

# 2023 Sustainability Report



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# Sustainability Performance and Highlights

## **Governance**

- Macronix received the National Sustainable Development Award from the Executive Yuan
- Macronix (the "Company") attaches importance to research and development, and the technical papers it published have been selected by many international academic conferences such as IEDM and ISSCC over the years.
- Macronix possesses a large number of high-quality international key technologies and intellectual property rights. The Company has obtained a total of 309 patents in 2023, and by the end of the year, it has had a total of 9,203 patents successfully registered worldwide.
- Macronix's automotive flash memory manufacturing obtained the "ISO 26262" Road vehicles – Functional safety and product compliance certifications.
- Macronix's OctaFlash LM/UM Series NOR Flash Memory was recognized as the 2023 EE Awards Asia "Best Memory of the Year".
- All of Macronix fabs, test building, and management centers have passed the IATF 16949:2016 standard certification of the International Automotive Task Force (IATF).
- Macronix obtained the "ISO/IEC27001:2013" information security management system certification in 2023.
- Macronix has been awarded first place among outstanding R&D alternative service employers (private industry group) in 2023
- All plants of Macronix have obtained full score in the Validated Assessment Program (VAP) of the Responsible Business Alliance (RBA).

## **Environmental**

- Invested NT\$570 million in environmental safety and health in 2023 and proactively committed itself to and developed the strategy for sustainable operations.
- From 2018 to 2023, cumulative electricity savings were 38,962 MWh.
- Greenhouse gas emissions decreased by 4.5% compared with the previous year.
- Produced 3.821 billion liters of reclaimed water, and the factory water recycling rate of all plants has reached 87.03%.
- Fab 2 and Fab 5 obtained the water recycling rate certification statement in 2023.

- 9,875 metric tons of waste were recycled/reused, and the waste recycling/reuse rate was 97.7%.
- The average removal rate of volatile organic compounds (VOCs) is 97.19%.
- No environmental penalties
- Obtained “Management” level approval for the CDP Climate Change Questionnaire

### **Social**

- Won the SGS 2023 Occupational Safety and Health Performance Management Plus Awards
- Obtained the certificate of appreciation of Hsinchu City’s 2023 National Defense Mobilization and Disaster Prevention and Rescue (Min An No. 9) drill.

### **Friendly Workplace/Employee Benefits**

- The Welfare Committee has allocated NT\$43,261 thousand in total for employee welfare.
- Built a five-star employee recreation and fitness center and invested NT\$11,512 thousand in professional sports instructors and the maintenance of software and hardware equipment to create a friendly and safe leisure environment maintaining employees’ physical and mental health; received the Taiwan i Sports Certification, which is valid for three years from 2020 to 2023, from the Sports Administration of the Ministry of Education.
- Purchased a NT\$10,523 thousand group insurance for employees, which covers accidents, diseases, and cancer. The employees are allowed to add their parents, spouses, and children as dependents for low-cost, self-pay insurance. As a result, our employees have a more comprehensive protection for their families to avoid being worried about the future.
- Awarded Accredited Healthy Workplace - Health Promotion Badge (Entire Plant area)
- The Company offers free early-stage lung cancer CT scans and heart CT scans, which has benefited 403 employees in total. The free CT scans are also available to the employees’ family members at a discount, which has benefited 219 family members in total.
- Provided employees with 42,570 doses of Covid-19 rapid tests in 2023.
- In 2023, the Company held a muscle-building and fat-loss competition, and provided 30 free exercise courses. A professional fitness instructor led employees

to practice exercises to improve the core muscle strength. Total weight loss was identified as 469.8 kg.

**Education and Training:**

- The Company provides consistent, progressive training programs for different specialties and tiers; on average, every employee has participated in 22 sessions and has had 71.7 hours of training.
- The Company provides a variety of learning approaches, including digital learning with no limitation of time and place; a total of 50,454 people have participated in training activities through the digital learning platform, which accounts for 59% of all training activities.

**Charity Events:**

- The Macronix Education Foundation scholarships have exceeded NT\$180 million by the end of 2023.
- The Company has established a charitable organization, combining the strength of both employees and the public to help those in need in society; a total number of employees participating in public welfare activities is 4,513, and donations of NT\$3,248 thousand have been made.
- Enthusiastically assisted the National Science and Technology Council in the "Kiss Science - Embrace Science, Enrich Youth" activity.
- Adopted 12 km of the "Hsinchu City Eco-Bike Trail" to provide the citizens with the outdoor activities in the healthy and comfortable environment, which continuously has been awarded a Certificate of Appreciation for Adoption by the Hsinchu City Government.

## Awards and Recognition

- Macronix received the 2023 National Sustainable Development Award from the Executive Yuan



- The American Physical Society (APS) has announced that President Chih-Yuan Lu has been awarded the 2024 George E. Pake Prize.
- Recognized with "Innovation Momentum 2023: The Global Top 100"
- Macronix's OctaFlash LM/UM Series NOR Flash Memory was recognized as the 2023 EE Awards Asia "Best Memory of the Year"



- Ranked Top 6%~20% in the 9th Corporate Governance Evaluation and Top 11%~20% in the electronics category of listed companies with a market value of more than NT\$10 billion

- Macronix Education Foundation was recognized with the 16th Arts and Business Awards (bronze award) from the Ministry of Culture



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# 1. Messages from the Macronix Executives

## 1.1. Message from the Chairman and CEO

Macronix International Co., Ltd. ("Macronix") was founded in Taiwan's Hsinchu Science Park in 1989. Since then, Macronix has been dedicating itself to the research and development of advanced Non-Volatile Memory. We provide a wide range of ROM, NOR Flash, and NAND Flash solutions. Macronix took the lead in promoting sustainable smart operations when it was founded. The concepts of AI artificial intelligent and big data, that are becoming more and more popular nowadays, Macronix adopted 35 years ago at the beginning of its establishment. It is the first to use statistical experts in semiconductor wafer fabs, combining statistics and semiconductor knowledge to independently develop the "Engineering Data Analysis System" (sNOVA) and digitally managing products to enhance product quality. This has made Macronix the first memory company in the world to significantly improve the product defect rate measurement indicator from PPM (parts per million) to PPB (parts per billion). The Company has been recognized as the "Best Product Quality Supplier" by Japanese automotive electronics customers for many years in a row. Macronix's forward-looking and practical business philosophy not only displays the results in its products and services, but also drives sustainable development of the environment and implements the corporate social responsibilities.

Given the development wave of the AI and new technologies, Macronix will continue to promote applications in automotive, medical, servers, smart products and other emerging applications. Our products are widely used in automobile intelligence, autonomous driving and other fields, and Macronix has become an important partner for international top-tier automotive electronics manufacturers. For example, Macronix's high-performance OctaFlash™ not only passed the highest vehicle safety standard ISO 26262 ASIL D certification, but also won the best memory product of the EE Awards 2023 (Asia Award), showing that Macronix has become a trustworthy solution provider for customers. In addition, the COVID-19 epidemic and the global carbon reduction trend have also accelerated the advent of the digital era and the continuous digitalization transformation of the medical industry. Macronix will keep upholding its competitive advantages by supplying high-quality and low energy consumption products. We will deepen the related research, and the blue ocean strategy to accelerate the creation of the global smart medical market.

Macronix attaches great importance to the sustainable development of talent and is deeply involved in the cultivation of scientific and technological talent as well as environmentally friendly projects since its establishment. It continues to be devoted to the R&D and innovation and building its own brands. Macronix has cultivated numerous excellent engineers and business talents and through the deep cultivation of the technology and product development capability made considerable contributions in the global presence and the sustainable development of Taiwan's semiconductor industry. In addition, Macronix has also spared no effort to promote science education. Taking the talent cultivation as an example, Macronix starting from 2000 has been organizing the "Macronix Golden Silicon Awards" and "Macronix Science Awards", having cultivated more than 40,000 outstanding young scientific talents. It awarded the scholarships of more than NT\$180 million. In 2020, Macronix donated NT\$100 million each year to National Cheng Kung University for the tenth consecutive year to establish Taiwan's first cross-disciplinary course "Miin Wu School of Computing", setting a precedent for Taiwan's innovative AI applications and cross-domain talent cultivation.

In recent years, climate change issues have further accelerated the promotion of environmental, social and governance (ESG) sustainable development in various countries, with the declarations and actions proposed for "2050 Net Zero Emissions". As Macronix is a major international memory supplier and plays an important role in the international memory market,

it has already formulated short, medium and long-term carbon reduction strategies and pathways, and promoted specific required actions. Such actions include using green materials and LED lighting systems in newly built clean rooms, installing new greenhouse exhaust gas treatment equipment in the manufacturing machinery, having AI-controlled and energy-saving installation adopted in the refrigerating machinery system of the fab, and having rooftop solar photovoltaic equipment installed. Our outstanding performance has been recognized by the authorities and won the 19th "National Sustainable Development Awards", the "2023 Occupational Safety Award" conferred by SGS and the "Green Procurement Outstanding Unit" awarded by the Hsinchu City Government.

Looking forward to the future, the global economic recovery remains uncertain, and the environment is full of challenges. The situation can better display the resilience and adaptability of enterprises. Macronix's management team will adopt a prudent attitude to undertake destocking, and continue to expand the various application markets with the innovative high-quality products and services. In addition, we will accelerate research and development, and work hard to create applications that are memory-centered and involve solid-state disks. Macronix will also create ultra-high-speed and ultra-high-density 3D memory solutions, and incorporate AI computing to meet the demand for in-memory computing solutions. This will help us secure new opportunities, with the aim of jointly creating a mutually beneficial situation for employees, shareholders, customers, and suppliers.



**Chairman and CEO Miin Wu**



## 1.2. Message from the President

Last (2023) year, the world embarked on the post-pandemic era. Nevertheless, the economy remained erratic and uncertain, and economic recovery still faced challenges. In particular, amid the U.S.-China friction, geopolitical turmoil, inflation and high interest rates, the overall economy was sluggish. In response, Macronix persistently maintained the high-quality products and services to the best of its ability, proactively adjusted inventory and postponed certain capital expenditures. However, due to the persevere downturn of the memory market, the destocking process was also extended, causing Macronix's consolidated revenue to decrease by 36% in 2023 compared with that of 2022, while the gross profit margin also dropped by 19.7 percentage points in comparison with 2023. As such, the results did not meet expectation.

The operating performance of 2023 is as follows: the consolidated net operating revenue for the year was NT\$27.624 billion; the annual consolidated gross profit was NT\$6.761 billion; the annual average gross margin was 24.5%; the net loss after tax was NT\$1.699 billion; the loss per share was NT\$0.92; and EBITDA was NT\$2.6 billion. Cash expenditures from operating activities were NT\$0.526 billion, whereas, cash expenditures from investment activities were NT\$7.592 billion, with NT\$11.906 billion in cash equivalents at the end of the period. The inventory was NT\$13.369 billion; the debt ratio was 37.9%, and the book value per share was NT\$26.07. All of the above indicate Macronix's financial remains stable.

As always, Macronix believes that R&D is the core of the company's competitiveness. About 10% to 15% of its annual revenue has been invested in the R&D, and despite the sluggish economy, the forward-looking R&D in memory has never stopped. In 2023, Macronix applied 309 patents in total in various countries, and as of the end of 2023 it obtained 9,203 patents worldwide. In the past year (2023), we have also deepened our cooperation with major international manufacturers and launched a development plan for enterprise SSD storage technology and products, aiming to meet the market demand for efficient, reliable and high-quality storage in advanced application fields such as AI.

With regard to the processes and products, ROM accounted for 34% of the annual revenue in 2023. Total memory density shipment remained stable. NOR flash accounted for 51% of the annual revenue, while automotive products accounted for 24% of NOR flash's annual revenue. Various applications in the electric vehicle market are expected to continue to increase and new computer and server markets will drive demand for higher density NOR Flash. Moreover, last year (2023), Macronix has delivered samples of 45 nm NOR Flash products and completed the 4Gb 3D NOR Flash testing. In terms of NAND Flash, the annual revenue accounted for 9%. The 192-layer 3D NAND Flash has currently entered the final adjustment stage in the production process. The stacking technology is able to move towards increasing number of layers, thereby strengthening and improving Macronix's long-term international competitiveness.

As for the ESG (Environmental, Social, and Governance) requirements, beside starting from the source, we also attach importance to the concept of product life cycle. From product design, all of the chemicals and minerals used in our products comply with internationally agreed regulations including the EU's RoHS Directive, the REACH Regulation, and the Conflict Minerals Regulation. In addition, with respect to the network hacking and information security threats and risks, Macronix has also gradually built up relevant mechanisms and passed the ISO 27001, the international information security management system certification. In the future, we will implement the ISO management doctrine with a more rigorous attitude and continue to improve information security. All these efforts fully demonstrate Macronix's commitment and ability to achieve its sustainable development goals. Taking one step at a time under the leadership of the Chairman Miin Wu, Macronix's corporate governance has obtained the recognition over the years and it has become an excellent company ranked in the top 11% to 20%

of electronics companies with a market cap of NT\$10 billion and above in the 9<sup>th</sup> Round of Taiwan Stock Exchange Corporate Governance Evaluation. All the above proves the recognition of the ESG sustainable development performance of Macronix.

We uphold the business philosophy of "honesty" and insist on innovation and quality, which has allowed us to successfully develop the 3D generation, and once again fulfill our commitment to provide customers with the highest quality products and service support. Macronix will continue to follow the philosophy of honesty. By adhering to our five major values, such as innovation, quality, efficiency, service, and teamwork, we have established and implemented corporate governance and risk management mechanisms to create a business environment that is conducive for sustainable development. We believe that our perseverance can usher in the dawn at the trough of the business cycle and will yield fruitful operational results to share with our employees, shareholders and customers!

**President Chih-Yuan Lu**



A handwritten signature in black ink, appearing to read 'Chih-Yuan Lu', located to the right of the photograph.

## 2. Macronix

### **Macronix's Mission and Statement**

Today or in the future, Macronix strives to become a leading supplier in the semiconductor industry. The Company provides innovative customer/application-oriented solutions and NVM products with outstanding advanced technologies, premium quality and reliable services.

Macronix, a leading integrated device manufacturer in the global Non-Volatile Memory (NVM) market, provides a full range of ROM, NOR flash, NAND flash, and e.MMC solutions. With its world-class R&D and manufacturing capabilities, Macronix continues to deliver high-quality, innovative, and performance-driven products to its customers in the consumer, communication, computing, automotive electronics, industrial markets and other fields.

Macronix was founded in Taiwan's Hsinchu Science Park in 1989. Since its inception, the Company has continuously leveraged the competitive advantages of its products and constantly strived to enhance its production and manufacturing capabilities in order to deliver high-quality products and services. As a result, we have successfully established long-term, mutually beneficial strategic partnerships with large, world-class manufacturers. Macronix has adhered to high corporate governance standards, while actively maintaining investor relations and advocating CSR. Macronix was the first semiconductor company in the Hsinchu Science Park to receive the SA8000 Corporate Responsibility Management Systems certificate. The Company was also awarded the Corporate Governance Certification for publicly traded and over-the-counter companies. In 2022, Macronix passed the biennial RBA VAP with excellent results, showing that we take CSR seriously and are committed to achieving sustainable development.

In recent years, Macronix has been allocating 10% or above of its revenue for R&D. The technical papers we published over the years were continued to be selected and highlighted by multiple famous international academic conferences, such as the IEDM/VLSI and the ISSCC. Macronix currently holds the intellectual property rights for over 9,000 key international technologies and patents. We have established technical cooperation alliances with global high-tech industry leaders to conduct research on pioneering Phase-Change memories and AI network neural computing. Macronix has also announced the world's first paper about the flash prospective technology — 3D NOR, and provided solutions for the next generation of high-density and high-efficiency non-volatile memories.

Macronix currently owns one 12-inch wafer fab (Fab 5), and one 8-inch wafer fab (Fab 2). Macronix designs and fabricates its non-volatile memory products in Fab 5 and Fab 2. Looking ahead, Macronix will continue to research and develop new technologies to stay ahead of the competition, while simultaneously pursuing new product development and enhancing its technologies, quality, and services in order to strengthen its competitive advantages and boost profits. We will do our utmost to deliver sustainable growth for Macronix while also enhancing Taiwan's international competitiveness.



## 2.1. Products and Services



As an integrated device manufacturer in the Non-Volatile Memory (NVM) market, Macronix provides a full range of ROM, NOR Flash, NAND Flash, and e.MMC™ solutions.

Thanks to its R&D and manufacturing capabilities, Macronix continues to deliver high-quality, innovative, and performance-driven products to its customers in various fields, such as the consumer, communication, computing, automotive electronics, industrial, and smart healthcare sectors. Macronix owns two wafer fabs: the 8-inch wafer fab producing approximately 370,000 wafers, and the 12-inch wafer fab producing approximately 168,000 wafers.

Macronix is capable of providing a comprehensive lineup of densities for NOR flash products, from 512 Kbit to 2 Gbit. We also provide miniature NOR flash products that can adequately fulfill the demands for lightweight and miniature portable electronic products. Moreover, our self-developed Single-Level Cell (SLC) NAND flash products provide superior quality and reliable applications that meet the needs of a high level, embedded market. Furthermore, we introduced the 19nm SLC and Multi-Level Cell (MLC) NAND in 2018. We also provide KGD (Known Good Die) products to meet the needs of SIP (System in Package).

Macronix has a wide variety of solutions that can help customers design the best products for different applications. In terms of IoT and other low power applications, Macronix launched the Ultra Low Power Flash to gain a foothold in the wearable smart device market. It features low power consumption—60% less than conventional products—and wide range VCC. We launched the Ultra Low VCC Flash (1.14V-1.6V) in 2017, in response to the trend for lower core voltage of logic ICs, as well as to support more efficiently IoT, Bluetooth, and health monitoring products that require low power consumption. As for the automotive market, Macronix provides OctaFlash™, ArmorFlash™, and LybraFlash™ that launched in 2020 to meet various clients' needs. OctaFlash™ is the industry's fastest SPI NOR with a new-generation, low-pin count, high-performance OctaBus interface, keeping with the requirements of in-vehicle infotainment, data communication, digital cameras, and IoT for a high-capacity, fast-transmission, and highly-reliable flash memory. As for the ArmorFlash™ solution, crucial security components were incorporated into memory chips to satisfy the pressing needs for information security in memory applications, as required by automotive electronics, IoT, and industrial applications. ArmorFlash™ has been adopted in the autonomous driving platforms of international manufacturers. LybraFlash™ provides a high-quality, high-capacity flash memory solution for clients.

## Macronix Products and Applications

Product Category	Key Products	Applications and Functions
Non-Volatile Memory IC	Read-only Memory (ROM)	Mainly applied in electronic entertainment systems and electronic toys, etc.
	NOR Flash Memory	Applied in personal computers, tablet PCs, printers, hard drives, servers, smartphones, smart healthcare devices, wired and wireless communication equipment, advanced driver assistance systems, infotainment systems, industrial control systems, etc.
	NAND Flash Memory	Applied in, printers, wired and wireless communication equipment, industrial control systems, etc.
	e.MMC™	Mainly applied in industrial and communication equipment, etc.
Wafer Foundry Service	Sub-micron Logic Process/Pressurized CMOS and BCD Process	Pressurized CMOS manufacturing service for power management and LED/LCD driver IC customers.
	Embedded Flash/MTP/OTP Process	Provide integrated embedded Flash/MTP/OTP to strategic clients.

## Scope of Application

Computing		Personal computers, notebooks, tablets, computer peripherals/accessories, printers, and servers.
Consumer		STB, wearable devices, drones, sports cameras, digital cameras, smart home appliances, smart healthcare assistance devices, game consoles, toys, and audiovisual tools.
Communication		Mobile networks, home networks, enterprise networks, telecommunication networks, and other wired and wireless network equipment
Automotive		Advanced driving assistance systems, telematics and entertainment systems, dashboards.
Industry		Manufacturing automation systems, smart buildings, smart grids, EV charging equipment, smart retail, transportation control equipment, industrial computer, POS, test and measurement instruments and other types of industrial control equipment.

## Key Markets

Macronix is an export-oriented company. Although Europe, U.S., Taiwan, China and Japan are its main sales regions, its service locations cover Europe, the U.S., China, Japan, Korea, and Singapore to respond to the needs of customers from all over the world.

## Product Sales and Market Share

Product	2023 (consolidated)	
	Sales Turnover (Thousand NTD)	Sales Ratio (%)
Flash	16,959,567	61.40
ROM	9,036,841	32.71
Foundry	1,619,489	5.86
Others	7,711	0.03
Total	27,623,608	100.00

Macronix has long held the leading position in the global NOR Flash and ROM markets. Based on Omdia, a market research organization, the global market share of Macronix's NOR Flash was 16.6% in 2023.

### OctaFlash Received

#### the Product Award in the 2023 EE Awards Asia: Best Memory IC of the Year

The EE Awards Asia is the first choice of trust for engineers around the world. Witnessed by the professional technical media and technology professionals of EE Times and EDN, it commends outstanding companies and products in the electronics industry as well as those who have made outstanding contributions to the industry, and applauds the innovation and efforts in the engineering field in Taiwan and Asia. Macronix continued to achieve great results in the fierce competition and won the EE Awards Asia for the third consecutive year. The winning products are: ArmorFlash, 1.2v Serial NOR Flash and this year's OctaFlash. OctaFlash flash memory provides a high data transmission operating frequency of up to 200MHz and a high transmission capacity of 400MB/s, which can meet the "instant-on" performance requirements of the real-time response systems for automotive, industrial and consumer applications. The high-performance features of these devices provide an ideal solution for "over-the-air (OTA)" applications of vehicles. With the increased use of Internet of Vehicles (IoV) functions, OTA applications have become increasingly important. High-performance OctaFlash flash memory can realize real-time online data updates through OTA, such as software updates, firmware upgrades, and user interface changes.



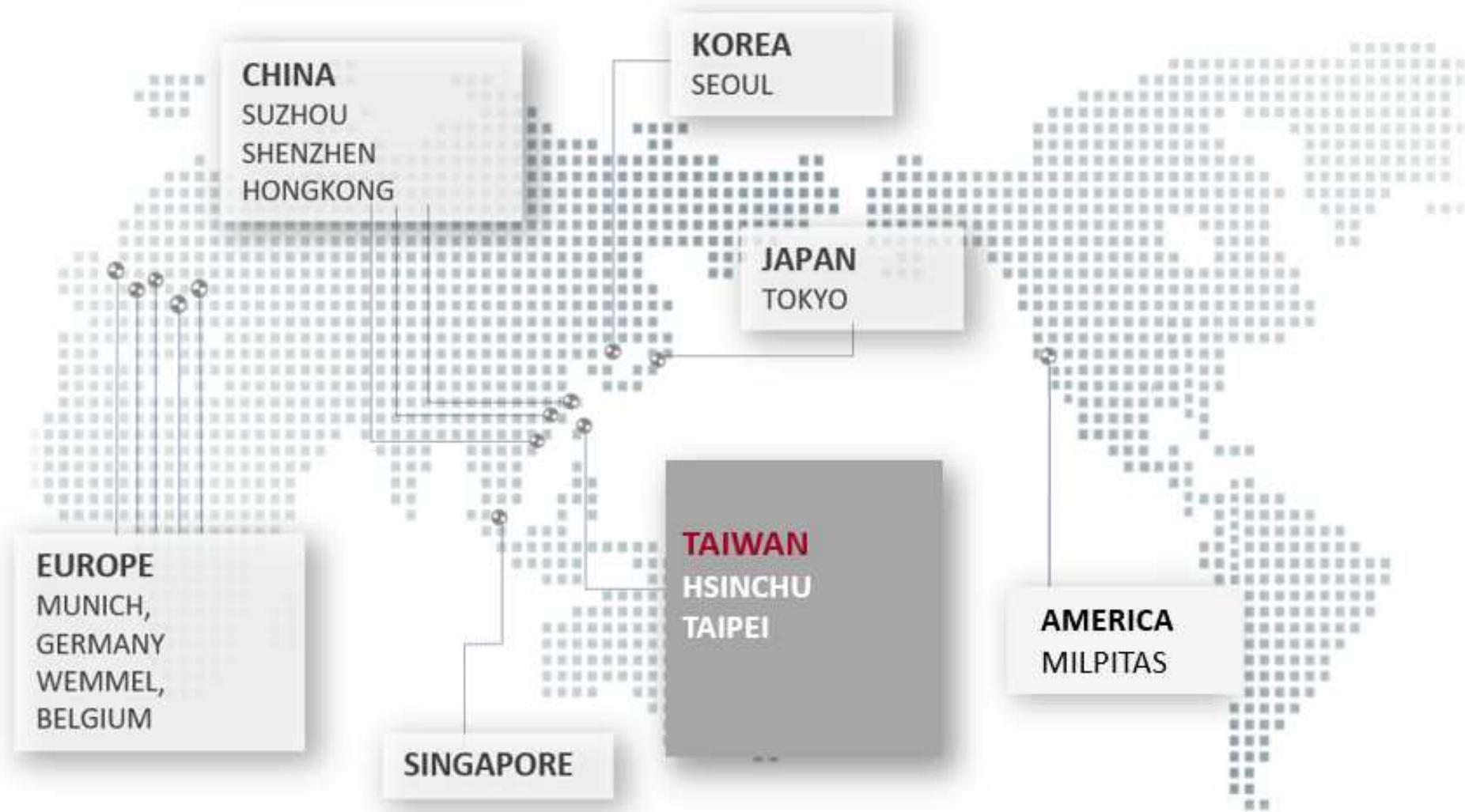
The rapid smart and electric development of the automotive industry not only leads to rapid expansion of the automotive electronics market, but also results in the significant enhancement in the performance of vehicle electronic and electrical architecture. Functions such as self-driving/interconnection and AI have led to increasingly higher demand for vehicle data transmission bandwidth.

The breakthrough technological development of OctaFlash increases the data transmission bandwidth by 4 times and shortens the output delay time by 50%. Its performance also meets the high bandwidth and low latency requirements of the new generation of automotive electronic architecture, Internet and AI.

These breakthroughs and innovations not only break the performance limitations of traditional SPI NOR Flash, but also exert a profound impact on the NOR Flash industry. We look forward to OctaFlash products bringing more remarkable achievements to the Company in high-end applications in the future.

Elain Shih Macronix/OctaFlash PM

## 2.2. Worldwide Business



## 2.3. Macronix Sustainability Milestones

Time	Milestones
2000	<ul style="list-style-type: none"> <li>Held the first Macronix Golden Silicon Awards - Semiconductor Design and Application Competition</li> </ul>
2001	<ul style="list-style-type: none"> <li>Established the Macronix Education Foundation</li> </ul>
2002	<ul style="list-style-type: none"> <li>The Macronix Education Foundation held the first Macronix Science Awards.</li> </ul>
2004	<ul style="list-style-type: none"> <li>Established the Macronix Science Awards Association</li> <li>Recognized as an Outstanding Enterprise by the Energy Saving Awards from the Bureau of Energy, Ministry of Economic Affairs</li> <li>First company in the Hsinchu Science Park to complete the comprehensive inventory and verification on greenhouse gases</li> </ul>
2005	<ul style="list-style-type: none"> <li>Received the ISO 14001:2004 Environmental Management System Certification from the British Standards Institute</li> <li>Won the 14th ROC Enterprise Environmental Protection Award for four consecutive years</li> </ul>
2006	<ul style="list-style-type: none"> <li>Received a green product certification from international brands including SONY, CANON, and LG for compliance with RoHS Directive requirements</li> </ul>
2007	<ul style="list-style-type: none"> <li>Received the ISO 14064-1 International Standard for GHG Emission Verification Certification from the British Standards Institute</li> <li>Received the IECQ QC080000 Hazardous Substance Process Management System Certification</li> <li>Recognized as an Outstanding Manufacturer for Voluntary Greenhouse Gases Emissions Reduction by the Bureau of Industrial Development, Ministry of Economic Affairs</li> <li>Credited with the CG6002 Corporate Governance Certification by the Taiwan Corporate Governance Association</li> </ul>
2008	<ul style="list-style-type: none"> <li>Recognized as an Outstanding Enterprise in the Green Procurement Award from the Environmental Protection Administration</li> <li>Donated CNY 5 million to help victims of the Sichuan earthquake</li> <li>Helped push upstream and downstream supply chain partners to implement the Electronic Industry Citizenship Coalition Code of Conduct (EICC)</li> <li>Granted the new OHSAS 18001:2007 certification from SGS</li> <li>Granted the Taiwan Occupational Safety and Health Management System (TOSHMS) Certification</li> <li>Became the first semiconductor manufacturer to receive the SA8000 Corporate Responsibility Management Systems Certification</li> <li>Donated NT\$300 million to National Tsing Hua University to build the Macronix Building (Learning Resource Center)</li> </ul>
2009	<ul style="list-style-type: none"> <li>Received the 5th annual Global Views Monthly Magazine CSR Award for its outstanding performance in Corporate Social Responsibility</li> <li>Donated NT\$100 million to aid the victims of Typhoon Morakot in Taiwan</li> <li>Awarded with the 3rd National Occupational Safety and Health Award</li> <li>Became the first semiconductor manufacturer to be recognized as an outstanding enterprise and to receive a safety certification</li> </ul>
2010	<ul style="list-style-type: none"> <li>Received the 6th annual Global Views Monthly Magazine CSR Award top honor (Five-star rating)</li> <li>Received the 2010 CommonWealth Magazine Excellence in Corporate Social Responsibility Award</li> <li>Received the Employment Creation Contribution Award from the Executive Yuan</li> <li>Donated an additional NT\$100 million for the Macronix Building at National Tsing Hua University</li> </ul>

Time	Milestones
2011	<ul style="list-style-type: none"> <li>• Donated NT\$30 million to the Japan Earthquake Relief Efforts</li> <li>• Honored as one of the Top 100 Taiwan Brands by the Ministry of Economic Affairs</li> <li>• Once again received the CommonWealth Magazine Excellence in Corporate Social Responsibility Award</li> <li>• Honored with Contribution Award at the 2011 National Invention and Creation Award</li> <li>• Received the CG6006 Corporate Governance Evaluation Certification</li> <li>• Received the Employment Creation Contribution Award from the Executive Yuan</li> <li>• Received the Employee Assistance Program Outstanding Business Award from the Council of Labor Affairs, Executive Yuan</li> </ul>
2012	<ul style="list-style-type: none"> <li>• Received the 8th annual Global Views Monthly Magazine CSR Award</li> <li>• Once again received the CommonWealth Magazine Excellence in Corporate Social Responsibility Citizenship Award</li> </ul>
2013	<ul style="list-style-type: none"> <li>• Official opening of the new Learning Resource Center at National Tsing Hua University — the Macronix Building</li> <li>• The Macronix Education Foundation was awarded by the Ministry of Education as an Outstanding Educational Foundation</li> </ul>
2014	<ul style="list-style-type: none"> <li>• Deputy Director Wang, Hung-Chih was named an Outstanding Internal Auditor by the Institute of Internal Auditors-Chinese Taiwan</li> <li>• Received the first "Work-Life Balance Award" presented by the Ministry of Labor in recognition of the Company's performance in care and support for employee families and the health and safety of its employees</li> </ul>
2015	<ul style="list-style-type: none"> <li>• The Taiwan Stock Exchange listed Macronix as one of the companies in the top 5% with outstanding performance in the first corporate governance evaluation.</li> <li>• Recognized as an Excellent Healthy Workplace by the Health Promotion Administration, Ministry of Health and Welfare</li> </ul>
2016	<ul style="list-style-type: none"> <li>• Recognized as one of the Top 100 Sustainable Enterprises in Asia by Channel NewsAsia</li> <li>• Recognized as an Outstanding Energy-saving Manufacturer by the Ministry of economic Affairs</li> <li>• Awarded the Top Honor for an Accredited Healthy Workplace</li> <li>• Awarded a badge for establishing and managing certified breastfeeding rooms</li> <li>• Awarded for Excellence in Landscaping and Environmental Protection</li> <li>• Recognized as an Outstanding Water-saving Manufacturer by the Water Resources Agency, Ministry of Economic Affairs</li> <li>• Recognized as an Outstanding Energy-saving Manufacturer by the Hsinchu Science Park in 2016</li> </ul>
2017	<ul style="list-style-type: none"> <li>• Fab 1 received the Excellence in Safety and Health Award from Hsinchu Science Park</li> <li>• Received the Excellence in Occupational Safety and Health Promotion Award by the Hsinchu Science Park</li> <li>• Fab 2 received the Outstanding Energy-Saving Manufacturer Award from the Ministry of Economic Affairs</li> <li>• Received the Excellence in Workplace Equality Promotion Award by the Hsinchu Science Park</li> <li>• Received the Excellence in Green Procurement Award for Private Enterprises and Organizations in Hsinchu City</li> </ul>
2018	<ul style="list-style-type: none"> <li>• Fab 2, Fab 5, and the Test Building passed the Responsible Business Alliance Validated Assessment Program (RBA VAP) audit and obtained the Platinum Certification</li> <li>• Fab 2 received the Outstanding Energy-Saving Manufacturer Award from the Ministry of Economic Affairs</li> <li>• Chairman Miin Wu was awarded Ernst &amp; Young Entrepreneur of the Year and Business Paradigm Entrepreneur of the Year</li> </ul>

Time	Milestones
	<ul style="list-style-type: none"> <li>• Awarded the Excellence in Green Procurement Award for Private Enterprises and Organizations in Hsinchu City</li> <li>• The Head Office and Fab 1 won the Badge of Accredited Healthy Workplace</li> <li>• Received the Creativity Gold Award for Healthy Workplace – Award of Excellence</li> </ul>
2019	<ul style="list-style-type: none"> <li>• Received the Annual Sustainable Elite Award in the first SGS CSR Award</li> <li>• Received the National Excellent Healthy Workplace – Paradigm in Health Award from the Health Promotion Administration, Ministry of Health and Welfare</li> </ul>
2020	<ul style="list-style-type: none"> <li>• Received the Breastfeeding Room Certification - Award of Distinction from the Public Health Bureau, Hsinchu City in 2020</li> <li>• Fab 2, Fab 5, and the Test Building passed the Responsible Business Alliance Validated Assessment Program (RBA VAP) audit and obtained Platinum certification</li> <li>• Received the Annual Sustainable Elite Award in the second SGS CSR Awards</li> <li>• Awarded Excellence in Landscaping and Environmental Protection in 2020</li> <li>• Received the Excellence in Workplace Equality Promotion Award from the Hsinchu Science Park in 2020</li> </ul>
2021	<ul style="list-style-type: none"> <li>• Secure flash memory ArmorFlash™ won the 2021 Hsinchu Science Park Innovative Product Awards</li> <li>• Won the 2021 National Occupational Safety and Health Enterprise Benchmarking Award from the Occupational Safety and Health Administration of the Ministry of Labor</li> <li>• Awarded 2021 EE Awards Asia - "Best Memory IC of the Year"</li> <li>• Recognized by the 2022 Taiwan Excellence Gold Award</li> <li>• The Macronix Education Foundation was recognized with the Social Education Contribution Award by the Ministry of Education</li> <li>• Awarded the Excellence in Green Procurement Award for Private Enterprises and Organizations in Hsinchu City in 2021</li> </ul>
2022	<ul style="list-style-type: none"> <li>• Chairman Miin Wu won the 5th “Presidential Innovation Award”</li> <li>• Fab 2, Fab 5, and the Test Building passed the Responsible Business Alliance Validated Assessment Program (RBA VAP) audit and obtained 200-point Platinum certification</li> <li>• “Award of Excellence” among the outstanding enterprises in waste reduction and circular economy in Hsinchu Science Park</li> <li>• Awarded the “Outstanding Business Entities for Using Electronic Uniform Invoices” by the Hsinchu Branch, National Taxation Bureau of the Northern Area, Ministry of Finance</li> <li>• Awarded “First Class Award” among the excellent water saving units in the “Selection of Excellent Water Saving Units and Water Conservation Experts” organized by the Water Resources Agency, MOEA</li> <li>• Chairman Miin Wu was awarded with the 2022 EE Awards Asia “Executive of the Year”</li> <li>• Presented with the 2022 EE Awards Asia “Featured Vehicle Electronics Solution Supplier”</li> <li>• Ultra-Low-Power 1.2V Serial NOR Flash Memory was recognized as the 2022 EE Awards Asia “Best Memory of the Year”</li> <li>• Awarded the Excellence in Green Procurement Award for Private Enterprises and Organizations in Hsinchu City in 2022</li> <li>• Recognized as an Excellent Healthy Workplace – Paradigm in Health Award by the Health Promotion Administration, Ministry of Health and Welfare</li> <li>• Won the “Award of Excellence” in the 2022 Clean Air Zone Adoption presented by the Environmental Protection Administration, Executive Yuan.</li> </ul>
2023	<ul style="list-style-type: none"> <li>• Recognized with "Innovation Momentum 2023: The Global Top 100" by LexisNexis</li> <li>• Awarded first place among outstanding R&amp;D alternative service employers (private industry group) in 2023</li> <li>• Macronix’s high-performance OctaFlash™ passed the highest vehicle safety standard ISO 26262 ASIL D certification</li> </ul>

Time	Milestones
	<ul style="list-style-type: none"> <li>• The American Physical Society (APS) announced President Chih-Yuan Lu as the winner of the George E. Pake Prize in 2024, a major award in applied physics</li> <li>• Won the SGS ISO Plus 2023 Occupational Safety and Health Performance Management Award</li> <li>• Macronix Education Foundation was recognized with the 16th Arts and Business Awards from the Ministry of Culture</li> <li>• Fab 5 won the Badge of Accredited Healthy Workplace in 2023</li> <li>• Received the 19th National Sustainable Development Award from the Executive Yuan</li> <li>• Macronix 「OctaFlash LM/UM Series NOR Flash Memory」 was awarded the 2023 EE Awards Asia: Best Memory IC of the Year</li> </ul>

## 2.4. External Participation

Macronix upholds its business philosophy of "honesty" and actively participates in external associations, providing recommendations to companies, peers, and the industry through good interactions. The Company promotes exchanges and development of the business community, government offices, and academia. Macronix's important actions and contributions to different organizations are listed below:

Name	Title	Action/Contribution
Taiwan Electrical and Electronic Manufacturers' Association	Member	Macronix offers suggestions, promotes the collective interests of fellow members, functions as a bridge between the industry and the government, and promotes industrial development.
Allied Association for the Science Park Industries	<ol style="list-style-type: none"> <li>1. Standing Director</li> <li>2. Convener of the Health and Safety Committee</li> <li>3. Alternate Vice Convener of the Environmental Protection Committee</li> <li>4. Convener of the Joint Security Committee</li> </ol>	<ol style="list-style-type: none"> <li>1. Macronix contributes to the discussion, decision, and execution of the association's operations.</li> <li>2. Macronix leads the discussion, decision, and execution of work related to occupational safety and health, fire safety, health promotion and risk management in the science park.</li> <li>3. Macronix communicates, coordinates, researches, participates, and provides services related to environmental protection.</li> <li>4. Macronix communicates, coordinates, participates in and advises on joint security, police and traffic safety in the science park.</li> </ol>
Chinese National Association of Industry and Commerce	Director	Macronix offers suggestions, promotes collective interests of fellow members, functions as a bridge between the industry and the government, and promotes industry and commerce development.
Friends of the Second Special Police Corps, National Police Agency	Committee Member	Macronix cooperates with the police to enhance and promote crime control and prevention.
North consortium, Taiwan Occupational Safety & Health Management System (TOSHMS), Ministry of Labor	President of North Consortium	<ol style="list-style-type: none"> <li>1. Macronix shares its experience of winning the National Occupational Safety &amp; Health Award – Enterprise Benchmarking Award.</li> <li>2. Macronix promotes cross-industry education and awareness of labor safety issues and inspires creative solutions for promoting workplace safety.</li> </ol>

## Macronix's External Participation

Corporate Governance	Economy	Society
<ul style="list-style-type: none"> <li>○ Computer Audit Association</li> <li>○ The Institute of Internal Auditors</li> </ul>	<ul style="list-style-type: none"> <li>○ Chinese National Association of Industry and Commerce</li> <li>○ Taiwan Stock Affairs Association</li> <li>○ Chinese International Economic Cooperation Association</li> </ul>	<ul style="list-style-type: none"> <li>○ Friends of the Second Special Police Corps</li> <li>○ Taiwan Association of Occupational Health Nurses</li> <li>○ High-Tech Industry Salary Association</li> <li>○ Taiwan Union of Nurses Association</li> </ul>
Technology and Industry		
GSA	The Allied Association for Science Park Industries	
JEDEC Fee	Monte Jade Science & Technology Association of Taiwan	
SEMI TAIWAN	Taiwan Electrical and Electronic Manufacturers' Association	
WSTS	Taiwan Society for Precision Engineering	
Chinese Institute of Engineers	Chinese Society for Management of Technology	
The Electronics Devices and Materials Association	Ucle Membership	
Taiwan Institute of Chemical Engineers	PCI-SIG annual membership	
NVM Express		

### 3. Sustainable Development Strategy

The key electronic components produced by Macronix have enriched human lives. As a member of the global market, we insist on sustainable management and are committed to our responsibilities as a corporate citizen of the world. We strive to create a better future by leveraging our advanced technological capabilities to assist our clients in creating excellent products.

In 2022, after expanding the scope of the existing social responsibility management system organization, Macronix established the “Sustainable Development Committee” to promote ESG matters through the operation of the committee, fulfill CSR and protect our living environment, cherish and make good use of our limited natural resources as the main strategy to achieve sustainable development of the enterprise. The sustainable development goals are proposed after taking into account the opinions of stakeholders, which include the compliance with the requirements of Responsible Business Alliance Code of Conduct (RBA CoC). In 2022, we passed RBA VAP (Validated Assessment Program) audit with excellent results. We also complied with various requirements of the Corporate Social Responsibility Best Practice Principles of the Financial Supervisory Commission. In terms of social responsibility, apart from dedicating ourselves to scientific research and education, Macronix actively encourages cultural development as a way to give back to society. All these efforts highlight Macronix's commitment to corporate social responsibility and sustainable development.

Macronix’s sustainable development also involves a rolling review of external environmental factors, such as the strategy for achieving net-zero carbon emissions by 2050 and geopolitical risks, and reports the implementation process to the Board of Directors regularly.



To fulfill our commitment to sustainability, Macronix strives to:

- ◆ Go beyond compliance with regulatory requirements and enhance our environmental, safety and health performance, as well as risk management.
- ◆ Nurture a working environment with a well-planned and well-run human resources management system and related practices.
- ◆ Meticulously commit to sustainable supply chain management that is fully compliant with international standards, laws, and customer requirements.
- ◆ Increase our social care and respond to global trends. Macronix adheres to and requires its suppliers to refrain from using or purchasing conflict minerals. Additionally, we track the source of gold (Au), tantalum (Ta), tin (Sn), tungsten (W), cobalt (Co) and other various minerals to ensure such minerals come from qualified refineries.
- ◆ Promote science education in order to cultivate innovation among the younger generation and expand our contribution to society.

### 3.1. Sustainable Development Policy and Organization

Macronix’s “Corporate ESG Policy” incorporates the existing environmental safety and health policy, social responsibility policy, and ethical corporate management policy, and is formulated with reference to the “Taiwan Sustainable Development Goals” proposed by the National Council for Sustainable Development of the Executive Yuan. In 2022, the Board of Directors approved the policy and the plan. To ensure the implementation of the policy, all Macronix employees must receive training on sustainable development.



#### Sustainable Development Policy

Macronix has been devoted to the philosophy of building an honest and solid business. We establish and implement corporate governance and risk control mechanisms through the values of innovations, quality control, operation efficiency, customer service, and teamwork to create a sustainable business environment. Macronix respects employees' rights and interests, and is committed to providing a safe and healthy workplace for employees. We are also dedicated to building environmentally friendly business, properly using natural resources, implementing green energy, and carbon reduction. We are delighted to give back to society through promotion of science and innovations, and encouragement of research and development.

We are committed to protecting the shareholders’ interests in the goal of growing a sustainable business.

1. To comply with the national regulations related to the sustainable field, customer requirements

and Macronix rules and policy.

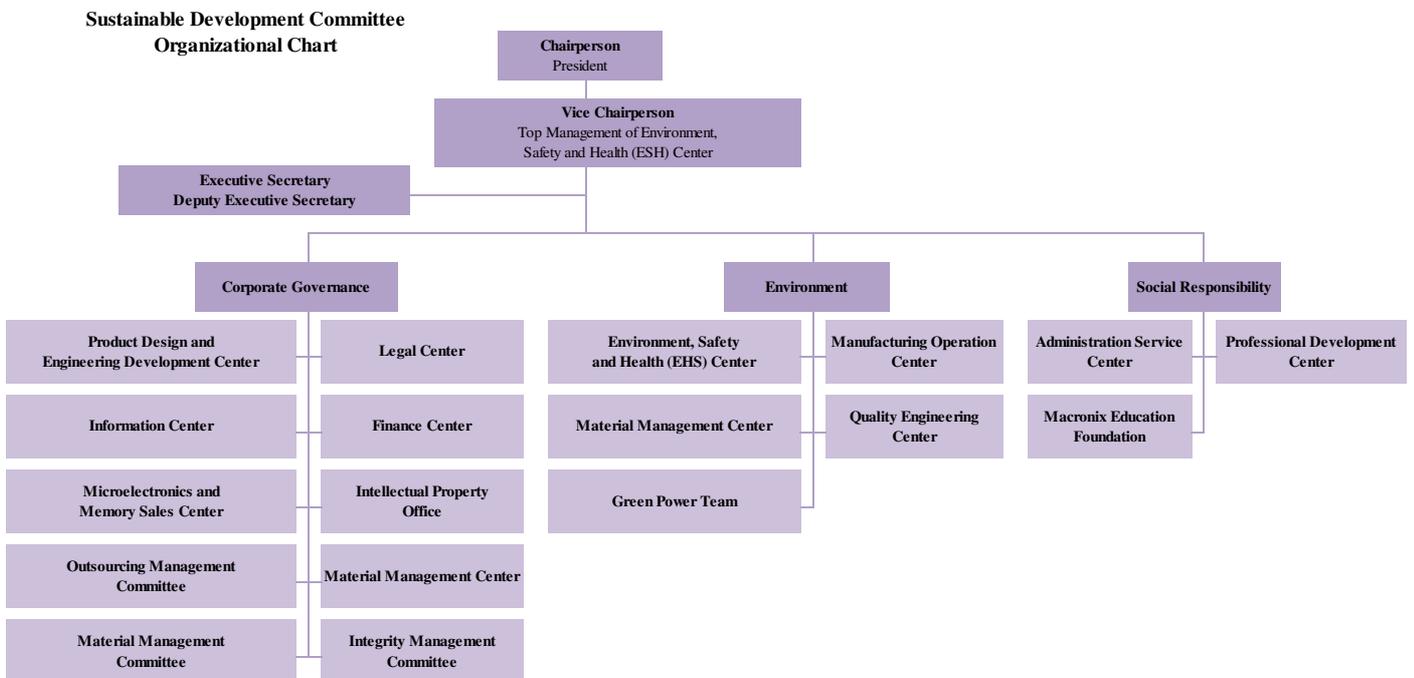
2. To conduct the due diligence on suppliers and contractors to facilitate the ESG performance in the supply chain.
3. To reduce environmental load, mitigate climate change and maintain ecological balance.
4. To consider the United Nations Sustainable Development Goals (SDGs) as well as the Corporate Governance 3.0-Sustainable Development Road Map of the Financial Supervisory Commission (FSC) to be our vision, perform the continuous improvement through the management system to achieve international standards.

### Organization of the Sustainable Development Committee

The Sustainable Development Committee is responsible for developing and supervising the implementation of sustainable development policies, management systems, and annual promotion plans. The President serves as the Chairperson, the Top Management of Environment, Safety and Health (EHS) Center serves as the Vice Chairperson, and the committee members are representatives of the Company's cross-department centers or business groups. The execution team adheres to the mission of sustainable corporate development, integrates cross-departmental resources to promote and maintain the effective operation of various sustainable development goals and programs, and enhances the awareness of sustainable development among employees, so that the system can be maintained and continuously improved. The team regularly reports to the Board of Directors and carries out the various requirements for the sustainable development set by the directors.

The President of Macronix, who also served as the Chairperson, is responsible to report to Macronix’s Board of Directors any and all ESG matters as well as its enforcement.

### Sustainability Development Committee Organizational Chart



## Macronix Sustainable Development Performance Results and Achievements

### • Digital transformation



Since its establishment, Macronix has been the first to promote the "independent R&D of engineering data analysis system" (sNOVA) by combining statistics, big data and AI analysis data. Through product digital management, we improve quality and high yield, and lead the semiconductor industry in learning the introduction of the system.

We encourage innovative research and development. Because of our strong patents, relevant international disputes have been resolved successfully leading to the settlements of billions of dollars paid to the Company.

### • People-oriented

Macronix recognizes the impact of "gender equality", "friendly workplace" and "employee health" on corporate competitiveness. At the beginning of its establishment, Macronix took the lead in the technology industry to implement a two-day weekend system, and spent NT\$200 million to build the first five-star employee recreation and fitness center in the Hsiuchu Science Park. Since 2011, the Company has promoted "Macronix Sports Day". We adopted and built an ecological and environmentally friendly park "Macronix Park" and won the 18th

"Award of Distinction" for science park greening. In addition to the general health checkups, we have been providing employees with free "low-dose CT lung screenings" since 2015 (benefiting nearly 3,000 colleagues); and free "heart CT scans" since 2021 (benefiting nearly 500 colleagues). Since 2018, all factories under the Company have won the highest honor of RBA audit with a full score of 200 points (platinum level) three times.



### • Green production

In the hope that the earth will move towards a sustainable future, Macronix not only maintains high efficiency of environmental treatment equipment and high recovery rates of solid/liquid waste, but also sets a net-zero target for 2050, using core strategies such as energy conservation, energy creation, carbon reduction and carbon sink in an effort to mitigate global warming.

### • Technology cultivation power

Macronix understands the importance of education in cultivating national scientific and technological talent. The Company has established the Macronix Golden Silicon Awards (for colleges and universities) for 24 years and the Macronix Science Awards (for high schools and vocational high schools) for 22 years, with a cumulative of nearly 40,000 participants and prizes granted of over NT\$180 million. Macronix donated NT\$420 million to National Cheng Kung University in 2019 to construct the "Cheng Kung Innovation Center - Macronix Learning Resource Center", and found the "Miin Wu School of Computing" in 2020. In addition, the Company has been donating NT\$1 billion to National Cheng Kung University in the form of NT\$100 million per year for 10 consecutive years. All these efforts are aimed at cultivating science education in Taiwan and planting beautiful seeds for the future of science in Taiwan.



Received the Highest Honor for Sustainable Development from the Executive Yuan.  
2023 National Sustainable Development Award

## 3.2. Stakeholder Engagement

### 3.2.1. Stakeholder Definition, Differentiation and Interaction

Macronix recognizes that conversations with society is necessary to improve mutual understanding, and thus make proper decisions and reduce social conflicts. Macronix understands and responds to society's reasonable expectations, needs, and topics of concern through a number of communication channels. Related communications are reported to the Board of Directors annually. We welcome to access Macronix's company website "Contact us" (<http://www.macronix.com>) to express any comments or opinions.

Macronix continues to build a robust ESG value chain system, work with employees and corporate partners to understand and respond to society's expectations toward Macronix's fulfillment of ESG, and get an insight into new trends, risks and development opportunities. Through the mutual interaction, we turn commitments into concrete actions to implement positive contributions to society, environment and governance. Although this is a long-term plan, Macronix will continue making efforts to realistically accomplish various goals that were set.

So called "stakeholder" in this report is based on the stock exchange regulations, the AA1000 Stakeholder Engagement Standard, and depends on the consideration of the industry opinions.

## Interactions and Responses to Macronix's Stakeholders in 2023

Stakeholders	Communication Channels	Topics of Concern	Highlights and Results of Communication in 2023	Subject to Influence (V) or Concern (*)	
Investors	<a href="#">Corporate Social Responsibility Website</a> and <a href="#">Sustainability Report</a> (annually) Corporate website, financial statements (annually) Shareholders' meeting (annually) Self-organized investor seminars (quarterly) Participate in forums/visits by investors/visits to investors (irregularly) Investor service mailbox/phone calls (irregularly)	Shareholder equity Corporate Governance Overview of Investments Innovative R&D Industry development Intellectual Property Rights Dividends distribution Corporate operations Product price Product use	<ul style="list-style-type: none"> <li>* Participated in investors-related ESG activities to understand the awareness and expectations of investors and shareholders on ESG</li> <li>* Provided investors with open and transparent operational information and assisted investors to understand Macronix's long-term strategic goals and prospects (held 1 shareholders' meeting, 4 self-organized investor seminars, and participated in more than 70 external meetings)</li> <li>* Continued to invest in the R&amp;D of various semiconductor processes. In 2023, a total of 309 domestic and foreign patents were obtained, and the cumulative total number of patents granted to Macronix is 9,203.</li> <li>* Disclosure of financial and operational reports on investor relations on the Company's website: <a href="https://www.mxic.com.tw/zh-tw/about/investor-relations/Pages/quarterly-results.aspx">https://www.mxic.com.tw/zh-tw/about/investor-relations/Pages/quarterly-results.aspx</a></li> </ul>	Economy	V *
				Environment	*
Customers	Customer satisfaction survey (annual) Suppliers' conference (at the request of customers) Customer communication platform (available 24-7) Visits in person (irregularly) Supplier audits (at the request of customers)	Product lead time/price/technology/quality Future direction of products Customer application services Green Products Corporate Social Responsibility Business Continuity Management	<ul style="list-style-type: none"> <li>* Passed the RBA VAP audit with the highest score in 2022</li> <li>* Customer satisfaction survey response rate &gt; 84%</li> <li>* Continued to maintain the ISO 9001 certification</li> <li>* Periodically provided customer purchase order and delivery information, and provided the quantity for supply and lead time within price validity period during quotation</li> <li>* Periodically updated Macronix's product road map</li> <li>* Abnormal event reporting and risk management procedures were completed according to plans and</li> </ul>	Economy	
				Environment	V *
				Society	*

Stakeholders	Communication Channels	Topics of Concern	Highlights and Results of Communication in 2023	Subject to Influence (V) or Concern (*)	
			effectively carried out in compliance with customer requirements		
Employees	<p>Various open-discussion meetings (held periodically and ad hoc)</p> <p>No Topic is Off Limits suggestion box (available 24-7)</p> <p>Reporting hotline (available 24-7)</p> <p>Printed copies and electronic bulletin boards (to communicate information as necessary)</p> <p>Employee Relationship Management Portal (available 24-7)</p> <p>Learning map platform (available 24-7)</p> <p>Performance evaluation procedure (annual)</p> <p>Health consultation/promotion (held periodically and ad hoc)</p> <p>Employees seek advice in person or by phone (irregularly)</p>	<p>Employee Communication</p> <p>Labor/Management Relations</p> <p>Compensation &amp; Benefits</p> <p>Human rights policy</p> <p>Training System</p> <p>Performance evaluation results</p> <p>Occupational safety and health</p> <p>Key points of the amendment to the Labor Standards Act</p> <p>Pension</p> <p>Calculation/qualifications of retirement pension</p> <p>COVID-19 prevention and management</p>	<ul style="list-style-type: none"> <li>* Number of open-discussion meetings held: Orientation training for 306 new employees. Department discussions (held by each department as necessary). The head office and each fab convened 4 labor-management meetings. 5 Welfare Committee meetings (including 3 extraordinary meetings)</li> <li>* Received 125 cases from the "No Topic is Off Limits" suggestion box and reporting hotline with a 100% closing rate</li> <li>* Periodically organizes on-the-job occupational safety training; the ESH department offers consultation for employees at any time</li> <li>* Planned the health promotion plan for the following year based on employees' health condition, opinions regarding the annual health exam, and current events</li> <li>* Physicians provide consultation services for the entire company 10 times a month</li> <li>* A total of 86 health promotion activities and seminars were attended by a total of 4,265 employees</li> <li>* Following the changing trends of the pandemic situation at home and abroad, pandemic mitigation measures have been reviewed on a rolling basis, and pandemic prevention judgment and handling principles that are superior to those of the industry have been issued. In response to the pandemic, through various e-pandemic management systems, including body temperature registration, visitor application, vaccination registration, work-from-</li> </ul>	Economy	V
				Environment	
				Society	V*

Stakeholders	Communication Channels	Topics of Concern	Highlights and Results of Communication in 2023	Subject to Influence (V) or Concern (*)	
			home application and COVID-19 rapid test login, etc., as well as free distribution of masks and Covid-19 rapid tests, the care and management of employees with positive test results and symptoms of infection by the designated department personnel, and the strengthening of preventive measures, we monitor the pandemic mitigation status of the entire company on a daily basis, implement pandemic mitigation measures, and ensure the health and safety of employees and visiting manufacturers.		
Suppliers	Suppliers' conference (annual) Supplier audits (performed annually based on risk levels) Supplier evaluation (quarterly and annually) Quality improvement meeting (irregularly) Material supply/demand tracking (periodically and ad hoc) Contractor training courses (as necessary) Contractor coordination organization meetings (as necessary)	Occupational safety and health Supplier evaluation Green product requirements Corporate Social Responsibility Compliance with Business Ethics Quality improvement procedure Supply and demand of important materials Supply chain's information security	* Contractor education and training, as well as coordination organization meetings are completed before operations in accordance with regulations * Completed 33 supplier audits and 2 supplier information security audits in 2023 * Held 1 suppliers' conference * Have maintained the AEO certification for 14 years * 100% of suppliers received a score of 80 points or above in the supplier rating * Approximately 38.5% of raw materials are procured in Taiwan	Economy	V*
				Environment	
				Society	*
Government	Official document delivery (as necessary) Participation in presentations/promotions/seminars/forums (irregularly) Competent authority audits (as necessary) Phone call or e-mail (as necessary) Communication through the Allied Association for Science Park	Compliance with regulations Corporate Governance Labor/Management Relations Occupational safety and health Greenhouse gas emissions reduction Water resource management Waste Management	* Increased disclosures on the Company website to increase information transparency * Compliance with laws and regulations of competent authorities at each level, and cooperation with supervision and audits * Participation in presentations, promotions, seminars, forums, or lectures organized by the competent authority; provision of assistance to the Hsinchu Science Park Bureau in counseling SMEs	Economy	V*
				Environment	V*
				Society	V*

Stakeholders	Communication Channels	Topics of Concern	Highlights and Results of Communication in 2023	Subject to Influence (V) or Concern (*)
	Industries and Chinese National Federation of Industries (as necessary) Visited competent authorities (as necessary) PUBCSR communication mailbox Charity organizations	Effect of the new version IFRS (accounting principles) on the company Employee benefits and average salary Key points of the amendment to the Labor Standards Act Impact of the U.S.-China Trade War Employee overload management COVID-19 prevention and management Odor Corporate sponsorship/funding Charity event participation	in the science park to enhance their occupational safety and fire management capabilities. * Periodic compliance inspections and report compliance-related matters on a regular basis * Complied with government regulations, proposed response measures, and revised related systems and specifications * Participated in the Safety and Health Committee/Environment Committee and visit the competent authorities to communicate and discuss the operational appropriateness and difficulties of the law and the requirements of the competent authorities. * In 2023, the total greenhouse gas emissions for Scope 1 and Scope 2 are 17,000 metric tons of CO2e short of the target set for the review year 2025. It is expected that this target will be achieved in 2024 and 2025 through the installation of fluorinated gas reduction equipment, increased use of green electricity, and implementation of related energy-saving measures. * Regularly track and manage the use of water resources and environmental, safety, and health management indicators – Process water recycling rate reached the goal for 2023 * Fab 2 and Fab 5 obtained the water recycling rate certification statement in 2023 * Visited a total of 40 waste management contractors, and strengthen auditing and management of waste disposal contractors' vehicles. The waste recycling rate has met the 2023 target * Participated in Hsinchu City's 2023 National Defense Mobilization and Disaster Prevention and	

Stakeholders	Communication Channels	Topics of Concern	Highlights and Results of Communication in 2023	Subject to Influence (V) or Concern (*)	
			<p>Rescue (Min An No. 9) drill to support toxic chemical leakage rescue drills</p> <ul style="list-style-type: none"> <li>* Monthly routine odor reporting records. No odor notifications were received from factory employees and peer factories in 2023.</li> <li>* The competent authority conducted 48 occupational safety and environmental protection audits; no major penalties were imposed</li> <li>* Annual disease prevention plan based on abnormal workload, regular tracking and evaluation management</li> <li>* The Pandemic Prevention Office was established and has been in operation for three consecutive years (from 2020 until 2023). In accordance with the Central Epidemic Command Center's relevant regulations, it stipulates the measures, surpassing the government and industry ones, and conducts reviews on a rolling basis. Within three years, hundreds of meetings have been held to serve tens of thousands of colleagues and contractors, thereby minimizing the risk of pandemic prevention and maintaining the normal operation of the Company.</li> <li>* Donated over NT\$3.24 million</li> <li>* Obtained ISO/IEC 27001 international information security management system certification in February 2023</li> </ul>		
Public Relationship	Public information	General information about the Company News Release Conference Information General information about the executives	<ul style="list-style-type: none"> <li>* Published 16 press releases on revenue and investor conferences, 35 press releases on products, material information of the Company or supplemental data.</li> <li>* There were a total of 934 related original news articles in 2023</li> </ul>	Economy	*
				Environment	*
				Society	*
Schools	Registration website			Economy	

Stakeholders	Communication Channels	Topics of Concern	Highlights and Results of Communication in 2023	Subject to Influence (V) or Concern (*)	
	Campus promotion Facebook Fan Page Macronix Science Awards Association annual meeting	Macronix Golden Silicon Awards Macronix Science Awards Macronix science competition organization process and achievements Recruitment and appointment	* The 23rd Macronix Golden Silicon Awards: A total of 284 teams registered and awards influenced 32,264 people * The 22nd Macronix Science Awards: A total of 592 works were submitted and awards influenced 184,391 people * A total of 64 members participated in the welcome party of the Macronix Science Awards Association	Environment	
				Society	*

### 3.2.2. Determining Material Topics

Material topics are evaluated in this report in accordance with the following determination steps, and the management policies are disclosed in each chapter of the report. The disclosure of management policies is not mandatory for non-material topics.

Process for determining material issues

	I. Understand the organizational context		II. Identify actual and potential impacts			III. Determining material topics
<b>Process</b>	1. Stakeholder identification	2. Sustainability issues	3. Investigating the level of stakeholder concern	4. Internal impact assessment	5. Evaluation of issues	6. Determining material issues
<b>Method</b>	<ul style="list-style-type: none"> <li>According to the requirements specified by the TWSE regarding stakeholders for listed companies.</li> <li>Interview the Sustainability Report Execution Task Force and other relevant departments, require them to follow the AA1000 Stakeholder Engagement Standard: level of concern, responsibilities, influence, diversity of perspectives, and tension identification</li> <li>Referencing our peers.</li> </ul>	The working group enumerates sustainability issues with reference to GRI Standard, SASB, SDGs, TCFD and Macronix value.	Surveyed 7 categories of stakeholders on their concerns about Macronix's sustainability issues through "Macronix 2023 ESG Issue Survey".	Investigated the impact of various issues in the organization's operating process through "Macronix 2023 ESG Issue Impact".	Steps 3 and 4 are used as the basis for ranking, combining external expert advice with internal organizational adjustments.	Assessed the significance of actual and potential impacts of the 12 material issues on Macronix's economy, environment, and society (people) through interview with the Sustainability Report Execution Task Force.
<b>Results</b>	Identify 7 major stakeholders: investors, customers, employees, suppliers, government, schools, and the public domain.	Listed out 26 sustainability issues.	Received 108 valid questionnaires.	Received 23 valid questionnaires.	20 sustainability issues were selected.	Confirmed that these 12 material issues had a significant impact, drafted a materiality matrix and reported to the chairman of the Sustainable Development Committee.

### **Understand the organizational context**

The initial 26 sustainability issues were proposed based on stakeholder requests, a combination of international and domestic standards and Macronix's previous ESG data.

### Investigating the level of stakeholder concern and internal impact assessment

In order to fully understand the issues that concern both internal and external stakeholders, Macronix's Sustainability Report Execution Task Force interacted and communicated with stakeholders by gathering their questionnaire surveys responses, collecting meeting records, negotiating, and conducting interviews, etc. to collect the issues related to Macronix's sustainability that concern the stakeholders. The impact of these issues on Macronix was then determined internally. 20 potential issues were pre-screened after consolidation with external experts' suggestions.

### “Stakeholder” Opinions Compiled for the 2023 Sustainability Report

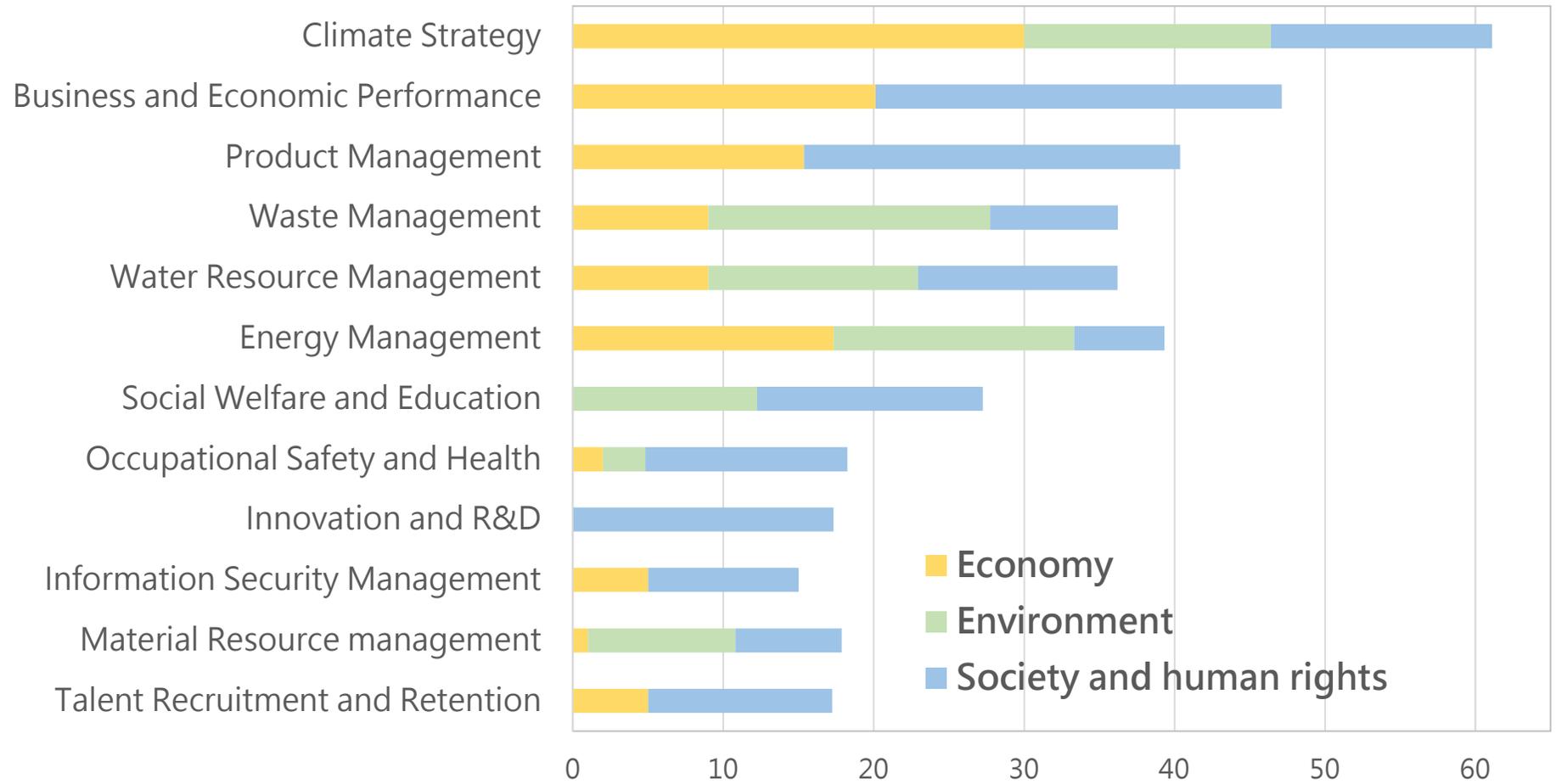
Stakeholders	Relevant Issues-Compilation Method	Scoring method
Investors	Questionnaire survey, statement recording, negotiation	(1)Directly converted to scores for relevant issues (2)Questionnaire filled out by representatives of the Stock Affairs Office
Customers	Negotiation, questionnaire survey	(1)Questionnaire filled out by representatives of the district business offices (2)Customers' questionnaire responses
Employees	Questionnaire survey and Response	Filled out by labor representatives of the labor/management conferences and Welfare Committee
Suppliers	Questionnaire survey and Response	Distributed to and completed by suppliers on Suppliers' conference held on August 25, 2023
Public Relationship	Questionnaire survey and Response	Filled out and responded by Macronix' Corporate Communication Office based on the facts
Government/Associations	Communications, Investigations and Report	Communicate with authorities or related person, and proceed the required investigations, and then responded to the Government or related person the investigation results.
Schools	Questionnaire survey and assist in experts' evaluation of Students' Performance	Filled out and responded by Human Resources or Macronix Foundation

## **Determining material topics**

Based on the actual and potential positive and negative impacts of the 20 preliminary issues, a quantitative assessment of four factors, including impact scale, impact range, frequency of occurrence, and possibility of occurrence was conducted through departmental group interviews to determine the threshold values of material topics for the year. In 2023, 12 material topics were evaluated, and relevant issues are responded to in this report.

The results of the economic, environmental, and social (people) impacts of the material topics are shown in the following graph:

# Impact Evaluation Results of Material Issues



## Material Aspects and Boundary Setting

Category	Issue	Material Aspects		Impact Boundaries (V – Direct; O – Indirect)			Corresponding Chapters
		2022	2023	Internal	Customers	Suppliers	
Economy	Business and Economic Performance	V	V	V	O	O	5 Economic Dimension
	Innovation and R&D		V				4.3 Innovation
	Tax	V		V			5.2 Tax Policy
	Product Management		V	V	V	O	4.5 Product Quality Management
Environment	Material Resources Management	V	V	V	O		6 Sustainable Environmental Dimension
	Energy Management	V	V	V	O	O	6.2.2 Energy Management
	Water Resource Management	V	V	V	O		6.1.1 Water Resource Management
	Emissions	V		V	O	O	6.1.2 Air Pollution Prevention 6.2.3 Climate Change Management
	Climate Strategy		V	V	O	O	6.2.3 Climate Change Management
	Waste management	V	V	V	O	O	6.1.4 Waste management
Society	Recruitment and Retention		V	V	O		7.1.1 Recruitment
	Occupational Safety and Health	V	V	V		V	7.3.2 Safety and Health Promotion Management
	Training and Education	V		V	O	O	7.2 Learning and Development
	Non-discrimination	V		V	O		7.1.2. Upholding Employee Rights
	Customer Health and Safety	V		O	O	V	6.4.1. Green Products

	Customer Privacy	V		V	V	O	4.6 Sharing Beneficial Outcomes with Customers
	Information Security Management		V				4.1.4 Confidential Information Protection
	Social Welfare and Education	V	V	V			7.4 Social Welfare

## 4. Corporate Governance

Macronix upholds high corporate governance standards, complies with corporate governance principles, and continues to establish a solid corporate governance system in accordance with the “Corporate Governance Best-Practice Principles for TWSE/TPEX Listed Companies” and Macronix’s Corporate Governance Guidelines. In addition, ethical corporate management is Macronix’s corporate culture. Macronix strictly complies with the law and attaches great importance to the protection of trade secrets and information security risk management. The Company established the “Corporate Ethical Management Guidelines” and “Code of Business Conduct and Ethics”, in hopes of creating a business environment for sustainable development.

### Macronix’s Philosophy

#### **Honesty**

### Macronix’s Corporate Values

#### **Innovation, Quality, Efficiency, Service, Team Work**

### 4.1. Corporate Governance

Besides complying with the law, Articles of Incorporation, and the guidelines and resolutions of shareholder meetings and board meetings, Macronix’s corporate governance is in accordance with the following corporate governance principles:

- ◆ Protect shareholders’ rights and interests
- ◆ Strengthen the roles and powers of the Board of Directors
- ◆ Utilize the Audit Committee’s functions
- ◆ Respect stakeholders’ rights and interests
- ◆ Increase information transparency

Since 2003, Macronix sequentially established independent director and functional committees such as the Audit, Compensation, and Nomination Committees, to strengthen the operations of the Board of Directors. In 2006, the Company modified the directors and supervisors election with candidate nominations. In the first Corporate Governance Evaluation for Listed and OTC Companies in 2015, we ranked among the top 5% excellent companies. In the eighth evaluation in 2022, the Company was ranked among the top 10% in the electronic companies with a market value of more than NT\$10 billion, demonstrating Macronix’s outstanding results in promoting and its spirit of actively improving corporate governance.

## 4.1.1. Governing Unit

### **Board of Directors**

Macronix's Board of Directors makes corporate governance decisions. Board meetings are convened by the chairman/CEO. The directors were fully re-elected on May 27, 2022, with the term of office from May 27, 2022 to May 26, 2025. The Board is comprised of 15 members, including industry professionals, experts and scholars with practical and theoretical backgrounds in business, law, finance, accounting, electrical engineering, physics, and material engineering, etc. There are 4 independent directors who oversee the execution of Macronix's operation plans based on their expertise and objectivity to ensure the quality of the Board's decisions. Furthermore, among the directors, 13 are men (87%) and 2 are women (13%). All directors are over 50 years old. The members of the Board of Directors, their concurrent positions and convening status are disclosed in the annual report, on Macronix's official website (<http://www.macronix.com>) and in the "Market Observation Post System" of Taiwan Stock Exchange.

In addition, since 1997, Macronix has been managing its own stock affairs and has established relevant dedicated units to handle shareholder affairs, address shareholder concerns, and enhance relationships with corporate entities. In addition, the "Investor Relations Office" has been set up to promote the relationships with institutional investors. Besides arranging visits to global institutional investors every year, we hold an investor's conference each quarter to maintain transparent communications.

### **Board Composition and Diversity**

The Board of Directors is the highest governance body of Macronix. The composition of the Board of Directors is diverse and independent. Regarding director candidates, Macronix adopts a "candidate nomination system". All director candidates are reviewed by the Nomination Committee and approved by the Board of Directors, and submitted to the shareholders' meeting for election. The Chairman of the Company is elected by the directors in accordance with the law and serves as the external representative of the company.

The 12th Board of Directors consists of 15 members. Macronix recruited industry experts and scholars with professional backgrounds in industrial technology, law, financial accounting, education, marketing and public relations. More than 90% of the directors have industrial technology background. The overall capabilities of the Board of Directors are in line with Macronix's future development needs and the Board diversity policy. The directors supervise the implementation of Macronix's business plans in terms of their professionalism and objectivity. The implementation of the Board diversity policy is disclosed in the annual report and on Macronix's official website (<http://www.macronix.com>).

### **Conflict of Interest Regulation and Management**

Regarding the governance, operation, and management of the Board of Directors, as well as the Audit, Compensation, and Nomination Committees, regulations are followed based on laws, articles of incorporation, and relevant organizational regulations. Our measures include: Those who have an interest in any agenda item of the Board meeting shall specify the important aspects of their interest. If such interest is potentially detrimental to the interests of the Company, they shall not participate in the discussion and voting, and shall recuse themselves during discussion and voting, and shall not exercise their voting rights on behalf of other members.

Please refer to the Company’s annual report and website for the concurrent positions of Macronix’s directors and the list of top ten shareholders. For related party transactions and securities holdings, please refer to the financial statements.

### **Independence of the Board of Directors**

When a director or a juristic person the director represents has an interest in any agenda item of the Board meeting, the director shall follow Article 17 of the Company’s “Procedure Rules of the Board of Directors Meetings” and specify the important aspects of their interest at the respective meeting. When it is detrimental to the interests of the Company, the director shall not participate in discussion or voting, and shall recuse themselves during discussion and voting, and shall not exercise their voting rights on behalf of other members. If the spouse of a director, a relative within the second degree of consanguinity, or a company with which the director has a controlling relationship of subordination, has an interest in an agenda item of the Board meeting as mentioned above, such director is deemed to have an interest in that agenda item.

In addition, in order to continuously implement corporate governance and strengthen the eligibility of independent directors, the Corporate Governance Officer regularly reviews the qualifications and independence of independent directors during their terms of office and reports to the Board of Directors.

### **Continuing Education of Directors**

In accordance with the Directions for the Implementation of Continuing Education for Directors of TWSE Listed and TPEX Listed Companies, the members of the Board of Directors continue the education every year to enhance the professionalism required for the business execution by the directors and to effectively perform the functions of the Board of Directors. Beside the respective on-the-job training of each member of the Board of Directors in 2023, Board of Directors also arranged 6 hours of courses on “Challenges and Opportunities of Circular Economy” and “Information Security Governance and Strategies and Geopolitical and Information Security Risks” to provide the directors with the more profound understanding of economic development and information security. In fact, the directors of the Company constantly actively participate in internal and external training courses, covering related topics such as sustainable development, corporate governance, risk management, climate risk, economic development, financial accounting, information security etc. The average training hours of each director in 2023 was 8.8.

### **Board of Directors Performance Evaluation**

In order to implement corporate governance and continuously improve the effectiveness of the Board of Directors, the “Rules for Board of Directors Performance Assessment” has been published, which stipulates that the Board of Directors should perform an “internal performance evaluation” every year. In 2023, the internal performance evaluation of the entire Board of Directors, individual directors and functional committees (including the Audit Committee, the Compensation Committee and the Nomination Committee) has been implemented. The performance evaluation results have been reported to the Nomination Committee and the Board of Directors meeting on February 27, 2024, and disclosed in Macronix’s annual report and on the official website (<http://www.macronix.com>).

In addition, in order to strengthen the independence and effectiveness of the performance evaluation of the Board of Directors, beside the internal performance evaluation, qualified external organizations or experts are commissioned to perform the external performance evaluation at least once every three years. In 2023, EY Business Advisory Services Inc., an external professional institution was engaged

to perform “External Performance Evaluation”, an independent evaluation to be proceeded at least once every three years with results reported to the Nomination Committee as well as the Board of Directors on February 27, 2024, which has also been disclosed at Macronix’s annual report and its website (<http://www.macronix.com>).

Macronix will continue to improve the operational efficiency of the Board of Directors and functional committees based on the results and recommendations of the performance evaluation.

### Macronix Corporate Governance Highlights

Scope	Highlights
Board of Directors	<ul style="list-style-type: none"> <li>◆ Led Taiwan’s industry in purchasing director liability insurance (1999~)</li> <li>◆ Established independent director seats (2003~)</li> <li>◆ Adopted the candidate nomination system for electing directors (2006~)</li> <li>◆ Replaced the supervisor system with the Audit Committee (2009~)</li> <li>◆ Established the Nomination Committee to plan and review director and senior executive candidates (2019~)</li> </ul>
Management level	<ul style="list-style-type: none"> <li>◆ Established the Compensation Committee to evaluate and approve the remuneration for senior executives (2006~)</li> <li>◆ Prohibits the employment of people who are related to the senior executives within the four degree of consanguinity</li> <li>◆ Sets operation goals and implements PDP performance evaluation</li> </ul>
Internal control	<ul style="list-style-type: none"> <li>◆ Systematized internal controls and self-evaluate operation procedures (2009~)</li> </ul>

### Audit Committee

Macronix’s Audit Committee is comprised of the following four independent directors, one of whom is a certified public accountant of the R.O.C. The current term of office is from May 27, 2022 to May 26, 2025. The director of Tyzz-Jiun Duh serves as the convener. Besides executing items specified in the law, the Audit Committee is responsible for the proper representation of the Company’s financial statements, appointment (or dismissal), independence, and performance of certified public accountants, effective implementation of the Company’s internal control, the Company’s regulatory compliance, and the control of existing or potential Company risks. The committee met 6 times in 2023, the members of the Audit Committee, their concurrent positions and convening status are disclosed in the annual report, on Macronix’s official website (<http://www.macronix.com>), and the “Market Observation Post System” of Taiwan Stock Exchange.

Name	Education	Previous Experience
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Tyzz-Jiun Duh	National Taiwan University Ph.D., Forestry	Director-General, Department of Commerce, MOEA Director-General, Department of Industrial Technology, MOEA Director-General, Industrial Development Bureau, MOEA Minister, Ministry of Economic Affairs Minister, National Development Council Vice Premier, Executive Yuan
Chiang Kao	Oregon State University Ph.D., Forest Management	Professor, Department of Computer Science, Southwest Texas State University President, National Cheng Kung University
Cheng-Wen Wu	University of California, Santa Barbara Campus Ph.D., Electrical and Computer Engineering	Dean, College of Electrical Engineering and Computer Science, National Tsing Hua University Vice President, National Tsing Hua University Vice President, National Cheng Kung University
Chien-Kuo Yang	Tamkang University B.S., International Trade	Certified Public Accountant, Ernst & Young Independent Director, Spirox Corporation Independent Director, M31 Technology Corporation Supervisor, YoungTek Electronics Corp.

Furthermore, according to the “Code of Business Conduct and Ethics” of Macronix, the president, vice president, and financial managers shall immediately report any conflict of interest or any concern of a potential conflict of interest to the Audit Committee. As for other employees, if they become aware of any conflicts of interest, they may also report them in writing to their supervisors or members of the management team at any time.

### **Nomination Committee**

Macronix established the Nomination Committee on January 22, 2019, which is comprised of the chairman and two independent directors. The Chairman is the convener. The committee met 4 times in total in 2023. The composition, functions and operations of the relevant Nomination Committee are disclosed in the annual report, on Macronix’s official website (<http://www.macronix.com>) and in the “Market Observation Post System” of Taiwan Stock Exchange.

### **Compensation Committee**

The Compensation Committee was first established on August 8, 2005 and was renamed to comply with the law on August 23, 2011. The Compensation Committee is comprised of three independent directors. The current term of office is from May 27, 2022 to May 26, 2025, and Director Chiang Kao serves as the convener. The committee met 3 times in total in 2023. The composition, functions, and operations of the relevant Compensation Committees are disclosed on pages 51-52- of the annual report, on Macronix’s official website (<http://www.macronix.com>), and on the “Market Observation Post System” of Taiwan Stock Exchange.

The Company's highest individual annual compensation in 2023 was 23.1 times the median compensation of employee (Note). The highest individual annual compensation change rate was -1.3 times the median compensation change rate of employee (Note).

Note: Calculated based on employee compensation in service for a full year

#### 4.1.2. Internal Audit

In order to strengthen internal audit mechanisms, Macronix established a dedicated internal audit unit, which is an independent department with five full-time auditors directly reporting to the Board. The auditors are responsible for reporting audit operations to the Audit Committee and also attend board meetings for reporting.

Generally, internal audit operations are carried out according to the audit plan approved by the Board, and the unit periodically reviews the self-assessment operations as part of the internal control systems conducted by various divisions, including the quality of the internal control operations, and lastly report the compiled self-assessment results to the Board.

### 4.1.3. Ethical Corporate Management Rules

The Company has always complied with laws and regulations and has also devised risk management mechanisms. In 2023, Macronix did not violate any antitrust laws or engage in unfair competition practices and was not involved in any related litigation.

We have always upheld our business philosophy of “honesty” and thus have formulated and published the Ethical Corporate Management Best Practice Principles, Code of Business Conduct and Ethics, and Macronix CSR Policy, all of which serve as behavioral regulations for our directors, various levels of management personnel, and employees. We also expect the directors, managers, and employees of our affiliates to jointly adhere to the principle of honesty in running their businesses.

Besides establishing multifunctional committees under the Board of Directors, Macronix has also established the Committee for the Ethical Corporate Management Promotion under management executives, in which the president serves as the chairman and level-1 supervisors of all departments are committee members. The committee aims to establish an ethical corporate management policy that will be submitted for discussion during Board meetings. The policy will be implemented in accordance with the law and its implementation status reported to the Board at least once a year.

Macronix upholds the philosophy of “honesty”. The Company has established and implemented corporate governance and risk management mechanisms based on the values of innovation, quality, efficiency, service, and teamwork, thereby creating a business environment for sustainable development. Concrete measures are as follows:

1. Comply with laws and regulations.
2. Pragmatically implement company policies and the code of ethics.
3. Establish risk management mechanisms.
4. Establish a violation reporting system and protect reporters in accordance with the law.
5. Enhance on-the-job and ethics training.

#### **Code of Business Conduct and Ethics**

The Board of Directors approved the Code of Business Conduct and Ethics (the “Code”) for directors, managers at all levels, and all employees. The purpose of the Code is to prevent the misconduct and to promote:

- (1) honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships;
- (2) full, fair, accurate, timely and understandable disclosure in reports and documents filed with, or submitted to, the Securities and Exchange Commission and in other public communications made by the Company;
- (3) compliance with applicable governmental laws, rules, and regulations;
- (4) the prompt internal reporting to an appropriate person or persons identified below of violations of this Code; and
- (5) adherence to this Code.

To ensure that all Macronix employees understand the Ethical Corporate Management Best Practice Principles and this Code, all new employees must receive training and will be required to pass the test during their orientation. Furthermore, Macronix employees receive annual training of the Ethical Corporate Management Best Practice Principles and the Code, so that the principles and the Code are consistently implemented. Violation of the Ethical Corporate Management Best Practice Principles and the Code is included as an evaluation item in annual employee performance evaluations.

Macronix's anti-corruption policies state that "Company personnel should not abuse the opportunities that are discovered through the use of Company property, information or position for private gain, and not use Company property, information or position, or compete with the Company, for personal benefit. Company personnel owe a duty to the Company to advance its legitimate interests when the opportunity to do so arises." We have also developed ethical risk assessments for each department, which are carried out on a regular basis and cover all departments of the Company.

To implement ethical corporate management and ethical behavior, Macronix annually arranges courses for directors and online courses for employees and the Company regularly organizes educational courses on trade secrets, domestic and international data privacy regulations, information security management, and prevention of insider trading for the purpose of raising awareness on corporate ethics and compliance. In 2023, the Company achieved 100% completion rate of the educational and training courses related to the Ethical Corporate Management Best Practice Principles, with approximately 18,206 participants and 8,746 training hours in total. Suppliers are also invited to the courses annually to ensure that they understand the regulations of Macronix's ethical corporate management. In 2023, a total of 188 supplier participated and the number of training hours amounted to approximately 86 hours.

In order to strengthen internal and external communication channels, Macronix has set up a special telephone line to directly report to the Audit Office: 03-5786688 ext. 78119, and has established the notification and handling of violations of the Ethical Corporate Management. All cases are numbered, documented, investigated and handled one by one, and kept in accordance with the law. After the reported case is accepted, a project team will be formed depending on the nature and type of the case, or transferred to the relevant unit for investigation, and reported to the Board of Directors. In order to effectively carry out the investigation of reported cases, a real-name reporting system is implemented. Whistleblowers are required to provide their name, contact information, as well as the name of the person being reported and specific evidence of the alleged illegal activities. This information is essential for conducting proper verification and investigation.

#### 4.1.4. Confidential Information Protection

(I) Information security management strategy, structure and results:

##### 1. Information Security Policy

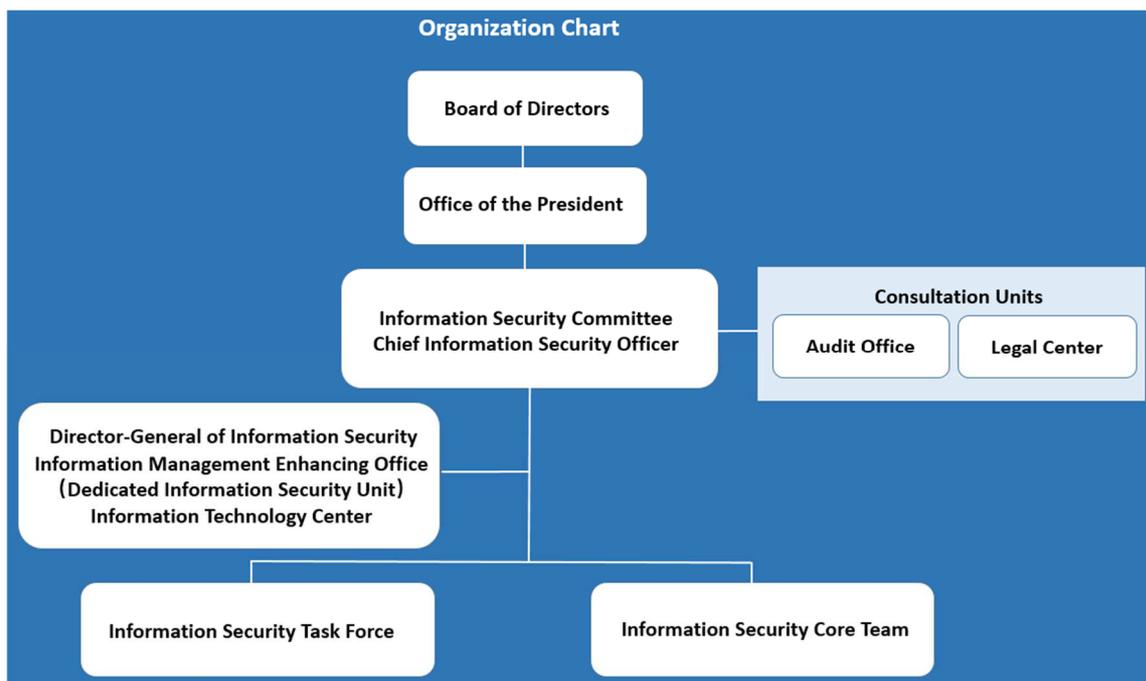
Information security is an important issue for the Company's operations. In order to protect the Company's information assets from internal or external, intentional or accidental threats and damage, and reduce the probability of information security accidents and manage the risk caused by incidents to an acceptable level, the Company has formulated information security policies and established relevant management systems, which are announced on the Company's website. Macronix requires all employees and business partners to follow such policies and systems.

Through active actions to protect the confidentiality, integrity and availability of the Company's information, we ensure the normal operation of the Company's business and comply with the requirements of the competent authorities and national laws.

##### 2. Information security management organization and responsibilities

In order to implement the information security policy, the Company has established the Chief Information Security Officer in accordance with the provisions of the Regulations Governing Establishment of Internal Control Systems of Public Companies to comprehensively strengthen information security governance and information protection, and set up the "Information Security Committee", with the Chief Information Security Officer as the chairman, and the top executives of each center and business unit as representatives. In addition, the "Information Security Core Team" and the "Information Security Task Force" perform related matters to ensure that the purpose of information security management can be achieved.

The Information Security Committee convenes a meeting on a regular basis every year. The topics scope is extensive and covers the review of information security policies, management and review improvement, annual budget, work plans and results report. The President reports the foregoing to the Board of Directors every quarter.



[Figure]

Organizational Chart of Information Security Management

Organization	Responsibilities
Information Security Committee	<ol style="list-style-type: none"> <li>1. Draft the Company’s information security policy</li> <li>2. Review and implement various information security management systems</li> <li>3. Formulate or review major work plans for information security</li> </ol>
Information Security Core Team	<ol style="list-style-type: none"> <li>1. Formulate the goals and implementation scope of information security management systems</li> <li>2. Formulate information security system and related regulations</li> <li>3. Approve information security audit plan and track improvement status</li> <li>4. Review related operations of the information security management</li> <li>5. Oversee the management of ongoing operations</li> <li>6. Review and implement the management methods of information security of each unit</li> <li>7. Review the information security educational training implementation status</li> <li>8. Execute various resolutions of the Information Security Committee</li> <li>9. Promote and implement information security maintenance and management measures</li> <li>10. Coordinate the information security operations performance of the information security task force</li> </ol>
Information Security Task Force	<ol style="list-style-type: none"> <li>1. Implement tasks related to information security maintenance and management</li> <li>2. Act as the information security contact of all units, and assist in the promotion of security maintenance and management measures</li> <li>3. Promotion and transmission of the related matters of information security</li> <li>4. Carry out resolutions of the Information Security Task Force</li> <li>5. Make suggestions about the improvement of the management measures and the information security implementation</li> </ol>

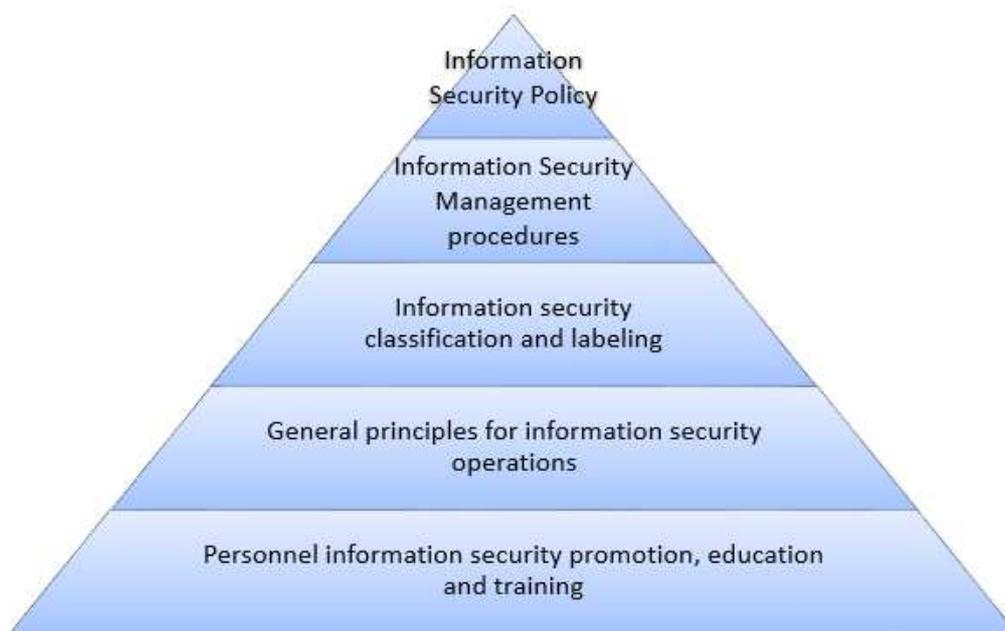
[Table] Information Security Organizations and Responsibilities

3. Information Security Management Framework

In addition to formulating relevant management procedures and regulations for confidential information protection in policy terms, Macronix also classifies, categorizes and labels the Company’s information assets. Through the design of various information security mechanisms and system architectures, such as DLP (Data Loss Prevention) systems, data encryption, document management, network security control, endpoint protection and other tools, confidential information management and maintenance to ensure the information security of the Company, shareholders, employees, customers and others.

Macronix strengthens the information security awareness through the educational training and awareness activities, including trade secrets and confidential data protection, anti-virus, anti-hacking, and anti-fraud. Through information security e-newsletters, information security websites, and engineering drills, we also share the professional knowledge, relevant cases, and practices to deepen the employee's concept of information security protection, so that "everyone is responsible for information security" is not only an information security management slogan, but also an in-depth internalization of Macronix employee's action policy to protect the Company's intellectual property, intangible assets and confidential information.

In addition to requiring employees to be aware of information security, we also include contractors/suppliers into the scope of information security. Before working with Macronix, vendors are required to understand and implement Macronix's information security standards, and comply with the terms related to the information security protection in the Code of Conducts Compliance Certificate. Before external personnel enters Macronix's premises, they also must complete the information security course and test.



[Figure] Information Security Management Framework

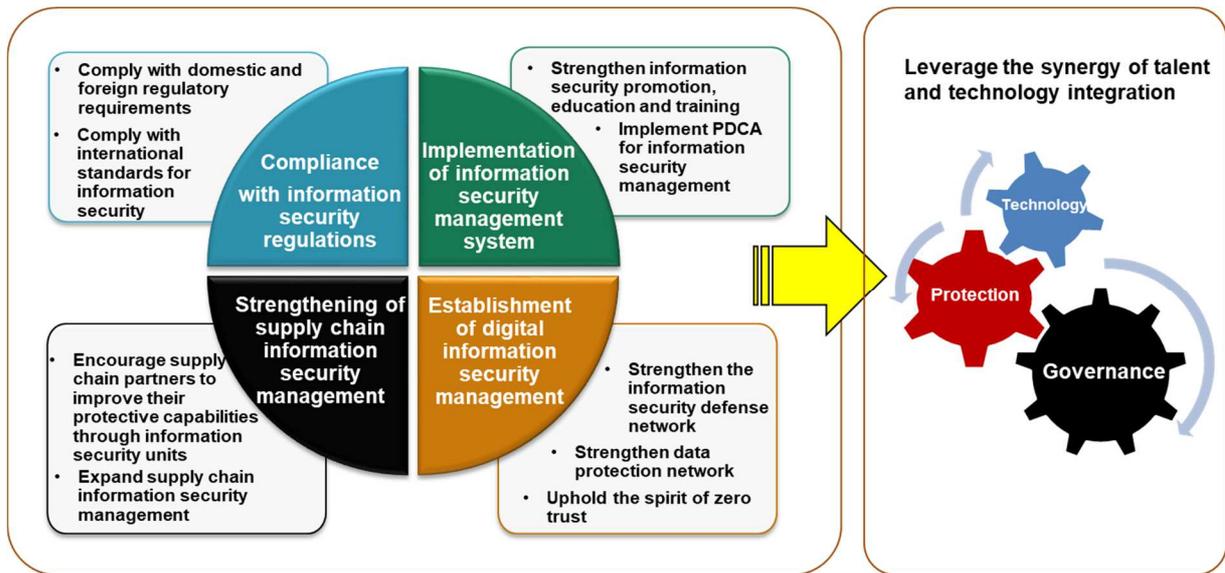
#### 4. Specific management practices for information security

To protect against the different types of information security threats, Macronix continues to strengthen its information security defense and data protection networks. The preventative measures include establishing the information security control mechanisms for the computers usage, controlled information devices, and network resources. Macronix also uses the data loss prevention (DLP) system, data encryption, file management and other tools to protect sensitive data from leakage.

Also in order to prevent and reduce the damage caused by hacker attacks, the Company has established relevant protection mechanisms and systems. It is mandatory for the factory equipment to be scanned for virus to prevent malware from entering the Company's network. Network partition control is implemented to prevent the spread of computer viruses across regions. Furthermore, the endpoint anti-virus and anti-hacking measures are implemented, and the integrated network security operations center (SOC) is established. The Company also invites the related units to participate in the cross-departmental information security incident response and disaster recovery drill.

In addition, to supervise the protection strength of the information security system, Macronix adopts a third-party information security assessment tool, Security Scorecard, to monitor weaknesses. Furthermore, external experts are engaged on a regular basis to perform information security assessments. To ensure the effectiveness of the information security management measures, the

Information Security Core Team reviews the implementation results of relevant operations every week.



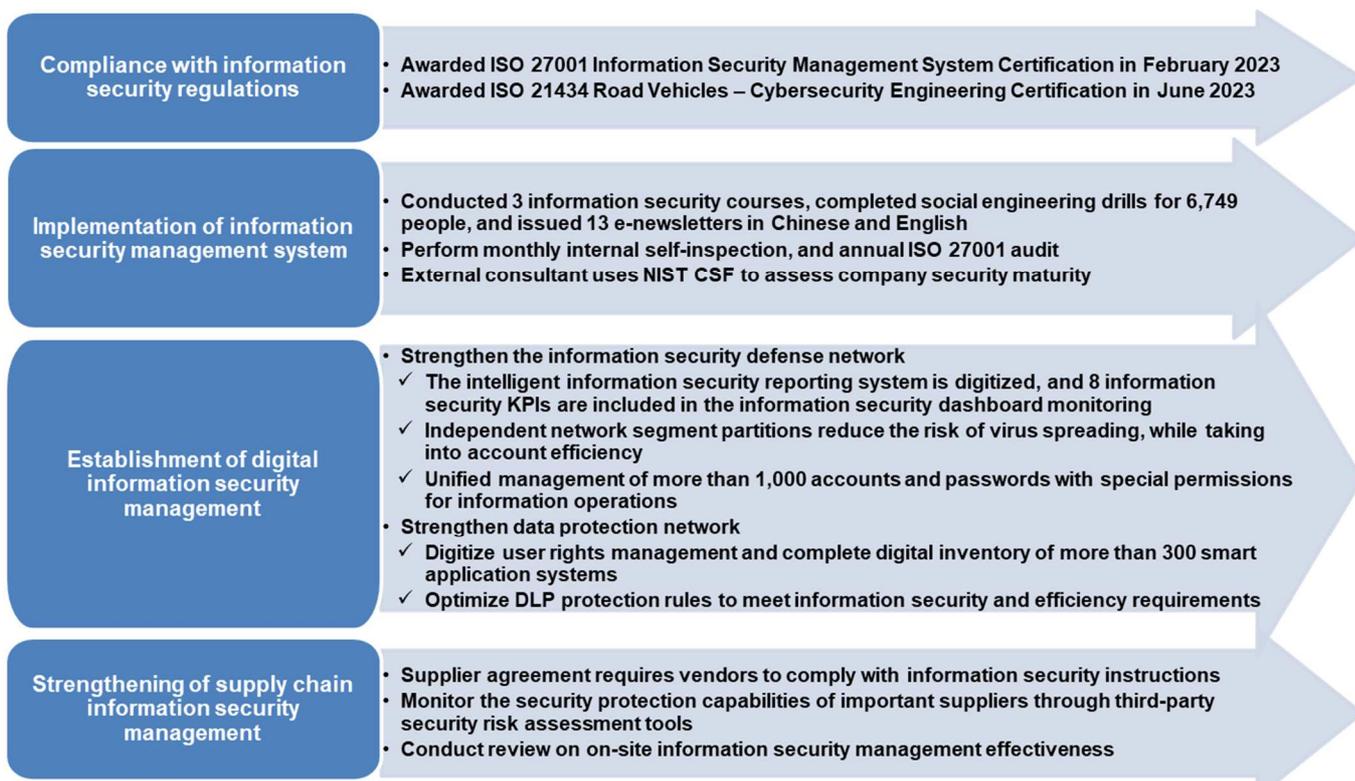
[Figure] Specific management plan for information security

### 5. Achievements of information security measures promotion and implementation

Macronix’s information security strategy for 2023 is to achieve the balance of efficiency and information security protection through unified digital information security management. Specific results include the establishment of an intelligent information security notification system to monitor the implementation of the security control operations; automatic detection of, follow-up with and processing of anomalies through the digital information security dashboard; and automatic anomalies reporting to replace manual work, thereby ensuring the effective management and anomalies monitoring.

Based on the scoring results of the third-party security assessment tool, Security Scorecard, Macronix's annual performance averaged over 90 points, which is higher than the global manufacturing average. In addition, the security consultant evaluated Macronix’s information security maturity based on 108 requirements of the National Institute of Standards and Technology Cyber Security Framework (NIST CSF). In the identification (ID), protection (PR), and detection (DE) areas, Macronix has shown significant improvement compared with the last year.

A summary of major implementation results of 2023 is shown in the figure below.



[Figure] Achievements of information security measures promotion and implementation of 2023

## 6. Resources invested in information security management

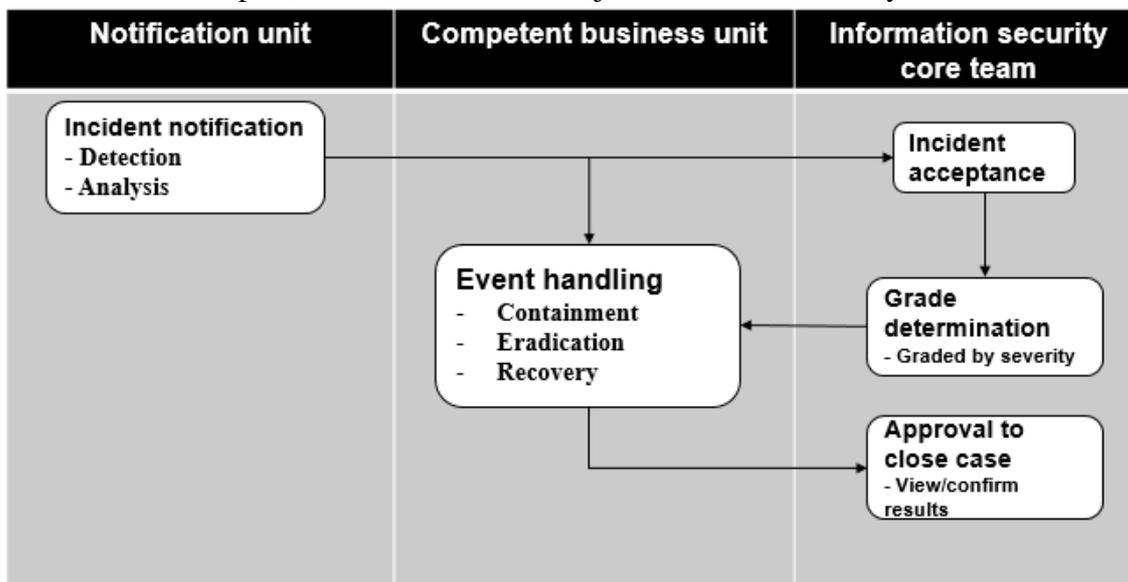
In order to meet the needs of information security management, Macronix has invested relevant resources in the establishment and maintenance of defensive measures and hedging mechanisms, including more than 100 information security-related personnel, and the amount of information security accounts for over 10% of the information-related budget. The key projects are as follows:

Category	Contents
<b>Defensive Measures</b>	<ul style="list-style-type: none"> <li>✓ Continue to strengthen the information security defense and data protection networks</li> <li>✓ Establish an intelligent information security reporting system and initiate the digital transformation of information security</li> <li>✓ Cooperate with information security units, professional manufacturers and consultant experts to ensure the agility in responding to information security incidents</li> </ul>
<b>Hedging Mechanism</b>	<ul style="list-style-type: none"> <li>✓ Sign contracts and documents with external customers and suppliers, including suppliers' confirmation of the information security protection provisions of the Code of Conducts Compliance Certificate</li> <li>✓ Insure against the impact of damage caused by information security incidents, so that the Company can make up for part of the losses in the event of information security incidents</li> </ul>

[Table] Resources invested in information security management

(II) Major information security incidents:

In order to strengthen information security risk management, Macronix has established information security incident notification and handling procedures to ensure immediate reporting and handling of information security incidents when they occur. In the last three years and up to the date of publication of this report, there have been no major information security incidents.



- Hold a contingency meeting according to the impact of information security incidents on business, determine the grade and release information and other matters, and report to the corresponding supervisor.

[Figure] Information security incident notification and handling process

#### 4.1.5. Compliance with Regulatory Requirements

Macronix has always complied with laws and regulations. In 2023, Macronix was not involved in any litigation related to employee health or violation of safety regulations. We also did not receive any severe fines or punishment for violations pertaining to environmental laws and/or regulations, nor did we receive any severe fines or punishment for violations pertaining to social and economic laws and/or regulations. “Severe” means “cumulative fines for a single incident reaching NT\$1 million or above” according to Article 4, Paragraph 1, Subparagraph 26 of the Taiwan Stock Exchange Corporation Procedures for Verification and Disclosure of Material Information of Companies with Listed Securities.

Macronix has also set up a regulatory compliance unit that offers consultation services, supervises and implements regulatory compliance, and integrates the philosophy of honesty in its business management by obeying rules and applying knowledge into practice. Again and again, we emphasize the importance of self-discipline and top-down compliance with laws and regulations (including the Securities and Exchange Act, Company Act, Labor Standards Act, Anti-Corruption Act, Fair Trade Act, Money Laundering Control Act, Act of Gender Equality in Employment, Personal Information Protection Act, regulations for import/export management, and environmental protection, etc.) We also frequently promotes relevant regulations and policies.

Macronix offers various channels to encourage learning and continuing education. For example:

- ◆ **Macronix Academy:** Has comprehensive facilities and professional equipment (including an audiovisual room, training classrooms, computer classrooms, international lecture halls, and a library, etc.). Provides a comfortable reading environment where employees can borrow a variety of books.
- ◆ **Macronix e-Academy:** Offers online courses (including topics such as the Personal

- Information Protection Act, Trade Secrets Act, or sexual harassment prevention) so that employees can arrange their schedule without being subjected to space and time restrictions.
- ◆ External training courses: Encourage employees to leverage resources and engage in learning. For example, employees can use the libraries at National Tsing Hua University for free, or they can be informed of governmental or private courses through Macronix e-Academy’s external course announcements.

## 4.2. Risk Management

### 1. Risk management policies and procedures

On October 24, 2023, the Board of Directors of the Company approved the “Risk Management Principles”, which is supervised by the Audit Committee and serves as the highest guiding principles of the Company's risk management.

In response to related risks, the Company has also formulated operating procedures such as management objectives, risk governance, organizational structure and rights and responsibilities, risk identification, risk analysis, risk assessment, risk monitoring, risk records and risk disclosures.

### 2. Scope of risk management

#### (1) Risk identification

Each center of the Company should conduct risk identification on matters related to the short-, medium-, and long-term objectives and business execution, and consider internal and external risk factors, stakeholders' concerns, etc. in accordance with the risk management policies and procedures approved by the Board of Directors.

Each center should also adopt “bottom-up” and “top-down” approach of analyses and discussions, integrating strategic and operational risks, to comprehensively identify potential risk incidents that could result in failure to achieve corporate objectives, causing damages of, or negative impacts on the Company.

#### (2) Risk analysis

The Company will understand the nature and characteristics of the identified risk incidents and analyze their occurrence probability and degree of impact. The relevant units should also analyze the occurrence probability and degree of impact of the identified risk incidents, taking into account the completeness of the existing related control measures and relevant cases or experiences.

#### (3) Risk assessment

The operation of the Risk Management Promotion Committee (hereinafter referred to as the “Risk Committee”) is led by the President of the Company. The Risk Committee provides appropriate quantitative or qualitative measurement standards based on the Company's risk characteristics in order to analyze risks and provide recommendations.

#### (4) Risk monitoring

The Risk Committee should be responsible for monitoring risks on an ongoing basis and presenting risks and countermeasures to the Audit Committee and the Board of Directors.

#### (5) Risk recording

The Risk Committee should be responsible for recording the process of implementing risk management and its results, and properly retaining the records.

#### (6) Risk disclosure

On the Company's website, it is required to disclose relevant matters in accordance with laws and regulations and the Company's Risk Management Guidelines.

#### (7) Other

The Company's sources of risks include “strategic risks”, “operational risks”, “financial risks”, “legal compliance risks”, “information security risks”, “climate risks” and “geopolitical risks”.

### 3. Organizational structure

The Company has established the Risk Committee to perform risk management. The President serves as the director of the Risk Committee, conducts regular risk factor identification and risk control with each business unit, and reports annually to the Audit Committee and the Board of Directors on the status of risk assessment and risk management operation for the previous year.

### 4. Operational status

After the Board of Directors of the Company approved the Company's “Risk Management Policy” in accordance with the law on December 19, 2023, its implementation status was reported to the Audit Committee and the Board of Directors on December 26, 2023.

Please refer to the "Risk Management Section" on the Company's website (<http://www.macronix.com>) for Macronix's risk management policies and management information.

Macronix is the world's leading manufacturer of NVM. We manage risks through proactive, preventive management procedures that were established with regard to information security, intellectual property, standards of behavior, ethics, operations management, damage prevention, supplier management, environmental protection, safety and health, employee benefits, and health maintenance, etc. In order to protect the Company's assets, ensure employee health, and care for the rights and interests of stakeholders, we hope to achieve sustainable development. Furthermore, in response to internal and external technical data, the Company has adopted the following measures after conducting simulations and risk analysis:

Material Issues	Risk Assessment Item	Risk Management Policy, or Strategy
Environment	Environmental protection management and pollution prevention	Introduced and passed the ISO 14001 Environmental Management System Certification. We ensure that our environmental management systems fully comply with the Plan-Do-Check-Act (PDCA) operations of the ISO system to maintain a healthy and safe environment, and continuously make improvements to reach our goal.
Environment	Energy and climate change management	<ol style="list-style-type: none"> <li>1. Macronix is dedicated to reducing energy use and consumption every year. We follow the instructions provided by the Bureau of Energy, Ministry of Economic Affairs each year to report our energy conservation audit system for energy users.</li> <li>2. In response to the trend of greenhouse gas control and reduction in the supply chain due to global warming, we planned for greenhouse gas checks, control, and reduction, and described the process of compiling ISO14064-1 GHG inventory in this report.</li> </ol>
Society	The spread of COVID-19 influenced employee attendance and operations	<ol style="list-style-type: none"> <li>1. Convened the epidemic prevention meetings to formulate anti-epidemic policies and various management measures, and to establish a standard operating procedure, a reporting mechanism, and countermeasures.</li> <li>2. Assigned dedicated staff to track and pay attention to the epidemic prevention and management measures. Daily computer pop-ups remind employees about health and safety anti-epidemic measures, and rolling reviews are conducted for the results inspection.</li> </ol>
Society	Health and safety	<ol style="list-style-type: none"> <li>1. Physical</li> <li>2. Chemical</li> <li>3. Human factors engineering/Ergonomics</li> <li>4. Traffic collision</li> <li>5. Violent destruction</li> <li>6. Force majeure</li> <li>7. Stress at work</li> </ol>
Corporate Governance	Material supply interruptions	<ol style="list-style-type: none"> <li>1. Establish emergency procurement procedures</li> <li>2. Prepare a safety stock</li> <li>3. Audit suppliers' capability to plan regarding business continuity</li> <li>4. Continue to develop alternative suppliers</li> <li>5. Sign supply contracts with major suppliers</li> </ol>
Corporate Governance	Cyber attacks	<ol style="list-style-type: none"> <li>1. Block malicious attacks with a firewall</li> <li>2. Use a mail and website filtering system to intercept malware</li> <li>3. Regularly update computer software and deploy endpoint protection software</li> <li>4. Regularly back up important data</li> <li>5. Cyber-attack simulation drills</li> </ol>
Corporate Governance	Contractor's supply chain cut off	<ol style="list-style-type: none"> <li>1. Check the coordination and distribution of delivered materials</li> <li>2. Estimate contractor's production capacity recovery time, and work-in-progress control</li> <li>3. Ability to support outsourcing factories and audit capability to plan regarding business continuity</li> </ol>
Corporate Governance	Information system	<ol style="list-style-type: none"> <li>1. Install Uninterruptible Power Supply (UPS)</li> <li>2. Remote backup</li> </ol>

	interruption	<ol style="list-style-type: none"> <li>3. Backup data</li> <li>4. Information system interruption simulation drill</li> </ol>
Corporate Governance	Water outage	<ol style="list-style-type: none"> <li>1. Sign a service agreement with water wagon suppliers</li> <li>2. Water conservation and drought preparation continuity plan for fabs</li> <li>3. Water storage and mutual support between fabs</li> <li>4. Water restrictions emergency response drill</li> </ol>
Corporate Governance	Power outage	<ol style="list-style-type: none"> <li>1. The Park offers dual-circuit power supply design</li> <li>2. Emergency power generators and support machinery; clean room temperature and humidity; delivery resources</li> <li>3. Diesel fuel resource distribution and procurement priority</li> <li>4. Abnormal power supply emergency response drill</li> </ol>
Corporate Governance	Earthquake	<ol style="list-style-type: none"> <li>1. Seismic resistant design of buildings and machines</li> <li>2. Seismic resistance improvements: Stocker seismic reinforcement; purchase of new machines with active seismic resistance and fastening devices; steel cylinder seismic reinforcement; clean room automated handling system seismic improvement</li> <li>3. Sign human resource service agreements with major suppliers</li> <li>4. Earthquake emergency response drill</li> </ol>
Corporate Governance	Fire	<ol style="list-style-type: none"> <li>1. Machine CO2 fire extinguisher system; Environmental sprinkler system</li> <li>2. Very early warning smoke detectors</li> <li>3. FM certified fireproof lockers</li> <li>4. Fire prevention improvements: replace plastic flammable pipelines each year; fireproof the supply end of flammable gases; replace CO2 fire extinguisher systems that are about to expire; upgrade explosion prevention equipment; improve environment fireproofing; gas cabinet automated fire extinguishing system</li> <li>5. Fire accident emergency response drill</li> </ol>
Corporate Governance	Green product management	<ol style="list-style-type: none"> <li>1. Deliver products to ISO 17025 certified, credible domestic and foreign laboratories for testing</li> <li>2. Green product instruments self-inspection</li> <li>3. Suppliers provide documentary proof of non-use of environment-related substances</li> <li>4. Identify new law amendments and periodically check regulatory compliance</li> <li>5. Supplier communication and audit management</li> <li>6. Qualified materials and supplier management system</li> <li>7. Training courses relating to green products are organized each year</li> </ol>
Corporate Governance	Conflict minerals	<ol style="list-style-type: none"> <li>1. Non-use of Conflict Minerals Policy</li> <li>2. Suppliers provide documentary proof of non-use of conflict minerals</li> <li>3. Identify and amend management rules relating to conflict minerals and periodically check compliance</li> <li>4. Supplier non-use of conflict minerals training and audit management</li> <li>5. Supplier management system for non-use of conflict minerals</li> </ol>
Corporate Governance	Information security	Established a dedicated information management unit and related management procedures to protect the safety of computer systems, prevent the risk of data leakage, and

		provide the basis for compliance by employees and responsible units.
Corporate Governance	Laws and Code of Ethics, etc.	All new employees receive training and evaluation during their orientation.
Corporate Governance	Anticorruption	1. Regularly conduct ethical and social responsibility risk assessments for each department 2. Regularly organize courses on trade secrets, domestic and international data privacy regulations, information security management, and prevention of insider trading



## 4.3. Innovation

### 4.3.1. Importance of Innovation

<b>Management Approach</b>	Impact	Innovation of memory IC is highly associated with the competitiveness of cost, efficiency and energy consumption. The quality of competitiveness comes from the efficiency and timeliness of the use of R&D resources. Poor execution will exert an impact on innovation benefits. Therefore, a rigorous and effective project management approach is required to ensure the efficient performance of innovation activities.
	Medium and long-term development direction	Continue to maintain our superior product competitiveness, enhance our governance performance and strive to be environmentally friendly through product and technology innovations.
	Management methods (Including measures)	Manage innovation activities through R&D projects and mass production improvement projects respectively, including proposal review, routine tracking, and case closure review.
	Tracking the effectiveness of the actions	Require project leaders to make routine reports on the project progress and status on a monthly and quarterly basis according to the Business Committee's project classification and stage requirements.
	2023 Implementation Results	Please refer to " <b>Successful Developed Technologies or Products</b> ".
	Targets in 2024	Complete segmented goals for 2024 according to the progress of R&D projects and mass production improvement projects.
	Future Targets (Short, Medium, and Long-Term)	Please refer to " <b>Plans for New Products Development</b> ".

In recent years, Macronix has successfully implemented product and technology innovations and maintained its superior product competitiveness.

#### Successful Developed Technologies or Products

##### (1) Technology innovation

- ◆ Adopt big data and artificial intelligence (AI) to establish an exclusive system platform for improving the performance and quality control of semiconductor mass production. Become the world's first semiconductor company to elevate the product defect rate measurement from per million (ppm) to per billion (ppb).
- ◆ Use various AI technologies to establish an exclusive production process R&D platform to improve resource efficiency and shorten development time.
- ◆ Build proprietary design and mass production process technology of 3D NAND flash.
- ◆ Macronix's mature proprietary 0.11  $\mu\text{m}$  embedded non-volatile memory and 0.18  $\mu\text{m}$  BCD

(Bipolar-CMOS-DMOS) technologies are integrated to provide foundry services in MCU and analog IC related markets.

(2) Product innovation

- ◆ For automotive electronics and Internet of Things applications, Macronix has proposed an innovatively protected and encrypted ArmorFlash product series, and won the “Best Memory IC of the Year” at the “EE Awards 2021 (Asia Award).”
- ◆ In response to the design and development trend of lower power consumption and energy-saving efficiency, Macronix launched the 1.2V SPI NOR flash product series, which saves more than 50% power than the 1.8V product series, and won the “Best Memory IC of the Year” at the “EE Awards 2022 (Asia Award).”
- ◆ To the demand for high performance, Macronix proposed the OctaFlash product series, which doubled the maximum speed of SPI NOR flash in the industry and won the “Best Memory IC of the Year” at the “EE Awards 2023 (Asia Award).”
- ◆ Macronix developed and mass-produced proprietary 3D NAND Flash, making us one of the few suppliers of both NOR Flash and 3D NAND Flash in the world.

**Plans for New Products Development**

- ◆ 3D NAND Flash: The third- and fourth-generation plan.
- ◆ eMMC controller chip plan of 3D NAND Flash.
- ◆ NOR Flash: 45nm product series plan.
- ◆ NOR Flash: High-speed enhancement plan for protection and encrypted storage chips.
- ◆ 3D NOR Flash: The industry's highest NOR Flash storage capacity single-chip plan.

## 4.3.2. Intellectual Property Management

Macronix has long been devoted to the innovation, research, and development (R&D) of non-volatile memory technologies and products, and has always attached a high level of importance to protecting its intellectual property (IP) rights. Macronix has filed patent applications in various countries to secure its key technologies and abundant R&D achievements.

Outstanding Patents	
◆	309 patents obtained in 2023
◆	9,203 patents were obtained worldwide as of the end of 2023
Recognition in Patent Ranking	
◆	As for Taiwan's corporate patent certificates, Macronix has been ranked in the top 100 since 2000 and ranked 22nd in 2023.*
◆	According to the patent announcement in the United States, Macronix has been ranked in the top 1000 from 2001 to 2023, and was ranked 369th in 2023.**

\* Source: Intellectual Property Office, Ministry of Economic Affairs

\*\* Source: IFI CLAIMS Patent Services

## 4.4. Supply Chain Management



As a leading semiconductor provider in the world, Macronix works with a variety of supply chain partners in the industry, including about 1,470 manufacturers, agents, and contractors from 7 aspects: materials, parts, photomasks, equipment, plant facilities, information and automated products, and semiconductor assembly and testing. To generate mutually beneficial outcomes, we select suppliers by placing equal importance on local suppliers and global supply chain partners to ensure our service quality, strengthen supplier cooperation, shorten the process of product development, enhance supply chain flexibility, and reduce unnecessary costs and carbon emissions during transportation. As of 2023, we have around 810 suppliers of raw materials and components, in which the amount of procurement in Taiwan accounted for 38.5% of our overall procurement amount (2022: 38%; 2021: 35%).

To manage the quality of material suppliers, Macronix aims to provide control and guidance in the following three aspects:

- (1) **Supplier management system certifications:** We require our suppliers to obtain international certifications such as ISO 9001, ISO 14001, and ISO 45001 with respect to their quality, environmental, safety, and health management systems to ensure that they protect the environment and improve their safety and health practices.
- (2) **Supplier audit and counseling:** We formulate annual audit plans every year to conduct on-site audits. When deficiencies are discovered, we immediately request that our suppliers

submit improvement plans, wherein goals and deadlines are explicitly specified to meet our expectations.

- (3) Supplier performance evaluation: We conduct supplier performance evaluation on three dimensions: product quality, capability to comply with customers' requests and risk management, and product delivery date. For suppliers with good performance, order quantity will be increased, and the suppliers will be rewarded at the supplier meeting. For suppliers which do not meet the standards, the Raw Material Management Committee will carry out project improvements, counseling, auditing, as well as other measures. In 2023, all Macronix suppliers have undergone strict evaluation. In the annual final results, all suppliers have reached the standards of qualification, and there was as much as 97% raw material A-grade suppliers.

In implementing sustainability, we also take into account the participation of the overall supply chain, hoping to help our suppliers establish and raise their awareness and capabilities in Social and Environmental Responsibility (SER) by enhancing SER controls and training for our supply chain partners as well as performing audits.

We hold true to the principles of creating value together with our partners and adhering to high standards of business ethics to protect employees and partner rights and dignity. We set up strict and vigorous health and safety standards to minimize any negative influences on the environment, safety, health, and our partners. In order to fulfill these promises, we work closely with employees, suppliers, and suppliers' employees to ensure that all CSR values are put into practice throughout the entire organization, thereby making CSR a part of Macronix's corporate value. Macronix is determined to become the leading supplier in the semiconductor industry, and provide the customer innovative application-oriented solutions and non-volatile memory products with the superior technology, highest quality and reliable service. Being the world-leading supplier of non-volatile memory it provides such products as NOR, NAND Flash, eMMC and ROM for a wide range of applications including computing, communications, consumer electronics, automotive and industrial applications. Over the past year, NOR Flash sales have accounted for more than a half of the revenue, with communications, computing and consumer applications being the main sources, and the proportion of automotive and industrial applications has also rapidly grown.

After thirty years of hard work, Macronix successfully established mutually beneficial long-term strategic partner relationships with the world major manufacturers in the U.S., Japan, Europe, Asia and other places. Such long-term and successful relationships with strong partners have made it a world leader in the field of NOR Flash and ROM.

#### 4.4.1. Growing Together with Our Suppliers

Macronix uses CSR as an indicator for evaluating and selecting suppliers. We have further intensified CSR programs in our supply chain to confirm that supply chain partners are in compliance with applicable laws and are willing to accept ethical standards through signing Code of Conducts Compliance Certificate. We also attach great importance to labor occupational safety and health. We look forward to implementing CSR-related work and growing together.

Macronix was one of the first companies in the Hsinchu Science Park to complete greenhouse gas emissions verification, and among the first semiconductor providers to receive AEO certification from the Directorate General of Customs Administration under the Ministry of Finance. We also actively pushed upstream and downstream supply chain partners to comply with the “Responsible Business Alliance® Code of Conduct” and instituted “Supplier Green Product and SER Audit” mechanisms. By conducting annual audits on our supply chain partners, we take action to implement supplier environmental and social assessments and expand our CSR to the level of the supply chain safety.

Macronix request its suppliers to have and comply with similar policy covered under Macronix’s sustainable development policy and CSR policy, i.e. no child or forced labor, granting the freedom of assembly and association, etc.. Also, Macronix has incorporated the above principles in its employee training courses and materials. In 2023, 33 suppliers passed Macronix’s Risk Assessment of Suppliers (“RAS”) audit. For those suppliers who failed the audits, Macronix will continue follow up until all of them meet its requirements.



## 4.5. Product Quality Management

<b>Management Approach</b>	Impacts	Product quality is a key factor in the competitiveness and success of leading manufacturers of non-volatile memories.
	Medium and long-term development direction	Continuous improvement in the quality management system to provide the best products that meet the needs of customers in various applications.
	Management methods (Including measures)	<ol style="list-style-type: none"> <li>1. Macronix promotes the CIP (Continual Improvement Program); and participates in national competitions to achieve the purpose of cross-industry learning</li> <li>2. Macronix engineers need to participate in quality and CIP education and training to enhance problem-solving skills.</li> <li>3. Conduct annual customer satisfaction surveys to ensure that Macronix meets customer demands</li> </ol>
	Tracking the effectiveness of actions	<ol style="list-style-type: none"> <li>1. The CIP portal retains/ documents each team's activity records</li> <li>2. Use the training system to ensure that engineers are trained in problem solving and improvement skills, and are capable of applying them in CIP activities.</li> </ol>
	2023 Implementation Results	<ol style="list-style-type: none"> <li>1. 100% CIP participation rate for necessary personnel</li> <li>2. 99.4% completion rate of the educational and training courses</li> </ol>
	Targets in 2024	<ol style="list-style-type: none"> <li>1. 100% CIP participation rate for necessary personnel</li> <li>2. 100% completion rate of the educational and training courses</li> </ol>
	Future Targets (Short, Medium, and Long-Term)	Further improve the customer satisfaction rate

We strongly believe that the premium quality is Macronix's essential principle and responsibility, and has always perused the quality promotion and improvement. Macronix also keeps promoting CIP (Continual Improvement Program) projects to require the suppliers to support QCC (Quality Control Circle) improvement and actively participate in national competitions to achieve the purpose of cross-industry learning.

In addition, Macronix internally formed various improvement teams, and as of the end of 2023 there have been 130 such teams.

Moreover, Macronix attaches great importance to the demands and opinions of customers. In order to understand customers' perceptions of Macronix, the Company conducts customer satisfaction surveys every year. The scope of the survey includes but is not limited to the aspects such as "product quality", "technical capabilities", "product delivery", "application and sales services" and "green environmental protection". Through recycling analysis, in 2023 the survey result showed that the satisfaction rate of customers around the world reached more than 90%.

Regarding the quality certifications, the Company has been certified with ISO9001 and IATF 16949. And in terms of the environmental management, including noise, pollution and chemical

handling, Macronix has been certified with ISO 14001. In this regard, it requires packaging and testing suppliers to obtain the aforementioned certificates.

## 4.6. Sharing Beneficial Outcomes with Customers

As a leading supplier of non-volatile memory in the world, Macronix provides NOR, NAND Flash memory, eMMC and ROM for a wide range of applications for computing, communication, consumer electronics, automotive and industrial uses. In order to achieve the goal of sharing beneficial outcomes with customers, Macronix recognizes that quality and services are two essential elements. Quality is the lifeblood of Macronix. From materials to production processes, every detail has been strictly monitored and tested to ensure that customers can use Macronix products without concern. Excellent service is the key to establishing long-term cooperative relationships between Macronix and its customers. The Company solves customer problems and meets customer needs through open communication and quick response. It not only helps customers improve their market competitiveness, but also strives to establish long-term and stable partnerships with them. Achieving mutually beneficial outcomes with customers is not only our goal, but also the driving force behind Macronix's continuous pursuit of excellence.

As the result of more than three decades of painstaking efforts, Macronix has also successfully established long-term, mutually beneficial strategic partnerships with large, world-class manufacturers in the U.S., Japan, Europe, and Asia, accelerating the growth of Macronix in the fields of NOR flash memory and ROM products and becoming the world-class leading manufacturer. Macronix not only leverages its excellent R&D and manufacturing capabilities to offer customers high-quality, innovative, and performance-driven products and services, but also is dedicated to the management of the information security. In the future, Macronix will continue to be devoted to the research and development, accumulate the intellectual property and improve the international competitiveness. Together with its customers Macronix will create the future and enjoy the outcomes of the win-win deals.

“Honesty” is Macronix’s business philosophy. Customer satisfaction surveys are conducted to determine if the Company’s values of “innovation, quality, efficiency, and service” are implemented, and to achieve the win-win scenarios for the Company and customers. Annual customer satisfaction surveys are conducted by Macronix’s headquarters in Taiwan. Questionnaire survey results are summarized and analyzed for the management team to truly understand the degree of customer satisfaction. To further understand customers’ needs and their degree of satisfaction, we have instituted satisfaction evaluation mechanisms for the 7 areas of greater concern: sales services, order shipments, product quality, product technology, customer application services, green product regulation, and overall performance. Surveys are conducted through questionnaires or telephone interviews; the results serve as an important basis for Macronix to review our service quality and improve our operation flow, which will subsequently allow us to optimize our services and thus enhance our relationships with customers. The 2023 customer satisfaction survey has a response rate of 84%. According to the results, customers gave positive and satisfied ratings on all of our 7 indicators (the maximum score is 5; 4 or above means “Satisfied”).

## 5. Economic Dimension

### 5.1. Financial Performance

<b>Management Approach</b>	Impacts	Evaluate market demand and industry trends to create stable economic benefits, achieve continuous growth, and increase company value.
	Medium and long-term development direction	Short-term: Evaluate the market situation and immediately make adjustments
		Mid-term: Increase operating profits and create company value
		Long-term: Maintain leadership and ensure sustainable development
	Management method (Including measures)	Set clear goals, review production, management, sales, and R&D expenses, periodically convene meetings for review, and continuously make improvements.
	Tracking the effectiveness of the actions	Convene regular meetings to evaluate financial performance. Establish the action plans for the shortcomings improvement and ensure the effective tracking and timely adjustments of the financial performance through discussing the findings and data in the report.
2023 Implementation Results	Please see our business performance below.	
Targets in 2024	Based on the current market conditions, pragmatically evaluate and set targets to adjust accordingly.	

Macronix established its headquarters in the Hsinchu Science Park on December 9, 1989, and commenced operations in December of that year. The main business activities of Macronix include the design, manufacturing, and marketing of integrated circuits and memory wafers, the commissioned design of related products, development, and consultation, as well as engagement in business-related import/export trading. Macronix has been listed on the Taiwan Stock Exchange from March 15, 1995. As of December 31, 2023, our paid-in capital is approximately NT\$18.6 billion.

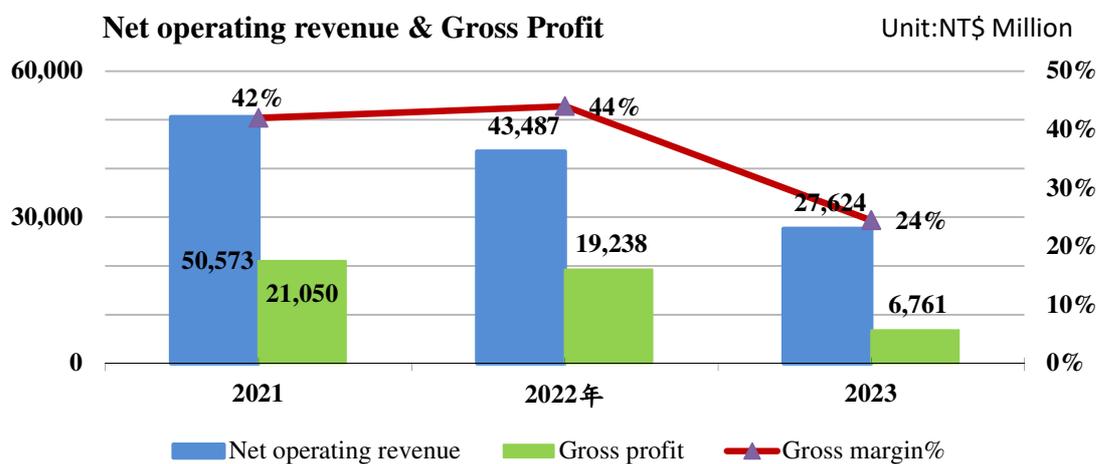
For details on our subsidiaries, shareholding ratio, and business items, please refer to Appendix 5 or subsidiaries that were included in the 2023 Q4 consolidated financial report. As

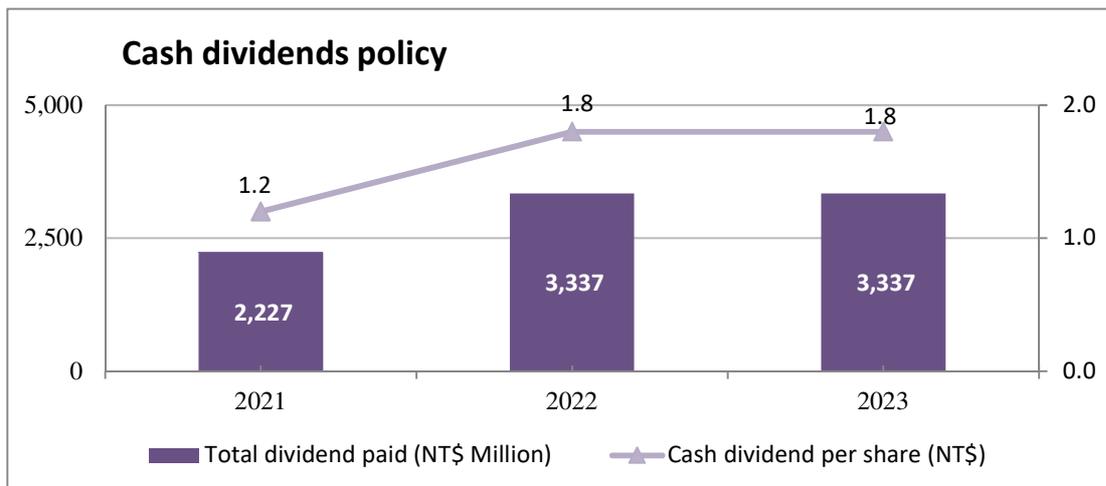
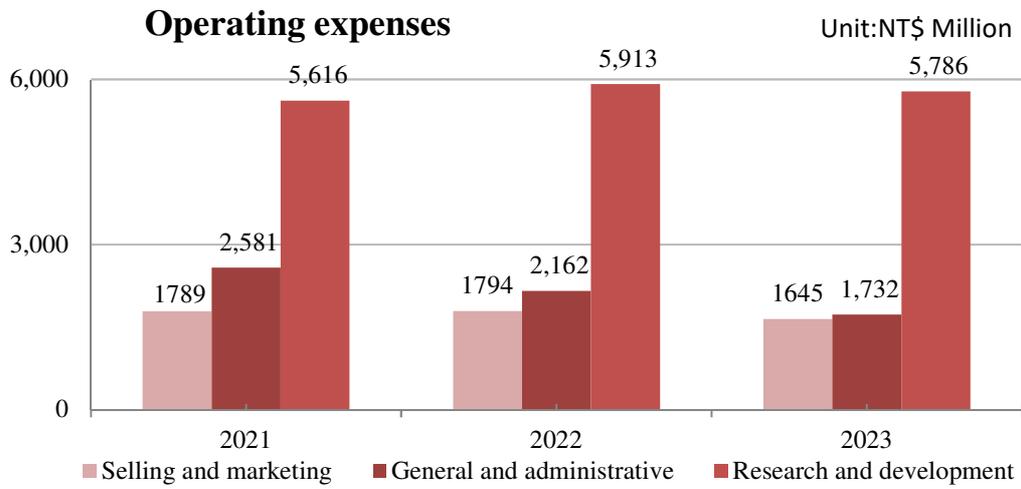
of December 31, 2023, the Company has direct and indirect majority ownership in the following subsidiaries: Run Hong Investment Ltd. (Run Hong), Hui Ying Investment Ltd. (Hui Ying), Mxtran Inc. (Mxtran), Macronix America, Inc. (MXA), Macronix (BVI) Co., Ltd. (MXBVI), Mxtran Holding (Samoa) Co., Ltd. (Mxtran Samoa), Mxtran (H.K.) Holding Co., Limited (MxtranHK), New Trend Technology Inc. (NTTI), Macronix (Asia) Limited (MX Asia), Macronix Pte Ltd. (MPL), Macronix Europe N.V. (MXE), Macronix (Hong Kong) Co., Limited (MXHK) and Macronix Microelectronics (Suzhou) Co., Ltd. (MXm). Except for being disclosed with the financial information, the aforementioned subsidiaries are not included within the scope of this report.

## 2021-2023 Business Performance (Consolidated financial statement figures)

Unit: NT\$ Million

Item	2021	2022	2023	Notes
Net operating revenue	50,573	43,487	27,624	Direct economic value
Operating costs	29,523	24,250	20,863	Economic value distributed
Gross profit	21,050	19,238	6,761	
Operating expenses	9,986	9,869	9,168	Economic value distributed
Income (loss) from operations	11,064	9,369	(2,407)	
Total non-operating income and expenses	2,264	923	523	Economic value distributed
Income (loss) before income tax from continuing operations	13,328	10,292	(1,884)	
Income tax expense (benefit)	1,365	1,323	(185)	Economic value distributed
Net income (loss) for the year	11,963	8,970	(1,699)	Economic value retained

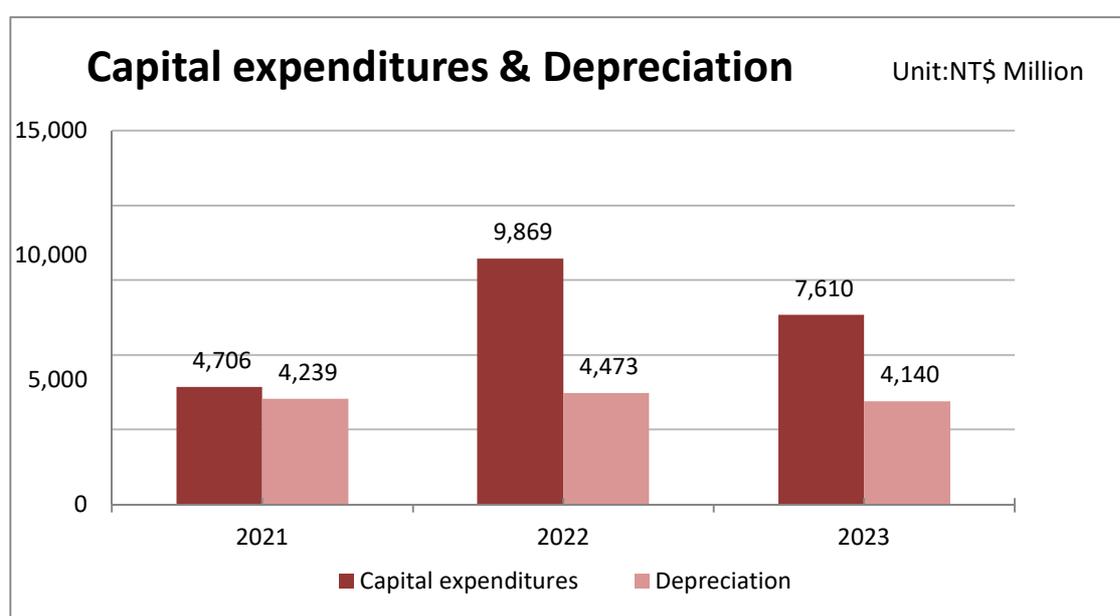




## R&D Investments

Unit: NT\$ Million

Item	2021	2022	2023
Fixed R&D investments	5,616	5,913	5,786
Total revenue	50,573	43,487	27,624
Percentage	11%	13%	21%



Employee compensation expenses in 2023 include salaries, labor and health insurance premiums, director's remuneration, pensions, and other employee benefit information. Please refer to page 84 of the 2023 Q4 IFRSs stand-alone financial statements (summary of employee benefits, depreciation, and amortization expenses).

## Financial Aid Received from the Government Grants

As of 2023, Macronix obtained a government preferential interest rate loan of NT\$15,287,000 thousand from the "Action Plan for Welcoming Overseas Taiwanese Businesses to Return to Invest in Taiwan". The loan will be repaid on an average monthly basis after the date of expiry. At the time of the borrowing, the fair value of the borrowing was estimated based on the market interest rate. The difference between the amount obtained and

the fair value of the loan is NT\$180,230 thousand, which is regarded as a government low interest loan and recognized as deferred income. In 2023, the Company recognized other income of NT\$9,646 thousand and the interest expense of the loan was NT\$34,683 thousand respectively.

## 5.2. Tax Policy

Macronix seeks to improve tax risks management, and is committed to ensuring information transparency and regulatory compliance. We also support government tax policies to drive economic development and sustainability.

◆ Macronix's six guidelines for tax management

1. All operations comply with tax laws and regulations of Taiwan.
2. Transactions between affiliated enterprises comply with the internationally recognized pricing principles announced by the OECD, and BEPS related regulations, so that the pricing policy of related parties complies with the arm's length principle.
3. In response to the global trend of anti-tax evasion, avoid involving countries with low tax rates in tax planning with the purpose of tax evasion.
4. Transparent reporting about tax information, submitting the Country-by-Country Report, Master File, and Local File to the tax authority, so that tax disclosure complies with laws, regulations, and guidelines.
5. The Company's tax planning and decisions all take the effect of tax risks into consideration.
6. Establish a good interaction with the tax authority based on the principles of mutual trust and information transparency.

## 6. Sustainable Environmental Dimension

Macronix's ESH Policy	
◆	<b><u>Rights and Obligations:</u></b> Commits and guarantees all employees can work in a comfortable, safe and healthy environment, and provides employees and their representatives with ample ESH consultation and participation, so as to make the best efforts fulfilling their duties and obligations regarding ESH.
◆	<b><u>Regulation Compliance:</u></b> Comply with ESH regulations, and implement ESH practices.
◆	<b><u>Hazard Prevention:</u></b> Prevent pollution and potential damages by hazard identification, risk assessment, environmental impact analysis and hazardous sources control. Also, implement energy conservation, carbon reduction, greenhouse gas reduction, water conservation and waste reduction, etc.
◆	<b><u>Education and Training:</u></b> Provide employees with competitive and comprehensive ESH training programs to ensure they are able to implement the ESH works properly.
◆	<b><u>Sustainable Development:</u></b> Meet international green product requirements and implement environmental related substances management system. Ensure the sustainable development of Macronix's business operation and ESH works by effectively utilizing corporate resources to establish and continuously enhance the ESH management system to meet the expectations of all colleagues, customers, shareholders and stakeholders.

### 6.1. Environmental Protection Management and Pollution

#### Prevention



Macronix has always embraced the principle of sustainable development. We see a sustainable environment as the foundation of our corporate culture, and we seek to protect the planet through concrete actions. Each year, we continue to reduce our energy consumption and carbon emissions, purchase “Green Mark” products, increase resource efficiency, and design green products. We actively promote energy and water conservation, waste reduction, process improvement, pollution control, green offices, resource recycling and reuse, ecological conservation, and educational training. We have adopted a proactive attitude toward complying with regulations and international standards to set up pollution prevention facilities such as wastewater treatment facilities, scrubbers, waste storage areas, toxic gas detectors, and soundproof walls, to prevent various types of pollution, including wastewater, air pollution, industrial waste, toxic chemical substances, and noise. Nevertheless, we go to great lengths

each year to minimize the impact of our operations on the environment and enhance our corporate competitiveness by raising our quality control criteria. Macronix did not receive any penalties in 2023 under our strict environmental quality monitoring.

In the environmental field in 2023 Macronix received the Certificate of Adoption of “Environmental Bikeway in the Air Quality Purification Zone/ Hsinchu City Government



Macronix introduced and passed the ISO 14001 Environmental Management System Certification in 1997. We ensure that our environmental management systems fully comply with the Plan-Do-Check-Act (PDCA) operations of the ISO system to maintain a healthy and safe environment and continuously make improvements to reach our goal. Currently, the Macronix Headquarters, Fab 2, Fab 5 and the Test building have all passed the Environmental Management System (ISO 14001: 2015) Certification.

To ensure that a smooth communication channel is provided for environmental or other issues to both Macronix’s stakeholders and internal employees, we have contact persons to handle and respond to the valuable feedback that is provided externally or internally from the government, general public, customers, investors, employees, , and suppliers. In 2023, Macronix did not receive any environment-related complaints according to case statistics related to environmental complaints.

### 6.1.1. Water Resource Management

Management Approach	Impacts	Reduce environmental load and impact via water quality control and reuse
	Medium and long-term development direction	Actively develop wastewater recycling technology to increase the efficiency of water resource use
	Management method (Including Measures)	External: Hsinchu Science Park Bureau water use plan review, wastewater (sewage) testing report Internal: ISO14001 Manual/Procedure/Specifications/Records
	Tracking the effectiveness of the actions	1. Water volume statistics are compiled and the water balance chart is reported on a monthly basis 2. Periodically monitor effluent water quality and outsource effluent testing once every six months
	2023 Implementation Results	Average process water recycling rate of all fabs in the Company was 87.03% <sup>Note</sup> (target $\geq$ 84.0%)
	Targets in 2024	Process water recycling rate in the 8-inch wafer fab $\geq$ 82% Process water recycling rate in the 12-inch wafer fab $\geq$ 85% Water consumption per wafer $\leq$ 0.210 (m <sup>3</sup> /12-inch equivalent wafer mask layer)
	Future targets (Short, Medium, and Long-Terms)	Process water recycling rate is higher than the standard of water recycling rate of the Hsinchu Science Park Bureau

\* Note: Process water recycling rate is calculated using the formula specified by Hsinchu Science Park Bureau.

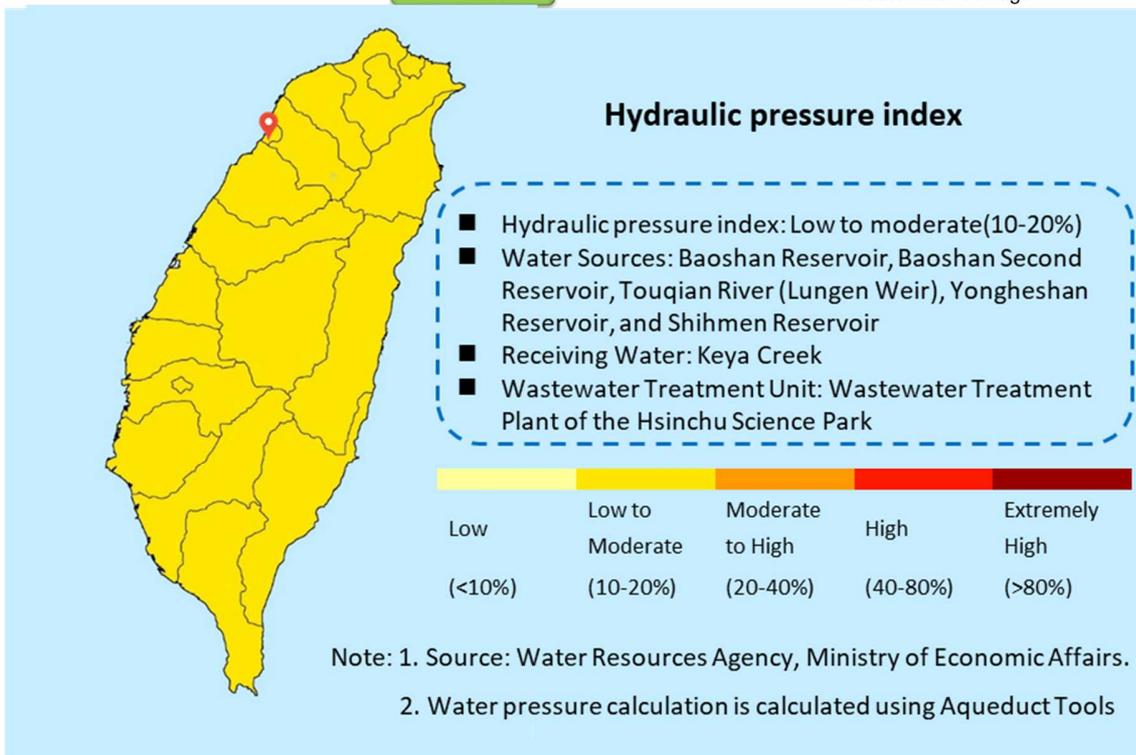
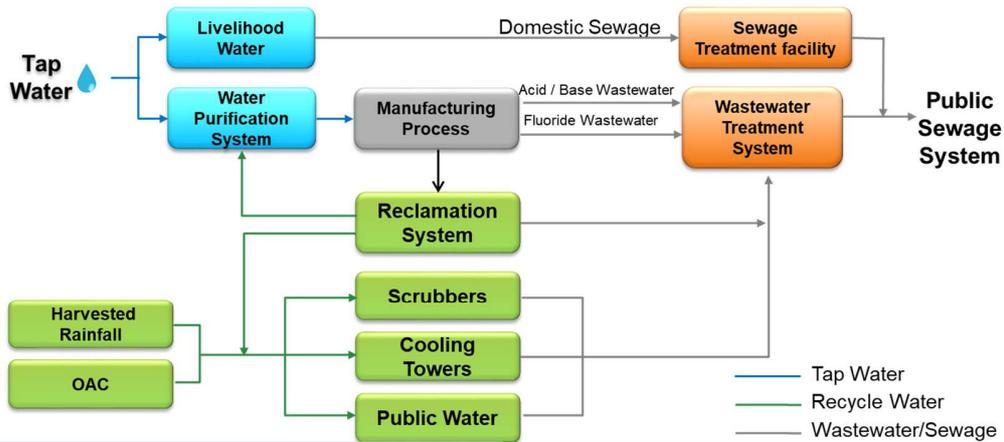
The main source of water for Macronix’s plants is running water supplied by Taiwan Water Corporation from Baoshan Reservoir and Yongheshan Reservoir. Hence, water intake does not have any material effect on the water source. All of our plants have water storage facilities in coordination with the regulations of the Water Resources Agency, Ministry of Economic Affairs, which are for public and firefighting urgency use. The water storage facilities that were planned have all reached safe storage capacity. Since manufacturing semiconductors requires a large amount of ultrapure water, Macronix sets up an annual target for water consumption and reviews the water pressure condition to avoid wasting water resources. Moreover, water consumption is reviewed every quarter to ensure that risks remain under control. Macronix's total running water usage in 2023 amounted to 2,684 million liters,

with 723 million liters in total water consumption and 1,961 million liters in total water discharge. Recycling discharged water has always been an issue of concern for Macronix. In addition to submitting water consumption data and water balance charts to the Hsinchu Science Park Bureau on a monthly basis, our internal units also monitor the process water recycling rate on a daily basis through wastewater recycling technology and the SCADA system in order to meet our water-saving target and improve the usage efficiency of water resources. In 2023, the total volume of process water recycled was 3,821 million liters and recycling rate was 87.03%. Fab 2 and Fab 5 were certified to meet the industry benchmarks (50~85% for the manufacture of integrated circuits industry) for the water recycling rate in 2022, and obtained the water recycling rate certification statement in 2023.

**Macronix Annual Water Consumption Statistical Table**

Item	2021	2022	2023
Running Water Usage (Unit: million liters)	2,600	2,836	2,684
Total Water Consumption (Unit: million liters)	657	738	723
Total Water Discharge (Unit: million liters)	1,943	2,098	1,961
Recycled Process Water (Unit: million liters)	3,832	4,123	3,821
Recycling Rate (Unit: %)	85.8%	85.7%	87.0%
Total Revenue (Unit: million NT\$)	50,573	43,487	27,624
Water Usage Intensity (Unit: million liters/million NT\$)	0.051	0.065	0.097

### Macronix Water Recycling Diagram



Wastewater generated from the manufacturing of semiconductors can be roughly divided into acid and alkaline wastewater and fluoride-containing wastewater, based on its characteristics. Our wastewater is properly treated in a wastewater treatment facility, and pH, BOD, COD, SS, and NH<sub>3</sub>-N are regularly tested based on *the water quality standards of Hsinchu Science Park* to bring it into the allowable limit before being discharged into the sewage system. The sewage system is connected to the park’s wastewater treatment facility, where the wastewater is treated to higher water quality standards than the national effluent standard, and then discharged into Keya River through a special pipe. Therefore, there is no

significant impact on the ecological environment. Other water resource management measures include:

- ◆ Regularly tracking and managing the usage data of water resources
- ◆ Conducting risk assessment and management
- ◆ Determining if our manufacturing facility is located in an area with water shortages
- ◆ Promoting water resource utilization programs
- ◆ Entrusting certified organizations with sampling and analyzing the quality of discharged water twice a year
- ◆ Carrying out real-time monitoring of pH/fluoride concentrations of effluents and the pH of rainwater
- ◆ Confirming water quality by testing and sampling water in cooperation with Hsinchu Science Park Bureau
- ◆ Having environmental inspectors routinely examine the conditions of wastewater treatment and report the results in a timely manner to confirm that discharged wastewater meets regulatory standards
- ◆ Setting up a rainwater harvesting tank at headquarters to harvest rainwater, storing in the water tower and using it to water plants and flush toilets

In response to the ammonia reduction plan set up by the Hsinchu Science Park Bureau, Macronix has taken proactive measures to reduce the concentration of ammonia in effluents. For example, in 2015, our Fab 2 and Fab 5 plants began implementing measures, including reduction of materials, wastewater diversion, and improvements in the treatment system, such as setting up A/O-MBR.

#### Quality of Macronix’s discharged water in 2023

Plant	pH	BOD (mg/L)	COD (mg/L)	SS (mg/L)	NH <sub>3</sub> -N (mg/L)
FAB2	6.6	1.0	33.8	39.6	14.8
FAB5	7.5	2.4	21.7	22.0	9.4
BE	8.6	64.4	95.6	21.4	-
Allowable limit	5-9	300	500	300	30

Note: Water quality data obtained from the data reported in the “Application Form for Channeling Business Wastewater (Sewage) into Dedicated Sewage Systems”

## 6.1.2. Air Pollution Prevention



Management Approach	Impacts	Air pollutant emissions are reduced through treatment equipment, air pollutants are tested in accordance with the law, and improvement measures are implemented to reduce the pollution generated by production activities.
	Medium and long-term development direction	Reinforce the backup system to ensure preventive facilities are operating normally and improving handling efficiency
	Management method (Including Measures)	External: Submit volatile organic compounds and inorganic acid pollution prevention records, and report costs incurred in preventing fixed sources of air pollution Internal: ISO14001 Manual/Procedure/Specifications/Records
	Tracking the effectiveness of the actions	1. Compile statistics of air pollutant emissions on a quarterly basis 2. Evaluate the feasibility of reduction measures on an annual basis
	2023 Implementation Results	The reduction rate of the Company's volatile organic compounds ("VOCs") prevention equipment was 97.19% on average Acid/alkaline emissions and VOCs emission concentration from VOCs exhaust ducts were less than 7 ppm

Macronix does not use or discharge any ozone-depleting substances. All waste gases generated from manufacturing process are collected and classified via the gas collector and subsequently treated before being discharged. This process conforms to the government's regulations for environmental protection. The central gas emission treatment system at Macronix consists of three main systems: for general emissions, acid/alkaline gas emissions, and volatile organic compounds (VOCs). Waste gases are treated in professionally designed facilities, and emissions are released in accordance with statutory regulations. The plant is equipped with a continuous monitoring device for VOCs. We entrust certified organizations to test our air pollution every year. In 2023, the reduction rate of VOCs prevention equipment was 97.19% on average. Acid/alkaline emissions and VOCs emission concentration from VOCs exhaust ducts were less than 7 ppm. It is confirmed that they all meet the air pollution control

and emission standards of the semiconductor manufacturing industry, with an emission reduction rate of 90% and an emission concentration less than 14 ppm.

### Macronix's air pollutant emissions in 2023

Item/Plant	FAB2	FAB5	BE
PM	184.29	157.67	12.35
HAP	0.07	0.04	0
POPs	0	0	0
SOx	372.59	235.86	0.04
NOx	2849.65	3657.33	159.19
VOCs	5621.40	2994.76	209.86

Unit: kg/year

Note: Emission data obtained from reports concerning the costs of preventing fixed sources of air pollution.

Macronix manages the emission of waste gases generated from various types of transportation, such as shuttle buses for employees, public vehicles, and wafer transport vehicles:

- ◆ Employee shuttle bus to/from work: Vehicle providers include car rentals, which execute the management by requesting the party to sign a self-management agreement form (including maintenance plans, type of gasoline used, emission tests, etc.), and keep all signed documents.
- ◆ Corporate vehicle/wafer transport vehicle: The car rental companies are responsible for the related to rental car's maintenance and regular exhaust inspections.

Our factories are located within the Hsinchu Science Park. We are willing to fully cooperate in all matters required by the Science Park. Macronix's headquarters and Fab 5 are surrounded by factories, and nearby neighborhoods are concerned about unpleasant odors. The exhaust gas of each Fab of the Company is properly treated before being discharged, so there should be no unpleasant smell.

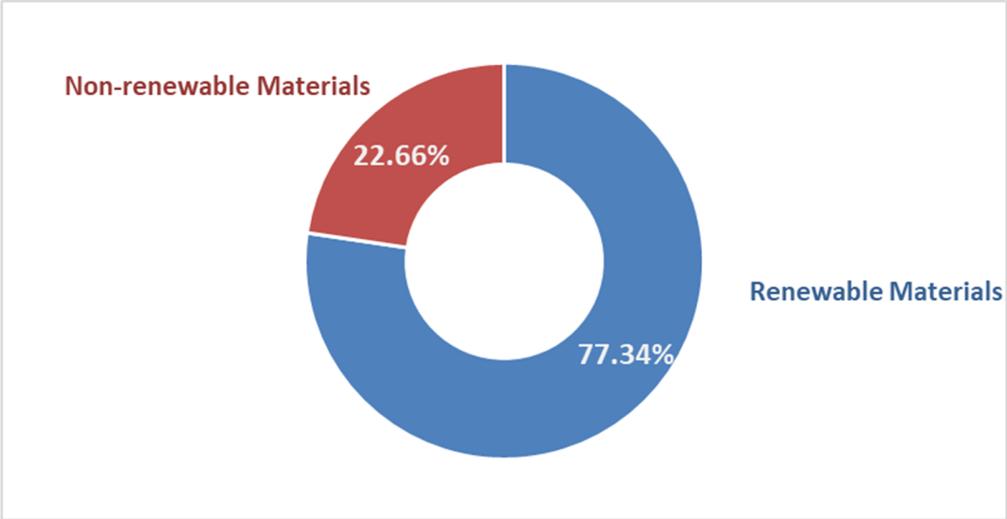
### 6.1.3. Materials management

Management Approach	Impacts	Keep the raw materials in line with the quality requirements and prevent material interruptions to ensure smooth production
	Medium and long-term development direction	Provide stable quality control for plant production and reduce the risk of raw material supply
	Management method (Including Measures)	Conduct material requirement planning based on production plan, demand forecast confirmed by demand unit, project application, historical usage, inventory status and requisition status on a monthly basis
	Tracking the effectiveness of the actions	Monthly monitoring of raw material usage
	2023 Implementation Results	The proportion of renewable material usage is 77.3%
	Target in 2024	The proportion of renewable materials usage maintains over 70%
	Future targets (Short, Medium, and Long-Terms)	The proportion of renewable materials usage maintains over 70%

In terms of the use of raw materials, Macronix monitors the use of raw materials every month based on the permission issued by government to ensure that the use of raw materials is within the maximum approved amount of environmental protection permits. In addition, our engineering department often checks whether there are ways to reduce the use of materials based on process requirements, such as increasing the capacity of inner boxes to reduce the use of cartons; designing and reusing the leftover packaging materials to improve the protective and drop-resistance abilities of cartons; according to the quantity of shipments, reducing the use of filler materials in order to achieve the optimal amount of packaging.

As a semiconductor manufacturer, Macronix uses wafers the most. Due to the high purity of silicon wafers used in the semiconductor industry, there is currently no proper way to recycle and reuse wafers. Therefore, we do not use recycled materials. The consumption of wafers and packaging materials is as follows:

Materials	Amount Consumed in 2021 (Ton)	Amount Consumed in 2022 (Ton)	Amount Consumed in 2023 (Ton)
Renewable Materials (Packaging Materials)	303.44	197.73	166.51
Non-renewable Materials (Wafer)	63.23	52.82	48.78
Total Amount of Materials Consumed	366.67	250.55	215.29



## 6.1.4. Waste Management

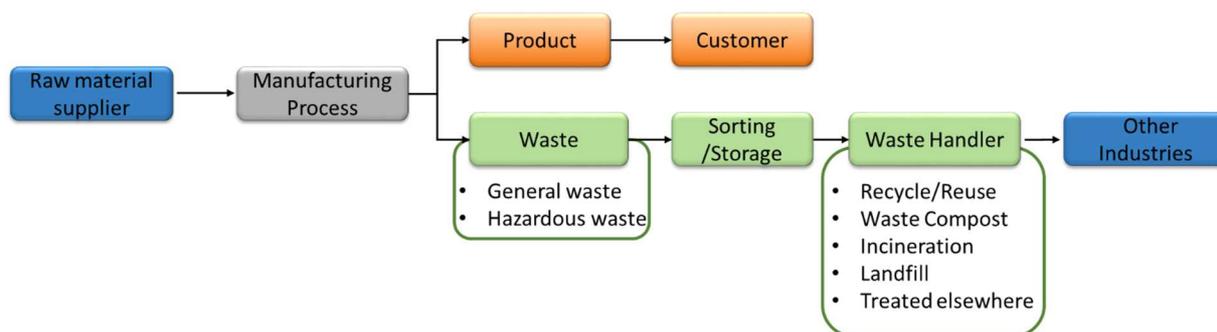
Management Approach	Impacts	Reduce the environmental burden of production by promoting waste reduction and strengthening waste recycling/reuse
	Medium and long-term development direction	Waste reduction by classifying the source of waste and developing recycling and reuse technologies
	Management method (Including Measures)	External: Industrial waste reporting and management information system Internal: ISO14001 Manual/Procedure/Specifications/Records
	Tracking the effectiveness of the actions	<ol style="list-style-type: none"> <li>1. Compile statistics of waste storage, production, and clean-up and removal on a monthly basis</li> <li>2. Perform internal inspections and audits on a quarterly basis</li> <li>3. Audit waste disposal companies on an annual basis</li> </ol>
	2023 Implementation Results	<ol style="list-style-type: none"> <li>1. Every month, waste specialists in each plant area conduct spot checks on the real-time tracking system using the GPS on vehicles of waste disposal companies</li> <li>2. Reach the Company-wide waste recycling and reuse rate of 97.7%; 0.2% of burying rate</li> </ol>
	Target in 2024	Maintain the Company-wide waste recycling rate of $\geq 95\%$ <sup>Note</sup> Reach the Company-wide hazardous waste recycling/reuse rate of $\geq 98\%$
	Future targets (Short, Medium, and Long Terms)	Prioritize zero landfill for back-end operation plants by 2025

Note: Recycling/reuse and composting waste are recycling technologies with environmental protection and economic benefits. Hence, these two indicators are used to evaluate and present the complete picture of our recycling/reuse results.

Macronix has completed the adoption of alternative materials and the improvement of the manufacturing processes regarding hazardous substances used in electronics that are of concern to the international community and specified in the EU RoHS (Restriction of Hazardous Substances) Directive. We received the IECQ QC 080000 Hazardous Substances Process Management System Certification in November 2007, which confirmed that our products comply with RoHS and customer requirements. Thanks to our thorough hazardous substance management system, we have been awarded green product certifications from many internationally renowned customers.

Product category	Scrapped products (metric tons)	Recycling rate (%)
IC	1.907	100
Wafer	9.597	100

Note: IC and Wafer are all recycled.



Our main consideration regarding waste management strategies is to recycle and reuse. Our waste production is categorized into general waste and hazardous waste, both of which are entrusted to qualified waste-treatment companies for subsequent waste treatment. Before entrusting the waste for the treatment, it is necessary to confirm whether the treatment method adopted by the entrusted company is appropriate, and the company must pass the relevant review procedures before being entrusted with the waste treatment. In view of the increasing emphasis of current government agencies on waste disposal, Macronix will continue to supervise and manage waste-treatment companies, and conduct their on-site audits. In 2023, Macronix initiated a total of 48 audits at selected new waste-treatment companies and already available ones. During the audits, not only the licenses of the companies were confirmed, but also their product and sales flow were recorded as the basis for evaluation. Furthermore, no incidents of severe leakage, related to the waste disposal, were reported in 2023.

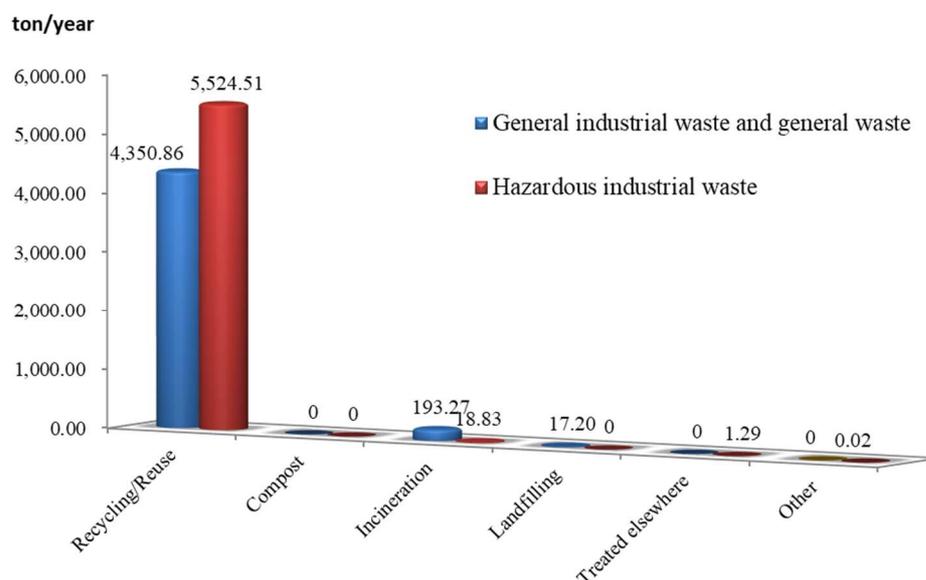
The total waste disposal output in 2023 was approximately 10,106 tons, of which the majority of 54.9% was hazardous waste. Recycling/reuse rates reached 95.4% (general waste) and 99.6% (hazardous waste), and the total recycling/reuse rate reached 97.7%. Landfill treatment, which has a heavy burden on the environment, was 17 metric tons of waste, and the landfill rate was only 0.2%, which shows that the Company takes environmentally friendly methods of waste disposal as a priority. In the disposal process there was no waste was exported overseas.

To effectively control waste generated by the Company and the recycling rate, Macronix has set up annual targets and reviews them every quarter to ensure that the operations comply with the given targets. The Company reduces waste by cutting down the consumption of materials through the joint efforts of engineering departments based on a feasible reduction plan.

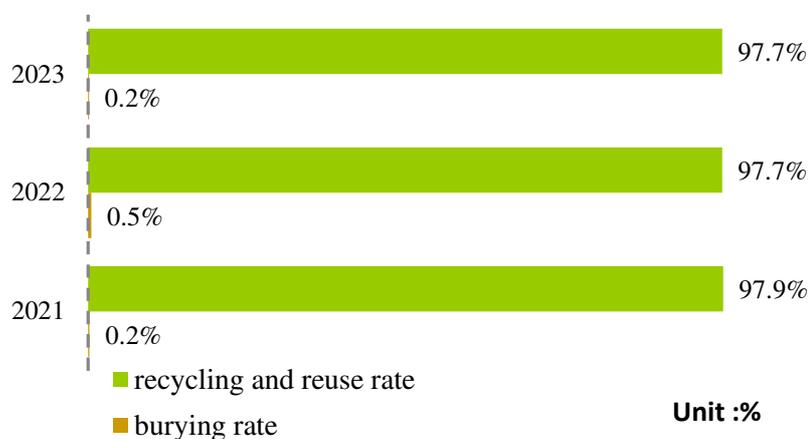
Item	2021	2022	2023
Recycled/Reused Amount (metric tons)	11,064	11,044	9,875
Non-Recyclable Amount (metric tons)	241	259	231
Total Amount of Waste (metric tons)	11,306	11,303	10,106
Recycling/Reuse Rate (%)	97.9	97.7	97.7
Total Revenue (million NT\$)	50,573	43,487	27,624
Waste output intensity (million tons/million NT\$)	0.224	0.260	0.366

### Waste Produced by Macronix in 2023

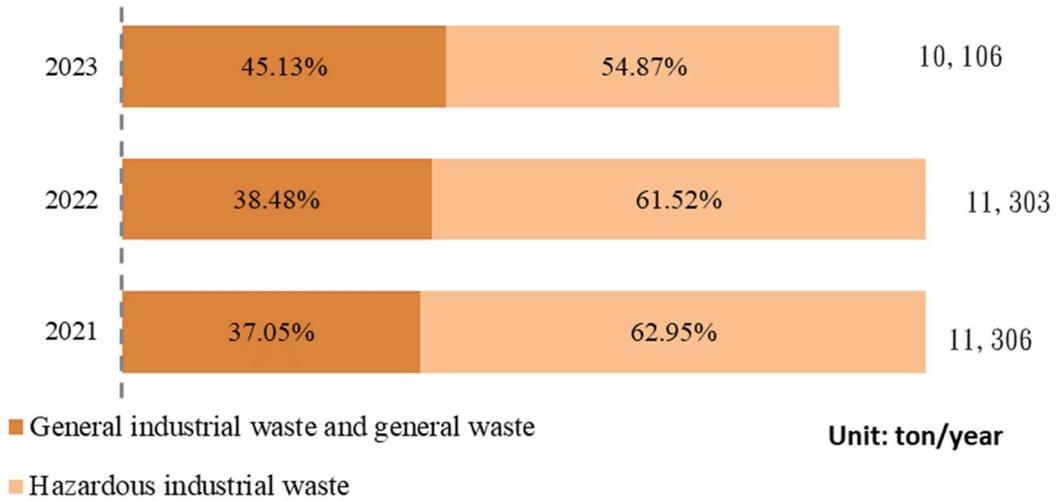
Item	General industrial waste and general waste	Hazardous industrial waste
Recycling/Reuse (metric tons)	4,350.86	5,524.51
Compost (metric tons)	0	0
Incineration (including energy recycling) (metric tons)	193.27	18.83
Landfilling (metric tons)	17.20	0
Treated elsewhere (metric tons)	0	1.29
Other (metric tons)	0	0.02
Total (metric tons)	4,561.33	5,544.65
Percentage (%)	45.1	54.9
Recycling rate (%)	95.4	99.6



### Percentage of Industrial Waste Recycled/Buried

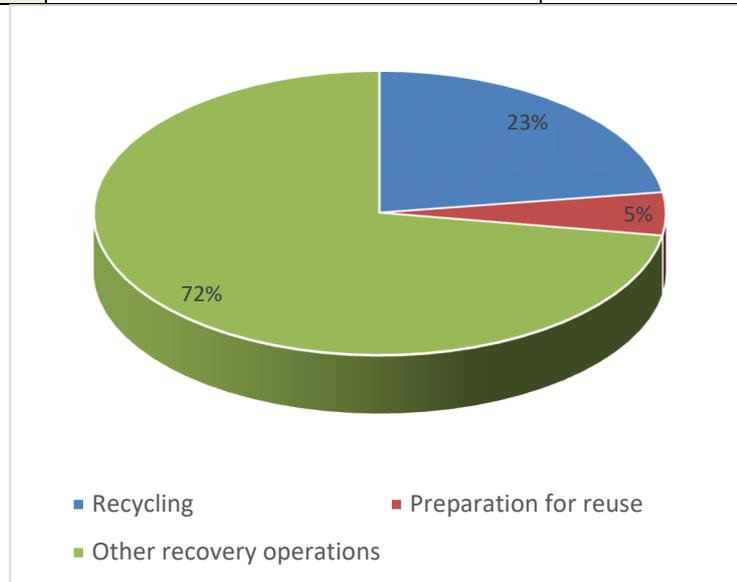


### Total Waste Generated

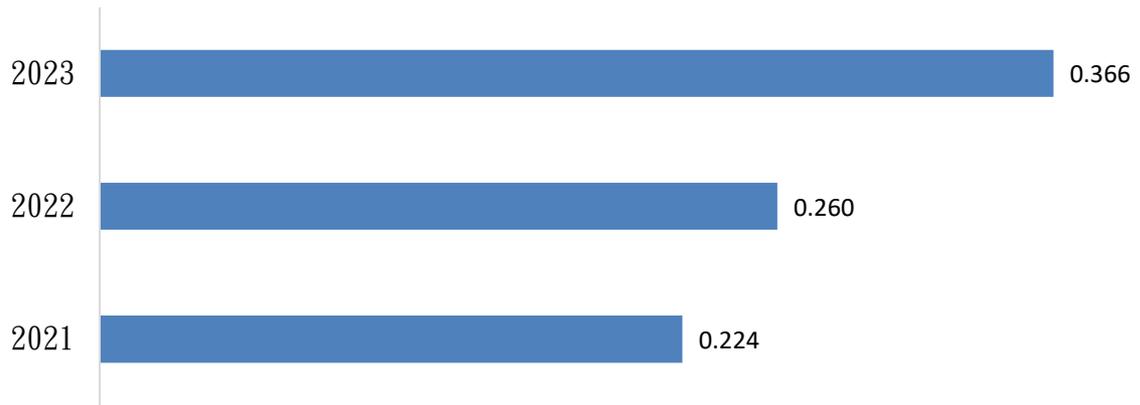


### 2023 Macronix recycling waste classification

Item	General industrial waste and general waste	Hazardous industrial waste
Recycling	2,087.22	135.36
Preparation for reuse	12.86	544.25
Other recovery operations	2,250.78	4,844.89
Total	4,350.86	5,524.51



## Waste Intensity



## 6.2 Energy and Climate Change Management



### 6.2.1 Climate Change Risks and Opportunities

Due to the increase in global temperatures caused by climate change, climate abnormalities have occurred, resulting in many environmental problems, which in turn affect normal operations and production activities of enterprises. From the perspective of an enterprise, Macronix thinks about improvements and decisions that Macronix can make regarding the climate change. At the same time, it considers the challenges in the sustainability brought by climate change both to the Company and the supply chain. In 2021, with reference to the Task Force on Climate-related Financial Disclosures (TCFD) guidelines, Macronix assessed the impact to itself and introduced TCFD. Professional members from each center are assembled to form a TCFD task force. The task force uses the TCFD framework to identify climate risks and opportunities, devises management methods for impact items, and uses scenario analysis to quantify the financial impact of material risk opportunities, to take relevant countermeasures to reduce the impact on Macronix’s operations.

#### I. Items for TCFD disclosure

Four Cores	Disclosure Recommendations	Response
Governance	<p>a. Describe the board’s oversight of climate-related risks and opportunities.</p> <p>b. Describe management’s role in assessing and managing climate-related risks and opportunities.</p>	<p>a. In Q1 of each year, the Environment Safety and Health Center will collate Macronix’s performance, achievement status, and implementation results from the past year over all aspects of sustainability, including carbon inventory management, and report to the Board of Directors. Our measures include: material issues such as performance in sustainability, results of communication with stakeholders, management of energy and climate change.</p> <p>b. The TCFD task force is composed of members appointed by the directors of each center; it jointly reviews internal and external risks and formulates risk response strategies for material risk issues.</p>
Strategy	<p>a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.</p>	<p>a. In the climate risk and opportunity analysis model of Macronix, it has defined the short-term as the next 1 year, the medium-term as the next 1–8 years, and the long-term as the next 8 years and after. The main climate risks and opportunities at the Company level were identified by the TCFD task force based on job characteristics analysis. Sources include carbon taxes that may occur in the medium term and risks of transition to low-carbon technologies, as well as physical risks from average temperature changes; Long-term risks are the risks of transition to cap &amp; trade, and the physical risk of rising sea levels. As for opportunities, the production process belongs to the short-term, low-carbon products/services and adaptations/solutions belong to the medium-term, and the change of customer behavior and search for new business opportunities are long-term development opportunities for Macronix.</p>

	<p>b. Describe the impact of climate-related risks and opportunities on the organization’s business, strategy, and financial planning.</p> <p>c. Take into consideration different climate-related scenarios</p>	<p>b. Macronix will face transformation risk that will directly impact operating costs. Hence, we continually track international trends and regulatory developments, and ensure that we are 100% in compliance with government laws for climate management. In terms of green energy management, we cooperate with national policy by evaluating installation of solar panels and formulation of a green energy purchasing policy. For technology transformation, we are actively purchasing low-carbon (new process) machinery, lowering the carbon emission of production and operation of products, and producing low-carbon products that meet the expectations of our customers to enhance our competitiveness for sustainability. As for long-term risks, we established a weather forecast and refrigerating machine optimization mechanism, actively replace machinery with more efficient one, and suppliers that are assessed as being at high-risk of climate change impact should have more than one supply source (2nd Source).</p> <p>c. Positing regulatory pressures in transition risks as the main object for scenario analysis, and forecasting emissions growth based on historical data and future operational growth. Macronix assumes three types of external pressures from rising temperatures: 1.5°C, 2°C, and NDC. Under these three scenarios, it estimates the future carbon-cost expenditure, including carbon fees, carbon tax, renewable energy, etc., to remain alert to possible financial impact within the context of uncertain laws and regulations.</p>
Risk Management	<p>a. Describe the organization’s processes for identifying and assessing climate-related risks</p> <p>b. Describe the organization’s processes for managing climate-related risks.</p> <p>c. Describe how climate-related risks are integrated into the organization’s overall risk management.</p>	<p>a. Based on the correlation between climate-related risks and opportunities and the Macronix’s various businesses, Macronix divides the TCFD task force into five dedicated task forces: product and customers, finance, facility and environmental protection, supply chain, and logistics support. The members of each task force include middle and senior management. Each task force, based on executive business and professional judgment, reaches a consensus on risks and opportunities that the Company may face, and formulates a list of such risks and opportunities. (See the figure for detailed process: TCFD evaluation process)</p> <p>b. According to the current status of the TCFD identification results, the Sustainable Development Committee will promote project management based on the results of risk and opportunity assessment.</p> <p>c. Each task force will formulate a material risk management approach based on feasibility, and assess the financial impact and impact on the Company’s operations. (such as the material risk and opportunity analysis and management table)</p>
Metrics and Targets	<p>a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process</p> <p>b. Disclose Scope 1, Scope 2, and Scope 3 greenhouse gas (GHG) emissions</p>	<p>a. After each task force completes identification, the Environment Safety and Health Center will consolidate the results and rank them by comprehensive consideration of the impact strength (5 levels) and likelihood of occurrence (7 levels) and identify material risks by completing a risk matrix diagram. (See the figure for detailed process: TCFD evaluation process)</p> <p>b. Please refer to chapter 6.2.2 Energy Management and chapter 6.2.3 Climate Change Management.</p>

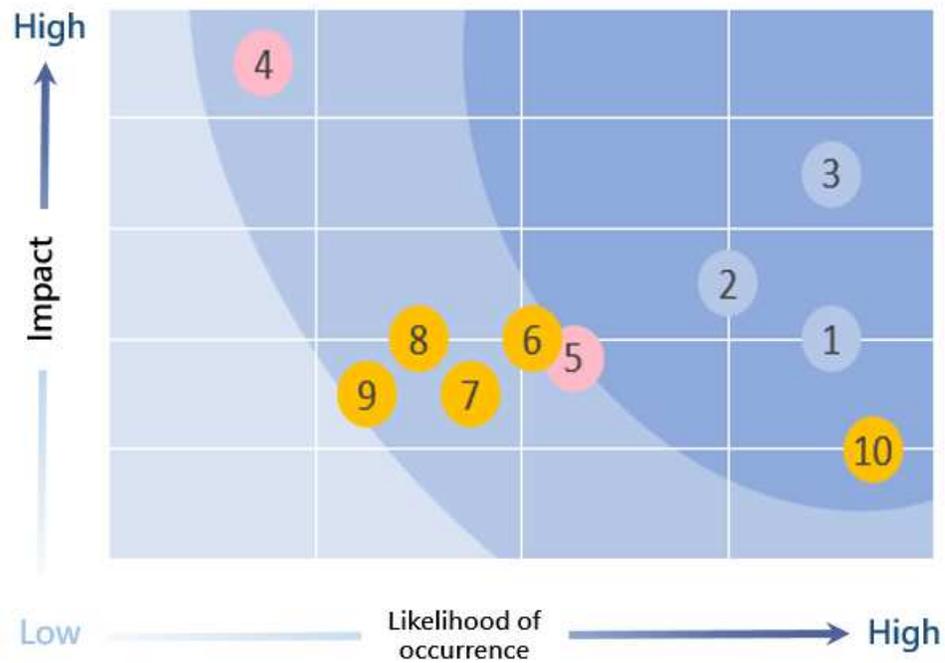
<p>c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.</p>	<p>c. Macronix has set a long-term target of Net Zero Emissions by 2050 and planned the reduction path as a regular performance inspection indicator. Each plant will formulate carbon reduction projects based on the reduction path and execute them according to the budget review, perform an organizational greenhouse gas inventory and verification every year, and track the progress of carbon reduction on an annual basis, with 5-year as a period for the review of carbon reduction performance and 2025 as the first target inspection point.</p>
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## Climate risk and opportunity matrices

Climate risks and opportunities are identified based on “likelihood of occurrence” and “impact strength” to determine their risk level. Among major risks with higher impact, preventive measures and response plans will be formulated.

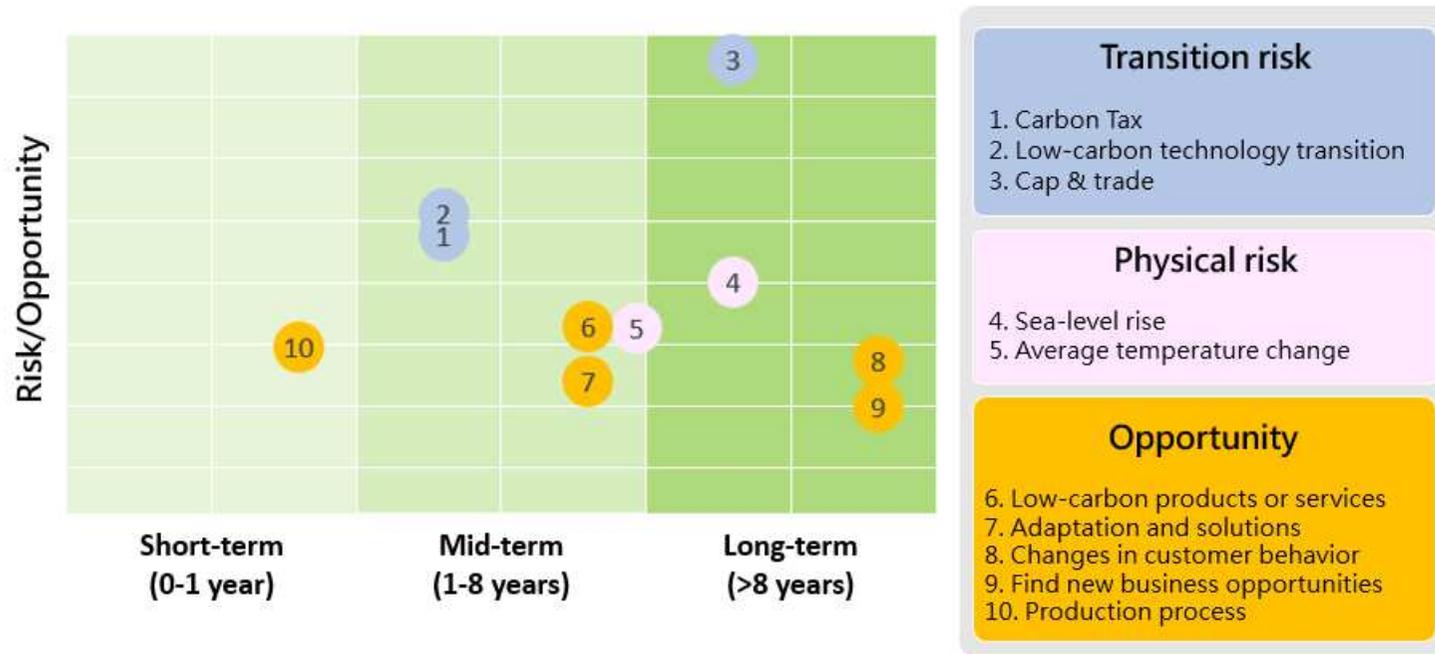
## TCFD Evaluation Process





<p><b>Transition risk</b></p> <ul style="list-style-type: none"> <li>1. Carbon Tax</li> <li>2. Low-carbon technology transition</li> <li>3. Cap &amp; trade</li> </ul>	<p><b>Physical risk</b></p> <ul style="list-style-type: none"> <li>4. Sea-level rise</li> <li>5. Average temperature change</li> </ul>
<p><b>Opportunity</b></p> <ul style="list-style-type: none"> <li>6. Low-carbon products or services</li> <li>7. Adaptation and solutions</li> <li>8. Changes in customer behavior</li> <li>9. Find new business opportunities</li> <li>10. Production process</li> </ul>	

The following figure is arranged according to occurrence time; upcoming risks and opportunities may be seen in time series



III. Material risk and opportunity analysis and management table

Material risk analysis and management table

Aspect	Material risk	Upstream suppliers impact analysis	Macronix impact analysis	Downstream customers impact analysis	Financial impact	Response management measures	
Transition risk/regulatory aspect	Cap & trade	<ol style="list-style-type: none"> <li>Product shipment performance and cost increase are affected by carbon emission limits.</li> <li>Increase in management and production costs.</li> </ol>	<ol style="list-style-type: none"> <li>Macronix currently has two fabs that may be included as control targets for total volume control/emissions trading.</li> <li>In order to comply with total volume control and regulatory requirements, Macronix needs to control emissions, which may affect production capacity and orders.</li> <li>The introduction of carbon reduction measures to reduce carbon emissions results in higher production costs.</li> </ol>	<ol style="list-style-type: none"> <li>Customers may turn to other alternative suppliers due to Macronix's reduced supply.</li> <li>Customers request Macronix to actively reduce carbon emissions.</li> </ol>	The market transaction price or cash generated by excess emissions will increase the Company's direct operating costs	<ol style="list-style-type: none"> <li>Designate dedicated personnel to continuously track relevant regulations and analyze impacts</li> <li>Greenhouse gas inventory and continuous tracking of carbon emissions</li> <li>Implement energy saving projects</li> <li>Implement carbon reduction projects</li> <li>Organize a Net-Zero Emission and renewable energy task force</li> <li>Increase the utilization rate of renewable energy</li> <li>Evaluate and secure reduction</li> </ol>	

						credits or carbon credits	
	Carbon fees (tax)	<ol style="list-style-type: none"> <li>1. The upstream suppliers pay carbon fees and fines, and transfer the relevant fees to increase the purchase cost.</li> <li>2. The production volume of the suppliers may be capped, resulting in the limited supply or the extension of supply period.</li> </ol>	<ol style="list-style-type: none"> <li>1. The two current fabs of Macronix are emission sources that should be accounted and registered, and are estimated to be the first batch of carbon fee collection targets.</li> <li>2. In order to reduce the carbon fees impact, the carbon fees and the cost of carbon reduction measures will be weighed to implement the carbon reduction plan.</li> <li>3. Controlling emissions, which may affect production capacity and order delivery.</li> </ol>	<ol style="list-style-type: none"> <li>1. The increase in product costs has reduced competitiveness.</li> <li>2. Control of production capacity and delivery schedule due to emission reduction. Failure to meet customer expectations will affect customer reputation and orders.</li> <li>3. Customers request Macronix to actively reduce carbon emissions.</li> </ol>	The Company's direct operating costs increase	As above.	

Transition risk/ technical aspect	Low-carbon technology transition	<ol style="list-style-type: none"> <li>Suppliers develop low-carbon products or technologies to help Macronix reduce indirect emissions.</li> <li>The cost of supplier R&amp;D and materials will increase.</li> </ol>	<ol style="list-style-type: none"> <li>To meet market expectations for energy conservation and carbon reduction in manufacturing may lead to adjustments in process-related technologies.</li> <li>The introduction of new technologies or machines may increase production costs.</li> </ol>	<ol style="list-style-type: none"> <li>Customers may request Macronix to provide products that help with lower carbon emissions.</li> <li>Customers request Macronix to reduce carbon emissions at the organization and product levels.</li> </ol>	Company R&D costs increase	Introduction of new low-carbon or gas- reducing machines and respective process adjustment	
Physical risk/long term	Average temperature change	<ol style="list-style-type: none"> <li>Affected by the increase in energy consumption, the production cost increases.</li> <li>Increasing investment and production costs.</li> </ol>	The rise in average temperature will lead to an increase in air conditioning load, power consumption, and electricity expenses.	<ol style="list-style-type: none"> <li>As a result of cost increase, the selling price has increased, resulting in decrease in product competitiveness.</li> <li>Customers request Macronix to actively reduce carbon emissions.</li> </ol>	The Company's direct operating costs increase	Establishing a weather forecast and refrigerating machine optimization mechanism	

	Sea-level rise	<ol style="list-style-type: none"> <li>1. The affected suppliers cannot produce normally or the transportation is interrupted.</li> <li>2. Suppliers establish measures to avoid operational interruptions, such as off-site backup and inventory increase, which will increase operating costs.</li> </ol>	<p>If the supply chain factory is shut down and causes production interruption, Macronix will continue to strengthen its continuous operation mechanism, such as maintaining appropriate inventory and increasing the number of suppliers to diversify risks.</p>	<p>Material or transportation disruptions may affect product delivery schedules, which may in turn affect customer reputation and orders.</p>	<p>The Company's direct operating costs increase</p>	<p>Require a more than one source (2nd source) for suppliers that are assessed as being high risk.</p>	
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Material opportunity analysis and management table

Aspect	Material opportunity	Upstream suppliers	Macronix	Downstream customers	Financial impact	Response management measures	
Products and services	Low-carbon products or services	<ol style="list-style-type: none"> <li>1. Require suppliers to provide low-carbon (mining) products and raw materials, thereby reducing Macronix’s supply chain carbon emissions.</li> <li>2. Low-carbon raw materials can meet the expectations of Macronix and stakeholders.</li> </ol>	Under the responsible consumption model guided by climate change, Macronix's existing and future product lines are all low-carbon products. If it continues to develop, it will provide customers with a higher diversity of low-carbon products and create higher sales growth for the Company.	<ol style="list-style-type: none"> <li>1. Early access into the customer market with low carbon emission requirements will help increase the sales volume of products.</li> <li>2. Providing diversified products and assisting existing customers to move into the low-carbon emission market to consolidate customers’ demand.</li> <li>3. Satisfying customers’ needs and enhancing partnership.</li> </ol>	Low-carbon products help customer sales grow	<ol style="list-style-type: none"> <li>1. Existing and future product lines are already low-carbon products, and they will continue to be developed with the existing management methods.</li> <li>2. Perform product carbon footprint inventory and verification, and continuously improve carbon footprint.</li> <li>3. Provide customers with reliable international verification information.</li> </ol>	
	Changes in customer behavior	Low-carbon raw materials can meet the expectations of Macronix and stakeholders.	Macronix has more than 30 years of industry experience and is one of the leading manufacturers of non-volatile memory IC; it is able to take the lead in cooperation in future low-carbon trends.	Meet Macronix’s needs and enhance partnership.	Low-carbon products generate higher gross margins	Continue to pay attention to the information and regulations related to low-carbon products, and frequently exchange	

					opinions with customers.	
Adaptation and solutions	<ol style="list-style-type: none"> <li>1. Require suppliers to provide low-carbon (mining) products and raw materials, thereby reducing Macronix's supply chain carbon emissions.</li> <li>2. Strengthen supply chain climate resilience.</li> </ol>	Macronix's proprietary technology, abundant experience, and its existing engineering development platform are sufficient to quickly respond to adaptation and solutions of low-carbon products.	<ol style="list-style-type: none"> <li>1. Early access into the customer market with low carbon emission requirements.</li> <li>2. Strengthen the competitiveness of the customer consumption market.</li> </ol>	Customer-generated sales growth reduces operating costs	<ol style="list-style-type: none"> <li>1. Listen to customer requirements and ideas, respond with suitable products or adjustments</li> <li>2. Establishing a weather forecast and chillers optimization mechanism in response to climate instability</li> </ol>	

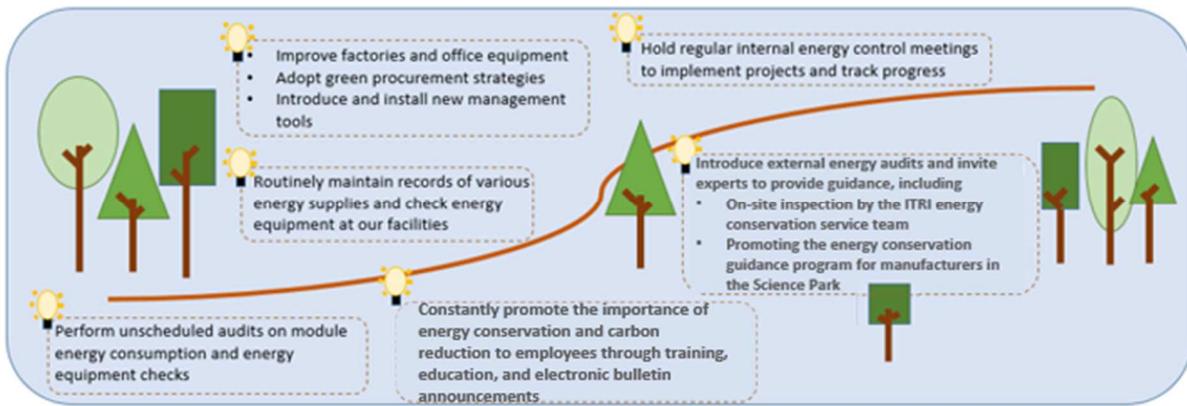
Market	Find new business opportunities	<ol style="list-style-type: none"> <li>1. Increase potential new applications.</li> <li>2. Find new business opportunities from suppliers to reduce the total carbon emissions of Macronix's supply chain.</li> </ol>	<p>Macronix is one of the leading manufacturers of non-volatile memory IC, especially in terms of quality and mastery of proprietary technology, which are conducive to the pursuit of emerging energy-saving and environmental protection applications and opportunities: Internet of Things (IoT), Bluetooth electronic applications, portable consumer electronics, assistive health care electronics, etc.</p>	<ol style="list-style-type: none"> <li>1. Increasing potential new customers.</li> <li>2. The customer's brand image is improved, and supply chain is in line with the goal of energy conservation and carbon reduction, which in turn enhances Macronix's competitiveness.</li> </ol>	Revenue growth from new operating models	Continue to communicate with international customers and attempt to cooperate in new solutions.	
Resource efficiency	Production process	<ol style="list-style-type: none"> <li>1. In line with the low-carbon trend of supply chain.</li> <li>2. Provide recyclable raw materials or develop new technologies.</li> </ol>	<p>In order to reduce the negative impact of the value chain on climate, Macronix actively adopts processes with higher efficiency in resource input, reduces waste generation, improves product yield, saves costs and shortens delivery time.</p>	<ol style="list-style-type: none"> <li>1. Reduce supply chain carbon emissions for customers.</li> <li>2. Meet customers' expectations for high-efficiency, high-quality, and low-carbon products.</li> </ol>	Improving resource efficiency can reduce operating costs	<ol style="list-style-type: none"> <li>1. PFC process optimization</li> <li>2. Reduction of exhaust from factories</li> <li>3. Adoption of PFC reduction equipment</li> <li>4. Reduce chemical use at source</li> <li>5. Process recipe engineering changes to speed up turnaround time (TAT) of production</li> </ol>	The Company's direct operating costs increase

## 6.2.2 Energy Management



Management Approach	Impacts	<ol style="list-style-type: none"> <li>1. Actual impact: Carefully use energy to reduce operating costs, increase the use ratio of renewable energy source to reduce the impact of traditional grey power to the environment, and comply with regulatory requirements</li> <li>2. Potential impact: Manage energy use to reduce the risk of production interruption, and increase the usage ratio of renewable energy to comply with the international trend of green supply chain</li> </ol>
	Medium and long-term development direction	Maintain an average annual energy conservation rate higher than 1%, increase the usage ratio of renewable energy source to become a sustainable green company
	Management method (Including Measures)	<ol style="list-style-type: none"> <li>1. Compile power consumption statistics on a quarterly basis</li> <li>2. Evaluate the feasibility of energy conservation measures on an annual basis</li> <li>3. Track the progress of the annual plan based on ESH's goals and targets</li> <li>4. Establish roof solar power generation equipment for self-use</li> <li>5. Procure renewable energy to improve the utilization rate of green power</li> </ol>
	Tracking the effectiveness of the actions	<p>External: Energy audits reports are submitted to the Energy Administration, Ministry of Economic Affairs</p> <p>Internal: ISO 14001 Manual/Procedure/Specifications/Records and energy-saving projects, regular tracking of energy consumption and energy saving performance by the Energy Service Group, regular tracking of carbon reduction performance by the Net-Zero Emission and renewable energy task force</p>
	2023 Implementation Results	The Company achieved an average annual energy savings rate of 1%
	Target in 2024	Company-wide annual energy conservation rate higher than 1%
	Future targets (Short, Medium and Long- Terms)	<p>Short-term: Company-wide annual energy conservation rate higher than 1%</p> <p>Medium and long-term: Achieve Net Zero Emission by 2050 in line with the Company's GHG reduction goals</p>

Macronix is dedicated to reducing energy use and consumption every year. We follow the instructions provided by the Energy Administration, Ministry of Economic Affairs each year to report our energy conservation audit system for energy users, as well as our energy use status from the previous year. Furthermore, we officially formed the Macronix “Energy Saving Service Group” in 2008 to carry out various energy conservation activities, implementing energy management in various aspects. Over the years, work activities in this domain have been as follows:



### Key Tasks of Macronix Energy Saving Service Group

In 2023, the total energy consumption reached 1,962,022 GJ, in which the power consumption from the grid hit 1,850,902 GJ, accounting for 98.8% of the total power consumption. Purchased renewable energy and self-generated photovoltaics for self-use amounted to 23,416 GJ, accounting for 1.2% of total power consumption. In response to newly added obligations for “Power Users Above a Certain Contract Capacity” under the Renewable Energy Development Act, Macronix soon established a renewable energy task force in 2019. The task force evaluated each project in terms of its renewable energy obligations and feasibility based on the conditions of the Company’s power consumption, and in 2020 reported suggested projects to senior management level. In 2021, Macronix completed the installation of rooftop solar photovoltaic equipment in the factory area, outsourcing of renewable energy and related certificate planning. In 2022, the Company started the installation of rooftop solar photovoltaic equipment and completed in the first half of 2023. The total capacity of the self-generated solar photovoltaics for self-use amounted about 430kW. The Company purchased over 6 million kWh of power generated from photovoltaics, and obtained a total of 6,229 T-RECs, fulfilling the renewable energy obligations required by national policies and regulations ahead of schedule. The Company will increase its utilization of renewable energy to 10 million kWh from 2024 onwards to keep abreast with the international trend of green supply chain.

Completion of solar photovoltaic generation equipment for self-use

<p>Activity Center</p>	<p>Fab 5 Parking Building</p>
	
<p>ENG Building of Employee Dormitory</p>	<p>TA Building of Employee Dormitory</p>
	

### Energy Consumption within Macronix

Item	2021		2022		2023	
	Consumption (GJ)	Percentage (%)	Consumption (GJ)	Percentage (%)	Consumption (GJ)	Percentage (%)
Purchased electricity (Taipower)	1,722,313	95.95	1,797,377	96.24	1,850,902	94.34
Natural gas	71,647	3.99	68,871	3.69	86,354	4.40
Renewable energy	0	0	0	0	23,416	1.19
Diesel fuel	489	0.03	824	0.04	843	0.04
Liquid Petroleum Gas(LPG) used in kitchens and dormitories	260	0.01	337	0.02	246	0.01
Amount of gasoline used	257	0.01	250	0.01	262	0.01
Total energy consumption (GJ)	1,794,967	100	1,867,660	100	1,962,022	100
Total Revenue (million NT\$)	50,573		43,487		27,624	
Energy intensity (GJ/million NT\$)	35		43		71	

Note: (1) Energy consumption unit: GJ ; (2) Data obtained from GHG inventory data, including the power consumption of subsidiaries' offices in the company headquarters. (3) The heating values used for calculations are based on the GHG emission factor management form.

Macronix has implemented various energy-saving projects over the past few years, including projects focusing on the chiller system, power system, and illumination equipment, all of which achieved significant results. The energy-saving strategy in 2023 mainly focuses on energy saving of air conditioners, chiller systems, and motors. A total of 22 energy-saving plans were implemented. The total energy savings recognized in 2023 reached 5,049,357 kWh (18,178 GJ), which is equivalent to a reduction of 2,499 metric tons of carbon dioxide equivalent emissions.

#### Macronix's Energy Conservation Measures in 2023

Energy Conservation Items	Energy conservation amount (kWh/year)	Carbon reduction (tonCO <sub>2</sub> e)	Energy conservation contribution ratio (%)
Air conditioner energy conservation (11 items)	2,358,085	1,167	46.70
Chiller energy conservation (1 items)	1,507,012	746	29.85
Motor energy conservation (2 items)	547,792	271	10.85
Cooling tower energy conservation (3 items)	449,526	223	8.90
Lighting energy conservation (4 items)	125,315	62	2.48
Equipment operating optimization (1 item)	61,628	31	1.22
<b>Total</b>	<b>5,049,357</b>	<b>2,499</b>	<b>100</b>

Note:

1. Data is obtained from the energy audit reports; the type of energy conserved in each item is electricity.
2. The amount of energy conserved is compared against the amount of energy consumed before improvements were made
3. Energy conservation contribution ratio = Number of kWh conserved for each item / Total number of kWh conserved

## 6.2.3 Climate Change Management

Management Approach	Impacts	<ol style="list-style-type: none"> <li>1. Actual impact: Green supply chain requires companies to plan and implement greenhouse gas reduction targets and measures, and the related response costs have begun to increase</li> <li>2. Potential impact: Climate Change Response Act came into effect, the country's 2050 net zero emissions target will be incorporated, and mechanisms such as carbon fee collection and voluntary reduction plans will be added, the future response costs may also rise</li> </ol>
	Short-term Development Direction	<ol style="list-style-type: none"> <li>1. Conduct inventory of the amount of Scope 3 emissions and evaluate the amount of value chain emissions</li> <li>2. Continue to encourage energy conservation and carbon reduction, and seek possible solutions</li> <li>3. Establish roof solar power generation equipment for self-use and purchase renewable energy to increase the use ratio of renewable energy</li> </ol>
	Medium and long-term development direction	<ol style="list-style-type: none"> <li>1. Continue to implement the process fluorinated gas reduction plan</li> <li>2. Minimize energy loss within the Company and reduce GHG emissions</li> <li>3. Produce or purchase renewable energy and certificates</li> </ol>
	Management method (Including Measures)	<ol style="list-style-type: none"> <li>1. Designate dedicated personnel to continuously track the changes in regulations and analyze possible impacts</li> <li>2. Greenhouse gas inventory and continuous tracking on an annual basis</li> <li>3. Implement energy saving projects on an annual basis</li> <li>4. Implement carbon reduction projects on an annual basis</li> <li>5. Organize a Net-Zero Emission and renewable energy task force and track progress and performance on a regular basis</li> <li>6. Increase the utilization rate of renewable energy</li> <li>7. Evaluate and secure reduction credits or carbon credits</li> </ol>
	Tracking the effectiveness of the actions	<p>External: Perform inventory registration and inspection in accordance with the requirements of Climate Change Response Act</p> <p>Internal: Organize the Net-Zero Emission and renewable energy task force to implement project management, comply with internal greenhouse gas related management standards, comply with ISO 14064-1, ISO 14064-2 and ISO 14001 management systems</p>
	2023 Implementation Results	<ol style="list-style-type: none"> <li>1. Annual target results: Greenhouse gas emissions in 2023 decreased by 4.5% compared with 2022</li> <li>2. Short-term target results: The performance in 2023 is 17,000 tons CO<sub>2</sub>e exceed than the target of review year 2025. It is expected that the target can be achieved in 2024 and 2025 with the implementation of reduction measures, including: the installation of fluorine gas abatement equipment, the enhancement of the utilization rate of green energy and the implementation of energy-saving measures.</li> </ol>
	Target in 2024	In comparison with the base year, the average annual

		emissions reduction rate is $\geq 1\%$
	Future targets (Short, Medium and Long- Terms)	Short-term: 20% reduction in 2025 compared to estimated emissions Medium and long-term: Achieve Net Zero Emission in Taiwan by 2050

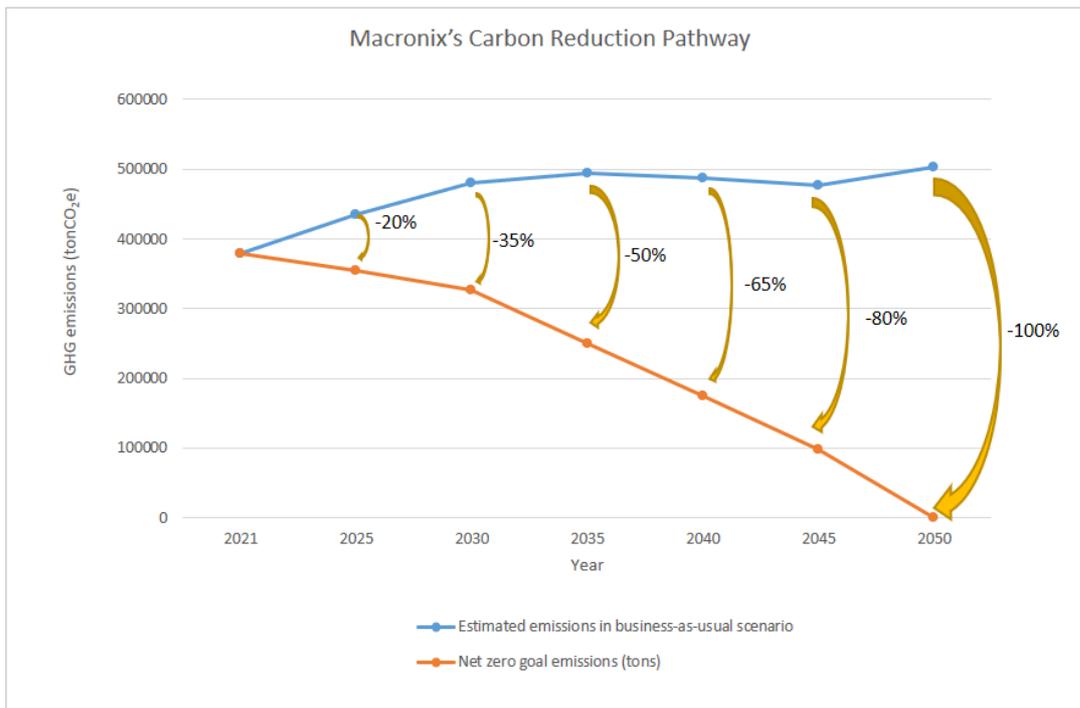
In response to the trend of GHG reductions control and reduction in the supply chain due to global warming, Macronix began planning for GHG emissions inventory, control, and reduction in 2000 and obtained the 2005 ISO 14064-1 GHG emissions verification statement in 2007.

We established the management organization to manage GHG according to ISO 14064-1 verification standards, as illustrated below. Through the complete management system, we performed thorough checks on the energy use conditions in our facilities and offices, and thereby established inventory records and internal procedures for GHG inventories. Therefore, we are able to use the information as a basis for selecting alternative production technologies with reduced energy consumption and GHG emissions in order to achieve our goal in this respect. Ozone-depleting substances (ODS) controlled by the Montreal Protocol are identified during the GHG inventory, but are not included in emissions according to regulations of the Ministry of Environment.

### Macronix Greenhouse Gases Management Organization Chart



In response to global climate change and carbon reduction trends and in line with the national goal of Net-Zero Emission by 2050, Macronix also planned a carbon reduction pathway in 2022, reviewed and approved the long-term carbon reduction goal of Net-Zero Emission by 2050, focusing on manufacturing process improvement, energy efficiency enhancement, increasing the use ratio of renewable energy, and planning for carbon credit acquisition. In addition, we also actively evaluate the participation in government-guided projects. In 2018, we participated in the Industrial Development Bureau’s “Low Carbon Technology Industrial Application Subsidy Project”, and completed the Fab 5’s project plan for the newly installed point of use (POU) GHG abatement equipment for the manufacturing machines. We applied to the Ministry of Environment for the registration of our GHG offset project in 2019. The project passed review of the Ministry of Environment at the end of 2020, and completed the first monitoring report and verification of the reduction quota in 2022. The Company filed the first application for reduction credits with the Ministry of the Environment in November 2023. It is estimated that there will be a reduction of more than 8,000 tons CO<sub>2</sub>e upon the application.



All of Macronix’s plants completed ISO 14604-1 Scope 1, 2, and 3 inventory and third-party verification in 2023. In accordance with the operation control method, Macronix calculated the 7 kinds of GHGs including CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub>. In response to the Ministry of the Environment's announcement of “Greenhouse Gas Emission Factors” on February 5, 2024, which became effective immediately, the Global Warming Potential (GWP), for the calculation of GHG emissions in 2023 is based on the IPCC AR5 version, while the GWP value for the calculation of emissions before 2022 is based on the IPCC AR4 version. As a result, the Company adjusted the base year for Scope 1 and Scope 2 to 2023. Information on the base year: total emissions were 375,001.280 tCO<sub>2</sub>e, with Scope 1 accounting for 32.1%, and Scope 2 accounting for 67.9%. In addition, we began to compile the data of indirect GHG emissions in addition to imported energy at the end of 2019 to provide a more complete GHG inventory and monitor GHG emissions of our value chains. The first verification in accordance with ISO 14064-1:2018 was conducted in 2021. The total indirect GHG emissions excluding imported energy reached 245,775.8993 tCO<sub>2</sub>e in 2023 (as the base year of Scope 3). Most indirect GHG emissions were generated from the products (including purchased goods and services) used by the organization and transportation. Since the value chain items covered by Scope 3 will be included in the inventory year by year according to the accuracy and availability of data, the base year of Scope 3 will vary with the addition of new calculation items.

**The inventory and assurance of GHG emissions of the parent company (Unit: tCO<sub>2</sub>e/year)**

Scope	2022				2023			
	Carbon emissions (tCO <sub>2</sub> e)	Percentage (%)		Intensity (tCO <sub>2</sub> e/revenue of NT\$ Million)	Carbon emissions (tCO <sub>2</sub> e)	Percentage (%)		Intensity (tCO <sub>2</sub> e/revenue of NT\$ Million)
		Scope 1 + 2	Scope 1 + 2 + 3			Scope 1 + 2	Scope 1 + 2 + 3	
Scope 1 – Direct emissions	135,818.8572	34.8	20.7	3.1	120,502.2254	32.1	19.4	4.4
Scope 2- Energy indirect emissions	254,129.1632	65.2	38.8	5.8	254,499.0547	67.9	41.0	9.2
Total	389,948.020	100	-	9.0	375,001.280	100	-	13.6
Scope 3- Other indirect emissions	264,671.7807	-	40.4	6.1	245,775.8993	-	39.6	8.9
Total of Scope 1, 2, and 3	654,619.801	-	100	15.1	620,777.179	-	100	22.5

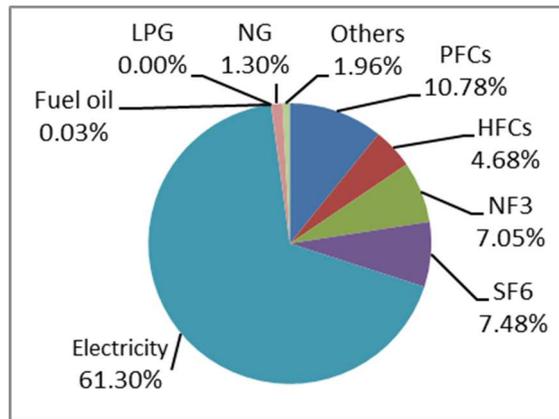
**Assurance body:** Bureau Veritas Certification (Taiwan) Co., Ltd. (BVC)

**Assurance description:** The total greenhouse gas emissions of Macronix in the past two years have been verified by the third-party institution Bureau Veritas Certification (Taiwan) Co., Ltd. (BVC), including the above Scopes 1, 2 and 3, of which 375,001.280 tCO<sub>2</sub>e (accounting for 100% of total emissions) has been verified by BVC in accordance with ISO 14064-3 standards. The assurance opinion of Scope 1 and Scope 2 are reasonable assurance. BVC provided level of Reasonable Assurance over Scope 3 GHG emissions for 2022 and Limited Assurance over Scope 3 GHG emissions for 2023.

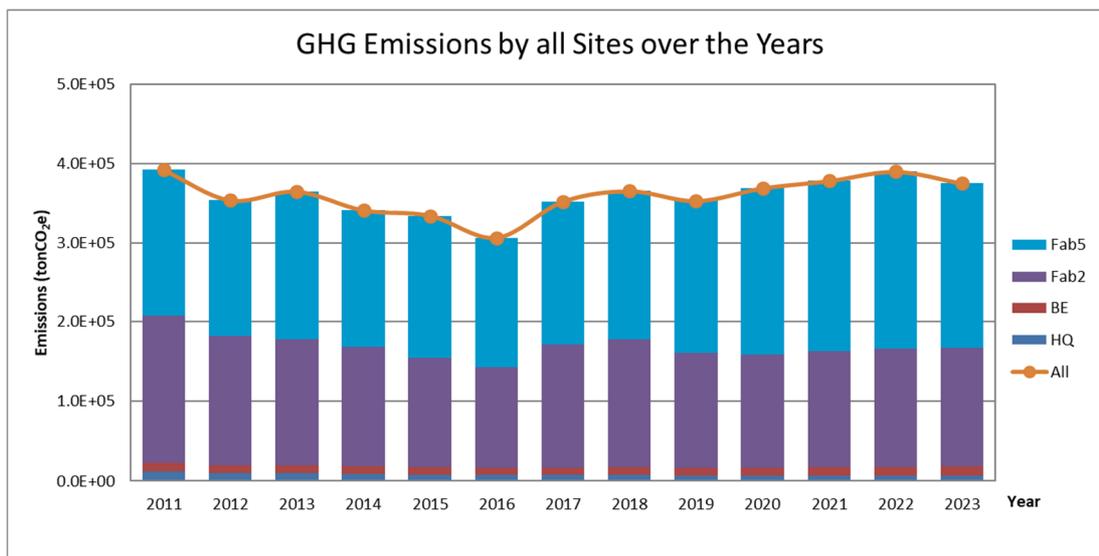
**PFC Emission Amount Over the Years**

(Unit: tCO<sub>2</sub>e/year)

Year	2021	2022	2023
Total	50,748	51,741	40,407



**Ratios of GHG Emissions by Source of Emission, 2023**



**Trend Chart of Greenhouse Gas Emission**

**6.3. Ecological Conservation and Biodiversity**



In order to implement ecosystem conservation concepts, Macronix has adopted the six-hectare Macronix Park from the Science Park Administration Bureau in 1999. Currently, there are more than 1000 trees within the Macronix’s plants and park area. In addition to adopting and maintaining the original tree species in the Macronix Park. More than 90 species of trees, including Taiwan golden-rain trees, cherry blossoms, deciduous trees, etc. have also been planted to increase the diversity of tree species.

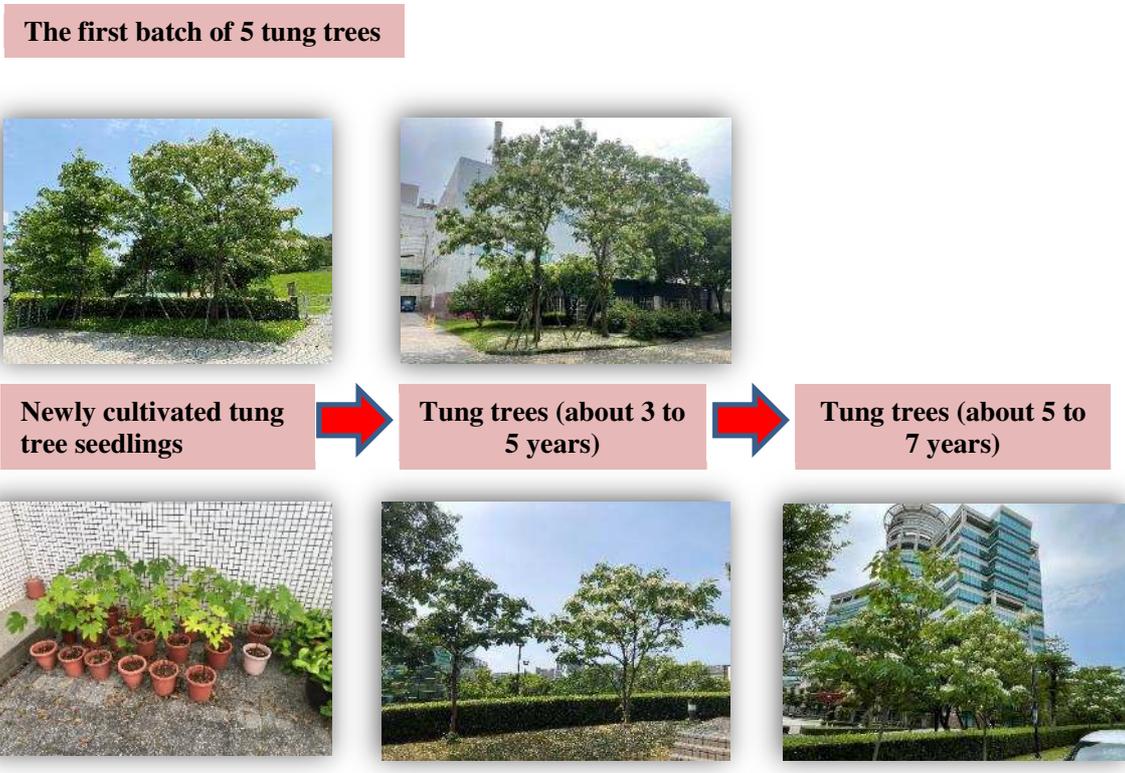


In addition, Macronix has planned an “Ecological Pond” through a Japanese-style wooden circular landscape to raise koi fish. Macronix also plants a variety of aquatic plants, such as lotus, ginger lilies, bulrush, iris, wax-plants, Britton’s Wild Petunias, Job’s tears, water lilies, yellow water lilies, narrow leaf water-plantains, etc. which display a completely different landscape each season. It also takes advantage of a good ecological environment to attract wildlife and insects to live in order to create a biodiverse aquatic and terrestrial ecosystem.

The landscapes of plant area and Macronix Park are watered with recycled rain water, which not only facilitates water conservation, but also serves as the best example for environmental protection. Ecological urban designs for the Macronix Park, such as 3D green designs, roof greens, multilayer planting, and ecological ponds demonstrate our utmost efforts to protect the ecosystem.



The cultivation of tung trees in the Macronix Park has always been one of our key projects. After transplanting 5 tung trees from outside 25 years ago, the newborn fruits are restored as tung tree seedlings every year and then transplanted to every corner of Macronix Park. After many years of efforts, there are now about 150 tung trees in 9 areas of the Macronix Park, and we will continue to cultivate new tung tree seedlings to diversify the Macronix Park.



Macronix Park is open to the public to enjoy during regular hours. It also becomes an ideal place for schools and environmental groups to hold ecological education events. Since 2004, Macronix Park has won the Award of Distinction for Green Beautification from the Hsinchu Science Park Bureau for many consecutive years. In addition, all Macronix plants are located inside the Science Park. All environmental protection work complies with local government regulations, internal corporate environmental policies and specifications to effectively conserve the ecological environment. Environmental awareness is raised to encourage everyone to fulfill their duties as global citizens.

## 6.4. Green Enterprises

### 6.4.1. Green Products

Following the rising awareness of green consumption and more and more strict environmental protection laws worldwide, we are not only reducing environmental pollution caused by our production processes, but also focusing on managing chemicals in product ingredients.

Currently, our green efforts include:

- ◆ Products are in compliance with EU Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment
- ◆ Products are in compliance with the European Union's requirements on Substances of Very High Concern (SVHC) and the End-of-Life Vehicles (ELVs)
- ◆ Green product certifications are obtained from internationally acclaimed customers such as Sony



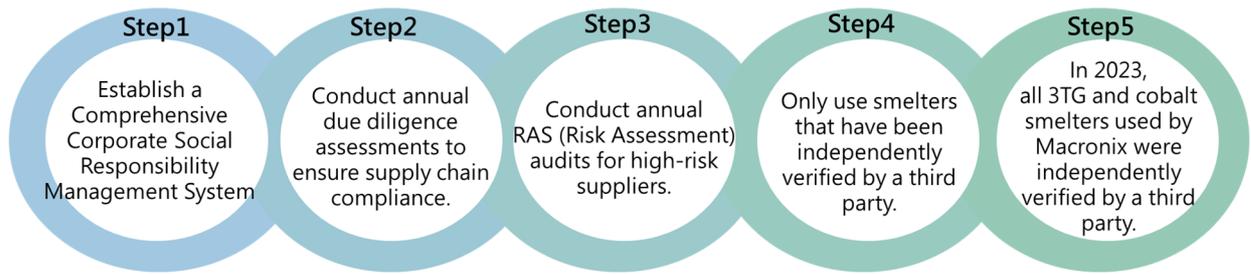
Macronix has been passing the IECQ QC 080000 Hazardous Substance Process Management System Certification annually since 2007 to ensure the effectiveness of its green product management. According to Principle 15 in the Rio Declaration on Environment and Development, “In order to protect the environment, the precautionary approach shall be widely applied by each country according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” Macronix has complied with regulatory requirements while managing green materials, and no environmental degradation has occurred due to material usage.

Macronix has developed a risk assessment of suppliers (RAS) system that integrates the quality management system and green product control system for supply chain management, to ensure that upstream and downstream suppliers comply with RoHS directives, the EU regulations on SVHC and ELVs, international laws, and customer requirements. Additionally, Macronix' products currently contain very few substances that are required to be disclosed based on the reporting threshold of certain reportable applications and reporting level of International Electrotechnical Commission (IEC) 62474 D27.00 Material Declaration for Products of and for the Electrotechnical Industry accordingly, The proportion of these substances in the total products is account for 7.6% of the annual revenue. In order to minimize the impact of the products on the environment, efforts have been made to find alternative materials for these disclosed substances.

### Conflict Minerals Management

As a key member of the electronic supply chain, Macronix has responded to the demand for global human rights protection by purchasing metals such as gold, tin, tungsten, tantalum (hereinafter referred to as “3TG”), and other minerals required by customers to be used in products only with good due diligence. We insist on not using 3TG minerals that come from conflict mineral areas. In the internal management process, we regularly review the changes in the list of approved smelters and refineries in the CMRT (Conflict Minerals Reporting Template), EMRT (Extend Minerals Reporting Template), and PRT (Pilot Report Template), which are updated at least every six months or when necessary. We perform supplier due diligence on conflict minerals with reference to the framework of the "Organization for Economic Cooperation and Development (OECD) Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas". If supply chain members have any questions about Macronix responsible minerals template, they can contact [pubcsr@mxic.com.tw](mailto:pubcsr@mxic.com.tw).

## Due Diligence Procedures for Suppliers of Conflict Minerals



### 6.4.2. Green Procurement and Environment, Safety, and Health Costs

#### Accounting Management System



Macronix actively complies with the international environmental protection trend and government policies by purchasing products or services with domestic and foreign “green mark”, “energy-saving”, “water-saving” labels, carbon-reduction labels and renewable energy to fulfill its corporate social responsibility and receives recognition and commendation from the authorities.

To keep up with international trend, to fulfill our environmental and social responsibilities, and also to raise the effectiveness of our investments in the environment, worker safety, and health management, Macronix has implemented an environmental, safety, and health costs accounting (ECA) management system under the commitment and support of high-level executives since 2005.

Macronix’s environmental, safety, and health costs accounting (ECA) management system incorporates the investment costs and benefits of environmental safety and health as a whole. Through the system operation management, it provides supervisors, employees, and personnel from the industrial safety/environmental protection departments the understanding of both past and current operating conditions of environmental safety and health and can provide planning for future tasks and goals.

The environmental, safety, health and management expenditures and total investment of Macronix amounted to approximately NT\$570 million in 2023, and there were no losses resulting from EHS violations. Details are shown in the table below:

Item	Description	2023 Expenses (NT\$)
Outsourcing (services)	Outsourcing expenses for environmental protection, safety, and health management, such as environment maintenance fees, sterilization, waste cleaning, and wastewater treatment	101,690,782
Personnel	Personnel expenses for environmental protection, safety, and health management	59,661,720
Energy	Water, electricity, and fuel expenses for pollution prevention facilities	240,504,380
Commission and Research	Operations, projects or research expenses for improving environmental protection, safety, and health management performance	3,606,700
Education and Training	Expenses for participating in or organizing environmental protection, safety, and health education and training	1,071,173
Administrative Management	Administrative management expenses for environmental protection, safety, and health management	1,297,057
Equipment and Engineering Investment	Investments in purchasing environmental protection, safety, and health equipment or expenses for improvements	12,570,791
Maintenance and Consumables	Expenses for the maintenance of environmental protection, safety, and health facilities, replacement of consumable parts, and waste storage containers	75,026,085
Equipment Depreciation	Depreciation expense of all the environmental, safety, and health equipment	66,007,881
Testing	Outsourced testing and instrument calibration expenses	5,624,907
Other	Other environmental protection, safety, and health management expenses that are not categorized	0
Loss Compensation	Compensation for losses sustained during environmental protection, safety, and health accidents, fines for violation of the law, and losses from returned goods that do not comply with international environmental protection regulations	0
Total		567,061,476

## 7. Social Dimension

**Warmth, happiness, and growth are the vision of Macronix human resource management.**

In Macronix, a family like enterprise, we provide our staff with the care and attention that any other family would. With empathy, we respect, understand, and care for the work and life of our staff and extend this caring to their families. This makes employees treat each other with mutual trust and cooperation. Following the philosophy of humane leadership, we provide staff with high flexibility and autonomy at work and continuously encourage staff to actively make valuable innovative solutions to our nonvolatile memory solutions. Therefore, the firm has been able to present top technical papers at the International Electron Devices Meeting (IEDM), VLSI Symposia, International Microwave Workshop (IMW), and International Solid-State Circuits Conference (ISSCC), receiving worldwide attention to its progressive R&D outcomes. Macronix believes in respecting individual diversity and adopting an open-door policy to create an atmosphere of open and transparent communication. We routinely hold management communication meetings, conduct labor/management conferences, and set up staff suggestion boxes in order to provide a platform to encourage our staff to communicate, express their ideas, and share their voices. Macronix established the “Macronix CSR Policy” and “Macronix Human Rights Policy” based on requirements on human rights protection set forth in the Universal Declaration of Human Rights, ILO International Labor Standards, SA8000, and RBA CoC. We devote our utmost efforts to create a superior human resource management system and labor system with perfect planning and execution abilities, to comply fully not only with local labor laws and regulations, but also with CSR specifications to protect human rights.

### **Corporate Social Responsibility**

Macronix's first issue of Corporate Social Responsibility (CSR) Policy was approved in 2008 by the president of the Company and published on the Company's electronic bulletin board. Besides, Macronix's Human Rights Policy and measures are announced on the website. All of our new employees are required to undergo SA8000 and RBA CoC training.

The CSR Policy\* implemented by Macronix comprises the following:

We uphold labor rights, respect human rights, provide a safe, healthy, and amiable working environment, conservatively use the natural resources, promote science education, encourage innovative research and development, protect shareholders' rights, actively contribute to society, and persist in sustainable management.

- (1) Fully comply with national laws or regulations, the agreed customer requirements, and the applicable social responsibility requirements that subscribes.
- (2) Prohibit child employment, nor engaging in involuntary labors.
- (3) Conduct the due diligence on our suppliers/subcontractors, including service provider.
- (4) Provide our employees a safe, healthy, and amiable working environment.
- (5) Respect the freedom of collective bargaining, association, and peaceful assembly, and do not allow any discrimination on racial difference, religious belief, and gender, etc.
- (6) Esteem our employees, and do not allow ruthless punishment measures.

(7) Operate honestly, ethically and refuse any means of improper advantage violate business integrity.

(8) Comply with the Responsible Business Alliance Code of Conduct (RBA CoC), and continue improving through the management system.

\* : This version was revised on March 30, 2018

### **Corporate Social Responsibility Organization**

Macronix's corporate social responsibility organization is led by the “Environment Safety and Health Center”, which is responsible for and promotes related works. The President of Macronix is in charge of matters related to the Environment Safety and Health Center, with the support of the deputy chairman, and the committee members, i.e. representatives of the Company's various departments to implement the commitment to continuously promote and enhance corporate social responsibility, and to ensure the effective operation of the corporate social responsibility.

Given that “Fun at Work” is good for productivity, Macronix provides competitive compensation packages, a people-oriented management system, top recreation and leisure infrastructure, and diverse and meaningful extracurricular activities, hoping to build a quality working environment to motivate staff and make them enjoy working. These measures also help staff nurture active and positive work values, broaden their horizons, spark their passions, and showcase their strengths, so that they can find happiness, morals, self-confidence, satisfaction, and pride in the work they do.

Talent is the foundation and the most valuable asset of the corporation. Hence the Company established a comprehensive training system and provides well-structured and constant training plans. This system accommodates different learning paths, competencies, and career ladder structure to provide staff with individual development plan. To achieve continuous growth for the Company and its staff, Macronix has various types of training programs that are in line with corporate strategies and organizational development. The programs adopt innovative and diverse teaching methods to enhance staff's knowledge, skills, and capabilities that will strengthen the Company's competitiveness.

We believe that a comfortable working and learning environment will bring out additional growth potential and renewed energy for our staff, which is the prime motivation for success. For this reason, Macronix works hard to build a work environment that allows staff to enjoy physical, psychological, and spiritual health. The Company values caring for its staff through its management system, and ensures that measures are properly implemented through internal and external audits. We also have improved the workplace environment and increased harmony between the staff and the management team in order to build a warm, happy, and growing family.

## 7. 1 Staff Respect



### 7.1.1 Recruitment

Macronix has always regarded “talent” as an important asset of the Company, and it is also the key to Macronix's continuous innovation and growth, as well as the core of maintaining corporate competitiveness. Therefore, Macronix adheres to the principles of “fair employment opportunity” and “reality” in recruitment and selection process. Macronix also emphasizes basic competency assessment (language and logic ability), professional and technical assessment and communication ability.

In addition, though multiple recruitment channels to contact and recruit talents to join, including job bank recruitment websites, R&D substitute service projects, and internal employee referrals and/or transfers, as well as in-depth campus management of orientation sessions and provide students with the opportunities of career exploration visits and internships to recruit potential talents.

Management Approach	Impacts	Provide quality job opportunities and formulate appropriate recruitment strategies to recruit outstanding talents.
	Medium and long-term development direction	Build a top employer brand, focus on talent development, and continuously attract outstanding talents to join.
	Management method (Including Measures)	<ol style="list-style-type: none"> <li>1. Develop a complete recruitment strategy based on the Company's annual business direction</li> <li>2. Carry out governmental and college and university job fairs/presentations</li> <li>3. Job banks, official recruitment website, and expert social media sites, etc.</li> <li>4. R&amp;D substitute service projects</li> <li>5. Industrial/academic cooperation projects</li> <li>6. Provide a comprehensive staff referral and internal transfer system</li> </ol>
	Tracking the effectiveness of the actions	<ol style="list-style-type: none"> <li>1. Regularly review the progress and results of recruitment projects</li> <li>2. Regularly review the job contents of job banks and the official recruitment website to ensure that they are up-to-date</li> <li>3. Regularly conduct salary surveys to ensure the overall competitiveness of the salary</li> </ol>
	2023 Implementation Results	<ol style="list-style-type: none"> <li>1. Organized campus orientation sessions and job fairs in universities and colleges to actively recruit talents</li> <li>2. Provided internship opportunities and tailor-made internship programs for students and postgraduates to encourage students to be innovative and cultivate their independent thinking skills, as well as provided pre-employment opportunities for qualified interns and reserved talents for recruiting units</li> <li>3. Successfully fulfilled the manpower needs of various units</li> <li>4. Achieved the Company's production plan and R&amp;D project manpower needs on talent deployment to ensure the timely availability of manpower</li> </ol>
	Targets in 2024	Plan and provide adequate quality and quantity of manpower according to the actual needs of R&D, manufacturing and sales.
	Future targets (Short, Medium, and Long Terms)	<ol style="list-style-type: none"> <li>1. Continue to develop diversified recruitment channels to recruit talents from various parties</li> <li>2. Continuing to develop industrial/academic cooperation and work with colleges and universities to cultivate semiconductor talents</li> <li>3. Continue to build a good employee orientation experience, deepen the sense of identity of new employees, and increase the retention rate</li> </ol>

		4. Maintain and build a good employer brand image to attract potential talents to join Macronix
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### Equal Opportunity

Macronix provides equal employment opportunities, and is against discrimination and child labor and non-compulsory labor and agrees with the requirements of international customers to not employ modern slavery. This is the core value of our happy enterprise philosophy. We aim to provide fair promotion, equal employment, and forbid discrimination and harassment in the workplace. This principle of equal opportunity is the root of Macronix’s corporate value. At Macronix, employment, work assignment, and promotion are based on individual abilities and job requirements, and are not affected by age, birthplace, race, skin color, gender, sexual preference, language, religion, disability, political ideology, nationality, social status, financial status, family background, or any other status.

### Prohibition of Child Labor

Macronix prohibits child labor and stipulates in its internal regulations that workers under the age of 16 may not be hired. The ID documents of new employees are inspected when they report for work; the Juvenile and Child Labor Remediation Procedure (OI1080-0103) were established to investigate, handle, and remedy situations when child labor is hired by accident.

### Workforce Structure

As of the end of 2023, the total number of employees at Macronix was 3,836, including 3,805 official employees and 31 part-time employees(28 employees worked less than full-time hours per week or per month). A total of 14 employees were sent to work overseas, and the rest were based in Taiwan. Employees between the ages of 30-50 who have a wealth of specialized knowledge and experience are the Company’s backbone, and account for 55% of all regular employees. The workforce structure is detailed in the table on the left and the table below:

### Workforce Structure of \* Regular Employees

Category	Sub-category	Male		Female		Subtotal and percentage of sub-categories	
		Headcount (A)	Percentage of sub-category (A/C)	Headcount (B)	Percentage of sub-category (B/C)	Subtotal (C)	Percentage of regular employees (C/Total number of employees)
Position	Executives*	555	84%	109	16%	664	17%
	Non-executives	1,787	57%	1,354	43%	3,141	83%
Age	Under 30	696	72%	269	28%	965	25%
	30-50	1,213	58%	883	42%	2,096	55%
	Above 50	433	58%	311	42%	744	20%
Nationality	Taiwanese Citizen	2,214	63%	1,280	37%	3,494	92%
	Foreigner	128	41%	183	59%	311	8%
Type of staff	Direct Employee	444	32%	942	68%	1,386	36%
	Indirect Employee	1,898	78%	521	22%	2,419	64%

Work Location	Local	2,331	61%	1,460	39%	3,791	99.6%
	Offshore	11	79%	3	21%	14	0.4%
Subtotal by Gender		2,342	62%	1,463	38%	3,805	100%
Total Number of Employees						3,805	100%

\* Regular employees: Non-fixed term contractor or specific fixed-term contractor with a term of one year or longer

\* Executives: Managerial officers

### Workforce Structure of \* Temporary Employees

Category	Sub-category	Male		Female		Subtotal and percentage of sub-categories	
		Headcount (A)	Percentage of sub-category (A/C)	Headcount (B)	Percentage of sub-category (B/C)	Subtotal (C)	Percentage of temporary employees (C/Total number of employees)
Age	Under 30	12	80%	3	20%	15	48%
	30-50	5	38%	8	62%	13	42%
	Above 50	0	0%	3	100%	3	10%
Subtotal by Gender		17	55%	14	45%	31	100%
Total Number of Employees						31	100%

\* Temporary employee: Fixed-term contractor (does not include specific fixed-term contractor with a term of one year or longer)

### Headcount of On-site Contractors

As of end of 2023, the headcount of on-site contractors of Macronix was 225, including cleaning, security, food, transportation and other services. For details of the workforce structure, please refer to the following table:

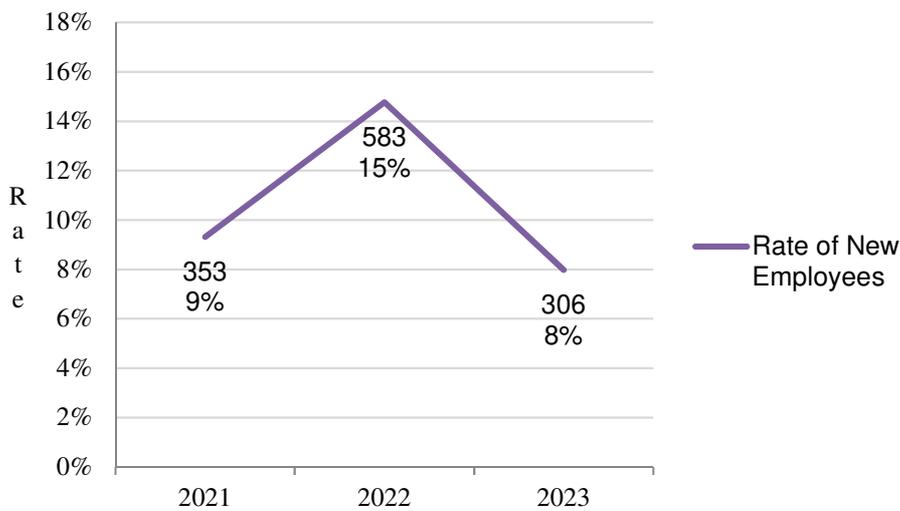
Male		Female		Subtotal and percentage	
Headcount (A)	Percentage of sub-category (A/C)	Headcount (B)	Percentage of sub-category (B/C)	Subtotal (C)	Percentage ((A + B)/C)
110	49%	115	51%	225	100%

\* The headcount of on-site contractors in 2022 was the average headcount for 12 months. The calculation method of the headcount of on-site contractors in 2023 was adjusted to be consistent with that of the number of employees to count the number of employees as of December 31, 2023.

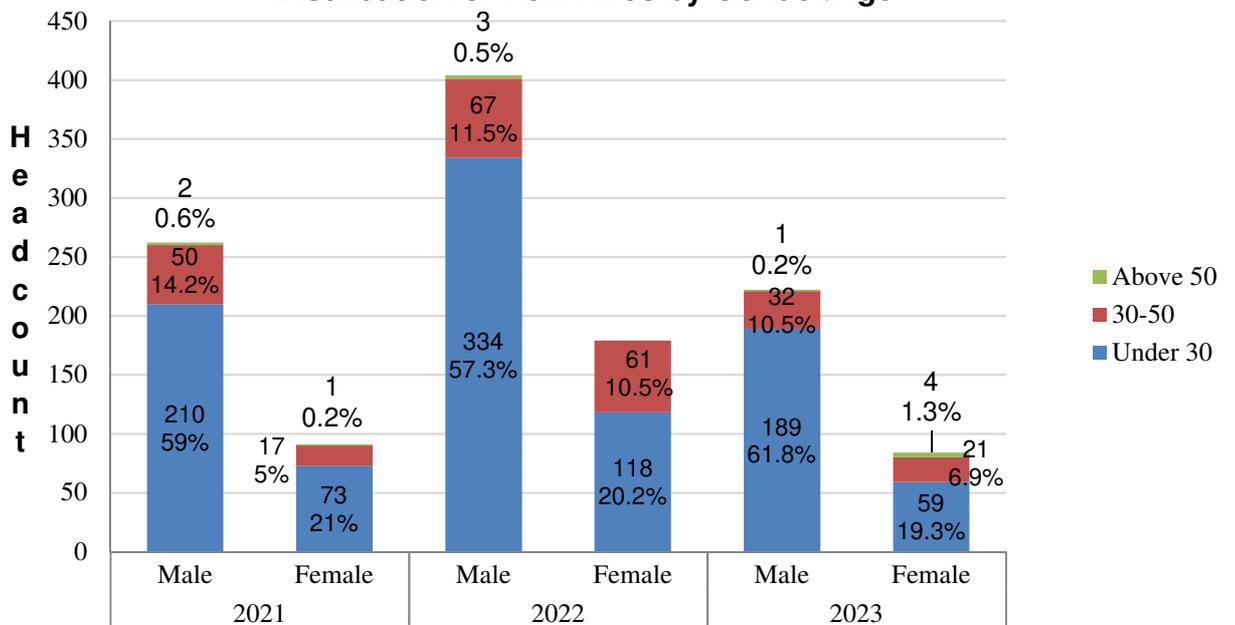
## New Employees

To attract outstanding talent and increase our competitiveness, we implement a multi-channel recruitment project, including visits, recommendations from internal employees, campus job fairs, alternative civilian service (research and development substitute services), and industry-academia collaboration. As of the end of 2023, we had hired 306 new employees (222 male and 84 female), accounting for 8% of all employees. The majority of new employees were under the age of 30 (189 male and 59 female), accounting for 81% of new employees.

### The Number and Rate of New Employees

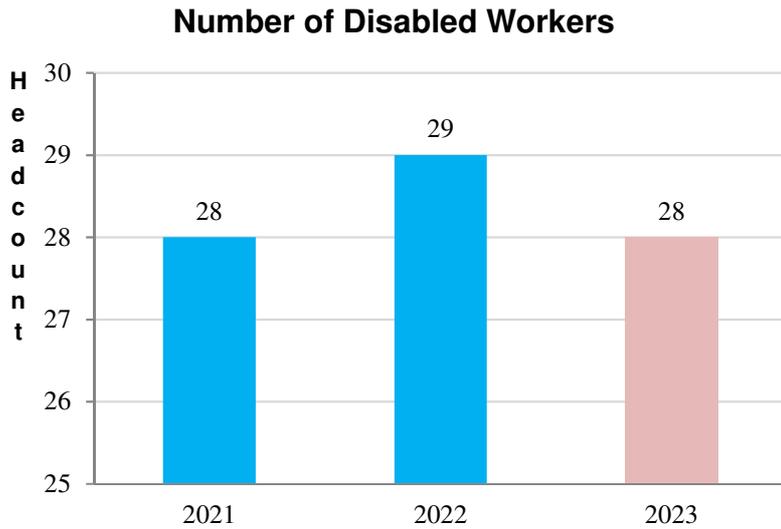


### Distribution of New Hires by Gender/Age



## Hiring Employees with Physical and Mental Disabilities

We respect the working rights of people with disabilities and firmly adhere to the related regulations. Macronix has employed 38 individuals with disabilities in accordance with Article 38 of the People with Disabilities Rights Protection Act (PDRPA), including instances where a person with severe or extremely severe disabilities has been hired, which counts as two individuals with disabilities. As of the end of 2023, we have hired 28 employees with physical and mental disabilities (16 of which are severely disabled), thus reaching the quota of individuals with disabilities that should be hired as stipulated by the PDRPA.



## Turnover Rate

In 2023, 406 regular employees (222 male and 184 female) resigned from their positions at the Company; turnover rates over the years are shown in the following table.

### Distribution of Employees Who Resigned Over the Years (by Gender)

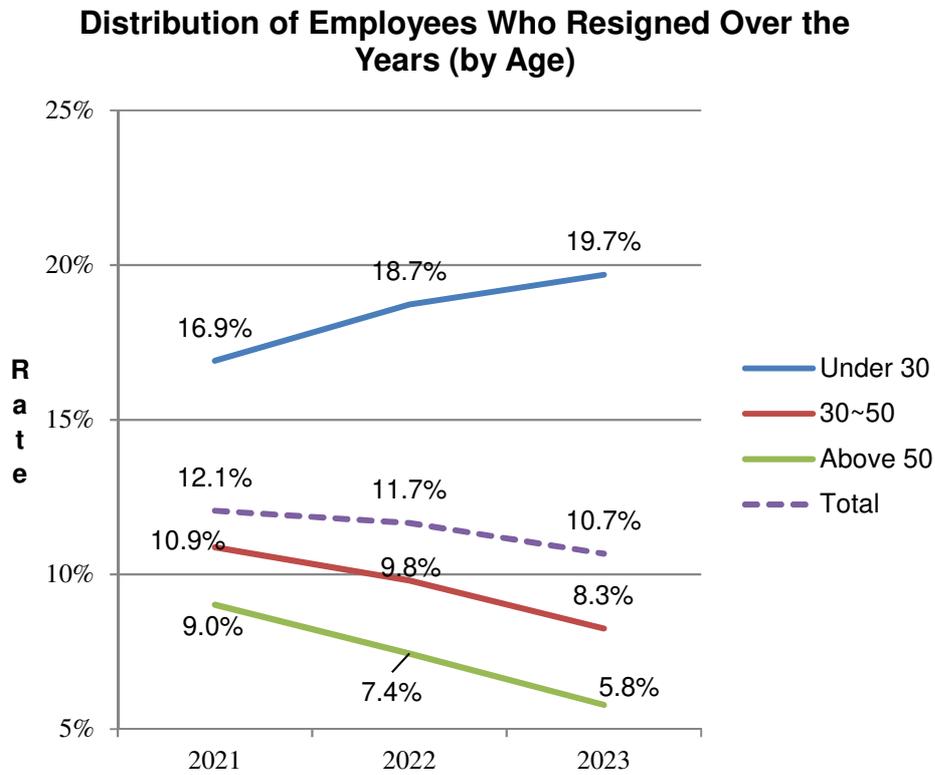
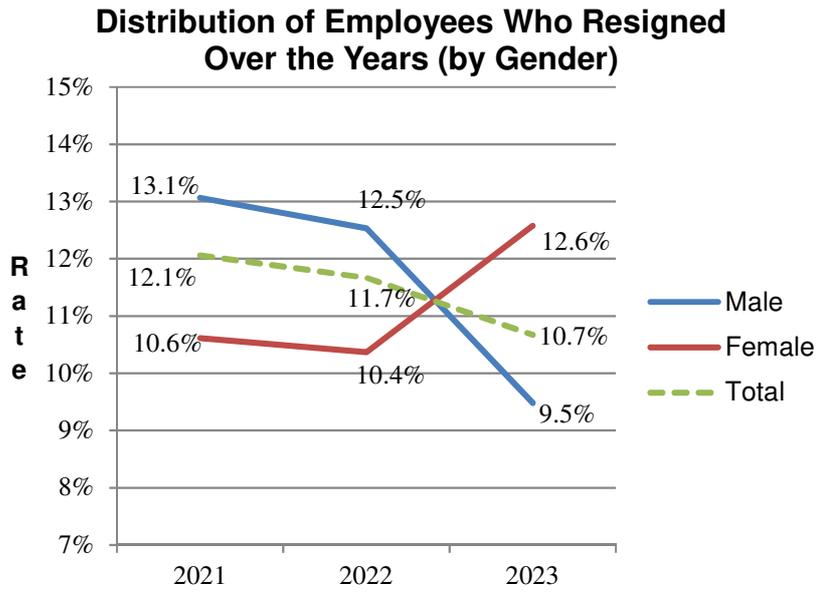
Year	Male		Female		Total Number of Employees	
	Headcount	Percentage	Headcount	Percentage	Headcount	Percentage
2021	292	13.1%	165	10.6%	457	12.1%
2022	295	12.5%	163	10.4%	458	11.7%
2023	222	9.5%	184	12.6%	406	10.7%

\* Turnover rate = Number of employees of each gender who resigned on the said year / Total number of employees of the said gender

### Distribution of Employees Who Resigned Over the Years (by Age)

Year	Under 30		30-50		Above 50		Total number of employees and rate	
	Headcount	Percentage	Headcount	Percentage	Headcount	Percentage	Headcount	Percentage
2021	152	16.9%	259	10.9%	46	9.0%	457	12.1%
2022	184	18.7%	228	9.8%	46	7.4%	458	11.7%
2023	190	19.7%	173	8.3%	43	5.8%	406	10.7%

\* Turnover rate = Number of employees in each age group who resigned on the said year / Total number of employees in the said age group



## 7.1.2 Upholding Employee Rights

At Macronix, our hiring and employment, job assignments, and promotion practices are based on an individual’s abilities and potential, and we do not discriminate against any worker based on age, birthplace, race, skin color, gender, sexual orientation, language, religion, disability, political ideology, nationality, social status, financial status, family background, or any other status. We continue to make revisions to support employment for people with disabilities and endeavor to prevent prejudice, discrimination, and harassment.

Since Macronix was founded in 1989, the Company has maintained good relationships between labor and employees from the outset management, and has never experienced loss of business due to labor/management disputes. There were no material operation changes that affect labor rights in 2023. If there are any material operation changes that require employees to be notified in advance, we will provide a notice in accordance with the law.

Management Approach	Impacts	Safeguarding employees’ rights and interests and ensuring the protection of human rights
	Medium and long-term development direction	We devote our utmost efforts to create a superior human resource management system and labor system with perfect planning and execution abilities, to comply fully not only with local labor laws and regulations, but also with CSR specifications to protect human rights.
	Management method (Including Measures)	<ol style="list-style-type: none"> <li>1. Annual compulsory courses</li> <li>2. Macronix’s CSR Policy expressly states that we shall esteem our employees, and do not allow ruthless punishment measures, and do not allow any discrimination on racial difference, religious belief, and gender, etc.</li> <li>3. Website announcement of Macronix’s principle of equal human resources opportunities</li> <li>4. Regularly announce and reiterate the “Sexual Harassment Management Regulations” and complaint channels</li> <li>5. High-risk departments undergo workplace violence risk assessment operations</li> </ol>
	Tracking the effectiveness of the actions	<ol style="list-style-type: none"> <li>1. Investigation and handling procedures according to the “No Topic is Off Limits” suggestion box and reporting hotline management regulations</li> <li>2. Investigation and handling procedures according to “Macronix Workplace Violence Risk Assessment and Prevention Plan”</li> <li>3. Investigation and handling procedures according to the “Sexual Harassment Management Regulations”</li> </ol>
	2023 Implementation Results	Macronix did not receive any complaints or experienced any incidents where the rights of local staff or aboriginals were infringed. There were no material operation changes that affect labor rights.
	Future targets (Short, Medium, and Long Terms)	<ol style="list-style-type: none"> <li>1. It is forbidden for all departments to engage in forced, threatening, humiliating or exploitative act, including posture, verbal and physical contact.</li> <li>2. In matters such as hiring, compensation, training opportunities, promotion, termination, or retirement, there shall be no discrimination or support for discriminatory acts based on race, ethnicity, ancestry, social class, nationality, birthplace, religion, disability, gender, sexual orientation, family responsibilities, marital status, union membership, political affiliation, pregnancy, protected genetic information, or any other discriminatory factors.</li> </ol>

If there is any change in the relevant provisions of the working rules of Macronix, it will be discussed in the labor/management conferences and announced after amendment, which is applicable to all employees of the company.

## Gender Equality and Diversity

At Macronix, employment, work assignment, and promotion are based on individual abilities and potential, and are not affected by age, birthplace, race, skin color, gender, sexual preference, language, religion, physical or mental disability, political ideology, nationality, social status, financial status, family background, or any other status.

We value the diversity of our workforce and hire employees with physical and mental disabilities. Macronix did not receive any complaints or experienced any incidents where the rights of local staff or aboriginals were infringed in 2023.

### Employee Nationality Indicator

Category Percentage	Taiwanese Citizen	Foreigner
Headcount	3,494	311
Percentage of regular employees	92%	8%

### Female Diversity Indicator

Category Percentage	Regular Employees	Management	New Employees
Headcount	1,463	109	84
Percentage of females in the category	38%	16%	27.5%

### Age Diversity Indicator

Range Year	Under 30	30-50	Above 50
Headcount	965	2,096	744
Percentage of regular employees	25%	55%	20%

## Employment Transfers

Macronix respects individual work rights and complies with related laws and regulations, including Article 10-1 of the Labor Standards Act: When transferring an employee, an employer shall not violate the provisions of labor contract and shall also satisfy the following principles:

1. The employee shall be transferred based on the needs of business operations and without improper motives or purposes.
2. The wages and other working conditions shall not be changed to be unfavorable to the employee concerned.

3. The employee shall still be able to satisfactorily perform the duties required in terms of physical ability and skills after the transfer.

4. The employer shall provide necessary assistance if the relocated workplace is too far away for the employee concerned.5. The livelihood interests of the employee and his or her family shall be considered.

### **Prohibition of Forced Labor**

Macronix does not force or threaten any unwilling persons to provide labor services, and ensures that all work is performed voluntarily. We do not force workers or engage in the hiring of slaves, forced or imprisoned workers, or bonded labor.

All employees have freedom of movement and dormitories do not have a curfew. We do not seize employees' ID documents, passbooks, seals, passports, or work permits, and we enforce the policy of zero charges on foreign workers. Employees have the freedom to terminate their labor contract as long as they comply with laws and regulations.

## **Pension Plan**

Macronix has set up its retirement policies according to the related regulations in the Labor Standards Act. We have established the Pension Supervisory Commission to supervise and manage pension reserve funds, appropriation calculation, and management and operations of other pension-related issues. The Company appropriates the pension reserve funds according to the regulations of the Labor Pension Act. We invite professional accountants and consultants to conduct the actuarial valuation of the Company's pension funds each year, in order to ensure sufficient funding for future employee pension payments.

### ◆ Pension Contribution Under the Labor Standard Act:

Macronix appropriates 2% of the total monthly wages of our employees, and deposits it to a designated account for pension reserve funds in the Bank of Taiwan every month. As of the end of 2023, the fair value of assets was NT\$1,250,659 thousand. Expenses recognized in 2023 were NT\$18,688 thousand and net defined benefit liability is listed at NT\$1,240,796 thousand as of the end of 2023.

### ◆ Pension Contribution Under the Labor Pension Act:

For those who are eligible for the new pension system, Macronix will contribute 6% of their labor pension level to the individual pension account of employees every month, and employees may also choose to contribute 6% of their pension to the individual pension account at his or her own will. The amount of expenses recognized in 2023 was NT \$221,118 thousand.

Note: This report references the reporting recommendations in GRI 201-3, and uses the same consolidation method for preparing financial statements.

## Open Communication Environment

We respect individual diversity and have adopted an open-door policy to create an atmosphere of open and transparent communication. We regularly hold meetings based on open communication, including: new employee orientation, departmental staff meetings, staff conferences, and labor/management meetings (the opinions of all employees can be expressed by labor representatives) in order to provide a clear channel of communication that ensures that everyone's voice is heard. The "No Topic is Off Limits" suggestion box is provided for employee to communicate and express their opinions. Employees can make inquiries, suggestions, and complaints through the suggestion box. All letters is kept confidential, and follow-up of the progress and results of improvement ensures harmonious communication between employees and the Company. We also provide communication and sharing platforms, including a bulletin board and the "Our Family" Employee Relations Website, which allows us to timely understand the needs and issues that employees are facing in real life, so as to positively guide and encourage staff and maintain a strong labor/management relationship.



### 7.1.3 Salary and Welfare Systems

#### Competitive Compensation Package

First-class talent, first-class treatment. Employees are the most important assets of Macronix. To attract, motivate, and retain the best talent, we provide attractive and highly competitive compensation packages according to the importance and complexity of the job, without prejudice in terms of political ideology, gender, marital status, or any such differences. Bonuses are distributed according to individual performance. Based on the idea of sharing profit, when yearly final accounts indicate a surplus, we also distribute annual bonuses based on regulations from the Company's Articles of Incorporation and each employee's individual performance.

#### Non-Managerial Full-Time Employee Salary Information in 2023

Item/Year	2022	2023	Compared with the previous year
Number of full-time employees	3,608 Person(s)	3,579 Person(s)	-0.80%
Total salary of full-time employees	NT\$6,237,248 thousand	NT\$4,946,600 thousand	-20.69%
Average salary of full-time employees	NT\$1,729 thousand	NT\$1,382 thousand	-20.07%
Median salary of full-time employees	NT\$1,281 thousand	NT\$1,173 thousand	-8.43%

#### Overall Gender Pay Ratio in 2023

Type of staff	Position	Male	Female
Direct Employee	Executives	1	1.19
	Non-executives	1	1.20
Indirect Employee	Executives	1	0.85
	Non-executives	1	0.91

Note 1: The number of employees is based on those in service throughout 2023 (excluding managers).

Note 2: The overall pay includes regular salary, three-festival bonus, and employee remuneration received in 2023.

## Welfare Benefits

In addition to providing leaves for full-time employees as well as labor insurance and national health insurance coverage, Macronix also offers relevant welfare measures which are described in the following table.

Welfare Benefits	Description	Proactive Measures
Leave Programs	Various types of leave are granted according to laws and regulations such as: Parental leave, parental employee time adjustment, family-care leave, paternity leave, and menstrual leave.	<ul style="list-style-type: none"> <li>✓ Flexible Leave</li> <li>✓ Accompanying Miscarriage Leave</li> </ul>
Insurance Plans	As required by law, we provide labor insurance, national health insurance, and group insurance (life /accident/cancer/medical treatment) coverage for our employees, as well as travel insurance for business-related travel abroad. We not only provide basic protection, but also allow employees to raise their insurance premiums and include dependents in the insurance policy at their own expense, depending on their needs; this is aimed to provide employees' families with an extra protection and care.	<ul style="list-style-type: none"> <li>✓ Dependent Enrollment at Own Expense</li> </ul>
Welfare Subsidies	We provide subsidies for childbirth, marriages, funerals, emergencies, injuries, hospitalization, and extracurricular cultural activities.	<ul style="list-style-type: none"> <li>✓ Encouraging Extracurricular Activities</li> </ul>
Welfare Facilities	Employee dormitory, parking lot, restaurants, recreation and fitness center, green park, convenience stores, coffee shops, breastfeeding room, and healthcare room.	<ul style="list-style-type: none"> <li>✓ Recreation and Fitness Center Exclusive for employees</li> </ul>
Pension Plans	Our pension fund payment and contributions fully comply with related regulations. In recognition of an employee's contribution and hard work, we also bestow medals to retired employees.	<ul style="list-style-type: none"> <li>✓ Assistance with Reemployment After Retirement</li> </ul>
Staff Welfare	We established the Staff Welfare Committee in accordance with laws and regulations, and	<ul style="list-style-type: none"> <li>✓ Designated Unit</li> </ul>

<b>Committee</b>	systematically promote various employee welfare measures.	
<b>Employees Counseling and Services</b>	We provide free psychological consultation and guidance services, regular health examinations, and post-health examination consultation services.	<ul style="list-style-type: none"> <li>✓ 24-hour 0800 Service Hotline</li> <li>✓ Free Psychological Consultation</li> </ul>

## Macronix Family Day in 2023 for a Warm Gathering

Macronix family day was held again after 3 years due to the pandemic outbreak, inviting employees, family and friends to Macronix for a warm gathering. Starting with a lively welcome dance, a series of exciting performances, games, and delicious food had been presented one after another.

Macronix held the family day again after many years. In order to enable employees and their families know more about the Company and enhance cohesion, a series of brand-new experiences had been added, such as the "Taiwan's Most Beautiful Show Room" guided tours, afternoon tea in the lounge, nature and handicraft courses in the Macronix Academy, and classic dishes served in the restaurant.



Macronix shined with laughter and celebration in every corner on a warm winter day in December. Macronix has been planning a variety of activities for the family day to provide employees with a place to relax during the holidays and share their happy life in Macronix with friends and families during the time of gathering.



I joined Macronix almost three years ago, and this is my first time to participate in the Macronix family day. Previously, I had seen activities held during the family days of my classmates' companies. I found them to be very refreshing. The family days were canceled in the previous two years due to the pandemic. This year, I finally had the chance to participate in this event.

On the day, I saw that the entire venue was decorated with great care, and there were many choices of snacks from the vendors similar to those in a garden party. The overall flow of the event was good. The children had a great time participating in the Poli singing and dancing activity. The various old-fashioned games in the activity center, along with the redemption of various kinds of snacks and prizes, showed the thoughtfulness of the Welfare Committee. I am looking forward to next year's family day event.

**Tsai Meng-Chieh    Macronix/Application Department 2**

## Unpaid Parental Leave

In 2023, the number of employees qualified for taking unpaid parental leave was 205 (150 male and 55 female), of which 13 actually applied for taking unpaid parental leave (2 male and 11 female).

As of the end of 2023, the number of employees returned to work after taking unpaid parental leave was 12 (1 males at a 50% return to work rate; and 11 females at a 79% return to work rate).

Among 19 employees that returned to work in 2022 (5 male; 14 female), 18 (4 male, 80% retention rate; 14 female, 100% retention rate) had stayed on for 12 months or more after their reinstatement as of the end of 2023.

## Number of Applicants for Unpaid Parental Leave, Return to work and Retention Rates

Category	Male	Female	Total
Number of employees eligible to apply for unpaid parental leave in 2023 (A)	150	55	205
Number of employees that applied for unpaid parental leave in 2023 (B)	2	11	13
Application rate (B/A)	1%	20%	6%

### Application rate

■ Applied

### Return to work rate

Category	Male	Female	Total
Number of employees expected to return to work after unpaid parental leave in 2023 (C)	2	14	16
Number of employees returned to work after unpaid parental leave in 2023 (D)	1	11	12
Return to work rate (D/C)	50%	79%	75%

### Return to work rate

■ Return work

Category	Male	Female	Total
Number of employees reinstated after unpaid parental leave in the previous year (2022) and still active at the end of 2023 (E)	4	14	18
Number of employees reinstated after unpaid parental leave in the previous year (2022) (F)	5	14	19
Retention rate (E/F)	80%	100%	95%

### Retention rate

■ Retained  
■ Not retained



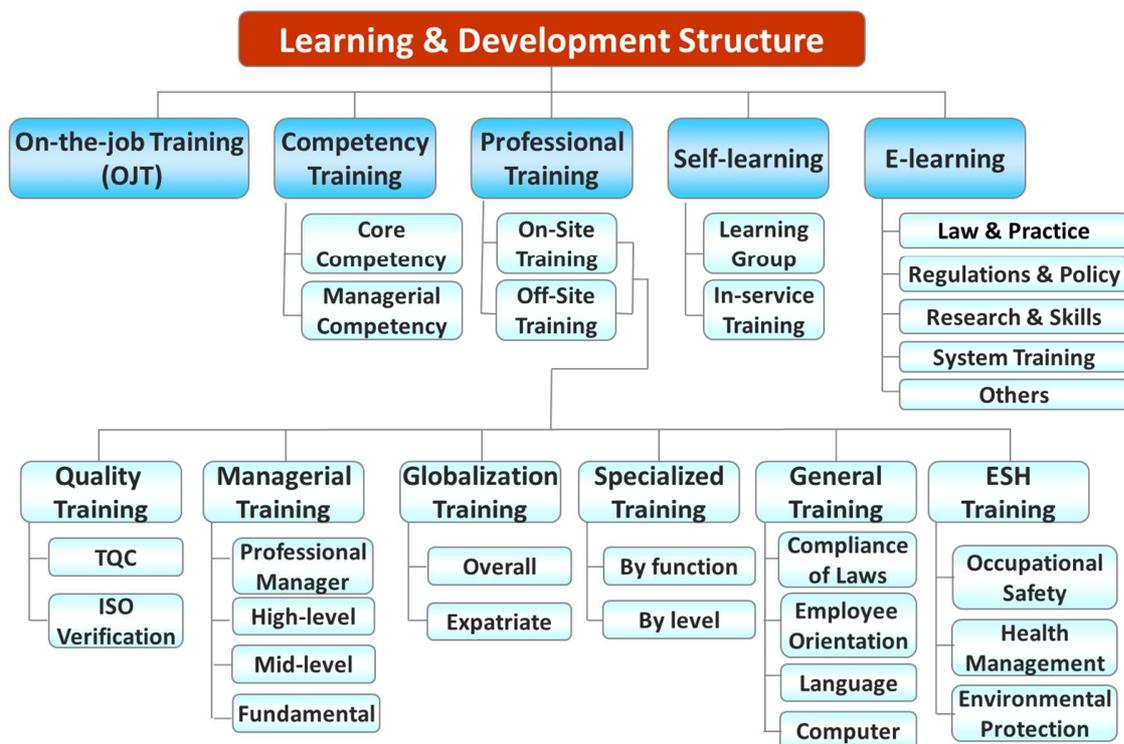
## 7.2 Learning and Development

Macronix believes talent is the foundation and the most valuable asset to the corporation. Hence the Company has established a comprehensive training system and provides well-structured and constant training plans and learning roadmaps. This system accommodates different learning paths, competencies, and career ladder structure to provide staff with opportunities for self-growth and allow them to create their own Individual Development Plans.

Our performance management system and individual development plans are closely connected. Interviews for performance reviews are held twice a year in order to confirm whether the employee is on track to achieve his/her individual performance goals and the organization's goals. Based on individual performance, face-to-face meetings between employees and their supervisors can be arranged in order to discuss what is needed to achieve the employee's individual goals and tailor an individual development plan, so as to broaden and deepen employees' professional knowledge and skills. In 2023, the performance appraisal implementation rate for each employee category was 100%.

## 7.2.1 Nurturing Talents

Macronix has developed a variety of training courses according to corporate strategies, job requirements, and individual development. With clear goals and strategic directions, we provide detailed learning roadmaps to employees to optimize their personal learning paths. These learning roadmaps include a series of activities that help employees achieve their goals and develop an extended skill set. These learning roadmaps also provide a list of learning programs that can help to increase their learning efficiency.



Our learning roadmaps include four categories:

- (1) New employee roadmap: For new employees to become familiar with the corporate culture through experience and learning. This allows new employees to adjust to their new work environment and quickly become immersed in our corporate culture.
- (2) Competency roadmap derived from company values: Courses are designed to implement corporate values and impart related skills, so that employees can demonstrate the conduct expected by the Company.
- (3) Managerial roadmap for different levels of management: Provide ladder structures in management training and feature various courses designed for different levels of management, enabling them to maintain steady progress and strengthen their management skills.



- (4) Professional roadmap based on various fields: Guest speakers from within and outside the Company are invited to deliver professional training, on topics including R&D, production, quality, risk management, human resources, administration, sales, and information

management, in order to strengthen and deepen employees' professional skills.

Macronix also provides various learning channels to satisfy a number of learning needs of each employee. Our measures include:

- (1) Internal training: Guest speakers from within and outside the Company are invited to host various types of training courses.
- (2) External training: Allowing employees to participate in external and work-related training courses and conferences.
- (3) On-the-job training (OJT): Allowing employees to develop on-the-job professional knowledge, through job assignments, hands-on practice, and project participation; employees can acquire the necessary knowledge and skills by performing these tasks.
- (4) E-learning: Macronix's e-academy learning platform was established to provide employees with easy access to online courses so that individuals can study at their own pace and with their own schedule.

## 7.2.2 Macronix Academy

The Macronix Academy is the platform for employees to continue their learning and development. It has a comprehensive learning system to provide employees with complete and abundant resources for planning their careers. Through knowledge gathering and sharing, employees can enjoy enriched learning resources to achieve their career goals and to embrace workplace challenges at any time.

Macronix Academy features the facilities and professional equipment required for employees to learn in a positive environment, including:

- (1) Audio-visual room: Contains multimedia computers, books, DVDs/CDs, video tapes, and audio tapes. This rich learning platform allows employees to learn without boundaries.
- (2) Training classrooms: Macronix provides numerous lecture halls and classrooms of various sizes that can accommodate different types of course designs.
- (3) Computer classrooms: Personal computer access is available so that the employees can significantly increase their learning efficiency.
- (4) International lecture halls: Accommodates seats for 250 people, making it the best location for large-scale training courses, conferences, and lectures.
- (5) Library: Features multiple and diverse books, periodicals, and audio/video resources for employees to satisfy their learning needs.



### Employee Training Costs and Hours

Indicator	Unit	2021	2022	2023
Total Training Costs	NT\$ million	9.49	14.80	18.28
Total Training Hours	Hour	239,205	257,794	272,982
Total Employees	Person	3,809	3,926	3,805
Total Revenue	NT\$ million	50,572	43,487	27,624
Total Training Costs/Total Revenue	%	0.02	0.03	0.07
Total Training Costs/Total Employees	NT\$/person	2,491	3,770	4,804
Total Training Hours/Total Employees	Hour/person	62.80	65.66	71.74
Total Training Hours for Male Employees/Total Male Employees	Hour/person	-	74.55	83.35
Total Training Hours for Female Employees/Total Female Employees	Hour/person	-	52.36	53.16
Total Training Hours for Direct Employees/Total Direct Employees	Hour/person	-	76.89	149.18
Total Training Hours for Indirect Employees/Total Indirect Employees	Hour/person	-	46.63	27.38

Note: The average training hours of gender (male/female) and employee categories (direct/indirect) have been added since 2022. In 2023, due to the adjustment of the employee category recognition method, “total training hours for direct employees/total direct employees” and “total training hours for indirect employees/total indirect employees” were updated accordingly for the year 2022.

## 7.3. Work-life Balance

### 7.3.1. Macronix H<sub>2</sub>O



Macronix believes that personnel who enjoys physical and psychological health are the essence of a successful enterprise. For this reason, Macronix strives to provide an excellent work environment for employees, and promotes various approaches to take care of employees' health. In terms of infrastructure, we established a recreation and fitness center and a park, suitable for all sorts of activities, and provide benefits such as health examinations, which encourage our employees to enjoy an energetic work environment and an active life!

To help employees form the habit of exercising, which can help them improve their sleeping quality, relieve stress, think more clearly, and perform tasks more efficiently. We actively encourage employees to participate in sports and art-related activities/clubs/courses. Their participation helped Macronix obtain the “Taiwan i Sports” certification issued by the Sports Administration, Ministry of Education in 2020 (valid for 3 years from 2020 to 2023).

We hope that all employees work in a healthy and happy way, maintaining work-life balance. We continuously promote the “health, happiness, and openness to life” of the (H<sub>2</sub>O) Corporate Wellness Program to provide employees with comprehensive care. Macronix uses H<sub>2</sub>O to advocate and encourage employees to maintain a work-life balance and help create a bright future together with the Company.

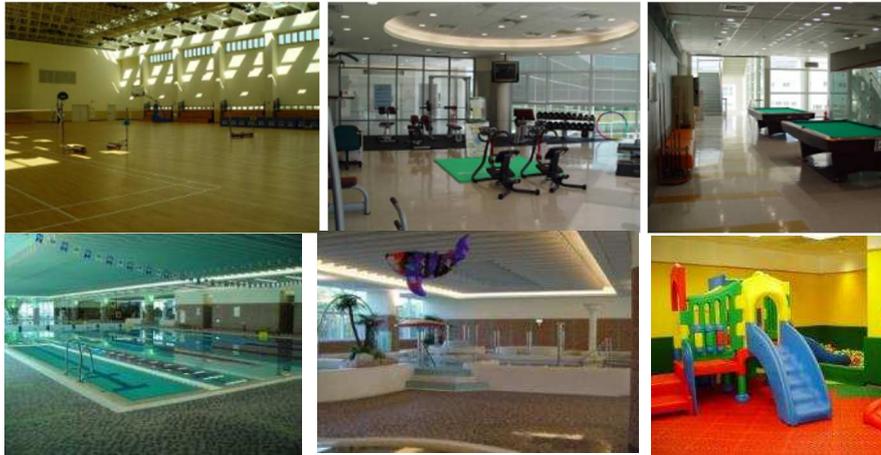
**H<sub>2</sub>O=健康Health • 快樂Happiness • 品味生活Openness to life**



## 健康 Health

An elegant recreation and fitness center

To provide an excellent recreational environment for our employees and their families, Macronix has taken a leading position in the industry by establishing the most comprehensive and comfortable employee recreation and fitness center. The center includes a 50-meter heated swimming pool, hydrotherapy spa, children's swimming pool, a fitness room, racquetball courts, aerobics classrooms, a karaoke room, and multi-purpose indoor courts. It provides employees with the most comfortable and healthy facilities for enjoying recreational activities.



Clean, healthy, and delicious meals

Macronix's staff canteen cooperates with professional caterers to prepare meals with no MSG and low in sodium and oil, and has a nutritionist consultant who is responsible for the design of the weekly menu and nutritional balance of the meals. The management unit regularly announces various food safety inspections, and conducts regular audits on the environmental hygiene of the kitchen and the canteen, food, fire safety and other safety management measures, in order to ensure that employees can eat healthily and with peace of mind.

Comprehensive Employee Assistance Programs (EAPs)

Macronix has integrated external professional resources and gathered teams from the Employee Relations Department, Health Promotion Department, and the Performance Development and Learning Development Department to establish employee-support services and implement the Employee Assistance Program (EAP); in combination with a professional consulting agency, we provide 24-hour psychological, legal and financial counseling services free of charge for our employees. We hope that these efforts will be



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able to help employees deal with a variety of issues, such as health, marriage, family, finance, law, emotions, stress, and work, thereby assisting employees in solving difficulties in their everyday lives and at work.

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Convenient  
and safe  
LOHAS  
services

Macronix provides complete life management services with optimal comfort and support in the work environment. The Company has set up on-site convenience stores and various vendors/stores to satisfy the nutrition, clothing, living, traveling, recreation, and leisure needs of employees. We hope employees enjoy working in such a balanced environment!

5-star  
employee  
dormitories

The employee dormitory totals 16,000 square meters and is situated in a beautiful community. The dormitory can accommodate 1,000 employees, and has a living room, restaurant, training classrooms, game room, elevators with views, garden, parking lot for cars and scooters, and a 24-hour central surveillance security system to provide a safe and comfortable living environment for employees.



Full  
convenience

Macronix provides employees with various on-site convenience services such as convenience stores, coffee shops, and travel agencies, so employees can complete daily activities while at work. In addition, Macronix has agreements with various vendors to provide employees with a variety of choices for the needs of daily life, including food, clothing, housing and transportation.

## 品味生活 Openness to life

### Seminars on happiness

Macronix aims to constantly improve its employees' quality of life. For this reason, the Company organizes a variety of events and courses on daily life, leisure, and health topics to bring more energy and growth to employees. We hope that employees can achieve a perfect balance between family, health, friends, and spirituality in order to have satisfying, healthy, and happy lives!



### A wide selection of clubs

In order for employees to achieve a work-life balance, Macronix offers more than 40 clubs, such as creative balloon design, Chinese calligraphy, longboard, water activities, Chinese traditional music, and Chinese cultural studies, as well as charity clubs such as the Humane Society and Big Love Society, so that they can make friends and develop new hobbies.



### Lively and innovative celebrations and activities

Family days, which had been suspended for three years due to the pandemic, were resumed in 2023. This time, a series of brand-new experiences were planned, inviting employees and their friends and families to Macronix for a warm gathering, through which friends and families could understand the working environment and daily life of employees in the Company. In the second half of the year, the Company launched a total of six types of ball games, including basketball, volleyball, badminton, table tennis, billiards and softball, enabling sports enthusiasts to show their passion on the courts.

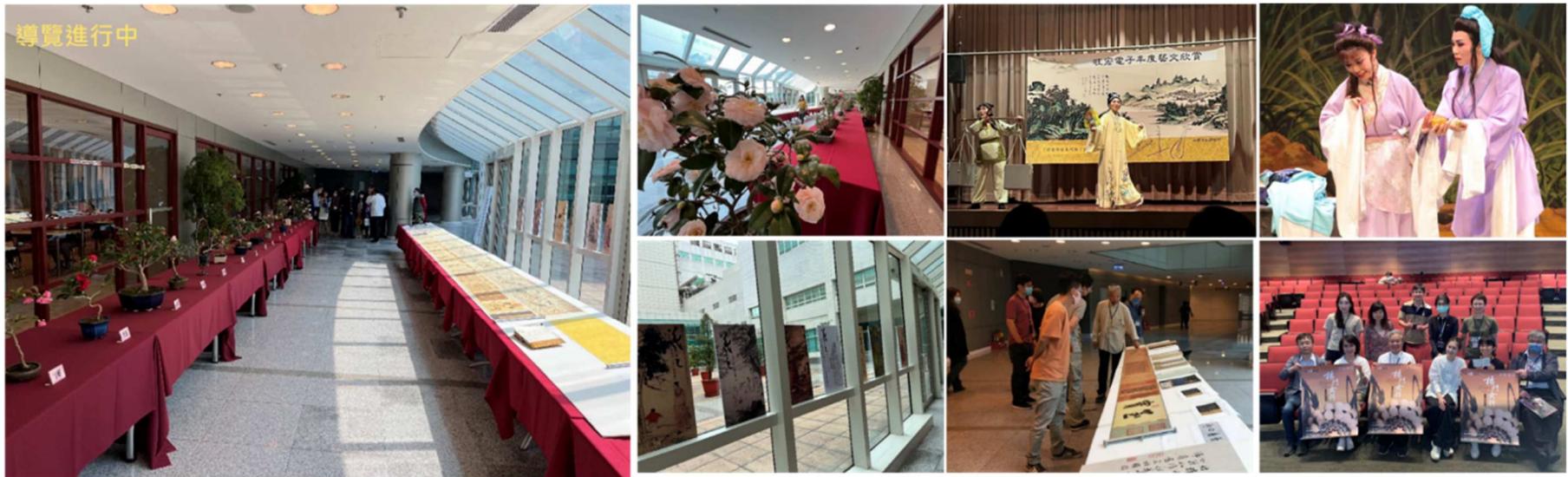


## Promotion of cultural and artistic activities

### Cultural and art exhibitions

In 2023, considering the recovery of cultural and artistic activities after the pandemic, Macronix held several exhibitions and small-scale on-site guided tours in the Sunlight Corridor of Li-Hsin Factory, together with a series of lectures and related quiz draws, to encourage colleagues to get in touch with cultural and artistic activities and understand their meaning in their spare time.

Name of the exhibition	Exhibition-related information and event purposes
Camellias Show	Appreciate the beauty of camellia art 1. Inspire employees to create art with skillful minds and hands 2. Relieve the pressure of work and life
A Nostalgia by Swaying Willow, Buried in Cruel Snow	Winter Snow Painting and Calligraphy Series at the National Palace Museum: Exhibitions of Timely Clearing After Snowfall by Wang Xizhi, Jin dynasty and Deep Snow in the Mountain Passes
Lost in Wonders: Famous Paintings and Exploring Tao with the Ancients in the Ming Dynasty at the National Palace Museum	“Lost in Wonders: Tales of the Paradise at the National Palace Museum” and Taoist Artifact Appreciation
Exhibition of Calligraphies from the Wei Jin Dynasties	Best Running Calligraphy: Two Types of Preface of the Orchid Pavilion by Wang Xizhi, Jin Dynasty
Macronix Opera Festival: 1. Macronix Huangmei Opera in Commemoration of the 60th Anniversary of the “Butterfly Lovers” 2. Peking Opera 3. Huangmei Opera	1. Understand the classical taste and artistic beauty of traditional opera through Huangmei Opera during the Opera Festival 2. Peking Opera: Performing arts and roles of Young's Female Warrior 3. Goddess Marriage
How did Emperor Qianlong appreciate the Mid-Autumn Festival?	Exhibition on the national treasures of the Mid-Autumn Festival at the National Palace Museum



**Promotion of cultural and artistic activities**



In order to inherit Taiwanese folk art, Macronix held the “Bamboo Weaving Experience Course”. To promote the understanding of the beauty of Chinese painting and calligraphy, the Company held the “Fan Painting Course”, “Basic Regular Script Course” and “Crash Course in Chinese Calligraphy for Foreign Colleagues”, which enabled employees to enjoy calligraphies after work. In addition, the Company also arranged a healing “Succulent Plant Course”, covering the painting of potted plants and learning to grow succulents. These activities not only promoted culture and art, but also enabled employees to stay away from 3C products for a while and enjoy the moment of creation.

Furthermore, the exhibition of work achievements was held in the Sunlight Corridor of Li-Hsin Factory to display employees’ artworks and promote the exchange of art and culture, thereby bringing joy and aesthetics to the new life after the pandemic.





Name of events	Information and event purposes
Bamboo Weaving Experience Course	<p>Bamboo Weaving Course</p> <ol style="list-style-type: none"> <li>(1) Inherit Taiwanese folk art.</li> <li>(2) Bring beauty to life through art skills to make it full of joy and aesthetics.</li> <li>(3) Increase artistic self-cultivation and relieve stress to improve work efficiency.</li> </ol> <p>4 batches of courses to learn different types of bamboo weaving techniques such as coasters, boat-shaped shelves, clocks and bowls</p>
Bamboo Weaving Beginner Course	Learn the art of bamboo weaving of lanterns
A silken fan to catch flitting fireflies	Two fan painting courses were held for both local and foreign employees.
Basic Regular Script Course	Introduction on the characteristics of various regular scripts for employees to choose fonts for themselves
Crash Course in Chinese Calligraphy	Crash course in Chinese calligraphy for foreign colleagues
Succulent Planting–Course	<ol style="list-style-type: none"> <li>1. Train employees to recognize and plant succulents</li> <li>2. Create beauty and goodness in the office environment to welcome the new year 2024</li> <li>3. Inspire employees to create art with skillful minds and hands</li> <li>4. Relieve the pressure of work and life</li> </ol>



### 7.3.2. Safety and Health Promotion Management



Management Approach	Impacts	Reduce the risk of production interruption, and increases the company's competitiveness
	Medium and long-term development direction	Promote employees' physical and mental health, and reduce occupational safety and health risks
	Management method (including measures)	External: Comply with occupational safety and health-related laws Internal: 1. Safety & Health Center Portal 2. Environmental, safety, and health education and training and occupational hazard prevention promotions are organized regularly 3. Employee health promotion events are organized regularly
	Tracking the effectiveness of the actions	Work environment monitoring is performed semi-annually
	2023 Implementation Results	0.12 injury rate; 0 cases of occupational diseases; 0 LDR; death rate: 0
	Targets in 2024	1. Zero major occupational accidents (including contractors) 2. Zero fines from the authorities
	Future targets (Short, Medium, and Long-Term)	Promote the Occupational Safety and Health Administration's [GRI 403 Occupational Health and Safety] advanced indicators, and plan to complete the 2023~2025 three-year program year by year to implement safety and health management performance, ensure a safe and healthy working environment, and achieve the "zero disaster" target.

## Occupational Safety and Health Management

Macronix is fully aware of the impact of employee safety and health on our corporate competitiveness. Therefore since Macronix’s inception in 1989 Chairman Wu has always played the role of the Company’s advocate, urging employees to take environment, safety, and health management seriously, and establish safe and healthy work rules. Besides requiring executives of various levels to participate in safety and health management tasks, he shows respect and care for employees by replacing penalties with incentives. If there are any emergencies, occupational injuries, false alarms and violence in the workplace, employees can propose occupational safety and health issues or improvement suggestions through the “suggestion box”, the “proposal improvement system” or labor representatives at the Environmental Safety and Health related meetings. Employees who make the best proposals are rewarded. We actively introduced various international certification standards during the planning stages of Macronix’s environment, safety, and health management systems, so that we could build a comprehensive platform and provide workers with a healthy work environment. In order to strengthen the consultation and participation in employees’ safety and health issues, labor representatives participated in the Occupational Safety, Health and Environment Committee, together with the revision of safety and health work rules, incident investigation and working environment monitoring, etc. Non-employees communicate with us through protocol organization meetings and pre-operational safety notices. We have strict and complete working environment monitoring procedures that allow us to examine the number of bacteria in water dispensers each quarter and regularly check food safety to ensure employee health and safety. We periodically evaluate and review our management measures according to government regulations and customers’ requirements. Macronix constantly promotes occupational safety and health concepts through training and promotion of communication measures. We work together with employees and vendors to jointly create a healthy, safe, and comfortable working environment.



Thanks to the efforts of its employees, Macronix Headquarters, Fab 2, Fab 5 and Test Building have obtained the ISO 45001 Occupational Health and Safety Management Systems Certification every year since 2019. We continue to gain the recognition of the authority each year, and our “excellent culture of safety” is transforming into the values of corporate sustainable development. In the future, Macronix will continue to promote employee’s and visitor’s safety and health, and build a work environment with a high-safety level.

In respect of operation managements, Macronix has also established the Occupational Safety Health and Environment Committee (OSHEC), which was led by the president of Macronix to

promote and execute the environmental protection, safety, and health measures. As of the fourth quarter of 2023, Macronix OSHEC consisted of 4 managers, 3 directing supervisors, 19 labor representatives, 7 technical engineering representatives, and 10 environmental, safety, and health representatives; labor representatives account for 44% of the committee. The committee convenes meetings at least once every quarter, mainly to discuss the Company’s environmental, safety, and health management operations, organization, and supervision issues, as well as to track the progress of various projects. Each manufacturing facility holds monthly or quarterly meetings to review the implementation of various initiatives.

Year	Workers	Headcount	Ratio
2021	Employed workers	3,922	100%
	Non- employed workers	0	0%
2022	Employed workers	3,888	94%
	Non- employed workers	0	0%
	On-site contractors	235	6%
2023	Employed workers	3,896	94%
	Non- employed workers	0	0%
	On-site contractors	225	6%

Note:

1. Source: Ministry of Labor, Occupational Safety and Health Administration – Occupational Injury Online Report System
2. Employed workers: Macronix employees;
3. Non-employed workers: Contractor personnel stationed in plants and under supervising (There are no “noncontract employees” after October 2020.)
4. On-site contractors: Contractors engaged in daily routine operations in the site area (Macronix began to collect data on occupational injuries of contractors in 2022)
5. The number of workers is the sum of the monthly average number of workers at each plant

### **Hazard Identification, Risk Assessment and Accident Investigation**

In accordance with the Occupational Safety and Health Act and the requirements of the occupational safety and health management system (ISO 45001), risk assessments are conducted by personnel certified upon training to identify the hazards and risks during routine and non-routine operations of employees (including visitors and vendors), to perform risk rating, and to establish an improvement process and prevention and control management measures. The aim is to eliminate hazards and reduce risks. In addition to regular identification and evaluation, when the operation activities are changed or abnormal conditions occur, hazards are immediately identified and risks are assessed to reduce the Company’s operational risks.

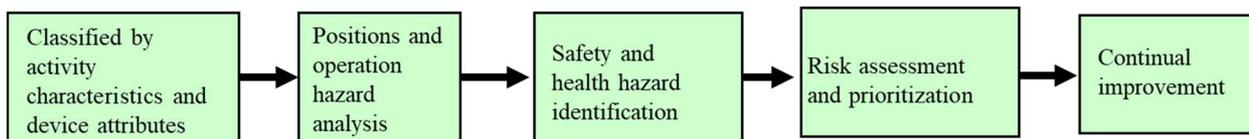
In accordance with the Occupational Safety and Health Act, employees have the right to stop the

work and evacuate to a safe location if there is any potential imminent danger at a workplace. Therefore, Macronix has formulated relevant rules governing the rights to hazard identification, stopping the work, evacuating, and reporting.

The risk assessment is categorized into six levels. Levels 1 and 2 (such as fires and explosions causing employees' deaths and interruption of operations) are high-risk levels and are top priority risks that should be reviewed and improved. With accordance to PDCA (Plan-Do-Check-Act), Macronix will improve the atmosphere and continue to follow up on and improve matters related to each risk level to ensure a normal operation of the occupational safety and health management system.

Macronix has formulated the occupational injury and accident investigation procedure, which classifies incidents into four levels, including "Near-miss" (Level 0), "Mild" (Level 1), "Normal" (Level 2), and "Severe" (Level 3). Investigations are undertaken in accordance with such rating. The personnel of the incident department enter the incident information into the incident investigation system, analyze causes, complete the review of the corrective measures for improvement, and as examine the risk assessment form (Level 1 (inclusive) or above, excluding traffic accidents). All plants simultaneously implement the hazard identification and risk assessment/improvement, adopting a PDCA approach to ensure that similar accidents no longer occur.

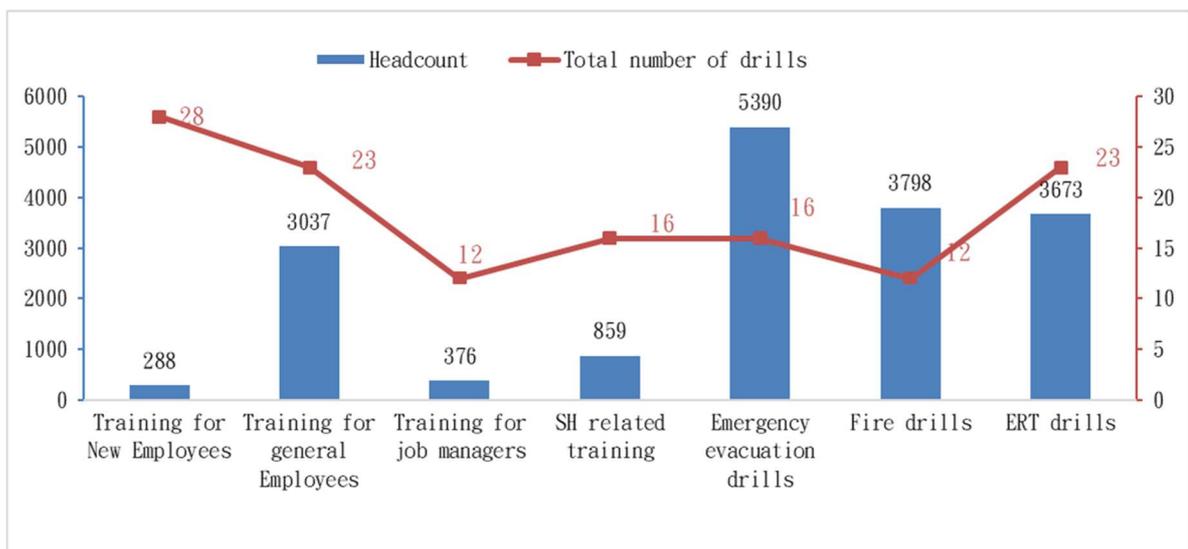
### **Hazard Identification and Risk Assessment Process**



## Safety and Health Education and Training

We offer our employees adequate personal protective equipment (PPE), complete safety and health education and trainings, and a 24-hour emergency response team (ERT) that works four shifts in rotation. The business continuity planning (BCP) has also been created to ensure employee and corporate safety as well as regular maintenance of fire safety equipment and building public safety inspection. We also organize education and trainings on occupational safety and health, emergency evacuation drills, fire drills, and emergency response team (ERT) drills (including earthquakes, fires, gases, and chemicals) on a regular basis to enhance employees' response to emergencies. The workplace is also regularly inspected for comfort. A total of 130 drills were organized for a total of 17,421 participants in 2023.

### 2023 Macronix Safety and Health Education and Training Statistics



In 2023, Macronix did not have any occupational accidents resulting in serious injuries, and the number of occupational injuries that could be recorded was 5. The main types of occupational injuries were pinches and falls, etc. The investigation of accidents and analysis of causes were carried out, and corrective measures were proposed to improve personnel awareness of hazards and the working environment through the parallel development of each plant.

In addition to establishing standard operating procedures, the following measures have been taken to prevent any occupational hazard or disease from impacting employees and corporate operations:

- Professional audits and 24-hour monitoring are provided.
- All accidents are investigated and followed up with related safety improvements in order to prevent any reoccurrence or further incidence.
- Training for new and current employees and PPE management are provided.
- Occupational safety meetings are conducted at each level.
- The workplace is monitored, and occupational safety is continuously improved according to regulatory requirements.
- A 24-hour health service center is available for conducting professional health check management, health promotion activities, health lectures, psychological counseling, and an employee sports and fitness center.

- An employee assistance program (EAP) has been implemented and doctors specializing in occupational diseases have been invited on-site to guide and instruct employees regarding the work safety and health.
- Regular doctor visits are scheduled at our facilities to provide medical advice to employees, help conduct health risk evaluations, and assist with health management at different levels.
- The unit responsible for protecting against epidemics collects the latest epidemic prevention information and enforces epidemic control measures in order to safeguard employee health.
- Pregnant employees are taken care of through the implementation of the “Three No’s”, no night shifts, no heavy lifting, and no radiation work, and through ensuring a friendly workplace.

**Macronix Employee Disabling Injury-Related Indicator in 2023**

Year	Workers	Gender	Headcount	The number of fatalities as a result of work-related injury	Total work hours (hr)	Injury Rate (IR)	Occupational Disease Rate (ODR)	Lost Day Rate (LDR)	Rate of fatalities as a result of work-related injury
2021	Employed workers	Male	2,304	0	4,589,568	0.04	0	0.04	0
		Female	1,618	0	3,223,056	0.00	0	0.00	0
		Total	3,922	0	7,812,624	0.03	0	0.03	0
2022	Employed workers	Male	2,319	0	4,618,452	0.04	0	0.17	0
		Female	1,570	0	3,126,444	0.06	0	0.58	0
	On-site contractors	Male	111	0	221,610	0.00	0	0.00	0
		Female	124	0	246,178	0.00	0	0.00	0
	Total	4,123	0	8,212,684	0.05	0	0.32	0	
2023	Employed workers	Male	2,367	0	4,677,192	0.04	0	0.00	0
		Female	1,529	0	3,021,304	0.20	0	0.00	0
	On-site contractors	Male	109	0	215,384	0.93	0	0.00	0
		Female	116	0	229,216	0.00	0	0.00	0

	Total	4,121	0	8,143,096	0.12	0	0.00	0
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Note:

1. Types of work injuries calculated by work-related injury statistics
2. Total work hours = Total number of employees × 8 hours × Number of work days in the year
3. IR = (Number of disabling injuries×200,000)/Total work hours
4. LDR = (Total work days lost×200,000)/Total work hours
5. ODR = (Number of work-related ill health×200,000)/Total work hours
6. Death rate = (Number of fatalities as a result of work-related injury \* 200,000)/Total work hours
7. All of Macronix's fabs are located in Taiwan.
8. Macronix collected data on work-related injuries of contractors in 2022.
9. The transportation equipment arranged by Macronix didn't cause any traffic accident.

## Health Promotion Management

People working in today's world often experience high levels of work-related stress. Since employees are our most important asset, Macronix actively examines employees' physical and mental health problems. Only having healthy and happy work partners can the Company be filled with the vital force and sustain its operations; this is the management concept of Macronix's Chairman.

◆ Continued to promote the "Macronix Sports Day Program" (since 2011):

- (1) With the support and leadership of the Chairman and supervisors at all levels of management, the Company's activity center was used by about 38,000 people in 2023.
- (2) Established diverse and active clubs, with a total of 23 different sports clubs.

◆ Weight loss course and health promotion:

- (1) Obesity continues to be the top ten abnormality in the Company's health examination. In 2023, the Company cooperated with contract vendors to organize muscle-building and fat-loss competitions in the form of teams. The participants joined core muscle group exercise courses (live + live broadcast due to the pandemic) led by professional exercise coaches. In total, 30 sessions were organized. The total weight loss was 469.8 kg.
- (2) Health education messages are regularly displayed and promoted as slideshows on TV and posters.
- (3) Promote one health theme (via online meetings) at the monthly/quarterly work safety meetings in each plant.

◆ Increase the number of participants in health promotion activities:

- (1) Conduct annual surveys on the needs of employees and plan appropriate health promotion activities.
- (2) Lung cancer has been the top of the top ten causes of death in Taiwan in recent years. In 2023, Macronix collaborated with Min Sheng General Hospital (hospital qualified to perform laborer physical examinations and medical check-ups) to provide 270 employees with free low-dose CT lung screenings to assist employees with disease prevention and provide subsequent health care. A total of 270 employees took advantage of this and 136 family members took advantage of the discounted price.
- (3) A total of 133 employees benefited from free "heart CT scans" for prevention detection of cardiac arrest; a discounted price for employees' family members was also provided, and a total of 83 family members benefited.
- (4) Osteoporosis is the second most important disease in the world, only behind cardiovascular disease. Hence, we continued to work together with Hsinchu Science Park Clinic (qualified hospital for laborer physical examinations and medical check-ups) in 2023. A total of 169 employees participated in the free dual-energy bone mineral density x-ray inspection.
- (5) Autumn and winter are the flu season every year. Flu prevention ways include not only emphasis on personal hygiene and hand washing, but also receiving the flu vaccine. We worked together with Hsinchu Science Park Clinic (qualified hospital for laborer physical examinations and medical check-ups) in 2023 to provide flu vaccination at employees' own expense for 406 employees.
- (6) Hepatitis B is prevalent in Taiwan, and its most severe complications are cirrhosis and liver

cancer, which also are the primary targets of abdominal ultrasound examinations. These two diseases have remained major causes of death in Taiwan to this day. The inspection can also achieve early discovery of issues with the liver, gallbladder, bile duct, pancreas, spleen, and kidneys. Hence, we worked together with Hsinchu Science Park Clinic (qualified hospital for laborer physical examinations and medical checkups) in 2023 to organize self-paid abdominal ultrasound examinations, with a total of 180 participants.

- (7) We started planning to include CPR+AED training in our regular employee training in 2020 to protect the lives of our employees and their families! In 2023, two CPR+AED courses were held, with a total of 77 participants. Training has been included in the compulsory course for new recruits from July 2020.

◆ Maternal worker health management:

- (1) Care programs for female employees have been introduced to implement maternal health care measures that allow employees to work at ease while also caring for their families. Provide information about mothering classes every month, and cancer screening activities take place occasionally to provide health-related information for women. Macronix advocates breastfeeding, and each of its plants has set up a breastfeeding room that offers comfortable equipment exclusively for employees who need to breastfeeding. We also offer small gifts to employees who have been breastfeeding for more than 6 months.
- (2) We have won awards in the breastfeeding room contest held by the Hsinchu City Government for ten consecutive years (2013-2023).

Since working in the high-tech industry is often competitive and stressful, Macronix has planned a long-term EAP to arrange a series of stress-relieving seminars, invite psychologists to provide consultation services at the plants (consultations can also be provided outside of the Company by calling a toll-free number), and employ visually impaired masseurs/masseuses to provide massages.

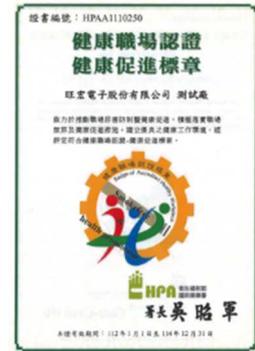
◆ COVID-19 prevention and management:

- (1) Macronix immediately established the COVID-19 Epidemic Prevention Office when the COVID-19 pandemic broke out in early 2020. The Task Force frequently convenes anti-epidemic meetings to formulate anti-epidemic policies and various management measures, and to establish a standard operating procedure, a reporting mechanism, and countermeasures.
- (2) Appointed dedicated staff to track and pay attention to pandemic mitigation and management measures, e.g., E-system (fill in daily body temperature & pandemic prevention statement, through computer or mobile phone, registration management of vaccine administration, implementation of the contact tracking system in public areas, and application for visitor manufacturers to enter the factory), environmental cleaning and disinfection, food safety and hygiene, social distancing, anti-pandemic consulting services, anti-pandemic supplies management, set up an anti-pandemic bulletin board for awareness, the anti-pandemic e-management system, and visitors entry permit application.
- (3) Rolling review of the most appropriate pandemic prevention measures in response to changes in the pandemic: adjusting the work patterns of employees, work from home and staggered shifts, controlling the movement of the red/blue teams, adopting online meetings/training sessions, self-health management for meals, control of numbers for elevators/pantry/toilet, etc., strengthen or upgrade pandemic mitigation measures, in order to implement the pandemic mitigation management of employees, visitors, and contractors, and strive to maximize the effectiveness of pandemic mitigation and maximum protection

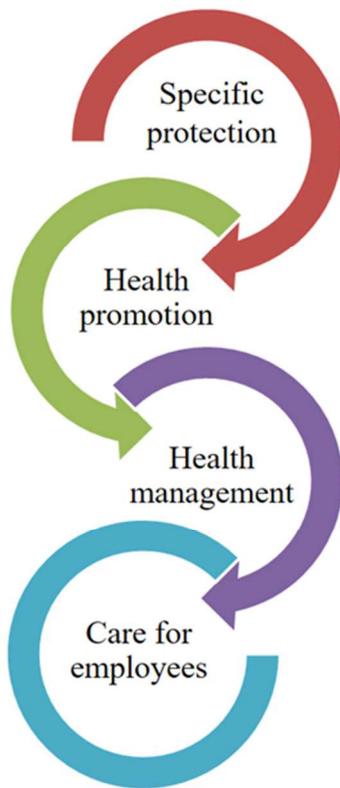
of the health of personnel.

◆ Awards & Achievements in 2023

- Breastfeeding Room Certification - Special Excellence Award from the Public Health Bureau, Hsinchu City
- Badge of Accredited Healthy Workplace (Entire Plants), certificated by Health Promotion Administration, Ministry of Health and Welfare
- Health Paradigm Award for the Year 2022, awarded by Health Promotion Administration, Ministry of Health and Welfare



# Comprehensive Health Management



 <p><b>Special Operations Medical Checkup Management</b></p> <ul style="list-style-type: none"> <li>Periodic medical checkups are provided to employees who were rotated to a new position and current employees in accordance with the law, and employees who receive medical checkups are managed.</li> <li>100% of employees received medical checkups.</li> </ul>	 <p><b>Overload management</b></p> <ul style="list-style-type: none"> <li>Employees fill out the overload prevention questionnaire during their annual medical checkup and when they work more than 45 hours overtime during the month.</li> <li>Health education is provided to employees with medium overload, and they are recommended to consult a doctor. Employees with high overload are scheduled to consult a doctor.</li> <li>Psychological counseling services are arranged according to employees' needs.</li> </ul>	 <p><b>Maternity health protection and management</b></p> <ul style="list-style-type: none"> <li>Mothering class information and gynecological cancer screening are provided each month.</li> <li>Employees receiving maternity protection fill out a questionnaire and are arranged to consult a doctor.</li> <li>A thoughtful breastfeeding environment is provided for use by employees.</li> <li>The employee parking lot has dedicated parking spaces for pregnant women.</li> </ul>	 <p><b>Infectious Disease Prevention and Management</b></p> <ul style="list-style-type: none"> <li>Flu vaccinations are organized each year.</li> <li>Masks are provided to employees.</li> <li>Paid quarantine leave is provided for pandemic prevention.</li> </ul>
 <p><b>Employee medical checkup management</b></p> <ul style="list-style-type: none"> <li>Physical examinations and medical checkups are provided to pre-employment and current employees, better than the statutory requirement, and employees who receive medical checkups are managed.</li> <li>Low-dose CT lung screenings were provided to 270 employees free of charge in 2023.</li> <li>Low-dose CT heart screenings were provided to 133 employees free of charge in 2023.</li> </ul>	 <p><b>Macronix Sports Day Program</b></p> <ul style="list-style-type: none"> <li>Established diverse and active clubs.</li> <li>Plants hold onthly/quarterly health promotion seminars and office exercise sessions.</li> <li>Employees receive subsidies for sports points each year.</li> </ul>	 <p><b>Weight loss program</b></p> <ul style="list-style-type: none"> <li>We organized cardiovascular disease seminars, invited nutritionists to provide weight-loss meal plans, and hosted athletic speeches.</li> <li>We encourage employees to develop good exercise habits and register their exercise results each week.</li> <li>Employees who reach weight loss goals receive exquisite gifts.</li> </ul>	 <p><b>Fitness center</b></p> <ul style="list-style-type: none"> <li>Has a swimming pool, gym, basketball court, and badminton court</li> <li>We encourage employees and their family members to use.</li> <li>Offer aerobics courses.</li> </ul>
 <p><b>Abnormal medical checkup results follow-up</b></p> <ul style="list-style-type: none"> <li>Abnormal follow-up on general physical examinations for new employees.</li> <li>Abnormal follow-up on regular medical examinations for active employees.</li> <li>Abnormal follow-up on regular special operation medical.</li> </ul>	 <p><b>Consultation services provided by doctors</b></p> <ul style="list-style-type: none"> <li>Doctors provide on-site consultation services in accordance with the law, and provide employees and contractors with individual health consultations and evaluations for getting back to work.</li> </ul>	 <p><b>Psychological counseling services for employees</b></p> <ul style="list-style-type: none"> <li>Psychological counseling services are provided to employees for free.</li> <li>Services are provided through a one-stop window for privacy.</li> <li>A private location is selected for counseling.</li> </ul>	 <p><b>Employee Assistance Programs (EAPs)</b></p> <ul style="list-style-type: none"> <li>Professional legal/financial/psychological counseling services are provided to employees 6 times a year.</li> <li>Counseling services are scheduled over the phone or via e-mail.</li> </ul>

## Occupational diseases

### (1) Employees:

Conduct occupational health examinations every year for the prevention of occupational disease in compliance with the law on workers' occupational accident insurance. A total of 377 people received the health checkups in 2023 under the comprehensive evaluation of physicians. 137 were first-level management and 240 were second-level management. None of them are related to occupational disease.

### (2) Long-term contractors:

Macronix investigates whether there were any occupational diseases among our 47 long-term contractors in the previous year through letters, none of them had any occupational diseases arising from their work.

#### \* Characteristics of Macronix Workplace Health Promotion:

##### Muscle Gaining and Fat Loss Group Competition

Obesity is an invisible killer of health, and has been the top ten abnormality in the Company's health examination. In order to improve the health of colleagues, we have organized muscle building and fat loss activities, changed the previous way of weight loss competitions, and designed a 5-member team competition to utilize the power of group, so that colleagues can supervise and encourage each other in weight loss. Professional coaches have been invited to design a series of muscle building and fat loss exercise programs to achieve healthy and sculpted body.



##### Creating Whole Person Health and Building a Happy Enterprise

#### \* Employees of Macronix share their experience of participating in the Company's health promotion activities:

The Company's weight loss competition motivated me when I saw red marks on the medical checklist and the increasing weight. I continued to attend boxing aerobics courses, walk stairs, ride a bike instead of riding a scooter, and reduce the amount of meals. In the last month, I persistently used the treadmill to enhance aerobic exercise. After such exercises, I got a good result and a healthier body. Thanks to the team leader's invitation, I hope that I can continue to maintain a healthy body with all my colleagues. **Macronix/Testing Engineering Department/Hwang Yi-Chin**

Ever since I was a child, I have been bigger than peers my age. When I was pregnant, my weight was at its peak. It was not like I have not tried to lose weight, but I always gave up halfway through or told myself to try harder next time. It is different this time, because I participated in the Company's weight loss competition. As I did not want to drag my partners down, and it was hard to get out of there, I insisted on it by joining the aerobic exercise organized by the Company with my teammates (2 times a week), walking 10,000 steps a day (in the Company's show room and the Macronix Park), strictly enforcing the diet plan of reducing sugar and oil, and rejecting afternoon tea and desserts in addition to the three meals a day. I thought about giving up, too. However, with the encouragement of my sharp-tongued colleagues and teammates, I reported my weight every Saturday. The belief that I did not want to drag my partners down supported me. Finally after half a year of hunger and exhaustion, I have proudly slimmed down! As I won the championships in both team and individual competitions, I was under pressure not to put on weight again under the caring eyes of my friends and families. Therefore, my new year's resolution this year would be to lose another 10-15kg!

**Macronix/Integration and Finished Product Testing Department/Chan Tzu-Ying**

## 7.4. Social Welfare

Management approach	Impacts	Persist in sustainable operation and continue to give back to society
	Medium and long-term development direction	Enhance the value of knowledge economy, cultivating science and technology talent, care for children's and adolescents' physical and mental development, and elevate social harmony and quality of life.
	Management method (including measures)	<ol style="list-style-type: none"> <li>1. Sponsor technological development</li> <li>2. Reward outstanding science and technology talent</li> <li>3. Cultivate children and adolescents to develop an interest in learning knowledge related to science, humanities, and nature</li> <li>4. Plan activities such as nature observation, cultural events, historic site visits, and folk-art events</li> <li>5. Support and organize public welfare and education-related matters</li> </ol>
	Process used to track the effectiveness of the actions	<ol style="list-style-type: none"> <li>1. Hold the Macronix Golden Silicon Awards and Macronix Science Awards judging and preparatory meetings.</li> <li>2. Hold board meetings of the Macronix Education Foundation at least twice a year</li> </ol>
	2023 Implementation Results	<ol style="list-style-type: none"> <li>1. The Macronix Golden Silicon Awards attracted 1,010 teachers and students to participate, and the number of participating teams reached 284. The amount of scholarship awarded was NT\$3.45 million.</li> <li>2. The Macronix Science Awards attracted 1,184 teachers and students to participate, and the number of participating teams reached 592. The amount of scholarship awarded was NT\$4.462 million.</li> <li>3. Nearly NT\$4.05 million in support of public welfare and education as well as local cultural and creative industries</li> </ol>
	Targets in 2024 Goals	<ol style="list-style-type: none"> <li>1. The Macronix Golden Silicon Awards aims to increase the number of participants by 3% each year, and the number of participating teams is expected to be about 292.</li> <li>2. The Macronix Science Awards aims to increase the number of participants by 3% each year, and the number of participating teams is expected to be about 610.</li> <li>3. More than NT\$4.15 million in support of public welfare and education as well as local cultural and creative industries</li> </ol>

Since the inception of Macronix in 1989, we keep maintaining sustainable operations and

continue to enhance shareholders' rights and interest and care for the environment. Macronix never forgets to repay this environment and society that nourishes it.

We have devoted longtime efforts to community involvement through cooperation with the Macronix Education Foundation, particularly in the three main areas, such as science education, cultural creation assistance, and care for the disadvantaged.

## 7.4.1. Planting the Seed of Science Education

### **Background**

We believe that only by constantly fostering technology talent can Taiwan keep its competitive and superior position in the international arena. Accordingly, Macronix made donations to create the Macronix Education Foundation (the “Foundation”) in 2001, chaired by the Chairman Miin Wu. Macronix donated to the Foundation approximately NT\$20 million to hold its primary events each year. Since the establishment of the Foundation, Macronix has donated more than NT\$500 million to the Foundation for the cultivation of talent and the promotion of related businesses. Macronix employees also participate in the Foundation’s events. It is anticipated that through the strength of the Foundation, resources can be maximized systematically, enabling more people to participate, therefore increasing the innovative competency of the younger generations, and expanding the knowledge and perspectives of our domestic students.

### **Tenets**

The foundation’s work focuses on enhancing the value of knowledge economy, cultivating science and technology talent, caring for children’s and adolescents’ physical and mental development, and elevating social harmony and quality of life. In accordance with relevant laws and regulations, it has endeavored to:

- I. Sponsor technological development.
- II. Reward outstanding science and technology talent.
- III. Cultivate children’ and adolescents’ knowledge and interest in the science, humanities, and nature.
- IV. Plan activities such as nature observation, cultural events, historic site visits, and folk-art events.
- V. Handle public welfare and education-related matters that conform to the tenets of the foundation.

### **Outcomes**

By focusing on cultivating basic scientific knowledge and nurturing talented engineers, the Foundation continues to implement the Future—Knowledge Engineering Program because we know that education is the basis for the future that must be constantly planned and promoted. Furthermore, the foundation holds various activities for different groups, including the Macronix Golden Silicon Awards, Macronix Science Awards, and Macronix Chair Professor Project. The Foundation also supports domestic science education in order to foster scientific talents in Taiwan.

For more than 20 consecutive years, over 40,000 teachers and students have participated in the Macronix Golden Silicon Awards and Macronix Science Awards with extreme enthusiasm. Scholarships worth over NT\$180 million have been awarded. In 2013, the Foundation participated in the evaluation conducted by the Ministry of Education for the first time and received the highest rating of "outstanding". In recognition of the Foundation’s important contributions to Taiwan’s science education, Chairman Miin Wu, the leader of the Foundation, received the Social Education Contribution Award from the Ministry of Education in 2017, and won Country Winner and Business Paradigm Entrepreneur of EY Entrepreneur of The Year 2018. In 2021, the Foundation was once again recognized by the Ministry of Education with the honor of "Social Education Contribution Award in Group category".



## Macronix Golden Silicon Awards



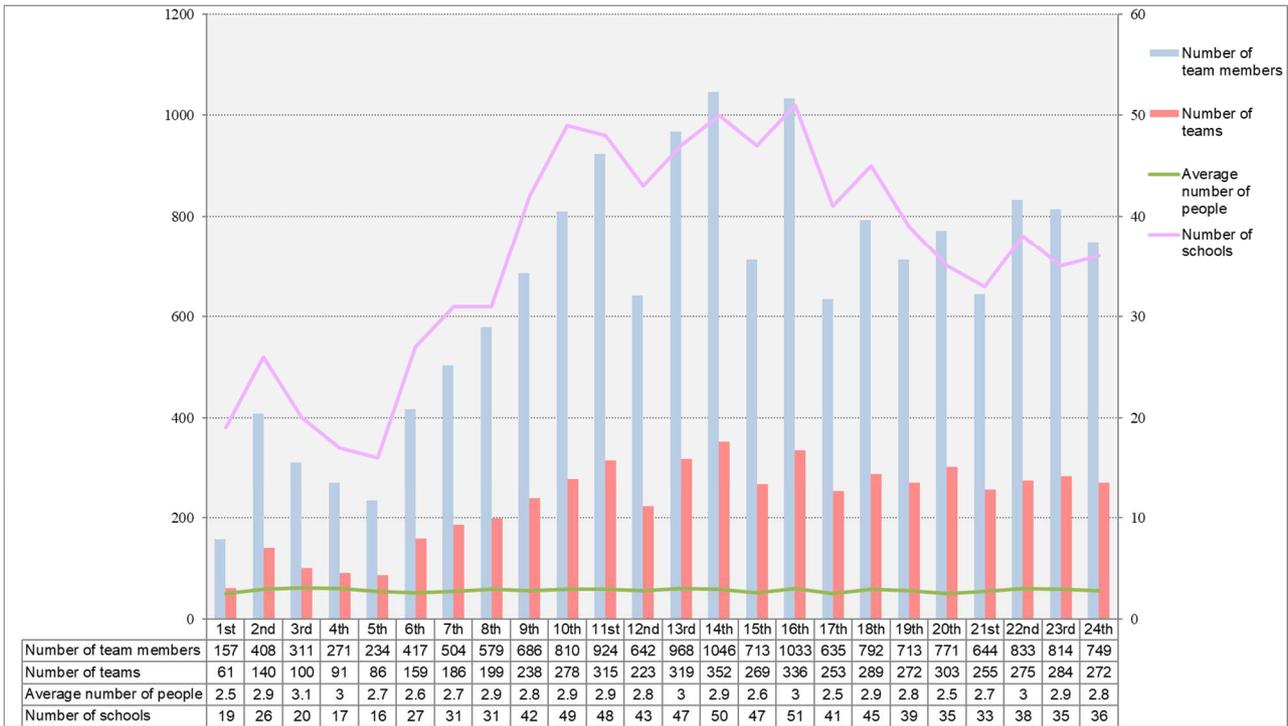
To inspire Taiwanese university students' creative spirit and hands-on experience in the field of semiconductor research, as well as to promote positive interactions between industry and academia, the Foundation held the first Macronix Golden Silicon Awards - Semiconductor Design and Application Competition in 2000. Over 18,000 students and teachers nationwide had participated in these competitions. It is regarded as the most important competition among electronic and electrical engineering students for evaluating their performance before graduation. Envisioning the industry's development trends, Macronix continues to incorporate a wide variety of applications, such as power management, security, biomedical, robotics, digital home, automotive/EV, IoT, and AI into the Golden Silicon Awards. The goal of adding new categories to the competition is to attract and encourage students to propose innovative ideas and exciting creations in relevant domains, thus further stimulating domestic research trends.

To promote sustainable development of the environment, the Green category of the awards was established within the Application Group, encouraging students to engage in energy conservation and environmental protection-related research. Over the years, 187 works have been submitted under this category, including a winner of the Judging Panel's Gold Award.



Chairman Miin Wu, directors of the Macronix Education Foundation and the judges of the Golden Silicon Awards were very attentive to the creative works displayed by the award-winning students.

## Participation in the Golden Silicon Awards over the years



## Macronix Science Awards

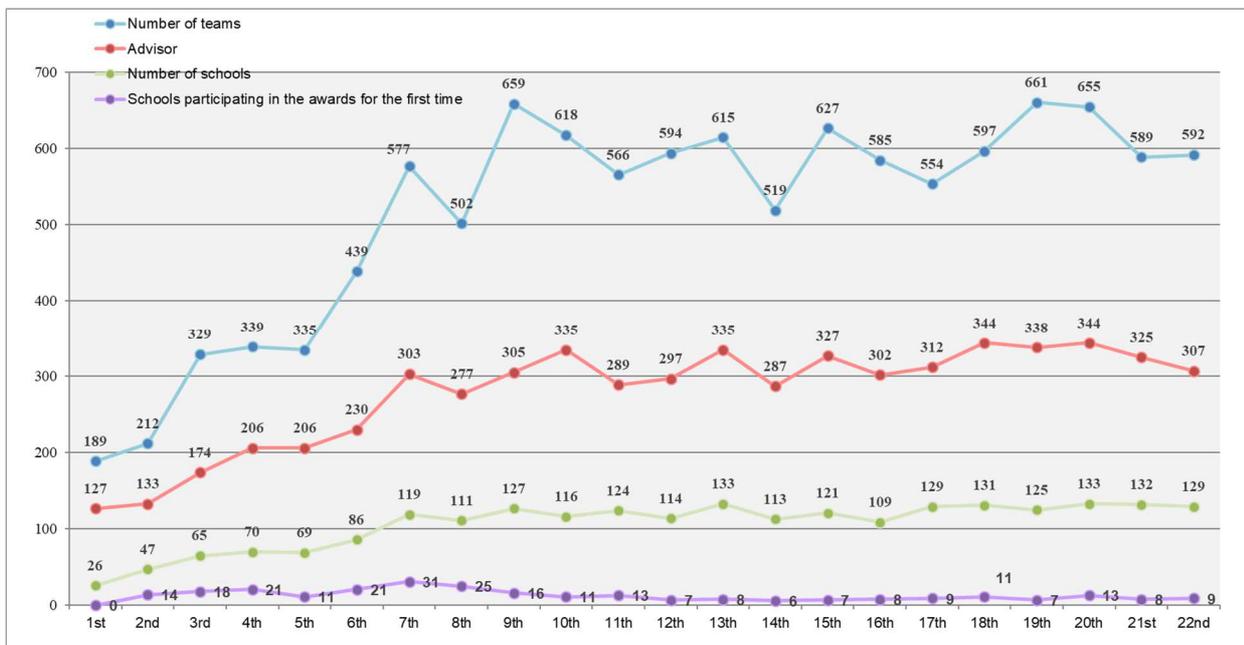


To inspire senior high school students’ interests in natural and applied sciences as well as encourage them to explore science, develop their potential for innovation, outside-the-box thinking, and diversified learning enhancement, the Foundation held the first Macronix Science Awards in 2002 with Chia-Tung Lee, Emeritus Professor of National Chi Nan University, serving as the convener.

The number of students and schools participating in the Macronix Science Awards has grown from 189 teams in the first year to a total of 592 teams, comprising nearly 22,000 participants, by the twenty-second year. Cumulative awards from previous competitions have exceeded NT\$100 million,

and an average annual award of approximately NT\$5 million is bestowed to the award-winning teachers and students of the year, making it the science competition with the highest monetary amounts in Taiwan. More than half of the high schools across Taiwan have participated in this competition, which has been acclaimed in Taiwan as the “Nobel Prize” of senior high school students due to its vast influence. In general, the award-winning students receive a maximum of NT\$480,000 in four-year university scholarships encouraging more students who love science to join the competition.

### Participation in the Science Awards over the years



James C. Liao, President of Academia Sinica attended the awards ceremony to encourage the award-winning teachers and students.

## Macronix Science Awards Association



To extend the creative spirit of the Macronix Science Awards, the Foundation established the Macronix Science Awards Association in September 2004, which is composed of all prize winners. Through the association, new attendees can network with the senior members to expand their scientific horizons from diverse fields' perspectives, thereby helping each other grow and form lifetime bonds.

The Foundation has a project team that guides the association officers in planning and execution of the association's annual meetings. Various seminars are held from time to time inviting Macronix Science Awards committee members and leaders in technological, social, and cultural fields to inspire members to explore life and knowledge in a relaxed, dynamic, and enjoyable manner.

### **Macronix Chair Professor Project**

Macronix has also setup the Macronix Chair Professor Project, which helps academic institutions in Taiwan offer positions for senior faculty and famous researchers in the areas of VLSI and SoC. Macronix hopes to give students the opportunity to learn about state-of-the-art technologies and keep up with the latest industry developments. The Company also encourages the participation and collaboration of industry, academia, and research institutions.

### **Sponsoring Important Science Education Organizations**

Since 2001, the Foundation has continuously promoted science and technology education by upholding the values of the knowledge economy, caring for the development of children and adolescents, and elevating social harmony and quality of life. By supporting major organizations devoted to promoting fundamental science education, including the Wu Chien Shiung Scholarship Foundation, Yuan T. Lee Foundation Science Education for All, and Boyo Social Welfare Foundation, the Foundation aims at inspiring students to learn about science from everyday life, find an interest in science, and ultimately contribute new findings to society.



Chairman Miin Wu was invited to give a speech during the Wu Chien-shiung Science Camp, sharing his academic and entrepreneurship experience with nearly 200 high school students from around Taiwan.

Furthermore, Macronix sporadically sponsors colleges to organize EE camps or invites students and charity groups to visit Macronix for popular science education activities.

From 2012 to 2022, the Foundation has also made donations every year to the International Organization of Chinese Physicists and Astronomers (OCPA) for the Outstanding Young Researcher Award (Macronix Prize) to encourage young overseas Chinese researchers in the fields of physics and astronomy in order to jointly promote high-tech developments. Research grants have been awarded to 13 recipients.

### **Donations to NCKU to Construct the Cheng Kung Innovation Center-MACRONIX Hall to Cultivate Interdisciplinary Talent**

Macronix attaches great importance to the promotion and development of knowledge engineering. After donating NT\$400 million to National Tsing Hua University to construct the Macronix Learning Resource Center (Macronix Building), we donated NT\$420 million to National Cheng Kung University in 2019 to construct the Cheng Kung Innovation Center-MACRONIX Hall to foster technology talent. National Cheng Kung University founded the Miin Wu School of Computing in 2020 to provide teachers and students with an excellent research environment, cultivating interdisciplinary talent for Taiwan with an expertise in computational science, artificial intelligence, and data science. This will allow Taiwan to take an important place on the international stage in the field of technology, which will be even more crucial to changing the society and solving humanity's problems.

## 7.4.2. Fostering Local Cultural and Creative Industries

### **Holding art exhibitions to support local cultural and creative industries**

Since 2019, we have invited an emerging Taiwanese artist to exhibit artworks of different characteristics in the exclusive space of Macronix's show room every year, so as to provide employees with the opportunity to get closer to and appreciate the beauty of art, and to help visitors at home and abroad understand Taiwan's art and culture. For the art works that are newly displayed every year, we will invite artists to share their creative ideas and conduct guided tours of their works, so that employees can cultivate their artistic literacy and their temperament to achieve work-life balance and diversity.



We invite different artists to exhibit their art works of different characteristics in Macronix's show room every year

### **Inviting Taiwanese Artists to Design Award Trophies has been recognized by the Ministry of Culture Arts and Business Awards**

The Macronix Golden Silicon Awards and Macronix Science Awards have become a major battleground for scientific competition in Taiwan. To cultivate local artists, the Macronix Education Foundation has set an example by inviting different local artists to design the trophies every year. The Macronix Education Foundation has supported local sculptors with donations of over NT\$1 million per year and NT\$1.182 million was donated in 2023, with the total exceeding NT\$20 million over the years and with a total of 30 artists benefiting from this. These creations are the spiritual accomplishments created by 30 artists. They also provide an opportunity for more than 40,000 participants to not only experience the joy of winning but also share the beauty of artistic creation. For 23 consecutive years, the Macronix Education Foundation has supported local Taiwanese artists in creating works. In 2021 and 2023, the foundation was awarded with the recognition of the "Arts and Business Awards - Permanent Award - Bronze Award" by the Ministry of Culture for two consecutive sessions.



Macronix Education Foundation was awarded with the 15th and 16th Arts and Business Awards - Permanent Award - Bronze Award, CEO Michelle Chang (right) receiving the award on behalf of the Foundation for two consecutive sessions.

### **Technology for Charity - Care for Underprivileged Groups**

The Macronix Education Foundation not only cares for the development of science and technology talent, but also places importance on disadvantaged groups. Since 2009, the Macronix Education Foundation has sponsored the St. Joseph Social Welfare Foundation to assist mentally and physically challenged children and adults in adapting to society and workplaces, and gaining independence through rehabilitation and various medical resources.

### 7.4.3 Environmental Protection and Charity Events

#### Adopting a Bicycle Eco-path in Hsinchu City



Based on its corporate social responsibility and commitment to give back to the community, Macronix adopted a 12-km long bicycle eco-path in Nanliao, Hsinchu City, located south to the Hsinchu Fish Harbor, north to the Jincheng Lake. Alongside the path, people can enjoy the scenery changing from the Hsinchu Fish Harbor, Hsinchu Environmental Protection Park, Sea Viewing Park, the seawall and sandy coast near the Hsinchu City EPB Incinerator Plant, Hsinchu City Coastal Low Carbon Center for Environmental Education, Hai-Tian-Yi-Xian Sea-watching Wooden Trail, Konan Coastal Scenic Area, Konan Canal, and finally reach Jincheng Lake, the center of Hsinchu City’s bird-watching zone. In particular, the Hai-Tian-Yi-Xian scenic spot’s splendid scenery attracts many families during weekdays and weekends that come to enjoy the gentle breeze blowing along the wooden trail. Macronix has assigned dedicated employees to clean the path every week to provide the clean and tidy environment for people to spend time with their kids in pleasant surroundings. Families can create unforgettable memories and enhance their health while enjoying the beautiful landscape. In this regard, Macronix has been recognized with a “Certificate of Gratitude for Adopting the Hsinchu Environmental Bikeway” issued by the Hsinchu City Government every year due to its dedication to corporate responsibility.

In order to let the public know more about the beauty of the ecology, Macronix was commissioned by the Hsinchu Science Park Bureau, National Science and Technology Council, the Environmental Protection Bureau of Hsinchu City and the Allied Association For Science Park Industries in October 2023 to jointly host the “Hsinchu City 17 Kilometers of Splendid Coastline Parent-Child Ecological Path Cleaning Walking Event” at the Gang Nan Canal Park and the Hsinchu Environmental Protection Bicycle Trail, which was joined by 300 people. In addition to facilitating parent-child interaction, the event also enabled everyone to learn about the importance of treasuring the land and resources and caring for the ecological environment, as well as to implement and promote the green environmental protection and the protection of every resource of the earth.



Warm-up dance

Hiking on bicycle eco-path



Handicraft made by recycled materials

Story book reading

Group photo

Macronix faculty members photo

#### Refurbished Computer and Digital Training Program

Since 2020, Macronix has started donating obsolete computers and peripheral equipment to the ASUS Foundation as part of the "Refurbished Computer and Digital Training Program", which combines environmental protection with social welfare. In 2023, a total of 800 computers and monitors along with other computer peripherals were donated. The goal is to contribute to resource recycling and the creation of a "circular society", while also hoping to make a greater social impact and shorten the digital gap.



## 7.4.4 Employees Participation in Charity Event



Macronix, to fulfill its corporate social responsibility in response to the UN SDGs, has taken active steps to fulfill social responsibility, and has demonstrated compassion for those in need during the occurrence of major disasters, helping people in all corners of society. By actively establishing charity clubs, raising funds for those clubs, and helping with allotting club meeting sites and human resources, we show our enthusiasm and support for social charities to all Macronix employees, and deeply endow the DNA of social responsibility in the hearts of our employees.



### Humane Society

Macronix set up an internal employee charity club, called the Humane Society, in March 2001 with the purpose of helping those in need and increasing social harmony. Comprised by a group of caring Macronix employees, the Humane Society works with other charitable organizations, such as the Hsinchu Taiwan Fund for Children and Families, to help the underprivileged in Hsinchu. The Humane Society was approved by the Hsinchu City Government in 2008 to change its name to the “Humane Society Service Organization”.

<p><b>Macronix Family Sponsorship Drive</b></p>	<p>The Macronix Family Sponsorship Drive has entered its 21st year, unwaveringly calling upon employees to donate and support social welfare organizations, including the Taiwan Fund for Children and Families (aboriginal children), Sacred Heart Home, Miracle Home (teenagers), World Vision, Humane Society Service Organization, and Eden Social Welfare Foundation. In 2023, the monthly number of adoptive sponsors was 131 people, and the total annual donation amount was approximately NT\$2.37 million.</p>
<p><b>Emergency Aid</b></p>	<p>Upholding the purpose of helping people in distress, the Humane Society organizes fundraising activities to help colleagues and their family members who encounter major crises or need urgent assistance.</p>

## Big Love Society

Macronix's Big Love Society is the first charitable organization in Hsinchu Science Park that focuses on healthcare. It promoted the “10,000 Organ Donor Signups with National Health Insurance Card” initiative as its first phase goal, and 2017 marked the 10th year of its promotion, when the society completed its 10-year mission to help promote organ donation. In the future, the promotion of organ donation will be carried on by medical professionals, and Big Love Society will withdraw from related campaigns. However, the spirit of big love will not end, and Big Love Society will continue to gather together company employees and the public to help all corners of society that are in need of assistance.

<p>Promotion of After School Classes for Disadvantaged Students</p>	<ul style="list-style-type: none"> <li>• In 2013, Big Love Society initiated a charity event to collect monthly donations for the Boyo Social Welfare Foundation to help disadvantaged children attend after school classes. Over ten years have passed and over 56 students participated in after school classes in 2023, with the donations that totaled NT\$485,000.</li> </ul>
<p>Promotion of Charity Group Activities</p>	<ul style="list-style-type: none"> <li>• Big Love Society actively promotes events of charity organizations by providing sponsorship funds, collecting donations, and volunteering. In 2023, they assisted a total of 5 charity organizations and sponsored and raised over NT\$45,000 during Macronix Family Day.</li> <li>• This year, Big Love Society will use community funds to assist the Hsinchu Branch of the Syin-Lu Social Welfare Foundation and the St. Joseph Social Welfare Foundation to handle activities related to mentally handicapped children. It will also make donation to Youth at Risk Ministry in Catholic Hsinchu Diocese.</li> </ul>



## Animal Club

The Animal Club was established to help take care of stray animals with dedication, love, and compassion, by embracing the principles of respecting life, caring for life, and advocating the concept of respecting animal life, as well as protecting the environment. It is the only corporate club in Taiwan that aims to protect animals.

The Animal Club works with local governments and is dedicated to trap-neuter-return (TNR) of stray dogs/cats in Hsinchu and Miaoli. Besides rescuing injured animals, a greater part of its efforts are put into the capture of stray dogs/cats, and sending the stray animals for spaying/neutering at an animal hospital. This stops the breeding of stray animals at the source, reducing the number of stray animals that are born each year by 3,000-4,000, and helps the government resolve a social issue.

It organizes free adoption activities at holiday flower markets during all holidays (including Chinese New Year), conducting follow-up and bears the expenses of vaccination and spaying female dogs. This prevents the constant increase of stray dogs and also prevents rabies, which will cause even more environmental and protection issues.

The club also raised NT\$7 million to build an animal shelter for dogs that it could not find an owner for, and the shelter has maintained about 300 stray dogs over the last 19 years.

The Animal Club has not ceased its efforts in animal protection for a single day in the 19 years since it was established. The annual support of about NT\$4 million is also self-financed. It has been extremely difficult, but the club hopes to help the most disadvantaged lives that are of least concern to the public based on the belief that each life is equal, allowing the public to emphasize the importance of animal lives and jointly contribute to protecting stray animals in Taiwan.



<p>Adoption of stray dogs</p>	<ul style="list-style-type: none"> <li>• Every weekend and national holiday, volunteers together with young students of charity organizations of Hsinchu's local high schools and colleges host an event at the Hsinchu flower market to allow people to adopt animals. The event raises awareness about adopting instead of buying, not abandoning their pets, and common knowledge for interacting with animals, allowing more people to learn to</li> </ul>
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	<p>respect life and mitigate social issues caused by stray animals. Each year, the club finds new homes for approximately 250-300 dogs, conducting follow-up, and pays for vaccines and spaying of female dogs.</p>
<p>Spaying/neutering in place of killing</p>	<ul style="list-style-type: none"> <li>• Spaying/neutering rather than killing not only effectively resolves the problem of too many stray dogs, but also manifests the act of having respect for life. Animal Club sterilizes more than 500 stray dogs and cats on average every year, reducing the reproduction of thousands of stray animals each year.</li> </ul>
<p>Animal rescue in action</p>	<ul style="list-style-type: none"> <li>• The Animal Club receives public call-ins from Hsinchu County/City and nearby counties, assists with rescuing injured animals, and captures stray female dogs to have them spayed in veterinary hospitals.</li> </ul>
<p>Cleaning Animal Shelters and Feeding Stray Animals</p>	<ul style="list-style-type: none"> <li>• Stray dogs in animal shelters are fed by volunteers every day at a specific time, and cages in the animal shelter are cleaned once a day.</li> </ul>
<p>Rabies vaccination for stray dogs</p>	<ul style="list-style-type: none"> <li>• The Animal Club helps Hsinchu City Government provide rabies vaccinations for stray animals and homegrown pets; on average, a total of 600 animals receive vaccine injections every year to help prevent the spread of rabies in Taiwan.</li> </ul>

## Water Sports Club

The Water Sports Club was established in 2017. It aims to “promote water sports”. Apart from inviting colleagues to participate in and learn about the fun of water play, the club also aims to cultivate their knowledge of different water areas, as well as the concepts and techniques of water sports safety. In recent years, the club has integrated the issue of “water conservation” to make the water sports experience more meaningful and diversified.

In 2023, the club invited colleagues, their families and friends to participate in the International Coastal Cleanup Day by picking up trash on the beach, in an attempt to give back to the society and take care of the precious environment and resources.



### Coastal Cleaning and Love the Earth

In response to the 2023 International Coastal Cleanup Day, Macronix Water Sports Club joined hands with the Society of Wilderness to organize a coastal cleanup event at the Nanliao Fishing Harbor. In just one hour, a total of 1,507 kilograms of garbage was cleaned up.

Macronix Water Sports Club is committed to promoting water sports and clean water source issues. In addition to designing interesting courses such as SUP, stroke correction, water aerobics and other relaxing experiences, the club also plans coastal cleanup events to make everyone think about the need to protect the rich water resource together.

Macronix continues to implement the spirit of sustainability, and even leads the club to pay attention to sustainability issues. On the International Coastal Cleanup Day, not only did we see the tangible results of cleaning the beaches through the reduction of garbage, but more importantly, in the process of picking up marine garbage, we reflected on how to implement “sustainability” in our daily lives.



On a hot Saturday afternoon, my mom took my brother and me to the Nanliao beach to clean the beach with the Company's club. When we got to the beach cleaning area, we had to walk for a long time, so I complained, “If we keep on walking, I am really going to have a heat stroke!” There was everything on the beach: plastic, helmets, lamps, light bulbs, shoes, glass, and to my surprise: even animal bones! We completed the cleanup swiftly and helped others. After the cleanup, we carried bag after bag of waste back slowly by various means. Originally I did not want to participate in the event. However, looking at the beach after the cleanup, I was glad that I could do my part to serve the nature. It was worth it!

Liu Jui-Hsi/Daughter of Huang Man-Shu  
Macronix/Integrated Component Development Department I

## 8. Appendix

### 8.1. About this Report

#### **Editorial Principles**

Thank you for reading the Macronix International Co., Ltd. (hereinafter “Macronix”) Sustainability Report. Both Chinese and English versions of the Report can be available on the Macronix website (<https://www.macronix.com/>). The purpose of the Report is to provide the general public and all stakeholders of Macronix a better understanding of our concerns and actions in 2023 with regard to sustainability topic. The Report also highlights our commitments and achievements in various sustainability areas.

#### **Reporting Period**

The Report discloses Macronix's performance information in terms of sustainability management policies, key issues, corporate commitments, and actual actions throughout the year 2023 (from January 1, 2023, to December 31, 2023). This Report is issued on an annual basis (the previous version was issued in June 2023, and the next version will be issued in August 2025). Material topics, including talent recruitment and retention, information security management, innovative research and development, and product management have been added compared to 2022.

#### **Aspect Boundaries and Scope of the Report**

The boundaries and scope of the Report include: Headquarters (Address: No.16, Li-Hsin Road, Science Park, Hsin-chu, Taiwan, R.O.C.), Fab 2 (Address: No.16, Li-Hsin Road, Science Park, Hsin-chu, Taiwan, R.O.C.), Fab 5 (Address: No. 19, Li-Hsin Road, Science Park, Hsin-chu, Taiwan, R.O.C.), and Test Building (No. 8, Creation Road IV, Science Park, Hsin-chu, Taiwan, R.O.C.). Other than information disclosed in the consolidated financial report, the subsidiaries are not included within the scope of this Report.

#### **Reporting and Third-Party Verification**

The Macronix Sustainability Report Execution Task Force regularly holds a “Sustainability Report Writing Commencement Meeting” each year to discuss the direction of the annual plan and compilation of the Sustainability Report. Macronix has been compiling a Corporate Social Responsibility Report since 2012, and the Corporate Social Responsibility Report was renamed the Sustainability Report in 2021.

The Report was written based on the GRI Standards of the Global Reporting Initiative (GRI) and AA 1000AP(2018), and was checked by a third-party verification unit. Bureau Veritas Certification (Taiwan) Co., Ltd. was entrusted with the evaluation of the Report. The Report was verified to comply with the requirements of the GRI Standard and AA1000AS(2018) standards. The assurance level to be applied is Moderate Level Assurance (Type I). The Report also meets the requirements of the Financial Supervisory Commission to import Task Force on Climate-related Financial Disclosures (TCFD) and the US Sustainability Accounting Standards Board (SASB) to disclose the information of stakeholder concern.

## **Contact Information**

We sincerely welcome any comments and suggestions about the 2023 Macronix Sustainability Report.

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## 8.2 Content Index

### 8.2.1. GRI Content Index

GRI STANDARD	DISCLOSURE	Page	OMISSION
GRI 1: Foundation 2021	-	-	-
General disclosure			
GRI 2: General Disclosure 2021	2-1 Organization Details	a. Cover, 62-63 b. 62-63 c. 13 d. 13	
	2-2 Entities included in the organization's sustainability reporting	a. 62-63 b. 62-68 c. 62-68	
	2-3 Reporting period, frequency and contact point	a. 178 b. NA c. 178 d. 179	
	2-4 Restatements of information	a. NA	
	2-5 External assurance	a. 30 、 178 b. 178 、 196-199	
	2-6 Activities, value chain and other business relationships	a. 9-12 b. 9-12 、 57-61 c. 62-63 d. NA	
	2-7 Employees	a. 114-115 b. 114-115 c. 114-115 d. 114-115 e. There is no significant fluctuation	

	2-8 Workers who are not employees	a. 115 b. 115 c. There is no significant fluctuation	On-site contractors: Macronix began to collect data on work-related injuries of contractors in 2022, and there is no other annual information available.
	2-9 Governance structure and composition	a. 37-41 b. 37-41 c. 37-41	
	2-10 Nomination and selection of the highest governance body	a. 37-41 b. 37-41	
	2-11 Chair of the highest governance body	a. 38 b. 38-39	
	2-12 Role of the highest governance body in overseeing the management of impacts	a. 20-22 b. 23-32 c. 30	
	2-13 Delegation of responsibility for managing impacts	a. 23-29 b. 30	
	2-14 Role of the highest governance body in sustainability reporting	a. 30 b. NA	
	2-15 Conflicts of interest	a. 38-39 b. 38-39	
	2-16 Communication of critical concerns	a. 43-44 b. 43-44	
	2-17 Collective knowledge of the highest governance body	a. 37-41	
	2-18 Evaluation of the performance of the highest governance body	a. 39 b. 39 c. 39	
	2-19 Remuneration policies	a. 41 b. NA	
	2-20 Process to determine remuneration	a. 41	
	2-21 Annual total compensation ratio	a. 41 b. 41	

		c. 41	
	2-22 Statement on sustainable development strategy	a. 21-22	
	2-23 Policy commitments	a. 111-112 b. 21-22 、 111-112 c. 21-22 d. 21-22 e. 21-22 、 111-112 f. 21-29	
	2-24 Embedding policy commitments	a. 21-22 、 57-58 、 178	
	2-25 Processes to remediate negative impacts	a. 7-8 、 21-22 、 43-44 、 111-112 b. 125 c. 23-29 、 45-50 、 55-56 、 60 、 61 、 71 、 77 、 79 、 97 、 101-102 、 113 、 146-147 、 159 d. 23-29 e. 23-29 、 178	
	2-26 Mechanisms for seeking advice and raising concerns	a. 23	
	2-27 Compliance with laws and regulations	a. 50-51 b. 50-51 c. 50-51 d. 50-51	
	2-28 Membership associations	a. 18-19	
	2-29 Approach to stakeholder engagement	a. 23-32	
	2-30 Collective bargaining agreements	a. 43-44 b. All of colleagues are included	
<b>GRI 3 Material Topic</b>			
<b>Economic Performance</b>			
	3-1 Process to determine material topics	62	

GRI 3: Material Topic 2021	3-2 List of material topics	62	
	3-3 Management of material topics	62	
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	62-68	
	201-2 Financial implications and other risks and opportunities due to climate change	84-96	
	201-3 Defined benefit plan obligations and other retirement plans	66-67,124-125	
	201-4 Financial assistance received from government	66-67	
GRI 205: Anti-corruption 2016	205-3 Confirmed incidents of corruption and actions taken	43-44	
Materials			
GRI 3: Material Topic 2021	3-1 Process to determine material topics	77	
	3-2 List of material topics	77	
	3-3 Management of material topics	77	
GRI 301: Materials	301-1 Materials used by weight or volume	77-78	
	301-2 Recycled input materials used	77-78	
	301-3 Reclaimed products and their packaging materials	77-78	
Energy			
GRI 3: Material Topic 2021	3-1 Process to determine material topics	97	
	3-2 List of material topics	97	
	3-3 Management of material topics	97	
GRI 302: Energy 2016	302-1 Energy consumption within the organization	98-100	

	302-3 Energy intensity	98-100	
	302-4 Reduction of energy consumption	98-100	
Water and discharged water			
GRI 3: Material Topic 2021	3-1 Process to determine material topics	71	
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	3-3 Management of material topics	71	
GRI 303: Water 2018 (management)	303-1 Interactions with water as a shared resource	71-73	
	303-2 Management of water discharge-related impacts	71-74	
GRI 303: Water 2018	303-3 Water withdrawal	71-72	
	303-4 Water discharge	71-72	
	303-5 Water consumption	71-72	
Emissions			
GRI 3: Material Topic 2021	3-1 Process to determine material topics	74-75,101-102	
	3-2 List of material topics	74-75,101-102	
	3-3 Management of material topics	74-75,101-102	
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	104-106	
	305-2 Energy indirect (Scope 2) GHG emissions	104-106	
	305-3 Other indirect (Scope 3) GHG emissions	104-106	
	305-4 GHG emissions intensity	104-106	
	305-5 Reduction of GHG emissions	104-106	

	305-6 Emissions of ozone-depleting substances (ODS)	76, 103	
	305-7 Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	76	
Waste			
GRI 3: Material Topic 2021	3-1 Process to determine material topics	79-80	
	3-2 List of material topics	79-80	
	3-3 Management of material topics	79-80	
GRI 306: Waste 2020 (management)	306-1 Waste generation and significant waste-related impacts	79-80	
	306-2 Management of significant waste-related impacts	79-80	
GRI 306: Waste 2020	306-3 Waste generated	79-83	
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Employment			
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	116-121	
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	126-127	
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	403-2 Hazard identification, risk assessment, and incident investigation	148-149	
	403-3 Occupational health services	148-157	
	403-4 Worker participation, consultation, and communication on occupational health and safety	147, 157	
	403-5 Worker training on occupational health and safety	150-152	
	403-6 Promotion of worker health	153-155	
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	148-151	
	403-8 Workers covered by an occupational health and safety management system	114-115	
GRI 403: Occupational safety and health	403-9 Work-related injuries	150-152	
	403-10 Work-related ill health	158	b. The supplier's personal information is confidential and thus not available
Social Welfare and Education			
GRI 3: Material Topic 2021	3-1 Process to determine material topics	159	
	3-2 List of material topics	159	
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Innovative and R&D			

GRI 3: Material Topic 2021	3-1 Process to determine material topics	55	
	3-2 List of material topics	55	
	3-3 Management of material topics	55	
Product Management			
GRI 3: Material Topic 2021	3-1 Process to determine material topics	60	
	3-2 List of material topics	60	
	3-3 Management of material topics	60	
Information Security Management			
GRI 3: Material Topic 2021	3-1 Process to determine material topics	45-51	
	3-2 List of material topics	45-51	
	3-3 Management of material topics	45-51	

## 8.2.2 SASB Index

<b>Sustainability Accounting Standards Board, SASB</b>			
<b>Topic</b>	<b>Code</b>	<b>Accounting Metric</b>	<b>Page</b>
Greenhouse Gas Emissions	TC-SC-110a.1.	Gross global Scope 1 and Scope 2 emissions and amount of total emissions from perfluorinated compounds	104-105
	TC-SC-110a.2.	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	101-103
Energy Management in Manufacturing	TC-SC-130a.1.	(1) Total energy consumed, (2) Percentage grid electricity, (3) Percentage renewable	98-100
Water Management	TC-SC-140a.1.	(1) Total water withdrawn, (2) Total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	71-73
Waste Management	TC-SC-150a.1.	Amount of hazardous waste from manufacturing, percentage recycled	80-81
Employee Health & Safety	TC-SC-320a.1.	Description of efforts to assess, monitor, and reduce exposure of employees to human health hazards	148-149
	TC-SC-320a.2.	Total amount of monetary losses as a result of legal proceedings associated with employee health and safety violations	50-51
Recruiting & Managing a Global & Skilled Workforce	TC-SC-330a.1.	Percentage of employees that are (1) Foreign nationals (2) Located offshore	114-115
Product Lifecycle Management	TC-SC-410a.1.	Percentage of products by revenue that contain IEC 62474 declarable substances	108
	TC-SC-410a.2.	Processor energy efficiency at a system-level for: (1) Servers (2) Desktops (3) Laptops	Not Applicable
Materials Sourcing	TC-SC-440a.1.	Description of the management of risks associated with the use of critical materials	52-54

Intellectual Property Protection & Competitive Behavior	TC-SC-520a.1.	Total amount of monetary losses as a result of legal proceedings associated with anticompetitive behavior regulations	43-44
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### 8.2.3 Sustainable Disclosure Indicator — Semiconductor Industry

No.	Indicator	Response	Page
I	Total energy consumption	1,962,022 Gigajoules (GJ)	100
	Percentage of purchased electricity	94.34 %	100
	Utilization rate of renewable energy source	1.19 %	100
II	Total water withdrawal	2,684 thousand cubic meters (m <sup>3</sup> )	72-73
	Total Water Consumption	723 thousand cubic meters (m <sup>3</sup> )	72-73
III	Weight of hazardous waste produced	5,545 metric tons (tons)	81
	Percentage of hazardous waste recycled	99.6 %	81
IV	Disclosure of work-related injuries categories	The main types of work-related injuries were pinches and falls	150-152
	Disclosure of the number of work-related injuries victims	5 people	150-152
	Disclosure of the rate of work-related injuries	0.12 %	150-152
V	Disclosure of product life cycle management: including the weight of scrapped products and electronic wastes	IC: 1.907 tons Wafer: 9.597 tons	79-80
	Disclosure of product life cycle management: including the recycling percentage of scrapped products and electronic wastes (Note 1)	IC: 100 % Wafer: 100 %	79-80
VI	Description of risk management relating to the use of key materials	Pay attention to and understand the risks of fire, earthquake, flood, typhoon, infectious disease, water shortage, power outage, etc., in order to take corresponding risk management and control strategies in a timely manner according to the priority and ranking of risks to minimize the impact of damage.	52-54
VII	Total monetary losses arising from legal proceedings relating to anti-competitive behavior regulations	None	43-44

VIII	Output of main products by product category	Refer to the annual report for the production value table for the last two years	9-12
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## 8.2.4 Comparison of Task Force on Climate-related Financial Disclosures (TCFD)

Risks and opportunities of climate change to the Company and the corresponding measures taken by the Company		
Item	Implementation status	
	Corresponding chapter	Corresponding page
1. Describe the Board of Directors' and management's supervision and governance of climate-related risks and opportunities.	Ch 6.2	84-86
2. Describe how the identified climate risks and opportunities affect the corporate business, strategy, and finance (short, medium, and long term).	Ch 6.2	84-86
3. Describe the financial impact of extreme climate events and transformation actions.	Ch 6.2	90-95
4. Describe how the identification, assessment, and management processes of climate risks are integrated into the overall risk management system.	Ch 4.2	51-55
5. If scenario analysis is used to assess the resilience to climate change risks, the scenarios, parameters, assumptions, analysis factors and major financial impacts used should be stated.	Ch 6.2	84-86
6. If there is a transformation plan to manage climate-related risks, the content of the plan, and the indicators and targets used to identify and manage physical and transformation risks should be stated.	Ch 6.2	84-86、90-95
7. If internal carbon pricing is used as a planning tool, the basis for price setting should be stated.	Internal carbon pricing mechanism has	

	not been established	
8. If a climate-related target is set, the activities covered, scope of GHG emissions, planning schedule, annual progress and other information should be stated; If carbon offset or Renewable Energy Certificates (RECs) are used to achieve the relevant targets, the source and quantity of the carbon reduction quota offset or the quantity of Renewable Energy Certificates (RECs) should be stated.	Ch 6.2	98
9. GHG inventory and assurance	Ch 6.2.3	104

### 8.3. Comparison of UN Sustainable Development

#### Goals(SDGs)

Goals	Description	Chapter
1 	End poverty in all its forms everywhere	7.4.4. Employees Participation in Charity Events
2 	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	7.4.4. Employees Participation in Charity Events
3 	Ensure healthy lives and promote well-being for people of all ages	7.3.2. Safety and Health Promotion Management
4 	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	7.2. Learning and Development 7.4.1. Planting the Seed of Science Education
5 	Achieve gender equality and empower all women and girls	7.1. Staff Respect 7.2. Upholding Employee Rights
6 	Ensure availability and sustainable management of water and sanitation for all	6.1.1. Water Resource Management 7.3.2 Safety and Health Promotion Management
7 	Ensure access to affordable, reliable, sustainable, and modern energy for all	6.2.2. Energy Management
8 	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	4.3. Innovation 6.1.1. Water Resource Management 6.2.2 Energy Management 7.1.1. Recruitment
10 	Reduce inequality within and among countries	7.1. Staff Respect
11 	Make cities and human settlements inclusive, safe, resilient and sustainable	6.1.1 Water Resource Management 6.1.2 Air Pollution Prevention 6.1.4 Waste Management

		6.3 Ecological Environment and Conservation 7.3.1. Macronix H <sub>2</sub> O
12		Ensure sustainable consumption and production patterns 6.1. Environmental Protection Management and Pollution Prevention
13		Take urgent action to combat climate change and its impacts 4.2. Risk Management 6.2. Energy and Climate Change Management
14		Conserve and sustainably use the oceans, seas and marine resources for sustainable development 7.4.3 Environmental Protection and Charity Events 7.4.4 Employees Participation in Charity Events
15		Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss 6.3. Ecological Environment and Conservation
16		Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive 4.1. Corporate Governance
17		Strengthen the means of implementation and revitalize the global partnership for sustainable development 4.4. Supply Chain Management 6.4.2 Green Procurement and Environment, Safety, and Health Costs Accounting Management System

## 8.4. Independent third-party assurance statement



### INDEPENDENT ASSURANCE STATEMENT

To: The Stakeholders of **MACRONIX INTERNATIONAL CO., LTD.**

#### Introduction and objectives of work

Bureau Veritas Certification Taiwan has been engaged by **MACRONIX INTERNATIONAL CO., LTD.** to conduct an independent assurance of its **MACRONIX INTERNATIONAL CO., LTD. 2023 Sustainability Report**. This Assurance Statement applies to the related information included within the scope of work described below.

This information and its presentation in the **MACRONIX INTERNATIONAL CO., LTD. 2023 Sustainability Report** are the sole responsibility of the management of **MACRONIX INTERNATIONAL CO., LTD.** Bureau Veritas was not involved in the drafting of the Report. Our sole responsibility was to provide independent assurance on its content.

#### Scope of work

The assurance process was conducted in line with the requirements of the AA1000 Assurance Standard V3, Type I - AccountAbility Principles engaged. The scope of work included:

- Data and information included in **MACRONIX INTERNATIONAL CO., LTD. 2023 Sustainability Report** for the 1<sup>st</sup> January, 2023 to 31<sup>st</sup> December, 2023;
- Appropriateness and robustness of underlying reporting systems and processes, used to collect, analyse and review the information reported;
- Evaluation of the Report against the main principles of the AA1000 Accountability Principle (2018)<sup>1</sup>
  - Inclusivity
  - Materiality
  - Responsiveness
  - Impact
- Evaluation of the Report against the principles of Stakeholder Inclusiveness, Sustainability Context, Materiality, Completeness, Balance, Comparability, Accuracy, Timeliness, Clarity, and Reliability, as defined in the GRI Sustainability Reporting Standards.

The levels of assurance have been applied as Moderate assurance.

#### Methodology

As part of its independent assurance, Bureau Veritas undertook the following activities:

1. Interviews with relevant personnel of **MACRONIX INTERNATIONAL CO., LTD.** ;
2. Review of documentary evidence produced by **MACRONIX INTERNATIONAL CO., LTD.** ;
3. Review performance data listed in report with sampling basis;

<sup>1</sup> Published by AccountAbility: The Institute of Social and Ethical Accountability  
<http://www.accountability.org>



4. Visits to 1 site located in Taiwan (Hsinchu City);
5. Review of **MACRONIX INTERNATIONAL CO., LTD.** data and information systems for collection, aggregation, analysis and review.

Our work was conducted against Bureau Veritas' standard procedures and guidelines for external Assurance of Sustainability Reports, based on current best practice in independent assurance.

The work was planned and carried out to provide reasonable, rather than absolute assurance and we believe it provides a reasonable basis for our conclusions.

#### **Our findings**

On the basis of our methodology and the activities described above, it is our opinion that:

- The information and data included in **MACRONIX INTERNATIONAL CO., LTD. 2023 Sustainability Report** are accurate, reliable and free from material mistake or misstatement;
- The Report provides a fair representation of **MACRONIX INTERNATIONAL CO., LTD.**'s activities over the reporting period;
- The information is presented in a clear, understandable and accessible manner, and allows readers to form a balanced opinion over **MACRONIX INTERNATIONAL CO., LTD.**'s performance and status during the **1<sup>st</sup> January, 2023 to 31<sup>st</sup> December, 2023**;
- The Report properly reflects the organisation's alignment to and implementation of the AA1000 Assurance Standard V3 principles of Inclusivity, Materiality, Responsiveness and Impact in its operations. Further detail is provided below;
- **MACRONIX INTERNATIONAL CO., LTD.** has established appropriate systems for the collection, aggregation and analysis of relevant information;

#### **Alignment with the principles of AA1000 Accountability Principle (2018)**

##### **Inclusivity**

**MACRONIX INTERNATIONAL CO., LTD.** has processes in place for engaging with key stakeholders including socially responsible investors, clients, employees, supply chain and local community; and has undertaken a number of formal stakeholder engagement activities in 2023 covering a range of material topics such as Economic, Social and Environment.

##### **Materiality**

The Report addresses the range of environmental, social and economic issues of concern that **MACRONIX INTERNATIONAL CO., LTD.** has identified as being of highest material importance. The identification of material topics has considered both internal assessments of risks and opportunities to the business, as well as stakeholders' views and concerns.

##### **Responsiveness**

**MACRONIX INTERNATIONAL CO., LTD.** is responding to those issues it has identified as material and demonstrates this in its policies, objectives, indicators and performance targets. The reported information can be used by the organisation and its stakeholders as a reasonable basis for their opinions and decision-making.



### Impact

**MACRONIX INTERNATIONAL CO., LTD.** 's management system can monitor, measure and be accountable for how their actions affect their broader ecosystems.

### Report Structure

**MACRONIX INTERNATIONAL CO., LTD.** does fully provide the information to achieve the GRI Standards and SASB in accordance, and the performance indices do correspond and can be cross referenced to the content of relevant GRI Standards and SASB.

### Key areas for ongoing development

Based on the work conducted, we recommend **MACRONIX INTERNATIONAL CO., LTD.** to consider the following:

- Encouraging the organization to communicate with non-seven important stakeholders can also be included in the survey of sustainability issues, which will help the organization to respond in an integrated manner. (RESPONSIVENESS)

### Limitations and Exclusions

Excluded from the scope of our work is any assurance of information relating to:

- Activities outside the defined assurance period;
- Positional statements (expressions of opinion, belief, aim or future intention by **MACRONIX INTERNATIONAL CO., LTD.**) and statements of future commitment.

This independent statement should not be relied upon to detect all errors, omissions or misstatements that may exist within the Report.

### Statement of independence, impartiality and competence

Bureau Veritas is an independent professional services company that specialises in Quality, Health, Safety, Social and Environmental management with more than 195 years history in providing independent assurance services. Bureau Veritas 2023 full year revenues reached 5.9 billion euros. The Group's adjusted net profit for 2023 reached 930.2 million euros.

Bureau Veritas has implemented a Code of Ethics across the business to maintain high ethical standards among staff in their day to day business activities. We are particularly vigilant in the prevention of conflicts of interest.

No member of the assurance team has a business relationship with **MACRONIX INTERNATIONAL CO., LTD.**, its Directors or Managers beyond that required of this assignment. We have conducted this verification independently, and there has been no conflict of interest.

The assurance team has extensive experience in conducting assurance over environmental, social, ethical and health and safety information, systems and processes, has over years combined experience in this field and an excellent understanding of Bureau Veritas standard methodology for the Assurance of Sustainability Reports.



**Bureau Veritas Certification Taiwan**

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18<sup>th</sup> May 2024



**AA1000**  
Licensed Report  
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Technical Reviewer: Carter Liu

Date: 18/May/2024

Assurer : Lily Chuang

Date: 18/May/2024