

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of September 2009 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 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

On September 15, 2009, the registrant announces Co-Development of 700V Power Platform.

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: September 15, 2009

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary



NEWS ANNOUNCEMENT

FOR IMMEDIATE RELEASE

Tower Semiconductor Announces Co-Development of 700V Power Platform

Exclusive collaboration with GrandTek positions Tower as a leader in the rapidly emerging 700V market

SemiHow, a leading high-voltage product provider is part of three-way agreement to design and manufacture 700V products at Tower

Green Environment enabler addresses among other segments, LED lighting, a multi-billion dollar market with 45% CAGR

MIGDAL HA'EMEK, Israel, September 15, 2009 – Tower Semiconductor, Ltd. (Nasdaq: TSEM, TASE: TSEM), a global specialty foundry leader, today announced co-development of a 700V power platform to address next-generation industrial LED lighting requirements. The collaboration will combine GrandTek's 700V technology capability with Tower's advanced power management process and leading design kits to deliver the industry's most complete 700V foundry solution. An ultra low mask layer count will be achieved to provide the most cost-effective solution in a voltage regime with very few foundry providers. As an indication of strong market demand for 700V, SemiHow, a Korean-based fabless company has already signed on as an early adopter to use Tower's 700V power platform for AC to DC conversion targeting the industrial LED market. Tower expects to realize product revenue from SemiHow in the second quarter of 2010.

The 700V high voltage market consists of AC to DC conversion for next generation industrial LED lighting and the emerging large panel consumer LCDs, thereby greatly expanding the served market for Tower's power management platform. According to DisplayBank Co, the market for industrial LED lighting is estimated to grow from \$700 million to \$2 Billion in 2013, a CAGR of 45%. This high-voltage platform is ideal for large-sized blue LEDs for large panel LCDs which is a booming market, and is expected to grow from \$41 million in 2007 to \$7 Billion in 2013, a CAGR of 135%.

As a design services company for 700V ICs, GrandTek already has an established and well respected expertise which Tower will be building upon, adding the advanced process features from its differentiated 0.18-micron power management platform. The first step in the 700V platform will be a power process consisting of 20+ transistor types covering from 6.5V to 700V operating ranges. This base technology will be achieved with very low layers. Further development will include 5V CMOS, 1.8 CMOS, SOI, and Deep Trench.

"We searched for the right partner to co-develop this advanced 700V power platform. Tower was the clear winner as they are recognized as the leading provider of power process technology for LED lighting devices. We needed a strong technical foundry partner and we are confident Tower will enable us to meet our requirements for performance, die size and superior quality. With Tower, we have the best opportunity to achieve rapid design success," said Hojin Lee, President of GrandTek.

"SemiHow has a long history of successful design collaborations with GrandTek and we have the greatest confidence in the selection of Tower as our development/manufacturing partner. Tower and GrandTek's proven track records offer us a very bright future for the continued success of our products," said Hyun Bongho, Chief Executive Officer of SemiHow.

"The 700V market is highly attractive and fast growing and we are excited to add ultra high voltage to our industry accepted leading edge power offering. By working with an experienced ultra high voltage team such as GrandTek, we are able to achieve the desired small die size in an advanced and cost-effective power platform. LED lighting is a green energy initiative that will not only provide value to customers and shareholders but also to our planet," said Dr. Avi Strum, Vice President and General Manager of Tower Semiconductor's Specialty Business Unit.

About Tower Semiconductor, Ltd. and Jazz Semiconductor, Inc.

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM) is a global specialty foundry leader and its fully owned subsidiary Jazz Semiconductor, a Tower Group Company is a leader in Analog-Intensive Mixed-Signal (AIMS) foundry solutions. Tower and Jazz manufacture integrated circuits with geometries ranging from 1.0 to 0.13-micron and provide industry leading design enablement tools to allow complex designs to be achieved quickly and more accurately. Tower and Jazz offer a broad range of process technologies including Digital, Mixed-Signal and RFCMOS, HV CMOS, BCD, Non-Volatile Memory (NVM), Embedded NVM, MEMS, and CMOS Image Sensors. To provide world-class customer service, Tower and Jazz maintain two fabrication facilities in Israel and one in the U.S. with additional capacity available through manufacturing partnerships in China. For more information, please visit www.towersemi.com and www.jazzsemi.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 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. 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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