# FutureHorizons

The Global Semiconductor Industry Analysts

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### Didi Gives Apple A Lift: \$1B Buys Ticket For Ride-Sharing

Car industry observers were stunned at the recent \$1 billion investment from Apple in China's leading ride-hailing service company Didi Chuxing. However, it makes one thing clear: "It sort of tips Apple's hand," stated Egil Juliussen, director of research, infotainment & ADAS at IHS Automotive. "Apple is developing driverless cars."

That cool billion is likely to buy Apple everything it needs to know about ride-sharing, an installed base of customers for its future robo-cars, and a stronger foothold, both political and economic, in China.

With backing from Alibaba Group Holding Ltd and Tencent Holdings Ltd, Didi is a rising star in China's economy with the lion's share of its taxi-hailing market.

#### HP Advances 3D Printing With Multi Jet Fusion Technology

HP's Multi-Jet Fusion 3D printing took the spotlight during last week's RAPID 2016 show.

But that wasn't the only news of note. Other companies made some game-changing software and hardware announcements as well, all of them aimed at making it easier to print quality production parts.

Along with a sampling of these, we also give you a couple of videos about HP's new 3D printers that weren't available when we posted Tuesday's story. One gives a better idea of how the technology works to achieve its high speed and precision. The other shows how the different parts of the end-to-end solution—HP Jet Fusion 3D Printer, Processing Station, and build unit—work together.

#### Europe Punts €5m On Organic Semiconductors

Flexible and printable electronics made using carbon-based materials offer numerous application possibilities and therefore the European Union is prepared to fund in its entirety a four-year project with €5 million.

The potential applications include wearable electronics, flexible displays and medical systems. EXTMOS (EXTended Model of Organic Semiconductors), is a €5 million pan-European collaborative research project led by the University of Bath, will help develop organic semiconductor materials and additives that can be printed onto flexible film to create devices that are low cost, flexible, wearable and lightweight.

The objective of EXTMOS is to create a materials model that will focus on charge-transport in doped organic semiconductors. For OLEDs, dopants should not absorb visible light that lowers output nor ultraviolet light that can cause degradation. The intention is to improve understanding of these materials and narrow down the universe of possibilities for material systems.

#### Imagination Adds Security Functions To Cores For lot

IP provider Imagination Technologies (Kings Langley, UK) and silicon-level security specialist Intrinsic-ID (Eindhoven, Netherlands) are collaborating to bring security to products that use Imagination's IP technologies, starting with availability of Intrinsic-ID's Physical Unclonable Function (PUF) security and authentication technology for Imagination's MIPS M-class M5150 CPU that targets low-power applications such as M2M, IoT, and embedded control.

Intrinsic-ID's PUF technology allows efficient implementation of security functions such as device authentication and anti-cloning. Imagination's OmniShield multi-domain security technology, which takes advantage of hardware virtualization technology built into its latest IP offerings, enables the creation of multiple secure domains on an SoC.

#### **Photonics Moves Closer To Chip**

Silicon photonics is resurfacing after more than a decade in the shadows, driven by demands to move larger quantities of data faster, using extremely low power and with minimal heat.

Until recently, much of the attention in photonics focused on moving data between servers and storage. Now there is growing interest at the PCB level and in heterogeneous multi-chip packages. Government, academic and and commercial investments in this technology are all on the rise, and there is a renewed sense of optimism that this technology will become useful across more markets and applications.

"In the early 2000s there was a lot of energy being put into photonics," said Gnyaneshwar Ramakrishna, chairman of the photonics technical committee for IEEE's Components, Packaging and Manufacturing Technology Society. "That died down for a while. But now that we're able to show speeds of 25 Gbps to 100 Gbps, photonics is coming back in a big way. It's being used for short reach and long reach in data centers, and we're seeing a need for photonics at the modular level. We are working on how to bring it onto a board. There is, finally, so to speak, a light at the end of the tunnel."