FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of March 2013 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 S 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 S

On March 04, 2013, the registrant announces that TowerJazz Releases Rule Decks for Advanced ESD and Power Domain Checking Using Mentor's Calibre PERC.

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: March 04, 2013 By: /s/ Nati Somekh

Name: Nati Somekh Title: Corporate

Secretary

TowerJazz Releases Rule Decks for Advanced ESD and Power Domain Checking Using Mentor's Calibre PERC

MIGDAL HAEMEK, Israel and WILSONVILLE, Ore., March 4, 2013 – TowerJazz, the global specialty foundry leader, has announced the Mentor®'s Calibre® PERCTM rule decks are now available for TowerJazz customers to perform circuit reliability verification for its latest 0.18 micron products, including highly customized electrostatic discharge (ESD) and power management circuit checks. Many of these checks have been automated for the first time by taking advantage of the Calibre PERC product's unique ability to combine schematic (netlist) and physical layout information.

The Calibre PERC checks include: ESD CDM verification confirming that the transistor gate is not connected directly to a PAD, ESD protection on the IO PAD, and power management propagation rules to avoid HV signals connected to a low voltage device or domain. For each of the above, TowerJazz implemented a topological check as well as a specific layout DRC. During 2013, the design kit will be further enhanced to include comprehensive rule checks to support mutual customers with the most advanced deck. The 0.13 technology release will be available upon customer demand.

"TowerJazz is using Calibre PERC technology to help our customers achieve their reliability objectives by providing rule decks that perform advanced checks during signoff," said Ori Galzur, Vice President of the TowerJazz VLSI Design Center. "Our advanced design kits implement special ESD rules, charge device modeling (CDM), and power management propagation checks related to our specific technology. By eliminating many potential reliability issues at the design stage, the TowerJazz solution helps shorten time to market and drive long-term product success for our customers."

"Customers are demanding higher reliability in all types of electronic products using complex ICs, from automobiles to mobile phones," said Carey Robertson, Director of Product Marketing for Calibre Circuit Verification at Mentor Graphics®. "The Calibre PERC platform provides circuit reliability checking technology that goes beyond the scope of traditional DRC and ERC tools, so designers and foundries can implement highly complex checks that are customized to specific design styles and foundry manufacturing processes."

Information on TowerJazz design kits for power and reliability checking using Calibre PERC is available on the TowerJazz website (www.towerjazz.com) as well as the Mentor website (www.mentor.com) and also from TowerJazz sales representatives.

About TowerJazz

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), its fully owned U.S. subsidiary Jazz Semiconductor Ltd., and its fully owned Japanese subsidiary TowerJazz Japan, Ltd., operate collectively under the brand name TowerJazz, the global specialty foundry leader. TowerJazz manufactures integrated circuits with geometries ranging from 1.0 to 0.13-micron, offering 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 CMOS and MEMS capabilities. TowerJazz also offers a world-class design enablement platform that complements its sophisticated technology and enables a quick and accurate design cycle. In addition, TowerJazz provides (TOPS) Technology Optimization Process Services to IDMs as well as fabless companies that need to expand capacity, or progress from an R&D line to a production line. To provide multi-fab sourcing, TowerJazz maintains two manufacturing facilities in Israel, one in the U.S., and one in Japan 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 TowerJazz'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.

About Mentor Graphics

Mentor Graphics Corporation is a world leader in electronic hardware and software design solutions, providing products, consulting services and award-winning support for the world's most successful electronic, semiconductor and systems companies. Established in 1981, the company reported revenues in the last fiscal year of about \$1,015 million. Corporate headquarters are located at 8005 S.W. Boeckman Road, Wilsonville, Oregon 97070-7777. World Wide Web site: http://www.mentor.com.

(Mentor Graphics and Calibre are registered trademarks, and PERC is a trademark of Mentor Graphics Corporation. All other company or product names are the registered trademarks or trademarks of their respective owners.)

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