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Global Sales Playbook for Intel®-Based JHCTECH Smart Edge Platforms



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1. Overview

Moving computing power to the edge near data sources to enable local data processing, on-premises intelligent decision-making and cloud-edge collaborative management has become a mainstream choice for the global upgrading of smart transportation and smart industry infrastructure. JHCTECH Smart Edge Industrial Control Platform based on Intel® architecture is developed by combining the advantages of Intel® architecture in chip performance, stability and scalability with JHCTECH's long-standing expertise in the design and manufacturing of intelligent IoT systems. By reviewing industry trends, analyzing product features, and sharing real-world applications, this Guide aims to leverage global market opportunities for smart edge computing to promote the international sales of high-performance, high-reliability industrial control platforms.

2. Industry Background and Global Market Opportunities

As global industries move toward digitalization and intelligence, edge computing has become a key pillar of the next-generation information technology architecture. Data shows that the global smart transportation market is expanding rapidly, with projected growth from USD 180.86 billion in 2025 to USD 210.77 billion in 2026, representing a compound annual growth rate (CAGR) of 16.5%[1]. In the global manufacturing sector, reports indicate that the global industrial edge market is expected to grow from USD 21.19 billion in 2025 to USD 44.73 billion by 2030, at a CAGR of 16.1%[2].

Below are key concerns in international markets on smart edge computing platforms, which create vast opportunities for the application of smart edge industrial control platforms:

Real-time response and low-latency requirements

Scenarios such as traffic control, smart manufacturing production lines, autonomous driving systems, and energy management impose stringent requirements for millisecond-level data processing.

Compliance and security for local data processing

An increasing number of countries and regions are tightening regulations on cross-border data transfers, driving enterprises to deploy edge computing capabilities locally.

Industrial-grade stability and reliability

Harsh environments such as overseas factories, outdoor depots, in-vehicle systems, and mining sites require equipment to feature wide temperature tolerance, dustproofing, shock resistance, and electromagnetic interference (EMI) resistance.

Moving computing power to the edge and cloud-edge collaboration

Enterprises seek to reduce cloud bandwidth pressure and construction costs while retaining the flexibility of unified cloud management.

[1] Data sourced from: https://www.researchandmarkets.com/reports/5766786/smart-transportation-market-report#rela0-5953057

[2] Data sourced from: https://finbets.websol.barchart.com/?module=topNews&storyID=31050719&symbol=&selected=news

3. Intel® Architecture-based JHCTECH Smart Edge Industrial Control Platform

3.1 Platform Overview

JHCTECH Smart Edge Industrial Control Platform is a next-generation industrial control system architecture that integrates edge computing, real-time industrial control and AI inference. Designed for scenarios such as smart transportation, smart manufacturing, and energy management, it deeply integrates the deterministic control capabilities of traditional PLCs and IPCs with low-latency data processing and local AI inference at the edge. The platform typically runs lightweight virtualization or containerized environments, supports multiple industrial protocols, and can collaborate with cloud-based IoT platforms or industrial brains. It features millisecond-level response, local data processing, industrial-grade stability, and reliability. By moving computing power to the device side, the platform alleviates cloud communication bandwidth and latency pressures while enhancing autonomous decision-making on production lines or infrastructure, becoming a core carrier of "edge-cloud-device" collaborative control.

JHCTECH Smart Edge Industrial Control Platform fully adopts Intel® chips and technologies, including Intel® Core™ processor family, Intel® Core™ Ultra processor family, Intel® vPro® technology, and the OpenVINO™ toolkit. It delivers powerful computing, low power, scalable performance, security, reliability, and remote manageability. Key technical components include:

- **Intel® Core™ Ultra processor family**

These processors adopt a highly integrated heterogeneous SoC architecture, integrating CPU, GPU, and a dedicated NPU on a single chip. Multiple computing engines work together to efficiently execute critical tasks such as AI inference, perception processing, and motion control at the edge, significantly reducing reliance on additional independent accelerators, simplifying overall system architecture, and lowering total cost of ownership (TCO). JHCTECH industrial control platforms based on these processors meet the computing, storage, and forwarding requirements of smart industry and transportation applications. Intel® Core™ Ultra Series 3 processors deliver disruptive performance, exceptional energy efficiency, and up to 180 TOPS of AI performance, enabling users to extend performance-intensive workloads such as AI inference on the platform.

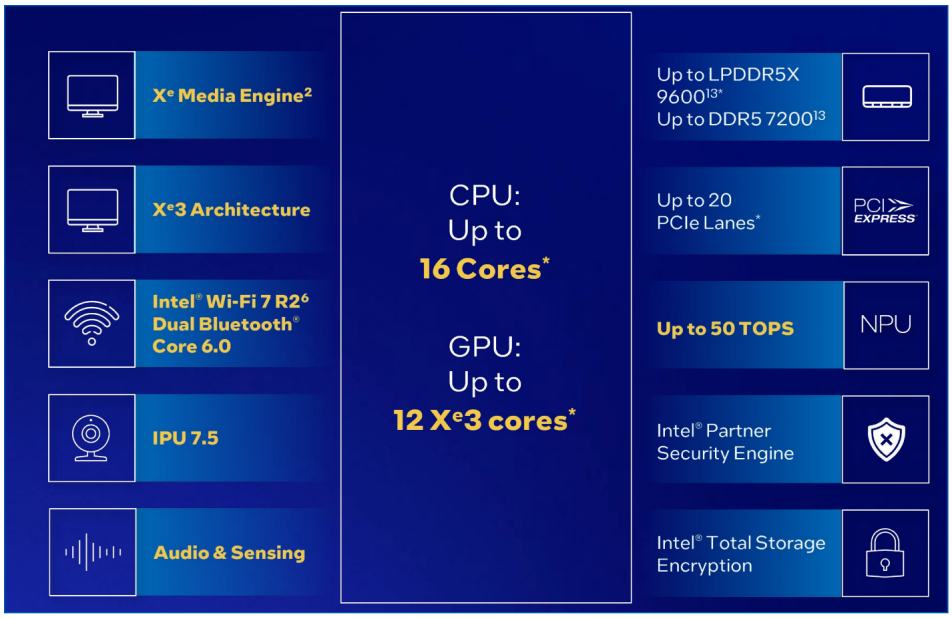


Figure. Intel® Core™ Ultra Series 3 Processors Deliver a Range of Innovative Features

● Intel® HD Graphics

Intel® HD Graphics features a powerful and flexible architecture. It offers leading media technologies, including Intel® Quick Sync Video for improved power and performance, and Intel® oneAPI Video Processing Library (VPL), which provides access to hardware-accelerated codecs. Additionally, Intel® HD Graphics shares a memory architecture across CPUs and GPUs, significantly reducing latency and power consumption. Intel® HD Graphics can handle workloads such as video data encoding/decoding on JHCTECH industrial controllers, meeting image processing requirements like snapshots.

JHCTECH Smart Edge Industrial Control Platform also offers a high performance solution with an MXM 3.1 Type B graphics module. Based on Intel® Arc™ A750E graphics, the MXM 3.1 Type B module provides powerful and efficient graphics acceleration. It features 16GB GDDR6 video memory, peak INT8 compute performance of 229 TOPS[3], and four configurable independent display outputs (DP/HDMI), enabling the MXM module to accelerate image processing and meet the demanding AI compute requirements for AI inference.

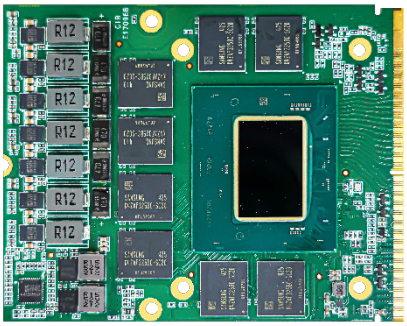


Figure. MXM 3.1 Type B Graphics Module Based on Intel® Arc™ A750E Graphics

● Intel® vPro® Technology and JHCTECH Remote Management View

Intel® vPro® is a comprehensive platform technology designed to reduce IT maintenance costs, enhance security, and lower energy consumption. Leveraging Intel® vPro® technology, JHCTECH has successfully developed JHCTECH® Remote Management View, a software tool can be easily integrated into existing systems, allowing system administrators to perform remote maintenance on industrial controllers at any time without needing to be physically present. This significantly reduces response and processing time while greatly saving operational and maintenance costs.

● The OpenVINO™ Toolkit

The OpenVINO™ toolkit is a comprehensive toolkit for quickly developing AI applications and solutions. Built on cutting edge artificial neural networks (including CNNs, recurrent networks, and attention based networks), it scales computer vision and non vision workloads across Intel® hardware and accelerates applications with high performance AI inference deployed from the edge to the cloud.



[3] Performance varies by use, configuration and other factors. Learn more at www.Intel.com/PerformanceIndex

3.2 Core Advantages Brought by the Intel® Platform

High Performance Computing Capability

JHCTECH's platform is equipped with a full range of industrial-grade processors including Intel® Core™ and Core™ Ultra. Leveraging the mature x86 multi-core, multi-thread architecture, the platform can stably handle high-concurrency tasks such as video analytics, multi-protocol data acquisition, logic control, and AI inference in compact edge industrial controllers and industrial panel PCs. With significantly higher compute density and operational efficiency than non-x86 platforms, it easily addresses the demanding edge computing requirements of smart transportation, industrial production lines, energy stations, and similar scenarios.

Industrial Grade Reliability / Harsh Environment Resilience

The platform features a fanless sealed, solid state-drive design, offering industrial grade characteristics such as wide temperature operation, vibration and shock resistance, dust/moisture/oil protection, and electromagnetic interference immunity. It supports wide-range DC power input, power loss protection, and surge protection, enabling 24/7 stable operation in harsh environments such as overseas factories, outdoor depots, in vehicle systems, and mining sites. This greatly reduces on site maintenance complexity and equipment failure rates in international markets.

Full Ecosystem Hardware & Software Compatibility

Built on the native Intel x86 architecture, the platform is fully compatible with Windows, Linux, and various industrial real time operating systems. It supports mainstream industrial protocols worldwide such as Modbus, Profinet, EtherNet/IP, and OPC UA, enabling seamless integration with overseas PLCs, sensors, SCADA systems, major cloud platforms, and AI frameworks. Customers' existing software and systems can be migrated directly without secondary development, achieving industry leading deployment efficiency and ecosystem adaptability.

Low Latency AI Inference

The platform deeply integrates the OpenVINO™ toolkit, efficiently optimizing and accelerating AI model inference. Intelligent applications such as image recognition, defect detection, behavior analysis, object tracking, and predictive maintenance can run locally, delivering end to end low latency real time decision making without relying on the cloud. This not only saves overseas network bandwidth but enhances data security and business continuity.

Efficient Cloud Edge Collaborative Management

The platform adopts a cloud edge device integrated architecture, supporting local edge data processing and cloud based analysis of key information. It provides remote device monitoring, program updates, fault diagnosis, batch configuration, and other capabilities, enabling unified management of globally distributed devices. Edge nodes can operate autonomously even when disconnected from the network, greatly simplifying operations and maintenance for cross border projects and complex overseas network environments.

Overseas Compliance Readiness

The platform hardware has obtained international safety and EMC certifications including CE, FCC, UKCA, UL, and KC, and complies with EU RoHS and REACH requirements. CE certification, mandatory for the EU market, confirms compliance with EU health, safety, and environmental directives. FCC certification ensures compliance with U.S. electromagnetic compatibility standards, preventing interference with other communication equipment. UL certification, while not mandatory, is highly recognized in North America, focusing on electrical safety, fire prevention, and shock protection. UKCA certification is the mandatory compliance framework introduced after Brexit for products sold in Great Britain. The platform supports multi language systems, multi region power supplies, and multi standard networking, perfectly adapting to major overseas markets such as Europe, the Americas, the Middle East, Southeast Asia, Japan, and South Korea. Moreover, leveraging Intel's universal architecture, risks related to software licensing, copyright, and security compliance are lower.

Flexible Scalability of Computing Power

The platform covers a full range of processor options, allowing flexible configuration according to scenario-based compute requirements and budgets. It also supports hardware expansion via PoE, AI accelerator cards, multiple network ports, and I/O modules. Edge industrial controllers and industrial panel PCs can be freely combined and deployed. Future compute upgrades can be smoothly iterated, fully protecting customers' initial investments and adapting to the full spectrum of scenarios from small terminals to large sites.

3.3 Core Products for Transportation, Industrial, and Other Scenarios

The JHCTECH Smart Edge Industrial Control Platform product line covers two core directions: smart industry and smart transportation. The core products and recommended configurations for each scenario are as follows:

<table>
<tr><td>Smart Industry</td><td>Core product: KMDA 6920
Extended products: KMDA 7920, BRAV 7720</td><td>Core product: ALAD A1010T(P)
Extended products: ALAD K1550T(P), ALAD K2350T(P)</td></tr>
<tr><td rowspan="2">Smart Transportation</td><td>Core product: KMDA 3302
Extended products: ECM I913, KMDA 3306, BRAV 7823</td><td>Core product: KMDA 5610, KMDA 6610, KMDA 7610</td></tr>
<tr><td colspan="2">Core product: BRAV 7601 S
Extended products: BRAV 7601 T003, SIGM 3555, BRAV 7722</td></tr>
</table>

3.3.1 Smart Industry Direction

Core products for the smart industry direction include KMDA 6920 (fanless high performance box PC) and ALAD A1010T(P) (10.1 inch industrial panel PC); extended products include KMDA 7920, BRAV 7720 (for industrial scenarios), and ALAD K1550T(P), ALAD K2350T(P) (for panel PC scenarios).

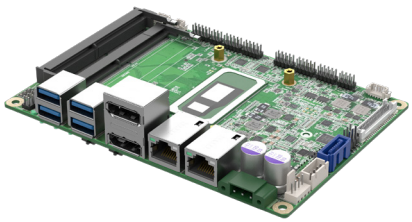
High-performance Box Computer		
Fanless Box Computer KMDA-6920	**Fanless Box Computer KMDA-7920**	**MEC System BRAV-7720-S001**
		
KMDA-6920 is a fanless high-performance box computer with H420E chipset, powered by Intel® 10th Gen Comet Lake CPUs. It is suitable for industrial automation, highway tolling, AI edge computing, security monitoring, environmental detection and other industries.	KMDA-7920 is a fanless high-performance box computer with H610 chipset, powered by Intel® Alder Lake-S/Raptor Lake-S/ Raptor Lake-S Refresh CPUs. It is suitable for industrial automation, highway tolling, AI edge computing, security monitoring, environmental detection and other industries.	BRAV-7720-S001 is a workstation-grade edge computing system, powered by Intel® Alder Lake-S or Raptor Lake-S series CPUs. It is very suitable for V2X MEC, highway event detection, unmanned experimental vehicle, high-precision machine vision and other fields.

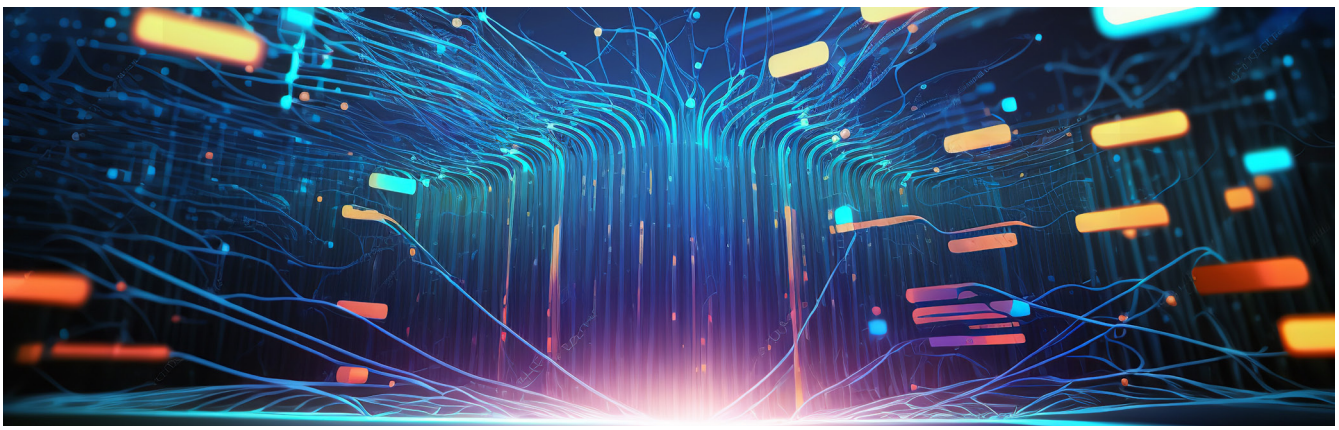
Panel Computer		
10.1-inch Industrial Panel Computer ALAD-A1010T(P)	**Industrial Panel Computer ALAD-K1550T(P)**	**Industrial Panel Computer ALAD-K2350T**
		
ALAD-A1010T/T(P) is a full flat-mirror panel powered by Intel® Elkhart Lake Soc series CPUs. With a fanless aluminum die-cast body and multiple mounting modes, is suitable for intelligent MES and device management HMIs.	ALAD-K1550T(P) is a full flat-mirror panel powered by Intel® Tiger Lake U series CPU. With a fanless aluminum die-cast body and multiple mounting modes, it is suitable for intelligent MES and device management HMIs.	ALAD-K2350T(P) is a full flat mirror panel powered by an Intel® Tiger Lake U series CPU. With a fanless aluminum die-cast body and multiple mounting modes, it is suitable for intelligent MES and device management HMIs.

3.3.2 Smart Transportation Direction

Core products for traffic intersection monitoring systems include KMDA 3302 (compact embedded box PC), with extended products including ECM I913, KMDA 3306, and BRAV 7823; core products for highway toll collection systems include KMDA 5610/6610/7610; the core product for rail transit control systems is BRAV 7601 S, with extended products including BRAV 7601 T003, SIGM 3555, and BRAV 7722.

Core products for roadside edge computing scenarios – Embedded Box PC KMDA-3302	
	KMDA-3302 is a high-performance, small-form-factor and compact embedded box computer, used as an AGV controller, designed with an SGCC box structure and equipped with a 4-wire speed-control fan for heat dissipation. Powered by Intel® Tiger Lake U Soc series CPU, it offers rich I/O, slim body, vibration resistance, making it suitable for portable terminals, advertising machines, logistics visual inspection, AGV, AMR, and other application scenarios.

Recommended products for roadside edge computing scenarios		
3.5-inch Single Board Computer ECM-I913	**Embedded Box PC KDMA-3306**	**Edge Computing System BRAV-7823**
		
ECM-I913 is a 3.5-inch embedded motherboard equipped with Intel® Tiger Lake U Soc CPU. It is very suitable for AGV/AMR, medical inspection, machine vision, industrial control, digital city, smart security and other industries.	KMDA-3306 is a high-performance, small-form-factor, compact embedded box computer, designed with SGCC box structure and extruded aluminum heatsink. It is suitable for application scenarios such as AGV/AMR, machine vision, and embodied intelligent robots.	BRAV-7823 is powered by Intel® Core™ Ultra Series 3 Panther Lake-H CPU, supporting up to 64GB onboard memory. It features aluminum-magnesium alloy chassis, fan cooling and compact design. It is ideal for embodied robots and humanoid robots.



Recommended products for highway scenarios

Fanless Box Computer KMDA-5610	Fanless Box Computer KMDA-6610	Fanless Box Computer KMDA-7610
		
KMDA-5610 is a fanless high-performance box computer, powered by Intel® 8th /9th Gen Coffee Lake CPUs. It is suitable for industrial automation, highway tolling, security monitoring, environmental detection, and other industries.	KMDA-6610 is a fanless high-performance box computer with H420E chipset, powered by Intel® 10th Gen Comet Lake CPUs. It has complete I/O, wide-voltage DC input and moderate size. It is suitable for industrial automation, highway tolling, security monitoring, environmental detection and other industries.	KMDA-7610 is a fanless high-performance box computer with H610 chipset, powered by Intel® Alder Lake-S/Raptor Lake-S/ Raptor Lake-S Refresh CPUs. With complete I/O function and moderate size, it is suitable for industrial automation, highway tolling, security monitoring, environmental detection and other industries.

Core products for rail transit scenarios – Edge AI Computing System BRAV-7601-S

	BRAV-7601-S is a high-performance AI MEC computing system powered by Intel® 10th Gen Comet Lake CPUs. It features a CPU + GPU dual-processor architecture, delivering high performance with multiple network ports, multiple display outputs, and rich I/O interfaces. It is very suitable for C-V2X, special vehicle onboard systems, high-precision machine vision, medical imaging, and other applications.

Recommended high-performance products for rail transit scenarios

Edge AI Computing BRAV-7601-T003	Fanless In-Vehicle Computer SIGM-3555	AI Edge Computing System BRAV-7722
		
BRAV-7601-T003 is a high-performance fanless AI edge computing system powered by Intel® Comet Lake series CPUs. It is suitable for applications such as C-V2X, special vehicle onboard systems, machine vision, and medical imaging.	SIGM-3555 is a high-performance fanless AI edge computing system powered by Intel® Comet Lake series CPUs. It is suitable for applications such as rail transit, C-V2X, special vehicle onboard systems, intelligent security, high-precision machine vision, and medical imaging.	BRAV-7722 is a high-performance AI edge computing system powered by Intel® Alder Lake S / Raptor Lake S / Raptor Lake S Refresh series CPUs. It is designed for applications such as smart transportation, machine vision, autonomous driving, intelligent security, and digital healthcare.

4. JHCTECH Smart Edge Industrial Control Platform: Success Stories & Proven Applications

Leveraging its outstanding performance, stability, and scalability, JHCTECH Smart Edge Industrial Control Platform has been widely deployed in global smart transportation and smart industry scenarios, helping customers drive digital transformation and unlock the value of data.

4.1 KMDA 6920 Helps an Indian Smart Steel Plant Achieve Stable, Automated Operation

Challenge

A large steel plant in India has been aggressively pursuing digital transformation and has deployed a Supervisory Control and Data Acquisition (SCADA) system in recent years. During this process, it faced the following core challenges:

Extreme production environment	Real-time monitoring requirements	Low maintenance requirements	System integration difficulty
High temperatures, pervasive dust, and intense equipment vibration in the steel workshop led to high failure rates for traditional industrial control equipment, making long term stable operation difficult.	24/7 production data acquisition was needed to enable the SCADA system to transparently control process parameters across steelmaking, rolling, and other operations.	Frequent maintenance of the existing industrial controllers resulted in high on-site costs, urgently calling for a more reliable, lower-workload solution.	Seamless integration with existing PLCs, various sensors, industrial networks, and servo systems was required to close the automation control loop.

Solution

JHCTECH provided KMDA 6920 industrial grade fanless box PC. Powered by the 10th Gen Intel® Core™ processors, it features two Gigabit Ethernet ports, six USB ports, and four COM ports, offering rich data acquisition and interaction capabilities. It supports multiple displays (DP + HDMI + VGA), allowing operators to comprehensively monitor key parameters. It can be expanded with 4G, WiFi, and other modules using Mini PCIe slots to collect various abnormalities of the plant in real time and respond quickly. The wide temperature fanless design makes it suitable for the high temperature, dusty environment of steel mills.

Values

After deploying KMDA 6920, the smart steel plant achieved the following results:

- **High reliability ensuring continuous production**

  The fanless wide temperature design allows the equipment to operate stably 24/7 in high temperature, dusty environments, significantly reducing the number of production line stoppages caused by industrial controller failures.

- **Efficient data acquisition and transparent control**

  The SCADA system obtains real time production data across the entire process via KMDA 6920. Plant management can monitor equipment status and process parameters at any time, effectively improving production transparency and responsiveness to abnormalities.

- **Flexible expansion addressing integration needs**

  PCIe slots and Mini PCIe interfaces enable rapid integration with PLCs, industrial networks, servo systems, alarm modules, and remote communication modules, shortening the system deployment cycle.

- **Significantly reduced operational costs**

  Wide voltage power input and multiple circuit protections reduce power failure risks; remote maintenance allows engineers to perform diagnostics and debugging without frequent site visits, lowering labor and time costs for overseas on site maintenance.

4.2 ALAD A1010T(P) Boosts Operation Efficiency and Intelligent Management of a Turkish Automated Textile Production Line

Challenge

Turkey is the world's fourth largest textile exporter, with textile industry accounting for more than 18% of its total manufacturing output. In recent years, local companies have actively introduced automation technologies to cope with international competition and rising labor costs. A well known textile machinery manufacturer planned to equip its automatic looms with intelligent control systems. The industrial panel PC needed to display production schedules, equipment parameters and fault diagnosis information in real time, while meeting the following conditions:

Vibration resistance	Precise control and multitasking	Environmental adaptability	User friendly HMI
Frequent mechanical vibrations in textile workshops require stable operation under high frequency vibration, preventing screen loosening or poor contact.	Multi-threaded control tasks must be supported, simultaneously handling loom parameter adjustments, schedule optimization, and data uploads.	High dust levels, fluctuating temperature and humidity, and many high power electrical devices in the workshop demand dust resistance, communication interference immunity, and wide temperature operation.	The interface must be intuitive and easy to use, and support touch operation and multiple languages.

Solution

To address the customer's requirements, JHCTECH recommended the newly upgraded 10.1 inch industrial panel PC ALAD A1010T(P) which, powered by Intel® Celeron® J6412 quad core processor, supports multi threaded parallel processing. The front panel uses fully bonded dustproof glass, and the interfaces are sealed to effectively protect against dust. The equipment features a high strength aluminum alloy structure with shock absorbing design, supporting wide temperature operation from -20°C to 50°C and wide voltage DC input from 9V to 36V.



Values

The intelligent control terminal for automatic looms at the Turkish textile plant is used for production schedule display, equipment parameter monitoring, motion control, fault diagnosis, data acquisition to the cloud, and remote operations & maintenance, achieving the following results:

- High vibration and dust resistance ensures 24/7 stable operation in high frequency vibration and dusty workshops, with a significantly reduced failure rate.
- The Intel processor provides powerful multitasking, enabling real time response to control commands and improving loom operating efficiency and precision.
- Wide temperature, wide voltage and anti interference design perfectly adapts to the workshop environment, reducing downtime for maintenance and lowering overseas on site operational costs.
- Rich interfaces and remote networking capabilities enable full acquisition of equipment data and unified cloud management, driving digital transformation of the textile production line.
- Multiple mounting options and a user-friendly touch interface adapt to overseas production line deployment habits, improving operation efficiency and global adaptability.

4.3 KMDA 3302 Helps Brazil Achieve Stable, Smart Traffic Light Monitoring

Challenge

A Brazilian smart transportation solution provider planned to deploy an urban traffic light monitoring system to alleviate worsening traffic congestions and violations. The project imposed stringent requirements on core computing equipment:

High temperature and humidity

The local tropical climate reaches ambient temperatures up to 45°C and relative humidity as high as 90%. Equipment must have excellent weather resistance and heat dissipation.

Basic functional requirements

The system needed license plate recognition and real time data processing. The equipment was required to have at least 2 LAN ports and 2 COM ports to interface with radars, cameras, and other peripherals.

Remote data transmission

Monitoring data had to be transmitted in real time to the city traffic control center, requiring wireless expansion such as 5G/Wi Fi/BT for remote communication.

Solution

JHCTECH selected KMDA 3302 as the core computing unit, powered by an Intel® Core™ i5 1135G7 processor. The equipment features an SGCC chassis with a speed controlled fan for cooling. Its operating temperature range is -20°C to 60°C, with storage temperature from -40°C to 85°C. It offers excellent moisture resistance, making it suitable for the local high temperature, high humidity environment.



Values

- **High reliability in harsh environments**

  The wide temperature, moisture resistant design combined with the rugged SGCC chassis enables continuous stable operation a tropical climate with high temperature (45°C) and high humidity, with no environmental cause crashes or damages.

- **Real time license plate recognition and local processing**

  The efficient computing power of Intel® Core™ i5 1135G7 processor supports real time recognition of captured vehicle images and data preprocessing, reducing the amount of data transmitted to the center and improving system responsiveness.

- **Flexible wireless backhaul**

  By expanding with a 5G NR module via M.2 interface, traffic data collected on site is transmitted in real time to the city monitoring center, providing timely evidence for traffic dispatch and violation penalties.

- **Simplified deployment and power protection**

  Wide voltage input and multiple circuit protections effectively prevent equipment damages caused by unstable roadside power, reducing on site maintenance frequency and lowering project implementation costs.

4.4 JHCTECH Industrial Controllers Enable 24/7 Contactless Tolling in Brazil and Argentina

Challenge

Traffic authorities in Brazil and Argentina planned to deploy a multi lane free flow (MLFF) tolling system to relieve congestion at highway toll booths. The customer set strict requirements for core industrial controllers:

24/7 stable operation

The equipment must operate 24/7 roadside, adapting to outdoor conditions of high temperature, high humidity, sun, and rain.

Rich I/O

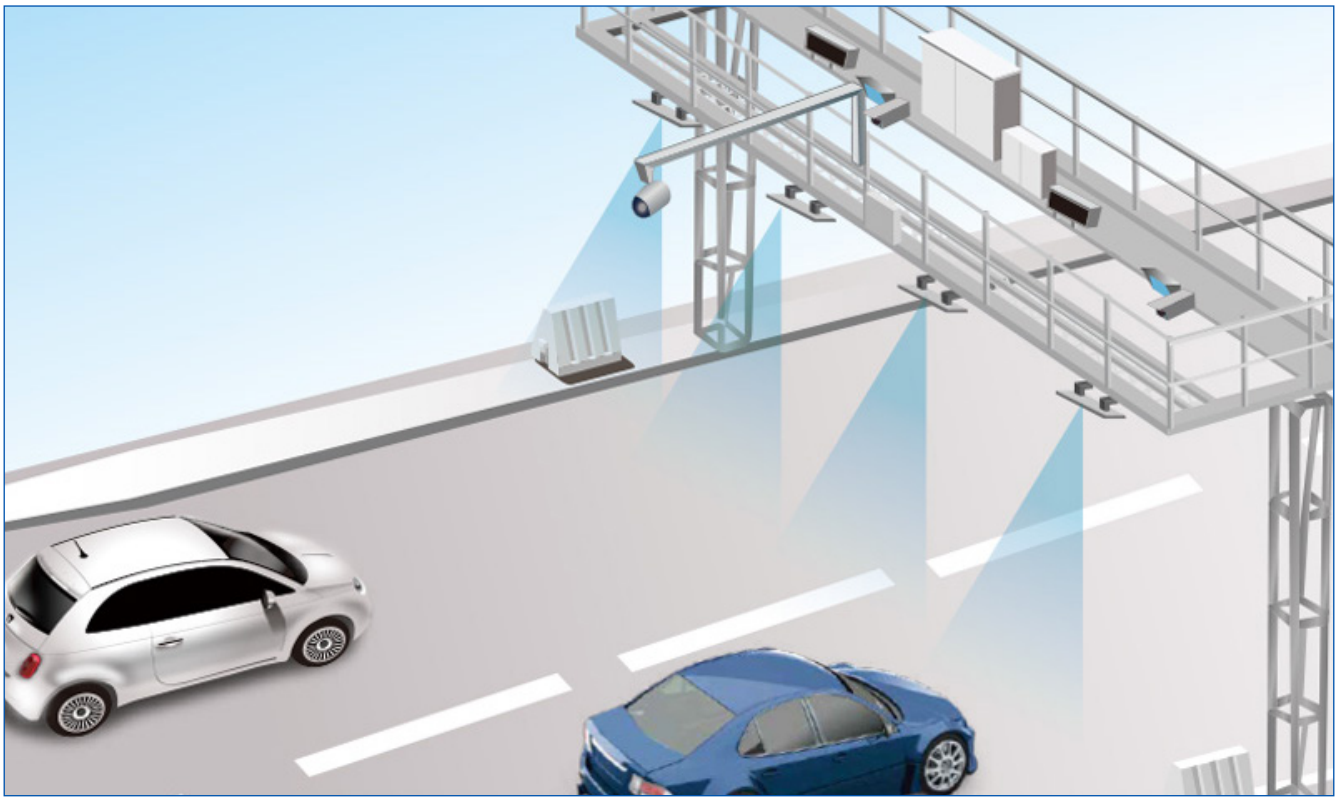
Connections to radars, cameras, sensors and other peripherals, requiring multiple LAN, USB, and COM ports.

High processing performance

Sufficient computing power to quickly process multi lane vehicle data (including license plate recognition, vehicle classification, tag reading, etc.), with CPUs not older than the 8th/9th Gen Intel Core i3.

Solution

JHCTECH provided KMDA 5610, 6610, and 7610 series industrial controllers, all featuring fanless ventilation systems with an operating temperature range of -20°C to 60°C, suitable for harsh roadside installation environments. Each model is equipped with two Gigabit Ethernet ports, six USB ports, and four COM ports, meeting peripheral connection needs.



Values

This series of industrial controllers has been successfully deployed in the MLFF tolling systems of Brazil and Argentina, achieving the following results:

- **Long operation life in harsh environments**

  The fanless design prevents cooling failure caused by dust or insects; the wide temperature range allows stable operation inside hot roadside cabinets, significantly reducing equipment failure rates.

- **Efficient multi lane data processing**

  Leveraging the high computing power of Intel processors (up to 13th Gen CPU optional), the system processes vehicle data from multiple lanes in real time – including captured images, license plate recognition, and electronic tag reading – enabling contactless free flow tolling.

- **Rich I/O for peripheral connectivity**

  Each device has at least two Gigabit Ethernet ports, four USB ports, and four COM ports, allowing simultaneous connection to radars, cameras, ETC antennas, vehicle detectors and other peripherals, simplifying system cabling.

- **Reduced operation and maintenance costs**

  The easy swap hard drive design facilitates on site storage media replacement; remote management capabilities (some models support Intel® vPro® technology) enable operations staff to perform system upgrades and fault diagnosis without frequent site visits, greatly reducing the maintenance costs for cross border projects.

4.5 JHCTECH On board Controller Enables Intelligent Train Control in Europe

Challenge

A European railway company planned to equip its automatic train control system with advanced on board controllers, which must meet the strict technical requirements of European railway standards:

High vibration resistance and ruggedness	Wide operating temperature range	High performance computing and AI inference	Rich I/O	Remote management and wireless communication
Continuous vibration and shock during train operation require the controllers to pass automotive-grade shock resistant design, ensuring connectors do not loosen and internal components are not damaged.	As trains operate in various climate zones, the controllers must operate from -20°C to 60°C and have wide temperature storage capability (-40°C to 85°C).	The capability to process information from multiple acquisition modules, perform real-time data analysis and judgment, and support AI inference tasks.	Multiple Ethernet ports (including PoE) and multiple USB ports for connecting on board sensors, cameras, communication equipment, etc.	4G/5G, Wi Fi, GPS, and other wireless expansions that allow the control center to remotely obtain train status.

Solution

The BRAV 7601 series high performance AI edge computing system is powered by the 10th Gen Intel® Core™ processors and adopts a combination of active and passive cooling, with an operating temperature range of -20°C to 60°C. The device features three 2.5G LAN and four Gigabit Ethernet ports (with PoE), eight USB ports, effectively receiving data from on board acquisition modules. It supports MXM GPU modules and AI accelerator cards with power consumption up to 190W, providing stable performance for deep inference computing.

Values

The BRAV 7601 series has been successfully applied in the European Train Control System (ETCS), delivering the following values to the customer:

- **On board grade vibration resistance and wide temperature**

  The aluminum extruded frame combined with automotive grade shock absorbing design ensures stable operation under long term train vibrations, with no interface loosening or internal failures; the wide temperature design adapts to cross regional operation from cold Northern Europe to hot Southern Europe.

- **Real time data acquisition and analysis**

  Multiple PoE ports directly power and capture video streams from wayside cameras. Together with an MXM GPU module for AI inference, the system achieves intelligent functions such as obstacle detection ahead of the train and track condition monitoring. At the same time, vehicle operating parameters are collected via CAN interfaces. All data is processed locally and uploaded to the train's main control system.

- **Remote management and status backhaul**

  Using the 5G module expanded via M.2, train operating status, fault warnings, and other information are uploaded in real time to the ground control center. The control center can also remotely download software upgrades or configuration parameters, greatly reducing the frequency of manual inspections and on site maintenance.

- **Simplified on board cabling**

  PoE functionality eliminates the need for separate power cabling for cameras and other peripherals, reducing harness weight and installation complexity, while improving the reliability and maintainability of the train's electrical system.



4.6 JHCTECH KMDA-7610 Empowers Smart Expressway Overload Control – No Way out for Overloaded Trucks

Challenge

As expressway networks continue to expand, the issue of freight vehicle overloading and dimension exceedance is increasingly severe. Overloaded vehicles not only cause significant damage to road surfaces but pose a serious threat to traffic safety – underscoring the critical need for digital overload control systems. However, traditional expressway entry overload control systems are plagued by the following pain points:

High costs and cumbersome maintenance

High procurement costs for core industrial control equipment, coupled with cumbersome after-sales maintenance and debugging processes, long turnaround times, and high operational expenses.

Insufficient computing power causes delays

Insufficient computing power of legacy host systems, resulting in computational lag when processing multi-channel weighing, radar, and camera sensor data in parallel – with detection delays that impact vehicle throughput.

Limited scalability hinders connectivity

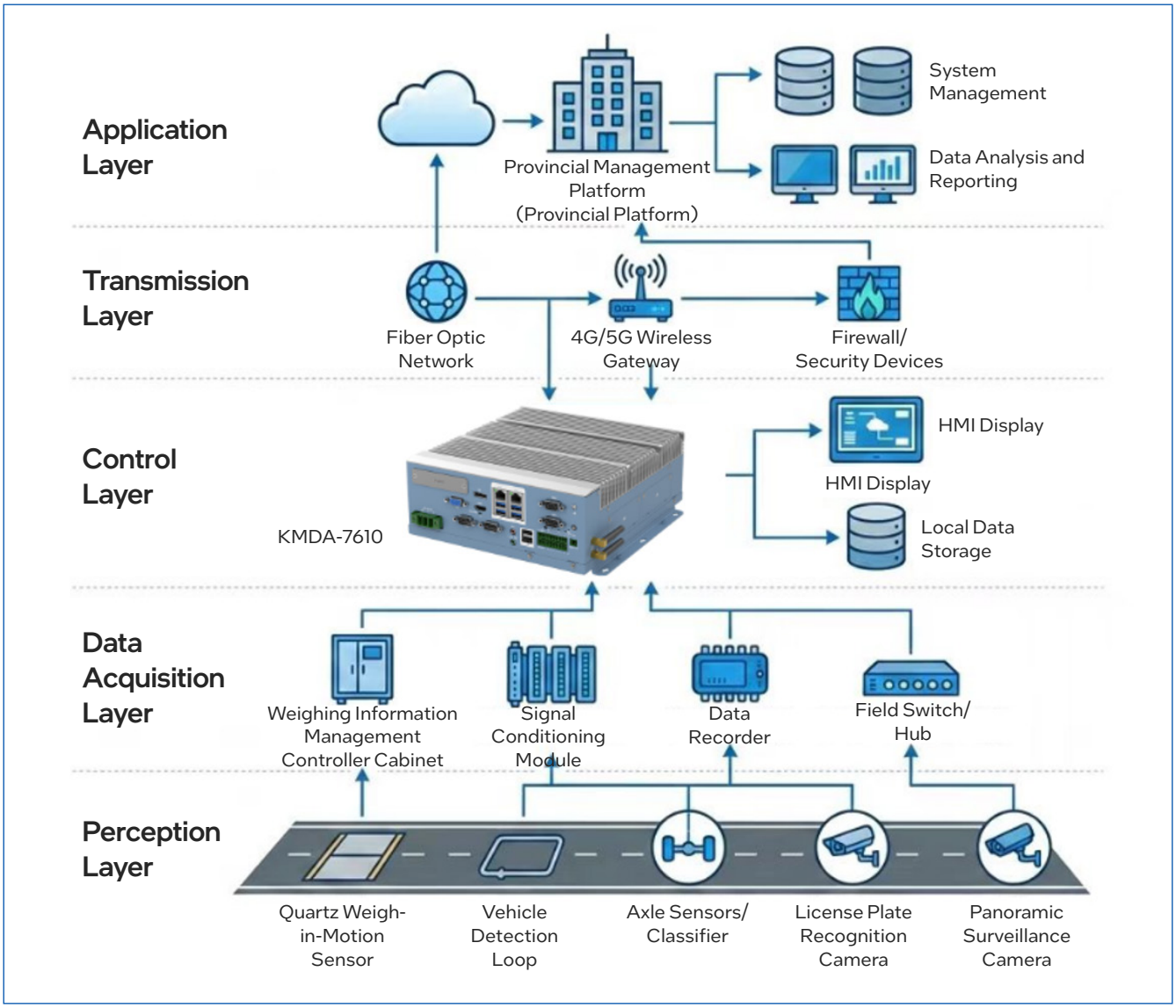
Limited expansion interfaces on outdated industrial controllers, leading to network packet loss and disconnections when connecting multiple peripherals, delayed uploads of inspection data, and poor information interoperability across regional platforms.

Solution

Based on the JHCTECH BRAV-7601 series high-performance AI edge computing system, the expressway entry overload control system forms a complete closed-loop chain from the perception layer (weighbridge sensors, vehicle detectors, license plate recognition cameras) → acquisition layer → control layer (KMDA-7610) → transmission layer (Gigabit Ethernet ports) → application layer (provincial-level overload control platform).

The entire system is deployed in dedicated inspection lanes at expressway entrances. As vehicles enter, weighing equipment, LiDAR, high-definition capture cameras, and other devices simultaneously collect multi dimensional data including weight, dimensions (length, width, height), and license plate images. All perception signals are centrally fed into the KMDA 7610. The KMDA 7610 features industrial grade characteristics such as wide temperature stable operation, multiple Ethernet and serial ports for expansion, and dustproof and vibration resistant design, making it well suited for the harsh conditions at toll stations – large outdoor temperature variations and strong electromagnetic interference. It performs real time parsing, computation, and local storage of massive sensor data.

After the KMDA 7610 rapidly compares the data against calibrated thresholds, the system automatically generates a complete vehicle passage record: compliant vehicles are allowed to proceed directly to the toll booth; overloaded or over limit vehicles immediately trigger a dual alert mechanism – an on site LED display shows prominent warning messages while alarm signals are simultaneously pushed. These vehicles are intercepted and prohibited from entering the expressway. Over limit information is also uploaded in real time to the road administration platform, and vehicles with special transport permits can undergo additional verification of their qualification data.



Values

- **Cost reduction and efficiency improvement**

  Hardware costs reduced by 30%, maintenance costs down by 40%, and traffic throughput increased by 15%[4].

- **Effective deterrence of overloading**

  After deployment of the system, the interception rate of overloaded vehicles at toll stations rises to over 95%[5].

- **Protection of highway infrastructure**

  Reduces road surface damage caused by overloaded vehicles, extending the service life of highways.

- **Enhanced road traffic safety**

  Effective control of overloaded vehicles leads to a lower traffic accident rate.

[4,5] Data from internal test data of JHCTECH. Intel does not control or audit third-party data. You should consult other sources to evaluate accuracy.

5. Application Prospect

With the integration of Intel® Core™ Ultra Series 3 processors, the boundaries of edge computing power will be further expanded. Intel® Core™ Ultra Series 3 processor is Intel's first SoC built on the Intel 18A process technology. Leveraging its heterogeneous computing architecture integrating CPU, GPU, and NPU, it will provide a powerful edge intelligence foundation for cutting edge scenarios such as robotics, autonomous driving, and smart transportation.

● Physical AI

The physical AI industry, represented by humanoid robots, is moving from technical validation to large scale commercial application at an unprecedented pace. The year 2026 is regarded by the industry as the "first year of mass production" for humanoid robots and a critical window for commercial deployment. The industry currently faces multiple bottlenecks in technology, cost, and scenarios, such as: rising dual demands for "intelligent decision making" and "real time control" in real world environments; diverse product form factors imposing higher requirements on computing platform adaptability; and the increased AI computing challenges brought by multi modal large models.

Intel offers a Cerebrum-Cerebellum Integration solution as well as a Smart Cerebellum solution based on Intel® Core™ Ultra Series 3 processors. Its comprehensive AI computing power reaches up to 180 TOPS, enabling a single chip to simultaneously meet the real time control and AI perception needs of robots. Intel's new physical AI robot software development kit and reference board provide customers with advanced AI capabilities, allowing them to leverage Intel® Core™ Ultra Series 3 processors to simultaneously achieve control and AI/perception functions, accelerating innovation and development of cost effective robotic products.

● Autonomous Driving

Scenarios such as autonomous delivery vehicles, autonomous mining trucks, autonomous shuttle buses, and autonomous buses have entered a critical stage of commercial validation. The autonomous commercial vehicle market in China is experiencing rapid growth, and is estimated to grow to RMB 1,449.2 billion in 2028 at a compound annual growth rate (CAGR) of 67.8%[6]. The low speed autonomous driving sector (e.g., autonomous delivery vehicles, autonomous sanitation vehicles, autonomous shuttle buses) is developing rapidly. According to the Low Speed Autonomous Driving Industry Alliance, approximately 110 new low speed autonomous driving equipment models were released in China in 2025. By product category, autonomous delivery vehicles and autonomous sanitation vehicles were the two most frequently launched models. However, the commercialization of autonomous driving still faces multiple challenges, including incomplete regulatory frameworks, high hardware and R&D costs, unproven business models, and the conflict between the pace of technological development and the slower development of relevant regulations.

Intel has launched commercial solutions for on board edge AI application scenarios. The on board edge AI computing module based on Intel® Core™ Ultra Series 3 processors supports real time AI inference and multi sensor data processing, meeting the computing requirements of autonomous driving applications such as AGVs, AMRs, and smart transportation infrastructure. Moreover, its excellent energy efficiency makes it an ideal choice for power sensitive on board scenarios.

[6] Data sourced from: https://pdf.dfcfw.com/pdf/H3_AP202605121822223041_1.pdf?1778614769000.pdf

Smart Transportation

As "Vehicle Road Cloud Integration" moves from pilot projects to large scale deployment, roadside Multi access Edge Computing (MEC) terminals are becoming the core infrastructure of smart transportation systems. By moving computing resources down to the roadside unit, MEC terminals significantly reduce end to end latency, and local processing substantially reduces data uploads, providing critical support for applications such as C-V2X (cellular vehicle-to-everything) and high speed incident detection. However, large scale deployment of roadside equipment faces engineering challenges such as balancing compute density and power consumption, maintaining stable multi network connections, and adapting to harsh outdoor environments.

For smart transportation and MEC workloads, the edge computing platform based on Intel® Core™ Ultra Series 3 processors can efficiently handle real time data processing, multi network connectivity, and flexible expansion requirements in compact deployments, perfectly matching the high performance edge computing needs of traffic monitoring, C-V2X, and high speed incident detection. Intel® Core™ Ultra Series 3 processor integrates all I/O interfaces and supports up to 96GB of memory, providing the hardware foundation for running large parameter AI models.

As an Intel ecosystem partner, JHCTECH seamlessly integrates Intel® Core™ Ultra Series 3 processor into its edge industrial product lines for smart transportation (e.g., KMDA series, BRAV series), offering global customers complete solutions from roadside MEC nodes to on board intelligent terminals.



6. Summary and Outlook

Looking at the international market, whether it is the intelligent transformation of existing equipment driven by Industry 4.0 in developed regions or the new transportation and energy infrastructure in emerging economies, there is a significant demand for integrated industrial control platforms that combine computing, control, and communication capabilities. Moreover, with the continuous evolution of products and technologies such as Intel® Core™ Ultra processors and the OpenVINO™ toolkit, JHCTECH Smart Edge Industrial Control Platform will achieve stronger AI inference performance at lower power consumption, further lowering the threshold for overseas customers to deploy AI applications.

Leveraging Intel's universal technology architecture, JHCTECH enjoys inherent advantages in reducing software licensing and security compliance risks. At the same time, by continuously improving its compliance systems (CE, FCC, UKCA, UL, KC, etc.), JHCTECH has established market access thresholds in major target markets. Coupled with open industrial protocol compatibility and modular expansion design, customers can flexibly address differentiated requirements across regions and scenarios, truly achieving "deploy once, applicable globally".

In the future, Intel and JHCTECH will continue to enrich the product portfolio based on international cutting edge technology standards and evolving industry needs, helping more enterprises move safely, efficiently, and sustainably into the new era of smart edge computing.

Appendix: Product Specifications

Smart Industry Direction

High-performance Box Computer

Fanless Box Computer KMDA-6920	Fanless Box Computer KMDA-7920	MEC System BRAV-7720-S001
		
KMDA-6920 is a fanless high-performance box computer with H420E chipset, powered by Intel® 10th Gen Comet Lake CPUs. With complete I/O function, dual PCIe extensions, wide-voltage DC input and moderate size. It is suitable for industrial automation, highway tolling, AI edge computing, security monitoring, environmental detection and other industries.	KMDA-7920 is a fanless high-performance box computer with H610 chipset, powered by Intel® Alder Lake-S/Raptor Lake-S/Raptor Lake-S Refresh CPU, multi IO interfaces, dual PCIe extensions and moderate size. It is suitable for industrial automation, highway tolling, AI edge computing, security monitoring, environmental detection and other industries.	BRAV-7720-S001 is a workstation-grade edge computing system, powered by Intel® Alder Lake-S or Raptor Lake-S series CPU, Q670 chipset, dual-channel DDR5 memory, and dual PCIe expansions. With optional computing power, multi I/O interfaces, high PFC power supply, high-efficiency cooling solution and industrial-grade reliability design, it is very suitable for V2X MEC, highway event detection, unmanned experiment vehicle, high-precision machine vision and other fields.
Key Features ▪ Intel® 10th Gen Comet Lake LGA1200 CPUs ▪ Intel® H420E PCH ▪ 2*DDR4 2933MHz SODIMM, up to 64GB ▪ Three display ports (1*DP, 1*HDMI and 1*VGA), supporting two independent displays ▪ 2*LAN, 4*USB3.2, 2*USB2.0, 8bit DIO, 1*MIC+1*LINE OUT, 1*PS/2 ▪ 2*RS232/422/485 and 2*RS232 ▪ 1*Mini-PCIe full size with SIM card slot, supporting 4G LTE module ▪ Dual expansions (1*PCIe x 16 and 1*PCIe x 16 (x 4 signal)) ▪ 2*2.5-inch SATA bay and 1*mSATA ▪ 9-36V wide DC input, with short circuit, overvoltage and overcurrent protection	**Key Features** ▪ Intel® 12th/13th/14th Gen Core i9/i7/i5/i3/ ▪ Intel® 12th Gen Alder Lake-S LGA1700 CPU ▪ Intel® H610 PCH ▪ 2*DDR5 4800MHz SODIMM, up to 64GB ▪ 1*DP, 1*HDMI and 1*VGA, three independent displays ▪ 2*LAN, 4*USB3.2, 2*USB2.0, 16bit Iso. DIO ▪ Audio 1*MIC+1*LINE OUT ▪ 2*RS232/422/485 and 2*RS232 COM 1*Mini-PCIe full size with SIM card slot, support 4G LTE modem ▪ Dual expansions (1*PCIe x 16+1*PCIe x 16 (x 4 signal)) ▪ 2*2.5-inch easy-swap SATA3.0 bay and 1*mSATA ▪ DC IN 9-36V, wide power input, with OVP, OCP and SCP	**Key Features** ▪ Intel® 12th /13th Gen Alder Lake-S/Raptor Lake-S CPUs ▪ Intel® Q670 Chipset ▪ 2*DDR5 4800MHz SODIMM, up to 64GB ▪ 1*DP+1*HDMI+1*VGA, three independent displays ▪ 2*Intel® I226V Gigabit LAN, 1*Intel® I219LM Gigabit LAN, support iAMT12.0 ▪ 1*PCIe x 16 (x 16 signal)+1*PCIe x16 (x 4 signal) ▪ 2*2.5-inch SATA3.0 Bays, 1*M.2 2280 PCIe x 4 NVMe ▪ Support TPM2.0 and iVpro technology ▪ Fanless cooling for CPU, AI/GPU card with efficient fan cooling design ▪ Support 450W GPU or dual 75W/150W AI acceleration cards ▪ 1000W PSU DC IN 12V, and wide temperature fanless AC-DC power adapter with PFC

Panel Computer

10.1-inch Industrial Panel Computer ALAD-A1010T(P)	Industrial Panel Computer ALAD-K1550T(P)	Industrial Panel Computer ALAD-K2350T
		
ALAD-A1010T/T(P) is a full flat mirror panel powered by an Intel® Elkhart Lake Soc CPU series processor. It adopts 10.1-inch 1280*800 resolution TFT LCD and fully fits surface projection multi-point capacitive/5 wire resistive touch screen. The product has a comprehensive I/O interface, supporting 1*2.5-inch SATA hard drive and 1*mSATA dual storage; Built-in 1*Mini PCIe and 1*M.2 3042/3052 expansions, wide-voltage DC input from 9 to 36V, aluminum die-cast body without fan heat dissipation, various installation modes, suitable for intelligent MES system and device management HMI.	ALAD-K1550T(P) is a full flat mirror panel powered by an Intel® Tiger Lake U series processor. It adopts 15.6-inch 1920*1080 resolution full HD TFT LCD and fully fits surface projection multi-point capacitive touch screen. The product has a comprehensive I/O interface, supporting 1*2.5-inch SATA hard drive and 1*mSATA dual storage; Built-in 1*Mini PCIe and 1*M.2 3042/3052 expansions, wide-voltage DC input from 9 to 36V, aluminum die-cast body without fan heat dissipation, various installation modes, suitable for intelligent MES system and device management HMI.	ALAD-K2350T(P) is a full flat mirror panel powered by an Intel® Tiger Lake U series processor. It adopts 23.8" 1920*1080 resolution full HD TFT LCD and fully fits surface projection multi-point capacitive touch screen. The product has a comprehensive I/O interface, supporting 1*2.5-inch SATA hard drive and 1*mSATA dual storage; Built-in 1*Mini PCIe and 1*M.2 3042/3052 expansions, wide-voltage DC input from 9 to 36V, aluminum die-cast body without fan heat dissipation, various installation modes, suitable for intelligent MES system and device management HMI.
Key Features ▪ Aluminum die-casting chassis ▪ 10.1-inch TFT LCD, Multi-point capacitive/5 wire resistive touch ▪ Intel® Elkhart Lake Soc CPU, fanless design ▪ 1*DDR4 3200 SODIMM, up to 32GB ▪ 1*Mini PCIe, 1*M.2 B-Key Type 3042/3052 ▪ 2*COM, 2*LAN, 4*USB3.1, 1*8-bit DIO (Optional with COM1/2) ▪ 2.5-inch SATA Bay, 1*mSATA, 1*Line out, 2*2W Speaker ▪ 9~36V DC power input ▪ IP65 rated front panel protection ▪ Standard VESA mount and panel mounting	**Key Features** ▪ Aluminum die-casting chassis, full flat mirror panel ▪ 15.6-inch Full HD LCD, Multi-point capacitive touch ▪ Intel® Tiger Lake CPU, fanless design ▪ 1*DDR4 3200 SODIMM, up to 32GB ▪ 1*Mini PCIe, 1*M.2 B-Key Type 3042/3052 ▪ 4*COM, 2*LAN, 4*USB3.2, 1*8-bit DIO (opt.) ▪ 2.5-inch SATA Bay, 1*mSATA, 1*Line out, 2*3W Speaker ▪ Optional 1*PCIe x 4 slot (PCIEX4 signal) or 1*PCI slot expansion ▪ 9~36V DC power input ▪ Standard VESA mount and panel mounting	**Key Features** ▪ Aluminum die-casting chassis, full flat mirror panel ▪ 23.8-inch Full HD LCD, Multi-point capacitive touch ▪ Intel® Tiger Lake CPU, fanless design ▪ 1*DDR4 3200 SODIMM, up to 32GB ▪ 1*Mini PCIe, 1*M.2 B-Key Type 3042/3052 ▪ 4*COM, 2*LAN, 4*USB3.2, 1*8-bit DIO (opt.) ▪ 2.5-inch SATA Bay, 1*mSATA, 1*Line out, 2*3W Speaker ▪ Optional 1*PCIe x 4 slot (PCIEX4 signal) or 1*PCI slot expansion ▪ 9~36V DC power input ▪ Standard VESA mount and panel mounting

Smart Transportation Direction

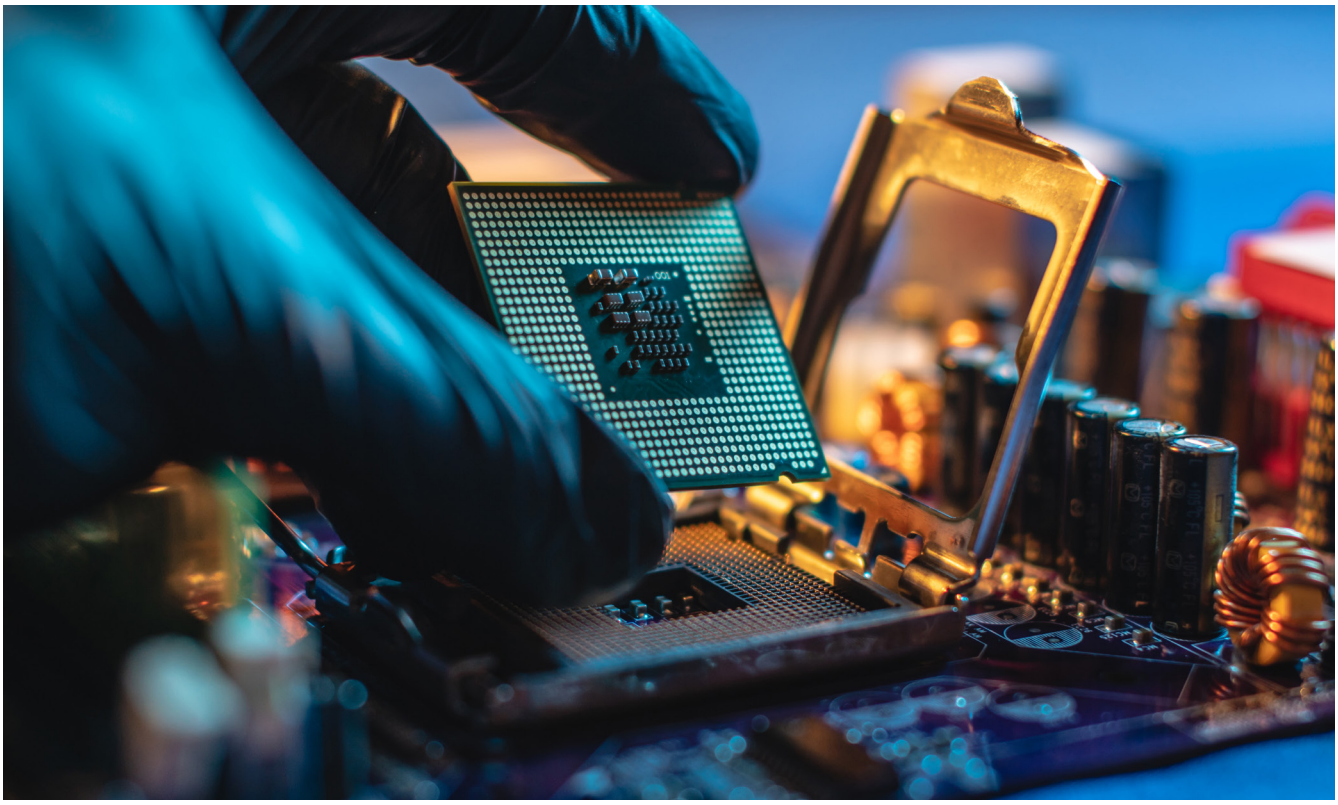
Core Products for Roadside Edge Computing Scenarios – Embedded Box PC KMDA-3302



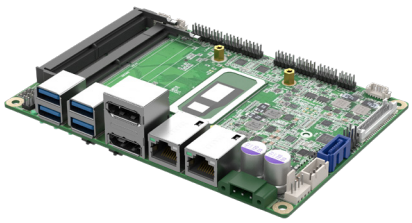
KMDA-3302 is a high-performance, small-form-factor, and compact embedded box computer, used as an AGV controller, designed with an SGCC box structure and equipped with a 4-wire speed control fan for heat dissipation. Powered by Intel® Tiger Lake U Soc series CPU, with rich I/O, slim body, vibration resistance, suitable for mobile portable terminals, advertising machines, logistics visual inspection, AGV, AMR, and other application scenarios.

Key Features

- Intel® Tiger Lake U Soc CPU
- SGCC box design, 4-wire speed control fan for heat dissipation
- 1*DDR4 3200MHz SODIMM, up to 32GB
- 1*HDMI 4K display output
- 2*I210AT Gigabit Ethernet port, 2*USB3.2, 2*USB2.0
- 8bit DIO, 1*RS232/422/485, 1*RS232
- 1*M.2 2230 E-Key, supporting for WiFi/BT and other functional extensions
- 1*M.2 B-Key, with SIM card slot, supporting 5G NR wireless module
- 1*Mini PCIe, supporting functional cards such as CAN, optional switch to mSATA
- 1*Full Size mSATA for storage
- DC 9~36V, with short circuit, overvoltage and overcurrent protection



Recommended Products for Roadside Edge Computing Scenarios

3.5-inch Single Board Computer ECM-I913	Embedded Box PC KDMA-3306	Edge Computing System BRAV-7823
		
ECM-I913 is a 3.5-inch embedded motherboard equipped with Intel® Tiger Lake U Soc CPU. It has complete I/O functions, flexible selection of power supply, active and passive radiators, and the compact size is suitable for installation in limited space scenarios. It is very suitable for AGV and AMR, medical inspection, machine vision, industrial control, digital city and smart security and other industries.	KMDA-3306 is a high-performance, small-form-factor, compact embedded box computer, designed with SGCC box structure and extruded aluminum heatsink. With Intel Meteor/Arrow Lake series processors, rich I/O and shock-absorbing design, are suitable for application scenarios such as AGV/AMR, machine vision, and embodied intelligent robots.	The BRAV-7823 is powered by an Intel® Core™ Ultra Series 3 Panther Lake-H CPU, supporting up to 64GB onboard memory. It features multi-network, multi-I/O, and multi-expansion, 9~36V wide DC input, with OVP, OCP and SCP protect Aluminum-magnesium alloy chassis, fan cooling and compact design. It is ideal for embodied robots and humanoid robots.
Key Features ▪ Intel® Tiger Lake Soc CPU ▪ Dual channel DDR4 SODIMM, support 3200MHz, up to 64GB ▪ 1*HDMI, 1*DP, 1*48-bit LVDS, 3 independent displays ▪ 2*LAN, 4*USB3.2, 2*USB2.0, 4*COM, 1*8-bit DIO ▪ 1*M.2 2230 E-key supports WIFI/BT or 1*M.2 3052 B-key with SIM card slot, supports 4G LTE/5G NR ▪ 1*full size Mini PCIe, supports PCIe modules ▪ 1*SATA3.0 HDD/SSD, 1*mSATA(Opt.) for storage ▪ Active or passive, two different thickness radiator selection ▪ DC IN12V, 9-36V wide DC input optional (OFX-075)	**Key Features** ▪ Intel® Meteor/Arrow Lake Soc CPU ▪ 1*DDR5 5600MHz SODIMM, up to 48GB ▪ 2*HDMI 4K display output, Audio out+Mic ▪ 3*LAN GBE, 2*USB3.2, 4*USB2.0, 2*CAN ▪ 16bit Iso. DIO, 2*RS232/485, 2*RS232, 2*RS485 ▪ 1*M.2 2280 M-Key, supports NVME storage ▪ 1*Mini PCIe, with SIM card slot, supports 4G ▪ 1*Full Size mSATA for storage ▪ DC 9~36V, protection against overcurrent, overvoltage, and reverse connection	**Key Features** ▪ Intel® Panther Lake-H SoC CPU ▪ Onboard LPDDR5x 8533MHz memory, Max. 64GB ▪ 1*M.2 2280 M-Key PCIe x 4 NVMe ▪ 1*HDMI2.1 UHD display port, Audio out+Mic ▪ 6*Gig LAN, 3*USB Type C, 4*GMSL2, 2*CAN2.0, 2*RS232/422/485+2*RS232 8*Isolated DIO, 2*I2C ▪ 1*M.2 B-key and 1*M.2 E-key support 4G LTE/5G NR and WI FI7+BT5.4 ▪ DC-IN 9~36V, with OVP, OCP and SCP ▪ Aluminum-magnesium alloy chassis, automotive-grade shock resistance design, compact design

Core Products for Highway Scenarios

Fanless Box Computer KMDA-5610	Fanless Box Computer KMDA-6610	Fanless Box Computer KMDA-7610
		
KMDA-5610 is a fanless and high-performance box computer with H310 chipset, powered by Intel® 8th /9th Gen Coffee Lake CPU. It has complete I/O function, high-speed storage and RAID storage, wide-voltage DC input and moderate size. It is suitable for industrial automation, highway tolling, security monitoring and environmental detection and other industries.	KMDA-6610 is a fanless high-performance box computer with H420E chipset, powered by Intel® 10th Gen Comet Lake CPU. It has complete I/O function, wide-voltage DC input and moderate size. It is suitable for industrial automation, highway tolling, security monitoring, environmental detection and other industries.	KMDA-7610 is a fanless high-performance box computer with H610 chipset, powered by Intel® Alder Lake-S/Raptor Lake-S/ Raptor Lake-S Refresh CPU. It has complete I/O function and moderate size. It is suitable for industrial automation, highway tolling, security monitoring, environmental detection and other industries.
Key Features ▪ Intel® 8th /9th Gen Coffee Lake LGA1151 CPU ▪ Intel® H310 chipset ▪ 2*DDR4 2400/2666MHz SODIMM, up to 64GB ▪ 3 independent display ports (1*DP, 1*HDMI and 1*VGA) ▪ 2*LAN, 4*USB3.1, 2*USB2.0, 4*COM, 16bit Iso. DIO ▪ 2*RS232/422/485 and 2*RS232 ▪ 1*Mini PCIe (PCIe + USB), 1*M.2 2242 B-Key ▪ 1*M.2 E-key 2230, supports Gigabit WiFi modules ▪ 2*2.5-inch easy-swap SATA3.0 bay and 1*mSATA ▪ Wide power input (9-36V), with short circuit, overvoltage and overcurrent protection	**Key Features** ▪ Intel® 10th Gen Comet Lake LGA1200 CPU ▪ Intel® H420E Chipset ▪ 2*DDR4 2933MHz SODIMM, up to 64GB ▪ 3 independent display ports (1*DP, 1*HDMI and 1*VGA), supporting two independent displays ▪ 2*LAN, 4*USB3.2, 2*USB2.0, 8bit DIO ▪ 1*MIC+1*LINE OUT, 1*PS/2 ▪ 2*RS232/422/485 and 2*RS232 ▪ 1*Mini-PCIe full size with SIM card slot, supporting 4G LTE module ▪ 2*2.5-inch SATA 3.0 and 1*mSATA ▪ Wide power input (9-36V), with short circuit, overvoltage and overcurrent protection	**Key Features** ▪ Intel® 12th/13th/14th Gen Core i9/i7/i5/i3 ▪ Intel® H610 Chipset ▪ 2*DDR5 4800MHz SODIMM, up to 64GB ▪ 3 independent display ports (1*DP, 1*HDMI and 1*VGA) ▪ 2*LAN, 4*USB3.2, 2*USB2.0, 16bit Iso. DIO ▪ Audio 1*MIC+1*LINE OUT ▪ 2*RS232/422/485 and 2*RS232 COM ▪ 1*Mini-PCIe full size with SIM card slot, support 4G LTE modem ▪ 2*2.5-inch easy-swap SATA3.0 bay and 1*mSATA ▪ DC IN 9-36V, wide power input, with OVP, OCP and SCP

Core Products for Rail Transit Scenarios – Edge AI Computing System BRAV-7601-S



BRAV-7601-S is a high-performance AI MEC computing system powered by Intel® Comet Lake 10th-Gen CPU. It features a CPU + GPU dual-processor architecture, delivering high performance with multiple network ports, multiple display outputs, and rich I/O. It is very suitable for C-V2X, special vehicle onboard systems, high-precision machine vision, medical imaging and other applications.

Key Features

- Intel® 10th Gen Comet Lake Celeron/Pentium/Core™ i9/i7/i5/i3 CPU
- Two temperature control fans, aluminum chassis
- 3*2.5G-LAN+4*Gig-LAN with POE function
- VGA + 2*HDMI, 3*independent display, 2*DP GPU display
- 3*M.2, supporting Gig+WiFi6, 4G LTE, 5G NR module
- 1*MXM3.1, supporting MXM GPU modules and AI acceleration cards with power consumption lower than 190W
- 9~36V wide DC input



Recommended High-performance Products for Rail Transit Scenarios

Edge AI Computing BRAV-7601-T003	Fanless In-Vehicle Computer SIGM-3555	AI Edge Computing System BRAV-7722
		
BRAV-7601-T003 is a high-performance fanless AI edge computing system powered by Intel® Comet Lake series CPUs. It features multiple LAN ports, multiple display outputs, and rich I/O, including 1 × PoE++ and 3*PoE port. With a 9-36V wide DC input and ACC delayed power on/off function, it is suitable for applications such as C-V2X, special vehicle onboard systems, machine vision, and medical imaging.	SIGM-3555 is a high-performance fanless AI edge computing system powered by Intel® Comet Lake series CPUs. It features multiple LAN ports, multiple display outputs, and rich I/O, and supports 110V DC power input. It is suitable for applications such as rail transit, C-V2X, special vehicle onboard systems, intelligent security, high-precision machine vision, and medical imaging.	BRAV-7722 is a high-performance AI edge computing system with the Q670 chipset, powered by Intel® Alder Lake S / Raptor Lake S / Raptor Lake S Refresh series processors. It features a CPU + GPU dual processor architecture, providing high performance with multiple LAN ports, multiple display outputs, and rich I/O. An optional BMC module supports remote management. The system uses a 19V DC power input and is designed for applications such as smart transportation, machine vision, autonomous driving, intelligent security, and digital healthcare.
Key Features ▪ Intel® 10th Gen Comet Lake Celeron/ Pentium/Core™ i9/i7/i5/i3 CPU ▪ Aluminum frame, fanless ▪ 3*2.5G-LAN+4*Gig-LAN with POE ▪ VGA+2*HDMI, 3 independent displays ▪ 3*M.2, supporting Gig-WiFi6, 4G LTE, 5G NR ▪ 1*MXM3.1, supporting MLU220-MXM AI acceleration modules ▪ 9~36V wide DC input, with ACC delayed on/off function	**Key Features** ▪ Intel® 10th Gen Comet Lake Celeron/ Pentium/Core™ i9/i7/i5/i3 CPU ▪ Aluminum frame, fanless ▪ 3*2.5G-LAN+8*Gig-LAN with POE function ▪ 8-bit DIO, 4*USB3.0, 2*USB3.0, 2*USB2.0, 4*COM ▪ 2*CAN, supporting both CAN2.0A and CAN2.0B protocols, conforming to ISO/DIS 11898-1/2/3 standards ▪ 2*HDMI, 2 independent displays ▪ 3*M.2, supporting Gigabit WiFi6, 4G LTE, 5G NR and other wireless modules ▪ 110V DC railway standard isolated power supply, with reverse connection, overcurrent and overvoltage protection	**Key Features** ▪ Intel® 12th/13th/14th Gen Core i9/i7/i5/i3/ Pentium/Celeron LGA1700 Socket CPU ▪ 4*dual-channel DDR5 4800/5600MHz, up to 192GB ▪ 3*LAN, 4*USB3.2, 2*COM, 1*Line out ▪ 3*HDMI+1*DP, dual integrated displays, 2 independent GPU displays ▪ 2*M.2, supporting 4G LTE, 5G NR and BMC modules ▪ 1*M.2 M-key, 1*mSATA and 1*2.5-inch SATA Bay ▪ 1*MXM3.1, supporting Intel Arc A750E and A770 series GPU ▪ 19V DC power supply interface, with short circuit, overvoltage and overcurrent protection



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