

● Industry Insight

## Semiconductor Equipment

**Suppliers** – Poised to Capitalize  
on US-China Chip Geopolitics



# Seizing Opportunities Amid Escalating Chip Geopolitics: Semiconductor Equipment Manufacturers Prepare for Market Expansion

As the chip geopolitics between China and the US intensifies, semiconductor equipment manufacturers are gearing up to gain from an expanding market. The global semiconductor industry is experiencing a significant investment boom as countries are trying to woo investments in the strategically important sector, which is witnessing increasing demand from core sectors such as automotive, consumer electronics, and data centers, on the back of advancements in technologies such as 5G, AI, and IoT.

Recent chip shortages and geopolitical tensions have highlighted the need for supply chain resilience and security, leading to increased investment in manufacturing capacity, supplier diversity, and chip design capabilities. Analysts predict the industry, currently valued at around USD600 billion, will grow by 6-8% annually, reaching USD1 trillion by 2030. Governments and private entities worldwide are actively investing in initiatives to strengthen domestic capabilities, reduce import dependence, and promote innovation.

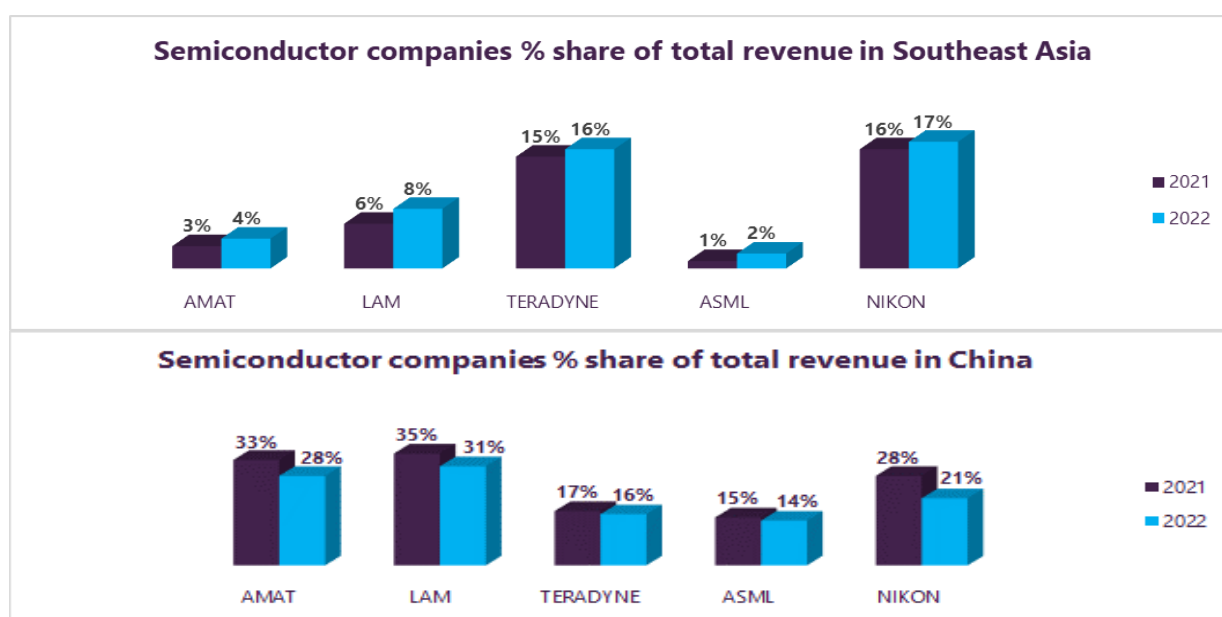
However, tensions between the US and China have impacted the global supply chain, resulting in increased governmental restrictions on chip sales and technology transfer to China.

## US sanctions on China forces semiconductor companies to reassess geographical focus

In October 2022, the US announced stringent export controls to impede China's access to critical technologies. Semiconductors made with US technology cannot be transferred or sold to China without an export license, impacting Chinese research in AI, high-performance computing, and supercomputers. The rules also restrict chip-making tools and technology exports, which are crucial for Chinese companies to produce their equipment. Additionally, US citizens and entities face limitations in engaging with Chinese chip makers without specific approval, which will likely challenge collaboration between businesses in the two countries.

“... It also reflects an important recognition that the US can't win its competition with China simply by running faster; it must also slow Beijing down.”

Expert, American Enterprise Institute



Note: Southeast Asia includes Singapore, Vietnam, Thailand, Malaysia, and the Philippines

Major US semiconductor companies, including prominent production equipment providers such as Applied Materials and LAM Research, inspection equipment provider KLA, and electronic design automation tool providers, such as Synopsis and Cadence, have substantial investments in China. With the newly imposed US restrictions posing potential disruptions to their existing operations, these companies are actively seeking alternative manufacturing locations within Asia and Southeast Asia. The objective is to capitalize on the availability of cost-effective labor and essential raw materials necessary for semiconductor production. Additionally, proximity to their client base is a key consideration to safeguard against potential supply chain disturbances and ensure responsive customer service.

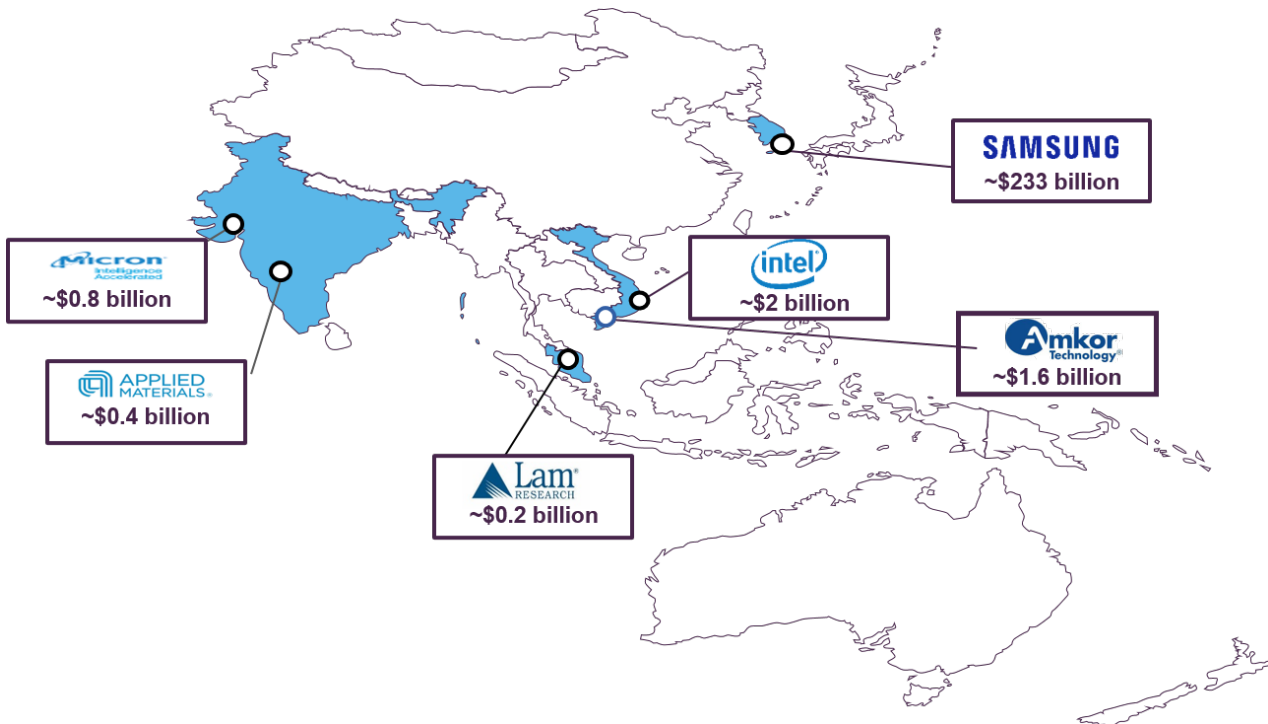
## Asian countries intensify race to bring manufacturing operations onshore

US-based semiconductor equipment suppliers are planning to shift their operations from China to other parts of Asia, especially Southeast Asia. These suppliers are actively implementing plans to relocate non-Chinese personnel to countries such as Singapore and Malaysia or increase their production capacity in Southeast Asian nations, including India. Not only equipment suppliers, but chipmakers such as Intel, GlobalFoundries, and United Microelectronics are also considering the expansion of their existing facilities to Southeast Asia, further indicating the region's increasing significance as a strategic manufacturing base for the semiconductor industry. These moves reflect a noticeable trend of decoupling technology supply chains between the US and China.

“Our customers have been asking us to accelerate our support to their Southeast Asia locations in the past few months. We also noticed they've increased their personnel there...”

Executive, supplier of subsystems to Lam Research and KLA

Figure 1: Select investments in East Asia by semiconductor companies





Such strategic initiatives will be a golden opportunity for Southeast Asian and other Asian nations that can make lucrative offers to industry leaders and attract them to set up production units in their respective countries. For example,



Vietnam's government offers attractive incentives, such as exemption from land and water surface rents and up to 50% reduction in centralized high-tech parks, to attract investment and foster growth of the semiconductor industry.

India's government has greenlit a USD30 billion deal to establish the country as a global electronics manufacturing hub, focusing on semiconductors as the core component. It plans to offer up to 50% co-funding for fabs and cover 50% of eligible expenditure on 100 semiconductor design companies to support the initiative.

## China's counterattack to separate the US and its allies

### Strategic moves: A long-term perspective

The US, Japan, the Netherlands, and South Korea dominate global semiconductor equipment sales. With the Netherlands and Japan aligning with the US on export controls, attention now shifts to South Korea, which is yet to join the multilateral export control regime.

South Korea is closely connected to the Chinese semiconductor industry. The country's two largest memory producers, Samsung and SK Hynix, have a significant portion of their global memory production in China. They have invested heavily in China's memory production facilities, which are now under US export controls. These companies will now be unable to get sophisticated equipment from outside China, which may force them to shut down their operations. Moreover, these companies are also being subjected to the latest Chinese export controls, which prevent them from moving their expensive equipment (not built in China) out of the country. Both China and the US actively strive to influence South Korea's government in the export control dispute.

### Possible options for the South Korean government

#### *Option 1: Aligning with the US*

South Korea may support the US' export controls to increase its chip manufacturing market share, which is at ~5% to date. If it does so, the country will have to deal with financial losses due to non-avoidable trade restrictions by China and the shutdown of its memory production businesses in the country. However, in the long run, South Korea may leverage advanced technology and equipment supplied by the US to produce hi-tech chips.

#### *Option 2: Aligning with China*

South Korea is a trade-dependent economy that has been exporting ~60% of its chips to China and Hong Kong since 2003. Therefore, in the short run, to maintain a smooth economy, it may continue its relationship with China, while thinking of ways to reduce its over-dependence on the country.

#### *Option 3: Opts for China plus one strategy*

South Korea's heavy reliance on the Chinese market may force its government to think of a diplomatic solution; it may consider a new market development strategy that will allow it to stay with China, while actively developing other nearshore markets.

## Future beneficiaries of US-China conflict and companies' success

With the ongoing export sanctions, chipmakers are being forced to invest in new facilities outside China. Semiconductor investments worth more than USD500 billion have already been announced outside China. These investments are driven mainly by the US, Japan, India, and Southeast Asian countries such as Malaysia and Vietnam. The chipmakers will rely heavily on specialized equipment and machinery providers, helping them expand their existing market.

Long-term investment plans by chipmakers in Asia are forcing equipment manufacturers to remain on their toes. For instance, Samsung has announced a USD230 billion investment plan in South Korea over the next 20 years, attracting major equipment providers such as Applied Materials and ASML Holdings.

Along with equipment manufacturers, the growth of semiconductor precision cleaning/refurbishment suppliers is certain in the US and Asia-Pacific region. It is expected that the market will grow by ~11% until 2030.

Hence, semiconductor equipment manufacturers can benefit from the US-China export conflict by supplying new equipment to chipmakers and earning higher profits through refurbishing and sell of used machinery. These manufacturers can sign long-term contracts with regional cleaning/refurbishment service providers in Asia to leverage the availability of skilled labor and quality raw materials at cheaper rates.

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