General Information

Although Singapore can be considered a Service Industry, manufacturing remains an important pillar of the economy. In 2012, the goods producing industries contributed 27% to the country’s GDP. Over the past years Singapore has moved up the value chain to undertake more complex and higher value-added manufacturing activities and increased its focus on Research and Development (R&D). Key industry clusters include electronics, chemicals, biomedical sciences, information and media, logistics, and transport engineering. New areas of growth such as clean energy, environment and water, and natural resources, complement the established key clusters.

Since R&D is another crucial competency for high tech industries, the island-state has invested heavily in research. The government raised the R&D budget for 2011-2015 by 20% from the previous period, 2006 to 2010, with the aim of making Singapore one of the most research-intensive countries in the world.

Electronics

Singapore’s electronics industry is the backbone of the manufacturing sector, contributing 5.2% to the country’s Gross Domestic Product (GDP) in 2012 and underpinning Singapore’s economic growth, by contributing 25% of the total manufacturing value-add. Of S$16 billion in fixed asset investments in 2012, electronics accounted for almost 38.8% of the total investments. Employment for the industry stands at 80,000, which is 19% of total manufacturing jobs.

Key players include Flextronics, Sanmina, Celestica, Jabil Circuit and Venture. Prominent ODM players such as Asustek, Lite-On and Wistron also have HQ and R&D activities in Singapore.

Additionally, Singapore is the choice location for electronics companies to create and manage new markets. Today Singapore is home to:

- 14 silicon wafer fabrication plants including the world’s top three wafer foundries
- ~20 semiconductor assembly and test operations including three of the world’s top six outsourced semiconductor assembly and test companies
- 15 of the world’s top 25 fabless semiconductor companies, and close to 40 integrated circuit design centres
- 11 of the world’s top 20 integrated device manufacturers
- The world’s top three hard disk drive manufacturers
- Four of the world’s top five Electronics Manufacturing Services (EMS) providers

Singapore has a full suite of activities to meet business requirements; from R&D to development, manufacturing, supply chain management, logistics and regional and global headquarters functions.
Accounting for almost 20% of the electronics cluster, semiconductors represent the biggest and fastest-growing segment and compete with countries like Japan, South Korea, Taiwan, US and China in terms of wafer production capacity. Singapore based wafer companies accounted for 11.2% of the world’s foundry wafer output in 2009 and hold 5% of worldwide wafer fabrication capacity. There are four wafer fabrication parks in Singapore, occupying more than 200 ha of land, namely Tampines-, Woodlands-, Pasir Ris- and North Coast- Wafer Fab Park. Major players are e.g. TECH Semi-conductor Singapore, a joint venture among Micron Technology Inc, Canon Inc and HP Singapore, STMicroelectronics, Lattice SG and VIRTUS. Moreover, the semiconductor industry currently employs about 3,500 R&D engineers across the value chain, in areas such as Integrated Circuit design, wafer fabrication process development, assembly, package and test development, as well as embedded software development.

**Engineering Services**

The Engineering Services industry currently makes up ca. 1.2% of Singapore’s GDP and accounts for some 35,000 jobs in Singapore. The engineering services sector is expected to grow by 5 to 6% annually between now and 2020. Engineering services range from front-end engineering design, consultancy and systems development to project and construction management for industries like e.g. petrochemicals and biomedical sciences. The sector can be divided into the following sub-groups:

- Engineering Design & Project Management
- Control & Automation
- Testing & Certification Services

From all three sub-groups, major international players have significant operation in Singapore. German players in engineering services are e.g. M+W Group, TÜV Rheinland and TÜV Süd. Other leading industry players are e.g. Arup’s and PM Group from UK, ABB and SGS from Switzerland, Jacobs Engineering and Underwriters Laboratories from the US and Yokogawa Electric Corporation from Japan.

**Precision Engineering**

The Precision Engineering (PE) industry is a core enabler for industries such as electronics, marine, aerospace, oil & gas, and medical devices. With approximately 2,700 companies in the PE sector, Singapore offers a wide spectrum of supply products and services. In 2011, the precision engineering sector contributed S$26 billion (9%) of Singapore’s total manufacturing output and S$7.3 billion (13%) of its total manufacturing VA. In addition, the PE industry employed 92,000 people, over 20% of Singapore’s manufacturing workforce. The industry can be divided into two sub-groups: the design and assembly of machinery & systems (M&S) and the production of precision modules & components (PMC). The M&S sector includes key machine tools, semiconductor
and solar equipment makers. The PMC sector includes companies from a wide range of manufacturing services like e.g. tool & die making, casting, injection moulding, ultra-precision machining as well as specialised components like e.g. bearings, motors, vacuum pumps and watch movements.

Singapore’s PE industry is projected to generate a total output of $28 billion by 2018, due to growing in size, scope and importance worldwide. This will be achieved through industry transformation to high value activities, improvement in firm-level operational efficiency and development of deeply-skilled master craftsmen.

In addition, companies in the precision engineering industry can look forward to greater government support for productivity-driven growth. The National Productivity and Continuing Education Council (NPCEC) endorsed a 10-year productivity roadmap to address productivity challenges and lift the long-term productivity of the precision engineering industry.

Most of the major players in the PE industry are from the USA like e.g. Applied Materials, KLA Tencco, Kulicke & Soffa, Agilent Technologies and Nypro. Other major players are Makino and Yamasaki Mazak from Japan, ASM International N.V. from the Netherlands and the Singaporean companies ETLA Limited (Member of Frencken Group Limited), Meiban, Hi-P and Amtek Engineering. German companies operating in Singapore are Qioptiq Group and Carl Zeiss.

**Outlook**

Within the manufacturing sector, the general manufacturing industries cluster is the most optimistic, while manufacturers in the construction related industries also expect more positive business development, because of more public construction projects awarded. The biomedical manufacturing and transport engineering clusters also foresee a better business environment in the six-month period ending March 2014, compared to a quarter ago.

The growth outlook for the Singapore economy in general is expected to improve slightly, as externally-oriented sectors like manufacturing and transportation & storage are likely to provide support to growth, in line with the gradual pickup in the global economy. Although the anticipated recovery in Singapore’s manufacturing industry came later than expected in 2013, economists are confident that the cyclical recovery in both electronic and non-electronic clusters will increase overall manufacturing activity. In 2014 the Ministry of Trade and Industry expects the Singapore economy to grow by 2.0 to 4.0 per cent, as the global economy is expected to improve modestly, supported by a sustained but slow recovery in the US and Eurozone. The US economy is expected to improve in 2014, supported by rising private consumption expenditure and business investments. Similarly, the Eurozone is on a modest recovery path after emerging from a long recession in the second quarter of 2013. In Asia, the recovery in the advanced economies is expected to lift export demand, hence giving a boost to local manufacturing and production activities.
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