

TOWER SEMICONDUCTOR LTD.

7,287,990 Ordinary Shares

Pursuant to this prospectus supplement, the accompanying Prospectus Supplement No. 4 and the accompanying base prospectus, we are offering 7,287,990 ordinary shares to YA Global Master SPV Ltd., or YA Global for a total consideration of \$10,000,000, pursuant to an advance made to us by YA Global under our previously announced Standby Equity Purchase Agreement, or SEPA, dated August 11, 2009 and amendments dated August 27, 2009, February 4, 2010 and April 22, 2010, with YA Global. We expect to issue the shares to YA Global against payment therefor on or about August 9, 2010.

In addition to our issuance of ordinary shares to YA Global pursuant to the SEPA, this prospectus supplement, the accompanying Prospectus Supplement No. 4 and the accompanying base prospectus also cover the resale of those shares by YA Global to the public. YA Global may be deemed to be an "underwriter" within the meaning of the Securities Act of 1933, as amended.

Our ordinary shares are quoted on the NASDAQ Global Market and the Tel-Aviv Stock Exchange under the symbol "TSEM." On August 5, 2010, the last reported sales prices of our ordinary shares on the NASDAQ Global Market and the Tel-Aviv Stock Exchange were \$1.42 per share and NIS 5.57 per share, respectively.

The shares are being issued as part of the commitment by YA Global to purchase from time to time, at our option, our ordinary shares pursuant to the SEPA. After giving effect to the issuance of the shares and payment therefor as described in this prospectus supplement, a maximum of \$10,049,185 is available for future advances under the SEPA.

Investing in our securities involves a high degree of risk. See "Risk Factors" referred to and included beginning on page S-2 of the accompanying Prospectus Supplement No. 4.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying base prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is August 6, 2010

THE OFFERING

Securities offered	7,287,990 ordinary shares of Tower Semiconductor Ltd.
Purchaser	YA Global Master SPV Ltd., pursuant to the Standby Equity Purchase Agreement dated August 11, 2009 and amended on August 27, 2009, February 4, 2010 and April 22, 2010.
Purchase price	\$10,000,000.
Settlement date	On or about August 9, 2010.
Use of proceeds	We intend to use the net proceeds from this offering for working capital and other general corporate purposes. See "Use of Proceeds" in the accompanying Prospectus Supplement No. 4.
Symbol for Ordinary Shares on Nasdaq Global Market and Tel-Aviv Stock Exchange	TSEM
Resale	This prospectus supplement, the accompanying Prospectus Supplement No. 4 and the accompanying base prospectus also cover the resale of the ordinary shares by YA Global to the public. See "Plan of Distribution" in the accompanying Prospectus Supplement No. 4.