FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of November 2005

TOWER SEMICONDUCTOR LTD.
(Translation of registrant's name into English)

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 [_]

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 [X]

On November 1, 2005, the Registrant announced that it begins production of Biomorphic's 2.0 and 1.3-Megapixel CMOS image sensors for cell phones. 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: November 1, 2005

By: /S/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

TOWER SEMICONDUCTOR BEGINS PRODUCTION OF BIOMORPHIC'S 2.0 AND 1.3-MEGAPIXEL CMOS IMAGE SENSORS FOR CELL PHONES

Tower Technologies Result in Superior Sensor Capabilities for Camera-Enabled Devices

HSINCHU, Taiwan and MIGDAL HAEMEK, Israel -- November 1, 2005 -- Tower Semiconductor, Ltd., a pure-play independent specialty wafer foundry (NASDAQ: TSEM; TASE: TSEM), and Biomorphic Microsystems Corporation, a supplier of innovative imaging solutions for the cell phone and PDA markets, today announced that Tower has begun manufacturing of Biomorphic 2.0 and 1.3-megapixel CMOS image sensors.

Biomorphic has already won one of the five leading global cell phone manufacturers for one of these new products, which responds to the increasing demand for higher image quality on small mobile handsets. Japanese market research firm Techno Systems Research (TSR) estimates the 2006 total market for 2.0-megapixel CMOS modules to be 65 million units, while the 1.3-megapixel market is estimated at 190 million units.

The Bi8910T 1.3-megapixel and Bi8921T 2.0-megapixel SoC image sensors are produced in 0.18-micron process at Tower's Fab2, utilizing Tower's pixel IP and the company's optically-optimized multilayer metallization (OptiMuM(TM)), which achieves dramatically better optical sensitivity by reducing stack height from silicon to micro-lens.

Compared with other leading foundry IP, Tower's pixel IP provides:

- 70 percent higher sensitivity
- 50 percent less pixel defect density
- 70 percent lower dark current level

"With Tower's 0.18-micron process and pixel IP, we achieved excellent sensor performance," said Bimal Mathur, Senior Vice President and Chief Technical Officer of Biomorphic Microsystems. "Pixel performance was key in our ability to win a leading customer design. We were also very pleased with Tower's intimate customer support through design and ramp to production, contributing to our fast time-to-market."

"We are glad to complement Biomorphic's expertise in image solutions with our advanced pixel IP and process offering to bring superior yet low-cost image sensors to market that handset manufacturers need today," said Dr. Avi Strum, General Manager of CIS and NVM product line at Tower. "Biomorphic's swift penetration to a tier one cell phone maker with these new products is the best testimony for the success of our joint work."

Product Features

Biomorphic's Bi8921T is a highly affordable CMOS color image sensor that debuts new technologies with an advanced 2 megapixel sensor. These include a color processing pipeline and JPEG compression in a single compact component. The Bi8921T offers UXGA resolution and is designed for cellular phone applications. It provides single-chip integration of a full suite of image processing functions to directly support viewfinder, still image, and video capture capabilities in today's latest mobile imaging platforms. Plus, with the addition of on-chip JPEG compression, full-size images can be captured with high readout speeds, yet low data transfer rates. With an embedded thumbnail image in the JPEG stream, the host processor need not decompress the full image for review. The Bi8921T provides superb image quality, ease of integration, compact size, and low power consumption for outstanding overall performance.

The Bi8910T offers SXGA resolution and is designed for cellular phone applications. Our highly advanced sensor design provides single-chip integration of a full suite of image processing functions to directly support viewfinder, still image, and video capture capabilities in today's latest mobile imaging platforms. The Bi8910T provides superb image quality, ease of integration, compact size, and low power consumption for outstanding overall performance.

Price and Availability

Both products are now in mass production. Bi8921T and Bi8910T are priced $6 and $3.5 per unit for large volumes, respectively.

ABOUT BIOMORPHIC MICROSYSTEMS CORPORATION.

Biomorphic Microsystems Corporation-a subsidiary of Macronix International Co., Ltd - Nasdaq: MXICY-is a fabless CMOS image sensor design house. The company is a leader in innovative imaging solutions for the demanding cell phone and PDA market. Biomorphic is committed to being the leader in cellphone imaging, providing exceptional technical performance, small package size, and world-class support for our partners. Biomorphic's Web site is located at http://www.biomorphic.com/.

ABOUT TOWER SEMICONDUCTOR LTD.

Tower Semiconductor Ltd. is a pure-play independent wafer 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 the current capacity of up to 15,000 200mm wafers per month. Tower's Web site is located at http://www.towersemi.com/.

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 AND 6-K, AS WERE FILED WITH THE SECURITIES AND EXCHANGE COMMISSION AND THE ISRAEL SECURITIES AUTHORITY.

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