Keynote: Design Will Make Everything Different

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Abstract

How many different silicon manufacturing process technologies will there be at 10, 7, or 5 nanometers? Probably only three. How many design starts will there be at 10, 7, or 5 nanometers? According to IBS [1], in 2025 there will be less than 250 design starts at 10 nanometers and below, about 3% of the total number of design starts that year, and only about five of those design starts, i.e. 2% of the 3% (0.05% of the total) will take place in Europe. But this is not the end! This is not even the beginning of the end. There is a great deal of opportunity beyond the relentless progression of Moore's law. Design innovation can be the enabler, and the differentiator, regardless of the process technology node.

Automotive is a great example: according to Bosch [2], electronics represents 80% of the innovation in cars, and 40% of its cost; the car is a computer – actually, over one hundred computers – on four wheels already, and it will get smarter and smarter, with new layers of services and players just around the corner. Design, and design automation can help increase and accelerate innovation, and at the same time, improve efficiency. The "Internet of Things" is another, potentially greater example: smartness going way beyond the phone. Everything will get smarter: cars, homes, cities, agriculture, farming, factories, etc. Most of the IoT enablement and differentiation will stem from design, and design automation, which include IP, and an increasing amount of software. After performance and power consumption, systems reliability and security have already become critical design considerations at the dawn of a new era, in which design will be critical to make everything better."

[1] Design Starts by Geographic Region 2010-2025, International Business Strategies, Inc. (IBS), 2015

[2] "Can EDA Solve the Problems of Electronic Design for the Car of the Future?", Peter van Staa, Robert Bosch, ICCAD 2014 Keynote Address