



### **Toshiba's Visconti™4 Image Recognition Processor Powers DENSO's Front-Camera-Based Active Safety System**

**Düsseldorf, Germany, 31 July 2017** – Toshiba Electronic Devices & Storage Corporation today announced that DENSO Corporation (DENSO) is deploying Visconti™4, its latest image-recognition processor dedicated to automotive applications, in next generation, front-camera-based active safety systems. Visconti™4 is a leading-edge, multi-engine road-safety solution that provides drivers with real-time analytics of road conditions and potential dangers.

Electronic systems are taking on an increasingly central role in driving, including advanced driver assistance systems and support for autonomous vehicles, and particularly in promoting road safety. The latest iteration of the influential European New Car Assessment Programme (Euro NCAP), the EU-backed safety standard, adds criteria for evaluating anti-collision features that improve protection for bicyclists and pedestrians.

The Visconti™4 image recognition processor is equipped with eight media processing engines, allowing it to execute eight applications simultaneously. It can detect and analyze camera-generated images and recognizes traffic lanes; nearby vehicles, both parked and moving; traffic signs and signals; the headlights of oncoming vehicles; plus the most vulnerable road users of all, bicyclists and pedestrians.

Visconti™4 has double the number of processing engines of its predecessor, the Visconti™2, used by DENSO since 2015. It also integrates a new image recognition algorithm, Enhanced CoHOG Accelerator<sup>[1]</sup> that delivers enhanced processing of luminance differences between objects and their backgrounds to better detect pedestrians at night and low light conditions.

Toshiba and DENSO are also cooperating in AI, on the development of deep neural network-intellectual property (DNN-IP) for use in image recognition, and plan to bring this state-of-the-art technology to future additions to the Visconti series.

The global market of vehicle-mounted cameras is expected to approach \$9.6 billion in 2021<sup>[2]</sup>. Toshiba is committed respond to with automotive semiconductor solutions that further pursue traffic safety.

Note:

[1] CoHOG is Toshiba's original Co-occurrence Histograms of Oriented Gradients technology

[2] Techno Systems Research Co., Ltd. "Automotive Camera Market Analysis, 2016"

\* Visconti is a trademark of Toshiba Corporation

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**About Toshiba Electronics Europe**

[Toshiba Electronics Europe](#) (TEE) is the European electronic components business of [Toshiba Electronic Devices and Storage Corporation](#). TEE offers a broad IC and discrete product line including high-end memory, microcontrollers, ASICs and ASSPs for automotive, multimedia, industrial, telecoms and networking applications. The company also has a wide range of power semiconductor solutions as well as storage products including HDDs, SSDs, SD Cards and USB sticks.

TEE was formed in 1973 in Neuss, Germany, providing design, manufacturing, marketing and sales and now has headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom. TEE employs approximately 300 people in Europe. Company president is Mr Akira Morinaga. For more company information visit TEE's web site at [www.toshiba.semicon-storage.com](http://www.toshiba.semicon-storage.com).

**Contact details for publication:**

Toshiba Electronics Europe GmbH, Hansaallee 181, D-40549 Düsseldorf, Germany

Tel: +49 (0) 211 5296 0 Fax: +49 (0) 211 5296 79197

Web: [www.toshiba.semicon-storage.com/eu/company/news.html](http://www.toshiba.semicon-storage.com/eu/company/news.html)

E-mail: [solution-marketing@toshiba-components.com](mailto:solution-marketing@toshiba-components.com)

**Contact details for editorial enquiries:**

Michelle Shrimpton, Toshiba Electronics Europe GmbH

Tel: +44 (0)193 282 2832

E-mail: [MShrimpton@teu.toshiba.de](mailto:MShrimpton@teu.toshiba.de)

**Issued by:**

Birgit Schöniger, Publitek

Tel: +44 (0) 20 8429 6554

Web: [www.publitek.com](http://www.publitek.com)

E-mail: [birgit.schoeniger@publitek.com](mailto:birgit.schoeniger@publitek.com)

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