
FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of April 2010 No. 3

TOWER SEMICONDUCTOR LTD.

(Translation of registrant's name into English)

Ramat Gavriel Industrial Park

P.O. Box 619, Migdal Haemek, Israel 23105

(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F S

Form 40-F £

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes £

No S

On April 14, 2010, the registrant announces it was Selected by Tego as Silicon Partner to Manufacture High-Memory RFID Chips.

This Form 6-K is being incorporated by reference into all effective registration statements filed by us under the Securities Act of 1933.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

TOWER SEMICONDUCTOR LTD.

Date: April 14, 2010

By: /s/ Nati Somekh Gilboa
Name: Nati Somekh Gilboa
Title: Corporate Secretary

TowerJazz Selected by Tego as Silicon Partner to Manufacture High-Memory RFID Chips

TegoChip chosen by Airbus for improved aircraft maintenance and logistics

MIGDAL HAEMEK, Israel and WALTHAM, MA, April 14, 2010 —[TowerJazz](#), the global specialty foundry leader, and [Tego](#), a leading provider of high-memory RFID tagging solutions, today announced a silicon partnership to manufacture the [TegoChip](#), a high-memory passive Gen2 RFID chip. Tego is utilizing the 180nm process (TS18) from TowerJazz for its TegoChip to tag over 1500 pressurized and non-pressurized parts and components on the [Airbus A350 XWB](#) aircraft fleet to improve processes such as maintenance and warehouse logistics. Tego recently announced the contract with Airbus providing the first standards-compliant and fully passive RFID tags that enable access to the complete maintenance history of flyable parts. Tego will demonstrate its TegoChip technology this week in booth #450, April 14-16 in Orlando, FL, at the RFID Journal LIVE conference and exhibit.

Key volume applications for RFID technology are in markets including the passenger transport sector and according to Gartner analysts, global RFID revenue will reach \$3.5 billion by 2012. Tego is leading the definition of memory structure for extended memory RFID tags for the Air Transport Association (ATA). The contract with Airbus is historic for RFID because it is the first for a worldwide, open-loop application that includes high-value passive tags, enabling new cutting-edge Maintenance, Repair & Overhaul (MRO) applications. Key benefits of the TegoChip include faster access to key data at the point of use, lower investment in IT infrastructure, and improved asset management.

“We chose to partner with TowerJazz for their expertise and long-term commitment to developing process technologies and IP for RFID applications and because they are a proven silicon provider of low power, non-volatile memory for harsh environments,” said Timothy Butler, President and CEO of Tego. “We are excited to provide RFID chips to Airbus and its suppliers for improved maintenance procedures and logistics, increased supply chain visibility and improved forecasting.”

“We are very pleased to be selected by Tego as its silicon partner for manufacturing its advanced high memory passive RFID chip for Airbus,” said Dr. Avi Strum, Vice President and General Manager, TowerJazz Specialty Business Unit. “RFID tags help enable asset management and supply chain efficiency, visibility and security and are being deployed in many markets such as retail, defense, transportation and healthcare. TowerJazz is well-poised to meet the growing demands for applications in these various market segments.”

About Tego

Founded in 2005, Tego, Inc. is a provider of a high-memory RF platform for chips, tags and software. Its breakthrough technology enables a whole new generation of RFID applications that go beyond simple identification to allow rich storage of information and data tagged to assets for their life. Tego's RF platform provides new solutions to address vertical applications and markets that include asset tracking and management; performance management; safety, security and authentication; regulatory compliance and supply chain management. Tego, Inc. is based in Waltham, MA. For more information, visit www.tegoinc.com

About TowerJazz

Tower Semiconductor Ltd. (NASDAQ: [TSEM](#), TASE: TSEM), the global specialty foundry leader and its fully owned U.S. subsidiary Jazz Semiconductor, operate collectively under the brand name TowerJazz, manufacturing integrated circuits with geometries ranging from 1.0 to 0.13-micron. TowerJazz provides industry leading design enablement tools to allow complex designs to be achieved quickly and more accurately and offers a broad range of customizable process technologies including SiGe, BiCMOS, Mixed-Signal and RFCMOS, CMOS Image Sensor, Power Management (BCD), and Non-Volatile Memory (NVM) as well as MEMS capabilities. To provide world-class customer service, TowerJazz maintains two manufacturing facilities in Israel and one in the U.S. with additional capacity available in China through manufacturing partnerships. For more information, please visit www.towerjazz.com.

Safe Harbor Regarding Forward-Looking Statements

This press release includes forward-looking statements, which are subject to risks and uncertainties. Actual results may vary from those projected or implied by such forward-looking statements. A complete discussion of risks and uncertainties that may affect the accuracy of forward-looking statements included in this press release or which may otherwise affect Tower and/or Jazz's business is included under the heading "Risk Factors" in Tower's most recent filings on Forms 20-F, F-3, F-4 and 6-K, as were filed with the Securities and Exchange Commission (the "SEC") and the Israel Securities Authority and Jazz's most recent filings on Forms 10-K and 10-Q, as were filed with the SEC, respectively. Tower and Jazz do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

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For TowerJazz:**Company Contact**

Melinda Jarrell
+1 949 435 8181
melinda.jarrell@towerjazz.com

Media Contact

Lauri Julian
+1 949 715 3049
lauri.julian@towerjazz.com

Investor Relations Contact

Levi Noit
+972 4 604 7066
noit.levi@towerjazz.com

For Tego:**Media Contact**

Pamela Nelson
+1 978 337 3153
pnelson@tegoinc.com
