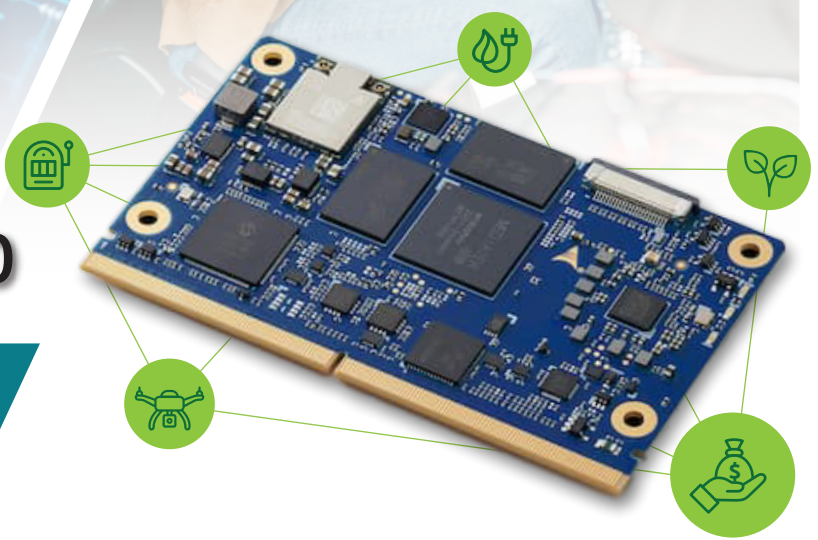
Use Case

Low-Power SMARC LEC-MTK-I1200

Built for High Efficiency, Reduced TCO



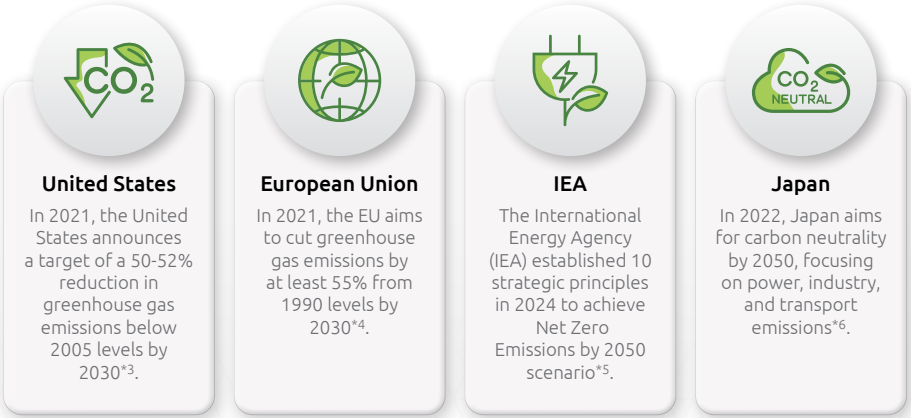
Challenges & Demands

Surging Electricity Prices

Soaring electricity prices and energy costs have significantly increased operational expenses. In Europe, for instance, prices surged from €0.21/kWh in 2018 to €0.29/kWh in 2023 *1. While in Japan, electricity costs rose from ¥24.31/kWh in 2016 to ¥34/kWh in 2022 *2. This rise deeply impacts industries that rely heavily on data analytics, 24/7 operations, and monitoring applications.

Global Energy Policies

At the same time, the worldwide implementation of ESG policies, UN Sustainable Development Goals, and the UK's Streamlined Energy and Carbon Reporting Regulation has further increased cost pressures.



United States

In 2021, the United States announces a target of a 50-52% reduction in greenhouse gas emissions below 2005 levels by 2030*3.

European Union

In 2021, the EU aims to cut greenhouse gas emissions by at least 55% from 1990 levels by 2030*4.

IEA

The International Energy Agency (IEA) established 10 strategic principles in 2024 to achieve Net Zero Emissions by 2050 scenario*5.

Japan

In 2022, Japan aims for carbon neutrality by 2050, focusing on power, industry, and transport emissions*6.

Low-power SMARC Demands in Infotainment, Automotive, and Enterprise

Rising energy costs and sustainability goals are driving demands for low-power computing solutions that deliver advanced performance. These solutions are essential for uninterrupted operations infotainment, driver monitoring, surveillance, and the smart gateway.

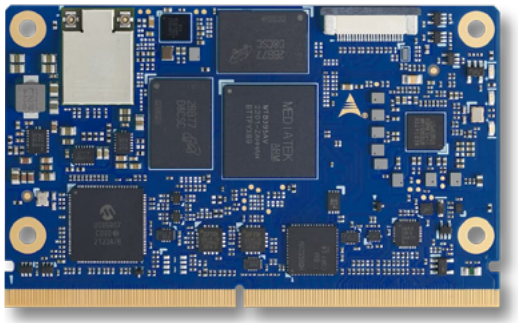
ADLINK **LEC-MKT-I1200 SMARC** modules, which are specifically designed to minimize power consumption while maintaining higher computing performance, address the needs of these markets by providing efficient and robust solutions.

- **Power Efficiency**
  SMARC modules under 10W cut power use while maintaining performance.
- **24/7 Operating Industries**
  Sectors like infotainment, automotive, and enterprise data management require continuous data processing.
- **ARM SoCs and SMARC Benefits**
  ARM-based SMARC modules provide the necessary computing power for data-intensive tasks.
- **Standardization and Compatibility**
  Ensures interoperability across hardware platforms, reducing development time and total operational costs.

*1 2024, Eurostat, Development of Electricity Prices for Household Consumers, EU, 2008-2023.
*2 2024, Statista, Electricity Costs for Homes Per Kilowatt Hour Japan FY 2013-2022.
*3 2021, White House, The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050.
*4 2021, European Parliament, EU 2030 Climate Targets: Aiming for a Minimum 55% Reduction in Greenhouse Gas Emissions from 1990 Levels.
*5 2024, International Energy Agency (IEA) Energy Efficiency Policy Toolkit 2024 From Versailles to Nairobi: Ten Strategic Principles for Prioritizing Energy Efficiency.
*6 2022, The Government of Japan, Together for Action: Japan's Initiatives for Achieving the Common Goal of Net Zero by 2050.

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SMARC LEC-MTK-I1200



MediaTek Genio 1200 4x A78, 4x A55 (Arm Cortex)

ADLINK's LEC-MTK-I1200 delivers high computational power while using only one-third the energy of previous generation products. Its compact design includes dual Gigabit Ethernet, USB, and PCIe, making it ideal for AI and IoT applications with strong performance and high-resolution graphics support.

10 YEARS LONGEVITY

AI on Module (AIOM), Integrated NPU
Delivers up to 5 TOPS (Tera Operations Per Second) performance.

Low Power Consumption
Designed for low power consumption (3W-5W TDP), it uses one-third the energy of previous generation products.

Ruggedness Module Options
Withstands harsh conditions, ensure reliability and durability under industrial environments.

SMARC Flexibility
Allows for easy integration and customization across various applications and industries.

Supports Up to 3 Cameras
Enables comprehensive multi-faceted monitoring for advanced applications.

Product Specifications	
CPU	MediaTek® Genio 1200 Octa-core SoC 4x Arm Cortex-A78, 4x Arm Cortex-A55
NPU	Up to 5 TOPS (Tera Operations Per Second)
Memory/Storage	Up to 16 GB LPDDR4X UFS: 64/128/256GB
Cache	L2: 256KB per core
Boot Loader	U-Boot
Graphics Outputs	1x HDMI 1x eDP 4 lanes 2x MIPI-DSI 4 lanes
Camera	2x MIPI-CSI 4 lanes 1x MIPI-CSI 2 lanes
LAN	Up to 2x GbE
USB	2x USB 3.2, 4x USB 2.0
Extension Ports	4x UART, 2x SPI, 14x GPIO, 1x SDIO
Audio	1x I²S
PCI Express	1x PCIe x1 Gen2
TPM	TPM 2.0 (opt.)
SEMA Support	Yes
Power Supply	5.0 V DC±5%
Operating Temperature	0°C to 60°C / -40°C to 85°C (opt.)
Form Factor & Compatibility	SMARC short size, 82 x 50 mm, SMARC specification v2.1.1
OS Support	android, Ubuntu, yocto PROJECT

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Why ADLINK & MediaTek?

30 Years Of Embedded Experience

ADLINK leads industry associations like SGeT and PICMG to set standards, offering products powered by various processors.

In-House Design & Manufacturing

ADLINK & MediaTek both have in-house design capabilities, with ADLINK adding the advantage of its own manufacturing and robust supply chain management.

Engineering Services Excellence

ADLINK's SQA measurement equipment capabilities offer convenience for on-site validation and certification.

20+ Global Support Centers

6 design centers and 20 support offices across the USA, Europe, and Asia.

Reduces Total Cost of Ownership

The implementation of MediaTek Genio series boosts computing power while lowering power consumption by 2/3, enhancing cost-effectiveness.

Low-Power AI Infotainment Boosts Engagement and Lowers TCO



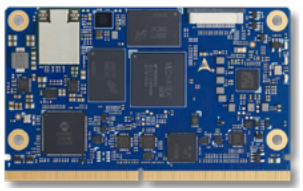
Optional



Touchscreen Gaming Monitors

GM-270S/320S

- 16:9 LCD panel with LED backlight
- 10-point PCAP touchscreen
- Fully customizable I/O ports and firmware
- Support for both portrait and landscape modes



SMARC Modules

LEC-MTK-I1200

- 8-core high-performance CPU
- Low TDP of 3W-5W, reducing operational costs
- Connects up to 3 MIPI-CSI cameras

Background & Challenges

Enhancing customer experience and driving engagement are top priorities in the commercial gaming industry. A key trend is leveraging AI to deliver personalized and dynamic advertising, creating immersive experiences that boost interaction.

Designed for 24/7 continuous and reliable operation, the LEC-MTK-I1200 provides a cost-effective, power-efficient solution that enhances customer engagement while lowering operational costs.

Customer Requirements

24/7 System Operations

An infotainment machine must remain open 24/7, ensuring seamless functionality and performance day and night.

AI Targetd Advertising

The system uses AI to detect and deliver personalized, real-time advertising through signage, adapting to customer preferences and engagement.

Benefits

Lower Electricity Costs

With only a 3W-5W TDP, power consumption is reduced.

Reduces Monitoring Workforce

The LEC-MTK-I1200, with its integrated NPU, provides advanced monitoring analysis, reducing the need for surveillance staff.

Minimizes Labor Expenses

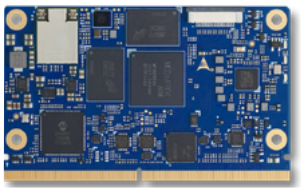
GM-270S/320S is easy to clean with an anti-fingerprint display, reducing personnel expenses.

Enhances Customers Engagement

The LED-framed monitor enhances the immersive gaming experience.

Driver Monitoring System Enhances Road Safety





SMARC Modules

LEC-MTK-I1200

- Integrated NPU allows real-time alerts
- Connects up to 3 MIPI-CSI cameras
- Octa-core for edge data analysis

Background & Challenges

Distracted driving, driver fatigue, and unsafe driving behaviors are perilous for passengers. Transportation operators are looking for solutions to enhance road safety.

The LEC-MTK-I1200, featuring an integrated NPU and camera connectivity, detects abnormal behaviors in real time and serves as an economical solution for real-time driver behavior monitoring.

Customer Requirements

AI-Powered Safety Control

AI modules detect dangerous driving behaviors.

Real-time Alerts Ensure Safety

The system provides immediate alert to the driver and ensures safer journeys for passengers.

Benefits

Reduces Accident Rate

Alerts drivers to take preventive measures, which reduces accidents.

Improves Driver Performance

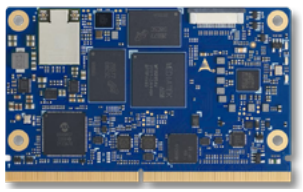
System feedback can be used for targeted driver training, enhancing driving skills.

Regulates Insurance Costs Effectively

Due to decreased accident rates, insurance premiums are unlikely to increase significantly.

Smart Gateway Upstreams Enterprise Security





SMARC Modules

LEC-MTK-I1200

- NPU up to 5 TOPS
- 3W-5W power-efficient design
- Rich connectivity for IoT systems

Background & Challenges

Data security is vital for companies, but rising electricity costs and carbon policies are increasing expenses for smart gateways.

The LEC-MTK-I1200, with its analytics and low power use, is a smart solution for balancing security and sustainability while cutting costs.

Customer Requirements

Heterogeneous Data Management

Enterprises must effectively manage and categorize data from various sources.

Secure Data Transmission

Gateways must ensure data security and seamless transmission.

Uninterrupted Operation

The hardware design supports under 24/7 operation.

Benefits

Saves Enterprise Electricity Costs

Enables companies to save on electricity costs and reduce total cost of ownership (TCO).

Enhances Security

Protects sensitive data and ensures continuous Operation while effectively managing heterogeneous data.

Enables IT & OT Convergence

Enhances IT and OT cross-platform data analytics and improves overall operational efficiency.

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