



# **2016 Macronix International Co., Ltd. Corporate Social Responsibility Report**



**June 2017**

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# 1. Messages from the Macronix Executives

## 1.1. A Message from the Chairman and CEO

As the world's leading manufacturer of Non-Volatile Memory (NVM), Macronix provides a full range of NOR Flash, NAND Flash, and ROM products. By adhering to an honest business philosophy, Macronix has not only become the largest global manufacturer and supplier of the most advanced ROM, but is now also the second largest global leading manufacturer and the No. 1 Asian brand provider of NOR flash memory. The shipments in 2016 increased by 16% compared to the previous year. Although Macronix only entered the NAND Flash product market in the last few years, its sales volume growth continued to accelerate in 2016, with an annual growth rate of 107%.

Macronix continuously strives for the innovation and development of NVM technology and products and has attached great importance to protecting intellectual property rights by applying for patents on its key technology and R&D results. In 2016, 573 patents were filed, and a total of over 6,833 patents have been obtained worldwide. According to a report by LexInnova in 2015, our 3D Stacked Memory Technology (with 95 patents) was ranked No. 4 worldwide. Papers about Macronix's advanced technology have been selected in leading conferences, such as IEDM, ISSCC, and VLSI, thus fortifying Macronix's status as a global leader in NVM.

With the wide array of smart system applications, such as IoT, Macronix expected to increase the sales of NOR Flash products below 75-nm by 50%, sell more high-capacity products, and continuously expand the automotive applications. Having obtained AEC-Q100 certification regarding the best quality and efficacy in the industry, SLC NAND products were applied to automotive electronics by our clients. Currently, our ROM products are less than 45-nm; NOR Flash is expected to advance on a 48-nm process; NAND Flash will migrate to a 19-nm process from a 36-nm process. We expect to launch 3D NAND products in the fourth quarter and are confident of the Company's future growth.

In addition to providing quality products and services that improve profits and operations, Macronix is committed to corporate social responsibility by requesting that its suppliers sign the Supplier's Consent to Social Responsibility and Business Ethics and encouraging them to participate in management system certification, counseling, and evaluation. In 2016, we carried out a drill on the interruption of compound company

operations caused by natural disasters and continued to supervise potential impacts of the interruption of company operations based on the improvement program for the 20 primary risks as determined by external consultants.

Macronix is devoted to promoting science education. In 2001, Macronix established the Macronix Education Foundation, which has sponsored the Macronix Golden Silicon Awards and Macronix Science Awards for 17 consecutive years; more than 20,000 teachers and students have participated in these competitions, and more than NT\$90 million in scholarships has been granted to inspire students to explore science and invention. Envisioning the development trends of the industry, Macronix continues to incorporate a wide variety of applications, such as green energy, biomedicine, robotics, IoT, smart homes, and automotive electronics, into these competitions to further stimulate domestic research. These studies provide long-term inspiration for domestic scholars exploring science

Macronix is fully dedicated to promoting Corporate Social Responsibility (CSR), and was the first semiconductor firm in Hsinchu Science Park to receive the SA8000 Corporate Responsibility Management Systems certificate. Our CSR reports are compiled according to the Global Reporting Initiative (GRI), G4 Guidelines, and Accountability 1000 Assurance Standards (AA1000).

Macronix pursues corporate and social sustainable development. We foresee the potential development of various products, such as IoT/wearable devices and automotive/industrial products, as well as infrastructures, all of which will be the main driving force for future business growth. We will continue to improve our technologies and products, with the hope of creating greater economic value. In addition to cultivating our main business activities, we strictly adhere to business ethics standards and embrace integrity. We will endeavor to be a good corporate citizen, persist in our commitment to environmental sustainability, and do our best to contribute to society, thus improving the quality of life for all humans.

**Macronix Chairman & CEO**



## 1.2. A Message from the President

As a leading provider of non-volatile memory, Macronix adheres to our corporate values of “innovation, quality, efficiency, service, and team work” and perseveres in our business philosophy to deliver high-quality, innovative, and performance-driven products to our customers with world-class R&D and manufacturing capabilities.

In addition to creating innovative products and ensuring the continuous growth of its main businesses, Macronix also aims to fulfil its role as a global citizen and become a benchmark company for green technology. Regarding environmental protection, safety, and health systems, we actively promote energy and water conservation, as well as waste reduction, through our management system; we also invest in renewing and maintaining various types of equipment to prevent air, water, waste, and noise pollution. In 2016, Macronix received “Outstanding Enterprise of Water Conservation Award” from Water Resources Agency, Ministry of Economic Affairs, “Outstanding Enterprise of Energy Conservation Award” from Ministry of Economic Affairs, as well as Hsinchu Science Park. Macronix was selected as the manufacturer for outstanding management of toxic chemicals and was granted the badge for a certified breastfeeding room establishment and management, the highest honor for "Badge of Accredited Healthy Workplace", and the "Distinguished Landscape Award" from the Hsinchu Science Park Bureau.

Despite our need for a considerable volume of water in the production process, we understand how important water resources are; therefore, Macronix is consistently dedicated to promoting water conservation. Thanks to the efforts of our Fab 5 plant, Macronix was honored by the Water Resources Agency, Ministry of Economic Affairs as the manufacturer in Hsinchu Science Park that demonstrated excellent water-saving performance in 2016 and referred to the communities as a successful water-saving case. Macronix reduced its water consumption through management, promotion, and implementation, from the source and process recycling to regularly monitoring the results of its water-saving measures. In 2016, the total volume of process water recycled, including 6-inch, 8-inch, and 12-inch fab plants, reached 3.3 million tons, which is equivalent to 1,740 standard swimming pools. In particular, the volume of process water recycled in the 12-inch fab plant reached almost 1.7 million tons, with a recycling rate of 88.1%.

In addition to placing great importance to environmental protection and corporate social responsibilities for many years, we have also proceeded from the source, incorporating environmental protection concepts into our product designs. Macronix’s green products not only conform to the EU’s RoHS directives and requirements for substances of very high concern (SVHC), as well as the amount of hazardous substances stipulated in the End-of-life

Vehicle (ELV) Directive, but also take into consideration customers' needs. Furthermore, we prohibit the use of conflict minerals, integrate the primary members of a product supply chain to construct a comprehensive green electronic product supply chain management system, and implement risk assessment of suppliers (RAS) to ensure that the entire supply chain can jointly implement green practices. Macronix follows international trends in environmental protection and procures equipment with Eco Labels (implemented by the Environmental Protection Administration) or Energy Star labels (promoted by the Ministry of Economic Affairs). Therefore, we are also regarded as a private manufacturer and group in Hsinchu that performs exceptionally well in green procurement.

We uphold the belief that employees are fundamental to the Company and are our most precious asset; therefore, we attach extreme importance to employees' quality of life and development and such issues as health and safety. We continuously work to build Macronix into a healthy, happy company where a wide variety of software and hardware facilities, such as diverse learning maps and a nurturing learning environment, are established to cultivate our employees. To care for the physical and mental health of our employees, we have continued to promote the Sports Day program to encourage employees to develop the habit of exercising regularly while balancing their work and life to create the perfect vision with the Company.

CSR has become a crucial topic in sustainable development. The Macronix CSR Report faithfully discloses our persistence and determination to advance toward long-term corporate sustainable management. Macronix will incorporate the CSR concept into its management system, internalize this concept in its corporate culture and value system, continue to strive to maximize benefits for its employees, customers, partners, and shareholders, and aim to produce a mutually beneficial outcome for the company, environment, and society as a whole.

**Macronix President**



## 2. Macronix

A leading integrated device manufacturer in the Non-Volatile Memory (NVM) market, Macronix provides a full range of NOR flash, NAND flash, and ROM products. With its world-class R&D and manufacturing capabilities, Macronix continues to deliver innovative and performance-driven products of the highest quality to its customers in the consumer, communication, computing, automotive, and networking markets, among others.

Macronix was founded in Taiwan's Hsinchu Science Park in 1989, and since its inception, the Company has continuously leveraged the competitive advantages of its products and constantly strived to enhance our 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 has been awarded the Corporate Governance System Evaluation Certification for publicly traded and over-the-counter companies and was the first semiconductor manufacturer in the Hsinchu Science Park to receive the SA8000 Corporate Responsibility Management Systems certificate.

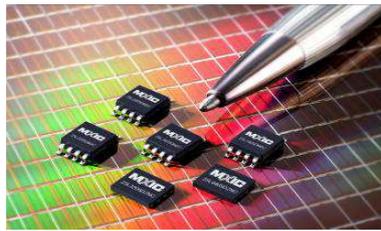
Each year, Macronix allocates 20% of its revenue to research and development, the results of which have been published in technical journals and such multiple international academic conferences as IEDM and ISSCC over the years. Macronix currently holds the intellectual property rights for 6,400 key international technologies and patents. We have formed alliances with leading high-tech firms across the world to collectively conduct research in order to develop technologies for Phase Change memories. Macronix has also announced the world's first flash prospective technology, BE-SONOS™. All of these developments aim to provide solutions for the next generation of non-volatile memories.

Macronix currently owns one 12-inch wafer fab (Fab 5), one 8-inch wafer fab (Fab 2), and one 6-inch wafer fab (Fab 1). Macronix designs and fabricates its non-volatile memory products in Fab 5 and Fab 2, while Fab 1 focuses on strategic foundry businesses for niche analog and logic products.

Macronix spun off its logic products unit to establish subsidiaries so that the Company's operations could better focus on delivering optimized performance. Since then, Macronix and its subsidiaries have cooperated in the R&D of mobile platform solutions, ultimately expanding the Group's overall integration capabilities.

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 increase its competitiveness and profitability. We will do our utmost to deliver sustainable growth for Macronix while also enhancing Taiwan's competitiveness worldwide.



**MXIC** 旺宏電子股份有限公司  
MACRONIX INTERNATIONAL CO., LTD.

**旺宏的使命及宣言**  
**MISSION STATEMENT**

在當今或未來，旺宏電子矢志成為半導體產業的領導供應廠商，以精湛的技術、最高的品質與可靠的服務，提供創新的客戶／應用導向解決方案與非揮發性記憶體產品。

Macronix is and will continue to be a leading provider of innovative customer/application driven system solutions and non-volatile memory requiring state-of-the-art technology, the highest quality and trustworthy service.

董事長兼執行長  
Chairman & CEO

*吳敏求* 2011/07/28

### Macronix at a Glance

Highlights		<ul style="list-style-type: none"> <li>✓ The only Taiwan-based non-volatile memory provider with its own brand and global competitiveness</li> <li>✓ Devoted to long term investments in R&amp;D and proprietary technologies</li> <li>✓ Owns complete intellectual property portfolio and has the capability to provide integrated solutions</li> </ul>
Date Established		December 1989
Publicly Listed		March 1995
2015 Revenue		NT\$24.125 billion
Number of Employees	General Employees	3,529
	Management Level (Manager and Above)	692
Fab Capable Capacity		Fab 1 (6") ~40K
		Fab 2 (8") ~48K
		Fab 5 (12") ~50K
ROM's Market Share		No. 1 worldwide
NOR Flash's Market Share		No. 2 worldwide (No. 1 worldwide for Serial NOR Flash)

## 2.1. Products and Services

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

With its 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, and industrial markets, among others.

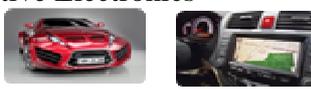
Macronix is one of the few companies capable of providing a comprehensive lineup of densities from 512 Kbit to 2 Gbit for Serial NOR Flash products. We have NOR Flash products with tiny and thin packages to meet the market trend of portable electronics getting lighter and smaller. Furthermore, our self-developed Single-Level Cell (SLC) NAND flash products are expected to fulfill the demand of high-level embedded applicatoin requiring suporier quality and reliability. We also provide KGD (Known Good Die) products to meet the needs of SIP (System in Package) solutions. In our ROM business, 32 nm XtraROM® has entered mass production.

Macronix has presented Ultra Low Power Flash to meet the demands of wearable smart device market with its features of low power consumption, wide range Vcc, and the capability of saving more than 60% of power compared with conventional products. We have also introduced the industry's fastest SPI NOR OctaFlash, which satisfies the requirements of automotive infotainment, telematics, and digital cameras for flash memory with high-capacity, fast transmission, and high reliability. In 2016, OctaBus, an open memory interface featuring low bit and high efficacy, was launched for automotive electronics and IoT applications.

## Macronix Products and Applications

Product Type	Key Products	Applications and Functions
Non-Volatile Memory IC	Read-only Memory (Mask ROM/XtraROM <sup>®</sup> )	Video game cartridges, electronic dictionaries, printers, personal entertainment devices, electronic toys, etc.
	NOR Flash Memory	Mobile phones, set-top boxes, personal computers, digital cameras, MP3 players, CD-ROM drives, printers, hard drives, network devices, tablet PCs, wireless communication devices (Bluetooth, WLAN), arcade games.
	NAND Flash Memory	Mobile phones, set-top boxes, TVs, digital cameras, MP3 players, printers, hard drives, network devices, tablet PCs, wireless communication devices (Bluetooth, WLAN), arcade games.
Wafer Foundry Service	Sub-micron Logic Process/Pressurized CMOS and BCD Process	Provide pressurized CMOS manufacturing technology; provide service for power management and LED / LCD driver IC services.
	Embedded ROM/Flash/MTP/OTP Process	Provide integrated embedded ROM/Flash/MTP/OTP technology to strategic clients.

## Scope of Application

<b>Computer</b> 	Personal computers, notebooks, tablets, computer peripherals/accessories, and printers
<b>Consumer</b> 	TV/MOD, wearable devices, drones, sports cameras, digital cameras, smart home appliances, video game systems, Pachinko, toys, audiovisual tools
<b>Communication</b> 	Mobile networks, home networks, enterprise networks, telecommunication networks
<b>Automotive Electronics</b> 	Advanced driving assistance systems, infotainment, telematics, clusters
<b>Industrial</b> 	Automation, smart building, smart grid, smart medical device, transportation, POS, M2M

## Key Markets

Macronix is an export-oriented company, with Japan as our largest market. A prolific manufacturer of gaming systems and consumer electronics worldwide, Japan has a strong and consistent demand for high-quality IC components.

## Product Sales and Market Share

Product	2016 (Parent Company Only)	
	Sales Turnover	Sales Ratio
NOR Flash Memory	13,879,590	58%
NAND Flash Memory	2,623,383	11%
Read-only Memory (ROM)	4,652,988	20%
Wafer Foundry Services (FBG)	2,568,092	11%
Others	9,054	0%
<b>Total</b>	<b>23,733,107</b>	<b>100%</b>

Unit: NT\$1,000

MaskROM/XtraROM®, one of Macronix's main products, has long been the global market share leader. According to 2016 OTP ROM global market share statistics, we are ranked number one in the global ROM market share.

Type	Rank
Read-only Memory (ROM) (with over 50% market share)	1. Macronix
	2. OKI Semiconductor
	3. Others

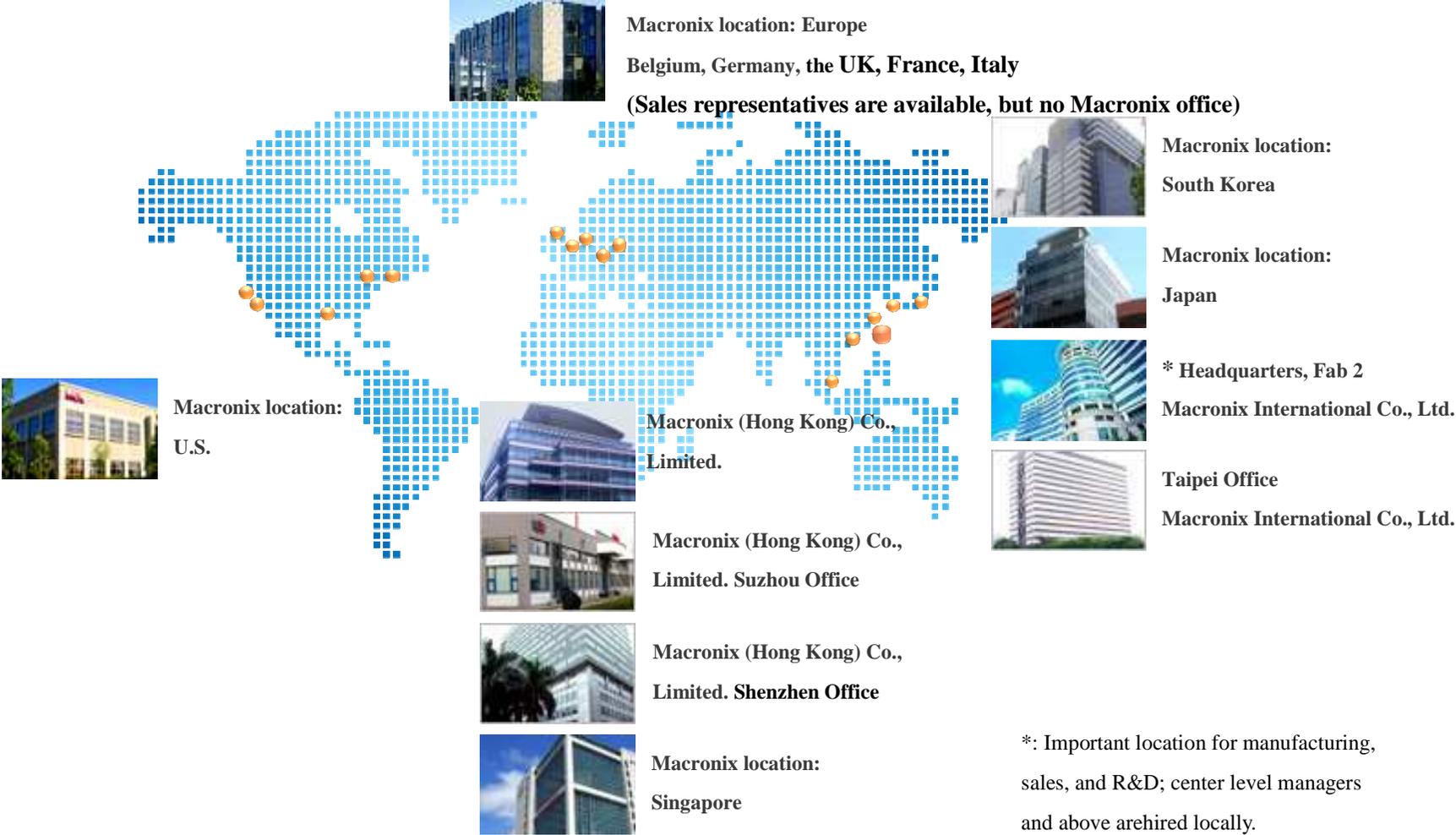
Macronix's Serial NOR flash has been popular with our clients, thus accelerating our global market share in NOR flash products to second place worldwide, with our Serial NOR flash ranking first in the world.

#### 2016 NOR Flash's Market Share

Type	Rank
Serial NOR Flash (with 34% market share)	1. Macronix
	2. Winbond
	3. Gigadevice
	4. Cypress (Spansion)
	5. Micron
NOR Flash (with 24% market share)	1. Cypress (Spansion)
	2. Macronix
	3. Micron
	4. Winbond
	5. Gigadevice

Source: iHS Markit, Q1 2017

## 2.2. Global Operations Centers



## 2.3. Macronix CSR Milestones

Year	Major Achievements
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 its first "Macronix Science Awards."</li> </ul>
2004	<ul style="list-style-type: none"> <li>• Received the "2004 Distinguished Enterprise of Energy Conservation Award" from the Bureau of Energy, Ministry of Economic Affairs</li> <li>• First firm in Hsinchu Science Park to complete comprehensive inspection and verification on greenhouse gases</li> <li>• Established the Macronix Science Awards Association</li> </ul>
2005	<ul style="list-style-type: none"> <li>• Received ISO 14001:2004 Environmental Management System Certification from the British Standards Institute</li> <li>• Macronix's Fab 2 won the 14th Republic of China Corporate Environmental Protection Award for four consecutive years</li> </ul>
2006	<ul style="list-style-type: none"> <li>• Received green product certification from such international brands as SONY, CANON, and LG for compliance with RoHS requirements</li> </ul>
2007	<ul style="list-style-type: none"> <li>• Received the IECQ QC080000 Hazardous Substance Process Management System Certification</li> <li>• Received the "Outstanding Award for Greenhouse Gas Emissions Reduction" from the Bureau of Industrial Development, Ministry of Economic Affairs</li> <li>• Awarded the ISO 14064-1 "Certificate of Greenhouse Gas Emission Verification" by the British Standards Institute</li> <li>• Granted the "CG6002 Corporate Governance Certification" by Taiwan Corporate Governance Association</li> </ul>

Year	Major Achievements
2008	<ul style="list-style-type: none"> <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> <li>• Donated CNY 5 million to help victims of the Sichuan earthquake</li> <li>• Encouraged upstream and downstream supply chain partners to implement the Electronic Industry Citizenship Coalition Code of Conduct (EICC)</li> <li>• Granted with new OHSAS 18001: 2007 certification from SGS</li> <li>• Granted the Taiwan Occupational Safety and Health Management System (TOSHMS) Certification</li> <li>• Recognized with the "2007 Green Procurement Outstanding Award" by the Environmental Protection Administration</li> </ul>
2009	<ul style="list-style-type: none"> <li>• Awarded the National Industrial Safety &amp; Health Award</li> <li>• Became the first semiconductor manufacturer to receive safety certification for a top-quality enterprise</li> <li>• Donated NT\$100 million to aid the victims of Typhoon Morakot in Taiwan</li> <li>• Received the fifth annual Global Views Monthly Magazine CSR Award for its outstanding performance in Corporate Social Responsibility</li> </ul>
2010	<ul style="list-style-type: none"> <li>• Received the sixth annual Global Views Monthly Magazine CSR Award top honor (Five-star rating)</li> <li>• Received the 2010 Commonwealth Magazine Corporate Citizenship Award</li> <li>• Donated an additional NT\$100 million for the Macronix Building at National Tsing Hua University</li> <li>• Received the Employment Creation Contribution Award from the Executive Yuan</li> </ul>
2011	<ul style="list-style-type: none"> <li>• Donated NT\$30 million to the Japan Earthquake Relief Efforts</li> <li>• Received the Employment Creation Contribution Award from the Executive Yuan</li> <li>• Honored as one of the Top 100 Taiwan Brands by the Ministry of Economic Affairs, ROC</li> <li>• Once again received the Commonwealth Magazine Corporate Citizenship Award</li> <li>• Honored with the 2011 National Invention and Creation Award's Contribution Award</li> <li>• Received CG6006 Corporate Governance Evaluation Certification</li> <li>• Received the Employee Assistance Plan Outstanding Business Award from the Council of Labor Affairs, Executive Yuan</li> </ul>

Year	Major Achievements
2012	<ul style="list-style-type: none"> <li>• Received the eighth annual Global Views Monthly Magazine CSR Award</li> <li>• Once again received the CommonWealth Magazine Corporate 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>• Awarded as an "Excellent Healthy Workplace" by the Health Promotion Administration, Ministry of Health and Welfare</li> <li>• The Taiwan Stock Exchange listed Macronix as one of the companies in the top 5% that received outstanding performance in the first corporate governance evaluation.</li> </ul>
2016	<ul style="list-style-type: none"> <li>• Awarded as an “Outstanding Water-saving Manufacturer” by the Water Resources Agency, Ministry of Economic Affairs</li> <li>• Awarded as an “Outstanding Energy-saving Manufacturer” by the Ministry of economic Affairs</li> <li>• Awarded as an “Outstanding Energy-saving Manufacturer” by Hsinchu Science Park</li> <li>• Awarded a badge for certified breastfeeding room establishment and management</li> <li>• Awarded with “Top Honor for an Accredited Healthy Workplace”</li> <li>• Awarded for “Excellence in Landscaping and Environmental Protection”</li> <li>• Awarded as among the “Top 100 Sustainable Enterprises in Asia” by Channel NewsAsia</li> </ul>

## 2.4. External Participation

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 industry development.
Allied Association for the Science Park	1. Director 2. Convener of the Health and Safety Committee 3. Convener of the Public Relations Committee	Macronix contributes to the discussion, decision, and execution of the association's operations. Macronix leads the discussion, decision, and execution of work related to occupational safety and health and risk management in the science park. Macronix promotes public relations for the science park and functions as a communication platform with the media.
Chinese National Association of Industry and Commerce, Taiwan	Director	Macronix offers suggestions, promotes the collective interests of fellow members, functions as a bridge between the industry and the government, and promotes industry and commerce development.
Friends of Special Police Second Headquarters, National Police Agency	Committee Member	Macronix cooperates with police to enhance and promote crime control and prevention.
Taiwan After-care Association, Hsinchu	Standing Director	Macronix helps ex-prisoners in rehabilitation return to the workplace and start new lives.
Ministry of Labor, Taiwan Occupational Safety & Health Management System (TOSHMS), North Consortium	President of North Consortium	1. Macronix shares its experience with regard to winning the National Labor Safety Award. 2. Macronix promotes cross-industry education and awareness of labor safety issues and inspires creative solutions for promoting employee safety.

### 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.

To realize sustainable corporate management, Macronix continues to elevate shareholder rights and is committed to its global corporate citizen duties as we care for our environment and conservatively use natural resources. We proactively pursue all aspects of the Electronic Industry Citizenship Coalition<sup>®</sup> Code of Conduct (EICC<sup>®</sup> CoC) and contribute to society through scientific education and promotion.

To fulfill our commitment, we strive to:

- ◆ Go beyond enhancing our environmental, occupational safety and health, and complying with regulatory requirements.
- ◆ Nurture a working environment with well-planned and well-run human resources management system and practices.
- ◆ Strengthen Green and Sustainable Supply Chain management system to fully meet applicable international regulations customer standards.
- ◆ To intensify our commitment to social responsibility and meet applicable global regulations and customer standards, we forbid any use of the 'conflict mineral' in our products. Macronix implement due diligence on the metals used, including Tantalum (Ta), Tin (Sn), Tungsten (W), and Gold (Au) to make sure that these metals are sourced only from independently validated smelters/refiners. To meet the customers' requirement, we will continue to require our subcontractors/suppliers to achieve non-use of 'conflict mineral'.
- ◆ Broaden the scope of social contribution to the education of the sciences, and encouraging innovation and creativity to the younger generation.

#### 3.1.Sustainable Development System

##### **Corporate Social Accountability Policy**

Macronix's first issue of its Corporate Social Accountability (CSA) Policy was approved in 2008 by the president of the Company and published on the Company's electronic bulletin board. All of our new employees are required to undergo SA8000 and EICC CoC training. In particular, the CSA Policy requires Macronix to secure employees' well beings, to respect human right, to provide a safe, healthy and amiable working environment, to conservatively use the natural resources, to promote science education, and to encourage innovative research and development. Our goals are to benefit our investors, to contribute to the society, and to abide by the concept of sustainable business development.

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

- (1) Fully comply with national laws or regulations, the agreed customer requirements, and the applicable social responsibility requirements that subscribes.
- (2) Prohibit the employing of child labors, 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 and association, and do not allow any discrimination based on racial difference, religious belief, and gender, etc.
- (6) Esteem our employees, and do not allow ruthless punishment measures.
- (7) Act honestly and groundedly, ethically, and refuse any means of improper advantages violate business integrity.
- (8) Comply with the SA8000 Social Accountability standard as well as the Electronic Industry Citizenship Coalition Code of Conduct (EICC<sup>®</sup> CoC), and continue improving through the management system.

\* : This version was revised on September 17, 2015.

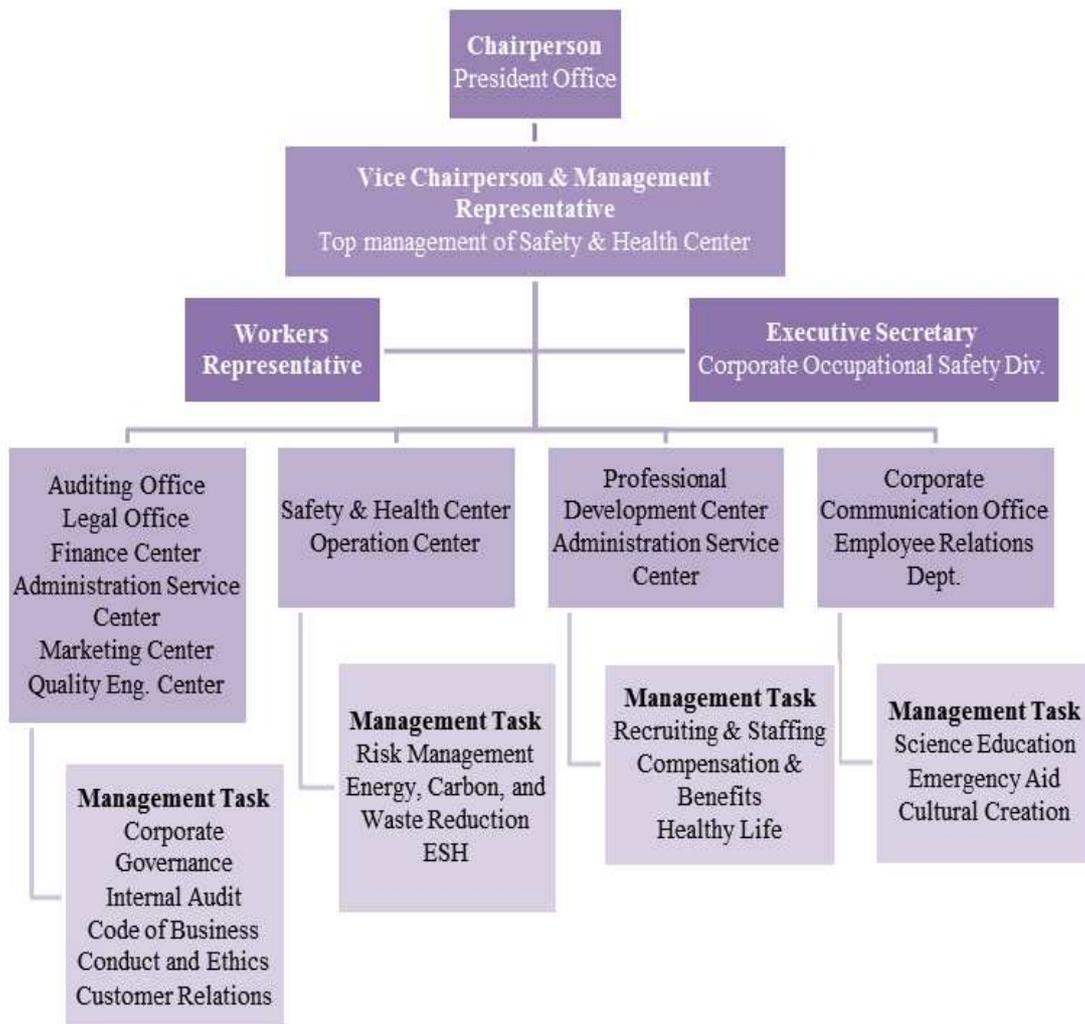
### **Corporate Social Responsibility Organization**

Macronix's President currently serves as a member of the Board of Directors. The Company's Social Performance Team (SPT) consists of the President as the chairperson, the highest executive of the Safety & Health Center as the management representative, and representatives of the Company's cross-department center or business group as committee members. They encourage the performance team to continuously increase its commitment to CSR-related tasks, ensure that Macronix complies with company and customers' relevant regulations, integrate cross-department resources for promoting and maintaining effective

CSR operations, and provide employees with operational recommendations and consultation services to maintain and continuously improve the Company's operating systems.

Macronix's CSR Report Execution Task Force is also based on the Social Performance Team, gathering relevant departments since 2012 and encouraging them to voluntarily compile Macronix's first CSR Report; this practice is still implemented today.

### CSR Report Execution Task Force Structure



## 3.2. Stakeholder Engagement

### 3.2.1. Stakeholder Identification and Interaction

Macronix recognizes that engaging in long-term conversations with stakeholders is necessary to increase our understanding of the community and thus make proper decisions and reduce conflicts with society.

Macronix continues to build a robust CSR value chain system and work with our employees and corporate partners to understand and respond to stakeholders' expectations with regard to Macronix's fulfillment of social responsibilities, while also serving as an educational tool for the Company to learn more about trends, risks, and development opportunities. The engagement of stakeholders will help us to transform our promises into actions that will positively contribute to society and the environment. Although this is a long-term challenge, Macronix is committed to continuously make efforts to integrate our supply chain and cooperate with governance policies and guidelines to accomplish our CSR goals.

Stakeholders referenced in our CSR reports are identified according to the requirements specified by the TWSE, Taiwan Stock Exchange Corporation, regarding stakeholders for listed companies, by interviewing personnel from the Corporate Communication Office, Investors Relations Office, and related departments, and by referencing the level of concern, responsibilities, influence, diverse perspectives, and tension identification pertaining to stakeholders.

#### Interactions and Responses to Macronix's Stakeholders in 2016

Stakeholders	Interaction and Communication Method	Subject to Influence (V) or Concern (*)			Issues of Concern
		EC	ENV	SO	
Investors	1. Online investor conference held quarterly 2. Shareholders' meetings are held in June of each year 3. Participation in random roadshows and investment forums	V *	*	*	1. Economic Performance 2. Corporate Governance 3. Patent Application

Customers	<ol style="list-style-type: none"> <li>1. Customer questionnaire and response</li> <li>2. Periodic/random customer audits</li> <li>3. Conduct customer satisfaction surveys</li> </ol>	*	*	*	<ol style="list-style-type: none"> <li>1. Materials</li> <li>2. Forced or Compulsory Labor</li> <li>3. Effluents and Waste</li> <li>4. Products and Services</li> <li>5. Environmental Law Compliance</li> <li>6. Labor/Management</li> <li>7. Occupational Health and Safety</li> <li>8. Training and Education</li> <li>9. Prohibition of Using Child Labor</li> <li>10. Anti-competitive Behavior</li> <li>11. Social Legal Compliance</li> <li>12. Product and Service Labeling</li> <li>13. Product Regulatory Compliance</li> </ol>
Employees	<ol style="list-style-type: none"> <li>1. Various open discussion meetings held periodically</li> <li>2. Established the "Suggestion Box" mailbox to answer employees' questions</li> <li>3. Set up printed copies of information and electronic bulletin boards to communicate</li> <li>4. Set up the Employee Relationship Management Portal to maintain good labor relations</li> </ol>	V *	V *	V *	<ol style="list-style-type: none"> <li>1. Economic Performance</li> <li>2. Market Presence</li> <li>3. Emissions</li> <li>4. Environmental Law Compliance</li> <li>5. Employment</li> <li>6. Labor/Management</li> <li>7. Occupational Health and Safety</li> <li>8. Forced or Compulsory Labor</li> <li>9. Social Legal Compliance</li> <li>10. Customer Health and Safety</li> </ol>
Suppliers/ Contractors	<ol style="list-style-type: none"> <li>1. Annual supplier meeting held to communicate major corporate policies and messages</li> <li>2. Annual supplier audit conducted to ensure supplier quality</li> <li>3. Periodic training courses provided to suppliers</li> </ol>	V *	V *	V *	<ol style="list-style-type: none"> <li>1. Procurement Practices</li> <li>2. Economic Performance</li> <li>3. Environmental Law Compliance</li> <li>4. Materials</li> <li>5. Occupational Health and Safety</li> <li>6. Employment</li> <li>7. Human Rights Investment</li> <li>8. Social Legal Compliance</li> <li>9. Product and Service Labeling</li> <li>10. Customer Health and Safety</li> </ol>

Local Communities	<ol style="list-style-type: none"> <li>1. Communicate with local residents about their concerns at any time</li> <li>2. Participate in discussions on matters of concern to local residents by invitation</li> <li>3. Employee dormitory surroundings are cleaned periodically to maintain a good environment</li> </ol>		V *		1. Emissions
Media	<ol style="list-style-type: none"> <li>1. Hold press conferences</li> <li>2. Release press releases and enhance the effects of interactions with the media</li> </ol>	*	*	*	<ol style="list-style-type: none"> <li>1. Economic Performance</li> <li>2. Effluents and Waste</li> <li>3. Labor/Management</li> <li>4. Occupational Health and Safety</li> <li>5. Human Rights Investment</li> <li>6. Local Communities</li> </ol>
Government	<ol style="list-style-type: none"> <li>1. Continue to comply with requirements of governments at all levels and abide by laws and regulations</li> <li>2. Continue to maintain good interactions with local governmental institutions</li> <li>3. Provide constructive advice to governmental institutions as a reference for policy implementation and legislative establishment</li> <li>4. Report compliance-related matters on a regular basis</li> </ol>	*	*	*	<ol style="list-style-type: none"> <li>1. Legal Compliance</li> <li>2. Participation in the development of public policies (e.g. greenhouse gases, climate change, and water resources)</li> <li>3. Labor Practices and Decent Work Environment</li> </ol>
Students	<ol style="list-style-type: none"> <li>1. Hang posters and publish campus advertisements related to the Macronix Golden Silicon Awards and Macronix Science Awards every year</li> <li>2. Communicate via telephone/e-mail and the Macronix Science/Golden Silicon Awards Association</li> </ol>			V *	1. Macronix Science Awards

Note: EC=Economic; ENV=Environment; SO=Social.

### 3.2.2. Identifying and prioritizing Material Aspects

#### Relevant Issues

In order to fully understand the issues that concern both internal and external stakeholders, Macronix's CSR Report Execution Task Force determines the CSR-related issues that matter to our stakeholders by interacting with stakeholders and gathering their responses, conducting questionnaire surveys, recording meeting minutes, collecting opinions, performing interviews, and sharing engagement experiences. After all the issues are compiled, the key issues are then identified and ranked in this year's CSR report by using the evaluation method adopted by the task force.

#### Stakeholder Opinions Compiled for the 2016 CSR Report

Stakeholder	Compilation Method of Relevant Issues	Comments
Investors	Statement recording and meeting minutes	Directly listed under material aspects
Customers	Engagement experience and questionnaire survey	Filled out by representatives of the district business offices
Employees	Questionnaire survey	Filled out by labor representatives of the labor management conferences
Suppliers	Questionnaire survey	Distributed to and completed by suppliers on August 26, 2016
Local Communities	Experience of engagement and interview	Feedback from neighborly visits was directly listed under material aspects
Media	Engagement experience and questionnaire survey	Filled out by representatives of the Corporate Communication Office
Government	Engagement experience	Issues that influence legal compliance are listed as material aspects (data from the previous year are used)
Students	Engagement experience	-

## **Ranking**

Qualitative analysis, quantitative assessment, and discussions are integrated to rank the effects of CSR issues on the evaluation and decision-making of stakeholders (hereinafter referred to as the "degree of concern") and the significance of economic, environmental, and societal impacts (hereinafter referred to as the "degree of impact").

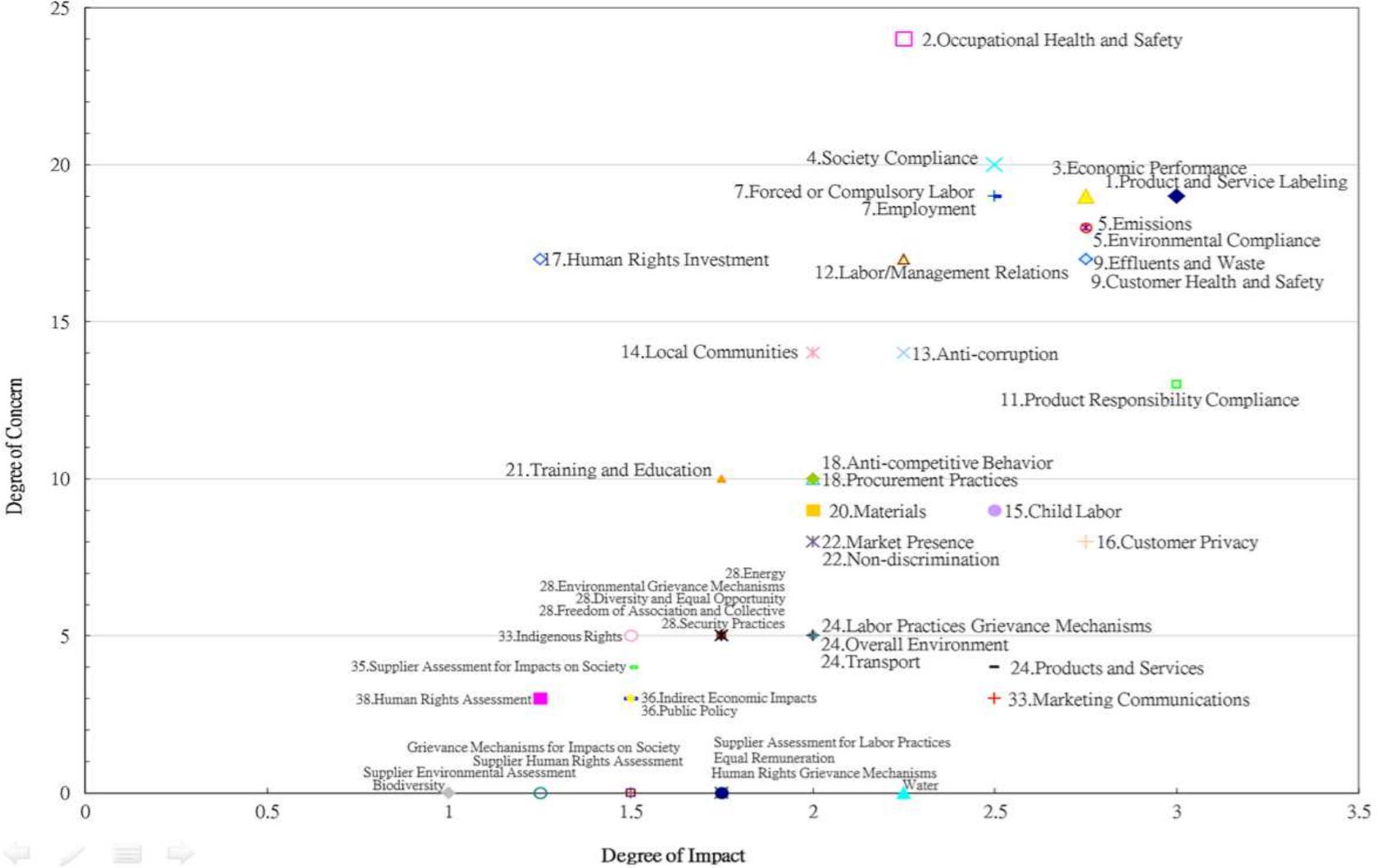
The degree of concern is rated according to the stakeholders' questionnaire, as well as opinions gathered from stakeholders. For quantitative assessments like surveys, aspects under every category that have the highest score are given 5 points, followed by 4 and 3 points. Aspects with less than the fourth highest score are given no points. For qualitative assessments (e.g., those that are based on engagement experience, opinions and interviews, meeting minutes/opinion records), issues of concern of stakeholders are automatically given 5 points.

The degree of impact assesses the potential damages and losses incurred by the Company or stakeholders when various aspects are implemented improperly. Three scenarios are assessed, including financial losses to Macronix or stakeholders (3 points), reputation damage to Macronix (2 points), and none/unknown status (1 point).

## **Threshold Values, Degree of Elimination, and Coverage**

Regarding the threshold values for the material aspects in this report, a relevant issue is considered a material aspect when the total degree of concern score is 10 or higher or the total degree of impact score is 2 or higher. When the rating is higher than the threshold value but the degree of concern or impact has a point score of 0, then discussions will determine whether the issue is will be considered a material aspect. We will also discuss whether issues that are excluded because of the threshold are worth reporting. Lastly, a final discussion on the selected material aspects is held by the CSR report task force, and the outcome is presented to a management representative for approval.

### Ranking of Relevant Issues



### Material Aspects and Boundary Setting

Category	Aspect	Ranking	Material Aspect	Boundary Setting			Comments
				Internal	Customers	Suppliers	
Economic	Economic Performance	3	V	V		V	
	Market Presence	22	V	V			
	Indirect Economic Impacts	36					
	Procurement Practices	18	V	V		V	
Environmental	Materials	20	V	V		V	
	Energy	28					
	Water	≥ 39					Water restrictions were lifted in 2016, thus were not listed under material aspects.
	Biodiversity	≥ 39					
	Emissions	5	V	V	V	V	
	Effluents and Waste	9	V	V	V	V	
	Products and Services	24	V	V	V		
	Compliance	5	V	V	V	V	
	Transport	24	V	V	V		
	Overall	24	V	V	V		
	Supplier Environment Assessment	≥ 39					
	Environmental Grievance Mechanisms	28					

Labor Practices and Decent Work	Employment	7	V	V	V	V	
	Labor/Management Relations	12	V	V	V	V	
	Occupational Health and Safety	2	V	V	V	V	
	Training and Education	21	V	V	V	V	
	Diversity and Equal Opportunity	28					
	Equal Remuneration for Men and Women	≥39					
	Supplier Assessment for Labor Practices	≥39					
	Labor Practice Grievance Mechanisms	24	V	V	V	V	
Human Rights	Investment	17	V	V			
	Non-discrimination	22	V	V	V	V	
	Freedom of Association and Collective Bargaining	28					
	Child Labor	15	V	V	V	V	
	Forced or Compulsory Labor	7	V	V	V	V	
	Security Practices	28					
	Indigenous Rights	33					
	Assessment	38					
	Suppliers Human Rights Assessment	≥39					
	Human Rights Grievance Mechanisms	≥39					
Society	Local Communities	14	V	V			
	Anti-corruption	13	V	V	V	V	
	Public Policy	36					
	Anti-competitive Behavior	18	V	V	V		

	Compliance	4	V	V	V	V	
	Supplier Assessment for Impacts on Society	35					
	Grievance Mechanisms for Impacts on Society	≥ 39					
Product Responsibility	Customer Health and Safety	9	V	V	V		
	Product and Service Labeling	1	V	V	V		
	Marketing Communications	33	V	V	V		
	Customer Privacy	16	V	V	V		
	Compliance	11	V	V	V		

## 4. Corporate Governance

With regard to corporate governance, Macronix utilizes a high standard and is committed to maintaining good relationships with investors. We also comply with the principles of corporate governance and have established our own Code of Business Conduct and Ethics that is followed by all Macronix employees.

### Macronix's Philosophy

#### **Be Grounded**

### Macronix's Corporate Values

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

### 4.1. Corporate Governance

The five principal elements of Macronix's corporate governance are as follows:

- ◆ Protect the rights and interests of shareholders
- ◆ Equal treatment of shareholders
- ◆ Strengthen the structure and function of the Board of Directors
- ◆ Increase information transparency and disclosure
- ◆ Implement corporate social responsibility

After becoming the first publicly listed Taiwanese high-tech company on the NASDAQ in 1996, Macronix took the initiative to adopt advanced management systems from abroad, established independent director seats and functional committees, such as the Audit and Compensation Committees, to strengthen the operation of the Board of Directors, and took the lead in changing the director election system to be carried out entirely by "candidate nominations" in 2006. The Company's systems and operations are superior to those required

by Taiwanese law in order to enhance its corporate governance. In recognition of our efforts, we were ranked among the top 5% of companies in the 2015 First Corporate Governance Evaluation for Listed and OTC Companies and remained in the top 20% in 2016.

#### 4.1.1. Governing Unit

##### **Board of Directors**

Macronix's Board of Directors serves as the top governing unit of the Company. The Chairman is also the CEO, and the Board includes 15 industry professionals and specialized scholars with practical and theoretical backgrounds in business, law, finance, accounting, electrical engineering, physics, and material engineering. Three independent director seats are held by specialists in management, electrical engineering, and accounting/statistics; these directors oversee the execution of Macronix's operation plans based on their expertise and objectivity to ensure the Board is making quality decisions. We have a total of 15 directors, 14 men (93%) and 1 woman (7%). All directors are over the age of 50 years old.

Furthermore, in 1997, Macronix began internally handling matters related to company stock with a dedicated unit to manage shareholder affairs, address shareholder concerns, and promote strong relationships with institutional investors. Therefore, we arrange visits to global institutional investors every year and hold an investor conference each quarter to maintain transparent communications with institutional investors worldwide.

##### **Macronix Corporate Governance Highlights**

Scope	Highlights
Board of Directors	<ul style="list-style-type: none"> <li>◆ Has led Taiwan's industry in purchasing director liability insurance (since 1999)</li> <li>◆ Established independent director seats (in 2003)</li> <li>◆ Adopted the candidate nomination system for electing directors (in 2006)</li> <li>◆ Replaced the supervisor system with the Audit Committee (in 2009)</li> </ul>
Management Level	<ul style="list-style-type: none"> <li>◆ Established the Compensation Committee to evaluate and approve the remuneration for high-level executives (in 2006)</li> <li>◆ Prohibits the employment of relatives of high-level executives</li> </ul>

	(fourth-degree) ◆ Set up operation goals and implementation of PDP performance evaluation
Internal Control	◆ Systematizes internal controls and self-check operation procedures ◆ Implements redundant check systems for audit operations ◆ Audit results are regularly reported to the Audit Committee and Board of Directors

### Compensation Committee

The Compensation Committee was installed on August 8, 2005 and officially established on August 23, 2011 according to regulations. Macronix's Compensation Committee is composed of three independent directors and one director, with Mr. Kao Chiang serving as the chair. Three meetings were held in 2016. For details on Compensation Committee meetings, please refer to the Macronix annual report at <http://www.macronix.com>.

### Audit Committee

Macronix employs finance and accounting specialists to serve as Audit Committee members. Six meetings were convened in 2016. The three Audit Committee members are entrusted with auditing annual and semi-annual financial statements, appointments, and terminations, as well as compensation approval of certified public accountants and the review of matters where directors may have conflicts of interest. The Committee also performs the statutory functions and powers of corporate controllers.

Name	Education	Previous Experience
Kao Chiang	Ph.D., Forest Management, Oregon State University	President and Chair Professor, National Cheng Kung University
Su, Yan-Kuin	Ph.D., Electrical Engineering, National Cheng Kung University	President, Kun Shan University Honorable Chair Professor, National Cheng Kung University Independent Director, Himax Technologies, Inc.

John C. F. Chen	Bachelor of Accounting & Statistics, National Cheng Kung University	Chairman and CEO, Qianqiu Investment Ltd. Corporate representative (director), Changchun Investment Co., Ltd. Corporate representative (director), ReaLy Development & Construction Corp. Chairman, Diwan Capital Ltd.
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The general manager, senior managers, and financial managers at Macronix shall report any conflict of interest or any concern for potential conflict of interest to Macronix's Audit Committee.

Apart from the general manager, senior managers, and financial managers, Macronix employees shall disclose any occurring or potential conflict of interest to their supervisors or senior managers in writing. Macronix directors and corporate controllers shall immediately notify the chairman of the Audit Committee of any conflict of interest.

Please visit the Market Observation Post System of TWSE for information on the resolutions approved by the Company's Board of Directors, as well as compensation for employees and directors as resolved during the shareholders' meeting. Remuneration for key management executives is determined by the Compensation Committee according to individual performance and market trends and are disclosed in the annual report. Please visit the Company's website for further details.

#### 4.1.2. Internal Audit

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

Internal audit operations are generally 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. The internal audit unit will also review the quality of the internal control operations and report the compiled self-assessment results to the Board.

#### 4.1.3. Management of the Code of Conduct and Ethics

The Company has always complied with laws and regulations and has also devised risk management mechanisms. In 2016, 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 "being grounded" and have thus formulated and published the Code of Business Conduct and Ethics and Macronix CSR Policy, both of which serve as behavioral regulations for the Company's directors, various levels of management personnel, and employees. We also expect that the directors, supervisors, managers, and employees of our affiliates can also jointly adhere to being "grounded" in running their businesses.

Furthermore, the Company has developed a risk management mechanism. In addition to a top-down, parallel communication channel among all departments, each department is also directly affiliated with the Audit Office, which reports the internal control management status of the Company to the Board of Directors.

### **Corporate Conduct and Ethics Code**

In accordance with NASDAQ regulations and upon approval by the Board, the Code of Business Conduct and Ethics (hereinafter the "Code") was issued for directors, supervisors, management of all levels, and all employees. The purpose of the Code is to prevent any misconduct and encourage the following behavior:

- (1) Honest and ethical conduct (including ethically handling actual or obvious conflicts of interest in personal and professional matters).
- (2) All Macronix public announcements, reports, or documents submitted to securities authorities shall be complete, fair, accurate, and timely.
- (3) All conduct shall comply with government laws, guidelines, and regulations.
- (4) Timely reports of any violations of the code by persons subject to the terms of the Code.
- (5) All conduct shall comply with the Code.

To ensure that all Macronix employees are fully aware of this Code, one hundred percent (100%) of all new employees must receive training and are given a test on it during their orientation. Furthermore, compliance with the Code by employees is included as part of the annual performance evaluations so that Macronix employees are regularly reminded of the importance of carrying out the Code.

According to the Code, Macronix's anti-corruption policies state that "company personnel must not use Company property, information, or position to obtain opportunities for personal

gain; they must not use Company property, information, or position for personal benefits or compete with the Company. Company personnel have a responsibility to the Company to advance its legitimate interests when business opportunities arise." We have also developed ethical and social responsibility risk assessments for each department, which are carried out on a regular basis and cover all departments of the Company. To date, no cases of corruption have been reported.

#### 4.1.4. Confidential Information Protection

In recent years, Macronix has emphasized the importance of information security in protecting its intellectual property and customer confidentiality. Based on the idea of our general manager to "prevent information security incidents from happening before they occur", we established an Information Security Committee led by the Company's vice president and comprised of top supervisors from various divisions and business units to oversee matters related to information security. Furthermore, Macronix holds education and training sessions, as well as promotional campaigns, to raise awareness on information security. For example, Macronix offers training programs for new recruits, holds information security challenges, issues monthly information security e-newsletters, and has established information security websites. With the goal of encouraging everyone to be responsible for information security, Macronix has internalized its practices into an action plan aimed at protecting the Company's intellectual property and confidential information.



Information security website



Information security e-newsletters

#### 4.1.5. Compliance with Regulatory Requirements

Macronix has always complied with laws and regulations. In 2016, we did not receive any fine or punishment for violations pertaining to environmental or social regulations, nor did we violate any laws pertaining to product and service regulations. We also did not violate laws pertaining to product and service information labeling. Our products did not violate laws pertaining to sales and promotion and were not disputed or prohibited from being sold.

Macronix has also set up the Legal Office to offer consultation services, supervise and implement legal compliance, and integrate the philosophy of "being grounded" into its business management by obeying rules and applying knowledge in practice.

Macronix continues to emphasize the importance of self-discipline and top-down compliance with laws and regulations (including the Securities and Exchange Act, Company Act, Labor Standard Act, Insider Trading Act, Anti-Corruption Act, Securities laws and orders, Fair Trade Act, Money Laundering Control Act, Act of Equal Remuneration for Men and Women in Employment, Personal Information Protection Act, regulations for import/export management, and environmental protection). Macronix also frequently promotes relevant regulations and policies.

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

- ◆ Macronix Academy: Provides a comfortable reading environment where employees can borrow law books.
- ◆ Macronix Quarterly: Periodically published legal journal that uses easy-to-understand methods to offer new legal or regulatory knowledge that enriches employees' legal knowledge and prevents them from violating the law.
- ◆ Macronix e-Academy: Offers online courses (including topics such as the Personal Information Protection Act or sexual harassment prevention) so that employees can take such classes regardless of 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

In order to protect the Company's assets, ensure employee health, and care for the rights and interests of stakeholders, we manage our risks by following the CSR Policy and the Environmental Safety and Health Policy. To control the risks that impact the Company's major operations, committees in charge of information security, occupational safety and health and environmental protection, green products, and corporate social responsibilities have been established to determine standard operating procedures and methods for construction improvement.

### **Information Security**

Macronix has set up an information security task force to establish the Regulations Governing the Controlled Supply of Information and Communication Technology and the Regulations Governing Computer and Internet Security to which all employees must adhere.

### **Intellectual Property and the Code of Conduct and Ethics**

To protect the Company's intellectual property rights, the Business Confidentiality Regulations and the Code of Ethics have been established to urge all employees to perform their duties honestly and ethically. New employees are required to participate in related training programs and pass the subsequent examination during their orientation.

### **Business Continuity Management**

Macronix has set up an OSHEC, with the Safety and Health Center being responsible for integrating and coordinating risk/environmental safety and health activities. In 2016, we conducted a simulation of our Business Continuity Plan (BCP) involving eight major crises (natural disaster, fire disaster, water shortage, power outage, and raw material shortage) and performed the risk assessment of suppliers (RAS) to ensure that the entire supply chain, from upstream to downstream, can implement the BCP. Through simulation and supplier assessment, we can face the material incidents that are likely to occur and fully prepare ourselves for these events. We can also request suppliers to create response plans and procedures for potential operation risks in order to ensure continuous operations and lower the impact of such incidents on Macronix.

### **Management of Loss Prevention**

In 2016, we also devoted our efforts to making improvement plans for mitigating the effects of 10 risk items (fire prevention, explosion prevention, fire protection, personnel safety, and other protective engineering tasks) so that the potential impact caused by disrupting business operations can be minimized. Macronix has further developed a Global Disaster Warning and Damage/Loss Reporting System. When an incident occurs in Taiwan, such as the 6.5-magnitude earthquake that occurred in Tainan on February 6, 2016 and the 7.3-magnitude earthquake that occurred in Kumamoto Prefecture, Japan on April 16, 2016, we can notify our internal production line and external supply chains in a timely manner and quickly pass on information through the risk management system, which accelerates the restoration of factory capacity.

## **Supplier Management**

Macronix has set up a global organization that promotes green electronic products and social responsibility performance to hold meetings on a regular basis and establish target management plans based on national laws and regulations and agreements with customers, while including customers' requirements in management. Furthermore, a supply chain conference is held annually to promote corporate social responsibility, international directives on green products, and the prohibition of conflict minerals. Macronix implements due diligence on the metals that it uses, including Tantalum (Ta), Tin (Sn), Tungsten (W), and Gold (Au), to make sure that these metals are only sourced from legitimated smelters/refiners. The risk assessment of suppliers (RAS) is carried out to ensure the compliance of all suppliers and build an all-round supply chain management system.

## **4.3. Innovation**

### **4.3.1. Importance of Innovation**

Macronix is committed to developing non-volatile memory devices. Not only do we have our own brand, but we also further advance the development of our own technologies. Macronix leads the world in developing ROM products and technologies with storage capacities ranging from 16 MB to 32 GB. Our product line is comprehensive and can provide protection for confidential data. With our rich manufacturing experience and complete management systems, Macronix can achieve world-class performance in product delivery and shipment volume.

With regard to flash memory, Macronix currently specializes mainly in NOR Flash,

excelling in both technology and product quality. Our products come in a wide range of storage capacities and specifications, including 3V or 1.8V operating voltages, serial or parallel interfaces, and mainstream or niche specifications; they are used extensively in the global market.

Macronix's self-developed NAND Flash features stable quality and is currently being mass produced, making Macronix one of the few suppliers in the world that simultaneously possesses both NOR Flash and NAND Flash. In the future, we plan to cultivate this market by offering more professional and flexible products and services to propel the Company onto a whole new level of competitiveness.

### **Successful Technologies and Products**

In 2016, Macronix continued to innovate products and technologies in an effort to extend their exceptional product competitiveness.

#### (1) Technology innovation

- ◆ Innovation and verification of 3D NAND technology.

#### (2) Product innovation

- ◆ Suitable for future IoT applications; innovation and mass production of a new-generation, ultra-low-power NOR Flash.
- ◆ Suitable for electronic automobile applications; innovation and mass production of a new-generation, ultra-fast NOR Flash.

### **New Products to be Developed**

#### (1) Non-volatile Memory Products

We utilized the new equipment of our 12-inch fab plant and created an advanced R&D environment, where the three new generations of core technologies listed below are continuously being developed. In the future, we will use this foundation to further develop innovative memory products and solutions.

- ◆ 3D NAND Flash: First-generation plan.
- ◆ 2D NAND Flash: 19-nm plan.
- ◆ NOR Flash: 48-nm plan.

#### (2) Wafer Foundry Service

- ◆ Macronix's embedded non-volatile memory technology that is applied in MCU

and IoT related markets.

- ◆ Embedded ROM and OTP that are used in voice ICs.
- ◆ BCD (Bipolar-CMOS-DMOS) technology that is applied in analogy and power management ICs.

### 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	
◆	573 patents obtained in 2016
◆	6,833 patents were obtained worldwide as of the end of 2016
Affirmation of Patent Ranking	
◆	According to Taiwan's corporate patent certifications, Macronix has been ranked in the top 100 since 2000 and ranked 12th in 2016*
◆	According to the Patent Board of the United States, Macronix was continuously ranked in the top 300 from 2001 to 2015**

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

\*\*Source: ipo.org; 2016 rankings still had not been released as of the end of April 2017.

### 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 manufacturers, agents, and contractors of raw materials, parts, masks, 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 in order to ensure our service quality, strengthen supplier cooperation, shorten the product development process, enhance supply chain flexibility, and reduce unnecessary costs and carbon emissions during transportation. As of 2016, the procurement of raw materials in

Taiwan accounted for 31% of our overall purchasing (2015: 30%; 2014: 30%).

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

- (1) Supplier management system certifications: We require that our suppliers obtain international certifications such as ISO 9001, ISO 14001, and OHSAS 18001 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 any deficiencies are discovered, we request that our suppliers submit improvement plans, wherein goals and deadlines are explicitly specified to meet our expectations.
- (3) Supplier management and supplier rating: We conduct performance evaluations on three dimensions: quality, cost, and delivery. In 2016, 97.9% of the suppliers were received a score of 80 or higher. For suppliers with a score of less than 80 points, the Raw Material Management Committee will carry out project improvements, counseling, auditing, and other measures.

In implementing CSR, we also take into account the participation of the overall supply chain in the hopes of helping 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 employee and partner rights and dignity. We have set up strict and vigorous health and safety standards to minimize any negative influences on the environment, safety, health to our partners. In order to fulfill these promises, we work closely with our employees and suppliers, as well as suppliers' employees, to ensure that all CSR values are put into practice throughout the entire organization, thus integrating CSR into Macronix's corporate value.

#### 4.4.1. Sharing Beneficial Outcomes with Customers

Macronix is committed to being an integrated solutions provider; this is not only a long-term promise that we have made to our corporate partners but also our ultimate goal. The production of low-cost and standardized memory and logic chips in large quantities is no longer the mainstream in the era of information appliances moving toward IoT. The market's focus is shifting to information-oriented devices; as a result, whoever is capable of delivering custom-made total solutions for various electronic product applications will be able to ride

the next high-tech wave and emerge as a leader.

After more than two decades of cultivation, Macronix has successfully built strategic partnerships with world-class manufacturers in the U.S., Japan, Europe, and Asia. Our favorable long-term relationships with these powerful partners have enabled us to develop high-quality flash memory products, ROM, and logic devices. In addition to our efforts to expand our worldwide market share, we also endeavor to become the world's top Mask ROM provider.

In implementing our corporate concepts, Macronix has advanced from the first stage, in which we became an integrated service provider that offers complete services from R&D, design, manufacturing, and production to assembly and testing, to the second stage in an effort to become an innovative solution partner for customers. We actively participate in the development projects of our system customers, providing not only innovative R&D concepts and advanced processing technologies, but also supplying creative ideas to help our customers develop marketable products.

Macronix not only leverages its world-class R&D and manufacturing capabilities to offer customers high-quality, innovative, and performance-driven products, but also emphasizes the protection of customer information. Macronix has formulated Guidelines for Macronix Information Management that specify procedures and regulations for managing confidential data. We regularly educate and train our employees regarding the protection of confidential data and require all employees to pass an information security test every year. All customer-related documents, data, and business-related information are strictly controlled by internal systems. Macronix did not receive any complaints regarding the infringement of customer privacy in 2016.

In the future, Macronix will continue to accumulate its intellectual properties, provide better products and services, and cooperate with its customers in order to face challenges pertaining to advanced technologies and collectively share its positive outcomes.

Devotion to service is one of the business concepts under which Macronix operates, and maintaining favorable customer relationships is a core value of the Company. Macronix takes customer satisfaction surveys very seriously, with its headquarters directly overseeing the execution of periodic customer surveys so that high-level executives can truly understand customers' degree of satisfaction. We have instituted satisfaction evaluation mechanisms for sales services, order shipments, product quality, product technology, customer services, green product regulation, and overall performance, as well as surveys conducted through questionnaires or telephone interviews. Survey 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 latest customer satisfaction survey was completed in 2016, with a response rate of 79%, and all customers gave positive ratings for the Company (the maximum score is 5; 4 or above means “Satisfied”). The next survey will be conducted in 2018.

#### 4.4.2. Growing Together with Our Suppliers

Macronix uses CSR as a criterion for evaluating and selecting suppliers. We have deeply rooted CSR programs in our supply chain and have invited our supply chain partners to sign the "Supplier Corporate Social Responsibility and Business Ethics Consent" to jointly promote our CSR work and grow together with our partners.

Macronix was one of the first companies in Hsinchu Science Park to complete greenhouse gases verification and among the first semiconductor providers to receive AEO certification from the Customs Administration, Ministry of Finance. We also actively pushed upstream and downstream supply chain partners to comply with the “EICC® Code of Conduct” and instituted "Supplier Green Product and SER Audit" mechanisms. By conducting annual audits on our supply chain partners, we have expanded our CSR to the safety supply chain system level. At Macronix, we proactively protect the planet.

We also extended the requirements of SA8000 standards (e.g. no child labor, the granting of freedom of assembly and association, and no forced labor) to our supplier selection policies (including security guards, janitors, cleaner and human outsourcers etc.) and incorporated these principles in our employee training courses and promotional materials. In 2016, 20 suppliers passed our RAS. For any suppliers who failed the audits, we offered our assistance so that 100% of our suppliers ultimately complied with our requirements.



Propagating Macronix's CSR policy and supplier agenda during the 2016 suppliers meeting

## 5. Economic Dimension

### 5.1. Financial Performance

Macronix established within 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 business-related import/export trading.

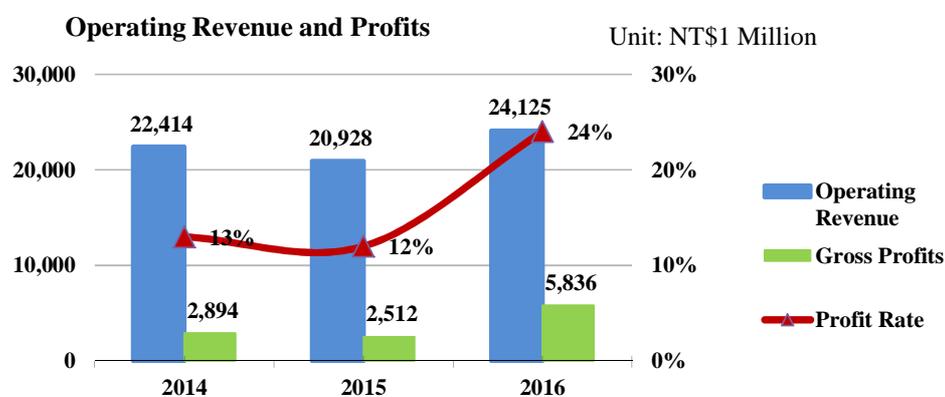
The Company was listed on the Taiwan Stock Exchange on March 15, 1995. We have issued our stocks in the form of U.S. depository since May 1996 on the Nasdaq Stock Market; however, Macronix was removed from Nasdaq on October 29, 2007.

For details on our subsidiaries, shareholding ratio, and business items, please refer to Appendix 4 or the subsidiaries included in the 2016 Q4 consolidated financial report. As of December 31, 2016, subsidiaries that are directly or indirectly owned by the Company include Run Hong Investment, Ltd. (“Run Hong”), Hui Ying Investment, Ltd. (“Hui Ying”), Mxtran Inc. (“Mxtran”), Infomax Communication Co., Ltd. (“INFOMAX”), Macronix America Inc. (“MXA”), Macronix (BVI) Co., Ltd. (“MXBVI”), Mxtran Holding (Samoa) Co., Ltd. (“Mxtran Samoa”), Mxtran (H.K.) Holding Co., Limited (“Mxtran HK”), Mxtran Technology Co., Ltd. (“Mxtran Beijing”), Infomax Holding Co., Ltd. (“InfoMax Samoa”), Infomax Holding Company Limited (“InfoMax HK”), Infomax Communication (Suzhou) Co., Ltd. (“Infomax SU”), New Trend Technology Inc. (“NTTI”), Macronix (Asia) Limited (“MX Asia”), Macronix Pte. Ltd. (“MPL”), Macronix Europe NV. (“MXE”), Macronix (Hong Kong) Co., Ltd. (“MXHK”), and Macronix Microelectronics (Suzhou) Co., Ltd. (“MXm”). The subsidiaries listed in the preceding paragraph are not included within the scope of this report.

## 2014~2016 Business Performance

Unit: NT\$1 Million

Item	2014 (Revised)	2015	2016
Net operating revenue	22,414	20,928	24,125
Operating costs	19,520	18,416	18,289
Gross profits	2,894	2,512	5,836
Operating expenses	9,210	7,516	6,194
Gains (Losses) from operating	(6,316)	(5,004)	(358)
Non-operating income and expenses	(146)	823	(113)
Gains (Losses) before income tax	(6,462)	(4,181)	(471)
Income tax expenses	13	15	(224)
Net gains (losses) for the year	(6,475)	(4,196)	(247)

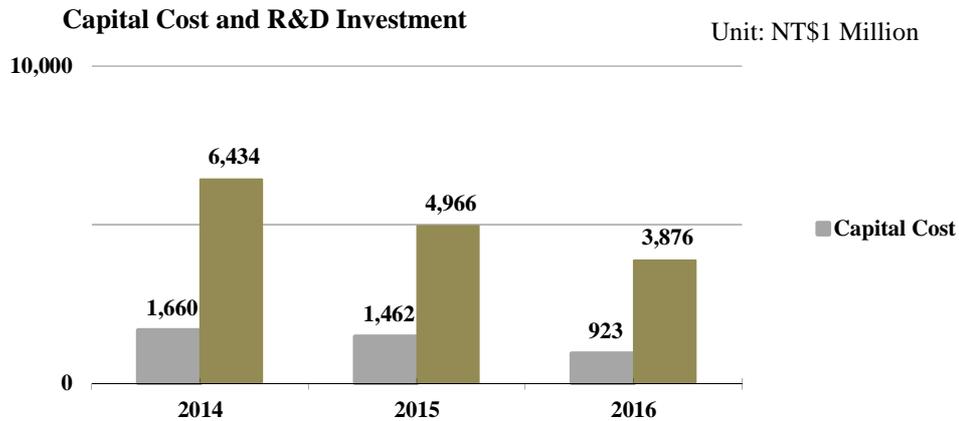


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## Innovation and R&D Investments

Unit: NT\$1 Million

Item	2014	2015	2016
Fixed R&D investment	6,435	4,966	3,876
Total revenue	22,414	20,928	24,125
Percentage	28.71%	23.73%	16.07%



### **Financial Assistance Received from the Government**

No government subsidies or items were received in 2016.

## **5.2. Indirect Impact on the Economy**

### **Development and Impact of Infrastructure Investments and Services Supported**

In 2016, no major investments were made in infrastructure. The capital for this year was mainly spent on procuring and establishing plant and R&D-related facilities.

Please refer to Chapter 7.4 of this report for a list of donations and charitable events.

### **Human Rights Investment**

In 2016, no significant investment agreements or contracts included human rights clauses or underwent human rights screening. Please refer to Chapter 4.4 of this report for human rights assessment on suppliers.

### **Significant Indirect Economic Impacts**

None.

## 6. Sustainable Environmental Dimension

Macronix's ESH Policy	
◆	<b><u>Rights and Obligations:</u></b> Be committed to providing and guarantee that all employees can work in a comfortable, safe, and healthy environment, as well as provides employees and their representatives ESH consultation and participation, in order to make the best efforts to fulfil their duties and obligations regarding ESH.
◆	<b><u>Regulation Compliance:</u></b> Abide by ESH regulations and thoroughly implement real ESH practices.
◆	<b><u>Hazard Prevention:</u></b> Prevent pollution and potential damage by hazard identification, risk assessment, environmental impact analysis, and hazardous sources control.
◆	<b><u>Education and Training:</u></b> Provide employees with competitive and comprehensive ESH training programs to assure that they can appropriately implement ESH works.
◆	<b><u>Sustainable Development:</u></b> Meet international Green Product requirements and implement an environmental related substances management system. Ensure the sustainable development of Macronix's business operations and ESH works by effectively utilizing corporate resources to establish and continuously enhance the ESH management system to meet the demands of interested parties.

### 6.1.Environmental Protection Management and Pollution

#### Prevention

Macronix has always embraced the principle of sustainable management. 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 a wastewater treatment facility, scrubber, waste storage area, toxic gas detector, 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. In 2016, the Company did not receive any judicial or administrative punishments for violating environmental regulations.

Major awards received by Macronix during 2016 in recognition of our achievements in the environmental category are listed below:

- ◆ Outstanding water-saving performer, Water Resources Agency, Ministry of Economic Affairs
- ◆ Selected manufacturer for outstanding management of toxic chemical substances
- ◆ Hsinchu City private manufacturer and group that performed exceptionally well in green procurement



We introduced and passed 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, 100% of Macronix's facilities have passed the Environmental Management System (ISO 14001:2004) Certification.

To ensure that a smooth communication channel is provided that communicates environmental or other issues to both Macronix stakeholders and internal employees, we have set up contact windows for the government, general public, customers, investors, employees,

the media, and suppliers to handle and respond to the precious feedback that is provided externally or internally. In 2016, Macronix did not receive any environment-related complaints according to case statistics related to environmental complaints.

Every month, Macronix monitors the use of raw materials based on the permits issued by the environmental protection agency to ensure that the use of raw materials is within the maximum approved amount. Our engineering department often checks whether an opportunity is available to reduce the use of raw materials based on process requirements. As a semiconductor manufacturer, Macronix uses wafers the most. Due to the high purity of wafers used in the semiconductor industry, there is currently no proper way to recycle and reuse wafers. Therefore, we do not use recycled raw materials. The consumption of wafers and packaging materials in 2016 is as follows:

Site	Amount Consumed in 2016 (Ton)
6-inch Fab	8.85
8-inch Fab	22.28
12-inch Fab	26.12
Packaging Materials	279.07

Notes:

1. The consumption of wafers is the same (weight) as reported in the waste declaration.
2. Packaging materials are cartons for shipments. Cartons are made of recycled materials.

### 6.1.1. Water Resource Management

Since fabricating semiconductors requires a large amount of ultrapure water, Macronix sets up an annual target for water consumption and reviews the consumption every quarter to avoid wasting water resources. Macronix's total running water usage in 2016 amounted to 2,498,584 tons, a reduction of 75,100 tons compared to the 2,573,684 tons used in 2015. Furthermore, our Fab 5 plant was awarded the outstanding water-saving manufacturer award by the Water Resources Agency, Ministry of Economic Affairs in 2016. Recycling

discharged water has always been an issue of concern for Macronix. In addition to submitting water balance charts to the Hsinchu Science Park Bureau, 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 2016, the total volume of water discharged was 1,906,304 tons, and the total volume of process water recycled was 3,329,032 tons, with an average recycling rate of 86.1%.

Wastewater generated from the fabrication of semiconductors is divided into acid and alkali wastewater and fluoride wastewater based on its characteristics. Our wastewater is properly treated in a wastewater treatment facility to bring it to the required standards before being discharged into the sewage system. Other water resource management measures include:

- ◆ Regularly track and manage the usage data of water resources
- ◆ Conduct risk assessment and management
- ◆ Determine if our fabrication facility is located in an area with water shortages
- ◆ Help promote water resource utilization programs
- ◆ Entrust certified organizations to sample and analyze the quality of discharged water twice a year
- ◆ Carry out real-time monitoring of pH/fluoride concentrations of effluent and the pH of runoff wastewater, with all results being compliant with regulations
- ◆ Confirm water quality by testing and sampling water in cooperation with Hsinchu Science Park Bureau
- ◆ Have 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
- ◆ Set up a rainwater harvesting tank at headquarters to harvest rainwater and store in the water tower to water plants

In response to the ammonia reduction plan set up by Hsinchu Science Park Bureau, Macronix takes proactive measures to reduce the concentration of ammonia in effluents. In 2016, our Fab 2 and Fab 5 plants significantly reduced the concentration of ammonia in effluents by 80% compared to 2014 and below the cap of 30 mg/L regulated by Hsinchu Science Park Bureau through reduction of raw materials, wastewater diversion, and improvements in the treatment system, such as setting up A/O-MBR. This achievement not only reduces the loading of ammonia for Wastewater Treatment Plant of Hsinchu Science

Park but is also a pioneering practice that can be referred to by other companies in the semiconductor industry.

### Quality of Effluents in 2016

Site	pH	BOD (mg/L)	COD (mg/L)	SS (mg/L)
FAB1	6.6	13.0	47.7	36.4
FAB2	6.4	N/A	45.2	82.9
FAB5	7.5	20.6	49.9	22.7
BE	8.4	138.0	158.0	55.5

Notes:

1. Total consumption of water is based on the water meter data.
2. Total emissions and water data include the consumption of water in the headquarters and subsidiaries within the park.
3. The recycling rate of process water is calculated based on the formula for the water recycling rate specified in the water balance chart of the park, excluding rainwater recycling.
4. Data source of effluents: Macronix semi-annual report.
5. BOD means biochemical oxygen demand; COD means chemical oxygen demand; SS means suspended solids.

### 6.1.2. Air Pollution Prevention

All waste gases generated from manufacturing processes at Macronix 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, one each 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. We entrust certified organizations to test our waste gas emissions every year. Macronix facilities have had continuous monitoring devices installed to measure VOCs; the emission removal rate is as high as 90%, and the emissions are less than 0.6 kg/hour from each fab.

## 2016 Waste Gases Emission Data

Site	VOCs	NOx	SOx
FAB1	1,168.47	1,137.72	454.45
FAB2	2,749.53	2,144.45	90.89
FAB5	3,331.32	2,221.10	69.81

Notes:

1. Unit: kg/year.
2. Source: Costs of preventing fixed sources of air pollution.

Macronix manages the emission of waste gases generated from various modes of transportation, namely shuttle buses for employees, corporate vehicles, and wafer transport vehicles:

- ◆ Employee shuttle bus to/from work: Vehicle sources include car rentals, which are managed by requesting the party to sign an agreement form for the self-management of diesel cars (including maintenance plans, type of petrol used, emission tests, etc.), and all signed documents are kept.
- ◆ Corporate vehicle/wafer transport vehicle: Corporate vehicles are serviced every 5,000 km, and emission testing is conducted as required by law. The car rental company is responsible for other items related to rental car maintenance and emissions testing.

Our factories are located within the Hsinchu Science Park, and we are fully willing to cooperate with all matters required by the Science Park. Communities surrounding Macronix Headquarters and the Fab 5 often report abnormal odors. Technically speaking, waste gases emitted from the Company's various fabrication plants should not produce abnormal odors because they are treated before being released; however, communities situated around the Fab 2 and Fab 5 are concerned about an abnormal odor. Therefore, Fab 2 and Fab 5 continue to cooperate with the Park's requirements to report the complaints that are filed every month. The Company's headquarters did not receive any complaints regarding abnormal odors in 2016.

### 6.1.3. Waste Management

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

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 consigned to eligible vendors for subsequent waste treatment. Prior to waste disposal, we confirm how the commissioned contractors process the waste and require them to undergo relevant review procedures before commissioning them to treat our waste. In 2016, Macronix audited its existing waste treatment operators 25 times. With an increasing emphasis on waste disposal by the existing government agency, the Company will request permits and record the product and sales flow when auditing waste treatment operators. The total waste generated at Macronix in 2016 was 6,234.7 metric tons, a reduction of 60 metric tons compared to 2015. Of the total waste generated at Macronix in 2016, approximately 76.1% was recycled and reused; this treatment approach yielded the highest ratio compared with other methods (refer to the following table on waste output). Furthermore, no incidents of severe leakage were reported in 2016.

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 raw materials through the joint efforts of engineering departments based on a feasible reduction plan.

## Waste Produced by Macronix

Waste Category	Treatment Method	Amount Produced in 2016
General Industrial Waste	Recycling/reuse	1,455,804
	Composting of waste	744,425
	Incineration	265,592
	Landfill	160,070
	Treatment in receiving country	0
	Other	42,410
Hazardous Industrial Waste	Recycling/reuse	3,289,241
	Composting of waste	0
	Incineration	10,468
	Landfill	0
	Treatment in receiving country	0
	Other	266,739
Total Amount of Waste		6,234,748
Total Waste Recycled/Reused		4,745,045
Recycling Rate		76.11%

Notes:

1. Unit: kg.
2. General industrial waste output includes the output of domestic wastes generated by the office buildings of Macronix subsidiaries.

## 6.2. Energy and Greenhouse Gas Management

### 6.2.1. Energy Management

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, as well as our energy use from the previous year. Furthermore, we officially formed the Macronix "Energy Conservation

Service Group" in 2008 to carry out various energy conservation activities. Over the years, work activities in this domain have been as follows:

- ◆ Implemented energy management initiatives for all levels of our operations.
- ◆ The Energy Conservation Service Group helped implement energy conservation techniques and experience sharing.
- ◆ Introduced external energy audits and invited experts to provide guidance
  - Completed on-site energy audits by the ITRI energy conservation service group, including audits on our air conditioning systems, power systems, air compression, and energy management systems.
  - Promoted an energy conservation guidance program for firms in the Science Park.
  - Five experts, including specialists from the ITRI Green Energy and Environment Research Laboratories, professors from National Taipei University of Technology, and energy conservation and carbon reduction consultants from the Industrial Development Bureau conducted on-site evaluations of our cleanroom air conditioning system, chiller system, and air compressor system and offered advice on VOC to RTO energy-savings technology.
  - Executed the SEMI S23 pilot project in 2013 and established the Fab 5 plant air-conditioning system energy baseline.
  - Extended the SEMI S23 pilot project and established an energy baseline for the entire system, as well as a portion of high energy-consuming processing equipment used in Fab 5 to improve main energy-consuming equipment and enhance the company's competitiveness in energy utilization.
- ◆ Hold regular internal energy control meetings to implement projects and track progress.
- ◆ Routinely maintain records of various energy supplies and check energy equipment at our facilities.
- ◆ Perform unscheduled audits on MODULE energy consumption and energy equipment checks.
- ◆ Promote education related to energy conservation and carbon reduction through diversified policies and methods.
  - Conduct new employee training on energy conservation.
  - Provide contractor training at Macronix facilities related to energy-saving measures.
  - Offer training and education to current employees.

- NOTES Bulletin
- ◆ Improve factory and office equipment, adopt green procurement strategies, and introduce and install new management tools.
- ◆ Constantly promote the importance of energy conservation and carbon reduction to employees through training, post education, and electronic bulletin announcements. Our measures include:
  - Transitioning from T8 lamps to T5 lamps
  - Adopting water-saving measures in restrooms
  - Using lighting control at parking lots for cars and motorcycles
  - Switching off computers after work
  - Reducing air conditioning usage in offices
  - Posting signs in meeting rooms to remind employees to save energy
  - Displaying posters with energy-saving messages
  - Regularly publishing announcements on the Company's Internet to advocate for compliance with energy-saving measures

**Macronix Internal Energy Consumption in 2016 (Including Subsidiaries)**

Item	Amount Consumed in 2016
Diesel	8.28E+13
Natural gas	7.94E+16
Electricity	1.70E+15
Liquefied petroleum gas (LPG) used in kitchens and dormitories	2.25E+11
Amount of petroleum used	4.03E+14

Unit: Joules

Note: Data obtained from GHG inventory reporting data

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. In 2016, our energy conservation strategy primarily focused on replacing lighting fixtures and improving various systems in our plants. Major energy conservation achievements for Macronix in 2016 include:

- ◆ Role model: Energy Conservation Service Group (Headquarters)
- ◆ Outstanding energy-saving performer, Ministry of Economic Affairs (Feb 5)



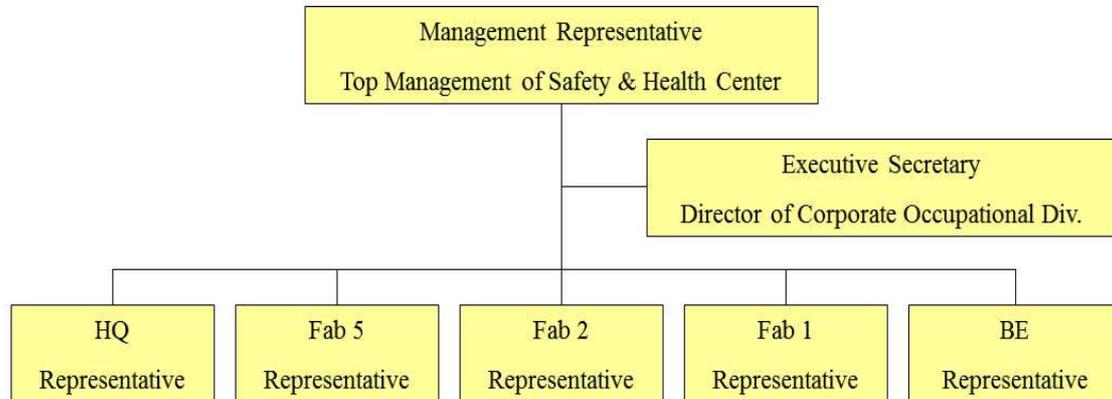
## 6.2.2. Low-Carbon Management

In response to the trend of greenhouse gas control and reduction in the supply chain due to global warming, Macronix began planning for greenhouse gas inventory, management, and reduction in 2000 and obtained the 2005 ISO14064-1 greenhouse gases inventory verification statement in 2007.

<b>Macronix Strategies for the Control of Greenhouse Gases</b>
◆ Minimize energy loss and reduce greenhouse gas emissions
◆ Increase the energy efficiency of equipment
◆ Alternative production process plans
◆ End-of-pipe treatment
◆ Promotion and education
◆ Recycling waste and limiting greenhouse gas emissions

We have established units to manage greenhouse gas management according to ISO 14064-1 verification standards as illustrated below. Through our complete management system, we have performed a thorough inventory on the energy use conditions in our facilities and offices to establish an inventory list and internal procedures with regard to the control of greenhouse gases. Therefore, we can use such information as the basis for selecting alternative production technologies with reduced energy consumption and greenhouse gas emissions in order to achieve our goal in this respect.

## Macronix Greenhouse Gases Management Organization Chart



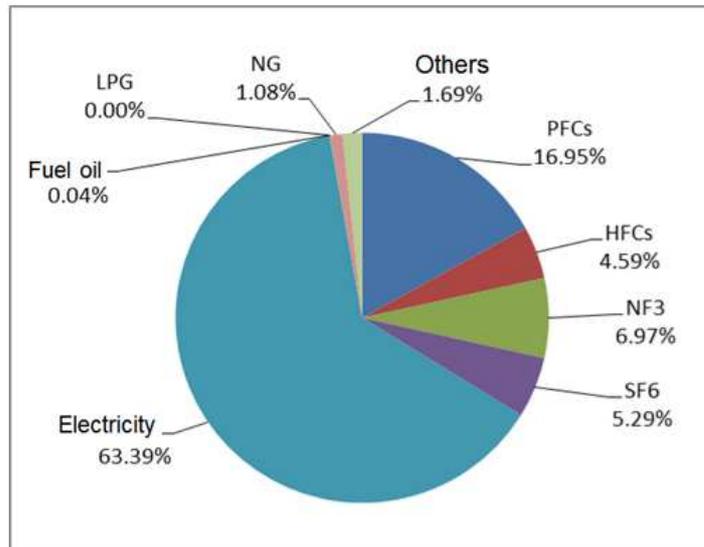
According to regulations of the Environmental Protection Administration, the GWP value of the GHG inventory changed in 2016. As a result, the Company adjusted the base year to 2011 and has made the relevant changes to the table and chart of GHG emissions in this report. Macronix's total emissions in 2016 were 394,213.223 CO<sub>2</sub>e. Macronix's scope 1 emissions accounted for 36.6% and scope 2 emissions accounted for 63.4% of the Company's total emissions.

## Macronix Greenhouse Gas Emissions

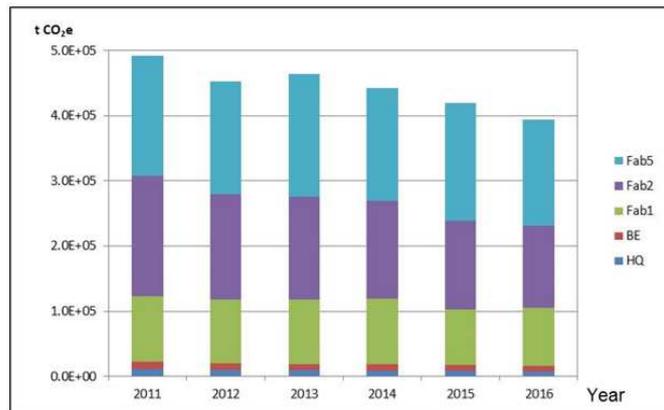
Scope	Unit	2014		2015		2016	
Scope 1 (Direct emission)	Metric tons of CO <sub>2</sub> e/year	181,000	41.0%	163,000	38.9%	144,000	36.6%
Scope 2 (Indirect emission)	Metric tons of CO <sub>2</sub> e/year	261,000	59.0%	256,000	61.1%	250,000	63.4%
Total	Metric tons of CO <sub>2</sub> e/year	442,000	100%	419,000	100%	394,000	100%

Note: Scope 3 emissions include other indirect greenhouse gas emissions, such as employee business travel and raw material transportation; since they account for such a small portion or cannot be quantified, they were not included.

### Ratios of Greenhouse Gas Emissions by Source of Emission, 2016



### Trend Diagram of Greenhouse Gas Emissions



### Carbon Emission Intensity

Item	Calculation Unit	2014	2015	2016
Carbon Emission Intensity	CO <sub>2</sub> -e (tons)/ revenue (per NT\$1 million)	19.7	20.0	16.3
Carbon Emissions	CO <sub>2</sub> e (tons)	442,000	419,000	394,000
Total Revenue	NT\$1 million	22,414	20,928	24,125

### 6.3. Ecological Environment and Conservation

In order to implement ecosystem conservation concepts, Macronix has adopted six hectares of land from the Science Park Administration Bureau and transformed it into the Macronix Park with thousands of trees and 71 different plant varieties, including banyan trees, camphor trees, red cedar trees, Madagascar almond, bamboo, Chinese fringe tree, cherry blossoms, deciduous trees, and Taiwan golden-rain trees, as well as rare water plants like waterweeds, water lilies, floating moss, yellow water lilies, creeping burhead, oriental cattail, and ginger lilies, which showcase a completely different landscape each season of the year.



The landscapes around plant areas and in the 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, also demonstrate our utmost efforts to protect the ecosystem.



Macronix Park is open to the public for their enjoyment during regular hours and is an ideal place for schools and environmental groups to hold ecological education events. Since 2004, Macronix Park has won the "Outstanding Landscape Award" from the Hsinchu Science Park Administration for many consecutive years.



All environmental protection work complies with local government regulations and internal corporate environmental policies and specifications in order to effectively conserve the ecological environment. As a result, environmental awareness has been raised to encourage everyone to fulfill their duties as global citizens.

## 6.4. Green Enterprises

### 6.4.1. Green Products

In response to the growing trend of green consumerism and strict international environmental laws on product chemical control, Macronix has endeavored to reduce its impact on the environment; starting from its daily operations, while also incorporating life cycle concepts into green products to fulfill customer requirements. In addition to reducing environmental pollution caused by our production processes, we also focus on managing chemicals in product ingredients. Currently, our green efforts include:

- ◆ Products that comply with EU Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment
- ◆ Products that are lead-free and halogen-free and can meet the requirements of SVHC (Substance of Very High Concern) published by the ECHA (European Chemicals Agency)
- ◆ Obtaining green product certifications from internationally acclaimed customers like Sony, Canon, and Samsung



Macronix has acquired the IECQ QC 080000 Hazardous Substance Process Management System Certification every year since 2007 to ensure the effectiveness of its green product management. According to Principle 15 of the Rio Declaration on Environment and Development, "In order to protect the environment, the precautionary approach shall be widely applied by States 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, EU SVHC, international laws, and customer requirements. 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, and tantalum (not used by Macronix) only with good due diligence, and we insist on not using metals that come from conflict mineral areas. We carry out due diligence for conflict minerals to our suppliers by regularly examining the changes in the list of approved refineries in the CMRT (conflict minerals reporting template), which is updated at least every six months or more as necessary.

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

### Costs Accounting Management System

To keep up with international trends, fulfill our environmental and social responsibilities, and increase the effectiveness of our investments in the environment, worker safety, and health management, Macronix implemented an environment, safety, and health costs accounting (ECA) management system upon resolution by the ESHC and under the commitment and support of high-level executives in the fourth quarter of 2004. The risk management division formed a cross-departmental unit to be responsible for planning and building the system in February 2005 and hosted several training and education sessions to promote the system, which officially began operations on December 1, 2005.

The Macronix ECA management system not only considers environmental costs that other companies generally take into account, but also includes safety and health expenses. The system evaluates overall investment costs and results with respect to environment, safety, and health management and converts activities of environmental protection (e.g. pollution prevention), worker safety (e.g. operation site safety), and health (e.g. health promotion) into financial or accounting data, which is then used to classify the costs into six categories: corporate operations, supplier and customer up/downstream relations, management activities, R&D, social events, and loss compensation. Each category is then subdivided into the respective ECA code to demonstrate the annual cost of each environmental safety and health item. We subsequently use management methods and approaches to solve or improve environmental problems as part of our strategy for sustainable operations. Our environmental expenditures and total investment amounted to NT\$340 million in 2016. Details are shown in the table below:

<b>Indicator</b>	<b>ECA Category</b>	<b>2016 Expense (NT\$)</b>
Cost of Waste Disposal/Waste Gas Emissions/Wastewater Treatment	Outsourcing (services)	65,049,888
Remediation Cost	-	-
Prevention and Environmental Management Costs (including Labor Costs)	Personnel, registration fees (licenses), energy, commission and research, education and training, donations, administration, equipment engineering investment, maintenance and supplies, testing, etc.	279,837,066
Major Environmental Fines	Loss compensation.	0
Other	Other	0

## 7. Social Efforts Dimension

### 7.1. Respect for All Employees

#### 7.1.1. Recruitment

##### **Personnel Distribution**

As of the end of 2016, the total number of employees at Macronix was 4,078, while full-time staff was 4055, part-time staff was 23. Employee details are shown in the following tables:

##### **Full-Time Employment Status by Work Type**

Quantitative Indicator	2014	2015	2016
General Staff	3,876	3,529	3,344
Management (Managers and Above Level)	677	692	711
<b>Total</b>	<b>4,553</b>	<b>4,221</b>	<b>4,055</b>

##### **Management by Gender**

Quantitative Indicator	2014	2015	2016
Male (%)	85	85	85
Female (%)	15	15	15

##### **Full-Time Employment Status by Gender**

Quantitative Indicator	2014	2015	2016
Male	2,458	2,315	2,231
Female	2,095	1,906	1,824
<b>Total</b>	<b>4,553</b>	<b>4,221</b>	<b>4,055</b>

### Full-Time Employment Status by Age

Quantitative Indicator	2014	2015	2016
Under 30 (%)	27	25	24
30~50 (%)	69	71	71
Above 50 (%)	4	4	5

### Full-Time Employment Status by Nationality

Quantitative Indicator	2014	2015	2016
Native Male Employees	2,365	2,229	2,154
Native Female Employees	1,771	1,676	1,593
Foreign Male Employees	93	86	77
Foreign Female Employees	324	230	231
<b>Total</b>	<b>4,553</b>	<b>4,221</b>	<b>4,055</b>

### Full-Time Employment Status by Gender

Quantitative Indicator	2014	2015	2016
Direct Employees (Male)	288	263	232
Direct Employees (Female)	1,545	1,374	1,295
Indirect Employees (Male)	2,170	2,052	1,999
Indirect Employees (Female)	550	532	529
<b>Total</b>	<b>4,553</b>	<b>4,221</b>	<b>4,055</b>

### Contract-base Employment Status

Category	2014	2015	2016
Part-time Workers	0	1	0
Long-term Contractors	8	2	0
Short-term Contractors	18	17	23
<b>Total</b>	<b>26</b>	<b>20</b>	<b>23</b>

\*: Contracts with employment periods longer than three months are considered long-term contracts.

## New Hires

In 2016, the net increase in Macronix's employees was 387, with 216 male and 171 female employees, thus successfully fulfilling our business needs in time. New hires are mainly under 30 years of age, among which 155 are male, accounting for 40% of new hires, and 137 are female, accounting for 35%.

### Number of New Hires between 2014 – 2016

Gender	Age	2014		2015		2016	
		Number of People	Percentage*	Number of People	Percentage*	Number of People	Percentage*
Male	Under 30	160	30%	169	53%	155	40%
	30~50	88	16%	56	17%	59	15%
	Above 50	2	0%	3	1%	2	1%
<b>Subtotal</b>		<b>250</b>	<b>46%</b>	<b>228</b>	<b>71%</b>	<b>216</b>	<b>56%</b>
Female	Under 30	215	39%	76	24%	137	35%
	30~50	82	15%	17	5%	34	9%
	Above 50	0	0%	0	0%	0	0%
<b>Subtotal</b>		<b>297</b>	<b>54%</b>	<b>93</b>	<b>29%</b>	<b>171</b>	<b>44%</b>
<b>Total</b>		<b>547</b>	<b>100%</b>	<b>321</b>	<b>100%</b>	<b>387</b>	<b>100%</b>

\*: Percentage = Number of new employees/Total number of new employees

### 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 40 disabled individuals in accordance with Article 38 of the People with Disabilities Rights Protection Act. In the case of hiring a person with severe or extremely severe disabilities, this counts as two disabilities hired. As of the end of 2016, we have hired 28 employees with physical and mental disabilities, of which 15 are severely disabled.

### Status of Employees with Disabilities

Quantitative Indicator	2014	2015	2016
Number of Employees with Disabilities	30	27	28

## Turnover Rate

In 2016, 557 employees, 305 male and 252 female, resigned; details are shown in the following table:

### Number of Resigned Employees in 2014 – 2016

Gender	Age	2014		2015		2016	
		Number of People	Percentage*	Number of People	Percentage*	Number of People	Percentage*
Male	Under 30	192	25%	146	21%	122	22%
	30~50	219	28%	231	33%	175	31%
	Above 50	3	1%	8	1%	8	2%
<b>Subtotal</b>		<b>414</b>	<b>54%</b>	<b>385</b>	<b>55%</b>	<b>305</b>	<b>55%</b>
Female	Under 30	232	30%	172	25%	150	27%
	30~50	124	16%	126	18%	100	18%
	Above 50	2	0%	16	2%	2	0%
<b>Subtotal</b>		<b>358</b>	<b>46%</b>	<b>314</b>	<b>45%</b>	<b>252</b>	<b>45%</b>
<b>Total</b>		<b>772</b>	<b>100%</b>	<b>699</b>	<b>100%</b>	<b>557</b>	<b>100%</b>

\*: Percentage = Number of resigned employees/Total number of resigned employees

### Turnover Rate of Newly Hired Employees by Gender

Quantitative Indicator		2014	2015	2016
New Employees *	Male (%)**	3	4	2
	Female (%)**	5	3	2

\*: New employees mean those who have worked for less than 90 days.

\*\* : Turnover rate = Number of newly hired employees who resigned/Total number of resigned employees

## 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 by age, birthplace, race, color, gender, sexual orientation, language, religion, disability, political ideology/affiliation, nationality, social status, financial status, family background, or other status. We continue to make revisions to support employment for people with disabilities and endeavor to prevent prejudice, discrimination, and harassment. We are determined to maintain harmonious relationships between the company and employees from the outset and have never experienced a loss of business due to labor disputes. Based on this relationship, Macronix has received recognition from both government and industry authorities. In 2016, Macronix had no complaints or incidents where the rights of local staff or aboriginals were infringed.

### **Employment Transfers**

Macronix is committed to upholding workers' rights and follows Article 10-1 of the Labor Standard Act regarding job re-assignments and workplace relocations: 1. The employee shall be transferred based on the needs of business operations and without improper motives or purposes. Matters not provided for herein shall be governed by other applicable statutes. 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.

### **Pension Plan**

Macronix has set up its retirement policies according to the related regulations in the Labor Standard Act. We have established the Pension Supervisory Commission to supervise and manage pensions and pension-related issues. The Company appropriates the pension reserve fund according to the regulations of the Labor Pension Act.

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

Macronix appropriates 2% of the total monthly wages of our employees to a designated

account in the Bank of Taiwan every month. As of the end of 2016, the total amount of pension reserve funds was NT\$740,390,940. Each year, in addition to the statutory contribution, we invite professional accountants and consultants to conduct the actuarial calculation of our company's pension funds in order to ensure sufficient funding for future employee pension payments.

◆ Pension Contribution Under the Labor Pension Act:

Under the new pension system, the Company contributes 6% of the employees' monthly wages to an individual labor pension account. Employees may also voluntarily contribute within 6% of their monthly wages to the labor pension accounts.

**Open Communication Atmosphere**

We respect individual diversity and have adopted an open-door policy to create an atmosphere of open and transparent communication. Labor management meetings are convened on a quarterly basis to improve labor-management relations and cooperation and ultimately encourage labor participation and boost employee engagement. Meeting topics may include production planning, employee activities, benefit and welfare, and improvement of our work environment. We also provide a platform to encourage our staff to communicate, express, and share opinions, including:

- ◆ Regularly holding various meetings based on open communications, new employee orientation, departmental staff meetings, staff (job grade 8 and above) conferences, and labor management meetings in order to provide a clear channel of communication that ensures that everyone's voice is heard.
- ◆ Publishing the Macronix Quarterly magazine and establishing a suggestion box for staff to raise questions, provide suggestions, and file complaints so that we can actively help resolve employee issues. In 2016, 37 suggestions letters were received. Each letter is kept confidential, and is firmly followed up to ensure that the raised issue solved and the communication between employees and the Company are harmonious.
- ◆ Set up bulletin boards and publish digital announcements to effectively communicate important information, legal regulations, and corporate policies.
- ◆ Set up the "Our Family" Employee Relations Website, a forum for promoting direct messages from the management team, while also serving as a social media platform that promotes the sharing of employee needs and requirements, status

updates of company and staff, topical discussions on life and culture, and EAP (Employee Assistance Program) where employees can obtain assistance. The “Our Family” website is considered the bridge between the Company and its employees that allows Macronix to better understand the needs and issues that employees are facing in real life to guide and encourage staff and maintain a strong company-staff relationship.

- ◆ Developing Sexual Harassment Prevention Policies to address the prevention, reporting, and punishment of sexual harassment incidents within the Company, while developing and maintaining gender equality and upholding self-respect.



### 7.1.3. Salary and Welfare Systems

#### Competitive Compensation Package

Employees are the most important assets of Macronix, so we offer compelling compensation packages to top talents. To attract, motivate, and retain the best talents, we provides attractive and highly competitive compensation packages according to the importance and complexity of the job without prejudice based on political ideology/affiliation, gender, or marital status. Bonuses are distributed according to individual performances: For example, quarterly bonuses are provided based on the performance of both the Company as well as the individual employee. We also distribute annual bonuses based on company profits and an employee’s individual performance. Macronix not only complies with local labor regulations, but also actively participates in local salary associations to ensure that we provide a competitive salary and benefits package.

### Average Salary Ratio of Male and Female Employees (%)

Employee Type	Male	Female
Divisional Manager	1.05	1
Departmental/Section Manager	1.04	1
Indirect Employee	1.08	1
Direct Employee	0.93	1

### Welfare Benefits

In addition to provide paid leave for full-time employees, as well as labor insurance and national health insurance, Macronix also offers the following benefits:

Welfare Benefits	Description
Leave Programs	Various types of leaves are granted according to laws and regulations, including maternity leave, parental leave, family care leave, paternity leave, and menstrual leave.
Insurance Plans	As required by law, we provide Labor insurance, National Health insurance, group insurance (life/accident/cancer/medical treatment), and overseas business travel accident insurance. Employees also have the option to participate in self-pay insurance plans for their family to obtain better protection.
Welfare Subsidies	We provide subsidies for child birth, marriages, funerals, emergencies, injuries, hospitalization, and extracurricular cultural activities.
Welfare Facilities	Employee dormitory, parking lot, restaurants, leisure activity center, green park, convenience stores, cafe, breastfeeding room, and health care room.
Pension Plans	We also conduct seminars regarding pension-related issues. Our pension fund payment and contributions fully comply with related regulations. In recognition of an employee's contribution and hard work, we also bestow a medal on retired employees.
Employee Welfare Committee	We have established the Employee Welfare Committee in accordance with laws and regulations and systematically promote various employee welfare measures.

Employee Counseling and Services	We provide free psychological consultation and guidance services, regular health examinations, and post-health examination consultation services.
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上課時間: 每週二中午 11:50 - 12:50  
 社員上課費用: 1,850元 (含氣球材料費)  
 非社員上課費用: 2,700元 (含氣球材料費)  
 報名截止: 即日起至 2016/07/15日  
 E-mail: SunnyKu@mxic.com.tw



**旺旺社 寵物認養**

每週六新竹假日花市  
 寵物免費認養 歡迎參加

攝影課程公告: 人像後製 PS 魔幻力量 2/25(四) 18:00-20:30 @ H1100  
 講師: 劉增毅 Johnny Liu  
 第一次課為 "PS 的魔法"  
 此課不分初級、中級或高級  
 課中以一些實際案例讓大家看看 Photoshop 的極致應用，  
 開闊大家的眼界，也會現場操作示範，實際展示 PS 的強大技巧供做參考，  
 對於修圖有興趣的朋友別錯過了。

**PS 美圖魔法教學**



## Unpaid Parental Leave

In 2016, 294 employees were qualified to take unpaid parental leave (194 male and 100 female), of which 35 took the unpaid parental leave (8 male and 27 female).

The number of employees who returned to work was 28(4 male (80%) and 24 female (71%)). The number of employees who returned to work in 2015 and were still employed for at least 12 months in 2016 was 16, 1 male (33%) and 15 female (75%).

## Unpaid Parental Leave and Return-to-Work Ratio by Gender

Quantitative Indicator	2014	2015	2016
Male employees eligible for unpaid parental leave*	266	236	194
Female employees eligible for unpaid parental leave*	144	131	100
<b>Total</b>	<b>410</b>	<b>367</b>	<b>294</b>
Male employees who took unpaid parental leave	5	5	8
Female employees who took unpaid parental leave	36	47	27
<b>Total</b>	<b>41</b>	<b>52</b>	<b>35</b>
Male employees who applied to return to work	4	3	4
Female employees who applied to return to work	26	20	24
<b>Total</b>	<b>30</b>	<b>23</b>	<b>28</b>
Male employees who should have returned to work	5	6	5
Female employees who should have returned to work	36	35	34
<b>Total</b>	<b>41</b>	<b>41</b>	<b>39</b>
% of male employees who returned to work**	80%	50%	80%
% of female employees who returned to work**	72%	57%	71%
Male employees who have returned to work for at least 12 months	0	4	1
Female employees who have returned to work for at least 12 months	13	19	15
<b>Total</b>	<b>13</b>	<b>23</b>	<b>16</b>
% of male employees who have returned to work for at least 12 months***	0%	100%	33%
% of female employees who have returned to work for at least 12 months***	81.3%	73.1%	75%

\*: The numbers shown are calculated on a corporate-wide basis (including DL and IDL)

\*\* : Percentage of male or female employees who returned to work = Number of male or female employees who returned to work/Number of male or female employees who should have returned to work.

\*\*\* : Percentage of male or female employees returned to work for at least 12 months = The number of male or female employees returned to work for at least 12 months/The number of male or female employees who applied to return to work in the previous year.

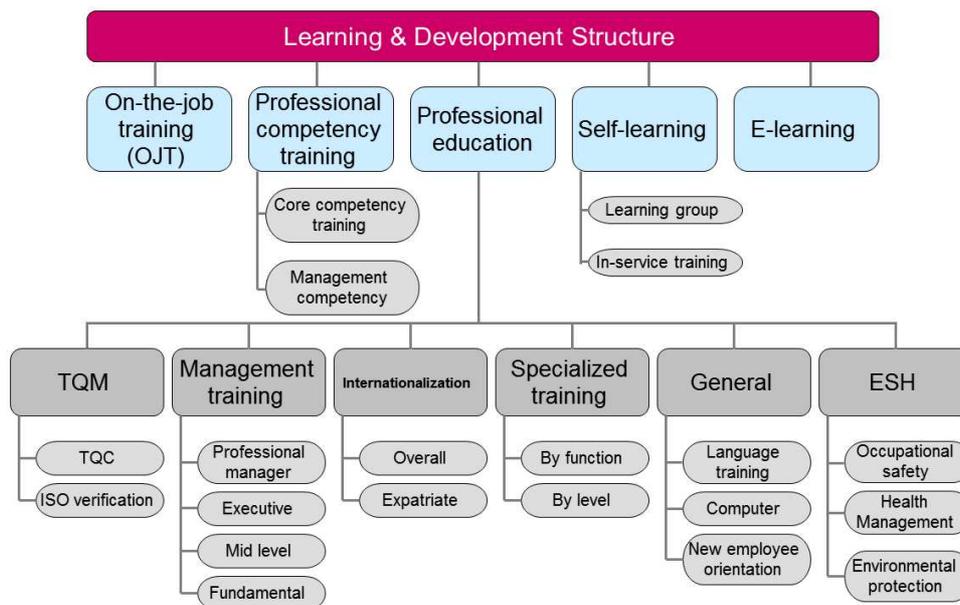
## 7.2. Learning and Development

Macronix believes that talents are not only the foundation but also the most valuable assets of the corporation. Therefore, the Company has established a comprehensive training system and provides well-structured and constant training plans. This system accommodates different learning paths, competencies, and career ladder structures to provide all staff with individual development plans.

Our performance evaluation process and individual development plans are closely connected. Interview 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. A face-to-face meeting between employees and their supervisors is a must in order to discuss what is needed to achieve the employee's individual goals and create an individual development plan to broaden and deepen employees' professional knowledge and skills. In 2016, the performance appraisal implementation rate for each employee category was 100%.

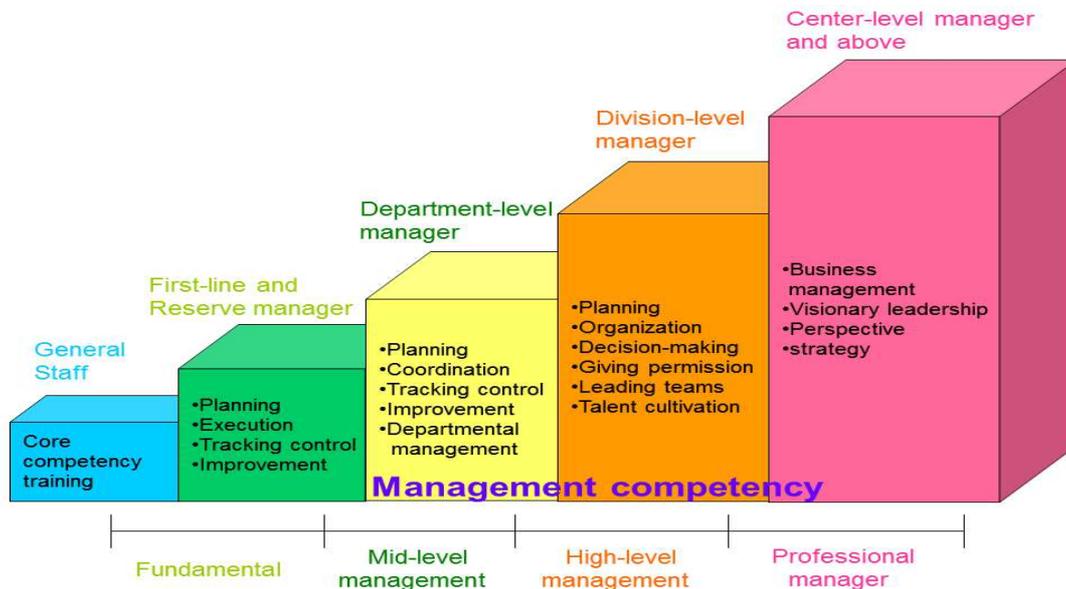
### 7.2.1. Nurturing Talents

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 to 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.

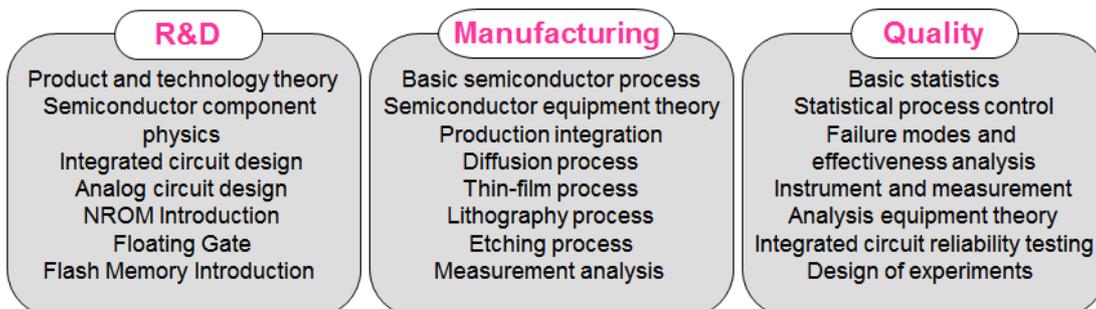


Our learning roadmaps include four categories:

- (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 the corporate culture.
- (2) Competency roadmap derived from company values: Courses that are designed to implement corporate values so that employees can demonstrate the conduct expected by the Company.
- (3) Managerial roadmap for different levels of management: Provides ladder structures in management training and features various courses for different levels of management to strengthen their skills.



- (4) Professional roadmap based on various fields: Guest speakers from within and outside the Company are invited to deliver professional training, with topics including R&D, production, quality, risk management, human resources, administration, sales, and information management, in order to strengthen 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: Allows employees to participate in external and work-related training courses and conferences.
- (3) On-the-job training (OJT): Allows employees to develop professional knowledge, such as job assignments, hands-on practice, and project participations; employees can acquire the necessary knowledge and skills by performing the tasks.
- (4) Online training: 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.

### 7.2.2. Macronix Academy

The Macronix Academy is a platform for employees to continue their learning and development; it has a comprehensive learning system that provides employees with complete and abundant resources for their career development. Through knowledge gathering and sharing, employees enjoy the enriched learning resources to achieve their career goals. Furthermore, this helps employees to move to the next advanced stage of their careers and equips them with the skill sets needed to successfully overcome the challenges that they may meet.

The Macronix Academy is equipped with the facilities and professional equipment required for employees to learn in a positive environment, including:

- (1) Audiovisual room: Contains multimedia computers, books, DVDs, video tapes, and audio tapes. The rich learning platform allows students 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 for all students so that they can significantly increase their learning efficiency.
- (4) International lecture halls: 250 seats are prepared, making it the best location for large training courses, conferences, and lectures.
- (5) Library: Features rich and diverse books, periodicals, and audio/video resources for employees to satisfy their learning needs.



### Employee Training Costs and Hours

Indicator	Unit	2014	2015	2016
Total Training Costs	NT\$1 million	11.84	5.87	4.67
Total Training Hours	Hour	123,781	103,824	82,867
Total Employees	Person	4,626	4,221	4,055
Total Revenue	NT\$1 million	22,414	20,928	24,125
Total Training Costs/Total Revenue	%	0.05	0.03	0.02
Total Training Costs/Total Employees	NT\$1/person	2,560	1,390	1,153
Total Training Hours/Total Employees	Hour/person	26.8	24.6	20.4

### Average Training Hours for Various Types of Employees

Employee Type	Unit	2014	2015	2016
General Employee	Hour/person	26.7	24.5	20.7
Managerial Employee	Hour/person	28.1	25.2	19.2
Male Employee	Hour/person	38.1	33.0	27.2
Female Employee	Hour/person	17.5	14.4	12.2

## 7.3. Work-Life Balance

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

An enterprise is like a big family, and at Macronix 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 even extend this care to their family members. This belief fosters an environment where employees treat each other with mutual trust and work cooperatively. Following the philosophy of a humane management style, we provide staff with high flexibility and autonomy at work and continuously encourage employees to make valuable innovative solutions to our nonvolatile memory solutions. As a result, the firm has

been able to present top technical papers at the International Electron Devices Meeting (IEDM), VLSI Symposia, and International Solid-State Circuits Conference (ISSCC), receiving worldwide attention for its forward-looking R&D outcomes. Macronix believes in respecting individual diversity and adopting open-door policies in order to create an atmosphere of open and transparent communication. We routinely hold management communication meetings, conduct labor management meetings, set up staff suggestion boxes, and publish the Macronix Quarterly e-newsletter in order to provide a platform that encourages our staff to communicate, express their ideas, and share their voices. Macronix adheres to the Macronix CSR Policies, devoting its utmost efforts to creating 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 SA8000 specifications.

Happy employees usually have the highest efficiency. Macronix provides competitive compensation packages, a humanistic management system, a top recreation and leisure infrastructure, and exciting extracurricular activities to motivate staff to enjoy their work. These measures also help personnel to nurture active and positive work values, broaden their horizons, spark their passions, and express their strengths. The Company hopes that its employees can find happiness, values, self-confidence, satisfaction, and pride in the work they do.

Talents are not only the foundation but also the most valuable assets of the corporation. Therefore, the Company has established a comprehensive training system and provides well-structured and constant training plans. This system accommodates different learning paths, competencies, and career ladder structures to provide all staff with individual development plans. To achieve the goal of continued growth for both the Company and its staff, we have various types of training programs that are in line with corporate strategies and organizational development. The programs adopt innovative and diverse teaching methods with the aim of enhancing staff knowledge, skills, and capabilities so that they can, in turn, strengthen the firm's competitiveness.

We believe that a comfortable working and learning environment will foster employees' additional growth potential and renewed energy, which will thus spur success. Therefore, Macronix has worked hard to build a work environment that allows its staff to be physically, psychologically, and spiritually healthy. The Company practices the concept of caring for its staff through its management system to improve the internal environment and increase harmony between the staff and the management team in order to create a warm, happy, and growing family.

### 7.3.1. Macronix H2O

Macronix believes that a physically and psychologically healthy staff is the essence of a successful enterprise. Therefore, Macronix strives to provide an excellent work environment for its staff and promotes various approaches to take care of employee health. With regard to infrastructure, we have established a fitness center and a green park and provide such benefits as health examinations. Our employees benefit from an energetic work environment but are also encouraged to enjoy a vigorous lifestyle!

We hope that all employees work in a healthy and happy way. Furthermore, Macronix hopes that employees can achieve a healthy work-life balance. Therefore, we continuously promote the H2O Corporate Wellness Program to provide employees with comprehensive care. Macronix uses “H2O” as a slogan to advocate and encourage employees to enjoy a work-life balance and help create an enlightened future with the Company.

H2O= Health, Happiness, Openness to life.

#### (1) 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 video game room, a fitness room, racquetball courts, aerobics classrooms, a karaoke room, and multi-purpose indoor courts in order to provide employees with the most comfortable and healthy place for enjoying recreational activities.



(2) Health: Clean, healthy, and delicious meals

Macronix cooperates with firms that have achieved HACCP standards to provide food with no MSG and that are low in sodium and oil. These cooperating firms also have professional nutritionists that ensure the health of the daily meal offerings, while the managing units routinely publish food safety inspection results. Furthermore, Macronix regularly inspects kitchen safety and food cleanliness, as well as fire safety management, to ensure that employees can enjoy healthy meals. As a result of all these efforts, Macronix has received the honor of being a healthy catering organization and providing a non-smoking restaurant environment.

(3) Health: Comprehensive Employee Assistance Programs (EAPs)

Macronix has integrated external professional resources and gathered teams from the Employee Relations Department, Health Promotion Office, and the Performance and Learning Development Department to establish employee-support services and implement Employee Assistance Programs (EAPs). Together 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 can help employees deal with a variety of issues related to health, marriage, family, finance, law, emotions, stress, and work and thus assist employees in overcoming the challenges in their everyday lives and at work.

(4) Happiness: Convenient and safe LOHAS services

Macronix provides complete life management services with optimal comfort and support in the workplace. The Company has established convenience stores onsite, as well as vendors/stores, in order to satisfy the nutrition, clothing, living, traveling, education, and recreation needs of its employees. We hope that our employees can work happily and effectively in such a worry-free environment!

(5) Happiness: 5-star employee dormitories

The Macronix employee dormitory features 16,000 square meters and is situated in a beautiful community. The dormitory can house 1,000 employees and features a living room, restaurant, training classrooms, game room, elevators with views, garden, parking lot for cars and motor scooters, and a 24-hour centrally controlled security system in order to provide a safe and comfortable living environment for company employees.



(6) Happiness: Full convenience

Macronix provides its employees with various on-site convenience services, such as convenience stores, coffee shops, laundry services, and travel agencies. Employees can take care of their daily errands while at work. Furthermore, Macronix has agreements with various vendors so that it can provide employees with various options.

(7) Lifestyle: Seminars on Happiness

Macronix aims to constantly improve its employees' quality of life so it has established a series of seminars on daily living and leisure to foster energy and growth in our employees and their families. We hope that employees can achieve a perfect balance between family, health, friends, and spirituality in order to have satisfying, healthy, and happy lives!



(8) Life Satisfaction: A Wide Selection of Clubs

In order for employees to achieve a work-life balance, Macronix offers more than 30 clubs, such as creative balloon design, Chinese calligraphy, sports, hiking, ukulele, and photography, as well as religious clubs such as the Humane Society and the Big Love Society, so that employees can make friends and discover new hobbies.





### (9) Lifestyle: Lively and Innovative Celebrations and Activities

Celebrations are organized for Family Day, Sports Day, Engineer Day, Father's Day, and Mother's Day, during which employees can enjoy a warm and happy atmosphere. Through these activities, employees can also share their work environment and lifestyle with their friends and family.



## 7.3.2. Safety and Health Promotion Management

### Occupational Safety and Health Management

Macronix is fully aware of the impact of employee safety and health on our corporate competitiveness, so Chairman Wu has been an advocate for both ever since Macronix's inception in 1989. He urges employees to take environment, safety, and health management seriously, requests executives of various levels to participate in safety and health management tasks, and encourages employees to provide feedback related to improving workplace safety. Furthermore, Chairman Wu has actively introduced various international certification standards during the planning stages of Macronix's environment, safety, and health management systems in order to build a comprehensive platform. We have strict and complete environment monitoring procedures that allow us to examine the air quality in work environment, test the quarterly aerobic plate count in drinking fountains, and ensure employee health and safety. We periodically evaluate and review our management measures according to government regulations and customers' requirements.

Thanks to the efforts of our employees, Macronix received OHSAS18001 Occupational Health and Safety Management Systems Certification in 2002. We have implemented a "high-quality environment, safety, and health culture" as part of the corporate value that drives our sustainable growth. In 2009, we also received the third annual National Occupational Health and Safety Award, a top honor recognizing labor safety achievements in Taiwan. In the future, Macronix will continue to promote employee safety and health and build a work environment with the highest safety.

In 2016, Macronix received the following major health and safety awards in recognition of its achievements:

- ◆ Award of Gratitude for Safety and Health Guidance
- ◆ Monthly Occupational Safety Activity – Emergency Drill
- ◆ Award of Gratitude for Public Welfare of Occupational Safety, Chairman of Taiwan Occupational Safety & Health Management System (TOSHMS) North Branch
- ◆ Excellent Healthy Workplace - Health Leadership Award



Macronix has also established the Occupational Safety Health and Environment Committee (OSHEC), which was led by the Macronix President to oversee the promotion and execution of environmental protection, safety, and health measures. As of 2016, Macronix OSHEC consisted of six managers, four directing supervisors, 15 labor representatives, seven technical engineering representatives, and 11 environmental, safety, and health representatives; labor representatives account for 34% of the committee.

Macronix OSHEC 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.

We offer our employees adequate personal protective equipment (PPE) and complete

safety and health education and training. We have also established a 24-hour emergency response team (ERT) that works four shifts in rotation. The business continuity program (BCP) has also been created to ensure employee and corporate safety. We conduct periodic checks and repairs on fire safety equipment and public safety of buildings. Escape and evacuation drills are regularly practiced to improve employees' ability to react to emergencies. The workplace is also regularly inspected for comfort.

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 all levels
- The workplace is monitored, and occupational safety is continuously improved according to regulatory requirements
- A 24-hour health service center is available to conduct professional health examinations and health management, while healthy activities, such as seminars, psychological counseling, and an employee fitness and activity center, are provided
- An employee assistance program (EAP) has been implemented and doctors specializing in occupational diseases have been invited on-site to guide and instruct employees concerning 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.
- A dedicated unit responsible for protecting against epidemics collects the latest information about epidemics and diseases and then integrates any related epidemic control measures in order to safeguard employee health.
- Complete employee assistance programs and psychological counseling are provided.
- Pregnant employees are cared for by implementing the “Three no’s”, no night shifts, no heavy lifting, and no radiation work, to offer a friendly workplace.

## Macronix Disabling Injury-Related Indicator in 2016

Category	Macronix Employees		
	Male	Female	Total
Number of employees	2,245	1,833	4,078
Occupational injuries (cases)	1	1	2
Occupational diseases (cases)	0	0	0
Work days lost (days)	23.3125	4	27.3125
Number of hours absent	7,618.25	20,803.25	28,421.5
Total number of occupational deaths	0	0	0
Total hours worked	4,310,400	3,519,360	7,829,760
Injury rate (IR)	0.05	0.06	0.05
Occupational disease rate (ODR)	0.000%	0.000%	0.000%
Lost day rate (LDR)	1.08	0.23	0.70
Absence rate (AR)	0.002	0.006	0.004

### Notes:

- Types of work injuries calculated by work-related injury statistics
- Leaves of absence include ordinary sick leave, menstrual leave, occupational injury leave, special sick leave, and quarantine leave.
- $IR = (\text{Number of disabling injuries} \times 200,000) / \text{Total hours worked}$
- $LDR = (\text{Total work days lost} \times 200,000) / \text{Total hours worked}$
- $ODR = (\text{Number of occupational diseases} \times 200,000) / \text{Total hours worked}$
- $AR = (\text{Number of hours absent}) / \text{Total hours worked}$
- All of Macronix's fabs are located in Taiwan.
- As the Company has no unified channel for recording occupational injuries, occupational diseases, or the number of hours absent related to contractors, such information is not disclosed. The relevant information collection system is expected to be launched in 2022.

## 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 with healthy and happy working partners can the Company be filled with vitality and sustain its operations; this is the management concept of

Macronix.

- ◆ Continue to promote the Macronix Sports Day Program (since 2011):
  - (1) Supported and led by the chairman and executives of various levels (the Company's activity center has been used by more than 30,000 people on average in the past three years).
  - (2) Established diverse and active clubs, with a total of 18 different sports clubs.
  - (3) Organized seminars on sports injury prevention/muscle ache prevention, in which participants are taught how to relax their muscles to prevent the effects of a sedentary lifestyle and stress and learned about musculoskeletal injuries caused by incorrect body posture. Monthly/quarterly health education seminars and office exercise sessions are held for each plant/department.
- ◆ Weight loss course:
  - (1) We have continuously introduced cardiovascular disease seminars, invited nutritionists to provide weight-loss meal plans, and hosted athletic speeches (open to all employees).
  - (2) Health education messages are periodically displayed as slideshows on LCD TV, online courses, and posters.
  - (3) Employees are encouraged to develop good exercise habits: Employees who log their exercise achievements on a weekly basis and reach their weight loss goals are awarded with exquisite gifts and are invited to share their experiences with other employees.
- ◆ Increase the number of participants in health promotion activities:
  - (1) We survey the needs of our employees every year to plan appropriate health promotion activities and promote health-related issues during monthly/quarterly departmental meetings (employees can choose the topics they prefer or issues related to disease prevention/regulatory requirements); these promotional activities have received enthusiastic responses from our employees.
  - (2) We support the screening of four types of cancers (colorectal, breast, oral, and cervical cancer) provided by the Health Promotion Administration to ensure our employees' health. In 2016, Macronix collaborated with hospitals to provide free low-dose chest CT scans for employees to assist with disease prevention and provide subsequent health care. A total of 348 employees took advantage of this service.
- ◆ Maternal worker health management:
  - (1) Care plans 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. Mothering classes and cancer screening activities for women are held every month and as needed to provide health-related information. Each plant has established a breastfeeding room

that exclusively offers comfortable equipment for employees who need to breastfeed. We also offer small gifts to employees who breastfeed for at least six months.

(2) Received the Gold Award, Award of Excellence, Outstanding Award, and Second Runner-up for Breastfeeding Rooms from Hsinchu City Government for three consecutive years (2013–2016).

- ◆ Since working in the high-tech industry is often competitive and stressful, the Company 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.
- ◆ Awards & achievements in 2016
  - Health Promotion Administration, Ministry of Health and Welfare: Health Promotion Badge - Top Honor for an Accredited Healthy Workplace (Fab 5)
  - Health Promotion Administration, Ministry of Health and Welfare: Health Promotion Badge - Top Honor for an Accredited Healthy Workplace (Test Building)
  - Hsinchu City Department of Health: Hsinchu City Government Breastfeeding Room Contest Second Runner-up in the Workplace Group



## 7.4. Social Welfare

Since the establishment of Macronix in 1989, we have insisted on thoroughly cultivating our own technical strengths and have been committed to helping enhance Taiwanese industry's R&D capabilities and technological innovations. Macronix manufactures important electronic components that help enrich people's lives. As a member of the global market, we are mindful to maintain sustainable operations and continue to improve shareholders' interests and care for the environment. Macronix never forgets to give back to the society that nourishes us. We believe that only by constantly fostering technical talent can Taiwan maintain its leading position in the world and outperform international competitors. Therefore, Macronix made donations to create the Macronix Education Foundation in 2001, chaired by the Chairman of Macronix, Miin Wu. Macronix has donated more than NT\$20 million to the Foundation to hold its primary events. Macronix employees also participate in the Foundation's activities. It is anticipated that through the strength of the Macronix Education Foundation, resources can be systematically maximized, thus enabling more people to participate and activating the innovative competency of younger generations to expand the knowledge and perspectives of our domestic scholars.

Due to our long-term efforts to cultivate science education, the Macronix Education Foundation has successfully organized science competitions, including the Macronix Golden Silicon Awards and Macronix Science Awards. For 17 consecutive years, over 23,000 teachers and students have participated in these competitions with extreme enthusiasm. Over NT\$90 million in scholarships have been awarded. In 2013, the Macronix Education Foundation participated in a rating evaluation conducted by the Ministry of Education for the first time and received the highest rating.

We have devoted longtime efforts to community involvement, particularly in the three main areas of science education, cultural creation, and emergency aid.

In recognition of our achievements, Macronix has won Corporate Citizenship Awards (2010-2012) from CommonWealth Magazine, as well as CSR Awards (2009, 2010, and 2012) from Global Views Monthly.

### 7.4.1. Planting the Seed of Science Education

By focusing on cultivating basic science knowledge and nurturing talented knowledge engineers, the foundation continues to implement the Future-Knowledge Engineering Program because we know that education is a vital foundation for the future that must be continuously planned and promoted. Furthermore, the foundation holds various activities for different groups, including the Macronix Golden Silicon Awards, Macronix Science Awards,

Macronix Chair Professor Project, and support for national science education in order to foster scientific talents in Taiwan.

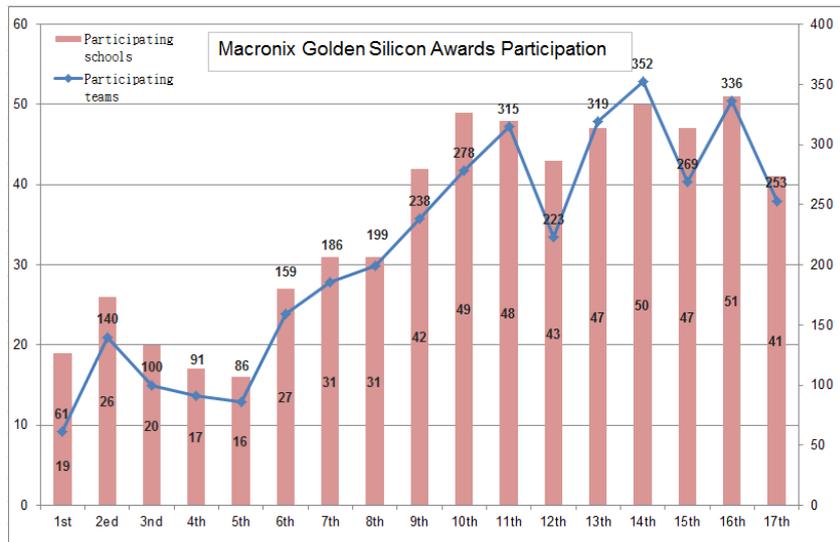
### Macronix Golden Silicon Awards



To inspire college students' creative spirit and hands-on experience in the field of semiconductor research, the Macronix Education Foundation held the first Macronix Golden Silicon Awards - Semiconductor Design and Application Competition in 2000. Now entering its seventeenth year, over 12,000 students and teachers nationwide have participated in these competitions. The Macronix Golden Silicon Awards is considered the most important competition by 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 green energy, biomedicine, robotics, digital homes, and automotive electronics, into the Golden Silicon Awards. In 2015, Internet of Things (IoT) was also included. The goal of adding a new category of competition was to attract and encourage students to propose innovative ideas and exciting creations in relevant domains, thus further stimulating domestic research trends.



The former president of Academia Sinica, Dr. Yuan-Tseh Lee, has diligently attended the Macronix Golden Silicon Awards ceremony every year since its establishment; he always listens whole heartedly to the award-winning students' creative works.

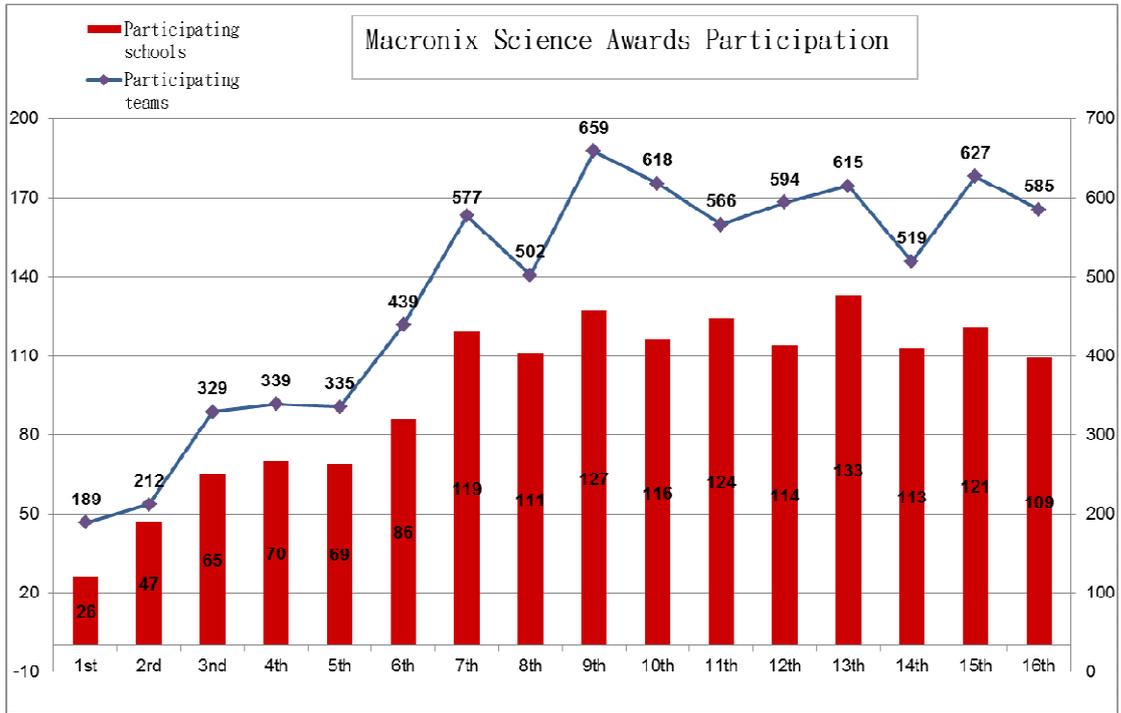


### Macronix Science Awards



To inspire senior high school students' interests in natural and applied sciences as well as encourage them to explore science, develop their potential to innovate, think outside the box, and learn outside the classroom, the Macronix Education Foundation held the first Macronix Science Awards in 2002 with Chia-Tung Lee, Chair Professor, National Chi Nan University, serving as the convener.

The number of participants has grown from 189 teams in the first year to 621 teams comprising 14,000 participants now in its fifteenth year. More than half of the high schools across Taiwan have participated in these competition, which has been acclaimed in Taiwan as the “Nobel Prize” for senior high school students due to its vast influence.



### 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 made up of all prize winners and totals 273 members. Through this association, new attendees can network with the senior winners to expand their scientific horizons to help one another, grow

together, and form lifetime bonds.

The foundation has a project team that guides the association officers in planning and carrying out the association's annual meetings. Various seminars are held from time to time, in which Macronix Science Awards committee members and leaders in technical, social, and cultural fields are invited 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 VLSI and SoC experts. Macronix hopes that doing so will 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.

### **Sponsoring Important Science Organizations**

Since its establishment in 2001, the Macronix Education Foundation has continuously promoted science and technology education by improving the value of a knowledge economy, caring for the development of children and youths, and enhancing social harmony and quality of life. By supporting major organizations devoted to promoting fundamental science education, including the Wu Chien Shiung Education Foundation, Yuan T. Lee Foundation Science Education for ALL, and Boyo Social Welfare Foundation, the Macronix Education Foundation aims to inspire students to learn science from life and contribute new findings to society.



The CEO of Foundation presents the Macronix Outstanding Award to the winning teacher of the Yuan T. 22<sup>nd</sup> Science Test

Furthermore, the Macronix Education Foundation sponsors colleges to occasionally organize EE camps or invite students to visit Macronix for popular science education. In 2016, the Macronix Education Foundation arranged 16 visits for 520 participants from (vocational) senior high schools and colleges, including attendees for the 2016 ISML (International Symposium on Semiconductor Manufacturing Intelligence) and IEEE (Institute of Electrical and Electronics Engineers) seminars.

The Macronix Education Foundation has also been donating US\$4,000 every year since 2012 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. As of 2016, scholarships have been awarded to nine recipients.

#### 7.4.2. Employees Participating in Charity Events

Macronix has taken active steps to fulfil our social responsibilities and has demonstrated compassion for those in need during the occurrence of major emergencies, such as the major 921 earthquake in Taiwan in 1999, the Sichuan earthquake in China in 2008, and the Typhoon Morakot flooding in Taiwan in 2009. Macronix immediately made donations to help the victims after those crises, as well as the 311 earthquake in Japan.

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 into the hearts of our employees.

#### **Humane Society**

Macronix set up the internal employee charity club, called the Humane Society, in March 2001 with the purpose of helping those in need and increasing social harmony. A group of loving Macronix employees, the Humane Society works together with other charitable organizations, such as the Hsinchu Taiwan Fund for Children and Families, to help the underprivileged in Hsinchu. In 2008, the Hsinchu City Government approved the Humane Society's name change to the "Humane Society Service Organization".

Humane Society Events	
The Macronix Family Sponsorship Drive	The Macronix Family Sponsorship Drive entered its 10th year and currently sponsors 184 children every month, with total donations in 2016 amounting to NT\$2.52 million. The drive sponsors children from eight charitable organizations, including the Taiwan Fund for Children and Families (aboriginal children), Sacred Heart Home, Miracle Home (teenagers), World Vision, Humane Society Service Organization, Horseback Riding Therapy Center, St. Francis Organization, and Eden Social Welfare Foundation.
The Fishing Pole Project	This project is entering its seventh year based on the successful collaboration with the Eden Social Welfare Foundation in 2010 and the Qi Zhi Vocational Training Center in 2012. Macronix employees order bread (at a price of NT\$250) from the Children Are Us Foundation's bakery so that the mentally challenged can learn to bake and sell pastries. In 2016, 253 employees made orders for a total amount of NT\$378,250.
Christmas Making Dreams Come True Initiative	For 14 consecutive years, the Humane Society has been organizing employees to donate Christmas gifts for needy children. We once again had great success with this event in 2016, and every child received the gifts they wished for.
Re-usable item donation	Every year, Macronix hosts donations of second-hand items, in which employees donate clean, intact, undamaged items to recycle, as well as assist groups that are in need. In 2016, donations were made to Luluna Tribe, Xinyi Township in cooperation with the Hsinchu Building Love Association.
Emergency rescue	Upholding the purpose of helping the poor, the Humane Society organizes fundraising activities to help colleagues and their family members who encounter major changes or need urgent assistance. In 2016, two fundraising activities were organized and 1,132 participants raised NT\$1,734,960.



## Big Love Society

The Macronix Big Love Society was the first social club to be established in the Science Park for medical charities. Its first-phase goal is to promote the “10,000 Organ Donor Signups with Their National Health Insurance Card” initiative. Since 2008, the Big Love Society has been participating in major promotional events and has also worked with volunteers and medical staff of the NTUH Hsinchu branch to engage in street-side campaigns at the Hsinchu Train Station to promote the “Organ Donor Signups with Their National Health Insurance Card” from 10 AM to 4 PM on the last Saturday of each month. Twelve such activities were held in 2016 with 336 people having signed up to donate their organs.

Furthermore, the Big Love Society initiated a charity event to collect monthly donations for Boyo Social Welfare Foundation to help disadvantaged children attend classes. More than 200 people participated in 2016, donating approximately NT\$1.57 million in total. The Big Love Society has continuously gathered the efforts of colleagues and the public to help disadvantaged groups and those in need. In 2016, quilts, winter clothing, and daily necessities were donated to the elderly in the Thyakan tribe, and charity events were held in cooperation with Man Fair Sheltered Workshop of Ai-Heng Training Center for Mental Retardation and Shih Guang Educational and Nursing Institution.



## Photography Club

Tunan Elementary School, located in a remote mountain area in Hsinchu County, was unable to hire a photographer to take pictures for graduating students due to a lack of resources. Thanks to the concerted efforts of Macronix employees and volunteering photographers in 2014, we helped graduating students from Tunan Elementary School in Hsinchu County produce the first-ever yearbook in the school's 50-year history. In 2015 and 2017, Macronix continued with the yearbook activity in the hopes of capturing the bits and

pieces of students' daily lives at school through photography.

### **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 an animal's life, as well as protecting the environment.

Animal Club Events	
Adoption of stray dogs	Every week, volunteers host an event at a flower market in Hsinchu to allow people to adopt animals, to raise awareness about abandoning their pets, and to gather volunteers from the Company, as well as students from local high schools and college charity groups. This event enables more people to learn to respect life and mitigate the social problems caused by stray animals. In 2016, the Animal Club helped 300 dogs find new homes; it also conducted follow-up checks to see how the dogs were doing in their new homes to prevent pet abandonment, which would otherwise intensify environmental and conservation problems.
Neutering/spaying in place of killing	Neutering/spaying rather than killing not only effectively resolves the problem of too many stray dogs, but also manifests the act of having respect for life. The Animal Club neuters/spays at least 300 stray animals per year on average; more than 400 female stray animals were spayed in 2016.
Animal rescue in action	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.
Animal shelter cleaning and daily feeding	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.
Charity sale on Family Day	A charity sale of second-hand items was held on Macronix Family Day in 2016. Proceeds were donated to help stray animals and promote awareness about animal adoption.
Rabies vaccine for stray dogs	The Animal Club helps Hsinchu City Government provide rabies vaccinations for stray animals and home reared pets; a total of 500 animals received injections of the vaccine in 2016.

## Road Running Club

Founded by employees passionate about running marathons, the Road Running Club encourages colleagues to exercise, participate in marathons, and act as volunteers for marathons. In 2016, in addition to acting as volunteers in the Hsinchu City Marathon, the Road Running Club also donated vitamins to Syin-Lu Social Welfare Foundation and Hsinchu Ren-Ai Children's Home.



## 7.4.3. Fostering Local Culture and Creative Industries

### Inviting Cutting-Edge Taiwanese Artists to Design Award Trophies

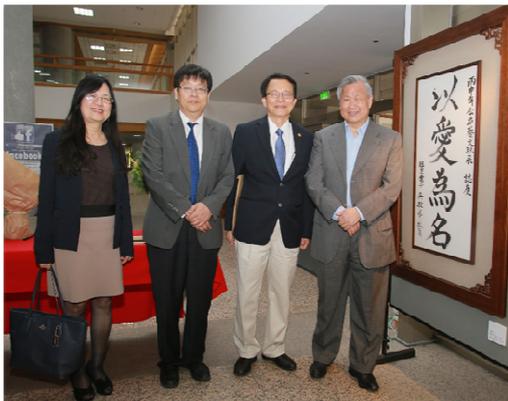
The Macronix Golden Silicon Awards and Macronix Science Awards have been given out for more than a decade and have become a major battleground for scientific competition in Taiwan. To cultivate local artists, the Macronix Education Foundation has set an example by inviting different local artists to custom-design the trophies every year. For 17 years, the Macronix Education Foundation has supported local sculptors with donations of over NT\$1 million per year, with the total reaching NT\$15 million over the years and with more than 20 artists benefiting. These creations are the spiritual fruit born of the 10 plus artists and have allowed over 25,000 participants a chance to appreciate the art as they cheer the winners of the awards.



## Summoning the Technology Industry to Host Art Exhibitions to Promote Art Education in Remote Areas

The Macronix Education Foundation cares for the development of science and technology talents and 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.

In addition to cultivating science and technology talents, the Macronix Education Foundation encourages the technology industry to engage in charitable activities. In May 2016, “In the Name of Love”, a month-long arts exhibition, was held at National Chiao Tung University Library. More than 20 creators exhibited their works, including Macronix employees and employees from other companies in the park. The former Deputy Minister of Science and Technology, Lin Yi-Bing, and the Chairman of Macronix and the Macronix Education Foundation, Wu Miin, also provided their works. President of National Chiao Tung University Chang Mau-Chung, former President of National Chiao Tung University Wu Yan-Hwa, and former Vice President of National Tsing Hua University Wu Cheng-Wen were also invited to participate in the exhibition. The sale of paintings and postcards was also organized during the exhibition, and the proceeds were donated to remote schools in Hsinchu for art education.



Chairman Miin Wu's calligraphy work “In the Name of Love” for exhibition



NTHU Vice President Wu Cheng-Wen performed for the exhibition



Group photo of the artists at the NCTU Library lobby

## 8. Appendix

### 8.1. Sustainability Report Information

Welcome to the Macronix International Co., Ltd. (hereinafter “Macronix) Corporate Social Responsibility (CSR) Report. The purpose of the CSR report is to provide the general public and all Macronix stakeholders with a better understanding of our concerns and actions in 2016 with regard to sustainability and social responsibility. The report also demonstrates our other commitments to various CSR matters and our performance in these areas.

#### **Reporting Period**

The report discloses Macronix’s management guidelines, various CSR management topics, material issues, our corporate commitment, and the results of our CSR initiatives during the period of January 1 to December 31, 2016. The report is issued annually. (The next publication is scheduled for June 2018). No significant changes occurred during the reporting period regarding the organization's size, structure, ownership, or supply chain.

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

Macronix’s corporate organization includes: corporate headquarters (including employee dormitories and the activity center), Fab 1, Fab 2, Fab 5, the testing plant, and the Taipei office (please refer to Section 2.2 for all global business locations).

The scope of the report include: Headquarters (address: No. 16, Li-Hsin Road, Science Park, Hsinchu, Taiwan, R.O.C.), Fab 1 (address: No. 3, Creation 3rd Road, Science Park, Hsinchu, Taiwan, R.O.C.), Fab 2 (address: No. 16, Li-Hsin Road, Science Park, Hsinchu, Taiwan, R.O.C.), Fab 5 (address: No. 19, Li-Hsin Road, Science Park, Hsinchu, Taiwan, R.O.C.), and the Test Building (address: No. 8, Creation 4th Road, Science Park, Hsinchu, Taiwan, R.O.C.).

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

This report was written based on version 4.0 of the Global Reporting Initiative (GRI G4.0) and AA 1000APS (2008) standards and was further verified by a third-party verification unit commissioned by the management representative. Bureau Veritas Certification (Taiwan) Co., Ltd. was entrusted with evaluating the report. The report was verified to comply with the requirements of the GRI G4.0 ‘core’ option and AA1000AS:

2008 standards.

**Contact information**

We sincerely welcome any comments and suggestions about the 2016 Macronix CSR Report.

Contact Person: Shao-Fei Wang, Project Manager of the Safety & Health Center

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Tel: 886-3-5786688      E-mail: [pubcsr@mxic.com.tw](mailto:pubcsr@mxic.com.tw)

## 8.2. Comparison Table of GRI G4.0 “Core” Option Compliance

### General Standard Disclosures

Representing the core options that must be disclosed

Strategy and Analysis				
Index Definition	Index Definition	Index Definition	External Assurance /Guarantee	Supplementary explanation
G4-1	Statement from the most senior decision-maker of the organization	1. Messages from the Macronix Executives	p.S1~S3	
G4-2	Provide a description of key impacts, risks, and opportunities: 1. Section One should focus on the organization's key impacts on sustainability and effects on stakeholders, including rights as defined by national laws and relevant internationally recognized standards. 2. Section Two should focus on the impact of sustainability trends, risks, and opportunities on the long-term prospects and financial performance of the organization. This should concentrate specifically on information relevant to financial stakeholders or that could become so in the future.	1. Messages from the Macronix Executives	p.S1~S3	

Organizational Profile				
G4 Index	Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
G4-3	Name of organization.	8.1. Sustainability Report Information	p.S1~S3	
G4-4	Primary brands, products and services.	2.1. Products and Services	p.S1~S3	
G4-5	Location of organization's headquarters.	8.1. Sustainability Report Information	p.S1~S3	
G4-6	Report the number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.	2.2. Global Operations Centers	p.S1~S3	
G4-7	Nature of ownership and legal form.	5.1. Financial Performance	p.S1~S3	Please refer to the company's annual report.

G4-8	Report the markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).	2.1. Products and Services	p.S1~S3	
G4-9	Report the scale of the organization.	2. Macronix	p.S1~S3	
G4-10	Report the total number of employees by employment type, employment contract, region, and gender.	7.1. Respect for All Employees	p.S1~S3	
G4-11	The percentage of total employees covered by collective bargaining agreements.	7.1.2. Upholding Employee Rights	p.S1~S3	Macronix employees did not form a union, but employer-employee issues can be discussed during quarterly meetings by labor representatives on behalf of all full-time employees.
G4-12	Describe the organization's supply chain.	4.4. Supply Chain Management	p.S1~S3	
G4-13	Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain.	8.1. Sustainability Report Information	p.S1~S3	No major changes.
G4-14	Report whether and how the precautionary approach or principle is addressed by the organization.	4.2. Risk Management, 6.4.1. Green Products	p.S1~S3	
G4-15	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	Each chapter	p.S1~S3	
G4-16	List memberships of associations (such as industry associations) and national or international advocacy organizations.	2.4. External Participation	p.S1~S3	

Identified Material Aspects and Boundaries				
G4 Index	Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
G4-17	a. List all entities included in the organization's consolidated financial statements or equivalent documents.	5.1. Finalcial Performance	p.S1~S3	Please refer to the company's annual report.
	b. Report whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.	5.1. Finalcial Performance	p.S1~S3	

G4-18	a. Explain the process for defining the report content and the Aspect Boundaries.	8.1. Sustainability Report Information,	p.S1~S3	
	b. Explain how the organization has implemented the Reporting Principles for Defining Report Content.	3. Sustainable Development Strategy	p.S1~S3	
G4-19	List all the material Aspects identified in the process for defining report content.	3.2.2. Identifying and prioritizing Material Aspects	p.S1~S3	
G4-20	For each material Aspect, report the Aspect Boundary within the organization.	3.2.2. Identifying and prioritizing Material Aspects	p.S1~S3	
G4-21	For each material Aspect, report the Aspect Boundary outside the organization.		p.S1~S3	
G4-22	Report the effect of any restatements of information provided in previous reports, and the reasons for such statements.	Each chapter	p.S1~S3	
G4-23	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.	3.2.2. Identifying and prioritizing Material Aspects	p.S1~S3	

Stakeholder Engagement				
G4 Index	Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
G4-24	Provide a list of stakeholder groups engaged by the organization.	3.2.Stakeholder Engagement	p.S1~S3	
G4-25	Report the basis for identification and selection of stakeholders with whom to engage.	3.2.1. Stakeholder Identification and Interaction	p.S1~S3	
G4-26	Report the organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	3.2.1. Stakeholder Identification and Interaction	p.S1~S3	
G4-27	Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns.	3.2.1. Stakeholder Identification and Interaction	p.S1~S3	

Report Profile				
G4 Index	Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
G4-28	Reporting period (such as fiscal or calendar year) for information provided.	8.1. Sustainability Report Information	p.S1~S3	
G4-29	Date of most recent previous report (if any).	8.1. Sustainability Report Information	p.S1~S3	
G4-30	Reporting cycle (such as annual, biennial).	8.1. Sustainability Report Information	p.S1~S3	
G4-31	Provide the contact point for questions regarding the report or its contents.	8.1. Sustainability Report Information	p.S1~S3	
G4-32	a. Report the 'in accordance' option the organization has chosen.	8.1. Sustainability Report Information	p.S1~S3	
	b. Report the GRI Content Index for the chosen option.	8.2. Comparison Table of GRI G4.0 "Core" Option Compliance	p.S1~S3	
	c. Report the reference to the External Assurance Report if the report has been externally assured. GRI recommends the use of external assurance but it is not a requirement to be "in accordance" with the Guidelines.	8.4. Independent Third-Party Assurance Statement	p.S1~S3	
G4-33	a. Report the organization's policies and current practices for seeking external assurance for the report.	8.4. Independent Third-Party Assurance Statement	p.S1~S3	
	b. If not included in the assurance report accompanying the sustainability report, report the scope and of any external assurance provided.	Not applicable.	p.S1~S3	
	c. Explain the relationships between the organization and its assurance providers.	8.4. Independent Third-Party Assurance Statement	p.S1~S3	
	d. Report whether the highest governance body or senior executives are involved in seeking assurance for the organization's sustainability report.	8.1. Sustainability Report Information	p.S1~S3	

Governance				
G4 Index	Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
G4-34	Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	3.1. Sustainable Development System	p.S1~S3	

G4-51	a. Report the remuneration policies for the highest governance body and senior executives based on the following types			Please refer to the company's annual report.
	b. Explain how performance criteria in the remuneration policy relate to the economic, environmental, and social objectives of the highest governing body and senior executives.			

Ethics and Integrity				
G4 Index	Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
G4-56	a. Describe the organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.	Values: 2. Macronix-Mission Statement Principles: 4. Corporate Governance-Macronix's Philosophy Standards: 3.1. Sustainable Development System Norms of behavior: 4.1.3. Management of the Code of Conduct and Ethics	p.S1~S3	
G4-57	Report the internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines.	4.1. Corporate Governance 3.2.Stakeholder Engagement 7.1.2. Upholding Employee Rights	p.S1~S3	
G4-58	Report the internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines.	4.1. Corporate Governance 3.2.Stakeholder Engagement 7.1.2. Upholding Employee Rights	p.S1~S3	

## Specific Standard Disclosures

Disclosures on Management Approach				
G4 Index	Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
G4-DMA	a. Explain why the Aspect is material. Report the impacts that make this Aspect material.	Please refer to the chapters corresponding to each aspect	p.S1~S3	
	b. Explain how the organization manages the Material Aspect or its impacts.		p.S1~S3	
	c. Explain the evaluation of the management approach, including: <ul style="list-style-type: none"> <li>• Mechanisms for evaluating effectiveness of the management approach</li> <li>• Evaluation results of the management approach</li> <li>• Any related adjustments to the management approach</li> </ul>		p.S1~S3	

Economic Category						
Material Aspects	G4 Index		Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
V	Economic Performance	G4-EC1	Direct economic value generated and distributed	5.1. Finalcial Performance 7.1.3. Salary and Welfare Systems 7.4. Social Welfare	p.S1~S3	
		G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	NA		
		G4-EC3	Coverage of the organization's defined benefit plan obligations	7.1.2. Upholding Employee Rights	p.S1~S3	
		G4-EC4	Financial assistance received from government	5.1. Finalcial Performance	p.S1~S3	

V	Market presence	G4-EC5	Report the ratio of the entry level wage by gender at significant locations of operation to the minimum wage	NA		
		G4-EC6	Percentage of senior management at significant locations of operation that are hired from the local community	2.2. Global Operations Centers	p.S1~S3	
	Indirect economic impacts	G4-EC7	Development and impact of infrastructure investments and services supported	5.2. Indirect Impact on the Economy 7.4. Social Welfare	p.S1~S3	
		G4-EC8	Significant indirect economic impacts, including the extent of the impacts	5.2. Indirect Impact on the Economy	p.S1~S3	
V	Procurement practices	E4-EC9	The percentage of the procurement budget used for significant locations of operations spent on suppliers local to that location	4.4. Supply Chain Management	p.S1~S3	

Environmental Category						
Material Aspects	G4 Index		Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
V	Raw materials	G4-EN1	Materials used by weight or volume	6.1. Environmental Protection Management and Pollution Prevention	p.S1~S3	
		G4-EN2	Percentage of materials used that are recycled input materials	6.1. Environmental Protection Management and Pollution Prevention	p.S1~S3	
	Energy	G4-EN3	Energy consumption within the organization	6.2.1. Energy Management	p.S1~S3	
		G4-EN4	Energy consumption outside of the organization	NA		
		G4-EN5	Energy Intensity	NA		
		G4-EN6	Reduction of energy consumption	6.2.1. Energy Management	p.S1~S3	
		G4-EN7	Reductions in the energy requirements of products and services	6.2.1. Energy Management	p.S1~S3	

	Water	G4-EN8	Total water withdrawal by source	6.1.1. Water Resource Management	p.S1~S3	
		G4-EN9	Water sources significantly affected by withdrawal of water			
		G4-EN10	Percentage and total volume of water recycled and reused	6.1.1. Water Resource Management	p.S1~S3	
	Biodiversity	G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas			None in 2016.
		G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas			None in 2016.
		G4-EN13	Habitat protected or restored			None in 2016.
		G4-EN14	Total number of species included in the IUCN Red List and national conservation list with habitats in areas affected by the organization's operations, by level of extinction risk			None in 2016.
V	Emissions	G4-EN15	Direct greenhouse gases (GHG) emissions (Scope 1)	6.2.2. Low-Carbon Management	p.S1~S3	
		G4-EN16	Energy indirect greenhouse gases (GHG) emissions (Scope 2)	6.2.2. Low-Carbon Management	p.S1~S3	
		G4-EN17	Other indirect greenhouse gases (GHG) emissions (Scope 3)	6.2.2. Low-Carbon Management	p.S1~S3	
		G4-EN18	Greenhouse gases (GHG) emissions intensity	6.2.2. Low-Carbon Management	p.S1~S3	
		G4-EN19	Reduction of greenhouse gases (GHG) emissions	NA		
		G4-EN20	Emissions of ozone-depleting substances (ODS)	NA		
		G4-EN21	NOx, SOx, and other significant air missions	6.1.2. Air Pollution Prevention	p.S1~S3	
V	Effluents and Waste	G4-EN22	Total water discharge by quality and destination	6.1.1. Water Resource Management	p.S1~S3	
		G4-EN23	Total weight of waste by type and disposal method	6.1.3. Waste Management	p.S1~S3	
		G4-EN24	Total number and volume of significant spills	6.1.3. Waste Management	p.S1~S3	None in 2016.

	Effluents and Waste	G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally	NA		None in 2016.
		G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff	NA		None. The Company's wastewater is incorporated into the Science Park's underground water channel management.
V	Products and Services	G4-EN27	Extent of impact mitigation of environmental impacts of products and services	6.4.1. Green Products	p.S1~S3	
		G4-EN28	Report the percentage of products sold and their packaging materials that are reclaimed by category	NA		No recycled packaging materials.
V	Compliance	G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	4.1.5. Compliance with Regulatory Requirements	p.S1~S3	None in 2016.
V	Transportation	G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce	6.1.2. Air Pollution Prevention	p.S1~S3	The process by which the company transports products and materials exerts no significant environmental impact.
V	Overall Status	G4-EN31	Report the total environmental protection expenditures and investments by type	6.4.2. Green Procurement and Environment, Safety, and Health Costs Accounting Management System	p.S1~S3	

	Supplier environment assessment	G4-EN32	Percentage of new suppliers that were screened using environmental criteria			
		G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken	4.4.2. Growing Together with Our Suppliers	p.S1~S3	
	Environmental Grievance Mechanisms	G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	6.1. Environmental Protection Management and Pollution Prevention	p.S1~S3	

Social Category - Labor practices and decent work						
Material Aspects	G4 Index		Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
V	Employment	G4-LA1	Report the total number and rate of new employee hires during the reporting period, by age group, gender, and region	7.1.1. Recruitment	p.S1~S3	
		G4-LA2	Report the benefits which are standard for full-time employees of the organization but are not provided to temporary or part-time employees, by key locations of operation	7.1.2. Upholding Employee Rights 7.1.3. Salary and Welfare Systems	p.S1~S3	
		G4-LA3	Return to work and retention rates after parental leave, by gender	7.1.3. Salary and Welfare Systems	p.S1~S3	
V	Labor/Management	G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	7.1.2. Upholding Employee Rights	p.S1~S3	Handled in accordance with the Labor Standard Act, and also coordinated during employer–employee Meetings.
V	Occupational health and safety	G4-LA5	Percentage of total workforce represented in formal joint management–worker health and safety committees that help monitor and advise on occupational health and safety programs	7.3.2. Safety and Health Promotion Management	p.S1~S3	

	Occupational health and safety	G4-LA6	Report types of injury, injury rate (IR), occupational diseases rate (ODR), lost day rate (LDR), absentee rate (AR) and work-related fatalities, for the total workforce, by region and gender	7.3.2. Safety and Health Promotion Management	p.S1~S3	
		G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	NA		
		G4-LA8	Health and safety topics covered in formal agreements with trade unions	NA		Macronix employees did not establish a union, but Macronix OSHEC convenes meeting at least once every quarter mainly to discuss environmental, safety, and health issues.
V	Training and education	G4-LA9	Report the average hours of training that the organization's employees have undertaken during the reporting period, by gender and employee category	7.2.2. Macronix Academy	p.S1~S3	
		G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing lifelong careers	7.1.2. Upholding Employee Rights 7.3.1. Macronix H2O	p.S1~S3	
		G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	7.2. Learning and Development	p.S1~S3	
	Employment diversity and equal opportunity	G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	7.1.1. Recruitment	p.S1~S3	
	Equal Remuneration for Women and Men	G4-LA13	Ratio of basic salary and remuneration of women to men by employee category and by significant locations of operation	7.1.3. Salary and Welfare Systems	p.S1~S3	

	Supplier Assessment for Labor Practices	G4-LA14	Percentage of new suppliers that were screened using labor practices criteria			
		G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken			
V	Aspect: Labor practices grievance mechanisms	G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	7.1.2. Upholding Employee Rights	p.S1~S3	

Social Category - Human rights						
Material Aspects	G4 Index		Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
V	Investments	G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	5.2. Indirect Impact on the Economy	p.S1~S3	
		G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	3.1. Sustainable Development System	p.S1~S3	All new employees have received SA8000 and EICC CoC training.
V	Non-discrimination	G4-HR3	Total number of incidents of discrimination and corrective actions taken	7.1.2. Upholding Employee Rights	p.S1~S3	There were no incidents of discrimination in 2016.
	Freedom of Association and Collective Bargaining	G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	3.1. Sustainable Development System	p.S1~S3	The company respects employees' right to exercise freedom of association and collective bargaining.
V	Child labor	G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to effective abolition of child labor	3.1. Sustainable Development System	p.S1~S3	

V	Forced and compulsory labor	G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	4.4.2. Growing Together with Our Suppliers 7.1. Respect for All Employees	p.S1~S3	
	Security Practices	G4-HR7	Percentage of security personnel trained in the organization's human rights policies or procedures that are relevant to operations			
	Indigenous rights	G4-HR8	Total number of incidents related to violations involving rights of indigenous peoples and corresponding actions taken	7.1.2. Upholding Employee Rights	p.S1~S3	There were no cases of violations involving rights of Employees.
	Assess	G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments			Every six months, the Company conducts internal auditing on all departments to examine employees' human rights reviews within the reporting boundary.
	Supplier human rights assessment	G4-HR10	Percentage of new suppliers that were screened using human rights criteria			
		G4-HR11	Significant actual and potential negative impacts for human rights in the supply chain and actions taken			
	Human Rights Grievance Mechanisms	G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms			

Social Category - Society						
Material Aspects	G4 Index		Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
V	Local communities	G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	NA	p.S1~S3	The company community engagement, impact assessments, and development programs primarily operates within the Hsinchu Science and Industrial Park, with the Hsinchu Science Park as the Responsible assessment unit.
		G4-SO2	Operations with significant actual or potential negative impacts on local communities	6.1.2. Air Pollution Prevention	p.S1~S3	
V	Anti-corruption	G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	4.1.3. Management of the Code of Conduct and Ethics	p.S1~S3	Identification rate of all the departments in the Company 100%.
		G4-SO4	Communication and training on anti-corruption policies and procedures	4.1.3. Management of the Code of Conduct and Ethics	p.S1~S3	Training rate for all new hires 100%.
		G4-SO5	Confirmed incidents of corruption and actions taken	4.1.3. Management of the Code of Conduct and Ethics	p.S1~S3	None in 2016.
	Public Policy	G4-SO6	Total value of political contributions by country and recipient/beneficiary			There were no political contributions in 2016.
V	Anti-competitive behavior	G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	4.1.5. Compliance with Regulatory Requirements	p.S1~S3	None in 2016.

V	Compliance	G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	4.1.5. Compliance with Regulatory Requirements	p.S1~S3	None in 2016.
	Supplier social impact assessment	G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society			
		G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken			
	Grievance Mechanisms for Impacts on Society	G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms			

Social Category - Product responsibility						
Material Aspects	G4 Index		Index Definition	Related chapters	External Assurance /Guarantee	Supplementary explanation
V	Customer health and safety	G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	NA		
		G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	4.1.5. Compliance with Regulatory Requirements	p.S1~S3	None in 2016.
V	Product and service labeling	G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	NA		
		G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	4.1.5. Compliance with Regulatory Requirements 6.4.1. Green Products	p.S1~S3	None in 2016.
		G4-PR5	Results of surveys measuring customer satisfaction	4.4.1. Sharing Beneficial Outcomes with Customers	p.S1~S3	

V	Marketing Communications	G4-PR6	Sale of banned or disputed products	4.1.5. Compliance with Regulatory Requirements	p.S1~S3	None in 2016.
		G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	4.1.5. Compliance with Regulatory Requirements	p.S1~S3	None in 2016.
V	Customer privacy	G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	4.1.5. Compliance with Regulatory Requirements	p.S1~S3	None in 2016.
V	Compliance	G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	4.1.5. Compliance with Regulatory Requirements	p.S1~S3	None in 2016.

### 8.3. Comparison of UN Sustainable Development Goals (SDGs)

Goals	Description	Related Chapter
1	End poverty in all its forms everywhere	7.4.2 Employees Participating in Charity Events
2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	7.4.2 Employees Participating in Charity Events
3	Ensure healthy lives and promote well-being for all at 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
5	Achieve gender equality and empower all women and girls	7.1 Respect for All Employees
6	Ensure availability and sustainable management of water and sanitation for all	7.3.2 Safety and Health Promotion Management
7	Ensure access to affordable, reliable, sustainable, and modern energy for all	6.2.1 Energ Management
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	4.3 Innovation
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	4.2 Risk Management
10	Reduce inequality within and among countries	7.1 Respect for All Employees
11	Make cities and human settlements inclusive, safe, resilient and sustainable	7.3.1 Macronix H2O
12	Ensure sustainable consumption and production patterns	6.4 Green Enterprises
13	Take urgent action to combat climate change and its impacts	6.2 energy and Greenhouse Gas Management

14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	6.1.1 Water Resource Management
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 institutions at all levels	4.1 Corporate Governance
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	4.4 Supply Chain Management

## 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 2016 MACRONIX INTERNATIONAL CO., LTD. CORPORATE SOCIAL RESPONSIBILITY REPORT. This Assurance Statement applies to the related information included within the scope of work described below.

This information and its presentation in the 2016 MACRONIX INTERNATIONAL CO., LTD. CORPORATE SOCIAL RESPONSIBILITY 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 Assurance Standard AA1000AS (2008) Type 1 with Moderate assurance. The scope of work included:

- Data and information included in 2016 MACRONIX INTERNATIONAL CO., LTD. CORPORATE SOCIAL RESPONSIBILITY REPORT from 1<sup>st</sup> January, 2016 to 31<sup>st</sup> December, 2016;
- 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 Assurance Standard (2008)<sup>1</sup>
  - Inclusivity
  - Materiality
  - Responsiveness
- 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 Guidelines G4.

#### Methodology

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

- Interviews with relevant personnel of MACRONIX INTERNATIONAL CO., LTD. - 14 employees interviewed, including remote interview;

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





- Review of documentary evidence produced by MACRONIX INTERNATIONAL CO., LTD.;
- Review performance data listed in report with sampling basis;
- Review of MACRONIX INTERNATIONAL CO., LTD. data and information systems for collection, aggregation, analysis and review.
- Site visit to headquarter and manufacture sites in Hsinchu, Taiwan;

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 2016 MACRONIX INTERNATIONAL CO., LTD. CORPORATE SOCIAL RESPONSIBILITY REPORT are accurate, reliable and free from material mistake or misstatement;
- The information is presented in a clear, understandable and accessible manner;
- MACRONIX INTERNATIONAL CO., LTD. has established appropriate systems for the collection, aggregation and analysis of relevant information;
- The Report properly reflects the organisation's alignment to and implementation of the AA1000 Assurance Standard (2008) principles of Inclusivity, Materiality and Responsiveness in its operations;
- The progress in managing material issues has been witnessed as part of the assurance.

#### **Alignment with the principles of AA1000AS (2008)**

##### **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.

##### **Inclusivity**

MACRONIX INTERNATIONAL CO., LTD. has processes in place for identifying range key stakeholders in this report, covering a range of aspects such as Economic, Social and Environment.





#### **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.

#### **Key areas for ongoing development**

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

- Based on disclosed information and data in this report, the way to improve performance could take into consideration. (RESPONSIVENESS)
- Top management involvement of social responsibility topics could be enhanced. (COMPLETENESS)
- The organization could extend the stakeholder engagement process to formally capture stakeholders' concerns and views in a structured manner across the organisation; (MATERIALITY)

#### **Evaluation against Global Reporting Initiative (GRI) G4 Sustainability Reporting Guidelines**

Bureau Veritas undertook an evaluation of 2016 MACRONIX INTERNATIONAL CO., LTD. CORPORATE SOCIAL RESPONSIBILITY REPORT against the G4 Sustainability Reporting Guidelines. This included cross checking the GRI index table against all the reference documents to provide an opinion on the self-declared GRI in accordance 'core' option.

Based on our work, it is our opinion that 2016 MACRONIX INTERNATIONAL CO., LTD. CORPORATE SOCIAL RESPONSIBILITY REPORT has been prepared in accordance with the GRI Reporting Framework including appropriate consideration of the Reporting Principles and necessary indicators to meet the requirements of GRI in accordance 'core' option.

#### **Limitations and Exclusions**

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

- activities outside the defined reporting period and scope;
- statements of position, opinion, belief and / or aspiration;
- any information hyperlinked from the web-based Report via <http://www.macronix.com/en-us/about/CSR/Pages/CSR-report.aspx>.

Much of the operating financial data in this Report is taken from MACRONIX INTERNATIONAL CO., LTD., Annual Reporting and accounts, which is separately audited by an external auditor and therefore excluded from the scope of the Bureau Veritas assurance.

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 almost 185 years history in providing independent assurance services. Bureau Veritas 2016 full year revenues reached 4.6 billion 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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3<sup>rd</sup> May., 2017



**AA1000**  
Licensed Assurance Provider  
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Technical Reviewer: *Lin*

Date: 3/Jun./2017

Assurer: *Adam Lee*

Date: 3/Jun./2017

