

2021

環境、社會及管治報告 |

Environmental, Social and Governance (ESG) Report

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## DIRECTORS' DECLARATION

The sustainable development of the Group is driven by our achievements in economic, environmental, and social aspects, which mutually influence and support each other, enabling long-term, sustainable performance. We strictly comply with all local applicable laws and meet social expectations in our operations, and we align our standards for environmental protection to those of the leaders in international industry. We devote ourselves to sustainable cities and communities. In following our corporate vision of Continuous Innovation and Empowering the Future for Global Customers, we actively respond to stakeholders, including customers, employees, investors, communities, and countries where we operate, toward the goal of sustainable development of enterprises and society.

The Group has a top-down environmental, social and corporate governance (ESG) structure, under which the Board undertakes the ESG responsibilities:

- a) to direct and review the ESG management policies and strategies of Hua Hong Semiconductor, and ensure that they are up to date, relevant and in compliance with applicable legal and regulatory requirements;
- b) to direct the identification and prioritization of significant ESG issues of Hua Hong Semiconductor;
- c) to supervise the setting and implementation of ESG goals of Hua Hong Semiconductor, including: setting ESG management performance goals of Hua Hong Semiconductor; monitoring the progress in achieving the goals and advising on actions required to achieve the goals;
- d) to review and approve the Company's annual Environmental, Social, and Governance Report and other ESG related disclosures.

The management and practical progress in relation to ESG issues in the Report were considered and approved at the second meeting of the Board of Directors for 2022, held in March 2022.

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## 1 Social Responsibility Management System

### 1.1 Social Responsibility Management Policy

We believe fulfillment of corporate social responsibility first requires pro-active adherence to and implementation of the highest international standards of business and social ethics, while creating value for and sharing value with all Stakeholders. To this end, in addition to compliance with all laws, regulations, and rules of the state in terms of operation, we also incorporate environmental and social responsibilities directly into our business strategies and operations. We take a prudent approach to manage our environmental and social risks by perfecting our management system, improving supply chain performance, and reducing resource consumption and environmental emissions. We encourage innovation-driven development and foster innovative talents, thereby promoting social harmony.

Through years of efforts, Hua Hong Semiconductor has fully implemented the requirements of the latest ESG Guide of the Hong Kong Stock Exchange and achieved sound management of its social responsibilities. Under the leadership of the Board of Directors, we incorporate them into the Company's daily operations, set ESG goals, and take actions, to continuously improve the Company's performance in meeting our social responsibilities.

Provided by the Board of Directors as the CSR Decision Maker, the following four aspects summarize the social responsibility of the corporate vision, Continuous Innovation and Empowering the Future for Global Customers.



Implementation Concentration of CSR Planning for Hua Hong Semiconductor Limited

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According to the development of its business and its ESG performance in operation, the Company has set goals for water use efficiency, energy use efficiency, GHG emissions, and waste reduction. Every year, the Board of Directors reviews ESG performance and achievement of ESG goals for the previous year and discloses the results in the ESG report, to promote the achievement of ESG performance goals.

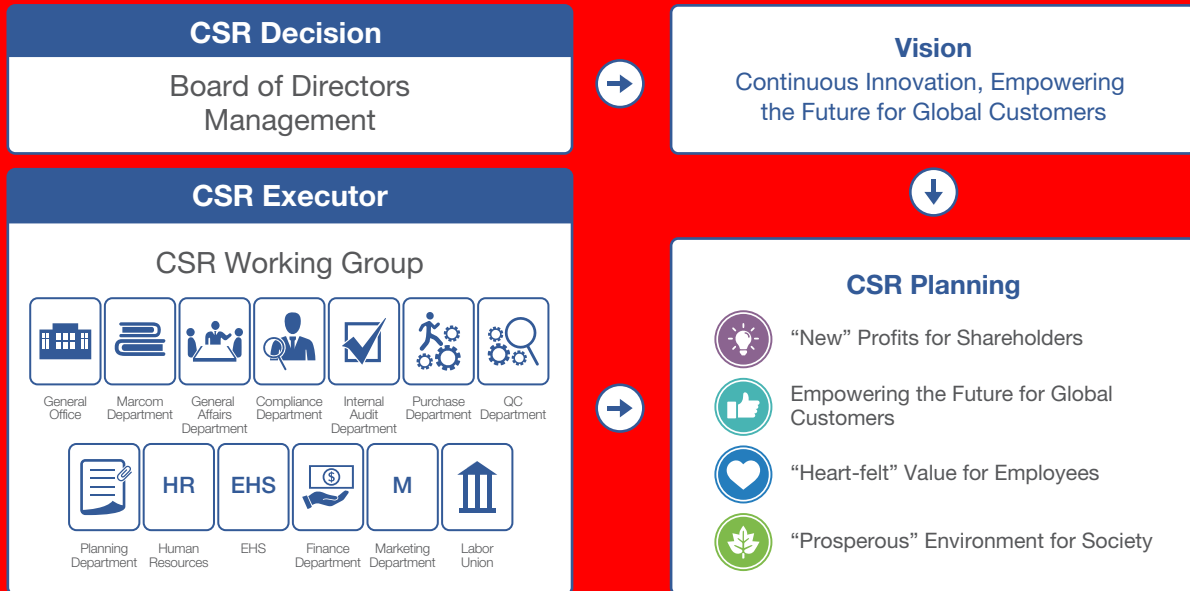
## Wastes Reduction Target

Under the philosophy of lean manufacturing management, the Group will take reduction measures to continuously reduce the hazardous waste produced per unit product and the non-hazardous waste produced per unit product.

## 1.2 Social Responsibility Management Structure

We believe that ESG management represents the Company's obligation to its investors, the standard of its continuous and sound management, as well as the means for the Company to fulfill its social responsibilities. Effective social responsibility management requires the attention of senior management and full participation of the staff. The Company has a top-down environmental, social, and corporate governance (ESG) structure. The Board, the highest decision-making body in ESG management, is responsible for supervising and evaluating its effectiveness to ensure sound and good ESG governance. Under authorization of the Board, the corporate social responsibility working team assists in implementation of ESG activities and ensures the establishment of appropriate and effective ESG risk management, internal supervision, and control systems.

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**Structure for CSR Management**

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## 1.3 Involvement of Stakeholders

Based on the business and operational characteristics of our Company and leveraging the experience and practices in industry at home and abroad, we have determined the following to be our Stakeholders: our shareholders; customers; employees; government agencies and regulators; partners; communities; and the public. Our Company actively communicates with all of these Stakeholders via various channels and methods, including websites, media, meetings, reports, and other business and social activities.

### Expectations and Responses of Stakeholders

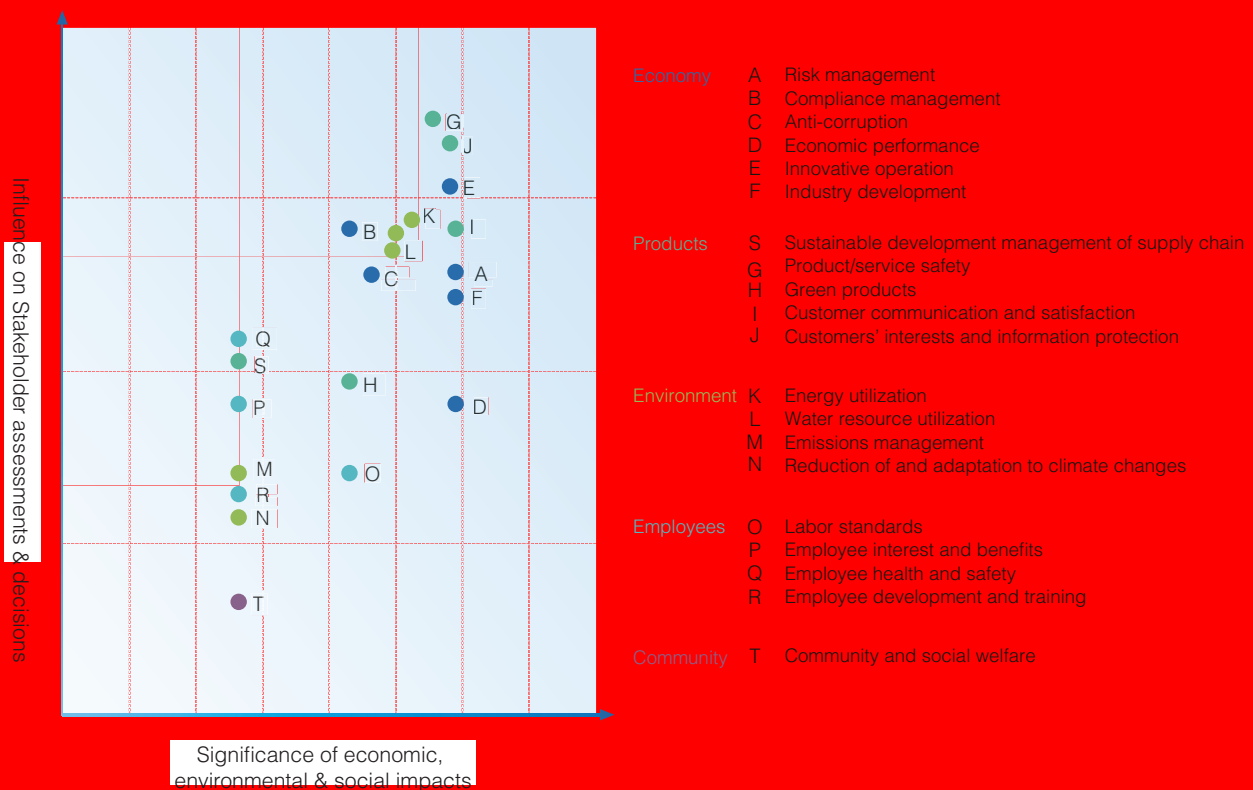
Key Stakeholders	Description	Issues concerned	Communications and responses
Shareholders and senior management	Domestic and foreign investors holding equity and debt investments in our Company, and senior management members of the Company	Risk management, economic performance, industrial development, customer communication, and satisfaction	Shareholders' meetings, financial reports, performance reports, results road shows, etc.
Customers	IDMs, systems and fabless semiconductor companies	Protection of customer rights and information, product and service quality, customer communication, and satisfaction	Product exhibitions, customer research, technical seminars, B2B (such as E-tapeout systems, WIP report, and WAT report, etc.), customer service hotlines and complaints, customer satisfaction surveys, etc.
Employees	Our employees and contract personnel who serve our Company on a continuous basis	Employee interests and welfares, employee health and safety, employee development and training	Employee activities, Employee Representatives Congress, Intranet, training, self-service systems and employee manuals, internal publications, etc.
Government and regulators	Industry, tax, environmental protection, security and other departments, local governments, SFC, and other governmental or regulatory authorities	Compliant operation, green products, emissions management, and energy utilization	On-site visit, official correspondences, policy enforcement, information disclosure, etc.
Partners	Suppliers, research institutions, industry associations, etc.	Industrial development, compliant operation, product and service quality, customer satisfaction and communication	Public tender conferences, strategic cooperation negotiations, exchanges and visits, etc.
Communities and the public	Communities in which we operate, the public and media, etc.	Green products, emissions management, community and public benefit	Community activities, employee volunteer activities, public welfare activities, social cause campaigns, etc.

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## 1.4 Identification and Analysis of Substantive Issues

The Board of Directors directs the analysis of substantive issues and identification of important ESG issues of concern to the Company's stakeholders according to the identification, evaluation, and selection procedures, the business and operation characteristics of the Company, and by reference to the domestic and foreign experience of stakeholders in the same industry; determines the materiality analysis and prioritization of the issues based on full consideration of the requirements and concerns of the stakeholders; and discloses them in the Report.

In 2021, we have identified 20 substantial issues based on analysis of internal and external stakeholders, policy research, and peer benchmarks.



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## 2. Environmental Responsibilities

### Main Progress in 2021

Measures	Achievements
Continuously improving environmental performance of the Company and reducing the footprint of its operations under sound environmental management	Economic benefit of RMB39.0306 million from energy saving and emission reduction Reduction of natural gas consumption by 425.7 thousand m <sup>3</sup> Reduction of electricity consumption by 5,634.3 kWh Reduction of water resource consumption by 41,100 m <sup>3</sup> Reduction of carbon emissions by 6,850.11 tons
Promoting the environmental protection philosophy and actively carrying out training to develop and deepen the environmental protection awareness of all employees	Carrying out all-staff training and online examinations with the average training hours per employee reaching 119.9 hours, representing an increase of 20% compared with 2020

### Coping with Climate Change

Climate change mitigation and adaptation has become one of the most urgent issues in the 21st century. Global warming continuously increases the frequency of extreme weather events, results in new policy changes around the world, promotes technological innovation and progress in various industries, and influences the change in the green philosophies of consumers and investors. We recognize that climate change mitigation is of great significance to enterprises and the world. For this purpose, the Company has identified its risks and opportunities of climate change, continuously improved energy use efficiency in production and operation, developed products with low-energy consumption, and assisted in the realization of China carbon peaking and carbon neutrality goals.



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## *Risks and Opportunities of Climate Change*

By reference to the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board (FSB), the Company identified the risks and opportunities in relation to climate change and continuously improved its management based on the results, so as to minimize its carbon footprint from operating activities.

### Climate Change Management System

<b>Governance</b>	<ul style="list-style-type: none"> <li>Make climate change mitigation and adaptation one of the priorities of each business department.</li> </ul>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>Actively take part in relevant work of the Shanghai Municipal Development &amp; Reform Commission for carbon emission trading, so as to cut greenhouse gas emissions and slow down climate change.</li> <li>Assess the potential operational and financial impact of significant risks and opportunities identified by the Company.</li> <li>Carry out relevant management actions in low-carbon operation, respond to natural disasters resulting from climate change, and develop products with low power consumption.</li> </ul>
<b>Risk Management</b>	<ul style="list-style-type: none"> <li>Identify potential risks and opportunities for operating activities with reference to the risk analysis framework of TCFD, and incorporate risks and opportunities of climate change in overall operational risk management in the future.</li> </ul>
<b>Performance</b>	<ul style="list-style-type: none"> <li>Disclose GHG emissions and emission intensity in the social responsibility report annually, to assess the Company's management performance in response to climate change and develop improvement plans.</li> </ul>

In order to better respond to the potential risks and opportunities of climate change, the Company identified the risks and opportunities of climate change in relation to its operations through policy research, peer benchmarking and taking into consideration of expert advice, and assessed the impact of each risk and opportunity on its finances.

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## Identification Matrix of Risks and Opportunities of Climate Change

Identification Matrix of Risks and Opportunities of Climate Change				
Risk	Transition risks	<b>Reputational risks</b> With the transition to low-carbon economies, the Chinese government and various stakeholders expect enterprises to implement management actions and improve transparency of information disclosure in terms of climate change response actions. Failure of the Company to respond well to the demands of these stakeholders will have an impact on its reputation.	Decrease in revenue	<ul style="list-style-type: none"> <li>Taking climate change mitigation and adaptation as one of the priorities of each business department.</li> <li>Actively taking part in relevant work of the Shanghai Municipal Development &amp; Reform Commission for carbon emission trading; in 2021, the Company completed settlement of carbon credits of 457,042 tons for 2020.</li> <li>Identifying and managing risks and opportunities of climate change with reference to the framework of TCFD.</li> <li>Taking climate change as a key issue and communicating with stakeholders through social responsibility reports and other channels.</li> <li>Developing products with low power consumption.</li> </ul>
		<b>Policy and legal risks</b> China has set a carbon neutrality goal and will continuously strengthen the supervision of carbon emissions of enterprises in the future. If the Company fails to meet the regulatory requirements in environmental management, it will be subject to risks including risks of lawsuits and fines, which may lead to default, etc.	Credit risk increase	
		<b>Market risks</b> In recent years, customers and consumers have paid more and more attention to the sustainability attributes of products, which is changing the external market environment in which enterprises operate. Failure of the products and services provided by the Company to adapt to these changes in the market environment in an effective and timely manner will affect the operation of the Company.	Decrease in revenue	
	Physical risks	<b>Acute physical risks</b> The increase in natural disasters including typhoons and floods resulting from climate change may have an impact on the operation of the Company's fabs and cause economic losses.	Increase in operating costs; Decrease in the value of fixed assets	<ul style="list-style-type: none"> <li>Developing emergency plans to deal with extreme weather.</li> <li>Regularly carrying out emergency drills and training for natural disasters and accidents.</li> </ul>
		<b>Chronic physical risks</b> Sustained higher temperatures and sea level rise resulting from climate change may lead to the interruption of the operation and thus incur financial losses of the Company.	Increase in operating costs; Decrease in the value of fixed assets	

## 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

Opportunities			
Opportunities	<b>Resource use efficiency</b> Improving efficiency in the use of resources including energy and water resource can help the Company reduce costs in its operation.	Decrease in operating costs	<ul style="list-style-type: none"> <li>Actively adopting green office and operation measures.</li> <li>Incorporating the philosophy of ecological environment protection in the design of newly-built fabs to reduce the use of various resources in construction and operation.</li> </ul>
	<b>Energy sources</b> Increasing the use of low-emission energy/clean energy in operating activities will help reduce the risk of future energy price increases.	Increase in the value of fixed assets	
	<b>Products and services</b> In addition, under the background of the transition to low-carbon economies, the demand of customers and consumers for green products and products with low power consumption also increases continuously, which also gives rise to a new market opportunity for us.	Increase in demands for products and services, leading to a rise in revenue	<ul style="list-style-type: none"> <li>Continuously increasing investment in green research and innovation.</li> <li>Continuously improving environmental protection and green attributes of products.</li> </ul>

### *Improvement in the Energy Use Efficiency*

Energy consumed by the Company is mainly electric power, heat, natural gas, and a small amount of gasoline and diesel. Based on the principle of energy saving, consumption and waste reduction, the Company has established a sound energy management system and continuously improved energy use efficiency of its operating activities through various technical transformation projects. In 2021, a total of approximately RMB10.078 million was invested in the technical transformation for energy conservation and emissions reduction.

Integrated circuit manufacturing enterprises are supported by the government in terms of power supply guarantee. During the energy transition in China, the Company is less exposed to energy supply risks. Nevertheless, the Company has developed and implemented emergency guarantee plans to actively respond to power supply failures that may occur suddenly. In 2021, the Company developed the Emergency Plan for Emergency Unloading, the Emergency Plan for Emergency Power Cut and the On-site Treatment Plan of the Power Department for Power Cut and carried out emergency plan training and emergency drills in fabs. The power supply is guaranteed through daily inspection, special system investigation, and emergency drills.

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## Energy Management System

Philosophy	Policy	Goal	Typical Measure
<ul style="list-style-type: none"> <li>Carry out source control and continuous improvement while satisfying production requirements and improving productivity, and reduce the impact on the environment while reducing production costs.</li> </ul>	<ul style="list-style-type: none"> <li>Resource and Energy Management Procedure</li> </ul>	<ul style="list-style-type: none"> <li>The Company is committed to improving the energy efficiency in production and operation and has set its energy goal that by 2030, its comprehensive energy consumption per unit product will decrease by 7% compared with 2015.</li> </ul>	<ul style="list-style-type: none"> <li>Technical transformation for energy-saving.</li> <li>Regularly engaging third-party agencies to conduct energy audits of the Company.</li> </ul>

## 2021 Energy Saving Work and Achievements

Fab	Measures	Achievements
<b>Fab 1</b>	<ul style="list-style-type: none"> <li>Replacing CDA high-voltage rotors for optimization of system operation</li> </ul>	<b>7,200,000 MWh</b> Annual reduction in electricity consumption
<b>Fab 2</b>	<ul style="list-style-type: none"> <li>Carrying out energy-saving reconstruction of water pumps of the UPW system</li> <li>Recycling heat from HOT UF concentrated water</li> </ul>	<b>4,467,700 MWh</b> Annual reduction in electricity consumption  <b>1,088,880 MWh</b> Annual reduction in electricity consumption <b>80,000 m<sup>3</sup></b> Annual reduction in natural gas consumption
<b>Fab 3</b>	<ul style="list-style-type: none"> <li>Replacing fluorescent lamps with LEDs</li> <li>Optimizing the operation of the system of cold and hot water production</li> <li>Optimizing the selection of types of MAU humidifier control valves to reduce steam consumption</li> </ul>	<b>1,421 MWh</b> Annual reduction in electricity consumption  <b>816 MWh</b> Annual reduction in electricity consumption  <b>35.757 MWh</b> Annual reduction in electricity consumption <b>12,000 m<sup>3</sup></b> Annual reduction in natural gas consumption

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## *Development of Products with Low Energy Consumption*

In the field of professional integrated circuit manufacturing services, the Company is committed to implementing full-life cycle environmental management covering processes from raw material procurement and production to disposal, so as to continuously reduce the environmental impact of the products.

### Environmental Management for the Full Life Cycle of Products

Warehousing of Raw Materials	Product Production	Product Transportation	End-user Products	Disposal
<ul style="list-style-type: none"> <li>Carry out hazardous substance examination and systematic control on raw materials;</li> <li>Review the qualification and environmental compliance of suppliers and require suppliers to sign the Environmental Protection Undertaking.</li> </ul>	<ul style="list-style-type: none"> <li>According to pollution discharge permit management, promote material reduction projects;</li> <li>From the perspective of resource recycling, carry out allocation among systems in waste chemical plants to reduce the use of external resources;</li> <li>Implement water recovery projects to improve the overall recycling rate and reduce the water supply pressure of the pipe network.</li> </ul>	<ul style="list-style-type: none"> <li>Recycle and reuse product packaging materials to reduce the consumption of packaging materials and waste generation.</li> </ul>	<ul style="list-style-type: none"> <li>By helping customers produce products with low energy consumption, reduce the environmental impact of the use of end-user electronic products</li> </ul>	<ul style="list-style-type: none"> <li>The wafers produced by the Company are monitored for harmful substances, which means that the end-user electronic products manufactured by using the wafers have less impact on the environment after disposal.</li> </ul>

Meanwhile, by technical innovation, the Company is committed to continuously optimizing its wafer manufacturing technology, reducing product volume, improving the energy efficiency of end-user products, reducing the impact of scientific and technological progress on the environment, while creating competitive advantages in power consumption, efficiency, and chip size optimization for customers, thus contributing to global energy conservation. In 2021, revenue from Hua Hong Semiconductor products for clean energy, energy saving, and emission reduction accounted for 35.9% of its total revenue.

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Actions of Hua Hong Semiconductor	Contribution to Global Energy Conservation
<ul style="list-style-type: none"> <li>Technical innovation to improve the energy efficiency of products in use by customers and continuous development of products with low power consumption</li> <li>Continuous reduction of energy consumption and the use of resources in production to reduce the environmental footprint of products</li> </ul>	<p>The Company's semiconductor products are widely used in clean energy, new light source LED, etc., thus assisting in energy conservation and efficient utilization in other industries</p> <ul style="list-style-type: none"> <li>Power device products with the characteristics of high efficiency and energy saving are used in clean energy application scenarios including new energy vehicles, photovoltaic and wind power generation.</li> <li>BCD700 technology platform is applied to LED lighting products. When compared with traditional incandescent lamps, LED products feature environmental protection, long life, and high efficiency.</li> </ul>

## 2.1 Environmental Management System

Hua Hong Semiconductor has strictly complied with local environmental laws, regulations, and relevant industry emission standards in its daily operations and continued to improve its own environmental management measures. The Company: gradually shifted its focus from production management to control of product full-life cycles and risks; committed to improving environmental performance at every step of the process, including procurement of raw materials, production, and waste management; and passed the new ISO14001:2015 environmental management system certification. In terms of supervision and management, we added a review and follow-up system to the security management system in the Company's intranet. This system collects and lists matters violating environmental protection regulations, which are identified daily by management, following up and recording subsequent actions through regular system reminders.

As at the end of the reporting period, the Company was not subject to any environmental complaints or penalties, or involved in any environmental pollution incidents.

### Certification in Relation to Environmental Responsibilities of Hua Hong Semiconductor in 2021

Name of Certification	Certification Authority	Coverage
<b>Environmental Management</b>		
 ISO 14001:2015 Environmental Management System	British Standards Institutions(BSI)	All factories
<b>Green Building</b>		
 "Leadership in Energy and Environmental Design" (LEED v4) Gold Award	U.S. Green Building Council (USGBC)	Hua Hong Wuxi
 Two-Star Green Building Design Label Certificate	Chinese Society for Urban Studies (中國城市科學研究院)	Hua Hong Wuxi
<b>Green Products</b>		
 QC 080000 Hazardous Substance Process Management System	BSI	All factories

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### *Overview on Environmental Management Performance*

The Company's production and operation requires the use of such resources as energy, water, and other raw materials and generates emissions such as air emission, wastewater, and waste. In addition, we promote suppliers to constantly strengthen environmental management and provide low power consumption green products in an effort to achieve better environmental management performance throughout the value chain.

### **Analysis Table of Main Environmental Factors of the Company**

<b>Main Resources</b>	<b>Main Pollutants</b>
Energy: electric power, heat, natural gas, and a small amount of gasoline and diesel Water source: municipal water supply Raw materials: silicon slice, quartz, target material, gas, and chemicals	Air emissions: sulfuric acid mist, hydrogen chloride (HCl), nitric oxide (NOx), ammonia (NH <sub>3</sub> ), and volatile organic compounds (VOCs) Wastewater: pH, COD, ammonia, nitrogen, and fluorine ion Non-hazardous waste: domestic waste, kitchen garbage, and sludge from wastewater treatment Hazardous waste: waste acid, waste isopropanol, waste phosphoric acid, waste glass bottles, 200L chemical barrels, and waste liquid from laboratory, organic waste liquid, waste activated carbon, waste resin, and arsenic-containing waste, etc.

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## Water Resources

Total water consumed	13,207,829 m <sup>3</sup>
of which: Water from municipal water supply	8,928,040 m <sup>3</sup>
Wastewater reused	4,288,904 m <sup>3</sup>
Water consumed per unit product	2.55 m <sup>3</sup> per 8-inch wafer
Volume of recycled water	86,119,337 m <sup>3</sup>

## Energy

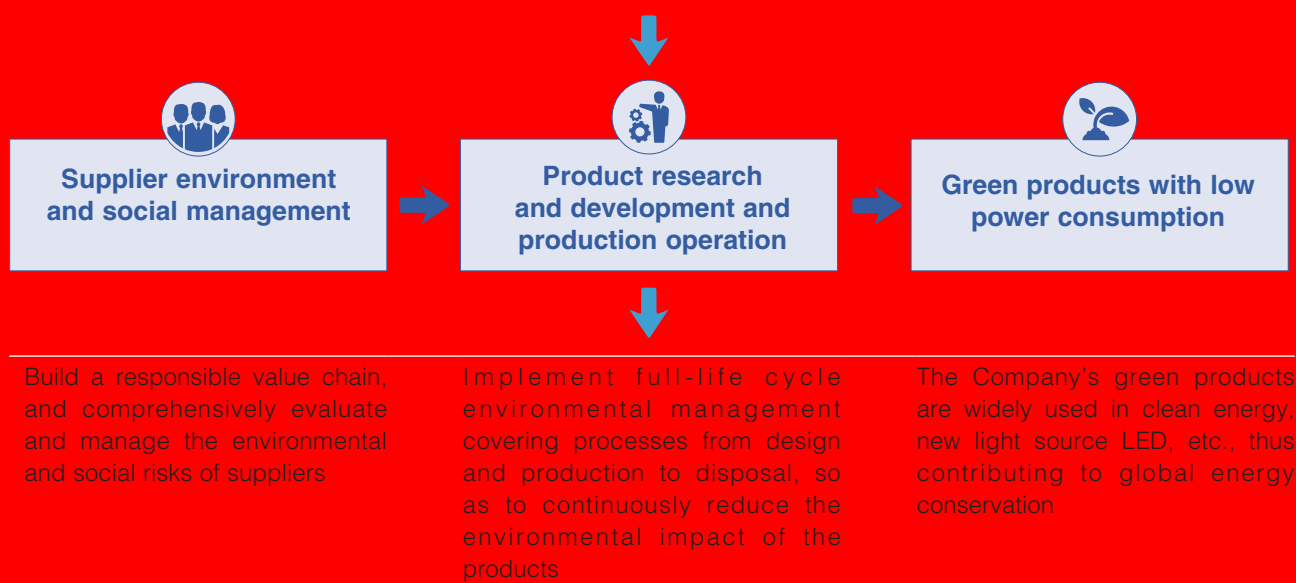
Total electricity consumed	867,682 MWh
Electricity consumed per unit product	248 kWh per 8-inch wafer
Natural gas consumed	11,456,569 m <sup>3</sup>
Natural gas consumed per unit product	3.27 m <sup>3</sup> per 8-inch wafer

## Packaging Materials

Total packaging materials used for finished products	253.5 tons
Total packaging materials recycled for finished products	48.5 tons

## Other Raw Materials

Silicon slice, quartz, target material, gas, chemicals and other raw materials for production





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## Air Emissions

Total hazardous waste	17,363 tons
Hazardous waste produced per unit product	4.96 kg per 8-inch wafer
Total non-hazardous waste	8,981 tons
Non-hazardous waste produced per unit product	2.57 kg per 8-inch wafer

## Waste

Total air emissions	23,193.07 million m <sup>3</sup>
Nitrogen oxide (NO <sub>x</sub> ) emissions	36,857 kg
Sulfur dioxide (SO <sub>2</sub> ) emissions	2,239 kg

## Greenhouse Gas

GHG emissions	713,649 tCO <sub>2</sub> e
GHG emissions per unit product	0.20 tCO <sub>2</sub> e per 8-inch wafer

## Wastewater

Total wastewater discharge	7,040,000 m <sup>3</sup>
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### Green Culture

We continuously promote the environmental protection concept inside and outside the Company. We make good use of science and technology in our daily operations to implement the concept of sustainable development and actively cultivate staff's awareness of protecting the environment, saving office resources, and energy.

### Practice in Green Culture

<b>Saving paper around the office</b>	<ul style="list-style-type: none"> <li>Implementing office informatization to reduce paper consumption.</li> <li>Making efforts to promote the use of recycled paper, including for printing business cards of employees, to support recycling.</li> </ul>
<b>Saving electricity</b>	<ul style="list-style-type: none"> <li>Turning off the power supply when leaving work or for a long time.</li> <li>Reasonably setting air conditioning temperature above 26°C in summer and below 20°C in winter.</li> </ul>
<b>Saving water</b>	<ul style="list-style-type: none"> <li>Developing employees' awareness of saving water and posting water saving tips.</li> </ul>
<b>Waste disposal</b>	<ul style="list-style-type: none"> <li>Classifying domestic waste in each factory into 4 categories, namely dry, wet, recyclable, and harmful waste, and requiring all employees to answer online waste classification questions.</li> <li>Participating in E-waste recycling activities at alah.com.</li> </ul>
<b>Commuting</b>	<ul style="list-style-type: none"> <li>Encouraging employees to commute by public transport.</li> <li>Using new energy vehicles as shuttle buses for the Company.</li> </ul>

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## 2.2 Cleaner Production

### *Air Emissions Discharge Management*

We follow the regulations and relevant requirements related to environmental protection and have formulated improved management measures for the air emissions discharged during production, including sulfuric acid mist, hydrogen chloride, nitric oxide, ammonia, and volatile organic compounds.

### Air Emissions Discharge Management

Type	Treatment Method	
Air Emissions	Acid air emission	Up-to-standard discharge after removing most of the components through pretreatment and centralized treatment of the washing tower
	Alkaline air emission (mainly ammonia gas)	Purification through a washing tower
	Organic air emission	Purification through activated carbon adsorption, or combustion after concentration
	Air Emissions containing dust (mainly small particulate matters of silicon dioxide)	Removal through a dust-extraction unit

### *Waste Management*

Hazardous wastes generated in the Company's production and operation activities include waste acid and waste isopropanol. We authorized a qualified third-party company for treatment of hazardous wastes, mainly by means of incineration, physical-chemical treatment, and recycling. Non-hazardous solid waste, such as sludge generated in wastewater treatment, was treated by the waste disposal agency using landfill.

The Company maintains consistently high standards and strict requirements in the implementation of the waste management system. The Company has formulated a Waste Management Procedure to standardize waste management operations and recorded and managed waste treatment through the unified environmental protection management system of the government to ensure all transportation records are traceable and controllable. Since 2017, the Company has carried out work to reduce the discharge of various hazardous wastes every year to constantly reduce the impact of hazardous waste emissions on the environment.

In 2021, the Company further standardized the storage and recycling of general wastes and improved the storage sites in the fabs. Storage sites of Fab 1 were divided into three-prevention storage and general temporary storage, and the storage area of the general waste storage sites of Fab 2 was increased, which makes the storage more standardized. According to the new Law on the Prevention and Control of Environmental Pollution by Solid Wastes, the Company carried out all-staff training and online examinations, which were passed by 4,219 employees.

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## Management of Waste Discharge

Categories	Treatment Method	
<b>Non-hazardous waste</b>	Domestic waste and kitchen garbage	Entrusting municipal environment and sanitation departments for unified disposal on a regular basis.
	Such as sludge	Landfilling
<b>Hazardous waste</b>	Such as waste acid, waste isopropanol, and waste phosphoric acid	Recycling
	Such as waste glass bottles, 200L chemical barrels, and waste liquid from laboratory	Physical-chemical treatment
	Such as cleaning cloths, plastic bottles, organic waste liquid, waste activated carbon, waste resin, and arsenic-containing waste	Incineration

### Wastewater Discharge Management

In terms of wastewater discharge, the Company has adopted the Grade B Standard of GBT 31962-2015 (Waste Water Quality Standards for Discharge to Municipal Sewers) since 2017 and reduced the discharge through recycling washing water used for production in the factory.

In terms of pollution discharge and information disclosure, the Company carried out online monitoring of wastewater, with relevant data disclosed on the Environmental Information Disclosure Platform for Shanghai Enterprises and Public Institutions, thus improving transparency of environmental information for the Company.

## Wastewater Discharge Management

Categories	Treatment Method	
<b>Wastewater</b>	pH, COD, ammonia nitrogen, fluorine ion, etc.	Discharged through a pipeline into a designated urban sewage pipe network after treatment and meeting relevant standards

## 2021 Cleaner Production Work and Achievements

Measures	Achievements
• Replacing old BTSATA01~06 ozone destructors	Daily ozone emission reduction of <b>50%</b>
• Using IVT PAD for Mirra ontrack W process qualify	Wastewater discharge reduction of <b>8,300 m<sup>3</sup></b> per year
• Adjusting the allocation and utilization rate of photoresist pipelines in lithography machines, and soaking pipelines that can be disused, to reduce the photoresist discharge	Photoresist emission reduction of <b>56.8L</b> per year

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## 2.3 Sustainable Water Management

In the semiconductor manufacturing process, the Company uses ultrapure water containing no ions, particles, chlorine or silicon dioxide to manufacture semiconductors free of any impurities. Only after treatment can the used water be properly discharged or recycled. Therefore, the sustainable management of the utilization, recycle, treatment, and discharge of water resources is a top priority for the Company.

Water used by the Company comes from the municipal water supply to a large extent, in addition to a smaller amount of recycled water and air conditioning condensate from the pure water manufacturing process. In order to constantly monitor water risks, the Company assesses water pressure in Shanghai and Wuxi, where we operate through the Aqueduct Water Risk Atlas, an external tool from the World Resources Institute (WRI). According to WRI data, the Company's Shanghai fabs are located in an area with high water stress and the Company's Wuxi fab is located in an area with medium to high water stress.

### Management of Water Resources

Target	Monitoring	Assessment and Allocation	Emergency Plan
<ul style="list-style-type: none"> <li>Water consumed per unit of product (m<sup>3</sup>/8-inch wafers) in 2030 will decrease by 12% as compared with 2015.</li> </ul>	<ul style="list-style-type: none"> <li>Relying on water monitoring sites for each fab, the Company has conducted water balance tests on a regular basis to calculate the process water, recycled water, wastewater, and domestic water of each fab.</li> </ul>	<ul style="list-style-type: none"> <li>The Company records the flow, volume and recycle of water resources, so as to analyze whether there is any abnormal utilization of water resources and predict the reasonable allocation of water resources among water-consuming units.</li> </ul>	<ul style="list-style-type: none"> <li>The Company has formulated the Emergency Plan for Tap Water Rationing to regulate emergency response in case of any interruption in the municipal tap water supply network, so as to prevent impacts on its production and operation.</li> </ul>

The Company is committed to carrying out water-saving technological transformation and wastewater recycling in production and operation as well as constantly improving efficiency in the use of water resources in all fabs. In the Supplier Questionnaires, we require our cooperative direct suppliers to disclose information on sustainable management of water resources use, including water consumption statistics of production and operation, water-saving measures, water-saving goals of the suppliers, etc., so as to continuously reduce the water footprint of products.

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## 2021 Water Efficiency Measures and Achievements

Measures	Achievements
<ul style="list-style-type: none"> <li>Reducing the use of pure water for BEWAAS05</li> </ul>	Saving of <b>5,000 tons</b> of water for the year
<ul style="list-style-type: none"> <li>Changing spraying humidification to membrane humidification for FAB1</li> </ul>	Saving of <b>13,200 tons</b> of water for the year

## 3. Employee-Related Responsibilities

### Main Progress in 2021

Measures	Achievements
Deepening the training of employees at all levels	The average training hours per employee reached 119.9 hours, increased by 20% compared with 2020

### 3.1 Rights and Benefits of Employees

#### *Employment and Basic Rights and Interests of Employees*

We strictly comply with laws and regulations including the Labor Law of the People's Republic of China and the Law on Employment Contracts. We insist on fair employment, implement the principle of equal pay for equal work, and ensure that employees are not discriminated against or treated differently based on non-work factors including age, gender, place of birth, religious belief, marital status, or disability. We prohibit the employment of child labor or forced labor. Furthermore, we have formulated and follow the guidelines described in Employment Procedures and the Management Procedures for Trainees. We strictly check the identity information of our employees and do not employ adolescents under the age of 16 years. As at the end of the reporting period, the Company had 6,084 regular employees; it did not infringe the rights and interests of its employees; and it was not subject to complaints or penalties by a regulatory authority.

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## Overview of Employee Employment and Interests System

	<b>Recruitment and Dismissal</b> Recruitment: Adhering to the principle of fairness, equity, and openness. Dismissal: The Company and employees go through the dismissal procedure according to relevant laws, regulations, and the Dismissal Management Procedure.
	<b>Remuneration</b> The Company provides competitive salaries for employees, which are higher than the minimum wage in the place of operation.
	<b>Working Hours and Vacation System</b> The standard working hours system is adopted. The comprehensive working hours system or flexible working hours system is adopted for certain positions with the approval of the labor and personnel authority of the government. Based on holidays and festivals specified by the government, supplementary annual leaves are provided for employees.
	<b>Democratic Participation</b> Labor union, employee congress, etc.

### *Employee Communication*

An unblocked communication channel and sincere care are vital for the establishment of harmonious labor relations. The Company is committed to building and improving employee communication and feedback mechanisms and has formulated the Employee Communication Rule and encouraged the fair, straight-out, and multi-way communication between the Company and employees, between officers and subordinate officers, and among employees through the creation of multiple communication channels.

In 2021, the Company held an employee luncheon, in which the management listened to the voices of grassroots employees and responded to their concerns, so as to create an open and trusted working environment.

In addition, we established the Employee Assistance Mechanism, under which we provide assistance for needy employees at special festivals such as Spring Festival, Labor Day, and Mid-Autumn Festival, in addition to routine expression of sympathy and solicitude to injured or families of diseased employees; and we give timely care and support to employees who suffer a significant misfortune and help them overcome their plight as soon as possible through multiple forms of assistance including donation, support, care, and nursing. We care for the welfare and development of female employees, annually organizing a special physical examination, continuously improving human-based management of lactating employees, and providing relevant service facilities to ensure convenience for pregnant employees and lactating employees at work.

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### 3.2 Health, Safety and Employee Welfare

The Company has established an occupational health and safety system that meets the requirements of the ISO45001, defining the occupational health and safety policy, so as to provide its employees with a good working environment and ensure their occupational health.

#### Occupational Health and Safety Management System

<p>The diagram illustrates the Occupational Health and Safety Management System. It features a central blue circle labeled 'Occupational Health and Safety Management System'. Surrounding this central circle are four green circles, each representing a key component of the system: 'System Construction', 'Management Items', 'Internal Audit, Inspection and Hazard Identification', and 'Construction of Safety Culture'. These four components are interconnected by a network of lines, suggesting a comprehensive and integrated approach to occupational health and safety management.</p>			
<b>System Construction</b>	<ul style="list-style-type: none"> <li>The Company has established the Safe Production Committee; implements the Committee's Safe Production Responsibility System; and implemented the regular Safety Meeting System;</li> <li>All employees at all levels are required to sign the Safety Responsibility Letter, so as to implement the Safe Production Responsibility System for the staff.</li> </ul>	<b>Management Items</b>	<ul style="list-style-type: none"> <li>Emergency response to hazards/environmental factors;</li> <li>Special equipment and posts;</li> <li>Chemicals management;</li> <li>Occupational health monitoring and protection.</li> </ul>
<b>Internal Audit, Inspection and Hazard Identification</b>	<ul style="list-style-type: none"> <li>Safety technology transformation;</li> <li>Establishing a dual prevention work mechanism of hierarchical control of safety risks and management of hazard identification.</li> </ul>	<b>Construction of Safety Culture</b>	<ul style="list-style-type: none"> <li>Safety awareness and safety training;</li> <li>Emergency drills.</li> </ul>

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### Safe Production

The Company pursued "zero accidents" in safe production and carried out safety management with a focus on eliminating potential hazards. The Company mainly eliminated or controlled safety risks in production activities of employees from three major aspects, namely, fire-fighting equipment, alarm monitoring system, and emergency measures. With regard to chemicals used on the Company's operation, including nitric acid and ammonia water, we have formulated relevant management policies, including the Chemicals Management Procedure and the Chemical Material Review Procedure. We regularly carry out various emergency drills for safety production accidents. As at the end of the reporting period, the Company had no safety production accidents.

With the theme of "implementing safety responsibilities and promoting safe development", the Company organized a "safe production month" series of activities to further strengthen safety awareness, implement the entity responsibility for safe production of enterprises, and create a corporate safety culture. We studied the important instructions of General Secretary Xi Jinping on safe production, watched videos of "Life and People First" and "Saving Lives is of Paramount Importance" for the safety month. We carried out activities including 16 June, the national safety consultation day, safety knowledge quiz, VR experience of labor protection and emergency equipment, occupational safety re-education, and emergency response training. Through various themed activities of safety publicity and demonstration, the Company further enhanced the safety awareness of its employees, steadily consolidated the performance of its responsibilities for safe production, and promoted its safe development.

### Measures for Prevention of Employee Safety Risks



#### Fire-fighting Equipment

- A perfect fire-fighting system and an automatic alarm system have been established.



#### Alarm Monitoring System

- There are toxic, harmful, and inflammable gas warning systems, liquid leakage detectors and ultra-high-sensitivity smoke detectors in the clean workshop.



#### Emergency Measure

- Establishing an emergency rescue team and formulating emergency plans for different disasters;
- Annually organizing special disaster prevention drills and, in a timely manner, correcting problems identified.

### Employee Health

In terms of protecting employees' health, we provide an annual health check-up for all employees, including multiple cancer screenings and other items, and we establish employee health records to systematically track the changes in employees' health status. We provide employees with necessary personal protective equipment and emergency protective equipment and regularly check if there is a complete set of equipment and whether the equipment is effective. In addition, the Company engages external organizations to test its production environment every year, analyze and rectify nonconformities, so as to ensure that the occupational exposure limits for harmful factors are not exceeded in the production environment, and the Company informs all employees of the test results.



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In 2021, the Company carries out various activities to promote healthy lifestyle to employees, such as health lectures on the theme of "cardiovascular doctor's advice on what to eat for hyperlipidemia" and, "on National Hypertension Day, what is a normal blood pressure", to encourage its employees to live and work in a healthy way.

### *High-quality Working Environment*

The Company is committed to creating better office and service facilities for employees and improving their happiness.



#### **Office**

- An air purification system was installed to improve office air quality;
- The green space was increased in office areas.



#### **Diet**

- There are staff canteens and coffee shops in factory zones;
- Establishing a food safety supervision team, the mode of centralized purchasing of food materials and qualified supplier management, and inviting employees and department representatives to carry out supervision;
- Publishing the canteen food cooking guideline to manage balanced nutrition, oil and salt control, for the employees' diet in the canteens.



#### **Accommodation**

- Construction of dormitory with private bathrooms, 24-hour supply of hot water, and WIFI network, etc.;
- The dormitory area has a library, computer room, snooker room, laundry, TV room, HIVE BOX, and other facilities.



#### **Travel**

- Providing all employees with travel allowance;
- Providing free commuter bus services between the park, subway stations, and the dormitory;
- Creating a commuting route for employees living in the transit-challenged areas and arranging commuter bus services for departments which need to have such services on weekends.

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## 3.3 Training and Career Development

### *Employee Training*

The Company has established a sound employee education and training system and formulated the Operating Procedure of Internal Training System Review, the Education and Training Procedure, and department-level training procedures, which are constantly adjusted according to the strategic development and employee needs, to meet the all-round and multi-level training needs of employees in different positions.

The Company has impeccable training facilities (special training rooms and equipment), learning and sharing platforms (including online training registration management platform, training material and position-specific question bank and multimedia learning courseware, etc.), and where necessary, uses external resources for ensuring employees' learning and development.

In 2021, the Company continuously carried out special training projects for newly-hired recent college graduates and further refined corporate culture, professional theory, and practical training into three major series of courses, namely "new era", "new revelation", and "new talents". This helped its new employees quickly integrate into the team and meet the challenges of their future work with full enthusiasm.

### Employee Training Programs

Trainees	Training Contents	2021 Performance
Grass-roots managers	Role recognition, self-management, management of others, and working management	<b>100%</b> <b>Percentage of employees trained</b>
Front-line managers	Develop management skills of front-line shift and team leaders, cultivate a front-line management team with high quality and high business ability, and lay a solid foundation for the Company's management	
Newly-employed university students	Career quality, corporate culture, introduction to special skills, and other courses	<b>119.9 hours</b> <b>Average training hours per employee</b>
Front-line employees	Courses about theory and practical training of the semiconductor manufacturing module	

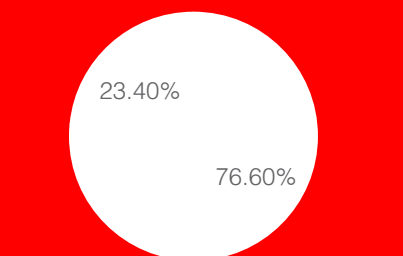
### *Career Development*

The Company provides its employees with clear and transparent promotion channels, as well as personal career plans for their development. According to industrial characteristics, the Company has set three professional categories, namely, management, technology, and functional support and has established corresponding job training. Employees may continuously develop their careers in a single professional title category according to their own specialties, potential, and desires. Moreover, they are able to shift from technology to management.

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

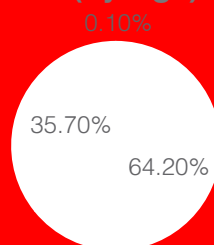
Under the Company's career development system, the employee turnover rate in terms of gender, age in 2021 was as follows:

**Employee Turnover Rate  
(by Gender)**



- Turnover rate of male employees
- Turnover rate of female employees

**Employee Turnover Rate  
(by Age)**



- Turnover rate of employees aged under 30
- Turnover rate of employees aged between 30 and 50
- Turnover rate of employees aged above 50

In addition, the Company has formulated the Implementation Measures for Academic Education Subsidy, which encourages employees to improve their professional and technical knowledge and provides employees with on-the-job academic education subsidies, so as to promote work performance and efficiency improvement, and continuously train high-quality talent that meets the current and future needs of the Company, thus further improving its comprehensive competitiveness.

## 4 Products and Customers

### 4.1 Product Responsibility

#### Main Progress in 2021

Measures	Achievements
Deeply promoting the whole-cycle quality control of products, which integrates industrialization and informatization	Zero complaints on products

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## Quality Control

According to the philosophy of “quality is vital for the existence of an enterprise”, the Company has formulated the Quality Management Policy and successfully passed ISO9001 quality management system and IATF 16949 QMS certification for automotive industry. The Company implemented a synthesized quality management model covering five comprehensive departments and sections of quality systems and customer satisfaction, supplier management and raw material analysis, quality assurance, reliability assurance, and failure analysis.

In accordance with the policies, the Company carries out quality management. The Company shall comprehensively implement excellent performance management, and deeply promote the integration of industrialization and informatization. Actively fulfilling corporate social responsibility, the Company strictly adheres to Zero Defects concept and ensures the delivery of green and high-quality products in a timely order, to continuously provide competitive services. Besides, the Company is supposed to fully meet customer requirements and unremittingly improve customer satisfaction, so as to achieve mutual benefits and a win-win situation.

To reduce human error, we established multiple management systems, such as personnel management, equipment management, supply chain management, environment management, systems management, process management, and customer quality control. With these reliable management systems, we are able to achieve real-time monitoring and testing over our entire product cycles from product R&D to production and after-sales feedback; carry out failure analysis on anomalies that may arise during the production and application processes; dig out the nature of problems; and work out corresponding corrective and preventive measures. The Company has established an optimal product recall system, and our customers may return to us within the warranty period products which do not comply with the prescribed functions or fail to meet the management requirements for hazardous substances. As at 2021, the failure rate of the Company's products on the end-user side was less than one in a billion.

## Product Responsibility-related Certification

Product Quality	Certification Authority	Date of First Certification
 ISO 9001 Quality Management System	British Standards Institutions (BSI)	6 November 2001
 IATF 16949 Quality Management System for Automotive Industry	British Standards Institutions (BSI)	2 August 2005
Information Security	Certification Authority	Date of First Certification
 ISO 27001 Information Security Management System	British Standards Institutions (BSI)	26 April 2002

## Intellectual Property Protection

As a science-oriented enterprise, we advocate independent innovation and respect for intellectual property rights in our research and development of application-specific integrated circuits, including intelligent chips and information security chips. According to the Company's System for the Management of Intellectual Property, we actively filed applications for patents and investigated responsibility for any potential breaches of intellectual property rights. At the same time, we promise that we will never infringe upon the intellectual property rights of any enterprise or individuals and will keep confidential all technological information regarding products of upstream and downstream partners.

To reduce the risk of claims of infringement of third-party intellectual property rights against our manufacturing of semiconductor devices or end-user products, we only accept orders from reputable customers with no known potential risk of infringement. We have entered into several technology licensing agreements with major technology companies.

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## Patent Applications in 2021

Total number of patents applied for in the year	618
Total number of patents approved in the year	186
Total number of Chinese and U.S. invention patents obtained	3,848

### 4.2 Customer Service and Protection of Customers' Interests

#### Customer Service System

According to the philosophy of "providing customers with more convenient and safer services", the Company has established an impeccable customer service system, including three main aspects: customer communication; customer complaint; and customer satisfaction.



#### Customer Communication

- Adopt multiple methods of communication with customers, including customer survey, regular quarterly/annual business reviews, technical seminar, and training.



#### Customer Complaint

- Establish customer complaint channels and formulate the Customer Complaint Handling Procedure.



#### Customer Satisfaction Survey

- Carry out satisfaction surveys on a sampling basis annually and formulate an improvement plan according to the survey results.

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The Company attaches great importance to customer feedback. In order to ensure the smooth collection of customer opinions, the Company has formulated the Customer Complaint Handling Rules to standardize customer complaint handling and the implementation of corrective and preventative measures. Customers may make a complaint and give feedback to the Company through e-mail, hotline, letter, fax, and other channels.



### Occurrence of a Complaint

Normally, communicate and confirm with the customer within 24 hours after the occurrence of a complaint and give a preliminary reply.



### Investigation into Failure Causes

Complaints requiring product failure analysis will be submitted to relevant departments for handling. Corrective and preventative measures will be proposed according to the investigation results and a reply will be given to customers.



### Correction and Prevention

Relevant departments are required to implement corrective and preventative measures, and the corrective action is supervised and evaluated by regularly sorting out and analyzing relevant information given in customer complaints.

### Protection of Customer Information

The Company attaches great importance to maintaining customer information security and safeguarding the interests of customers. The Company has established an ISMS information security management system, which controls information security risks from information asset management, personnel security, physical control, logic control, and other aspects to ensure information security and is ISO27001 certified.

An Information Security Committee was established within the Company with main responsibilities including: responding to and making decisions on major emergency safety accidents; regularly reviewing the information security management system; auditing our photomask partners to ensure the security of their data management and storage; returning to customers or destroying waste masks generated during the production process, thus preventing to the utmost disclosure of customer information on such waste masks. In order to improve employees' awareness of information security and reduce the risk of customer information leakage, the Company arranged and carried out Information Security Week activities including security awareness tests, online training, and offline demonstration, in accordance with laws and regulations, including the *Cyber Security Law*, the *Information Security Law*, and the *Personal Information Protection Law*, thus greatly improving the overall information security awareness in the Company. No incidents of infringement against laws or regulations concerning customer privacy occurred within the Company during the year.

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## 5 Compliance in Business Operation

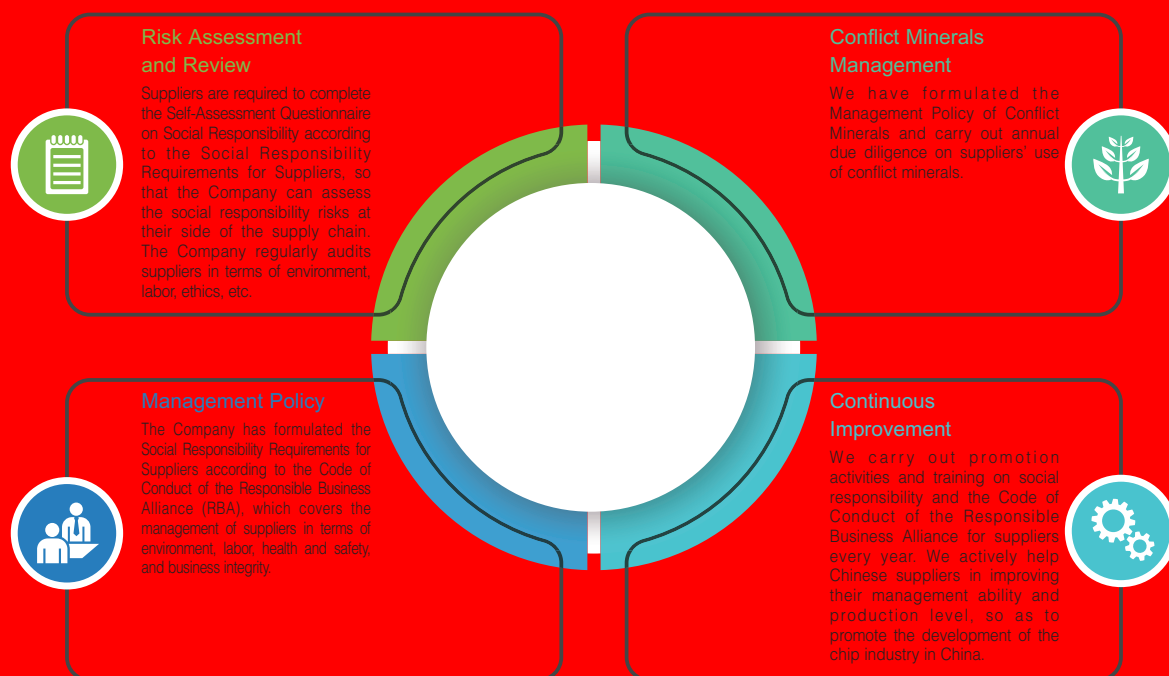
### Main Progress in 2021

Measures	Achievements
Carrying out an annual comprehensive risk assessment covering Shanghai and Wuxi	All major risks were at a reasonable level, and the Company maintained stable operation.

### 5.1 Responsible Value Chain

#### Supply Chain Management

Strengthening the supply chain management and creating the CSR value chain is an important strategy for long-term development of the Company. It has established an excellent value chain management system and has conducted comprehensive assessment, management, and control of the environmental and social risks of suppliers. It is committed to supporting the growth of suppliers to promote development of the chip industry in China.








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## Management Policy

The Company has formulated the Social Responsibility Requirements for Suppliers according to the Code of Conduct of the Responsible Business Alliance (RBA), which covers five requirements for suppliers in terms of labor, health and safety, environmental protection, business integrity, and management system. In addition to the Social Responsibility Requirements for Suppliers, which shall be complied with by all suppliers, the Company also requires its upstream suppliers to recognize and implement management measures according to the Social Responsibility Requirements for Suppliers.

### Overview of the Social Responsibility Requirements for Suppliers of Hua Hong Semiconductor

 <b>Labor</b>	<ul style="list-style-type: none"> <li>• Free choice of occupation</li> <li>• Youth employees</li> <li>• Working hours</li> </ul>	<ul style="list-style-type: none"> <li>• Salaries and benefits</li> <li>• Humane treatment</li> <li>• Non-discrimination</li> </ul>	<ul style="list-style-type: none"> <li>• Free association</li> </ul>
 <b>Occupation and Health</b>	<ul style="list-style-type: none"> <li>• Occupational safety</li> <li>• Emergency plan</li> <li>• Occupational injuries and diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Hygiene management</li> <li>• Physically demanding work</li> <li>• Machine-related protection</li> </ul>	<ul style="list-style-type: none"> <li>• Public health, canteen, and dormitories</li> <li>• Communication of health and safety</li> </ul>
 <b>Environmental Protection</b>	<ul style="list-style-type: none"> <li>• Environment-related permits and reports</li> <li>• Preventing pollution and saving resources</li> <li>• Hazardous substances</li> </ul>	<ul style="list-style-type: none"> <li>• Solid waste</li> <li>• Air emissions</li> <li>• Material restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• Management of water resources</li> <li>• Energy consumption and greenhouse gas emissions</li> </ul>
 <b>Business Integrity</b>	<ul style="list-style-type: none"> <li>• Operation with integrity</li> <li>• No illegitimate interests</li> <li>• Information disclosure</li> </ul>	<ul style="list-style-type: none"> <li>• Intellectual property rights</li> <li>• Fair trade, advertisement, and competition</li> <li>• Confidentiality on identities</li> </ul>	<ul style="list-style-type: none"> <li>• Responsible procurement of minerals</li> <li>• Privacy</li> </ul>
 <b>Management System</b>	<ul style="list-style-type: none"> <li>• Duties and responsibilities of management</li> <li>• Legal and customer requirements</li> <li>• Risk assessment and management</li> </ul>	<ul style="list-style-type: none"> <li>• Performance indicators for implementation plans and measures</li> <li>• Training</li> <li>• Communication</li> </ul>	<ul style="list-style-type: none"> <li>• Employee feedback, participation, and complaints</li> <li>• Review and assessment</li> <li>• Corrective measures</li> </ul>



# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## *Conflict Minerals Management*

These metals are obtained by local armed militias by way of long-time forced labor, child labor, and damaging the environment and ecology. Such metals are also the main capital source of illegal armed organizations. According to the Dodd-Frank Wall Street Reform and Consumer Protection Act and research reports of certain international non-governmental organizations, such minerals are likely to be used for electronic and electrical products, such as mobile phones and computers, in ICT industries. In order to effectively reduce the Company's risk in relation to conflict minerals, the Company has formulated the Conflict Minerals Management Policy, requiring all suppliers to commit to purchasing conflict-free minerals to ensure the effective management of responsible minerals.



## **Conflict Minerals Management Policy**

The Company has always taken global social and environmental responsibility as our goal and carried out green procurement and has promised to undertake the following responsibilities in its metal supply chain:

- 1) We undertake to assume social and environmental responsibilities.
- 2) Suppliers whose products contain gold (Au), tantalum (Ta), tungsten (W), and tin (Sn) are required to purchase materials according to the Responsible Minerals Policy, while suppliers whose products contain cobalt (Co) and natural mica (Mica) are required to disclose the smelters of cobalt and natural mica, so as to ensure the legality of these minerals.
- 3) We undertake to cause our product suppliers to provide the declaration that they do not use gold (Au), tantalum (Ta), tungsten (W), tin (Sn), and cobalt (Co) from "conflict minerals", and to carry out an investigation into conflict minerals, and complete the Conflict Minerals Reporting Template (CMRT) and the Extended Minerals Report (EMRT) under the Responsible Minerals Initiative (RMI).

The Company has conducted due diligence on the use of conflict minerals by suppliers and requires suppliers to disclose information on sources of minerals and smeltery, so as to ensure that our suppliers comply with the Company's management policies for conflict minerals. According to our review, we have found no use of conflict minerals by suppliers in 2021. The Company carries out promotion activities and training on social responsibility and the Code of Conduct of the Responsible Business Alliance for suppliers every year. In 2021, such training was completed as planned.

In addition, we proactively support growth and development of our suppliers in China and constantly assist suppliers in improving their management capabilities and production levels. Meantime, we proactively encourage small and medium-sized enterprises to participate in the local supply of key raw materials, including gases, chemicals, and silicon wafers. Therefore, we've cultivated a growing group of local raw material and equipment suppliers, thereby significantly promoting the development of the chip design industry in China.

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### 5.2 Anti-corruption and Business Ethics

The Company is committed to the development of a business ethics culture and has formulated the Undertaking System on Anti-Corruption and Business Ethics, explicitly specifying that companies having business dealings with the Company (including all suppliers) shall sign the Undertaking Against Commercial Bribery and that relevant internal personnel shall sign the Undertaking on Business Ethics, whether for external customers, manufacturers and stakeholders, or for employees, cadres, and key personnel.

The Company carries out audits on anti-corruption and business ethics on a regular basis. In 2021, the Company has completed audits of internal management on anti-corruption and business ethics, and found no violation. In addition, the Company is committed to creating a sound business ethics culture by regularly introducing warning articles and cases in internal publications and providing training activities on anti-corruption and business ethics for all employees.

#### Anti-Corruption and Anti-bribery Policy of Hua Hong Semiconductor

All employees (including part-time employees), senior management, and Board members are required to abide by relevant laws and regulations practice and behave with integrity, diligence, and self-discipline. Corruption and bribery in all forms are prohibited, including:

prohibiting commercial bribery and maintaining fair competition order;

prohibiting seeking for illegitimate benefits through taking advantage of influence in position and work;

never violating financial management and operation regulations, or seeking personal gain in the name of the Company; prohibiting practicing fraud to undermine the legitimate interests and reputation of the Company;

prohibiting any receipt of presents, cash gifts, securities and finances that may cause a negative influence on work.

#### Complaint and Reporting Management

The Company has set up convenient reporting channels and handled reported cases in a standardized and orderly manner and provides defined reporting channels, including E-mail, hotline, and mailbox, to encourage employees to make real-name or anonymous complaints and reporting. The Company can receive and properly handle reporting calls and letters at any time to achieve early detection, resolution, and control. The Company properly carries out the reporting procedures, classified acceptance, investigation, and treatment. In addition, the Company takes measures to protect whistleblowers, and all information related to whistleblowers will be kept strictly confidential. The whistleblowers will not suffer any form of retaliation or adverse treatment.

#### Business Ethics Supervision and Report Handling Procedures

Immediately record any individual case reported and received.



Arrange special personnel or establish a special team to understand the situation, carry out an investigation and obtain evidence.



Complete the investigation and evidence collection within the specified time limit, draw preliminary conclusions and report to management.



Hold a special meeting to review the contents of the report and investigation results, and come up with a solution.



Give feedback to the whistleblower.

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## 5.3 Risk Management

The Company continuously improves its risk management system, conducts an audit covering the entire operation process every three years, and continuously upgrades relevant processes and policies, so as to effectively enhance its risk management. Since 2016, the Company has established procedures for risk management through the Internal Audit Department, which issued the guideline "Rules about Comprehensive Control of Risks" and launched related projects.

In 2021, the Company upgraded the existing risk management system to ensure that the design of the system is more realistic, thereby effectively improving the level of risk management. The Company carried out an annual comprehensive risk assessment covering Shanghai and Wuxi; interviewed management with regard to risks through risk questionnaires; identified major risk areas; and formed an annual risk management report. In addition, the Company carried out risk management training including discussing typical risk events.

### Key Operational Risks and Countermeasures

Risk Category	Content	Countermeasures
<b>Strategy</b>	Strategic planning	The Company formulated strategic objectives from top to bottom and appropriately deconstructed and implemented such objectives in specific business models of corporate operation, to ensure the accomplishment of strategic objectives
	Supervising and management system	We continue to improve the risk management system based on the three-line model to efficiently ensure accomplishment of strategic objectives
<b>Operation</b>	Reserve of talents	We set up the talent resume database, carried out a talent inventory, continuously explored recruitment channels, optimized the salary structure, and comprehensively enhanced the Company's attraction and employee satisfaction by combining the synergies of brand building and cultural promotion
	Supply chain	The Company enhances its right to speak in the industry chain through its technological advantages, signs medium- and long-term strategic agreements with suppliers, sets a safe inventory level for each production material, regularly reviews the rationality of the safe inventory level, and continuously evaluates suppliers' capacity and product quality to ensure stability of the supply chain
	Information security	The Company has established its information security framework and management policy; implements the risk evaluation procedure for information security every year; and continuously monitors various key information through the DLP data protection system, to maintain the optimal interests of the Company, its shareholders, its customers, its suppliers, and its employees
	Research and development	The structured R&D closed-loop mechanism conducts comprehensive monitoring on R&D initiation, implementation, and post-evaluation and helps develop new products with commercial value continuously in a timely fashion

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

Risk Category	Content	Countermeasures
<b>Finance</b>	Cash flow	Monthly cash flow statements record cash flows and dispatch the same to relevant departments for follow-up actions
	Exchange fluctuations	Transactions denominated in foreign currencies are settled in the same foreign currency whenever possible to reduce the need for foreign currency exchange, thus reducing risks arising from exchange rate fluctuations
<b>Environment and Safety</b>	Environment	We design management procedures based on our observation, assessment, and control of environmental factors and list major environmental factors
	Safety check	Safety checks focusing on troubleshooting and fault diagnosis are carried out continuously
	Occupational health	We have developed the goals, indicators, and program management forms for our environmental and occupational health and safety programs, in accordance with the Company's established goals, indicators, and program management procedures for health, safety, and environment ("HSE")

## 6 Community and Charity

### Main Progress in 2021

Measures	Achievements
Organizing a volunteer team to actively participate in pandemic prevention and control	A total of 1,324 employees participated in volunteer service, with a total of 1,986 hours of service, increasing by 340% compared with 2020

#### Volunteer Service

We encourage our employees to serve the local community and express their solicitude, and we have established a volunteer team with a total of 1,324 volunteer services and 95 activities in 2021.

In 2021, the Company consolidated the "four protections" and continued to strictly implement the normalized pandemic prevention and control measures. During the 14-day quarantine for communities listed as intermediate-risk areas, employees actively responded to the call, and took the courage to assume their responsibilities to actively join the volunteer service team. Acting as volunteers, they helped maintain the order on the spot, delivered residents' living materials, and participated in pandemic prevention and control. The company has received many letters of appreciation for its contribution to the community's anti-pandemic work.

In addition, for a decade volunteers from the Company have persisted in regularly visiting the elderly in the nursing home every year, to chitchat, make wontons, and carry out activities, so as to entertain and care the elderly.

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## Joint Construction of Communities

In order to enhance the safety awareness of community residents, the Company has provided the "First Aid Course for Accidents" in the community where the headquarters operates, including First Aid knowledge and cardiopulmonary resuscitation, for four years. The Company is enthusiastic in public welfare undertaking, and persists in organizing voluntary blood donation every year. In 2021, there were a total of 219 blood donors from the Company.

## Rural Revitalization

In response to the call of Huahong Group for partner assistance, the Company established a partner assistance relationship with Youqiao Village, Shuxin Town, Chongming District. We visited local villagers regularly to understand its progress in people's livelihood, Party building, and comprehensive governance and to define the focus of our partner assistance work, so as to establish a long-term, stable, and comprehensive partner assistance relationship to effectively promote Youqiao Village's development in all respects. The Company supports rural revitalization, cares for children in mountainous areas, and helps consolidate the achievements of poverty alleviation through public welfare education. The Company carried out the "Xinguang (芯光)" reading plan in Yangbi County, Yunnan Province, in which it donated the "Chinese Rainbow" library and actively carried out a "Xinyuedu (芯閱讀)" series of activities, with a total of 838 books donated.

## 7 Appendix

### Social Recognitions

#### 2021 Social Recognitions

No.	Awards
	<b>National</b>
1	Jiangsu May Day Labor Award Certificate
	<b>Shanghai</b>
2	First Prize for Shanghai Science and Technology Award
3	First Prize for 2021 Shanghai Key Product Quality Improvement Achievement Award
6	Shanghai IPR Innovation Award
5	2019-2020 Shanghai Role Model in Ethical and Cultural Progress
6	Shanghai May Day Labor Award Certificate
7	2020 Excellent Academician Workstation in Shanghai
8	Shanghai Model Enterprise for Corporate Social Responsibility Report
9	Shanghai March 8 Red Flag Collective

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## Quantitative Performance

### Environment

Performance Indicators	Unit	2019	2020	2021 <sup>8</sup>
<b>Emissions</b>				
Total air emissions	10,000 m <sup>3</sup>	1,257,074	1,773,740	2,319,307
Nitrogen oxide (NOx) emissions <sup>1</sup>	Kg	19,383	19,688	36,857
Sulfur dioxide (SO <sub>2</sub> ) emissions <sup>2</sup>	Kg	72.5	338	2,239
Total wastewater discharge	10,000 m <sup>3</sup>	431	603	704
GHG emissions <sup>3</sup>	Ton of CO <sub>2</sub> equivalent	449,343	448,614	713,649
of which: Direct GHG emissions <sup>4</sup>	Ton of CO <sub>2</sub> equivalent	16,954	18,135	24,803
Indirect GHG emissions <sup>5</sup>	Ton of CO <sub>2</sub> equivalent	432,389	430,479	697,899
GHG emissions per unit output	Ton of CO <sub>2</sub> equivalent/ 8-inch wafers	0.23	0.23	0.20
Total hazardous waste	Ton	5,013	9,262	17,363
Hazardous waste produced per unit output	Kg/8-inch wafers	2.57	3.96	4.96
Total non-hazardous waste <sup>6</sup>	Ton	3,595	6,143	8,981
Non-hazardous waste produced per unit output	Kg/8-inch wafers	1.80	2.67	2.57
<b>Use of Resources</b>				
Total electricity consumed	MWh	528,044	720,840	867,682
Electricity consumed per unit product	kWh/8-inch wafers	271	313	248
Natural gas consumed	m <sup>3</sup>	8,138,435	10,312,006	11,456,569
Natural gas consumed per unit product	m <sup>3</sup> /8-inch wafers	4.18	4.49	3.27
Total water consumed	m <sup>3</sup>	7,724,830	9,907,631	13,207,829
of which: Water from municipal water supply	m <sup>3</sup>	4,791,336	7,035,272	8,928,040
Wastewater reused	m <sup>3</sup>	2,933,494	2,872,359	4,288,904
Water consumed per unit product <sup>7</sup>	m <sup>3</sup> /8-inch wafers	2.46	2.89	2.55
Recycled/reused water	m <sup>3</sup>	2,823,278	4,042,020	86,119,337
Total packaging materials used for the shipment of finished products	Ton	110	128	253.5
Packaging materials used for the shipment of per unit finished product	Kg/8-inch wafers	0.06	0.06	0.07
Total recycled packaging materials used for the shipment of finished products	Ton	8	22	48.5

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## Notes:

- 1 NOx emissions come from the gasoline and diesel consumption by vehicles of the Company and are calculated in accordance with the Reporting Guidance on Environmental KPIs published by the Hong Kong Stock Exchange.
- 2 SOx emissions come from the gasoline and diesel consumption by vehicles of the Company and are calculated in accordance with the Reporting Guidance on Environmental KPIs published by the Hong Kong Stock Exchange.
- 3 GHG emissions are calculated in accordance with the GB/T 32150 General Guideline for Calculation and Reporting of GHG Emissions from Industrial Enterprises and the GB/T 32151 Requirements on Calculation and Reporting of GHG Emissions published by the Standardization Administration.
- 4 Sources of direct GHG emissions include natural gas, electric power, and diesel. The natural gas emission factor is determined in accordance with the Guideline for Calculation of Green Credit Energy Saving and Emission Reduction: If the energy saved is natural gas, the carbon dioxide emission factor is 2.17kg of carbon dioxide per standard cubic meter. The carbon dioxide emission factors of diesel and gasoline are determined in accordance with the Guideline for Calculation of Green Credit Energy Saving and Emission Reduction.
- 5 Sources of indirect GHG emissions include electricity and steam.
- 6 Non-hazardous waste is sludge produced in wastewater treatment.
- 7 In calculation, water consumed per unit product only includes water from the municipal water supply.
- 8 Due to the operation of all production bases of the Company at full capacity in the year and the inclusion of the information on Wuxi company, all environmental data, such as, the number of total air emissions, GHG emissions, total hazardous waste, total non-hazardous waste and total packing materials used for the shipment of finished products, increased in 2021, compared with 2020.

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## Employment and Labor Practice

Performance Indicators	Unit	2019	2020	2021
<b>Employment</b>				
Total number of employees	Person	5,138	5,682	6,084
Including: Number of male employees	Person	3,720	4,164	4,426
Number of female employees	Person	1,418	1,518	1,658
Number of employees working under a labor contract with the employer	Person	5,138	5,682	6,084
Number of employees working under a labor contract with a labor dispatch company	Person	130	113	85
Part-time employees	Person	0	0	0
Number of employees aged under 30	Person	2,354	2,542	2,676
Number of employees aged between 30 and 50	Person	2,676	3,018	3,271
Number of employees aged above 50	Person	108	122	137
Number of employees from Mainland China	Person	5,129	5,673	6,075
Number of foreign employees	Person	9	9	9
<b>Health and Safety</b>				
Occupational disease incidence	%	0	0	0
Number of work-related fatalities	Person	0	0	0
Percentage of work-related fatalities	%	0	0	0
Lost days due to work injury	Day	23	235	367
<b>Employee Training</b>				
Average training hours completed per employee	Hour	99.5	100.1	119.9
Including: Average training hours completed per non-management employee	Hour	100.5	101.4	121.5
Average training hours completed per management member	Hour	33.6	18.3	23.5
Average training hours completed per female employee	Hour	87.7	96.8	123.8
Average training hours completed per male employee	Hour	104	101.3	118.5
Percentage of employees trained	%	100	100	100
Including: The percentage of non-management employees trained	%	100	100	100
Percentage of management member trained	%	100	100	100
Percentage of female employees trained	%	100	100	100
Percentage of male employees trained	%	100	100	100



# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## Product Responsibility and Customer Service

Performance Indicators	Unit	2019	2020	2021
<b>Product Responsibility and Customer Service</b>				
Product return rate	%	0.05	0.07	0.05
Percentage of products sold subject to recalls for safety and health reasons	%	0	0	0
<b>Customer Service</b>				
Number of complaints received in relation to products and services	Case	3	8	0
Percentage of customer complaints resolved	%	100	100	/

## Supply Chain Management

Performance Indicators	Unit	2019	2020	2021
<b>Supply Chain Management</b>				
Total number of suppliers	Supplier	520	535	545
Total number of local suppliers	Supplier	393	399	410
Total number of foreign suppliers	Supplier	127	133	136
Number of suppliers assessed <sup>1</sup>	Supplier	112	110	115
Number of suppliers subject to rectification	Supplier	0	0	0
Percentage of raw and auxiliary material suppliers signing the Environmental Protection Undertaking	%	100	100	100
Percentage of raw materials purchased from local suppliers <sup>2</sup>	%	26	28	29

### Notes:

- 1 The number of suppliers which were assessed by the Company in terms of labor, health and safety, environment, and business ethics.
- 2 Raw materials purchased include silicon slices, quartz, target materials, gases, chemicals, and other raw materials for production.

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## Anti-corruption

Performance Indicators	Unit	2019	2020	2021
<b>Anti-corruption</b>				
Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period	Case	0	0	0

## Community Investment

Performance Indicators	Unit	2019	2020	2021
<b>Community Investment</b>				
Number of employees participating in volunteer services	Person	245	449	1,324
Total hours of volunteer activities	Hour	659	450	1,986

## List of Regulations Observed by the Company

Fields	Names of Laws and Regulations
Environmental Protection	<i>Environmental Protection Law of the People's Republic of China, Law of the People's Republic of China on Prevention and Control of Atmospheric Pollution, Urban and Rural Planning Law of the People's Republic of China, Marine Environment Protection Law of the People's Republic of China, Energy Conservation Law of the People's Republic of China, etc.</i>
Product and Service	<i>Cyber Security Law of the People's Republic of China, Cryptography Law of the People's Republic of China, Accounting Law of the People's Republic of China, Regulation on the Administration of Commercial Cipher Codes, Company Law of the People's Republic of China, Constitution of the People's Republic of China, Law of the People's Republic of China on Product Quality, Customs Law of the People's Republic of China, Metrology Law of the People's Republic of China, Foreign Trade Law of the People's Republic of China, Anti-Unfair Competition Law of the People's Republic of China, Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals ("REACH"), Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances ("RoHS"), etc.</i>
Intellectual Property Protection	<i>Patent Law of the People's Republic of China, Copyright Law of the People's Republic of China, Trademark Law of the People's Republic of China, etc.</i>
Employee Employment	<i>Law of the People's Republic of China on Employment Contracts, Law of the People's Republic of China on Protection of Women's Rights and Interests, Employment Promotion Law of the People's Republic of China, Social Insurance Law of the People's Republic of China, Civil Code of the People's Republic of China, Labor Law of the People's Republic of China, Criminal Law of the People's Republic of China, Measures for the Administration of Health Insurance, Measures for Application for and Payment of Unemployment Insurance Money, etc.</i>
Occupational Health and Safety	<i>Law of the People's Republic of China on Prevention and Control of Occupational Diseases, Production Safety Law of the People's Republic of China, Regulation on Work-Related Injury Insurances, etc.</i>

# 2021 ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## Preparation of the Report

In the Environmental, Social, and Governance Report of Hua Hong Semiconductor Limited 2021 (the "Report"), key issues and opportunities of concern to stakeholders are identified through materiality analysis, and the Company's actions and achievements in economic, social, and environmental aspects are disclosed to various stakeholders.

### Scope of the Report

**Organizational Scope:** The Report covers Hua Hong Semiconductor Limited and its subsidiaries and is consistent with the scope of the annual consolidated financial statements of the Company.

**Reporting Period:** From 1 January 2021 to 31 December 2021

### Basis of the Report

- Environmental, Social, and Governance Reporting Guide (2019) published by The Stock Exchange of Hong Kong Limited

### Source

There are no material changes in the methods of obtaining and calculating the information in the Report, compared with annual reports for previous years. Data and cases in the Report originate from original records and financial reports of the Company generated in actual operations. In case of any inconsistency, data in the financial reports shall prevail. Unless otherwise specified, all the monetary amounts in the Report are denominated in RMB.

### Reporting Principles

- **Materiality principle.** In the Report, important ESG issues affecting the sustainable development of the Company are identified and addressed, through online surveys of stakeholders, information analysis, etc. For details of the process and results of the materiality analysis, see *1.4 Identification and Analysis of Substantive Issues* in the Report.
- **Quantitative principle.** The Report discloses the basis of calculating the quantitative ESG KPIs and emissions of the Company. For details, see *Appendix Quantitative Performance* to the Report.
- **Consistency principle.** In the Report, the indicators used in different reporting periods are consistent as far as possible, and the changed indicators are explained, so as to reflect the trend of performance level.
- **Balance principle.** The Report reflects the objective facts and discloses positive and negative indicators.



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