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The Global Semiconductor Industry Analysts

## FH MONDAY

14 August 2017

### 5G, IoT to propel mobile backhaul market

The increase in the number of smartphone subscribers around the world has led to a huge demand for data traffic, prompting network operators to upgrade their infrastructure. This trend, according to market research firm Technavio, will push the global next-generation mobile backhaul networks market to grow at a CAGR of over 10% by 2021.

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### AI helps convert photos into 3D models

Researchers at Purdue University have developed a new technique that uses machine learning and deep learning methods to create 3D shapes from 2D images. When fully developed, this method, called SurfNet, could have significant applications in the fields of 3D searches on the Internet,.....

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### IBM Claims Tape Density Record

LAKE WALES, Fla. — IBM researchers have set a tape areal-density record of 201 gigabytes per square inch — 20 times the areal density of current commercial tape drives — enabling a single palm-sized cartridge to hold 330 terabytes of uncompressed data.

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### TALK TO US



### Micron Pushes Capacity Threshold in NVMe SSDs

TORONTO – Micron Technology unveiled its second generation of NVM Express (NVMe) SSDs at the Flash Memory Summit, using its 3D NAND to push capacities past 10TB.

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### Samsung Promises 2018 Tbit NAND

SAN JOSE, Calif. — Samsung sketched out plans for a terabit 3D-NAND chip that it will ship next year as well as dense solid-state drives using its current chips.

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## **5G, lot To Propel Mobile Backhaul Market**

The increase in the number of smartphone subscribers around the world has led to a huge demand for data traffic, prompting network operators to upgrade their infrastructure. This trend, according to market research firm Technavio, will push the global next-generation mobile backhaul networks market to grow at a CAGR of over 10% by 2021.

"The mobile backhaul capacity needed per base station varies considerably, relying on target data rates and population density," said Jujhar Singh, a lead analyst from Technavio, specialising in research on embedded systems sector. "The market is calculated by considering the revenue of the vendors in the backhaul network service."

Development of 5G network is one of the emerging trends driving the global mobile backhaul networks market, according to the firm. By 2021, 5G is set to overtake the 4G technology in the developed markets, and the backhaul equipment makers and network carriers are already in the process of developing the next-generation mobile communication.

## **AI Helps Convert Photos Into 3D Models**

Researchers at Purdue University have developed a new technique that uses machine learning and deep learning methods to create 3D shapes from 2D images.

When fully developed, this method, called SurfNet, could have significant applications in the fields of 3D searches on the Internet, as well as helping robotics and autonomous vehicles better understand their surroundings, according to the team.

Karthik Ramani, Purdue's Donald W. Feddersen Professor of Mechanical Engineering, said the "magical" capability of AI deep learning is that it is able to learn abstractly.

"If you show it hundreds of thousands of shapes of something such as a car, if you then show it a 2D image of a car, it can reconstruct that model in 3D," said Ramani. "It can even take two 2D images and create a 3D shape between the two, which we call 'hallucination.'"

## **IBM Claims Tape Density Record**

LAKE WALES, Fla. — IBM researchers have set a tape areal-density record of 201 gigabytes per square inch — 20 times the areal density of current commercial tape drives — enabling a single palm-sized cartridge to hold 330 terabytes of uncompressed data. IBM Research and Sony Storage Media Solutions, which developed the nano-grained sputtered tape used for the demonstration prototype, described the achievement in Tsukuba, Japan, today (Aug. 2) at The Magnetic Recording Conference (TMRC 2017).

Tape was invented more than 60 years ago and has repeatedly been deemed obsolete, but it remains the dominant method for storing cold data — data that is infrequently accessed but must be maintained, such as tax documents and health care records. The Big Data era has seen a resurgence in popularity for tape, which is valued for its small size and low cost relative to other storage alternatives as well as for its ability to store not just backup and archival data, but also the massive sensor and transactional data streams going up to the cloud. Indeed, business at IBM's tape storage unit grew by 8 percent last year.

## **Micron Pushes Capacity Threshold in NVMe SSDs**

TORONTO – Micron Technology unveiled its second generation of NVM Express (NVMe) SSDs at the Flash Memory Summit, using its 3D NAND to push capacities past 10TB.

In an advance telephone briefing with EE Times, Dan Florence, SSD product manager for Micron's Storage Business Unit, said the 9200 Series of NVMe SSDs were built from the ground up to break the shackles of legacy hard drive interfaces. The new storage portfolio is designed to address surging data demands while at the same time maximizing data center efficiency so customers can improve their overall total cost of ownership, he said, and is the storage foundation for the Micron SolidScale Platform, an NVMe over Fabric architecture ahead of standards development, announced earlier this year.

## **Samsung Promises 2018 Tbit NAND**

SAN JOSE, Calif. — Samsung sketched out plans for a terabit 3D-NAND chip that it will ship next year as well as dense solid-state drives using its current chips. It also said that it is sampling the Z-NAND products that it announced last year at latency levels that match or beat Intel's 3DXP memories.

Samsung's Tbit NAND will support data rates up to 1.2 Gbits/second and pack four terabytes in a package that stacks 32 die. The chip will embed peripheral circuits in a new metal bonding layer at the bottom of a cell stack as one way to hit the new density level, said Kye Hyun Kyung, Samsung's executive vice president of flash products and technology, in a talk at the company's Silicon Valley headquarters.

The news was part of Samsung's keynote at the Flash Memory Summit, where some rivals described chips using 96 layers and four bits per cell. Samsung's current 512-Gbit chips use nine vertical channels and 64 layers built in a descending stair fashion for stability, up from four channels and 48 layers in the prior generation.