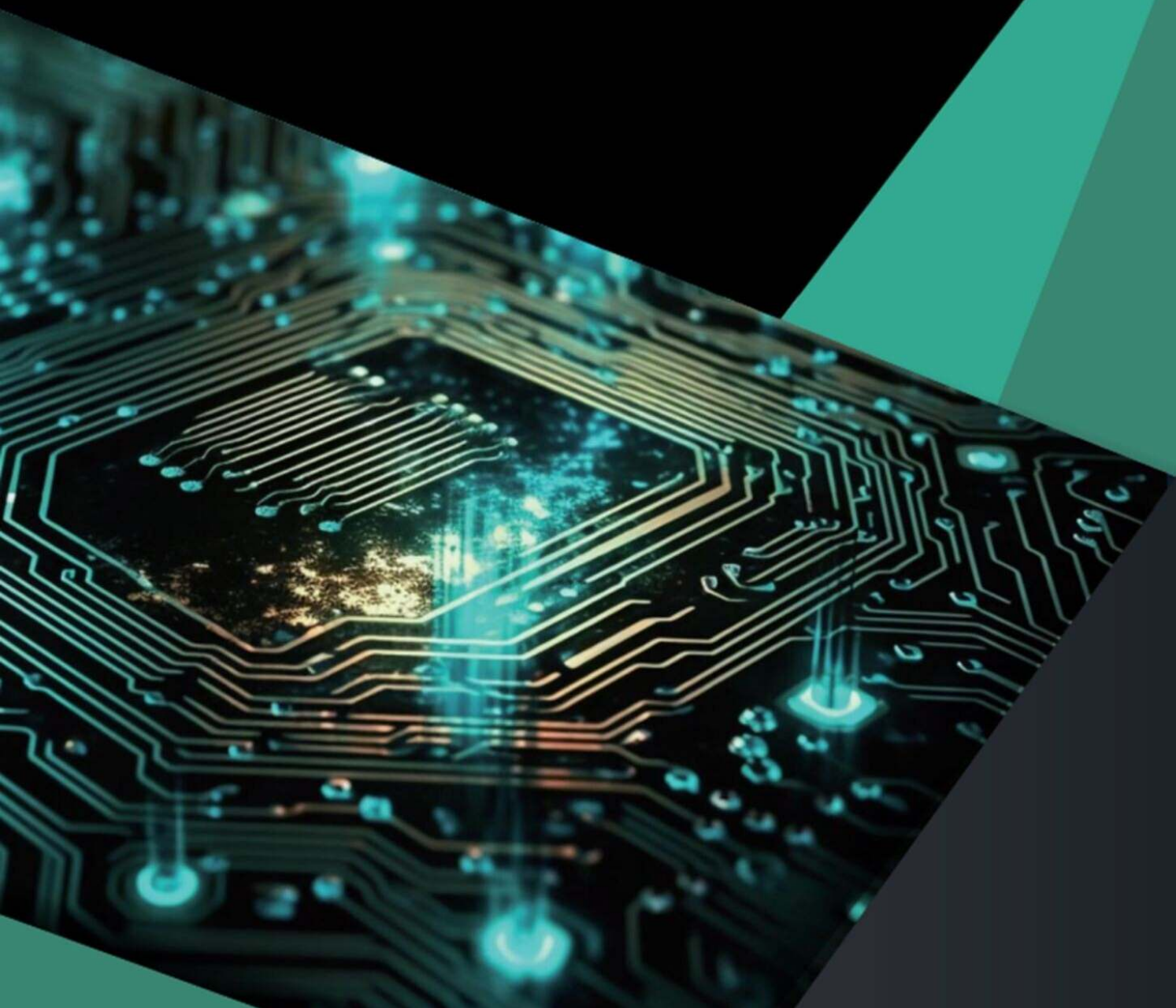
BRIOCEAN

June 2024

Monthly Market Updates

Your preferred supplier for global sourcing



About Briocean Technology

Founded in 2008, Briocean is a leading independent electronic components distributor. Our team provides component sourcing and supply chain services directly to electronic manufacturing clients across a wide range of industries.

With over 10,000 global electronic component suppliers, we strive to meet the various demands of our clients regarding component shortages or cost saving. Briocean established a supplier management system and two world-class quality control centres in Shenzhen and Hong Kong to provide customers with reliable and trackable procurement supply chain services. With Briocean's commitment to quality, we ensure that every component we source meets the highest standards.

Executive Summary

This report provides an overview of the semiconductor industry in June 2024 and attempts to identify essential market trends over the next month. Based on the relevant data available, the report analyses macro factors, supply chains, applications, and product market trends.

In June 2024, the global economic landscape exhibited notable fluctuations with implications across multiple sectors, particularly manufacturing and semiconductors. The global manufacturing PMI slightly declined to 49.5%, reflecting contractions in production and new orders in key regions like China, while South Korea saw a robust expansion driven by strong domestic and international demand. Meanwhile, the U.S. and Eurozone manufacturing sectors continued to struggle, with PMIs remaining below the critical 50-point threshold.

The semiconductor market continued its upward trajectory with a 1.1% month-over-month increase in May, driven by significant growth in the Americas and Asia-Pacific regions. However, Japan and Europe faced declines. The Philadelphia Semiconductor Index also saw consistent growth, underlining the strong phase in the current semiconductor cycle. Simultaneously, geopolitical tensions, particularly between the U.S. and China, have intensified, affecting the semiconductor and electric vehicle industries. The U.S. has imposed restrictions on China's AI chip development and pressured allies like Japan and the Netherlands to follow suit. The EU has implemented anti-subsidy tariffs on Chinese electric vehicles, signaling increased protectionism in response to global trade dynamics.

In the semiconductor industry, short-term trends include price hikes driven by capacity constraints in advanced processes like TSMC's 3nm technology, with Qualcomm leading the price increase. The wafer foundry market also reflects this trend with significant capacity utilisation, prompting price adjustments. Mid-term trends show Chinese companies seeking to bypass U.S. tariffs by setting up operations in Malaysia and Longsys enhancing its production capabilities in Brazil. Long-term trends are marked by substantial investments in AI and semiconductor technology by companies like SK hynix and Micron, reflecting the growing importance of AI applications in driving market demand.

Application updates highlight significant advancements in AI and new energy sectors. Apple introduced its first generative AI model, Apple Intelligence, while Elon Musk's xAI project garnered support from Dell and Supermicro. In the new energy sector, the world's largest sodium-ion battery storage system became operational in Hubei, and Arctech Solar secured a major contract in the Middle East.

The automotive industry also experienced notable developments, with Leapmotor planning local production in Europe to mitigate tariff impacts and Geely advancing its high-tech automotive project in Malaysia. Storage chip prices saw an increase due to rising demand for AI servers, while power device prices stabilised, with manufacturers planning price hikes in response to strong demand in consumer electronics and home appliances.

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Macro Environment Overview

Macro Environment Overview

Trends	Updates
Marco	• The global PMI fell slightly from the previous month, and China's manufacturing prosperity index was basically stable • Global semiconductor sales continued to increase month-on-month, and the certainty of the rising cycle increased • The EU imposed temporary tariffs on Chinese-made electric vehicles, and the United States put pressure on China to restrict the development of AI chips: the Netherlands and Japan became the focus, and Japan sanctioned Chinese companies for the first time for "Russia-Ukraine conflict"
Industry	• TSMC's 3nm drives up the cost of downstream products • Southeast Asia has become the focus of Chinese semiconductor companies' overseas expansion to avoid tariffs and other policy issues
Application	• AI: Continue to make efforts, Apple's first generative AI large model is released • New energy: Continue to pay attention to Chinese new energy companies' overseas customer acquisition • Automotive: In response to the EU tariff policy, some models of Leapmotor will be transferred to Europe for production
Product	• Storage chips: High-end products performed strongly, and spot channel SSD and memory prices fell slightly • Power devices: Market prices stabilised, production capacity increased, and power manufacturers planned to raise prices • MCU: MCU basically continued the situation of last month, and the delivery time of automotive-grade MCU was still more than 40 weeks

1. Macro Environment Overview

1.1 Global PMI Slightly Decreased from the Previous Month; China's Manufacturing PMI Remained Stable

According to data released by the China Federation of Logistics and Purchasing on July 6, the global manufacturing PMI in June 2024 was 49.5%, a decrease of 0.3 percentage points from May.

From a regional perspective, in Asia, China's manufacturing PMI was 49.5%, unchanged from the previous value. The manufacturing PMI is below the boom-bust line, with production and new orders declining and exports recovering modestly. International commodity prices fell, leading to a decline in prices. Japan and South Korea's manufacturing PMI is in the expansion range, with South Korea continuing to climb to 52.0 due to strong domestic and foreign demand.

As South Korea integrates key intermediate products like batteries and semiconductors into its supply chain, it is considered an export bellwether. South Korean manufacturing output and orders often provide leading signals for broader trends. In June, new orders in South Korea's manufacturing sector grew at the fastest pace since February 2022, with overseas orders seeing the largest increase in five months.

The U.S. manufacturing PMI fell to 48.5%, down from 48.7% the previous month, and has been below the boom-bust line for three consecutive months. This decline was primarily due to a decrease in raw material inventory indices, potentially influenced by a slowdown in price increases and a drop in commodity prices. In Europe, the Eurozone manufacturing PMI fell to 45.6.

Global Regional Manufacturing PMIs

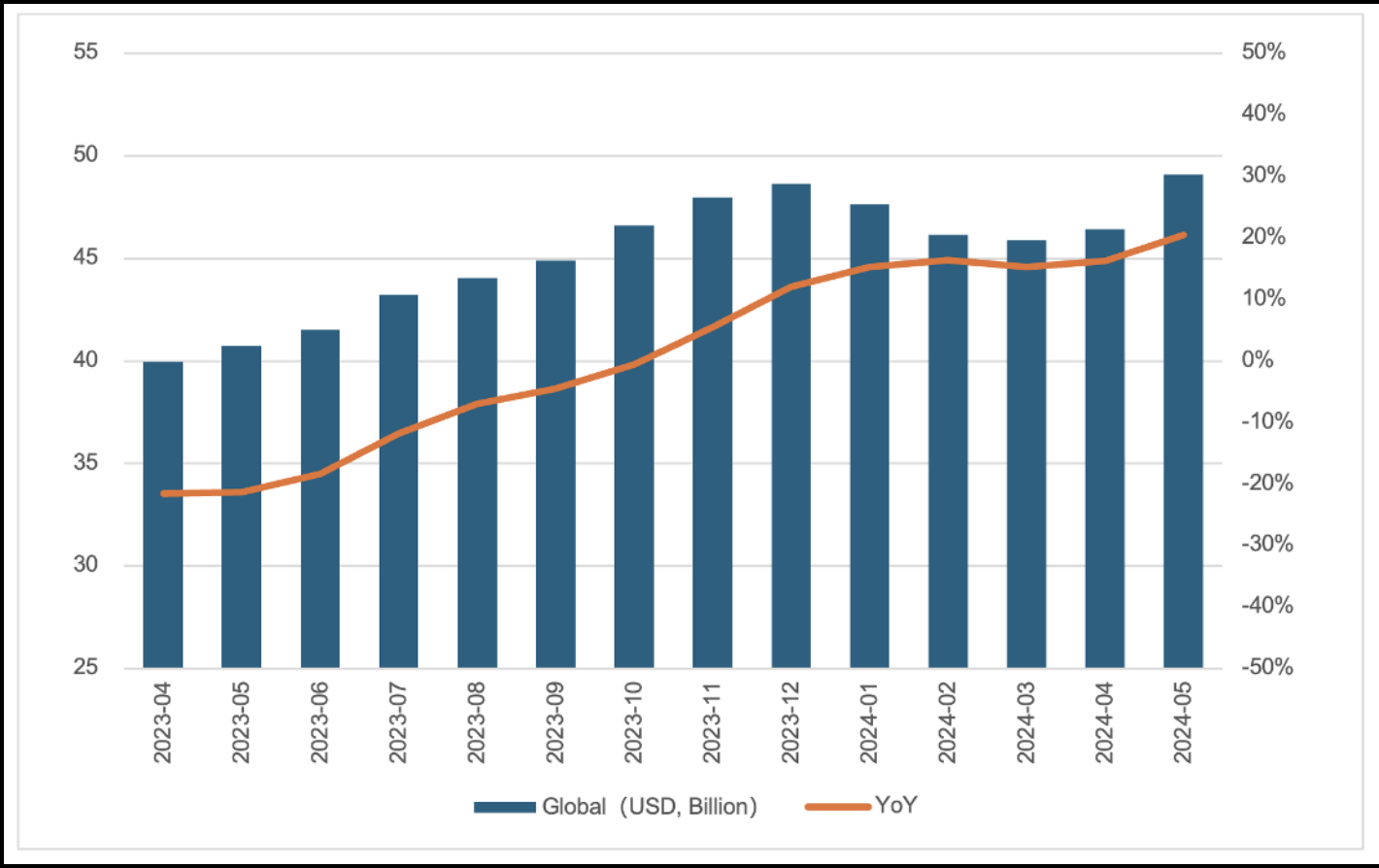
Timeline	Global	China	Japan	South Korea	India	United States	Eurozone
2023-06	48.80	49.00	49.80	47.80	57.80	46.00	43.40
2023-07	48.70	49.30	49.60	49.40	57.70	46.40	42.70
2023-08	49.00	49.70	49.60	48.90	58.60	47.60	43.50
2023-09	49.10	50.20	48.50	49.90	57.50	49.00	43.40
2023-10	48.80	49.50	48.70	49.80	55.50	46.70	43.10
2023-11	49.30	49.40	48.30	50.00	56.00	46.70	44.20
2023-12	49.00	49.00	47.90	49.90	54.90	47.40	44.40
2024-01	50.00	49.20	48.00	51.20	56.50	49.10	46.60
2024-02	50.30	49.10	47.20	50.70	56.90	47.80	46.50
2024-03	50.60	50.80	48.20	49.80	59.10	50.30	46.10
2024-04	49.90	50.40	49.60	49.40	58.80	49.20	45.70
2024-05	49.80	49.50	50.40	51.60	57.50	48.70	47.30
2024-06	49.50	49.50	50.00	52.00	58.30	48.50	45.60

Data Source: Fastbull

1.2 Global Semiconductor Market Demand Continued to Rise in May

In May 2024, global semiconductor market demand saw a month-over-month increase of 1.1%, reaching USD 49.1 billion. From January to May 2024, global semiconductor sales totaled USD 235.24 billion.

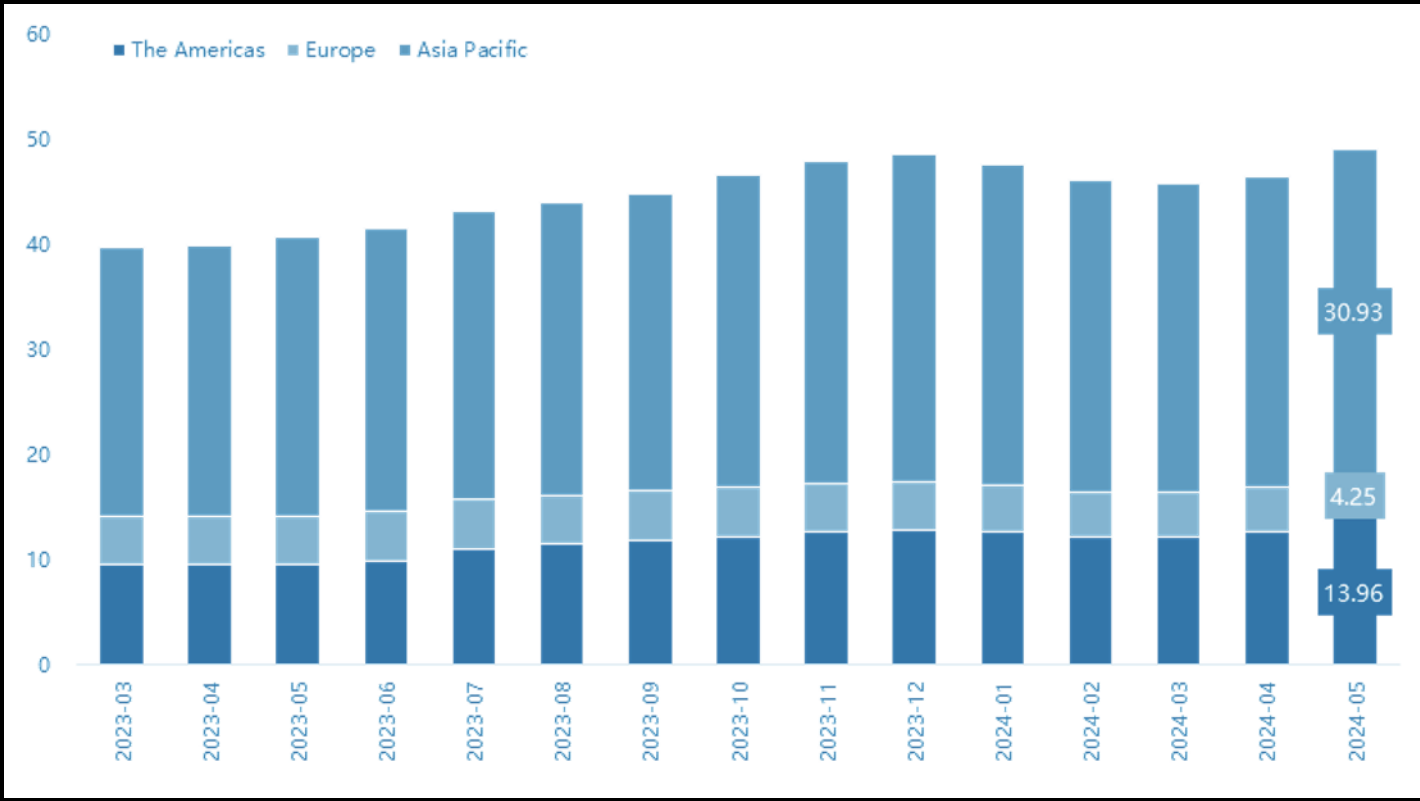
Global Semiconductor Sales (USD, Billion)



Data Source: SIA

Regionally, the Americas' semiconductor sales in May showed the most significant growth, increasing by 43.6% compared to the same period last year. China and, the Asia-Pacific/Other regions grew by 24.2% and 13.8%, respectively. Japan and Europe, however, saw declines of 5.8% and 9.6%, respectively.

Semiconductor Sales by Regions (USD, Billion)



Data Source: SIA

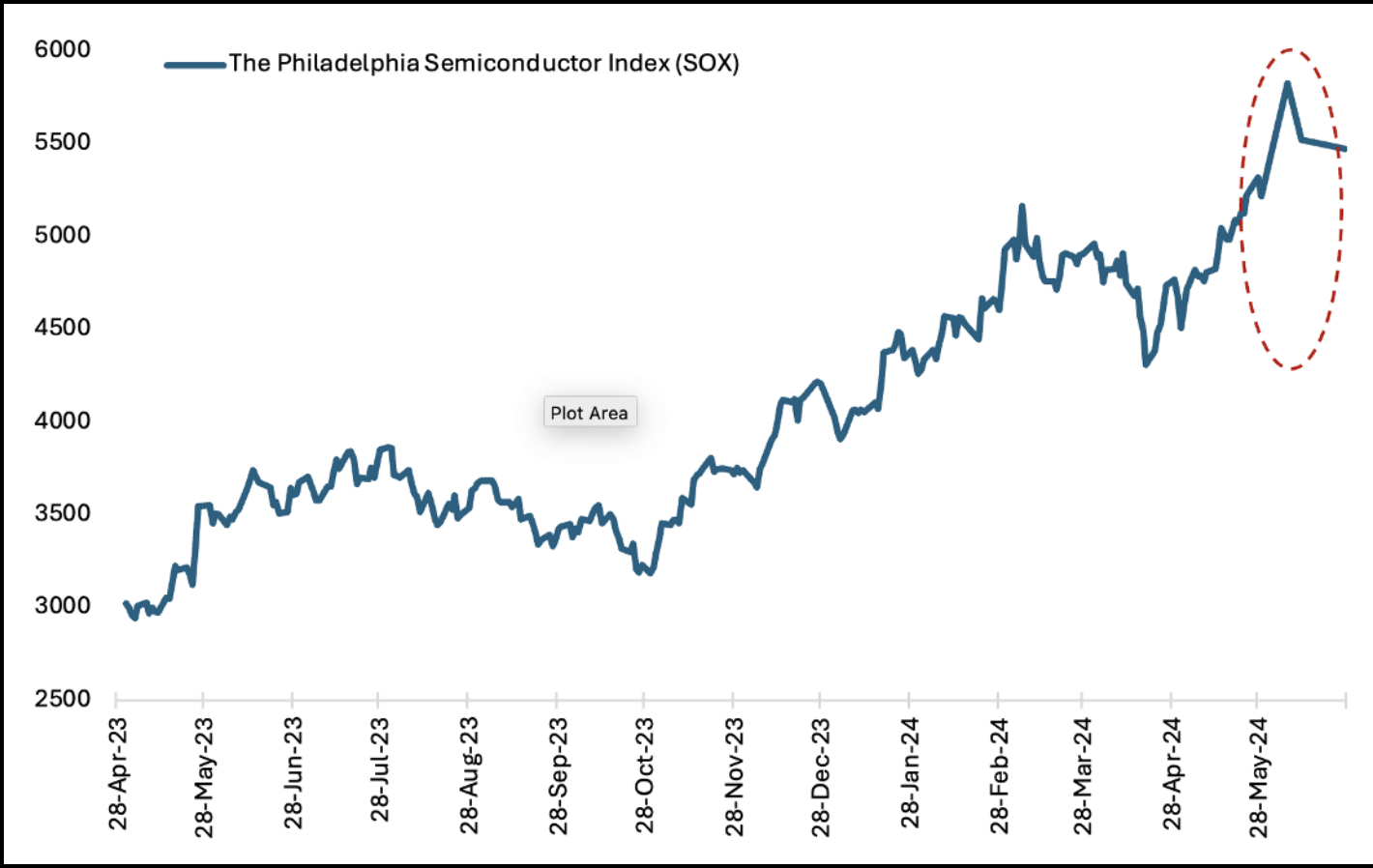
U.S. 10-year Treasury Yield (%)

The U.S. 10-year Treasury yield slightly decreased due to a weak employment report.

1.3 The Philadelphia Semiconductor Index Continued to Rise Throughout the Month

The cyclical fluctuations in the semiconductor industry typically last 3 to 5 years. Since 2008, the global semiconductor market has completed four such cycles, and currently in the rising phase of the fifth cycle, which began in Q1 2023. Since April 2023, the year-over-year growth rate of the Philadelphia Semiconductor Index (SOX) has turned positive, further confirming that the global semiconductor industry is in a strong upward cycle.

Philadelphia Semiconductor Index (SOX)



Data Source: MacroMicro

1.4 The EU Imposed Temporary Tariffs on Chinese Electric Vehicles

On June 12, the European Commission announced plans to impose temporary anti-subsidy tariffs on Chinese-made pure electric vehicles starting July 4. Among them, SAIC faces a tariff rate of 38.1%, while Geely and BYD face tariffs of 20% and 17.4%, respectively. In addition to the above three Chinese companies, other companies that were not sampled but cooperated with the investigation will be uniformly levied tariffs at a weighted average rate of 21%; for companies that do not cooperate with the investigation, the tariff rate will be 38.1%. The current standard tariff rate for passenger cars in the Eurozone is 10%, which will increase to 48.1% for SAIC and other non-cooperating companies after the imposition of additional tariffs.

1.5 The U.S. Pressured to Limit China's AI Chip Development, Focusing on the Netherlands and Japan

The U.S. government has recently intensified its restrictions on China's semiconductor industry, particularly targeting high-end AI memory chip manufacturing capabilities. Alan Estevez, the U.S. Under Secretary of Commerce for Industry and Security, visited Japan and the Netherlands to request new restrictive measures against China. Early discussions are underway with relevant industry manufacturers to explore the possibility of restricting HBM chip exports.

Meanwhile, the U.S. is also pushing Japan and the Netherlands to strengthen existing restrictions on Dutch suppliers, ASML, and Tokyo Electron's activities in China. Despite U.S. pressure, the Japanese and Dutch governments are still assessing the impact of high-end chip manufacturing equipment export bans and observing U.S. political developments. The U.S. Department of Commerce's Bureau of Industry and Security, the Dutch Ministry of Foreign Trade, and Japan's Ministry of Economy, Trade, and Industry have yet to comment on the matter.

1.6 Japan Sanctioned Chinese Companies for Involvement in the Russia-Ukraine Conflict for the First Time

The Japanese government announced sanctions against certain Chinese companies for supporting Russia in the Russia-Ukraine conflict. China opposed these sanctions, stating that unilateral sanctions are detrimental to international trade.

Simultaneously, Japan's semiconductor industry is strengthening its global market position through technological innovation and international cooperation, such as introducing TSMC. The Japanese government plans to enhance domestic industry revenue and supply chain resilience through the "Semiconductor and Digital Industry Strategy."

1.7 The U.S. Treasury Department Issued New Rules to Restrict AI and Chip Investments in China

The U.S. Treasury Department announced a new ban aimed at restricting U.S. investments in China's AI and chip sectors. This regulation specifically prohibits investments in certain end-use AI systems and systems using specific computational capabilities and requires reporting on non-prohibited AI system or chip-related transactions. These measures are based on an executive order signed by President Biden last year, focusing on critical areas such as semiconductors, microelectronics, quantum information technology, and AI.

The final implementation details of the new regulations will be published after August 4, 2024. U.S. individuals and companies must determine which transactions will be restricted or prohibited. Violations will face criminal and civil penalties, and investments may be revoked. China's Ministry of Foreign Affairs strongly opposed the executive order, describing it as economic coercion and technological bullying, seriously violating market economy and fair competition principles.

02

Semiconductor Industry Updates

Semiconductor Industry Overview

Impact	Manufacturer	Updates	Aanalysis
Short-term	Qualcomm	Qualcomm announces 25% price increases	Rising costs trigger chip price increases
Short-term	TSMC / Huahong	According to reports, TSMC and Huahong are raising prices	Rising costs trigger chip price increases
Short-term	Samsung	Samsung union announces 3-day strike in July to fight for wage increase	May affect the supply cycle of Samsung related products
Mid-term	Longsys	Zilia, a Brazilian subsidiary, has started packaging and producing Longsys storage production lines	Optimistic about China's memory chip exports
Mid-term	-	Some Chinese companies are seeking Malaysian government assistance in circumventing U.S. tariffs on batteries, medical devices and computer chips	Optimistic about China's local semiconductor export market in Southeast Asia
Long-term	ASE	ASE continues to develop advanced packaging, and the Kaohsiung plant is expected to be completed in 2026	Advanced packaging development is in short supply
Long-term	Foxconn	Foxconn invests USD 383 million to build PCB factory in Vietnam	Optimistic about Southeast Asian overseas market
Long-term	SK hynix	SK hynix leads investment of over USD 70 billion to seize the AI market	AI drives growth in high-end storage
Long-term	Micron	Micron expands HBM production line to respond to growing demand for AI	AI drives growth in high-end storage

2.1 Short-term Implications

2.1.1 Qualcomm Leads Chip Price Increase: TSMC's Tight 3nm Capacity Drives Cost Up

On June 13, reports from the supply chain indicated that TSMC's 3nm process capacity shortage caused upstream IC design companies to consider raising prices. Qualcomm is likely to be the first to increase prices. The Snapdragon 8 Gen 4 chip, using TSMC's N3E process, might see a 25% price increase compared to its previous generation. This could trigger a wider industry price hike.

Currently, the procurement cost of mobile phone chips is relatively high. Last year the procurement price of Snapdragon 8 Gen 3 was about USD 200, and this year it may exceed USD 250. Despite this, the industry considers the price increase reasonable, as the wafer cost for the 3nm process is approximately 25% higher than that of the 5nm process, not accounting for quantities and design architecture impacts. Major manufacturers such as Apple, Qualcomm, Nvidia, and AMD have already pre-booked substantial TSMC 3nm capacity, leading to customer queueing, and this capacity shortage is expected to persist until 2026.

2.1.2 Wafer Foundry Market Price Increase: TSMC and Hua Hong Semiconductor Lead the Gains

In response to continued capacity constraints, TSMC plans to adjust its 3nm process foundry prices by more than 5% and expects a 10%-20% increase in the prices for advanced packaging services next year. This price increase reflects strong market demand and TSMC's leading position in semiconductor manufacturing.

Meanwhile, Chinese wafer foundries such as Hua Hong Semiconductor are also experiencing significant capacity utilisation, with some manufacturers exceeding 100% capacity. This full-capacity state supports rising prices and signals an end to a two-year price decline trend.

Morgan Stanley report indicates that Hua Hong Semiconductor's capacity utilisation rate is overloaded, and the company may increase product prices by 10% in the second half of 2024, reflecting supply and demand tensions in the global foundry market are driving up prices, affecting the entire semiconductor industry.

2.1.3 Samsung Union Strike for 3 Days Starting from July 8

Samsung Electronics' largest union announced a three-day strike starting July 8. The union represents 22% of Samsung Electronics' total workforce, totaling 28,000 members. The strike targets Samsung's chip division, which produces various critical components such as RAM, NAND flash chips, USB memory sticks, SD cards, Exynos processors, camera sensors, modems, NFC chips, and power/display controllers.

2.2 Mid-term Implications

2.2.1 Longsys Announces its Brazilian Subsidiary, Zilia, has Begun Storage Production

Longsys recently announced that its Brazilian subsidiary, Zilia, has begun packaging production for Longsys's storage product line. Utilising advanced storage equipment, product technology, and packaging processes introduced by Longsys, Zilia aims to enhance its production capabilities in embedded storage (eMMC, UFS), storage modules, and solid-state drives (SSDs), and other related fields, to meet the demand for locally manufactured products in the Americas market.

Simultaneously, Zilia announced a BRL 650 million investment, focusing on R&D innovation and expansion of existing production capacity, and while consolidating Zilia's development achievements over the past 20 years, enriching the storage product portfolio and expands its market share in the Americas.

Longsys has successfully implemented multiple acquisitions in the semiconductor storage field, including Lexar's retail brand, Yuan Cheng Suzhou, and Zilia, enhancing its competitiveness in products, branding, packaging, and testing manufacturing.

2.2.2 Chinese Companies Seek Malaysian Government Assistance to Circumvent U.S. Tariffs

Recently, representatives from Chinese battery, medical device, and computer chip manufacturers are planning to set up factories in Malaysia, visited Kuala Lumpur to seek assistance in avoiding additional U.S. tariffs on related products. These companies hope the Malaysian government can lobby the U.S. to exempt photovoltaic products produced or assembled in Malaysia from the new tariffs. The U.S. government previously announced increased tariffs on some Chinese imports starting August 1, affecting Southeast Asian countries, especially Vietnam's photovoltaic industry, which relies heavily on Chinese investment. The Malaysian Prime Minister's Office and the Ministry of Trade have yet to respond. It remains unclear whether the U.S. will impose new tariffs on Chinese goods imported from Southeast Asia.

2.3 Long-term Implications

2.3.1 ASE Continues Advanced Packaging Expansion with New Kaohsiung Plant Expected in 2026

On June 21, ASE Semiconductor, a subsidiary of ASE Technology Holding Co., announced its collaboration with Hong Jing Construction to build the K28 plant in Kaohsiung city, expected to be completed in the fourth quarter of 2026. The plant will focus on advanced packaging, final testing, and the production of AI and high-performance computing chips. The project is funded by ASE Semiconductor and Hong Jing Construction, constructing one underground and seven above-ground factory building. Both parties have reached an agreement on the value distribution of the joint construction rights, with ASE Semiconductor accounting for 22.24% and Hong Jing Construction accounting for 77.76%. Upon completion, ASE Semiconductor or its subsidiaries will have priority rights to purchase Hong Jing Construction's property.

2.3.2 Foxconn to Invest USD 383 Million to Build a PCB Factory in Vietnam

Foxconn, the world's largest electronics contract manufacturer, will invest USD 383 million in a new printed circuit board (PCB) factory in Bac Ninh Province, Vietnam, with an expected annual output of 2.79 million units. Since the 2000s, Foxconn has invested over USD 3.2 billion in Southeast Asia, with major factories concentrated in Bac Ninh and Bac Giang. In June, Foxconn announced it would produce 5G equipment for Nokia in Bac Giang. Additionally, FIH Mobile, a subsidiary of Hon Hai Precision Industry, will make a third-round investment of USD 42.36 million in its Vietnamese subsidiary, Fushan Technology.

2.3.3 SK hynix Leads USD 70 Billion Investment in AI Market

SK hynix plans to invest KRW 103 trillion (approximately USD 74.8 billion) to develop chip technology, focusing on AI and semiconductor technology. By 2026, the company will secure KRW 80 trillion (approximately USD 60 billion) in funds for the research and development of high-bandwidth memory chips (HBM) and optimise the operations of more than 175 subsidiaries.

Due to AI server applications, HBM demand is surging, with HBM's share of DRAM capacity and value expected to significantly increase between 2023 and 2025. TrendForce predicts HBM will account for over 20% of total DRAM value by 2024, potentially exceeding 30% by 2025. Currently, HBM3e technology is becoming mainstream, with Nvidia and AMD's AI accelerators adopting it.

Strong HBM demand has led suppliers to secure 2024 production capacity and initiate 5%-10% prelimary price hikes for 2025. SK hynix, Micron, and Samsung are actively expanding HBM capacity to seize AI market opportunities.

2.3.4 Micron Expands HBM Production Line to Meet AI Demand Growth

Micron is expanding its high-bandwidth memory (HBM) capacity to to meet market demand driven by AI technology. The company plans to build an HBM pilot production line at its headquarters, Boise, Idaho, and may produce HBM in Malaysia for the first time.

Micron is also expanding its HBM factory in Taichung, Taiwan, investing JPY 600 to 800 billion. The new plant will focus on DRAM production, excluding backend packaging and testing, and primarily produce HBM products. In additional, Micron already has chip testing and assembly facilities in Malaysia and may increase HBM production capacity there in the future.

03

Application Updates

3. Application Updates

Application Overview

Category	Manufacturer	Updates	Analysis
Artificial Intelligence	Apple	Apple's first generative AI model, Apple Intelligence, is released	Demand for AI chips is expected to continue to grow
Artificial Intelligence	Intel	Intel Lunar Lake AI processor release date confirmed, expected to be delayed until September	Demand for AI chips is expected to continue to grow
Artificial Intelligence	SMCI	Dell and AMD team up to support Musk's xAI supercomputer project	AMD AI chip orders to continue to grow
New Energy	Haiju New Energy	The world's largest sodium-ion battery energy storage system is put into operation in Hubei	Bringing market opportunities for power devices
New Energy	Arctech Solar	Wins major orders from the Middle East	Continue to be optimistic about Chinese companies' energy storage overseas expansion
Automotive	Leapmotor	Leapmotor will transfer some models to Europe in response to EU tariff policies	Chinese automotive companies expand into Europe
Automotive	Geely	Geely promotes the construction of Malaysia Automotive Technology Valley	Continue to focus on the automotive semiconductor market in Southeast Asia
Automotive	HIMA	HIMA will launch two new cars with an estimated price of more than CNY 300,000	The process of domestic automobile intelligence is accelerating
Automotive	Great Wall Motor	National Innovation Center and Great Wall Motors established a joint laboratory for automotive-grade chips	The process of domestic automobile intelligence is accelerating

3.1 Artificial Intelligence

3.1.1 Apple Unveils First Generative AI Model, Apple Intelligence

Apple has launched its first generative AI model, Apple Intelligence. This model supports natural language understanding and a variety of applications, including automatic email refinement, memo summarisation, generative image creation, and providing images, and animations in different styles. Additionally, Apple Intelligence assists iPhones in automatically identifying the importance of notifications and reordering them to reduce distractions.

Apple assures that all information processed through Apple Intelligence will enjoy the highest level of privacy protection. The company will not collect data but only process it. This AI model combines on-device and cloud processing to ensure that when the phone's computing power is insufficient, relevant instructions can be processed through cloud. The cloud uses private cloud computing technology to provide chip-level data protection, ensuring data is not stored and protect user privacy and security.

3.1.2 Dell and Supermicro Computer Supports Musk's xAI Supercomputing Project

Elon Musk's AI startup, xAI, has received support from Dell Technologies and Supermicro (SMCI), with these companies providing the necessary server racks for its supercomputer. Michael Dell, CEO of Dell Technologies, announced on social media that the company is collaborating with Nvidia to build an AI factory to support xAI's large model, Grok. Musk confirmed that Dell will assemble half of the racks, while Supermicro Computer will handle the other half. Known for its close cooperation with chip companies and liquid cooling technology, Supermicro also confirmed its collaboration with xAI.

The supercomputer planned by xAI is designed to drive an updated version of its AI chatbot Grok, with the goal of being operational by the fall of 2025. This project highlights the urgent need for high-performance computing resources in the AI sector.

3.1.3 Intel Lunar Lake AI Processor Release Delayed to September

According to Digitimes, the release of Intel's Lunar Lake platform, Intel Core Ultra 2 V series processors, has been delayed from June to September. This processor series will compete with Qualcomm and AMD processors, which were released in June and July. Intel has confirmed that Lunar Lake processors will be shipped as planned in the third quarter in preparation for the holiday season. Desktop processors and related motherboards will be released successively in October and after CES 2025.

3.2 New Energy

3.2.1 World's Largest Sodium-Ion Battery Storage System Operational in Hubei

Haiju New Energy Technology Co., Ltd. and Shenzhen Kelu Electronics Technology Co., Ltd., a new energy platform of Midea Group, have entered into a long-term strategic cooperation. In the future, the two parties will focus on promoting industrial and commercial photovoltaic/energy storage projects in Midea factories nationwide and in provinces where peak-to-valley price differences align with investment returns. They plan an annual cooperation scale of over 300 MWh.

3.2.2 Arctech Solar Wins Major Middle East Contract

The Saudi REPDO4 AHK1.2GW project will use Arctech Solar's flagship product, Skyline II, known for its strong wind stability and intelligent power generation performance, ensuring stable and continuous power generation throughout the plant's lifecycle. As of the first half of 2024, Arctech Solar has accumulated new projects totaling 3.4GW in the Middle East. In addition to this signing, previous large projects include Dubai DEWA6 1.2GW, Oman I 640MW, Saudi AMAALA 248MW, and Tunisia 120MW, establishing Arctech Solar as a leader among Chinese companies entering the Middle East market.

3.3 Automotive

3.3.1 Leapmotor to Produce Some Models in Europe to Address EU Tariff Policy

On June 13, Carlos Tavares, CEO, Stellantis Group, announced during the company's Investor Day that some models of Leapmotor will be produced at Stellantis' factories in Europe. Stellantis Group and the Chinese electric vehicle manufacturer, Leapmotor, have officially established a joint venture company, Leapmotor International, planning to sell Leapmotor models in nine European countries starting in September 2024. According to the Financial Times, Tavares said at the investor day that the new tariff policy makes the economics of importing complete vehicles less than local production in Europe.

3.3.2 Geely Advances Automotive Technology Valley Project in Malaysia

Geely Holding Group is advancing a new project in collaboration with Malaysia's DRB-HICOM Group to jointly develop the Tanjung Malim Automotive High-Tech Valley (AHTV). Geely states that by 2035, AHTV will have a production capacity of 500,000 vehicles, with 50% for export. AHTV will also have the capacity to supply 1 million sets of parts, with half intended for the global market.

3.3.3 HIMA to Launch Two New Cars, Expected Prices Above CNY 300,000

At the China Auto Blue-Book Forum on June 14, Richard Yu, Chairman of Huawei Device Co., Ltd., revealed that two new cars equipped with HIMA will be launched in the second half of the year: the Stelato S9 in collaboration with BAIC Group and the R7 in collaboration with Chery. Yu stated that in 2024, the average price of HIMA's products will be CNY 390,00, helping partners achieve profitability. He explained that Huawei does not have the capability to control the supply chain and mass manufacture components, thus it cannot significantly reduce costs. Despite larger market potential for cars priced below CNY 200,000, Huawei has no plans to enter the market below this price point for the time being.

3.3.4 National Innovation Centre and Great Wall Motors Establish Joint Laboratory for Automotive-Grade Chip

In June, the National New Energy Vehicle Technology Innovation Centre and Great Wall Motors Co., Ltd. jointly unveiled the "Joint Laboratory for Automotive-Grade Chips". This marks a significant step in deepening cooperation between the National Innovation Centre and Great Wall Motors in the field of automotive-grade chips. The joint laboratory aims to create "one platform and three major supports," forming a closed-loop ecosystem of government, industry, and innovation. The "one platform" refers to providing one-stop services such as testing, certification, consulting, and training to companies in the vehicle, automotive electronics, and automotive chip industries. The "three major supports" include supporting the selection and evaluation of domestic chips for Great Wall and other automakers, promoting interaction between chip companies and OEMs, and enhancing the industry ecosystem.

04

Product Updates

4. Product Updates

4.1 Storage Chips: Strong Performance in High-End Products, Slight Decline in Spot Market Prices for SSDs and Memory Modules

Recently, increased investment by domestic Internet companies in AI servers, along with rising sales of Intel's Sapphire Rapids CPUs, has significantly boosted the demand for DDR5 memory. Some manufacturers have already started increasing orders for DDR5.

At present, the server market shows a divergent trend in demand for DDR4 and DDR5 memory. Due to inverted prices and inventory backlogs, DDR4 demand remains weak. Meanwhile, DDR5 demand is skyrocketing, particularly for high-capacity products of 64GB and above, driven by AI technology advancements and the widespread adoption of Intel CPUs, resulting in a supply shortage.

Looking ahead, manufacturers are actively transitioning from DDR4 to DDR5. It is expected that by the end of the year, the production capacity of DDR4 will be greatly reduced, while the production capacity of DDR5 will be gradually increased, alleviating the current supply constraints. This shift signals a structural transformation in the storage market, with DDR5 becoming the dominant product.

SSD Bulk Order Prices Increase by 15%

The rapid development of artificial intelligence technology is becoming the main driving force for the recovery of the storage market and a key factor in pushing up the price of storage products. According to Japanese media reports on June 11, the wholesale price of solid-state drives (SSDs) in the second quarter of 2024 rose by about 15% from the previous quarter, continuing a three-quarter trend. In order to increase profits, storage chip manufacturers have reduced supply, and the market has accepted the price increase.

Currently, the transaction price for 256GB TLC SSDs is approximately USD 32.8 per unit, while 512GB SSDs are priced at around USD 61.5 per unit. Techno System Research predicts that global SSD shipments in 2024 will grow by 11% year-over-year, reaching a total of 355 million units.

The rise in SSD prices has also driven up the prices of hard disk drives (HDDs). From April to June, the price of 3.5-inch 1TB HDDs increased by 1% to USD 49.5 per unit, while 2.5-inch 1TB HDDs saw a 2% increase to USD 46.9 per unit.

DRAM Price Rises

On June 26, the wholesale price of DRAM saw an increase. As of May 2024, the wholesale price of standard DDR4 8Gb products was approximately USD 2.10 each, while smaller capacity 4Gb products were priced at about USD 1.62 each, both of which rose by about 8% from last month, the first increase in three months.

With the surge in demand for new generative AI products, memory companies have implemented strong price increase strategies for regular products. A Japanese electronics trader pointed out that the supply of HBM could not meet demand and there was a shortage. A major memory company stated that they strongly urged customers to purchase regular DRAM at higher prices when buying HBM, and buyers ultimately accepted this condition.

Another electronics trader's executive mentioned that to increase HBM supply, they reduced the production of traditional DRAM, which also led to a rise in traditional DRAM prices. Facilities required for HBM production are about three times the size needed for traditional DRAM production, so an increase in HBM output results in a corresponding decrease in other DRAM production.

Product Type	Q2 2024 (E)	Q3 2024 (F)
DDR4	15~20%	3~8%
DDR5	15~20%	3~8%
Blended	15~20%	3~8%
Server DRAM	15~20%	8~13%
Mobile DRAM	5~10%	3~8%
Graphics DRAM	3~8%	3~8%
DDR3	3~8%	-
Consumer DRAM	5~10%	3~8%
Traditional DRAM	5~10%	-
HBM Blended (HBM Penetration (4%)	8~13%	6%
HBM Blended (HBM Penetration (4%)	-	8~13%

Data Source: Trendforce

4.2 Power Devices: Market Prices Stabilise, Production Capacity Increases, Power Manufacturers Plan Price Hikes

Yangjie Technology: Demand for low and medium voltage products is strong, particularly in consumer electronics and home appliances. However, high-voltage products are expected to perform poorly in the short term due to inventory reduction and price cuts in the new energy market. For pricing strategies, low and medium voltage products are entering a price increase cycle, with diodes, transistors, and MOS products leading the rise, while IGBT product prices will be adjusted based on foundry utilisation rates.

NEC Power: Demand for low and medium voltage MOS products is robust, and the photovoltaic sector is expected to achieve significant recovery in the second quarter. The company focuses on expanding market share, and if semiconductor supplier, Huahong Grace Semiconductor Corporation, raises prices, it is possible for NEC Power to pass on the cost increases to downstream customers.

China Resources Microelectronics: The photovoltaic new energy sector maintains stable demand, with strong demand in industrial control and consumer home appliance sectors, though the automotive industry's growth slowed in the first half of the year. As inventory levels decline, the company has implemented moderate price increases for some products, ranging from 3% to 5%.

4.3 MCU: Continuation of Last Month's Market Conditions, Automotive-Grade MCU Lead Times Still Exceed 40 Weeks

STMicroelectronics (STM) Mainstream MCUs (STM32F, L, U, MP Series): Lead times are stable at 10-16 weeks.

NXP MCUs: Lead times show a continued structural divergence, with general-purpose MCUs (e.g., LPC17x) having shorter lead times, while automotive-grade MCUs' lead times are slightly shortened, ranging from 18 to 52 weeks.

Microchip MCUs: Demand for materials is sluggish, and the spot market inventory is sufficient. General-purpose MCU lead times have significantly shortened, with the fastest delivery time now around 4 weeks.

MCU Lead Time Situation by Manufacturer

Manufacturer	Product Type	Lead Time (Weeks)	Lead Time Trend
STM	Mainstream MCU (STM32F, L, U, MP series)	10-16	Stable
NXP	Traditional 32-bit MCU (MK64x, MK70x)	13-39	Up
NXP	General Purpose MCU (LPC17x)	13-50	Stable
NXP	Automotive MCU (MP5x, FS32x, MCFx)	18-52	Down
MICROCHIP	32-bit MCU (PIC16x, AT89x<ATMEGA25x)	4-20	Stable
MICROCHIP	32-bit MC (ATSAMA5x, PIC32x)	4-20	Most of the delivery time is shortened, a few models still have a long delivery time

Data Source: Public Information on the Internet

05

Key Market Trends

5. Key Market Trends

5.1 Geopolitical Tensions Impact Semiconductor Industry: Countries are Enacting Policies to Address These Effects

The European Union has imposed temporary tariffs on Chinese-made electric vehicles, and the United States has put pressure on China to restrict the development of AI chips. These policy changes have caused the Netherlands (where ASML is located) and Japan to become the focus. Japan sanctioned Chinese companies for the first time on the grounds of "conflicts involving Russia and Ukraine". These political factors have had a significant impact on the supply chain and market access of the semiconductor industry. Countries have introduced tariffs and other policies one after another to form trade protection, which has had a certain impact on Chinese companies' semiconductor imports and export of products overseas.

5.2 Memory Chip Market Faces Structural Changes and Prices Increases

The current memory chip market is undergoing important structural changes, among which the demand for DDR5 memory has surged due to the development of AI technology and the promotion of the new generation of CPUs, especially large-capacity products are in short supply in the market. At the same time, the demand for DDR4 memory is weak due to price inversion and inventory backlog. The market has accepted the price increase of storage products, especially with the development of AI technology, the price of large SSD orders has risen for three consecutive quarters, with an increase of 15%. In addition, HBM memory faces price increase pressure due to supply shortages. Manufacturers are actively adjusting production capacity, and it is expected that DDR5 will gradually replace DDR4 as the market-leading product. Overall, the memory chip market shows a positive development trend of demand differentiation, price increases and technological innovation.

Conclusion

The global economic environment in June 2024 presented a mixed picture with regional variations in manufacturing performance and robust growth in the semiconductor market despite geopolitical challenges. The sustained demand in the semiconductor industry, driven by technological advancements and AI applications, underscores the sector's resilience and pivotal role in the global economy. However, geopolitical tensions, particularly between major economies, continue to pose risks and uncertainties, influencing trade policies and market dynamics.

Looking forward, the semiconductor industry's growth trajectory appears promising, supported by significant investments and technological innovations. Companies are strategically navigating geopolitical challenges by diversifying their production bases and seeking international collaborations. The advancements in AI, energy storage, and automotive technologies indicate a dynamic market landscape with opportunities for growth and innovation.

In summary, while the macroeconomic environment presents challenges, the semiconductor industry remains a cornerstone of technological progress and economic resilience, poised to capitalise on emerging opportunities in AI and other advanced applications. Strategic responses to geopolitical pressures and continued investment in innovation will be critical in sustaining this growth momentum.

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Briocean Technology
June 2024

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