

Domain-Focused Embedded Systems: Automation, Transportation, Retail

Cadie Chou, Project Manager, Advantech

Christine Liu, Project Manager, Advantech



Embedded IoT Global Domain Focus

Automation



ARK Generic



Retail



Digital Signage



Transportation



ARK V/S/R



ADVANTECH

Application Ready of Edge Computing Systems



Embedded AI Modules



Motion Cards



Frame Grabber & Cameras



WISE-PaaS/DeviceOn
WISE-PaaS/SignageCMS



Edge Intelligence Servers



In-Vehicle, Railway Systems



Signage Players

Fanless Box PC - ARK New Product Highlights



ARK-1220F

Ultra Small Series

- ✓ Intel Pentium N4200 QC processor
- ✓ Isolated LAN, COM and DIO with 2.5KV
- ✓ Front-side I/O for in cabinet installation
- ✓ Wide range 12~28VDC in
- ✓ Heavy industrial Certificate



ARK-1551

ULV Slim Series

- ✓ Intel 8th gen. U series core i5
- ✓ Dual Channel DDR4 up to 32GB
- ✓ Versatile IO update to 4x COM, 4x USB
- ✓ Swappable 2.5" SATA SSD
- ✓ Wide range 12~24VDC in



ARK-3531

Compact Desktop Core i

- ✓ Intel 9th gen Desktop Core i 35W CPU
- ✓ Dual channel DDR4 up to 32GB
- ✓ Up to 4x GbE, 8x COM, 8x USB 3.0
- ✓ Support 2 x 2.5" RAID 0/1 support
- ✓ Wide range 9~36VDC in

Power Up IoT Device with 24/7 Management

Ready on
WISE-PaaS Marketplace

WISE-PaaS/DeviceOn

Empowers Edge Intelligence
DeviceOn.Dev



Device Management

- Device Monitoring and Diagnostics
- Device Control & Updating



Data Management

- Data Acquisition and Storage
- Secure Data Access



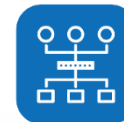
Connectivity Service

- Device Connectivity
- Plug-n-Play Peripherals



OTA

- Software & Firmware Updates
- Advantech BIOS Updates



Rule Engine

- Distributed Rule Monitoring
- Flexible Trigger and Action



Data Security

- McAfee Threat Protection
- Acronis Backup Recovery



DeviceOn.App

DeviceOn

OTA

OTA

- Software, firmware & configuration updates
- Advantech BIOS updates

DeviceOn

FaceView

FaceView

- Facial recognition
- People counting
- Behavior detection

DeviceOn

E2I

E2I

- Protocol conversion
- Edge intelligence
- Real-time virtualization

DeviceOn

ePaper

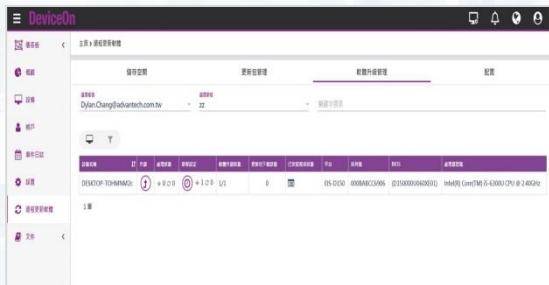
ePaper Manager

- EPD device auto-discover
- Fast transmission
- Device association

ADVANTECH

WISE-PaaS/DeviceOn - Over-the-Air Software Updates

WISE-PaaS/DeviceOn



Connect

OTA Upgrade



- Industry: Equipment Builder
- Product: ARK-1220L and DeviceOn OTA
- Customer Background & Requirements :
 - The customer is a leading machine builder and **their machines are installed in different locations by end customers**
 - The customer was looking for a solution to help end customers **lower cost/time of equipment upgrades**
- Solution:
 - DeviceOn QTA supports **BIOS updates, Driver updates, HMI layout configuration updates**

Case Study – Edge CNC Machine

Application:

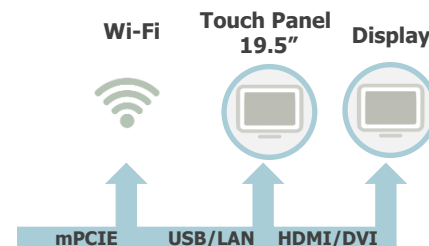
The smallest of the EDGE Connect CNC offers flexibility for machine integration

Requirement:

- Palm-size system with essential I/O ports support wide temp -20~60°C
- Supports dual displays HDMI/DVI to connect touch panel and monitor
- Optional WIFI module support and RF certification FCC and RED ready



ARK-1123



Case Study – Airport Explosive Detection System

Application:

Baggage explosive detection system in the airport

Winning Point:

- Easy to install in X-ray rotating gantry
- Customized coating board, cable dispensing and iDoor
- Independent 2x GbE bandwidth and throughput to connect camera



ARK-1124



Case Study – Intelligent Self-Service Gate

Application:

The intelligent entry/exit ramp and self-service gate control in HK-Zhuhai-Macau Bridge

Winning Point:

- ARK-3500/3520 PCI/PCIE expansions and multiple I/O ports
- High performance for vehicle license number check and facial/fingerprint identification
- 7x 24 stable operating for harsh environment



ARK-3520



Smart Digital Signage Solutions



Entry Level

- High price-performance ratio
- Low-power & fanless

Ultra-Slim

- 19mm thin & fanless
- Available from core I to Celeron

Multi-Display

- Video wall solutions
- Supports flexible configuration

OPS/SDM

- Intel Open Pluggable Standard
- Slot-in & Cableless design

WISE-PaaS/DeviceOn WISE-PaaS/SignageCMS McAfee Acronis

ADVANTECH

DS-580

4K Digital Signage Player Up to 4 Independent Displays



Outstanding Graphic Performance

- Integrate nVidia GT1030 GPU on board
- Supports Quad independent HDMI outputs & up to 2 x HDMI 2.0
- 4K 60Hz video playback

The Latest Functions

- Intel Atom® x7-E3950
- Fan-less design for maximized reliability & stability
- Decode for HEVC/WMV9/VP9

Content Management & Data Security

- Content/device remote management
- System security & recovery
- TPM2.0 support



WISE-PaaS/SignageCMS

WISE-PaaS/DeviceOn

DS-082

The Most Slim 4K x 4 Signage Player



Features:

- AMD Ryzen V1807B & AMD Ryzen R1606G
- Four independent 4K outputs via HDMI 2.0
- Slim design with only 19mm thickness
- Fanless & cable-less design for easy maintenance
- VEGA core up to 11 CU, VP9 10bit, H.265 10bit



DS-082GB-T4A1E

High performance



DS-082GB-U6A1E

Excellent C/P

		
		WISE-PaaS/SignageCMS WISE-PaaS/DeviceOn

Management Software Built-in



WISE-PaaS/DeviceOn

- ✓ Securely Automated Device Onboarding
- ✓ Remote Device Monitor and Control
- ✓ Software Over-the-Air Updates
- ✓ Acronis/McAfee as backup/protection



Device
Management



Update
Management



PW on/off



System Security



WISE-PaaS/SignageCMS

- ✓ Program contents editing
- ✓ Emergency information delivery
- ✓ Schedule by daily/weekly/monthly
- ✓ Dispatch the content/program



Layout
Editing



Program
Scheduling



Content
Dispatch



Alert &
Action



Case Study – 8K TV Wall

Application:

Retail Signage TV Wall in shopping mall
Displaying advertising/promotion video

Requirement:

- Supports 4K displays x 4
- Easy maintain

System Solutions: DS-082

- Independent 4 display
- Built-in WISE-PaaS/SignageCMS for layout editing & display



DS-082 WISE-PaaS/SignageCMS

ADVANTECH

Case Study – Retail



Application:

Retail Signage in supermarket

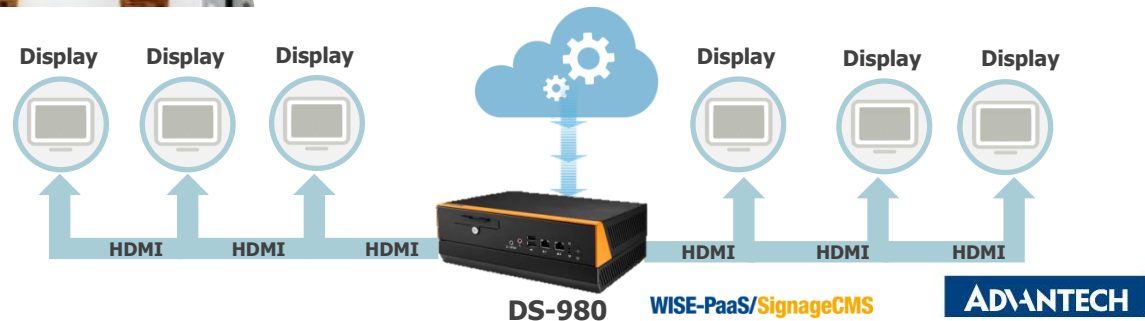
Displaying advertising/promotion video

Requirement:

- Supports multiple displays
- Easy maintain

System Solutions: DS-980

- Independent six displays
- Built-in WISE-PaaS/SignageCMS for layout editing & display



ARK-2250V/ARK-2250R/ARK-2250S

In-Vehicle, Railway and Roadside Systems



ARK-2250VSR

ARK-2250+AMK-R10XE



WISE-PaaS/DeviceOn



Acronis



Extension module

Exceptional Performance

- Intel® Core i7-6822EQ/ i5-6442EQ
- Intel® Chipset QM170

Rich I/O Connectivity

- Multi Display (VGA + HDMI) ; Dual Lan ports
- 3 x RS232/422/485 ; 2 x USB2.0 ; 1 x USB3.0
- 2 x Full size Mini PCIe slot ; 1 x M.2 E key slot

Harsh Environments

- -20~70 °C operating temperature for V/S series
- -40~70 °C operating temperature for R series
- Anti-vibration & shock proof

Certification

- EN50155 (DC 24V ready ; 72V/110V developing) / EN50121-3-2 / EN50121-4 For R series
- EMark (12/24VDC) / ISO7637-2 For V series

Case Study – Driver Safety System

Application:

- Remote monitoring driver and vehicle status
- AI tracks and analyzes driver behavior, and alerts to risky behavior

Requirement:

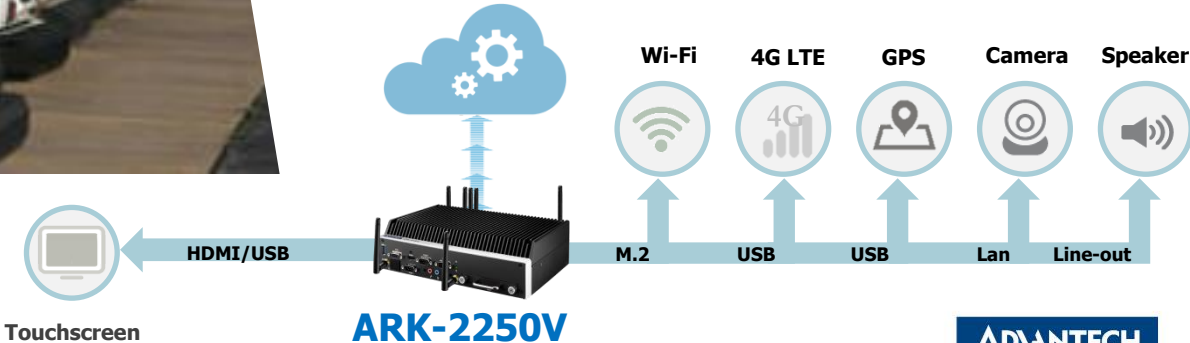
- Ruggedized to sustain in in-vehicle environment
- Rich I/O for peripheral/wireless connectivity

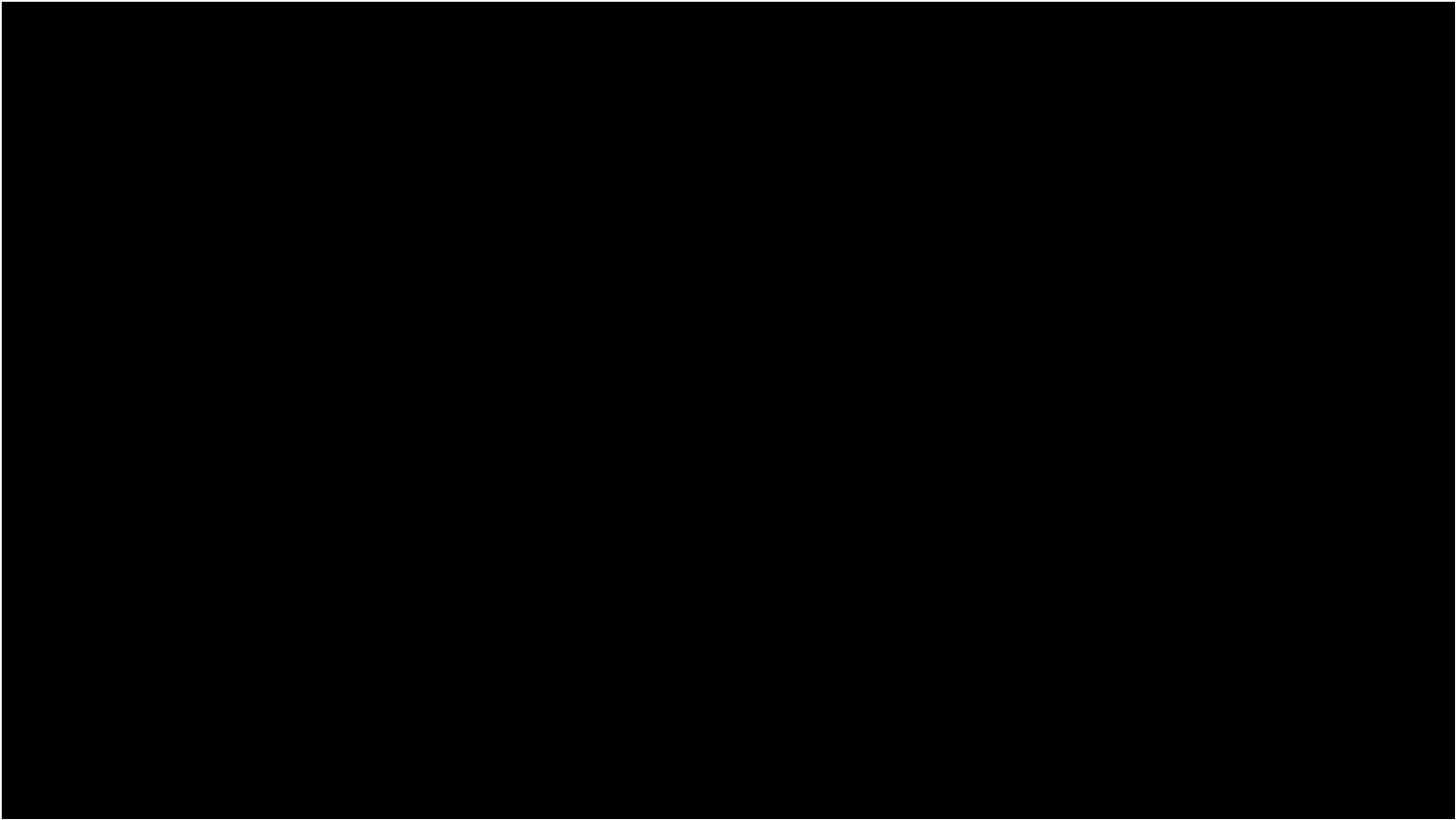
System Solutions:

- High performance / Fanless design / Extended operating temp.
- E Mark certification
- Peripheral integration service (Wi-Fi / 4G LTE / GPS)



End Customer:  AI software: **FRONTIS**  Software Partner:  **Microsoft**





Co-Creating the Future of the IoT World

