



# Make Retail Smarter With AAEON

AI-powered solutions for a seamless, efficient, and engaging retail future.



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## Take the Next Step

Find out how AAEON can help elevate your retail operations today.





Headquarters

# AAEON

## Introduction

## From Concept to Reality

AAEON's expert team provides end-to-end customized services, from concept development to mass production and after-sales support. Its AI edge computing and system integration solutions are widely used in smart cities, smart retail, and smart manufacturing, driving innovation and efficiency.

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AAEON Technology Inc., founded in 1992, is a leading provider of IoT and AI edge computing solutions. Its products include embedded motherboards, industrial displays, rugged tablets, industrial control systems, and network security devices, offering comprehensive solutions for OEMs, ODMs, and system integrators.



Manufacturing/Logistics Centers

# Smart Retail Overview

Smart retail encompasses a variety of applications aimed at making the day-today retail experience more efficient and customer-friendly.



01

## Efficiency

Automated operations minimize manpower needs.



02

## Insights

Data analytics reveal consumer behavior patterns.



03

## Convenience

Streamlined experiences reduce customer wait times.



04

## Security

AI safeguards against loss and shrinkage.

# Use Cases

1

## **Frictionless Shopping**

Streamlining customer checkout experience

2

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3

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# Frictionless Shopping

Customers are able to shop without the need to present their items at a kiosk, check-out, or cashiers, instead simply picking the items they want and leaving the store. Equipped with 4 PoE cameras and up to 40 TOPS of AI performance via the NVIDIA® Jetson Orin™ Nano, the BOXER-8623AI can acquire broad area coverage, running image classification models to determine which items customers select, and automatically processing payment via the customer's registered account once they leave the store.

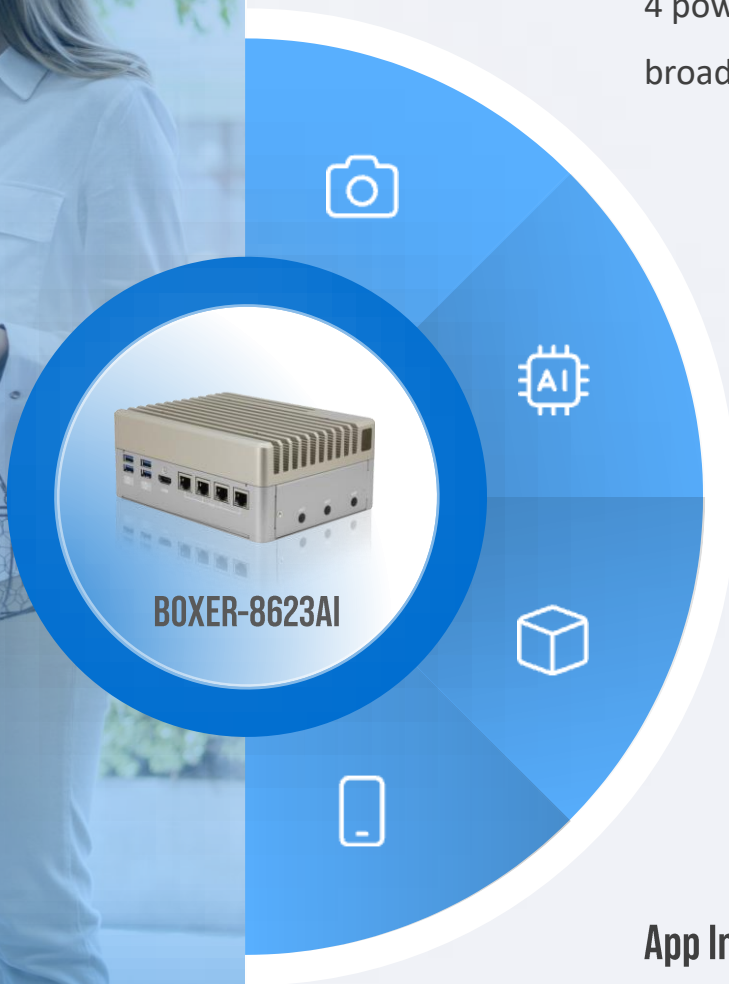


**BOXER-8623AI**





# Benefits



## PoE Cameras

4 power-efficient cameras provide broad coverage for product tracking.

## NVIDIA Jetson Orin

Up to 40 TOPS of AI performance for accurate product classification.

## Compact Design

180mm x 136mm x 75mm size with flexible 12-24V power input.

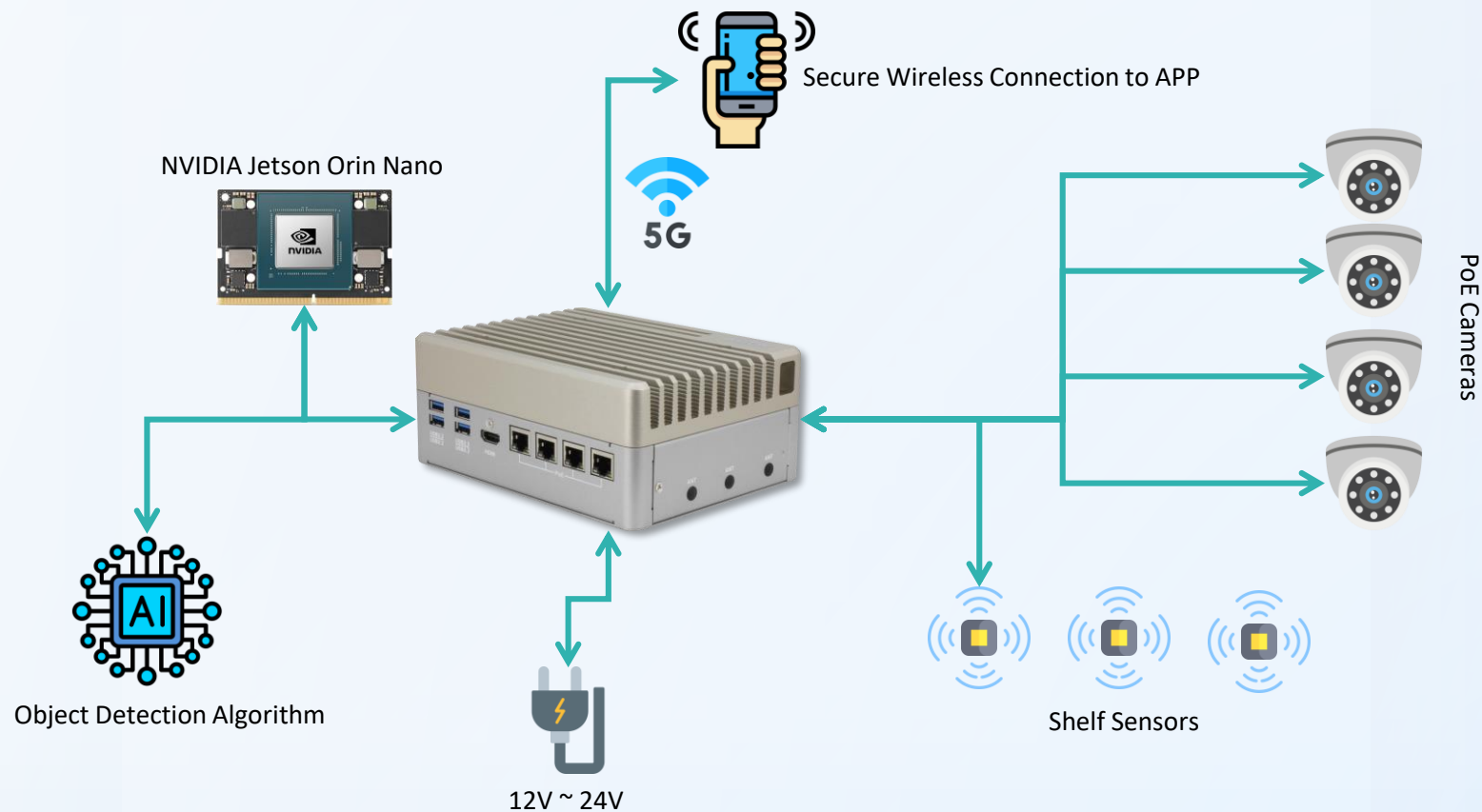
## App Integration

Secure wireless connection processes payments via customer accounts.

# Diagram

## Frictionless Shopping

Customers enjoy a seamless, checkout-free experience powered by AI and edge computing. Cameras and shelf sensors detect selected items, while payments are automatically processed via mobile app—enabling real-time transactions and shorter wait times.





# DOOH

## Digital Out-of-Home Advertising

Using the UP Squared Pro 710H Edge, the retailer can gather customer insights such as purchasing preferences to dynamically tailor the advertising shown to similar customers via digital displays within the store, increasing the precision of their in-store marketing and allowing them to provide a more personalized experience to shoppers.



UP Squared Pro 710H Edge





# Benefits

## High-Speed Connectivity

USB 3.2 Gen 2 x 2 and 2.5GbE x 2 enable fast and stable camera installation.

## Edge AI Acceleration

Integrated Hailo-8™ processor delivers efficient on-device AI processing.

## Expandable AI Power

M.2 M-Key slot for an additional AI acceleration module

## Crisp Visual Output

HDMI 2.0b or DP 1.2 port supports high-resolution display connections.

## Powerful Performance

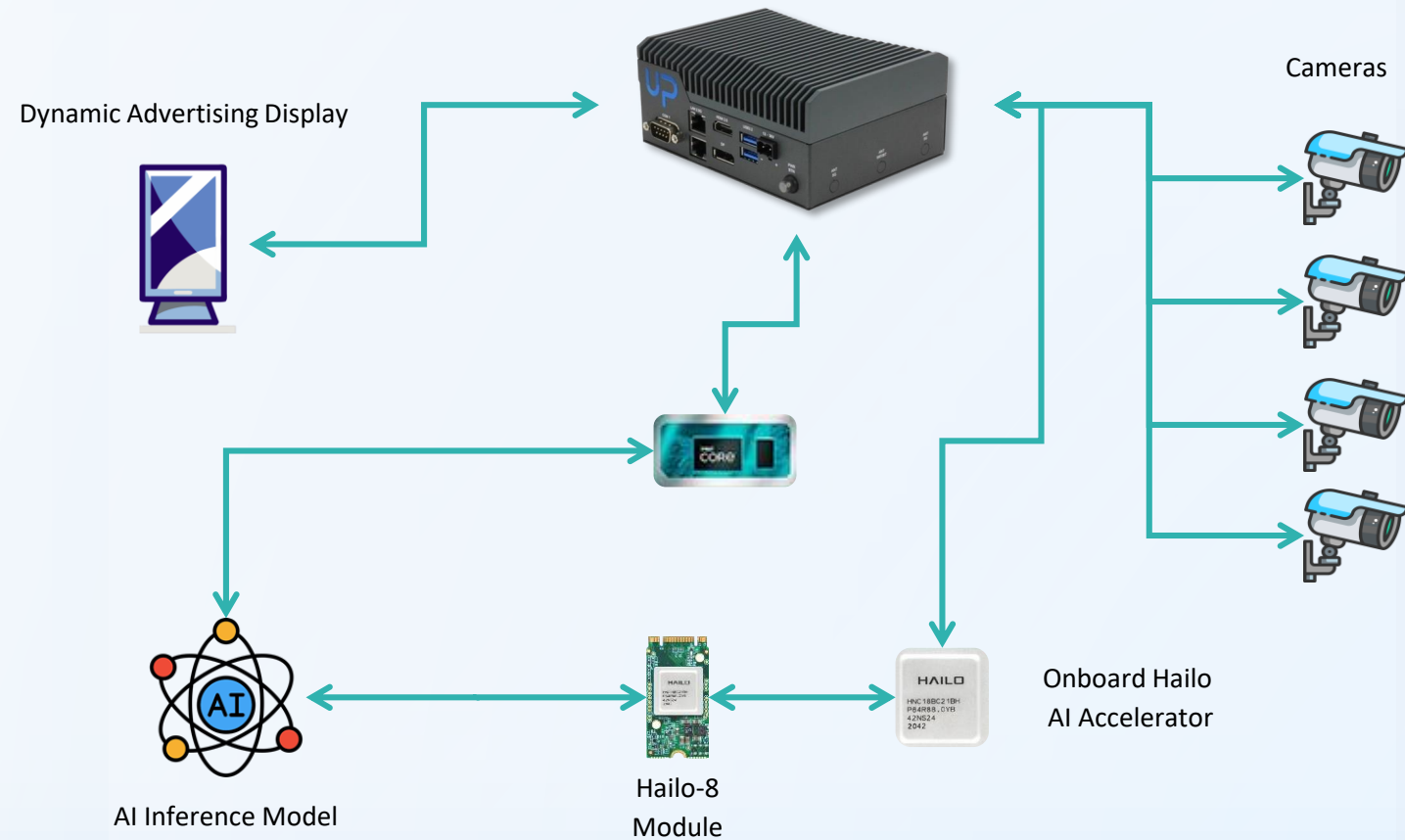
Intel® Core™ i3-N305 processor and high-bandwidth LPDDR5 system memory



# Diagram

DOOH

Gather purchasing preferences to tailor advertising to similar customers through in-store digital displays, dynamically adjusting promotional content in real time to enhance the precision and effectiveness of personalized marketing.



# Inventory Tracking

Powered by the BOXER-8224AI, the application is deployed in self-service retail units such as vending machines, refrigerators, and kiosks and leverages computer vision to track inventory and transactions, turning them into interactive, automated vending and storage solutions. This enables product owners to receive real-time inventory updates, while customers can utilize APP-based frictionless purchasing.



**BOXER-8224AI**





# Benefits

## Ultra-Compact Size

Extremely small and lightweight form factor for space-efficiency



## Energy-Efficient AI

NVIDIA® Jetson Nano™ for low-power product monitoring inference models



## Flexible USB Expansion

Multiple USB pin wafers offer versatile peripheral connections.



## MIPI Support

Compatible with MIPI cameras for high-quality visual input.



## Wide Operating Range

Functions reliably in -20°C to 60°C temperature-controlled environments.



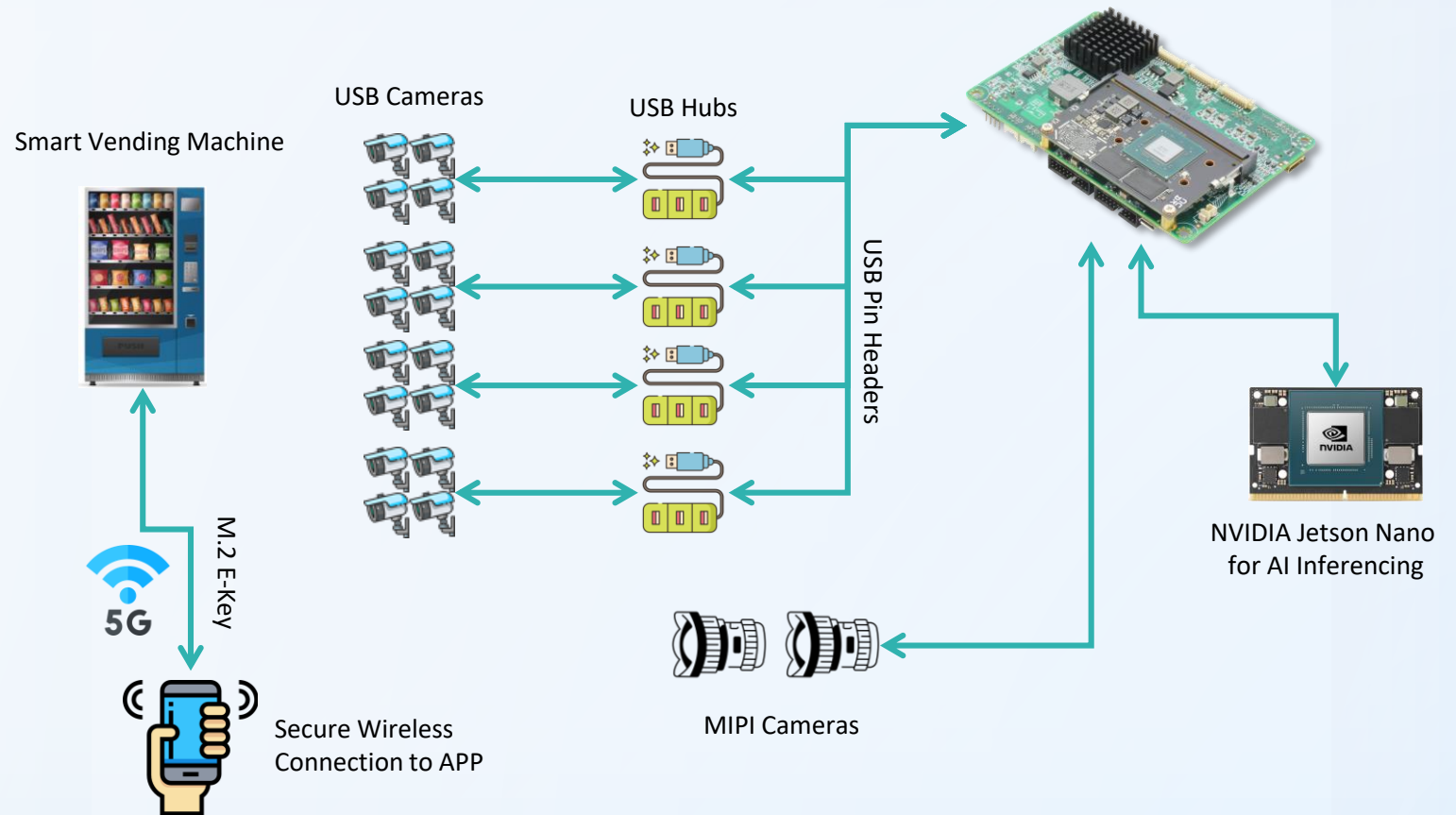
## Inventory Real-time Updates

Product owners receive instant inventory status notifications.

# Diagram

## Inventory Tracking

AI and computer vision technologies enable real-time inventory tracking in vending units and kiosks. Items are identified and updated instantly, while mobile integration allows for frictionless, app-based purchasing.





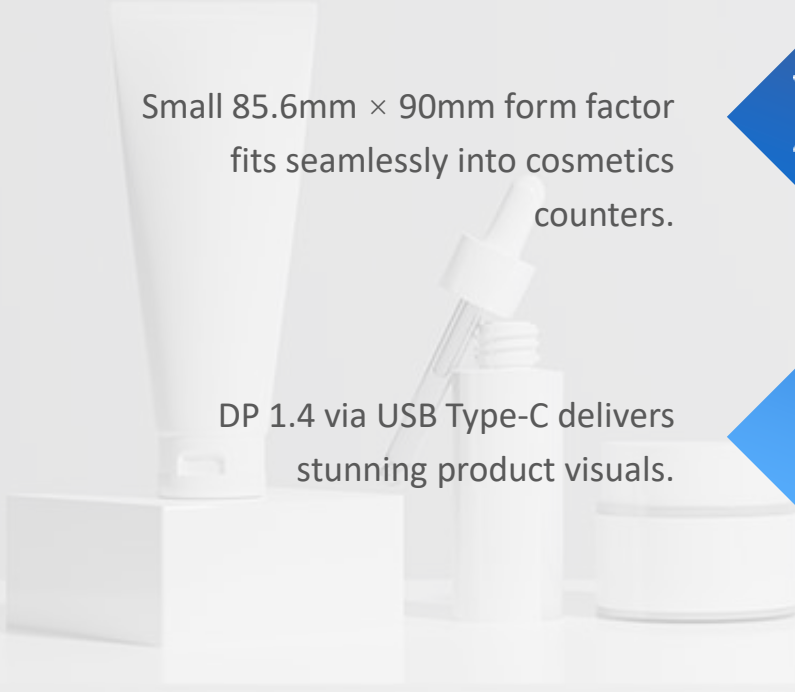
# Interactive Product Displays

This solution was integrated into high-end cosmetics counters to display full product information for customers based on the product sample placed on it. Running an object recognition model developed with the Intel® distribution of OpenVINO™ toolkit, the UP Squared i12 was able to recognize the product placed on the counter, and show tailored product displays onscreen for customers to see.



UP Squared i12

# Benefits



Small 85.6mm × 90mm form factor fits seamlessly into cosmetics counters.

DP 1.4 via USB Type-C delivers stunning product visuals.



**Compact Design**

**High-Quality Imaging**



MIPI camera support enables precise product recognition.



**8K Resolution**

**AI Powered**



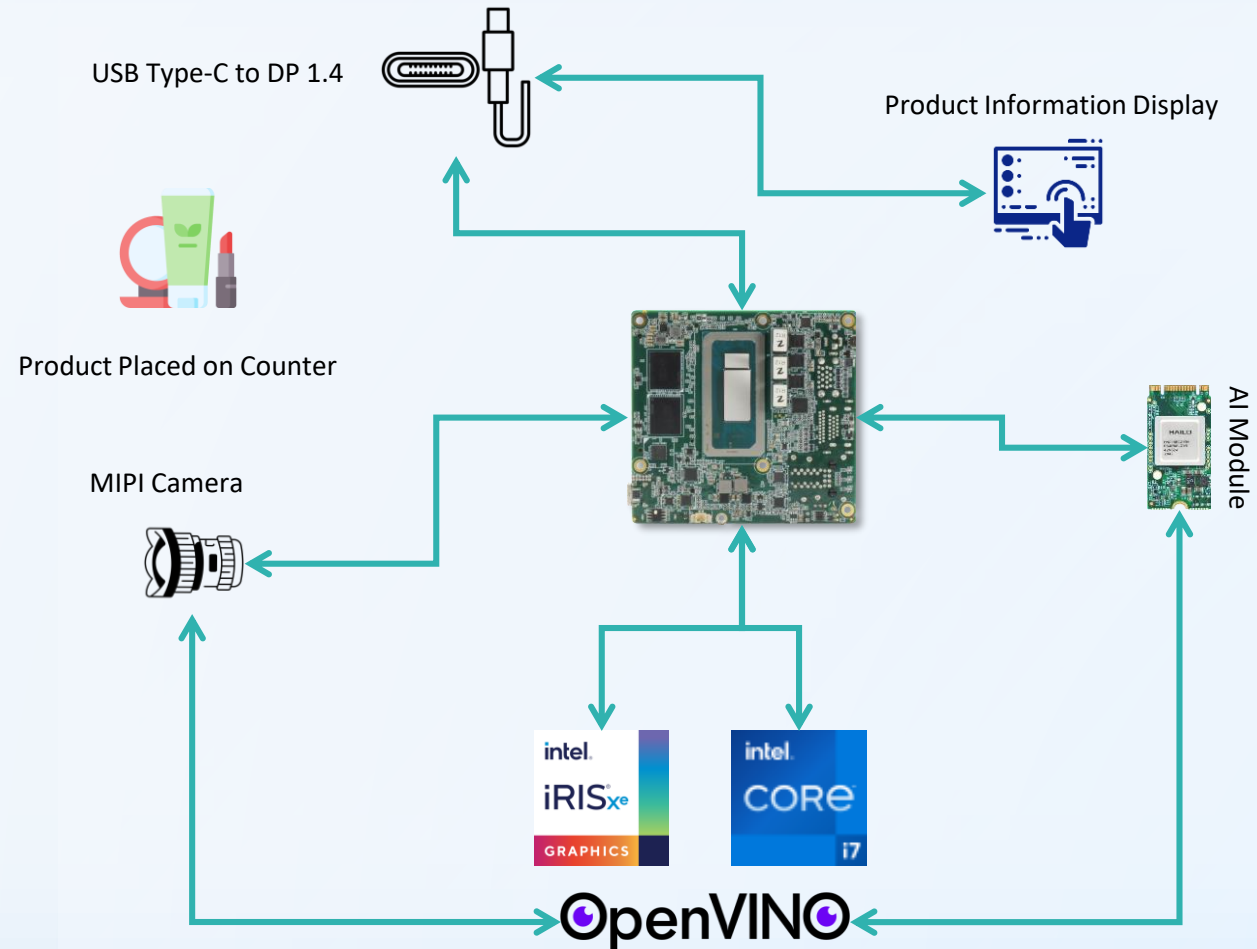
PCIe Gen 4.0 supports advanced object detection with OpenVINO toolkit.



# Diagram

## Interactive Product Displays

By recognizing products placed on the counter, AI-powered displays deliver tailored content to shoppers. This solution enhances customer engagement and provides instant access to detailed product information.



# POS

## Point-of-Sale System

Point-of-Sale (POS) System that can handle everything from daily transactions to inventory management and customer engagement, using the ACP-2076 7" WSVGA Multi Touch Panel PC as a fully integrated solution. The application is able to calculate the price of scanned items, offer customer interaction via high-resolution display, and process multiple payment methods securely.



ACP-2076





# Benefits

## Engaging & Versatile Display

7" multi-touch screen with multiple mounting options for flexible, engaging use.



## Fanless Design

Quiet and designed to limit dust accumulation.



## Energy Efficient

Low power consumption helps reduce operational costs.



## Expandable Connectivity

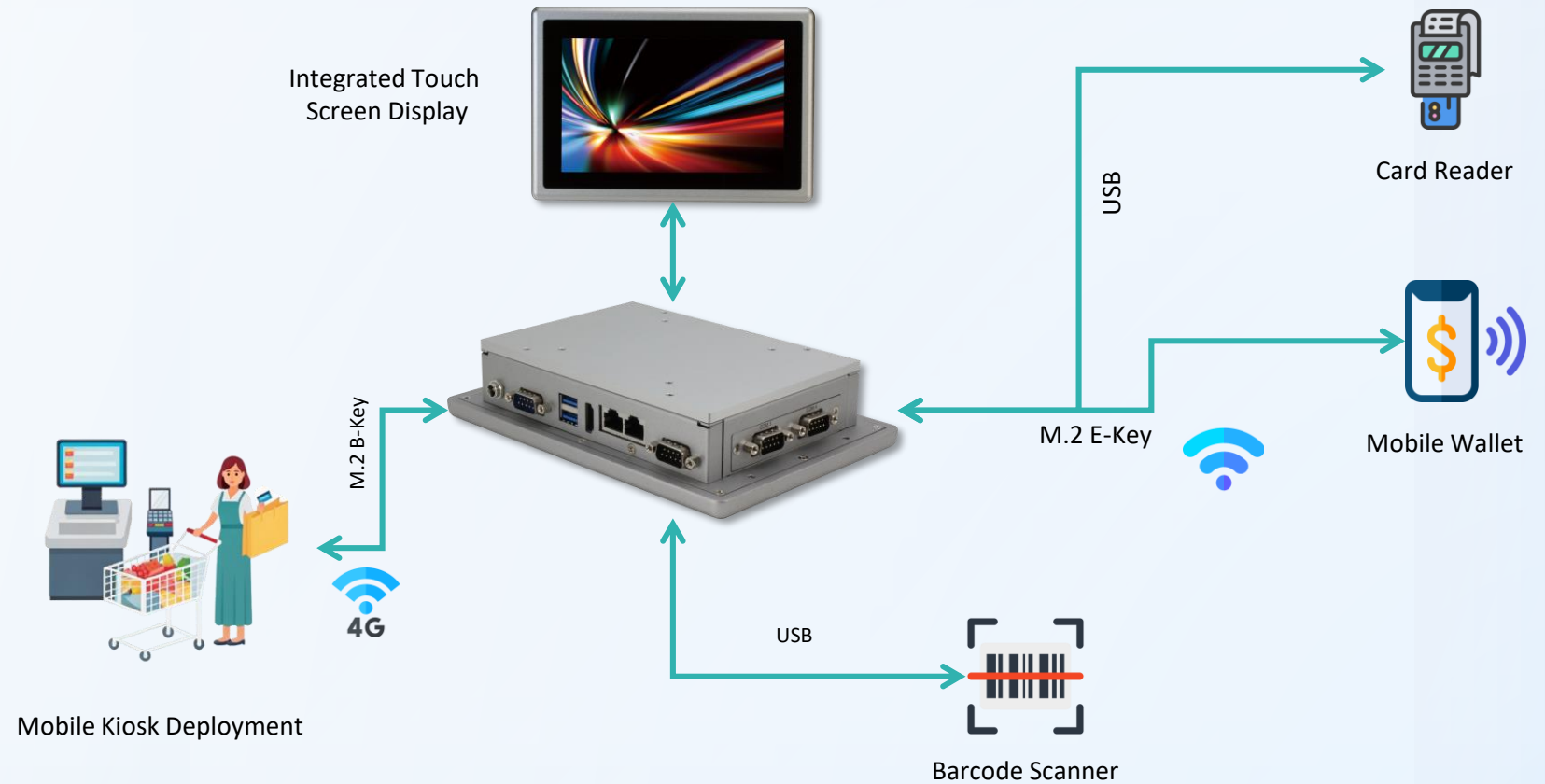
M.2 slots support wireless modules and payment peripherals for flexible expansion.



# Diagram

POS

A fully integrated POS system streamlines transactions, inventory updates, and customer engagement. With touch display and wireless payment support, it enables smooth, secure, and efficient checkout experiences.



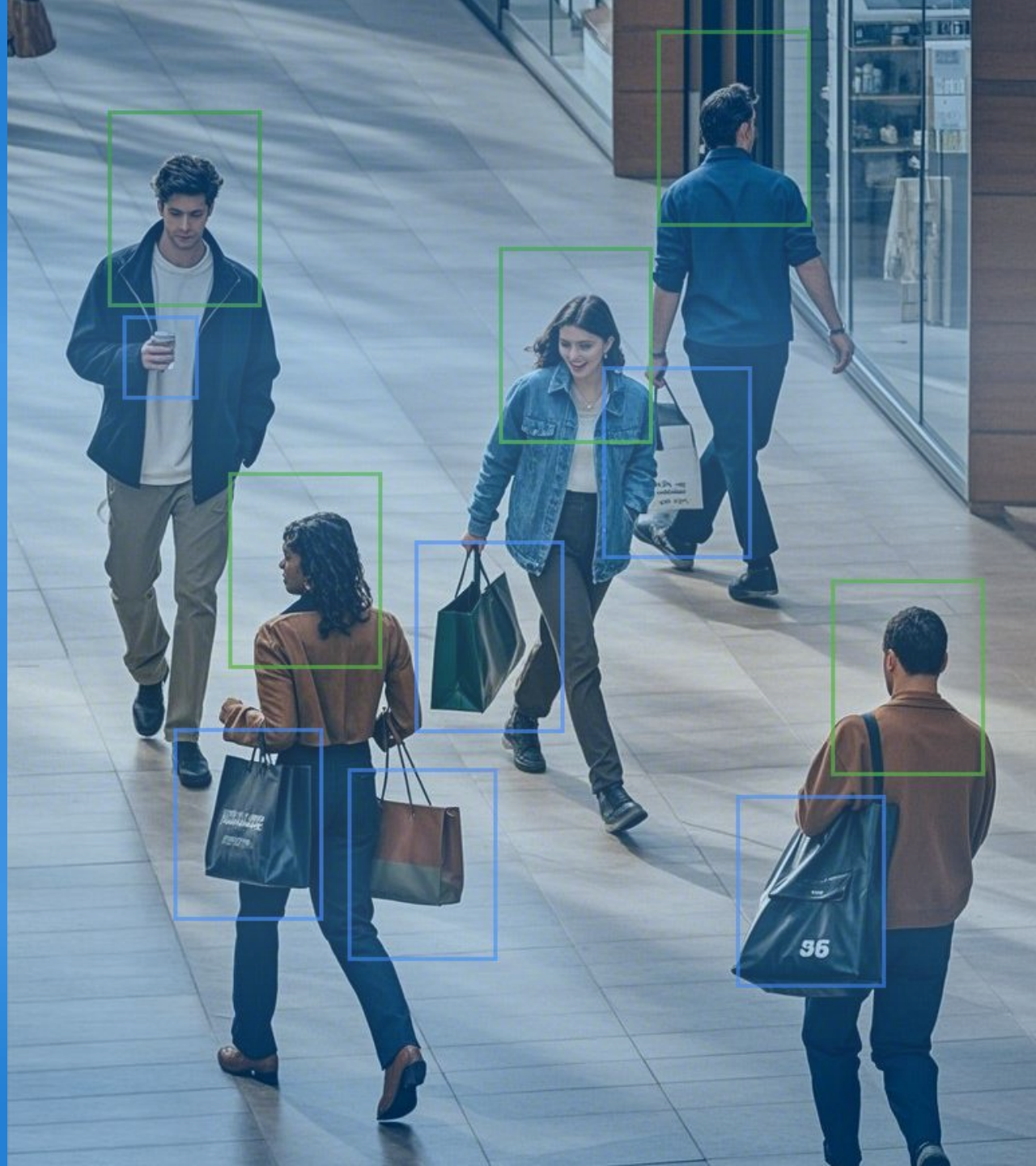


# Loss Prevention System

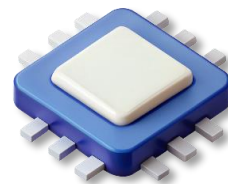
Utilizing the GENESYSM-RAP6's strong processing, high expandability, and broad peripheral support, this application is an efficient and scalable solution for in-store surveillance, customer behavior monitoring, and theft prevention. Through the real-time analysis of in-store behavior received from cameras and sensors, the system can provide alerts, trigger security locks, and provide real-time video feed to central control rooms.



GENESYSM-RAP6



# Benefits



## Enhanced Performance

13th Generation Intel® Core™ CPU with Intel® Iris® Xe Graphics



## Rich I/O Support

USB, serial, GPIO, and LAN interfaces for camera, sensor, RFID, and other peripheral devices



## Flexible Expansion

AI, storage, and wireless expansion support



## Wide Power Range

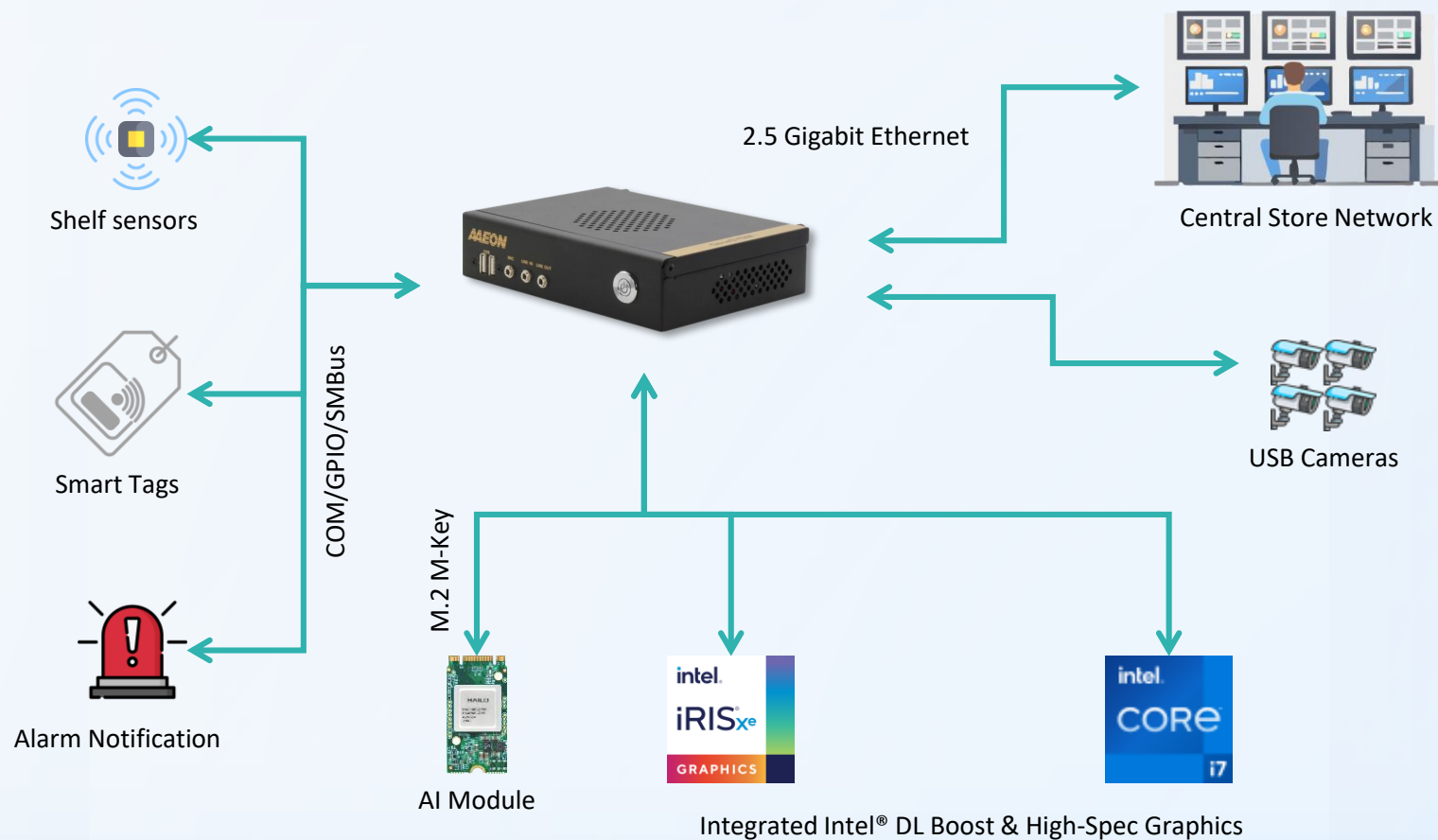
9V~36V power input for flexible deployment



# Diagram

## Loss Prevention System

Using AI, sensors, and camera integration, the system monitors in-store activity in real time. It helps detect suspicious behavior, triggers alerts, and supports theft prevention across retail environments.





# Take the Next Step

[www.aaeon.com](http://www.aaeon.com)



Contact your AAEON representative to explore how our smart retail solutions can support your business goals