

LAND RUSH TO THE EAST

Chipmakers head to China in a race to get into a burgeoning market

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Motorola is launching a chip plant in China next year. Intel Corp. is quadrupling its flash memory assembly plant in Shanghai. Equipment maker Applied Materials just opened a huge sales and marketing office in that city while foundry behemoth Taiwan Semiconductor Corp. is scoping out the area to get a foothold across the narrow Taiwan Strait.

The race is on for a piece of the semiconductor market pie in the world's most populous country as chipmakers and equipment companies position themselves for what could arguably be the next promised land for the industry.

And while many experts agree the Chinese chip market could be immensely lucrative, some fear sudden growth of the semiconductor industry there would cause a glut in the global market. "Almost every company has to have a strategy for China whether they go into China or not . . . because it's going to be such a big market," Jim Morgan, chairman and chief executive officer of Applied Materials, told The Chronicle after returning from Shanghai last week.

The Santa Clara chip equipment maker a week earlier opened a 90,000 square-foot sales office, with room to grow, in Shanghai which will double as a training facility for its customers' engineers.

Morgan, who three years ago served on then-President Bill Clinton's advisory council on trade and investment in Asia, says foreign governments and multinational companies cannot ignore China -- especially with the country's entry into the World Trade Organization.

"China is going to be the most important economic event maybe in world history, or at least in current history. So, if you don't have an engaged policy with China, you have a disaster," said Morgan.

However, at least one expert is concerned that the unfettered ramping up of chip plant construction in China may cause a glut in the worldwide semiconductor market. That's what happened in the 1980s when Japan sped up its chip production.

"China is aggressively building capacity and the assumption is that it would be for domestic electronics, but they're doing this even while their small manufacturers are already facing losses,"

said **Usha C.V. Haley**, an international business associate professor of University of Tennessee at Knoxville who has written four books on business in Asia.

"The assumption is that the Chinese chip market will grow 10 percent every year and swell to \$21 billion by 2005. . . . But those assumptions are very, very questionable. The Chinese are feeling the export slump, the recession of the United States. China has only 80 million middle-class people in Shanghai and Beijing," she said.

Also, potential chip consumption in China may be overstated because the vast majority of Chinese who live outside financial centers Beijing and Shanghai earn only \$270 a year, leaving cellular phones and computers well out of reach, she said.

Even so, many high-tech companies have taken important steps this month to stake their claims. Microsoft and Hewlett-Packard announced new Chinese facilities in the last two weeks.

In September, Intel, which opened its flash memory assembly and testing plant in Shanghai in 1998, announced plans to expand. It already has 1,200 employees there and plans to add 3,000 by 2004.

Earlier this month, leading chip foundry Taiwan Semiconductor sent one of its executives to look at office space in Shanghai, where the company plans to "begin establishing relationships that will allow us to investigate the feasibility of building manufacturing facilities in China," spokesman Chuck Byers said.

Advanced Micro Devices Chairman and CEO Jerry Sanders says the firm also has a China strategy.

"Hector (de Jesus Ruiz) will make some sort of announcement within the first year of his tenure as CEO," Sanders said. In April, Sanders will step down and President and Chief Operating Officer Ruiz will take over the top job at the Sunnyvale company. "We think China will be a huge market . . . and it's an incredibly exciting place to be in."

The stakes are certainly higher for chip companies and equipment makers since price tags on their capital investments are so expensive. The going rate for a chip plant is more than \$2 billion.

Still, it's not like there aren't any chip plants in China already.

China is a powerhouse when it comes to information technology production, Haley said.

It ranks third behind the United States and Japan, producing nearly 6 billion IT units last year. The growth has been robust to say the least, as the Chinese IT industry has been growing at about 30 percent annually in recent years, she said.

However, most of it is low-end semiconductors commonly found in consumer electronics products and, moreover, China's domestic chip production only satisfies about 15 percent of the country's consumption, Haley said.

On the production end, China offers one of the cheapest educated and skilled workforces in the world.

"It's the cheapest place to produce anything," said Michael Borrus, former co-director of the Berkeley Roundtable on International Economy at the University of California at Berkeley. "If you look at the Taiwanese evolution of component manufacturing starting in the early 1990s, they started transferring much of the (low-end products) into mainland China."

By the mid-1990s, the bulk of Taiwanese picture tube productions, circuit board assembly and much of the low-end PC assembly had shifted to mainland China, while Taiwan developed higher-value productions like microprocessors and flash memory, he said.

Although China has a significant IT industry, it's at least one generation behind in technology, another reason why the Chinese government welcomes foreign companies to invest there.

But it's not exactly just sitting around waiting.

There are currently plans for five new chip plants in China by various different domestic and foreign companies, including one by Motorola.

Chinese government officials this summer have said they want to see 19 new semiconductor plants in the next decade.

Annalee Saxenian, professor of regional development at UC Berkeley, says some of the foundation is set for a chip industry boom in China.

"I was just in Shanghai in June and it's phenomenal how much infrastructure that they've put in for semiconductor manufacturing," said Saxenian, who has done extensive research on the Taiwanese and Chinese tech industries.

And the momentum is building, experts say. China's admission to the WTO and the upcoming Olympics in Beijing also mean the country will have to not only align its business practices with the rest of the world's standards, but also will have to be on its best behavior in areas such as human rights.

All of that is good news for Morgan, who is banking on China in the future.

"We're going to have several billion dollars' worth of business in China on an annual basis," Morgan mused last week in his Santa Clara office.

So, when will that happen?

"It depends on how many factories (chip companies) build," he said. "But for us, we're prepared for that."

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