



## Intel, Micron Extend NAND Flash Technology Leadership With Introduction of World's First 128Gb NAND Device and Mass Production of 64Gb 20nm NAND

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### News Highlights

- The new 20nm 128Gb MLC NAND device doubles the storage capacity and performance of the companies' existing 20nm 64Gb NAND device.
- Intel and Micron continue to lead the industry with the most advanced NAND production process technology, announcing mass production of their 20nm 64Gb NAND flash.
- The industry's first monolithic 128Gb part can store 1 terabit of data in a single fingertip-size package with just eight die—a new storage benchmark that meets the ongoing demand for slim, sleek products.
- The companies' 20nm NAND is the first to use an innovative planar cell structure that overcomes the scaling constraints of standard floating gate NAND.

SANTA CLARA, Calif. and BOISE, Idaho, Dec. 6, 2011 (GLOBE NEWSWIRE) -- Intel Corporation and Micron Technology, Inc., (Nasdaq:MU) today announced a new benchmark in NAND flash technology — the world's first 20 nanometer (nm), 128 gigabit (Gb), multilevel-cell (MLC) device. The companies also announced mass production of their 64Gb 20nm NAND, which further extends the companies' leadership in NAND process technology.

Photos accompanying this release are available at

<http://www.globenewswire.com/newsroom/prs/?pkgid=11182>

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Developed through Intel and Micron's joint-development venture, IM Flash Technologies (IMFT), the new 20nm monolithic 128Gb device is the first in the industry to enable a terabit (Tb) of data storage in a fingertip-size package by using just eight die. It also provides twice the storage capacity and performance of the companies' existing 20nm 64Gb NAND device. The 128Gb device meets the high-speed ONFI 3.0 specification to achieve speeds of 333 megatransfers per second (MT/s), providing customers with a more cost-effective solid-state storage solution for today's slim, sleek product designs, including tablets, smartphones and high-capacity solid-state drives (SSDs.)

"As portable devices get smaller and sleeker, and server demands increase, our customers look to Micron for innovative new storage technologies and system solutions that meet these challenges," said Glen Hawk, vice president of Micron's NAND Solutions Group. "Our collaboration with Intel continues to deliver leading NAND technologies and expertise that are critical to building those systems."

The companies also revealed that the key to their success with 20nm process technology is due to an innovative new cell structure that enables more aggressive cell scaling than conventional architectures. Their 20nm NAND uses a planar cell structure — the first in the industry — to overcome the inherent difficulties that accompany advanced process technology, enabling performance and reliability on par with the previous generation. The planar cell structure successfully breaks the scaling constraints of the standard NAND floating gate cell by integrating the first Hi-K/metal gate stack on NAND production.

"It is gratifying to see the continued NAND leadership from the Intel-Micron joint development with yet more firsts as our manufacturing teams deliver these high-density, low-cost, compute-quality 20nm NAND devices," said Rob Crooke, Intel vice president and general manager of Intel's Non-Volatile Memory Solutions Group. "Through the utilization of planar cell structure and Hi-K/Metal gate stack, IMFT continues to advance the technological capabilities of our NAND flash memory solutions to enable exciting new products, services and form factors."

The demand for high-capacity NAND flash devices is driven by three interconnected market trends: data storage growth, the shift to the cloud and the proliferation of portable devices. As digital content continues to grow, users expect that data to be available across a multitude of devices, all synchronized via the cloud. To effectively stream data, servers require high-performance, high-capacity storage that NAND

 NAND Die (a)

Intel-Micron Flash Technologies 20nm die -- The industry's first monolithic 128 gigabit (Gb) NAND die represents continued leadership by Intel and Micron on the world's most advanced 20 nanometer (nm) NAND production process technology. The new 20nm 128Gb device doubles the storage capacity and performance of the companies' existing 20nm 64Gb NAND device.

 NAND Die (b)

World's highest capacity NAND flash memory die--New 20nm NAND from Intel and Micron provides unprecedented storage density. The industry's first monolithic 128 gigabit (Gb) part can store 1 terabit of data in a single fingertip-size package with just eight die—a new

delivers, and storage in mobile devices has consistently grown with increased access to data. High-definition video is one example of an application that requires high-capacity storage, since attempting to stream this type of data can create a poor user experience. These developments create great opportunities for high-performance, small-footprint storage, both in the mobile devices that consume the content and the storage servers that deliver it.

storage benchmark that meets the ongoing demand for slim, sleek products.

Intel and Micron noted that the December production ramp of their 20nm 64Gb NAND flash product will enable a rapid transition to the 128Gb device in 2012. Samples of the 128Gb device will be available in January, closely followed by mass production in the first half of 2012. Achievement of this milestone will further enable greater densities and overall fab output, while also helping the companies' development teams cultivate the expertise required to design complex storage solutions and refine future technologies.

#### About Micron

Micron Technology, Inc. is one of the world's leading providers of advanced semiconductor solutions. Through its worldwide operations, Micron manufactures and markets a full range of DRAM, NAND and NOR flash memory, as well as other innovative memory technologies, packaging solutions and semiconductor systems for use in leading-edge computing, consumer, networking, embedded and mobile products. Micron's common stock is traded on the NASDAQ under the MU symbol. To learn more about Micron Technology Inc., visit [www.micron.com](http://www.micron.com).

The Micron Technology, Inc. logo is available at <http://www.globenewswire.com/newsroom/prs/?pkqid=6950>

#### About Intel

Intel (Nasdaq:INTC) is a world leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world's computing devices. Additional information about Intel is available at [newsroom.intel.com](http://newsroom.intel.com) and [blogs.intel.com](http://blogs.intel.com).

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The photos are also available at Newscom, [www.newscom.com](http://www.newscom.com), and via AP PhotoExpress.

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