

CH2 Innovation

Through invention and innovation, MediaTek provides the most competitive products and services to its customers.

- 2.1 Core Concepts
- 2.2 Innovation in Practice
- 2.3 Innovation Achievements

ESG Highlights

102 Papers Selected

For 22 consecutive years, MediaTek is the only Taiwan-based company that has had a total of 102 papers selected for publication by the International Solid-State Circuits Conference (ISSCC).

Reduced Energy Consumption by 20%

Energy consumption of end products in the usage phase decreased by 20% in 2024 compared to 2023 due to green innovation.

CT-X1, Generative AI Technology

The Dimensity Auto Cockpit Platform - CT-X1 revolutionizes the smart automotive experience with advanced generative AI technology.

- Invested NT\$132 billion in R&D in 2024.
- Recognized as a “Global Top 100 Innovator” by LexisNexis Innovation Momentum.
- Received the honor from 2024 IAM Asia IP Elite.
- In 2024, it acquired more than 1,300 domestic and international patents. It was simultaneously in 1st place in the Taiwan industry in terms of number of global patents in 5G, Wi-Fi, and HEVC/VVC.

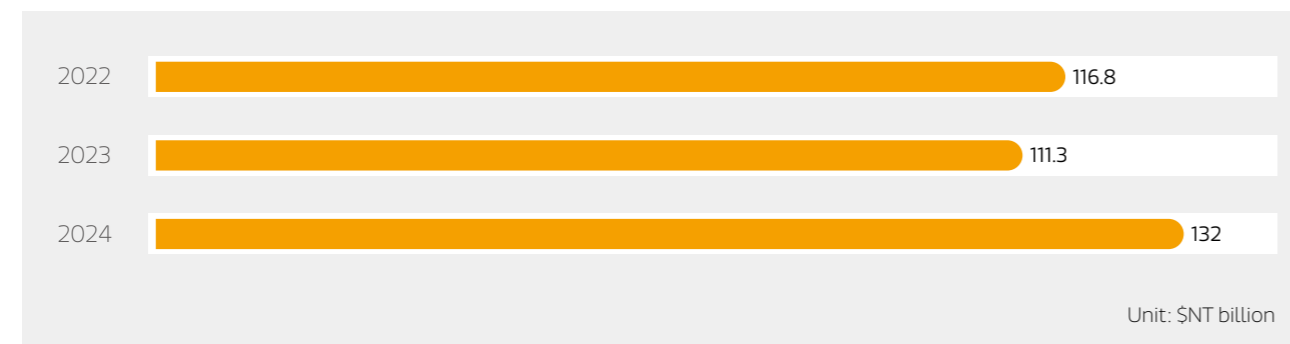


2.1 Core Concepts

SDG 1.4 SDG 8.2 SDG 9c

Innovation is a never-ending relay race. MediaTek strives to utilize technological innovation to solve problems and enhance the quality of life for everyone. As IC design companies are positioned at the top of the semiconductor value chain, they must keep pace with external development and maintain a deep understanding of user needs and industry changes to stay at the forefront of innovation. Ultimately, this helps end users benefit from opportunities brought about by technological advances. We believe that innovation is the driving force behind sustainable corporate growth. Through invention and innovation, we aim to deliver the most competitive products and services while enabling all users to create a better life.

In recent years, MediaTek has continued to invest in cutting-edge research in new fields. In 2024, its R&D investment reached NT\$132 billion. Over the past three years, cumulative R&D investment totaled approximately NT\$360 billion. MediaTek continues to lead the 5G, wireless communication, and AI industry clusters globally, driving digital transformation.



2.2 Innovation in Practice

SDG 8.2 SDG 9.5

2.2.1 Talents

To deliver the best flagship-level experiences and solutions for users' daily lives, MediaTek has been proactively reorganizing its human resources in recent years. Several hundred R&D and product personnel have been transferred to key technical and product development areas such as 5G and AI, supporting the Company's ongoing pursuit of technology leadership. For more information on our global talent layout, please refer to [About MediaTek](#).

2.2.2 Culture

Since 2002, MediaTek's highest honor for (technological) innovations has been the Innovation Award and Special Contribution Award (ISCA), presented annually. The ISCA recognizes outstanding employee contributions in two categories: the Special Contribution Award and the Innovation Award. The Special Contribution Award is further divided into Project/Product and Operation categories, while the Innovation Award highlights exceptional achievements in key technological breakthroughs. Both teams and individuals are selected through a rigorous evaluation process.

MediaTek also encourages employees to participate in internal and external events and conferences to foster motivation, inspiration, and greater engagement in innovation and invention.

2024 Innovation Award and Special Contribution Award

In 2024, 19 teams took part in the competition; among 239 project members, 61 of whom were from overseas units. Among the 19 teams nominated, 8 teams were awarded, including 2 for the Innovation Award, 2 for the Special Contribution Award - Project/Product, and 4 for the Special Contribution Award - Operation.



International Solid-State Circuits Conference (ISSCC)

The ISSCC is the world's largest, most prestigious, and highest-standard conference on solid-state circuits, with thousands of participants from the academia and industry every year. In 2024, the MediaTek Group submitted 7 papers, which were accepted and published by ISSCC in 2025. Since 2004, MediaTek has had papers accepted by the Conference for 22 years in a row, with 102 papers in total, which testifies the Company's extraordinary technological and innovative strength.

MediaTek is the only Taiwanese company whose papers have been accepted at ISSCC for 22 consecutive years.

The International Solid-State Circuits Conference acts as a leading indicator of global R&D trends in semiconductor and solid-state circuits. It is the best conference for exchanges of cutting-edge technologies in the fields of semiconductor and chipset, often referred to as the Olympics of the IC design domain.

Publication of papers in 2025

- ▶ A 212.5Gb/s DSP-Based PAM-4 Transceiver with 50dB Loss Compensation for Large AI System Interconnects in 4nm FinFET
- ▶ A 112Gb/s DSP-Based PAM-4 Receiver with an LC-Resonator-Based CTLE for >52dB Loss Compensation in 4nm FinFET
- ▶ Run-Time Power Management System by On-Die Power Sensor with Silicon Machine Learning-Based Calibration in a 3nm Octa-Core CPU
- ▶ A Fractional-N PLL with 34fs_{rms} Jitter and -255.5dB FoM Based on a Multipath Feedback Technique
- ▶ MAE : A 3nm 0.168mm² 576MAC Mini Autoencoder with Line-Based Depth-First Scheduling for Generative AI in Vision on Edge Devices
- ▶ A Power- and Area-Efficient 4nm Self-Calibrated 12b/16GS/s Hierarchical Time-Interleaving ADC
- ▶ A 3nm FinFET 2.2Gsearch/s 0.305fJ/b TCAM with Dynamically Gated Search Lines for Data-Center ASICs

2.2.3 Ecosystem Engagement

Value Chain Collaboration - Embracing Technology and Creating Opportunities Together

At NVIDIA GTC 2024, MediaTek unveiled a series of new automotive SoCs (systems-on-chip) within its



Dimensity Auto Cockpit portfolio, offering powerful AI in-cabin experiences for the next generation of intelligent vehicles. These SoCs will come with support for NVIDIA DRIVE OS, allowing auto makers to leverage the platform across a range of segments, spanning from premium to entry-level vehicles.

To support deep-learning capabilities, the Dimensity Auto Cockpit chipsets integrate a state-of-the-art ARM v9-A system and NVIDIA's next-gen

GPU accelerated AI computing and NVIDIA RTX graphics. The AI-enabled Dimensity Auto Cockpit platform runs large language models (LLMs) in the car, allowing vehicles to support chatbots, rich content delivery to multiple displays, driver alertness detection, and other cutting-edge AI-based safety and entertainment applications. Running applications locally offers improved security, plus speed and latency benefits. To further protect user data, the Dimensity Auto Cockpit incorporates hardware-based security features with support for the latest automotive safety standards.

Dimensity Auto Cockpit takes in-cabin entertainment to the next level. It integrates an NVIDIA RTX GPU, which supports ray tracing for realistic visuals and lighting effects in games, plus AI upscaling and frame generation for fast, fluid action. Additionally, passengers can seamlessly stream movies and other content across multiple displays, since Dimensity Auto Cockpit supports the latest connectivity and memory technologies. Consumers can even take advantage of advanced video conferencing features, including AI gaze correction and AI-based audio enhancement. To help lower bill-of-material costs, the Dimensity Auto Cockpit chipsets are highly integrated. The built-in multi-camera HDR ISP supports front-facing, in-cabin, and bird's-eye-view cameras for a wide variety of safety applications. Additionally, the integrated audio DSP supports the latest voice assistants so a driver can get information and control their infotainment system without taking their hands off the steering wheel.

Participation in Industry Associations

In keeping with evolving technologies, MediaTek works closely with business partners to develop new technologies and applications. The Company also proactively participates in global industry associations to connect with industry peers and academic institutions, encouraging the exchange of ideas and sparking innovation.

MediaTek's Participation in Industry Association

Network Communication

- ▶ European Telecommunications Standards Institute (ETSI)
- ▶ Groupe Speciale Mobile Association (GSMA)
- ▶ Global Certification Forum (GCF)

Semiconductor

- ▶ Global Semiconductor Alliance (GSA)
- ▶ Taipei Computer Association (TCA)
- ▶ Taiwan Semiconductor Industry Association (TSIA)
- ▶ Taiwan IC Industry and Academia Research Alliance (TIARA)

2.2.4 Patent Strategies and Participation in Standard Organization

Since its foundation, innovation has been the cornerstone of MediaTek's daily operations. To safeguard its valuable R&D achievements, strengthen global competitiveness, and sustain technological leadership in key areas, the Company formulated an intellectual property (IP) management plan aligned with its business objectives. This strategy aims to deliver top-tier products and services to clients worldwide and to pursue industry leadership through a philosophy of “Global Reach, Local Presence”.

MediaTek has filed over 10,000 patent applications globally, including Taiwan, China, the United States, Europe, India, Japan, Korea, Brazil, and South Africa. Since its establishment in 1997, the Company has maintained over 14,000 patents globally as of the end of 2024, including 1,300 patents granted in 2024—the highest number in Taiwan’s IC design industry. In 2024, MediaTek received significant recognition, including being named a Clarivate Top 100 Global Innovator, listed on the IAM Asia IP Elite, and recognized by LexisNexis as a Global Top 100 Innovator in its Innovation Momentum report. The Company continues to obtain Taiwan Intellectual Property Management System (TIPS) Level A Certificate in 2024. MediaTek currently holds the top position among industry peers in Taiwan for the number of global patents in 5G, Wi-Fi, and HEVC/VVC technologies.

Given the rapid pace of technological evolution and the growing importance of information and technology interoperability, MediaTek actively participates in technical standard organizations across various related fields. Through ongoing exchanges with industry peers and research institutions, the Company stays at the forefront of technology standards and continues to strengthen its technology and patent portfolio.

MediaTek’s Participation in Technical Standard Organizations

Name of Technical Standard Organization	MediaTek’s Role
Third Generation Partnership Project (3GPP)	<ul style="list-style-type: none">▶ Since 2008, MediaTek has invested in research on new mobile communication technologies and actively contributed research findings to guide the development of 3GPP standard, spanning 4G, 5G, and 6G.▶ A research team of over a hundred members is distributed globally, including Taiwan, the United States, Europe, and China.▶ In 2019, MediaTek was first elected as the chair of 3GPP RAN2, to lead the industry in completing the standard development for 5G L2/L3 communication protocols.▶ We actively promote 6G technology R&D and standard development.
European Telecommunications Standards Institute (ETSI)	<ul style="list-style-type: none">▶ Newly elected as an ETSI board member in 2023.▶ Develops opportunities for industry-academia collaboration and exchange in the European region.
Taiwan Association of Information and Communication Standards (TAICS)	<ul style="list-style-type: none">▶ Helped establish TAICS and consistently serves as its chair, to promote exchanges and collaboration among domestic and international technical standards experts.
Institute of Electrical and Electronics Engineers(IEEE) 802.11 Wireless Local Area Networks	<ul style="list-style-type: none">▶ Has served as vice chair of the 11bn/Wi-Fi 8 Working Group since 2023. Actively participates in the development of a series of 802.11 Wi-Fi technology standards (e.g., 11ac/ Wi-Fi 5, 11ax/Wi-Fi 6, 11be/Wi-Fi 7).▶ Collaborates with global Wi-Fi industry companies to actively develop next-generation Wi-Fi standards.

Name of Technical Standard Organization	MediaTek’s Role
Wi-Fi Alliance (WFA)	<ul style="list-style-type: none">▶ Has served as vice chair of the Wi-Fi 7 Marketing and Technical Working Group and chair of the Multi-AP (EasyMesh) Technical Working Group since 2021.▶ Leads participation in testing and development of multiple WFA interoperability certification platforms, is committed to expanding Wi-Fi’s global application and interoperability; actively formulates technical standards and develops certification tests.▶ MediaTek’s products have been selected as the Wi-Fi 7 certification platform and are among the first to have passed initial certifications, accelerating the industry’s adoption of the technology.
Joint Video Experts Team (JVET)	<ul style="list-style-type: none">▶ Pays attention to the latest next-generation video coding technology exploration and progress, and arranges the layout of the patented technologies that might be required by the next-generation video compression standard (e.g., H.267) in advance.

2.3 Innovation Achievements

SDG 8.2 SDG 8.4

MediaTek’s mission is to enrich and enhance everyone’s life through technology. Despite rapid advances in technological innovation, billions of people have yet to experience its benefits. By implementing its 3A strategy—Accessibility, Affordability and Availability—MediaTek ensures that everyone can access and benefit from opportunities brought about by technological innovation, enabling people worldwide to achieve better living.

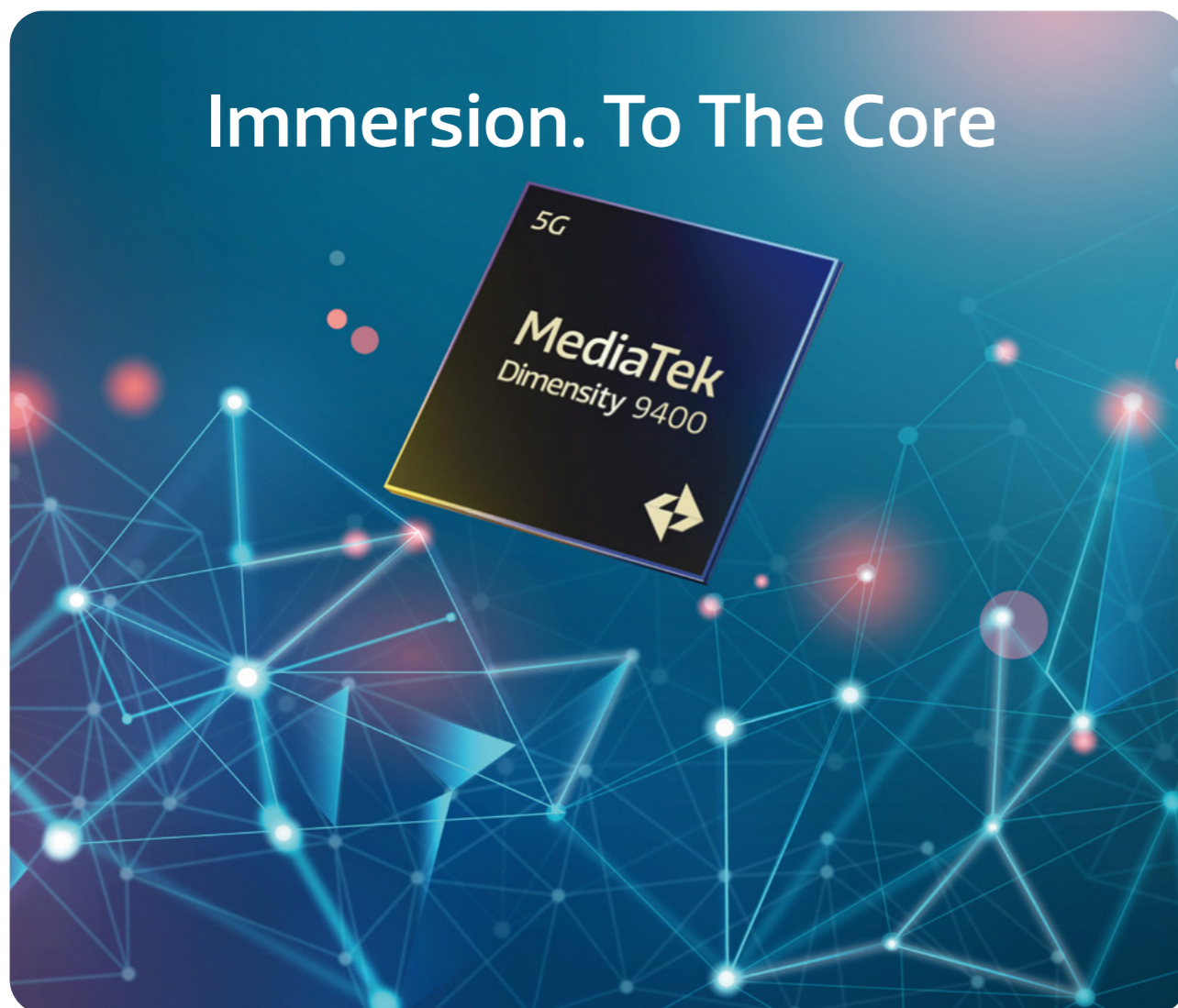
With the advent of the intelligent era, MediaTek leverages its solid foundation and extensive experience in edge computing to drive innovation across diverse fields, including smart devices, smart vehicles, and smart homes. We are committed to creating new, holistic smart experiences for users with our leading-edge AI and hybrid AI computing technologies. By promoting the widespread adoption of generative AI applications, we aim to make advanced technology accessible to a broader public and empower a wide range of industries. In 2024, MediaTek launched its second-generation all-big-core architecture Dimensity 9400 flagship 5G Agentic AI chip, delivering a new level of performance in edge AI, immersive gaming, and high-quality imaging for the mobile market.

MediaTek also introduced the new Dimensity Auto Cockpit platform—CT-X1. Built on a 3nm process, the CT-X1 is designed to revolutionize the intelligent automotive experience with advanced generative AI technology, delivering breakthrough computing power for smart cockpits and accelerating the automotive industry's transition to the AI era.

Topic 1 Dimensity 9400 Flagship SoC for the Latest AI Experiences

MediaTek launched the Dimensity 9400, the company’s new flagship mobile chipset optimized for edge-AI applications, immersive gaming, incredible photography, and more. The Dimensity 9400, the fourth and latest in MediaTek’s flagship mobile SoC line-up, offers a massive boost in performance with its second-generation All Big Core design built on Arm’s v9.2 CPU architecture, combined with the most advanced GPU and NPU for extreme performance in a super power-efficient design.

Aligned with MediaTek's mission to enable AI for all, the MediaTek Dimensity 9400 is designed to support powerful applications that anticipate users' needs and adapt to user preferences, while also fueling generative AI technology with on-device LoRA training and video generation. As the fourth-generation flagship chipset, the Dimensity 9400 builds on previous models to deliver high performance and energy efficiency, supporting continued growth in market share and reinforcing MediaTek's commitment to delivering flagship performance and user-centric innovation.



Performance and Efficiency Boost

The Dimensity 9400 adopts MediaTek's second-gen All Big Core design, integrating one Arm Cortex-X925 core operating over 3.62GHz, combined with 3x Cortex-X4 and 4x Cortex-A720 cores. This design offers 35% faster single-core performance and 28% faster multi-core performance compared to MediaTek's previous generation flagship chipset, the Dimensity 9300. Built on TSMC's second-generation 3nm process, the Dimensity 9400 is up to 40% more power-efficient than its predecessor, allowing users to enjoy longer battery life.

Groundbreaking On-Device Generative AI Capabilities

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The Dimensity 9400 also integrates MediaTek's new Dimensity Agentic AI Engine (DAE), which is designed to turn traditional AI applications into sophisticated agentic AI applications. MediaTek is working with developers to offer a unified interface between AI agents, third-party APKs, and models that efficiently runs both edge AI and cloud services. This streamlined approach allows models to work with many different third-party APKs, which reduces development time and will help usher in a new ecosystem of agentic AI applications.

Immersive Gaming Experiences

The 12-core Arm Immortalis-G925 delivers super immersive gaming experiences with up to 40% faster raytracing performance compared to the previous generation. The Dimensity 9400 also brings PC-level features to smartphones with opacity micromaps (OMM) support for realistic effects. The chipset's powerful GPU also offers 41% peak performance boost with up to 44% power savings compared to the Dimensity 9300, allowing users to game for longer. Additionally, the Dimensity 9400 supports HyperEngine technology for super resolution and impressive picture quality, which is co-developed by MediaTek and Arm Accurate Super Resolution (Arm ASR).

Capturing Perfect Moments

With MediaTek Imagiq 1090, the Dimensity 9400 provides HDR video recording throughout the entire zoom range so users can snap the perfect moment from a distance; MediaTek's Smooth Zoom technology also makes it easy to capture moving subjects. Additionally, it is designed to minimize power consumption while users are taking photos and videos, offering up to 14% lower power consumption in 4K60 video capture compared to the Dimensity 9300.

All-Around Wireless Connectivity

MediaTek delivers all-around wireless connectivity with its latest advancements. The new 3GPP Release-17 5G 4CC-CA modem offers sub-6GHz performance of up to 7Gbps and supports 5G/4G Dual-SIM Dual-active and Dual-Data capabilities, providing users with greater flexibility. In addition, the new 4nm Wi-Fi/Bluetooth combo chip achieves data rates of up to 7.3Gbps while reducing power consumption by up to 50% compared to the previous version. MediaTek's Xtra Range™ 3.0 technology further enhances connectivity by extending Wi-Fi coverage by up to 30 meters.

Topic 2 Flagship 3nm Dimensity Auto Cockpit SoC for AI in Cars

MediaTek expanded its Dimensity Auto product portfolio with new solutions that leverage advanced generative AI technology to deliver a revolutionary smart automotive experience. The latest Dimensity Auto Cockpit CT-X1 platform is built on a 3nm process node, while CT-Y1 and CT-Y0 platforms utilize a 4nm process node. These platforms provide significant breakthroughs in computing power for smart cockpits. Additionally, the Dimensity Auto Connect platform offers comprehensive connectivity, featuring 5G NTN satellite broadband technology at the Ku band, a 3GPP 5G Release 17 telematics modem, and a powerful Wi-Fi/Bluetooth combo solution.

The Dimensity Auto platform continues to grow in the market. Cumulative global shipments of the Dimensity Auto Cockpit platform have exceeded 20 million units, and the Dimensity Auto Connect platform has been adopted by leading global automakers. Shipments and market share of key Dimensity Auto Components, such as GNSS and PMIC, are steadily increasing, and development of the Dimensity Auto Drive platform is also progressing smoothly. Leveraging leading AI and compute capabilities MediaTek Dimensity enjoys in the mobile market, the Company is accelerating the integration of generative AI into smart vehicles. Dimensity Auto is dedicated to developing the industry's most advanced automotive computing chips, offering a scalable software and hardware platform, a mature toolchain, and a diverse generative AI ecosystem. This enables automakers to rapidly integrate AI capabilities across their entire vehicle line-up, ushering in a new era of "AI-defined cockpits".

The Dimensity Auto Cockpit platforms—CT-X1, CT-Y1, and CT-Y0—support advanced on-device generative AI technology, leveraging powerful computing capabilities to enhance innovative in-vehicle applications and user experiences. This allows automakers to quickly integrate AI across all vehicle models, delivering a fully transformed smart cockpit experience. These platforms integrate the Armv9 architecture and feature a robust AI processor with on-device generative AI technology, ensuring precise AI computation while optimizing memory bandwidth and capacity. The flagship 3nm CT-X1 platform supports large language models (LLMs) with up to 13 billion parameters and can directly execute multiple mainstream LLMs and AI diffusion models, such as Stable Diffusion, in vehicle. It also supports advanced AI-enhanced safety and entertainment applications, such as 3D graphical in-car voice assistants, diverse multi-display technologies, and driver alertness detection. These applications can run offline in the car, enhancing safety while providing high responsiveness and low latency.

The Dimensity Auto Cockpit platforms are highly integrated, supporting the evolution of automotive hardware system architecture and enabling automakers shorten development cycles and accelerate time-to-market. These platforms feature built-in modems, 5G T-BOX, dual-band Wi-Fi, Bluetooth, and Global Navigation Satellite System (GNSS), along with a flagship-level HDR Image Signal Processor (ISP). The ISP supports various smart image optimization technologies like AI noise reduction, AI auto-focus, AI auto-

exposure, and AI auto white balance, providing high-quality imaging even in complex road conditions. The platforms also support 360-degree external panoramic systems, drive recorders, and in-vehicle safety monitoring to enhance safety. On multimedia, the Dimensity Auto Cockpit platform supports multiple displays and delivers theater-grade image quality through MediaTek MiraVision display technology, providing immersive in-vehicle entertainment. Additionally, the integrated audio DSP enables surround sound effects through the in-car audio system.

MediaTek works closely with leading global ecosystem partners and auto makers to deliver a superior in-vehicle experience through the Dimensity Auto platform. In particular, MediaTek collaborates with NVIDIA to integrate advanced graphics and AI technologies, further enhancing in-vehicle interaction, safety, and connectivity.

As the automotive industry rapidly evolves, MediaTek remains dedicated to providing high-performance, intelligent, energy-efficient, and reliable automotive solutions that drive technological innovation and elevate user experiences.

Green Innovation in IC Design

As a fabless IC designer, MediaTek is committed to minimizing environmental impact across the life cycle of its extensive product portfolio. The company considers both the usage and end-of-life stages of its products. By optimizing system architecture, refining algorithms, and accelerating the adoption of advanced process nodes, MediaTek reduces both energy consumption and chip size. In 2024, the company's main products achieved a 20% reduction in energy consumption during use compared to 2023. Additionally, at the disposal stage, the volume of main products was reduced by 5% year-over-year.

