
FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of October 2010 No. 4

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 x

Form 40-F o

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 o

No x

On October 18, 2010 the registrant announces Entropic Communications Strengthens Partnership with TowerJazz.

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: October 18, 2010

By: /s/ Nati Somekh Gilboa

Name: Nati Somekh Gilboa

Title: Corporate Secretary

Entropic Communications Strengthens Partnership with TowerJazz

Expanded Supplier Agreement Enables Business Growth in Entropic's Satellite Outdoor Unit and Silicon TV Tuner Product Lines

SAN DIEGO, and NEWPORT BEACH, Calif., October 18, 2010 — Entropic Communications, Inc. (Nasdaq: ENTR), a leading provider of silicon and software solutions that enable connected home entertainment, and TowerJazz (NASDAQ: TSEM, TASE: TSEM), the global specialty foundry leader, today announced an expanded supplier capacity agreement that provides enhanced supply predictability and upside flexibility to support Entropic's Direct Broadcast Satellite (DBS) and TV tuner product lines.

The expanded agreement assures high-volume production for Entropic's family of outdoor unit (ODU) silicon, which comprises both its Channel Stacking Switch (CSS) and Band Translation Switch (BTS) products, as well as its multi-mode silicon TV tuner products.

Entropic's ODU technologies create a single cable network that reduce cost and installation complexity for DBS operators; allowing for remote upgrades, support for the distribution of high definition (HD) quality content, and prepare operator systems to further expand home networking application offerings. TowerJazz will also expand its manufacturing capacity to support Entropic's family of multi-mode silicon TV tuner solutions, which aim to replace high volume can tuners in support of worldwide standards for delivering high performance digital TV (DTV) in cable/terrestrial set-top box (STB) products.

"TowerJazz has been a strategic supplier to Entropic for many years and as a result, we have been able to address the demanding performance requirements of today's rapidly growing home entertainment market," said Mike Farese, Senior Vice President, Operations & Engineering, Entropic. "Due to the increase in the volume of production for our DBS ODU and tuner products, we entered into a new supply agreement with TowerJazz to meet the expanding needs of our customers. The foundry's advanced process, models, and support have been key in helping us achieve specific product goals."

"TowerJazz is pleased to build on the partnership with a market leader such as Entropic that continues to leverage our BiCMOS¹ and RF CMOS² technology and design enablement to deliver timely and innovative solutions for ODU and TV tuning technologies," said Marco Racanelli, Senior Vice President and General Manager, RF and High Performance Analog Business Group, TowerJazz. "With the addition of a long term supply agreement and planned multi-fab sourcing at TowerJazz's various geographic regions, we are jointly poised to take advantage of the strong growth anticipated for these products and look forward to supporting Entropic and its customers as they continue to improve the way multimedia is delivered into and enjoyed throughout the home."

As part of the agreement, TowerJazz will expand its wafer fabrication capacity at its Newport Beach, CA facility for Entropic products, and will also support a program to achieve greater production of Entropic's ODU and silicon TV tuner products at its production facility in Migdal Haemek, Israel.

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.

About Entropic Communications

Entropic Communications, Inc. (NASDAQ:ENTR) is a leading fabless semiconductor company that is engineering the future of connected home networking and entertainment by providing next-generation silicon and software technologies to the world's leading cable, telco and satellite service providers, OEMs and consumer electronics manufacturers. As a co-founder of MoCA (Multimedia over Coax Alliance), Entropic pioneered and continues to evolve the way high-definition television-quality video and other multimedia and digital content such as movies, music, games and photos are brought into and delivered throughout the home. For more information, visit Entropic at www.entropic.com.

Forward-Looking Statements

Statements in this press release that are not strictly historical in nature constitute "forward-looking statements." Such statements include, but are not limited to, statements regarding Entropic's technology, its prospects and its role in the future of home networking. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause Entropic and/or Tower and/or Jazz's actual results to be materially different from historical results or from any results expressed or implied by such forward-looking statements. With respect to Entropic, these factors include, but are not limited to, competition, risks associated with Entropic's dependence on a limited number of suppliers, technology risks, the risk that the market for HD video and multimedia content delivery solutions may not develop as the Company anticipates and other factors discussed in the "Risk Factors" section of Entropic's Quarterly Report on Form 10-Q for the three months ended June 30, 2010. With respect to Tower and Jazz, 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. All forward-looking statements are qualified in their entirety by this cautionary statement. Entropic, Tower and Jazz are providing this information as of the date of this release and do not intend to update, and expressly disclaim any obligation to update any forward-looking statements contained in this release as a result of new information, future events or otherwise.

Editors Note:

¹Definition for BiCMOS: Bi-polar complementary metal-oxide-semiconductor

²Definition for RF CMOS: Radio frequency complementary metal-oxide-semiconductor

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