



GigaDevice

GigaDevice Semiconductor Inc.

# 2022 | ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT OF GIGADEVICE SEMICONDUCTOR INC.

# 2022 | ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT OF GIGADEVICE SEMICONDUCTOR INC.

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# FOREWORD

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About this Report

Message from the Chairman



GigaDevice



# About this Report

This Environmental, Social and Governance (ESG) Report is released by GigaDevice Semiconductor Inc., aiming to communicate with the stakeholders regarding its initiatives and performance in environmental, social and governance activities.

## Reporting Period

This report covers a time span from January 1, 2022 to December 31, 2022, and also includes part of content beyond this time span.

## Reporting Scope

This report covers GigaDevice Semiconductor Inc. and all of its subsidiaries.

## Reference Description

For the purpose of facilitating expression and improving readability, GigaDevice Semiconductor Inc. is respectively referred to as “GigaDevice” , “the Company” , and “we/us” in this report.

## Data Source

All information and data are from official documents, statistical reports and financial statements of the Company, as well as the environmental, social and governance information counted, summarized and reviewed by the Company.

## Unit Description

The monetary unit is CNY, unless otherwise specified.

## Report Statement

None of the operational plans, development strategies and prospective descriptions in this report shall be construed as the substantial commitments of the Company to its investors.

## Preparation Basis

This report is prepared according to the GRI standards of the Global Sustainability Standards Board (GSSB) and referring to the **Notice of Shanghai Stock Exchange on Enhancing the Social Responsibilities of Listed Companies and the Issuance of Guidelines of Shanghai Stock Exchange for the Information Disclosure Management Bylaws of Listed Companies**.

## Report Acquisition

This report is released in both Chinese and English versions. In case of any discrepancy between the two versions, the Chinese version shall prevail.

View and acquire this report at the official website of GigaDevice at: <https://www.gigadevice.com/about/sustainability/>

## Message from Our Chairman

GigaDevice, a long-lasting believer and excellence seeker, has been pursuing and working for lasting greatness in corporate development. We fully recognize that our sustainable development cannot be separated from close coordination with the needs of social development. Our field of concentration falls primarily in the information technology industry, one of the most globalized industries. We're anticipating to drive the world to move forward efficiently by contributing to the UN SDGs, which is also the development direction and motivation for GigaDevice and its partners. Staying true to the original aspiration, we have been continuously contributed to advancing product R&D and innovation, expanding product lines, and upgrading product structure in order to respond positively to climate change and environmental policies. At the same time, we assist our employees to develop in all aspects and cultivate talents for the industry.

In 2022, GigaDevice constantly advanced its sustainability efforts in order to actively practice the social responsibilities to all stakeholders. We strengthened our ESG governance capability, specifically by establishing an ESG management system, and developing a long-term ESG operating mechanism, intending to steadily improve the ESG management of the Company.

At GigaDevice, every employee embraces the mission of "To empower better living through technological innovation". Therefore, we continuously improve our capabilities in terms of indigenous R&D and commercialization, enrich our product lines, and provide innovative solutions centered on markets and customers. Reflecting our core value to pursue excellence, joint growth, openness, and innovation, GigaDevice invested CNY 1.029 billion in R&D in 2022 while obtaining 98 new patents granted.

Quality is the top priority of GigaDevice. By all means, we actively develop a quality culture among all employees, aiming to achieve the zero abnormality in the manufacturing process and zero defect in products, which enables us to provide customers with excellent products and services.

GigaDevice is committed to creating a working environment with diversity, equality and inclu-

sion for all employees. In 2022, we took proactive steps to diversify our talent pool by welcoming fresh students from various colleges and universities. Additionally, we made some progress in fostering diversity within our leadership team by appointing our first female director to the Board.

GigaDevice is an advocator and practitioner of green development. In this respect, we pay great attention to environmental protection and energy conservation at the very beginning of product definition and design, and actively develop products with low power consumption. More specifically, we launched the 1.2V ultra-low power SPI NOR Flash product series in 2022; in our daily office work and operations, we advocated a green office and made the most efficient use of energy resources. Responding to the environmental goals, such as achieving low carbon and environmental protection and tackling climate changes that were set in 2022, we adopted multiple measures as well as a positive attitude and actions. In the meantime, we have also established the **Policies on Environment and Conflict Minerals** to include the use of responsible minerals in our requirements for suppliers to ensure that the minerals used in our products are ethically sourced.

GigaDevice is an active undertaker in many public welfare. In 2022, GigaDevice spent CNY 1.48 million in public welfare programs, with a total of 132 participations accumulating 189.17 hours. Besides, we also made investments in science popularization and talent cultivation by leveraging our IC Science Museum. It is open to the public and is designed to help electronics enthusiasts and student groups broaden their horizons and interests.

Looking back to the year 2022 which was full of challenges, we remained steadfast and unwavering, regardless of external changes. Looking forward, we will continue to uphold our sustainable development strategy, fulfill our corporate social responsibility, and work hand in hand with our ecosystem partners in a diligent effort to create a better future.

**Chairman: Zhu Yiming**



# ABOUT US

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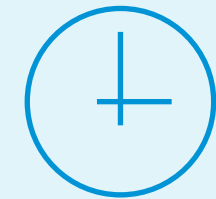
- 1.1 Company Profile
- 1.2 Development History
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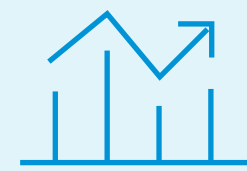
GigaDevice



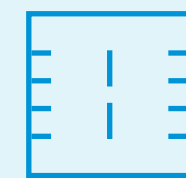
## 1.1 Company Profile



Founded in  
**2005**



Listed on  
**2016.8**



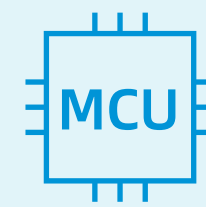
NOR Flash cumulative  
shipment exceed  
**19 Billion**



Technical elites  
approximately  
**72%**



Possess master's  
degrees approximately  
**54%**



MCU cumulative  
shipment exceed  
**1 Billion**

Founded in 2005 and headquartered in Beijing, GigaDevice Semiconductor Inc. ( "GigaDevice" or "the Company" ) is a leading fabless semiconductor company dedicated to developing memory, microcontroller (MCU) and sensor solutions. The Company successfully listed on the Shanghai Stock Exchange in August 2016. With more than 1,500 employees and has branches and offices worldwide such as the United States, South Korea, Japan, the United Kingdom, Germany and Singapore, GigaDevice is able to provide customers with superior and convenient localized services and support.

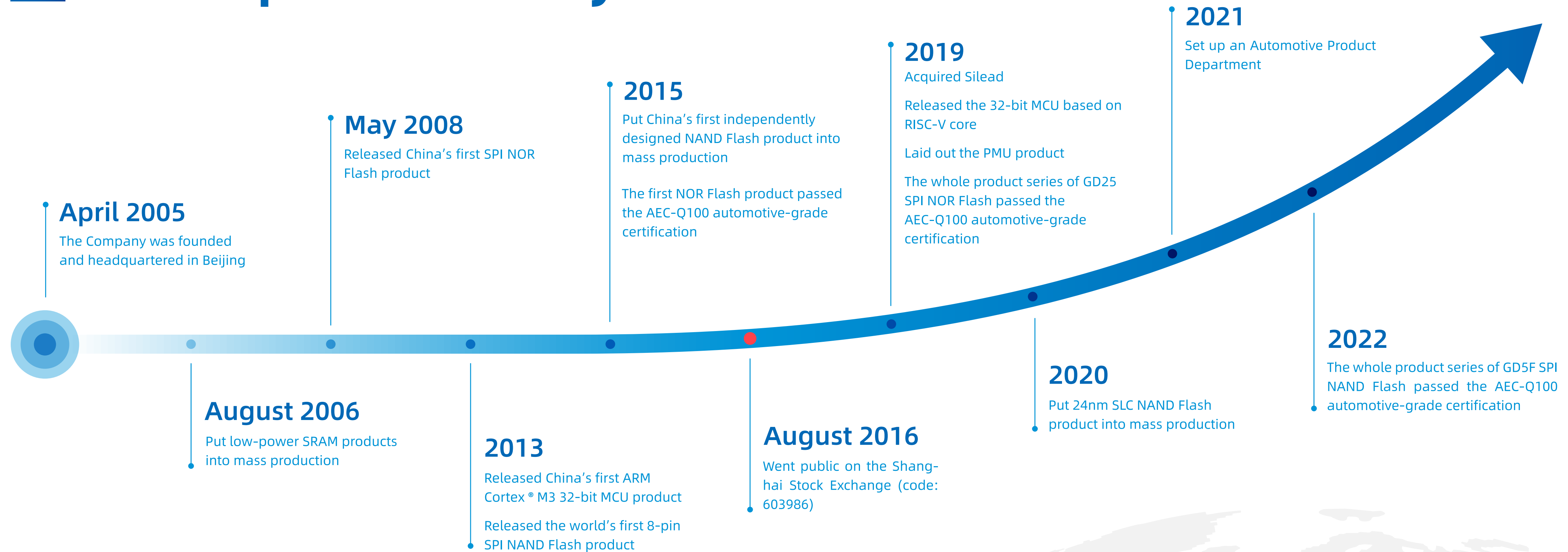
The Company owns a core management team which is of abundant experience in R&D and management, as well as has a technical R&D team with is core members from China's top institutions in microelectronics field. As for the Company's staff structure, about 54% of employees possess master's degrees, and about 72% of them are technical elites. In addition to this, we are also actively introducing professionals with international visions and keeping an eye on the latest technology developments to make our technologies and products more advanced.

The Company has core product lines including memories, general-purpose 32-bit MCUs, intelligent human-machine interaction sensors, analog products and integrated solutions, all of which are well-known for "high performance and low power" . Based on these, we are able to provide all-round services to customers for varied market segments such as industry, automotive, computing, consumer electronics, IoT, mobile, and network and telecommunications.

Our NOR Flash product ranks #1 in market share in China and ranks #3 in the world, with a cumulative shipment of more than 19 billion and an annual shipment of more than 2.8 billion. Our MCU products have become the mainstream choice in the general-purpose 32-bit MCU market in China and stayed at the top in the Chinese market featuring a cumulative shipment of more than 1 billion, more than 20,000 customers, and wide coverage of applications with more than 450 products of 38 series. Our touchscreen and fingerprint sensors are extensively applied by well-known mobile makers both domestics and overseas, as shown by the performance that our touchscreen and fingerprint sensors respectively rank #4 and #3 in the global market.

The Company has established strict standards and requirements for the supply chain management, and has certified ISO 9001 and ISO 14001 and Duns certifications. In addition, we are also actively promoting industry integration, expanding our strategic planning, and implementing the IoT human-machine interaction based on existing MCUs and memories. We have established strategic partnerships with multiple internationally leading foundries, assembly and test plants to jointly advance technological innovation in the semiconductor field by enhancing cooperation and optimizing the supply chain management.

## 1.2 Development History





# 1.3 Company Honors in 2022



- China IC design Achievement Awards 20 Years (2001-2021) Special Contribution Awards
- Top 10 China IC design Brands (for consecutive 3 years/the 6th time)
- Special Achievement Award of the 17th (2022) China Chip IC Industry Promotion Conference
- Excellent Market Performance Products of the 17th (2022) China Chip IC Industry Promotion Conference (GD32F303 Series)
- The Best Company of the Year in Market Breakthrough
- Achievement Industrialization Prize of the 5th IC Innovation Award
- Best MCU of the Year (GD32F470 Series)
- World Electronics Achievement Awards - Microcontroller/Interface of the Year (GD32F470 Series)
- World Electronics Achievement Awards - Memory of the Year (GD5F1GM7 Series)
- Best-in-Show-Award (GD32F470 Series)
- EE Awards Asia - The Most Promising Product (GD32F470 Series of High performance MCUs)
- 2023 Top Human Resources Management Awards - Top Employer

## 1.4 Performance in 2022

### Performance

- In 2022, the company realized a revenue of

CNY **8.13** Billion.

- In 2022, the company realized a net profit attributable to shareholders of a listed company of

CNY **2.053** Billion.

- By the end of 2022, the total assets of the Company were

CNY **16.645** Billion.



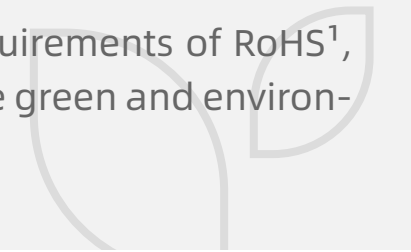
#### R&D Innovation

- The Company invested CNY 1.029 billion in R&D, accounting for 12.66% of the revenue, which increased by 9.49% compared with the same period in 2021.
- About 72% of the employees are technicians, with about 54% of them possessing master's degrees or above.
- The Company has cumulatively granted 929 patents, including 98 patents in 2022.



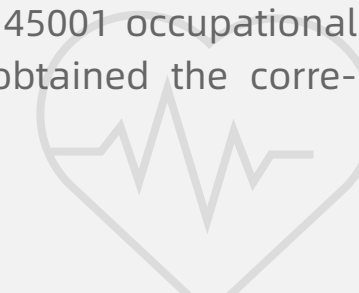
#### Energy Conservation and Environmental protection

- In 2022, the Company realized 100% in both the solid waste disposal control rate and the solid waste centralized recovery rate.
- The corrugated cartons used for the outer package of the Company's products were certified by the Forest Stewardship Council (FSC), which are 100% recyclable.
- The raw materials are 100% in line with the requirements of RoHS<sup>1</sup>, and the products are 100% in conformity with the green and environmental protection standards of REACH<sup>2</sup>.



#### Diversification and Occupational Health & Safety

- The Company promoted diversified employment, and about 38% of its employees were female.
- The Company organized various trainings to all employees, with the training time per employee of 12.55 hours.
- The Company completed the review of the ISO 45001 occupational health and safety management system and obtained the corresponding certificate in January 2023.



#### Partners and Ecosystem

- All core suppliers of the Company obtained ISO 9001 and ISO 14001 certifications.
- The Company promoted the industry ecosystem development, actively attended industry summits, and worked together with industry partners to advance the technological innovation in the semiconductor field.
- In 2022, the Company invested a total of CNY 1,482,912.55 in public welfare programs, with a total of 132 participations accumulating 189.17 hours.



<sup>1</sup> RoHS, short for Restriction of Hazardous Substances, is a mandatory standard formulated by the EU.

<sup>2</sup> REACH, short for Registration, Evaluation, Authorization and Restriction of Chemicals, is a regulation of the EU formulated to conduct preventive management of all chemicals entering its market, which was officially implemented on June 1, 2007.

# CONTINUOUSLY OPTIMIZING MANAGEMENT FOR THE STEADY DEVELOPMENT

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- 2.1 Corporate Governance
- 2.2 Compliance Risk Control
- 2.3 Business Ethics



GigaDevice

The UN SDG  
responded to  
in this chapter



GigaDevice continues to enhance the Company's capabilities of governance and risk-resistance, insists on operating with good faith and compliance management, and ensures integrity in business, so as to effectively protect the interests of investors and promote the Company's value steadily.

# 2.1 Corporate Governance

## Governance Structure

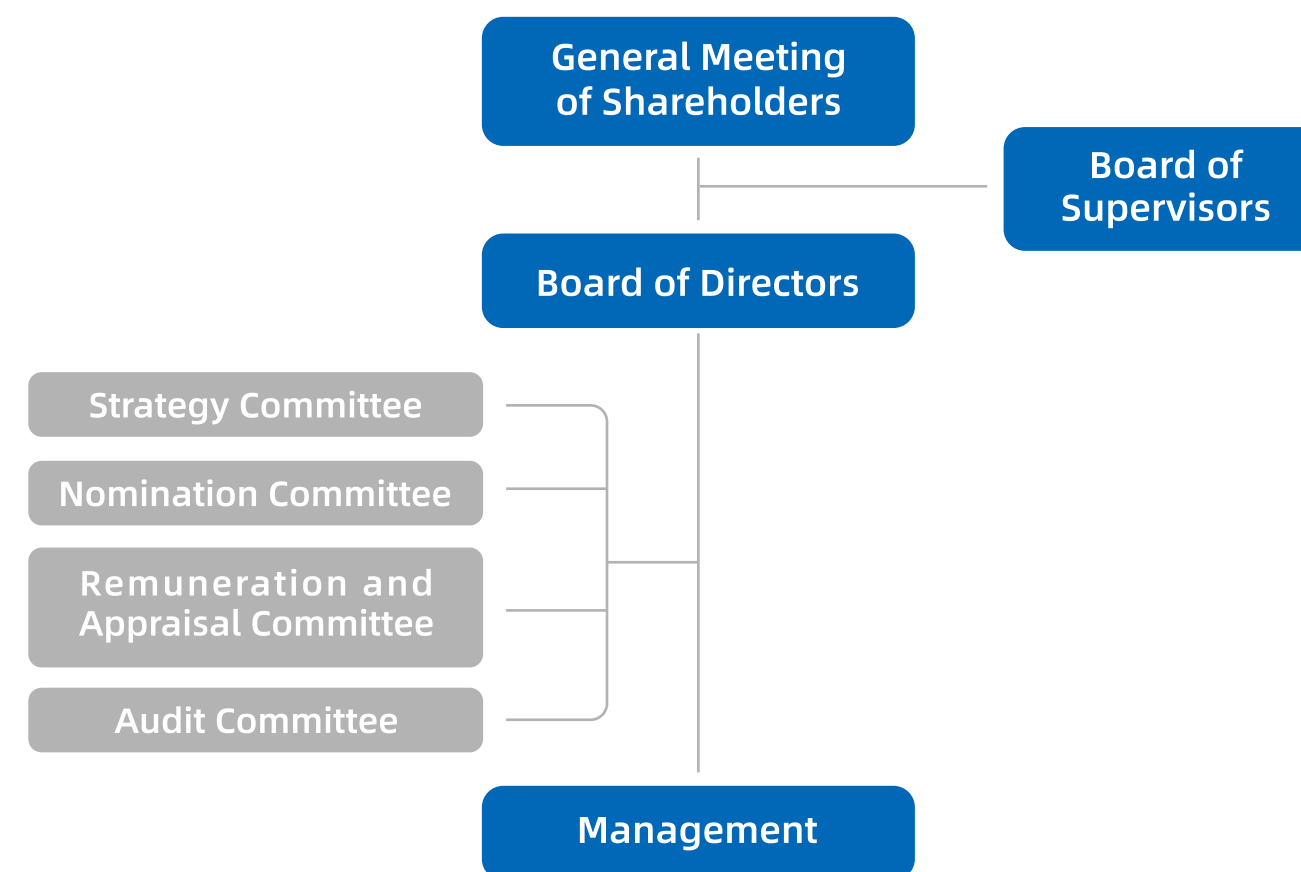
GigaDevice has established a governance system comprised of the General Meeting of Shareholders, the Board of Directors and the company management, with a clear division of rights and responsibilities, coordinated operation, and effective checks and balances, in accordance with the **Company Law of the People’s Republic of China**, the **Securities Law of the People’s Republic of China**, the **Code of Corporate Governance of Listed Companies**, and other applicable laws and regulations. We have formulated **Articles of Association**, **Rules of Procedure for the General Meeting of Shareholders**, **Rules of Procedure for the Board of Directors**, **Rules of Procedure for the Board of Supervisors**, a **Work System for Independent Directors**, and relevant corporate governance policies according to relevant laws and regulations, which clearly define the scope of rights and responsibilities and work procedures of each management level, and regulate the corporate governance model.

The General Meeting of Shareholders, the Board of Directors, the Board of Supervisors, and the management compose our governance structure. The Company’s highest governance body is the General Meeting of Shareholders. The Board of Directors is the Company’s day-to-day decision-making body, with four special committees: the Strategy Committee, the Nomination Committee, the Remuneration and Appraisal Committee, and the Audit Committee. The Board of Directors reports to the General Meeting of Shareholders, considers material matters in the Company’s business activities, and makes decisions or submits to the General Meeting of Shareholders for consideration. The Board of Supervisors is the Company’s supervisory body, conducting prudential inspection and effective supervision over the compliance of the Board of Directors and senior executives in performing their duties and the Company’s finance.

The Company’s Board of Directors comprises 9 directors, including 3 independent directors, and 1 female director. The directors represent many differ-

ent industries. They complement each other with their professional backgrounds, creating a diversified composition that facilitates the Board’s rational and science-based decision-making. The directors and supervisors diligently carried out their duties in 2022 with the best interest of all shareholders in mind. Throughout the year, there were 3 General Meetings of Shareholders, 6 meetings of the Board of Directors, and 5 meetings of the Board of Supervisors, each of which complied with laws, regulations, and the Company’s policies in convening, proposals, holding, voting, resolutions, and meeting minutes.

### GigaDevice’s Governance Structure



## Information Disclosure

We make truthful, accurate, complete, timely, and fair information disclosure and protect investors’ rights to know in strictly accordance with the **Securities Law of the People’s Republic of China**, the **Rules Governing the Listing of Stocks on the Shanghai Stock Exchange**, the **Measures for the Administration of Information Disclosure by Listed Companies**, and other applicable laws and regulations, as well as the Company’s internal **Information Disclosure Management System**, **Internal Reporting System of Material Information**. Investors can access the Company’s announcements in 2022 through **Shanghai Securities News**, **Securities Times**, and the website of the Shanghai Stock Exchange ([www.sse.com.cn](http://www.sse.com.cn)).

## Investor Relations Management

We actively communicate with investors and value their recommendations and opinions. We interact with investors through various channels, including the SSE E-Interactive platform, investor hotline and email, and briefings on performance. At the SSE Roadshow Center in 2022, we held 3 online performance meetings for periodic reports and extensively exchanged with investors on the operation of the Company. In addition, we hosted 3 investor conference calls with an average attendance of about 320 investor institutions.

## 2.2 Compliance Risk Control

GigaDevice strictly complying with the **Company Law of the People's Republic of China, Guidelines for the Compliance Management of Enterprises' Overseas Operation, ISO 19600 Compliance Management Systems - Guidelines, and Compliance Management Systems - Guidelines (GBT35770-2017)**, attaching importance to corporate compliance control and risk governance, perfecting the trade compliance management mechanism actively, and formulating internal compliance institution, such as **Measures for Trade Compliance Management and Compliance Guidelines**, so as to establish a sound contract review and management procedure including review and signature. Furthermore, GigaDevice focuses on developing compliance culture to achieve standardized, sustainable and steady development.

The Company has established the organizational structure for compliance management with well-defined power and responsibility. GigaDevice sets the Compliance Committee under the General Manager's Office to be responsible for the overall organization, coordination and guidance on the Company's trade compliance management, and conducting supervision and inspection on the compliance of each department's operating management and business behavior; the Compliance and Legal Department, as the specific executive department, is responsible for trade compliance management. Each business department is responsible for promoting the compliance work within their respective business fields.

In 2022, the Company organized export control compliance audit at the procurement level, confirmed the procurement item export control information, and the use and management of controlled items, disclosed the audit results, and proposed rectification requirements, which were then followed up and implemented at the business level.

In 2022, the Company carried out export control compliance training for R&D personnel at the technology level, and new US export control rules training for the sales market level, with the content covering basic conditions and knowledge of export control, key emphasis in work of export control compliance at the technology level, and relevant influence of new rules on export control. As a result, the training achieved expected effects.

In 2022, the Company, based on the latest rules on export control, revised the Compliance Guidelines synchronously, updated the version and adjusted the content of the compliance statement, and started signature of the latest compliance statement, explicitly requesting the agents and their customers to convey export control compliance requirements of GigaDevice to downstream partners.



## 2.3 Business Ethics

Strictly complying with laws and regulations such as the **Anti-Monopoly Law of the People's Republic of China** and **Anti-Unfair Competition Law of the People's Republic of China**, GigaDevice upholds the integrity-oriented principle, standardizes the code of business conduct, participates in business activities and market competitions in accordance with laws and regulations, and objects to commercial bribery and unfair competition in any forms. Furthermore, in order to create a faithful and white-handed enterprise environment and strengthen employees' consciousness of integrity and self-discipline, GigaDevice has formulated the **Honest and Integrity Management Institution and Code of Business Ethics**, and requires the management personnel at or above the first-level department and employees in major departments to sign the **Letter of Commitment on Anti-commercial Bribery**, thus maintaining out company's image of integrity and righteousness.

The General Manager's Office is responsible for leading the business ethics and anti-corruption management, investigating the conduct violating the **Code of Business Ethics**, spotting and handling the corruptions and hidden troubles in time, and urging to build a cultural environment of good business ethics and anti-corruption.

The Company encourages employees and various social parties who have direct or indirect business relationships with GigaDevice to report actual or suspected violations of integrity and honesty through various channels, such as informants' hot-line telephone, E-mail, and letters.



**Informants' Hot-line Telephone:**  
**(86)10 82881666-1166**



**E-mail:**  
**woodpecker@gigadevice.com**

The Company strictly keeps the name, site, address and other relevant personal information of the informant confidentially, and promises not to submit the informant letter and other relevant materials involving the informant's personal information to the investigated department or the investigator. Furthermore, all personnel who accept reports, register, examine and approve, as well as those who are responsible for the investigation and handling of cases involving violations of honesty and integrity should be devoted to their duties, keep secrets, and actively withdraw from the case if there is a kinship or interest relationship.

# PROMOTING ESG GOVERNANCE FOR SUSTAINABLE DEVELOPMENT

- 3.1 ESG management structure and working mechanism
- 3.2 Communications with stakeholders
- 3.3 Determination of material issues
- 3.4 Response to UN SDGs

The UN SDG  
responded to  
in this chapter

17 PARTNERSHIPS  
FOR THE GOALS



GigaDevice



# 3.1 ESG Management Structure and Working Mechanism

In order to achieve a scientific, systematic and standardized management for the ESG system, GigaDevice has formulated the **Administrative Measures for Environmental, Social and Governance (ESG)**, and established a three-level ESG management structure, consisting of Strategy Committee, ESG Leading Group and ESG Working Group.

## ESG Management Structure of GigaDevice

On the basis of setting up a complete ESG management structure that is in line with the Company's reality and clears the division of work of each level, GigaDevice aims to make sure that the sustainable development management can be smoothly implemented and phased goals can be achieved.



In addition, the Company has also established a long-term ESG management mechanism and set up an ESG meeting mechanism that is composed of "ESG Leading Group Meeting, ESG Working Group Meeting and Other ESG Temporary Working Meetings", so as to continuously improve the ESG governance. Through periodic review mechanism, the Company can summarize, discuss and decide on key matters in ESG work progress report. In order to further enhance the Company's sustainable development capacity, we have prepared **GigaDevice ESG Improvement Plan (2023-2025)** in combination with the Company's reality as well as the existing ESG foundation, future goals and corresponding optimization measures. The Plan mainly includes ESG governance, ESG management, ESG practice and ESG disclosure, and covers ESG issues regarding climate change tackling, business ethics and anti-corruption, human capital development and supply chain responsibility, so as to effectively boost the Company's ESG performance in an all-round way.

### GigaDevice ESG Improvement Plan (2023-2025)














## 3.2 Communications with Stakeholders

GigaDevice values communications with stakeholders and keeps improving the communication mechanism. We maintain close communications with stakeholders such as governments, shareholders, customers, suppliers and business partners, identify feedback and expectations of stakeholders on the Company, and respond to stakeholders in a targeted manner, so as to enhance the Company's performance in material issues.

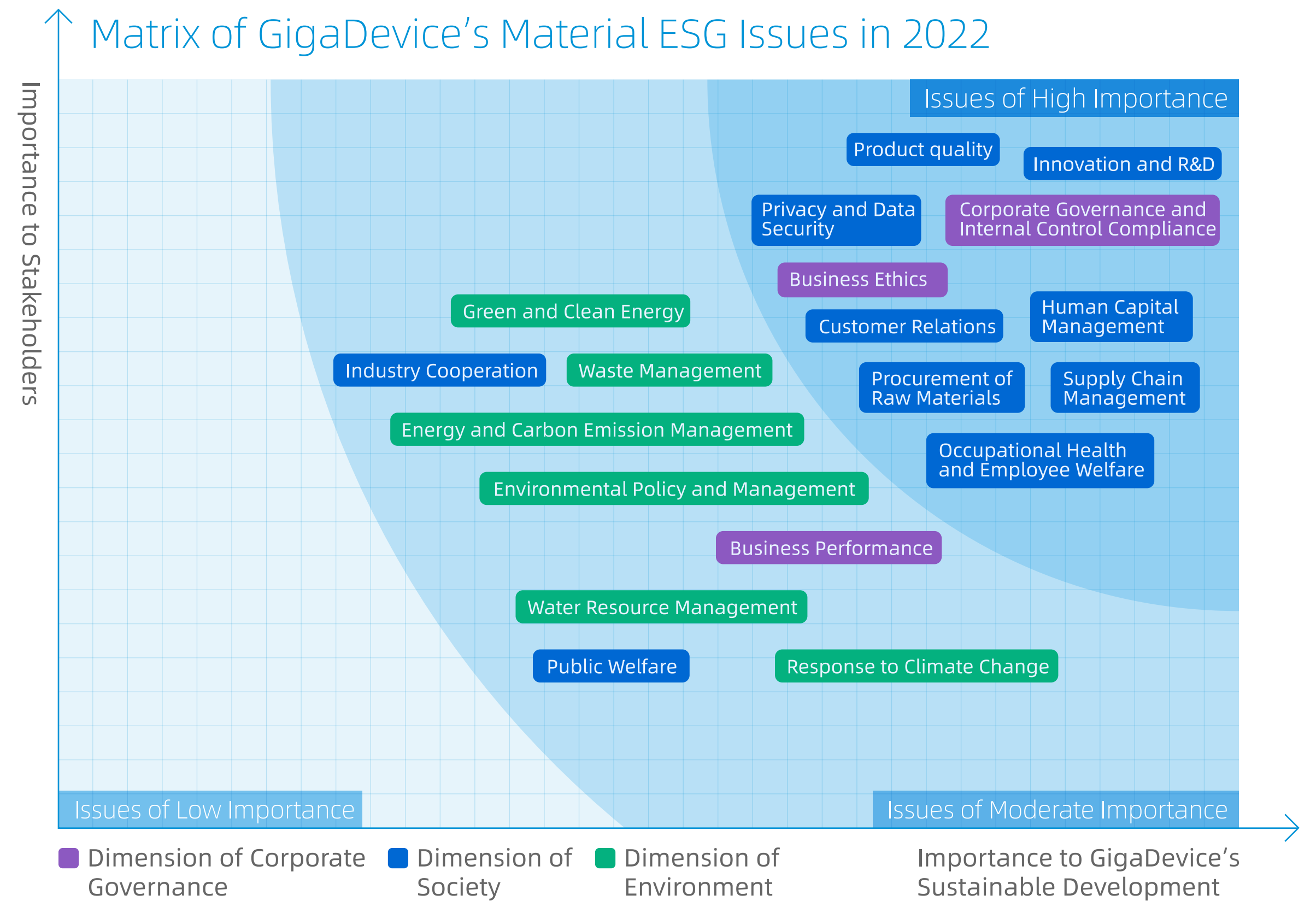
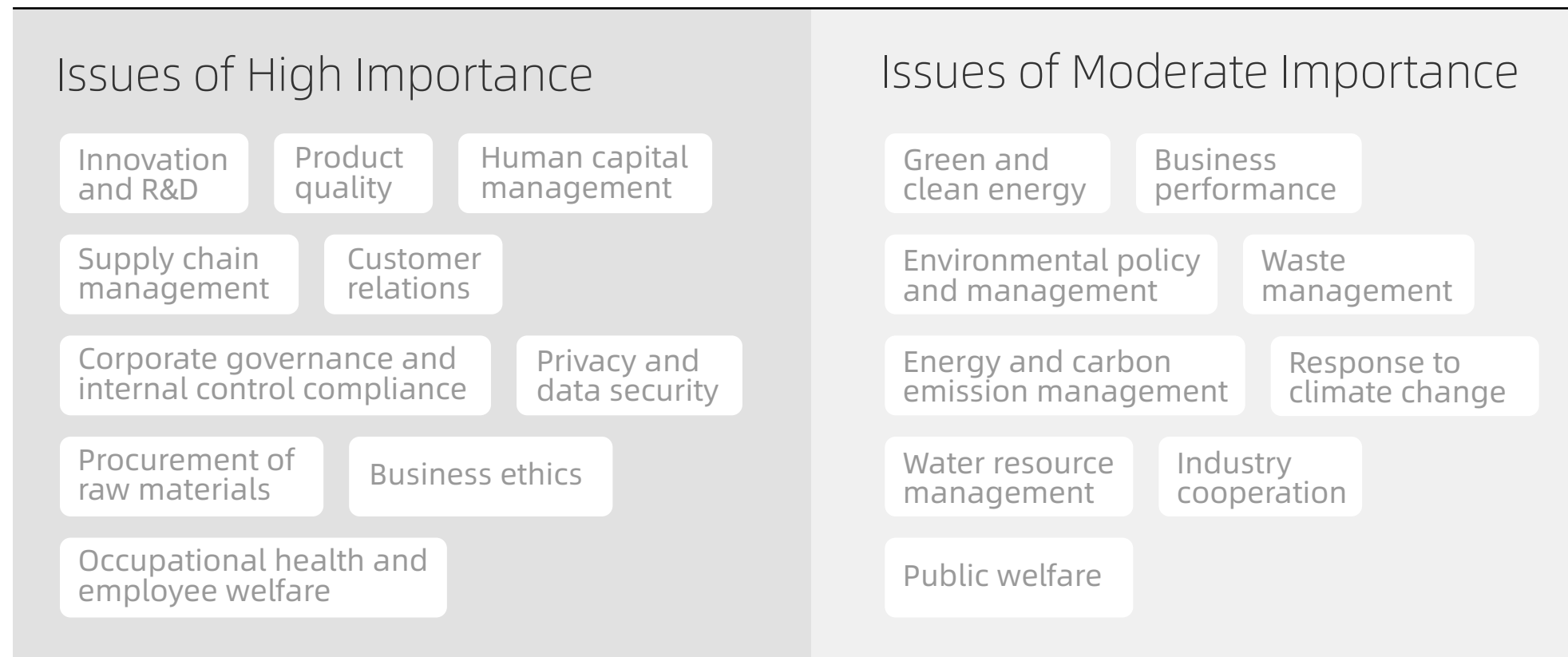
Stakeholders	 Governments and Regulators	 Communities and Non-Governmental Organizations	 Shareholders and Investors	 Customers	 Business Partners	 Suppliers	 Employees
Issues of Concern	Corporate governance and internal control compliance Product quality Innovation and R&D	Public welfare Industry cooperation Business ethics	Business ethics Business performance Product quality	Product quality Customer service Business performance	Product quality Privacy and data security Business ethics	Supply chain management Privacy and data security Business ethics	Occupational health and employee welfare Human capital management Business performance
Response Channels	Daily reporting and communications Special researches and on-site meetings Forums and exchange programs	Activities for science popularization Community publicity Education support	Information disclosure announcements Roadshows and investors' meetings Shareholders' meetings Company websites	Service hotline Customer satisfaction investigation	Strategic cooperation	Supplier meetings Strategic cooperation Daily communications	Employee exchange meetings Complaint box

In order to maintain harmonious relationships between the Company and its stakeholders and effectively satisfy the requirements of operation compliance, the Company, in 2022, established a complete mechanism for communications with stakeholders, continued to optimize the ESG response processes for customers, investors, regulators and local governments, and safeguarded timely and efficient communications and feedback between the Company and stakeholders.

# 3.3 Determination of Material Issues





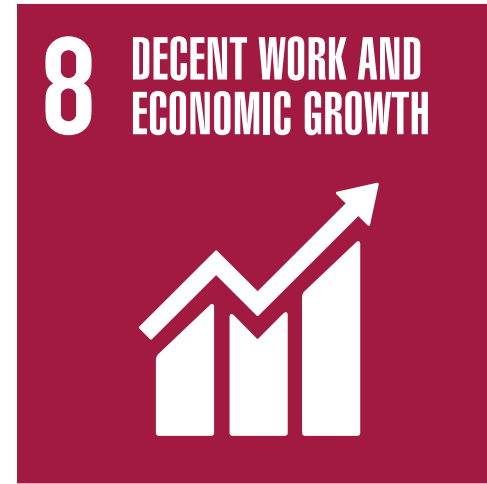

In order to ensure accurate and complete information disclosure, the Company maintains interactions and communications with various stakeholders through daily production and operation, collects opinions and suggestions of various stakeholders on the sustainable development management of GigaDevice, and makes a comprehensive evaluation in accordance with issues of the same industry and changes in ESG development trends, so as to determine sustainable development issues of this year.

In order to get to know the concern extent, expectations and demands of stakeholders for the Company's sustainable development, as well as internal results related to self-review, we identify key ESG issues by analyzing material issues. Through the analysis process on material issues, we identify and select ESG issues that are related to GigaDevice, and get to know the concern extent of stakeholders on the issues and the impact of the issues on the sustainable operation of GigaDevice, so as to finally determine material issues as goals and basis for our sustainable management.



## 3.4 Response to UN SDGs

We actively respond to UN SDGs, select goals related to our vital interests in combination with our specialized advantages and resources, and undertake to take actions against a series of social and environmental issues.

UN SDGs						
<b>Corresponding Chapters in the Report</b>	Upholding People-oriented Principle for Joint Development	Upholding Openness and Inclusiveness for Cooperation and Win-win Results	Upholding People-oriented Principle for Joint Development	Promoting Green Development and Low-carbon Operation	Upholding People-oriented Principle for Joint Development	Pursuing Excellence with Innovative Products and Services
<b>GigaDevice's Response</b>	Ensuring the health of employees and eliminating occupational hazards	Promoting industry cooperation and collaborative innovation	Eliminating sexual discrimination and promoting fair and equal recruitment	Actively seeking the feasibility of rooftop photovoltaic power generation	Establishing and improving vocational training system and salary incentive mechanism	Continuously strengthening the capabilities of independent R&D and achievement transformation

## 3.4 Response to UN SDGs

UN SDGs						
<b>Corresponding Chapters in the Report</b>	Upholding People-oriented Principle for Joint Development	Upholding Openness and Inclusiveness for Cooperation and Win-win Results	Promoting Green Development and Low-carbon Operation	Promoting Green Development and Low-carbon Operation	Continuously Optimizing Management for the Steady Development	Promoting ESG Governance for Sustainable Development Upholding Openness and Inclusiveness for Cooperation and Win-win Results
<b>GigaDevice's Response</b>	Eliminating all forms of discrimination based on gender, race, social class, religious belief, nationality and disability.	Focusing on and supporting public welfare undertakings	Achieving sustainable management and efficient utilization of natural resources	Strengthening the capabilities to resist and adapt to climate-related disasters and natural disasters	Prohibiting any form of corruption and bribery	Maintaining close communications with key stakeholders, and continuing to enhance the company's performance in material issues;  Joining hands with supply chain partners to create a green and responsible supply chain

# PURSUIING EXCELLENCE WITH INNOVATIVE PRODUCTS AND SERVICES

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- 4.1 Product Innovation
- 4.2 Quality Control
- 4.3 Customer Service
- 4.4 Information Security
- 4.5 Intellectual Property



The UN SDG responded to in this chapter



GigaDevice prioritizes research and development as well as innovation, and focuses on improving core competitiveness, strengthening the ecosystem with memories, microcontrollers (MCUs) and sensors as the core driving force, so as to provide a broad range of solutions for fields such as industry, automobile, communication, Internet of Things (IoT), mobile device, consumer electronics, PC and its peripherals.



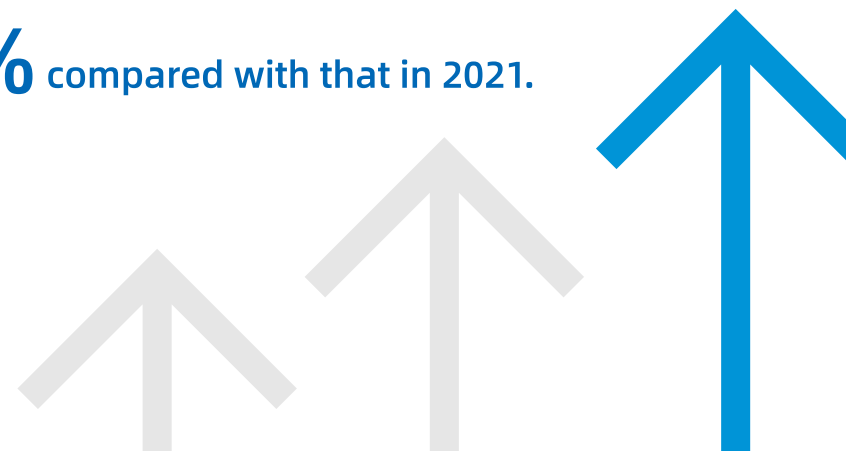
# 4.1 Product Innovation

GigaDevice emphasizes innovation as the core competitiveness, to which end, we constantly strengthen the capabilities of independent R&D and achievement transformation in order to provide product solutions meeting the market demands, and all-round services for customers.

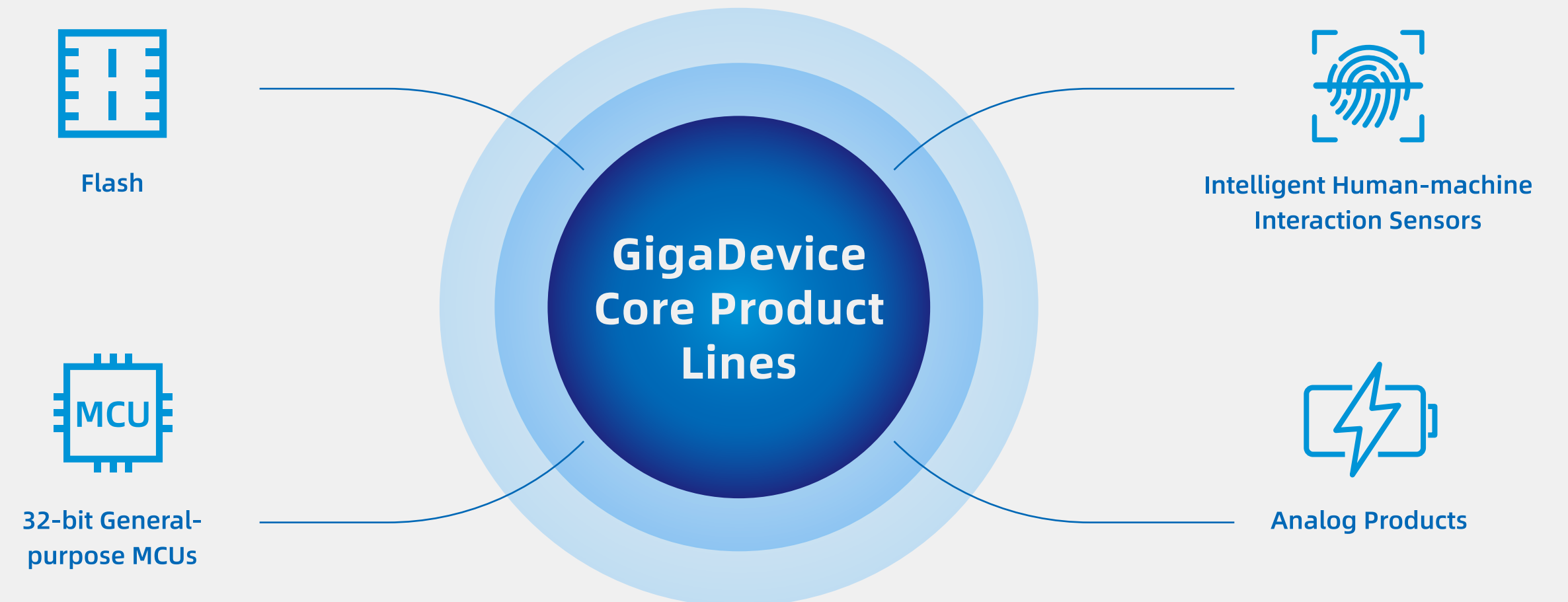
During this reporting period, GigaDevice invested

CNY **1.029** billion in R&D

increasing by **9.49%** compared with that in 2021.



Our products are renowned for their high performance and low power, with the core product lines including flash, 32-bit general-purpose MCUs, intelligent human-machine interaction sensors, analog products and its, integrated solutions.



## 4.1 Product Innovation



### Memory

GigaDevice offers a whole series of SPI NOR Flash® products covering a density range from 512Kb to 2Gb and supporting 1.2V, 1.8V, 3V, and 1.65~3.6V wide-voltage power supply, and also provides the market with a diverse product portfolios featuring high performance, low power, high reliability and small package. For instance, our ultra-low-power GD25UF series products operate with a supply voltage of 1.14V to 1.26V and two modes: normal mode and low power mode. Compared with other products requiring a supply voltage of 1.8V, GD25UF decreased 33% and 70% power in normal and low power modes, respectively, which significantly extends the battery life. GigaDevice also adopts wafer-level chip scale packaging (WLCSP) and provides a package size with a length and width of less than 1mm, as thin as 0.25mm in thickness, making it possible to overcome the challenge in smallest package size. Our high-speed Quad NOR Flash GD25LT/GD55LT and xSPI-compliant Octal SPI NOR Flash GD25LX/GD55LX, with a data throughput rate

of up to 400MB/s, are considered to be good choices for automotive, AI and IoT applications which require fast reading and instant-on. The GD25/GD55 series products have passed the AEC-Q100 automotive-grade certification.

GigaDevice's NAND Flash products are available in the proven 38nm and the newly released 24nm process nodes, covering a density range from 1Gb to 8Gb and supporting 1.8V and 3V power supply. In addition to the traditional parallel interface, our NAND Flash products offer a new SPI interface, providing complete product solutions for large density and high-reliability embedded applications. GigaDevice's GD5F SPI NAND Flash series products have passed the AEC-Q100 automotive-grade certification.



### MCU

GD32 MCU, as one of the core product lines of GigaDevice, is a leader in high-performance 32-bit general-purpose microcontroller market, being the first Chinese-local MCU company to release Arm® Cortex®-M3, Cortex®-M4, Cortex®-M23, and Cortex®-M33 core MCU product series. GigaDevice is the first company to launch the RISC-V core general-purpose 32-bit MCU product series worldwide GD32 MCU have become the mainstream choice for 32-bit general-purpose MCU market. GD32 MCU products are compatible with each other in software and hardware pin packaging, making them fully applicable to various high-end, middle-end and low-end embedded control requirements and upgrading.

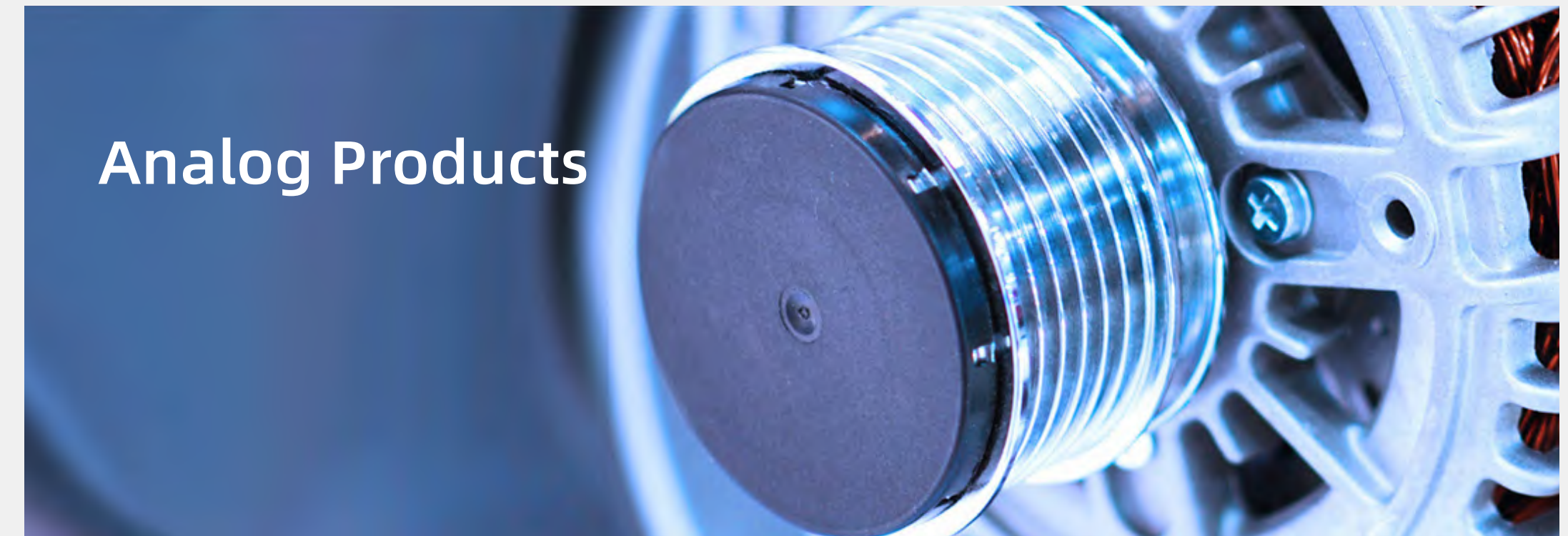
## 4.1 Product Innovation



### Sensor

In terms of sensor products, GigaDevice is committed to independently developing and innovating new-generation intelligent terminal biosensors and to developing chips and solutions for human-machine interaction sensors.

We provide a range of sensor products, including embedded sensors and capacitors, optical fingerprint sensors, and self-capacitive and mutual-capacitive touch control chips. The GSL7002 optical fingerprint sensors, based on an advanced single-chip architecture, adopt a customized lens and pixel design for low-light under OLED fingerprint applications, supporting small-size modules and screens with low light transmittance. The GSL6191 fingerprint sensors, featuring 2.1mm on the side, high sensibility and high signal-to-noise ratio, are widely applied in thin smart phones. The GSL3780 capacitive touch control chips show high resistance to RF, display and power interference, and supports automatic screen adjustment and calibration, making it a first choice for OLED touch screen.



### Analog Products

GigaDevice has launched new battery management products which widely applicable to TWS earphone charging cases, motor drivers, the battery charge-discharge cycle of new energy batteries, and wireless communication facilities and devices. Besides, we have been developing battery management solutions with GD32 MCU and exploring new opportunities in key vertical markets based on collaborative product development. We expect that the GD30PMU product will help to expand our market segments and provide effective turnkey solutions for customers to achieve quick implementation and time to markets.



## 4.2 Quality Control

GigaDevice attaches great importance to quality control and is dedicated to providing customers with high-quality products and services. As a holder of the ISO 9001 quality management system certification, we continuously improve our quality according to the specific conditions of product lines. GigaDevice implements reliability management across the R&D and production processes. To this end, we have established a series of procedural standards, such as the **Regular Reliability Monitoring Procedures, Packaging Reliability Qualification Procedures and Product Reliability Qualification Procedures**, so as to comprehensively manage all projects involving quality and reliability and continuously opti-

mize the procedures in management processes. Specifically, we perform evaluations and verification on procedure reliability and product reliability during the qualification certification period, and monitor the reliability of wafers, products and packaging during the production period. We subject our products to rigorous full-functional tests before leaving the factory; while in case of customer complaints, we take them seriously and follow our established complaint handling procedures which involve investigating the cause of the complaint, putting forward countermeasures and responding to the customer promptly in order to fulfill our quality commitments and effectively serve our global customers.



ISO 9001 Certificate

We implement a Zero Quality Defects Program across all of our product lines. Our efforts include identifying and eliminating defects in terms of product design, manufacturing and testing processes, reliability tests, continuous improvement, and the review of returned materials to achieve our goal of zero anomalies during the manufacturing process and zero defects in our products. In 2022, multiple departments participated in the Zero Quality Defects Program with high degree of emphasis.

**We set up several product quality assurance (PQA) positions for R&D projects and formulated a quality assurance check list covering all project nodes, achieving a success in preventing quality anomalies. At the same time, we developed more methods to test the data screening function of automotive products based on our big data analysis, monitoring and pre-warning platform, and made further progress towards zero-defect products.**

### Quality Control Measures of GigaDevice in 2022

1

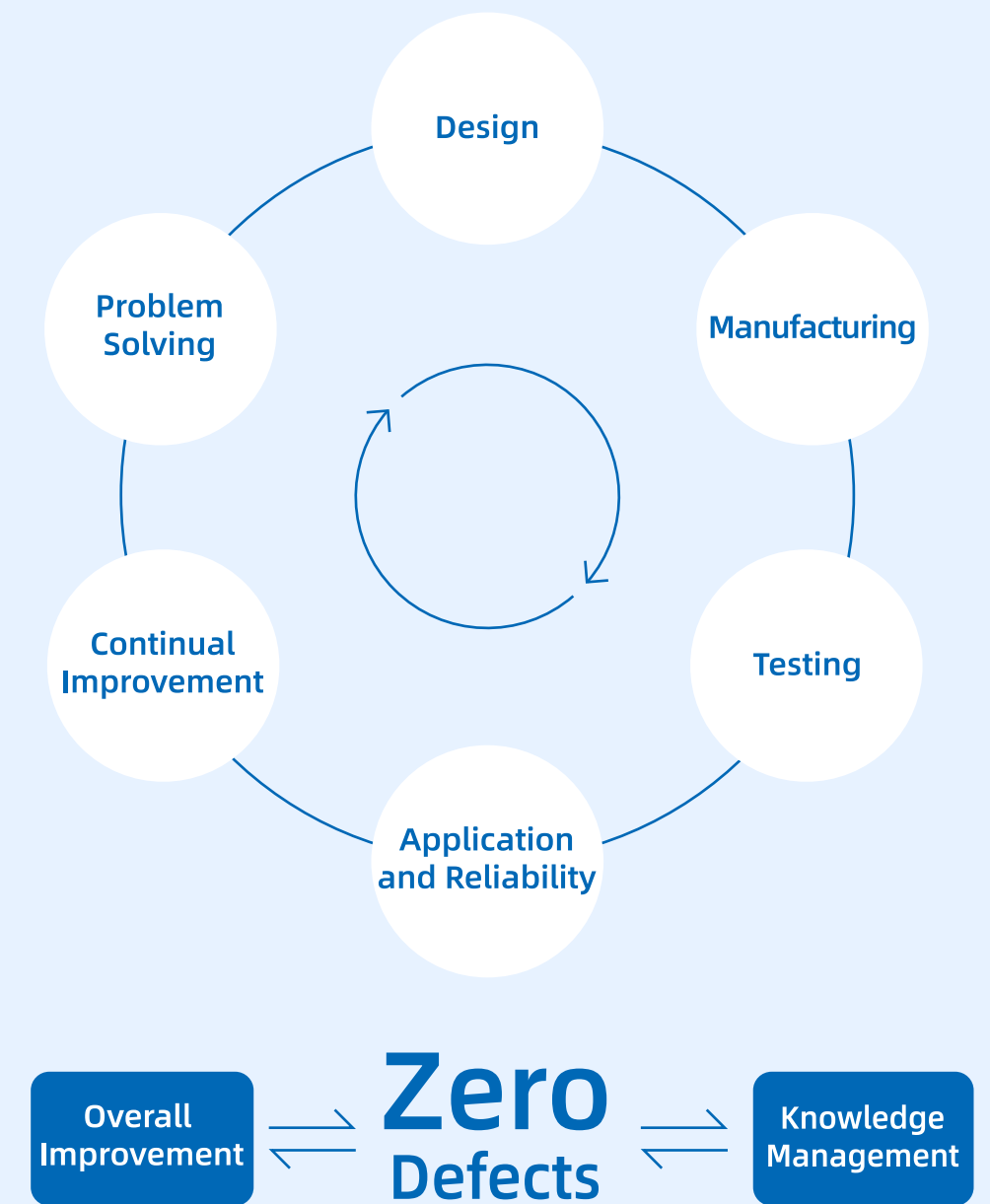
Improving the procedures of engineering change management.

2

Optimizing the laboratory management standards: management standards for laboratories in many places are optimized with unified management requirements in terms of people, equipment, materials, methods and environment.

3

Strengthening quality control over automotive product suppliers: activities for improving and evaluating quality performance are carried out within the Company and among suppliers to foster both internal and external efforts for quality enhancement.



# 4.2 Quality Control

## Case: Zero Defects Program

In 2022, the Company conducted more than 10 projects under the Zero Defects Program, with major project being the establishment of Integrated Product Development (IPD) process. We have implemented a unified and standardized research and development process for GigaDevice's existing product business lines based on the existing IPD system framework and the APQP development process for automotive products. We also incorporated inspection standards for product and process quality control to ensure quality improvement in all aspects.



Over 10 Projects during this Reporting Period

√ Systemic Improvements	√ CEO&COO Authorization	√ Quality VP Leading the Program	√ All Departments Engaged	√ 100% Kicked Off
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## 4.2 Quality Control

GigaDevice develops a comprehensive product recall management process that covers problem identification, risk assessment, impact evaluation, graded recall procedures, root cause analysis and improvement. If a product recall is necessary, the Company will promptly evaluate the product risks and develop effective containment measures to prevent the situation from escalating. If a batch is identified as having potential risks, the Company will take immediate action to isolate the entire batch and establish a control checkpoint in the system. Any products that have already been shipped will be promptly recalled and stored in the defective product warehouse. If an anomaly is caused by the production line, the Company will promptly halt the production and isolate the affected batch to prevent any further spread of the anomaly. As for events involving recalls, the Company will thoroughly investigate the causes and develop corrective and preventive measures to ensure that such events will not occur in the future.

In 2022, GigaDevice updated the quality vision, mission and policies, and developed new training courses on five major automotive tools and quality awareness.

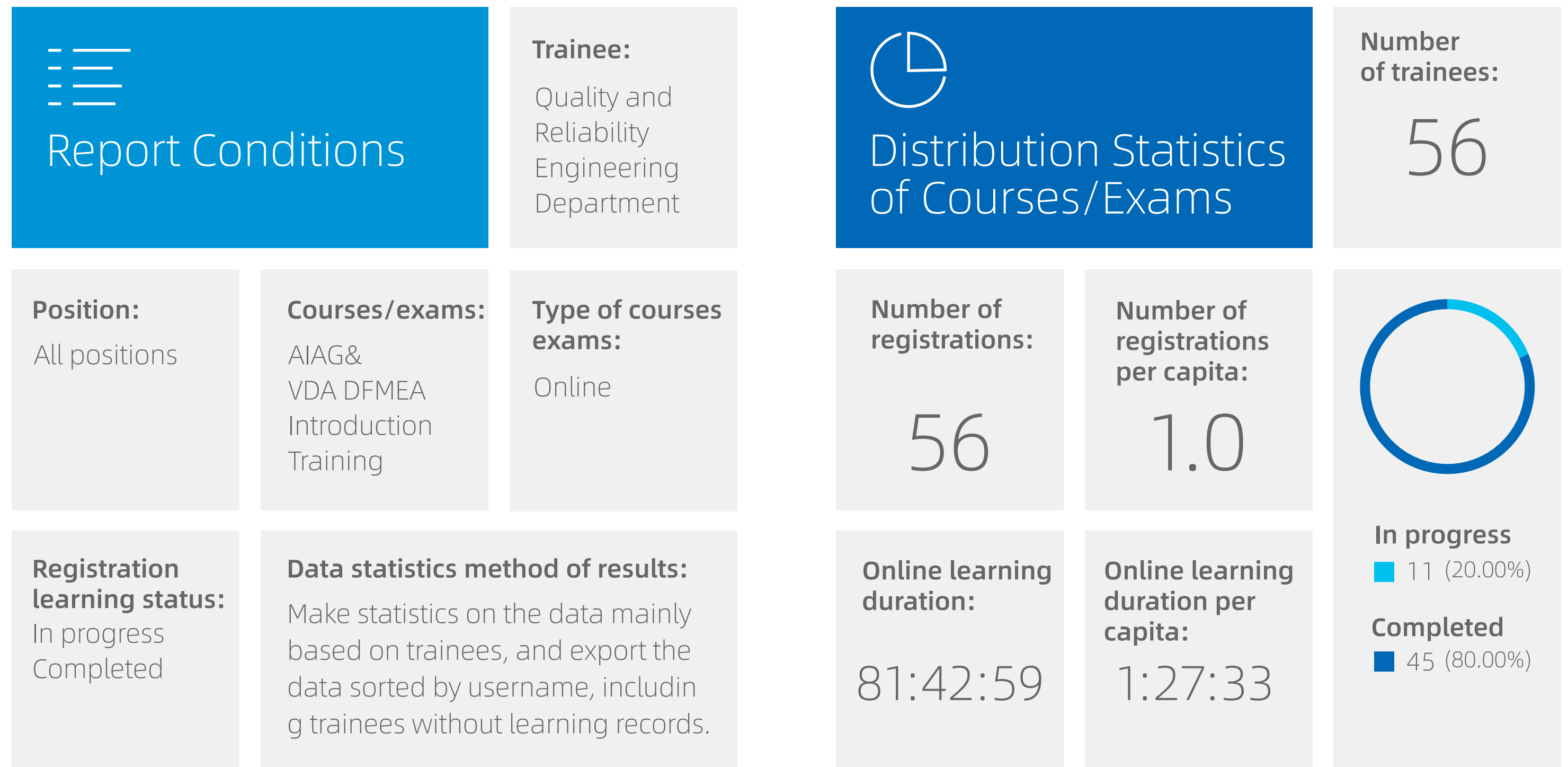


## 4.2 Quality Control

### Case: Quality Culture Construction among All Employees in GigaDevice

The quality training courses are vital for cultivating a strong quality culture in GigaDevice. The Company is committed to fostering a company-wide quality culture by promoting a quality-focused mindset, enhancing employees' understanding on quality, and providing training on quality management skills. We provide all technical courses on quality management to all employees via our internal on-line E-learning platform. In 2022, we conducted a series of internal quality training for SQE, CQE and other quality-related departments, covering the use of quality tools, product features, technology introduction and failure analysis, which improved the quality management capabilities of employees.

→ Quality Training Course on the E-learning Platform in 2022



## 4.3 Customer Service

We maintain a customer-centric approach, consistently enhancing our services, and remaining steadfast in our commitment to delivering products and services of exceptional quality to our customers.

GigaDevice manages its customer service in a systematic and standardized manner, following a series of internal procedures including the **Customer Satisfaction Survey Procedure, Customer Service Procedure, and Sales Order Management Procedure**. By establishing a customer service system that involves multiple functional departments such as the Global Customer Service Department and R&D department, we are able to define the functions of each department, as well as the service types, methods and standards before and after the sales of our products, thus ensuring optimum service quality and customer satisfaction. We have established dedicated delivery teams for various types of customer and conducted regular performance review to assess their responsiveness and service quality.

GigaDevice has a complete customer communication

mechanism. We ensure timely and effective communication with our customers, as well as prompt resolution of any problems they may encounter through various communication channels such as on-site visits, follow-up phone calls and emails. By doing so, we aim to meet our customers' needs. In the event of major risks caused by natural disasters, market fluctuations, changes in logistics and any other reasons, we will provide risk reminders and early warnings for our customers through phone calls and emails, so as to help them identify and mitigate any potential impact of the risks. We have implemented a comprehensive customer complaint management process, and formulated internal rules and regulations such as the **Customer Complaint Handling Procedure and Failure Analysis Procedure**. By following this process and providing timely feedback, we can ensure that our products and services are of the highest quality, resulting in positive customer experience and satisfaction. By the end of this reporting period, we successfully addressed and responded to all product quality complaints within the stated time frame, while also supervising responsible departments to make improvements.

All analysis reports that we offer to our customers during this reporting period follow the 8D<sup>3</sup> process requirements and contain possible EIPD<sup>4</sup> reasons organized according to JEDEC<sup>5</sup> templates. Additionally, we add experience summary and sharing procedures to ensure an effective communication channel being constructed among customers and suppliers, and within our organization.

### Customer Complaint Handling Process

#### Complaint Response

GigaDevice classifies customer complaints for RMA<sup>6</sup> into two levels: serious and general. Complaints that involve damages to the customer's reputation, resulting in claims, or product scrapping are considered as serious customer complaints, with all other types of complaints being general ones. We have implemented a graded response mechanism for customer complaints, aiming at addressing customer demands efficiently.

#### Investigation on Failure Causes

Complaints requiring product failure analysis will be transferred to relevant departments for processing which will then develop appropriate solutions and provide timely responses to customers.

#### Rectification and Prevention

GigaDevice will oversee relevant responsible departments in implementing corrective and preventive measures, as well as gather customer feedback through satisfaction questionnaires.

In 2022, we offered multiple on-line training courses to our customer service staff across the company who spent an average of 12.9 hours in training.

<sup>3</sup>8D, short for Eight Disciplines Problem Solving, is typically employed by quality engineers or other professionals. As a standard practice in automotive, assembly and other industries, 8D establishes a permanent corrective action based on teamwork.

<sup>4</sup>EIPD is short for Electrically Induced Physical Damage.

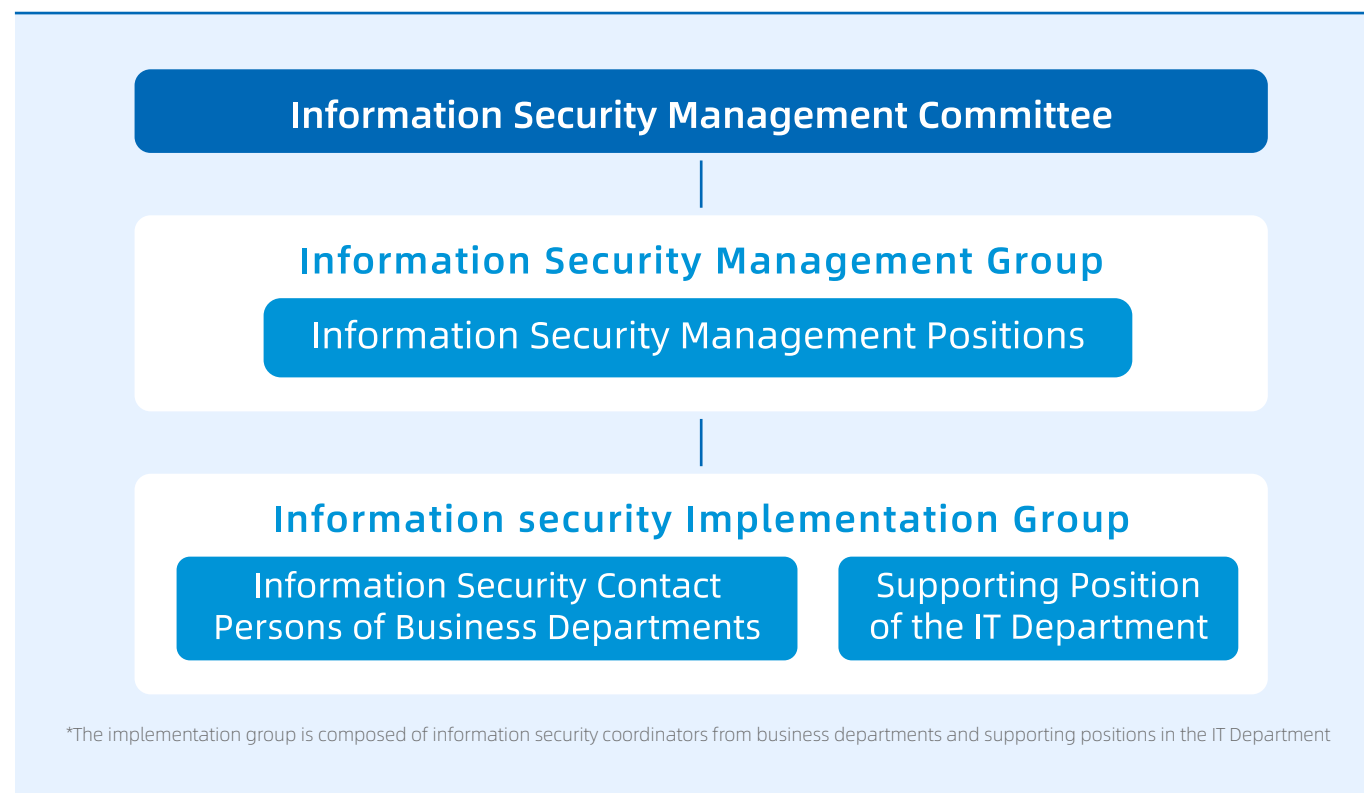
<sup>5</sup>JEDEC, short for Joint Electron Device Engineering Council, is a leading standards setter for the microelectronics industry. Over the past 50 years, JEDEC's standards have been accepted and adopted by all industry players. As a global organization, JEDEC's members come from different countries. JEDEC is not affiliated with any country or government entity.

<sup>6</sup>RMA, short for Return Material Authorization, refers to the main process for handling defective products returned by customers and sending replacement.

# 4.4 Information Security

GigaDevice attaches high importance to information security and privacy protection, to which it establishes an information security organizational structure composed of the Information Security Management Committee, Information Security Management Group and Information Security Implementation Group. The Information Security Management Committee is the highest information security decision-making body, with the responsibilities including developing an overall plan for the management of information security, determining a general approach of decision making, approving the overall strategies and plans, examining and approving major information security issues and control measures, evaluating the information security management system, and ensuring standard and unified information security management.

## Information Security Organizational Structure of GigaDevice



In terms of information security management, we have developed and implemented an information security management system in accordance with the Company’s current situations, as well as ISO 27001 standards, **Cybersecurity Classified Protection System 2.0** requirements, and relevant laws and regulations. In terms of information security technology, we follow the principle of “combining prevention and control while putting prevention first” . We have established a comprehensive defense system that covers the entire network from the network boundary to the terminal computers, so as to proactively prevent network security events, provide timely warnings during events and ensure auditability after events. We have engaged third-party security service organizations for information security risk assessments and audits. In 2022, our security audit focused on tracking the rectification of identified issues and compliance management for personal information, with corresponding problems identified and corrected.

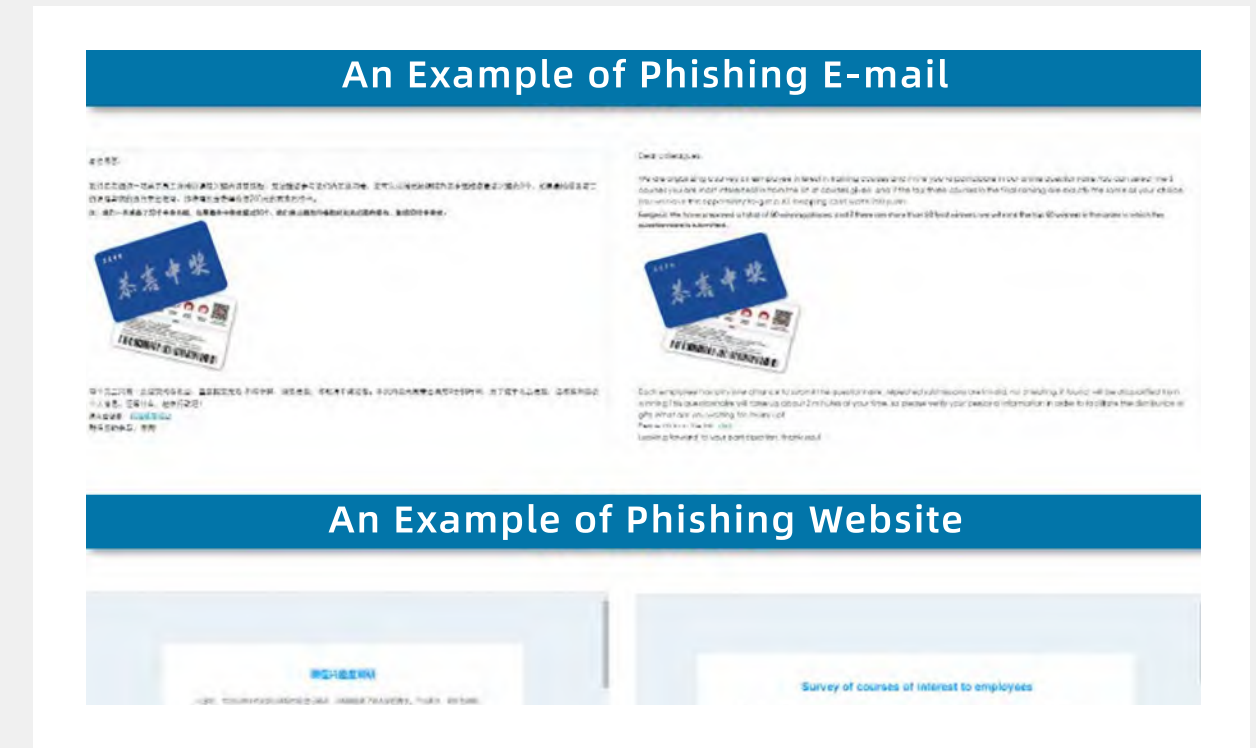
In terms of customer privacy protection, we have formulated and implemented the **Graded and Classified Data Management System and Management Measures for System Account Authority and Passwords** to ensure that information and data of employees and customers are utilized and preserved in accordance with relevant regulations. Additionally, upon joining the company, all employees are required to sign non-disclosure agreements to establish a long-term mechanism for information protection in GigaDevice. To ensure the effective protection of user privacy and information security for systems containing private information, we have set user permission in strict accordance with positions and standardized the application and approval processes for access to relevant information.

**In 2022, we carried out several employee training on information security and confidentiality awareness through lectures, phishing email tests and security knowledge competitions, to enhance employees’ awareness of customer privacy protection.**

## Case: Phishing E-mail Tests to Enhance Employees’ Awareness of Information Security

Phishing email is a common cybersecurity threat that brings in a huge information security risk to the information security of enterprises. This is why GigaDevice carries out regular phishing email tests to enhance employees’ capability against this threat and verify the effectiveness of security awareness training. In 2022, we successfully reduced the click rate of phishing e-mails by 6% compared with that in the previous year.

### Examples of Phishing E-mail Tests



## 4.5 Intellectual Property



GigaDevice strictly adheres to relevant intellectual property laws and regulations such as **Patent Law of the People's Republic of China, Trademark Law of the People's Republic of China, Copyright Law of the People's Republic of China, and Regulations on Protection of Integrated Circuit Layout Design**. We are continuously optimizing our innovation management system, enhancing intellectual property management, and establishing an internal patent system. As we protect our intellectual property rights, we fully respect the intellectual property rights of others. In addition, we have implemented an incentive system that actively encourages our employees to apply for or register intellectual property rights such as patents and copyrights. By doing so, we aim to fully inspire our employees' enthusiasm for innovation and cultivate an environment that appreciates the values of innovation.

In 2022, we took a series of actions to intensify protection of our intellectual property rights, such as identifying inventive technologies of each research project, improving patent quality, protecting key technologies, and conducting training on patents and trademarks respectively to R&D and marketing staff.

By leveraging the synergies across our product lines, we provide a comprehensive range of systems and solutions, which include storage, control, sensing, edge computing, connectivity, and other chips, as well as relevant algorithms and software. This approach enables us to deliver robust technical protections and reinforce the Company's leadership in advanced technologies. In 2022, the Company was granted 98 new patents, for a total of:



Granted  
Patents

929



Trademarks

107



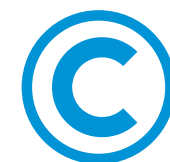
Layout-designs of  
Integrated Circuits

20



Software  
Copyrights

44



Non-software  
Copyright Registrations

11

# UPHOLDING PEOPLE-ORIENTED PRINCIPLE FOR JOINT DEVELOPMENT

- 5.1 Rights and Interests of Employees
- 5.2 Employee Development
- 5.3 Employee Care
- 5.4 occupational Health and Safety



The UN SDG responded to in this chapter





## 5.1 Rights and Interests of Employees

GigaDevice strictly acts up to the **Labor Law of the People's Republic of China, Labor Contract Law of the People's Republic of China**, and all other laws and regulations, and has revised a series of internal rules and regulations such as **Employee Handbook, Recruitment Management, Employment Management Regulations, Performance Management, Post Ranking System Management, and Salary and Benefits Management**. The Company abides by all legal requirements and standards on labor and employment of the jurisdiction where it operates, and effectively safeguards employees' legal rights and interests by signing labor contracts with employees in accordance with laws, and strictly prohibiting child labor and forced labor. At the same time, GigaDevice, out of respect for employees' legal rights and obligations, has established diverse communication channels within the Company to safeguard employees' rights and interests and unleash their career potential.

### ■ As of December 31, 2021, in GigaDevice:

Regular employees  
had signed labor  
contracts with the Company

100%

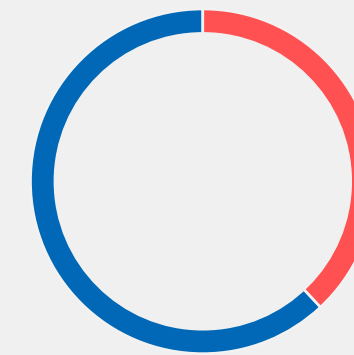
Regular employees  
had been covered  
by social insurance

100%

The Company practices equal and diverse employment and offers fair and reasonable opportunities to job seekers. Specifically, we eliminate all forms of discrimination in terms of recruitment, training, remuneration, benefits and career development based on gender, race, social class, religious belief, nationality and disability. The Company actively practices gender equality in workplace, complies with the **Law on the Protection of Women's Rights and Interests and Special Provisions for the Work Protection of Female Employees**, implements equal pay for equal work irrespective of gender, and provides women with fair and equal employment opportunities and promotion channels. In GigaDevice, female employees taking key positions can be found at all levels, who account for 38% of the total workforce. We respect cultural differences and are adamantly opposed to workplace bullying and harassment, with a view to creating a diverse, equal and clean workplace for all employees.

The Company sets goals to develop diversified talents and thoroughly implements the concept of diversity in talent development, to which end the Company establishes a diversity index system to evaluate its diversity performance management under the supervision of senior management level.

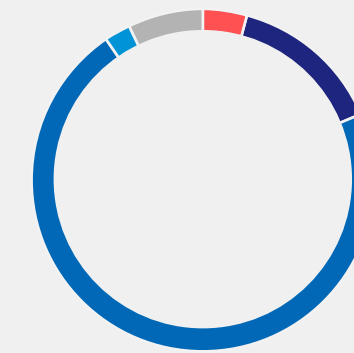
Number of employees  
by gender



● Female 595

● Male 969

Number of employees  
by specialty



● Operational staff 67

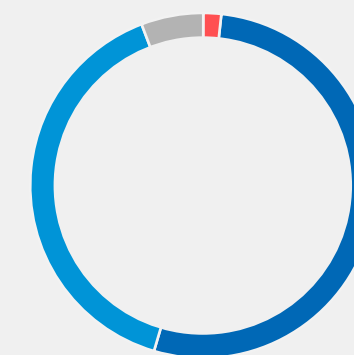
● Sales personnel 226

● Technician 1125

● Financial staff 36

● Other functional personnel 110

Number of employees  
by educational  
background



● Doctor's degree 26

● Master's degree 826

● Bachelor's degree 621

● Junior college  
and below 91



## 5.2 Employee Development

A company’s sustainable development is accompanied with the growth of employees. GigaDevice attaches importance to retaining and attracting talents, continuously optimizes its outlook on talents and development strategies, and is always promoting the workforce improvement. In 2022, the Company continuously improved its human resource management system, processes and solutions, as well as planned its medium- and long-term development paths of human resources according to its strategic business goals. By analyzing the current situation of the human resource management system and business processes, the Company has established the strategic talent development goal of “enhancing internal strengths, nurturing talents, improving efficiency and stabilizing development” .

### Talent retention and attraction

GigaDevice highly values reserving outstanding talent teams and continuously expanding talent recommendation channels, and also strengthens collaboration with colleges and universities, so as to constantly and stably supply high-quality talents to the Company. In 2022, the Company successfully launched its human resources digitalization management, which, relying on digital and information technologies, contributed to the all-round digitalized management of human resources, helping the Company update its manage-

ment, optimize organizational structure, improve talent management efficiency and enhance employee experience. In the meantime, the Company assisted the all-round development of talents through the updated corporate culture, which released the Corporate Culture 2.0, specified the establishment and optimization of post ranking management system, two-channel talent career development system, salary incentive system, and learning and development training system.

GigaDevice values talent attraction. Through a scientific and reasonable performance management, the Company systematically manages organizational and personal performance and fully helps employees realize and contribute their strengths, potentials and values. In 2022, the Company continuously promotes and improves employee remuneration security to ensure that employee remuneration is fair within the Company and competitive in the industry, so as to manage performance and incentives for employee scientifically. The Company stimulates the vitality of employees through salary adjustments, bonuses, and equity incentives, in order to continuously enhance the Company’s talent competitiveness. In addition, GigaDevice also conducts regular key position identification and talent inventory to improve the organizational efficiency, focusing on evaluating the talent resource allocation of core and new positions, and gradually improving post qualification and competency management.

<b>Campus Recruitment</b>	GigaDevice recruits talents in diverse ways. The Company releases job information on recruitment platforms and channels, and encourages internal referral to vigorously obtain talents with great potential. In addition, GigaDevice supports young students in employment. In order to attract high-quality talents and undertake social responsibility, the Company carries out campus recruitment in various forms, such as on-line and off-line preaching, open day events and school-enterprise cooperation. These practices enable the Company to pool emerging forces and continuously create a brand reputation of excellent employer.
<b>Internal Referral</b>	GigaDevice always updates its internal referral policy and encourages internal employees to recommend talents, so as to broaden the Company’s talent pool.

## 5.2 Employee Development

GigaDevice pays attention to talent team development and provides diversified promotion channels for employees. Adhering to the principle of fairness and transparency, the Company provides employees with broad personal growth space to give full play to their strengths and potential. It has formulated the **Promotion Mechanism, Talent Training and Development Plans**, and other regulations to provides two channels for employees' career development within the Company, including technical promotion and management promotion. In 2022, the Company established and improved its **Regulations on Post Ranking System Management** to manage the selection, employment, cultivation and retention of talents in a scientific way, and also standardized its post ranking management qualifications and capacity standards to help employees work in suitable positions. The Company, respecting and following the law of talent development, applies the promotion principles of "hierarchical promotion management (for efficiency)" , "talent allocation (for effectiveness)" and

"talent structure planning (for risk prevention)" , and constantly works to improve the Company' s personnel selection and employment system. We have set two paths for career development: professional and management promotion, and rules for "natural promotion" , "promotion by merit" and "promotion by review" for employees at various levels. These diversified channels constantly stimulate and boost employees' enthusiasm, as well as improve their senses of value and achievement in work. Based on objective and fair evaluation results, we have also formed a Talent Review Committee, which is responsible for conducting objective and scientific reviews on technical/occupational competence, project contributions, management responsibilities and contributions, and leadership influence, to evaluate and select expert talents in various areas as well as potential middle and senior managers to jointly promote the implementation of the Company's strategic development goals.

### | Employee Promotion Rules

#### Factors Of Natural Promotion

Talent structure  
Talent team  
Talent abilities

#### Factors of Promotion by Merit

Technical expertise  
Project contributions  
Talent structure  
Talent abilities

#### Factors of Promotion by Review

Business development  
Project contributions  
Technological innovation  
Organizational development

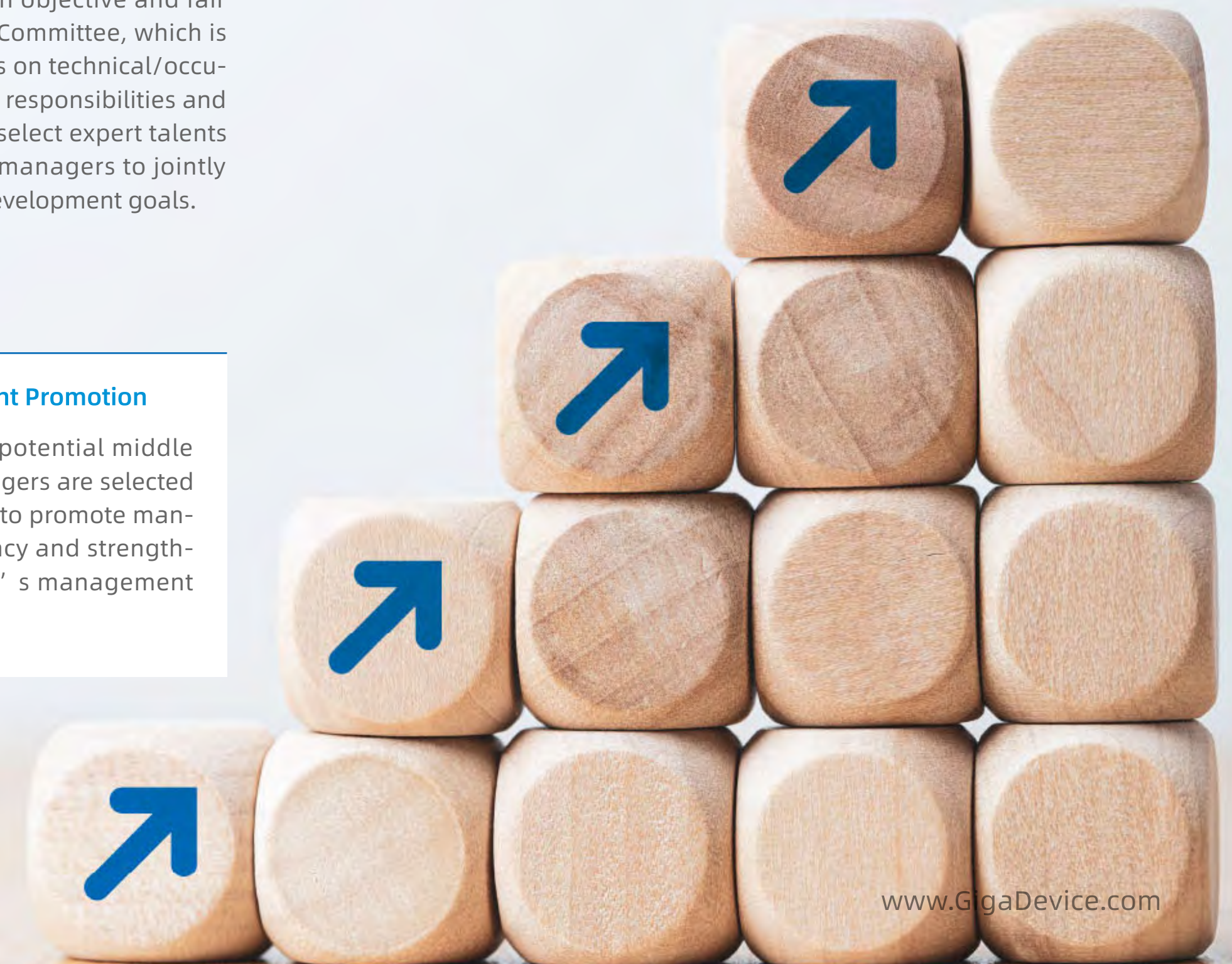
### | Promotion Channels

#### Technical Promotion

Expert talents in different areas are selected through reviews to build the Company's expert pool for research, development, technology and specific areas.

#### Management Promotion

Competent and potential middle and senior managers are selected through reviews to promote management efficiency and strengthen the Company' s management team.



## 5.2 Employee Development

### Employee Training

Outstanding talents are the source and driving force for a company's sustainable innovation. We have optimized the **Regulations of Training Provision** and actively been engaged in internal talent training, have created a comprehensive internal and external learning and development ecosystem, and have been constantly developing the talent learning and development system, optimizing the training management processes, and upgrading the training and learning system to meet the needs for organizational growth and talent development. Continuous learning and development are critical for cultivating innovative talents. Advocating the transformation into a learning organization, we have established a full life cycle training course system for talents; besides, we have improved employees' competence, qualification and capability in an all-around and multi-dimensional manner through on-line and off-line training, thus laying a solid talent foundation for the company's high-quality development.

### Full Life Cycle Talent Training Course System of GigaDevice



In accordance with strategic development and organizing ability planning, we have developed internal training courses in real-time, conducted external expert consultant guidance, and synchronously launched on-line course learning resources, so as to ensure real-time updating of the learning development system. Through the E-learning platform, the Company has implemented learning interaction and improved the framework for learning and development as well as post qualifications. We have constantly developed learning and development projects, such as specialized courses on professional product line knowledge, methodology, structured thinking, project management, quality awareness, and cultural construction, thus gradually improving the professional and general capabilities required for talent positions.

We anticipate to see that our employees can grow with the Company together. Inside the Company, talents at all functions, positions and levels are covered by the talent development and development planning. We keep carrying out talent team training program, with a view to organizing key personnel from management and technical teams to learn systematically, and improving their management efficiency and professional abilities. Meanwhile, customized ability training projects are tailored to the development stage needs of different departments or teams, so as to layout the full life cycle talent team training and development, and provide solid training support for the Company's business transformation and development.

# 5.2 Employee Development



### Some Training Plans and Customized Courses of GigaDevice in 2022

Program	Participation
Chuxin, Ranxin and Huixin Programs	274
Training Camp for Business Capacity Improvement	107

GigaDevice supports employees to improve their competence level by level through self-directed learning in multiple ways and making full use of internal and external lecturer resources. The year 2022 witnessed an increase of GigaDevice in strategic customer quantity and in the industrial and automotive market shares. In response to these changes, the Company continued to leverage internal and external experts and resources to integrate and develop more than 40 professional and technical management training courses for related positions of the industrial and automotive products. Various types of training were carried out in both on-line and off-line channels to further enhance the learning awareness of all employees, guide employees to pursue excellence, and grow alongside the Company.

### By the end of 2022, all employees of GigaDevice had participated in a variety of basic training:

Employees had participated in the talent development training	The total training time reached	The average training time per employee <sup>7</sup> was
<b>1,352</b>	<b>19,625 Hours</b>	<b>12.55 Hours</b>

<sup>7</sup>Average training time per employee = annual total training time for employees/total number of employees.

## 5.3 Employee Care

GigaDevice is devoted to building a robust, friendly and safe working environment, and establishing good and harmonious relationships with employees. The Company adheres to “people-oriented” management concept, keeps employee communication channels smooth, continuously improves the employee care system, and effectively safeguards employees’ welfare, health and safety.

### Communications with Employees

GigaDevice respects employees’ views, and emphasizes the establishment of the effective communication mechanism and sincere communication culture. It constantly organizes the investigation on dedication and satisfaction of employees according to business and staff scale in order to improve internal management. In terms of dedication, various indicators have seen obvious growth over those of previous investigation, and further improvement has been made in business development, performance incentive and active working atmosphere. Employees have witnessed a significant promotion in aspects of working environment, sense of achievement, corporate culture and company recognition. We will make proper use of the investigation results, formulate action plans and implementation plans, and continue to improve the organizational effectiveness.

In addition, we take initiative to build and continuously improve diversified and smooth channels for communication, feedback and appeal of employees. In 2022, the Company increased the anonymous communication channel to deal with and address communication matters regarding employee appeal or reporting under the premise of confidentiality and employee protection. The Company has formulated a hierarchical communication management mechanism at different levels, continued to follow up on feedback and dynamically get to know employees’ difficulties and feedback, so that each employee can get help through a variety of channels.

### Ways and Means of Communication with Employees in GigaDevice

1	2	3	4	5
<b>Communication within Department</b>	<b>Cross-department/Skiplevel Communication</b>	<b>Communication with Senior Manager</b>	<b>Face-to-face Communication with HR</b>	<b>Communication through HR Platform</b>
<ul style="list-style-type: none"> <li>Weekly department meeting</li> <li>Monthly department meeting</li> <li>One-on-one communication with manager</li> <li>Performance communication</li> </ul>	<ul style="list-style-type: none"> <li>Email communication</li> <li>Face to face communication</li> <li>Meeting communication</li> </ul>	<ul style="list-style-type: none"> <li>Email communication</li> <li>Full staff meeting</li> <li>Round table interview</li> <li>Informal discussion with talents of great potential</li> </ul>	<ul style="list-style-type: none"> <li>Themed by talent selection, retention, development, and incentive, conduct regular face-to-face and one-on-one communication</li> </ul>	<ul style="list-style-type: none"> <li>The HR Employee Service Center regularly collects employees’ concerns and provides timely responses</li> </ul>

GigaDevice pays attention to the personalized voice of every employee. The Company sets up interviews in the HR Share Service Center at key nodes such as joining and leaving to collect the real ideas and valuable suggestions of employees, organizes and analyzes reasons about job-hopping in semi-annual and annual reports, feeds back the analysis result to relevant department, and continues to improve employees’ working experience. HRBP organizes employee communication meetings on a regular basis, arranges one-to-one interviews with employees, and gets to know resource demands for business development and employees’ situation. At the same time, the Company has formulated the **Internal Mentorship System** for new graduates and new employees

graduated within a year, carried out internal mentorship management, and helped them enhance position competence. The Company will select a excellent mentor for every new graduate, communicate with new employees regularly, care about problems encountered by new employees, help them fit into their positions, and provided them with targeted counseling as the case may be. In addition, we have established a complete employee appeal mechanism, so that employees can make complaints to relevant party or department involved if they consider that their personal interests are unduly infringed upon or if they find violations of company regulations.

## 5.3 Employee Care

### Employee Welfare

GigaDevice pays high attention to the humanistic care to employees and focuses on improving employees' job-related happiness and sense of belonging. It strictly complies with the working hours and overtime requirements stipulated by national and local laws and regulations, implements the statutory paid annual leave system, and safeguards employees' access to statutory and legal holidays and additional holidays with benefits provided by the Company. In 2022, the Company actively responded to the call of the state and governments at all levels, and increased the number of full paid leave days in line with the requirements of parental leave and nursing leave of various regions in the categories of employee leave, aiming to further care for employees and their families.

The Company attaches great importance to the workplace guarantee and care for female employees, and implements special labor protection for them, such as the **Law on the Protection of Women's Rights and Interests, Special Provisions for the Work Protection of Female Employees, Regulations on the Working Scope Banned for Female Employees, Provisions on the Health Care of Female Employees**, and other relevant laws and regulations. During pregnancy, perinatal period and lacta-

tion period, female employees will be provided with legal protection and humanized protection of the Company, and have access to due benefits. Also, we specially set up mother-and-baby rooms for female employees in special periods, celebrate the Women's Day for each female employee, and provide them with holiday benefits and half-day paid leave.

The Company cares for the physical and mental health of all employees, and takes a variety of measures to provide employees with health guarantee. In 2022, the Company expanded the annual physical examination items and dimensions for employees, and added online health lectures and home exercise columns in order to build a solid line of defense for employees' health. In addition, in order to make sure that employees can get enough rest after intense work, the Company actively organized various employee care activities this year, including on-line annual meetings, housewarming activities, birthday parties, afternoon teas, holiday activities, family days and yoga classes. As novel and interesting in form, these activities have been highly received by employees. Also, the Company continued to carry out department team building activities to strengthen team cohesion.



<p><b>1</b> <b>Cash Subsidies</b></p> <ul style="list-style-type: none"> <li>Housing subsidy</li> <li>Meal subsidy</li> <li>Travel subsidy</li> <li>Communication subsidy</li> </ul>	<p><b>2</b> <b>Statutory Benefits</b></p> <ul style="list-style-type: none"> <li>Social insurances</li> <li>Housing provident fund</li> </ul>	<p><b>3</b> <b>Risks and Guarantee</b></p> <ul style="list-style-type: none"> <li>Commercial insurance</li> <li>Annual physical examination</li> </ul>	<p><b>4</b> <b>Holidays with Benefits</b></p> <ul style="list-style-type: none"> <li>Statutory annual leave</li> <li>Leave with benefits</li> <li>Special rewarded leave</li> <li>Parental leave</li> </ul>	<p><b>5</b> <b>Employee Care</b></p> <ul style="list-style-type: none"> <li>Long service awards</li> <li>Afternoon teas</li> <li>Gfits to newborn babies</li> <li>Sympathy payments for serious illnesses of employees and their family members</li> <li>Birthday parties</li> <li>Holiday gifts</li> <li>Staff club</li> </ul>
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## 5.3 Employee Care

### Case: Off-line Pleasure Tour on the Fourth Family Day of GigaDevice

On August 27, 2022, GigaDevice kicked off the Off-line Pleasure Tour on the Fourth Family Day themed by “For a Low-carbon Earth” in 7 places across China, covering a number of elements such as low carbon, emission reduction, environmental protection and renewable resources, and integrated GD32 programming courses. The activity attracted 369 households with 1,057 participants in total.

The Company designed 5 links (the green intelligent greenhouse programming course, meeting, secret exploring, feeding and dream making) for children according to their age, and set up activities such as cognitive selection of urban pollution sources, urban loving green planting, popularization of urban environmental protection knowledge by volunteers, and family photos with astronaut figures. In light of this, children participating in the programming classes experienced the wonder of green intelligent greenhouse while receiving our customized certificates of honor.





# 5.3 Employee Care

## Mid-Autumn Festival Activity Held by GigaDevice

On the occasion of Mid-Autumn Festival in 2022, GigaDevice held Mid-Autumn Festival activities with unique features in Beijing, Hefei, Shanghai, Xi'an, Suzhou, Shenzhen, Chengdu, etc., allowing all employees to enjoy a happy get-together. Activities in various places were brilliant and unique. In addition to handcrafting activities of planet lights, moon models and lanterns in the shape of moon rabbits, the Company also arranged games such as customized Mid-Autumn cakes, moon rabbit desserts and various mooncakes.

Scene of Activities on the Mid-Autumn Festival



## Employee Activity on the Chinese Valentine's Day Held by GigaDevice



Scene of Activities on the Chinese Valentine's Day

In August 2022, GigaDevice held colorful activities on the Chinese Valentine's Day in Beijing, Hefei, Shanghai, Xi'an, Suzhou, Shenzhen, etc., allowing employees to experience interesting activities including making cakes, carving roses, happy dates. Through the activities, employees can not only experience the traditional culture of the Chinese Valentine's Day, but also fully enjoy the warm atmosphere of care and love.

# 5.4 Occupational Health and Safety

GigaDevice attaches importance to employees' health and safety, and strengthens occupational health and safety management system, with a view to providing employees with a healthy and safe working environment and facilities. We completed external audit of ISO 45001 in 2022, and obtained the certificate in January 2023.



Occupational Health and Safety Management System Certificate

The Company has formulated a number of internal systems, including the **Occupational Health and Safety Control Procedure, Working Environment Comprehensive Safety Management System, Emergency Preparedness and Response Procedure, and Hazard Identification and Risk Assessment Procedure**. In addition, it arranges the physical examination for employees once a year, and buys supplementary commercial medical insurance for each employee, covering outpatient, hospitalization and accident insurance, so as to fully guarantee the health of employees, eliminate occupational hazards and prevent occupational diseases.

## Occupational Health Safeguard Measures

	<b>Physical Examination</b>	Carrying out health and safety checks every month, and carrying out hazard identification and assessment every year.
	<b>Facility Optimization</b>	Providing access control and monitoring system to safeguard environmental safety, and make sure that production and workplace is standardized in safety management.
	<b>Safety Drill</b>	Carrying out fire drills and electric shock emergency drills to control occupational health and safety risk factors.

The Company carries out occupational health and safety management training, first aid training and fire safety training on a regular basis, and continues to raise employees' awareness of health and safety.

As of December 31, 2022:

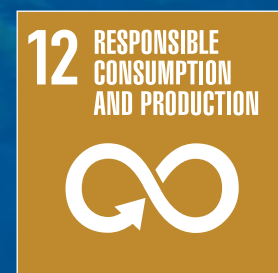
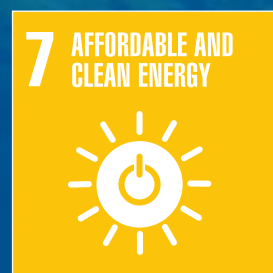
Employees have been trained for first aid	<b>435</b> Employees
The on-line training courses available on the training platform received more than	<b>800</b> Views
Training related to occupational health and safety has been carried out for	<b>14</b> Times
Participations	<b>1,636</b> Participations
A total duration of	<b>28</b> H

# PROMOTING GREEN DEVELOPMENT AND LOW-CARBON OPERATION



- 6.1 Environmental Management
- 6.2 Resource Utilization
- 6.3 Response to Climate Change
- 6.4 Use of Raw Materials

The UN SDG responded to in this chapter



# 6.1 Environmental Management

GigaDevice follows closely the environmental protection policies in places where it operates, both domestically and internationally, and strictly complies with national and local laws and regulations, such as the **Environmental Protection Law of the People’s Republic of China, Energy Conservation Law of the People’s Republic of China, and Law of the People’s Republic of China on Prevention and Control of Environment Pollution by Solid Wastes**. Based on these, the Company has developed a range of internal system documents, including the **Environmental Factors Identification and Evaluation Procedure, Energy, Resource Saving Control Procedure, and Solid Waste and Pollution Preventive Control Procedure**, and has included the established environmental targets and indicators into management review to fully implement the requirements of environmental management. Besides, the Company has passed the ISO 14001 environment management system certification. In 2022, GigaDevice was not punished because of any environmental violations.

Environment Management System Certificate



In 2022, GigaDevice established and achieved internal environmental goals for energy, resources and waste disposal, and based on which we further developed plans and measures after taking into account the Company’s current situation, so as to effectively dispose of wastes, improve the recycling utilization of resources and reduce the negative impact of our business operations on the environment.

### ■ Performance of Environmental Goals by GigaDevice in 2022

Item	Goals in 2022	Execution of Goals in 2022
<b>Waste</b>	100% disposal controlled and centralized recycling of solid wastes Harmless disposal of solid wastes	Achieved
<b>Resources and Energy</b>	Saving power consumption by 10% for the same time frame last year Lowering the consumption of other energy sources per CNY 10,000 of output value for the same time frame last year	Overachieved
<b>Green Purchasing</b>	Compliance of purchased and integrated products with RoHS requirements	Achieved

## 6.2 Resource Utilization

Giving a top priority to ecological and environmental protection and sustainable development of resources all long, GigaDevice has applied the concept of going green and environmental protection into its daily operations by optimizing the energy efficiency of office buildings, boosting the publicity of energy conservation and implementing a paperless office. All of these have contributed to a reduced office energy consumption and an enhanced sustainable performance in business operations.

### GigaDevice's Measures for a Green Office



#### Improving Energy Utilization

- Analyzing the feasibility of PV power generation to initiate the PV power generation project in self-owned office parks.
- Improving the energy-saving reconstruction scheme, and confirming the comprehensive energy-saving scheme for air conditioning system.
- Applying building automation system and intelligent electricity control system to improve the operational energy efficiency of office buildings.
- Implementing timeout lockscreen and sleep mode at night for office computers.



#### Applying E-office Systems

- Developing e-office systems such as OA, ERP, SAP and Concur.
- Deeply cooperating with platform-based internet enterprises to reduce the printed reimbursement documents and vouchers for reduced consumption of office supplies.
- Advocating a paperless office environment to reduce paper consumption.
- Installing telephone and video conference systems to support teleconferences.



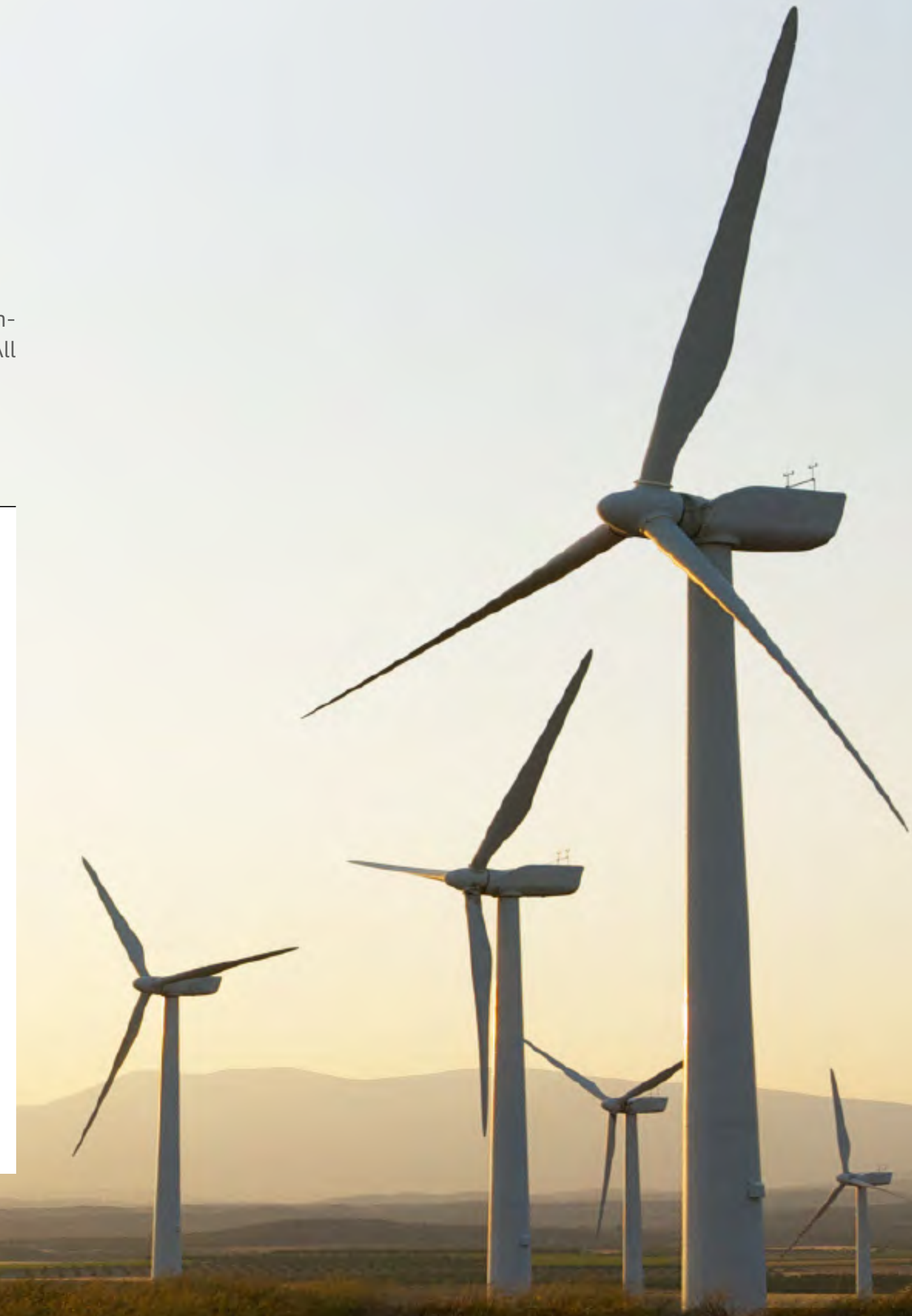
#### Raising the Awareness of Environmental Protection

- Carrying out the publicity of energy saving and water conservation, and putting up signs about saving energy and water, so as to raise employees' awareness of in this aspect.
- Carrying out the publicity of waste sorting, and encouraging employees to reduce the use of disposable goods and tableware.



#### Reducing Waste

- Setting up facilities for waste sorting to promoting waste recycling and reducing waste discharge.



## 6.2 Resource Utilization

Since GigaDevice focuses primarily on the R&D, design and sales of integrated circuits while leaving the manufacturing process to professional OEMs, the sources consumed in its daily operations mainly include electricity, gasoline, natural gas, water and paper, for office uses. Besides, the Company highly values energy conservation and emission reduction with an eye on green development.

In 2022,

Its comprehensive energy consumption<sup>8</sup> hit

**1,034.35** Tons of standard coal

The revenue per CNY 100 million required a consumption of

**12.72** Tons of standard coal

The total consumption of fresh water totaled

**21,472** Tons

The revenue per CNY 100 million required a water consumption of

**264.11** Tons

The Company reached **100%** in terms of the disposal control rate

The Company reached **100%** centralized recycling rate of solid wastes

A total of over **300** employees participated in the online environmental management training

<sup>8</sup>The comprehensive energy consumption is calculated in accordance with the General Rules for Calculation of the Comprehensive Energy Consumption (GB-T2589-2020).

Utilization of Energy and Resources by GigaDevice in 2022

Type	Unit	Data in 2022
Purchased electricity	kWh	8,141,929.14
Natural gas	m <sup>3</sup>	16,161.00
Gasoline	L	11,448.08
Total consumption of fresh water	Ton	21,472.00
Density of water consumption	Ton/revenue per CNY 100 million	264.11
Comprehensive energy consumption	Ton of standard coal	1,034.35
Density of comprehensive energy consumption	Ton of standard coal/revenue per CNY 100 million	12.72



## 6.3 Response to Climate Change

### Identification of Climate Risks and Responses

Category	Transition Risk				Physical Risk	
Sub-category	Policy and Compliance Risk	Market Risk	Technological Risk	Reputational Risk	Acute Physical Risk	Chronic Physical Risk
<b>Description</b>	Against the backdrop of the carbon peak and neutrality goals, relevant policies and standards will become more stringent. If the Company cannot respond effectively, it will face non-compliance risks.	As carbon neutrality and carbon emission reduction become common tasks of all countries, more and more customers are looking at ways to reduce their carbon footprint. With market demand gradually shifting = towards green and low-carbon products, customers may require green product certification and other carbon footprint proof. The inability to meet customers' requirements may lead to falling demand for products= and services.	Existing technologies may be unable to meet customers' energy efficiency requirements for products. Continuous investment in the R&D of green products may increase the Company's R&D and operating costs.	As climate change gains increasing attention, if the Company does not have significant progress in climate change response or fails to perform its announced climate commitments, it may damage the Company's image and undermine stakeholders' trust in it, thereby creating a reputational risk.	Climate hazards such as extreme weather, floods, and typhoons may cause damages to the Company's assets and supply chain disruption.	Climate change will bring risks of long-term physical changes, such as increased frequency of climate disasters like typhoons and floods. This will affect the stability of the Company's operational facilities, resulting in increased maintenance costs and a decrease in asset value or service life of assets.
<b>Response</b>	Actively formulate and implement the low-carbon strategy, develop internal standards that are higher than national and local regulatory requirements, and put response measures in place in advance.	Advance the supply chain's low-carbon transition and achieve low-carbon throughout products' life cycle. Strengthen R&D spending and reduce carbon emissions through innovative design of products.		Disclose the Company's environmental and climate response strategies and= carry out joint low-carbon environmental activities with suppliers and customers to increase the Company's influence in the industry and society. Respond to the national carbon peak and neutrality goals, roll out actions towards earlier achievement of carbon neutrality for operations and products, and gain recognition from society and customers.	Monitor weather in real time, issue early warnings, and put in place emergency response plans.	Carry out climate research in a timely manner and formulate countermeasures for possible future climate change trends.

## 6.3 Response to Climate Change

GigaDevice keeps up with the policies and market trends while actively managing the risk of climate changes, and grasps the opportunities related to climate changes in combination with its own low-carbon development planning. We will continue to explore and practice low-carbon technologies, launch low-carbon and green products, and set up a green and low-carbon corporate image. In 2022, the Company's GHG emissions<sup>9</sup> totaled 4,703.54 tons of carbon dioxide equivalence, and the carbon dioxide emissions of revenue per CNY 100 million reached 57.85 tons.

### ■ GHG Emissions of GigaDevice in 2022

GHG Emissions	Unit	Data in 2022
Scope 1 GHG Emissions	tCO <sub>2</sub> e	60.20
Scope 2 GHG Emissions	tCO <sub>2</sub> e	4,643.34
Total GHG Emissions	tCO <sub>2</sub> e	4,703.54
Density of Total GHG Emissions	tCO <sub>2</sub> e/revenue per CNY 100 million	57.85

<sup>9</sup>Scope 1 GHG emissions shall be calculated by converting the consumption of gasoline and natural gas as per the Guidelines for Accounting Methods and Reporting of Greenhouse Gas Emissions for Other Industrial Enterprises. For Scope 2, the GHG conversion coefficient shall refer to the average emission factor of power grids in 2022 nationwide as stipulated in the Notice on Doing a Good Job in the Reporting and Management of Greenhouse Gas Emissions in Power Generation Enterprises (2023-2025) issued by the Ministry of Ecology and Environment of the People's Republic of China, by which the power consumption is converted.

### I Products with low power consumption

Giving a top priority to the innovative R&D, design and development of products with features of environmental protection and energy saving, GigaDevice aims to provide products with low energy consumption for customers, so as to extend the life cycle of products and reduce the impact of the use of terminal products on the environment. At the beginning of developing products with low power consumption, the Company integrates the concept of energy conservation and environmental protection into the product design. Meanwhile, as for specific application scenarios, the Company reduces energy consumption by removing unnecessary circuit energy consumption after taking the service life of products into account.

For flash memory products, GigaDevice launches extensive flash memory product portfolios through specialized design, aiming to provide customers with products in small outline packages and low power consumption in a variety of electronic applications. Based on its optimized bus protocol design for accessing the flash memory, the Company's Serial Peripheral Interface (SPI) requires only six signals to achieve communication between the controller and the memory, thus reducing the design complexity, area of circuit board, power consumption and total system cost. To this end, the Company has launched NOR Flash products with low power consumption such as G25WD/WQ series, GD25LE series, and GD25UF series with 1.2V supply voltage. Specifically, the former is a series of wide-voltage SPI NOR Flash products widely used in battery applications which, with an operating voltage range of 1.65V to 3.6V and stand-by power consumption as low as 0.1uA, can effectively extend the battery service life and enhance the energy efficiency of terminal devices; the latter is a series of 1.8V SPI NOR Flash products which boast industry-leading power consumption specifications with power consumption of Quad reading operations at 133MHz as low as 5mA, effectively extending the stand-by time for low-power devices.

Meanwhile, the Company also provides customers with a variety of MCUs based on Arm® Cortex®-M, and optimizes the cost-sensitive energy-saving applications while meeting various embedded application needs. In addition, we have also developed a number of power-saving modes, so that we can flexibly achieve maximum optimization between wake-up delay and power consumption.

#### Case: GigaDevice Launches Ground-breaking SPI NOR Flash Product Series with 1.2V Ultra-low Power Consumption



On August 19, 2022, GigaDevice launched ground-breaking GD25UF SPI NOR Flash series products with 1.2V ultra-low power consumption. The series boast international leading level in terms of key performance indicators such as data transmission level, power supply voltage and read-write power consumption. In smart wearable devices, health monitoring, IoT devices or other applications with single-battery power supply, the series can significantly reduce operating power consumption and effectively extend battery life.

In order to further meet the needs with low power consumption, the series are especially designed to operate in two modes - Normal Mode and Low Power Mode. In Normal Mode, the device's read current is as low as 6mA at Quad frequency of 120MHz; while in Low Power Mode, the device's read current is as low as 0.5mA at Quad frequency of 1MHz, and the erase and the stand-by power consumption are as low as 7mA and 0.1uA, respectively. Compared to 1.8V SPI NOR Flash products, the power consumption of 1.2V GD25UF product series is reduced by 33% at the same current in Normal Mode; while in Low Power Mode, the power consumption at the same current is reduced by 70%, which effectively extends the battery life. In addition, the power supply voltage of GD25UF product series allows a wide-voltage range from 1.14V to 1.26V, which can significantly extend the service life of applications powered by single battery.



## 6.4 Use of Raw Materials

As a fabless designer of integrated circuits, GigaDevice always keeps alert in the potential risks of resources, and pays high attention to the utilization of raw materials for products. Upholding the corporate value of sustainable development, the Company conveys environmental protection laws and regulations and customer requirements to the supply chain on a regular basis, with a view to pushing the green upgrading of the supply chain. In the design of environmentally friendly products, the Company earnestly carries out national and global guidelines, policies and regulations on environmental protection, and develops its own environmental protection plans and targets. Among years of close cooperation with suppliers, we have taken the initiative to investigate compliance with environmental protection of products, guarantee that the raw materials and encapsulation technologies used for products are in line with the requirements of going green and environmental protection, and make sure that the delivered products are in conformity with green and environmental protection standards stipulated in the **Restriction of Hazardous Substances (RoHS)** and **Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)**.

In 2022, the Company replaced 5 kinds of resin substrate interposers with a RDL wafer interposer<sup>10</sup>, which reduced the risk of inactive material and lowered material loss. At the same time, the Company replaced the electroplating technology with chemical replacement by using NPL substrate, which reduced the energy consumption of substrate production.

Meanwhile, we also paid attention to the use of raw materials in product logistics. For example, the corrugated cartons used for the outer package of the Company's products have been certified by the Forest Stewardship Council (FSC), which are 100% recyclable. Also, each batch of the cartons has passed sampling tests in third-party laboratories for element, hexavalent chromium, PBBs/PBDEs and so on, which are proved to be highly degradable, in which case, negative impacts on the environment can be lowered, and the sustainable utilization of raw materials for products can be achieved.

<sup>10</sup>RDL: ReDistribution Layer

### RoHS

Raw materials are 100% in line with the requirements of RoHS

### REACH

Products are 100% in conformity with the green and environmental protection standards of REACH.

# UPHOLDING OPENNESS AND INCLUSIVENESS FOR COOPERATION AND WIN-WIN RESULTS

- 7.1 Supply Chain
- 7.2 Industry Cooperation
- 7.3 Public Welfare



GigaDevice

The UN SDG  
responded to  
in this chapter



## 7.1 Supply Chain

GigaDevice places great importance on the supply chain management and is committed to establishing a responsible and sustainable green supply chain. To achieve this, the Company has formulated a range of internal rules and regulations such as the **Supplier Control Procedures, New Supplier Qualification Procedures, Supplier Review Procedures, Supplier Basic Norms of Assembly and Testing, and Special Requirements for Assembly and Testing of Autom-**

**otive Products.** Thus, a comprehensive supplier management system that encompasses supplier access, assessment, risk management and withdrawal is established. As of December 31, 2022, the Company had a total of 43 core suppliers, all of whom have certificates of ISO 9001 and ISO 14001, and 10 of these suppliers were certified by the RBA<sup>11</sup>.

<sup>11</sup>RBA, short for Responsible Business Alliance, is a social responsibility audit standard for the electronics industry. It was rebranded on October 17, 2017 from the former Electronic Industry Citizenship Coalition (EICC). The RBA Code of Conduct 6.0 is considered as a code of conduct for the global electronics supply chain, encompassing human rights, environmental, and ethical standards.

Supplier Access	Supplier Evaluation	Supplier ESG Evaluation	Supplier Risk Management	Supplier Withdrawal
In line with the <b>New Supplier Certification Process</b> , the Company will carry out a series of procedures on suppliers, initial ratings, engineering validations, and factory audits. Once the factory audit is passed, the supplier will be reviewed by the Supplier Decision Committee, and will enter the qualified supplier list if approved. In addition, the Company prioritizes safety and environmental protection factors in the supplier access process, with the <b>Supplier Environmental Audit Checklist</b> specifically ensuring compliance with the environmental, occupational health, and safety management system (EHS), and the <b>Quality System &amp; Process Review Form for Assembly and Testing Suppliers</b> covering quality system requirements and the expectations of relevant stakeholders.	The Company regularly conducts supplier audits and evaluations to manage the environmental and social risks of the supply chain. We actively communicate and publicize social responsibility guidelines to our suppliers and include social responsibility in the regular supplier evaluations. In 2022, we audited 49% of our suppliers, and conducted audits as required by customers, which covered 28% of suppliers. These audits mainly focused on quality systems, process control, and environmental compliance. As of December 31, 2022, all suppliers had passed the audits.	The Company formulates the <b>Risk Audit Report on the Sustainable Development of Suppliers</b> and establishes a supplier ESG evaluation system, which involves labor rights, health and safety, environment and ethics. We plan to audit the ESG management of our core suppliers every year to continuously promote their ESG performance.	The Company has implemented a business continuity management system (BCM), which is documented in the <b>BCM Procedure Book</b> . This book includes procedures for assessing natural, social, and environmental risks, as well as emergency response plans that ensure the company's business continuity.	The Company has put in place a comprehensive supplier withdrawal mechanism and process that allows for optimization and upgrading of suppliers.

## 7.1 Supply Chain

Meanwhile, we actively promote a green supply chain, increasing the usage of environmentally friendly products and verifying the green compliance of our products, which guarantees that the raw materials, consumables and assembly processes used in our products comply with green requirements. GigaDevice complies with the EU 2015/863 Directive, that is, the **Restriction of Hazardous Substances (RoHS 2.0)**, which ensures that our final delivery products meet the requirements of green environmental protection regulations such as RoHS and REACH. We regularly convey the laws and regulations on environmental protection and customer requirements to our suppliers, to promote the green transformation of the supply chain.

GigaDevice actively pushes the construction of the business ethics culture. To this end, we have issued the **Anti-bribery and Anti-corruption Statement** and worked with our suppliers to promote an ethical and clean business environment. In our daily operations, we strengthen anti-corruption training and awareness campaigns for our suppliers and are committed to putting an end to all anti-corruption activities.

### ■ Conflict Minerals Management

We demand that all our suppliers submit annual minerals declaration forms such as CMRT<sup>12</sup> and EMRT<sup>13</sup>, and review the source of gold, tin, tantalum, tungsten, cobalt and other minerals regularly with the list of metal smelters provided. In 2022, all our suppliers submitted minerals declaration forms and none of them were found to cooperate with non-compliant metal smelters.

### ■ Supplier Communication

To assess supplier performance, GigaDevice conducts regular quarterly business review (QBR<sup>14</sup>) meetings and actively supports supplier to improve capabilities. As for the problems found, we formulate improvement measures in a timely manner and urge to implement them. Furthermore, we gathered best practices from our suppliers and shared them with other suppliers to help them improve their management and production capabilities consistently.

<sup>12</sup>CMRT, short for Conflict Minerals Reporting Template, is a free and standardized reporting template developed by the Responsible Minerals Initiative (RMI) to convey information about the country of origin of minerals and the smelting plants and refineries in use through the supply chains.

<sup>13</sup>EMRT, short for Extended Minerals Reporting Template, is a free and standardized reporting template developed by the Responsible Minerals Initiative (RMI) to identify key points in the cobalt and mica supply chains and collect due diligence information.

<sup>14</sup>QBR is short for Quarterly Business Review.

## 7.2 Industry Cooperation

GigaDevice has formed strategic partnerships with leading wafer fabs and packaging and testing plants worldwide, and jointly promoted technological innovation in the semiconductor industry through promoting ecosystem construction in the industry and participating in industry summits.




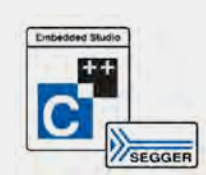




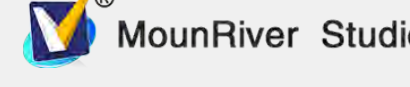











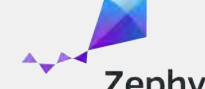
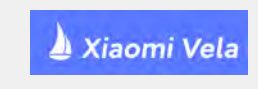











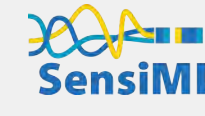












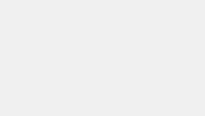
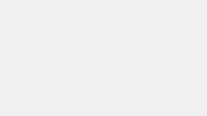
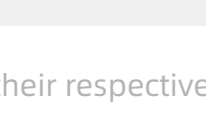
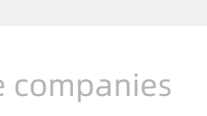
### Industry Ecosystem Building

With the concept of “product & ecosystem”, GigaDevice actively develops the industry ecosystem through in-depth research in frontier areas of MCUs, so as to empower the prosperity and development of the semiconductor industry.

With GD32 MCU being the largest Arm® MCU product family in China, GigaDevice launched ARM® Cortex®-M3/M4/M23/M33 MCU product series, as well as the general-purpose 32-bit MCU product series based on the RISC-V core. We have created a mutualistic ecosystem that tightly connects products, users and partners, where customers are able to develop solutions that are more suitable for their own development with tools in line with their needs, thus achieving effective reduction of research and development costs while autonomously controlling the needs. GigaDevice continues to develop the GD32 series products, such as providing developers with software and hardware evaluation kits, as well as various self-developed solutions and algorithms.

### Partners of the GD32 Development Ecosystem

Technical Website: GD32MCU

Development Kits & Technical Documents	IDE & Compilers	Debugger & Programmer	Embedded Software	Mass Production Programmers
Full-featured Dev Boards Start Learning Kits  Datasheet User Manual Errata Sheet Application Note Firmware Library Demo Suites Development Guide	       	GD-LINK  I-JET  J-LINK  μTrace   	                  	               

\*The above are only some of the partners of our GD32 development ecosystem which is constantly expanding \*All trademarks, logos and brand names are the property of their respective companies

## 7.2 Industry Cooperation

In terms of the GD32 series, GigaDevice cooperates with global partners to provide customers with more solutions regarding integrated development environments (IDE), evaluation boards (EVB), RTOS, graphical user interfaces (GUI), security components and cloud connectivity, as well as provide a variety of video courses and short films on the technical website, which are available on demand at any time. This development ecosystem not only ensures convenience and support for users' design work but also showcases the value and service philosophy of the GD32 series products.

### Case: Focusing on International Industry 4.0 for the Transformation of Manufacturing Enterprises

On November 10, 2022, Aspencore (an international electronics industry media group) organized the 2022 International Integrated Circuit Exhibition and Conference (IIC) in Shenzhen. At the Forum on International Industry 4.0 Technologies and Applications during the conference, representatives from chip, solution, and application fields, including GigaDevice, Texas Instruments (TI), STMicroelectronics, COMSOL, ZhiXin Semiconductor, Microsoft, Quectel, and Shenzhen Institute of Advanced Technology of the Chinese Academy of Sciences gathered to communicate with each other about Industry 4.0.

GigaDevice delivered a keynote speech titled "GD32 Facilitates the Transformation and Upgrading of Industry Applications", gaining recognition from audiences to lay a solid foundation for the industry upgrading and transformation as well as win-win cooperation.



Scene of Keynote Speech  
"GD32 Facilitates the Transformation and Upgrading of Industry Applications"

### Case: GigaDevice Attended the RISC-V Days Tokyo 2022 Spring

In May 2022, GigaDevice attended the RISC-V Days Tokyo 2022 Spring, which is the largest RISC-V technology exchange event every year in Japan. At the seminar, GigaDevice highlighted the GD32VF103 MCU series based on the RISC-V core and showcased the growing RISC-V development ecosystem of the GD32 series.

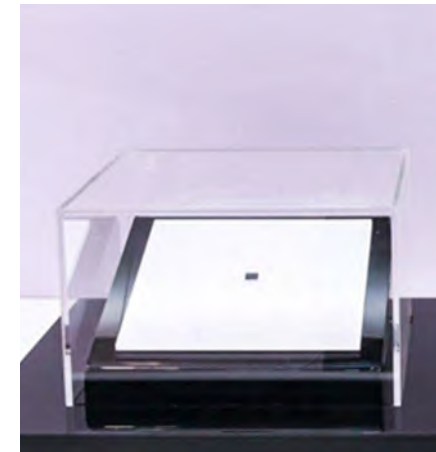
#### Participants of the RISC-V Days Tokyo 2022 Spring



# 7.2 Industry Cooperation

## Branding Value of GigaDevice

GigaDevice actively participates in industry summits and exhibition or events to strengthen the GigaDevice influence in IC industry and enhance its brand value. We are also an active performer in exhibitions and seminars to showcase our comprehensive solutions production lines of memories, MCUs, sensors and analog products, with the application areas including industry, automobile, computing, IoT, consumer electronics and mobile devices. This demonstrates our diversified product offerings, wide-ranging industry layouts and leading technologies in the semiconductor field.



GigaDevice Shows Latest Automotive Electronic Solutions and Products at the 2022 WORLD NEW ENERGY VEHICLE CONGRESS



GigaDevice Attends EEVIA's The 10th Anniversary China ICT Media Forum & 2022 Industry and Technology Outlook Conference



GigaDevice Attends the 2022 Zhangjiang Automotive Semiconductor Ecosystem Summit and Global Automotive Electronics Exchange Meeting



GigaDevice Attends the CSIA-ICCAD 2022 Annual Conference & Xiamen IC Industry Innovation and Development Summit



The GD32F470 series MCU of GigaDevice wins the "Most Promising Product" Award at the 2022 EE Awards Asia Awards Ceremony held by AspenCore



GigaDevice Attends the Arm Tech Symposia 2022 (Japan) and Delivers a Keynote Speech

## 7.3 Public Welfare

GigaDevice has been actively fulfilling its social responsibilities by focusing on and supporting public welfare undertakings, thereby contributing to the well-being of the people. In 2022, GigaDevice invested CNY 1,482,912.55 on public welfare programs, with a total of 132 participations accumulating 189.17 hours.

By popularizing IC knowledge among young people and all sectors of the society, the Company is committed to cultivating cross-board versatile talents for the IC industry, and actively contributing to the industry development in China.

In 2018, the Company established an IC Museum on its own expenses and made it open to the public, which has received multiple honorary titles, including “National Youth Education Base for Electronic Information Public Communication and Innovation”, “Anhui Provincial Science and Technology Education Base”, “Hefei City Exemplary Unit for Public Science Communication” and “Cooperation Resource of China Institute of Microelectronics League”. In 2022, with an investment amount reaching CNY 182,912.55, the museum received 47 delegations, totaling 782 participations.

### ■ Case: Science Popularization Course of “Zero-carbon Community - Smart Greenhouse” Programming and Integrated Circuit

In September 2022, GigaDevice IC Museum successfully organized the Science Popularization Course of “Zero-carbon Community - Smart Greenhouse” Programming and Integrated Circuit on the Family Day in offices of Hefei, Beijing, Shanghai, Suzhou, Xi’an and Shenzhen. Themed on “Low Carbon and Environmental Protection”, the Family Day had many educational, interesting and exciting links. Children were firstly guided to learn graphical programming beginning with simple concepts such as programs and conditional judgments. Later, with the help of parents and volunteer teachers, they assembled the smart greenhouse and downloaded the program onto the main control board based on the GD32 MCU. Using light sensors, temperature sensors and soil moisture sensors, they were able to perform efficient and energy-saving farming scenarios through the functions of automatic light supplement, automatic ventilation and automatic irrigation.

This year, the smart greenhouse project that incorporated the element of IoT and a series of courses provided children and young people with opportunities to learn about the concept of IoT and the role of chips in IoT development.



Science Popularization Course of Programming and Integrated Circuit (Beijing Office)



IC Museum

In 2022, the Company has donated CNY 300,000 to the Chinese Institute of Electronics to encourage outstanding teams participating in the China Post-graduate Electronics Design Contest.

Meanwhile, the Company has donated CNY one million to Red Cross Society of Hainan Branch and other organizations, thus contributing to the public welfare undertakings.

In April 2022, the Company encouraged employees to actively participate in volunteer activities and send supplies and warmth to residents in local communities, as a way to fulfill social responsibilities.

In May 2022, the Company donated clothing to volunteers of its surrounding communities, and awarded volunteer prizes and certificates, which gathered strengths for the public welfare undertakings.



# APPENDIX

Table of Key Performance

GRI Index

Reader Feedback Form



GigaDevice



# Table of Key Performance

## Environmental Category

Indicators	Unit	2022	2021
<b>Environmental Management</b>			
Punishment for violating environmental regulations	Piece	0	0
<b>Resource and Energy Use</b>			
Purchased electricity	kWh	8,141,929.14	6,167,626.93
Natural gas	m <sup>3</sup>	16,161.00	13,670.00
Gasoline	L	11,448.08	8,100.90
Total fresh water consumption	Ton	21,472.00	21,326.90
Water consumption density	Ton/revenue per CNY 100 million	264.11	250.60
Comprehensive energy consumption	Ton of standard coal	1,034.35	784.82
Comprehensive energy consumption density	Ton of standard coal/revenue per CNY 100 million	12.72	9.22

Indicators	Unit	2022	2021
<b>Waste Management</b>			
Solid waste disposal control rate	%	100	100
Solid waste centralized recycling rate	%	100	100
<b>GHG Emission</b>			
Scope 1 GHG emissions	tCO <sub>2</sub> e	60.20	47.43
Scope 2 GHG emissions	tCO <sub>2</sub> e	4,643.34	5,204.99
Total GHG emissions	tCO <sub>2</sub> e	4,703.54	5,252.42
Density of total GHG emissions	tCO <sub>2</sub> e/revenue per CNY 100 million	57.58	61.72

# Table of Key Performance

## Social category

Indicators	Unit	2022	2021
<b>Number and Distribution of Employees</b>			
Total number of employees	Person	1,564	1,343
<b>By Gender</b>			
Female	Person	595	493
Male	Person	969	850
<b>By Specialty</b>			
Operational staff	Person	67	58
Sales personnel	Person	226	206
Technician	Person	1125	948
Financial staff	Person	36	36
Other functional personnel	Person	110	95
<b>By Educational Background</b>			
Doctor's degree	Person	26	27
Master's degree	Person	826	687
Bachelor's degree	Person	621	542
Junior college and below	Person	91	87

Indicators	Unit	2022	2021
<b>Development and Training</b>			
<b>By Training Courses</b>			
Newcomer program, empowerment program, and improvement program	Person	274	256
Training camp for business capacity improvement	Person	107	124
Total training duration	hr	19,625	14,485
Average training time per employee	hr	12.55	24.47
Average training days per employee	Day	1.57	3.06
<b>Suppliers</b>			
Proportion of core suppliers obtaining ISO 9001 and ISO 14001 certifications	%	100	100

Indicators	Unit	2022	2021
<b>R&amp;D and Innovation</b>			
R&D and innovation investment	CNY 100 million	10.29	9.40
Total granted patents	Piece	929	834
Granted patents in this year	Piece	98	136
<b>Community Public Welfare</b>			
Total amount invested in public welfare programs	CNY	1,482,912.55	203,731.56
Total time invested in public welfare programs	hr	189.17	177.50
Total number of persons participating in public welfare programs	Person time	132	133

# GRI Index

<b>Statement of Use</b>	GigaDevice has reported the information cited in this GRI Index from January 1, 2022 to December 31, 2022 with reference to the GRI Standard.
<b>GRI 1 Used</b>	GRI 1: Foundation 2021

Disclosure Issues/Disclosure Items	Title of Disclosure Items	Chapter Index
<b>GRI 2: General Disclosure 2021</b>		
2-1	Organizational details	Company profile
2-2	Entities included in the organization’s sustainability reporting	About this Report
2-3	Reporting period, frequency and contact point	About this Report
2-6	Activities, value chain and other business relationships	Company profile, Supply chain
2-7	Employees	Rights and interests of employees
2-8	Workers who are not employees	Supply chain
2-9	Governance structure and composition	Corporate governance
2-10	Nomination and selection of the highest governance body	Corporate governance
2-11	Chair of the highest governance body	Corporate governance
2-12	Role of the highest governance body in overseeing the management of impacts	Corporate governance

# GRI Index

Disclosure Issues/Disclosure Items	Title of Disclosure Items	Chapter Index
2-13	Delegation of responsibility for managing impacts	Corporate governance
2-14	Role of the highest governing body in the sustainability reporting	ESG management structure and working mechanism
2-16	Communication of critical concerns	ESG management structure and working mechanism
2-17	Evaluation of the performance of the highest governance body	Corporate governance
2-19	Remuneration policies	Rights and interests of employees
2-20	Process to determine remuneration	Rights and interests of employees
2-22	Statement on sustainable development strategy	ESG management structure and working mechanism
2-23	Policy commitments	ESG management structure and working mechanism
2-24	Embedding policy commitments	ESG management structure and working mechanism
2-26	Mechanisms for seeking advice and raising concerns	ESG management structure and working mechanism
2-29	Approach to stakeholder engagement	Communications with stakeholders
2-30	Collective bargaining agreements	Rights and interests of employees
<b>GRI 3: Material Topics 2021</b>		
3-1	Process to determine material topics	Determination of material issues

# GRI Index

Disclosure Issues/Disclosure Items	Title of Disclosure Items	Chapter Index
3-2	List of material topics	Determination of material issues
3-3	Management of material topics	Communications with stakeholders, Determination of material issues, Response to UN SDGs
<b>GRI 201: Economic Performance 2016</b>		
201-2	Financial implications and other risks and opportunities due to climate change	Response to climate change
201-3	Defined benefit plan obligations and other retirement plans	Employee care
<b>GRI 205: Anti-corruption 2016</b>		
205-2	Communication and training of anti-corruption policies and procedures	Business ethics
205-3	Confirmed incidents of corruption and actions taken	Business ethics
<b>GRI 206: Anti-competitive Behavior 2016</b>		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Compliance risk control, Business ethics
<b>GRI 301: Materials 2016</b>		
301-1	Materials used by weight or volume	Use of raw materials
301-2	Recycled input materials used	Use of raw materials

# GRI Index

Disclosure Issues/Disclosure Items	Title of Disclosure Items	Chapter Index
<b>GRI 302: Energy 2016</b>		
302-1	Energy consumption within the organization	Resource utilization
302-2	Energy consumption outside of the organization	Resource utilization
302-3	Energy intensity	Resource utilization
302-4	Reduction of energy consumption	Resource utilization
302-5	Reductions in energy requirements of products and services	Resource utilization
<b>GRI 303: Water and Effluents 2018</b>		
303-1	Interactions with water as a shared resource	Resource utilization
303-2	Management of water discharge-related impacts	Resource utilization
303-5	Water consumption	Resource utilization
<b>GRI 305: Emission 2016</b>		
305-1	Direct (Scope 1) GHG emissions	Response to climate change
305-2	Energy indirect (Scope 2) GHG emissions	Response to climate change
305-4	GHG emissions intensity	Response to climate change

# GRI Index

Disclosure Issues/Disclosure Items	Title of Disclosure Items	Chapter Index
305-5	Reduction of GHG emissions	Response to climate change
<b>GRI 306: Waste 2020</b>		
306-2	Management of significant waste-related impacts	Environmental management
306-3	Waste generated	Environmental management
306-4	Waste diverted from disposal	Environmental management
306-5	Waste directed to disposal	Environmental management
<b>GRI 308: Supplier Environmental Assessment 2016</b>		
308-1	New suppliers that were screened using environmental criteria	Supply chain
308-2	Negative environmental impacts in the supply chain and actions taken	Supply chain
<b>GRI 401: Employment 2016</b>		
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Employee care
401-3	Parental leave	Employee care
<b>GRI 403: Occupational Health and Safety 2018</b>		
403-1	Occupational health and safety management system	Occupational health and safety



# GRI Index

Disclosure Issues/Disclosure Items	Title of Disclosure Items	Chapter Index
403-2	Hazard identification, risk assessment and incident investigation	Occupational health and safety
403-3	Occupational health services	Occupational health and safety
403-4	Worker participation, consultation, and communication on occupational health and safety	Occupational health and safety
403-5	Worker training on occupational health and safety	Occupational health and safety
403-6	Promotion of worker health	Occupational health and safety
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Occupational health and safety
<b>GRI 404: Training and Education 2016</b>		
404-1	Average hours of training per year per employee	Employee development
404-2	Programs for upgrading employee skills and transition assistance programs	Employee development
404-3	Percentage of employees receiving regular performance and career development reviews	Employee development
<b>GRI 405: Diversity and Equal Opportunity 2016</b>		
405-1	Diversity of governance bodies and employees	Corporate governance, Rights and interests of employees
<b>GRI 406: Non-discrimination 2016</b>		
406-1	Incidents of discrimination and corrective actions taken	Rights and interests of employees

# GRI Index

Disclosure Issues/Disclosure Items	Title of Disclosure Items	Chapter Index
<b>GRI 408: Child Labor 2016</b>		
408-1	Operations and suppliers at significant risk for incidents of child labor	Rights and interests of employees, Supply chain
<b>GRI 409: Forced Labor 2016</b>		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Rights and interests of employees, Supply chain
<b>GRI 413: Local Communities 2016</b>		
413-1	Operations with local community engagement, impact assessments, and development programs	Public welfare
<b>GRI 414: Supplier Social Assessment 2016</b>		
414-1	New suppliers that were screened using social criteria	Supply chain
414-2	Negative social impacts in the supply chain and actions taken	Supply chain
<b>GRI 416: Customer Health and Safety 2016</b>		
416-1	Assessment of health and safety impacts of products and services	Quality control
<b>GRI 418: Customer Privacy 2016</b>		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Customer service, Information security

# Reader Feedback Form

To whom it may concern:

Thank you for reading this report. We look forward to your evaluation on this report and valuable suggestions for us to continuously improve our work.

Choice question (please mark "√" in the corresponding position)

## 1. What is your identity?

- Government  Investor  Employee  Customer  Supplier/Contractor  
 Partner  Peer  Community and public  Media  Non-governmental organization  Others (please specify)

## 2. What do you think of the overall ESG performance of the Company?

- Very good  Good  Average  Poor

## 3. What is your overall impression of this report?

- Very good  Good  Average  Poor

## 4. What do you think of the quality of ESG information disclosed in this report?

- Very good  Good  Average  Poor

## 5. What do you think of the structure of this report?

- Very reasonable  Relatively reasonable  Average  Relatively unreasonable

## 6. What do you think of the layout design and presentation format of this report?

- Very good  Good  Average  Poor

## 7. Are there any expectations for the ESG work of the Company?

In case of any questions or suggestions about the ESG report, feel free to contact us through the following contact information:

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