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 February 2026 No.1

Commission File Number 0-24790

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 of Form 20-F or Form 40-F.

Form 20-F ☒ Form 40-F ☐

On February 5, 2026, the Registrant Teams with NVIDIA to Advance AI Infrastructure with 1.6T Data Center Optical Modules

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: February 5, 2026

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

Tower Semiconductor Teams with NVIDIA to Advance AI Infrastructure with 1.6T Data Center Optical Modules

Tower's advanced Silicon Photonics platform enables optical and network infrastructure ecosystem with high-speed data transceivers for AI deployments

MIGDAL HAEMEK, Israel – February 05, 2026 –Tower Semiconductor (NASDAQ/ TASE: TSEM), the leading foundry of high value analog semiconductor solutions, today announced it is scaling AI infrastructure deployments with high performance silicon photonics for 1.6T data center optical modules designed for NVIDIA networking protocols. Tower Semiconductor's silicon photonics enables up to double the data-rate compared to prior silicon photonics solutions, providing increased bandwidth and throughput for optical connectivity, speeding AI application performance on AI infrastructure.

"Tower Semiconductor is proud to deliver advanced, high-speed technologies that support demanding data center and AI requirements," **said Russell Ellwanger, CEO of Tower Semiconductor**. "We continue to invest significantly across our SiGe and silicon photonics platforms to support the ecosystem with industry-leading performance, scalability, and manufacturability, enabling customers to advance next-generation data center architectures."

"The exponential growth of AI is driving the need for a new class of high-speed, scalable networking to connect AI infrastructure," **said Gilad Shainer, Senior Vice President, Networking, NVIDIA**. "NVIDIA is collaborating with Tower Semiconductor to advance the ecosystem, enabling more efficient AI infrastructure through next-generation silicon photonics and accelerating AI applications at scale."

Tower Semiconductor's SiPho platform is optimized for high-speed optical interconnects, making Tower an ideal foundry for market-leading companies across AI infrastructure, data center networking and advanced telecom.

For additional information about Tower Semiconductor's SiPho technology platform, visit here.

About Tower Semiconductor
Tower Semiconductor Ltd. (NASDAQ/TASE: TSEM), the leading foundry of high-value analog semiconductor solutions, provides technology, development, and process platforms for its customers in growing markets such as consumer, industrial, automotive, mobile, infrastructure, medical and aerospace and defense. Tower Semiconductor focuses on creating a positive and sustainable impact on the world through long-term partnerships and its advanced and innovative analog technology offering, comprised of a broad range of customizable process platforms such as SiGe, BiCMOS, mixed-signal/CMOS, RF CMOS, CMOS image sensor, non-imaging sensors, displays, integrated power management (BCD and 700V), photonics, and MEMS. Tower Semiconductor also provides world-class design enablement for a quick and accurate design cycle as well as process transfer services including development, transfer, and optimization, to IDMs and fabless companies. To provide multi-fab sourcing and extended capacity for its customers, Tower Semiconductor owns one operating facility in Israel (200mm), two in the U.S. (200mm), two in Japan (200mm and 300mm) which it owns through its 51% holdings in TPSCo, shares a 300mm facility in Agrate, Italy with STMicroelectronics as well as has access to a 300mm capacity corridor in Intel's New Mexico factory. For more information, please visit: www.towersemi.com.

Safe Harbor Regarding Forward-Looking Statements
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 Tower's business is included under the heading "Risk Factors" in Tower's most recent filings on Forms 20-F, F-3, F-4 and 6-K, as were filed with the Securities and Exchange Commission (the "SEC") and the Israel Securities Authority. Tower does not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

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