# TowerJazz Panasonic Semiconductor Co. and Synopsys Announce Availability of Custom Design Kit for 65nm CMOS Image Sensor Technology

Collaboration addresses the increasing image sensor design complexity; targets high-end smartphone, security, and medical X-ray markets

MIGDAL HAEMEK, ISRAEL, UOZU CITY, TOYAMA, JAPAN & MT. VIEW, CA June 4, 2015 --

#### **Highlights:**

- 65nm CMOS image sensor technology meets the growing demand for optical sensors used in mobile, highend photography, medical X-ray, security, and surveillance applications
- Galaxy Custom Designer, Laker, HSPICE, and StarRC qualified for designing with TPSCo 65nm CMOS image sensor process technology

MIGDAL HAEMEK, Israel, UOZU CITY, TOYAMA, Japan and MOUNTAIN VIEW, Calif., June 4, 2015 — TowerJazz, the global specialty foundry leader, and TowerJazz Panasonic Semiconductor Co., Ltd. (TPSCo) – a newly established company by Panasonic Corporation of which Tower Semiconductor Ltd. acquired 51%, and Synopsys, Inc., a global leader in electronic design automation (EDA) and semiconductor IP, today announced that they have qualified a 65 nanometer (nm) CMOS image sensor (CIS) interoperable process design kit (iPDK) to allow customers to design and develop new products using Synopsys' custom design solution. The qualified iPDK complements TPSCo's advanced 65nm CIS process technologies and provides support for Synopsys' comprehensive custom solution that includes; the Galaxy Custom Designer® schematic editor and simulation environment, Laker® layout editor, HSPICE®, CustomSim™ and FineSim® circuit simulators, IC Validator physical verification, and StarRC™ parasitic extraction solution.

TPSCo's CIS technology meets the growing demand for optical sensors used in mobile, high-end photography, security, surveillance, medical and industrial applications. Extensive experience in the imaging field combined with in-house CIS technology development enables TPSCo to meet the market's rigorous requirements for leading-edge performance, advanced features and reduced die size and price as well as supply sensors with best in-class performance, customized to product needs. TPSCo's 65nm 1.12-micropixel ( $\mu$ m-pixel) CIS process possesses world leading figures of merit, and is already in mass production for mobile digital still camera (DSC) applications.

Synopsys provides a unified solution for cell-based and custom design. The solution delivers unmatched productivity with a common use model for simulation, analysis, parasitic extraction and physical verification. It is built on an open architecture supporting iPDKs from leading foundries.

"TowerJazz and Synopsys have been collaborating for many years to create and promote iPDKs to assist with the design and development of mutual customers' innovative devices and we are pleased this partnership has been extended to TPSCo to meet the needs of our customers and address the increasing complexity of CMOS image sensor design," said Tomoyuki Sasaki, CTO of TPSCo.

"The CMOS image sensor market is an ideal fit for Synopsys' custom design solutions," said Bijan Kiani, vice president of product marketing at Synopsys. "Through close collaboration with TowerJazz Panasonic Semiconductor Co. on iPDK development, we are able to expand our offering in the CIS market and ensure that our mutual customers have access to a qualified solution that provides increased custom design productivity."

#### **Availability**

TPSCo can today support custom designs by providing easy-to-use PDK packages and accurate simulation environments down to 45nm.

Please visit the TowerJazz/TPSCo booth at the Design Automation (DAC) conference, June 8 –10, 2015 in San Francisco, CA, booth #2608 for a chance to meet the TPSCo design enablement team in person. For more information on the qualified iPDKs for TPSCo's advanced 65nm CMOS image sensor technology, please contact TPSCo through its portal <a href="https://www.tpsemico.com/technology#tab">https://www.tpsemico.com/technology#tab</a> design-enablement.

## **About Synopsys**

Synopsys, Inc. (Nasdaq:SNPS) is the Silicon to Software<sup>™</sup> partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15<sup>th</sup> largest software

company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP, and is also a leader in software quality and security testing with its Coverity® solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest quality and security, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

#### About TowerJazz Panasonic Semiconductor Co.

TowerJazz Panasonic Semiconductor Co., Ltd. (TPSCo) was established by Panasonic Corporation (NASDAQ ADS: PCRFY, TYO: 6752), 51% of which was acquired by Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM) and 49% of which is now held by Panasonic Semiconductor Solutions Co., Ltd. TPSCo has three manufacturing facilities in Hokuriku, Japan which have been producing large scale integrated circuits for over 30 years. Areas of process technology focus include: high dynamic range image sensors (CIS and CCD), integrated power devices (BCD, SOI, and LDMOS) and high frequency silicon RFCMOS. With over 120 qualified silicon process flows on 200mm and 300mm wafers from super micron to 45nm as well as internal back end processing, assembly and test services, TPSCo provides both IDMs and fabless companies with unparalleled semiconductor manufacturing quality and technology, including in-house turnkey services. For more information, please visit https://www.tpsemico.com/.

### **About TowerJazz**

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM) and its fully owned U.S. subsidiary Jazz Semiconductor, Inc. operate collectively under the brand name TowerJazz, the global specialty foundry leader. TowerJazz manufactures integrated circuits, offering a broad range of customizable process technologies including: SiGe, BiCMOS, mixed-signal/CMOS, RF CMOS, CMOS image sensor, integrated power management (BCD and 700V), and MEMS. TowerJazz also provides a world-class design enablement platform for a quick and accurate design cycle as well as Transfer Optimization and development Process Services (TOPS) to IDMs and fabless companies that need to expand capacity. For more information, please visit www.towerjazz.com.

To provide multi-fab sourcing and extended capacity for its customers, TowerJazz operates two manufacturing facilities in Israel (150mm and 200mm), one in the U.S. (200mm) and three additional facilities in Japan (two 200mm and one 300mm) through **TowerJazz Panasonic Semiconductor Co. (TPSCo),** established with Panasonic Corporation of which TowerJazz has the majority holding. Through TPSCo, TowerJazz provides leading edge 45nm CMOS, 65nm RF CMOS and 65nm 1.12um pixel technologies, including the most advanced image sensor technologies. For more information, please visit www.tpsemico.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 TowerJazz'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 and Jazz's most recent filings on Forms 10-K and 10-Q, as were filed with the SEC, respectively. Tower and Jazz do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

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