Grenoble joins the mega-fabs

"SOCIETY HAS BEGUN TO REALIZE THE CHALLENGES OF CLIMATE CHANGE AND ENERGY TRANSITION; THE SEMICONDUCTOR INDUSTRY IS ADAPTING."

Sébastien Dauvé, Director of CEA-Leti ar President of Nanoelec Steering Committee © *C. Tresca/CEA* **BY SÉBASTIEN DAUVÉ,** President of Nanoelec Steering Committee

he global market for electronic components currently tops 500 billion dollars¹; it is expected to double by 2030. The Covid crisis has also demonstrated the essential role played by components in modern economies.

Hardware supports transitions

Electronic chips are a key enablers of the digital transition across all industry fields: growth is driven primarily by the acceleration of digitalization in consumer, healthcare and industrial sectors, the advent of artificial intelligence, and of course, the automotive industry.

Electronic chips are also vital for the energy transition and its related electrification requirements across the globe. As an illustration, we can mention the industrial transfer based on research conducted as part of the Nanoelec/PowerGaN program. STMicroelectronics has deployed a pilot line for the production of conversion components in Tours, France.

Significant events in the past three years

Despite its vitality, the electronics market is affected by major events,

as is the rest of society. With regards to supply chains, companies have shifted from a 'just in time' to a 'just in case' strategy. In addition, automobile manufacturers have teamed up with leaders in digital technology.

Society has begun to realize the challenges of climate change and energy transition; the semiconductor industry is adapting²: frugal energy use, environmental and societal responsibility. Finally, geopolitical shifts prompt numerous questions regarding sovereignty. As far as we are concerned, how shall we maintain an industrial expertise and how will we succeed in relocatingproduction sites for electronic components.

A territorial ecosystem and a value chain approach

Two highly significant announcements will have a strong impact on our R&D and innovation activities within the Grenoble ecosystem and beyond. *The European Chip Act* provides a means for us to increase R&D collaborations at a European scale in order to reduce supply chain shortages and tensions, strengthen design and manufacturing capacities, and, in the long term, maintain our industry's competitive edge. The European-wide goal is to reach 20% of the global production of chips.

In France, as a result of the electronics-oriented agenda of the France 2030 plan, Crolles, in the Grenoble area will join the selective club of mega-fabs with a capacity of more than a million wafers per year³.

Tenth anniversary

For the past 10 years, Nanoelec has successfully tackled some of the key challenges of the microelectronics industry by relying on the complementarity of stakeholders in its ecosystem, and on its value chain approach. Every year, more than 200 women and men — technicians, engineers, researchers and support personnel — are involved in Nanoelec programs with a focus on heterogeneous integration technologies and embedded systems. We are commited to provide them with bold and attractive projects!

> In 2020, 1,000 billion microchips were manufactured across the globe; Europe produced merely 10%.

- The Semiconductor Climate Consortium is focused on the challenges of climate change and works to speed industry value chain efforts to reduce greenhouse gas emissions in member company operations and in other sectors of our value chain. https://www.semi.org/en/ industry-groups/semiconductor-climate-consortium
- 3. In July 12, 2022, the French government introduced a major plan to support the electronics industry. As part of the France 2030 investment plan, and endowed with 5 billion euros, the plan will enable the creation of 5,700 direct jobs. https://www.entreprises.gouv.fr/ fr/actualites/france-2030/france-2030-presentation-de-la-strategiepour-l-electronique