FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month January 2024 No. 2

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 ☐

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 January 16, 2024, the Registrant Announces its Collaboration with Renesas to Manufacture SiGe-based Beamforming ICs for Tier-1 Customers in Satcom, 5G, and Aerospace & Defense Applications

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: January 16, 2024

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

Tower Semiconductor Collaborates with Renesas to Manufacture SiGe-based Beamforming ICs for Tier-1 Customers in Satcom, 5G, and Aerospace & Defense Applications

The Satcom terrestrial market is expected to grow to 150M users by 2031 according to Euroconsult with the expansion of global satellite-based internet services

MIGDAL HAEMEK, Israel, Jan. 16, 2024 – Tower Semiconductor (NASDAQ/TASE: TSEM), the leader in high-value analog semiconductor foundry solutions, today announced a collaboration with Renesas, leveraging Tower's high-volume and high-performance SiGe BiCMOS technology to manufacture SiGe-based beamforming ICs. This strategic collaboration underscores Renesas' commitment to innovation as its broad portfolio of beamforming products has already achieved design wins by key worldwide players across 5G, satcom and Aerospace & Defense markets, positioning the company at the forefront of the industry.

The Satcom terrestrial terminal market is growing rapidly as satellite-based internet services proliferate globally. According to Euroconsult, a market research firm, 71 million people were connected to satellite broadband services in 2022. With rapid deployment of LEO satellite constellations, this number is expected to double in 2031, reaching over 150 million users. This translates to an increase of $400M in the average yearly TAM for SiGe wafers over the coming decade.

"The unique advantages of Tower's SiGe BiCMOS technology have empowered us to design and manufacture highly integrated and power efficient semiconductors that set new industry benchmarks," **said Naveen Yanduru, VP of RF Communications at Renesas.** "As evidenced by our design wins and volume shipments, the displacement of mechanical antennas by highly agile electronically steered antennas (ESAs) is well underway and will continue to drive exponential SAM growth for beamforming ICs in the coming years. With the continuously surging demand for millimeter-wave technology, our collaboration with Tower Semiconductor has positioned Renesas as a market leader," Mr. Yanduru added.

Renesas is a global leader in delivering cutting-edge solutions for the telecommunications industry and has made strides in the Satcom and 5G markets through its collaboration with Tower Semiconductor. This capability played a significant role in empowering Renesas to establish and solidify its market leadership.

"We are excited to partner with Renesas in bringing these breakthrough products to market leveraging our industry leadership in SiGe foundry technology along with their strong product development, talent and market presence," noted **Dr. Marco Racanelli, President at Tower Semiconductor.** "Our global capacity and engineering agility will ensure Renesas has both the ability to develop new, high-performance products and deliver these in high-volume to their Tier 1 customers."

Renesas' portfolio of beamforming products has achieved design wins by several strategic global customers including a tier 1 base station manufacturer, a tier 1 satellite broadband service provider, a major defense contractor, and an antenna supplier for a major aircraft manufacturer, among others.

"We are excited to share that production for these design wins has commenced, and we are now shipping in volumes," added **Tumay Kanar, Director at Renesas.** "Volume production is being supported by Tower with its high yield and high reliability."

Together, Renesas and Tower Semiconductor are forging a path of innovation and reliability in the Satcom and 5G markets, setting a new standard for semiconductor solutions. This collaboration reaffirms the companies' commitment to driving technological advancements and meeting the ever-growing demands of the telecommunications industry.

For additional information about Tower Semiconductor's SiGe technology offering, please visit here.

About Tower Semiconductor

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), the leading foundry of high value analog semiconductor solutions, provides technology and manufacturing platforms for integrated circuits (ICs) in growing markets such as consumer, industrial, automotive, mobile, infrastructure, medical and aerospace and defense. Tower Semiconductor focuses on creating 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, integrated power management (BCD and 700V), 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 two manufacturing facilities in Israel (150mm and 200mm), two in the U.S. (200mm), two facilities in Japan (200mm and 300mm) which it owns through its 51% holdings in TPSCo and is sharing a 300mm manufacturing facility being established in Italy with ST. 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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