



## **TowerJazz and Genoray Announce Successful Development of Industry Changing CMOS Image Sensor for Medical Diagnostic Devices**

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***Replaces Existing Market Solution with 100um Pixel Size, Higher Resolution, Reduction in X-ray Radiation and Optimized Images for more Cost-effective Medical Equipment***

***Market for CMOS Imaging for Medical Electronics is Growing Rapidly from \$64M in 2012 to a projected \$195M in 2017, a CAGR of 25.1%***

MIGDAL HAEMEK, Israel & GYEONGGI-DO, South Korea--(BUSINESS WIRE)--Jun. 5, 2014-- TowerJazz, the global specialty foundry leader, and Genoray Co. Ltd., a leading manufacturer of digital X-ray devices, today announced collaboration on the successful development of a CMOS image sensor (CIS) for medical diagnostic devices such as X-ray equipment, fluoroscopy and radiography. Genoray utilized TowerJazz's 0.18um CIS stitch process to develop the novel device which has a 100um pixel size and contains higher resolution compared to other devices on the market. Also, it has a special feature to control the sensitivity of the pixel which can be applied in various types of medical equipment such as surgical C-Arms and portable X-ray machines.

This new device is a CIS detector whereas the existing market uses a silicon TFT type sensor. The advantage of CIS compared to TFT is that CIS uses active pixels so it obtains the image with less noise and helps minimize X-ray radiation exposure which is currently the biggest issue in the industry. Furthermore, Genoray's single detector supports both CT mode and Panorama mode while the existing products in the market only support one by one (CT supports only CT mode, Panorama supports Panorama mode only). This means that by providing multi-functions through one detector, Genoray can satisfy customers who need both modes with a less expensive price point; a competitive advantage of this product.

Genoray is targeting to replace the current market solution with this new, more efficient detector, providing a more cost-effective solution for medical equipment. The imaging device was manufactured using TowerJazz's optimized pixel and stitch process which is able to maximize performance and offers a strong pixel structure towards radiographic exposure.

Stitching is a technology that enables the manufacture of products where the die size is greater than the area available with a single photo mask. With this technology, it is possible to produce dies up to full wafer size. TowerJazz has many years of production experience with stitching and owns the related patents. In addition, TowerJazz provides a 0.18um CIS PDK with outstanding modeling which helps to implement a very accurate read-out peripheral circuit in a limited timeframe.

As Genoray's device can be applied in different types of medical equipment, its expected production volume is sizable, reaching multiple thousand wafer per year run rates. Genoray is engaged with numerous local and global supply chains and mass production is expected to successfully start in the near future. According to IHS, the market for CMOS imaging for medical electronics is growing rapidly from \$64 million in 2012 to a projected \$195 million in 2017, a CAGR of 25.1%.

"We are pleased that Genoray has successfully developed its medical imaging sensor with TowerJazz's CIS process and is gearing up to release it to the market. We fully believe that this product will generate great response and demand as Genoray is known for its stable technical solutions and strong business power locally and globally. We hope that this success will bring more opportunities to work continually with Genoray for further technological achievements," said Dr. Avi Strum, Vice President and General Manager, CMOS Image Sensor Business Unit, TowerJazz.

"With great support from TowerJazz, finally a new CIS image sensor for X-ray equipment was developed. TowerJazz's industry leading CIS process is well-known for superior performance. I have no doubt that the collaboration between TowerJazz and Genoray will bring a successful outcome for production in terms of quality and production size," said In Jae Lee, Chief Technology Officer of Genoray.

Besides this CIS detector development, TowerJazz and Genoray are consistently working together and making investments to develop various other innovative applications.

### **About Genoray**

With the mission of 'Providing Better Tools for Diagnosis,' Genoray, as an industry leader, strives continuously to improve its products and innovation of its diagnostic imaging systems. Founded in 2001, Genoray's technical experts' will to manufacture the world's best products is still at the heart of its business. With growing demand from numerous local and global customers, the company is increasing the supply of its valuable products through its technological and manufacturing expertise. Genoray will continue to strive to develop higher grade C-Arms, dental X-ray images as well as steadily improve its dental CT and industrial X-ray machines, among others. For more information, please visit: [www.genoray.com](http://www.genoray.com).

### **About TowerJazz**

Tower Semiconductor Ltd. (NASDAQ: TSEM) (TASE: TSEM), its fully owned U.S. subsidiary Jazz Semiconductor, Inc. and its fully owned Japanese subsidiary TowerJazz Japan, Ltd., operate collectively under the brand name TowerJazz, the global specialty foundry leader. TowerJazz also owns 51% of TowerJazz Panasonic Semiconductor Company, Ltd. through a joint venture with Panasonic Corporation. 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 & 700V), and MEMS capabilities. Through TowerJazz Panasonic Semiconductor Company, TowerJazz offers best of class 65nm CMOS image sensor dark current and quantum efficiency performance as well as 45nm digital technology. TowerJazz

provides a world-class design enablement platform that enables a quick and accurate design cycle. TowerJazz also offers Transfer Optimization and development Process Services (TOPS) to IDMs and fabless companies that need to expand capacity. To provide multi-fab sourcing for its customers, TowerJazz operates two manufacturing facilities in Israel, one in the U.S., and four in Japan. For more information, please visit [www.towerjazz.com](http://www.towerjazz.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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