

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of August 2009 (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 August 12, 2009, the Registrant announced its financial results for the six and three months ended June 30, 2009. Attached hereto are the following exhibits

Exhibit 99.1 Press release dated August 12, 2009

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: August 12, 2009

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary



Tower Semiconductor Reports

Second Quarter 2009 Financial Results

Third Quarter Revenue Guidance Calls for 24 Percent Sequential Growth and 28 Percent Year-over-Year Growth

MIGDAL HAEMEK, Israel – August 12, 2009 – Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), an independent specialty foundry, today announced financial results for the second quarter ended June 30, 2009.

Highlights

- Achieved revenue of \$60.6 million
- Posted positive cash flow from operations for the eleventh consecutive quarter and positive EBITDA for the fifteenth consecutive quarter
- Significant cost efficiencies across the board have enabled the Company to achieve improved non-GAAP gross, operating and net margins
- Expects strong growth in third quarter revenues in the range of \$73 – \$77 million, representing revenue growth of 24 percent sequentially, substantially higher than industry weighted average, and 28 percent year-over-year

Second quarter 2009 revenue was \$60.6 million, towards the upper-end of the Company's previously provided guidance range. This represents a 4 percent increase over first quarter 2009 revenue of \$58.1 million.

Calculated in accordance with GAAP, net loss for the second quarter was \$30.9 million or \$0.19 per share, an improvement from \$0.25 per share for the second quarter of 2008. Net loss for the first half of 2009 narrowed by \$2.1 million as compared to the corresponding period in 2008.

On a non-GAAP basis, as described and reconciled below, second quarter 2009 gross profit was \$15.7 million, a sequential growth of 30 percent, representing a 26 percent gross margin as compared to 21 percent in the first quarter of 2009. Non-GAAP operating profit grew sequentially by 158 percent to \$3.5 million, and Non-GAAP net profit for the second quarter of 2009 improved to \$5.4 million, representing 9 percent net margin.

"During the second quarter we had many achievements, including a record 83 new design wins and new collaborations, with more underway, which demonstrate the value we add to our customers with our highly advanced specialty wafer processes, designer-centric models and kits, and the realization of the successful merger with Jazz Technologies. This combination of unparalleled design enablement capabilities and the breadth and great depth of customizable CMOS specialty technologies reinforces our position as a leading global specialty foundry," commented Russell Ellwanger, Chief Executive Officer of Tower Semiconductor, Ltd. "Due to our manufacturing mix moving to more specialized products and flows, we realized a year over year average selling prices increase of approximately 35 percent."

Ellwanger further commented, "I am very confident with regard to the coming quarters. The significant effort we have put in during the past few quarters, including enhancing cost efficiencies and realizing technological synergies, has placed us in an incredible position. It has allowed us to structure ourselves for enhanced growth and enter the second half of 2009 in excellent standing, which we will discuss in detail in our conference call later today. As I look at Tower's position entering an upcycle, I am extremely optimistic and see Tower as most probably the single foundry that will exit 2009 with year over year growth."

"I'm proud of the achievements of Tower's executive team, including the quick, complete and beneficial integration of the Jazz Technologies merger, as evidenced by the increased shareholder value over the last few quarters," said Amir Elstein, Chairman of Tower's Board of Directors. "We are boldly emerging from the recent global downturn as a stronger, more efficient and leaner company, with a platform primed for long-term and profitable growth."

Tower forecasts revenue in the third quarter 2009 to range between \$73 and \$77 million, representing a midrange sequential revenue growth of 24 percent and a 28 percent year over year revenue growth.

Tower also announced that it has signed a definitive agreement with YA Global Master SPV Ltd. a fund managed by Yorkville Advisors ("Yorkville"), according to which Yorkville has committed to invest in Tower up to \$25 million over the next 24 months by way of a standby equity-line, in consideration for ordinary shares of Tower to be issued at a 3 percent discount to the market price of the ordinary shares, as set forth in the agreement. To date, no draw downs have been made under this agreement. No warrants or any other debt or derivative instruments are issuable by Tower under this agreement. Commencement of draw downs under the standby equity line is subject to our obtaining certain regulatory approvals and approval from the Tel-Aviv Stock Exchange. Additional information regarding the agreement is included in the Company's Report on Form 6-K and prospectus supplement as filed today with the SEC and available at www.sec.gov.

Conference Call/ Web Cast Announcement

Tower will host a conference call to discuss second quarter 2009 results today, **August 12, 2009, at 10:00 a.m. Eastern Time (ET) / 5:00 p.m. Israel time**. To participate, please call: **1-888-407-2553** (U.S. toll-free number) or **972-3-918-0644** (international) and mention ID code: TOWER. Callers in Israel are invited to call locally by dialing **03-918-0644**. The conference call will also be Web cast live at <http://www.earnings.com> and at www.towersemi.com and will be available thereafter on both Web sites for replay for 90 days, starting at approximately 2:00 p.m. ET on the day of the call.

As previously announced, beginning with the fourth quarter of 2007, the Company has been presenting its financial statements in accordance with U.S. GAAP.

As applied in this release, the term Earnings Before Interest Tax Depreciation and Amortization (EBITDA) consists of loss, according to U.S. GAAP, excluding interest and financing expenses (net), tax, depreciation and amortization and stock based compensation 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.

This release, including the financial tables below, presents other financial information that may be considered “non-GAAP financial measures” under Regulation G and related reporting requirements promulgated by the Securities and Exchange Commission as they apply to our company. These non-GAAP financial measures exclude (1) depreciation and amortization, (2) compensation expenses in respect of options granted to directors, officers and employees and (3) finance expenses, net other than interest paid, such that non-GAAP financial expenses, net include only interest paid during the reported period. Non-GAAP financial measures should be evaluated in conjunction with, and are not a substitute for, GAAP financial measures. The tables also present the GAAP financial measures, which are most comparable to the non-GAAP financial measures as well as reconciliation between the non-GAAP financial measures and the most comparable GAAP financial measures. The non-GAAP financial information presented herein should not be considered in isolation from 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 and is not necessarily consistent to the non-GAAP data presented in previous filings.

Following the merger with Jazz, the amounts presented in this release, including the financial tables below, include Jazz’s results commencing September 19, 2008. Amounts presented for periods preceding the merger with Jazz reflect Tower’s results only. The balance sheet as of June 30, 2009 and December 31, 2008 includes Jazz’s balances as of such dates.

About Tower Semiconductor, Ltd.

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), a global specialty foundry leader, manufactures integrated circuits with geometries ranging from 1.0 to 0.13-micron and provides complementary technical services and design support. Tower, along with its fully owned U.S. subsidiary, Jazz Semiconductor, Inc., offers a broad range of process technologies including Digital, Mixed-Signal and RFCMOS, HV CMOS, Power Management, Non-Volatile Memory (NVM), Embedded NVM, MEMS, and CMOS Image Sensors. Tower provides world-class customer service and maintains two fabrication facilities in Israel and a fab in Newport Beach, CA, with manufacturing capacity available in China through partnerships with ASMC and HHNEC. For more information, please visit www.towersemi.com and www.jazzsemi.com.

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 and you should not place any undue reliance on such forward-looking statements. Potential risks and uncertainties include, without limitation, risks and uncertainties associated with: (i) maintaining existing customers and attracting additional customers, (ii) not receiving orders from our customers, which can result in unutilized capacity, (iii) the cyclical nature of the semiconductor industry and the resulting periodic overcapacity, fluctuations in operating results and future average selling price erosion, (iv) the large amount of debt and liabilities and having sufficient funds to satisfy our short-term and long-term debt obligations and other liabilities on a timely basis, (v) operating our facilities at high utilization rates which is critical in order to defray the high level of fixed costs associated with operating a foundry and reduce our losses, (vi) our ability to satisfy the covenants stipulated in our agreements with our lenders, banks and bond holders, (vii) our ability to capitalize on potential increases in demand for foundry services, (viii) meeting the conditions to receive Israeli government grants and tax benefits approved for Fab2, the possibility of the government requiring us to repay all or a portion of the grants already received and obtaining the approval of the Israeli Investment Center for an expansion program, (ix) our ability to accurately forecast financial performance, which is affected by limited order backlog and lengthy sales cycles, (x) the purchase of equipment to increase capacity, the completion of the equipment installation, technology transfer and raising the funds therefor, (xi) our dependence on a relatively small number of products for a significant portion of our revenue, (xii) a substantial portion of our revenues being accounted for by a small number of customers, (xiii) the concentration of our business in the semiconductor industry, (xiv) product returns, (xv) our ability to maintain and develop our technology processes and services to keep pace with new technology, evolving standards, changing customer and end-user requirements, new product introductions and short product life cycles, (xvi) competing effectively, (xvii) achieving acceptable device yields, product performance and delivery times, (xviii) our ability to manufacture products on a timely basis, (xix) our dependence on intellectual property rights of others, our ability to operate our business without infringing others’ intellectual property rights and our ability to enforce our intellectual property against infringement, (xx) pending resolution of patent infringement claim against the Company, (xxi) retention of key employees and retention and recruitment of skilled qualified personnel, (xxii) exposure to inflation, currency exchange and interest rate fluctuations and risks associated with doing business internationally and in Israel, (xxiii) the current global economic downturn, the prevailing market conditions in the semiconductor industry (including global decreased demand, reduced prices, excess inventory and unutilized capacity) and the lack of availability of funding sources in light of the prevailing financial markets situation, which may adversely affect the future financial results and position of the Company, including its ability to continue to support its ongoing operations, and (xxiv) business interruption due to fire, the security situation in Israel and other events beyond our control.

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-3, F-4, S-8 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. Future results may differ materially from those previously reported. The Company does not intend to update, and expressly disclaims any obligation to update, the information contained in this release.

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TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(dollars in thousands)

	June 30,	December 31,
	2009	2008
	unaudited	
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	\$ 38,097	\$ 34,905
Trade accounts receivable	35,522	45,860
Other receivables	2,181	2,320
Inventories	26,630	40,899
Other current assets	7,405	7,657
Total current assets	109,835	131,641
LONG-TERM INVESTMENTS	28,606	29,499
PROPERTY AND EQUIPMENT, NET	410,096	449,697
INTANGIBLE ASSETS, NET	74,344	81,034
GOODWILL	7,000	7,000
OTHER ASSETS, NET	8,471	8,802
TOTAL ASSETS	\$ 638,352	\$ 707,673
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES		
Current maturities of convertible debenture	\$ -	\$ 8,330
Short term bank loan	7,000	7,000
Trade accounts payable	32,018	49,462
Deferred revenue and short -term customers' advances	5,496	6,634
Other current liabilities	30,793	35,202
Total current liabilities	75,307	106,628
LONG-TERM LOANS FROM BANKS	210,149	222,989
DEBENTURES	219,540	208,512
LONG-TERM CUSTOMERS' ADVANCES	12,291	11,138
OTHER LONG-TERM LIABILITIES	47,496	45,959
Total liabilities	564,783	595,226
SHAREHOLDERS' EQUITY	73,569	112,447
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	\$ 638,352	\$ 707,673

	Six months ended June 30,			Three months ended June 30,		
	2009	2008	2007	2009	2008	2007
	GAAP	GAAP	GAAP	GAAP	GAAP	GAAP
REVENUES	\$ 118,626	\$ 115,679	\$ 112,666	\$ 60,567	\$ 58,072	\$ 57,062
COST OF REVENUES	146,333	139,307	142,931	71,193	71,052	71,412
GROSS LOSS	(27,707)	(23,628)	(30,265)	(10,626)	(12,980)	(14,350)
OPERATING COSTS AND EXPENSES						
Research and development	10,307	6,190	6,979	5,951	3,214	3,370
Marketing, general and administrative	13,888	14,957	15,713	7,153	7,189	7,636
	24,195	21,147	22,692	13,104	10,403	11,006
OPERATING LOSS	(51,902)	(44,775)	(52,957)	(23,730)	(23,383)	(25,356)
FINANCING EXPENSE, NET	(10,274)	(15,611)	(21,414)	(9,296)	(7,811)	(8,704)
OTHER INCOME (EXPENSE), NET	459	(529)	73	459	(101)	4
LOSS BEFORE TAX BENEFIT	(61,717)	(60,915)	(74,298)	(32,567)	(31,295)	(34,056)
TAX BENEFIT RELATED TO JAZZ	2,910	-	-	1,633	-	-
LOSS FOR THE PERIOD	\$ (58,807)	\$ (60,915)	\$ (74,298)	\$ (30,934)	\$ (31,295)	\$ (34,056)
BASIC LOSS PER ORDINARY SHARE						
loss per share	\$ (0.37)	\$ (0.49)	\$ (0.65)	\$ (0.19)	\$ (0.25)	\$ (0.28)
Weighted average number of ordinary shares outstanding - in thousands	160,031	124,777	113,584	160,037	125,327	122,014

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES
RECONCILIATION OF REPORTED GAAP TO NON-GAAP CONSOLIDATED STATEMENTS OF OPERATIONS (UNAUDITED)
(dollars in thousands)

	Three months ended June 30,		Three months ended March 31,		Three months ended June 30,	
	2009	2009	2009	2009	2009	2009
	non-GAAP		Adjustments (see a, b, c, d below)		GAAP	
REVENUES	\$ 60,567	\$ 58,059	\$ -	\$ -	\$ 60,567	\$ 58,059
COST OF REVENUES	44,886	45,978	26,307(a)	29,162(a)	71,193	75,140
GROSS PROFIT (LOSS)	15,681	12,081	(26,307)	(29,162)	(10,626)	(17,081)
OPERATING COSTS AND EXPENSES						
Research and development	5,929	3,793	22(b)	563(b)	5,951	4,356
Marketing, general and administrative	6,253	6,933	900(c)	(198)(c)	7,153	6,735
	12,182	10,726	922	365	13,104	11,091

OPERATING PROFIT (LOSS)	3,499	1,355	(27,229)	(29,527)	(23,730)	(28,172)
FINANCING INCOME (EXPENSE), NET	(224)(d)	(5,790)(d)	(9,072)	4,812	(9,296)	(978)
OTHER INCOME, NET	459	-	-	-	459	-
PROFIT (LOSS) BEFORE TAX BENEFIT	3,734	(4,435)	(36,301)	(24,715)	(32,567)	(29,150)
TAX BENEFIT RELATED TO JAZZ	1,633	1,277	-	-	1,633	1,277
NET PROFIT (LOSS) FOR THE PERIOD	\$ 5,367	\$ (3,158)	\$ (36,301)	\$ (24,715)	\$ (30,934)	\$ (27,873)
NON-GAAP GROSS MARGINS	26%	21%				
NON-GAAP NET MARGINS	9%	(5)%				

- (a) Includes depreciation and amortization expenses in the amounts of \$26,201 and \$29,009 and stock based compensation expenses in the amounts of \$106 and \$153 for the three months ended June 30, 2009 and March 31, 2009, respectively.
- (b) Includes depreciation and amortization expenses in the amounts of -\$103 and \$403 and stock based compensation expenses in the amounts of \$125 and \$160 for the three months ended June 30, 2009 and March 31, 2009, respectively.
- (c) Includes depreciation and amortization expenses in the amounts of \$245 and \$334 and stock based compensation expenses in the amounts of \$655 and -\$532 for the three months ended June 30, 2009 and March 31, 2009, respectively.
- (d) Non-GAAP finance expenses include only interest paid during the reported period.