UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 OF THE SECURITIES EXCHANGE ACT OF 1934

For the month of August 2026 No.4

Commission File Number 000-24790

TOWER SEMICONDUCTOR LTD.
(Translation of registrant's name into English)

Ramat Gavriel Industrial Park
P.O. Box 619, Migdal Haemek, Israel 2310502
(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 ☐

On August 17, 2026, the Registrant issued unaudited condensed interim consolidated financial statements as of June 30, 2026, and for the six- and three-month periods then ended. Attached hereto are the following exhibits.

Exhibit 99.1	Registrant's unaudited condensed interim consolidated financial statements as of June 30, 2026.
Exhibit 99.2	Management's Discussion and Analysis of Financial Condition and Results of Operations.

This Form 6-K, including all exhibits hereto, is hereby incorporated by reference into the Registrant's Registration Statements on Form S-8 (Registration Nos. 333-204173 and 333-277536).

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 17, 2026

By: /s/ Nati Somekh
Name: Nati Somekh
Title: Corporate Secretary

Exhibit 99.1

TOWER SEMICONDUCTOR LTD.
AND SUBSIDIARIES

UNAUDITED CONDENSED INTERIM
CONSOLIDATED FINANCIAL STATEMENTS
AS OF JUNE 30, 2026

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES

INDEX TO UNAUDITED CONDENSED INTERIM CONSOLIDATED FINANCIAL STATEMENTS AS OF JUNE 30, 2026

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

	June 30, 2026	December 31, 2025
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 231,188	$ 235,369
Short-term deposits	1,250,225	916,541
Trade accounts receivable	202,871	222,795
Inventories	244,356	256,855
Other current assets	57,330	78,062
Total current assets	1,985,970	1,709,622
PROPERTY AND EQUIPMENT, NET	1,649,600	1,463,056
INTANGIBLE ASSETS, NET	886	1,530
GOODWILL	7,000	7,000
OTHER LONG-TERM ASSETS, NET	127,980	141,082
TOTAL ASSETS	$ 3,771,436	$ 3,322,290
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES		
Current maturities of long-term debt	$ 16,921	$ 28,112
Trade accounts payable	122,605	123,915
Deferred revenue and customers' advances	176,038	25,581
Employee related liabilities	74,398	70,299
Other current liabilities	14,249	15,840
Total current liabilities	404,211	263,747
LONG-TERM DEBT	124,775	133,406
LONG-TERM CUSTOMERS' ADVANCES	145,368	1,932
EMPLOYEE RELATED LIABILITIES	10,186	6,448
OTHER LONG-TERM LIABILITIES	15,524	12,174
TOTAL LIABILITIES	700,064	417,707
TOTAL SHAREHOLDERS' EQUITY	3,071,372	2,904,583
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$ 3,771,436	$ 3,322,290

See notes to the consolidated financial statements.

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

	Six months ended June 30,		Three months ended June 30,	
	2026	2025	2026	2025
REVENUE	$ 873,710	$ 730,231	$ 460,079	$ 372,061
COST OF REVENUE	624,987	577,034	322,307	292,035
GROSS PROFIT	248,723	153,197	137,772	80,026
OPERATING COSTS AND EXPENSES:				
Research and development	47,099	39,590	23,569	19,418
Marketing, general and administrative	46,769	40,844	23,913	20,743
	93,868	80,434	47,482	40,161
OPERATING PROFIT	154,855	72,763	90,290	39,865
FINANCING AND OTHER INCOME, NET	25,420	24,985	15,902	14,387
PROFIT BEFORE INCOME TAX	180,275	97,748	106,192	54,252
INCOME TAX EXPENSE, NET	(22,091)	(12,439)	(15,573)	(8,660)
NET PROFIT	158,184	85,309	90,619	45,592
Net loss (income) attributable to non-controlling interest	(2,383)	1,384	150	959
NET PROFIT ATTRIBUTABLE TO THE COMPANY	$ 155,801	$ 86,693	$ 90,769	$ 46,551
BASIC EARNINGS PER SHARE:				
Earnings per share	$ 1.38	$ 0.78	$ 0.80	$ 0.42
Weighted average number of shares	112,738	111,693	112,910	111,810
DILUTED EARNINGS PER SHARE:				
Earnings per share	$ 1.36	$ 0.77	$ 0.79	$ 0.41
Weighted average number of shares used for diluted earnings per share	114,340	113,218	114,427	113,282

See notes to the consolidated financial statements.

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES
CONDENSED INTERIM CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS) (UNAUDITED)
(dollars in thousands)

	Six months ended June 30,	
	2026	2025
Net profit	$ 158,184	$ 85,309
Other comprehensive income, net of tax:		
Foreign currency translation adjustment	(9,162)	17,087
Unrealized gain (loss) on derivatives	(1,097)	11,660
Change in employees plan assets and benefit obligations	(8)	43
Comprehensive income	147,917	114,099
Comprehensive loss (income) attributable to non-controlling interest	57	(4,436)
Comprehensive income attributable to the Company	$ 147,974	$ 109,663

See notes to the consolidated financial statements.

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES
CONDENSED INTERIM CONSOLIDATED STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY (UNAUDITED)
(dollars and share data in thousands)

	THE COMPANY'S SHAREHOLDERS' EQUITY										
	Ordinary shares issued	Ordinary shares amount	Additional paid-in capital	Cumulative stock based compensation	Accumulated other comprehensive income	Foreign currency translation adjustments	Accumulated profit	Treasury stock	Total comprehensive income	Non controlling interest	Total
BALANCE AS OF JANUARY 1, 2026	112,621	$ 450,905	$1,373,643	$ 274,319	$ 4,704	$ (71,161)	$ 895,949	$ (9,072)		$ (14,704)	$2,904,583
Changes during the period:											
Issuance of ordinary shares upon vesting of RSUs	497	2,457	(2,457)								--
Employee stock-based compensation				18,872							18,872
Comprehensive income:											
Net profit							155,801		$ 155,801	2,383	158,184
Foreign currency translation adjustments						(6,722)			(6,722)	(2,440)	(9,162)
Unrealized loss on derivatives					(1,097)				(1,097)		(1,097)
Change in employees plan assets and benefit obligations					(8)				(8)		(8)
Comprehensive income									$ 147,974		
BALANCE AS OF JUNE 30, 2026	113,118	$ 453,362	$1,371,186	$ 293,191	$ 3,599	$ (77,883)	$ 1,051,750	$ (9,072)		$ (14,761)	$3,071,372
OUTSTANDING SHARES, NET OF TREASURY STOCK AS OF JUNE 30, 2026	113,031										

See notes to the consolidated financial statements.

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES
CONDENSED INTERIM CONSOLIDATED STATEMENTS OF CASH FLOWS (UNAUDITED)
(dollars in thousands)

	Six months ended June 30, 2026	Six months ended June 30, 2025
CASH FLOWS - OPERATING ACTIVITIES		
Net profit for the period	$ 158,184	$ 85,309
Adjustments to reconcile net profit for the period to net cash provided by operating activities:		
Income and expense items not involving cash flows:		
Depreciation and amortization	166,499	148,864
Other expense, net	7,237	4,117
Changes in assets and liabilities, net:		
Trade accounts receivable	19,186	(1,382)
Other current assets	16,797	620
Inventories	9,857	(11,873)
Other long term assets	8,978	63
Trade accounts payable	(2,990)	(2,959)
Deferred revenue	11,311	1,179
Employee related liabilities and other current liabilities	2,229	9,298
Long-term employee related liabilities	3,722	607
Other long-term liabilities	3,342	(4,414)
Increase (decrease) in customers' advances, net	282,582	(12,908)
Net cash provided by operating activities	686,934(1)	216,521
(1) Includes an increase of $282,582 in customers' advances, net.		
CASH FLOWS - INVESTING ACTIVITIES		
Investments in property and equipment, net	(342,953)	(222,093)
Deposits and other investments, net	(330,000)	16,470
Net cash used in investing activities	(672,953)	(205,623)
CASH FLOWS - FINANCING ACTIVITIES		
Proceeds from loans	--	13,808
Loans repayment	--	(19,819)
Principal payments on account of capital lease obligation	(15,693)	(15,759)
Net cash used in financing activities	(15,693)	(21,770)
EFFECT OF FOREIGN CURRENCY EXCHANGE RATE CHANGE	(2,469)	4,271
DECREASE IN CASH AND CASH EQUIVALENTS	(4,181)	(6,601)
CASH AND CASH EQUIVALENTS - BEGINNING OF PERIOD	235,369	271,894
CASH AND CASH EQUIVALENTS - END OF PERIOD	$ 231,188	$ 265,293

See notes to the consolidated financial statements.

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES
CONDENSED INTERIM CONSOLIDATED STATEMENTS OF CASH FLOWS (UNAUDITED)
(dollars in thousands)

	Six months ended June 30,	
	2026	2025
NON-CASH ACTIVITIES:		
Investments in property and equipment	$ 51,111	$ 38,518
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:		
Cash received from interest, net during the period	$ 20,170	$ 12,365
Cash paid for income tax, net during the period	$ 8,603	$ 8,461

See notes to the consolidated financial statements.

NOTE 1 - GENERAL

Basis for Presentation

The unaudited condensed interim consolidated financial statements of Tower Semiconductor Ltd. ("Tower" or the "Company") as of June 30, 2026 and for the three and six months ended June 30, 2026 and June 30, 2025 include the financial statements of Tower and (i) its wholly-owned subsidiary Tower US Holdings Inc., the sole owner of: (1) Tower Semiconductor NPB Holdings, Inc., Tower Semiconductor Newport Beach, Inc., an independent semiconductor foundry, and its wholly-owned subsidiary Newport Fab LLC (Tower Semiconductor NPB Holdings, Inc., Tower Semiconductor Newport Beach, Inc. and Newport Fab LLC, collectively referred to herein as "TSNB"); and (2) Tower Semiconductor San Antonio, Inc. ("TSSA"); (ii) its 51% owned subsidiary, Tower Partners Semiconductor Co., Ltd. ("TPSCo"), an independent semiconductor foundry which operates two semiconductor facilities located in Tonami and Uozu in Hokuriku Japan), with the other 49% of TPSCo's shares held by Nuvoton Technology Corporation Japan ("NTCJ"); and (iii) its wholly-owned subsidiary, Tower Semiconductor Italy S.r.l. ("TSIT"), incorporated in 2021 following the collaborative arrangement signed in 2021 with ST Microelectronics S.r.l ("ST") with regards to ST's 300 mm facility in Agrate, Italy.

The Company's unaudited condensed interim consolidated financial statements are presented after elimination of inter-company transactions and balances and are presented in accordance with U.S. generally accepted accounting principles ("US GAAP").

The unaudited condensed interim consolidated financial statements of the Company should be read in conjunction with the audited consolidated financial statements of the Company as of December 31, 2025 and for the year then ended, including the notes thereto.

In the opinion of the Company's management, the unaudited condensed interim consolidated financial statements include all adjustments necessary for a fair presentation of the Company's financial position as of the dates presented and results of operations for the interim periods presented. The results of operations for the interim periods are not necessarily indicative of the results to be expected on a full-year basis.

(dollars in thousands, except per share data)

NOTE 2 - INVENTORY

Inventories consist of the following as of June 30, 2026 and December 31, 2025:

Details	June 30, 2026	December 31, 2025
Raw materials	$ 76,443	$ 105,301
Work in process	154,876	144,373
Finished goods	13,037	7,181
	$ 244,356	$ 256,855

NOTE 3 - RECENT DEVELOPMENTS

On March 25, 2026, the Company and NTCJ entered into a framework agreement to implement a strategic restructuring of TPSCo's business operations, under which Tower will acquire full ownership and operational control of the Uozu fab while the Tonami fab will remain within TPSCo, which will become a wholly owned subsidiary of NTCJ, for consideration of a $25,000 payment by NTCJ to Tower to be made on the closing date. The transaction is expected to close on April 1, 2027, subject to the satisfaction of customary closing conditions and receipt of applicable regulatory approvals. Under the new structure, Tower's new wholly owned subsidiary in Japan ("TSJPN") will own all Fab 7 (300mm) manufacturing production tools, and manage all Fab 7 operations, employees and business activities.

In March 2026, GlobalFoundries Inc. filed three lawsuits against the Company in the U.S. International Trade Commission (ITC) and the United States District Court for the Western District of Texas alleging infringement of certain of its patents. Thereafter, an additional lawsuit has been filed by GlobalFoundries in China with respect to alleged infringement of a Chinese patent which is a counterpart of one of the patents in the ITC case. The Company disputes these claims.

In July 2026, the Company announced its intention to expand its 300mm Silicon Photonics (SiPho) and Silicon Germanium (SiGe) capacity and capabilities in Japan with the support of the Government of Japan through cash grants that are expected to be received from its Ministry of Economy, Trade and Industry (METI). The plan consists of repurposing the Arai facility, formerly Fab 6 (a 200mm fab that ceased its operations in 2022), for 300mm Silicon Photonics manufacturing, maximizing the existing Fab 7 300mm output in Uozu, and a planned additional 300mm manufacturing facility that may be built adjacent to Fab 7, following signing and closing of related agreements with contractors and other service and equipment providers, obtaining necessary permits, finalizing METI grants terms and covenants thereto and other consents that may be required.

Exhibit 99.2

TOWER SEMICONDUCTOR LTD. AND SUBSIDIARIES
MANAGEMENT'S DISCUSSION AND ANALYSIS OF
FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The information contained in this section should be read in conjunction with (1) our unaudited condensed interim consolidated financial statements as of June 30, 2026 and for the six months ended June 30, 2026 and 2025 and related notes included in this report and (2) our audited consolidated financial statements and related notes included in our Annual Report on Form 20-F for the year ended December 31, 2025 and the other information contained in such annual report, particularly the information in Item 5 - "Operating and Financial Review and Prospects". Our financial statements have been prepared in accordance with generally accepted accounting principles in the United States ("US GAAP").

Results of Operations

The following table sets forth certain statement of operations data as a percentage of total revenue for the six months ended June 30, 2026 and 2025:

Details	2026	2025
Revenue	100%	100%
Cost of revenue	71.5	79.0
Gross profit	28.5	21.0
Research and development	5.4	5.4
Marketing, general and administrative	5.4	5.6
Operating profit	17.7	10.0
Financing and other income, net	2.9	3.4
Profit before income tax	20.6	13.4
Income tax expense, net	(2.5)	(1.7)
Net profit	18.1	11.7
Net loss (income) attributable to non-controlling interest	(0.3)	0.2
Net profit attributable to the company	17.8%	11.9%

The following table sets forth certain statement of operations data for the six months ended June 30, 2026 and 2025 (dollars in thousands):

Details	2026	2025
Revenue	$ 873,710	$ 730,231
Cost of revenue	624,987	577,034
Gross profit	248,723	153,197
Research and development	47,099	39,590
Marketing, general and administrative	46,769	40,844
Operating profit	154,855	72,763
Financing and other income, net	25,420	24,985
Profit before income tax	180,275	97,748
Income tax expense, net	(22,091)	(12,439)
Net profit	158,184	85,309
Net loss (income) attributable to non-controlling interest	(2,383)	1,384
Net profit attributable to the company	$ 155,801	$ 86,693

Six months ended June 30, 2026 compared to six months ended June 30, 2025

Revenue

Revenue for the six months ended June 30, 2026 amounted to $873.7 million, as compared to $730.2 million for the six months ended June 30, 2025, reflecting a $143.5 million or about 19.6% year-over-year revenue increase. The $143.5 million revenue increase is mostly due to a higher average selling price associated with a different product mix shipped in the six months ended June 30, 2026 as compared to the six months ended June 30, 2025 (especially more SiPho related products shipped), as well as a higher quantity of products shipped from our fabs (excluding our 6-inch fab, Fab1, whose operations ceased in 2025).

Cost of Revenue

Cost of revenue for the six months ended June 30, 2026 amounted to $625.0 million as compared to $577.0 million for the six months ended June 30, 2025. The $48.0 million increase in cost of revenue is mainly due to the manufacturing costs associated with the above mentioned $143.5 million increase in revenue in the six months ended June 30, 2026.

Gross Profit

Gross profit for the six months ended June 30, 2026 amounted to $248.7 million as compared to $153.2 million for the six months ended June 30, 2025. The $95.5 million increase in gross profit resulted from the $143.5 million increase in revenue, net of the $48.0 million increase in cost of revenue, as described above.

Research and Development

Research and development expenses for the six months ended June 30, 2026, amounted to $47.1 million, reflecting 5.4% of revenue, as compared to $39.6 million for the six months ended June 30, 2025, also reflecting 5.4% of revenue.

Marketing, General and Administrative

Marketing, general and administrative expenses for the six months ended June 30, 2026 amounted to $46.8 million, reflecting 5.4% of revenue, as compared to $40.8 million for the six months ended June 30, 2025, reflecting a similar percentage of 5.6% of revenue.

Operating Profit

Operating profit for the six months ended June 30, 2026 amounted to $154.9 million as compared to $72.8 million for the six months ended June 30, 2025. The $82.1 million increase in operating profit resulted from the $95.5 million increase in gross profit, as described above, offset by the $7.5 million increase in research and development expenses and the $6.0 million increase in marketing, general and administrative expenses, as described above.

Financing and Other Income, net

Financing and other income, net, for the six months ended June 30, 2026 amounted to $25.4 million as compared to $25.0 million for the six months ended June 30, 2025. Financing and other income, net include mainly interest income on deposits, hedging transactions' financial results and non-recurring, non-operational items.

Income Tax Expense, net

Income tax expense, net, for the six months ended June 30, 2026 amounted to $22.1 million, reflecting 12.7% of profit before income tax, as compared to $12.4 million for the six months ended June 30, 2025, reflecting a similar percentage of 12.3% of profit before income tax.

Net Profit

Net profit for the six months ended June 30, 2026 amounted to $158.2 million as compared to $85.3 million for the six months ended June 30, 2025. The $72.9 million increase in net profit is mainly due to the increase in operating profit offset by the increase in income tax expense, net, described above.

Net Loss (Income) Attributable to Non-Controlling Interest

Net income attributable to non-controlling interest for the six months ended June 30, 2026 amounted to $2.4 million as compared to net loss attributable to non-controlling interest of $1.4 million for the six months ended June 30, 2025. The $3.8 million increase resulted from the increase of $7.7 million in the net profit of the Company's 51% owned subsidiary, Tower Partners Semiconductor Co., Ltd. ("TPSCo").

Net Profit Attributable to the Company

Net profit attributable to the Company for the six months ended June 30, 2026 amounted to $155.8 million as compared to $86.7 million for the six months ended June 30, 2025. The $69.1 million increase in net profit attributable to the Company is mainly due to the increase in net profit of $72.9 million, offset by the increase in net income attributable to non-controlling interest of $3.8 million, as described above.

Impact of Currency Fluctuations

The Company currently operates in four different regions: the United States, Japan, Israel and Italy. The functional currency of the Company's entities in the United States, Israel and Italy is the US dollar ("USD"). The functional currency of the Company's operations in Japan is the Japanese Yen ("JPY"). The Company's expenses and costs are denominated mainly in USD, JPY, New Israeli Shekels ("NIS") and Euro, revenue is denominated mainly in USD and JPY, and the cash from operations, investing and financing activities are denominated mainly in USD, JPY and NIS. Therefore, the Company is exposed to the risk of currency exchange rate fluctuations in Japan, Israel and Italy.

The majority of TPSCo's revenue is denominated in JPY and the majority of TPSCo's expenses and costs are denominated in JPY, which limits the exposure to fluctuations of the USD-to-JPY exchange rate on TPSCo's results of operations. In order to mitigate a portion of the net exposure to the USD-to-JPY exchange rate, the Company has engaged in cylinder hedging transactions to contain the currency's fluctuation within a pre-defined fixed range.

During the six months ended June 30, 2026, the USD appreciated against the JPY by 3.7%, as compared to 7.9% depreciation during the six months ended June 30, 2025. The net effect of USD appreciation against the JPY on TPSCo's assets and liabilities denominated in JPY is presented in the Cumulative Translation Adjustment as part of Other Comprehensive Income on the balance sheet.

The USD cost of the Company's operations in Israel is influenced by changes in the USD-to-NIS exchange rate, with respect to expenses and costs that are denominated in NIS. During the six months ended June 30, 2026, the USD depreciated against the NIS by 6.6%, as compared to 7.5% depreciation during the six months ended June 30, 2025.

The fluctuation of the USD against the NIS may affect the Company's results of operations as it relates to the entity in Israel. Appreciation of the NIS may increase cost, in USD terms, of the Israeli facility such as utilities, taxes and labor costs that are denominated in NIS, which may lead to erosion of profit margins. The Company uses foreign currency cylinder and forward transactions to hedge a portion of this currency exposure to be contained within a pre-defined fixed range.

With respect to the Euro currency, since no revenue is denominated in Euro and the amount of expenses denominated in Euro is immaterial, the Company's exposure to Euro fluctuations is limited.

Liquidity and Capital Resources

As of June 30, 2026, the Company had an aggregate amount of $231.2 million in cash and cash equivalents, as compared to $235.4 million as of December 31, 2025. The main cash items during the six months ended June 30, 2026 were as follows: $686.9 million net cash provided by operating activities, which included $282.6 million increase in customers' advances, net (see more details below); $343.0 million invested in property and equipment, net; $330.0 million invested in short-term deposits, net; and $15.7 million debt repaid, net.

Short-term and long-term debt presented in the balance sheet as of June 30, 2026 amounted to $16.9 million and $124.8 million, respectively, and included loans, operating leases and finance leases.

Based on our current operations and forecasted cash generated from operations, and our existing balance of cash and deposits, we believe we have sufficient resources to meet our cash needs for operating activities and capital expenditures, including for payments expected under the previously announced capacity and capability cap-ex plans focused on SiGe and SiPho capital expenditures for capacity and capability growth, and the repayment of our debt.

Recent Developments

See Note 3, Recent Developments, to the financial statements for the six months ended June 30, 2026.

Critical Accounting Estimates

There have been no material changes to the Company's critical accounting estimates from those described in the Company's Annual Report on Form 20-F for the year ended December 31, 2025.