

# Global and China Semiconductor Package and Test Industry Report, 2011-2012

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## Abstracts

The report revolves around the following aspects:

Overview of global semiconductor industry;

Status quo of analog semiconductor, MCU, DRAM, NAND and compound semiconductor market;

Status quo of IC manufacturing industry;

Package & test industry;

24 major package & test vendors

Independent package & test vendors are generally known as OSAT or ASAT. In 1997, the OSAT industry scale was no more than USD5.1 billion or so, making up 19.6% of the semiconductor industry, as opposed to the market size of USD23.6 billion in 2011. Owing to the fact that TSV technology advances slowly and that foundries are designed to assume partial package business, the OSAT market scale may see little change but slim growth, with the estimated revenue in 2012 registering USD24.4 billion. In the package & test market, the proportions by revenue of package and test are roughly 78% and 22% respectively. It is estimated that the IC test and wafer test will be more time-consuming, further propelling cost proportion up.

Package & test companies are heavily reliant on foundries and IDMs, especially on foundries. Only count on large foundries can package & test companies capture bigger market share. A case in point is ASE, the world's first largest package & test vendor, which closely collaborates with TSMC, the world's largest foundry. ASE undertakes nearly all the package & test business of TSMC, the market occupancy of which reaches roughly 48% in global foundry market, while the market share of ASE in global package & test market approximates 18%. In addition, the world's second largest package & test company Amkor carries cooperation with Global Foundries; the third largest one SPIL teams up with UMC; the world's fourth largest player, cooperates with INTEL? and Singapore-based Chartered.

The global package & test industry features high concentration, with the combined market share of the top four reaping 46%. This is mainly because of great support from large foundries. The foundry industry in Taiwan is highly developed with the global market occupancy exceeding 60%, which fuels the package & test industry, with a global market share of 56%.

Driven by Singapore-based Chartered and Japan-based IDM, enterprises in Southeast Asia occupy the second place with the market share of 15%. However, since it was merged by Global foundries, business performance of Chartered was bogged down. Inasmuch as most products made by Southeast Asia-based companies are analog IC package & test, there is a great possibility that the business performance of these enterprises will set back due to limited potential.

America-based counterparts are mainly engaged in package & test of high-end products, and there are a host of foundries and IDMs in America, which makes it the third position with the market occupancy of 13%. As for South Korea, the package & test enterprises rely on Samsung and SK Hynix. In the future, Samsung is expected to embrace positive growth in terms of memory business and System LSI business. Therefore, South Korea-based package & test enterprises enjoy bright prospect.

Although there are many foundries in Chinese Mainland, the technology falls far behind. Subsequently, package & test enterprises feature small scale and poor business performance. In 2011, the operating profit of JCET, China's largest package & test enterprise, slumped by 97.3%; while Nantong Fujitsu Microelectronics, the second largest player, sharply dropped by 89.5%. On average, the operating profit of the world's top 4 package & test vendors fell by 18%, approximately.

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