

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of February 2009 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 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 February 11, 2009, the registrant announced Tower Semiconductor and Triune Systems to collaborate on power management platform. Attached please find the press release.

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: February 11, 2009

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

TOWER SEMICONDUCTOR AND TRIUNE SYSTEMS TO COLLABORATE ON POWER MANAGEMENT PLATFORM

**Tower's Leading Flash Technology Combined with Triune Systems' Power Management
Design Expertise will Enable Extremely High Valued ICs and IP**

High Volume Production of Co-Developed Products Expected to Commence H2 2009

MIGDAL HAEMEK, Israel and RICHARDSON, Texas, February 11, 2009 – Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), an independent specialty foundry, and Triune Systems LLC, an IC design and test development provider, today announced an agreement to collaborate on developing the most complete power management platform in the industry. Through this collaboration, the companies will jointly design and develop intellectual property (IP) for Tower's 0.18-micron Bipolar-CMOS-DMOS (BCD) process to deliver a family of low and high voltage power management products and IP for a variety of applications to enable faster design cycles and lower cost designs. In particular, the companies will design and develop zero mask adder non-volatile memory blocks, based on Tower's patented Y-Flash technology, suitable specifically for 5V operation on high voltage platforms. High volume production for the co-developed high voltage power management products is expected to commence in the second half of 2009.

VDC Research forecasts worldwide shipment of power management ICs to grow more than 10% annually through 2012. In order to meet customer demand for power supplies in consumer, medical, industrial and automotive applications, Tower's process technology combined with Triune Systems' IP will provide a complete power management platform. Through this alliance, Triune Systems has become a Tower-Authorized-Design-Center (TADC). The company is well-suited for this endeavor with expertise in power management, signal conditioning, and mixed-signal System-on-Chip (SoC) development and years of experience working on catalog and custom devices for the specific markets Tower and Triune Systems are targeting.

"As a Tower-Authorized-Design-Center, Triune Systems' expertise in design and IP development will further enhance our power management platform to allow for faster design cycles and lower cost designs," said Dr. Avi Strum, specialty business unit vice president, Tower Semiconductor. "The collaboration with Triune Systems and its contribution to the design of the scalable Y-Flash based NVM blocks will complement our business strategy and core competencies in the consumer, medical, industrial and automotive markets."

“Based on Triune Systems’ experience in power management IP development, we believe the Tower BCD process offers great flexibility along with cost effectiveness. Specifically, the integration of cost-effective NVM into the Tower BCD process provides significant differentiation which will enable the enhancement of power management solutions. We are looking forward to leveraging the strengths of both companies,” said Ross Teggatz, president of Triune Systems.

Tower’s .18um/.5um Bipolar-CMOS-DMOS (BCD) process platform is highly modular offering a very dense 5V-only option on .18um design rules, a Low Rdson LDMOS portfolio with 5V gate drive capability, and up to 60V operating with an 80V breakdown voltage. In addition, there is an option to add dense .18um CMOS fully compatible with Tower’s .18um CMOS platform, including a cell library, I/Os, and complex IP blocks. The process comes with a full suite of analog components including complementary bipolar, MIM caps, high sheet resistors, Zeners and Schottky diodes. Tower provides embedded non-volatile memory (NVM) on its power management BCD advanced logic process with full flash capability from 32 bit to 1 mega bit at no additional cost in process complexity (mask count). Triune Systems is also collaborating with Tower on the design and qualification of NVM blocks that utilize this proprietary technology. Array sizes are up to five times smaller than other competitive solutions and can be built using only one gate oxide allowing for ultra low cost designs.

About Tower Semiconductor

Tower Semiconductor Ltd. is a pure-play independent specialty wafer foundry. Tower manufactures integrated circuits with geometries ranging from 1.0 to 0.13-micron; it also provides complementary technical services and design support. In addition to digital CMOS process technology, Tower offers advanced mixed-signal & RF-CMOS, Power Management, CMOS image-sensor and non-volatile memory technologies. Through access to the process portfolio of its wholly owned subsidiary, Jazz Semiconductor, Tower offers RF CMOS, Analog CMOS, Silicon and SiGe BiCMOS, SiGe C-BiCMOS, Power CMOS and High Voltage CMOS. To provide world-class customer service, Tower maintains two manufacturing facilities in Israel with access to Jazz Semiconductor’s fab in the U.S. and manufacturing capacity in China through Jazz’s partnerships with ASMC and HHNEC. For more information, please visit www.towersemi.com and www.jazzsemi.com.

About Triune Systems

Triune Systems LLC, founded in 2006, is a privately-held company that designs, tests, manufactures, and markets analog integrated circuits (ICs) specializing in mixed-signal power and signal conditioning and System-on-Chip (SoC) circuits. The Company’s highly seasoned and experienced IC development team leverages fabless production and strong supply chain partnerships to provide customers with differentiated products and the best performance, price and value. Triune System’s world-class team has over 200 years of semiconductor experience and over 70 patents in the areas of semiconductor devices, ESD, analog circuits, and high voltage system architecture that have been used in the consumer, industrial, automotive and medical market segments. For more information, please visit www.triunesystems.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’s 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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