

# FutureHorizons



The Global Semiconductor Industry Analysts

## FH MONDAY

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### Verizon, Cisco Expand Optical Nets

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### Nokia Rolls Server for Edge Nets

SAN JOSE, Calif. — Nokia announced servers tailored for an emerging class of carrier edge networks. The news came at an event where AT&T provided an update on an open-source operating system for software-defined networks (SDNs) and Google described early work on a programming tool for SDNs.

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### Nantero Nudges NRAM

It's been more than a year since a research report came out predicting a bright future for the next-generation memory using carbon nanotubes known as NRAM, and now the company that's been pioneering the technology has followed up with new investment, support from high-profile tech vendors, and new products in the pipeline.

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### TALK TO US



### 2018 Semiconductor Sales Outpacing 2017 by 20%

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### EVENTS

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– 11 June 2018 – London UK

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– 18 Sept 2018 – London UK

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### Precessional Spin Current Boosts MRAM

TORONTO — One the primary players in the emerging MRAM market has developed proprietary technology it says will enhance the performance of any MRAM array by increasing the retention while simultaneously reducing current.

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## **Verizon, Cisco Expand Optical Nets**

An optical networking specialist at Verizon talks about a collaboration with Cisco to create a new class of flexible networking systems based on a new silicon design.

Circuit emulation is not new by any means, but the ability to do it from DS-0 all the way up to and including OC-192 is. Verizon recently teamed up with Cisco to bring this new capability to fruition in the NCS 42xx platform that comes in several different configurations.

Previous generation chips could only support DS-n and low bit rate OC-n emulation, allowing the replacement of some legacy digital cross connects but not the underlying transport platforms. Doing circuit emulation for all SONET bit rates not only allows the removal of that equipment, but also greatly simplifies the packet optical core ROADMs.

## **Nokia Rolls Server for Edge Nets**

SAN JOSE, Calif. — Nokia announced servers tailored for an emerging class of carrier edge networks. The news came at an event where AT&T provided an update on an open-source operating system for software-defined networks (SDNs) and Google described early work on a programming tool for SDNs.

Carriers are in an early stage of deploying routers and servers on the edges of their networks to handle rising traffic and enable new low-latency services. Both they and big data centers have been slowly working for years to enable software-defined networks based on open interfaces to lower costs and ease management of their large, complex nets.

Nokia announced its AirFrame servers targeting deployment next to cellular base stations, enabling edge networks. The family of compact but high-performance systems use top Intel Xeon processors with optional accelerators such as Nokia's ReefShark ASICs.

## **Nantero Nudges NRAM Forward**

TORONTO — It's been more than a year since a research report came out predicting a bright future for the next-generation memory using carbon nanotubes known as NRAM, and now the company that's been pioneering the technology has followed up with new investment, support from high-profile tech vendors, and new products in the pipeline.

Nantero Inc. has received investment from eight strategic investors, five of which were participants in its most recent strategic round for a total of \$29.7 million. They include Dell Technologies Capital, Cisco Investments, Kingston Technology Corporation, and CFT Capital, one of China's leading semiconductor investment firms incorporated by SMIC, mainland China's most advanced pure-play semiconductor foundry. "If you look at the investors, several of them are among the 10 largest buyers of ICs and memory in the world," Nantero co-founder and CEO Greg Schmergel told EE Times in a telephone interview. "It speaks to the level of support from customers that are not niche players, but are mass-market leading players."

## **2018 Semiconductor Sales Outpacing 2017 by 20%**

SAN FRANCISCO — Semiconductor sales ran 20 percent ahead of 2017's pace through the first quarter of the year, a strong start to the year in an industry coming off record revenue, according to the Semiconductor Industry Association (SIA) trade group.

The three-month rolling average of chip sales for March totaled \$37 billion, up 20 percent from March 2017 and up nearly 1 percent compared with February, according to the SIA, which reports sales data compiled by the World Semiconductor Trade Statistics (WSTS) organization.

"Sales in March increased year-to-year for the 20th consecutive month," said John Neuffer, SIA president and CEO, in a press statement. "All regional markets experienced double-digit growth compared to last year, and all major semiconductor product categories experienced year-to-year growth, with memory products continuing to lead the way."

## **Precessional Spin Current Boosts MRAM**

TORONTO — One of the primary players in the emerging MRAM market has developed proprietary technology it says will enhance the performance of any MRAM array by increasing the retention while simultaneously reducing current.

Announced at Intermag, a conference on applied magnetism, Spin Transfer Technologies (STT)'s Precessional Spin Current (PSC) structure has the potential to enhance MRAM's density and zero leakage capabilities, according to Mustafa Pinarbasi, the company's chief technology officer. In a telephone interview with EE Times, Pinarbasi said the structure could be applied in mobile, datacenter CPUs and storage, automotive, the Internet of Things and (IoT) and artificial intelligence, among others.

Pinarbasi said the PSC structure will increase the spin-torque efficiency of any MRAM device by 40 to 70 percent. This means not only are its data retention capabilities much higher, but it will consume less power

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