

# Enhancing Vehicle Security with Mobile Video Surveillance



## Introduction

The issue of security for vehicles and buildings has always been a concern to business owners and managers. The ability to track, monitor, and keep updated with their assets remotely is an important requirement for cutting losses, improving service efficiency, and streamlining workflow.

Mobile/In-vehicle surveillance is still a huge untapped market. The global market for mobile surveillance is forecasted to grow by approx. USD 27 Billion by 2023, at a striking CAGR of 14% between 2017 and 2023. However, this market is changing and fast catching up with new technological advancements. One of the key components in this industry is the IP camera solution. Traditionally analog solutions dominate this market with a variety of low cost selections. However, the migration from traditional analog to IP solutions is shifting and shaping a new future:

1. The IP camera digitizes video signals and images which can then be easily transmitted throughout a standard IP network.
2. The high quality of images remains even when transferred over long distances.
3. The real time recording and analytics highly enhance the safety and security for both drivers and passengers in vehicles.

In addition to IP cameras, the mobile NVR (Network Video Recorders) computers are another key element. All the video data from IP cameras is stored and analyzed in the mobile NVR. So, it has to be an industrial-grade design and offer a strong resistance against heat, dust, and vibration in order to guarantee 24x7 operation and non-stop service. Moreover, system features such as digital signage, e-payment collection, and driver console can be attached as an upgrade to the mobile NVR for a comprehensive fleet management solution.

Mobile surveillance solutions have been widely adopted in public transportation (e-Bus, BRT, MRT, trains) and in logistics (heavy truck, farming vehicle, emergency ambulance). Mobile NVR solutions offer high quality, flexibility, scalability, easy installation, and compatibility with the changing and critical needs of customers. They increase personal safety and prevent vandalism.

### **Application Requirements**

With mobile NVR solutions, robustness, wide operating temperature support, compact and solid design with wireless options (WiFi/3G/4G) are basic requirements. To connect to an IP camera, PoE (Power over Ethernet) is a must. This allows a single cable to provide both data connection and electric power to devices, which makes ease of installation and less cabling. And not forgetting video capability to provide live views, recording, and slow video analytics.

### **Solution**

Advantech's ARK-2250V and ARK-2250R Modular Fanless Box PCs for transportation are designs with extendable mechanical design. Both models are perfect for the complex system requirements of the vehicle and rolling stock markets.

Both ARK-2250V and ARK-2250R feature Intel 6<sup>th</sup> gen Core i5/i7 processors, delivering the necessary computing and graphics power to easily perform real-time video transcoding. Dual memory channel support helps optimize software transcoding efficiency, and various display outputs are available up to ultra HD.

In order to ensure transportation systems run stably in harsh environments, all series are certified by E-mark, EN50155, EN50121, IEC 61373, or 5M3 certifications. Depending on different usage scenarios, the maximum operating temperature can reach -40~70 °C with a fanless cooling system.



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To avoid vibration and shock impacts, ARK-2250R provides M12 connectors to make sure the interface between system connectors and equipment are super reliable. For certain critical onboard components, we will apply special coating for better protection.

Because customers face different hardware requirements from end users, our transportation solutions provide flexible optional configurations. To fulfill surveillance applications, our systems can provide up to 8 x PoE ports for IP camera connection through a single cable so customers can save time and money on installation. For in-vehicle infotainment servers, our systems can extend wireless communication to cover WiFi, 3G, or LTE requirements.

Sometimes storage is a critical issue for mobile devices, and due to outside operation, data/video recording could last as long as 15/30/60days, so ARK-2250V/R provides different SATA configurations such as, 1 x mSATA + 1x SATA, or 1x mSATA + 2x SATA.

### **Benefits**

- Time to market, ARK transportation series provides several extended I/O modules, different modules means different system combinations to fulfill complicated requirements.
- Extreme performance, powered by Intel Core i7 Quad Core processors, provides real-time video transcoding and multi-channel analytics.
- Lower TOC, Integrates PoE switch, media server, and GPS tracker in one vehicle system, means users don't need to worry about compatibility issues and maintaining multiple systems.
- For system integrators, ARK transportation systems provide both hardware and software level APIs to ease integration and help customers develop their own value-add software more efficiently.

## System Diagram

