

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of August 2007 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 20, 2007, Tower Semiconductor Announces Supply Chain Efficiency Plan; Expects Cost Reduction of Approximately \$15 Million through the Coming Three Years, 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.

Date: August 20, 2007

TOWER SEMICONDUCTOR LTD.

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

TOWER SEMICONDUCTOR ANNOUNCES SUPPLY
CHAIN EFFICIENCY PLAN; EXPECTS COST REDUCTION OF APPROXIMATELY
\$15 MILLION THROUGH THE COMING THREE YEARS

SIGNED A SUB-CONTRACTING INVENTORY MANAGEMENT AGREEMENT WITH
EMA INVENTORY LIFECYCLE SOLUTIONS

Migdal Haemek, Israel - August 20, 2007 - Tower Semiconductor Ltd. (NASDAQ: TSEM; TASE: TSEM), an independent specialty foundry, announced today that EMA Inventory Lifecycle Solutions, a joint partnership of Exel MPL and AVBA Hi-Tech Services, was chosen to integrate a variety of advanced capabilities in logistics, engineering and support services, to facilitate comprehensive solutions for inventory management of spare parts for Tower's manufacturing tools.

The services provided by EMA will include: onsite spare parts management services, planning, procurement, logistics, repair, transport and delivery. The significant achievement of this transaction is the fact that the vendor purchases and owns the spare part inventory and assumes responsibility for the entire supply chain, including the spare parts' availability. Therefore, the supplier and the customer share the risks and advantages of managing efficient inventory.

For Tower, this transaction is expected to produce several advantages: (i) cost reduction; (ii) improvement of spare parts' availability which may result in increased manufacturing capacity; (iii) reduction of Tower's inventory level.

EMA has vast experience and success in these areas having managed inventory for a leading global semiconductors manufacturing company and other companies from the microelectronics industry.

"EMA offers a complete suite of inventory management solutions tailored for semiconductor companies", said Shimon Dahan, Tower's VP of corporate services. "We already see cost reduction and during the coming three years we expect to achieve accumulated savings of approximately \$15 million on Tower's spare parts and other costs".

"Working with Tower presents an excellent opportunity for EMA to diversify our customer's base and services offering", said Avi Gilboa, EMA's CEO. "We are proud of Tower's decision to manage its spare parts inventory through EMA".

ABOUT TOWER SEMICONDUCTOR LTD.

Tower Semiconductor Ltd. (Nasdaq: TSEM, TASE: TSEM) is an independent specialty foundry that delivers customized solutions in a variety of advanced CMOS technologies, including digital CMOS, mixed-signal and RF (radio frequency) CMOS, CMOS image sensors, power management devices, and embedded non-volatile memory solutions. Tower's customer orientation is complemented by its uncompromising attention to quality and service. Its specialized processes and engineering expertise provides highly flexible, customized manufacturing solutions to fulfill the increasing variety of customer needs worldwide. Offering two world-class manufacturing facilities with standard and specialized process technologies ranging from 1.0- to 0.13-micron, Tower Semiconductor provides exceptional design support and technical services to help customers sustain long-term, reliable product performance, while delivering on-time and on-budget results. More information can be found at <http://www.towersemi.com>.

ABOUT EMA INVENTORY LIFECYCLE SOLUTIONS

For information please visit EMA Inventory Lifecycle Solutions website, located at <http://www.emagls.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 Form 20-F, Forms F-1, F-3 and 6-K, as were filed with the Securities and Exchange Commission and the Israel Securities Authority. We do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

MEDIA CONTACTS:

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