

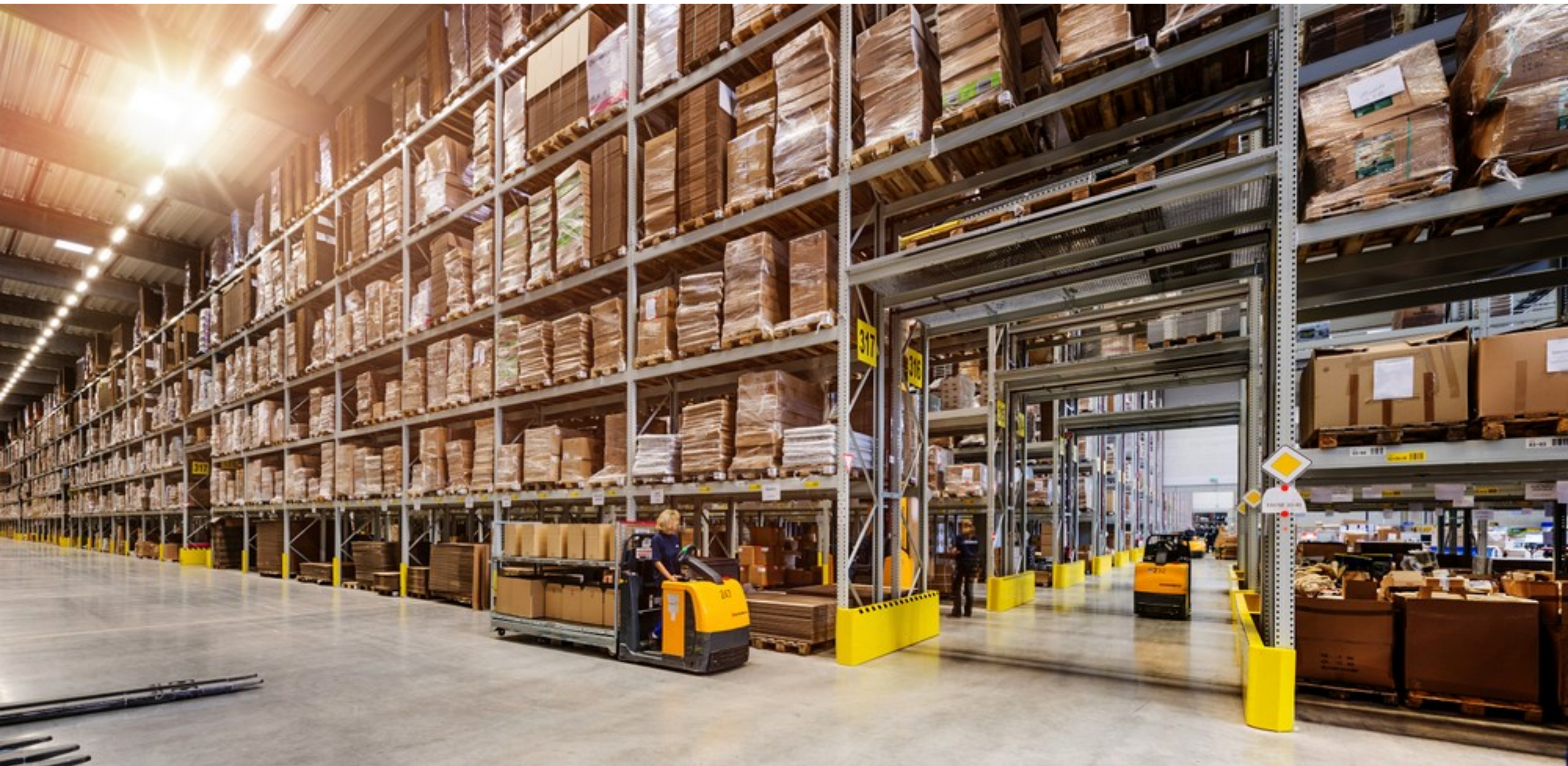
***JHCTECH***

# Embedded Computing Based Automation Solutions for Warehouse Logistics

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# WAREHOUSING LOGISTICS MARKET INSIGHTS







# Global Market Outlook

**€300** billion a year on warehousing, managed either in-house or through third-party logistics providers.

More than **85 percent** of that expenditure is for operating costs: the labor, space, and equipment required to receive, sort, store, pick, pack, and finally dispatch products.

**Amazon with 200,000 mobile robots**

80% of warehouses are “still manually operated with no supporting automation.”  
(DHL)

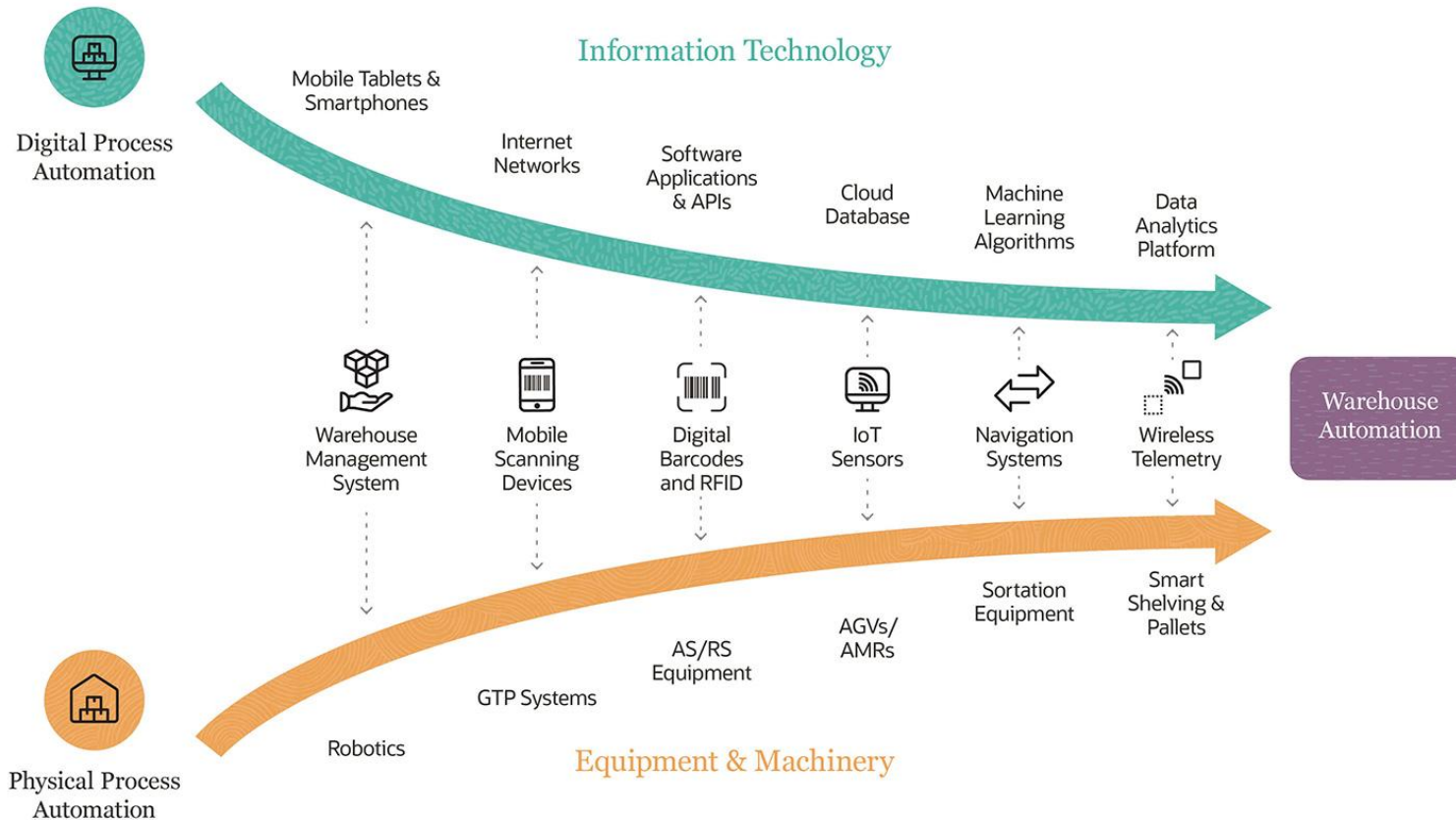
Raymond Limited (an Indian textile major) will replace 10,000 workers for automation

45% of all manufacturing will be performed by robotic technology.

94% of food packaging operations are using robotics already (USA)

Note: <https://www.mckinsey.com/business-functions/operations/our-insights/warehouses-the-boxes-worth-300-billion>

## Adoption flow



- Goods to Person (GTP)
- Automated Storage and Retrieval Systems (AS/RS)
- Sensing
- Robotics/Automatic Guided Vehicles (AGV/AMR)
- Identification and Traceability
- Safety
- Automation control & IIoT
- Vision and Inspection (Automated Sortation Systems)
- Picking Tech (Pick-to-Light /Put-to-Light Systems)

# Expenditure range

## Level 1 Conventional Picking with Process Improvements



- Implement new WMS
- RF Picking
- Voice Picking
- Labour Management

\$ 500k - \$1M

## Level 2 Mechanised Solutions



- Conveyor/Pick Modules
- Auto Stretch wrap & label
- Layer Picking

\$ 2M - \$ 5M

## Level 3 Semi-Automated Solutions



- AS/RS high density Storage
- Conveyor
- WCS/WMS Software

\$ 10M - \$ 15M

## Level 4 Fully-Automated Solutions



- AS/RS
- Conveyor
- Automated Layer picking and case palletising
- WCS/WMS Software

\$ 40+ Million

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**LOW****HIGH**

# Technical Challenges

Cost Efficiency

Software glitches

**Asos** [suffered a loss of about \\$25 million](#) in 2019 due to a failure by a new Automated Storage and Retrieval System (ASRS)

Customisation (no one size fits all)

High Performance

**Rent the Runway** [experienced a software glitch](#) that failed to account for outgoing orders leaving the inventory, meaning that customers could potentially make orders the company could not fulfill. The result was a reputation-damaging freeze on new orders for several days.

Wide range of PCI support

Mechanical challenges

Redundancy

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## JHCTECH Product Features Introduction

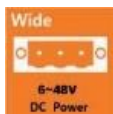


## BRAV 7302

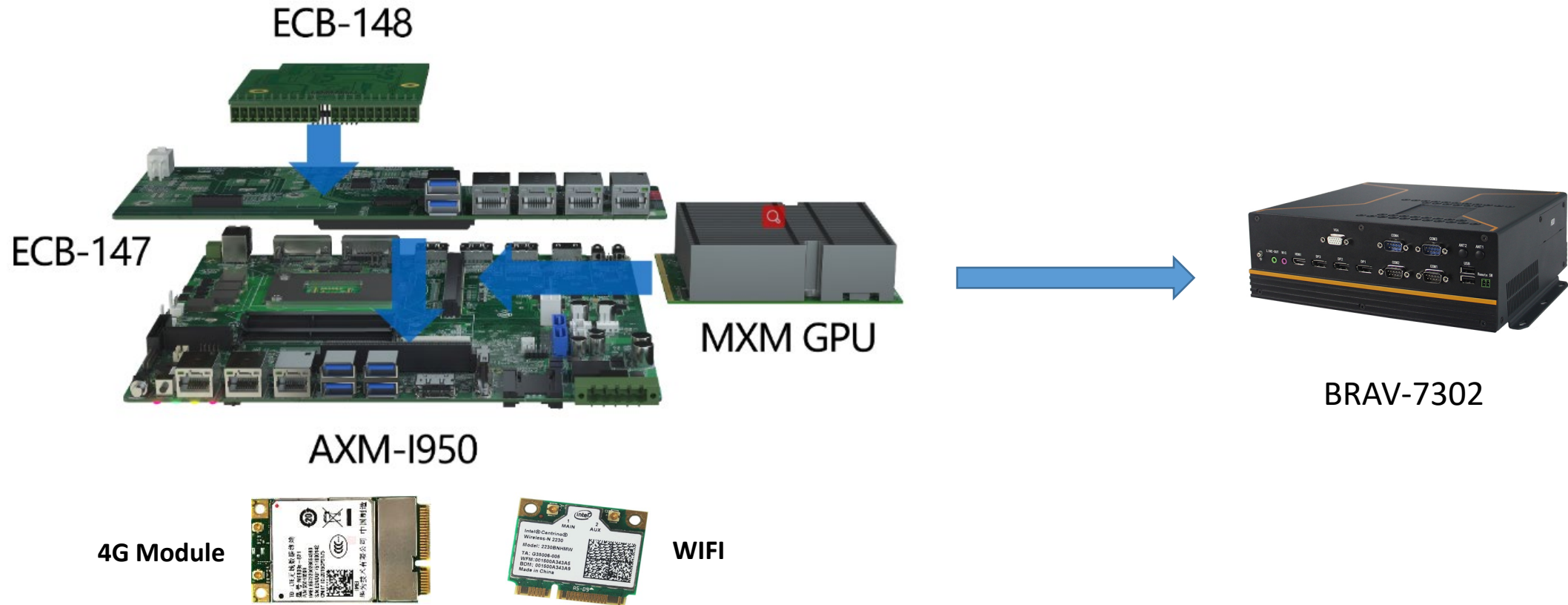


## Key Specification

- CPU and GPU fan cooling, independent air passage
- Intel® Kabylake-S/Skylake-S Core I3/I5/I7 CPU
- 2400/2133MHz SODIMM, Up to 32GB
- 1\*MXM 3.1 socket, support NVIDIA/AMD GPU Intel
- 1\*DP+1\*HDMI+1\*VGA, GPU 3\*DP+1\*HDMI
- 3/7\*LAN, 6\*USB3.0, 3\*USB2.0, 4\*COM,16DIO,Audio
- 1\*Mini PCIe(PCle+USB),1\*M.2 2242 B-Key
- 1\*mSATA, 1/2\*2.5" SATA, support Raid0,1 Support Intel® iVpro and TPM2.0
- DC 6~48V Wide Power Input



# Skylake/Kabylake-S+MXM GPU(1050Ti,1060,1070)



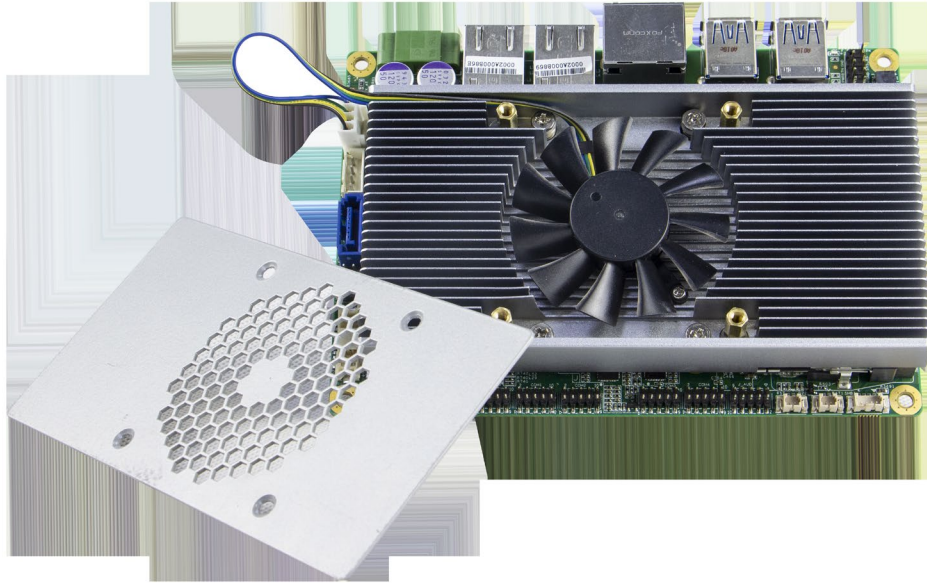
# ECM-I910



## Key Specification

- Intel 8th Whiskey lake U Core™ i3/i5/i7/Celeron
- 2-Ch DDR4 2400MHz SODIMM, up to 32GB
- 1\*HDMI, 1\*eDP, 1\*DP, Three independent 4K display
- 2\*LAN, Gig. Ethernet, 10/100/1000Mbps,
- 4\*USB3.0, 2\*USB2.0, 4\*COM, 1\*8-bit GPIO
- 1\*M.2 2230 E-key, 1\*Mini PCIe, can be set as mSATA by BIOS, SIM slot support 4G LTE/Wifi/BT
- 1\*SATA3.0 HDD/SSD, 1\*mSATA optional
- TPM2.0 optional, DC 12V, 9~36V wide power optional

## ECM-I910 -- Motherboard With Fan

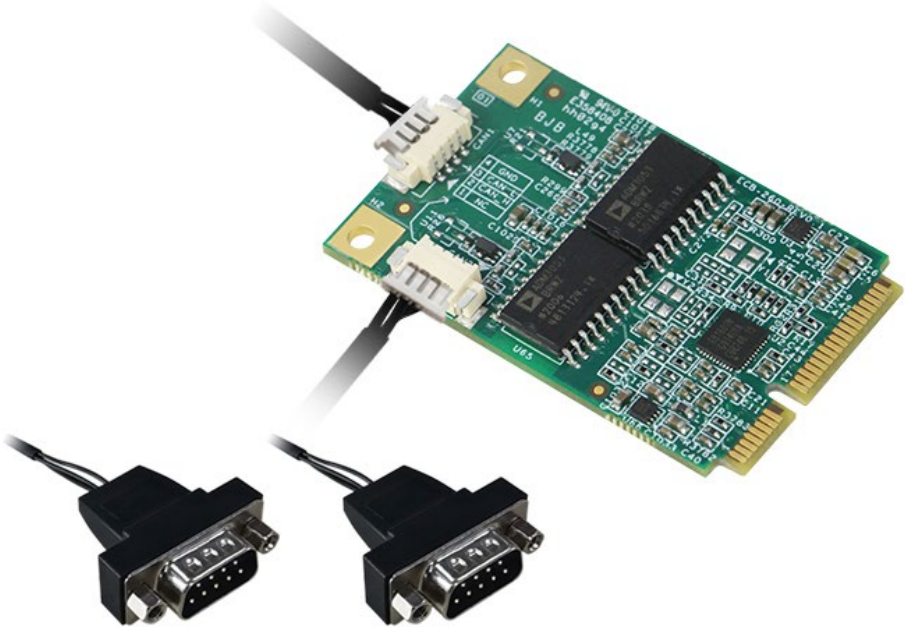




## ECM-I910 -- Motherboard Without Fan



## ECB-260



### Key Specification

- CAN 2.0B compatible with 2.0A, complies with ISO/DIS 11898-1/2/3 standard
- Supports programmable baud rate Settings 10Kbps~1000Kbps
- The maximum transmit/receive frame flow of a single channel can reach 7000 frames /s
- Two CAN ports, each CAN channel independent 2500VDC photoelectric isolation
- 120Ω load resistance on board
- The driver supports Windows and Linux operating systems
- Support VC, VB, C#, Labview and other secondary development environment
- Supports loading of DBC files, CANopen protocol, and J1939 protocol
- Supports a wide temperature range of -40 °C to 85°C

## PADR-M101



## Key Specification

- The 4-wire speed control fan dissipates heat in mute mode
- Intel® 8th. Core i3/i5/i7/Celeron U CPU
- 2-Ch DDR4 2400MHz SODIMM, up to 32GB
- 1\*HDMI,1\*DP,Supports dual 4K display
- 1\*Line out&Mic,4\*USB3.0
- 2\* GbE LAN,3/4\*COM , 8-bit DIO
- 1\*M.2,2230 E-Key, 1\*Mini-PCle with SIM slot.mSATA optional.1\*2.5"SATA
- DC 12V,9~36V wide power optional

# PADR-M101



Industrial  
Automation



Wisdom Medical



Smart Factory



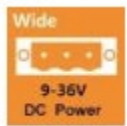
Intelligent Security



Intelligent Supply



## ALAD-K1520T



## Key Specification

- Aluminum die-casting chassis, fanless design
- 15.0" LED TFT LCD, capacitive/resistive touch
- Intel® Skylake-U/Kabylake-U CPU
- 1\*DDR4 2133 SODIMM, Max 16GB
- 1\*Mini PCIe (PCIe+USB), Opt.1\*32-bit PCI/PCIe X1
- 4\*COM, 2\*LAN, 4\*USB3.0, 1\*USB2.0, 1\*Line out
- 2.5" HDD Bay, 1\*mSATA
- ATX button&remote button
- Support TPM2.0 & iVpro
- DC 9~36V power input

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## JHCTECH Solutions for Cargo Handling in Warehouse Logistics

## DWS(Dimensioning Weighting Scanning)

The system uses a high-resolution visual reader and a linear laser stereo camera as front-end visual information collection, and a high-performance industrial computer BRAV-7302 as the center, supporting a dynamic weighing module, to complete the collection and fusion of single bar code information, weight, volume and other basic data of the mail. The whole collection and fusion process, accurate data, with local storage function, can achieve clear surface single retention, saving upstream and downstream communication costs. DWS system is suitable for the port of arrival and internal sorting in the transfer center and distribution center. It can realize the functions of fast entry, rough sorting , which can save labor and improve efficiency and the integrity of the information of express item



# BRAV-7302 for DWS System in Warehouse Logistics



## Front-end visual information collection equipment:

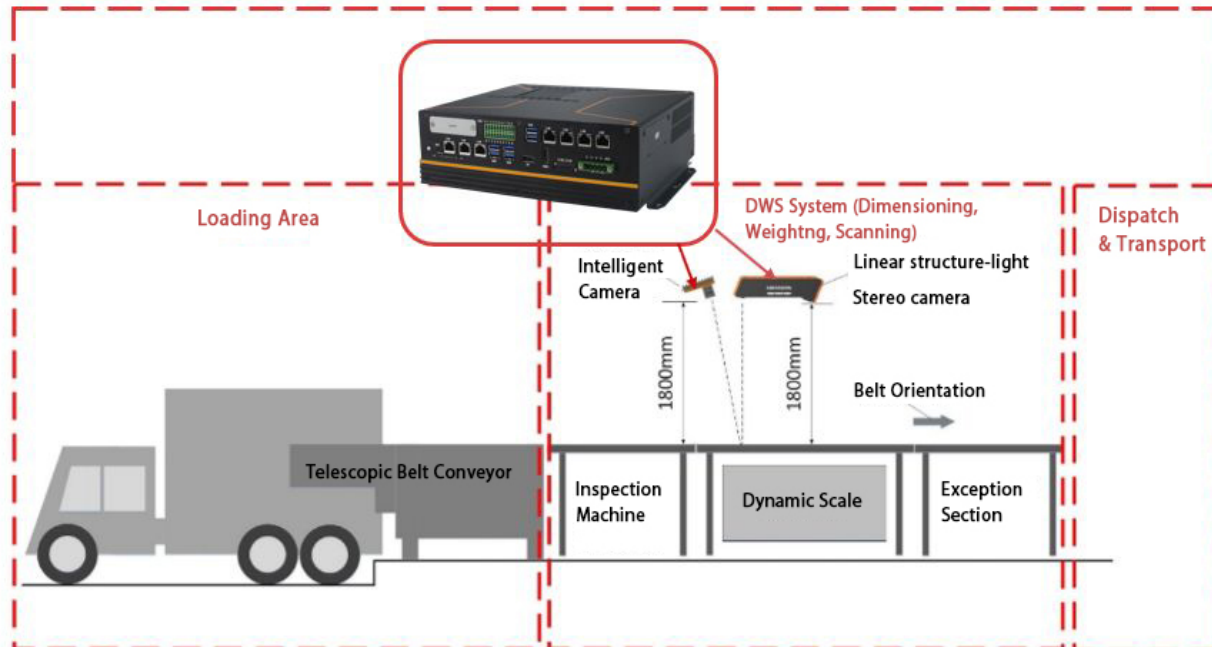
High resolution visual reader and linear laser stereo camera, dynamic weighing module

## Analysis in Inspection machine:

When parcels pass the inspection machine, the BRAV-7302 can analyze and classify the collected images.

## Task Management:

The BRAV-7302 receives the data from various cameras, making judgement and output signal to help classify different kinds of parcels.





## System features:

### High efficiency:

Brav-7302 high performance industrial control host to do task management, judging the data received from various cameras, and output the corresponding action signal, the process of the belt through the inspection machine, the host can accurately analyze the picture of goods. X86 smart camera and stereo camera processing time <300ms, fast fusion of weighing data, overall flow up to 2400 pieces/hour

### Comprehensive:

It can cover code 128, Code 39, DM, QR and other code systems applied in express logistics industry;

### Flexibility:

Multiple combinations of X86 intelligent cameras can adapt to different conveying environments; Multi-specification dynamic electronic platform scales are optional for express, express and logistics applications.

### Accuracy:

High resolution X86 intelligent camera combined with dynamic recognition algorithm to ensure the code reading accuracy of conventional packages  $\geq 99\%$ ; The line laser stereo camera ensures the accurate measurement of the outer contour volume of the all-weather package, with the average error  $\leq \pm 5\text{mm}$ .



## AGV for Warehouse Logistics

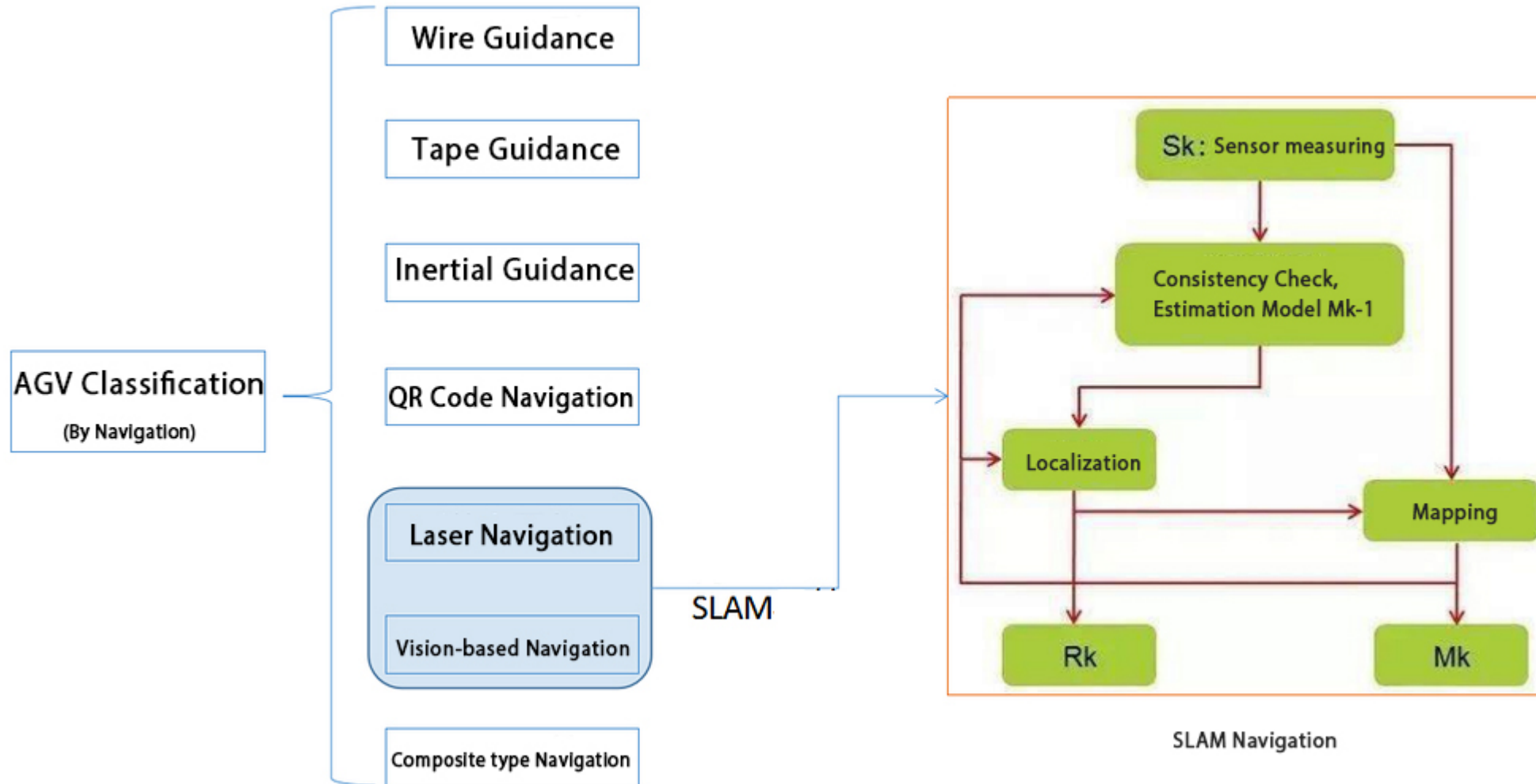


Under the computer monitoring, according to the path planning and operation requirements, accurately walk and dock to the designated location, complete a series of operation functions

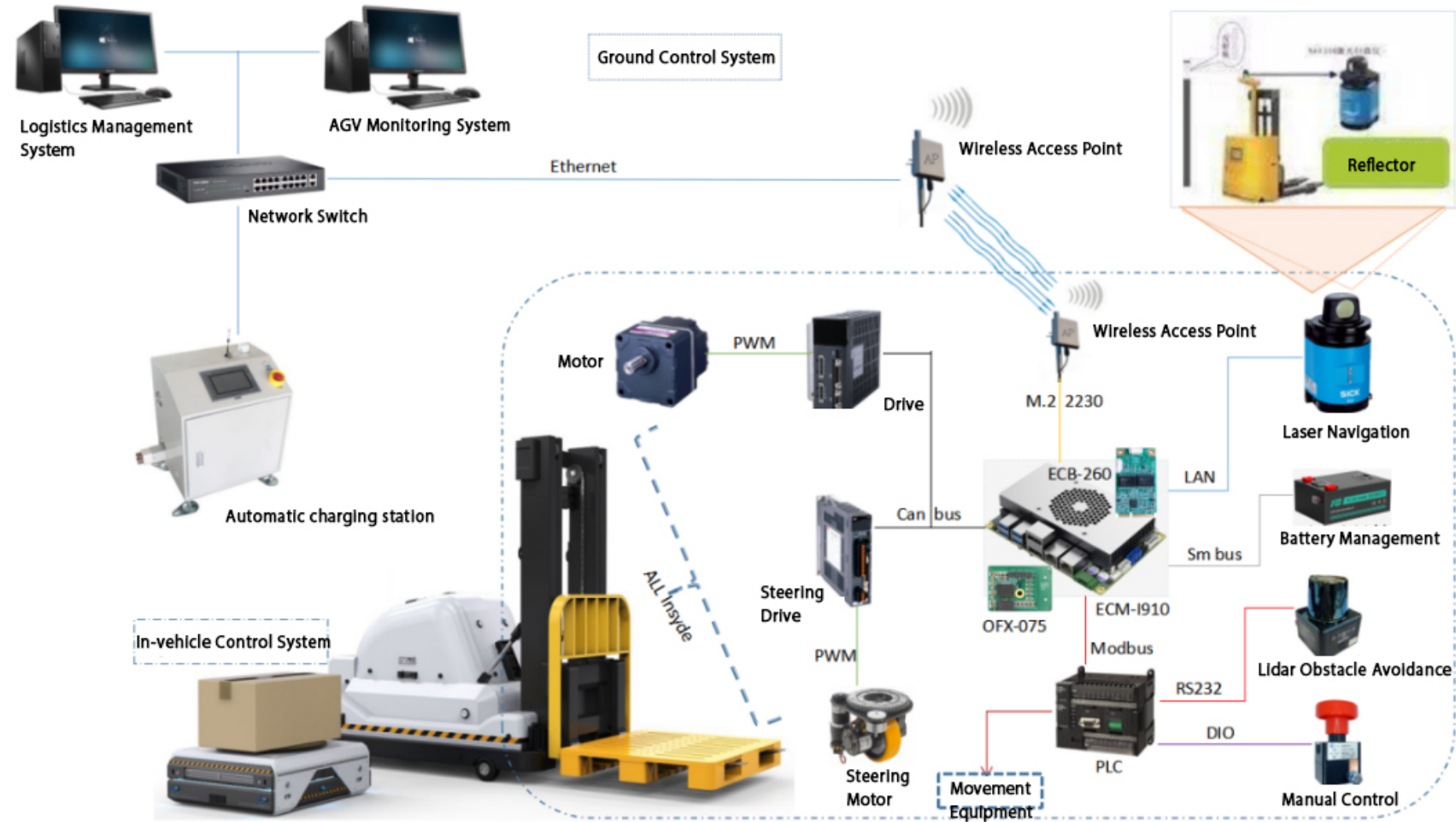
By combining with WMS and MES, AGV can realize automatic handling management and flexible dynamic distribution of goods space.

Selection from "people to people" to "goods to people" to improve work efficiency, reduce labor intensity

# AGV Classification



The AGV solution of JHCTECH intelligent logistics warehousing is based on X86 architecture, using Intel Gen. 8th Whiskeylake-U SoC and low power consumption onboard CPU. It is designed as a 3.5-inch single-board computer . DC 9-36V wide voltage power supply.

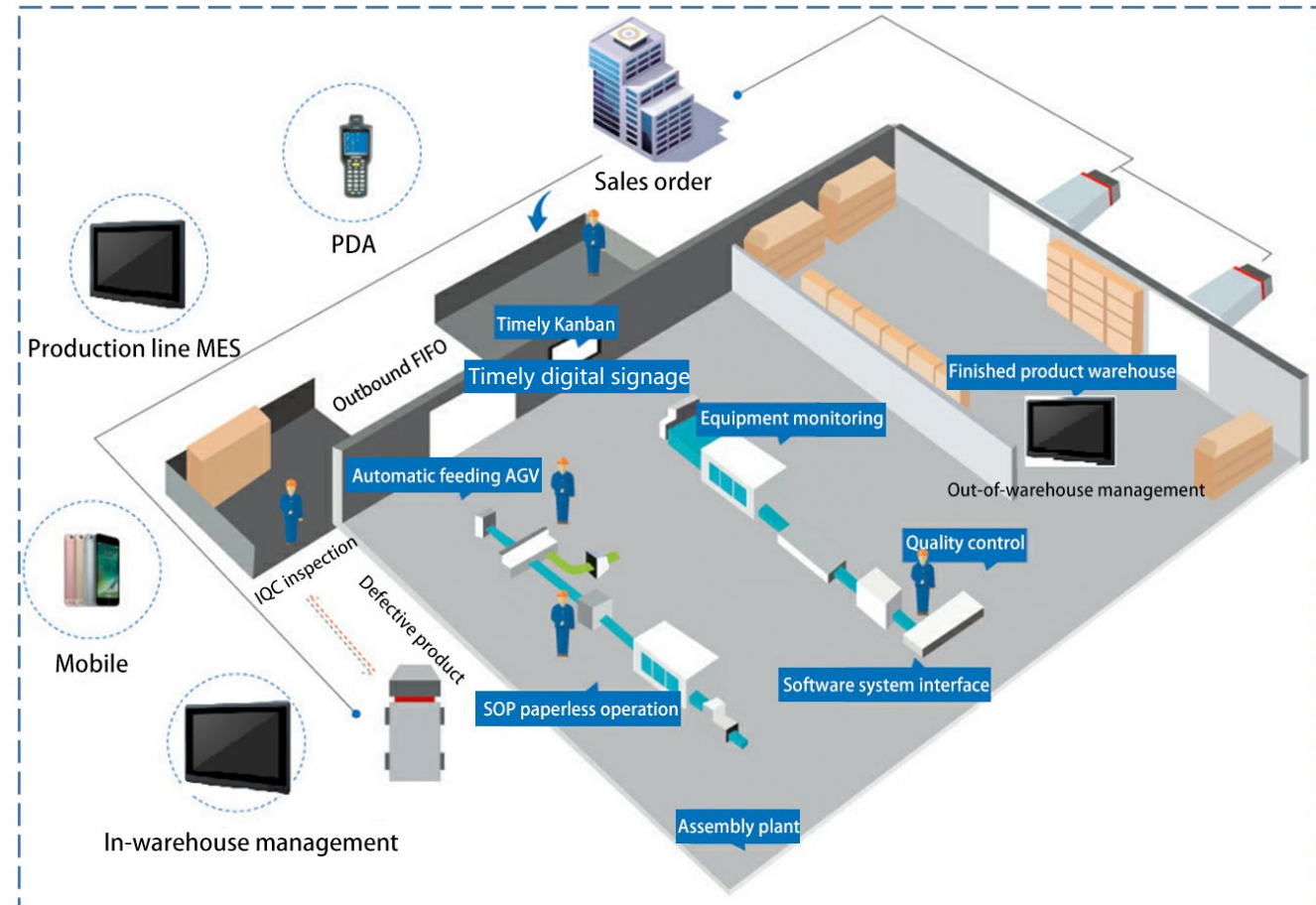




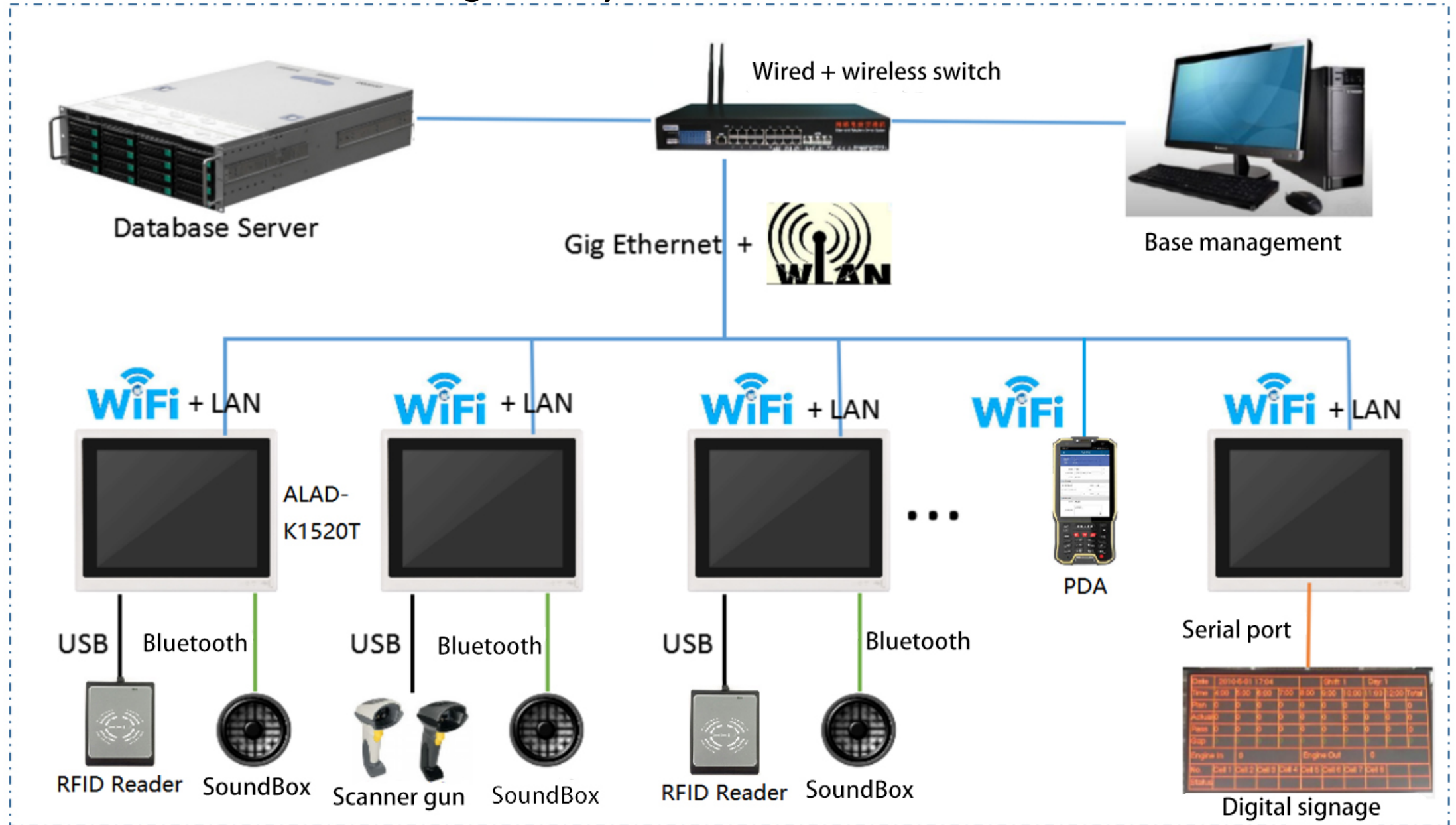
# ALAD Serials For Warehouse Management System

- ERP data interface
- Basic information maintenance, bar code printing
- IQC inspection, material inbound, outbound and allocation
- Side warehouse material management (optional)
- Finished products warehousing and shipment
- Inventory checking, warning and tracking

## Warehouse Management System



## ALAD Panel PC For Warehouse Management System



Stay in Touch



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