

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of February 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 February 17, 2009, the registrant announced Lime Microsystems selects Jazz Semiconductor's 0.18-micron SiGe process for its Configurable Multi-band, Multi-standard Transceiver Targeting WCDMA, CDMA, LTE and WiMAX Femtocells. 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 17, 2009

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary



Lime Microsystems selects Jazz Semiconductor's 0.18-micron SiGe process for its Configurable Multi-band, Multi-standard Transceiver Targeting WCDMA, CDMA, LTE and WiMAX Femtocells

Femtocell Market is Expected to Grow from \$434 Million in 2009 to \$9 Billion by 2014

NEWPORT BEACH, Calif., and GUILDFORD, United Kingdom, February 17, 2009 – Jazz Semiconductor, Inc., a Tower Group Company (NASDAQ: TSEM, TASE: TSEM), and a leader in Analog-Intensive Mixed-Signal (AIMS) foundry solutions and Lime Microsystems, a leading supplier of high performance, multi-standard, multi-band RF transceiver ICs, announced today that Lime Microsystems has selected Jazz Semiconductor's 0.18-micron BiCMOS SiGe process for its first commercially available transceiver IC. The immediate availability of Lime's transceiver was announced yesterday at Mobile World Congress 2009.

Lime Microsystems' IC is a femtocell transceiver for multiple air interfaces and frequencies that can operate with worldwide cellular network standards including WiMAX, 3G and LTE, reducing costs and inventory for global OEMs. Femtocells are emerging as a technology that enables wireless phone use in homes and offices to become a viable alternative to conventional landline telephones, and solves the indoor coverage issues with 3G indoor licensed spectrum, providing

more capacity, coverage and services at home. It also reduces operating and infrastructure expenses with seamless handover residential IP network backhaul. The market for femtocells is expected to grow from \$434 million in 2009 to \$9 billion by 2014.

Lime Microsystems' proprietary technology combined with Jazz Semiconductor's 0.18-micron SiGe BiCMOS process has enabled the development of a single-chip multi-band, multi-standard broadband transceiver IC with outstanding RF performance. The configurable nature of the transceiver allows considerable design flexibility. This is particularly important to makers of femtocells and small cell basestations, who have to contend with standards and frequency bands which are constantly emerging and developing. Lime Microsystems' highly frequency agile transceiver operates at user-selectable frequencies between 375MHz and 4GHz, with 16 user-selectable bandwidths up to 28MHz.

"Our aim was to design an extremely innovative transceiver that meets the critical requirements for widespread adoption of femtocell technology. Jazz's SiGe BiCMOS technology and expertise in modeling enabled us to integrate high levels of functionality into our leading-edge product," said Ebrahim Bushehri, CEO of Lime Microsystems. "We are excited to introduce this advanced wireless multi-band, multi-standard RF transceiver IC to customers at Mobile World Congress 2009."

"Jazz is delighted to participate with a technology leader such as Lime Microsystems in this new market opportunity that leverages our high performance, 150GHz, 0.18-micron SiGe technology (SBC18). While SBC18 is a mature platform in use for cell phone transceivers, optical data networks and TV tuners amongst other applications, it continues to be the technology of choice for innovative products that require advanced analog and RF performance while remaining in a cost-effective technology node," said Dr. Marco Racanelli, Senior Vice President and General Manager of RF and High-Performance Analog at Jazz Semiconductor.

About Lime Microsystems

Founded in March 2005, Lime Microsystems is a fabless semiconductor company specializing in digitally configurable transceivers for the next generation of wireless broadband systems. Lime has developed broadband transceiver ICs that significantly reduce the bill of materials for small cell (femtocell and picocell) wireless networks. Working in partnership with leading baseband technology companies, the company has also produced a reference design in industry-standard MicroTCA format. Lime has development teams in the UK and Lithuania and is backed by ACT Venture Capital and DFJ Esprit. Further information is available at www.limemicro.com.

About Jazz Semiconductor, Inc.

Jazz Semiconductor, Inc., a Tower Group Company (NASDAQ: TSEM, TASE: TSEM), is a leading wafer foundry focused on Analog-Intensive Mixed-Signal (AIMS) process technologies. Jazz offers world-class design enablement tools to allow complex designs to be achieved quickly and more accurately. The company's comprehensive process portfolio of modular AIMS technologies includes RFCMOS, Analog CMOS, Silicon and SiGe BiCMOS, SiGe C-BiCMOS, Power CMOS and High Voltage CMOS. Through access to Tower's process technologies, Jazz offers Digital CMOS, Embedded NVM, CMOS Image Sensors, and Flash MTP and OTP solutions. Jazz Semiconductor's executive offices and its U.S. wafer fabrication facility are located in Newport Beach, CA. Additional capacity is available through access to Tower's two manufacturing facilities in Israel. Jazz also has manufacturing capacity in China through partnerships with ASMC and HHNEC. For more information, please visit and www.jazzsemi.com and www.towersemi.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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