

**Samsung and Toshiba to Support New Standardized NAND Specification for High-performance Applications**

**Seoul, Korea and Tokyo, Japan, July 22, 2010** – Samsung Electronics Co., Ltd. and Toshiba Corporation (TOKYO: 6502) today announced their commitment to development of the most advanced high-performance NAND flash memory technology available today – a double data rate (DDR) NAND flash memory with a 400 megabit-per-second (Mbps) interface, toggle DDR 2.0 specification. The high-performance NAND memory is expected to be of immediate benefit to a host of NAND-based mobile and consumer electronics applications, especially where there is consumer demand for an extra stretch in performance. Both companies said they will support a standard industry specification to enable broad-scale acceptance of this new high-speed technology.

“Our introduction of high-speed 30 nanometer class NAND late last year served as an initial pathway for stimulating acceptance of the new high-performance toggle DDR technology,” said Dong-Soo Jun, executive vice president, Memory marketing, Samsung Electronics. “Now, continual upgrades in high-speed performance will create new applications and broader market opportunities for NAND flash memory. The rapid adoption of fourth generation (4G) smartphones, tablet PCs and solid state drives is expected to drive demand for a broader range of high-performance NAND solutions.”

“Toggle DDR provides a faster interface than conventional NAND using an asynchronous design, delivering the benefits of high-speed data transfer to a wider market, such as for solid state drive (SSD) applications including enterprise storage, mobile phones, multimedia terminals and consumer products,” said Masaki Momodomi, Technical Executive, Memory product, Toshiba Corporation. “And we will continue to make the best effort possible to create standard, high-speed NAND Flash interface solutions with NAND vendors and customers, which will accelerate the revolution in storage applications.”

The current toggle DDR 1.0 specification applies a DDR interface to conventional single data rate (SDR) NAND architecture. The resulting NAND chip has a 133Mbps interface.

Samsung and Toshiba will focus on assuring a 400Mbps interface for the toggle DDR 2.0 specification, which provides a three-fold increase over toggle DDR 1.0, and a ten-fold increase over 40Mbps SDR NAND in widespread use today.

Both companies support industry-wide adoption of the high-speed specification, which would facilitate faster acceptance of toggle DDR memory with hardware engineers and application designers. Last month, each company started participating in standardization efforts for the new technology through the JEDEC Solid State Technology Association.

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**About Samsung Electronics Co., Ltd.**

Samsung Electronics Co., Ltd. is a global leader in semiconductor, telecommunication, digital media and digital convergence technologies with 2009 consolidated sales of US\$116.8 billion. Employing approximately 188,000 people in 185 offices across 65 countries, the company consists of eight independently operated business units: Visual Display, Mobile Communications, Telecommunication Systems, Digital Appliances, IT Solutions, Digital Imaging, Semiconductor and LCD. Recognized as one of the fastest growing global

brands, Samsung Electronics is a leading producer of digital TVs, memory chips, mobile phones and TFT-LCDs. For more information, please visit [www.samsung.com](http://www.samsung.com).

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### About Toshiba

Toshiba Electronics Europe (TEE) is the European electronic components business of Toshiba Corporation, which is ranked among the world's largest semiconductor vendors. TEE offers one of the industry's broadest IC and discrete product lines including high-end memory, microcontrollers, ASICs, ASSPs and display products for automotive, multimedia, industrial, telecoms and networking applications. The company also has a wide range of power semiconductor solutions. TEE was formed in 1973 in Neuss, Germany, providing design, manufacturing, marketing and sales and now has headquarters in Düsseldorf, Germany, with subsidiaries in France, Italy, Spain, Sweden and the United Kingdom. TEE employs approximately 300 people in Europe. Company president is Mr. Hitoshi Otsuka.

Toshiba Corporation is a world leader and innovator in pioneering high technology, a diversified manufacturer and marketer of advanced electronic and electrical products spanning information &

communications systems; digital consumer products; electronic devices and components; power systems, including nuclear energy; industrial and social infrastructure systems; and home appliances. Founded in 1875, Toshiba today operates a global network of more than 740 companies, with 204,000 employees worldwide and annual sales surpassing US\$68 billion.

For more information visit Toshiba Electronics Europe's web site at [www.toshiba-components.com](http://www.toshiba-components.com)

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