
FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of June 2010 No. 5

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 June 21, 2010, the registrant announces TowerJazz CIS Technology Selected by Canesta for Consumer 3-D Image Sensors.

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: June 21, 2010

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

TowerJazz CIS Technology Selected by Canesta for Consumer 3-D Image Sensors

\$9.7B CMOS image sensor market to be fueled by new 3-D sensors

MIGDAL HAEMEK, Israel and SUNNYVALE, Calif., June 21, 2010 – TowerJazz, the global specialty foundry leader, today announced that Canesta Inc. is using TowerJazz's CMOS image sensor (CIS) technology to manufacture its innovative CanestaVision® 3-D image sensors. CanestaVision chips are the industry's world's first single-chip CMOS 3-D image sensor System on a Chip (SoC) for use in consumer desktop computing, TV and entertainment applications. Next-generation consumer 3-D image sensors designed to enable a device to understand and interact with its environment will fuel the image sensor market. According to iSuppli, the CMOS image sensor market was \$7.3 Billion in 2007. It is expected to grow to \$9.7 Billion in 2012.

3-D image sensors enable consumers to interact with devices in natural ways and are expected to be widely deployed in a variety of markets including PC, consumer electronics and entertainment as well as many industry applications, among others. New mechanisms in which a user's actions or gestures drive the functions of a device have been proven by the success of recent video game and mobile phone products.

"We have a great deal of sophisticated and unique intellectual property in our chips," said Jim Spare, President and CEO of Canesta. "We are excited to have the use of TowerJazz's advanced CMOS image sensor manufacturing processes." Spare explained that 3-D image sensors are critically important to evolve to natural user interfaces for complex consumer electronic products. "We are seeing early versions of this in the form of waving at systems to control them. Our chips will enable systems to do this as well as the fine-grained, close-up control that goes beyond multi-touch and is key to future applications. Over the next decade, we are likely to see new, innovative applications that require an integrated 3-D image sensor with advanced characteristics." ;

"Canesta's solution is the most robust in the industry, offering the best performance compared to any other competing solution. The very tight R&D collaboration and roadmap alignment between our two companies provides near and long term innovative solutions that will further improve performance and power consumption in future generations and will allow wins in many more applications, such as the mobile computing area," said Dr. Avi Strum, Vice President and General Manager of Specialty Business Unit, TowerJazz.

About Canesta

Canesta (www.canesta.com) is the inventor of revolutionary, low cost electronic perception technology and leading provider of single chip CMOS 3-D sensors that fundamentally change the relationship between devices and their users. This capability makes possible “the other side of 3-D” – true 3-D perception as input to everyday devices, rather than the widely understood 3-D representational technologies as output. Canesta’s 3-D input technology, based upon tiny, CMOS 3-D imaging chips or “sensors”, enables fine-grained, 3-dimensional depth-perception in a wide range of applications. Products based on this capability can then react on sight to the actions or motions of individuals and objects in their field of view, gaining levels of functionality and ease of use that were simply not possible in an era when such devices were blind. Canesta’s focus is on mass market consumer electronics, but many applications exist in other markets as well. Some of Canesta’s customers and partners include Hitachi, Honda, Optex, Optronic, Quanta, SMSC, and others which have yet to be announced.

Canesta is located in Sunnyvale, CA. The company has filed in excess of fifty patents, 41 of which have been granted so far.

Canesta is a trademark of Canesta Inc., registered in the US and other countries.

About TowerJazz

Tower Semiconductor Ltd. (NASDAQ: [TSEM](http://www.towerjazz.com), 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.

###

For TowerJazz

Company Contact:

Melinda Jarrell
949/435-8181
melinda.jarrell@towerjazz.com

Media Contact:

Lauri Julian
949/715-3049
lauri.julian@towerjazz.com

Investor Relations Contact:

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

For Canesta

Paul Michelson/Abigail Johnson
Roeder-Johnson Corporation
(650) 802-1850
<http://email.roeder-johnson.com>
