Opinion – Europe's Lagging Position on Microprocessors

https://www.e-ir.info/2025/01/27/opinion-europes-lagging-position-on-microprocessors/

ROBERT PALMER, JAN 27 2025

Valued at over $3 trillion, Nvidia, the world's largest market capitalisation, exemplifies the transformative power of the microprocessor sector, but Europe's lagging position raises significant concerns about sovereignty and competitiveness. Some companies are stepping up, offering concrete responses to these challenges and heralding a new era for European innovation in microprocessors. European socio-economic stability depends on it. A new era is fast approaching, with the US authorities having decided to strike a major blow by making it very difficult to export certain semiconductors, even to allied countries, thereby depriving half of Europe's countries of easy access to US technologies.

The global microprocessor market is undergoing a profound transformation, driven by unprecedented technological advances and intensifying geopolitical competition. Once considered a niche industry, microprocessors have become the backbone of modern economies, enabling everything from smartphones to artificial intelligence systems, from IoT to cloud computing. The rise of Nvidia, a global leader in AI, underscores this changing ecosystem. The company is set to replace Intel in the Dow Jones Industrial Average (DJIA), who stated that the update aims to ensure "a more representative exposure to the semiconductors industry and the materials sector, respectively".

This dominance of a few global players underscores the challenges faced by other regions. While companies like Nvidia, AMD, and TSMC have set the standard for innovation, others—including once-mighty Intel—have struggled to keep up. Intel's recent difficulties highlight the dynamic nature of the industry, where size and legacy alone no longer guarantee success. Instead, the ability to innovate, adapt, and secure supply chains is paramount. And initiatives are flourishing all around the world.

As Europe works to bolster its presence in the microprocessor market, Latin America is emerging as a potential partner in the global semiconductor ecosystem. While the region does not yet have major microprocessor manufacturers, countries like Mexico and Brazil are becoming increasingly important in the broader supply chain. The United States, through initiatives such as the CHIPS Act, has sought to deepen its partnerships in Latin America, recognising the region's strategic value for diversifying production and securing critical resources. This should put Europe on alert. Indeed, the United States is planning on pushing forward with the development of microprocessor production capabilities across three Latin American countries: Mexico, Panama and Costa Rica. This strategy was unveiled by Secretary of State Anthony Blinken in July 2024 as the 'Western Hemisphere Semiconductor Initiative.' Indeed, Mexico is attracting billions in investments in its semiconductor and tech industries. Amazon, announced plans to invest $6 billion in the country by 2026, creating over 50,000 jobs. The Chinese government had identified semiconductors as a priority as early as 1956 and has already channeled an estimated $150 billion to its semiconductor industry.

Latin America's potential lies in its ability to complement the global microprocessor market with assembly, testing, and raw material processing capabilities. Though the region has yet to produce a major semiconductor design firm, its role in the supply chain could expand as global players look to reduce dependency on Asia. This creates opportunities for regional collaboration and investment in the sector while strengthening US access to semiconductors. Indeed, Secretary of State Anthony Blinken stated:

By improving the backbone of our supply chains, better infrastructure will help ensure that the goods our people rely on – semiconductors, electric vehicle batteries, medical supplies – are more affordable, more secure, and made right here in the Americas.

Incoming President Donald Trump's planned tariffs on foreign imports could however have a real effect on tech giants' outsourcing of manufacturing to Latin America, though. Even the Biden administration, a few days before its term, has decided to raise the stakes on microprocessors by further tightening sanctions against China. This illustrates the great sensitivity of the subject on the other side of the Atlantic and the need for Europe to rearm itself on the industrial front.

Europe's position in the microprocessor market remains precarious, and without sufficient scope for nearshoring and the development of a robust EU-focused development ecosystem, it could find itself falling way behind global competitors. Historically reliant on foreign suppliers for semiconductors, the region has recognised these strategic risks of this dependency. For Europe, this means creating an ecosystem in which innovative startups and new, EU-based technological initiatives are allowed to flourish. That's the objective of the European Union's "Chips Act", which aims to increase local production capacity and support the development of homegrown technology. However, achieving these goals requires more than policy—it demands the emergence of innovative companies capable of competing on a global scale.

Europe already has some important technological "links", but not yet the whole chain. Among those links of emerging players is SiPearl, a French company specialising in the design of high-performance microprocessors. While still small compared to global giants, SiPearl represents a concrete step toward reducing Europe's technological dependency. Its processors, designed for use in data centres and supercomputing, align with Europe's strategic goals for technological sovereignty and innovation. SiPearl's reliance on Taiwanese manufacturing reflects the broader global interdependence of the microprocessor market, but its designs are uniquely European, tailored to meet the region's regulatory and security standards. The choice of Taiwan seems obvious at present, given that the processes used in Europe do not meet the requirements. Alternative foundries may be needed, such as Samsung, which has production capacities in South Korea and the USA, or even Intel.

Indeed, this Eurocentric approach is at the heart of the firm's strategy for development. CEO Philippe Notton underscores how the Chips Act does not go far enough in supporting start-up firms like his own: "the European Chips Act is a good start. If we manage to mobilise more public funds in the semiconductor sector to get things moving again, as is being done in most countries, that will be a positive thing." Notton, like many in the sector, believes that startups are, however, being left behind by this policy. Nonetheless, there are some positive initiatives to support the objectives of the European Chips Act, such as the $3.2 billion investment by Silicon Box to build a semiconductor plant in northern Italy. This announcement was made last March by the Italian Minister of Enterprises, who was happy to show that Italy can "attract the interest of global technology players".

Europe is focusing on fostering innovation and reducing dependency through public-private partnerships. SiPearl is a prime example, but it is not alone. Other European companies, such as Infineon Technologies (Germany) and STMicroelectronics (a Franco-Italian firm), are making significant contributions to the semiconductor industry. MELEXIS, another firm based in Belgium, plays a critical role in developing specialized chips for the automotive industry, supporting Europe's push for technological sovereignty in key sectors. This approach has also supported the growth of companies such as ASML in the Netherlands, a global leader in lithography machines essential for microprocessor manufacturing, and GlobalFoundries in Germany, which operates one of Europe's most advanced semiconductor fabrication facilities. CEO Dr. Thomas Caulfield, has a more positive outlook, and emphasised Europe's strategic position in the semiconductor industry, particularly highlighting the continent's leadership in lithography through companies like ASML. He stated:

Europe shouldn't worry over issues of technology leadership for two reasons. One: You can't do anything in semiconductors without lithography and Europe has ASML the leader in lithography. Nobody can do anything in semiconductors without giving capex to ASML, so Europe has great control of the semiconductor industry.

This highlights the multilateral ecosystem many are trying to develop in Europe, because together, these firms demonstrate the continent's potential to become a hub for advanced microprocessor design and production.

The microprocessor market is at a crossroads, offering Europe distinct opportunities to redefine its role in the global technology ecosystem. Success, however, will depend on sustained investment, strategic partnerships, and bold innovation. By leveraging its strengths, Europe can be both a leading player in design and manufacture as it used to be just a few decades ago. The opportunities are massive, but so are the risks of falling behind. The rewards of such efforts are, however, substantial: enhanced economic growth, greater technological sovereignty, and a pivotal role in shaping the future of the global microprocessor industry.

About the author:

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