

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of May 2006 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 May 23, 2006, the Registrant announced that it began production of Metro Wi-Fi Baseband controller of Wavion. Attached hereto is a copy of 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: May 23, 2006

By: /s/ Nati Somekh Gilboa

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Nati Somekh Gilboa  
Corporate Secretary

TOWER SEMICONDUCTOR BEGINS PRODUCTION OF METRO  
WI-FI BASEBAND CONTROLLER FOR WAVION

CLOSE COOPERATION YIELDS EFFECTIVE AND FAST PROTOTYPING

MIGDAL HAEMEK, Israel - May 23, 2006 - Tower Semiconductor Ltd., a pure-play independent specialty wafer foundry (NASDAQ: TSEM; TASE: TSEM) today announced production start of the IC00100 Metro Wi-Fi Baseband controller for Wavion, Ltd., a developer and supplier of a new generation of metro Wi-Fi systems for the communications industry.

According to leading analyst groups, the market for metro Wi-Fi access equipment is expected to exceed \$600 million in 2008 and nearly double that amount to \$1.2 billion in 2010.

Utilizing 0.18-micron, mixed-signal technology in its Fab 2 facility, Tower was able to accelerate production through simultaneous implementation of intellectual property (IP) blocks with the packaging and testing of the first batch of ICs.

Applying Tower's Authorized Design Centers (TADC) program, its members: Cadence and ChipIdea, as well as SimPlus Verification, helped Wavion to achieve first silicon success. ChipIdea provided the mixed signal IP, Cadence provided design support and SimPlus provided functional verification tools.

"The IC00100 project is a great example for Tower's abilities in accelerating time from project kick-off to production. It took us extensive efforts and collaboration with several partners to bring this advanced product to production. We are extremely satisfied with Tower's performance," said Nir Yona, VP R&D of Wavion. "Tower's execution skills of complex mixed-signal projects, experience in manufacturing and ramifications on the design, as well as collaborating with customers and design partners, were all key to the quality execution of our flagship product."

"The Wavion project enabled us to demonstrate once again the success of our combined work with our design partners and the customer. Furthermore, being a local manufacturer proved an asset to Wavion in ensuring success of their first silicon", said Hagay Dvir, Tower's vice president of sales for Europe, Israel and Asia. "We look forward to further success of such collaborative projects."

Both Tower and Wavion have offices in Israel and the Silicon Valley in California, a fact that helped streamline the efficient cooperation on this project.

ABOUT WAVION LTD.

Wavion is delivering a new category of spatially adaptive access point to service providers and equipment vendors. The company's new generation of Wi-Fi technology is the first and only to resolve the significant performance, penetration and profitability challenges facing metro Wi-Fi deployments. Wavion is privately held and backed by world-class investors including Sequoia Capital, Tel Aviv-based Elron Electronic Industries Ltd., Star Ventures, and BRM Capital. Wavion has offices in Silicon Valley and Yoqne'am, Israel. To learn more, please visit Wavion at <http://www.wavion.net>.

## ABOUT TOWER SEMICONDUCTOR LTD.

Tower Semiconductor Ltd. is a pure-play independent specialty foundry established in 1993. The company 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 non-volatile memory solutions, mixed-signal and CMOS image-sensor technologies. To provide world-class customer service, the company maintains two manufacturing facilities: Fab 1 has process technologies from 1.0 to 0.35 micron and can produce up to 16,000 150mm wafers per month. Fab 2 features 0.18 micron and below standard and specialized process technologies and has a current capacity of up to 15,000 200mm wafers per month. Tower's website is located at [www.towersemi.com](http://www.towersemi.com).

## CONTACT:

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## SAFE HARBOR

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 our business is included under the heading "Risk Factors" in our most recent Annual Report on Forms 20-F, F-1, F-3 and 6-K, as were filed with the Securities and Exchange Commission and the Israel Securities Authority. We do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.