



Japan: Semiconductor Manufacturing Equipment Market

By Rika Saito and Daniel Longo
July 2015

Section I. Summary

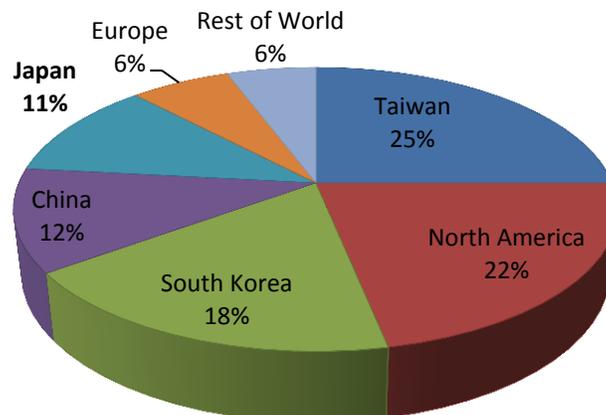
Japan hailed the fifth-largest semiconductor manufacturing equipment market¹ in the world in 2014, capturing an 11 percent share. Its domestic market has grown modestly in the past several years, and that trend is expected to continue into 2016. In particular, a domestic shift toward smart cars and robotics will help maintain demand.² Opportunities for U.S. enterprises could grow if the World Trade Organization (WTO) passes an expansion of IT items excluded from tariff schedules under the Information Technology Agreement (ITA) of 1997.³

Section II. Market Demand

Strong demand in the capital equipment market caused growth to jump 24 percent from 2013 to 2014,⁴ well above the world average growth rate of 18 percent.⁵ SEMI projected that the growth rate in Japan would stabilize at about 6.5 percent from 2014-2015 and 6.8 percent from 2015-2016.⁶ Moreover, SEMI predicts that in 2016, Japan will reclaim the number four spot from China that it lost in 2015, expanding to \$4.71 billion; China's estimated size will be \$4.62 billion.⁷ These data signal a promising future for U.S. companies interested in entering the Japanese market.

Japan has the second-largest semiconductor materials market by revenue after Taiwan, accounting for 17 percent of the \$44.7 billion global revenue. This is because Japan hosts a very large fab facility that heavily contributes to its share.⁸ In addition, five of the top ten semiconductor manufacturing equipment vendors by revenue in 2014 have their headquarters in Japan. They include Tokyo Electron (third), Dainippon Screen Group (sixth), Advantest Corporation (seventh), Hitachi High-Technologies (ninth), and Nikon Corporation (tenth).⁹

Semiconductor Capital Equipment Market Share by World Region in 2014



Source: SEMI/SEAJ, March 2015

Section III. Best Prospects

A 2014 KPMG report showed that 54 percent of companies surveyed believe that robotics will serve as the principal revenue driver of semiconductors in the next three years.¹⁰ Because Japan is shifting toward developing more robotic technologies, U.S. firms may discover more chances to supply parts. Prime Minister Shinzo Abe expressed his commitment to the idea of robots at the May 15 opening of Japan's Robot Revolution Initiative Council, at which he encouraged companies to "spread the use of robotics from large-scale factories to every corner of our economy and society." The government-led Council seeks to raise sales in robotics from \$6 billion¹¹ annually to \$24 billion annually by 2020.¹² Japan's declining population may stimulate demand for service robots in particular, and U.S. firms have the potential to contribute to their development through the production of advanced microchips.

In addition, electronics used in smart cars are on the rise. Pedestrian-detection radar and crash-prevention mechanisms, for example, present excellent opportunities for U.S. manufacturers to capitalize on this movement. Global demand for the most advanced parts could grow as much as 13-fold through 2020.¹³ The upcoming Tokyo Olympics will further stimulate investment as electronics companies prepare to showcase the city and their products for the games.

Section IV. Key Suppliers

In 2013, the American company Applied Materials held the greatest worldwide market share at 16.2 percent, in large part due to its comparative advantage in deposition and etch. ASML of the Netherlands nearly matched that with 15.7 percent of the global market, followed by Lam Research and Tokyo Electron. The top five vendors, one of which is Japanese, commanded more than 55 percent of the global market, a 5-point increase from 2012. This indicates a shift toward a more concentrated market dominated by fewer players. All Japanese companies in the top 10 markets suffered from the changing yen-to-dollar exchange rate, as the yen became more expensive abroad. While these data reflect the current global climate, the situation is likely similar in Japan.¹⁴

Applied Materials and Tokyo Electron announced their intention to merge in a deal last July¹⁵ worth \$29 billion, but the arrangement collapsed after the U.S. Department of Justice and others raised antitrust concerns; the government believed that the merger would stymie innovation of computer chips and allow the new company Eteris to hike prices for its services. The deal was pending for 580 days before both companies finally scrapped negotiations.¹⁶

Section V. Prospective Buyers

Any firm that uses semiconductors in its products could potentially purchase manufacturing equipment. Specifically, automobile entertainment systems, robotics, and a tendency toward larger TV monitors may present special openings.

Section VI. Market Entry

To enter the Japanese market, U.S. firms should establish a direct presence in Japan. Small or medium-sized companies may wish to consider partnering with Japanese distributors, but all companies should seek to cultivate strong long-term relationships with Japanese affiliates. Moreover, American firms must prioritize excellent customer service and after-sales support in order to succeed in this market.

Section VII. Market Issues & Obstacles

No significant regulatory obstacles currently exist that would hinder the entry of semiconductor equipment firms, but the firms must place a high value on good support and service for their customers. The WTO ITA 2 negotiations, which seek to expand the list of eligible tariff-free IT products, could offer companies a new source of revenue to potential U.S. firms producing advanced electronic chips. Cutting-edge microchips fall out of the scope of the current ITA provisions. Negotiations on ITA 2 stalled in December 2014 when China balked at reducing tariffs on advanced lithium batteries.¹⁷

Section VIII. Trade Events

SEMICON Japan 2015

Date: December 16-18, 2015

Venue: Tokyo Big Sight

Exhibition website: <http://www.semiconjapan.org/en/>

The 45th INTERNEPCON JAPAN

Date: January 13-15, 2016

Venue: Tokyo Big Sight

Exhibition website: <http://www.nepcon.jp/en/>

JPCA Show 2016

Date: June 1-3, 2016

Venue: Tokyo Big Sight

Exhibition website: <http://www.jpca-show.com/show2015/en/>

Section IX. Resources & Contacts

SEMI Market Data Information

SEMI is a global industry association that serves the manufacturing supply chain for the micro- and nano-electronics industries, including: semiconductors, photovoltaics (PV), High-Brightness LED, Flat Panel Display (FPD), and others.

Data on semiconductor equipment sales forecast: <http://www.semi.org/node/52451>

Data on global semiconductor equipment sales: <http://www.semi.org/node/55306>

Semiconductor Equipment Association of Japan (SEAJ)

SEAJ has functioned as a private organization since 2012 to promote the development of the semiconductor manufacturing equipment industry. The group holds cooperative exchanges with related organizations at home and abroad in order to assist semiconductor manufacturing equipment and related equipment companies in improving their business operations and technologies.

<http://www.seaj.or.jp/english/about/index.html>

Japan External Trade Organization (JETRO)

JETRO is an independent administrative agency that provides information and support to foreign companies entering the Japanese market. The organization has six offices in the United States.

<http://www.jetro.org>

Section X. For More Information

Commercial Specialist Ms. Rika Saito can be contacted by phone at +81.3.3224.5057 or via email at Rika.Saito@trade.gov.

The U.S. Commercial Service in Tokyo, Japan, can be contacted via e-mail at:

Tokyo.Office.Box@mail.doc.gov; by phone: +81.3.3224.5060; by fax: +81.3.3589.4235; or visit our website: <http://www.buyusa.gov/japan/en/>

The U.S. Commercial Service — Your Global Business Partner

With its network of offices across the United States and in more than 80 countries, the U.S. Commercial Service of the U.S. Department of Commerce utilizes its global presence and international marketing expertise to help U.S. companies sell their products and services worldwide. Locate the U.S. Commercial Service trade specialist in the U.S. nearest you by visiting <http://www.export.gov/eac>.

Comments and Suggestions: We welcome your comments and suggestions regarding this market research. You can e-mail us your comments/suggestions to: Customer.Care@mail.doc.gov. Please include the name of the applicable market research in your e-mail. We greatly appreciate your feedback.

Disclaimer: The information provided in this report is intended to be of assistance to U.S. exporters. While we make every effort to ensure its accuracy, neither the United States government nor any of its employees make any representation as to the accuracy or completeness of information in this or any other United States government document. Readers are advised to independently verify any information prior to reliance thereon. The information provided in this report does not constitute legal advice.

International copyright, U.S. Department of Commerce, 2010. All rights reserved outside of the United States.

¹ In this report, semiconductor equipment includes: wafer processing, assembly and packaging, and other front-end equipment related to fab facilities, wafer manufacturing, and mask/reticle manufacturing.

² “2015 Production Forecasts for the Global Electronics and Information Technology Industries,” Japan Electronics and Information Technology Industries Association (JEITA), December 16, 2014, accessed July 9, 2015, http://www.jeita.or.jp/english/topics/2014/1216/2015production_forecasts.pdf.

³ “Information Technology Agreement: Introduction,” World Trade Organization, accessed July 9, 2015, https://www.wto.org/english/tratop_e/inftec_e/itaintro_e.htm.

⁴ “SEMI Reports 2014 Global Semiconductor Equipment Sales of \$37.5 Billion,” SEMI, March 16, 2015, accessed July 9, 2015, <http://www.semi.org/node/55306>.

⁵ “SEMI Reports 2014 Global Semiconductor Equipment Sales of \$37.5 Billion,” SEMI, March 16, 2015, accessed July 9, 2015, <http://www.semi.org/node/55306>.

⁶ “Semiconductor Equipment Sales Forecast: \$38 Billion in 2014 to Nearly \$44 Billion in 2015,” SEMI, December 2, 2014, accessed July 9, 2015, <http://www.semi.org/node/52451>.

⁷ “Semiconductor Equipment Sales Forecast: \$38 Billion in 2014 to Nearly \$44 Billion in 2015,” SEMI, December 2, 2014, accessed July 9, 2015, <http://www.semi.org/node/52451>.

⁸ “Seven Facts about Japan Semiconductor Manufacturing Supply Chain,” SEMI, November 4, 2014, accessed July 8, 2015, <http://www.semi.org/en/node/52146>.

⁹ “2014 Top 10 Semiconductor Equipment Suppliers,” VLSI Research, May 11, 2015, accessed July 10, 2015, https://vlsiresearch.com/public/cms_pdf_upload/SW_150508_2014Top10SemiEqpt.pdf.

¹⁰ “Cautious Optimism Continues,” KPMG Global Semiconductor Survey, December 2014.

¹¹ All converted figures assume an exchange rate of 1USD=100 Japanese yen.

¹² Brian Bremmer, “Japan Unleashes a Robot Revolution,” *Bloomberg Businessweek*, May 28, 2015, accessed July 9, 2015, <http://www.bloomberg.com/news/articles/2015-05-28/japan-unleashes-a-robot-revolution>.

¹³ “Japanese electronics parts makers homing in on smart cars,” *Nikkei Asian Review*, April 3, 2015, accessed July 9, 2015, <http://asia.nikkei.com/Business/Trends/Japanese-electronics-parts-makers-homing-in-on-smart-cars?page=1>.

¹⁴ “Worldwide Semiconductor Manufacturing Equipment Spending Declined 11.5 Percent in 2013, According to Final Results by Gartner,” Gartner Press Release, April 7, 2014, accessed July 9, 2015, <http://www.gartner.com/newsroom/id/2701117>.

¹⁵ “Applied Materials and Tokyo Electron Unveil New Company Name—Eteris,” Applied Materials News and Media, July 7, 2014, accessed July 9, 2015, <http://www.appliedmaterials.com/company/news/press-releases/2014/07/applied-materials-and-tokyo-electron-unveil-new-company-name-eteris>.

¹⁶ Brent Kendall and Don Clark, “Applied Materials, Tokyo Electron Cancel Merger Plan,” *The Wall Street Journal*, April 27, 2015, accessed July 9, 2015, <http://www.wsj.com/articles/applied-materials-tokyo-electron-scrap-merger-plan-1430117758>.

¹⁷ Jonathan Weisman and Paul Mozur, “W.T.O. Fails on High-tech Tariff Deal,” *The New York Times*, December 12, 2014, accessed July 9, 2015, http://www.nytimes.com/2014/12/13/technology/wto-tech-tariffs.html?_r=0.