Committed to excellence

RUTRONIK
ELECTRONICS WORLDWIDE

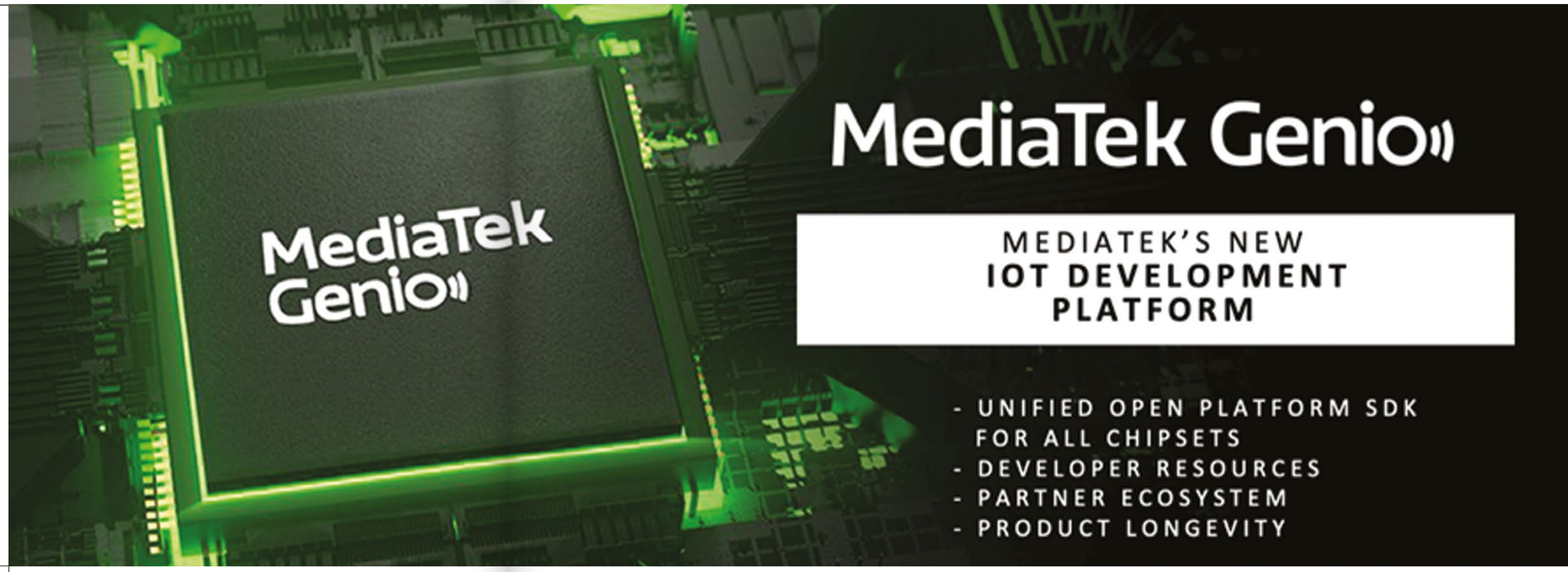
MediaTek Genio Platform

V1.0

MEDIATEK

Content

MediaTek Genio



Our Product Portfolio

- Semiconductors
- Passive Components
- Electromechanical Components
- Displays & Monitors
- Boards & Systems
- Storage Technologies
- Wireless Technologies

Our Initiatives

RUTRONIK AUTOMOTIVE | RUTRONIK EMBEDDED | RUTRONIK POWER | RUTRONIK SMART

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Committed to excellence

Consult – Know-how. Built-in.

The Technical Competence from RUTRONIK

Worldwide and individual consulting on the spot by competent sales staff, application engineers & product specialists.

Components – Variety. Built-in.

The Product Portfolio from RUTRONIK

Wide product range of semiconductors, passive and electromechanical components, displays & monitors, boards & systems, storage and wireless technologies for optimum coverage of your needs.

Logistics – Reliability. Built-in.

The Delivery Service from RUTRONIK

Innovative and flexible solutions: from supply chain management to individual logistics systems.

Quality – Security. Built-in.

Quality without Compromise from RUTRONIK

The integrated management system (IMS) encompasses quality control, information security, environmental protection, occupational health and safety.

MediaTek Genio

MEDIATEK

The MediaTek Genio chipsets offer fast multicore performance with extreme power-efficiency, optimizing the user experience for even the most compute-intensive AI applications. The CPU, GPU, and AI Processing Unit (APU) in each Genio chipset work together to enhance intelligent autonomous capabilities at the edge and support high-quality displays, cameras, and more. Additionally, each chipset offers support for the latest Wi-Fi and Bluetooth protocols to deliver seamless connectivity.

Key Features

High Performance Low Range

Power efficient, high performing multi-core SoCs

Product Longevity

Long term support for silicon, operating systems updates and security patches

Connectivity

Wi-Fi & 5G technologies enabling anywhere, anytime connectivity

AI - Powered Advanced Multimedia

Dedicated APU cores & AI accelerators to make the edge intelligent

Security

High secure SoCs that customers can trust

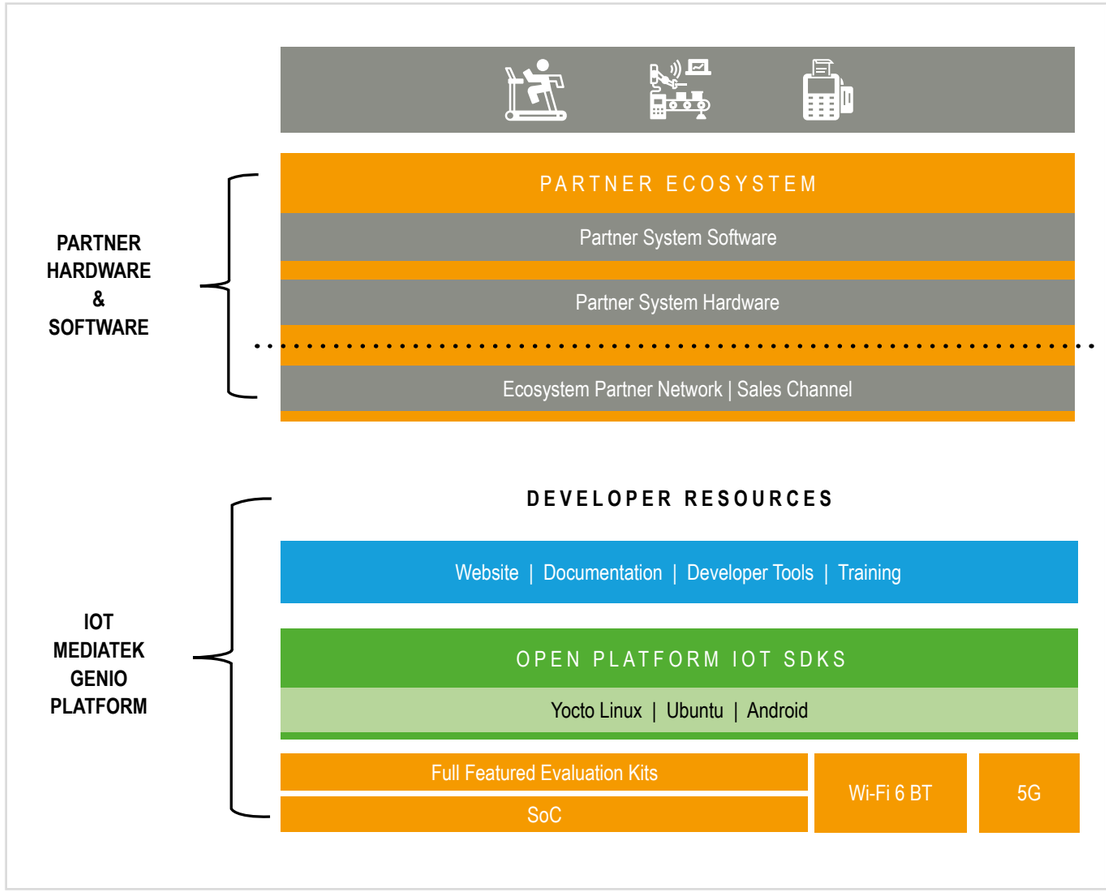
One Platform Multiple Applications

Unified SDK to reduce development costs and enable faster time to market

MediaTek Genio Platform Stack

One Platform, Multiple Applications

The MediaTek Genio chipsets offer fast multicore performance with extreme power-efficiency, optimizing the user experience for even the most compute-intensive AI applications. The CPU, GPU, and AI Processing Unit (APU) in each Genio chipset work together to enhance intelligent autonomous capabilities at the edge and support high-quality displays, cameras, and more. Additionally, each chipset offers support for the latest Wi-Fi and Bluetooth protocols to deliver seamless connectivity.



Scalable, Standard Software

- Standard Linux architecture & interfaces
- Upstream BSP (expect features with confidential IPs)
- Active migration to latest kernel

Public Developer Tools

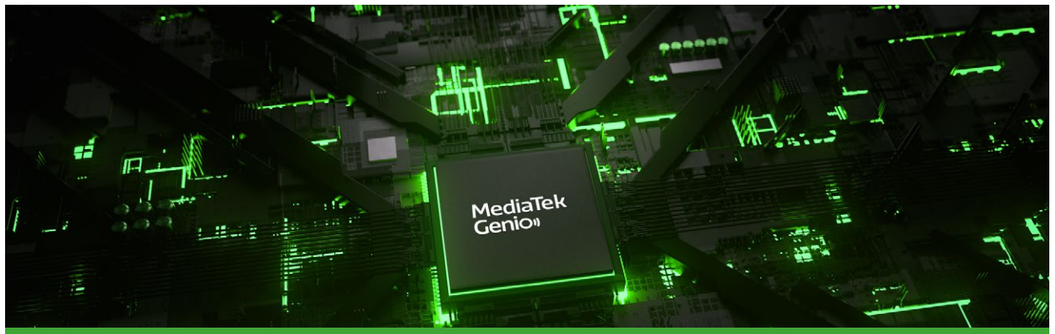
- Software development kit (SDK)
- Evaluation kits and getting started resources
- Datasheets

Multi-OS with Longevity Support

MediaTek Genio

Solutions to Fit Your Needs

	Genio 350	Genio 500	Genio 700	Genio 1200
Process	14nm	12nm	6nm	6nm
CPU	4x CA53 (2.0GHz)	4+4 CA73 (2.0G)/A53 (2.0G)	2+6 CA78 (2.2G)/CA55 (2.0G)	4+4 CA78 (2.2G)/CA55 (2.0G)
GPU	Mali-G52	Mali-G72 MP3	Mali-G57 MC3	Mali-G57 MC5
APU	1x VP6	2x VP6	1x MDLA3.0 + 1x VP6	2x MDLA2.0 + 2x VP6
Audio DSP	HiFi-4	N/A	HiFi-5	HiFi-4
Memory	DDR3L/DDR4/LP3/LP4, up to 4GB	LP3/LP4(x), up to 8GB	2-ch or 4-ch 16-bit LP4(x), up to 8GB	4-ch 16-bit LP4(x), up to 16GB
Storage	eMMC 5.1	eMMC 5.1, UFS2.1	eMMC 5.1	UFS2.1, eMMC 5.1
Display	Dual Display, FHD60+ HD60 MIPI-DSI + LVDS/DPI	Dual Display, FHD60+ FHD60 MIPI-DSI + DPI	Dual Display, FHD60+4K60 MIPI-DSI/eDP + HDMI/DP	Triple Display, FHD60 + FHD60 + 4K60 MIPI-DSI + eDP + HDMI/DP
Video Input	2x MIPI CSI-2	3x MIPI CSI-2	2x MIPI CSI-2	3x MIPI CSI-2 , 1x HDMI 2.0
VDEC	1080P60, H.265/H.264/VP9	1080P30, H.265/H.264	4K75, AV1/VP9/H.265/H.264	4K90, AV1/VP9/H.265/H.264
VENC	1080P60, H.265/H.264	1080P30, H.264	4K30, H.265/H.264	4K60, H.265/H.264
Peripheral	2x USB2 (1xOTG, 1xHost), 3x UART, 4x I2C, 10/100 Ethernet MAC	1x USB3/USB2 OTG, 3x UART, 6x I2C, N/A	1x PCIe2.0, 1x USB3.1, 2x USB2.0, 4x UART, 1x GbE MAC (TSN)	1x PCIe3.0, 1xPCIe2.0/USB3.1, 1x USB3.1, 2x USB2.0, 6x UART, 1x Giga Ethernet MAC

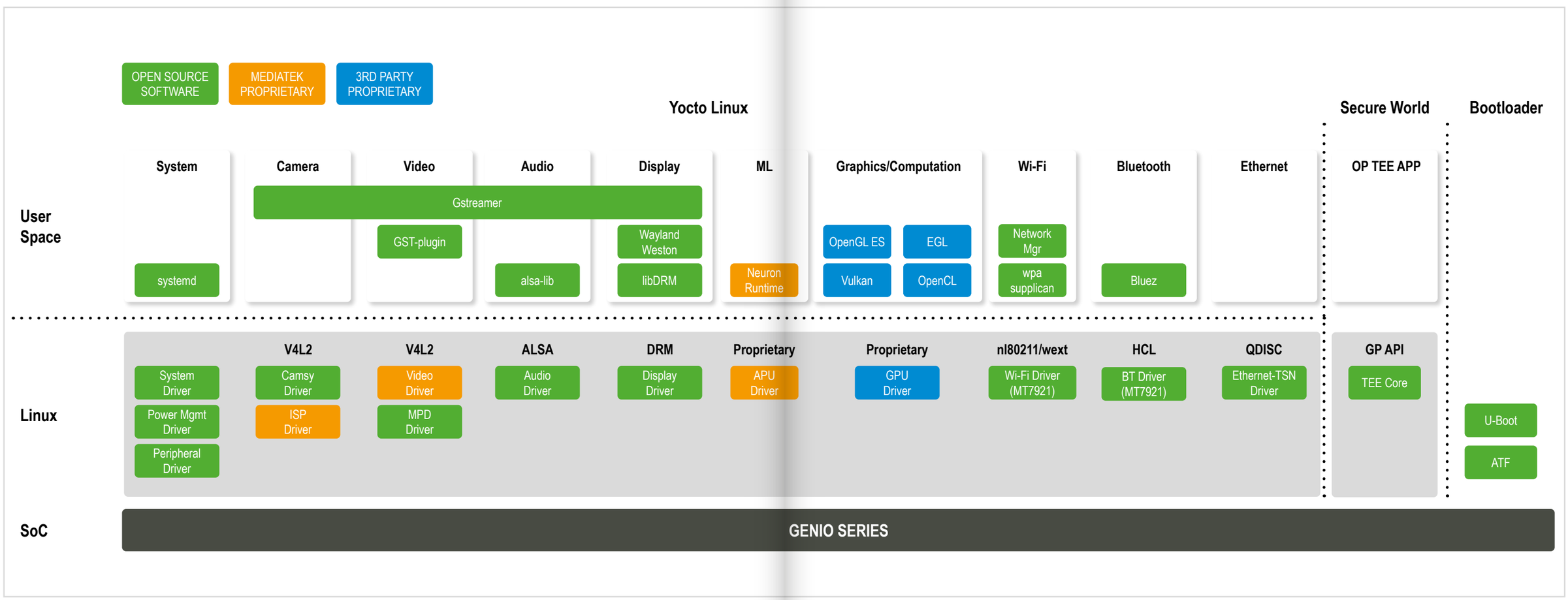


MediaTek Genio products have 10 years longevity support

*The actual available functions are dependent on the operating systems, please check with your MediaTek contact for details

IoT Yocto

MediaTek's IoT Open Linux, based on Yocto Linux, proves a secure, feature-rich platform for developing IoT applications. Our platform simplifies software and services integration and enables powerful IoT applications built for optimal performance, reliability, and security.



Features

Open and Standard
Based on standard Yocto Linux, all drivers will upstream to mainline, providing an easy to develop environment for users.

AI Accelerator
Integrated MediaTek AI Accelerator – NeuroPilot for a complete APU application in Genio series products and provide a standard TensorFlow lite interface.

Connectivity
Pre-integrated with MediaTek connectivity modules, quickly landing 5G/Wi-Fi 6/Wi-Fi 6E support in your IoT application.

Guides

IoT Yocto Overview
Based on the Yocto project, IoT Yocto provides board support packages (BSP) for IoT evaluation kits and development boards.

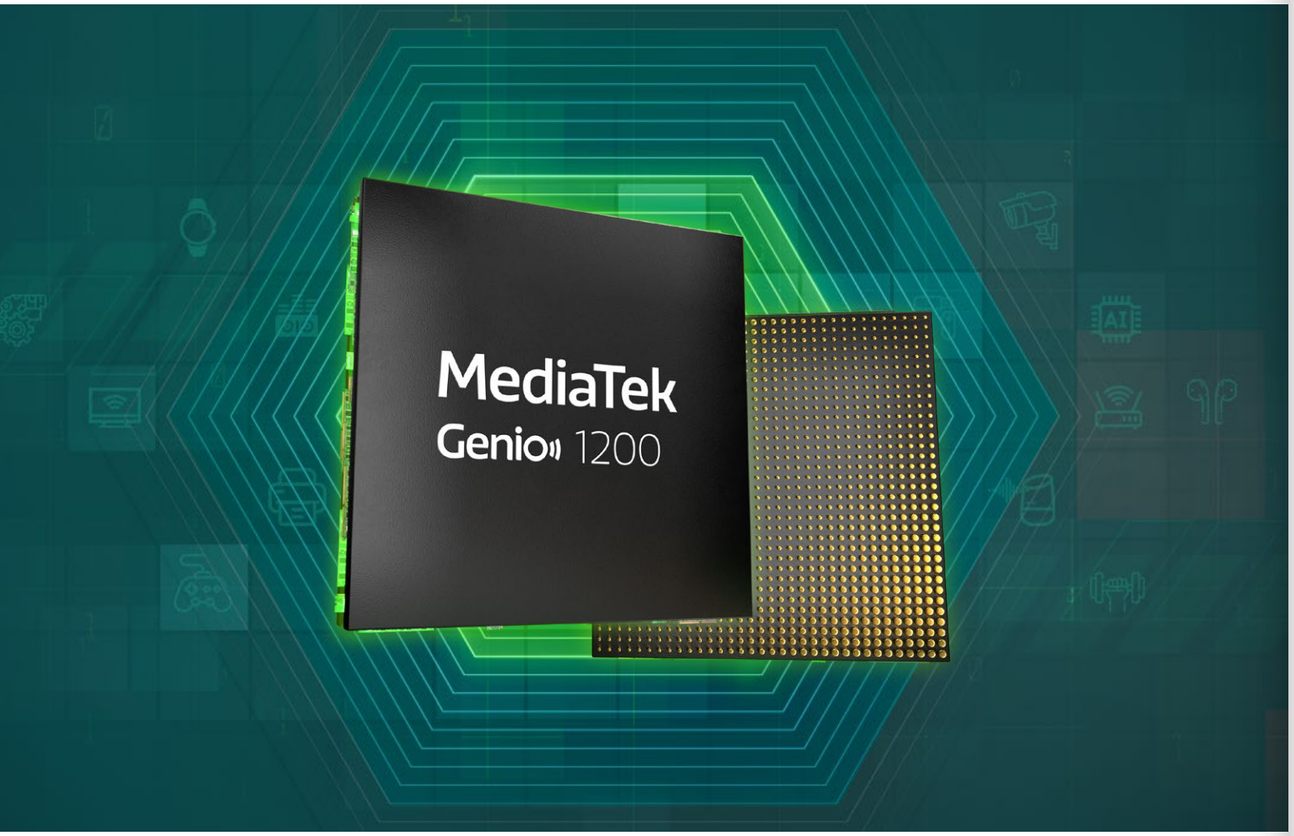
Get Started
Easy steps to set up the development environment, build an image, flash the image to the board, and connect it to the board.

IoT Tools
IoT tools are a set of tools to configure and interact with MediaTek Evaluation boards.

MediaTek Genio 1200

Incredible performance, advanced multimedia and AI empowered SoC for industrialand commercial IoT application

MediaTek Genio 1200 is a flagship-grade SoC (system on chip) with leading 6nm design. It provides incredible performance, advanced multimedia and power efficiency for Edge computing and Edge AI applications. Its flexible I/O supports GbE, WiFi-6/5G modules suitable for IoT applications.



Platform Highlights

- Leading 6nm chip design
- Octa-core CPU including 4X Super Cores: Arm Cortex-A78 and 4x Efficiency Cores: Arm Cortex-A55
- Up to 16GB of quad-channel LPDDR4X memory
- GPU Arm Mali-G57
- Display/Video: Dual 4K display and HEVC codec
- Embedded multi-core APU designed for demanding edge AI applications
- Camera: 48MP or 16MP+16MP@30fps with internal ISP
- Flexible high speed I/O interface to support WiFi-6 and 5G Sub-6 module
- I/O: 1x PCIe Gen3, 1x PCIe Gen2, 2x USB3.1, 2x USB2.0 OTG/Host and 1x Giga Ethernet MAC
- OS: Android, Yocto, Ubuntu

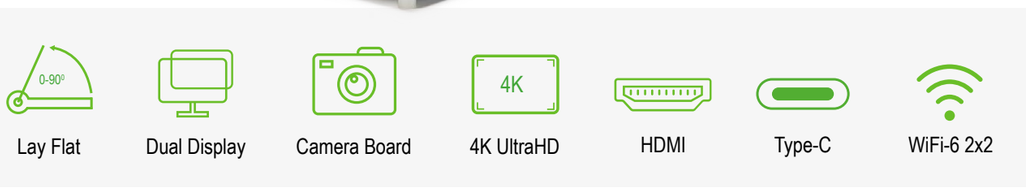
Getting Started

Genio 1200

MediaTek Genio 1200 Evaluation Kit

The Genio_1200_ EVK is an evaluation kit developed by MediaTek to facilitate IoT and intelligent device development. With low power consumption, advanced connectivity options, and support for diverse operations systems, it offers an excellent solution for developing Embedded and IoT applications.

Part #: Genio_1200_EVK



The Evaluation and Development Kit includes the following hardware and interfaces

- Genio 1200 (MT8395) SoC
- 8GB of LPDDR4X, 64GB UFS 2.1 onboard
- Wi-Fi 6 + BT 5.2 (2x2) wireless connectivity
- 2x MIPI CSI daughterboard with cameras
- 1x HDMI Rx port, 1x HDMI Tx port
- 2x USB 3.2 ports, 1x Micro-USB OTG
- 1x Micro SD card slot
- 1x DP (USB Type-C)
- 1x LVDS
- 1x CANBUS
- 1x RJ45 fast ethernet
- 40-pin GPIO
- A 7-inch full HD LCM touch panel

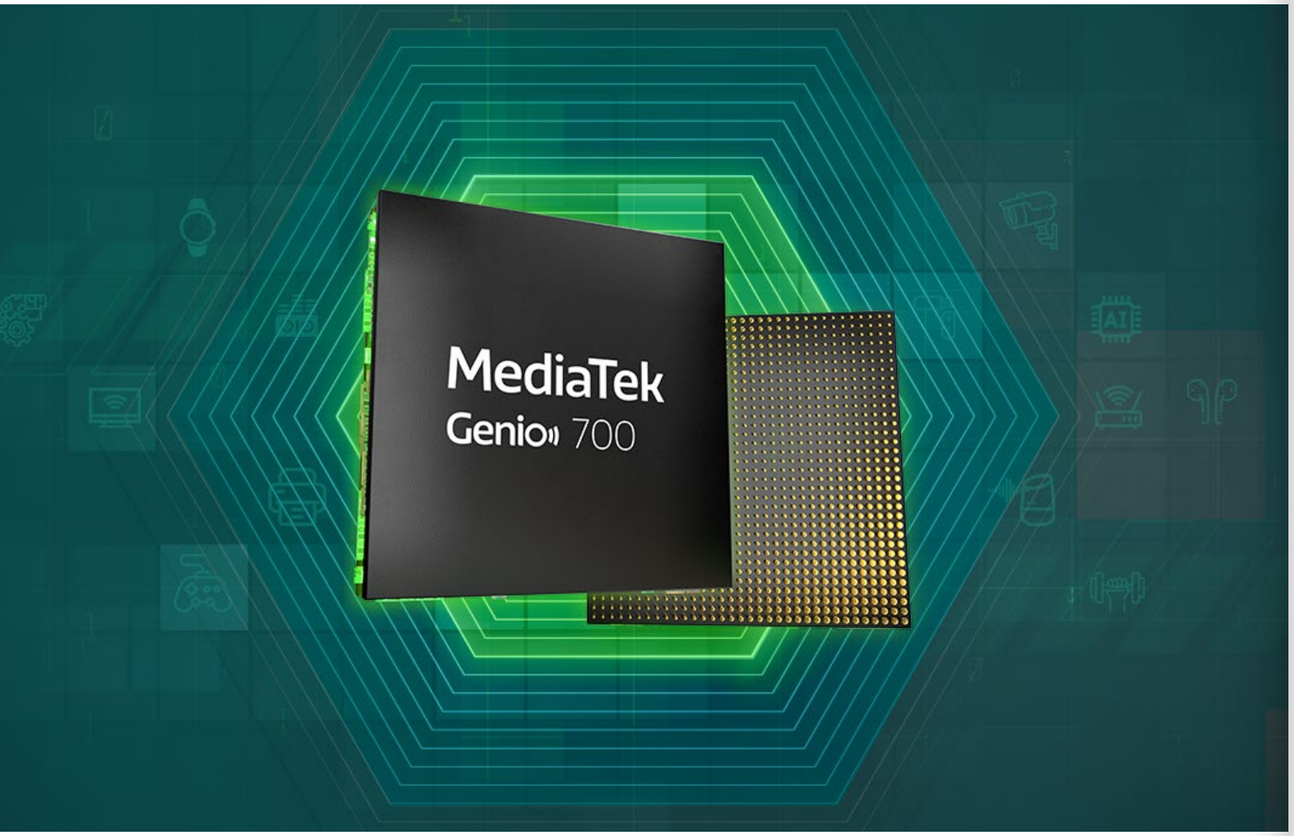
Getting Started

Genio_1200_EVK

MediaTek Genio 700

Great performance, advanced multimedia and AI empowered SoC for industrial and commercial IoT applications.

High-performance edge-AI IoT platform for smart home, interactive retail, industrial and commercial applications. Provides highly responsive edge processing, advanced multimedia, multi-tasking OS and more. Designed for products suitable for fanless enclosure designs and off-grid power solutions.



Platform Highlights

- Leading 6nm chip design
- Octa-core CPU including 2x ARM Cortex-A78 and 6x ARM Cortex-A55
- Up to 8GB of quad-channel memory
- Integrated Mali-G57 GPU to support Dual Display and AV1/H.265/H.264 codec
- Embedded powerful dual-core AI processors for Edge AI Applications
- Support 32MP@30fps camera with internal ISP
- Flexible high speed I/O interface to support WiFi-6 and 5G Sub-6 module
- I/O support 1x PCIe Gen2, 1x USB3.1, 2x USB2.0 OTG/Host and 1x Giga Ethernet MAC
- Support Android/ Linux Yocto/ Ubuntu OSI

Key Applications

- Industrial: Edge AI, IoT gateway, HMI
- Smart Retail: Digital signage, desktop POS
- Smart Home: Fitness, smart home appliances

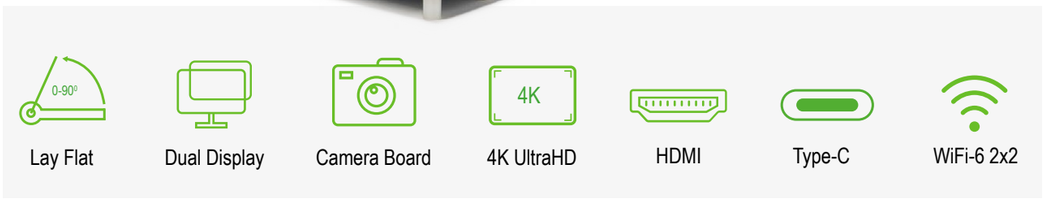
Getting Started

Genio 700

MediaTek Genio 700 Evaluation Kit

MediaTek designed the Genio_700_EVK evaluation kit to facilitate the development of IoT and embedded applications. With its excellent performance, low power consumption, advanced options, and multiple operations systems support, it is an ideal tool for innovating IoT and embedded solutions.

Part #: Genio_700_EVK



Lay Flat | Dual Display | Camera Board | 4K UltraHD | HDMI | Type-C | WiFi-6 2x2

The Evaluation and Development Kit includes the following hardware and interfaces

- Genio 700 (MT8390) SoC
- 8GB of LPDDR4X
- 64GB eMMC 5.1 onboard
- Wi-Fi 6 + BT 5.2 (2x2) wireless connectivity
- 2x MIPI CSI daughterboard with cameras
- 1x USB 2.0 + 1 x USB 3.0 ports
- 1x Micro SD card slot
- 1x HDMI Tx port
- 1x DP (USB Type-C)
- 1x RJ45 fast ethernet
- 40-pin GPIO
- A 7-inch full HD LCM touch panel

Getting Started

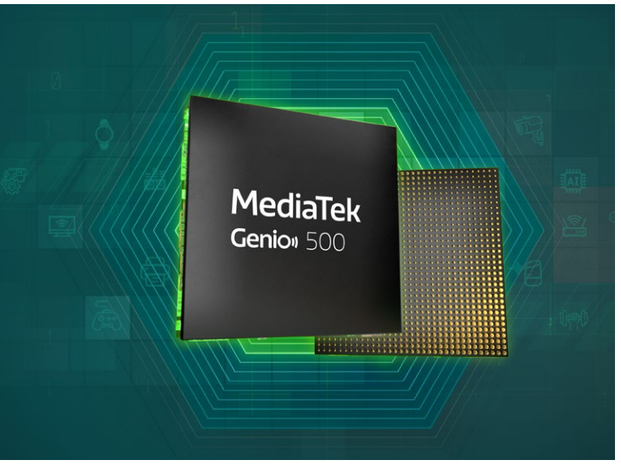
Genio_700_EVK

MediaTek Genio 500

Integrated Edge-processing Platform for Light AI Application

The MediaTek Genio 500 (4X Arm Cortex-A73 + 4X Cortex-A53, VP6 Dual Core APU, Mali-G52 GPU) is a powerful yet efficient IoT platform designed for portable, home or industrial IoT applications, advanced multimedia capabilities, multiple high-resolutions cameras, connected touchscreen displays, and multi-tasking OS.

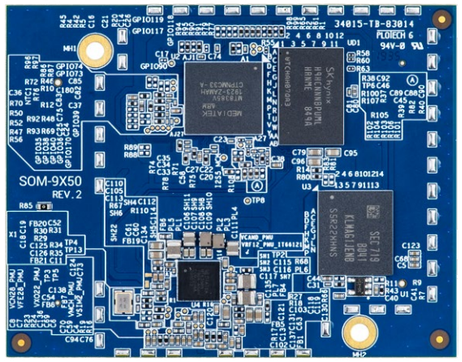
MediaTek Genio 500 SoC



Platform Highlights

- Octa-core CPU: 4X Arm Cortex-A73, 2.0 GHz + 4X Arm Cortex-A53, 2.0 GHz
- GPU: Arm Mali-G52, 800 MHz (OpenGL, OpenCL, Vulkan)
- DSP: Dual-core Vision P6, 525 MHz (0.75 TOPS), Support TensorFlow Light
- 1 x USB 3.0 / 6 x I2C, 3 x I3C / 6 x SPI / 3 x UART
- Camera: 32MP @ 30fps
- Display: 1920x1080, MediaTek MiraVision
- OS: Android, Yocto, Ubuntu
- Power efficient 12nm SoC

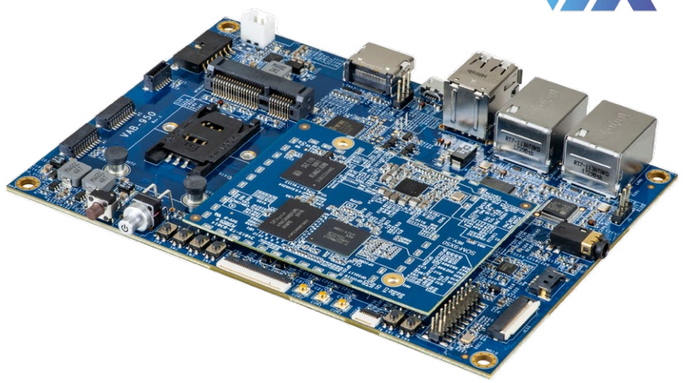
VIA SOM Module and Carrier Board



Part #: SOM-9X50

Fanless low-power platform for AIoT applications

- High-performance Octa-Core MediaTek Genio 500 processor
- Integrated AI processor for AIoT applications
- Full I HD hardware accelerated H.265/H.264 video decoding
- Dual-band 802.11ac Wi-Fi with Bluetooth 5.0, plus onboard SIM card slot
- MIPI DSI display, and MIPI CSI-2 camera support



Getting Started

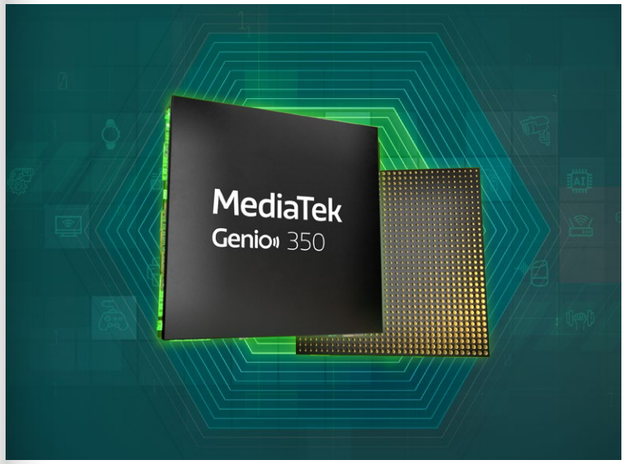
Genio 500

MediaTek Genio 350

Evaluation Kit (EVK) for Entry IoT Application Prototyping

The MediaTek Genio 350 EVK provides a comprehensive evaluation kit for IoT application development, including HDK board with full chip functionality exposed, complete hardware development documentation and software development kit.

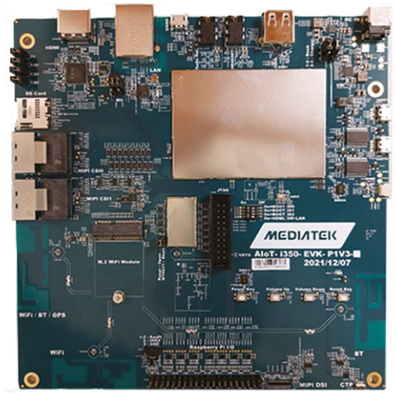
MediaTek Genio 350 SoC



Platform Highlights

- Sufficient Computing Power: 4X Arm Cortex-A53, 2.0 GHz
- Integrated Mali-G52 GPU
- Support FHD@60fps dual display and HEVC codec
- Embedded VP6 DSP and HiFi4 DSP for Edge AI Application
- Support 13MP@30fps camera with internal ISP and Multiple Camera
- Support Wi-Fi 5 Dual-Band 2T2R and Bluetooth 5.1 (with MT7663)
- Support USBx2: 2.0 OTG + 2.0 Host and 10/100 Ethernet MAC
- Support Android, Yocto, Ubuntu OS
- Power efficient 14nm SoC: Suitable for portable applications

MediaTek Genio 350 Evaluation Kit



Part #: Genio_350_EVK

The Evaluation and Development Kit includes the following hardware and interfaces:

- Genio 350 (MT8365) SoC
- 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

Highlights

- Full Evaluation Kit: Including HDK, SDK, Document and Tools
- Full functionality: Exhibits the Genio 350's full capability possible, allowing easy customization and application development
- Choice of OS: Android, Linux Yocto or Ubuntu
- Easy to use: Publicly available online documentation

Getting Started

Genio 350

MediaTek Genio Partner Solutions

Based on Mediatek Genio chipsets Rutronik can also offer embedded boards & solutions by adding, power supplies, storage components and TFT displays, as well as wireless connectivity solutions, sensors and all electromechanical components required to build up an intelligent embedded system for the emerging IoT market.

MediaTek Genio 1200

RSB-3810 & EPC-R3810

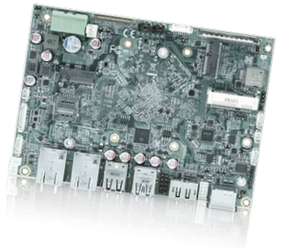
2.5“ Pico-ITX SBC & Edge AI Box

- Onboard LPDDR4 8GB, 4000MT/s memory
- HDMI 4k60fps
- 1 x Dual Channel 24 bit LVDS
- 1 x 4-wire RS-232/422/485
- 2 x USB3.2 Gen1 By 1
- 2 x USB2.0
- 1 x Micro SD, 1 x Mic. in/Line out
- 1 x M.2 3052 Key B for 5G
- 1 x M.2 2230 Key E Slot for Wi-Fi/BT
- 6 rear I/O configurations available

3.5”-SBC-i1200

3.5” SBC with I/O Extension Socket

- 4GB/8GB LPDDR4X RAM, 32GB eMMC
- 3x MIPI CSI for camera input
- 1x DP, 1x MIPI DSI, 1x LVDS for video output
- 1x 2.5 GbE LAN, 1x GbE LAN for Ethernet connection
- 1x USB 3.2 Gen 1, 4x USB 2.0, 4x COM, 1x UART, 8x DIO
- M.2 Key M & Key B expansion support
- 1x I/O Extension socket (eDP, HDMI, I2C, UART)



MediaTek Genio 700

WILK

SMARC® Rel. 2.1.1 Module

- Soldered-down LPDDR4X-3733 memory, up to 8GB total, 4x16-bit interface
- Up to 2x GB Ethernet
- 1x USB 3.1, 2x USB 2.0
- 1x CAN, 4 x UART
- opt Wi-Fi +BT 5.0, MIPI-CSI, 1x I2S
- Mali G57 MC3 GPU
- eMMC 5.1 Drive soldered on-board, up to 64GB (boot device); SDIO Interface
- Linux Yocto

ADVANTECH
Enabling an Intelligent Planet

kontron

SECO

Case Study

AI-Based Hand-held Device

Callenges

Challenges: Deploying edge AI applications to power smart hand-held devices for POS (point of sale), face recognition, license plate, and object recognition applications, etc. presents many challenges. Ruggedized hardware that can withstand harsh environments and provide reliable and consistent connectivity is critical to optimal edge performance.

Key Business Outcomes

- Genio 500’s AI integration capability helped shorten development time by 15%
- Low power consumption increases product life by 20%
- 17% reduction in unstable connection between the product and the background
- 20% overall increase in job efficiency with the product

Key Features

- High-performance and data processing capability with 8-core CPU (4 x Arm A73 2.0 GHz +4 x Arm A53 2.0 GHz)
- Built-in independent APU (AI Acceleration Processor) with 0.7 TOPS AI computing power
- TensorFlow Lite integration interface
- 4G Cat7 and support 5G+5G dual card standby provides better stability and coverage
- 7W power consumption offers efficiency and extended usage

More Information

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RUTRONIK
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