

# FutureHorizons



The Global Semiconductor Industry Analysts

## FH MONDAY

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### Mentor Boosts AI Chips with AI

On the brink of the Design Automation Conference (DAC), EDA companies are busy sharpening their message for the industry's biggest annual conference. For Mentor, a Siemens business, this year is all about Artificial Intelligence.

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### TSMC to Keep Supplying Chips to Huawei

Taiwan Semiconductor Manufacturing Company (TSMC) plans to continue making chips for Huawei even as other companies in the global semiconductor ecosystem are complying with a U.S. ban on supplies to the Chinese electronics company.

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### Taiwan Startup Plan Emulates MIT, Stanford

TAIPEI — Engineering talent is the backbone of a tech startup ecosystem. In many instances, universities, their students and professors develop new ideas and sow the seeds, although they are not the only force behind the genesis of startups.

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### TALK TO US



### Arm Flexes Mobile Muscle

Arm described three next-generation cores for premium smartphones expected to power handsets in 2020. The blocks target the same 7-nm node and 3-GHz maximum frequencies as the current generation but deliver 20% to 40% performance gains thanks to a host of architecture upgrades.

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### Edge AI Going Beyond Voice and Vision

Widespread public awareness of systems such as the Amazon Alexa and camera-enabled autonomous cars have made voice and vision almost automatically come to mind when discussing the role of AI in edge-device design

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## **Mentor Boosts AI Chips With AI**

On the brink of the Design Automation Conference (DAC), EDA companies are busy sharpening their message for the industry's biggest annual conference. For Mentor, a Siemens business, this year is all about Artificial Intelligence.

In an interview with EE Times, Joe Sawicki, executive vice president of the Mentor IC EDA group at Siemens, said that the industry is surprised at the swift progress of fundamental AI research in universities. Even more surprising is that in the span of just a few years, these advances have spread and become almost ubiquitous throughout the commercial market. The improvements in AI are across almost all categories of the technology, from neural networks to machine learning (ML) to deep learning and inferences. For EDA companies, it has become imperative "to meet the growing needs by IC designers exploring various AI architectures," Sawicki noted.

## **TSMC To Keep Supplying Chips To Huawei**

Taiwan Semiconductor Manufacturing Company (TSMC) plans to continue making chips for Huawei even as other companies in the global semiconductor ecosystem are complying with a U.S. ban on supplies to the Chinese electronics company.

At its May 23rd technology symposium, TSMC said that after careful consideration, it will maintain its shipments to Huawei's chip arm HiSilicon throughout this year. The world's biggest foundry noted that any impact to one client could result in gains for another client.

While TSMC's shipments to Huawei will continue, the halt of components and software from other suppliers may still have some impact on TSMC, according to Credit Suisse analyst Randy Abrams in comments emailed to EE Times

## **Taiwan Startup Plan Emulates MIT, Stanford**

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The infrastructure to support and nurture these enterprises needs strong industry backing, capital investment, government support and experienced business executives willing to serve as "angels" for fledgling companies.

Under a scenario in which universities are deemed a key ingredient in startup gestation, the buzzword for success is "industry-academia cooperation."

## **Arm Flexes Mobile Muscle**

LONDON — Arm described three next-generation cores for premium smartphones expected to power handsets in 2020. The blocks target the same 7-nm node and 3-GHz maximum frequencies as the current generation but deliver 20% to 40% performance gains thanks to a host of architecture upgrades.

Analysts praised Arm's ability to use design cleverness to squeeze incremental gains from silicon without help from improvements in the underlying process. Handset makers need to deliver new experiences to drive users to upgrade to 2020 smartphones, but how they will use the extra silicon muscle is unclear.

At the launch of its latest Pixel handsets earlier this month, Google showed several examples of how it is trying to run more machine-learning (ML) tasks on its smartphones. The devices targeted moderate price points and used a mid-range Qualcomm Snapdragon SoC.

## **Edge AI Going Beyond Voice and Vision**

Widespread public awareness of systems such as the Amazon Alexa and camera-enabled autonomous cars have made voice and vision almost automatically come to mind when discussing the role of AI in edge-device design. But AI technology is applicable well beyond voice and vision interpretation, supporting the implementation of complex system behaviors that can be intractable using conventional algorithmic development. The trick is to move the AI as close as possible to the edge.

The two signature AI applications of voice and vision happen to also illustrate the two architectural alternatives for designing AI into an embedded system. In the case of voice, both of AI's major tasks – learning and inferencing -- are handled in the cloud, where substantial processing power is available. This allows the edge device to get along with much less processing capability. It spends most of its limited capacity capturing and forwarding data to the cloud and implementing any commands coming back. This approach has the advantage of allowing a relatively inexpensive edge device design but suffers from the high bandwidth demands and latency effects of substantial WAN communications activity.