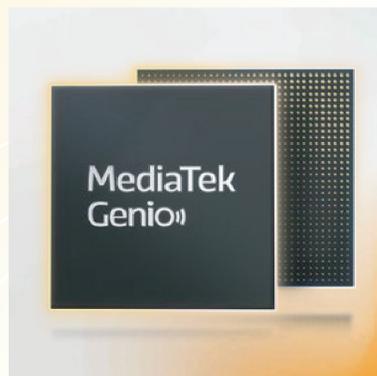
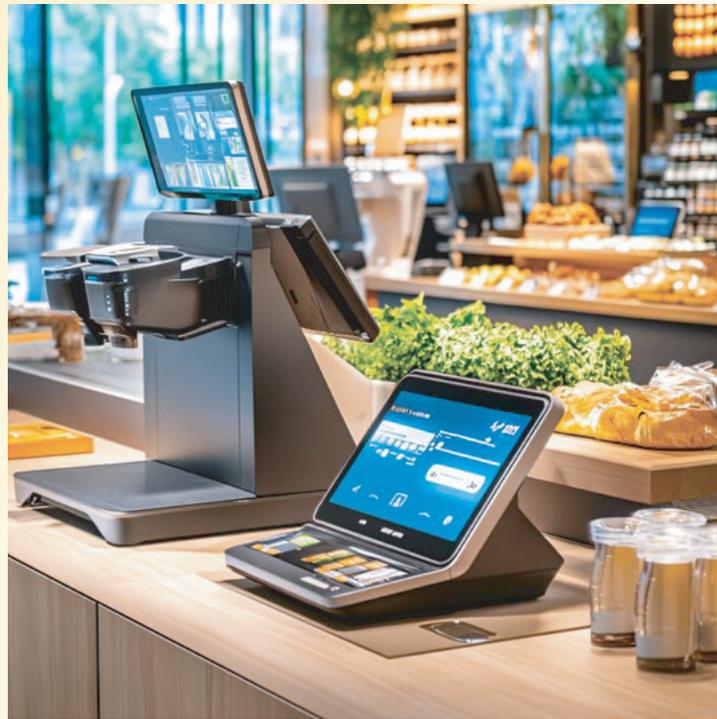


# MediaTek Genio

Genius at the Edge

**MEDIATEK**

**BRAEMAC**



# Powering the New Era of AI Applications

MediaTek Genio SoC combined with an **open standards software platform** helps you design and create intelligent connected devices



MediaTek's Genio family of System-on-Chips (SoCs) empowers a diverse range of next-generation IoT devices. From **smart home appliances** and **industrial automation** to **connected healthcare**, Genio SoCs offer a compelling combination of features:



**Multicore CPUs:** High-performance Arm<sup>®</sup> Cortex<sup>®</sup>-A processors deliver the performance needed for demanding tasks



**Integrated GPUs:** Seamless rendering of graphics enhances user experience and supports advanced functionalities without compromising performance



**Dedicated AI Processing Units (NPUs):** Efficiently handles complex AI workloads, enabling features like facial recognition and voice commands



**Robust Connectivity:** Reliable 5G, Wi-Fi and Bluetooth connectivity ensures devices stay online and responsive



**Long-Lasting Battery Life:** Genio SoCs dynamically switch between high-performance cores for demanding tasks and energy-efficient cores for background activities, reducing power consumption

## 10-Year Longevity Support

MediaTek offers a comprehensive 10-Year longevity program for Genio SoCs. This commitment guarantees sustained availability and ongoing assistance for applications demanding extended lifecycles, particularly in industrial and healthcare settings.

# MediaTek Genio Open Platform

MediaTek simplifies development by offering a single SDK for all SoCs. This single platform eliminates the need for developers to learn and manage multiple, individual SDKs, significantly reducing development time and complexity.

The streamlined process allows for shorter development cycles and simplified codebases. Additionally, the unified SDK enhances code portability, allowing applications to be deployed on multiple Genio SoCs. This enables wider application compatibility and facilitates seamless integration across the Genio hardware ecosystem.

## Scalable, Standard Software

- Standard Linux architecture & interfaces
- Upstream BSP (expert features with confidential IPs)
- Active migration to latest kernel
- Single SDK for the Genio family SoCs

## AI Development Tools

- Software tools and APIs
- Verified AI models from MediaTek model hub and NVIDIA TAO NGC Catalog



## Android Support

- 3 Android upgrade with vendor freeze
- 3-year security patch after last upgrade



## Linux Support

- 3yr BSP maintenance
- 3-year security patch after last upgrade
- Active migration to recent LTS Kernel



## Ubuntu Support

- Lifecycle 10 years
- Follow Canonical's policy

# MediaTek Genio Portfolio

	MediaTek Genio 1200	NEW MediaTek Genio 720	MediaTek Genio 520 NEW	MediaTek Genio 700	MediaTek Genio 510	MediaTek Genio 350
	Genio 1200	Genio 720	Genio 520	Genio 700	Genio 510	Genio 350
Process	6nm	6nm		6nm		14nm
CPU	4x Arm® Cortex®-A78, 2.2 GHz + 4x Arm® Cortex®-A55, 2.0 GHz	2x Arm® Cortex® A78, 2.4~2.6GHz + 6x Arm® Cortex® A55, 2.0GHz	2x Arm® Cortex® A78, 2.0~2.2GHz + 6x Arm® Cortex® A55, 1.8~2.0GHz	2x Arm® Cortex®-A78, 2.2 GHz + 6x Arm® Cortex®-A55, 2.0 GHz	2x Arm® Cortex®-A78, 2.0 GHz + 4x Arm® Cortex®-A55, 2.0 GHz	4x Arm® Cortex®-A53, 2.0 GHz
GPU	Arm Mali-G57 MC5	Arm Mali-G57 MC2		Arm Mali-G57 MC3	Arm Mali-G57 MC2	Arm Mali-G52
NPU	2x MDLA2.0 + 2x VP6, 4.8 TOPS	MediaTek 8 <sup>th</sup> generation NPU, up to 9 TOPS, Total up to 10 TOPS		1x MDLA3.0 + 1x VP6, 4.0 TOPS	1x MDLA3.0 + 1x VP6, 3.2 TOPS	1x VP6, 0.35 TOPS
Audio DSP	Hi-Fi 4	N/A		Hi-Fi 5		Hi-Fi 4
Memory	4-ch 16-bit LPDDR4(X)-4266, up to 16GB	2-ch 16-bit LPDDR4X-4266 up to 8GB 2-ch 16-bit LPDDR5(X)-6400 up to 16GB		2/4-ch 16-bit LPDDR4(X)-3733, up to 8GB		DDR3L/DDR4/LP3/ LPDDR4(X), up to 4GB
Storage	UFS2.1, eMMC5.1, SPI NOR	UFS3.1 2L, eMMC5.1, SPI NOR		eMMC 5.1, SPI NOR		eMMC 5.1
Display	Triple Display, FHD60+ FHD60+ 4K60 MIPI-DSI + eDP + HDMI/DP	Single: up to UW5K60, Dual: up to 2.5K60+2.5K60 MIPI-DSI/LVDS/eDP/DP (Type-C)		Dual Display, FHD60+4K60 MIPI-DSI/eDP + HDMI/DP		Dual Display, FHD60+ HD60 MIPI-DSI + LVDS/DPI
Video Input	3x MIPI CSI-2, 1x HDMI 2.0 16+16MP or 48MP@30fps 6x FHD30 with virtual channels	2x MIPI-CSI-2, 16+16MP or 32MP@30fps "or" 6x FHD30 with virtual channels	2x MIPI-CSI-2, 16MP@30fps or 6x FHD30 with virtual channels	2x MIPI CSI-2, 16+16MP or 32MP@30fps 8x FHD30 with virtual channels		2x MIPI CSI-2
VDEC	4K90, H.265/H.264/VP9/AV1	4K60, H.265/H.264/VP9		4K75/4K60, H.265/H.264/VP9/AV1	4K60, H.265/H.264/VP9/AV1	1080P60, H.265/H.264
VENC	4K60, H.265/H.264	4K30, H.265/H.264		4K30, H.265/H.264		1080P60, H.265/H.264/VP9
Peripheral	1x PCIe3.0, 1xPCIe2.0/USB3.1, 1x USB3.1, 2x USB2.0, 6x UART, 1x GbE MAC (TSN)	1x PCIe2.0, 1x USB3.2 Gen1 (Type C) (1 shared with DP), 3x USB2.0, 1x GbE MAC (TSN)		1x PCIe2.0, 1x USB3.2 Gen1, 2x USB2.0, 4x UART, 1x GbE MAC (TSN)		2x USB2 (1xOTG, 1xHost), 3x UART, 4x I2C, 10/100 Ethernet MAC
Temperature	Consumer: -20°C to 95°C (Tj) Industrial: -40°C to 105°C (Tj)	Consumer: -20°C to 95°C (Tj) Industrial: -40°C to 105°C (Tj)		Consumer: -20°C to 95°C (Tj) Industrial: -40°C to 105°C (Tj)		-20°C to 65°C (Ta)

# MediaTek Genio Evaluation Kits

## MediaTek Genio 520/720 EVK

### Key Features

- 8GB of LPDDR5
- 128GB UFS 3.1 (default booting device) and 64GB eMMC onboard
- Wi-Fi 6 (2x2) + BT5.3 wireless connectivity
- 2x MIPI CSI camera board with 13MP and 5MP camera modules
- 1x USB 3.2 port support DP (Type-C)
- 1x USB 3.2 port (Type-C), 1x USB 2.0 port (Type-C), 1x Micro SD card slot
- 1x eDP connector (reserved), 1x LVDS connector (reserved)
- 7 inch FullHD LCM with touch panel
- 1x 10/100/1000M Ethernet RJ45 connector, 40-Pin Raspberry Pi pin header, CAN-FD with D-Sub 9 pin connector, 2x 2-wire UART connector (Type-C), 2x 4-wire UART pin header
- 1x M.2 Key B slot (USB2.0), 1x M.2 Key E slot (PCIe), 1x M.2 Key E slot (SDIO)



## MediaTek Genio 510/700 EVK

### Key Features

- 4GB/8GB of LPDDR4X
- 64GB eMMC onboard
- Wi-Fi 6 (2x2) + BT5.2 wireless connectivity
- 2x MIPI CSI connectors with 13MP and 8MP cameras
- 2x USB 2.0 ports
- 1x Micro SD card slot
- 1x HDMI Tx port
- 1x 10/100/1000M Ethernet RJ45 connector
- 40-Pin GPIO
- A 7-inch Full HD LCM touch panel



## MediaTek Genio 1200 EVK

### Key Features

- 8GB of LPDDR4X
- 64GB eMMC (default booting device) and 128GB UFS 2.1 onboard
- Wi-Fi 6 (2x2) + BT5.2 wireless connectivity
- 2x MIPI CSI camera board with 13MP and 8MP camera modules
- 1x USB 3.2 port support DP (Type-C), 2x USB 3.2 port (Type-A), 1x USB 2.0 port (Micro USB)
- 1x Micro SD card connector
- 2x HDMI port (IN x1, OUT x1), 1x eDP connector (reserved)
- 1x LVDS connector (reserved)
- 1x 10/100/1000M Ethernet RJ45 connector
- 40-Pin Raspberry Pi pin header, CAN-FD with D-Sub 9 pin connector, 1x 2-wire UART connector (Micro USB), 1x 4-wire UART pin header
- 7 inch FullHD LCM with touch panel, 1x M.2 Key B slot (USB 3.2 interface), 1x M.2 Key E slot (PCIe or SDIO interface)



## MediaTek Genio 350 EVK

### Key Features

- 3GB of LPDDR4X
- 64GB eMMC onboard
- Wi-Fi 5 2x2 wireless connectivity
- 2x MIPI CSI connectors with 1.3MP cameras
- 2x USB 2.0 ports
- 1x Micro SD card slot
- 1x HDMI Tx port
- 1x 10/100M Ethernet RJ45 connector
- 40-Pin GPIO
- A 7-inch Full HD LCM touch panel



Lay Flat



Dual Display



Camera Board



4K UltraHD



HDMI



Type-C



Wi-Fi 6 2x2



Android



Linux



Ubuntu

# MediaTek Genio Featured Partner Solutions

## MediaTek Genio 1200 - Evaluation Kit



### I-Pi SMARC 1200

- Standard SMARC module plus carrier
- 4GB LPDDR4X, 64 GB UFS
- Dual GbE, CAN bus, 3x MIPI-CSI
- Yocto Linux, Ubuntu



### STK-SOM700-00A0

- VIA SOM-7000 module with MediaTek Genio 1200 Octa-Core SoC
- Includes VIA SOMDB7 carrier board, 7" MIPI LCD touch cable, power cable, and debug console cable
- 2x MIPI CSI and 2x MIPI DSI, 1x HDMI 2.0, 3x I-PEX connectors for Wi-Fi antennas
- Supports Android 13, Yocto 4.0, Debian 12

# MediaTek Genio Featured Partner Solutions

## MediaTek Genio 1200 - SOM



### LEC-MTK-I12000

- SMARC specification 2.1.1 compliant
- Up to 8GB LPDDR4X, up to 256GB UFS
- Dual-MIPI display and dual MIPI CSI-2 cam, up to 3 cameras
- Ubuntu, Yocto Linux



### SOM-7000

- Standard SMARC 2.1.1 module form factor
- 8GB LPDDR4X, 16GB eMMC storage
- 2x MIPI CSI and 2x MIPI DSI connector, 1x PCIe (2-lane), 1x HDMI 2.0, 1x USB 3.1
- Android 13, Yocto 4.0, Debian 12 support

# MediaTek Genio Featured Partner Solutions

## MediaTek Genio 700 - Evaluation Kit



### STK-SOM500-00A0

- VIA SOM-5000 module with MediaTek Genio 700 Octa-Core SoC
- Includes VIA SOMDB7 carrier board, 7" MIPI LCD touch panel, Wi-Fi 6 module, 5MP CMOS sensor camera module, and heatsink
- 2x MIPI CSI and 2x MIPI DSI, 1x HDMI, 1x Gigabit Ethernet, 1x USB 3.1
- Supports Android 13, Yocto 4.0, Debian 12

## MediaTek Genio 700 - SBC



### VAB-5000

- Standard Pico-ITX form factor
- 4GB/8GB LPDDR4X, 16GB eMMC storage
- 1x 40-pin GPIO header, 1x UART connector, 1x M.2 slot, 1x Nano SIM card slot
- Android 13, Yocto 4.0, Debian 12 support

# MediaTek Genio Featured Partner Solutions

## MediaTek Genio 700 - SOM



### SOM-5000

- Standard SMARC 2.11 module form factor
- 4GB/8GB LPDDR4X, 16GB eMMC storage
- 2x MIPI CSI and 2x MIPI DSI, 1x HDMI 2.0, 1x USB 3.1, 1x PCIe (1-lane), 1x Audio connector for Headphone out and MIC-in
- Android 13, Yocto 4.0, Debian 12 support



### Tungsten 700

- Featuring Genio 700 and Sona MT320 (MediaTek Filogic 320)
- SMARC 2.1.1 Standard Form Factor
- 2.2 GHz dual-core Cortex-A78 and hexa-core 2.0 GHz Cortex-A55
- Optional Wi-Fi 6 (802.11ax) and Bluetooth 5.3 Classic & Low Energy (LE)
- Android, Yocto Linux

## MediaTek Genio 510 - SOM

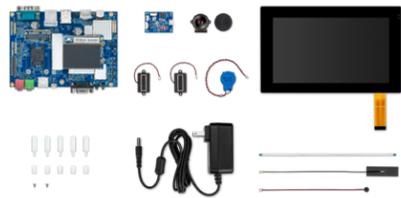


### Tungsten 510

- Featuring Genio 510 and Sona MT320 (MediaTek Filogic 320)
- SMARC 2.1.1 Standard Form Factor
- 2x 2.0 GHz CortexA78 and 4x 2.0 GHz Cortex-A55
- Optional Wi-Fi 6 (802.11ax) and Bluetooth 5.3 Classic & Low Energy (LE)
- Android, Yocto Linux

# MediaTek Genio Featured Partner Solutions

## MediaTek Genio 350 - Evaluation Kit



### STK-SOM935-00A0

- VIA SOM-3000 module with MediaTek Genio 350 Quad-Core SoC
- Includes VIA VAB-935 carrier board, 7" MIPI LCD touch panel, Wi-Fi antenna, 13MP COMS sensor camera module, and speakers
- 2x MIPI CSI and 2x MIPI DSI, 1x HDMI, 1x USB 2.0 OTG
- Supports Android 12, Yocto 3.1

## MediaTek Genio 350 - SBC



### VAB-3000

- Compact 3.5" SBC form factor
- 2GB LPDDR4, 16GB eMMC storage
- 2x MIPI CSI and 2x MIPI DSI, 1x HDMI 1.4, 2x USB 2.0, 1x Micro USB 2.0 OTG
- Android 12, Yocto 3.1 support



### SOM-3000

- 60mm x 45mm x 6.8mm form factor
- 2GB LPDDR4, 16GB eMMC storage
- 2x MIPI CSI and 2x MIPI DSI, 1x HDMI 1.4, 1x USB 2.0 Host, 1x USB 2.0 OTG
- Android 12, Yocto 3.1 support

# Genio Solutions Support OSM for Compact Designs

The Open Standard Module (OSM) offers solderless BGA/LGA/FTGA mini modules that enable higher integration density, small footprint, and significantly reduced costs through direct PCB mounting. It offers machine-automated manufacturing with standardized interfaces, while maintaining open-source hardware and software flexibility.

This compact and powerful solution enables rapid development and deployment of embedded systems across various industries including factory automation, fleet management, gaming, EV charging infrastructure, medical devices, and more.

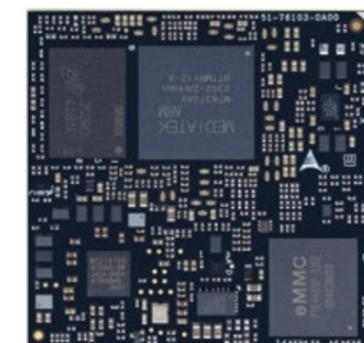
- Genio 720/520
- Single-side PCB, Support Size L: 45x45mm
- PDN/DRAM SI Pre-simulation

## Partner Solutions

MediaTek supports OSM with reference designs that ensure power and signal integrity, which greatly shortens users' development cycle in OSM. ADLINK and Mitwell offer ready to use OSM solutions that help reduce development resources and accelerate time to market.



### ADLINK OSM-MTK510



# Enhancing Industrial Vehicle Safety with AI-Powered Multi-Camera Solutions



Industrial vehicles operate with significant blind spots due to elevated driver positions, increasing safety risks. To address this, a robust multi-camera solution is essential—one that supports extended cable lengths while delivering real-time video processing with AI-driven recognition.



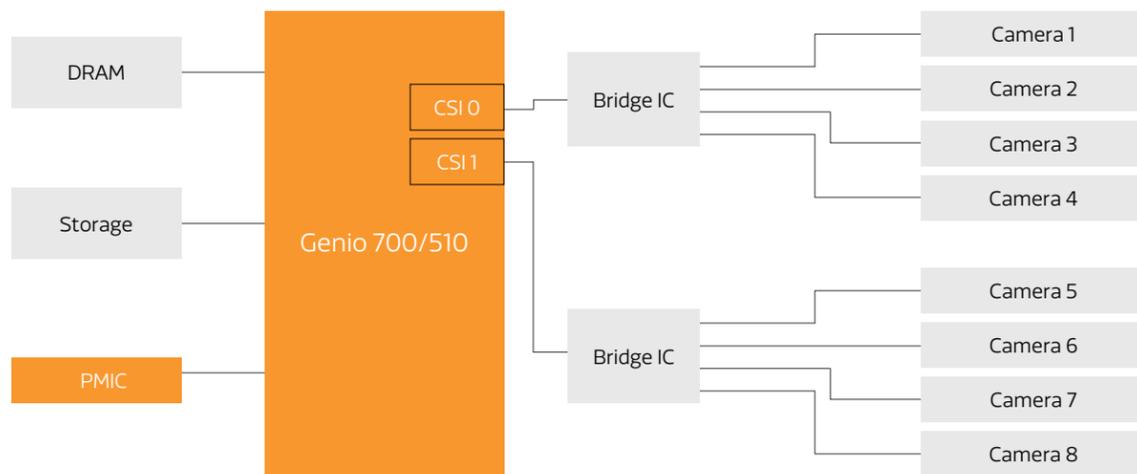
## Challenge

Traditional camera systems struggle with extended cable lengths and real-time processing demands in industrial environments.



## Solution

MediaTek's Genio platform features Virtual Channel technology with SERDES interfaces, supporting 8 simultaneous camera feeds with advanced AI processing capabilities. This technology enhances situational awareness with cutting-edge AI capabilities.



MediaTek Genio Multi-Camera Solution Block Diagram

# Boosting Smart Manufacturing Productivity with Genio 1200



XC Tech's H08 Pro, a smart industrial device, powered by MediaTek's Genio 1200 SoC streamlines training, enables real-time monitoring and drives digital transformation in manufacturing.



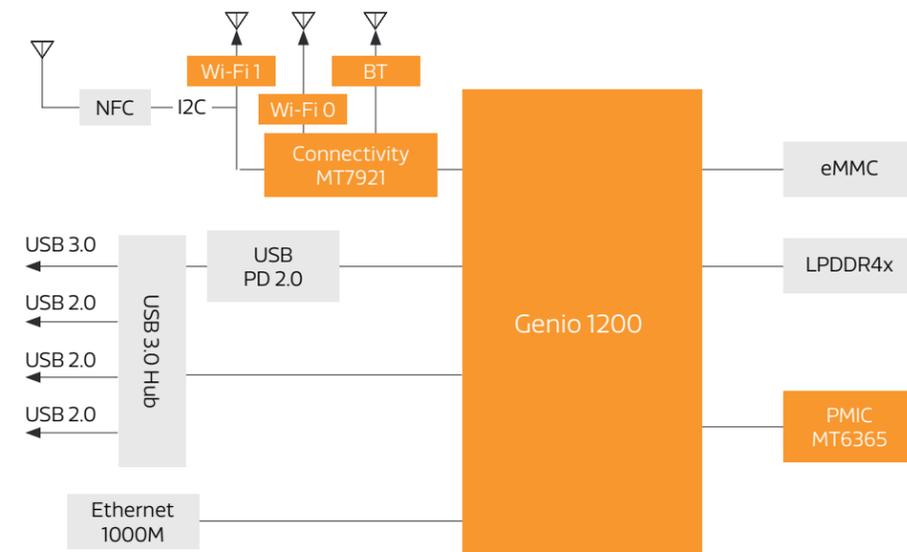
## Challenge

Manufacturers required high processing power, robust AI and multimedia capabilities, seamless connectivity, and an energy efficient solution that can train and improve workforce productivity.



## Solution

MediaTek's Genio 1200 SoC provided high computing power for real time data analysis, process monitoring and digital training. With AI, multimedia, industrial-durability and cost-efficient development, Genio 1200 SoC met all the requirements.



Solution Block Diagram

## Benefits:

- **High compute performance:** The Genio 1200 SoC handles heavy workloads simultaneously.
- **Automated employee training and quality monitoring:** Supports digital training, and AI-driven real-time quality monitoring.
- **Seamless Integration:** Integrates seamlessly with manufacturing systems and production lines.
- **Enhanced Adoption:** 20% faster development accelerates time-to-market and industry adoption.

# At-Home Boxing Training with MediaTek's AI-Driven Edge Solutions



FightCamp, an AI-driven fitness solution scaled their product's capabilities with MediaTek's Genio 350 SoC, providing real-time feedback, better connectivity and upgrading their user experience.



## Challenge

FightCamp required edge-AI capabilities for real-time feedback on boxing training, and higher computing power for multitasking while being energy efficient. It also required better connectivity to connect to more devices than just 4.

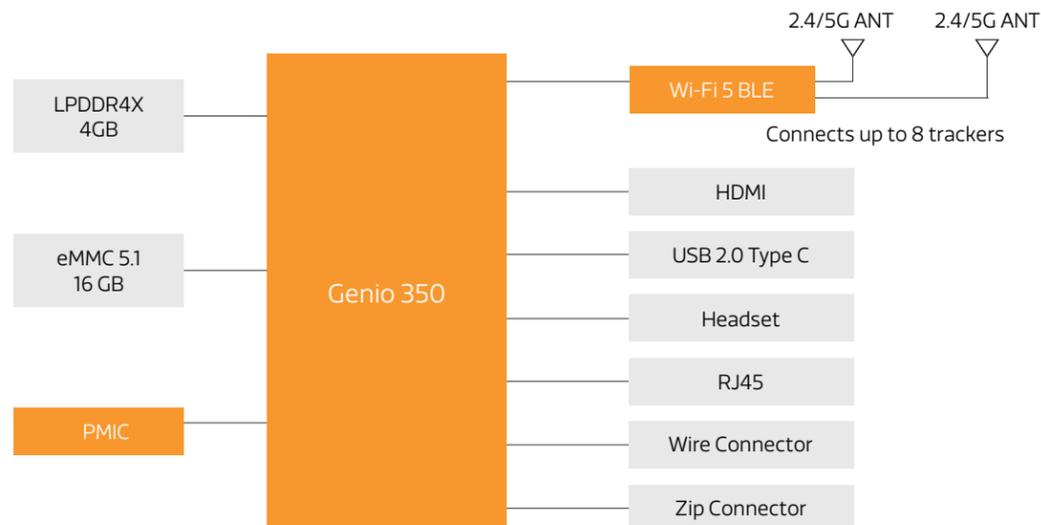


## Solution

MediaTek's Genio 350 SoC provided FightCamp with robust AI processing, seamless connectivity and ability to handle intense AI tasks without overheating or draining. Edge AI enabled precise feedback during workouts.

## Benefits:

- **Enhanced Connectivity:** Supports multiple trackers of the fitness console simultaneously.
- **Real-time Feedback:** Edge AI computing provides detailed feedback during workouts.
- **Higher processing power:** Powerful processing allows the console to track punch metrics and training posture in real-time.
- **Power efficiency:** Longer battery life along with handling intensive AI tasks.
- **Seamless Streaming:** Seamless connectivity to a TV for streaming workouts live.



# NeuroPilot: MediaTek's Ecosystem for AI Development

MediaTek's NeuroPilot is an ecosystem of software tools and APIs designed to simplify the development of efficient AI applications on devices powered by MediaTek chipsets, specifically targeting the edge AI space. MediaTek's NeuroPilot technology enables executing AI tasks directly on the device reducing latency, improving security, and facilitating reliable and efficient offline operation.

## Features of NeuroPilot include:

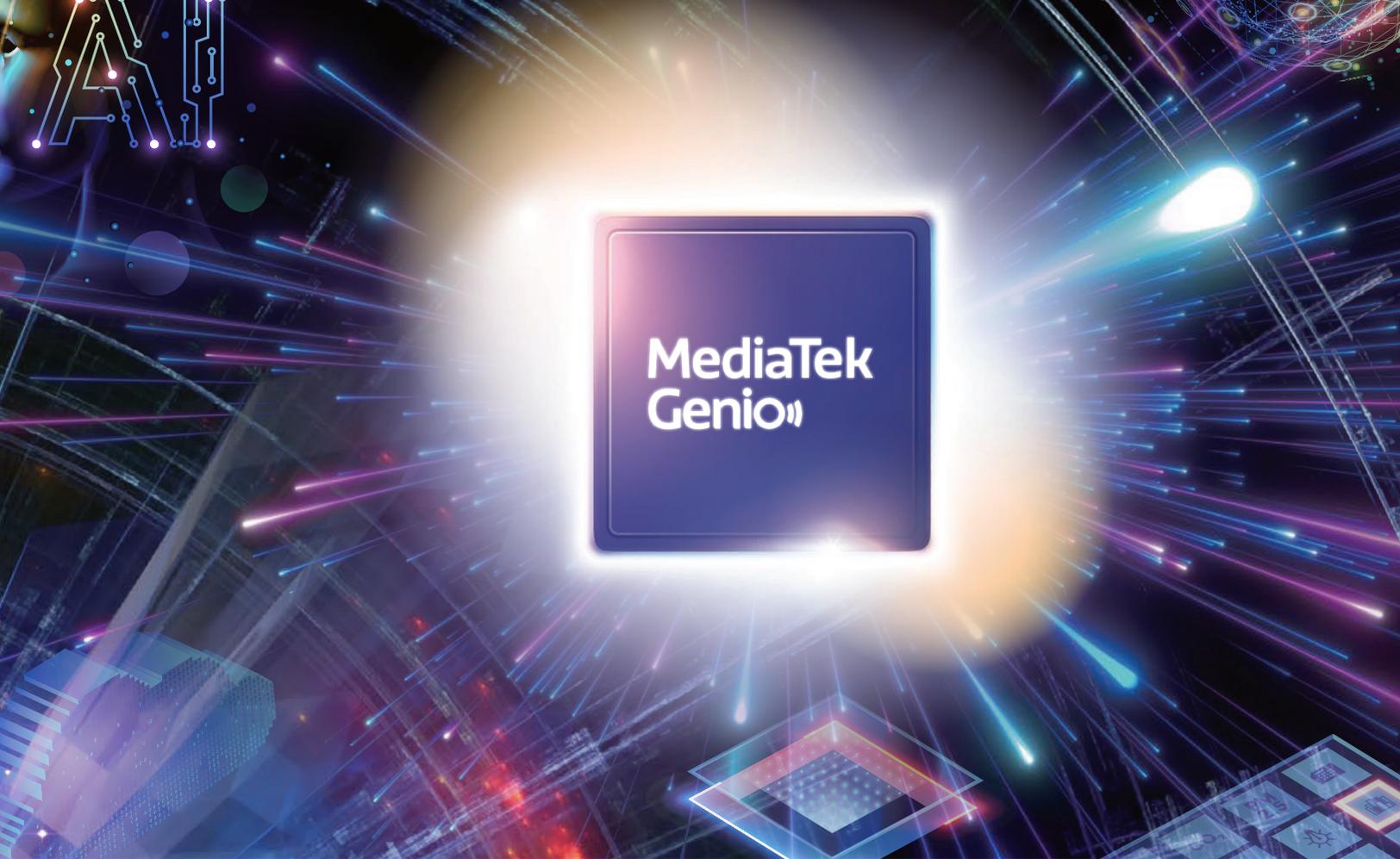
- **Support for Popular AI Frameworks:** Compatibility with frameworks like TensorFlow Lite, PyTorch, Caffe, and others allows developers to leverage existing models and code
- **IoT Model Hub:** Set of pre-trained machine learning models ready for fine-tuning and deployable anywhere with AI enabled devices powered by MediaTek
- **Hardware Acceleration:** Utilizes dedicated hardware components, MediaTek AI Processing Unit (NPU), within the chipset to accelerate AI computations, improving performance and power efficiency

## Resources:

- [Neuropilot Home Page](#)
- [Getting Started](#)
- [Watch video: What is Neuropilot?](#)



<https://neuropilot.mediatek.com/>



MediaTek  
Genio

## About Braemac

Braemac, a Division of Exponential Technology Group, Inc. (rebranded from Symmetry Electronics), is a global leader in the distribution of semiconductor components and electronic systems as well as value-added services. Empowering engineers and developers for over 40 years—Braemac features expert in-house engineers, extensive design-phase support, state-of-the-art distribution, value-add facilities, comprehensive supply chain solutions, and unparalleled customer service. Braemac offers solutions for diverse markets and applications, helping customers streamline development, reduce costs, accelerate time to market, and support long term interoperability.

## About MediaTek

MediaTek Incorporated (TWSE: 2454) is the world's 5th largest global fabless semiconductor company and powers more than 2 billion connected devices a year. We are a market leader in developing innovative systems-on-chip (SoC) for mobile device, home entertainment, connectivity, and IoT products.

Our dedication to innovation has positioned us as a driving market force in several key technology areas, including highly power-efficient mobile technologies, industrial and automotive solutions, and a broad range of advanced multimedia products such as smartphones, tablets, TVs, 5G, Chromebooks, Voice Assistant Devices (VAD) and wearables.

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### Additional Resources

[MediaTek Genio IoT](#)

[MediaTek Genio Family](#)