Tower Semiconductor and Anello Photonics Announce Strategic Partnership for a New Silicon Optical Waveguide Process Technology

New process provides breakthrough optical performance for wide range of applications including automotive LiDAR, bio-sensing, quantum computing, artificial intelligence, microwave photonics and optical communications

MIGDAL HAEMEK, Israel, Santa Clara, Calif. – November 1, 2021 – Tower Semiconductor (NASDAQ/TASE: TSEM), the leading foundry of high value analog semiconductor solutions, and Anello Photonics, the developer of the Silicon Photonic Optical Gyroscope (SiPhOG™), today announced a strategic partnership for a new low-loss Silicon Optical Waveguide technology and manufacturing process. The foundry version of the process will enable adoption in a wide range of markets such as including automotive LiDAR, bio-sensing, quantum computing, artificial intelligence, microwave photonics and optical communications requiring complex integration of high-performance optical devices.

The new low-loss Silicon Nitride waveguide process approaches 0.005dB/cm propagation loss at 1550nm wavelengths with less than 1mm bend radius. This novel process delivers one to two orders of magnitude lower loss than other commercial foundry processes at a compact bend radius for both 1550nm and 1310nm wavelengths. The combination of low loss along with small bend radius enables fabrication of a new class of high performing devices, including long (>10m) delays lines and tiny on-chip resonators with high quality factors (high-Q) surpassing 100 million. A range of optical applications such as automotive LiDAR, bio-sensing, quantum computing, artificial intelligence, microwave photonics and optical communications could all benefit from the breakthrough capabilities delivered by this new low-loss process.

"Silicon photonics is most strategic for Tower being a singular enabler in numerous fast-growing end-markets. Tower invests heavily in this area," said Russell Ellwanger, Tower Semiconductor CEO. "Working with Dr. Paniccia and his colleagues at Anello is an example of how Tower selectively partners with industry proven experts to develop and scale process technology with figures of merit otherwise unheard of, converting dreams into present realities."

Anello Photonics and Tower Semiconductor have developed this process over the last eighteen months, and Anello's SiPhOG gyroscope utilizes the process to directly replace the optical fiber found in a traditional Fiber Optic Gyroscope. A foundry version of this process is being offered by Tower to its customers beginning in Q1 2022.

"This announcement represents a breakthrough in low-loss optical transmission on silicon, enabling a variety of new silicon-based products previously not considered practical with integrated photonics fabrication technology", said Mario Paniccia, CEO and Co-Founder of Anello. "We are excited to work with Tower to industrialize this process for use in Anello's SiPhOG products and to meet other select Tower customer needs."

For additional information about Tower Semiconductor's Silicon Photonics platform, please visit here.

For additional information on Anello visit www.anellophotonics.com

About Anello Photonics
Anello is a technology start-up based in Silicon Valley. The company has developed an integrated photonic system-on-chip technology for next generation navigation. Anello's SiPhOG™ gyroscope is based on its proprietary waveguide process that mimics the properties of optical fiber in an on-chip wave guide. Anello was founded by Mario Paniccia and Mike Horton, pioneers in the field of Silicon Photonics, Sensors and Navigation and incubated in close collaboration with Catapult Ventures.

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),

three facilities in Japan (two 200mm and one 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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