



China: Semiconductor Manufacturing Equipment Industry

Overview of Emerging Tier II Markets

INTRODUCTION

The objective of this report is to provide an overview of the Chinese market for semiconductor manufacturing equipment, with focus on key emerging markets beyond established cities such as Shanghai and Beijing. This report includes both wafer fab¹ and SPA&T (semiconductor packaging, assembly and testing) equipment. A quick but necessary overview of the customer side (the semiconductor market) is also included, as the semiconductor manufacturing equipment market closely follows trends of the semiconductor market.

EXECUTIVE SUMMARY



China semiconductor industry (the “demand” side). China, traditionally a base for semiconductor packaging, assembly and testing (SPA&T), is now also an important location for wafer fabrication. Production of semiconductors grew at 34% CAGR (Compound Annual Growth Rate) to reach \$23.4 billion in 2006. Currently, there are about 60 wafer fabrication plants and about 115 packaging and testing facilities, with many more under construction or being planned. This is because current domestic production of semiconductors still lags behind demand.

China semiconductor manufacturing equipment market. In 2006, the semiconductor manufacturing equipment industry registered US \$2.4 billion in sales, an impressive 80% increase from 2005. In terms of market segmentation, wafer fab equipment represents 75% of the total equipment revenue while SPA&T equipment accounts for the remaining 25%. The vast majority of equipment used is imported – US and Japan are the top two countries China imports from. In particular, there is high demand for used equipment, as most semiconductor manufacturers are serving the low-mid end electronics market and have limited capital for purchasing new equipment.

¹ Wafer fab is a common term used in the semiconductor industry, referring to a factory, or fabrication plant, where wafers are manufactured. When the term foundry is applied to a fab, it means that the fab is able to produce multiple devices for one or more customers, e.g. including integrated circuits and discrete devices.

Prospective buyers and best prospects. China is increasingly moving towards the production of 200mm and 300mm wafers, which represent good prospects for foreign equipment exporters. In addition, there are good prospects for maintenance services and spare parts. Demand for used equipment will continue to be strong, coming mostly from new fabs manufacturing smaller wafers, as well as existing facilities upgrading tools. Demand for new equipment will instead come only from the top-end manufacturers that have strong financial resources (e.g. those manufacturing 300mm wafers).

Key emerging markets. Besides the established Tier I markets (especially Shanghai), there are opportunities in rapidly growing Tier II cities such as Shenzhen, Chengdu, Suzhou and Wuxi, the focus of this report. Suzhou and Wuxi, both in Jiangsu province, are the most important semiconductor manufacturing locations in China after Shanghai - Suzhou is a key SPA&T location, while Wuxi is important for wafer fabrication. Chengdu is increasingly attracting foreign investment in the IT industries, and several key semiconductor manufacturers like Intel have invested in the city. Shenzhen is an important electronics manufacturing base, and also a key location for semiconductors, together with other nearby cities in Guangdong province (such as Guangzhou, Dongguan, and Zhuhai). Other important emerging markets, not analyzed in this report include Xi'an, Hangzhou, Ningbo, Tianjin and Dalian.

