



GigaDevice



GigaDevice Semiconductor Inc.

Address: Building 8, IC Park, No. 9 Fenghao East Road, Haidian District, Beijing

Postal Code: 100094

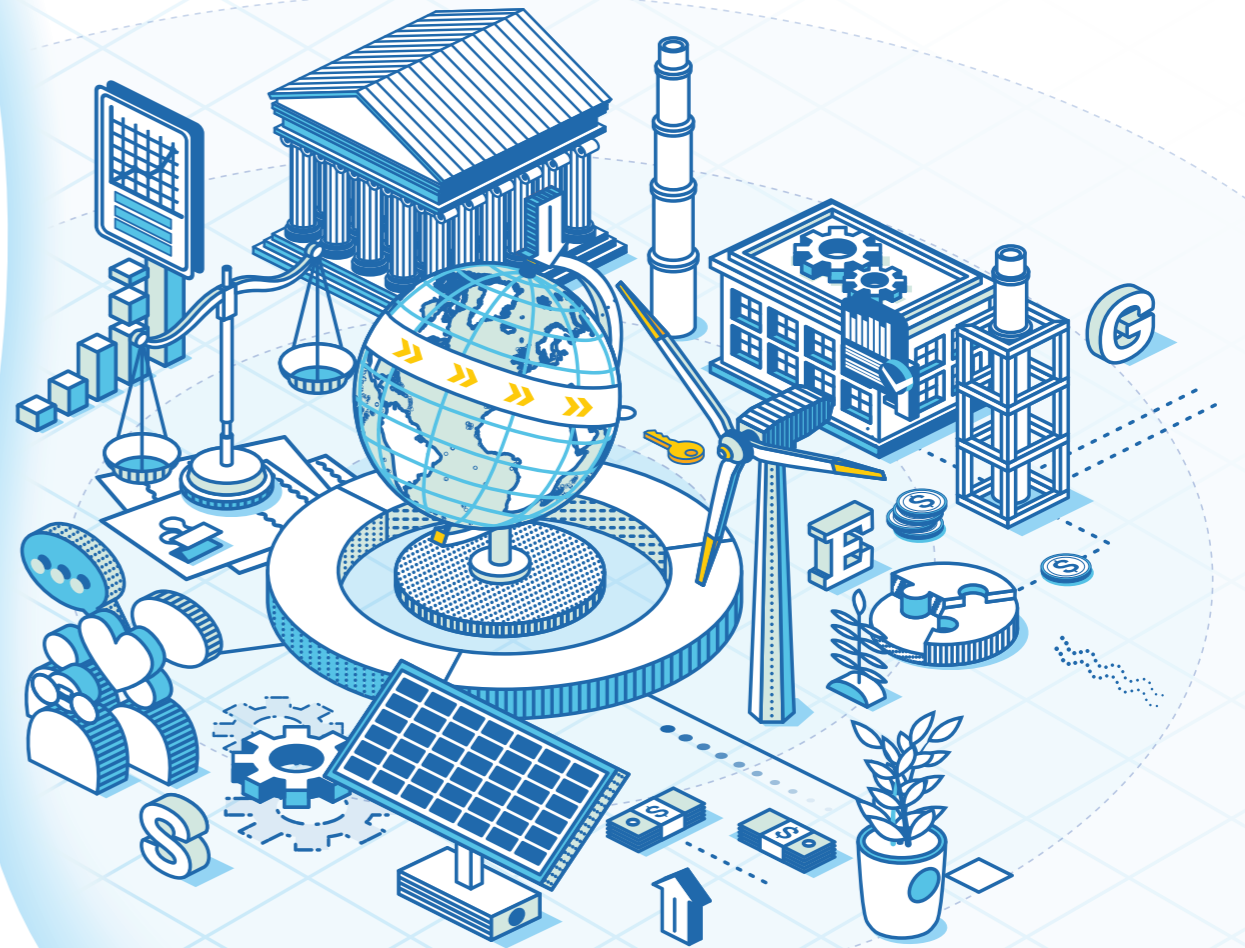
Tel : 010-82881666

Website: www.GigaDevice.com

2021

GigaDevice Semiconductor Inc.

Environmental, Social and Governance Report



GigaDevice

| About the Report

This is the first environmental, social and governance (ESG) report released by GigaDevice Semiconductor Inc. to communicate with stakeholders on the Company's ESG efforts and performance.



Reporting Period

This report covers the period from January 1 to December 31, 2021, with part of the content beyond this period.



Reporting Scope

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



Unit

The monetary unit is the Chinese yuan in renminbi.



Preparation Basis

This report has been prepared with extensive reference to the "Core Option" of GRI *Sustainability Reporting Standards* (2016) by the Global Sustainability Standards Board (GSSB).



Reference

For ease of presentation and readability, GigaDevice Semiconductor Inc. is referred to as "GigaDevice," "the Company," and "we/us" in the report.



Source of Data

All information and data come from the Company's official documents, statistical reports, and financial reports, as well as the ESG information recorded, collected, and reviewed by the Company.



Statement

Prospective descriptions like business plans and development strategies in this report do not constitute the Company's substantial commitment to investors.



Access

The report is published in both Chinese and English. In the event of any inconsistency, the Chinese version shall prevail.

You may browse and access this report on GigaDevice's official website:

<https://www.GigaDevice.com>

Contents

	01	02	03	04	05	06	
About the Report	Section 1 About Us	Section 2 Governance	Section 3 Product	Section 4 Employees	Section 5 Environment	Section 6 Partnerships	Key Performance Indicators
01	07-12	13-20	21-28	29-44	45-54	55-68	69
Message from the Chairman	Company Profile / 07 Milestones / 09 Recognitions in 2021 / 11 Performance Highlights in 2021 / 12	Corporate Governance / 15 Trade Compliance / 16 Integrity / 17 Stakeholder Communication / 18 Determination of Material Issues / 19	Product Innovation / 23 Quality Control / 25 Customer Service / 27 Information Security / 28 Intellectual Property / 28	Employee Rights and Interests / 31 Employee Development / 33 Employee Care / 37 Occupational Health and Safety / 43	Environmental Management / 47 Resource Usage / 49 Response to Climate Change / 51 Low-Power Products / 53 Raw Material Use / 54	Supply Chain / 57 Industrial Cooperation / 59 Public Welfare / 65	GRI Standard Index
05							71
							Feedback Form
							75

I Message from the Chairman



Staying true to the original aspiration, GigaDevice has been vitalizing the industry since its establishment. GigaDevice has achieved rapid growth with diversified product portfolio and sustainable supply network. We're committed to expand product lines, upgrade product structure, and invest significantly in R&D to maintain our leadership and extend footprint in new segment. In the best-ever results of 2021, I'm proud of the tireless efforts from our employees in product innovation, low carbon, environmental protection, employee development, and social responsibility. Thanks to the efforts of every GigaDevicer, who is true to their original aspirations and ambitious goal and responsible to tackle the challenges. This report is GigaDevice's first independent ESG report, witnessing our commitment and determination to social responsibility.

The product quality control is the priority in our company value. The target is to achieve double zero, i.e. zero abnormality in the manufacturing process and zero defect in products. At GigaDevice, we continue to maintain our technology advantage and diversify our product portfolio in order to provide customers with holistic and perfect product solutions. In product engineering process, we emphasize environmental protection and energy efficiency to offer low-power consumption products, to minimize the environmental impact of end product; In operation process, we're facilitating the sustainable workplace to reduce the energy consumption. In 2021, GigaDevice has accomplished the environmental goals by taking multiple measures. We're glad to achieve our goal of carbon reduction, environmental protection and actively respond to climate changes.

GigaDevice's sustainable growth is built on a solid and stable foundation of human resources. Guided by "people-oriented, pragmatism, and innovation", we aim to create a diversified, equal, harmonious, and inclusive workplace for each GigaDevicer by protecting their legal rights, establishing a comprehensive training program and offering the transparent promotion paths. Therefore, we're attracting considerably high-quality and high-level talents in the team. In addition, at GigaDevice, we actively support public welfare initiatives, foster industry-university-research cooperation, participate in numerous industry summits, contribute to talent training, and develop technological innovation in the industry to fulfil our social value.

In the past few years, we have made solid steps against the ever-changing macro-environment. In the future, we will continue to invest more in innovation, upgrade our products, and improve our customer service; we will further contribute to the national goals of carbon neutrality, and a bright future for humanity through our public welfare, education, and environmental protection efforts.

Zhu Yiming
Chairman



Section 1

About Us

07-12

Company Profile / 07

Milestones / 09

Recognitions in 2021 / 11

Performance Highlights in 2021 / 12

Company Profile

GigaDevice is a leading fabless semiconductor company dedicated to developing advanced memory technology, MCU, and sensor solutions. As a Beijing-headquartered company, we were founded in 2005 and completed the IPO on Shanghai Stock

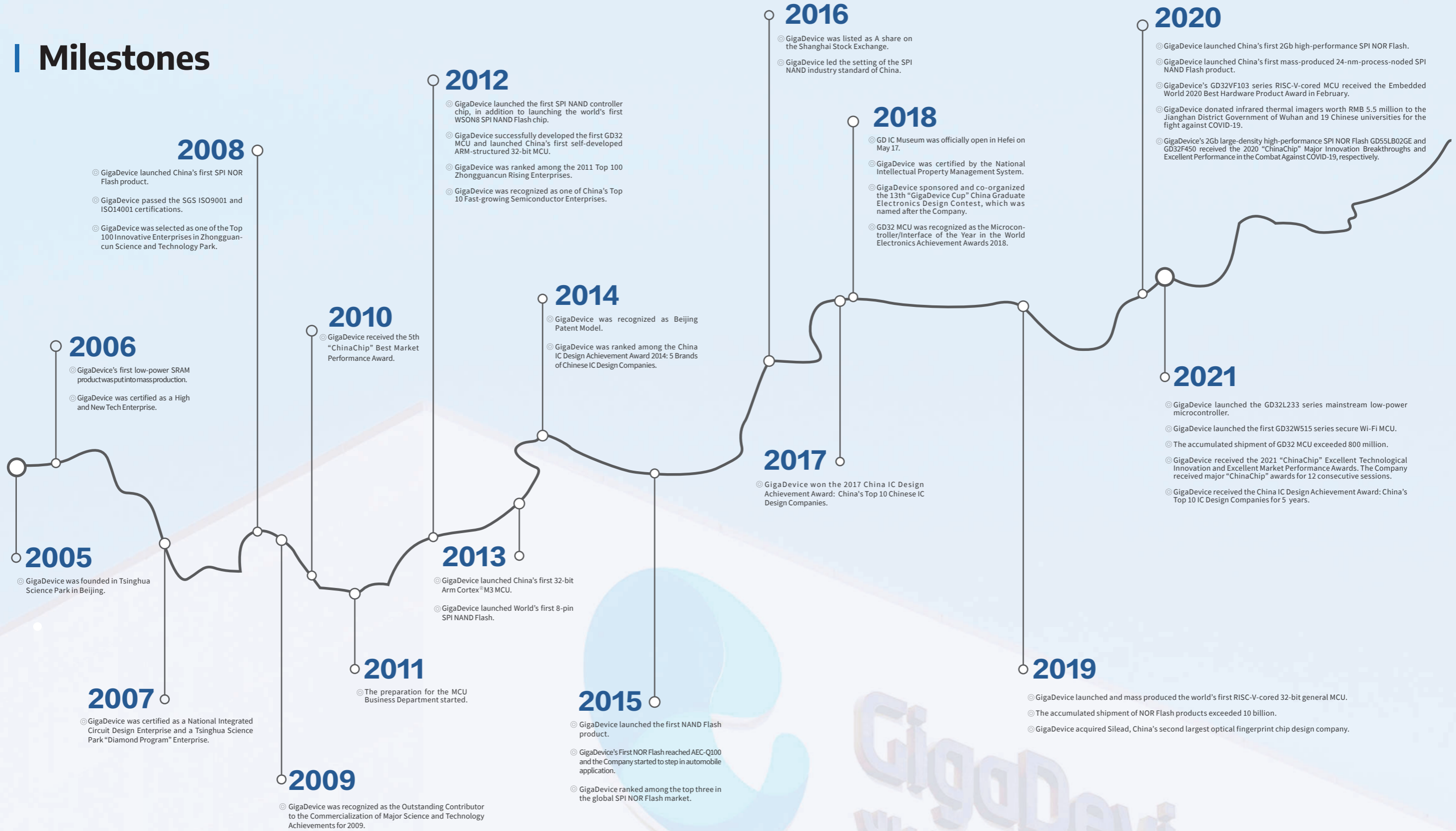
Exchange in August 2016. We have branches and offices in many places in China, as well as the U.S., South Korea, Japan, the U.K., Germany, and Singapore, with a marketing network extending globally.

We are principally engaged in the research, development, technical support, and sales of flash memory chips (NOR Flash and NAND Flash) and their derivatives, 32-bit MCU, intelligent human-machine interaction sensors, and power products. Our products, known for the high performance and low power consumption, are widely used in the areas of industrial control, automotive electronics, network and communications, PCs and their peripherals, IoT, consumer electronic products, and mobile applications. With a cumulative shipment of over 19 billion and an annual shipment of over 2.8 billion, GigaDevice is the largest in the Chinese market for NOR Flash and one of the world's top three suppliers. At the same time, it is one of the world's top ten MCU suppliers and China's No. 1 Arm general-purpose MCU supplier,

offering more than 450 models in more than 37 series, with a cumulative shipment of over 1 billion. Many renowned domestic and international mobile terminal manufacturers employ our touchscreen and fingerprint identification chips. GigaDevice ranks fourth in the global market of touchscreen chips and third in the global market of fingerprint chips.

We have entered strategic partnerships with leading fab, packaging, and testing foundries worldwide to jointly promote technological innovation in the semiconductor area by strengthening upstream and downstream cooperation in the industry and optimizing supply chain management.

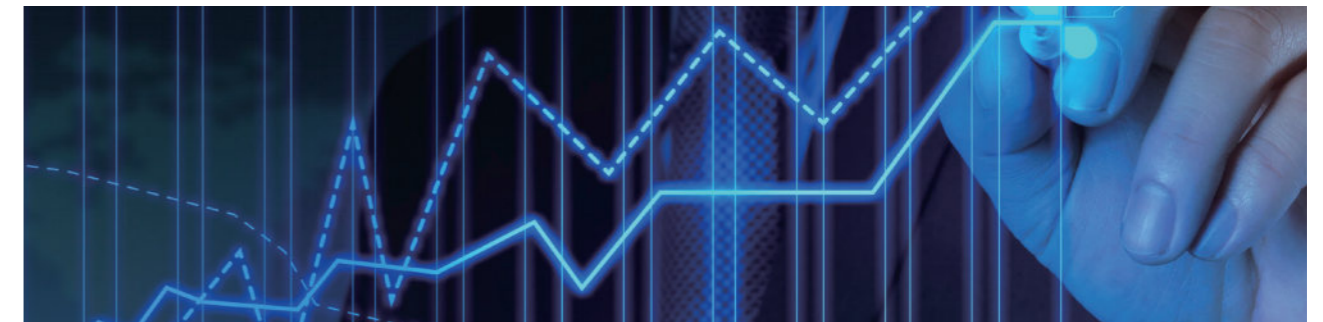
Milestones



Recognitions in 2021

Award Winner	Award	Issuer
GigaDevice	Top 10 IC Design Companies in China	ASPENCORE
	2021 Forbes China Most Innovative Companies	Forbes
	2020 Top 10 Integrated Circuit Companies in China	China Semiconductor Industry Association
	2020 Automotive Electronics Science and Technology Award: Rising Enterprise	Shenzhen Automotive Electronics Industry Association
	2021 Top 10 Semiconductor Brands of the Chinese Nation	Hc360.Com
	2021 Most Influential IC Design Companies	Shenzhen Xin Master Technology Co., Ltd.
GigaDevice GD25T/LT Series	ELEXCON 2021: Memory Breakthrough Award	Informa Markets Creativity
GigaDevice GD32VF103	Top 10 RISC-V Chips Most Favored by Engineers in China	ASPENCORE
GD25LT Series	2021 Memory Product Award	ASPENCORE
	2021 the 6th China IoT Technological Innovation Award	Electfans.com
	2021 the 16th "ChinaChip" Technological Innovation Product of Excellence	China Center for Information Industry Development, CCID
GD32E230 Series	2021 Microcontroller/Interface Product Award	ASPENCORE
	2021 the 16th "Chinese Chip" Market-favored Product	China Center for Information Industry Development, CCID
	2021 MCU Chip of the Year	Shenzhen Xin Master Technology Co., Ltd.
GD32E50x Cortex-M33 MCU	Microcontroller of the Year	ASPENCORE
GD32V Series MCU	2021 the 6th China IoT Technological Innovation Award	Electfans.com
GD55B/LB02GE	Memory of the Year	ASPENCORE
Domestically Manufactured Automotive-grade Flash Memory Chip	2021 Excellent Innovation Result of the Chinese Automobile Supply Chain	China Association of Automobile Manufacturers (CAAM)

Performance Highlights in 2021



Performance Growth

- ⊙ In 2021, our revenue was **RMB 8.510 billion**, an increase of **89.25%** over the same period in 2020.
- ⊙ In 2021, our net profit attributable to listed company shareholders was **RMB 2.337 billion**, an increase of **165.33%** over the same period in 2020.
- ⊙ As of the end of 2021, our total assets were **RMB 15.418 billion**, an increase of **31.66%** over the same period in 2020.

Research, Development, and Innovation

- ⊙ **RMB 940 million** was invested in research and development, accounting for **11.05%** of the revenue, an increase of **73.77%** compared to 2020.
- ⊙ Technicians accounted for **70.59%** of the workforce, more than **53.16%** of which hold a master's degree or above.
- ⊙ We have been granted **834** authorized patents, including **136** in 2021, with invention patents accounting for **80%**.

Energy Conservation and Environmental Protection

- ⊙ In 2021, our solid waste was **100%** disposed of or controlled, and **100%** of its solid waste was collected for recycling.
- ⊙ The corrugated boxes used for the outer packaging of our products have passed the FSC forest system certification and are 100% recyclable and reusable.

Partnership

- ⊙ 100% of our core suppliers are ISO9000 and ISO14000 certified.
- ⊙ We enhanced the industry-university-research cooperation, developed the industrial ecosystem, and attended many industry summits, promoting technological innovation in the semiconductor field with our partners.
- ⊙ In 2021, we invested **RMB 203,731.56** and **177.5** hours in public welfare undertakings, which engaged **133** participants from the Company.

Section 2

Governance

13-20

Corporate Governance / 15

Trade Compliance / 16

Integrity / 17

Stakeholder Communication / 18

Determination of Material Issues / 19

GigaDevice is constantly optimizing and improving its ESG management system, improving its ESG governance structure, and enhancing corporate governance and risk resistance capabilities. We adhere to business integrity and compliance management, ensure honest practice, earnestly safeguard the interests of investors, and steadily enhance the value of the Company.

Corporate Governance

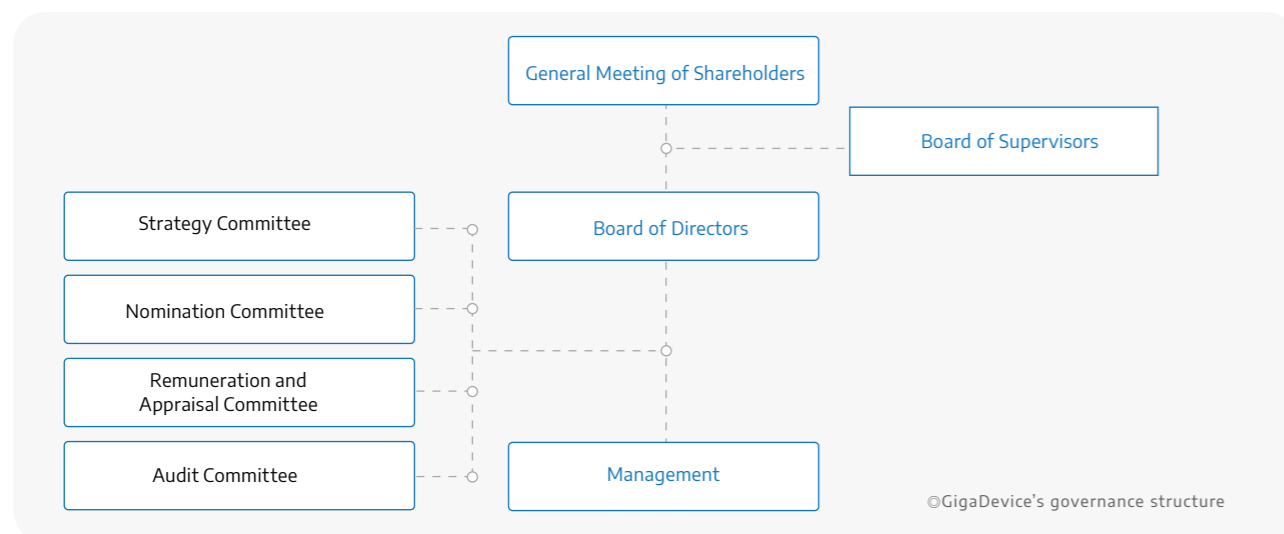
Governance Structure

According to 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, GigaDevice has established a governance system comprised of the General Meeting of Shareholders, the Board of Directors, the Board of Supervisors, and the company management, with a clear division of rights and responsibilities, coordinated operation, and effective checks and balances. According to relevant 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*, and a *Work System for Independent Directors*. These corporate governance policies 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. The directors represent many different 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 diligently carried out their duties in 2021 with the best interest of all shareholders in mind. Throughout the year, there were 6 General Meetings of Shareholders, 12 meetings of the Board of Directors, and 12 meetings of the Board of Supervisors. Each of them complied with laws, regulations, and the Company's policy in convening, proposals, holding, voting, resolutions, and meeting minutes.



Information Disclosure

We make truthful, accurate, complete, timely, and fair information disclosure and protect investors' right to know in strict 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 for Material Information*, *Management System for Information Disclosure Suspension and Exemption*. Investors can access the Company's announcements in *Shanghai Securities News*, *Securities Times*, and the website of the Shanghai Stock Exchange (www.sse.com.cn).

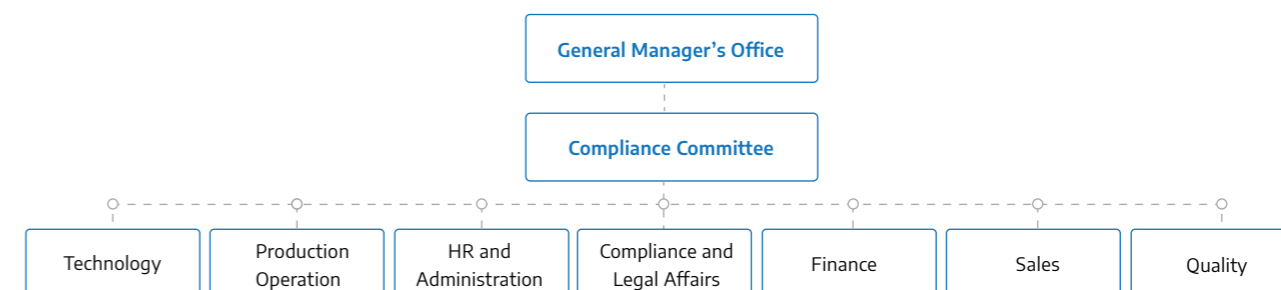
Investor Relations Management

We constantly connect 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 results briefings. At the SSE Roadshow Center in 2021, we held 2 online results briefings. We extensively exchanged with investors our performance in 2020 and the first half of 2021. In addition, we hosted 8 investor conference calls with an average attendance of about 400 to 500 every session.

Trade Compliance

GigaDevice strictly abides by the *Company Law of the People's Republic of China*, the *Guidelines for the Compliance Management of Enterprises' Overseas Operation*, the *ISO19600 Compliance Management Systems—Guidelines*, the *GBT35770-2017 Compliance Management Systems—Guidelines*, and other relevant laws, regulations, and standard guidelines. We emphasize corporate compliance control and risk governance and actively improve our trade compliance management mechanism. We have developed internal compliance systems such as the *Trade Compliance Management Measures* and the *Compliance Manual Guidelines* to clearly assign compliance responsibilities. At the same time, we put effort in creating a compliance culture to achieve standardized, sustainable, and steady development of the Company.

We have built a compliance management organizational structure with clearly defined powers and responsibilities. A Compliance Committee under the General Manager's Office, composed of department heads of the Company and directors of subordinate companies, has been established. They are totally responsible for organizing, coordinating, and directing the Company's trade compliance management and supervising and reviewing the compliance of the Company departments' business management and behaviors. The Compliance and Legal Affairs Department serves as the executive body for trade compliance management, while other departments are responsible for trade compliance responsibilities according to their business scope. Internal audit responsibilities and trade compliance management responsibilities have been divided, with the former for internal audit supervision and the latter for trade compliance risk prevention and control.



In 2021, we organized 2 export control compliance checks and confirmed that the distributors at the sales end and direct accounts signed the *Customer Questionnaire and Statement*. The two audits revealed that the distributors and direct accounts completed the paperwork, and the trade compliance awareness on the sales side was improved.

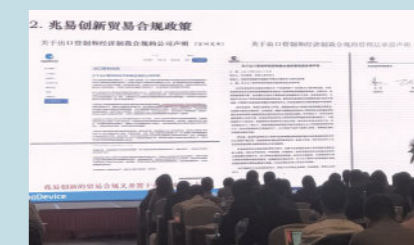
In 2021, we scheduled 8 compliance training sessions for all sales representatives, all employees at the Operation Department, and compliance managers from all other departments. The seminars included laws

and regulations on export control and economic sanctions, the Company's policies on trade compliance, and the interpretation of the main points of the *Personal Information Protection Law of the People's Republic of China*. Three basic legal training sessions were also held. A training session on contract review and archive management on the E-learning platform was provided for all employees, so did training sessions for sales personnel on contract review and general problems in it, requirements on sales contract review, and the handling of regular clauses. All the above training sessions achieved the desired results.

Case

Compliance Training on Export Control and Economic Sanctions

On March 31, 2021, a compliance training session on export control and economic sanctions was held for all sales personnel and agents. It presented details of the Company's trade compliance policy, a summary of laws and regulations on export control and economic sanctions, and reporting methods and penalties for violations. The training session achieved the desired effect. All participants in the training had a better understanding of the Company's compliance policy.



©The compliance training on export control and economic sanctions

Integrity

GigaDevice upholds the principle of integrity. We strictly abide by the *Anti-Monopoly Law of the People's Republic of China*, the *Anti-Unfair Competition Law of the People's Republic of China*, and other applicable laws and regulations regulating our business conduct. We engage in business activities and market competition in compliance with laws and regulations and oppose any form of commercial bribery and unfair competition. We have developed an internal *Integrity Management System* and *Integrity Code of Conduct* to foster an environment of integrity and enhance employees' integrity awareness and self-discipline. To strictly maintain our honest and upright corporate image, executives above the head of a first-level department and staff at key departments must sign the *Letter of Commitment to Anti-Commercial Bribery*.

The General Manager's Office directs the Company's integrity management and supervises the management to foster an ethical corporate culture. The office will investigate the source for any integrity violation and take appropriate corrective action as soon as possible. It also assesses internal risks and makes improvements. During the reporting period, GigaDevice was not involved in any lawsuit related to corruption.








We encourage employees and all parties with direct or indirect business dealings with us to report actual or suspected violations of integrity by any department or employee via various channels, such as making telephone calls and sending emails and letters.

We firmly maintain the confidentiality of the whistleblower's name, workplace, address, and other personal information and never present materials containing the whistleblower's personal information, such as the report letter, to the department or person under investigation. On the other hand, personnel who accept, register, review reports, and investigate and handle cases of integrity breach must be devoted to their jobs and maintain confidentiality. Persons with relatives or interests in the case shall proactively avoid the process.



Stakeholder Communication

GigaDevice attaches great importance to stakeholder communication and constantly improves its communication mechanism. We maintain close contact with the government, shareholders, customers, suppliers, business partners, and other stakeholders. We identify stakeholders' feedback and expectations on the Company, make targeted responses to them, and improve the Company's performance on material issues.

Stakeholder	Issue	Response Channel
 The government and regulators	<ul style="list-style-type: none"> Corporate governance, internal control and compliance Product quality Innovation and R&D 	<ul style="list-style-type: none"> Regular reporting and communication Special surveys and field meetings Forums and exchange programs
 The community and NGOs	<ul style="list-style-type: none"> Public welfare and charity Industry-university-research cooperation Business ethics 	<ul style="list-style-type: none"> Popular science events Community promotion Education support
 Shareholders and investors	<ul style="list-style-type: none"> Business ethics Business performance Product quality 	<ul style="list-style-type: none"> Information disclosure announcements Roadshows and investor meetings General Meeting of Shareholders Company website
 Customers	<ul style="list-style-type: none"> Product quality Customer service Business performance 	<ul style="list-style-type: none"> Service hotline Customer satisfaction surveys
 Business partners	<ul style="list-style-type: none"> Product quality Privacy and data security Business ethics 	<ul style="list-style-type: none"> Strategic partnerships
 Suppliers	<ul style="list-style-type: none"> Supply chain management Privacy and data security Business ethics 	<ul style="list-style-type: none"> Supplier conferences Strategic partnerships Regular communication
 Employees	<ul style="list-style-type: none"> Occupational health and employee benefits Human capital management Business performance 	<ul style="list-style-type: none"> All hands meeting Complaint mailboxes

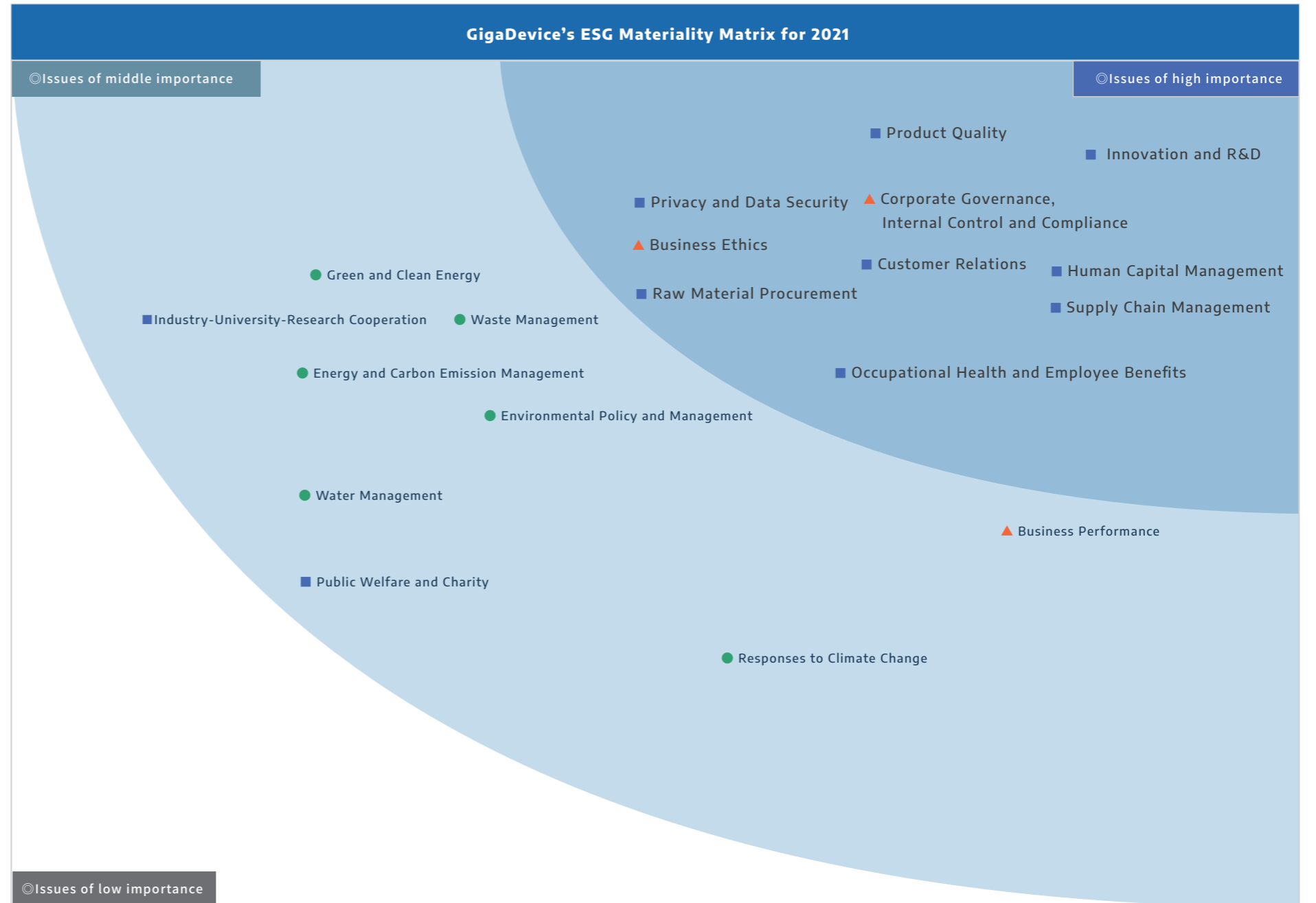
Determination of Material Issues

We interact and connect with stakeholders in our day-to-day production and business operations to collect their opinions and suggestions on GigaDevice's sustainability management to ensure accuracy and thorough information sharing. We comprehensively evaluate changes in issues concerning the industry and ESG development trends to determine the sustainability topics for the year.

We identify major ESG issues through materiality analysis to understand stakeholders' concerns, expectations, and demands for the Company in sustainability and to self-examine the effects internally. We use materiality analysis to discover and evaluate ESG issues concerning GigaDevice and understand the degree of stakeholders' concern about an issue and its influence on GigaDevice's sustainable operation. Based on the results, we determine the material issues to serve as the goal and foundation of our sustainable management.

Issues of high importance	
Innovation and R&D	Corporate Governance, Internal Control and Compliance
Product Quality	Privacy and Data Security
Human Capital Management	Raw Material Procurement
Supply Chain Management	Business Ethics
Customer Relations	Occupational Health and Employee Benefits

Issues of middle importance	
Green and Clean Energy	Responses to Climate Change
Business Performance	Water Management
Environmental Policy and Management	Industry-University-Research Cooperation
Waste Management	Public Welfare and Charity
Energy and Carbon Emission Management	



Section 3

Product

21-28

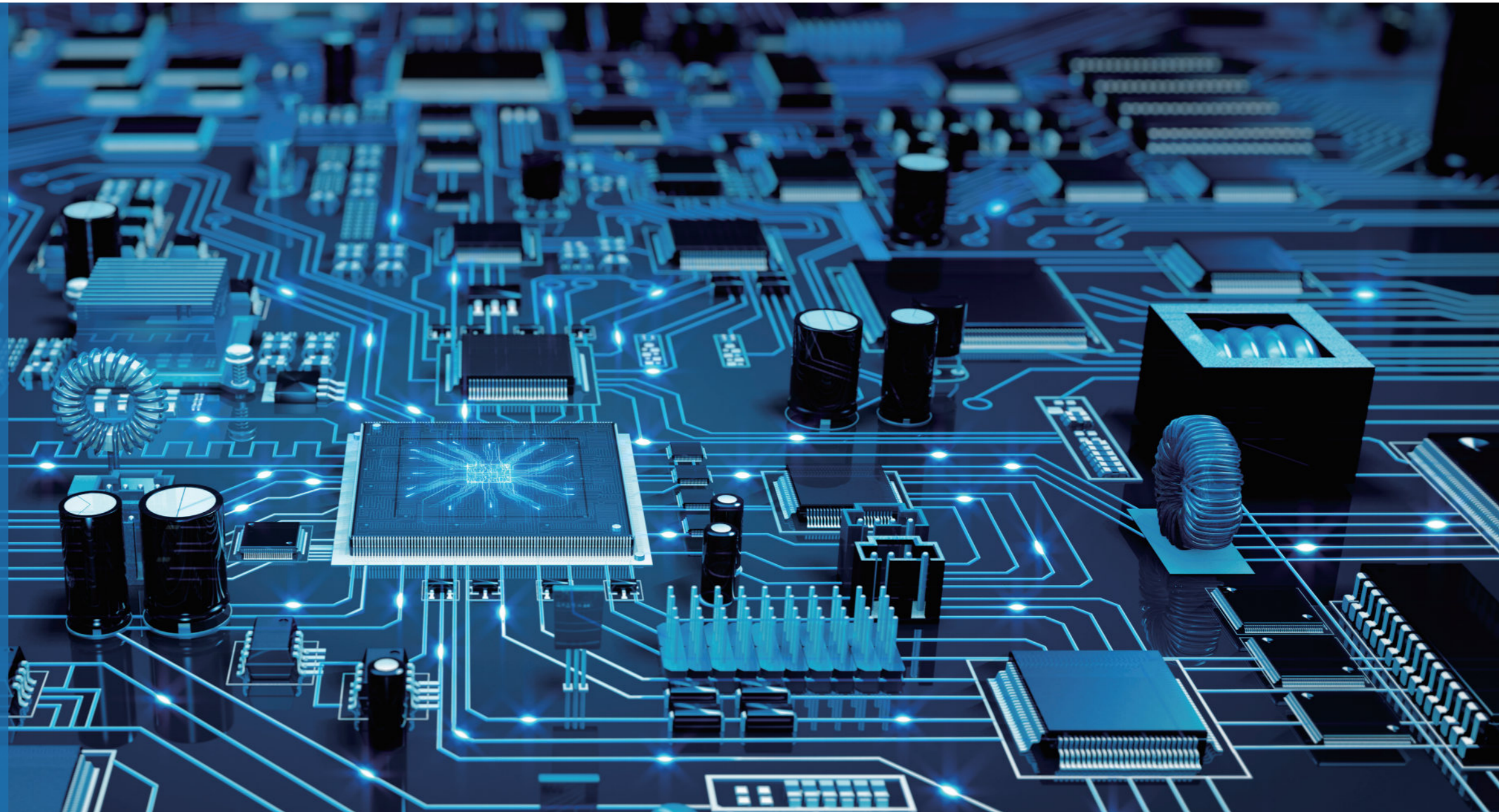
Product Innovation / 23

Quality Control / 25

Customer Service / 27

Information Security / 28

Intellectual Property / 28



GigaDevice is dedicated to innovation, research, and development. We focus on enhancing core competitiveness and strengthening the entire ecosystem with flash memory, microcontrollers, and sensors serving as the core driving force. We offer a wide range of application solutions for industry, automotive, communications, the Internet of things (IoT), mobile devices, consumer electronics, and PCs and their peripherals.

Product Innovation

GigaDevice considers innovation to be the Company's core competitiveness. We are constantly improving our independent research and development capabilities and ability to commercialize research discoveries and launch products and solutions that meet market needs. During the reporting period, GigaDevice invested RMB 940 million in research and development, an increase of 73.77% over 2020.

We build technical protection and enhance technology-product synergy based on rich and complete product lines of flash memories, MCU series, and sensors.

Our flash memory products cover NOR Flash, SLC NAND Flash. We provide the market with a diverse portfolio of NOR Flash products, which feature large density, high performance and high reliability, low power consumption, and small packaging. In terms of product density and process node,

our NOR Flash products cover a density range from 512Kb to 2Gb, and our NAND Flash products cover the mainstream density from 1Gb to 8Gb. We consistently optimize product structure, expand application areas, and achieve good growth in industry, PCs, automotive electronics, and wearable. In terms of automotive-grade products, with the whole GD25/55 and GD5F series having passed the AEC-Q100 automotive-grade certification, we have achieved a comprehensive automotive-grade product portfolio from SPI NOR Flash to SPI NAND Flash, providing plenty of choices for the localization of automotive applications.



©The GD5F SPI NAND FLASH

In 2021, we launched a low-power MCU series suitable for battery-powered systems, like industrial meters, test instruments, and portable applications that require high energy efficiency. We also launched wireless MCU products that can be connected to the IoT cloud and applied in smart home appliances and IoT smart terminals. In addition, we continued to improve our MCU ecological synergy and mass-produced motor driver chips and power management chips. In automotive applications, our MCU products are steadily entering the automotive-grade market and are

expanding their applications in the automotive area. We are now actively promoting the mass production of 40-nm automotive-grade MCU products. For mainstream industrial applications like industrial automation, energy and power, security and fire protection, we are planning a high-performance MCU portfolio. We constantly evolve and enrich our positioning as a "MCU department store" to provide customers with complete solutions.



©The Cortex-M33-cored Wi-Fi MCU

Our sensor products are widely used in the LCD touchscreen, capacitive fingerprint, optical fingerprint markets, especially in the field of capacitive fingerprint. We have made intensive efforts in the side fingerprint of mobile terminals and launched a series of capacitive side-fingerprint products, which are suitable for mobile phones of different specifications. Our enhanced self-developed algorithm provides users with more systematic sensor solutions. Our LCD touchscreen products are widely

used in the industry. Our upcoming OLED touchscreen products and next-generation LCD touchscreen products will lead the industry and meet the needs in the consumer electronics, automotive, and other markets. We have also launched AI and ultrasound products, such as ToF, 3D images, and blood pressure monitoring, aiming at the needs in mobile phones, wearables, mobile medical, IoT, and other areas.

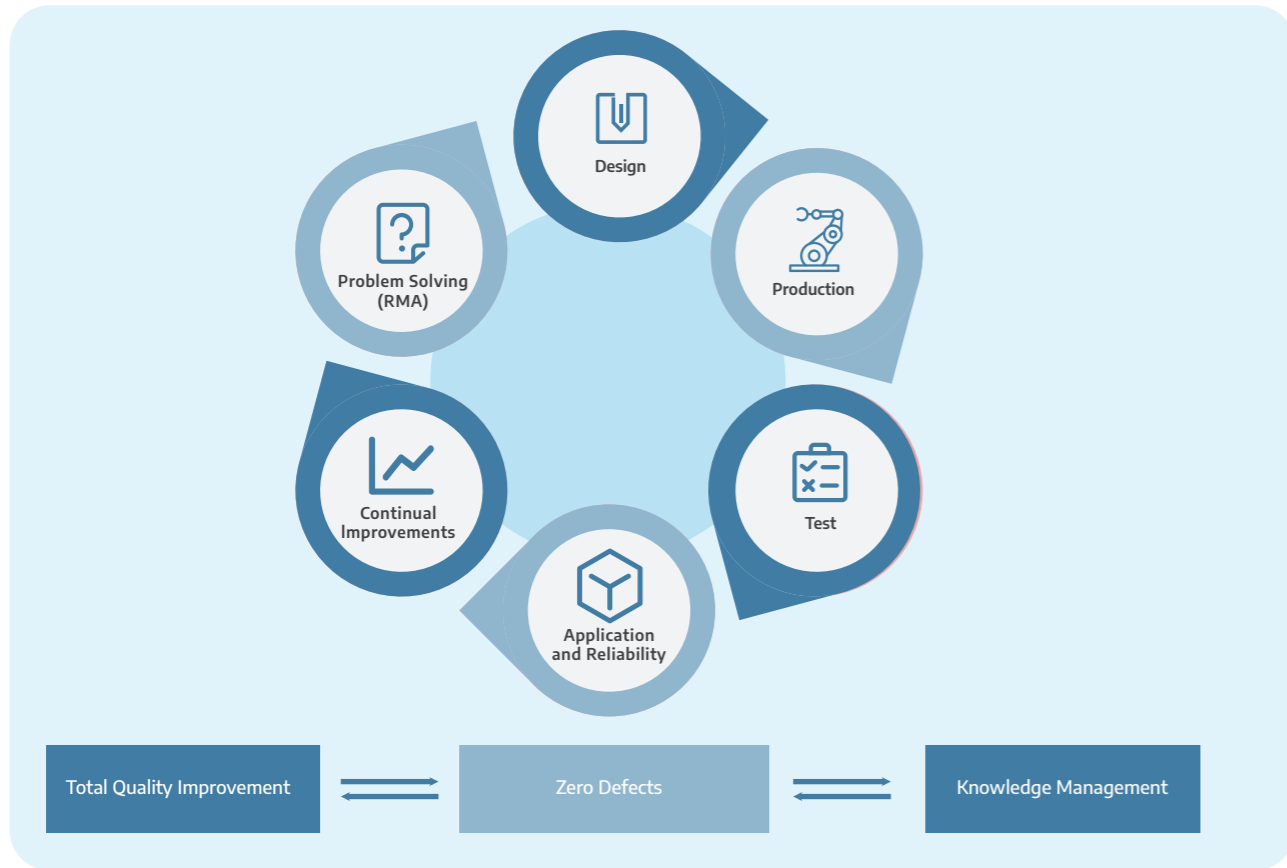
Quality Control

GigaDevice values product quality control and is dedicated to providing customers with high-quality goods and services. We are ISO9001 quality management system certified and continually carry out quality improvements according to the conditions of demand product lines. GigaDevice employs reliability management across the entire research-development-manufacturing process and has established a *Regular Reliability Monitoring Procedure* for comprehensively managing all projects concerning quality and reliability. During qualification, process level reliability and product level reliability are evaluated and verified. And wafer level, product level and package level reliability monitor during production is also managed. Our products are subject to rigorous full-functional tests before delivery. We treat customer complaints after delivery seriously. We follow customer complaint handling procedures, carefully investigate the reasons for the complaint, develop countermeasures, and respond to the customers promptly. As a result, we can fulfill our commitment to quality and better serve our customers worldwide.

In 2021, we carried out a Zero Defects Quality Program across all product lines. We made efforts in product design, manufacturing, and testing, reliability inspection, continuous improvements, and review of returned material to reduce or eliminate defects, and achieved the goal of zero anomalies in production and zero defects in products.



©The ISO9001 certificate



©The Zero Defects Quality Program

Case The Zero Defects Quality Program

During the reporting period, the Zero Defects Quality Program covered more than 10 projects. Among them, the key was the establishment of the IPD (Integrated Product Development) process. Under the existing IPD system framework, we unified and standardized the research and development process and nodes in GigaDevice's existing product business line based on the development process of APQP for automotive products, and added inspection standards for product and process quality control to achieve full compliance. That way, we improved quality in all aspects.



©Over 10 projects during the reporting period

GigaDevice has a complete product recall management process, covering problem identification, risk assessment, impact judgment, graded recall actions, cause analysis, and improvements. In the event of a necessary product recall, we will assess the scope of the product risk as soon as possible and develop containment measures to prevent the situation from escalating. In the event of a risk lot, we will ensure that those products are all isolated and set up a check and control post in the system, so that the shipped products can be recalled in time to the defective product warehouse. If the abnormality is caused by the production line, we will immediately notify the production line to stop production and isolate the risk lot to avoid the outflow and expansion of the abnormality. We will investigate the cause of recall incidents and develop corrective and preventive measures to prevent the recurrence of such incidents.

GigaDevice puts effort in creating a company-wide quality culture by promoting quality thinking, improving quality literacy, and training of quality management skills. Among them, the quality training program is GigaDevice's focus to enhance the quality culture. In 2021, we carried out 20 internal quality training sessions on the internal online training system E-Learning for SQE, CQE, and other quality-related departments. The courses covered the use of quality tools, training on product attributes, introduction to processes, and training on failure analysis, which comprehensively enhanced the employees' quality management ability.



©The quality training program in the E-learning system in 2021

Customer Service

We are constantly customer-oriented, continuously improving our services, and committed to providing customers with products and services of excellent quality.

GigaDevice manages customer service in a systematic and standardized manner. We have developed *Customer Service Operating Procedures*, established a customer service system that comprises the Global Customer Service Department and other 6 functional departments and the R&D department. We have defined the functions of each department and the service types, methods, and standards before and after the Company's products are sold. That way, we guarantee optimum service quality and customer satisfaction. We have set up dedicated delivery teams for different types of customers, and regularly conduct performance management and evaluation on their response and service.

We have a sound customer communication mechanism. We ensure timely

and effective customer communication and feedback and promptly resolution of customer problems through communication channels and methods such as site visits to customers, follow-up visits, telephone calls, and emails, so as to meet customer needs. For major risk events caused by natural factors, market fluctuations, changes in logistics, and other reasons, we will promptly provide risk reminders and early warnings to customers in phone calls and emails to help them identify and mitigate the possible impact of the risks.

We have established a comprehensive customer complaint management process and developed a *Customer Complaint Handling Procedure*, a *Failure Analysis Procedure*, and other internal rules and regulations. We follow the process and provide timely feedback to ensure high-quality products, experience, and customer satisfaction. By the end of the reporting period, we managed to address and reply to all complaints about product quality within the time frame stated and supervise responsible departments to make improvements. In 2021, we completed our RMA complaint rate¹ target for the year.

- 1

Complaint Responding

We classify customer complaint RMA² into two levels: serious and general. Complaints involving damage to the customer's reputation and ensuing claims or product scrapping are defined as serious customer complaints, while the rest are general customer complaints. We have developed a graded response mechanism for customer complaints, which is designed to efficiently address customer demands.
- 2

Investigation in the Cause of Failure

Complaints that require product failure analysis will be transferred to relevant departments for processing, which will develop corresponding solutions and respond to customers in a timely manner.
- 3

Rectification and Prevention

We will supervise responsible departments to implement corrective and preventive measures, and collect the customer's feedback through satisfaction questionnaires.

©Customer Complaint Handling Process

1.RMA complaint rate = the number of RMA-caused failing chips ÷ total shipment, where the total shipment = the total shipment in the first three quarters of the year and the last quarter of the year before.

2.RMA is for Return Material Authorization, the main process for handling defective products returned from customers and sending replacement.

Information Security

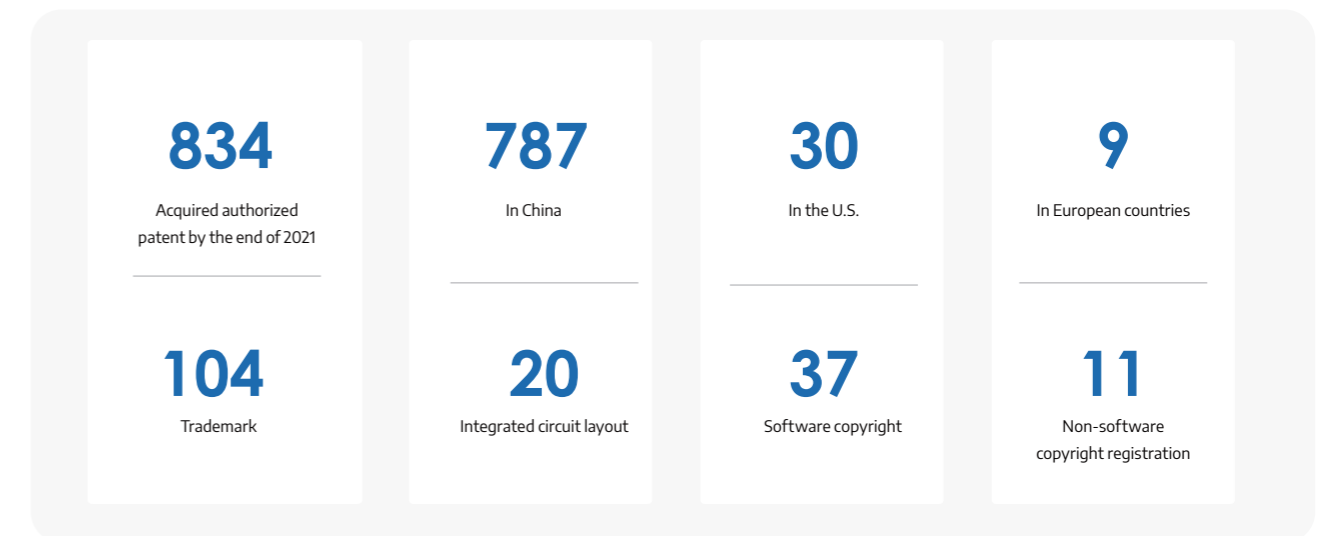
GigaDevice places a high value on information security and privacy protection. We have gradually established an information security management and control system. Regarding management, we have created and implemented an information security management system in line with the Company's status quo based on ISO27001, regarding the requirements of the *Cybersecurity Classified Protection System 2.0* and relevant laws and regulations. In terms of technology, we have developed a defense-in-depth system from the network boundary to terminal computers adhering to the principles of "giving priority to prevention and combining prevention with control." In the case of network security incidents, we actively prevent them, issue prompt warnings, and audit them afterward. We have employed a third-party security service agency annually for security audits since 2019. The security audit for 2021 focused on tracking the rectification of identified problems and compliance management for personal information. Problems were identified and corrected.

In terms of customer privacy protection, we have designed a *Graded and Classified Data Management System* and *Management Measures for System Account Authority and Passwords* to ensure that customer information and data are utilized and preserved in line with relevant management measures. Upon onboarding, GigaDevice requires all employees to sign a non-disclosure agreement, establishing a long-term mechanism for information protection. In order to effectively protect user privacy and information security for systems that contain private information, we strictly set user permission according to roles and regulate the application and approval processes for access to private information. In 2021, we carried out employee training on information security and confidentiality awareness to enhance employees' awareness of customer privacy protection and reduce or eliminate potential security risks. There were no significant data security incidents that occurred in GigaDevice in 2021.

Intellectual Property

GigaDevice strictly adheres to the *Patent law of the People's Republic of China*, the *Trademark Law of the People's Republic of China*, the *Copyright Law of the People's Republic of China*, the *Regulations for the Protection of Layout-design of Integrated Circuits*, and other intellectual property laws and regulations. We are constantly improving our invention management system, enhancing intellectual property management, and establishing an internal patent system. While defending our intellectual property rights, we completely respect other parties' intellectual property rights. Furthermore, we have established an incentive system to actively encourage employees to file intellectual property rights, including patents and copyrights. That way, we fully inspire employees' enthusiasm for innovation and form a corporate culture of innovation.

In order to provide a complete set of systems and solutions, including storage, control, sensing, edge computing, connectivity and other chips, as well as corresponding algorithms and software, we give full play to the synergistic effect of product lines. This creates technical protection and strengthens the Company's leadership in advanced technology. We acquired 834 authorized patents by the end of 2021, including 787 in China, 30 in the U.S., and 9 in European countries. In 2021, we applied for 136 patents in China and other countries, and 136 were approved. We also own 104 trademarks, 20 integrated circuit layouts, and 37 software copyrights, and we have 11 non-software copyright registrations.



Section 4

Employees

29-44

Employee Rights and Interests / 31

Employee Development / 33

Employee Care / 37

Occupational Health and Safety / 43



The key to a company's long-term and steady growth is its talent. In keeping with its culture and values of "people-oriented, pragmatism, and innovation" GigaDevice is dedicated to providing each employee with a diverse, equal, harmonious, and inclusive workplace. To achieve this, we place a high value on and uphold employees' legal rights, continuously enhance our talent development and incentive systems, and at the same time show concern for their health and wellbeing. We collaborate closely and develop alongside our employees.

Employee Rights and Interests

GigaDevice strictly adheres to the *Labor Law of the People's Republic of China*, the *Labor Contract Law of the People's Republic of China*, and all other pertinent laws and regulations, in addition to all labor and employment rules and standards of the jurisdiction in which it operates. We've established the internal *Recruitment Management System*, the *Employee Handbook*, and the *Employment Management Regulations*. We sign labor contracts with employees in accordance with the law, and child labor and forced labor are strictly prohibited. Thus, we effectively safeguard our employees' legal rights and interests. At the same time, out of respect for employees' legal rights and obligations, we have established diversified communication channels within the Company to uphold employee rights and interests and unleash employees' career potential.

discrimination in recruitment, training, remuneration, benefits, and career development based on gender, race, social class, religious belief, nationality, and disability. We have set up many positions suitable for people with disabilities and helped their employment by promoting the recruitment. Moreover, We respect cultural differences and are adamantly opposed to workplace bullies and harassment, and we are dedicated to creating a diverse, equal, and clean workplace for all employees.

As of December 31, 2021, GigaDevice had 1,343 permanent employees. Among them, there were 44 ethnic minority employees, and 70.59% were R&D and technical engineers. 100% of the employees had signed a labor contract with the Company, and covered by social insurance.

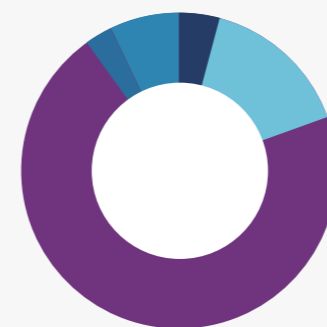
We practice equal and diverse employment and offer fair and reasonable job opportunities to job seekers. Specifically, We eliminate all forms of

Number of Employees by Gender, Position and Education Background



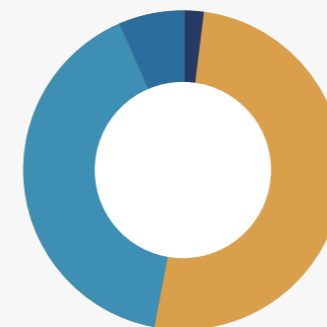
Categorization

- Female **493**
- Male **850**



Number of employees by position

- Operation **58**
- Sales **206**
- Other functions **95**
- Technology **948**
- Finance **36**



Number of employees by education background

- Doctor's degree **27**
- Bachelor's degree **542**
- Master's degree **687**
- Three-year college and below **87**

GigaDevice actively practices gender equality in workplace. We comply with the *Law of the People's Republic of China on the Protection of Women's Rights and Interests* and the *Special Rules on the Labor Protection of Female Employees*, implement equal pay for equal work between genders, and provide women with fair and equal employment opportunities and promotion environment. In the end of 2021, women accounted for 36.71% of the Company's workforce and there were female employees taking key positions at each level.

As of the end of 2021, there were

1,343 permanent employees	44 ethnic minority employees	70.59% were R&D and technical engineers
100% signed labor contract	100% had Social insurance	36.71% were female employees

Employee Development

A company's development is equated with its employees' growth. GigaDevice places a high value on retaining and attracting talent and is always looking to improve its workforce. We have developed some internal regulations and systems, including the *GigaDevice Promotion Mechanism*, the *GigaDevice Personnel Training and Development Plan*, and the *GigaDevice Training Management Regulations*. We have also established fair and transparent promotion channels and a comprehensive vocational training system, thus providing employees with a broad space for personal growth.

Talent Retention and Attraction

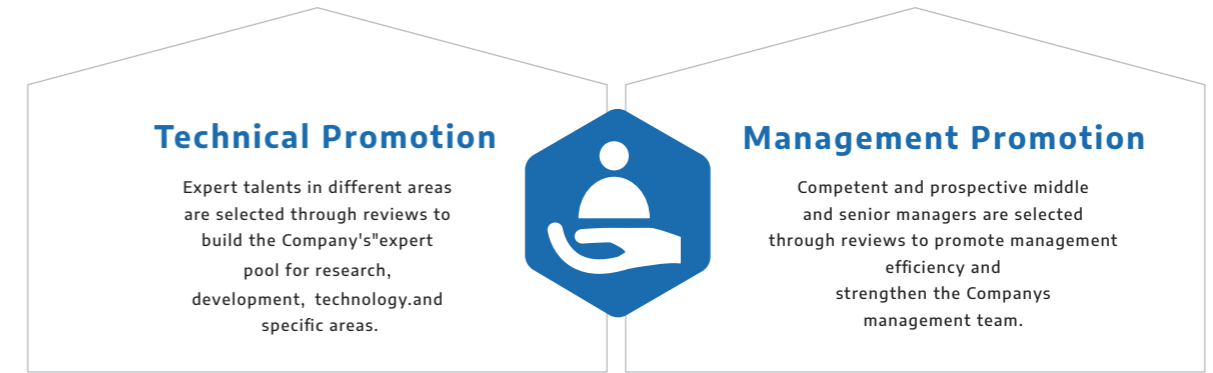
GigaDevice highly values developing a future talent pipeline and continuously expanding talent recommendation channels. We strengthen our collaboration with colleges and universities, which consistently supply high-quality talent to the Company. By 2021, GigaDevice's talent recommendation partners increased from 14 to 35. We held campus job fairs, visits, and interactions with over ten key universities under the 985 and 211 programs. Simultaneously, we update our internal referral policy, encourage our employees to recommend talent, and broaden the Company's talent pool. We had 854 employees engaged in research and development as of December 31, 2021, accounting for 63.6% of the total workforce.

As a tech company, GigaDevice actively introduces top talents that satisfies the Company's demands and industrial growth. More than 50 top-tier candidates were hired by GigaDevice in 2021, making up more than 12% of all new hires. We introduce senior analog designers and layout designers as part of our effort to create a technician pipeline of the highest caliber. Senior marketing and product directors are also introduced in order to aid the compa-

ny's growth in international markets. To further strengthen the Company's overall strength in cutting-edge technology exploration and platform-based pre-research, we have also established a central research institute to draw top talent in the sector.

GigaDevice makes an effort to attract talent. Through scientific and reasonable performance management, we systematically manage organizational and personal performance and fully embody the value of employees. At the same time, we place a high value on employee remuneration and security, and we make certain that employee remuneration is fair within the company and competitive in the industry. We encourage managers and employees to improve the Company's competitiveness through salary adjustments and incentives such as bonuses and stock shares. GigaDevice also conducts regular key job identification and talent inventory to promote organizational efficiency, focusing on evaluating the talent resources of core and new positions, and gradually improving job qualification and competency management.

GigaDevice invests in talent team development and creates various advancement paths for employees. We adhere to the principles of "promotion hierarchical management (for efficiency)," "talent allocation (for effectiveness)," and "talent structure planning (for risk prevention)." We are constantly working to improve the company's personnel selection and employment system. We have established two channels of promotion: technical and management. We have established rules for "natural promotion," "promotion by merit," and "promotion by review" for employees at various levels. These diverse promotion channels constantly boost employees' enthusiasm. Based on the organization's objective and fair evaluation results, we have also formed a Promotion Evaluation Committee. The committee conducts objective and scientific examinations 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 prospective middle and senior managers to advance the Company's strategic development goals.



©GigaDevice's technical and management promotion paths

Employee Training

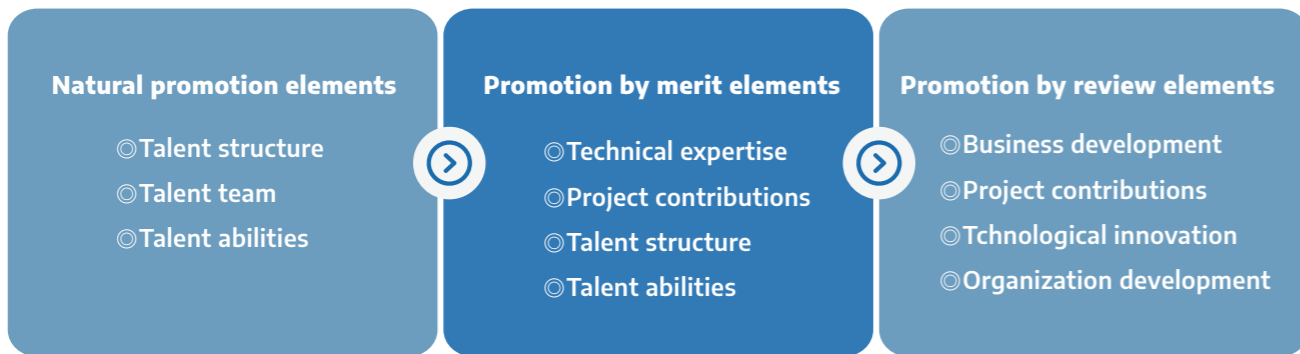
Outstanding talent is the primary driving force behind a company's ongoing innovation. GigaDevice is active in internal employee training. We have created a comprehensive internal and external learning and development ecosystem, and we are constantly developing the talent learning and development framework,

optimizing our training management, and upgrading the training and learning system to meet the talent needs for organizational growth and development. Continuous learning and development are critical methods for cultivating innovative talents. We transformed the Company into a learning organization and

established a training course system for the entire talent development cycle. We improve employees' competence in an all-around and multi-dimensional manner through online and offline training, laying a solid foundation for the Company's high-quality development.



©GigaDevice's full-development-circle personnel training curriculum



©GigaDevice's employee promotion rules

In order to ensure that the learning and development system is updated in real-time, GigaDevice carefully monitors the needs of strategic development and the organization's capability planning. As a result, internal training courses are created, external expert consultants are hired to provide project guidance, and online course learning resources are uploaded. On the E-learning platform, we implement learning interaction and enhance the framework for learning and development as well as job-specific training. Our learning and development projects are constantly being improved, and we have opened specialized courses like the Excel Strategy, the PowerPoint Strategy, and Structured Thinking to gradually increase the organization's and its talent's

capabilities. With the addition of 60 new online courses in 2021, there are 149 online courses available.

GigaDevice anticipates expanding alongside its workforce. Talents in all industries, job functions, and levels are all covered by our talent development and growth plan. More than 20% of the key talent from the management and technical teams receive ongoing training from our talent team, which helps them develop their management and professional skills. Additionally, to effectively support the transition and growth of the Company, we conduct training sessions specifically tailored for various departments or teams.

GigaDevice's Innovation Training Plan and Customized Courses in 2021

Program	Chuxin Program	Ranxin Program	Huixin Program	Wolf Warrior Training Camp	Operation Capability Enhancement Camp
 Trainee and Team	 Fresh graduate and employees with less than two years of work experience	 Junior managers	 Senior managers and directors	 Chinese Mainland and South Korea Sales Departments	 Operation Department
Attendance	155	35	66	64	60



> A group photo of the Chuxin Program



> A group photo of the Ranxin Program



> A group photo of the Huixin Program



> Wolf Warrior Training Camp



> Operation Capability Enhancement Camp

We encourage employees to learn by themselves in multiple ways, make full use of internal and external lecturer resources, and improve their competence level by level. In 2021, we organized single internal training courses according to business needs, and held 8 special small-class courses, with a total attendance of more than 400 people. We organized 42 people to participate in external open classes to learn professional knowledge related to their profession. We carried out 25 technical rotation training sessions, with a total attendance of more than 1,600 people, who learnt basic knowledge and technical fundamentals.

By the end of 2021, all GigaDevice employees had participated in a variety of basic training sessions and **592** of them had participated in talent development training, with a total training time of **14,485** hours. The per capita training time was **24.47** hours³, equivalent to **3.06** working days.⁴



³Employees' per capita training hours = total employee hours in the year/total workforce

⁴Employees' average training days = employees' per capita training hours/daily workload (which is assumed as 8 hours)

Employee Care

GigaDevice is committed to building a robust, friendly, and safe workplace and maintaining well-being among employees. We adhere to people-oriented management, keep unblocked communication channels with employees, and continuously improve the employee care system to secure employees' welfare, health, and safety effectively.

Employee Communication

GigaDevice respects employees' opinions and puts great effort into building an effective communication mechanism and open-and-transparent communication culture. We organize an employee engagement and satisfaction survey every two years according to business development and organization size to promote improvements to the Company's internal management. 1,287 people participated in the latest survey, with a validity rate of 82.77%. In terms of engagement, the Company saw a significant increase in all indicators compared to the previous survey and improvements in business development, performance incentives, and a positive work atmosphere. In terms of satisfaction, the work

environment, sense of fulfillment, corporate culture, and company recognition all saw significant improvements. Overall, employee satisfaction increased by 10.5 points over the previous survey. In order to create action implementation plans to increase organizational effectiveness continuously, we will make reasonable use of the survey results. Additionally, we take the initiative to create unblocked channels for communication, feedback and appeals to dynamically understand the issues and viewpoints of employees and enable everyone to access support in various ways.



GigaDevice values each employee's viewpoint. When employees join and leave the Company, the Company's sharing center conducts interviews at key nodes to collect employees' thoughts and suggestions. On a semi-annual and annual basis, it summarizes and analyzes the reasons for resignation and transfers the analysis results to relevant departments for continuous improvements to employees' work experiences. The Company's human resources business partners hold employee communication meetings on a regular basis and conduct one-on-one interviews with employees better to understand business development resource needs and employee dynamics. GigaDevice has developed the *GigaDevice Internal Mentor System* for internal mentor-based management, which helps newly recruited fresh graduates and new employees improve their job competencies within one year of gradua-

tion. We assign a mentor to each new graduate who communicates with him or her on a regular basis, is concerned about the problems they encounter, and assists them in integrating into the position. The mentor also provides targeted guidance based on the employee's specific situation. Furthermore, we have established a comprehensive employee grievance mechanism. When employees believe that their personal interests have been violated or that the Company's regulations have been violated, they can file a complaint against the appropriate individuals or departments. In the case that the person or department complained about does not provide a satisfactory solution, the employee's complaint and improvement suggestions will be forwarded to higher levels until the employee receives clear feedback.

Employee Benefits

GigaDevice places a premium on employee care and is dedicated to enhancing employees' happiness and sense of community at work. We strictly adhere to the provisions on working hours and overtime in national and local laws and regulations, implement the statutory paid annual leave system, and ensure that all employees enjoy the Company's statutory holidays and additional

benefit leaves. In addition, we are always concerned about our employees' physical and mental health, and we encourage them to maintain a healthy work-life balance. We have integrated employee care into our corporate culture. We increased departmental team building funds and departmental team building activities in 2021 to improve team building. Cultural

and sports activities, such as annual online conferences, housewarming activities, employee birthday parties, afternoon tea, festival activities, and family days, were also implemented to allow each employee to relax and improve communication.

- Cash Subsidies**
 - Housing subsidy
 - Meal subsidy
 - Transport subsidy
 - Communications subsidy
- Risk and Security**
 - Commercial insurance
 - Annual physical examination
- Leaves**
 - Statutory annual leave
 - Benefit leaves
 - Special bonus leave
 - Parental leave
- Mandate Benefits**
 - Social insurance
 - Housing provident fund
- Employee Care**
 - Long-term Service Award
 - Birthday parties
 - Afternoon tea
 - Holiday gifts
 - Gifts to employees' newborn babies
 - Gifts to employees or their family members in serious illness
 - Employee Club

©Some of GigaDevice's security benefit schemes

Case The 3rd GigaDevice Family Day successfully concludes

On August 15, 2021, the third GigaDevice Family Day officially kicked off with the theme of "Through the Anywhere Door to the Chip World." The Family Day, which combined online and offline activities including the GD32 programming class, was held in six cities across the country. The event covered 262 families with a total of 765 participants.

From August 15 to 25, the Company held the "Chip World" Online Game Challenge. The Company's employees played the online game, broke game records, and showed their game skills. The top 100 winning employees received customized long umbrellas. On September 4, the Company officially launched the offline game carnival, with 6 stations in Beijing, Hefei, Xi'an, Shanghai, Shenzhen, and Suzhou. Each station had a variety of fun games for employees and their family members. The Family Day also had a GD32 programming experience course and invited colleagues at the Hefei Science and Technology Hall to give lectures for children over 9 years old. The children learned graphical programming on the computer, assembled the Zhurong Mars rover, and completed the "Mars rover mission competition." The event was full of fun, which effectively enhanced the understanding and communication between parents and children, allowed employees' families to feel the company culture, and improved the recognition of employees' family members to the Company.



©A group photo of the Family Day event



©The Family Day event



©The Family Day event



©The Family Day event

Case GigaDevice celebrates the Lantern Festival

On the Lantern Festival in 2021, GigaDevice Beijing headquarters, Hefei, Xi'an, Shanghai, and Shenzhen held a variety of Lantern Festival events. The Company's employees guessed lantern riddles, had tangyuan (sweet dumplings), performed lion dances, and collected cards. The whole Company was immersed in a Lantern Festival atmosphere. Employees relaxed after busy work and felt the warmth and care of the Company.



©The Lantern Festival celebration

Case GigaDevice celebrates the Dragon Boat Festival

In June 2021, GigaDevice Beijing headquarters and Hefei, Xi'an, Shanghai, Shenzhen, and Suzhou Offices held a series of Dragon Boat Festival events, including making rice dumplings, sewing sachets, boat racing, playing hula hoops, ring toss, stone pitching, and pitch-pot. The Dragon Boat Festival celebration effectively enhanced the harmonious relationship between employees and their sense of participation, gain, and happiness.



©Dragon Boat Festival events

GigaDevice stresses workplace protection and care for female employees. We implement special labor protection for female employees and observe the *Law of the People's Republic of China on the Protection of Women's Rights and Interests*, the *Special Rules on the Labor Protection of Female Employees*, the *Provisions on the Scope of Prohibited Labor for Female Employees*, the *Provisions on Female Employees' Health*, and other relevant laws and regulations. Female employees in pregnancy, after childbirth, and in breastfeeding are protected by law and the Company's protection, and enjoy specific benefits. In addition, we have set up nursing rooms for female employees in special periods. We also celebrate Women's Day for every female employee, offering festival benefits and a half-day paid leave.



©Women's Day celebrations

| Occupational Health and Safety

GigaDevice cares about the health and safety of its employees and is committed to giving them a safe and healthy workplace and facilities. To this end, we have developed internal *Occupational Health and Safety Control Procedures, Comprehensive Management System for Workplace Safety, Emergency Preparedness and Response Procedures, and Hazard Source Identification and Risk Assessment Procedures* to fully protect employees' health and eliminate occupational safety hazards and prevent occupational diseases. We carry out hazard identification and evaluation in addition to monthly health and safety inspections to reduce risk factors for occupational health and safety. In order to make sure that the Company's operations comply with the needs of safety, health, and hygiene management, these measures aim to regulate and standardize the safety management of production and office sites, eliminate hidden dangers, and reduce risks. In 2021, we applied for and received the compliance certification report for the ISO45001 occupational health and safety management system.

GigaDevice pays attention to occupational hazards and occupational disease prevention. We arrange a yearly physical examination for employees and buy extra commercial medical insurance for each employee, including outpatient, hospitalization, and accident insurances. In order to continually raise employee awareness of health and safety, we also offer regular training in first aid, fire safety, and occupational health and safety management. 130 occupational health and safety personnel from all departments received our occupational health and safety management training in August 2021. The online and in-person training improved the employee's comprehension of the fundamental principles of implementing occupational health and safety as well as the standard requirements of the management system for such systems. All employees received first aid instruction from November to December of the same year, which included instruction in first aid, CPR, rescue breathing, and AED use. This improved the employees' capacity to manage emergency situations and collaborate to maintain workplace safety.



Case GigaDevice delivers hands-on AED training

In order to improve employees' first aid and mutual rescue skills and protect their lives and health, AEDs are installed at conspicuous locations at the front desk of each GigaDevice office area. In December 2021, GigaDevice carried out training on first aid knowledge and the use of AED equipment at its Beijing headquarters and Shanghai, Shenzhen, Hefei, Suzhou, and Xi'an Offices. Training at all locations combined theory and practice to help employees understand the AED operation process and correct employees' operation. The trainer first explained in detail CPR skills and the correct use of AED in emergency, focusing on some special situations, so that trainees had a preliminary grasp of first aid skills. After the theoretical introduction, the trainer guided the employees to practice on the CPR doll with the AED equipment. Through on-site and one-by-one practice, the employees effectively mastered the knowledge of emergency medical care. Through the training, GigaDevice's employees in different regions had a deeper understanding of emergency rescue and enhanced their emergency rescue skills.



©The hands-on AED training

Section 5

Environment

45-54

Environmental Management/47

Resource Usage/49

Response to Climate Change/51

Low-Power Products/53

Raw Material Use/54



GigaDevice has always been dedicated to corporate responsibility and green development. The Company incorporates green development concepts into its strategies and operations, implements energy conservation and environmental actions, and constantly explores environmentally sound practices of energy conservation, resource consumption reduction, and waste disposal. We aim to minimize the impact of our business activities on the environment and promote harmony between humanity and nature while advancing modernization.

Environmental Management



The Company pays close attention to environmental policies in China and other regions where it has operations. In strict compliance with the *Environmental Protection Law of the People's Republic of China*, the *Energy Conservation Law of the People's Republic of China*, the *Law on the Prevention and Control of Environmental Pollution by Solid Wastes*, and other national and local laws and regulations, the Company has formulated a full range of internal policies, including *Procedures for the Identification and Evaluation of Environmental Factors*, *Procedures for the Control of Energy and Resource Conservation*, and *Procedures for the Prevention and Control of Solid Waste Pollution*, which incorporate the Company's environmental targets and indicators into management review, to strictly implement environmental requirements. In 2021, GigaDevice was not imposed any punishment for environmental violation.

GigaDevice has been certified to the ISO14001 environmental management system and established internal energy, resource, and waste management targets. The Company's environmental targets set for 2021 effectively guaranteed that the Company would make continuous improvements, prevent pollution, and adhere to laws and regulations. Plans and measures formulated according to the environmental targets reflected the Company's current conditions and were capable of disposing of waste, improving resource recycling and utilization efficiently, and reducing the negative impact of the Company's business activities on the environment.



©GigaDevice's environmental management system certificate


Attainment of GigaDevice's 2021 environmental targets

Item	2021 Targets	Implementation of 2021 Targets
Waste 	<ul style="list-style-type: none"> 100% disposal and centralized recycling of solid waste Harmless disposal of solid waste 	Achieved
Resources and energy 	<ul style="list-style-type: none"> 1% decrease in electricity consumption per RMB 10,000 of output value from the previous year Decreased consumption of other energy sources per RMB 10,000 of output value from the previous year 	Overachieved
Green procurement 	<ul style="list-style-type: none"> Compliance of procured and integrated products with RoHS requirements 	Achieved

I Resource Usage


Through embedding environmental and green development concepts into all business operations, GigaDevice has always been dedicated to environmental protection and sustainable consumption of resources. The Company has effectively reduced its office energy consumption and enhanced its performance in sustainable operations through measures such as optimizing office building energy efficiency, strengthening energy conservation, promoting resource conservation awareness, and implementing a paperless office.

GigaDevice's green office practices




Improving energy use efficiency

- Applying building automation systems and electricity intelligent control systems to improve office building energy efficiency
- Implementing timeout lock screen during working hours and sleep mode during night for office computers




Applying electronic office systems

- Developing OA, ERP, SAP, Concur and other electronic office systems
- Entering into in-depth cooperation with internet platform companies to reduce physical reimbursement documents and receipts for reduced consumption of office supplies
- Installing teleconferencing and videoconferencing systems



Raising environmental awareness

- Promoting energy and water conservation awareness by practices such as posting signs and publicity
- Promoting classified disposal of waste and calling on employees to reduce the use of disposable tableware and other disposable items



Reducing waste

- Setting up waste sorting facilities to promote waste recycling and reduce the generation of waste

GigaDevice is mainly engaged in the R&D, design, and sales of integrated circuits, with the manufacturing process outsourced to professional fabs and resources consumed in day-to-day operation mainly including office electricity, gasoline, natural gas, water, and paper. The Company has always attached high importance to energy conservation and emission reduction and to the Company's green development. In 2021, the Company recorded 784.82 tonnes of standard coal equivalent in comprehensive energy consumption⁵, equivalent to 9.22 tonnes of standard coal equivalent in energy consumption per RMB 100 million of operating revenue, and 21,326.90 tonnes in total freshwater consumption, equivalent to 250.6 tonnes in water consumption per RMB 100 million of operating revenue.

GigaDevice's energy and resource usage in 2021

Category	Unit	2021 Data
Purchased electricity	kWh	6,167,626.93
Natural gas	m ³	13,670.00
Gasoline	Liter	8,100.90
Fresh water consumption	Tonne	21,326.90
Water consumption intensity	Tonne per RMB 100 million of revenue	250.6
Comprehensive energy consumption	Tonne of standard coal equivalent	784.82
Comprehensive energy consumption intensity	Tonne of standard coal equivalent per RMB 100 million of operating revenue	9.22

Effective recycling and comprehensive utilization of electronic waste is an important measure to address global environmental pollution. GigaDevice has actively responded to environmental policies and consistently adhered to the principles of conserving energy and other resources, recycling materials, and reducing environmental pollution in disposing of electronic waste. All discarded blue tapes and chips are disposed of in accordance with the

standard operating procedures, and waste and disposal records are retained for at least 12 months and are subject to confirmation of non-usability before being transferred to qualified agencies for physical scrapping. For office e-waste, such as mainframes and servers, the Company hands them over to qualified environmental agencies for disposal at least once a year. The Company marks hazardous wastes such as toner cartridges, ink cartridges,

batteries, and lamps, stores them in a dedicated zone, completes a *Solid Waste Origin and Disposal Form* annually, and has them recycled by qualified third-party agencies. In 2021, the Company achieved controlled disposal and centralized recycling for 100% of its solid waste.

⁵The comprehensive energy consumption is calculated according to the *General Rules for Calculation of the Comprehensive Energy Consumption GB-T2589-2020*.

Response to Climate Change

A significant global challenge now facing humanity is climate change. It behooves GigaDevice, as a core domestic chip design firm, to use its dominant position in the market to assist customers in transitioning to carbon neutrality. GigaDevice takes the achievement of carbon neutrality for its operations and products as one of its measures to combat climate change and global warming. The Company will actively align itself with China's goals to peak carbon emissions by 2030 and reach carbon neutrality before 2060 and keep pace with society and our customers. We will continue efforts to push the adoption of green electricity for all our operations and for the production of all outsourced products, with a view to leveraging our position to positively impact the supply chain and promote the supply chain's low-carbon sustainable transition.

GigaDevice recognizes that climate change will inevitably impact the Company's operations in various ways. To address the challenge of climate change, we have evaluated and identified our climate risks in line with the information disclosure framework of the Task Force on Climate-Related Financial Disclosures (TCFD), taking into account the effects of increasingly vigorous climate actions on the semiconductor industry, which has laid the foundation for the Company's low-carbon transition.

Identification of Climate Risks and Responses

Category	Sub-category	Description	Response
Transition risk	Policy and compliance risk	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
	Market risk	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
	Technological risk	<ul style="list-style-type: none"> 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. 	

Category	Sub-category	Description	Response
Transition risk	Reputational risk	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
Physical risk	Acute physical risk	<ul style="list-style-type: none"> Climate hazards such as extreme weather, floods, and typhoons may cause damages to the Company's assets and supply chain disruption. 	<ul style="list-style-type: none"> Monitor weather in real time, issue early warnings, and put in place emergency response plans.
	Chronic physical risk	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Carry out climate research in a timely manner and formulate countermeasures for possible future climate change trends.

While actively managing climate change risks, GigaDevice has kept up with policy and market trends and implemented targeted low-carbon initiatives to seize climate change-related opportunities. We will continue to explore and apply low-carbon technologies, launch low-carbon green products, and establish a green and low-carbon corporate image. In 2021, the Company recorded 5,252.42 tCO₂e in GHG emissions from operating activities, equivalent to 61.72 tCO₂e in GHG emissions per RMB100million of operating revenue.⁶

GigaDevice's GHG emissions in 2021

GHG Emissions	Unit	2021 Data
Scope 1 GHG emissions	tCO ₂ e	47.43
Scope 2 GHG emissions	tCO ₂ e	5,204.99
Total GHG emissions	tCO ₂ e	5,252.42
GHG emission density	tCO ₂ e per RMB 100million of operating revenue	61.72

6 . Scope 1 GHG emissions calculated based on conversion of gasoline and natural gas consumption as per the *Reporting Guidelines for the GHG Emissions of Other Industrial Enterprises*. Scope 2 GHG emissions calculated based on conversion of electricity consumption as per the *Chinese Regional Power Grid Baseline Emission Factors for 2012*.

I Low-Power Products

GigaDevice attaches high importance to the development of eco-friendly, energy-efficient devices through innovation, research, design, and products. It offers customers and consumers low power products featuring a prolonged lifecycle and reduced environmental impact. The Company designs its product with energy efficiency and environmental friendliness in mind at the very beginning. Under specific application scenarios, it takes product lifecycle into account and reduces the unnecessary energy consumption of circuits.

GigaDevice has brought to the market a large flash memory product portfolio that is specifically designed to meet the different needs in various electronic applications, while providing the smallest packages and low power consumption. Based on its optimized bus protocol for accessing the flash memory, the Company's Serial Peripheral Interface (SPI) requires only six signals to communication between the controller and

the memory, thus reduces the design complexity and offers reduction in board space, power consumption and total system cost. GigaDevice has rolled out low-power flash memory products such as the GD25WD/WQ series and the GD25LE NOR Flash series. The GD25WD/WQ is a series of wide-voltage SPI NOR Flash products widely used for battery applications which, with an operating voltage range of 1.65V to 3.6V and standby power consumption as low as 0.1uA, can effectively extend the battery service life and enhance the energy efficiency of terminal devices. The GD25LE is a series of 1.8V SPI NOR Flash products which boast industry-leading power consumption specifications with standby power consumption as low as 0.1uA and power consumption of Quad read operations at 133MHz as low as 5mA, approximately 40% lower than the industry average, bringing substantially extended standby time for low-power devices.

The Company also offers customers a wide

range of ARM Cortex-M series microcontrollers optimized for cost-sensitive, energy-efficient applications while meeting the needs of a variety of embedded applications. We have developed a variety of power saving modes that provide the flexibility to maximize optimization between wake-up latency and power consumption for low-power applications. The Company will remain focused on building its core capabilities in this field by deploying products in line with market trends and provide partners with products and solutions boasting higher efficiency, higher levels of integration, and lower power consumption.

Case All-new GD32L233 series of low-power MCUs

On October 29, 2021, GigaDevice officially launched the GD32L233 series of mainstream low-power MCUs with excellent power consumption efficiency and optimized processing performance. The series paves the way for continuous optimization of system-level power consumption and targets a wide range of market segments, such as industrial meters, small consumer electronic devices, portable medical equipment, battery management systems, data acquisition and transmission. Additionally, the concept of low power consumption runs through the entire chip design process at multiple levels, such as the evolution of manufacturing processes, the development of design concepts, and the innovation of chip architecture. The GD32L233 series attributes its low power consumption not only to adopting ultra-low power manufacturing technology and digital design methodology, but also to its analog IP optimized for low power consumption.

Looking forward, the Company will continue to enhance performance, power consumption, and cost advantages and extend our low-power design concepts to power management, signal chain, and multi-protocol wireless connectivity chips.



©GD32L233 MCU

I Raw Material Use



As a fables IC design house, GigaDevice has always been mindful of potential resource challenges and paid close attention to its products' use of raw materials. Following the corporate values of sustainable development, the Company regularly communicates environmental laws and regulations and customer requirements to the supply chain to promote the supply chain's green transition. In terms of the green design of products, the Company has strictly implemented international environmental principles and national environmental laws and regulations and developed its own environmental objectives and

targets. We have maintained close cooperation with suppliers over the years to check the green compliance of products and make sure that the raw materials, consumables, and packaging processes of our products adhere to the green requirements and that the products delivered are in compliance with the *Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)* and the *Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH)*. During the logistics of our products, at the same time, we have also paid attention to the raw materials. The corru-

gated cardboard boxes used as the outer packaging of our products have obtained the FSC forest management certification and are 100% recyclable. Each batch of cardboard boxes has also undergone tests by SGS elements, hexavalent chromium, polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs), and other tests to ensure that they are highly biodegradable with a minimal negative impact on the environment and achieve the sustainability of the raw materials.

RoHS

Raw materials are
100%
compliant with RoHS

REACH

Products are
100%
compliant with REACH

Section 6

Partnerships

55-68

Supply Chain/57

Industrial Cooperation/59

Public Welfare/65



GigaDevice is dedicated to developing a robust ecosystem in collaboration with stakeholders such as customers, suppliers, and the public. We have continuously improved customer services and strengthened supply chain management in recent years. At the same time, we have actively fulfilled our responsibilities as corporate citizens to the public through various programs and initiatives, such as public science education, industry-university collaboration, collaborative innovation, and support for epidemic control and prevention, thereby helping foster talents for the industry and deliver our corporate social value.

I Supply Chain

GigaDevice values supply chain management and is committed to creating a responsible and sustainable green supply chain. The Company has created relevant internal policies such as the *Supplier Control Procedures* and has built a complete supplier management system that covers supplier onboarding, risk evaluation, risk management, and exit. The Company had a total of 49 core suppliers as of December 31, 2021, all of which obtained ISO9000 and ISO 14000 certifications, including 7 certified to RBA⁷.

GigaDevice's supplier management system

Process	Description
Supplier onboarding	In accordance with the <i>New Supplier Certification Process</i> , suppliers are scored initially. If their scores meet requirements, they then undergo an engineering validation test. If they pass the test, then they undergo a factory audit and are placed in the approved vendor list. If they pass the factory audit and subject to the review and approval of the Supplier Decision Committee. The supplier onboarding process takes safety and environmental factors into full account, with the <i>Supplier Environmental Audit Checklist</i> expressly requiring compliance with the environmental, occupational health, and safety management system (EHS). The <i>Quality System & Process Review Form for Packaging and Testing Suppliers</i> covers quality system requirements and requirements from relevant stakeholders.
Supplier evaluation	The Company conducts regular supplier audits and evaluations to manage environmental and social risks in the supply chain. We actively communicate and publicize social responsibility guidelines to suppliers and include social responsibility in the regular evaluations of suppliers. In 2021, the Company conducted regular audits that covered 100% of its suppliers. In addition, the Company conducted special audits required by customers which covered 30%-40% of suppliers, mainly covering quality systems, process control, and environmental compliance. As of December 31, 2021, all suppliers passed audits.
Supplier risk management	The Company has established a business continuity management system (BCM). The <i>BCM procedure book</i> contains procedures providing for the assessment of natural, social, and environmental risks and corresponding emergency response plans to ensure the Company's business continuity.
Supplier exit	The Company has established a sound supplier exit mechanism and process to dynamically optimize and upgrade the supply chain.

7.RBA is short for "Responsible Business Alliance". Rebranded on October 17, 2017, from the former Electronic Industry Citizenship Coalition (EICC), RBA is a social responsibility audit standard for the electronics industry. The BRA Code of Conduct 6.0 is regarded as a human rights, environmental and ethical code of conduct for the global electronics supply chain.



GigaDevice promotes the corporate value of sustainable development and is devoted to its social responsibility with in the supply chain. In accordance with regulations on conflict minerals originating in the Democratic Republic of Congo (DRC), we have formulated our *Product Environmental Management Procedures, Environmental and Conflicts Mineral Policy*, and other related policies. We also continuously monitor and support supply chain partners to ensure that the minerals used in our products are responsibly sourced. We demand that our suppliers conduct due diligence on their metal sources, submit annual minerals declaration forms such as CMRT⁸, CRT⁹, and EMRT¹⁰, and review them regularly. Audits identified no supplier using conflict minerals in 2021.

Simultaneously, we actively promote a green supply chain, enhance the usage of environmentally friendly products, and verify the green compliance of products, guaranteeing that the raw materials, consumables, and pack-

aging processes used in our products comply with green requirements. GigaDevice complies with the EU 2015/863 Directive, which is the *Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment* (RoHS 2.0), to ensure the final delivery products meet the requirements of RoHS¹¹ and Registration, Evaluation and Authorization of Chemicals (REACH)¹². We regularly communicate environmental laws and regulations and customer requirements to the supply chain to promote the supply chain's green transition.

Building a culture of business ethics is a top priority for GigaDevice. It has issued its *Anti-Bribery and Anti-Corruption Statement*, working with suppliers to promote an ethical and clean business environment. In our daily operations, we emphasize strengthening anti-corruption training and awareness campaigns for suppliers and resolutely eradicate corruption.

In order to examine supplier performance, GigaDevice regularly performs QBR¹³ meetings and actively promotes supplier capacity-building. We make it a point to work out improvement measures for issues identified and monitor their application. Additionally, we collect best practices from suppliers and disseminate them to other suppliers to help suppliers steadily enhance their management and production capabilities.

8.CMRT is short for Conflict Minerals Reporting Template. The CMRT is a free, standardized reporting template developed by the Responsible Mineral Initiative (RMI) to facilitate the transfer of information through the supply chain regarding the mineral country of origin and smelters and refiners they use.

9.CRT is short for Cobalt Reporting Template.

10.EMRT is short for Extended Minerals Reporting Template. The EMRT is a free, standardized reporting template developed by the Responsible Minerals Initiative to identify pinch points and collect due diligence information in the cobalt and mica supply chains.

11.RoHS is an EU mandatory directive to restrain the use of certain dangerous substances in electrical and electronic equipment.

12.REACH is an EU regulation imposing preventive management of all chemicals entering the EU market, which entered into force on June 1, 2007.

13.QBR is for Quarterly Business Review.

I Industrial Cooperation

GigaDevice has entered into strategic partnerships with leading global wafer fabs and packaging and testing plants, working together to drive semiconductor technology innovation through industry-university-research collaboration, ecosystem development, and participation in events and technical seminars.

Industry-University-Research Collaboration

GigaDevice has launched the “GD32 University Program”, under which the Company partners with universities to help teachers, students, researchers, and engineers grasp GD32 MCU-related advanced technologies by pooling their respective strengths and resources, thereby driving industry-university-research collaboration and collaborative innovation. At present, the “GD32 University Program” mainly consists of four aspects: creating high-quality courses, providing faculty training, establishing joint laboratories, and sponsorship of e-competitions. The four aspects hook up and combine to form an all-new practical model of embedded system talent development and sourcing in China.

In addition, GigaDevice, in keeping with the people-oriented philosophy, has constructed the “MCU Developer Training Program” which targets participants at different skill levels, including juveniles, vocational and technical college students, undergraduates, and postgraduates.

As of the end of 2021, GigaDevice had established two joint laboratories with universities, with two more such joint laboratories expected to be unveiled before the end of 2022. In addition, the Company has actively sponsored various electronic innovation competitions, including the “16th China Graduate Electronic Design Contest”, “2021 International Competition of Autonomous

Running Robots”, “China Automotive Chips Application Innovation Rally”, and “Third Innovative Application Contest of China IC”. We use competitions as platforms that bridge talents and the industry to stimulate the enthusiasm of employees and university students for innovation and incubate promising projects and research results from the competitions.

Case China Automotive Chip Innovation Rally Competition

On October 17, 2021, the China Automotive Chip Innovation Rally Competition hosted by the Administrative Committee of Beijing Economic-Technological Development Area and organized by the China Automotive Chips Alliance (CACA) kicked off the launch ceremony. The innovation rally is an international automotive chip design contest which invites innovation teams to submit automotive electronics designs on tasks determined by leading domestic automotive chip companies. The event spans the IC and auto industries and aims to provide a platform for automotive chip and design teams to showcase their capabilities, pool wisdom to create

top automotive electronics designs, and accelerate the promotion and applications of new automotive chips, thereby breaking the shortage of automotive chips. As a co-sponsor, GigaDevice provided automotive chip products used in the competition.

Case “GigaDevice Cup” China Graduate Electronic Design Contest

The development of high-level talents such as master’s candidates in relevant subjects is a priority of MCU research and innovation. GigaDevice has title-sponsored the China Graduate Electronic Design Contest for a succession of years and contributed to the development of China’s education and semiconductor talent by promoting industry-university-research collaboration. The “GigaDevice Cup” China Graduate Electronic Design Contest, supervised by the China Academic Degrees and Graduate Education Development Center under the Ministry of Education and organized by the Chinese Institute of Electronics and the Chinese Society of Academic Degrees and Graduate Education, is an annual event targeting master’s candidates in China.

The 16th contest in 2021 had a total of 5,120 teams participated across the country, representing a 34% increase over the previous year. Nearly 30,000 teachers and students from 254 universities participated in the event, underscoring the continued appeal of the event. The task given by GigaDevice received submissions from 71 teams, of which 24 teams took away awards for their outstanding designs and system performance.



©16th “GigaDevice Cup” China Graduate Electronic Design Contest

Case Xiamen University – GigaDevice MCU Joint Laboratory

On September 22, 2020, the unveiling ceremony of the Xiamen University – GigaDevice MCU Joint Laboratory was held in Haiyun Campus, School of Information Science and Engineering, Xiamen University. The establishment of the joint laboratory in Xiamen marked a further expansion of GigaDevice’s “GD32 University Program” in core clusters of the national semiconductor industry and will promote the training of IC and embedded system development talents in China.

Establishing joint laboratories with universities is an important part of the “GD32 University Program”. The Xiamen University – GigaDevice MCU Joint Laboratory & Hands-on Training Base represents a new milestone of GigaDevice’s commitment to innovation collaboration with higher learning institutions and will further strengthen its presence in the Chinese market, drive industry-university-research collaboration in China’s semiconductor industry, and build a talent pipeline for the industry.



©Group photo of school and enterprise leaders and guests attending the inauguration ceremony

Ecosystem Development

GigaDevice upholds the “product + ecosystem” philosophy and has made active efforts to develop the ecosystem while empowering the continued prosperity of the industry through in-depth research in frontier areas of MCUs.

GigaDevice's GD32 MCU is the largest Arm®MCU product family in China as well as the first Arm®Cortex®-M3/M4/M23/M33MCU series in the country. In addition, we are also the first vendor in the world to launch a general-purpose 32-bit MCU product line based on the RISC-V core. GigaDevice has constructed a brand-new open ecosystem with RISC-V

cores. Over the two years since the launch of RISC-V MCU, GD32 MCU has launched a complete platform development tool including hardware and software in conjunction with mainstream tool vendors such as SEGGER (Germany) and IAR Systems (Sweden), but further offered connections to cloud services such as Tencent Cloud, oneNET, AWS, Microsoft Azure to support edge computing applications. GD32 MCU won the title for the best hardware product of the year at the Embedded World Exhibition 2020 held in Nuremberg, Germany.

The image displays a grid of logos for GigaDevice's ecosystem partners, categorized into four main groups:

- IDE & Debugger:** Includes logos for arm KEIL, SEGGER, IAR SYSTEMS, ASHLING, MounRiver Studio, CrossWorks, EbeeIDE, 立创EDA, and 创客工坊.
- Embedded Software:** Includes logos for AWS, Microsoft Azure, tuya, ARM mbed enabled, RTOS, RT-Thread, TencentOS Tiny, QneOS, JASH, AliOS, ABUP 艾拉比, 豆荚 可信安全, TX AWTX, 翌控科技 NETROL TECHNOLOGY, 0x5 HEX-Five, sensory, and EDGE IMPULSE.
- Production Programmers:** Includes logos for PE micro, ELNEC, LAUTERBACH DEVELOPMENT TOOLS, Eprotronic, SMH technologies, Data I/O, DediProg, Algotcraft, ACROVIEW, HI-LO SYSTEMS, Wilson, SYSTEM GENERAL, OPS, Phytion, SUPERPRO, and XELTEK.
- Development Boards:** Includes logos for seedstudio, SIPEED, HOLD 南京厚德, 乐育科技, and ZLG 致远电子.

- The above is a partial display, and more GD32 ecological partners are constantly updating
- All trademarks, logos and brand names are the property of their respective owners

©GD32 ecological partners

In addition, GD32 cooperates with global partners to launch various integrated development environments (IDE), evaluation boards (EVB), real-time operating systems (RTOS), graphical user interfaces (GUI), security components, and cloud connectivity solutions. The new technolo-

gy website provides multiple series of tutorial videos and short clips on-demand for online learning. The rich development ecosystem not only provides convenience and support for users' design work but also demonstrates GD32's product value and service philosophy.

Case Industry-leading IoT cloud platform based on GD32 and Azure

GigaDevice's GD32 MCU has deepened its partnership with Microsoft Azure IoT to jointly develop a portfolio of IoT solutions and functionalities based on an industry-leading IoT cloud platform to comprehensively meet user's needs from intelligent edge to intelligent cloud development and deployment. GD32 MCU users can take advantage of Azure's rich features for development, including

IoT Plug and Play, Azure RTOS, and more. "Plug and Play" certified GD32 products can help developers, partners, and users effectively shorten development cycles, reduce development costs, and implement IoT solutions quickly and at scale.

Case Participation in Global MCU Ecosystem Development Summit & Motor Drive and Control Systems Forum

On August 26, 2021, the Global MCU Ecosystem Development Summit & Motor Drive and Control Systems Forum sponsored by international electronics media group Aspencore took place at Sentosa Hotel Shenzhen. At the event, GigaDevice and dozens of MCU development and application experts and upstream and downstream enterprises in the MCU industry chain discussed hot topics such as the latest MCU technology, edge AI, emerging applications, and ecosystem development.

committed to iterating its product processes, optimizing the upstream supply chain, and adding new production capacity while maintaining stable supply through its multiple production lines to ensure delivery and meet the demand from diversified smart device market segments such as 5G communication, new energy, and energy storage, industrial control, and automotive applications. At the same time, we will continue to advance our "GD32 University Program", improve our business ecosystem, develop partners, train target users, and empower developers.

As a leader in China's MCU market, GigaDevice has always been



◎Opening speech: "GD32 as a Versatile Driver of MCU Innovation"

Events and Technical Seminars

GigaDevice actively participates in events and technical seminars to consolidate the Company's credibility in the industry and enhance its brand value. We have and technical seminars also maintained an active presence at relevant industry exhibitions and seminars to comprehensively showcase our complete solutions based on our three product lines of memories, MCUs and sensors that target diverse application areas such as industry, automotive, computing, IoT, consumer electronics, and mobile devices, and demonstrate our diversified product offerings, wide-ranging industry deployments, and leading technologies in the semiconductor field.



©GigaDevice participated in the "China IC Leader Summit 2021"



©GigaDevice participated in the "ELEXCON & Embedded System Expo"



©GigaDevice participated in the "Brushless DC Motor Control Technology Workshop 2021"



©GigaDevice participated in the "2022 JIWEI Semiconductor Summit"



©GigaDevice's CEO Mr. Cheng Taiyi participated in the "New Model of Global Technology Innovation Cooperation" roundtable



©GigaDevice participated in the "electronica China 2021"

I Public Welfare

GigaDevice has been active in fulfilling its corporate social responsibility with continued focus and support of charitable causes, thereby contributing to public wellbeing. In 2021, GigaDevice spent RMB 203,731.56 on public welfare programs, in addition to putting into them a total of 177.5 hours and 133 participants.

GigaDevice has been committed to spreading IC knowledge to young people and all sectors of society, paving the way for the development of interdisciplinary talents required by the IC industry and contributing to the growth of China's IC industry. In 2018, the Company established an IC museum with self-raised funds, marking the first museum to be established by an enterprise and open to the public in the industry in China. The museum has received multiple honorable 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".

Since its launch, the IC Museum has hosted many charitable public science education activities and played a valuable role in carrying forward scientific spirit, disseminating scientific ideas, popularizing scientific and technological knowledge, and raising the scientific literacy of the public, especially young people. At the same time, the Company has steadily extended the activity boundary of the museum by offering public science communication lectures outside the museum and carrying out joint chip public science education activities in cooperation with government departments, universities, and peer museums. Until 2021, the IC Museum had received a total of 372 delegations and 5,876 visitors.

Looking forward, the Company will continue to give play to the advantages of the IC Museum and to its corporate value by promoting the sharing of public science communication resources, fostering volunteers, extending the reach of public science education activities, and upgrading the fields of related public welfare programs.



©GigaDevice's IC Museum

Case Youth public science education on programming and IC

In August 2020, GigaDevice's GD IC Museum hosted the first on-site public science education event after the COVID-19 situation eased, with the theme being programming and IC, for a young audience. The event, which featured a rich variety of activities that combined knowledge impartation and practice, began with a tour of the museum. Then the young visitors were instructed to use the Linkboy graphic programming software on the desktops in the exchange zone of the museum to program various applications and try various combinations of modules using the GD32 MCU intelligent control board. The museum hosted three sessions of the event, which benefited nearly 30 primary and middle school students.

The event was excellently received by the participating students and their parents and inspired the museum to take its offerings beyond the museum and reach a nationwide audience. The initial attempt proved highly successful, which saw the museum gift the package of GD32 MCU intelligent control board and Linkboy

programming course to children of GigaDevice employees participating in the Family Day and instruct them on the use of the package. The employee Family Day activities in Beijing and Shanghai instantly kindled the great interest and enthusiasm of the participating children for IC and programming.



©Public science education activity at the IC Museum

Case Public science lecture on IC in Nanjing

On March 25, 2021, GigaDevice gave a public science lecture on chips to an audience of 20 at the Nanjing IC Innovation Museum, providing them with a better understanding of the manufacturing and applications of chips. Then on May 27 and June 3, we gave two additional lectures in the museum, on "The Mysterious World of Chips" and "Hot Topics of the IC Industry", respectively, which broadened the audience's horizons and opened the door to scientific exploration for them.

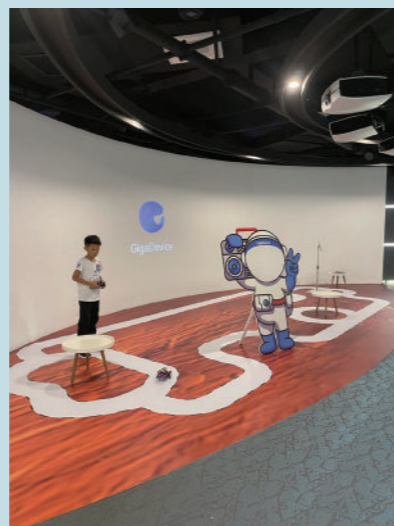


©Public science lecture on IC

Case // GigaDevice's Public programming courses

In 2021, GigaDevice's IC Museum continued to upgrade its programming and IC public science education program by not only offering graphic programming and module construction contents, but also instructing each participant to simulate the tasks of the Zhurong Mars rover. In September 2021, GigaDevice gave four distinctive programming courses to students in Hefei, Beijing, Shanghai, and Suzhou, which featured informative contents in engaging formats.

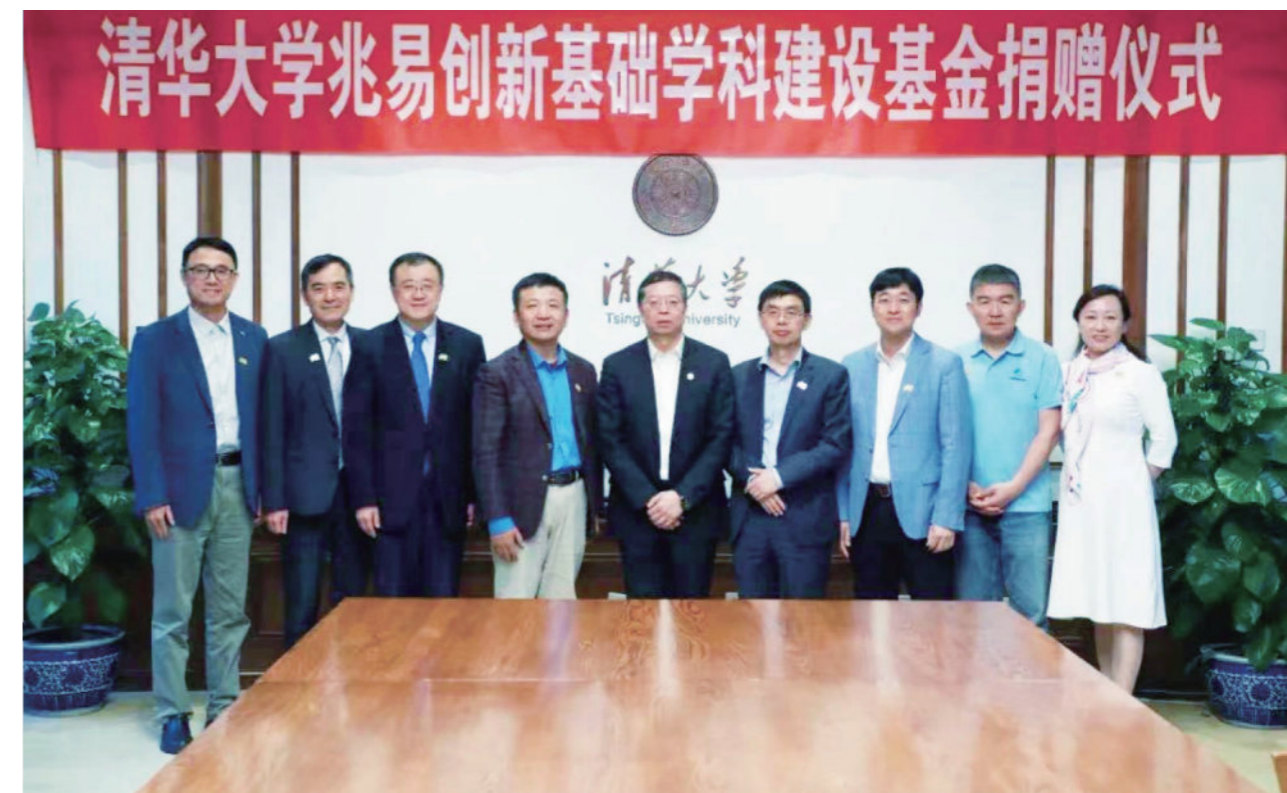
On October 30, GigaDevice organized a programming fall camp, which took the children participants on a Mars knowledge tour and assigned them accessible and engaging programming tasks, welcoming them into the mysterious world of chips.



©Programming Fall Camp

On April 12, 2021, on the occasion of the 110th anniversary of Tsinghua University, GigaDevice's Chairman Zhu Yiming and management members Shu Qingming, Cheng Taiyi, Deng Yu, He Wei, and Hu Hong, all alumni of the university, made donations personally to set up the Tsinghua University – GigaDevice Fund for the Development of Fundamental Disciplines

in response to the national call for fostering top-notch talents in fundamental disciplines. By supporting students to conduct in-depth research in fundamental disciplines, the fund will promote the creation of leading innovative research results and contribute to the long-term development of society.



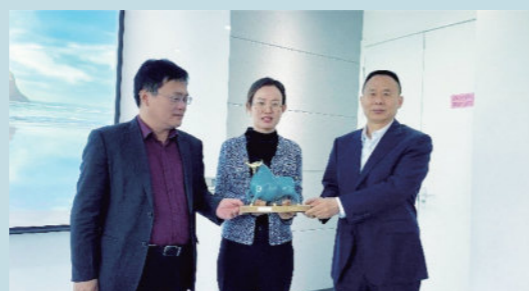
©Donation ceremony for the Tsinghua University – GigaDevice Fund for the Development of Fundamental Disciplines

In addition, GigaDevice has always been active in supporting COVID-19 prevention and control. In 2020, the Company donated infrared thermal imagers worth RMB 5.5 million to the Jiangnan District Government of Wuhan City and 19 universities across the country for temperature screening in crowded areas in support of COVID-19 prevention and control. In 2021, GigaDevice's GD32F450 MCU was presented the "Excellent Product Supporting COVID-19 Prevention and Control" award at the 15th Confer-

ence on Promotion of China IC Industry in recognition of its outstanding applications in multiple forehead thermometers and infrared thermal imagers which played a crucial role in securing the phased victory of the fight against the epidemic. The series of products has always been widely applied in other medical devices used to fight the epidemic such as oximeters and respiratory detectors.

Case // Charitable activities on IC

GigaDevice has persisted in providing society with IC-related public science knowledge and technological insights. On April 9, 2021, we gave a lecture on hot topics in the IC industry for an EMBA class; on July 9, we convened an advanced packaging and testing seminar attended by several leading IC manufacturing, packaging, and testing companies in Hefei to discuss ways to improve the technological levels in the industry; on November 5, we presented a lecture on the history of IC development to party members of the science association.



©Lecture on IC industry for EMBA students

Key Performance Indicators

Environmental		
Indicator	Unit	2021
Environmental Management		
Penalized violation of environmental regulations	case	0
Resource and Energy Use		
Purchased electricity	kWh	6,167,626.93
Purchased natural gas	m ³	13,670.00
Petroleum	L	8,100.90
Total comprehensive energy consumption	tonne of standard coal equivalent	784.82
Comprehensive energy consumption intensity	tonne of standard coal equivalent /RMB 100 million of revenue	9.22
Fresh water use	tonne	21,326.90
Water use intensity	tonne/RMB 100 million of revenue	250.60
Waste Management		
Proportion of controlled solid waste disposal	%	100
Proportion of centralized recycling of solid waste	%	100
GHG Emissions		
Scope 1: Direct GHG gas emissions	tonne of CO ₂ e	47.43
Scope 2: Indirect GHG gas emissions	tonne of CO ₂ e	5,204.99
Total GHG emissions	tonne of CO ₂ e	5,252.42
GHG emission intensity (divided by revenue)	tonne of CO ₂ e/RMB 100 million of revenue	61.72
Social		
Indicator	unit	2021
Number of Employees and Their Distribution		
Total workforce	person	1,343
By positions		
Operation	person	58
Sales	person	206
Technology	person	948
Finance	person	36
Other functions	person	95

Social		
Indicator	Unit	2021
Number of Employees and Their Distribution		
By education background		
Doctor's degree	person	27
Master's degree	person	687
Bachelor's degree	person	542
Specialty college's degree and below	person	87
By gender		
Male	person	850
Female	person	493
Development and Training		
By training courses		
Chuxin Program	person	155
Ranxin Program	person	35
Huixin Program	person	66
Wolf Warrior Training Camp	person	64
Operation Capability Enhancement Camp	person	60
Total training duration	hour	14,485
Per capita training duration	hour	24.47
Average training days per employee	day	3.06
Suppliers		
Proportion of ISO9000 and ISO14000-certified core suppliers	%	100
R&D and Innovation		
R&D and innovation investment	RMB 100 million	9.4
Accumulated number of granted patents	piece	834
Number of patents applied in 2021	piece	136
Number of patents granted in 2021	piece	136
Public Welfare		
Total amount of money invested in public welfare projects	RMB	203,731.56
Total amount of time invested in public welfare projects	hour	177.5
Total number of people participating in public welfare projects	person-times	133

GRI Standard Index

Classification of Disclosure	Disclosure Index	Disclosure Content	Chapter
General Standard Disclosure			
Organizational Profile	102-1	Name of the organization	About Us-Company Profile
	102-2	Activities, brands, products, and services	About Us-Company Profile
	102-3	Location of headquarters	About Us-Company Profile
	102-4	Location of operations	About Us-Company Profile
	102-5	Ownership and legal form	About Us-Company Profile
	102-6	Markets served	About Us-Company Profile
	102-7	Scale of the organization	About Us-Company Profile
			About Us-Company Profile
			About Us-Performance Highlights in 2021
			Employees- Employee Rights and Interests
	102-8	Information on employees and other workers	Employees- Employee Rights and Interests
	102-9	Supply chain	About Us-Company Profile
Partnerships - Supply Chain			
102-11	Precautionary Principle or approach	Governance-Trade Compliance	
		Product - Quality Control	
		Product-Information Security	
102-12	External initiatives	Partnerships-Industrial Cooperation	
Strategy	102-14	Statement from senior decision-maker	Message from the Chairman
	102-15	Key impacts, risks, and opportunities	About Us-Company Profile
About Us-Performance Highlights in 2021			
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	About Us-Performance Highlights in 2021
	102-17	Mechanisms for advice and concerns about ethics	Governance-Integrity
Governance	102-18	Governance structure	Governance-Corporate
	102-21	Consulting stakeholders on economic, environmental, and social topics	Communication
	102-29	Identifying and managing economic, environmental, and social impacts	Governance-Stakeholder Communication
			Employees-Employee Rights and Interests
			Environment
			Partnerships
	102-30	Effectiveness of risk management processes	Governance-Trade Compliance
			Product- Quality Control
Product-Information Security			
102-33	Communication of critical concerns	Governance-Stakeholder Communication	
102-34	Nature and total number of critical concerns	Governance-Determination of Material Topics	

Classification of Disclosure	Disclosure Index	Disclosure Content	Chapter
General Standard Disclosure			
Stakeholder Engagement	102-40	List of stakeholder groups	Governance-Stakeholder Communication
	102-41	Collective bargaining agreements	Employees- Employee Rights and Interests
	102-42	Identifying and selecting stakeholders	Governance-Stakeholder Communication
			Partnerships-Supply Chain
	102-43	Approach to stakeholder engagement	Governance-Stakeholder Communication
			Product-Customer Service
102-44	Key topics and concerns raised	Governance-Stakeholder Communication	
		Governance-Determination of Material Topics	
Reporting Practice	102-46	Defining report content and topic boundaries	About the Report
	102-47	List of material topics	Governance-Determination of Material Topics
	102-50	Reporting period	About the Report
	102-52	Reporting cycle	About the Report
	102-53	Contact point for questions regarding the report	Feedback Form
	102-54	Claims of reporting in accordance with the GRI Standards	About the Report
	102-55	GRI content index	GRI Index
Specific Standard Disclosures			
Management Approach	103-1	Explanation of the material topic and its boundary	(Corresponding to "Management Approach" from Index 201 to 414)
	103-2	The management approach and its components	
	103-3	Evaluation of the management approach	
Economic Performance	Management Approach	GRI 103	Product-Customer Service
			Environment-Environmental Management
			Employees-Employee Rights and Interests
	201-1	Direct economic value generated and distribute	Product-Customer Service
			Environment-Environmental Management
	201-2	Financial implications and other risks and opportunities due to climate change	Employees-Employee Rights and Interests
Product-Customer Service			
201-3	Defined benefit plan obligations and other retirement plans	Environment-Environmental Management	
		Employees-Employee Rights and Interests	
		Product-Customer Service	
Indirect Economic Impact	Management Approach	GRI 103	Partnerships-Industrial Cooperation
			Partnerships-Public Welfare
203-1	Infrastructure investments and services supported	Partnerships-Industrial Cooperation	
		Partnerships-Public Welfare	

Classification of Disclosure	Disclosure Index	Disclosure Content	Chapter
General Standard Disclosure			
Procurement Practices	Management Approach	GRI 103	Partnerships-Supply Chain
	204-1	Proportion of spending on local suppliers	Partnerships-Supply Chain
Anti-Corruption	Management Approach	GRI 103	Governance-Integrity Partnerships-Supply Chain
	205-2	Communication and training about anti-corruption policies and procedures	Governance-Integrity Partnerships-Supply Chain
Anti-Competitive Behaviour	Management Approach	GRI 103	Governance-Integrity
	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Governance-Integrity
Materials	Management Approach	GRI 103	Environment-Environmental Management Environment-Resource Usage
	301-1	Materials used by weight or volume	Environment-Resource Usage
	301-2	Recycled input materials used	Environment-Environmental Management
			Environment-Resource Usage
Energy	Management Approach	GRI 103	Environment-Resource Usage Environment-Response to Climate Change Environment-Low-Power Products
	302-1	Energy consumption within the organization	Environment-Resource Usage
	302-3	Energy intensity	Environment-Resource Usage
			Environment-Response to Climate Change
	302-4	Reduction of energy consumption	Environment-Resource Usage
	302-5	Reductions in energy requirement of products and services	Environment-Resource Usage
Environment-Low-Power Products			
Water	Management Approach	GRI 103	Environment-Resource Usage
	303-1	Water withdrawal by source	Environment-Resource Usage
Emissions	Management Approach	GRI 103	Environment-Response to Climate Change
	305-1	Direct (Scope 1) GHG emissions	Environment-Response to Climate Change
			Environment-Response to Climate Change
			Environment-Response to Climate Change
			Environment-Response to Climate Change
Effluents and Waste-2016	Management Approach	GRI 103	Environment-Response to Climate Change Key Performance Indicators
	306-2	Waste by type and disposal method	Environment-Response to Climate Change
			Key Performance Indicators
Supplier Environmental Assessment	Management Approach	GRI 103	Partnerships-Supply Chain
	308-1	New suppliers that were screened using environmental criteria	Partnerships-Supply Chain

Classification of Disclosure	Disclosure Index	Disclosure Content	Chapter	
General Standard Disclosure				
Employment	Management Approach	GRI 103	Employees-Employee Development Employees-Employee Care	
	401-1	New employee hires and employee turnover	Employees-Employee Development	
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Employees-Employee Care	
			Employees-Employee Care	
Occupational Health and Safety	Management Approach	GRI 103	Employees-Occupational Health and Safety	
	403-1	Occupational health and safety management system	Employees-Occupational Health and Safety	
	403-2	Hazard identification, risk assessment, and incident investigation	Employees-Occupational Health and Safety	
	403-3	Occupational health services	Employees-Occupational Health and Safety	
	403-4	Worker participation, consultation, and communication on occupational health and safety	Employees-Occupational Health and Safety	
	403-5	Worker training on occupational health and safety	Employees-Occupational Health and Safety	
	403-6	Promotion of worker health	Employees-Occupational Health and Safety	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Employees-Occupational Health and Safety	
	403-8	Workers covered by an occupational health and safety management system	Employees-Occupational Health and Safety	
	403-10	Work-related ill health	Employees-Occupational Health and Safety	
Training and Education	Management Approach	GRI 103	Governance-Trade Compliance Product-Quality Control Employees-Employee Rights and Interests Employees-Employee Development Key Performance Indicators	
	404-1	Average hours of training per year per employee	Employees-Employee Development	
			Key Performance Indicators	
	404-2	Programs for upgrading employee skills and transition assistance programs	Governance-Trade Compliance	
			Product-Quality Control	
	404-3	Percentage of employees receiving regular performance and career development reviews	Employees-Employee Rights and Interests	
			Employees-Employee Rights and Interests	
			Employees-Employee Development	
	Diversity and Equal Opportunity	Management Approach	GRI 103	Employees-Employee Rights and Interests Key Performance Indicators
		405-1	Diversity of governance bodies and employees	Employees-Employee Rights and Interests Key Performance Indicators
Non-Discrimination	Management Approach	GRI 103	Employees-Employee Rights and Interests	
Freedom of Association and Collective Bargaining	Management Approach	GRI 103	Partnerships-Supply Chain	
Child Labor	Management Approach	GRI 103	Employees-Employee Rights and Interests	
	408-1	Operations and suppliers at significant risk for incidents of child labor	Employees-Employee Rights and Interests	
Forced or Compulsory Labor	Management Approach	GRI 103	Partnerships-Supply Chain	
	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Partnerships-Supply Chain	

Feedback Form

Dear Sir/Madam:

Thank you for reading the GigaDevice Semiconductor Inc. Environmental, Social, and Governance Report 2021. We sincerely hope to get your comments and suggestions regarding this report so that we can further improve our work.

Multiple-choice questions (Please tick the appropriate boxes with “v”)

Classification of Disclosure	Disclosure Index	Disclosure Content	Chapter
		General Standard Disclosure	
Human Rights Assessment	Management Approach	GRI 103	Employees-Employee Rights and Interests
	412-1	Operations that have been subject to human rights reviews or impact assessments	Employees-Employee Rights and Interests
	412-2	Employee training on human rights policies or procedures	Employees-Employee Rights and Interests
Local Communities	Management Approach	GRI 103	Partnerships-Public Welfare
	413-1	Operations with local community engagement, impact assessments, and development programs	Partnerships-Public Welfare
Supplier Social Assessment	Management Approach	GRI 103	Partnerships-Supply Chain
	414-1	New suppliers that were screened using social criteria	Partnerships-Supply Chain

Feedback Form				
 <p>1. Which of the following categories best describe you?</p>	Government <input type="radio"/>	Investor <input type="radio"/>	Employee <input type="radio"/>	Customer <input type="radio"/>
	Supplier/contractor <input type="radio"/>	Partner <input type="radio"/>	Industry peer <input type="radio"/>	Community and general public <input type="radio"/>
	Media <input type="radio"/>	NGO <input type="radio"/>	Other (please specify) _____	
2. How do you rate our overall ESG performance?	Very good <input type="radio"/>	Rather good <input type="radio"/>	Average <input type="radio"/>	Rather poor <input type="radio"/>
3. What is your overall impression of the report?	Very good <input type="radio"/>	Rather good <input type="radio"/>	Average <input type="radio"/>	Rather poor <input type="radio"/>
4. How do you rate the ESG information disclosed in the report?	Very good <input type="radio"/>	Rather good <input type="radio"/>	Average <input type="radio"/>	Rather poor <input type="radio"/>
5. How do you rate the structure of the report?	Very good <input type="radio"/>	Rather good <input type="radio"/>	Average <input type="radio"/>	Rather poor <input type="radio"/>
6. How do you rate the layout design and presentation of the report?	Very good <input type="radio"/>	Rather good <input type="radio"/>	Average <input type="radio"/>	Rather poor <input type="radio"/>
7. What are your expectations for our ESG work?	_____			

If you have any questions or suggestions about this ESG report, please feel free to contact us through the following contact information:

Address: Building 8, IC Park, No. 9 Fenghao East Road, Haidian District, Beijing
 Postal code: 100094
 Tel: 010-82881768
 Email: investor@gigadevice.com