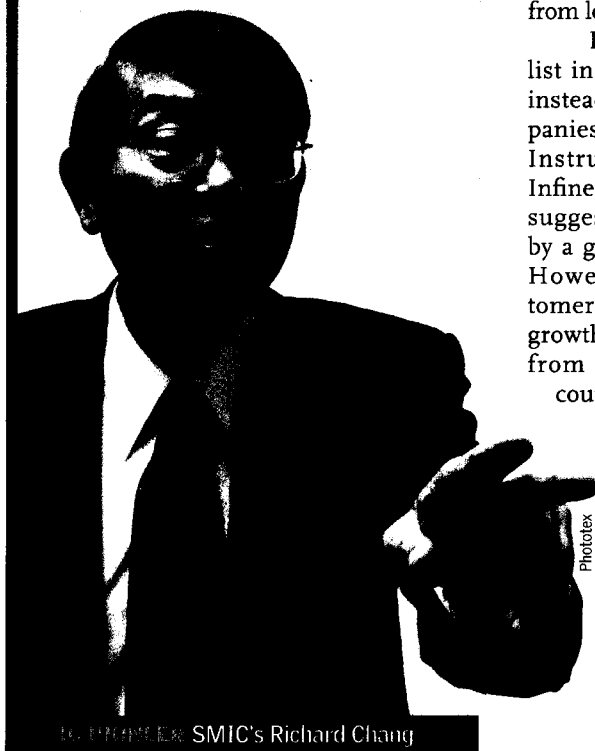


PHOTO: SMIC's Richard Chang