FutureHorizons
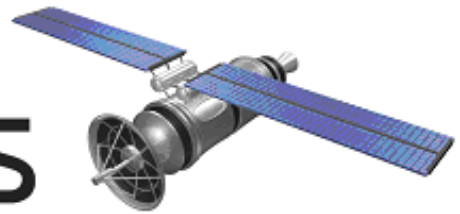## The Global Semiconductor Industry Analysts

FH MONDAY

Intel/Saffron AI Plan Sidesteps Deep Learning

MADISON, Wis. — Intel's $1 billion investment in the AI ecosystem is one of the well-publicized talking points at the processor company. The Intel empire boasts a breadth of AI technologies it has amassed by acquisition and Intel Capital investments in AI startups.

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Spin Transfer, TEL Partner on MRAM Process Development

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With 450mm on Ice, 300mm Shoulders Heavier Load

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TALK TO US

ARM Boosts IoT Security

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Goodbye, Digital Camera; It Was Fun, But We're Done

Change comes quickly and can make a hit new product obsolete faster than we anticipated, as the digital camera clearly demonstrates.

It's hard to believe, but the iPhone just turned 10 years old in June.

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Intel/Saffron AI Plan Sidesteps Deep Learning

MADISON, Wis. — Intel's $1 billion investment in the AI ecosystem is one of the well-publicized talking points at the processor company. The Intel empire boasts a breadth of AI technologies it has amassed by acquisition and Intel Capital investments in AI startups.

The acquired companies seemingly useful to Intel's AI ambitions thus far include Altera (2015), Saffron (2015), Nervana (2016), Movidius (2016) and Mobileye (2017). Intel Capital has also fattened its AI portfolio with startups Mighty AI, Data Robot, Lumiata, CognitiveScale, Aeye Inc., Element AI and others.

Unclear is how Intel is going to stitch all this together.

Spin Transfer, TEL Partner on MRAM Process Development

SAN FRANCISCO — MRAM developer Spin Transfer Technologies (STT) and capital equipment vendor Tokyo Electron Ltd. (TEL) have entered into a collaborative engineering program to jointly develop process technologies for SRAM- and DRAM-class spin-transfer torque (ST) MRAM devices.

The project will combine TEL's ST-MRAM deposition tool and knowledge of the formation capabilities of magnetic tools with STT's high-endurance perpendicular magnetic tunnel junction (pMTJ) design and device fabrication technology, the companies said. The goal of the project is to further advance ST-MRAM to provide previously unachievable levels of speed, density and endurance, they said.

MRAM (magnetoresistive random access memory) has long been seen as a potential replacement for SRAM, DRAM and flash, but development, which began in earnest in the 1990s, has been slow. To date, only one company, Everspin Technologies, has shipped working MRAM products. Everspin has been shipping MRAM since 2006, when it was part of Freescale Semiconductor, and claims to have shipped more than 60 million MRAM devices.

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There was a time when the industry was pushing for 450mm fabs to be in place by now, although many observers were skeptical. In recent years, momentum around 450mm has all but fizzled. The Global 450 Consortium (G450C) — a joint R&D program that involved Intel, TSMC, Globalfoundries, IBM, Samsung and the SUNY Polytechnic Institute — quietly finished the first phase of its work at the end of last year, with no date selected for beginning the next phase.

ARM Boosts IoT Security

SAN JOSE, Calif. — ARM will raise the bar for security in the Internet of Things with the publication of an architecture standard and three new products to help implement it. The new IP incudes secure firmware, a programmable security core and a secure debugging channel.

ARM's Platform Security Architecture (PSA) is a set of hardware and software specifications based on an analysis of multiple IoT use cases. It initially targets Cortex-M devices and includes implementation examples that will be released for free under open source license before April.

Separately, ARM announced a programmable security core, the CryptoIsland-300, expanding the fixed-function CryptoCell announced last year. The SDC-600 is IP to implement a secure debug channel that users can turn off or on with a cryptographic certificate. In addition, Trusted Firmware-M is ARM's first secure firmware specifically for microcontroller-class devices.

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Change comes quickly and can make a hit new product obsolete faster than we anticipated, as the digital camera clearly demonstrates.

It's hard to believe, but the iPhone just turned 10 years old in June. I won't attempt a review of how that device, and smartphones in general, have transformed our lives, thought processes, and more: You can find plenty of that elsewhere. A recent well-written piece in The Wall Street Journal, "From Music to Maps, How Apple's iPhone Changed Business," was about as good as you'll find, as were their companion pieces of the iPhone's impact on personal life. The subhead of the business-focused article is a good summary; it reads, "Apple's iPhone gave rise to whole new industries and laid waste to others."