



CEIAS Southeast Asia Program • Policy recommendations

Chips that connect: EU–ASEAN cooperation in a fragmented world

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Key takeaways

- 1** ASEAN should be a priority partner for the EU in establishing a “strategic partnership on semiconductors” as envisioned by the proposed Chips Act 2.0.
- 2** The EU and ASEAN should focus on high-value-added investment, mutually beneficial R&D partnerships, cooperation on certification, development of raw materials projects, and workforce development to build synergies in semiconductor sector development.
- 3** Slovakia and other smaller EU states should leverage partnerships with the ASEAN countries, in particular Malaysia, Singapore, and Vietnam, to develop their own niches in the semiconductor value chain.

Introduction

The semiconductor industry has become one of the most dynamic but also geopolitically contested industries globally, marked by rapid technological developments, a return to industrial policies, and the weaponization of supply chain chokepoints. As an “industry of industries,” the semiconductor sector provides essential inputs to critical sectors such as healthcare, communications, and defense, but also underpins the transformational AI revolution underway. At the same time, the highly complex nature of semiconductor supply chains provides many opportunities for industrial upgrading and the development of higher-value-added activities in the economies of participant countries that develop their own niches in the supply chain.

Both the EU and the Association of Southeast Asian Nations (ASEAN) are seeking to bolster their position in the global supply chain. Reacting to the supply shock of the pandemic period, which brought large segments of the import-dependent EU industry to a halt, the EU recognized the need to build resilience in the semiconductor industry, ultimately leading to the adoption of the Chips Act in 2023. A new proposal for the Chips Act 2.0 was unveiled by the Commission in June 2026, with a focus on both improving the competitiveness and crisis preparedness of the EU semiconductor sector. Whereas the original Chips Act focused predominantly on boosting onshore manufacturing in Europe, the new proposal seeks to take a broader view of the supply chain, including key segments such as semiconductor manufacturing equipment, where the EU plays a leading role globally. This is also important for smaller EU member states such as Slovakia, which are unlikely to host large-scale manufacturing facilities but can provide important inputs across the supply chain. Whereas the EU can hardly seek full autonomy in this highly globalized and competitive sector, it can make itself indispensable by controlling key chokepoints in the industry and building resilience to external shocks.

Meanwhile, ASEAN countries, which have long played an important role in the value chain, predominantly due to hosting offshore manufacturing (primarily back-end), are also responding to developments in the industry. Singapore, Malaysia, Vietnam, and, to a lesser extent, Thailand and the Philippines are all seeking to maintain and further upgrade their position, developing their own dedicated strategies in the sector. Faced with the growing competition between the US (and the broader West) and China, ASEAN countries are trying to cautiously navigate the divide while reaping the benefits of increased investment. This is also true vis-à-vis the EU, as European semiconductor companies are increasing investment in the region, partly motivated by efforts to de-risk from China, amid a broader investment surge.

The ongoing developments in the semiconductor industry present opportunities for the EU and ASEAN to deepen their cooperation and mutually support each other's efforts, thereby complementing the broader framework of the EU-ASEAN partnership. ASEAN combines large-scale assembly and testing capacity, selected front-end manufacturing capabilities, growing end-market demand, geographic diversification and a political preference for non-exclusive partnerships. The opportunities lie in fostering complementarity via high-value foreign direct investment (FDI), research and development (R&D) cooperation, workforce development, and other related areas.

Current landscape of the EU-ASEAN semiconductor cooperation

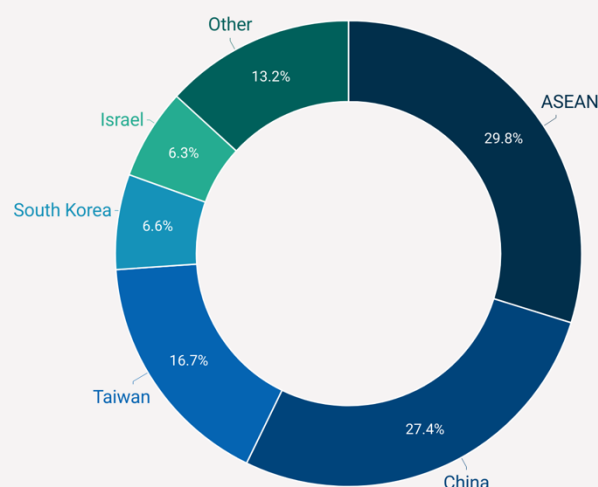
Cooperation between the EU and ASEAN in the semiconductor industry has a long history, mainly via European investments in the region. This is especially the case for Malaysia and Singapore, which have established themselves as bases for back-end and front-end manufacturing in the semiconductor industry during the offshoring wave already in the 1970s. In recent years, there has been a new surge in investment by EU companies, driven by the reorganization of supply chains and de-risking strategies from China. The table below lists some of the major investments by EU players.

Meanwhile, investment cooperation is not a one-way street, as ASEAN companies are also investing in Europe. According to the [EU Chips Ecosystem Tracker](#) developed by CEIAS under the CHIPDIPLO project, there are 13 entities owned by Singaporean investors in Europe, followed by two with ultimate corporate owners in Malaysia and one with an ultimate corporate owner in the Philippines. Interestingly, one of these is in Slovakia. The Malaysian company Greatech Technology Berhad [acquired](#) Manz Slovakia s.r.o., a subsidiary of the German Manz Group, in 2025. The facility employs around 250 people and engages in contract manufacturing for several industries, including the semiconductor sector.

The interlinkage between the EU and ASEAN in semiconductors is also visible in trade data, as ASEAN accounts for almost 30% of extra-EU semiconductor imports, ahead of China (27.4%), Taiwan (16.7%), and South Korea (6.6%), per Eurostat Comext database. Malaysia alone accounts for more than 16% of extra-EU imports, reflecting its strong position in back-end manufacturing. Semiconductors are also a key area of focus in existing and upcoming free trade agreements (FTAs) between the EU and ASEAN countries.

EU's semiconductor imports

ASEAN countries accounted for almost a third of EU semiconductor imports in 2025.



Note: Aggregates HS 8541 (semiconductor devices incl. photovoltaics) and HS 8542 (integrated circuits).

Data: Eurostat Comext (DS-045409), EU27 extra-EU imports of HS 8541 and 8542, 2025.



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Major EU semiconductor-related investments in ASEAN since 2020



Company	Home country	Location	Description	Year announced
Air Liquide	France	Singapore	Two ultra-high-purity gas facilities serving an advanced chipmaker. (~€130 million)	2025
AIXTRON	Germany	Penang, Malaysia	New assembly, testing and support plant for deposition equipment. (~€40 million)	2026
ams OSRAM	Austria	Batu Kawan (Penang), Malaysia	Consolidated LED assembly and testing facility.	2022
ASM International	Netherlands	Singapore	Expanded production capacity for deposition equipment.	2022
AT&S	Austria	Kulim, Malaysia	New campus for high-end IC substrates and PCBs, with R&D. (~€1.7 billion)	2021
AT&S	Austria	Kulim, Malaysia	Additional IC-substrate and advanced PCB capacity, including a second plant. (~€1.5–2 billion)	2026
BE Semiconductor Industries	Netherlands	Ho Chi Minh City, Vietnam	New factory for assembly, packaging and testing equipment. (€4 million, then €37 million expansion)	2023
Bosch	Germany	Penang, Malaysia	New semiconductor and sensor testing centre.	2021
Heraeus	Germany	Singapore	New Centre of Excellence for Advanced Packaging (materials and processes).	2021
Infineon Technologies	Germany	Batam, Indonesia	Facility acquisition doubling automotive chip assembly and testing space.	2022
Infineon Technologies	Germany	Kulim, Malaysia	A new 200mm SiC/GaN power-semiconductor fab. (over €7 billion)	2022
Infineon Technologies	Germany	Samut Prakan, Thailand	New automated backend facility, initially producing power modules.	2025
Infineon Technologies / VinFast	Germany	Hanoi, Vietnam	Joint competence centre for automotive chip selection, testing and validation.	2022
Melexis	Belgium	Kuching, Malaysia	New wafer-testing facility, the company's largest globally. (~€40 million)	2023
Neways Electronics	Netherlands	Klang, Malaysia	New facility for semiconductor-equipment assemblies and modules; ASML launch customer.	2024
Nexperia	Netherlands / China	Penang and Seremban, Malaysia	New R&D centre (Penang); expanded assembly, testing and system-in-package capacity (Seremban).	2021
Nexperia	Netherlands / China	Cabuyao, Philippines	Expanded assembly, testing, automation and system-in-package capacity.	2021
NTS Group	Netherlands	Singapore	New plant for precision mechatronic systems for semiconductor equipment.	2024
NXP Semiconductors / SSMC	Netherlands	Singapore	Capacity expansion at the SSMC wafer fab.	2022
NXP Semiconductors / VIS	Netherlands	Singapore	VSMC: new 300mm analog/mixed-signal/power foundry (130–40nm). (~€6.8 billion total; NXP €1.4 billion equity)	2024
Siltronic	Germany	Singapore	New automated 300mm silicon-wafer plant. (~€2 billion)	2021
Soitec	France	Singapore	Fab extension doubling 300mm SOI wafer capacity, plus a characterization lab.	2022
STMicroelectronics	France and Italy	Singapore	Expanded front-end capacity, including for silicon-carbide devices.	2022
VDL ETG	Netherlands	Singapore	New engineering, cleanroom and manufacturing facility for wafer-fab-equipment producers. (~€68 million over five years)	2025
VDL ETG	Netherlands	Northeastern Vietnam	New facility producing components for semiconductor-production equipment.	2024
X-FAB	Belgium	Kuching, Malaysia	Expanded analog/mixed-signal wafer capacity, including 180nm BCD-on-SOI. (~€525 million)	2023

Data: Author's compilation

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The EU and ASEAN face many similar challenges, although the two semiconductor ecosystems have different features and are internally heterogeneous, encompassing both advanced semiconductor hubs and members with little or no footprint in the industry. The EU has a very strong position in areas such as research and equipment manufacturing, particularly in lithography systems via the Netherlands-based ASML. European integrated device manufacturers (IDM) such as Infineon, STMicroelectronics, and NXP hold important positions in automotive and industrial semiconductors in the so-called foundational chips segment. While Visegrad Four (V4) countries lag behind the fully developed ecosystems of EU semiconductor leaders such as the Netherlands, Germany, and France, local companies cover important niches within the supply chain, including Czechia's role in electron microscopy. Moreover, the V4 countries are important because they host semiconductor end users, notably the automotive industry, which accounts for more than 37% of semiconductors shipped to the EU. The EU sector faces several challenges, including a lack of advanced chip manufacturing and packaging capacity, rising competition from China in foundational chips, an inability to translate research infrastructure into industrial prowess, insufficient financing to scale up EU undertakings, and talent shortages.

ASEAN's role in the global semiconductor sector is also crucial. In 2024, ASEAN collectively accounted for around 25% of global semiconductor exports. Under Malaysia's 2025 ASEAN chairmanship, the bloc launched the ASEAN Framework for Integrated Semiconductor Supply Chain (AFISS), its most comprehensive attempt to coordinate the development of a cohesive cross-ASEAN supply chain. The document highlights several focus areas for cooperation within the grouping, including insufficient cross-border integration, talent gaps, weak infrastructure, and the need to move beyond packaging into higher-value segments such as design, materials, advanced manufacturing, and advanced packaging. The region continues to attract high levels of FDI, with \$80 billion invested in the sector between 2020 and 2025. At the same time, there are efforts to further "indigenize" the supply chain and develop its own capabilities, whether through supply chain integration, as in Malaysia and Vietnam, or through high-level innovation support, strong research infrastructure, and ample private-sector financing, as in Singapore.

The EU and ASEAN are both facing a situation in which global supply chains are increasingly being reconfigured, alongside the development of US-China competition in high-tech industries through export controls and tech-transfer restrictions. With the ability of China and the US to turn control of specific supply chain segments into a form of coercion on display in recent years, there is a growing need for small and middle powers to form broad coalitions that enable them to build strategic resilience without being explicitly directed against any third country.

Opportunities for cooperation

Building on the existing interlinkages described above, the EU and ASEAN can deepen their cooperation across several complementary areas, ranging from political framework-building to concrete initiatives on investment, R&D, talent, materials, and certification, to serve mutual strategic needs.

Forge a strategic partnership on semiconductors with ASEAN

After the initial crisis-driven policy response in the form of the Chips Act 1.0, there has been growing recognition that European semiconductor objectives cannot be achieved by building a "fortress Europe." Instead, success requires deepening cooperation with trusted partners alongside a more resilient internal position. To that end, the proposal for Chips Act 2.0 establishes the framework of "strategic partnerships on semiconductors." These are designed to "improve the Union's security of supply and cooperation along the semiconductor value chain" and should "strive to address the semiconductor-related knowledge and skills shortage existing in the Union by attracting, mobilizing and retaining new talent to the Union." Alongside key international partners with a major role in the value chain, such as Japan, South Korea, Taiwan and the US, the EU should also prioritize developing semiconductor partnership with ASEAN. Forging such partnership would create an important political basis for exploring practical cooperation on a bilateral level and should be embedded in broader cooperation on the digital economy.¹ Political backing is important, as the EU is not explicitly identified as a priority strategic partner in the 2025 AFISS (unlike the US, Japan, and South Korea), underscoring the EU's low visibility.

Support high-value-added investments by EU semiconductor companies in ASEAN

As the EU addresses its dependence on China, ASEAN is capturing more semiconductor-related investment, which should help address supply chain weak spots. The EU and its member states should extend financial and diplomatic support, through Global Gateway co-financing, EIB Global instruments, and national investment guarantees, to high-value-added semiconductor investments in ASEAN, prioritizing projects with explicit components for technology transfer and skills development. Such support would not compete with the Chips Act's onshoring goals but complement them, deepening trusted-partner capacity in segments such as assembly, testing, and mature-node production that Europe will not fully "home-shore."

Intensify R&D cooperation with ASEAN in the semiconductor sector, including via new dedicated facilities

The EU is home to the world-leading Research Technology Organizations (RTOs), including Fraunhofer, CEA-Leti, IMEC, TNO, and Tyndall Institute. However, Fraunhofer is currently the only European RTO with a local presence in ASEAN through Fraunhofer Singapore Research Ltd and the Joint Collaborative NTU-Fraunhofer Center. The EU should make use of existing instruments, such as the ASEAN Initiative under the Horizon Europe Work Program, which includes Intra-regional Technology Transfer as one of its priorities, to cooperate in the semiconductor sector. The EU should also create opportunities for cooperation with ASEAN countries under dedicated Chips Joint Undertaking projects. The cooperation with South Korea offers a potential model. This includes joint EU-South Korea Chips projects and an internship program that could be replicated in cooperation with ASEAN countries. Such partnerships should look beyond Singapore, a natural partner given its advanced research capabilities, and position the

¹ For EU-ASEAN cooperation on the digital economy, see CEIAS paper Preparing for DEFA: A European strategy for ASEAN's digital market by Matej Šimalčík and Maria Monica Wihardja.

EU as a partner willing to assist ASEAN countries in industrial upgrading through technology transfer and skills development.

Support workforce development

The EU should establish a dedicated talent exchange program for ASEAN talent to equip students and young professionals with semiconductor-related skills and offer semiconductor scholarships in cooperation with the industry to align with specific industry needs. More broadly, the EU and ASEAN should also work on mutual recognition of professional certifications and legal mobility pathways. Of course, the EU is not the only suitor; China, Taiwan, the US, and others also present attractive opportunities for ASEAN talent in the semiconductor sector. What the EU can uniquely offer is a partnership that supports ASEAN's own upgrading ambitions, such as through circular mobility schemes with return pathways and training tied to European companies already operating across the region. Bilateral cooperation programs offering placements at ASEAN institutions can also be attractive to EU countries with weaker semiconductor sectors.

Support semiconductor-related materials development in ASEAN

ASEAN currently plays a relatively limited role in supplying materials used in semiconductor production, while the relevant critical-mineral mining and processing stages remain heavily concentrated in China. The region nevertheless has the potential to strengthen its position through cooperation with external partners, including the EU, as Europe seeks to diversify critical-material supply chains. EU support should target projects that align with ASEAN countries' industrial-upgrading strategies, generate greater local value added, and meet robust environmental and social standards. Cooperation should extend beyond extraction to refining, processing, the production of semiconductor-grade materials, and other downstream activities across the wider supply chain.

Cooperate on semiconductor qualification and production-transfer readiness

The EU and ASEAN should develop joint reliability-testing and qualification capabilities, particularly for automotive-grade and other critical mature-node semiconductors. Cooperation should connect European semiconductor manufacturers, RTOs, Tier 1 automotive suppliers and vehicle manufacturers with ASEAN semiconductor institutes, accredited testing laboratories, and OSAT facilities. Joint programs could support pilot production lots, common testing protocols, qualification-data sharing and the advanced validation of designated secondary assembly and test routes. This would address a major weakness exposed by the Nexperia crisis: alternative (non-China) manufacturing capacity may exist, but it cannot be used immediately when qualification and customer-approval procedures remain tied to a specific production site.²

Support ASEAN's own regulatory framework-building

² In late 2025, the Dutch government's seizure of control over the Chinese-owned chipmaker Nexperia triggered retaliatory Chinese export restrictions on the company's China-packaged chips, threatening production stoppages across the global automotive industry within weeks due to lack of immediate alternative supply.

In June 2026, Thailand proposed an "ASEAN Chips Act," calling on the region to move beyond fragmented national strategies toward an integrated semiconductor ecosystem, with shared infrastructure, joint research networks, talent development, common standards, and a coordinating ASEAN Semiconductor Council. The EU is well placed to support this process by sharing the lessons of the Chips Act's design and implementation. Concrete vehicles for technical assistance could include the existing EU–ASEAN dialogue architecture. Supporting a framework informed by the EU's own experience would embed European regulatory concepts in the region's emerging governance and give the proposed strategic partnership an institutional counterpart on the ASEAN side.

Identify a niche

Slovakia and other smaller EU countries with a limited footprint in the semiconductor sector can also benefit from deeper cooperation with ASEAN. The example of intensive cooperation between Slovakia and Taiwan in power modules and advanced packaging demonstrates the benefits of smaller-scale, dedicated projects that leverage their respective strengths. Slovakia aims to help close the gap in Europe's insufficient packaging capacity, focusing its activities on the segment that presents opportunities for targeted cooperation with established sector players in ASEAN. As open economies significantly driven by FDI, a feature that is common between the V4 and many ASEAN countries, there are also lessons to be learned in terms of developing the best policies for attracting high-value-added investments that entail technology transfer and skill development. Facing the transformation of established industry sectors, Slovakia and other V4 countries can also learn from workforce reskilling initiatives, such as Singapore's Career Conversion Program, which focuses on attracting and developing mid-career talent. Slovakia and other EU member states should provide backing to increased cooperation with ASEAN research universities, including via dedicated bilateral research cooperation and academic mobility projects.

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Southeast Asia, home to 700 million people and some of the world's fastest-growing economies, is becoming an increasingly important region on the global stage. However, it is also beset by domestic and regional security and development challenges. These include unresolved territorial disputes in the South China Sea, ongoing human rights abuses committed by Myanmar's military regime, the growing impact of climate change, and the rising prevalence of cyber scams.

The program also examines the engagement of the EU and Central and Eastern European countries with ASEAN and its member states across various areas, including politics, economics, security, civil society, academia, and technology. Additionally, it examines Southeast Asia's interactions with other international actors and tracks key domestic developments that shape the region. In addition to research, the program hosts public events and offers policy recommendations to a range of stakeholders.

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