

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of May 2009 (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 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 14, 2009, the Registrant announced its financial results for the three months ended March 31, 2009. Attached hereto are the following exhibits

Exhibit 99.1 Press release dated May 14, 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: May 14, 2009

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

Tower Semiconductor Reports First Quarter 2009 Financial Results

Record growth in specialty products enabling significant ASP increase

MIGDAL HAEMEK, Israel – May 14, 2009 – Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), an independent specialty foundry, today announced financial results for the first quarter ended March 31, 2009.

First Quarter Highlights

- Revenue of \$58.1 million
- Posted positive cash flow from operations for the tenth consecutive quarter and positive EBITDA for the fourteenth consecutive quarter
- Over-achieved post-merger Tower/Jazz \$60 million cost reduction plans, with approximately \$80 million of annual cost run-rate reductions, as evidenced by maintaining \$4 million non-GAAP net profit despite \$19 million quarter-over-quarter decrease in revenue
- Achieved record revenue in medical imaging business and, in conjunction with other specialty businesses, enabled an ASP increase of 10 percent sequentially

First quarter 2009 revenue was \$58.1 million, which was at the mid-point of the Company's previously provided guidance range. Revenue declined 25 percent as compared to the fourth quarter 2008 (the first full quarter of consolidation with Jazz), as compared to a weighted average reduction of 41 percent for the top four foundries worldwide.

Calculated in accordance with GAAP, net loss for the first quarter narrowed by \$2.0 million as compared to the first quarter of 2008 and was \$27.6 million, or \$0.17 per share.

On a non-GAAP basis, as described and reconciled below, the Company achieved first quarter 2009 gross profit of \$12.3 million and a net profit of \$4.4 million.

"The synergies and operational efficiencies realized through the September 2008 merger with Jazz enabled us to complete this quarter with the same operating cash and EBITDA performance as the fourth quarter of 2008 despite a 25 percent revenue decline," commented Russell Ellwanger, Chief Executive Officer of Tower Semiconductor, Ltd. "Although our results were impacted by the global economic environment, our revenue decrease was 40 percent less than the industry weighted average due to our focus on specialized non-commodity products and services. The growth of such products has resulted in a notable increase in our average wafer selling price."

Ellwanger further commented, "We are very pleased with customer response to several of our new platforms such as SiGe as a replacement for GaAs power amplifiers; large area, stitched field dental and medical image sensors; and multiple process innovative and integration intense MEMs products."

"Our strategy to enhance Tower's profitable growth, focusing on our specialty business, is gaining momentum, bringing in the results we were hoping for, even in today's challenging environment," said Amir Elstein, chairman of the board of directors of Tower Semiconductor. "As a result, although we remain cautious, we are highly optimistic to achieve significant growth."

Conference Call/ Web Cast Announcement

Tower will host a conference call to discuss first quarter 2009 results today, **May 14, 2009, at 10:00 a.m. Eastern Time (ET) / 5:00 p.m. Israel time.** To participate, please call: **1-866-345-5855** (U.S. toll-free number) or **972-3-918-0692** (international) and mention ID code: TOWER. Callers in Israel are invited to call locally by dialing **03-918-0692**. 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, stock based compensation expenses and write-off of in process research and development. 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) write-off of in process research and development. 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.

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 March 31, 2009 and December 31, 2008 includes Jazz's balances as of such dates.

About Tower Semiconductor Ltd.

Tower Semiconductor Ltd. is a pure-play independent specialty wafer foundry. Tower 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 mixed-

signal & RF-CMOS, Power Management, CMOS image-sensor and non-volatile memory technologies. Through access to the process portfolio of its wholly owned subsidiary, Jazz Semiconductor, Tower offers RF CMOS, Analog CMOS, Silicon and SiGe BiCMOS, SiGe C-BiCMOS, Power CMOS and High Voltage CMOS. To provide world-class customer service, Tower maintains two manufacturing facilities in Israel with access to Jazz Semiconductor's fab in the U.S. and manufacturing capacity in China through Jazz's 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, including any expected benefits and anticipated cost savings, 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 wafer partners and customers, which can result in excess capacity, (iii) the cyclical nature of the semiconductor industry and the resulting periodic overcapacity, fluctuations in operating results, 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) our merger with Jazz, including possible delays in the integration process, diversion of management's attention, and not realizing anticipated benefits, (xi) the purchase of equipment to increase capacity, the completion of the equipment installation, technology transfer and raising the funds therefore, (xii) our dependence on a relatively small number of products for a significant portion of our revenue, (xiii) a substantial portion of our revenues being accounted for by a small number of customers, (xiv) the concentration of our business in the semiconductor industry, (xv) product returns, (xvi) 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, (xvii) competing effectively, (xviii) achieving acceptable device yields, product performance and delivery times, (xix) our ability to manufacture products on a timely basis, (xxi) our dependence on intellectual property rights of others, our ability to operate our business without infringing others' intellectual property rights and our ability to defend our intellectual property against infringement, (xxii) pending resolution of patent infringement claim against the Company, (xxiii) retention of key employees and retention and recruitment of skilled qualified personnel (xxiv) exposure to inflation, currency exchange and interest rate fluctuations and risks associated with doing business internationally and in Israel, (xxv) 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 (xxvi) 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.

Contact:

Tower Semiconductor
Noit Levi, +972 4 604 7066
noitle@towersemi.com

or:

Shelton Group
Ryan Bright, (972) 239-5119 ext. 159
rbright@sheltongroup.com

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

| | March 31, | December 31, |
|--|-----------|--------------|
| | 2009 | 2008 |
| | unaudited | |

ASSETS

CURRENT ASSETS

| | | | | |
|----------------------------------|----|---------|----|---------|
| Cash and cash equivalents | \$ | 40,315 | \$ | 34,905 |
| Trade accounts receivable | | 32,537 | | 45,860 |
| Other receivables | | 1,230 | | 2,320 |
| Inventories | | 27,736 | | 38,729 |
| Other current assets | | 8,481 | | 7,657 |
| | | 110,299 | | 129,471 |
| Total current assets | | 110,299 | | 129,471 |

| | | |
|---|------------|------------|
| LONG-TERM INVESTMENTS | 28,140 | 29,499 |
| PROPERTY AND EQUIPMENT, NET | 428,781 | 449,697 |
| INTANGIBLE ASSETS, NET | 77,688 | 81,034 |
| GOODWILL | 7,000 | 7,000 |
| OTHER ASSETS, NET | 8,629 | 8,802 |
| TOTAL ASSETS | \$ 660,537 | \$ 705,503 |
| LIABILITIES AND SHAREHOLDERS' EQUITY | | |
| CURRENT LIABILITIES | | |
| Current maturities of convertible debenture | \$ - | \$ 8,330 |
| Short term bank loan | 7,000 | 7,000 |
| Trade accounts payable | 33,058 | 49,462 |
| Deferred revenue and short-term customers' advances | 5,686 | 6,634 |
| Other current liabilities | 28,411 | 35,202 |
| Total current liabilities | 74,155 | 106,628 |
| LONG-TERM LOANS FROM BANKS | 226,465 | 222,989 |
| DEBENTURES | 201,563 | 208,512 |
| LONG-TERM CUSTOMERS' ADVANCES | 11,348 | 11,138 |
| OTHER LONG-TERM LIABILITIES | 45,855 | 45,959 |
| Total liabilities | 559,386 | 595,226 |
| SHAREHOLDERS' EQUITY | 101,151 | 110,277 |
| TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY | \$ 660,537 | \$ 705,503 |

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS (UNAUDITED)
(dollars in thousands, except share data and per share data)

| | Three months ended March 31, | |
|---------------------------------------|---------------------------------|-----------|
| | 2009 | 2008 |
| | GAAP | GAAP |
| REVENUES | \$ 58,059 | \$ 57,607 |
| COST OF REVENUES | 74,911 | 68,255 |
| GROSS LOSS | (16,852) | (10,648) |
| OPERATING COSTS AND EXPENSES | | |
| Research and development | 4,356 | 2,976 |
| Marketing, general and administrative | 6,735 | 7,768 |

| | | |
|---|-------------|-------------|
| | 11,091 | 10,744 |
| OPERATING LOSS | (27,943) | (21,392) |
| FINANCING EXPENSE, NET | (978) | (7,800) |
| OTHER EXPENSE, NET | - | (428) |
| LOSS BEFORE INCOME TAX BENEFIT | (28,921) | (29,620) |
| INCOME TAX BENEFIT RELATED TO JAZZ | 1,277 | - |
| LOSS FOR THE PERIOD | \$ (27,644) | \$ (29,620) |
| BASIC AND DILUTED LOSS PER ORDINARY SHARE | | |
| loss per share | \$ (0.17) | \$ (0.24) |
| Weighted average number of ordinary shares outstanding - in thousands | 160,026 | 124,228 |

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

| | Three months ended | | Three months ended | | Three months ended | |
|---|--------------------|--------------|------------------------------------|--------------|--------------------|--------------|
| | March 31, | December 31, | March 31, | December 31, | March 31, | December 31, |
| | 2009 | 2008 | 2009 | 2008 | 2009 | 2008 |
| | non-GAAP | | Adjustments (see a, b, c, d below) | | GAAP | |
| REVENUES | \$ 58,059 | \$ 77,453 | \$ - | \$ - | \$ 58,059 | \$ 77,453 |
| COST OF REVENUES | 45,749 | 61,894 | 29,162(a) | 26,346(a) | 74,911 | 88,240 |
| GROSS PROFIT (LOSS) | 12,310 | 15,559 | (29,162) | (26,346) | (16,852) | (10,787) |
| OPERATING COSTS AND EXPENSES | | | | | | |
| Research and development | 3,793 | 4,625 | 563(b) | 654(b) | 4,356 | 5,279 |
| Marketing, general and administrative | 6,933 | 9,186 | (198)(c) | 1,352(c) | 6,735 | 10,538 |
| Write-off of in-process research and development | - | - | - | (500) | - | (500) |
| | 10,726 | 13,811 | 365 | 1,506 | 11,091 | 15,317 |
| OPERATING PROFIT (LOSS) | 1,584 | 1,748 | (29,527) | (27,852) | (27,943) | (26,104) |
| FINANCING INCOME (EXPENSE), NET | 1,507 | 3,338 | (2,485)(d) | (530)(d) | (978) | 2,808 |
| OTHER EXPENSE, NET | - | (280) | - | - | - | (280) |
| PROFIT (LOSS) BEFORE INCOME TAX BENEFIT (PROVISION) | 3,091 | 4,806 | (32,012) | (28,382) | (28,921) | (23,576) |

| | | | | | | |
|---|-----------------|-----------------|--------------------|--------------------|--------------------|--------------------|
| INCOME TAX BENEFIT (PROVISION) RELATED TO JAZZ | 1,277 | (575) | - | - | 1,277 | (575) |
| NET PROFIT (LOSS) FOR THE PERIOD | \$ 4,368 | \$ 4,231 | \$ (32,012) | \$ (28,382) | \$ (27,644) | \$ (24,151) |
| NON-GAAP GROSS MARGINS | 21% | 20% | | | | |
| NON-GAAP NET MARGINS | 8% | 5% | | | | |

- (a) Includes depreciation and amortization expenses in the amounts of \$29,009 and \$26,150 and stock based compensation expenses in the amounts of \$153 and \$196 for the three months ended March 31, 2009 and December 31, 2008, respectively.
- (b) Includes depreciation and amortization expenses in the amounts of \$403 and \$532 and stock based compensation expenses in the amounts of \$160 and \$122 for the three months ended March 31, 2009 and December 31, 2008, respectively.
- (c) Includes depreciation and amortization expenses in the amounts of \$335 and \$325 and stock based compensation expenses in the amounts of -\$533 and \$1,027 for the three months ended March 31, 2009 and December 31, 2008, respectively.
- (d) Includes amortization expense of debt related vehicles in the amounts of \$2,485 and \$530 for the three months ended March 31, 2009 and December 31, 2008, respectively.
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