



Growing opportunities for Malaysia in the semiconductor space

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Right By You

Malaysia is well positioned to support growth in the semiconductor space

The semiconductor industry has experienced remarkable growth over the past two decades. According to the Semiconductor Industry Association, a US-based trade body, global semiconductor sales skyrocketed more than 300% - from US\$139 billion in 2001 to US\$573.5 billion in 2022. This upward trend is projected to continue, with an estimated 56% increase by 2030.

US-based trade body, global semiconductor sales



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PCs and smartphones continue to play a big part in the rising semiconductor content needed. As 5G starts to be launched in more markets, there will be the needed semiconductor content to support this growth. Servers will also see an increase as more servers will be required to support the growing data centre demand. The growing interest in Electrical Vehicles (EVs) will also lead to the increase in semiconductor content in vehicles.

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Importance of ASEAN amid geopolitical tensions

At the backdrop of this growing demand for consumer devices/semiconductor content lies the ongoing geopolitical tensions. Recent announcements include semiconductor export controls that the U.S. have imposed on China. As a result of the ongoing tensions, the attention has shifted to ASEAN as many players start to shift their production capabilities outside of China and into ASEAN markets.



Malaysia is a major hub for chip testing and packaging. Outsourced Semiconductor Assembly and Test (OSAT) companies have been established in Malaysia to provide outsourced services to multinational corporations (MNCs). These MNCs set up operations in Malaysia around the 1970s. With key MNCs setting up a base in Malaysia, this has also resulted in the supporting ecosystem for OSAT to grow as the market grew.

Historically, Malaysia has been a strong player in OSAT and electronic manufacturing services for consumer electronics such as household appliances. Other key products include telecommunication equipment such as routers and cables. The country has seen increased investments and activity in the space that will gradually get it ready for front end fabrication.

Malaysia's government has been offering tax allowances/incentives to make it more attractive for companies to invest in Malaysia. During its budget announcement in 2020, it announced special investment tax allowance for the Electrical and Electronics (E&E) sector that was applicable in 2021. Since then, incentives for E&E companies have been enhanced to incentivise players to invest in Malaysia. Supportive incentives have led to the country seeing growth in E&E exports. The government also announced the Industry4WRD Intervention Fund to provide financial assistance to Malaysia's SMEs in the manufacturing and associated sectors to embrace Industry 4.0.

In 2022, Malaysia's E&E industry had approved investments worth RM29.3 billion, with RM27.9 billion being from FDI. E&E exports have also been on the rise, increasing by 30% from RM455.7 billion in 2021 to RM593.5 billion in 2022. This shows the growing demand for E&E exports, and the importance of Malaysia as an E&E hub to the region. There is great opportunity for the nation to focus on high value and high growth manufacturing activities.

The country celebrated the 50th anniversary of its E&E industry in 2022. Its E&E exports also saw an impressive compound annual growth of 16 per cent over 50 years. With strong experience in OSAT, it will also help as it shifts its focus towards higher value products.

Strong potential seen across the Peninsular

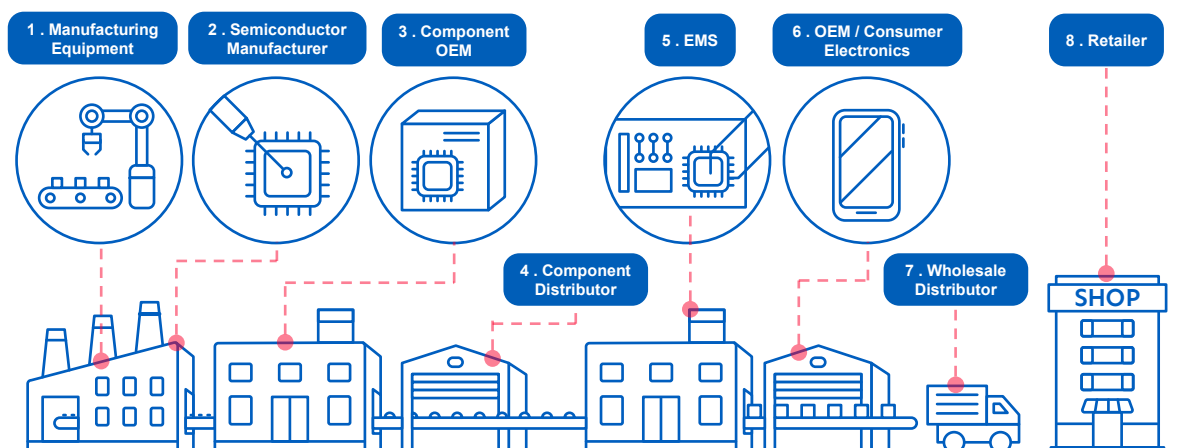
Penang, known as the Silicon Valley of the East, has a strong E&E ecosystem, having established its long-standing presence in the industry.

Over the past 51 years, Penang has attracted a diverse range of local suppliers and fostered a comprehensive value chain. This encompasses automation, electronics, packaging, plastics, precision engineering and metal work, software development and more – all supporting the semiconductor manufacturing value chain.

This robust infrastructure has attracted industry giants like Intel, Advanced Semiconductor Engineering (ASE), and Austria Technologie & Systemtechnik (AT&S) to invest billions of dollars in building state-of-the-art facilities on the island. Penang's strategic location and comprehensive ecosystem have made it an attractive investment destination for global semiconductor companies.

Johor is an Electronics Manufacturing Services (EMS) hub for household appliances. In recent years, there's been an increased interest in Johor with key players expanding their presence there. Aztech Global, through its wholly-owned Malaysia subsidiary IOT Manufacturing Sdn Bhd Manufacturing, acquired another manufacturing facility to expand its manufacturing capacity for IoT devices and data communication products in the country. Johor has also seen an increased interest from data centre players due to the demand from the region, and Wiwynn Corporation has also set up a server rack integration plan in Johor to serve this demand. This presents the opportunity for Johor to expand the offerings of Malaysia.

Klang Valley is also diversifying into high-value manufacturing and assembly. This year, Malaysia has approved Tesla's application to import battery electric vehicles (BEV) into the country, and the setup of its corporate headquarters and service centre in Cyberjaya. This will encourage more players involved in battery technology to invest in the state. Malaysia has also been developing the necessary infrastructure and materials to support the expansion of EV battery production. Samsung SDI has also broke ground to build its second factory in Seremban to meet the rising demand for cylindrical batteries, which will be used in applications including electrical tools and EVs.





Opportunities for Malaysia to move up the value chain

Malaysia has traditionally been strong in backend manufacturing, especially in the OSAT space. We believe that with the strong E&E sector in place and established workforce which consists of experienced engineers and technicians, it has helped to position the country strongly to attract more investments for EV and for the country to progress into front end manufacturing.

Dagang NeXchange Berhad and China's Big Innovation Holdings Limited, a wholly-owned subsidiary of Hon Hai Precision Industry Co Ltd, have announced plans to set up a joint venture to build and operate a new 12-inch wafer fabrication plant in Malaysia. Upon completion, the plant is estimated to produce about 40,000 wafers per month, including those utilising both the 28-nanometer and 40-nanometer technologies.

Last month, Infineon Technologies AG of Munich, Germany announced that it will expand its Kulim fab significantly to build the world's largest 200-millimeter silicon carbide Power Fab. Silicon carbide is used in the automotive sector as well as in industrial applications such as solar, energy storage, and high-power EV charging. This investment will also continue to boost the overall EV ecosystem in Malaysia, along with enhancing its sustainability offerings in the manufacturing space.

With the increased demand for sustainability, as well as when 5G becomes more prevalent, there will be more use cases for the Internet of Things (IoT). There will be more opportunities for the country to progress to the front end semiconductor value chain in the near future.

Overall, we believe that Malaysia is one of the key beneficiaries with the increased opportunity in Southeast Asia. With the supportive government and growing infrastructure and ecosystem, its semiconductor ecosystem will continue to grow and contribute more to Malaysia's overall GDP growth in the future.

Tapping on green financing to spur the EV ecosystem

Financial institutions like UOB recognise the importance of connectivity and sector-specific solutions as they continue to operate in a rapidly evolving landscape.

UOB recently launched U-Drive in Malaysia in August 2023 as a comprehensive financing solution for the EV ecosystem in the country. With U-Drive, The Bank seamlessly connects the EV value chain, from automotive component suppliers, automotive brand owners, dealers, and charging point operators to end-user by providing them a comprehensive range of sustainable financing solutions. Beyond financing, UOB can also support EV original equipment manufacturers (OEMs) seeking to expand into the country by providing market insights and foreign direct investment advisory.

U-Drive is one of the many examples where UOB continues to leverage its industry insights, data analytics, and regional network to offer tailored financial solutions to its customers throughout the semiconductor manufacturing value chain. By studying the entire manufacturing process, the Bank aims to help these companies improve their working capital cycles without compromising cash flow, as they seize the region's immense growth opportunities.

Looking ahead, the semiconductor industry's role in driving emerging technologies like EVs, artificial intelligence and Internet of Things cannot be understated. Malaysia, having already positioned itself as a prominent place in the global semiconductor network, will need to strengthen and capitalise on the industry's immense potential. It is crucial to nurture and strengthen the ecosystem, ensuring collaboration and innovation at every step of the value chain. Governments, industry players and financial institutions must also work hand-in-hand to create an environment that fosters growth, resilience, and sustainable development for the semiconductor industry.



At the launch of U-Drive by UOB Malaysia (from left to right): Ng Wei Wei, UOB Malaysia CEO, Anthony Loke, Minister of Transport and Andy Cheah, UOB Malaysia MD and Country Head of Wholesale Banking

This report has also been published on The Edge Malaysia.

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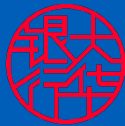
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