

TOWER SEMICONDUCTOR LTD
Form 424B3
September 27, 2010

PROSPECTUS

Filed Pursuant to Rule 424(b)(3)
Registration Statement No. 333-169389

25,254,070 Series J Warrants

25,254,070 Ordinary Shares

This prospectus relates to the resale, from time to time, by the selling securityholders named in this prospectus of up to 25,254,070 Series J Warrants and up to 25,254,070 ordinary shares issuable upon exercise of such warrants held by the selling securityholders. This prospectus also relates to the offer and sale by us of up to 25,254,070 ordinary shares issuable upon the exercise of the Series J Warrants by persons other than the persons who acquired the Series J Warrants in the transactions described in the section entitled "Selling Securityholders".

The selling securityholders may sell all or any portion of these warrants in one or more transactions through the over-the-counter market, in privately negotiated transactions or otherwise. The selling securityholders may sell all or any portion of these ordinary shares in one or more transactions through Nasdaq, the Tel Aviv Stock Exchange, in the over-the-counter market, in privately negotiated transactions or otherwise. In addition, the selling securityholders may sell any portion of these ordinary shares or warrants (i) directly to purchasers or through agents, brokers, dealers or underwriters; (ii) at market prices prevailing at the time of sale, at prices related to such prevailing market prices, or at negotiated prices; or (iii) or any other means described in the section entitled "Plan of Distribution."

Our ordinary shares are listed on the NASDAQ Global Market under the symbol "TSEM" and on the Tel Aviv Stock Exchange in Israel under the symbol "TSEM." On September 24, 2010, the last reported sale price of our ordinary shares on the NASDAQ Global Market was \$1.41 per share and on September 26, 2010 the last reported sale price of our ordinary shares on the Tel Aviv Stock Exchange was NIS 5.21 per share. The Series J Warrants are not listed for trading on any established market and we do not expect a trading market for the Series J Warrants to develop.

The securities offered hereby involve a high degree of risk. See "Risk Factors" beginning on page 2.

None of the U.S. Securities and Exchange Commission, the Israeli Securities Authority or any state securities commission have approved or disapproved of these securities or passed upon the adequacy, completeness or accuracy of this prospectus. Any representation to the contrary is a criminal offense under the laws of the United States and the laws of the State of Israel.

The date of this prospectus is September 27, 2010

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ABOUT TOWER SEMICONDUCTOR LTD.

We are a pure-play independent specialty wafer foundry dedicated to the manufacture of semiconductors. Typically, pure-play foundries do not offer products of their own, but focus on producing integrated circuits, or ICs, based on the design specifications of their customers. We manufacture semiconductors for our customers primarily based on third party designs and our own process technology and engineering support. We currently offer the manufacture of ICs with geometries ranging from 1.0 to 0.13-micron. We also provide design services and complementary technical services. ICs manufactured by us are incorporated into a wide range of products in diverse markets, including consumer electronics, personal computers, communications, automotive, industrial and medical device products.

In January 2001, we commenced construction of a state-of-the-art wafer fabrication facility, which we refer to as Fab 2, located in Migdal Haemek, Israel and adjacent to our first facility, Fab 1. In 2003, we completed the infrastructure of Fab 2 and commenced production at this Fab. Fab 2 is designed to operate in geometries of 0.18-micron and below, using advanced materials and advanced CMOS technology licensed from Freescale and Toshiba and other technologies that we developed and will develop independently or with development partners. Depending on the process technology and product mix, when fully ramped-up, we estimate that Fab 2 will be able to achieve capacity levels of approximately 40,000 wafers per month. We have not completed the full ramp-up of Fab 2. The timing of that decision and its implementation will depend upon several factors, including funding, cost and availability of equipment and market conditions.

In September 2008, we acquired Jazz Technologies in a stock for stock transaction. Jazz is an independent semiconductor foundry focused on specialty process technologies for the manufacture of analog and mixed-signal semiconductor devices. Jazz's specialty process technologies include advanced analog, radio frequency, high voltage, bipolar and silicon germanium bipolar complementary metal oxide ("SiGe") semiconductor processes, for the manufacture of analog and mixed-signal semiconductors. Jazz's customers use the analog and mixed-signal semiconductor devices in products they design that are used in cellular phones, wireless local area networking devices, digital TVs, set-top boxes, gaming devices, switches, routers and broadband modems. Jazz operates one semiconductor fabrication facility in Newport Beach, California, in which it currently produces the majority of its products and in which all of Jazz's process research and development is performed.

Our executive offices are located in the Ramat Gavriel Industrial Park, Post Office Box 619, Migdal Haemek, 23105 Israel, and our telephone number is 972-4-650-6611.

Additional information about us and our operations may be found at our web site: www.towerjazz.com. Information on our website is not incorporated by reference in this prospectus.

RISK FACTORS

An investment in our securities is speculative and involves a high degree of risk. Therefore, you should not invest in our securities unless you are able to bear a loss of your entire investment. You should carefully consider the risk factors described in our periodic reports filed with the SEC, including those specified in Exhibit 99.1 to our Report on Form 6-K for the month of September 2010 No. 1, filed with the SEC on September 7, 2010 in the section captioned "Risk Factors", which is incorporated by reference in this prospectus. You should carefully consider those risks together with the other information in this prospectus before deciding to invest in our securities. If any of those risks actually occur, our business, financial condition and results of operations could be materially and adversely affected. In that case, the trading price of our ordinary shares could decline, and you may lose all or part of your investment.

SPECIAL NOTE ON FORWARD-LOOKING STATEMENTS

The statements incorporated by reference or contained in this prospectus discuss our future expectations, contain projections of our results of operations or financial condition, and include other forward-looking information within the meaning of Section 27A of the Securities Act of 1933, as amended. Our actual results may differ materially from those expressed in forward-looking statements made or incorporated by reference in this prospectus. Forward-looking statements that express our beliefs, plans, objectives, assumptions or future events or performance may involve estimates, assumptions, risks and uncertainties. Therefore, our actual results and performance may differ materially from those expressed in the forward-looking statements. Forward-looking statements often, although not always, include words or phrases such as the following: "will likely result," "are expected to," "will continue," "is anticipated," "estimate," "intends," "plans," "projection" and "outlook."

You should not unduly rely on forward-looking statements contained or incorporated by reference in this prospectus. Various factors discussed in this prospectus, including, but not limited to, all the risks discussed in "Risk Factors," and in our other SEC filings may cause actual results or outcomes to differ materially from those expressed in forward-looking statements. You should read and interpret any forward-looking statements together with these documents.

Any forward-looking statement speaks only as of the date on which that statement is made. We will not update any forward-looking statement to reflect events or circumstances that occur after the date on which such statement is made.

CAPITALIZATION

The following table sets forth our long-term debt, debentures and capitalization as of June 30, 2010 on an actual basis. This table was prepared in accordance with the US GAAP and the financial data is derived from our unaudited interim consolidated financial statements as of June 30, 2010.

(US dollars in thousands)

Short term bank loan	\$	12,000
Long-term bank loans		160,941
Debentures		230,580
Long-term customers' advances		7,940
Other long-term liabilities		58,999
Shareholders' equity:		
Ordinary Shares, NIS 1.00 par value per share; 1,100,000,000 authorized shares, 235,812,789 issued shares* and 234,512,789 outstanding shares	\$	59,741
Additional paid-in capital		736,859
Capital notes		311,472
Equity component of convertible debentures and cumulative stock based compensation		25,988
Accumulated other comprehensive loss		(1,472)
Accumulated deficit		(1,054,340)
Treasury stock, 1,300,000 shares		(9,072)
Total shareholders' equity		69,176
Total capitalization	\$	648,232

*Includes 1,300,000 treasury shares

The information set forth on an actual basis in the foregoing table excludes the following securities as of August 31, 2010

- (i) approximately 26.1 million ordinary shares issuable upon exercise of options granted to employees and directors at a weighted average exercise price of \$1.14;
- (ii) 23.4 million ordinary shares issuable upon exercise of options granted to our Chief Executive Officer at a weighted average exercise price of \$1.15;
- (iii) 11.5 million ordinary shares issuable upon exercise of options granted to our Chairman of the Board at an exercise price of \$0.29;
- (iv) 2.5 million ordinary shares issuable upon exercise of warrants issued to our banks with an exercise price of \$2.04 per share exercisable until December 2015;
- (v) 0.9 million ordinary shares issuable upon exercise of warrants issued to our banks in connection with our credit facility with an exercise price of \$6.17 per share exercisable until December 2015;
- (vi) 1.1 million ordinary shares issuable upon exercise of warrants issued to our banks in connection with our credit facility with an exercise price of \$0.89 per share exercisable until December 2015;

- (vii) 26.5 million ordinary shares issuable upon conversion of our debentures convertible series E until January 2013, issued pursuant to our June 2007 public offering in Israel at conversion rate of approximately \$1.10;
- (viii) 8.3 million ordinary shares issuable upon exercise of warrants we issued to our banks with an exercise price of \$1.21 in connection with the July 2005 amendment to our facility agreement exercisable until December 2015;
- (ix) 9.4 million ordinary shares issuable upon conversion of our debentures convertible series B until January 2012, pursuant to the prospectus dated December 15, 2005 at conversion rate of \$1.10;
- (x) 96.4 million ordinary shares issuable upon conversion of the equity equivalent convertible capital notes we issued to each of our two banks and 206.1 million shares issuable upon conversion of such notes issued to Israel Corp.;
- (xi) 8 million ordinary shares issuable upon exercise of warrants series 6, with an exercise price of \$1.06 per share and exercisable until August 2011;
- (xii) 5.2 million ordinary shares issuable upon exercise of warrants series 5 sold in our private placements completed in November 2006, with an exercise price of approximately \$2.7 per share and exercisable until December 2010;
- (xiii) 28.9 million ordinary shares issuable upon conversion of our debentures convertible series C until December 2011, issued pursuant to our June 2006 public offering in Israel at conversion rate of approximately \$1.10;
- (xiv) 5.3 million ordinary shares issuable upon exercise of the warrants series I issued in our March 2007 private placement at exercise price of \$0.74 exercisable until March 2012;
- (xv) 59.5 million ordinary shares issuable upon exercise of warrants, with an exercise price of approximately \$2.78 per share and exercisable until March 2011;
- (xvi) 10.7 million ordinary shares issuable upon conversion of our debentures convertible until December 2011 at conversion rate of \$4.07; and
- (xvii) 25.3 million ordinary shares issuable upon exercise of warrants series J covered by this prospectus, with an exercise price of \$1.70 per share and exercisable until June 2015.

This information does not take into account potential dilutive issuances of securities pursuant to our credit facility agreement and warrants issuable to our banks since the number of shares issuable will depend upon future transactions in which we may engage and/or the market price of our shares and/or other conditions.

USE OF PROCEEDS

All of the proceeds from the sale of the ordinary shares and warrants offered under this prospectus are for the account of the selling securityholders. Accordingly, we will not receive any proceeds from the sales of these securities. We also will not receive any proceeds resulting from the exercise price payable upon the exercise of warrants held by the selling securityholders because all such warrants are exercisable on a net exercise, or “cashless” basis. See “Description of Share Capital—Series J Warrants.”

We have agreed to bear all expenses relating to the registration of the securities registered pursuant to this prospectus.

MARKET FOR OUR ORDINARY SHARES

Our ordinary shares are listed and traded on the NASDAQ Global Market and on the Tel Aviv Stock Exchange (TASE) under the symbol “TSEM”.

The following table sets forth, for the periods indicated, the high and low reported sales prices of the ordinary shares on the NASDAQ Global Market and Tel Aviv Stock Exchange:

Period	NASDAQ Global Market		Tel Aviv Stock Exchange	
	High (\$)	Low (\$)	High (NIS)	Low (NIS)
August 2010	1.66	1.25	6.12	5.25
July 2010	1.50	1.31	5.96	5.15
June 2010	1.60	1.28	6.10	5.02
May 2010	1.74	1.25	6.35	4.90
April 2010	1.73	1.47	6.48	5.61
March 2010	1.87	1.55	7.02	5.82
Third quarter 2010 through September 26, 2010	1.66	1.25	6.12	5.04
Second quarter 2010	1.74	1.25	6.48	4.90
First quarter 2010	1.87	0.99	7.02	3.71
Fourth quarter 2009	1.18	0.89	4.51	3.35
Third quarter 2009	1.49	0.33	5.13	1.36
Second quarter 2009	0.39	0.19	1.49	0.84
First quarter 2009	0.24	0.13	1.02	0.50
Fourth quarter 2008	0.54	0.09	1.91	0.36
Third quarter 2008	0.86	0.43	2.80	1.70
Second quarter 2008	1.25	0.81	4.13	2.75
First quarter 2008	1.45	0.74	5.50	2.63
2009	1.49	0.13	5.13	0.50
2008	1.45	0.09	5.50	0.36
2007	2.08	1.20	8.88	5.25
2006	2.18	1.22	9.14	5.11
2005	2.38	0.92	10.30	5.10

On September 24, 2010, the last reported sale price of our ordinary shares was \$1.41 on the Nasdaq Global Market and on September 26, 2010 the last reported sale price of our ordinary shares was NIS 5.21 on the Tel Aviv Stock Exchange.

PLAN OF DISTRIBUTION

The selling securityholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling ordinary shares, warrants or interests in ordinary shares or warrants received after the date of this prospectus from a selling securityholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their ordinary shares or warrants or interests in ordinary shares or warrants directly or, alternatively, through underwriters, broker-dealers or agents. The selling securityholders may sell their ordinary shares, warrants or interests in ordinary shares or warrants in one or more transactions at fixed prices, at prevailing market prices at the time of sale, at varying prices determined at the time of sale, or at negotiated prices. Such sales may be effected in transactions (which may involve or block transactions) as follows:

- on any national securities exchange or quotation service on which the ordinary shares or warrants may be listed or quoted at the time of sale;
- in the over-the-counter market;
- in transactions otherwise than on such exchanges or services or in the over-the-counter market;
- through the writing of options.

In connection with sales of the ordinary shares and warrants offered by this prospectus or otherwise, the selling securityholders may enter into hedging transactions with broker-dealers, which may in turn engage in short sales of the ordinary shares or warrants in the course of hedging the positions they assume. The selling securityholders may also sell ordinary shares and warrants short and deliver ordinary shares or warrants to close out such short positions, or loan or pledge ordinary shares or warrants to broker-dealers that in turn may sell such securities.

The selling securityholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act of 1933, provided that they meet the criteria and conform to the requirements of that rule.

Under the securities laws of some states, the ordinary shares may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the ordinary shares may not be sold unless they have been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling stockholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the selling securityholders to use commercially reasonable efforts to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (1) July 15, 2011, (2) such time as all of the warrants and ordinary shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement or are no longer outstanding, or (3) when the ordinary shares and warrants are eligible to be sold pursuant to Rule 144 (or any similar provision then in force, but not Rule 144A) under the Securities Act and either (x) the holding period contemplated by Rule 144(d)(ii) has passed or (y) such ordinary shares and warrants are not required to bear, and do not bear, any restrictive legends required by Rule 144.

Expenses of the Offering

We have incurred, or expect to incur, the following estimated expenses in connection with this prospectus:

Securities and Exchange Commission Registration Fees	\$3,061.05
Legal fees and expenses	25,000.00
Miscellaneous	1,000.00
Total	\$29,061.05

SELLING SECURITYHOLDERS

Beneficial ownership and other information.

The selling securityholders acquired their Series J Warrants on July 15, 2010 when we entered into an exchange agreement with our wholly-owned subsidiary, Jazz Technologies, Inc., the U.S. subsidiaries of Jazz and certain holders of approximately \$79.6 million principal amount of Jazz's outstanding 8% convertible notes due 2011. Under the exchange agreement, the selling securityholders agreed to exchange their old notes for \$93.6 million aggregate principal amount of newly-issued 8% notes of Jazz due 2015 and the Series J Warrants to purchase 25,254,070 of our ordinary shares that they are offering by this prospectus. The Series J Warrants are exercisable, on a "cashless" basis only, at any time through June 30, 2015 at an exercise price of \$1.70 per share. The warrants are exercisable on a net exercise or "cashless" basis only.

The term "selling securityholder" includes (i) each person and entity that is identified in the table below (as such table may be amended from time to time by means of an amendment to the registration statement of which this prospectus forms a part) and (ii) any transferee, donee, pledgee or other successor of any person or entity named in the table that acquires any of the warrants or ordinary shares covered by this prospectus in a transaction exempt from the registration requirements of the Securities Act of 1933 and that is identified in a supplement or amendment to this prospectus.

Except as described herein, we have no material relationships with any of the selling securityholders and have not had any material relationships with any of the selling securityholders in the past three years.

Nothing in this Registration Statement shall be construed as an admission that any selling securityholder is the beneficial owner of any of our securities, other than the securities held directly by such party, nor that any selling stockholder or other persons or entities constitute a "group", for purposes of Section 13(d) of the Exchange Act and the rules promulgated thereunder.

Except as set forth in the footnotes to the table, other than the warrants and ordinary shares covered by this prospectus and offered hereby, none of the selling securityholders beneficially owns any of our ordinary shares or other securities or will beneficially own any such securities after completion of the offering. Our registration of the securities covered by this prospectus does not necessarily mean that the selling securityholders will sell any or all of the securities. Information included in the table is based upon information provided by the selling stockholders.

The table indicates that the selling securityholders include “Additional selling securityholders that may hereafter be identified.” We do not currently know the identity of these additional selling securityholders. An additional selling securityholder may not use this prospectus to resell securities, unless and until the table is updated to specifically identify such selling securityholder. Any such updating will be effected through an amendment to the registration statement of which this prospectus forms a part and not by means of a prospectus supplement, unless otherwise permitted by the SEC.

Except as otherwise noted below none of the selling securityholders are broker-dealers or affiliates of broker-dealers.

The percentages in the following table are based on 25,254,070 Series J Warrants and 255.0 million ordinary shares outstanding as of August 31, 2010.

Names and Addresses	Securities Beneficially Owned Prior to Offering and Offered by this Prospectus			
	Warrants		Shares	
	Number	Percentage	Number	Percentage
Century National Insurance Company (1)	767,745	3.0	767,745	*
Hy-Vee Employees’ Trust (2)	11,104	*	11,104	*
Interpolis Pensioen Global High Yield Pool (3)	136,418	*	136,418	*
LGT Capital Invest (SC3) Limited – U.S. High Yield Convertible (3)	42,829	*	42,829	*
LGT Multi Manager Bond High Yield (USD) (3)	283,305	1.1	283,305	*
Lockheed Martin Corporation Master Retirement Trust (1)	593,258	2.3	593,258	*
Marsh & McLennan Companies, Inc. U.S. Retirement Plan – High Yield (3)	53,933	*	53,933	*
Meijer (2)	9,518	*	9,518	*
National Railroad Retirement Investment Trust (1)	1,903,500	7.5	1,903,500	*
Ohio Tuition Trust Authority – Ohio Variable College Savings Trust Fund – Putnam CollegeAdvantage GAA Balanced Portfolio (3)	11,421	*	11,421	*
Ohio Tuition Trust Authority – Ohio Variable College Savings Trust Fund – Putnam CollegeAdvantage GAA Conservative Portfolio (3)	29,187	*	29,187	*

Securities Beneficially Owned Prior to Offering and
Offered by this Prospectus

Names and Addresses	Warrants		Shares	
	Number	Percentage	Number	Percentage
Ohio Tuition Trust Authority – Ohio Variable College Savings Trust Fund – Putnam CollegeAdvantage GAA Growth Portfolio(3)	34,581	*	34,581	*
Principal Funds, Inc. – Bond & Mortgage Securities Fund (2)	345,803	1.4	345,803	*
Principal Funds, Inc. – High Yield Fund (2)	3,821,912	15.1	3,821,912	1.5
Principal Global Investors Fund – High Yield Fund (2)	17,449	*	17,449	*
Principal Global Investors Trust – High Yield Fixed Income Fund (2)	23,794	*	23,794	*
Principal Life Insurance Company On Behalf of One or More Separate Accounts (Principal Life Insurance Company, DBA Bond & Mortgage Separate Account) (2) (4)	732,848	2.9	732,848	*
Principal Life Insurance Company On Behalf of One or More Separate Accounts (Principal Life Insurance Company, DBA Ultra Long Separate Account) (2) (4)	1,587	*	1,587	*
Principal Variable Contract Funds, Inc. Balanced (2)	1,587	*	1,587	*
Principal Variable Contracts Funds, Inc. – Bond & Mortgage Securities Account (2)	47,588	*	47,588	*
Putnam Convertible Income-Growth Trust(3)	1,085,630	4.3	1,085,630	*
Putnam High Yield Trust (3)	672,570	2.7	672,570	*
Putnam High Income Securities Fund (3)	168,777	*	168,777	*
Putnam Variable Trust – Putnam VT High Yield Fund (3)	192,571	*	192,571	*
Putnam Variable Trust – Putnam VT Global Asset Allocation Fund (3)	7,932	*	7,932	*
Putnam Asset Allocation: Growth Portfolio (3)	49,174	*	49,174	*
Putnam Asset Allocation: Balanced Portfolio (3)	50,760	*	50,760	*
Putnam Asset Allocation: Conservative Portfolio(3)	34,898	*	34,898	*

Securities Beneficially Owned Prior to Offering and
Offered by this Prospectus

Names and Addresses	Warrants		Shares	
	Number	Percentage	Number	Percentage
Putnam Income Strategies Fund (3)	6,345	*	6,345	*
Putnam High Yield Fixed Income Fund, LLC (3)	3,490	*	3,490	*
Putnam World Trust – Putnam Global High Yield Bond Fund (3)	153,867	*	153,867	*
Putnam Retirement Advantage GAA Balanced Portfolio (3)	4,759	*	4,759	*
Putnam Retirement Advantage GAA Growth Portfolio (3)	4,759	*	4,759	*
Quattro Distressed Opportunities Fund, L.P. (5)	50,761	*	50,761	*
Quattro Fund, Ltd. (5)	225,114	1.5	225,114	*
Qwest Occupational Health Trust (1)	142,763	*	142,763	*
Qwest Pension Trust(1)	618,638	2.4	618,638	*
RockView Short Alpha Fund Ltd. (6)	237,938	*	237,938	(7) *
RockView Trading Ltd. (8)	2,212,820 (9)	8.8	2,212,820 (9)	*
Seasons Series Trust (Sun America) – Asset Allocation: Diversified Growth Portfolio (3)	6,345	*	6,345	*
San Diego County Employees Retirement Association (1)	653,535	2.6	653,535	*
SPM Opportunity Master Fund, L.P. (10)	1,840,050	7.3	1,840,050	*
Stichting Pensioenfondsvoor Fysiotherapeuten (3)	38,070	*	38,070	*
Tennenbaum Multi-Strategy Master Fund(11)	951,433	3.8	951,433	*
Virginia Retirement System (1)	3,160,128	12.5	3,160,128	1.2
The Washington University (1)	881,955	3.5	881,955	*
Zazove Aggressive Growth Fund, L.P. (1)	1,373,693	5.4	1,373,693	*
Zazove High Yield Convertible Securities Fund, L.P. (1)	1,337,209	5.3	1,337,209	*
Additional selling securityholders that may hereafter be identified	218,719	*	218,719	*
Total	25,254,070	100 %	25,254,070	9.0 %

* Represents less than 1.0%.

(1) The address of this selling securityholder is 1033 Skokie Blvd., Suite 310, Northbrook, IL 60062. Gene T. Pretti of Zazove Associates, LLC, a registered investment advisor with discretionary authority, has or shares voting or investment control over the securities and, in such capacity, may be deemed to share beneficial ownership over the securities.

(2) The address of this selling securityholder is c/o Principal Global Investors, LLC, 801 Grand Avenue G-26, Des Moines, Iowa 50392-0800. Principal Global Investors, LLC acts investment advisor to the selling security holder. Principal Global Investors, LLC is an indirectly wholly-owned subsidiary of Principal Financial Group, a publicly traded company.

(3) The address of this selling securityholder is c/o Putnam Investments, One Post Office Square, Boston, MA 02109. The selling securityholder's accounts are managed by Putnam Investment Management, LLC, The Putnam Advisory Company, LLC, or Putnam Fiduciary Trust Company, which through a series of holding companies, are owned by Great-West Lifeco Inc., a publicly traded company.

(4) This selling securityholder is an affiliate of a broker-dealer. This selling securityholder has represented to us that it (i) acquired the warrants in the ordinary course of business and (ii) did not have an agreement or understanding, directly or indirectly, with any person to distribute the warrants or the underlying ordinary shares at the time it acquired the warrants.

(5) The address of this selling securityholder is c/o Quattro Global Capital, LLC, 546 Fifth Avenue, 19th Floor, New York, NY 10036. Brian Swain is the managing members of Quattro Global Capital, LLC, the investment advisor to the selling securityholder and has voting and investment control over these securities. Quattro Global Capital, LLC and Mr. Swain disclaim any beneficial ownership, except to the extent of their respective pecuniary interest.

(6) The address of this selling securityholder is c/o RockView Capital, Metro Center, One Station Place, 7th Floor, Stamford, CT 06902. Kevin Schweitzer is the managing member of Zabak Capital, LLC and holds sole voting and dispositive power over the shares held by RockView Short Alpha Fund Ltd. Zabak Capital, LLC is the managing member of RockView Management LLC, which is the investment manager to RockView Short Alpha Fund Ltd. Mr. Schweitzer disclaims beneficial ownership over the shares held by RockView Short Alpha Fund Ltd.

(7) Does not include 20,000 of our ordinary shares registered in the name of this selling security holder which are not offered pursuant to this prospectus and which will continue to be beneficially owned by the selling securityholder after completion of the offering.

(8) The address of this selling securityholder is c/o RockView Capital, Metro Center, One Station Place, 7th Floor, Stamford, CT 06902. Kevin Schweitzer is the managing member of Zabak Capital, LLC and holds sole voting and dispositive power over the shares held by RockView Trading, Ltd. Zabak Capital, LLC is the managing member of RockView Management LLC, which is the investment manager to RockView Trading, Ltd. Mr. Schweitzer disclaims beneficial ownership over the shares held by RockView Trading, Ltd.

(9) Does not include 139,400 of our ordinary shares and warrants to acquire 54,300 of our ordinary shares at \$2.78 per share until March 2011 registered in the name of this selling security holder which are not offered pursuant to this prospectus and which will continue to be beneficially owned by the selling securityholder after completion of the offering.

(10) Donald Brownstein has or shares voting or dispositive power over warrants and ordinary shares held by SPM Opportunity Master Fund, L.P.

(11) The address of this selling securityholder is c/o Tennenbaum Capital Partners LLC, 2951 28th, Street, Suite 1000, Santa Monica, CA 90405. Represents 951,433 warrants held by Tennenbaum Multi-Strategy Master Fund. Tennenbaum Capital Partners, LLC is the investment manager of Tennenbaum Multi-Strategy Master Fund, and may be deemed to be the beneficial owner of the securities held by Tennenbaum Multi-Strategy Master Fund. Tennenbaum Capital Partners, LLC, however, disclaims beneficial ownership of these securities, except to the extent of its pecuniary interest therein.

DESCRIPTION OF SHARE CAPITAL

Ordinary Shares

Our authorized share capital consists of 1.1 billion ordinary shares, par value NIS 1.00 per share. Under our articles of association, the ordinary shares do not have preemptive rights. We may from time to time, by approval of a majority of our shareholders, increase our authorized share capital. All ordinary shares are registered shares, rather than bearer shares.

The ownership or voting rights of our ordinary shares by non-residents of Israel is not restricted in any way by our memorandum of association or articles of association. The State of Israel does not restrict in any way the ownership or voting rights of ordinary shares of Israeli entities by non-residents of Israel, except with respect to subjects of countries that are in a state of war with Israel. Our ordinary shares do not have cumulative voting rights for the election of directors. The affirmative vote of the shareholders present in person or by proxy that represent more than 50% of the voting power present in person or by proxy have the power to elect all nominees up for election to our board of directors. The election of an external director also requires that either: (i) this majority include the affirmative vote of at least one-third of the shares held by non-controlling shareholders; or (ii) the total number of shares held by non-controlling shareholders that voted against the election of the nominee external director does not exceed one percent of the aggregate voting rights in the company.

In the event of our liquidation, after satisfaction of liabilities to creditors, our assets will be distributed to the holders of our ordinary shares in proportion to the nominal value of their respective holdings. This liquidation right may be affected by the grant of a preferential dividend or distribution right to the holder of a class of shares with preferential rights that may be authorized in the future. Dividends may be paid only out of profits, as defined in the Israeli Companies Law. Our Board of Directors is authorized to declare dividends, although our bank covenants currently in effect prohibit the payment of dividends on our ordinary shares, unless such payments are approved by our banks.

Holders of ordinary shares have one vote for each ordinary share held on all matters submitted to a vote of shareholders. Subject to the provisions set forth in Section 46B of the Israeli Securities Law, these voting rights may be affected by the grant of any special voting rights to the holders of a class of shares with preferential rights that may be authorized in the future. Our major shareholders do not have different voting rights from each other or other shareholders. However, certain of our shareholders have entered into a shareholders agreement pursuant to which they may be able to exercise control over matters requiring shareholder approval, including the election of directors.

Resolutions of shareholders (e.g. resolutions amending our articles of association, electing or removing directors, appointing an independent registered public accounting firm, authorizing changes in capitalization or the rights attached to our shares or approving a wind-up or merger), in general, require the affirmative vote (at a meeting convened upon advance notice of no less than thirty five days) of shareholders present in person or by proxy and holding shares conferring, in the aggregate, at least a majority of the votes actually cast on such resolutions.

The quorum required for a meeting of shareholders is at least two shareholders present, in person or by proxy, within half an hour of the time fixed for the meeting's commencement that together hold shares conferring in the aggregate more than 33% of the total voting power of our shares. A meeting adjourned for lack of a quorum is adjourned to the same day in the following week at the same time and place. At the reconvened meeting, in the event a quorum is not present within half an hour of the time fixed for the meeting's commencement, the persons present shall constitute a quorum.

Our registration number at the Israeli Registrar of Companies is 52-004199-7.

The objective stated in our memorandum of association and our articles of association is to engage in any lawful activity.

Modification or abrogation of the rights of any existing class of shares requires either the written consent of all of the holders of the issued shares of such class or the adoption of a resolution by an ordinary majority of a general meeting of holders of such class. The quorum required for a class meeting is at least two shareholders present, in person or by proxy, within half an hour of the time fixed for the meeting's commencement that together hold shares conferring in the aggregate at least 51% of the total voting power of the issued shares of such class. If no quorum is present, the meeting shall be adjourned to another time and at the adjourned meeting a quorum shall be constituted in the presence of any number of participants, regardless of the number of shares held by them.

We had 255.0 million ordinary shares outstanding as of August 31, 2010. The above number of outstanding ordinary shares does not include 1.3 million treasury shares held by us through a trustee.

The transfer agent and registrar for our ordinary shares is American Stock Transfer & Trust Company, 59 Maiden Lane, New York, New York 10007.

Series J Warrants

On July 15, 2010, we closed under an exchange agreement with our wholly-owned subsidiary, Jazz Technologies, Inc., the U.S. subsidiaries of Jazz and certain holders of approximately \$79.6 million principal amount of Jazz's outstanding 8% convertible notes due 2011. Under the exchange agreement, the participating holders exchanged their old notes for \$93.6 million in aggregate principal amount of newly-issued 8% notes of Jazz due 2015 and the Series J Warrants to purchase 25,254,070 of our ordinary shares that are offered by the selling securityholders in this prospectus.

The Series J Warrants, are governed by a Warrant Agreement between Tower and American Stock Transfer & Trust Company, LLC, as warrant agent. The Series J Warrants are exercisable, on a "cashless basis" only, at any time through June 30, 2015 at an exercise price of \$1.70 per share, which represents an approximate 20% premium over the average of the volume weighted average prices for the ordinary shares for the 15 trading days preceding execution of the exchange agreement. Because the warrants are exercisable on a net exercise or "cashless" basis, we will receive no proceeds from their exercise. Instead, in lieu of the stated exercise price the exercising holder will surrender to us for cancellation a portion of the warrants equal to the fair market value of the shares to be issued in consideration for payment of the exercise price. The exercise price and number of shares issuable upon exercise of the Series J Warrants are subject to adjustment in certain cases. Upon the occurrence of a "change of control" or "termination of trading", each holder of Series J Warrants has the right to cause us to repurchase all or any portion of such holder's Series J Warrants as determined under the warrant agreement. Except under certain circumstances, we have the right to fund the repurchase price in ordinary shares, valued at 97% of market price or, under certain circumstances, fair market value as determined by an investment bank selected in accordance with the terms of the Series J Warrants. The description of the Series J Warrants is qualified by reference to the Warrant Agreement for the Series J Warrants and the form of

Warrants which are filed as exhibits to the registration statement of which this prospectus forms a part.

LEGAL MATTERS

The validity of the securities offered in this prospectus will be passed upon for us by Yigal Arnon & Co., our Israeli counsel. In addition, certain other matters in connection with this offering with respect to United States law will be passed upon for us by Eilenberg & Krause LLP, our U.S. counsel.

EXPERTS

The consolidated financial statements, incorporated in this prospectus by reference from our Annual Report on Form 20-F and the effectiveness of our internal control over financial reporting have been audited by Brightman Almagor Zohar & Co., a member firm of Deloitte Touche Tohmatsu, an independent registered public accounting firm, as stated in their reports, which are incorporated herein by reference. Such financial statements have been so incorporated in reliance upon the reports of such firm given upon their authority as experts in accounting and auditing.

ENFORCEABILITY OF CIVIL LIABILITIES AND AGENT FOR SERVICE OF PROCESS IN THE UNITED STATES

We are incorporated in Israel, most of our executive officers and directors and the Israeli experts named herein are nonresidents of the United States, and a substantial portion of our assets and of such persons' are located outside the United States. For further information regarding enforceability of civil liabilities against us and other persons, see the discussions in Item 3 of our Annual Report on Form 20-F for the year ended December 31, 2009 under the caption "Risk Factors —Risks Related to Our Operations in Israel — It may be difficult to enforce a U.S. judgment against us, our officers and directors and some of the experts named in this prospectus or to assert U.S. securities law claims in Israel."

WHERE YOU CAN FIND MORE INFORMATION; INCORPORATION OF INFORMATION BY REFERENCE

We have filed a registration statement on Form F-3 with the Securities and Exchange Commission in connection with this offering. In addition, we file reports with, and furnish information to, the Securities and Exchange Commission. You may read and copy the registration statement and any other documents we have filed at the Securities and Exchange Commission, including any exhibits and schedules, at the Securities and Exchange Commission's public reference room at 100 F Street N.E., Washington, D.C. 20549. You may call the Securities and Exchange Commission at 1-800-SEC-0330 for further information on this public reference room. As a foreign private issuer, all documents which were filed after November 4, 2002 on the Securities and Exchange Commission's EDGAR system are available for retrieval on the Securities and Exchange Commission's website at www.sec.gov. These Securities and Exchange Commission filings are also available to the public on the Israel Securities Authority's Magna website at www.magna.isa.gov.il and from commercial document retrieval services. We also generally make available on our own web site (www.towersemi.com) our quarterly and year-end financial statements as well as other information.

This prospectus is part of the registration statement and does not contain all of the information included in the registration statement. Whenever a reference is made in this prospectus to any of our contracts or other documents, the reference may not be complete and, for a copy of the contract or document, you should refer to the exhibits that are a part of the registration statement.

The Securities and Exchange Commission allows us to "incorporate by reference" into this prospectus the information we file with it, which means that we can disclose important information to you by referring you to those documents. Information incorporated by reference is part of this prospectus. We incorporate by reference the documents listed below and amendments to them. These documents and their amendments were previously filed with the Securities and Exchange Commission.

This prospectus will be deemed to incorporate by reference the following documents previously filed by us with the Securities and Exchange Commission:

- Annual report on Form 20-F for the year ended December 31, 2009, filed on April 30, 2010, to the extent the information in that report has not been updated or superseded by this prospectus;
- Report on Form 6-K dated August 2010 No. 2 (filed on August 13, 2010);
- Report on Form 6-K dated September 2010 No. 1 (filed on September 7, 2010); and
- any report on Form 6-K, or parts thereof, meeting the requirements of Form F-3 filed after the date of the initial registration statement and prior to its effectiveness, which states that it, or any part thereof, is being incorporated by reference herein.

This prospectus shall also be deemed to incorporate by reference all subsequent annual reports filed on Form 20-F, Form 40-F or Form 10-K, and all subsequent filings on Forms 10-Q and 8-K filed by the registrant pursuant to the Exchange Act, prior to the termination of the offering made by this prospectus. We may incorporate by reference into this prospectus, any Form 6-K meeting the requirements of Form F-3 which is submitted to the Securities and Exchange Commission after the date of the filing of the registration statement being filed in connection with this offering and before the date of termination of this offering. Any such Form 6-K which we intend to so incorporate shall state in such form that it is being incorporated by reference into this prospectus.

We will provide to each person, including any beneficial owner, to whom this prospectus is delivered, a copy of these filings, at no cost, upon written or oral request to us at: Ramat Gavriel Industrial Park, Post Office Box 619, Migdal Haemek, 23105 Israel, Attn: Corporate Secretary, telephone number: 972-4-650-6109. Copies of these filings may also be accessed at our website, www.towerjazz.com. Click on "Investor Relations" and then "Filings."

A copy of this prospectus, our memorandum of association and our articles of association, are available for inspection at our offices at Shaul Amor Avenue, Ramat Gavriel Industrial Park, Migdal Haemek, Israel and on the Israel Securities Authority's Magna website, www.magna.isa.gov.il.

As a foreign private issuer, we are exempt from the rules under Section 14 of the Exchange Act prescribing the furnishing and content of proxy statements and our officers, directors and principal shareholders are exempt from the reporting and other provisions in Section 16 of the Exchange Act.

25,254,070 Series J Warrants

25,254,070 Ordinary Shares

PROSPECTUS

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone to provide you with different information. We are not making any offer to sell or buy any of the securities in any state where the offer or sale is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date that appears below.

September 27, 2010
