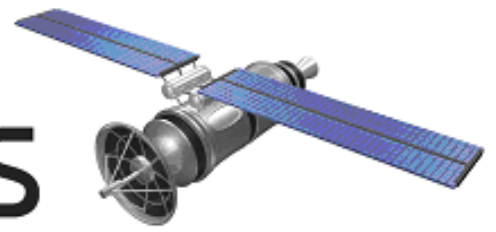


# FutureHorizons



The Global Semiconductor Industry Analysts

## FH MONDAY

5 September 2016

### 28nm Was Last Node of Moore's Law

The industry is at a crossroads: some designs pursue scaling to 7nm while the majority stay on 28nm or older nodes. As we have predicted more than two years back, the industry is bifurcating, and just a few products pursue scaling to 7nm while the majority of designs stay on 28nm or older nodes.

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### Miniaturization of electronics challenges EMI/RFI industry

As electronic products become physically smaller while providing increased functionality at lower costs, their increased frequencies and concomitant faster speeds mean potentially more electromagnetic interference (EMI) and radio frequency interference (RFI) problems, according to BCC Research.

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### Delphi, Mobileye joining forces

DETROIT – Auto parts and electronics company Delphi Automotive is joining with Israeli software maker Mobileye to develop the building blocks for a fully autonomous car in about two years. The companies announced their partnership early Tuesday. It's another in a flurry of auto industry and tech tie-ups as companies race for self-driving supremacy.

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### TALK TO US



### New RF Frequency Dividers Offer Broadband Coverage

Pasternack, a provider of RF, microwave and millimeter wave products, has announced a new line of high-rel frequency dividers that cover wide frequency bandwidths from 0.5 to 18 GHz and are available in 2, 4, 5, 8, and 10 divide-by-prescaler configurations.

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### EVENTS

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– 14 November 2016 – London UK

#### [Industry Forecast Briefing](#)

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### Intel Debuts 14nm+ Processors

Intel Corp. officially announced Kaby Lake, its seventh-generation Core PC processors made in a 14nm+ process and focused on delivering better 4K video

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## **28nm Was Last Node of Moore's Law**

The industry is at a crossroads: some designs pursue scaling to 7nm while the majority stay on 28nm or older nodes.

As we have predicted more than two years back, the industry is bifurcating, and just a few products pursue scaling to 7nm while the majority of designs stay on 28nm or older nodes.

Our 2014 blog *28nm — The Last Node of Moore's Law* has now been confirmed. At the time we wrote: “After the 28nm node, we can continue to make transistors smaller, but not cheaper.” It is illustrated in the following slide, presented by Samsung at the recent Semicon West 2016.

Intel did announce that going forward, the time between nodes will increase but it still claims it can keep reducing transistors cost. Yet Intel's underwhelming successes as a foundry suggest otherwise. We have discussed it in a blog titled *Intel — The Litmus Test*, and it was essentially repeated in *Apple will NEVER use Intel Custom Foundry!* “Yes, Intel will argue that their 10nm and 7nm are better than the foundries (TSMC and Samsung) but that will have to be proven at the chip level which is based on PPAC (power, performance, area, AND cost). The foundries have beaten Intel at every node based on SoC PPAC and I do not expect that to change at 10nm or 7nm.”

## **Miniaturization Of Electronics Challenges EMI/RFI Industry**

As electronic products become physically smaller while providing increased functionality at lower costs, their increased frequencies and concomitant faster speeds mean potentially more electromagnetic interference (EMI) and radio frequency interference (RFI) problems, according to BCC Research.

BCC Research reveals in its new report that shielding product manufacturers are increasingly challenged to develop shielding and suppression technologies that provide effective remedy.

The global market for EMI/RFI shielding should reach nearly USD 6 billion and USD 7.8 billion in 2016 and 2021, respectively, reflecting a five-year compound annual growth rate (CAGR) of 5.6%. The conductive coatings segment, the largest sector, is expected to grow from nearly USD 2.2 billion in 2016 to more than USD 2.7 billion by 2021 on a five-year CAGR of 4.7%. The miscellaneous segment, the fastest growing sector with an estimated five-year CAGR of 6.5%, should total nearly USD 2.8 billion in 2021.

## **Delphi, Mobileye Joining Forces**

DETROIT – Auto parts and electronics company Delphi Automotive is joining with Israeli software maker Mobileye to develop the building blocks for a fully autonomous car in about two years.

The companies announced their partnership early Tuesday. It's another in a flurry of auto industry and tech tie-ups as companies race for self-driving supremacy.

Delphi and Mobileye plan to build a complete autonomous driving platform that they will sell to automakers worldwide. They promise to demonstrate the technology at January's Consumer Electronics Show and have it ready for production in 2019.

## **New RF Frequency Dividers Offer Broadband Coverage**

Pasternack, a provider of RF, microwave and millimeter wave products, has announced a new line of high-rel frequency dividers that cover wide frequency bandwidths from 0.5 to 18 GHz and are available in 2, 4, 5, 8, and 10 divide-by-prescaler configurations.

These modules are suitable for use in common phase locked loop and frequency synthesizer circuit designs that may involve applications for aerospace and defence, satellite communications, VSAT, test and measurement equipment, and point-to-point radios.

The new frequency dividers are said to use advanced GaAs HBT (heterojunction bipolar transistor) MMIC semiconductor technology that produces low additive single sideband (SSB) phase noise performance with typical levels down to -155 dBc/Hz at 100 KHz offset.

## **Intel Debuts 14nm+ Processors**

Intel Corp. officially announced Kaby Lake, its seventh-generation Core PC processors made in a 14nm+ process and focused on delivering better 4K video. The family provides the first indication of what more modest product advances may look like as Intel stretches Moore's law to cover with one process node multiple generations of chips.

Kaby Lake processors gain a 12% improvement from enhancements to Intel's 14nm process. They also include a modestly updated media engine with hardware support for decoding VP9 video and encoding and decoding 4K 10-bit HEVC video. Otherwise, the chips use the same architecture as the previous Skylake generation, including the existing Skylake x86 pipeline.

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