FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of May 2012 (No. 02)

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 May 3, 2012, the registrant announces to Partner with Rachip for External Solutions including CAD, QA and Run-Set Development Services.

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: May 3, 2012 By: /s/ Nati Somekh

Name: Nati Somekh Title: Corporate

Secretary

NEWS ANNOUNCEMENT

FOR IMMEDIATE RELEASE

TowerJazz to Partner with Rachip for External Solutions including CAD, QA and Run-Set Development Services

MIGDAL HAEMEK and BNEI-BRAK, Israel, May 03, 2012 – TowerJazz, the global specialty foundry leader, today announced the partnership with Rachip for providing TowerJazz with external solutions and services to assist its customers with computer-aided design (CAD), quality assurance (QA) and run-set development. The Rachip team is based on a carefully selected and meticulously trained group of female engineers from the ultra-orthodox (Haredi) community in Israel. While TowerJazz leads the Israeli high-tech sector in gender diversity, with close to 50% of all full-time engineers in Migdal Ha'Emek being female, this cooperation furthers TowerJazz's community service charter of focusing on gender equality and minority integration by enabling external employment of an Israeli under-represented population of female design engineers. At the same time, this collaboration supports Rachip's growing business.

Rachip specializes in design, verification, design rule check, and backend and layout services using advanced methodologies in different environments and technologies, providing the utmost professional level of service and competitive rates. One focus of this partnership is design rule check (DRC), which is in the area of electronic design automation. It determines whether the physical layout of a particular chip layout satisfies a series of recommended parameters called design rules. Design rule checking is a major step during physical verification signoff on the design. DRC is a very computationally intense task. Usually DRC checks will be run on each sub-section of the ASIC to minimize the number of errors that are detected at the top level.

"The partnership between TowerJazz and Rachip provides a mutual advantage for both companies as well as for the Israeli society," said Ofer Tamir, Director, Design Enablement & Support, TowerJazz. "In addition, based on our service charter: 'Educational and vocational development with a focus on gender equality and minority integration,' our current relationship with Rachip is a prime example of our commitment to this as well as a demonstration of the benefit of such an endeavor. We are gaining a very skilled set of design engineers to supplement our own world-class engineering team."

About Rachip

The Rachip team is based on 100 semiconductor experts, located in 2 R&D centers in Israel: Bnei-Brak and Haifa. The Rachip team is involved in the industry's most advanced projects, ensuring they are continually updated on the latest technologies, methods and tools available. Rachip is the local answer in Israel to the growing demand for highly-experienced, cost-effective professionals "One Stop Shop" for the semiconductor industry. Rachip specializes in ASIC/FPGA design and verification services, backend, board design, systemC modeling and software services. Using advanced methodologies, a variety of development languages, and in-depth knowledge in common standard protocols, Rachip maintains the highest level and quality of products and services. For more information, please visit www.rachip.com.

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.

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