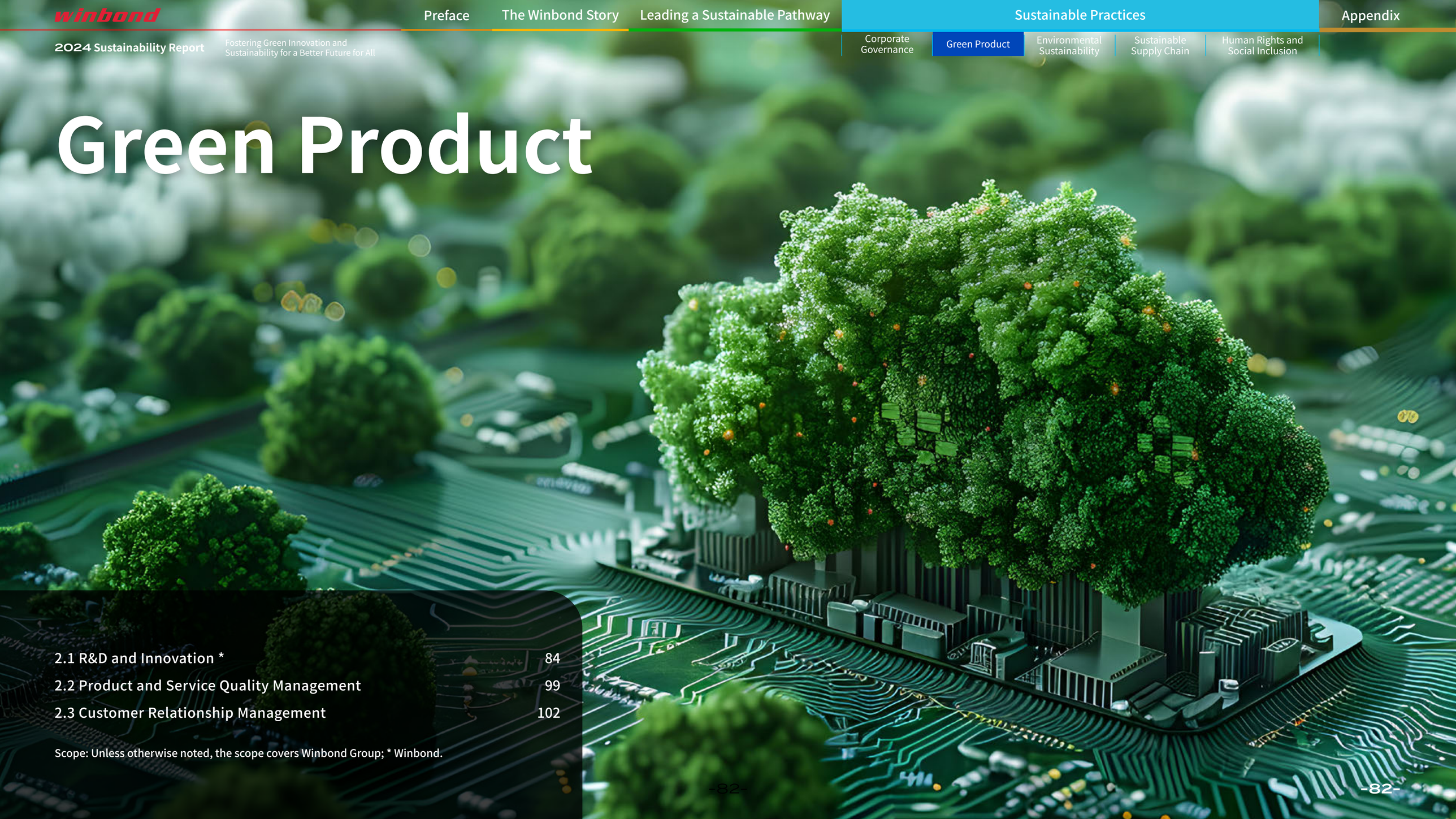
Green Product



Scope: Unless otherwise noted, the scope covers Winbond Group; * Winbond.

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Winbond combines its core competencies and innovative technologies with sustainable energy conservation and carbon reduction goals, and strictly controls every aspect of its products through R&D and optimization from multiple perspectives, such as green product design, information system digitization, and process efficiency improvement. Winbond is committed to delivering the best quality products to customers, so that the carbon emissions of products reaching end customers and consumers can be minimized, and while enjoying the convenience of science and technology, we are friendly to the global environment and help the entire value chain effectively reduce carbon emissions.

Net-zero carbon emissions have become a global consensus. Through the use of green materials, green product design, green electricity production and carbon emission reduction, Winbond has achieved the goal of carbon reduction and electricity saving in the production process and the manufacturing and use of end products. Winbond continuously optimizes the design and manufacturing process of its products, making the chips smaller, reducing power consumption, and using small and low-temperature soldering materials to encapsulate them, effectively saving materials and carbon emissions per unit, while reducing energy consumption, so as to achieve the vision of being a hidden champion in providing sustainable semiconductors to enrich human life.

Jen-Lieh Lin

Vice President, Flash Memory IC Business Group

2024 Performance Highlight

Save 50% Power consumption

- Industry-leading, launched the world's first NOR Flash that supports an operating voltage of 1.2V
- The 1.2V NOR Flash uses 50% less power than the 1.8V NOR Flash

Reduce product carbon emission by 60%

- Products manufactured using renewable energy were shipped starting in December 2024.
- Compared to conventional energy, products manufactured using renewable energy had approximately 60% less carbon emissions.

TIPS Verification Grade A

Passed Taiwan Intellectual Property Management System (TIPS) verification.

Achieved a Platinum Rating in RBA VAP

Winbond's Kaohsiung Fab conducted its first RBA VAP verification, achieving a platinum rating alongside the CTSP Fab

Save 90% power consumption

- LPDDR4/4X voltage was reduced to 1.1V/0.6V.
- In standby mode, it saved 90% of standby power consumption compared to standard DDR4.

Establishing a Carbon Accounting System

Constructed a comprehensive carbon accounting system, utilizing big data collection and aggregation to present the carbon emissions of individual products.

Selected as one of the Clarivate Top 100 Global Innovators

Selected for 3 consecutive years as one of the Clarivate Top 100 Global Innovators

Accumulated over 5,300 approved global patents

2.1 R&D and Innovation

2.1.1 Innovation in Technology and Services

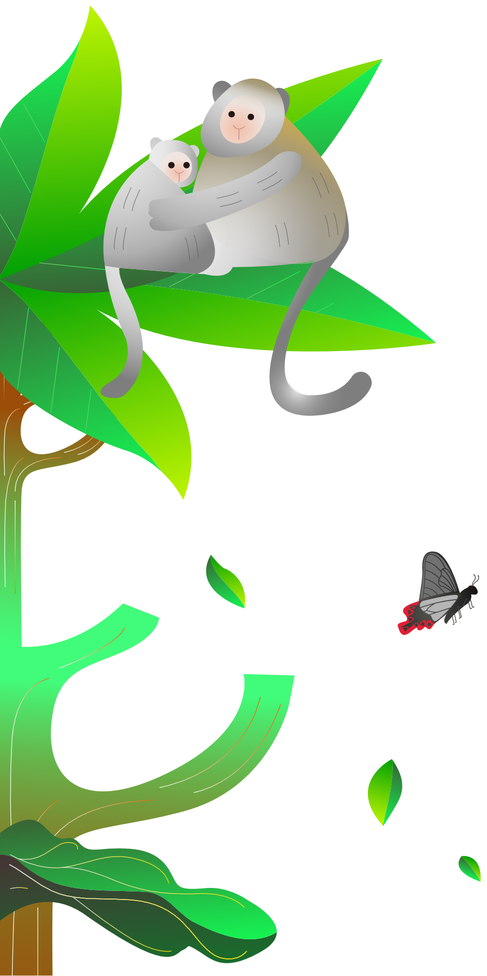
Winbond provides global customers with comprehensive specialty Memory solutions. Core products include Code Storage Flash Memory, TrustME® Secure Flash Memory, Specialty DRAM, and Mobile DRAM, making Winbond the only Taiwanese manufacturer with proprietary technologies in both Flash and DRAM. Winbond leverages the synergies generated by its product portfolio and adopts a green product design philosophy to meet diverse customer needs. This enables customers to combine their expertise with Winbond's innovative green products for applications in hand-held devices, consumer electronics, computer peripherals, artificial intelligence, automotive, and industrial electronics markets. To achieve environmental friendliness and sustainable growth while providing customers with high-quality and innovative products and services, Winbond continuously invests in research and development, technology, and talent. Winbond is committed to developing innovative products and technologies and remains focused on the following issues:

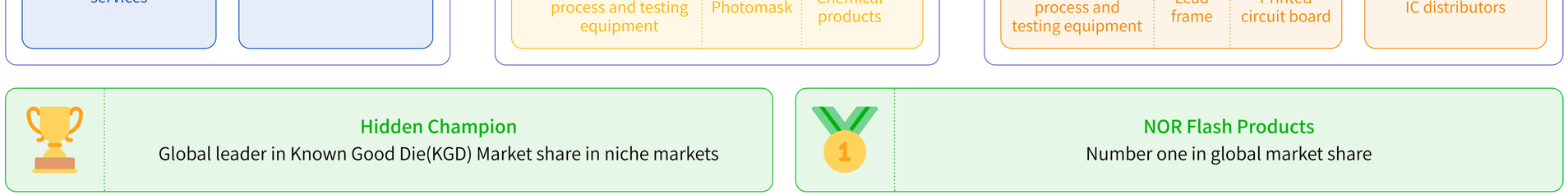
1. Development of green products in Flash memory, Secure Flash memory, Specialty DRAM, and Mobile DRAM
2. Development and production processes of green products, along with achievements in carbon reduction and energy saving
3. Key technology development focusing on high performance, small size, low energy consumption, high quality, and security
4. Refinement in design and process miniaturization
5. Innovation and intellectual property management

Key Technology	Products	Application
Low-Power NOR Flash Memory	**1.2V Flash Memory** ▣ Winbond launched the market's first 1.2V 64Mb QspiNOR Flash Memory: W25Q64NE. ▣ 128Mb was launched in 2024, and other capacities ranging from 8Mb to 256Mb are expected to be available in 2025.	▣ Wearable devices and other low-power application products. ▣ Meeting the low operating voltage requirements of advanced processes can eliminate the need for power management IC (PMIC), further reducing costs and area.
High Performance NAND Flash Memory	**8-channel NAND Flash Memory (Octal NAND)** ▣ Winbond's 46nm serial NAND Flash memory technology launched the market's first high-speed NAND Flash memory supporting 8-channel input/output. ▣ It can support products requiring higher capacity and high transmission speed applications.	▣ Automotive electronics (such as dashboards, driver assistance applications), meeting the needs for quick startup and rapid firmware updates. ▣ Smart visual doorbells, meeting the needs for quick startup detection applications.
Secure Flash Memory	**Anti-Quantum Computing Attack, Integration of PQC (Post-Quantum Cryptography) Secure Flash Memory with Leighton-Micali Signature (LMS) Algorithm** ▣ Supported asymmetric key encryption algorithm (Leighton-Micali Signature, LMS), enabling devices to achieve secure OTA requirements through LMS-OTS (One-Time Signature) as specified by NIST800-208. ▣ The component supported a high-performance 166MHz Quad-SPI interface and expanded Replay-Protected Monotonic Counter (RPMC) support, increasing to 8 counters, suitable for security enhancement and data protection in personal computers (UEFI and BIOS).	▣ The first memory supplier to integrate the LMS algorithm, meeting emerging security regulatory requirements and setting new standards in the industry. Optimized for industrial IoT, network, server, and critical infrastructure applications.
Low-Power Mobile Memory	**LPDDR4/4X 100 BGA Mobile Memory** ▣ Data transfer rate reached 4267 Mbps, voltage reduced to 1.1V/0.6V to lower power consumption, featuring low power consumption and high performance. ▣ 100BGA package, compared to the standard 200BGA package, size reduced by 50%. The reduction in package size also means that carbon emissions related to the package can be reduced by 50%.	▣ Automotive electronics, 5G mobile devices, wearable devices, IoT devices, and edge AI computing applications.

Semiconductor Industrial Chain

Winbond possesses an advanced and complete semiconductor industrial chain and professional specialization. This includes IP (Intellectual Property Rights) design and IC (Integrated Circuit) design, wafer fabrication, chip probing, and outsourced assembly and testing.





Hidden Champion
Global leader in Known Good Die(KGD) Market share in niche markets

NOR Flash Products
Number one in global market share

Note Known Good Die (KGD): Refers to wafers which are not immediately packaged after being manufactured, but instead provided to customers and packaged into a single chip along with other products. Rigorous product quality standards thus need to be met for these products, in order to ensure that the functions of the final product would not be affected.

Reduce packaging

Known Good Die（KGD）

In the era of portable electronic products and the Internet of Things (IoT), Winbond continues to reduce the carbon footprint of its products. With years of expertise in KGD technology, Winbond collaborates with chip manufacturers to provide System in Package (SiP) multi-chip packaging solutions. This involves packaging memory chips together with logic chips in a KGD sales model, contributing to net-zero and environmental sus- tainability efforts by creating energy-efficient and low-carbon footprint end-products.

Many customers leverage Winbond's expertise to use KGD flash memory products for System-in-Package (SiP) solutions. Flash memory chips are stacked with controller chips and placed into single packages or mod- ules to provide SiP solutions. Other components' KGD can also be stacked with flash memory KGD, leading to savings in packaging materials, improved performance, reduced power consumption, and chip area optimization.

Winbond supports the low-temperature soldering process, resulting in a reduction of 57 mt of CO_2 emissions per year note for each surface-mount technology production line.

Low-temperature soldering process（LTS）

To mitigate global warming, Intel introduced the Low Temperature Soldering (LTS) process as early as 2017. According to calculations, reducing the Surface Mount Technology (SMT) temperature from the 220~260°C range of lead-free processes to approximately 190°C in low-temperature soldering processes significantly reduce carbon emission. The International Electronics Manufacturing Initiative (iNEMI) predicts that the market share of products using low-temperature soldering technology will increase from around 1% to over 20% by 2027, demonstrating the electronics industry's commitment to environmental issues and sustainable development.

In line with the "green electronics" trend, Winbond has launched flash memory products compatible with the low-temperature soldering process. These products comply with JEDEC standards and have undergone reliability verification procedures such as drop, vibration, and temperature cycling tests. This ensures that the products fully support the LTS process without quality concerns, contributing to environmental protection and sustainable development efforts.

Note Quoted from Intel's 2017 introduction to Low Temperature Solder (LTS) process.

Code Storage Flash Memory

Winbond is a leading manufacturer of flash memory, continuously striving to reduce the carbon footprint and power consumption of its products. For example, with the evolution of the process to the new generation of 45nm products, the area of a single die has been significantly reduced. In addition, the new generation of products also supports smaller packaging types, greatly reducing the carbon footprint of Flash products during wafer manufacturing and packaging stages. Taking the 128Mb NOR Flash in the new generation 45nm PW series as an example, its single die area is reduced to 50% of the 58nm product of the same capacity, and it can support smaller USON packaging. Ultimately, the carbon footprint is reduced by 18% compared to the 58nm FW series. Based on the sales volume of the new generation Serial NOR Flash in 2024, it saved 5.6 tCO_2e compared to the 58nm products.

The area of a one-dollar coin is approximately four times that of SOP 16 and twenty-six times that of USON 8 4x3 mm^2

≈

4 Times
of SOP 16

26 Times
USON 8 4x3 mm^2

Additionally, in terms of power consumption and extending battery life, Winbond developed new processes and circuit architectures. It introduced the world's first NOR Flash supporting an operating voltage of 1.2V. When paired with SoCs designed with advanced processes for low voltage, it achieved high-performance reading while significantly reducing power consumption, thus meeting the goals of high efficiency and energy savings.

1 .2V NOR Flash		
	Total power consumption	**Compared to the current 1.8V NOR Flash, the power consumption was reduced by 50%.** Under the usage scenario of 8 hours of operation per day, with 80% reading, 10% standby, and 10% sleep mode, after 3 years of use, based on the total sales of 1.2V NOR Flash in 2024, it saved 537,948 kWh of power consumption (equivalent to 1,936,612 million joules) compared to 1.8V NOR Flash, approximately reducing 255 tCO_2e, which is equivalent to the carbon sequestration of 0.66 Daan Park for a whole year
	Performance	Maintains similar transition level as 1.8V/3V Flash
	Product applications	Wireless headphones, smart watches, smart wristbands, smart glasses, and other wearable devices with high power-saving requirements

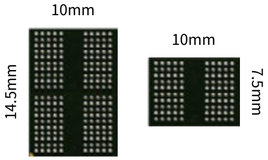
Note Based on the emission factor of 0.474 kg CO_2e/kWh announced by the Ministry of Economic Affairs in 2024, and the data published by the Forestry and Nature Conservation Agency, Ministry of Agriculture and the Taipei City Government Land Administration Bureau: 25.93 hectares, carbon sequestration factor of 14.9 metric tons of CO_2e/hectare/year, Daan Park's annual absorption of 386 metric tons of CO_2e was calculated

Customized Memory Solution (CMS)

Winbond launched the 100 BGA LPDDR4/4x solution with high performance and low power consumption advantages. Its data transfer rate reached 4,267 Mbps, significantly improving data transfer speed compared to DDR4 3200 Mbps, resulting in superior performance. In terms of power consumption, LPDDR4/4x voltage was 1.1/0.6V, greatly reducing power usage. To meet the low power consumption needs of emerging mobile and smart devices, this series' low power consumption characteristics effectively extended battery life.

The solution adopted a smaller 100BGA package, reducing its size by 50% compared to the standard 200BGA package. The reduction in package size also meant that carbon emissions related to packaging could be reduced by 50%. The 100BGA package was fully downward compatible with existing 200BGA single die package (SDP). By adjusting the PCBA layout, customers could directly adopt this advanced memory packaging solution without large-scale rework, thereby reducing resource consumption. Additionally, to meet the low power consumption needs of emerging consumer trends such as wearable and smart devices, Winbond launched the 1.2V HYPERRAM, which saved 33% power consumption compared to the original 1.8V HYPERRAM. Combined with high transfer rates, it provided customers with competitive and long-lasting battery life design solutions for smart wearables.

In 2024, Winbond focused on the development of DDR4 niche memory and launched the first 20nm DDR4 product. Compared to DDR3, DDR4 offered higher bandwidth and lower power consumption, providing better performance and efficiency. It was widely used in high-end industrial computers and industrial control devices, high-specification television and audio-visual equipment, and enterprise-grade network equipment. Additionally, through the evolution of process technology nodes, the product's carbon emissions were reduced. The next-generation 16nm DDR4 product is expected to be launched in 2025.



LPDDR4/4X

Winbond's LPDDR4/4X DRAM, the fourth generation of low-power memory, achieved a data transfer rate of 4,267 Mbps. In terms of energy consumption, with the VDDQ voltage reduced to 1.1/0.6V, it significantly lowered power usage, effectively extending battery life and achieving high performance and energy-saving goals.

100BGA Form Factor

Winbond's latest packaging, 100BGA LPDDR4/4X, has a size of only 7.5x10 mm2, which is 50% smaller compared to the 200BGA 14.5x10 mm2, and reduces packaging-related carbon emissions by 50%. The 100BGA packaging is fully downward compatible with the existing 200BGA single-chip packaging, allowing for adjustments to the PCBA layout without requiring extensive rework, thereby reducing resource consumption.

DDR4

In 2024, Winbond launched the 20nm DDR4 product, which offers higher bandwidth and lower power consumption compared to DDR3, providing better performance and efficiency. With the advancement of process technology nodes, its process carbon emissions can continue to decrease, and the 16nm DDR4 product is expected to be launched in 2025.

Secure Flash Memory

"Security" is not only a technical issue, but also a social and ethical issue. Security has significant impacts on the welfare and rights of society, economy, environment, individuals, and organizations, especially in today's digital transformation era and the economic losses and security threats caused by hackers through security vulnerabilities. Security ensures the confidentiality, integrity, and availability of data, information, and assets, preventing unauthorized access, modification, or destruction. Security also enables trust, privacy, and compliance in various sectors such as finance, healthcare, education, and government. However, security is not a one-time task or a static state. It requires continuous monitoring, updating, and improvement to address evolving challenges networks to the cloud, from users to devices. Therefore, security requires a comprehensive approach covering all aspects of systems and their environments.

In today's internet-connected world, daily life electronic devices and IoT devices rely on Flash memory to store control code and data protection. However, the widespread presence of these devices also makes them targets for hackers. Hackers often exploit system security vulnerabilities to access end-user's private data, plan large-scale attacks on enterprise infrastructure through networks and IoT devices, and even sabotage and espionage activities on government infrastructure.

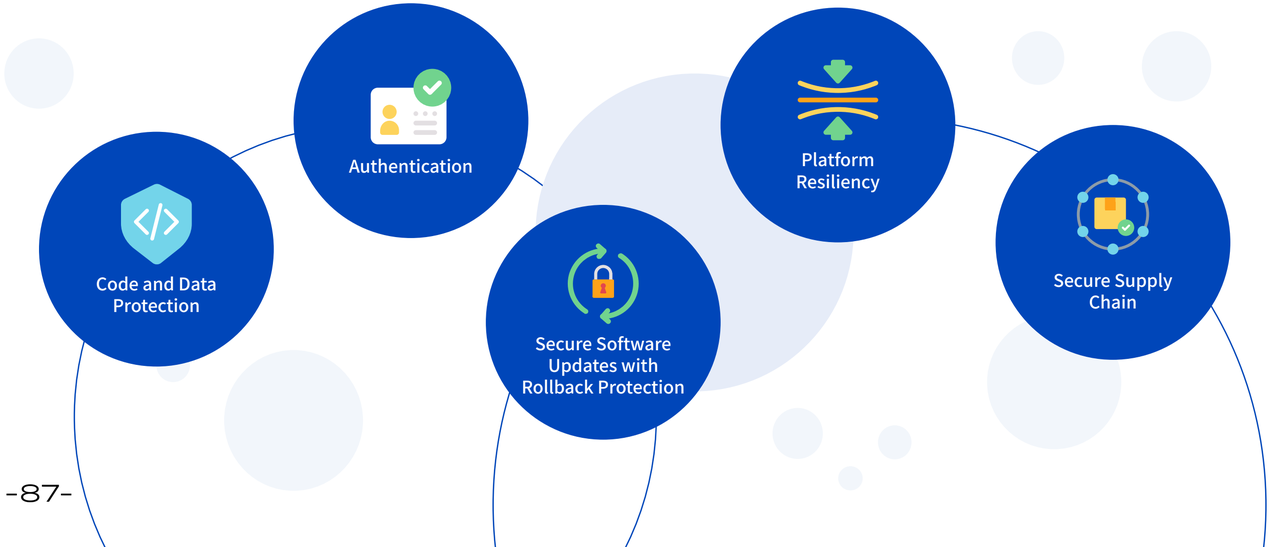
Winbond recognizes the severity of these challenges and has pioneered the development and launch of the TrustME® Secure Flash Memory product line. Secure memory is used to store sensitive data and code such as encryption keys, passwords, certificates, and firmware. Secure memory ensures that data and code are protected from unauthorized access, modification, or leakage both physically and logically. Secure memory also provides functions such as encryption, authentication, tamper detection, and self-destruction to enhance security levels and prevent attacks. These cutting-edge solutions are designed to protect Winbond customers' assets and create secure platforms, thus safeguarding end-users in various fields. Winbond's secure Flash memory is applied in consumer IoT, industrial IoT, servers, networks, and automotive sectors. Winbond is committed to protecting customers from emerging cyber- security threats. In anticipation of the upcoming post-quantum computing era, Winbond recently launched secure Flash memory enhanced with post-quantum encryption technology (PQC), ensuring that customers continue to enjoy robust protection in the evolving cybersecurity environment.

TrustME® Secure Serial Flash Memory W75F

The W75F memory series was developed in response to the high security identify verification needs of mobile payment services and other applications, and due to confidential data storage requiring encrypted system hardware modules to pos- sess EAL 5+ security certification. Products in the W75F series are the first secure Flash memory solution in the world to obtain Common Criteria (CC) EAL 5+ certification. They also support secure eXecute-in-Place (XiP), and are able to protect the confidentiality and integrity of codes and data stored in IoT devices.

TrustME® Secure Serial Flash Memory W77Q / W77T Series

The W77Q and W77T, compatible with traditional SPI specifications, offer essential security features for IoT endpoints, automotive, networks, and other types of connected devices. These features include hardware root of trust, secure boot, platform resilient, supply chain security confirmation, and robust data protection. Even if the host processor is compromised, the W77Q and W77T facilitate secure over-the-air software updates.



2.1.2 Green Products

Winbond foresees the market trends of new generation products and continuously invests resources in pursuing green semiconductor design, energy-saving and carbon-reducing production technologies, green energy production, and sustainable innovation of products, aiming to enhance the competitive advantage of green products while providing customers with high-quality products and service support.

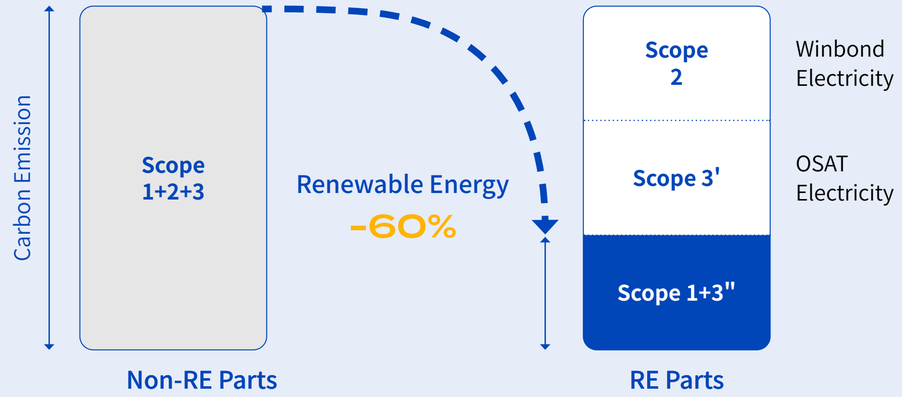
Winbond Green Product Manufacturing: Utilizing Renewable Energy for Product Manufacturing Demonstrates Commitment to Sustainable Development

Winbond actively promoted product innovation by reducing hazardous substances and carbon emissions in the manufacturing process, shortening production cycles, and lowering manufacturing costs. This approach helped develop smaller, more energy-efficient, and environmentally friendly products with low carbon emissions, while reducing the materials, electricity, carbon emissions, and power consumption of end devices during use, further reducing the carbon emissions of production electricity.

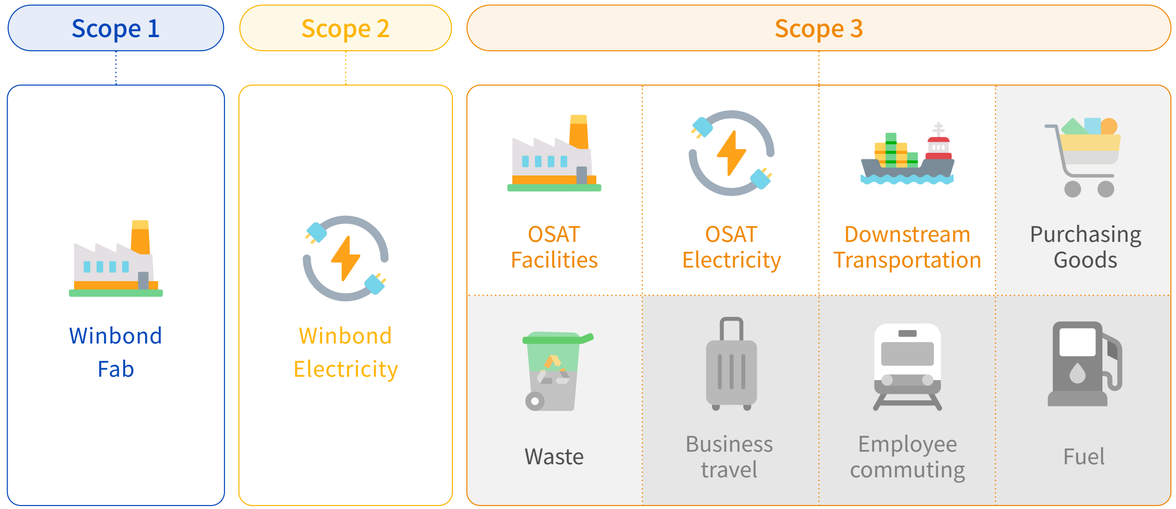
To further reduce the environmental impact of production and manufacturing, Winbond began using renewable energy for product manufacturing in 2024 and extended it to downstream packaging and testing plants. Green products manufactured with renewable energy represented the production and manufacturing at Winbond fabs, outsourced packaging plants, testing, and other processes, all powered by renewable energy, indicated by the 13th digit "G" in the product part number. Additionally, to effectively monitor carbon emission activities and achieve efficient real-time management, Winbond developed an advanced carbon accounting system. This system aggregated Scope 1 direct emissions from Winbond fabs, Scope 2 indirect emissions from electricity used at Winbond fabs, and Scope 3 other "indirect" greenhouse gas (GHG) emissions, integrating carbon emission information from manufacturing production and outsourced packaging and testing.

Winbond's products manufactured with renewable energy began mass shipments to key ESG-focused customers in December 2024, marking a significant milestone in aligning with ESG market trends and meeting the growing demand for green energy-saving products. These products manufactured with renewable energy had approximately 60% lower carbon emissions compared to those produced with conventional energy. As a leading supplier of green semiconductor memory, this move further demonstrated our commitment to sustainable development, aiming to achieve net-zero emissions by 2050.

We believe that the future of the planet is closely related to the sustainable development of enterprises. Therefore, ensuring innovation and environmental responsibility is crucial for driving corporate development. With the launch of products manufactured with renewable energy, Winbond has established an important milestone in its sustainability journey.

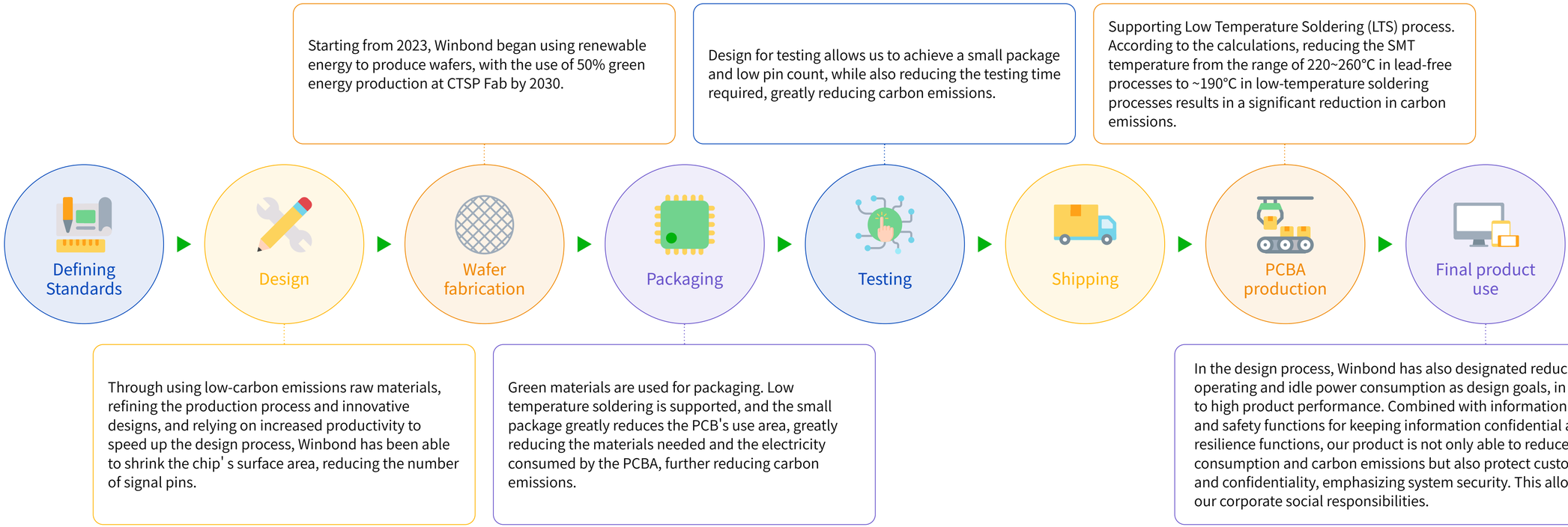


Note In the picture, Scope 3 = Scope 3' + Scope 3"
Scope 3': the indirect emissions from electricity in OSATs only
Scope 3": the indirect emissions in other upstream and downstream stages, including raw materials, indirect emissions from OSAT processes, downstream transportation and the waste, etc.



Note The anti-gray items indicates they are not included in the carbon emissions of Winbond products.

Green Product Development: Considering the Product Lifecycle Assessment, Carbon Emission and Energy Reduction



Low-carbon Products

2024	Low-carbon Products			Products which Avoided Emissions for Third-parties
Description	45nm PW - Serial NOR	Renewable Energy Products	100BGA LPDDR	1.2V Serial NOR
% of total revenues from green products	2.4%	1.6%	84%	23.7%
Estimated total avoided emissions per year (tCO_2e)	26.3 tCO_2e	294.6 tCO_2e	1.6 tCO_2e	255 tCO_2e

Resource Efficiency Benefits of Products

% of Total Products	Products
23%	1.2V Serial NOR

Product Life Cycle

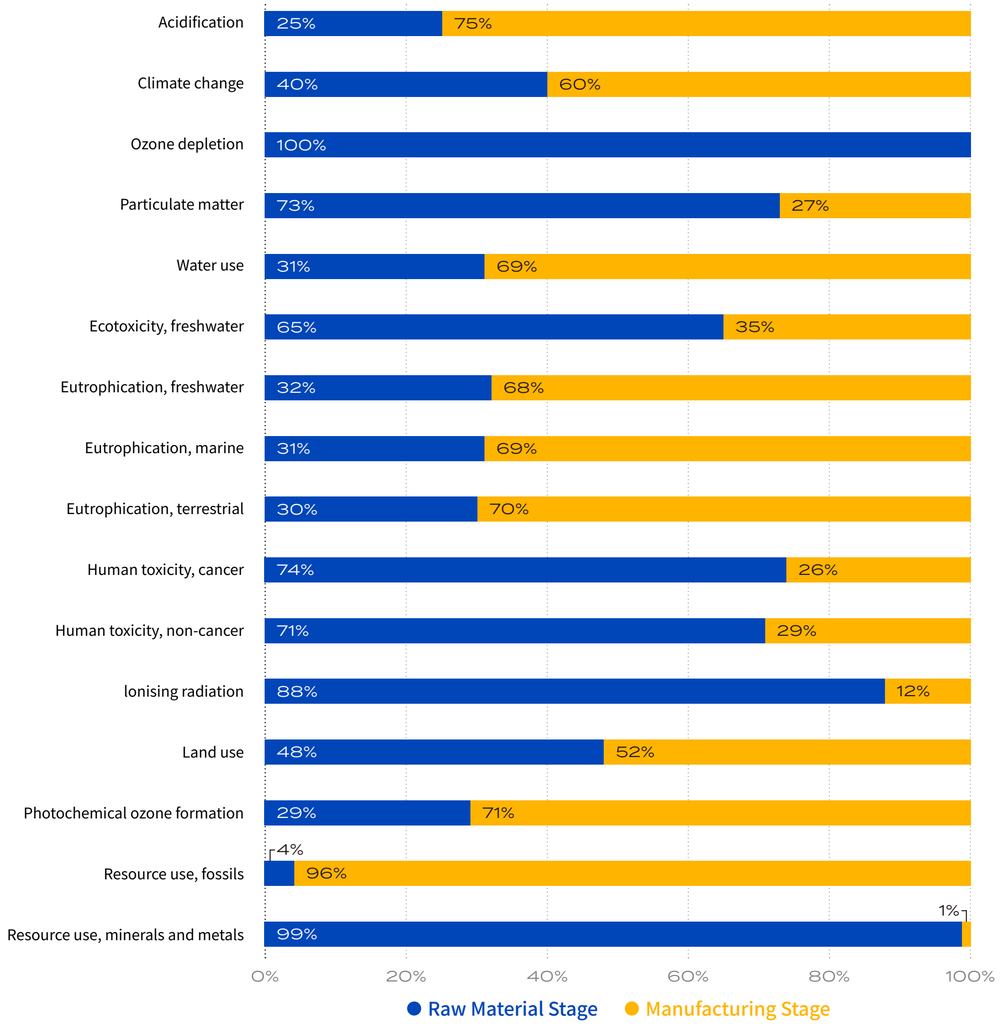
Winbond's main core products included Code Storage Flash Memory, TrustME® Secure Flash, and Customized Memory Solution (CMS). We gradually introduced ISO 14067 for product carbon footprint and ISO 14046 for product water footprint. Using the 2023 production information, they conducted a Life Cycle Assessment (LCA) for the entire product series with the Simapro Environmental Footprint 3.1 tool. This analysis evaluated the potential environmental impacts and calculated the environmental footprint during the raw material and production stages, such as global warming and ozone layer depletion. Through hotspot analysis, they identified improvement opportunities to enhance the environmental friendliness of raw materials and products.

According to ISO 14040 and ISO 14044 standards, they conducted a Life Cycle Assessment for products. The system boundary referred to the Product-Category Rules (PCR) announced by the Taiwan Semiconductor Industry Association: "For use in preparing 'Semiconductor Foundry' product environmental declarations (EPD) version 2.1 for scope definition." As the company did not belong to end products, they adopted Cradle-to-gate as the calculation boundary, including all chip substrates, chemicals, gases, and consumables used in the memory raw material acquisition stage, as well as the energy resources and waste used in the Winbond fab stage.

Environmental Impact: Three Main Hotspot

		2024 Progress	Strategy and Action
Electricity Usage	44.35%	▪ Completed 129 energy conservation action plans across six categories, resulting in an increase of approximately 26.3 million kWh in electricity savings compared to 2023. ▪ Purchased 40.336 million kWh of renewable energy.	▪ Promoted continuous improvement of ISO 50001 Energy Management System. ▪ Continued to purchase renewable energy according to the plan.
Raw Material Obtained	N_2 12% N_2O 7.5%	▪ Organized 8 supplier ESG workshops and 2 "Sustainable Supply Chain Upgrade+" forums. ▪ Introduced resources from industry, government, and academia, and collaborated on the "Large Lead Small" carbon reduction project, increasing the carbon reduction amount to 9,500 tons CO_2e, expanding the impact. ▪ Held 1 supply chain transformation diagnostic subsidy briefing, inviting suppliers with small procurement amounts and insufficient transformation resources to participate, utilizing government resources.	▪ In 2025, we will continue to promote low-carbon transformation through the "Large Lead Small" initiative, planning for 13 suppliers to cooperate in executing product carbon footprint inventory and implementing energy conservation and carbon reduction management programs.

Environmental Impact: Characterization Assessment Results



Hazardous Substance Management of Winbond

Winbond strictly adheres to international standards and regulations such as the "Hazardous Substance Process Management System Standard" (QC 080000), the "Restriction of Hazardous Substances Directive" (RoHS) of the European Union, the "Registration, Evaluation, Authorization, and Restriction of Chemicals" (REACH) regulation, California Proposition 65, the Toxic Substances Control Act (TSCA) of the United States, and the Canadian Convention to ensure that Wafer, Chip, Package IC, and other related products manufactured by Winbond comply with international environmental regulations and meet customer requirements for green products, thus avoiding environmental pollution and harm to human health. Winbond has established internal regulations for "Hazardous Substance Control" and formed a cross-departmental hazardous substance management team to control the design, procurement, production, and sales processes of products. Suppliers and subcontractors are required to incorporate green product requirements into their management systems to ultimately provide products free of hazardous substances (HSF) that meet customer demands. Winbond conducts its operations, including research and development, procurement, production, operations, and services, based on the following principles to reduce the company's impact on the natural environment and human health:

HSF Policy

Winbond's HSF policy aimed to design, procure, manufacture, and sell products free of hazardous substances to comply with international regulations, meet customer requirements, and protect the environment, fulfilling its social responsibility.

Hazardous Substance Process Management

Winbond established a Hazardous Substance Process Management (HSPM) system, with management representatives holding annual review meetings to discuss policies, objectives, regulations, audit results, and management performance, continuously improving the effectiveness of the hazardous substance management system.

1 Hazardous Substances Management Policies and Objectives	5 New Materials Assessment and Substitution Strategies
2 Regulatory Compliance and Conformity Management	6 Regular Testing and Monitoring of Hazardous Substances
3 Hazardous Substances Inventory and Control	7 Employee Training and Awareness Enhancement
4 Supply Chain Management and Green Procurement	8 Continuous Improvement and Performance Evaluation

2024 Progress of Winbond

- ✓ No non-compliance issues related to hazardous substances monitoring have occurred
- ✓ **100%** of Winbond personnel have completed hazardous substance training
- ✓ No non-compliance detected by customers' hazardous substance audits

2024 Progress of Nuvoton

- ✓ Non-compliance incidents in hazardous substance management operations: **0 cases**
- ✓ **100** completion of basic training on hazardous substances
- ✓ Customer complaints related to hazardous substances: **0 cases**
- ✓ Newly developed products and materials met Nuvoton's hazardous substance management requirements
- ✓ Completed annual hazardous substance content testing for wafer & IC to comply with RoHS and halogen-free requirements.

Hazardous Substance Management of Nuvoton

Nuvoton implements a rigorous five-step process to manage hazardous substances in all its products. This stringent self-imposed regulatory framework has been recognized by customers, including Sony Green Partner certification since 2009 and regular Sony Green Partner audits. Building on ISO 9001 and IATF 16949 management systems, Nuvoton achieved IECQ QC 080000, the International Electrotechnical Commission's (IEC) Hazardous Substance Process Management Standard, in 2008. This "process-oriented" approach minimizes or eliminates hazardous substances in products, enabling systematic hazardous substance management that meets RoHS, REACH, WEEE, and other customer-specific requirements, effectively operating a robust hazardous substance management system.

Declare a Hazardous Substance-Free Policy 1

Nuvoton is committed to designing, procuring, manufacturing, and selling hazardous substance-free products to comply with international regulations, meet customer demands, and fulfill its environmental responsibility.

Establish a Hazardous Substance Control List 2

Based on international environmental regulations and major customer requirements, Nuvoton maintains a controlled substance list that includes prohibited, restricted, and declarable substances. This list is reviewed and updated annually based on current conditions.

New Material Evaluation System 3

Nuvoton has established a new material evaluation process to ensure that newly developed products and materials comply with Nuvoton's hazardous substance management procedures and environmental, health, and safety requirements.

Green Procurement and Supplier Management 4

Raw material suppliers and subcontractors are required to sign a "Non-Use of Hazardous Substances Certificate" and provide third-party testing reports annually to ensure their products meet international standards.

Hazardous Substance Testing 5

Nuvoton annually samples Wafer & ICs for hazardous substance content, including RoHS and halogen content. Independent third-party organizations measure and monitor prohibited substances with environmental impact and health hazards in raw materials and products to meet RoHS and halogen-free requirements.

2.1.3 Intellectual Property Management

Intellectual property rights were important assets for maintaining the sustainable operation of the enterprise. To protect the company's investment in R&D resources and output, Winbond formulated intellectual property policies that align with the company's operational objectives. Through the operation of the intellectual property management system, Winbond fostered an innovative culture and enhanced employees' awareness of intellectual property protection, encouraging employees to continuously propose innovations and produce high-quality intellectual property while performing their duties, thereby strengthening Winbond's sustainable competitive advantage.

Accumulated Approximately **10,000** Approved Patents Globally until 2024

In strategic planning, Winbond set annual proposal targets through a comprehensive evaluation of the company's operational objectives and R&D resources, increasing the proportion of patent proposals driven by product development strategies, and promoting the connection between the company's operational objectives and intellectual property management strategies. As of 2024, Winbond had accumulated over 6,900 patent applications globally, with more than 5,300 patents granted worldwide.

Winbond established the Intellectual Property Department and Patent Committee to execute intellectual property management, including evaluation and review, award issuance, and strategic planning. During the internal proposal stage, proposals were strictly reviewed based on the patent laws, examination standards, and commercial value of each country, improving patent quality and certification rates to ensure proper protection of R&D results.

To encourage colleagues to understand the requirements of patent rights and actively submit proposals, Winbond also set up a generous incentive system. Additionally, to improve the quality of colleagues' proposals, Winbond customized educational training courses suitable for the proposing units, establishing the concept of intellectual property protection for colleagues, and guiding them to generate ideas through cases close to the proposing units, assisting them in producing high-quality invention proposals.

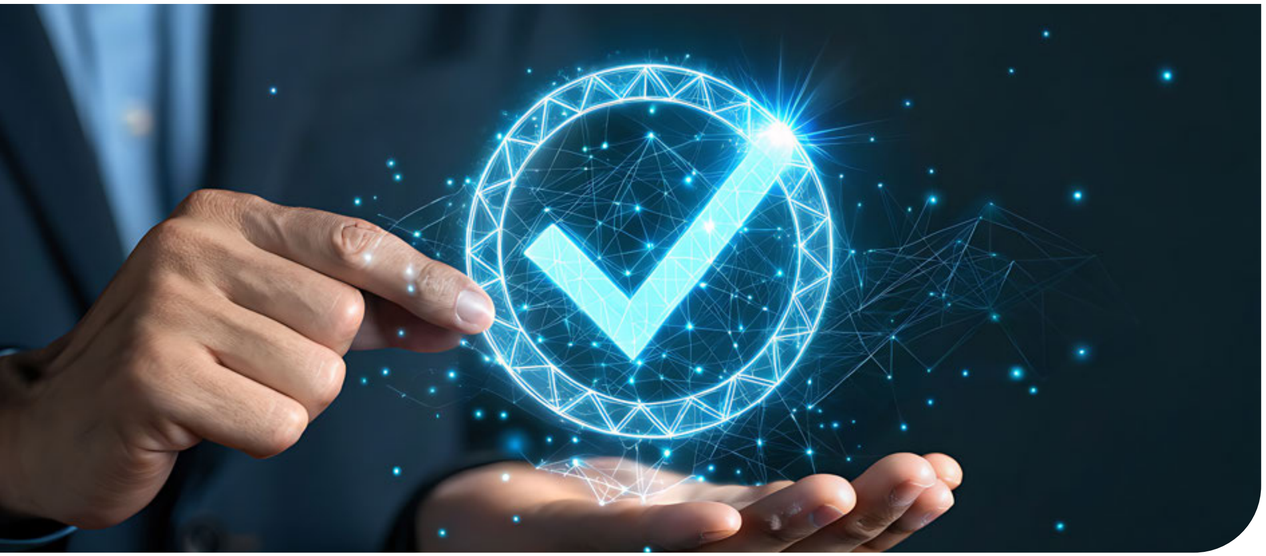
	Patents Application	Patents Granted
Winbond	▣ Global applications accumulated over **6,900** cases ▣ **430** global patent applications in 2024 ▣ Ranked **13**th in the top 100 domestic corporate invention patent applications in 2024	▣ Global approvals accumulated over **5,300** cases ▣ Nearly **380** global patents approved in 2024 ▣ Ranked **17**th in the top 100 domestic corporate invention patent announcements and certifications in 2024 Data sourced from the Ministry of Economic Affairs, Intellectual Property Office
Nuvoton	▣ Global applications accumulated over **2,963** cases ▣ **343** global patent applications in 2024 ▣ Ranked **17**th in the top 100 domestic corporate invention patent applications in 2024	▣ Global approvals accumulated over **1,984** cases ▣ **230** global patents approved in 2024 ▣ Ranked **14**th in the top 100 domestic corporate invention patent announcements and certifications in 2024 Data sourced from the Ministry of Economic Affairs, Intellectual Property Office
Nuvoton (Japan)	▣ Global applications accumulated over **4,500** cases ▣ **203** global patent applications in 2024	▣ Global approvals accumulated over **3,200** cases ▣ Nearly **106** global patents approved in 2024

Winbond passed the TIPS re-certification in 2024

In 2023, Winbond officially implemented the "Taiwan Intellectual Property Management System (TIPS)" and passed the A-level certification. Through the introduction of TIPS, Winbond formulated intellectual property policies and goals that align with the company's operational objectives, fostering an innovative culture and enhancing employees' awareness of intellectual property protection. Employees were encouraged to continuously propose innovations and produce high-quality intellectual property, strengthening sustainable competitive advantages. In 2024, Winbond continued to implement TIPS and passed the A-level re-certification.

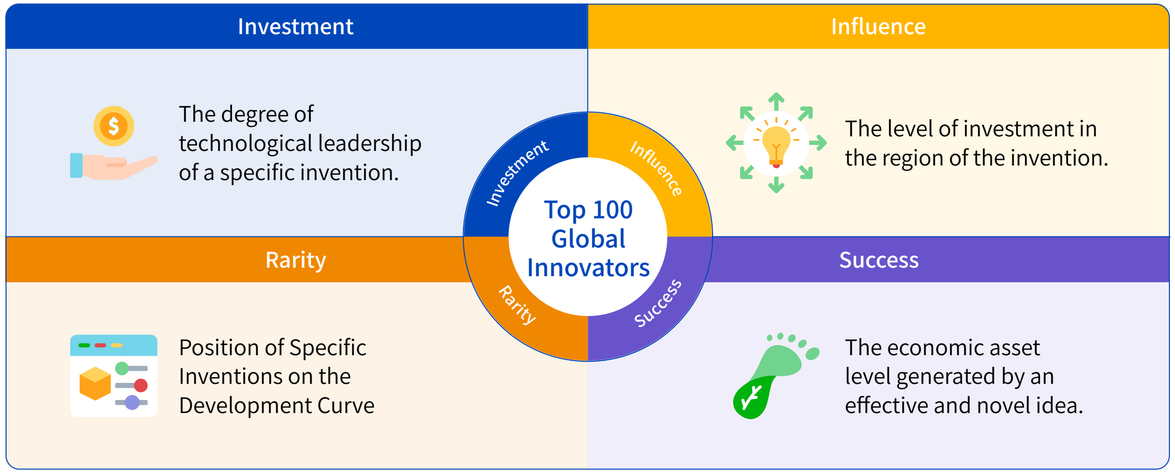
Promotion of Trade Secret Registration System

Trade secret management was part of the company's competitive advantage management, not just intellectual property management. Innovative thinking and practices should be adopted. Since 2022, Winbond has incorporated trade secrets into its intellectual property management strategy, initiating the strategic planning of the trade secret registration system and awarding the Excellent Trade Secret Award to encourage employees to register their R&D innovations, enhancing the company's technological competitive advantage. Winbond further integrated the technical content of the existing systems into the trade secret registration system, making the trade secret registration system a library of technical and innovative knowledge, preserving the company's competitive advantage trade secrets comprehensively. In 2024, the number of registered cases exceeded 11,300, with a cumulative registration of over 29,120 cases.



Selected as One of the Top 100 Global Innovators by Clarivate for 3 Conservative Years

"Proactive Innovation" was one of Winbond's core cultures. Winbond Group was selected as one of the Top 100 Global Innovators by Clarivate for three consecutive years. The selection criteria included not only the total number of invention patents reaching 500 but also the impact of patents, investment intensity, success footprint, and technological uniqueness. Winbond Group won the award from 3,000 candidate institutions worldwide, demonstrating Winbond's innovative R&D capabilities and the results and influence of its global patent layout. The high recognition from international evaluation institutions proved that Winbond was a semiconductor company that highly valued R&D investment and pursued innovation-driven growth and sustainable operation. In addition, Winbond was also committed to the adoption and development of green semiconductor technology, using low-carbon materials from the product design stage, developing high-performance, low-energy consumption, and low-resource demand green products to achieve the goal of protecting the environment and reducing environmental impact.

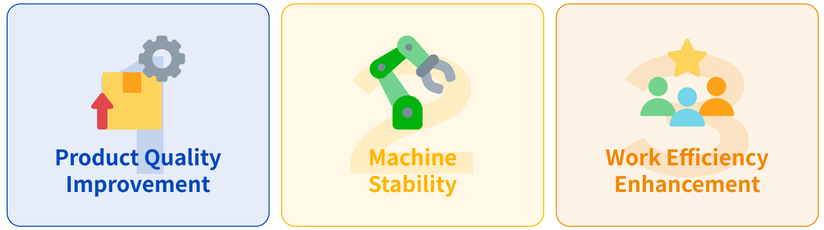


2.1.4 Digital Transformation

Since 2020, Winbond has fully promoted digital transformation, establishing the Digital Transformation Committee for Business (DTCB) and the Digital Transformation for Manufacturing (DTCM) to drive digital transformation in operations and manufacturing. The general manager regularly held meetings to review effectiveness; senior executives shared articles related to digital transformation weekly; the HR department invited external lecturers to provide relevant training and introduced internal collaboration platforms. The introduction of digital transformation technologies and tools has become the core system of Winbond's intelligent operations.

Wafer Fab Intelligence - Digital Transformation

Through the transformation enabled by data science methods, we aim to become an intelligent factory with highly efficient production and quality control.



Utilizing Industrial AI (Artificial Intelligence) Technology to Promote Smart Manufacturing Application

Four Major Digital Transformation Systems	Explanation of System Usage	Achievements
Flaws and Yield Analysis System	Consolidates measurement data from various module machines online, helping the research and development department analyze and make connections between data on development operations, analyzing and consolidating data with high efficiency.	▣ Greatly reduces data analysis times. ▣ Increase engineer productivity. ▣ Improved analysis system helps engineers increase data analysis efficiency by 60%.
Automated Engineering Reports System	Rapidly and automatically looks up and consolidates measurement data online.	▣ Effectively supports information processing operations. ▣ Helps the research and development team analyze and weigh experiment conditions, continuously optimizing the process. ▣ Automated system helps engineers more efficiently create engineering reports, increasing productivity by 80%.
Digitalize and Standardize Online Measurement and Electrical Data	Assists Winbond employees in adjusting process module conditions in a timely manner based on the data to meet requirements.	▣ Greatly improves the prediction and analysis of the key electrical properties of memory elements. ▣ Allows for good predictions to be made for key parameters. ▣ System able to improve productivity by 15%.
Memory Element Reliability Analysis System	Effectively consolidates and organizes massive amounts of measurement data, discovering the optimal operating parameters for use in product CP/FT testing.	▣ Significantly increases the data analysis speeds of our engineers. ▣ Increases data analysis efficiency by 80% through the system.

Establishing a Carbon Accounting System to Create a Green Future and Achieve Net Zero Emissions

Facing the increasingly severe challenges of climate change, countries around the world actively promoted carbon reduction policies, and enterprises faced multiple pressures from international regulations and internal and external demands. Achieving "Net Zero Carbon Emissions by 2050" had become a global consensus, and accurate carbon emission data management was the foundation for formulating effective emission reduction strategies.

To accurately grasp product carbon emission data, Winbond extended the concept of accounting systems to carbon data tracking with industry-leading innovation, developing a standardized and automated carbon accounting system for big data collection. This system realized the automation and standardization of carbon emission data collection, implemented product carbon inventory and carbon footprint systems, and provided in-depth analysis to assist in formulating product carbon emission reduction strategies. Through this well-constructed carbon accounting system, Winbond gradually moved towards the goal of net zero carbon emissions.

Investing in Carbon Data Management: The Cornerstone of Achieving Net Zero Carbon Emissions

The calculation and management of carbon emissions were the first steps in corporate carbon reduction actions. However, carbon data collection faced many challenges, including:

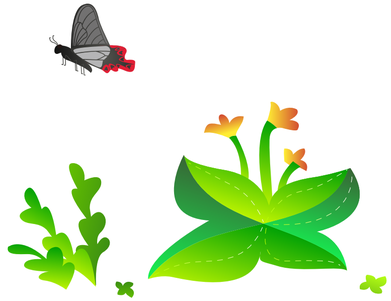
- Large data volume: Corporate operational activities involved many aspects, generating a large amount of carbon emission data, and collecting and organizing this data was a tedious task.
- Complex calculation methods: Calculating carbon emissions required different calculation methods based on various emission sources and activity data, posing high demands on corporate expertise and technical capabilities.
- Lack of real-time information: Traditional carbon data collection methods often relied on manual collection and organization, making it difficult to achieve real-time data updates and tracking, affecting corporate decision-making efficiency.

To overcome these challenges, Winbond extended the concept of accounting systems to carbon data tracking, developing an automated and standardized carbon accounting system that realized the automation and standardization of carbon emission data collection and provided in-depth analysis.

Establishing Winbond's Carbon Accounting System: Leading Green Transformation

Winbond's carbon accounting system aimed to comprehensively track and manage corporate carbon emissions, covering Scope 1, Scope 2, and Scope 3 emission sources, and provided data analysis and emission reduction strategy recommendations. The system had the following features:

- Integration with existing systems to create a unified data platform: The system integrated the company's existing accounting systems, combining carbon emission data with financial data, facilitating comprehensive analysis for the company.
- Automated data collection to improve efficiency: The automated data collection function could reduce manual input workload, improving data accuracy and efficiency.



The carbon accounting system was divided into three major sections:

Carbon Inventory System

Following ISO 14064 standards, it calculated the company's total carbon emissions, ensuring data reliability and comparability. It established a carbon emission database, developed calculation formulas, designed monitoring systems, and built analytical models. The system provided comprehensive carbon emission management tools, facilitating enterprises to track, analyze, and manage carbon emissions. It also offered strategies and recommendations for reducing carbon emissions, providing personalized reduction plans based on the actual situation of the enterprise.

Carbon Footprint System

Following ISO 14067 standards, it calculated the carbon emissions of products from cradle (raw materials) to gate (transportation), helping enterprises assess the environmental impact of products. The system evaluated the carbon footprint of products, understanding the environmental impact of products. Carbon footprint analysis helped enterprises identify the stages with the highest carbon emissions in the product life cycle and formulate corresponding reduction measures. It calculated the carbon emissions of each product based on direct attribution/allocation rules, enabling enterprises to more effectively formulate product carbon footprint management strategies.

Net Zero Emission Path and Management System (Under Construction)

Based on the aforementioned big data database, it helped formulate product carbon emission reduction strategies, moving towards the goal of net zero carbon emissions. The system's development came from the full investment of various departments of Winbond, leading the industry from scratch to establish Winbond's carbon accounting system. The entire company worked together for energy conservation and carbon reduction, creating Winbond's green culture.

Supply Chain Cooperation

Scope 3 carbon emissions accounted for the largest proportion and were also the biggest challenge in carbon accounting. Scope 3 carbon emissions mainly came from the supply chain, so the carbon footprint data of supply chain partners was the cornerstone of carbon reduction. However, the carbon accounting system also faced some challenges in supply chain management:

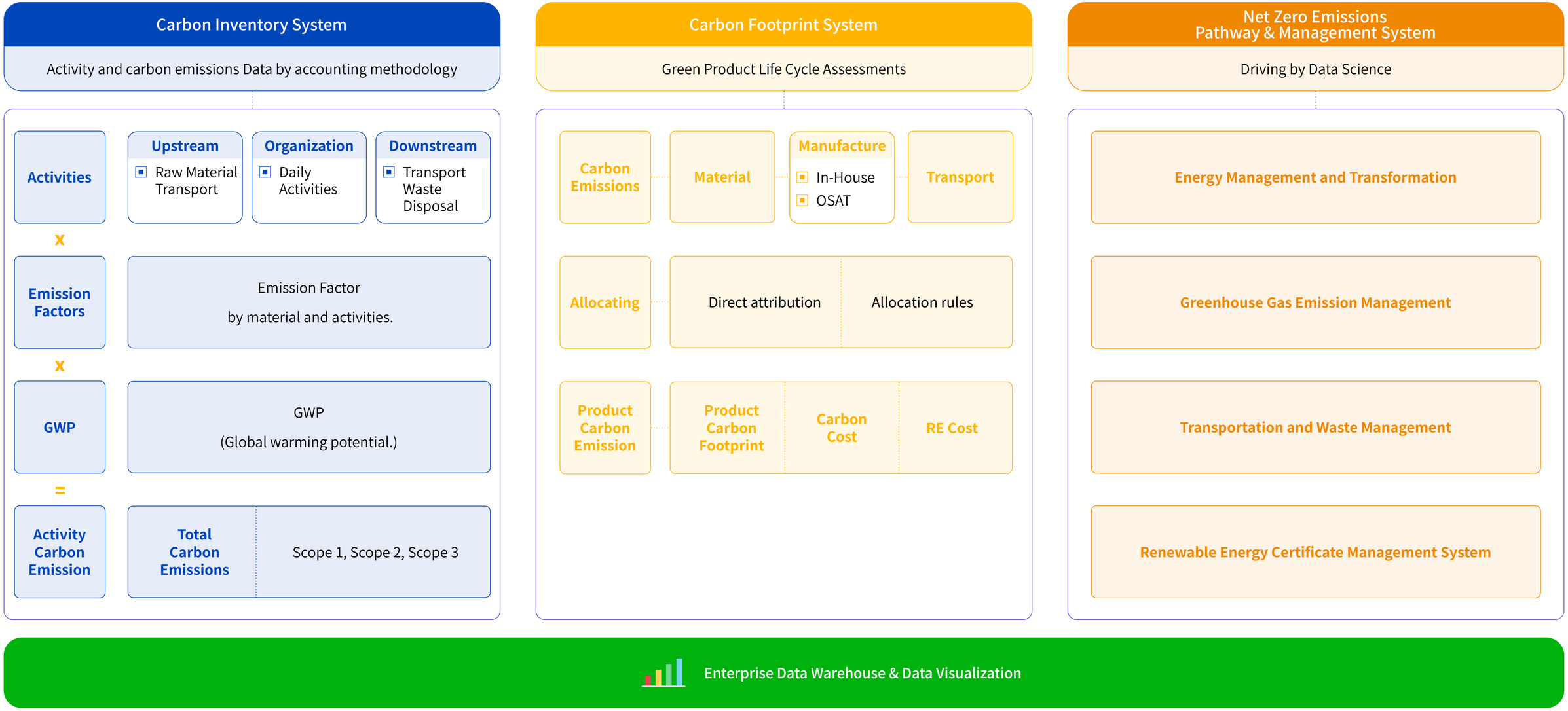
- Data completeness: Different suppliers might provide incomplete data, affecting the accuracy of overall carbon emission data.
- Data accuracy: Suppliers' carbon inventory capabilities varied, and data might have errors and inconsistencies.
- Supplier participation: Some suppliers might lack the motivation or resources to participate in carbon inventory, affecting the comprehensiveness of data collection.
- Technical and methodological differences: Different suppliers might use different technologies and methods to calculate carbon emissions, leading to data comparability issues.
- Reporting frequency: The frequency of suppliers reporting carbon emission data might be inconsistent, affecting the timeliness of data.

To address these challenges, Winbond actively cooperated with supply chain partners to promote the construction of a green supply chain, jointly moving towards the goal of net zero carbon emissions.

Future Outlook

The carbon accounting system is an important tool for enterprises to achieve the goal of net zero carbon emissions. To fully utilize its functions, enterprises need to continuously improve system functions and overcome challenges in data collection and management. At the same time, enterprises need to closely cooperate with supply chain partners to jointly promote the construction of a green supply chain to ultimately achieve the goal of sustainable development. In the future, Winbond will continue to improve the carbon accounting system and actively promote it to supply chain partners, jointly creating a green value chain and contributing to the goal of sustainable development.

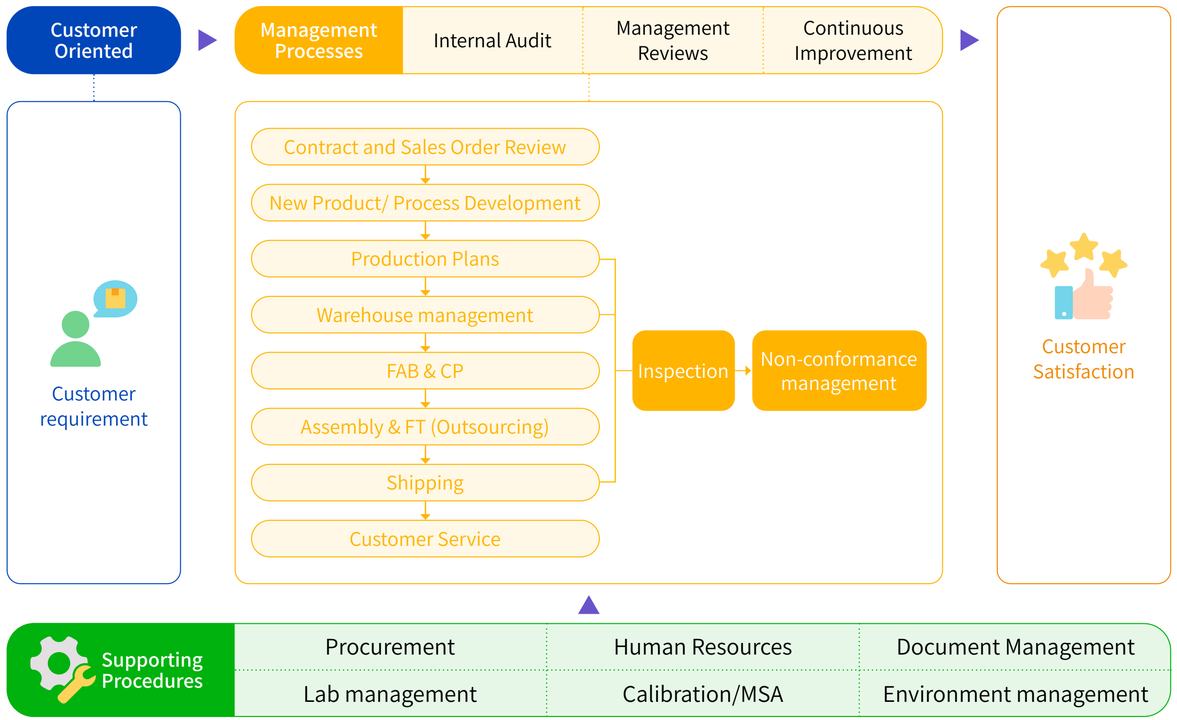
Carbon Accounting System Architecture: Winbond's Carbon Accounting System aims to comprehensively track and manage the company's carbon emissions, covering Scope 1, Scope 2, and Scope 3 emission sources. It provides data analysis and emission reduction strategy recommendations. The system is divided into three main blocks: (1) Carbon Inventory, (2) Carbon Footprint, and (3) Net Zero Carbon Management System



2.2 Quality Management for Products and Services

Winbond has formulated a quality policy that aims to establish a comprehensive quality management, zero-defect, and quality-first corporate culture through continuous improvement processes. The goal is to provide customer-satisfying products and services and become a world-class company. In accordance with this policy, Winbond has established various regulations and guidelines. In addition to ensuring that product quality and labeling comply with national and regional regulatory requirements, Winbond also manages quality through internationally recognized quality management systems verified by third-party inspection organizations, including ISO 9001, IATF 16949, and ISO 26262. Emphasis is placed on setting and tracking quality performance indicators and implementing continuous improvement measures. Various control processes, such as FMEA, SPC, and MSA, are employed to comprehensively inspect, assess, and improve product quality to meet customer needs and expectations.

Quality Management Systems and Processes



2.2.1 International Standards and Certification

Winbond continuously established rigorous production process control and quality management operations, including the stable and complete CTSP Fab. Since 2022, the Kaohsiung Fab, which started production, also successfully obtained international system certifications such as IATF 16949, ISO 9001, and QC 080000. To improve product quality, Winbond continuously enhanced yield analysis, supply chain management, and understanding customer needs. Additionally, Winbond ensured compliance with international standards such as RBA and ESG through various certifications, adhered to high customer standards, managed hazardous substances, and maintained production environment management, fulfilling corporate social responsibility.

Nuvoton established and implemented effective management systems based on various international standards such as ISO 9001, IATF 16949, IECQ QC080000, ISO 14001, and ISO 45001, covering aspects like product quality, green products, environmental protection, and occupational health and safety. These systems improved operational efficiency and effectiveness, enhanced product and service quality, and ensured the maintenance of sustainable responsibility.

Nuvoton(Japan) established the ISO 9001 Quality Management System and obtained the ISO 9001:2015 certification. Additionally, it obtained certifications for ISO 9001, ISO 14001, ISO 45001, ISO 27001, and ISO 21434 international standards.

Certification/Location	Winbond		Nuvoton	
	CTSP Fab	Kaohsiung Fab	Yanxin Fab	Japan
ISO 9001 Quality Management System	✓	✓	✓	✓
QC 080000 Hazardous Substance Process Management System	✓	✓	✓	
IATF 16949 Automotive Quality Management System	✓	✓	✓	
ISO 26262 Functional Safety for Road Vehicles	✓	✓		
ISO 21434 Cybersecurity for Road Vehicles	✓	✓		✓
ISO/IEC 27001 Information Security Management System	✓	✓	✓	✓
ISO 50001 Energy Management System	✓	✓	✓	✓
ISO 46001 Water Efficiency Management System	✓	✓		
ISO 14064-1 Greenhouse Gas Emissions Quantification and Reporting	✓	✓	✓	✓
ISO 14001 Environmental Management System	✓	✓	✓	✓
ISO 45001 Occupational Health and Safety Management System	✓	✓	✓	✓

2.2.2 Culture of Pursuing Quality

Quality Award Recognition

In 2024, the Taiwan Continuous Improvement Competition attracted a total of 180 teams from the northern, central, and southern regions. Winbond once again received recognition and affirmation from national judges for product quality and process improvement, winning two Gold Tower Awards and two Silver Tower Awards, demonstrating the company's commitment to continuous improvement and achievements.

The CTSP Fab's Collaborate Circle team, composed of professional engineers from different departments and fields, was dedicated to problem-solving. In 2024, the Collaborate Circle team aimed to improve the defect rate of machines, using statistical analysis techniques and TRIZ theory to identify root causes and propose innovative solutions, winning the Gold Tower Award again. This achievement not only improved product quality but also reduced production costs, reflecting Winbond's sustainable operation goals.

Team	Theme	Award
Collaborate Circle	To reduce the Process Abnormality Rate in CTSP Fab.	Golden Tower
Perseverance Circle	To reduce the Occurrence Rate of F58U Word Line Leakage	Golden Tower
Precision Circle	To reduce the Rate of Bent Needles in Epoxy Probe Card Grinding	Silver Tower
Interstellar Circle	To reduce ICA109 FWL Yield Loss	Silver Tower

The CTSP Fab's Perseverance Circle team members came from different fields and collaborated across departments, using experimental design and 5Whys analysis methods to deeply analyze process problems, successfully identifying six optimized process conditions and proposing innovative solutions. Particularly in improving the "F58U process character line short circuit failure rate," the team used intelligent manufacturing technology and data analysis to refine process control, effectively reducing wafer defects. These breakthroughs not only improved production efficiency but also raised product quality to higher standards.

These national awards fully affirmed Winbond's outstanding achievements. Winbond will continue to uphold the core values of "Integrity Management, Responsible Team, Passionate Learning, Proactive Innovation, Sustainable Contribution," combining the QIT spirit to continuously cultivate professional teams. We aim to elevate the quality culture to new heights with the spirit of "Being a hidden champion in providing sustainable semiconductors to enrich human life," and strive to achieve the goal of becoming a leading enterprise in net zero carbon emissions.

The Winbond Yili Circle is a problem-solving team composed of professional engineers from various departments and fields, focusing on improving process pain points. Upholding the spirit of "challenging zero defects and becoming an invisible champion," the team is dedicated to enhancing product stability and quality. Team members come from different fields and collaborate across departments, using experimental design, 5Whys, and other analytical methods to deeply analyze process issues, successfully identify optimal process conditions, and propose innovative solutions.

Year	2021	2022	2023	2024
Golden Tower Award	2	2	2	**2**
Silver Tower Award	2	2	1	**2**
Bronze Tower Award	0	0	0	**0**

Fostering a Culture of Excellence in QE 2.0

Since 2013, Winbond has entered the automotive electronics market, initiating a quality culture centered on "Zero Defects" and "Quality First," known as Excellence Quality QE 1.0. Over time, significant changes in internal and external environments have made merely meeting customer quality requirements insufficient to address current challenges. To achieve higher quality standards, the company introduced Excellence Quality QE 2.0, focusing on "Precision Description" and "Doing Things Right the First Time."

The company held various activities to promote quality culture:

- Excellence Quality Forum: Successfully held in 2024, attracting 555 participants and recorded as an e-learning course, becoming a mandatory course for company colleagues.
- FMEA Excellent Case Sharing Meeting: Held quarterly in 2024, with 1329 supervisors participating, strengthening the ability to analyze potential risks and solve systemic problems.
- Quality Month Activities: The 2024 Quality Month focused on "QE2.0," attracting 3032 participants.
- Senior Executive Quality Workshop: Held at the beginning of 2024, discussing how to enhance quality culture and improve quality, producing six improvement directions and implementation details.

Winbond encouraged employees to implement the company's business philosophy and values in daily management activities and promoted them throughout the supply chain through various opportunities to interact with suppliers and customers, pursuing excellence in operations and continuous improvement, forming a comprehensive corporate quality culture.

2.3 Customer Relationship Management

2.3.1 Maintaining Customer Relationships

Customer Satisfaction of Winbond

We deeply understand the critical importance of customers in business operations. Customers are closely linked to the value of the enterprise, and their satisfaction directly affects the sustainable development of the enterprise. Therefore, Winbond has long been committed to meeting customer needs, adhering to the philosophy of customer supremacy, and hoping to grow together with customers to achieve sustainable operations.

To ensure that we have a deep and comprehensive understanding of customer needs, we regularly conduct customer satisfaction surveys. This is not only a way to respond to market changes but also an important step in establishing a solid relationship with customers.

In the 2024 customer satisfaction survey, we commissioned an external neutral third-party research consulting company to conduct the survey. The survey method was to first interview some customers to understand their real needs, and then formulate a complete questionnaire based on the interview results to truly understand customer expectations and potential needs. The survey was conducted through online questionnaires. The coverage rate of customers in this survey reached 100%, and the survey content covered three main areas: sales and service, product and technical support, and quality. The survey results showed that the overall customer satisfaction reached **90%**.

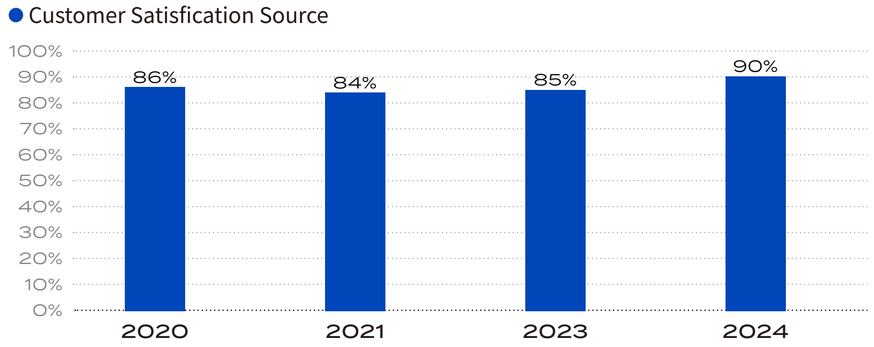
We will continue to conduct customer satisfaction surveys every year and raise the target to over **85%** to ensure that we continuously improve service quality, meet customer needs, and achieve sustainable development of the enterprise.

Satisfaction Survey of Winbond

Objective	Continuously improve our customer services quality and product competitive
Scope	"Sales & Order", "Product and Technical Support, "Quality"
Goal	Satisfaction Index > 85%
Coverage	100%
Frequency	Once a year

Customers' Satisfaction of Winbond

- In 2024, the overall customer satisfaction reached 90%. We will continue to conduct customer satisfaction surveys every year and raise the target to over 85%.



Customer Satisfaction of Nuvoton (Taiwan)

We deeply understand that in business operations, the role of customers is not only important but also crucial. Customers are closely linked to the value of the enterprise, and their satisfaction directly affects the sustainable development of the enterprise. Therefore, Winbond has long been committed to meeting customer needs, adhering to the philosophy of customer supremacy, and hoping to grow together with customers to achieve sustainable operations.

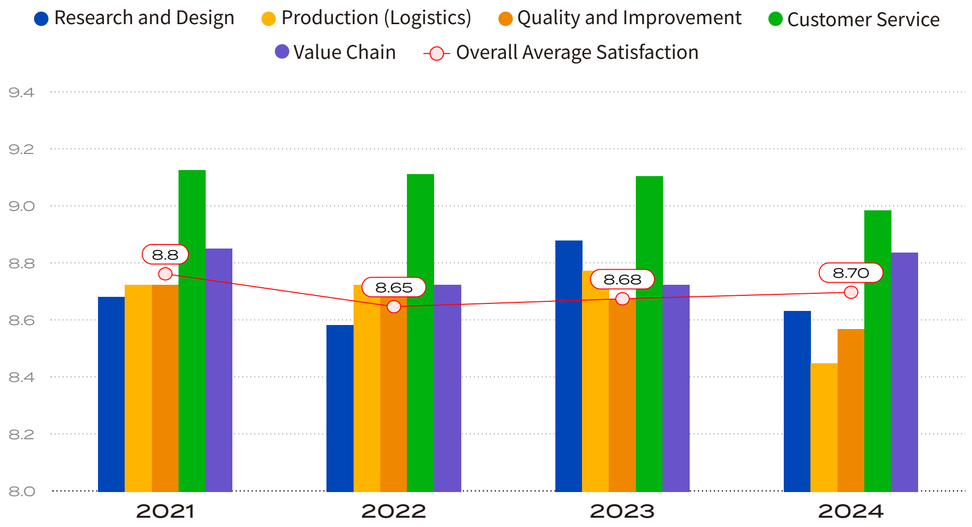
In this effort, we regularly conduct customer satisfaction surveys to ensure that we have a deep and comprehensive understanding of customer needs. This is not only a way to respond to market changes but also an important step in establishing a solid relationship with customers. In the 2024 customer satisfaction survey, we divided it into five major areas: R&D and design, production (logistics), quality and improvement, customer service, and value chain. The content includes aspects such as new product marketing/sales, delivery, quality improvement, technical support, customer service, and corporate image. In terms of R&D and design, our satisfaction reached 8.63 (out of 10); in production (logistics), we achieved a satisfaction of 8.45; in quality and improvement, we received a satisfaction of 8.57; in customer service and value chain, customers gave high satisfaction scores of 8.99 and 8.84. These numbers reflect our continuous efforts in different areas to provide customers with the highest quality products and services. The overall satisfaction reached 8.70, and 94% of customers gave satisfactory ratings (overall satisfaction ≥ 7.0), which represents a high evaluation of our performance by customers. This is not only the result of our past efforts but also a recognition of the trust and support from our customers.

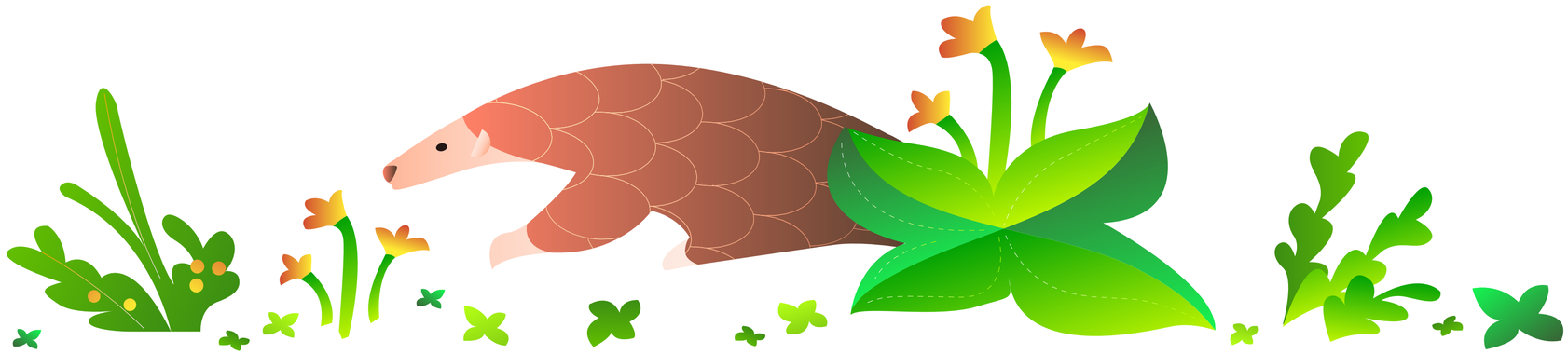
In the future, we will continue to maintain close contact with customers and continuously improve product and service levels to meet the ever-changing needs of customers.

Satisfaction Survey of Nuvoton (Taiwan)

Objective	Objective: To understand customer opinions on the services provided by Nuvoton.
Survey Scope	New product marketing/sales, delivery, quality improvement, technical support, customer service.
Goal	Customer satisfaction ratio (proportion of customers with overall satisfaction ≥ 7.0) ≥ 90%.
Target Customer Selection	Mainly the top 40 customers by revenue (covering total revenue ≥ 60%), adjusted by sales or business units based on customer future development or importance.
Customer Satisfaction Index	Score range (out of 10), from very dissatisfied, dissatisfied, neutral, satisfied, very satisfied.
Survey Frequency:	Once a year

Score of Customer Satisfaction of Nuvoton (Taiwan)





Tracking Customer Intentions

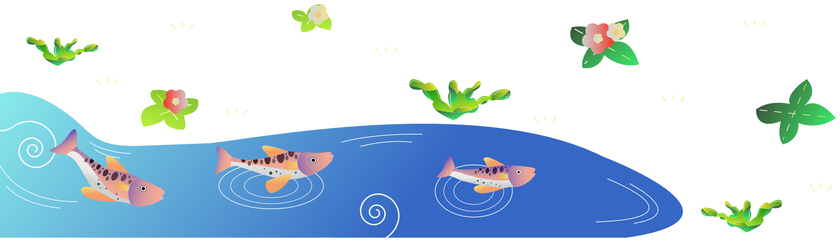
Winbond values its brand and continuously reviews its services. In 2024, we received a total of 2,317 customer complaints, of which 1,002 cases were clarified as non-Winbond quality or service issues after testing, accounting for 43%. Past customer complaint experiences, as well as current customer conditions and ideas, are used to customize solutions for clarifying and resolving customer issues, which is an integral part of customer service. Calculated based on the number of shipped units, customer complaints accounted for only 0.00003% of the shipment volume, which is considered a very good level. Additionally, there were no product recalls from 2020 to 2024.

Through analysis of confirmed failure cases, we can identify and resolve the root causes of deficiencies, and then propose corresponding failure mode tests and improvement plans, as well as formulate source process improvement plans. This ensures that we provide customers with the best service and products. Calculated as (number of failed ICs/total shipment volume), Winbond's failure rate reached an extremely low level of 0.03 dppm (2024: 0.3 dppm), thereby maintaining customer satisfaction, stabilizing operational performance, and achieving a win-win situation.

Quality Workshop

Winbond actively organized regular quality workshops, not only to gain an in-depth understanding of customer product needs and suggestions but also to invite professionals and industry experts to participate in discussions on quality and technical issues. Through this quality workshop exchange platform, Winbond was able to respond promptly to customer inquiries, provide solutions, and continuously improve product and service quality, further enhancing customer satisfaction. At the same time, Winbond gained more industry information and technical knowledge through this platform, continuously improving its technical level and product quality.

As of 2024, Winbond successfully held 8 customer quality workshops and continued to strive to achieve the goal of completing 8 customer quality workshops in 2025, hoping to achieve a win-win situation with customers. We firmly believe that in future development, quality workshops will continue to play a key role in the joint development of Winbond and its customers.



2.3.2 Customer Privacy Protection

Winbond strictly controls customer-related information, and all commercial information such as documents and data exchanged with customers is stored by Winbond's internal high-security system. We have established a Privacy Policy, and the approval and opening of operational permissions for relevant internal personnel are handled in accordance with relevant operational specifications and procedures to ensure the company protects customer privacy and prevents the theft or leakage of trade secrets and intellectual property rights. In 2022, we obtained ISO 27001 Information Security Management System certification, establishing a more comprehensive information security protection system.

The EU General Data Protection Regulation (GDPR) came into effect in May 2018. Winbond has made relevant adjustments according to GDPR requirements, modified the company website, and re-examined website member data to comply with GDPR regulations. GDPR-related regulations have also been incorporated into the online course on personal data protection law. In 2024, a total of 300 people completed the training, with a 100% pass rate, and the total training hours amounted to 150 hours.

Total completion in 2024
300 Individuals

100%
Passed Examination and Completed Training

Total Training Hours
150 hours