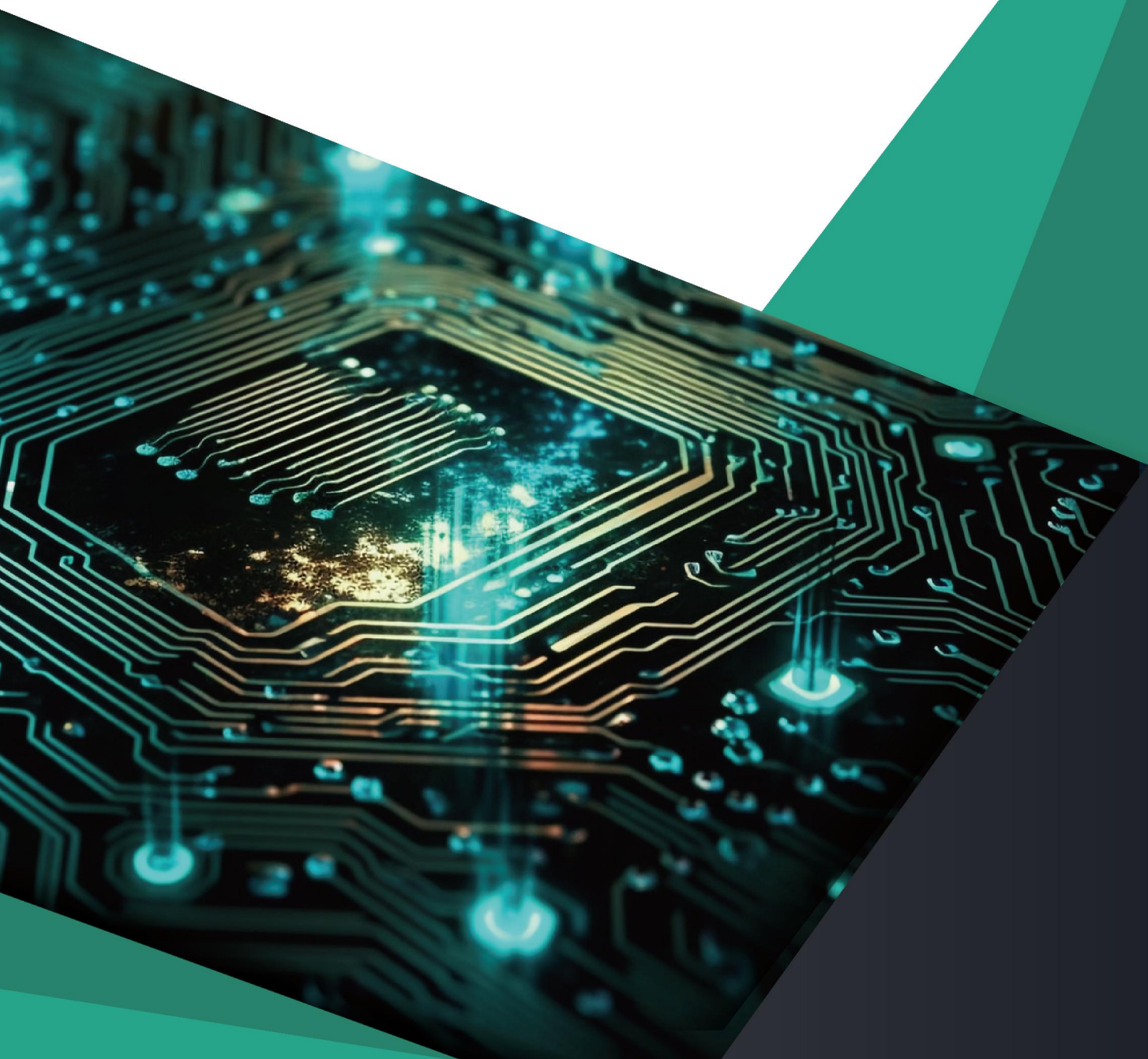
BRIOCEAN

Monthly #MarketMatters Report

July 2023



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Executive Summary

This report provides an overview of the semiconductor industry in July, analysing macro environment, product market trends and industry supply chain based on relevant data. It seeks to pinpoint prospective market opportunities and risks over the coming month.

According to forecasts, the markets for artificial intelligence (AI) chips and automotive will increase significantly, respectively, thanks to the AI market and electric vehicle (EV) sales. This analysis says that DRAM and NAND Flash memory chips are anticipated to experience downward price pressure due to the weak consumer electronics sector. The uncertainty surrounding the LCD market's recovery also makes it more difficult to purchase panel driver ICs, which lowers demand.

1. Macro Environment Overview

1.1 Europe's Strategic Push for Semiconductor Industry Growth

Source: Unsplash

Europe has taken a significant step towards strengthening its position in the global semiconductor industry. The approval of the EU's Chips Act by member states marks a pivotal moment. This Act will channel a substantial EUR 43 billion into the semiconductor sector through a combination of public and private funding. A notable aspect of this development is the provision for state aid, which is poised to propel the continent's semiconductor industry forward. With a clear vision Europe aims to double its share of the global semiconductor production market to 20% by the year 2030. This strategic move is coupled with the determination to reduce dependence on Asian suppliers, signifying a shift in the global semiconductor landscape.

1.2 Escalating Trade Tensions and China's Strategic Moves

The semiconductor industry is at the heart of escalating trade tensions between two global economic powerhouses, China and the United States. The recent announcement of new export controls by Beijing on crucial semiconductor materials in response to the trade war signals a significant development. This move comes just ahead of a crucial visit by the US Treasury Secretary, Janet Yellen, to Beijing, scheduled from July 6 to July 9. With these actions, China has fired the first salvo in what seems to be a burgeoning semiconductor exports conflict. The consequences of this ongoing struggle are poised to reshape the dynamics of semiconductor trade.

1.3 India's Ascent in Semiconductor Manufacturing

India has emerged as a promising player in the semiconductor sector with its Semicon India programme. Noteworthy among the initiatives is the declaration of 50% financial assistance to companies venturing into semiconductor manufacturing within the country. Prime Minister Narendra Modi has extended a warm invitation to global semiconductor majors, positioning India as a reliable and capable partner in the supply chain. PM Modi's appeal to investors to contribute to India's chip-making ecosystem underlines the nation's ambition to become a global hub for chip design and manufacturing. Collaborative efforts with countries like Japan and Taiwan further signify India's determination to establish a robust semiconductor ecosystem, propelling both production and market potential.

Source: Unsplash

2. Market Trend of Products

2.1 Discrete

Overall, there is a continued stabilisation in lead times and prices, with expectations of future downward trends. Additionally, the power product from Vishay displays a current lead time of 70 - 120 weeks with a stable trend, and its price is expected to increase in the next three months.

TECHNOLOGY	SUPPLIER	LEAD TIME		PRICE
		CURRENT	FUTURE TREND (NEXT 3 MONTHS)	FUTURE TREND (NEXT 3 MONTHS)
General Discrete	ON Semiconductor	36 - 42 weeks	Stable	Stable
	Vishay	22 - 30 weeks	Down	Down
	STMicroelectronics	20 - 36 weeks	Stable	Stable
	Nexperia	12 - 27 weeks	Down	Down
Power	Nexperia	12 - 39 weeks	Down	Stable
	STMicroelectronics	26 - 52 weeks	Stable	Stable
	Vishay	70 - 120 weeks	Stable	Up
	Infineon	24 - 52 weeks	Stable	Stable
	ON Semiconductor	50 - 60 weeks	Stable	Stable
Optocouplers	ON Semiconductor	20 - 36 weeks	Stable	Stable
	Toshiba	16 - 26 weeks	Stable	Stable
	Vishay	18 - 26 weeks	Stable	Down

2.2 Standard Logic & Linear

In summary, standard logic & linear indicates a mostly stable lead time, with the possibility of a price decrease. On the other hand, the logic components from Nexperia are experiencing a downward trend in both lead time and price.

TECHNOLOGY	SUPPLIER	LEAD TIME		PRICE
		CURRENT	FUTURE TREND (NEXT 3 MONTHS)	FUTURE TREND (NEXT 3 MONTHS)
Logic	Nexperia (NXP/PSH)	6 - 20 weeks	Down	Down
	ON Semiconductor	15 - 52 weeks	Stable	Stable
	Texas Instruments	12 - 26 weeks	Stable	Down
Linear	STMicroelectronics	12 - 36 weeks	Stable	Stable
	Texas Instruments	12 - 26 weeks	Stable	Down

2.3 Advanced Analog

Overall, the lead time and price of advanced analog products are expected to remain mostly stable in the next three months.

TECHNOLOGY	SUPPLIER	LEAD TIME		PRICE
		CURRENT	FUTURE TREND (NEXT 3 MONTHS)	FUTURE TREND (NEXT 3 MONTHS)
Data Converters	Analog Devices	30 - 70 weeks	Down	Stable
	Texas Instruments	25 - 70 weeks	Stable	Stable
	STMicroelectronics	30 - 35 weeks	Stable	Stable
OPA	Analog Devices	13 - 35 weeks	Down	Stable
	Texas Instruments	25 - 70 weeks	Stable	Stable
	STMicroelectronics	30 - 35 weeks	Stable	Stable
Interfaces (LVDS, UART USB)	NXP Semiconductor	39 - 45 weeks	Stable	Stable
	Analog Devices	26 - 60 weeks	Down	Stable
	Texas Instruments	25 - 50 weeks	Stable	Stable
Multimedia Products	NXP Semiconductor	40 - 52 weeks	Stable	Stable
	STMicroelectronics	30 - 40 weeks	Up	Up
Power Management (Low Drop, PWM, Switching Reg.)	STMicroelectronics	30 - 40 weeks	Stable	Stable
	Texas Instruments	25 - 70 weeks	Stable	Stable
	Infineon	30 - 45 weeks	Stable	Stable
	Analog Devices	26 - 50 weeks	Down	Stable

2.4 Passives

The lead times for passive components are anticipated to remain stable over the next three months, with some showing an upward trend. However, prices are expected to increase during this period.

TECHNOLOGY	SUPPLIER	LEAD TIME		PRICE
		CURRENT	FUTURE TREND (NEXT 3 MONTHS)	FUTURE TREND (NEXT 3 MONTHS)
Resistors Standard Chip (SMD)	Panasonic	50 - 60 weeks	Stable	Stable
	Vishay	22 - 56 weeks	Stable	Up
	Yageo	12 - 28 weeks	Stable	Stable
	Walsin	16 - 25 weeks	Stable	Stable
Resistors Networks & Arrays	Bourns	15 - 26 weeks	Stable	Up
	Vishay	30 - 50 weeks	Stable	Stable
	Yageo	16 - 28 weeks	Stable	Stable
	Walsin	15 - 24 weeks	Stable	Stable
Non-Linear Resistors Thermistors	Epcos	18 - 30 weeks	Stable	Up
	Murata	20 - 24 weeks	Stable	Stable
	Vishay	20 - 30 weeks	Stable	Up
Trimmers & Potentiometers	Bourns	20 - 44 weeks	Up	Up
	TT Electronics	20 - 44 weeks	Stable	Stable
	Vishay	22 - 60 weeks	Stable	Up
Over-Voltage Protection Varistors	AVX	17 - 30 weeks	Stable	Stable
	Bourns	16 - 40 weeks	Stable	Up
	Littelfuse	20 - 40 weeks	Up	Up
	Epcos	20 - 30 weeks	Stable	Up
Over-Voltage Protection Thyristors & TVS Diodes	AVX	10 - 50 weeks	Stable	Stable
	Bourns	14 - 54 weeks	Stable	Up
	Littelfuse	15 - 40 weeks	Stable	Stable
Over-Current Protection Fuses	Boums	16 - 20 weeks	Stable	Up
	Littelfuse	15 - 30 weeks	Stable	Stable
	Schurter	15 - 35 weeks	Stable	Stable
Frequency Control Crystals & Oscillators	Abracon	30 - 99 weeks	Up	Up
	Kyocera	14 - 35 weeks	Up	Stable
	ESC	30 - 52 weeks	Up	Up
	IQD	30 - 35 weeks	Up	Stable
	TXC	18 - 52 weeks	Stable	Stable
Frequency Control Resonators	Abracon	9 - 30 weeks	Stable	Stable
	Geyer	9 - 16 weeks	Stable	Stable
	Murata	9 - 24 weeks	Stable	Stable
Frequency	Abracon	24 - 50 weeks	Stable	Stable

TECHNOLOGY	SUPPLIER	LEAD TIME		PRICE
		CURRENT	FUTURE TREND (NEXT 3 MONTHS)	FUTURE TREND (NEXT 3 MONTHS)
Control	Murata	16 - 24 weeks	Stable	Stable
Capacitors Ceramic Multilayer (MLCC)	AVX	14 - 30 weeks	Stable	Up
	Kemet	20 - 38 weeks	Up	Up
	Murata	15 - 22 weeks	Stable	Stable
	Samsung	18 - 22 weeks	Up	Stable
Capacitors Tantalum	AVX	12 - 36 weeks	Up	Stable
	Kemet	16 - 36 weeks	Stable	Stable
	Samsung EM	25 - 27 weeks	Stable	Stable
	Vishay	18 - 42 weeks	Stable	Stable
Capacitors Film	Epcos	26 - 70 weeks	Stable	Stable
	Kemet	26 - 35 weeks	Stable	Stable
	Vishay	18 - 24 weeks	Up	Down
	Wima	14 - 20 weeks	Stable	Stable
Capacitors Aluminium	Epcos	40 - 44 weeks	Stable	Up
	Nichicon	56 - 60 weeks	Down	Stable
	Panasonic	46 - 50 weeks	Stable	Up
	Vishay	22 - 26 weeks	Stable	Stable
Inductors Chokes Coils	Abracon	12 - 24 weeks	Stable	Stable
	Boums	22 - 28 weeks	Stable	Stable
	Eaton	15 - 20 weeks	Stable	Stable
	Epcos/TDK	48 - 52 weeks	Up	Up
	Murata	18 - 25 weeks	Stable	Stable
	Pulse	16 - 22 weeks	Stable	Stable
	Vishay	18 - 22 weeks	Stable	Down
Transformers	Bourns	22 - 26 weeks	Stable	Up
	Epcos	12 - 30 weeks	Stable	Up
	Pulse	16 - 22 weeks	Stable	Stable
Ferrites	Epcos	30 - 50 weeks	Stable	Up
	Ferroxcube	8 - 20 weeks	Stable	Up
Filters (EMI)	Abracon	10 - 4 weeks	Stable	Stable
	Epcos	15 - 30 weeks	Stable	Up
	Schaffner	14 - 20 weeks	Stable	Up
	TE Connectivity	20 - 22 weeks	Up	Up

2.5 Electro-Mechanical

Over the next three months, both the lead time and price of electro-mechanical components are expected to increase.

TECHNOLOGY	SUPPLIER	LEAD TIME		PRICE
		CURRENT	FUTURE TREND (NEXT 3 MONTHS)	FUTURE TREND (NEXT 3 MONTHS)
Power Relays	Fujitsu	26 - 34 weeks	Stable	Stable
	Omron	26 - 40 weeks	Up	Up
	PEW	25 - 60 weeks	Up	Stable
	TE Connectivity	22 - 28 weeks	Stable	Stable
Signal- & Telecom Relays	Fujitsu	30 - 60 weeks	Stable	Stable
	Omron	18 - 34 weeks	Stable	Up
	PEW	20 - 40 weeks	Up	Up
	TE Connectivity	26 - 40 weeks	Stable	Stable
Solid State Relays (Reed- & IO Modules)	Crydom	10 - 24 weeks	Up	Stable
	PEW	8 - 36 weeks	Up	Stable
	TE Connectivity	12 - 22 weeks	Up	Stable
Time Delay Relays (Industry Relays)	Littelfuse	16 - 22 weeks	Stable	Stable
	TE Connectivity	22 - 24 weeks	Stable	Stable
Safety Relays	Fujitsu	24 - 34 weeks	Up	Stable
	Omron	20 - 28 weeks	Stable	Stable
	PEW	30 - 45 weeks	Up	Stable
	TE Connectivity	20 - 30 weeks	Stable	Stable
Automotive Relays	Omron	22 - 30 weeks	Up	Up
	PEW	20 - 36 weeks	Up	Stable
	TE Connectivity	20 - 30 weeks	Up	Stable
Push button Switches	C&K	18 - 24 weeks	Stable	Stable
	Honeywell	20 - 28 weeks	Stable	Up
	Knitter-Switch	8 - 22 weeks	Up	Stable
Slide Switches	C&K	18 - 24 weeks	Stable	Stable
	Knitter-Switch	10 - 18 weeks	Up	Stable
	NKK	14 - 22 weeks	Stable	Stable
	TE Connectivity	10 - 18 weeks	Stable	Stable
Tactile Switches	C&K	18 - 24 weeks	Stable	Stable
	Knitter-Switch	12 - 20 weeks	Up	Stable
	Omron	18 - 24 weeks	Stable	Up
Microswitch / SNAP Switches	C&K	18 - 24 weeks	Up	Stable
	Honeywell	14 - 28 weeks	Up	Up
	Omron	22 - 60 weeks	Up	Up
Heatsinks	Aavid	18 - 20 weeks	Up	Up
	Fischer	4 - 12 weeks	Stable	Stable
Fans	EBM Papst	14 - 36 weeks	Up	Stable

2.6 Power Products

The lead time for power products is expected to be stable in the next three months and the price is expected to go up.

TECHNOLOGY	SUPPLIER	LEAD TIME		PRICE
		CURRENT	FUTURE TREND (NEXT 3 MONTHS)	FUTURE TREND (NEXT 3 MONTHS)
Low Power Switchers	Artesyn	36 - 60 weeks	Stable	Up
	Bel Power (Power One)	60 - 70 weeks	Stable	Up
	TDK/Lambda	40 - 105 weeks	Stable	Up
	EOSPower	60 - 64 weeks	Stable	Up
	Meanwell	28 - 34 weeks	Stable	Stable
Mid/High Power Switchers & Rectifiers	Artesyn	36 - 60 weeks	Stable	Up
	Bel Power (Power One)	60 - 70 weeks	Stable	Up
	TDK/Lambda	52 - 105 weeks	Stable	Up
	ABB (GE Energy)	60 - 70 weeks	Up	Up
Mid & High Power Integration	Artesyn	36 - 60 weeks	Stable	Up
	Excelsys	53 - 60 weeks	Stable	Up
	Bel Power (Power One)	60 - 70 weeks	Stable	Up
DC/DC & POLs	ABB (GE Energy)	60 - 70 weeks	Up	Up
	Murata Power	52 - 56 weeks	Up	Up
	Bel Power (Power One)	46 - 70 weeks	Stable	Up
	Delta	40 - 52 weeks	Up	Up
	Recom	38 - 44 weeks	Stable	Up
	TDK/Lambda	52 - 105 weeks	Stable	Up
	Traco Power	30 - 36 weeks	Up	Stable
	VICOR	36 - 44 weeks	Stable	Up
External	Artesyn	52 - 60 weeks	Down	Up
	EoSPower	42 - 46 weeks	Stable	Up
PSU Module	Moons	12 - 24 weeks	Up	Up
	Recom	26 - 28 weeks	Up	Up

3. Semiconductor Industry Overview

3.1 Silicon Wafer/Equipment

ASML currently has an order backlog of EUR 38 billion, which provides a certain degree of offset against the short-term impact of the prohibition on lithography equipment. Nevertheless, uncertainty persists in the long term.

Classification	Company	Updates
Silicon Wafer	SUMCO	· Japan will provide subsidies of up to JPY 75 billion to SUMCO
	Globalwafers	· The overall capacity utilisation rate is about 80% - 90%
Equipment	ASML	· EUV and immersive DUV account for 85% of the EUR 38 billion backlog of orders
	NAURA	· The performance in Q3 2023 will continue to grow
	AMEC	· Net profit forecast for the first half of the year increased by 109.49% - 120.18%

3.2 IDM/Fabless

Chip manufacturers are ramping up their expansion in the AI field while gradually scaling back production of certain storage chip products to address sluggish demand. Notably, the demand for Nvidia A800 chips has surged, and prices have experienced a significant increase, driven by the growth of the AI market.

Company	Updates
SAMSUNG	· DRAM production has dropped to its lowest level since Q3 2021 · HBM4 is expected to launch within 2023 · The new 2nm chip is planned to start mass production in 2025
NVIDIA	· The price of A800 chips sold in the Chinese market has risen by 20% - 30% in a week · Invested USD 50 million in the biotechnology company Recursion to accelerate AI models for drug discovery
Qualcomm	· Expanding cooperation with Sony for the next generation of smartphones · Collaborating with Meta to bring Llama 2 generative AI model to AR/VR head displays
Infineon	· Joint development of QPU for scalable Quantum computer with German quantum computing company eleQtron

3.3 Foundry

As AI develops, the capacity of CoWoS will not meet the growing demand of GPU and HPC.

Company	Updates
TSMC	· Accelerates expansion of advanced packaging facilities · Inaugurates Global R&D Centre to explore new materials and transistor architecture research
UMC	· Q3 2023 production capacity utilisation rate may decrease to 64% - 66% · Wafer shipments will decrease by 3% to 4% month-on-month
PSMC	· Collaborated with SBI to set up a 12-inch wafer foundry in Japan
SAMSUNG	· Samsung is on track to expand memory production cutbacks in second half of the year · Initiated chip development collaborations with AI chip start-ups Tenstorrent and Groq

3.4 Packaging Test

The price of packaging and testing is consistently declining, and the market continues to navigate a trade-off between price and quantity. Prices for conventional goods are now lower than they were in 2019 during the height of the semiconductor industry's flourishing.

Company	Updates
ASE	· Expected to achieve quarterly revenue growth in Q3 2023 · The complete CoWoS solution is anticipated to go into mass production in the second half of the year or early next year
JCET	· The XDFOI Chiplet high density multi-dimensional heterogeneous integration series process has entered a stable mass production stage
HT-tech	· Master the packaging technology for millimetre wave radar products

3.5 Applications

3.5.1 Automotive

Company	Updates
TESLA	· Announced that the current models of Model 3 and Model Y will be reduced by RMB 35,000 – RMB 40,000 in the Chinese market · EV sales in China fell more than 30% in July
BYD	· Plans to build a battery construction plant in Hungary with an investment of more than RMB 200 million · Possess the production capacity of 150Ah blade sodium batteries
NIO	· The Berlin Innovation Centre was officially launched
XPeng	· Sales in Q3 2023 and Q4 2023 are expected to reach 15,000 and 20,000 vehicles respectively

3.5.2 Medical Equipment

Company	Updates
GE Healthcare	· Released Edison Ecology 2.0
Canon Medical	· The first domestic high-end C equipment GENESIS 640CTT was approved for listing
MedBot	· The self-developed Dragonfly Eye 3D electronic laparoscope successfully obtained EU CE certification
Siemens Healthcare	· The Erlangen Innovation Centre in Germany was officially opened
BD Healthcare	· The first comprehensive innovation centre for digital intelligence in China was officially opened

3.5.3 Energy Storage

Company	Updates
Great Power	· Industrial and commercial energy storage products are expected to be sold in large quantities in the second half of the year · Signed a 5MW/10MWh sodium ion energy storage power station demonstration project cooperation agreement with Qingdao North Shore Holding Group
CATL	· Established an airline company with COMAC · Required the cathode material factory to settle the lithium carbonate price with the market price at 9% - 9.5% discount · Invested in Automotive Intelligence and Control of China

3.5.4 Industrial Control

Company	Updates
TE Connectivity	· A partnership with tacterion, a leading tactile sensing company
Schneider Electric	· Acquisition of 100% of shares in EcoAct SAS and its subsidiaries
Honeywell	· Acquired SCADAfence, a leading provider of OT and IoT cybersecurity solutions for monitoring large-scale networks
Siemens	· The price adjustment range for electrical products of terminal power distribution and MCB/RCD products will be between 5% - 10%
Rockwell	· Strategically collaborated with Honeycomb Energy to jointly promote the digital intelligence upgrade of lithium battery manufacturing

3.5.5 Telecom

Company	Updates
China Mobile	· Completed the construction of a full-scenario model based on 5G-A technology with Huawei
Bharti Airtel	· Prepays USD 976 million to partly clear 2015 spectrum dues
AT&T	· Initiates new USD 2 billion cost-cutting programme
Jio	· Set to sign USD 1.7 billion deal with Nokia for 5G equipment
Ericsson	· Worked with Intel to advance next-generation optimised 5G infrastructure
Huawei	· Launched OceanStor A310 deep learning data lake storage and FusionCube A3000 training/push super-integrated machine

3.5.6 Consumer Electronics

Company	Updates
Apple	· The iPhone 15 series shipments are expected to reach 84 million units in the second half of the year · Building its own framework to create large language models
Huawei	· Set the upper limit of licensing rates for 4G and 5G mobile phones at USD 1.5 and USD 2.5 per unit, respectively
HP	· Plans to produce USD 1 billion worth of servers in India in five years

4. Market Opportunities and Risks

4.1 Opportunities

4.1.1 The Surge of Artificial Intelligence (AI)

According to The Business Research Company, the global AI chip market size grew from USD 15.65 billion in 2022 to USD 23.29 billion in 2023 at a CAGR of 48.8%. The AI chip market size is expected to grow to USD 88.85 billion in 2027 at a CAGR of 39.8%.

Original component manufacturers (OCMs) are expanding their product portfolios to include AI semiconductors or building new fabrication plants to produce them as relying on the AI semiconductor king, Nvidia and its powerful GPUs is not an attractive option.

This week, TSMC announced its plan to invest USD 2.87 billion to build a plant in western Taiwan that will specialise in the advanced packaging of high-performance semiconductors for generative artificial intelligence.

Earlier this year, Meta shared details about its development progress on building a custom chip “family” to power its data centres and artificial intelligence projects that could arrive as soon as 2025. The company's blog post detailed its efforts to create a first-generation chip through its Meta Training and Inference Accelerator (MTIA) programme in 2020.

4.1.2 The Continuous Growth of the Automotive IC Market

Precedence Research predicts that by 2030, the global automotive chip market is expected to exceed USD115.78 billion and will grow at a CAGR of 11.5% from 2022 to 2030.

In a recent article shared by Reuters, China's surge in EV production is challenging Japan's dominance in Thailand’s automotive market. Chinese EV companies are expanding their presence and winning market share due to favourable policies and competitive pricing. While Japan still holds an advantage in conventional vehicles, China's growing influence in the EV sector is compelling Japanese companies to adapt and innovate to maintain their position in the Thailand market.

4.2 Risks

4.2.1 Sluggish Demand for Consumer Electronics

Canalys's latest research reveals that the worldwide smartphone market fell by 10% to 258.2 million units in Q2 2023. According to IDC data, Q2 2023 global PC shipments were 61.6 million units, declining year-on-year (YoY) for six consecutive quarters.

According to the forecast data of DIGITIMES Research, Apple's MacBook shipments will drop to 19.9 million units in 2023, a decrease of 14.99% YoY, which is slightly higher than the 13.2% decline in the overall market. Apple's supply chain sources claim that there will not be as much of an inventory of iPhone 15 parts in 2023 as there was during the same period in 2022.It is roughly estimated that the initial stocking volume is only about 83 million to 85 million units, a decrease of more than 8% YoY.

TrendForce data shows that the average fixed transaction price of DRAM in July fell by 1.47% month-on-month and the average price of NAND Flash in Q3 2023 will continue to fall by 3% - 8%. It is expected that the demand for smartphones and PCs will not recover significantly in Q3 2023, and the prices of memory chips such as DRAM and NAND Flash may continue to decline.

4.2.2 Uncertainty in the Recovery of Demand for LCDs

Research firm, Omdia, has recently lowered its forecast for large-size LCD panel shipments in 2023, from a previously estimated growth of 0.6% to a decrease of 3.2% YoY. Factors like slower demand and panel makers' utilisation strategies contribute to this change. Some panel manufacturers are considering withdrawing from the business or closing old facilities. It is expected that panel driver IC procurement demand will continue to be weak.

Conclusion

Reviewing July, the industry's landscape is influenced by macro trends, such as Europe's strategic emphasis on the semiconductor sector and escalating trade tensions between global economic players. India's ascent in semiconductor manufacturing through initiatives like the Semicon India programme further contributes to the intricate tapestry of the industry's future. In this multifaceted environment, proactive strategies and a vigilant focus on emerging technologies are imperative to navigate the evolving semiconductor landscape. Amidst the gradual trajectory of the semiconductor sector, there has been a substantial surge in demand for AI chips, driven by the swift expansion of the AI market. In contrast, due to feeble demand in the consumer electronics segment, the prices of specific storage chips (like DRAM and NAND Flash products) have continued their downward trend.

The outlook for the manufacturing industry appears uncertain, particularly considering the ongoing sluggish demand in the consumer electronics market for now. Despite intentions by leading chip manufacturers to curtail production, the downward price pressure on DRAM and NAND Flash products is likely to persist, as demand may not witness significant improvement. Conversely, given the enduring growth of AI in the long term, the demand for AI server-related chips, such as HBM and DDR5, is set to maintain its upward trajectory, potentially resulting in price increments. Furthermore, the consistently increasing demand for automotive chips, fuelled by the trend towards automotive electrification and intelligence, merits careful consideration.

In conclusion, the semiconductor industry is in a state of flux, with a variety of macro trends and initiatives shaping its future landscape. The demand for AI chips is growing steadily, while prices for storage chips remain low due to weak demand in the consumer electronics market. This presents both challenges and opportunities for chip manufacturers, and vigilance regarding emerging technologies and proactive strategies will be essential in navigating this ever-evolving industry.

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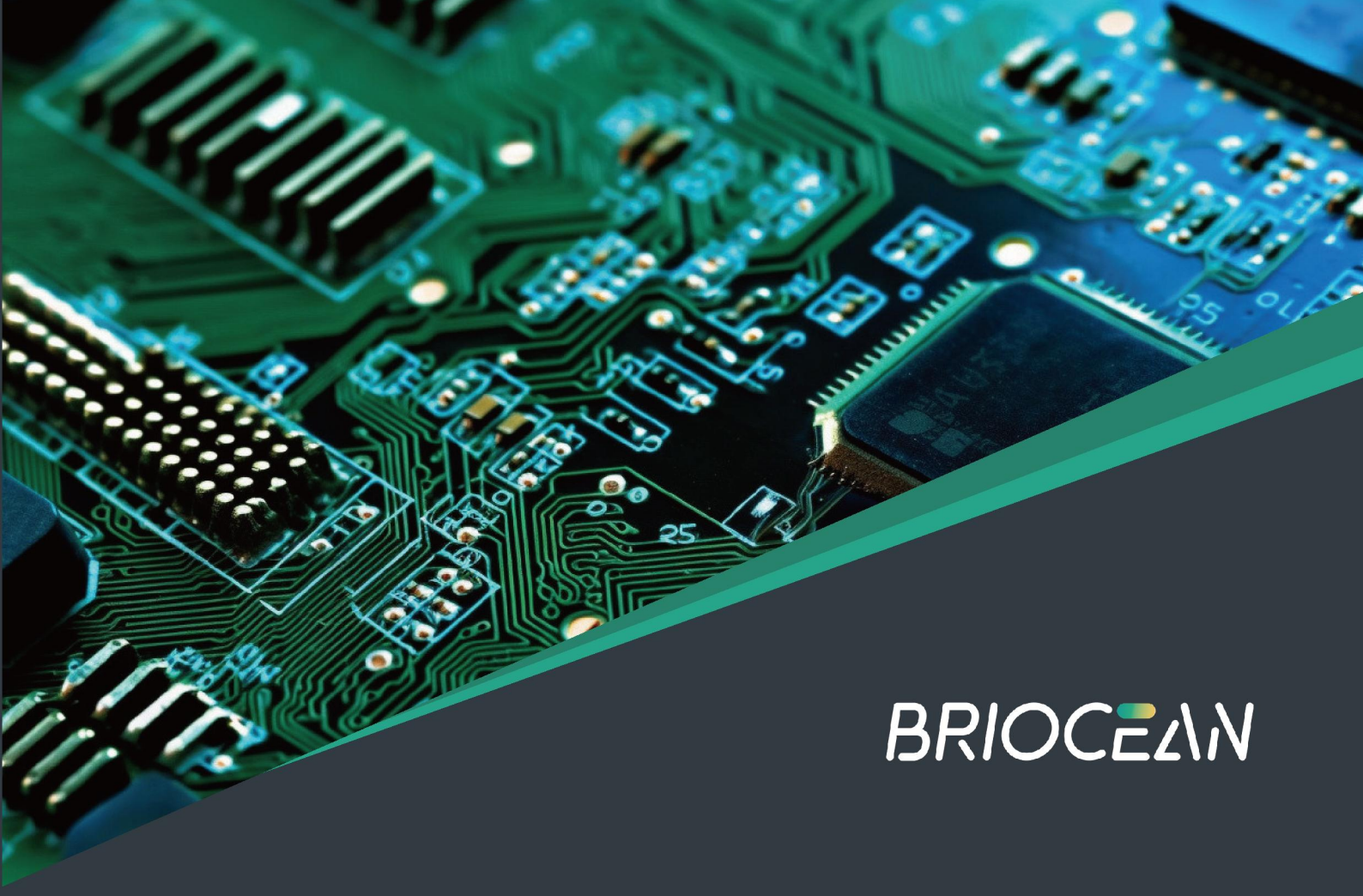

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Working with over 4,000 global electronic component suppliers, Briocean strives to meet the various clients' demands on component shortages and cost savings. With the aim of providing clients with reliable and trackable procurment supply chain services, Briocean established one of the industry's most stringent Supplier Managmenet Systems and two world-class quality control centres based in Shenzhen and Hong Kong. Briocean's commitment to quality and reliability, ensures that every component we source, meets the highest standards.

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