

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of May 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 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 17, 2005, Atmel and the Registrant announced their joint CMOS image sensor technology and product development agreement. 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 17, 2005

By: /S/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

Atmel and Tower Semiconductor Announce Joint CMOS
Image Sensor Technology and Product Development
Agreement

TOWER'S 0.18-MICRON TECHNOLOGY WILL BE USED IN ATMEL'S NEXT-GENERATION CMOS
IMAGE SENSOR PRODUCTS

SAN JOSE, CA, USA AND MIGDAL HAEMEK, ISRAEL - May 17, 2005 -Atmel(R) Corporation (Nasdaq: ATML), a global leader in the development and fabrication of advanced semiconductor solutions, and Tower Semiconductor Ltd. (Nasdaq: TSEM, TASE: TSEM), a pure-play independent specialty foundry, announced today that they have agreed on a CMOS image sensor technology development partnership.

Atmel and Tower will work together to design and develop process technology predominantly to be used in consumer products. Under the agreement, both companies have rights to use the jointly developed technology. Tower revenue from this agreement will be from foundry wafer sales and is expected to start in 2006.

Tower and Atmel will be developing CMOS image sensor-related processes, including technology modules specifically designed for advanced photodiode structures. Process development and fabrication activities will be carried out at Tower's Fab2 in Migdal Haemek, Israel. Atmel's engineering team in Grenoble, France, will perform circuit and pixel design and productization activities.

"We're excited to be teaming with Tower on design and development efforts to produce cutting-edge CMOS image sensors," said Jean-Philippe Lamarcq, Imaging Product Line director of Atmel. "As our customers' technology demands get more sophisticated, we realize the value of working with a specialized foundry that has a well-deserved reputation for manufacturing state-of-the-art CMOS image sensors."

"Partnering with Atmel, which brings years of image sensor experience in both CCD and CMOS technologies, will benefit both Tower and its customers by creating innovative technologies to produce a wide variety of advanced CMOS image sensors," said Cliff Drowley, vice president of Tower's CMOS Image Sensor Technology Line. "We are excited to be working with Atmel to create next-generation solutions."

ABOUT ATMEL

Atmel is a worldwide leader in the design and manufacture of microcontrollers, advanced logic, mixed-signal, nonvolatile memory and radio frequency (RF) components. Leveraging one of the industry's broadest intellectual property (IP) portfolios, Atmel is able to provide the electronics industry with complete system solutions. Focused on consumer, industrial, security, communications, computing and automotive markets, Atmel ICs can be found Everywhere You Are(R)

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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. Potential risks and uncertainties include, without limitation, risks and uncertainties associated with (i) the successful completion of the development by Atmel and Tower of the CMOS image-sensor process technologies to be utilized in Tower's facility, (ii) market acceptance and competitiveness of the products to be manufactured by Tower for Atmel using these technologies and (iii) the successful ramp-up of production of the developed technologies. 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.

INFORMATION:

Information on Atmel can be retrieved at: <http://www.atmel.com>

Information on Tower can be retrieved at: <http://www.towersemi.com/>

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