TOWER SEMICONDUCTOR LTD
Form 6-K
December 14, 2009

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of December 2009 No. 1

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 oNo x

On December 14, 2009, the registrant announces that VT Silicon Selects TowerJazz for World's First Fully Integrated 4G RF Front End IC.

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: December 14, 2009

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

VT Silicon Selects TowerJazz for World's First Fully Integrated 4G RF Front End IC

SiGe chosen instead of traditional, more expensive GaAs

Market for 4G mobile devices expected to grow from 4.3M in 2009 to 50.1M in 2012

ATLANTA, Georgia and NEWPORT BEACH, Calif.,December 14, 2009 – VT Silicon, a fabless semiconductor company, today announced it has selected TowerJazz, the global specialty foundry leader, to be its manufacturing partner for the world's first silicon 4G RF Front End IC capable of meeting the stringent operating requirements of 4G mobile devices. VT Silicon chose TowerJazz's 0.18-micron SiGe process instead of a more expensive GaAs process, allowing significantly lower cost and much higher integration. In addition, the design capabilities provided by TowerJazz enable fast and efficient RFIC design flow for a time-to-market advantage.

TowerJazz's 0.18-micron Silicon Radio Platform includes a SiGe transistor capable of operating up to 200GHz. These devices have noise and power performance competitive with GaAs, and offer as much as 40% lower die cost. SiGe BiCMOS technology allows complete integration of the RF Front End in a wireless device on a single piece of silicon. Bipolar devices in the process can be used to integrate the low noise amplifier (LNA), the antenna transmit/receive and transmit diversity switches, and the power amplifier (PA), eliminating the need for a number of expensive discrete GaAs devices.

The CMOS devices enable mixed-signal and digital functions on the same chip allowing programmable control of RF functions, advanced sensors, and serial digital communication. The resulting high levels of integration reduce the cost of the complete system by minimizing the BOM (Bill of Materials). This technology delivers enhanced features and higher levels of integration for RF functions in future cell phones (3G/4G), wireless LAN devices, and 4G multi-mode devices. SiGe BiCMOS technology is expected to displace chips built today with more expensive GaAs technology.

VT Silicon's new 4G RF Front End IC offers best-in-class RF performance to maximize battery life for next generation mobile devices. This breakthrough milestone for VT Silicon was achieved after two years of privately funded development by using the company's patented Linearity Enhancement Technology (LET™) and a novel RF Front End topology to achieve the power, efficiency, and linearity required by today's battery-powered 4G broadband mobile devices.

"By using the Silicon Radio Platform developed by TowerJazz, we were able to achieve higher levels of integration and enhanced functionality in our 4G RF Front End IC while at the same time reducing the cost of our chip and minimizing the RF system BOM. Using traditional GaAs does not allow the integration of complex digital and analog functions into a monolithic front end RFIC," said Vikram Krishnamurthy, CTO, VT Silicon. "Our design, an industry first, takes full advantage of this silicon process to provide highly intelligent digital communications, programmability, and control of all RF functions. It offers a rich set of features within the 4G RF Front End IC primarily due to the availability of CMOS and bipolar transistors offered in one process."

"We continue to see migration of GaAs products into SiGe as an exciting growth opportunity for our technology as evidenced by the breakthrough design VT Silicon is delivering for 4G mobile devices," said Dr. Marco Racanelli, Senior Vice President and GM of RF/HPA and Aerospace and Defense Business Groups. "We look forward to helping our wireless customers realize innovative, next-generation products not only by leveraging our industry leading SiGe process, but also using our design enablement libraries which speed time-to-market for these emerging mobile applications."

Availability
The first chip of the family (VFM2500) will be available for testing in the first quarter of 2010 with production targeted at Q4 2010. The initial design will cover the 2.5 GHz to 2.7GHz WiMAX band as well as the 2.4GHz WiFi band, and integrates all of the RF Front End functions on a single silicon die (including support for transmit antenna diversity and 2x2 DL MIMO) with all of the passives (TX and RX filters and baluns) embedded in a 5mm x 5.5mm x1mm, 30 pin QFN package.

About VT Silicon
VT Silicon is a fabless semiconductor company that designs and manufactures multi-band radio frequency integrated circuit solutions for the mobile wireless broadband market. The Company's products leverage novel linearization and efficiency enhancement technologies that enable highly efficient, low-cost, and small-footprint intelligent Front End RFIC solutions. For more information, please visit www.vtsilicon.com.

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.

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.

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