

Microchips Manufacturing Equipment Global Market 2024

Long-term and short-term perspectives

The global market for microchips exceeded \$1 trillion in 2023-2024. How much is the CAPEX of this industry?

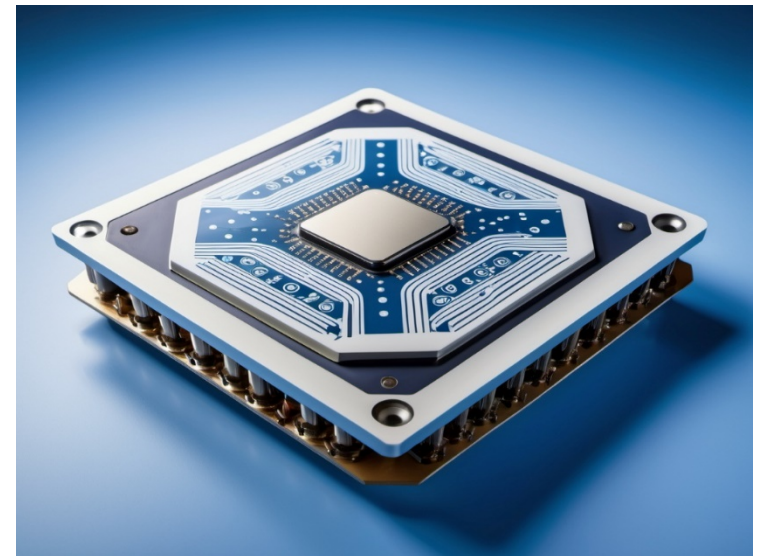
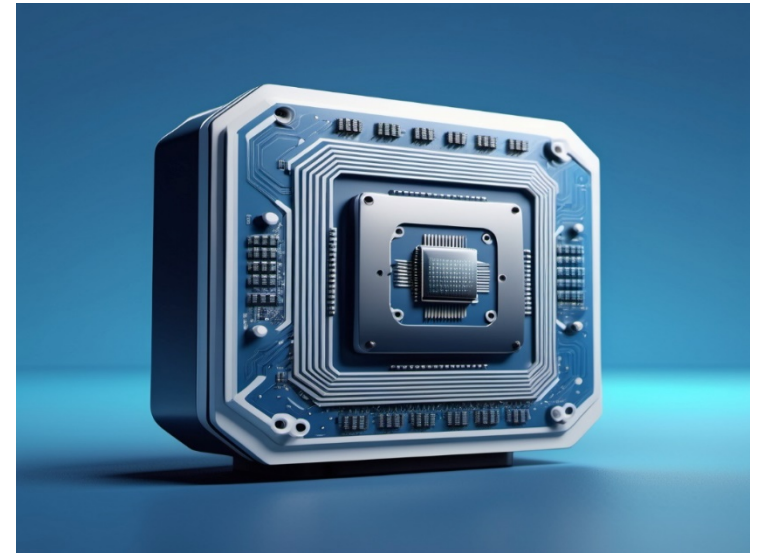
The semiconductor and electronic integrated circuit industries play a critical role in powering a wide range of technologies, from smartphones to automobiles. This report examines both short-term and long-term trends in the global market for microchip manufacturing equipment.

For the purpose of this report, microchips are defined by the following Harmonized System (HS) codes: Parts of electronic integrated circuits (HS code 854290), Memories (HS code 854232), Other electronic integrated circuits (HS code 854239), and Processors and controllers (HS code 854231).

In 2023, global imports of microchips surpassed \$1 trillion. The leading importers were **China, Hong Kong SAR, Singapore, and Japan**, while the primary exporters included **Taiwan, the United States, and the Republic of Korea**. Microchips represent one of the largest categories in global trade, ranking among the top five traded goods. Their total trade volume is comparable to other major global markets, such as crude petroleum (\$1.28 trillion), automobiles (\$0.87 trillion), and smartphones (\$0.53 trillion).

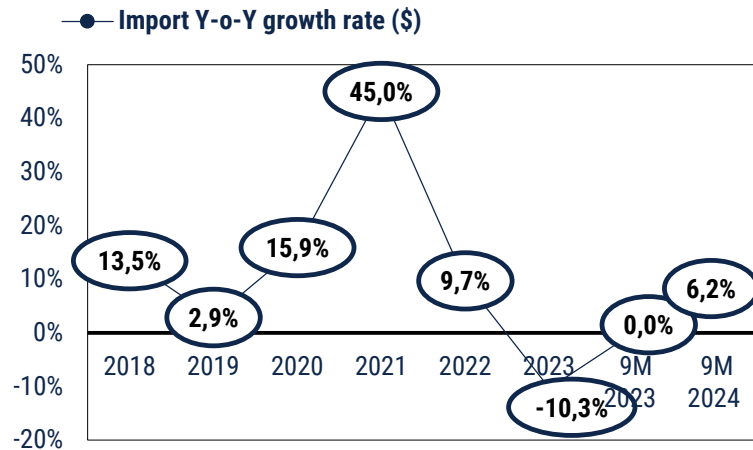
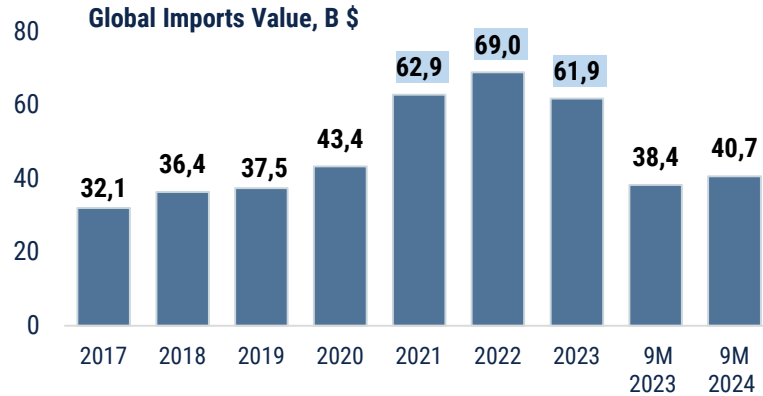
The report also explores the capital expenditures (CAPEX) within the microchip industry. To analyze the global trade of equipment used in semiconductor manufacturing, we focused on 14 major importing countries and 5 key exporting nations. Data from UN Comtrade for the period 2017-2024, covering both export and import values, was utilized. The specific item under review is **HS Code 848620: Machines and apparatus primarily used for the manufacture of semiconductor devices or electronic integrated circuits.**

Between 2017 and 2024, **the total expenditure on imported semiconductor manufacturing equipment exceeded \$384 billion.** While this represents a significant portion of the sector's capital investment, it constitutes only a fraction of the overall CAPEX in the semiconductor industry.



Microchip Manufacturing Equipment Imports Doubled Between 2021 and 2023

Between 2021 and 2023, global imports of equipment for microchip manufacturing saw a twofold increase compared to the 2017-2020 period, reflecting a 7-year compound annual growth rate (CAGR) of 9.84%. As of the first nine months of 2024, global imports have remained at 2023 levels, with a year-over-year growth of 6.23%.



Importing Country	2022, B\$	2023, B\$	9M 2023, B\$	9M 2024, B\$ (est)	CAGR, 2017-2023	Growth rate 2024 (est)	Total in 2017 – 9M 2024, B\$	Total in 2021-9M 2024, B\$
China	17.30	24.84	12.94	20.34	24.7%	57.2%	120.27	82.21
Taiwan	20.48	11.23	8.07	5.35	7.9%	-33.7%	91.29	54.00
Rep. of Korea	13.61	10.43	8.26	6.77	-2.8%	-18.0%	86.92	46.95
USA	5.72	5.58	3.24	3.56	11.6%	9.9%	32.96	18.65
Ireland	2.79	2.53	1.96	1.23	76.5%	-37.3%	7.08	6.61
Japan	2.94	2.19	1.14	0.83	-2.4%	-27.3%	18.83	8.26
Singapore	2.79	1.13	0.89	0.82	-0.12%	-7.7%	11.48	6.70
France	0.58	0.96	0.48	0.22	27.4%	-53.3%	2.49	1.95
China, Hong Kong SAR	0.66	0.77	0.10	0.38	42.5%	273.4%	2.37	2.15
Germany	0.71	0.69	0.44	0.31	9.8%	-28.7%	3.87	2.49
Malaysia	0.49	0.60	0.27	0.55	14.0%	105.8%	2.66	1.88
Netherlands	0.42	0.40	0.25	0.18	21.7%	-29.5%	1.65	1.17
Italy	0.36	0.33	0.23	0.16	14.3%	-28.6%	1.35	0.99
Austria	0.21	0.22	0.11	0.04	22.2%	-60.5%	0.78	0.62
Total	69.04	61.91	38.36	40.75	9.8%	6.2%	384.00	234.63

Est = Estimation

China, Taiwan, and South Korea are the largest importers of microchip equipment.

... Recently, China experienced a significant surge in imports

Taiwan was the global leader in purchasing microchip manufacturing equipment in 2022. However, since 2023, China has significantly ramped up its acquisitions, surpassing Taiwan to become the largest importer of microchip manufacturing equipment.

Imports value by Country, B\$

Importing Country	2017	2018	2019	2020	2021	2022	2023	9M 2023	9M 2024
China	5.30	9.48	9.81	13.48	19.73	17.30	24.84	12.94	20.34
Taiwan, Province of China	6.58	6.27	13.30	11.13	16.94	20.48	11.23	8.07	5.35
Rep. of Korea	12.73	11.02	5.23	11.00	16.13	13.61	10.43	8.26	6.77
USA	2.58	3.03	5.50	3.19	3.79	5.72	5.58	3.24	3.56
Ireland	0.05	0.29	0.05	0.08	0.06	2.79	2.53	1.96	1.23
Japan	2.59	3.66	1.80	2.52	2.30	2.94	2.19	1.14	0.83
Singapore	1.14	1.65	0.94	1.05	1.97	2.79	1.13	0.89	0.82
France	0.18	0.11	0.14	0.12	0.18	0.58	0.96	0.48	0.22
China, Hong Kong SAR	0.06	0.04	0.06	0.05	0.34	0.66	0.77	0.10	0.38
Germany	0.36	0.34	0.26	0.42	0.79	0.71	0.69	0.44	0.31
Malaysia	0.24	0.21	0.17	0.17	0.25	0.49	0.60	0.27	0.55
Netherlands	0.10	0.15	0.10	0.13	0.17	0.42	0.40	0.25	0.18
Italy	0.13	0.10	0.06	0.06	0.14	0.36	0.33	0.23	0.16
Austria	0.05	0.05	0.04	0.02	0.15	0.21	0.22	0.11	0.04
Total	32.09	36.41	37.46	43.41	62.94	69.04	61.91	38.36	40.75

China's imports of microchip manufacturing equipment reached 50% of global imports in 2024, marking the largest share ever recorded...

In 2024, **China continued to significantly increase its spending on microchip manufacturing equipment**, while most other importers notably reduced their CAPEX expenditures, with the exceptions of Malaysia and Hong Kong. As a result, **China's share of global imports reached 50% by the first nine months of 2024**. Interestingly, most importing countries had increased their equipment purchases during 2021-2022.

Country's share in total imports (\$), %

Importing Country	Share, 2017	Share, 2018	Share, 2019	Share, 2020	Share, 2021	Share, 2022	Share, 2023	Share, 9M 2023	Share, 9M 2024
China	16.51%	26.03%	26.19%	31.05%	31.35%	25.06%	40.13%	33.73%	49.92%
Taiwan, Province of China	20.52%	17.23%	35.51%	25.63%	26.91%	29.66%	18.15%	21.03%	13.13%
Rep. of Korea	39.67%	30.27%	13.96%	25.33%	25.63%	19.71%	16.85%	21.52%	16.62%
USA	8.05%	8.34%	14.69%	7.35%	6.02%	8.28%	9.01%	8.44%	8.73%
Ireland	0.15%	0.79%	0.14%	0.18%	0.10%	4.04%	4.09%	5.10%	3.01%
Japan	8.07%	10.06%	4.81%	5.80%	3.66%	4.25%	3.54%	2.98%	2.04%
Singapore	3.54%	4.54%	2.50%	2.43%	3.12%	4.03%	1.82%	2.31%	2.01%
France	0.55%	0.31%	0.36%	0.27%	0.29%	0.85%	1.55%	1.25%	0.55%
China, Hong Kong SAR	0.20%	0.12%	0.15%	0.12%	0.54%	0.96%	1.25%	0.26%	0.93%
Germany	1.11%	0.93%	0.69%	0.97%	1.25%	1.02%	1.11%	1.13%	0.76%
Malaysia	0.75%	0.57%	0.45%	0.38%	0.39%	0.71%	0.97%	0.69%	1.34%
Netherlands	0.32%	0.42%	0.27%	0.29%	0.27%	0.60%	0.65%	0.66%	0.44%
Italy	0.40%	0.28%	0.17%	0.15%	0.22%	0.52%	0.53%	0.60%	0.40%
Austria	0.17%	0.13%	0.09%	0.05%	0.24%	0.30%	0.35%	0.28%	0.10%

Ireland is the leading buyer of microchip manufacturing equipment in Europe, outpacing all other European countries significantly

Exporters to Ireland, B \$

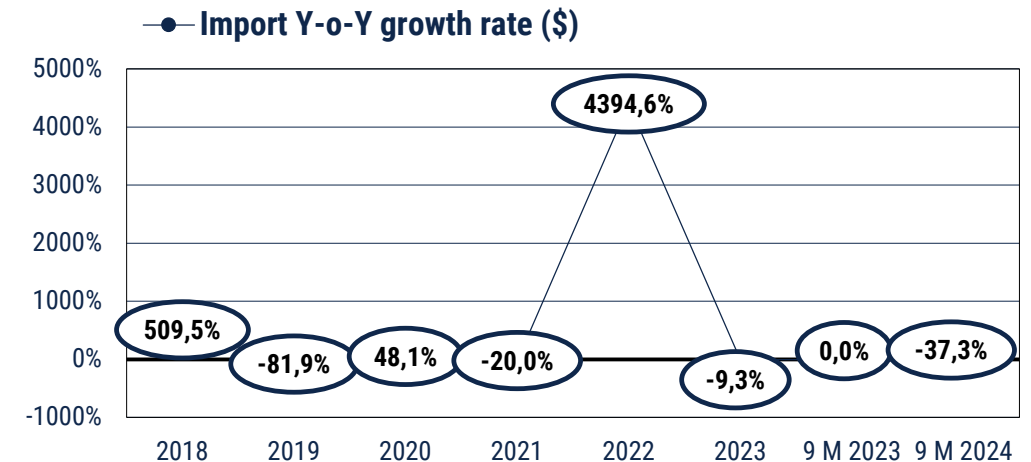
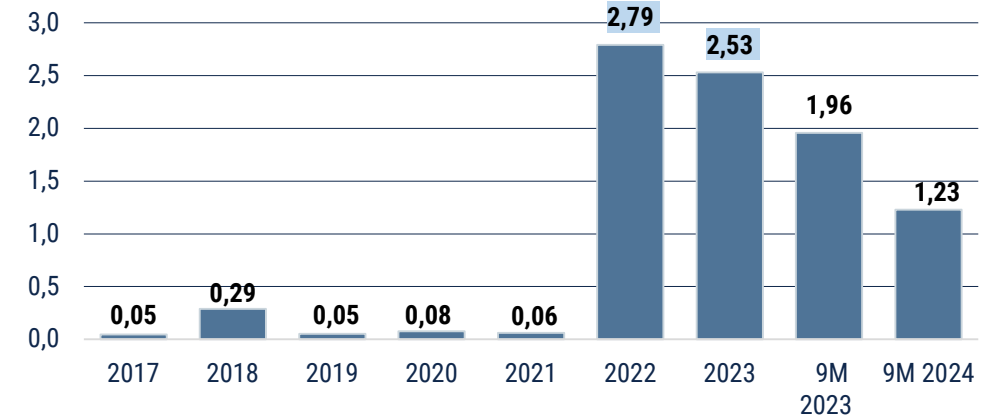
Supplying Country	2017, M\$	2018, M\$	2019, M\$	2020, M\$	2021, M\$	2022, M\$	2023, M\$	CAGR 2017-2023	Sum over 7 years
Netherlands	0.06	0.48	1.23	1.52	2.03	36.82	1,316.8	533.5%	998.81
USA	26.33	80.32	30.43	30.11	46.04	1,372.0	640.61	577.3%	589.19
Japan	20.69	205.33	20.58	40.80	12.52	1,050.5	344.05	71.2%	302.01
Singapore	0.39	3.24	0.03	4.92	0.83	315.96	200.05	143.6%	525.42
South Korea	0.01	0.02	0.07	0.18	0.65	14.11	27.76	229.7%	42.79

Ireland is the largest importer of microchip manufacturing equipment in Europe, ranking #5 globally among the top importers, alongside China, Taiwan, South Korea, and the United States.

Over the six-year period from 2017 to 2022, Ireland increased its imports of microchip manufacturing equipment from zero to \$2.79 billion in 2022, marking the beginning of its capital expenditure (CAPEX) cycle, which has continued through 2023-2024.

The Netherlands stands as the largest supplier, accounting for over 50% of Ireland's equipment imports.

Equipment imports Value by Ireland, B \$



A few key exporting countries dominate global exports of microchip manufacturing equipment

Five key supplier countries drive global exports of microchip manufacturing equipment: the **Netherlands, Japan, Singapore, the USA, and the Republic of Korea**. Together, these nations account for **over 90% of global microchip manufacturing equipment exports**.

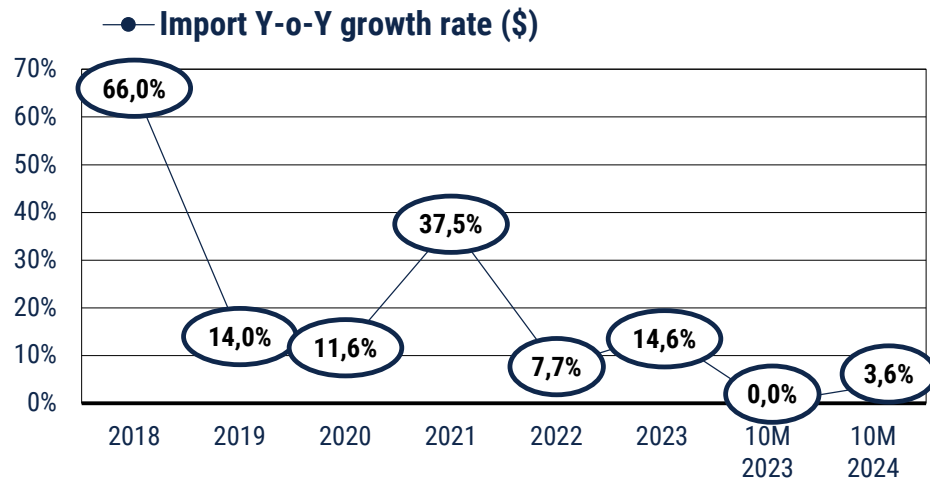
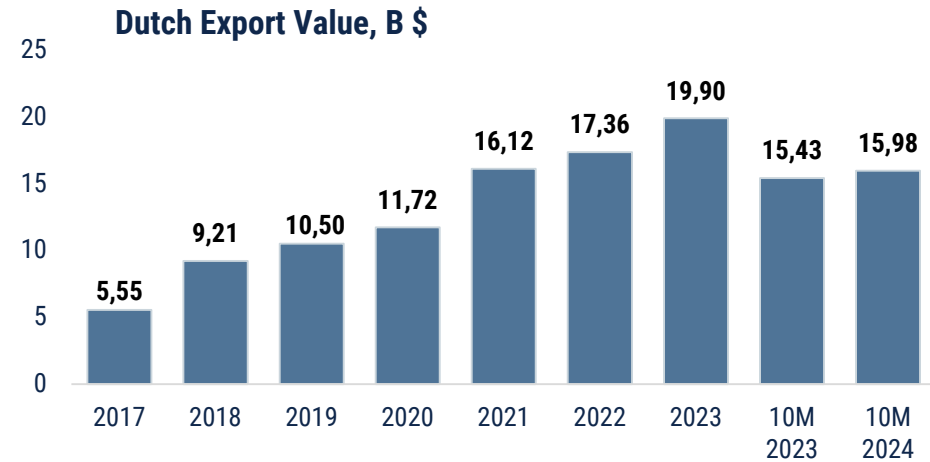
From 2017 to 2022, Japan and the USA were the leaders in the equipment supply market. However, in 2023, the Netherlands outpaced both, becoming the largest exporter of microchip manufacturing equipment.

In the first ten months of 2024, the Netherlands continued to increase its equipment supplies by 3.6%, while exports from other suppliers, such as Japan and the USA, saw significant declines in the 8M 2024 and 10M 2024 periods, respectively (as shown in the table below).

Supplying Country	2017, B\$	2018, B\$	2019, B\$	2020, B\$	2021, B\$	2022, B\$	2023, B\$	10M 2023	10M 2024	Growth Rate, 2023	Growth Rate, 2024	7Y CAGR	Total in 2017 – 10M 2024, B\$	Total in 2021-10M 2024, B\$
Netherlands	5.55	9.21	10.50	11.72	16.12	17.36	19.90	15.43	15.98	14.6%	3.6%	20.0%	106.33	69.36
Japan	9.79	10.98	11.31	11.76	18.01	18.84	15.55	11.80	10.05	-17.5%	-14.8%	6.8%	106.29	62.46
Singapore	2.69	2.92	3.59	4.54	7.49	11.91	13.00			9.1%		25.2%	46.13 (until 2023)	32.40 (until 2023)
USA	12.30	12.00	9.81	12.66	17.20	17.32	12.23	8.94	8.22	-29.4%	-8.1%	-0.1%	107.71	54.96
The Republic of Korea	0.73	1.07	1.99	1.85	2.92	2.43	1.60			-33.9%		12.0%	12.59 (until 2023)	6.95 (until 2023)

Due to the lack of reliable data, export values for 2024 from countries such as Singapore and the Republic of Korea have not been analyzed

In 2024, more than half of the Netherlands' microchip equipment exports are directed to China...



Top-5 Importing Countries from the Netherlands

Importing Country	2017, B\$	2018, B\$	2019, B\$	2020, B\$	2021, B\$	2022, B\$	2023, B\$	10M 2023, B\$	10M 2024, B\$	Share, 2023	Share, 2024
China	0.84	2.37	1.25	2.38	2.30	2.25	6.55	6.55	8.03	32.9%	50.2%
Rep. of Korea	2.60	2.98	1.16	3.74	5.61	4.83	4.91	4.91	2.72	24.7%	17.0%
Taiwan, Province of China	1.03	2.02	5.69	4.25	7.23	7.69	4.43	4.43	1.95	22.3%	12.2%
USA	0.86	1.34	1.98	0.94	0.76	1.47	1.97	1.97	2.16	9.9%	13.5%
Ireland	0.00	0.00	0.00	0.00	0.00	0.04	1.32	1.32	0.53	6.6%	3.3%

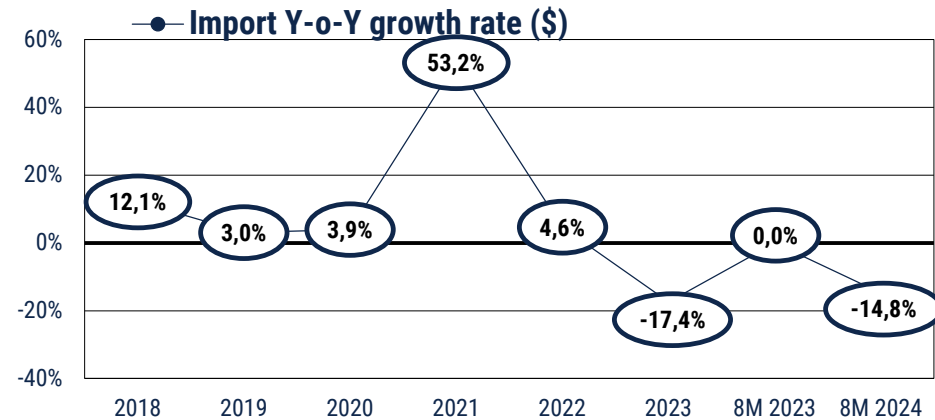
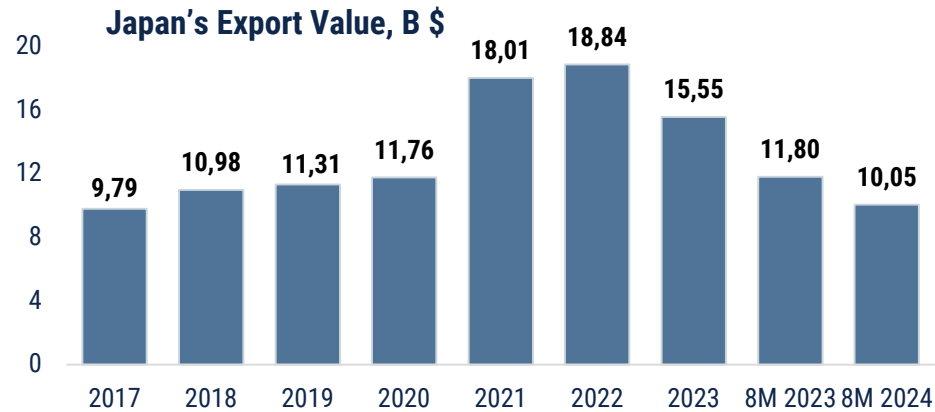
The Netherlands is currently the global leader in exports of microchip manufacturing equipment, with a 7-year compound annual growth rate (CAGR) of 20%.

In 2023, its exports nearly reached \$20 billion.

The growth rate for 2024 stands at +3.6%.

Notably, in 2024, supplies to China accounted for more than 50% of the Netherlands' total exports of microchip manufacturing equipment.

In 2024, more than half of Japan's microchip manufacturing equipment exports were directed to China...



Top-5 Importing Countries from Japan

Importing Country	2017, B\$	2018, B\$	2019, B\$	2020, B\$	2021, B\$	2022, B\$	2023, B\$	8M 2023, B\$	8M 2024, B\$	Share, 2023	Share 2024
China	1.48	2.75	2.89	3.92	6.67	5.74	7.36	4.08	6.61	47.3%	56.0%
Rep. of Korea	4.07	3.96	1.50	2.72	3.90	3.27	2.59	1.89	1.70	16.7%	14.4%
Taiwan,	2.23	1.83	3.58	2.84	4.11	4.61	2.23	1.69	1.63	14.3%	13.8%
USA	1.17	1.19	2.71	1.52	1.96	2.52	1.92	1.36	1.09	12.4%	9.2%
Ireland	0.02	0.21	0.02	0.04	0.01	1.05	0.34	0.30	0.07	2.2%	0.6%

The equipment exports from Japan:

Japan is the second-largest global exporter of microchip manufacturing equipment.

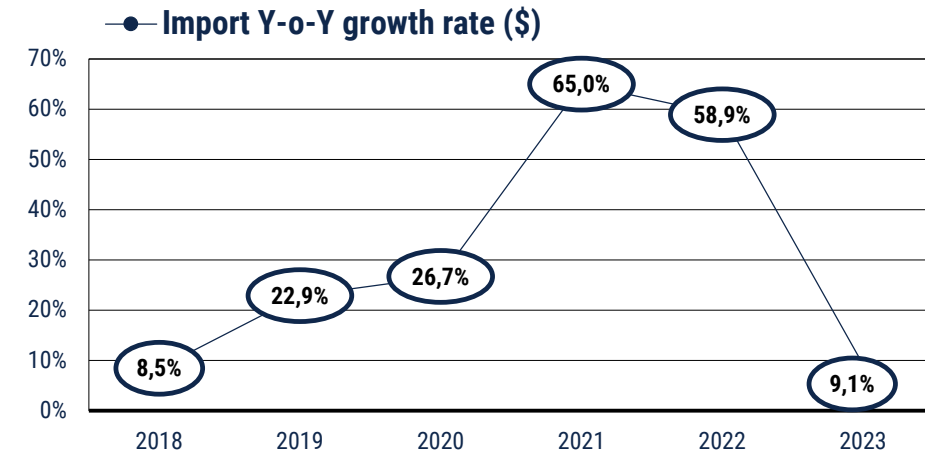
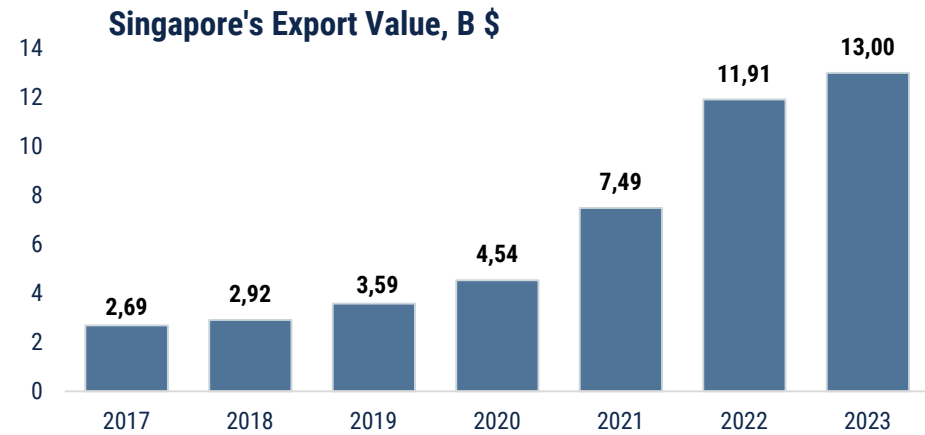
It has achieved a 7-year compound annual growth rate (CAGR) of 6.8%.

In 2023, exports declined to \$15.5 billion, a decrease of 17%.

The downward trend continued in 2024, with exports expected to decline by an additional 3.6% (-15%).

Notably, in 2024, supplies to China accounted for 56% of Japan's total microchip equipment exports.

In 2023, nearly half of Singapore's microchip manufacturing equipment exports were also directed to China



Top-5 Importing Countries from Singapore

Importing Country	2017, B\$	2018, B\$	2019, B\$	2020, B\$	2021, B\$	2022, B\$	2023, B\$	Share, 2023
China	0.67	0.82	1.22	1.67	2.99	4.08	6.33	48.7%
Taiwan,	0.79	0.53	1.13	1.39	2.03	3.63	2.26	17.4%
USA	0.38	0.38	0.72	0.59	0.96	1.50	1.54	11.9%
Japan	0.64	1.04	0.39	0.70	0.68	0.80	0.80	6.2%
China, Hong Kong SAR	0.02	0.01	0.00	0.01	0.27	0.57	0.71	5.5%

The equipment exports from Singapore:

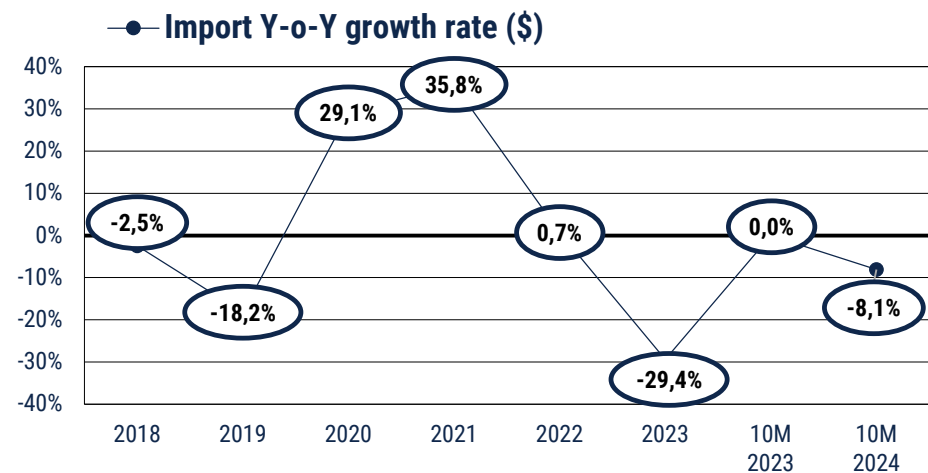
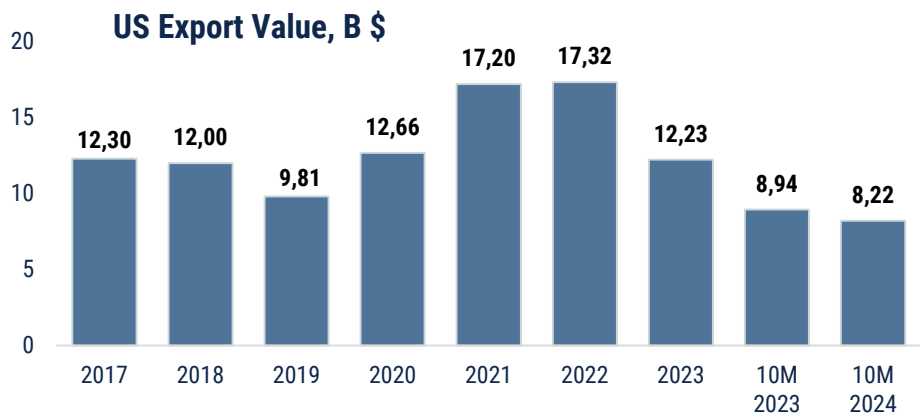
Singapore is the third-largest global exporter of microchip manufacturing equipment.

It boasts an impressive 7-year compound annual growth rate (CAGR) of 25%, making it the fastest-growing exporter in the sector.

In 2023, exports reached \$13 billion, reflecting a 9% increase.

Nearly 50% of Singapore's microchip manufacturing equipment exports were directed to China in 2023.

U.S. equipment exports to China, however, are significantly lower compared to those of other major suppliers



Top-5 Importing Countries from USA

Importing Country	2017, B\$	2018, B\$	2019, B\$	2020, B\$	2021, B\$	2022, B\$	2023, B\$	10M 2023, B\$	10M 2024, B\$	Share, 2023	Share, 2024
China	2.00	2.97	2.98	4.10	5.52	3.86	3.61	2.35	2.82	29.6%	34.3%
Rep. of Korea	4.73	3.39	2.08	3.54	5.11	3.93	2.94	2.27	1.69	24.0%	20.5%
Taiwan	2.43	1.80	2.77	2.57	3.38	4.36	2.25	1.88	1.43	18.4%	17.4%
Japan	1.73	2.19	0.96	1.37	1.38	1.40	0.98	0.61	0.40	8.0%	4.8%
Ireland	0.03	0.08	0.03	0.03	0.05	1.37	0.64	0.59	0.58	5.2%	7.0%

The equipment exports from the USA:

U.S. equipment exports to China are significantly lower than those from the Netherlands, Japan, and Singapore in 2023-2024.

In 10M 2024, exports to China accounted for just 34% of U.S. supplies, while other major exporters directed more than 50-60% of their shipments to China.

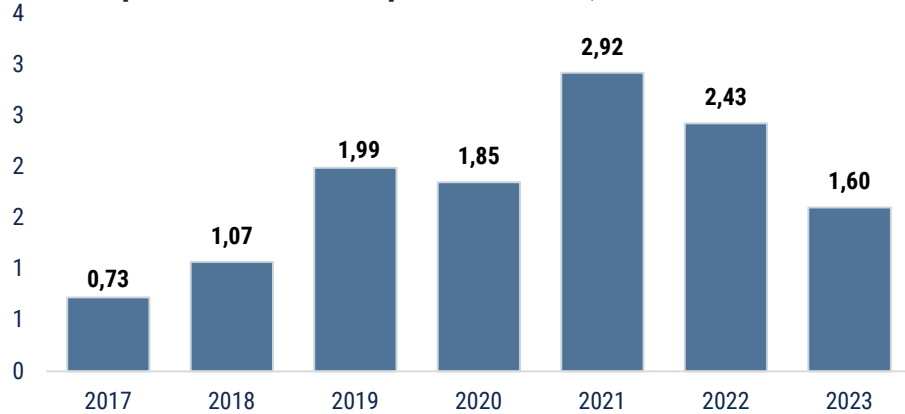
U.S. exports of microchip manufacturing equipment experienced substantial growth from 2019 to 2022. However, in 2023, the market saw a sharp decline, falling to \$12.23 billion, down from \$17.32 billion in 2022, reflecting a decrease of 29.4%.

In 2024, U.S. exports continued to contract, reaching \$8.22 billion in the first ten months, representing an 8.1% decrease compared to the same period in 2023 (\$8.94 billion).

Over the long term, the U.S. market for microchip manufacturing equipment appears to be stagnating, with a compound annual growth rate (CAGR) of -0.09% from 2017 to 2023.

In 2023, over 60% of South Korea's microchip manufacturing equipment exports were directed to China

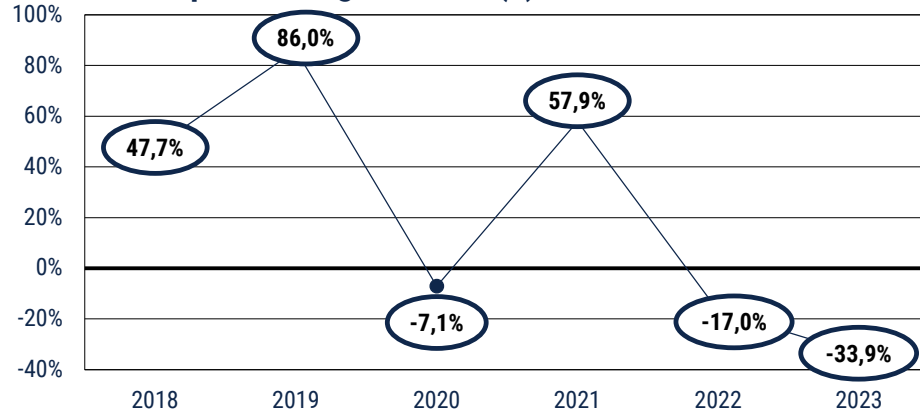
Export Value of the Republic of Korea, B \$



Top-5 Importing Countries from the Republic of Korea

Importing Country	2017, B\$	2018, B\$	2019, B\$	2020, B\$	2021, B\$	2022, B\$	2023, B\$	Share, 2023
China	0.30	0.56	1.47	1.40	2.26	1.37	0.99	61.8%
Singapore	0.02	0.06	0.05	0.09	0.16	0.42	0.17	10.6%
USA	0.17	0.13	0.09	0.14	0.11	0.22	0.15	9.1%
Japan	0.05	0.08	0.09	0.08	0.10	0.10	0.10	6.1%
Taiwan	0.10	0.09	0.14	0.08	0.18	0.18	0.06	3.6%

● Import Y-o-Y growth rate (%)



The equipment exports from the Republic of Korea:

The microchip manufacturing equipment exports from the Republic of Korea saw a significant increase in 2021, rising to \$2.92 billion, up from \$1.85 billion in 2020, representing a robust annual growth rate of 57.9%.

However, from 2022 to 2023, exports from South Korea declined, with a notable drop of 33.9% year-over-year in 2023.

Conclusions

Over the course of eight years (2017-2024), total expenditures on imports of equipment for semiconductor and electronic integrated circuit production have amounted to \$384 billion.

In 2023-2024, China emerged as the largest importer of microchip manufacturing equipment, surpassing other leading markets such as Taiwan and South Korea. By the first nine months of 2024, **China's share of global imports had reached an estimated 50%.**

During the same period, the value of microchip manufacturing equipment imports declined significantly in many countries, with the notable exception of China.

Questions raised by this analysis:

1. The period from 2021 to 2022 appears to have marked the peak of the CAPEX cycle for the world's largest microchip-producing countries. Most of these countries seem to be entering a phase of CAPEX cycle contraction in 2023-2024, with the notable exceptions of China, and possibly the USA. What is driving China's counter-cyclical behavior?
2. If the U.S. were to stop supplying semiconductor equipment and technologies to China, would the Chinese microchip industry be significantly impacted, considering that key equipment exporters to China include the Netherlands, Singapore, and Japan?

CONNECT WITH US

EXPORT HUNTER, UAB

Konstitucijos pr.15-69A, Vilnius, Lithuania

info@gtaic.ai

<https://gtaic.ai/>

Follow us: 

For more information on global trade flows we encourage you to visit <https://gtaic.ai/>, where you can download up-to-date market research reports on 700,000 specific goods markets.