

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of May 2006 No. 2

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 [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 May 17, 2006, the Registrant announced record revenues during first quarter 2006. 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 18, 2006

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

TOWER SEMICONDUCTOR ANNOUNCES RECORD
REVENUES DURING FIRST QUARTER 2006

REVENUES UP 55% AND DOUBLING OF FAB 2 CUSTOMERS IN PRODUCTION AS
COMPARED TO Q1 2005

MIGDAL HAEMEK, Israel -- May 17, 2006 -- Tower Semiconductor Ltd. (NASDAQ: TSEM; TASE: TSEM), a pure-play independent specialty foundry, today announced first quarter 2006 results with record revenues of \$35.9 million. These revenues represent an increase of 55% over the \$23.2 million reported in the first quarter of 2005 and an increase of 15% over the \$31.1 million reported in the fourth quarter of 2005. The 2006 first quarter loss was \$45.1 million, or \$0.63 per share, which included depreciation and amortization expenses of \$38.1 million, compared to a loss of \$55.3 million, or \$0.84 per share, in the first quarter of 2005, which included depreciation and amortization expenses of \$34.6 million.

Tower expects further growth in revenues for the second quarter of 2006 over the first quarter of 17% to 25%, and guides revenues of \$42 to \$45 million.

"We are continuing to execute according to our growth plan and are pleased with both the Q1 revenues, which are the highest in the company's history, and the EBITDA growth", said Russell Ellwanger, chief executive officer, Tower Semiconductor. "We have increased our Fab 2 customers in production base line by a factor of greater than 2 in the past year and are facing strong demand from both the new and existing customers. This quarter demonstrates the strength and realization of our customers' pipeline. The board approved plan to increase Fab 2 capacity by an additional 50%, the partnership with our banks in restructuring Tower's debt, and The Israel Corporation commitment to invest \$100 million provide very encouraging outlook for a strong 2006, where we will continue to focus on best serving our customers and contributing to their market success."

Tower will host a conference call to discuss these results Thursday, May 18, 2006, at 11:00 a.m. Eastern Daylight Time /6 p.m. Israel time. To participate, please call 1-866-860-9642 (U.S. toll-free number) or 972-3-918-0600 (international) and mention ID code: TOWER. Callers in Israel are invited to call locally 03-918-0600. The conference call will also be web cast live at www.companyboardroom.com and at www.towersemi.com and will be available thereafter on both websites for replay for 90 days, starting at 2:00 p.m. Eastern Daylight Time on the day of the call.

As used in this release, the term EBITDA consists of loss, according to GAAP (Generally Accepted Accounting Principles), excluding interest and financing expenses (net), tax and depreciation and amortization expenses. EBITDA is not a required GAAP financial measure and may not be comparable to a similarly titled measure employed by other companies. EBITDA should not be considered in isolation or as a substitute for operating income, net income or loss, cash flows provided by operating, investing and financing activities, or other income or cash flow statement data prepared in accordance with GAAP.

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.

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. Potential risks and uncertainties include, without limitation, risks and uncertainties associated with: (i) the completion of the equipment installation, technology transfer and ramp-up of production in Fab 2, (ii) having sufficient funds to operate the company in the short-term and raising the funds required to implement the ramp up plan and complete Fab 2, (iii) the cyclical nature of the semiconductor industry and the resulting periodic overcapacity, fluctuations in operating results, future average selling price erosion that may be more severe than our expectations, (iv) operating our facilities at satisfactory utilization rates which is critical in order to cover the high level of fixed costs associated with operating a foundry, (v) our ability to satisfy certain of the covenants stipulated in our amended facility agreement (vi) the receipt of our banks' approval of the ramp up plan for Fab 2 and the entering into and consummation of a definitive agreement with our banks for the restructuring our debt, (vii) our ability to capitalize on increases in demand for foundry services, (viii) meeting the conditions to receive Israeli government grants and tax benefits approved for Fab 2 and obtaining the approval of the Israeli Investment Center for a new expansion program, (ix) attracting additional customers, (x) not receiving orders from our wafer partners, customers and technology providers, (xi) failing to maintain and develop our technology processes and services, (xii) competing effectively, (xiii) our large amount of debt and our ability to repay our debt on a timely basis, (xiv) achieving acceptable device yields, product performance and delivery times, (xv) the timely development, internal qualification and customer acceptance of new processes and products, (xvi) the receipt of shareholder and other approvals as required under applicable law or otherwise, including in connection with the potential investment by TIC and the agreement with TIC for the ordering of equipment described above, (xvii) business interruption due to terror attacks, earthquakes, and other acts of God and (xviii) the entering into and the consummation of investment agreements, including the potential investment by TIC.

A more 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 filings 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. Future results may differ materially from those previously reported. We do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARY
CONSOLIDATED BALANCE SHEETS
(DOLLARS IN THOUSANDS)

	MARCH 31, 2006	DECEMBER 31, 2005
A S S E T S		
CURRENT ASSETS		
CASH AND CASH EQUIVALENTS	\$ 17,570	\$ 7,337
DESIGNATED CASH AND SHORT-TERM INTEREST-BEARING DEPOSITS	15,126	31,661
TRADE ACCOUNTS RECEIVABLE	18,882	16,776
OTHER RECEIVABLES	8,937	9,043
INVENTORIES	28,684	24,376
OTHER CURRENT ASSETS	1,350	1,048
TOTAL CURRENT ASSETS	90,549	90,241
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PROPERTY AND EQUIPMENT, NET	484,289	510,645
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OTHER ASSETS, NET	61,201	77,800
	=====	=====
TOTAL ASSETS	\$ 636,039	\$ 678,686
	=====	=====
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES		
CURRENT MATURITIES OF LONG-TERM DEBT	\$ --	\$ 21,103
CURRENT MATURITIES OF CONVERTIBLE DEBENTURES	5,734	6,453
TRADE ACCOUNTS PAYABLE	52,028	59,741
OTHER CURRENT LIABILITIES	8,913	8,972
TOTAL CURRENT LIABILITIES	66,675	96,269
LONG-TERM DEBT	514,966	497,000
CONVERTIBLE DEBENTURES	34,429	19,358
LONG-TERM LIABILITY IN RESPECT OF CUSTOMERS' ADVANCES	54,537	59,621
OTHER LONG-TERM LIABILITIES	10,238	11,012
TOTAL LIABILITIES	680,845	683,260
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CONVERTIBLE DEBENTURES	--	25,493
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SHAREHOLDERS' DEFICIT	(44,806)	(30,067)
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TOTAL LIABILITIES AND SHAREHOLDERS' DEFICIT	\$ 636,039	\$ 678,686
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**TOWER SEMICONDUCTOR LTD. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF OPERATIONS
(DOLLARS IN THOUSAND, EXCEPT SHARE DATA AND PER SHARE DATA)**

	THREE MONTHS ENDED MARCH 31,	
	2006	2005
REVENUES	35,875	23,167
COST OF SALES	61,280	61,214
GROSS LOSS	(25,405)	(38,047)
OPERATING COSTS AND EXPENSES		
RESEARCH AND DEVELOPMENT	3,354	4,763
MARKETING, GENERAL AND ADMINISTRATIVE	5,324	4,528
OPERATING LOSS	8,678	9,291
FINANCING EXPENSE, NET	(34,083)	(47,338)
OTHER INCOME, NET	(11,524)	(8,175)
LOSS FOR THE PERIOD	551	193
	\$(45,056)	\$(55,320)

BASIC AND DILUTED LOSS PER ORDINARY SHARE

Loss per share (*)	\$ (0.63)	\$ (0.84)
	=====	=====
WEIGHTED AVERAGE NUMBER OF ORDINARY SHARES OUTSTANDING - IN THOUSANDS	71,872	65,700
	=====	=====

(*) BASIC AND DILUTED LOSS PER SHARE IN ACCORDANCE WITH U.S. GAAP FOR THE THREE MONTHS PERIODS ENDED MARCH 31, 2006 AND MARCH 31, 2005 ARE \$0.56 AND \$0.84, RESPECTIVELY.