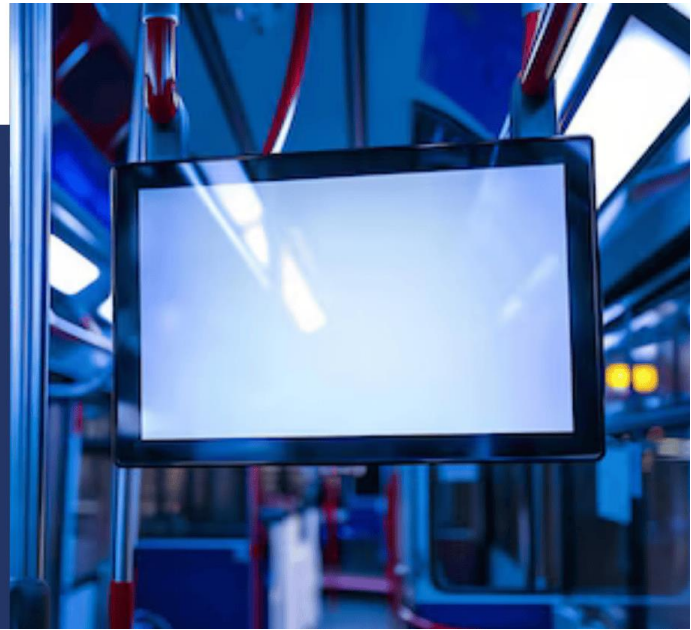# i.MX 93 System on Module for Infotainment and Ticketing Systems

## Introduction

Infotainment and ticketing systems in buses and public transport play a crucial role in enhancing the passenger experience and connectivity to the now digital world. These systems are becoming more widespread as buses and public transportation systems evolve from simple transportation vehicles into connected, digital platforms that combine entertainment, information, and connectivity.

The core of an infotainment and ticketing system is its central processing unit, which is responsible for all system functions, such as GPS location, route information, multimedia content, and passenger interactions. The processing unit is required to be integrate with external sub-systems such as displays, payment terminals, touchscreen and speakers.

A leading system integrator of a public transportation authority sought to enhance passenger experience and improve operational efficiency across its bus fleet, which required a state-of-the-art central processing unit capable of the above functions and approached iWave for the right System on Module solution.

## Challenges

- Support for multiple interfaces: Ethernet, LVDS, MIPI, USB & Ethernet
- Industrial-grade operations (-40°C to +85°C)
- Short production lead times
- Product longevity of 10+ years
- Cost-Efficient
- Linux BSP Support

## Solution Highlights

iWave suggested the i.MX 93 SMARC System on Module as the right building block for the central processing unit, and supported them with evaluation kits and necessary software support for their evaluation and development. iWave enabled the customer with reviews and technical guidance during the process of design of the carrier card for the System on Module. The combination of cutting-edge technology, quick time-to-market, and long-term support provided the transportation authority with a future-proof solution.

- i.MX 9352: 2 x Cortex-A55 Cores
- Integrated NPU with up to 0.5 TOPS Neural Processing Unit
- Interfaces: MIPI DSI, LVDS, MIPI CSI
- Interfaces: 2x Ethernet, 2x USB 2.0
- IEEE 802.11b/g/n/ac/ax Wi-Fi & Bluetooth 5.3
- Linux 6.1.55 BSP Support
- -40°C to +85°C Industrial grade
- 82mm x 50mm Form Factor
- SMARC v2.1.1 compatible SoM

The compact form factor and robust design of the i.MX 93 SMARC SoM enabled the transportation authority to quickly develop its infotainment and ticketing system. The pre-validated Linux Board Support Package (BSP) provided by iWave significantly accelerated software development, allowing the client to focus on passenger interface design and content management.

By utilizing the i.MX 93 SMARC SoM as the building block, the OEM successfully developed a high-performance, cost-effective infotainment solution for its bus fleet. The system delivered 1080p video playback, real-time passenger information, and robust wireless connectivity, significantly enhancing the passenger experience. Additionally, the industrial-grade design ensured reliability under extreme operating conditions.

The transportation authority required long-term product availability to ensure the continuity of its fleet's infotainment systems. iWave guarantees 10+ years of product longevity, ensuring a strong supply chain and reducing the risk of obsolescence for the customer's SoM needs.

iWave's i.MX 93 SMARC SoM proved to be an ideal platform for developing a scalable and reliable infotainment system in public buses.

For more information, please contact mktg@iwave-global.com.

Since 1999, iWave has been driven by the mission to be the trusted embedded technology partner for companies across the globe. Building on our core expertise of embedded systems design and manufacturing, iWave serves customers with an extensive portfolio of System on Modules, Single Board Computers, COTS Modules, and ODM Solutions.

iWave's commitment to innovation, quality and reliability has made us a trusted partner for companies worldwide in their product development and roadmaps