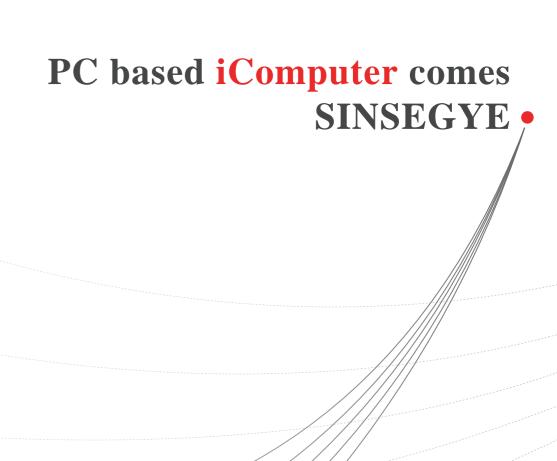
SINSEGYE







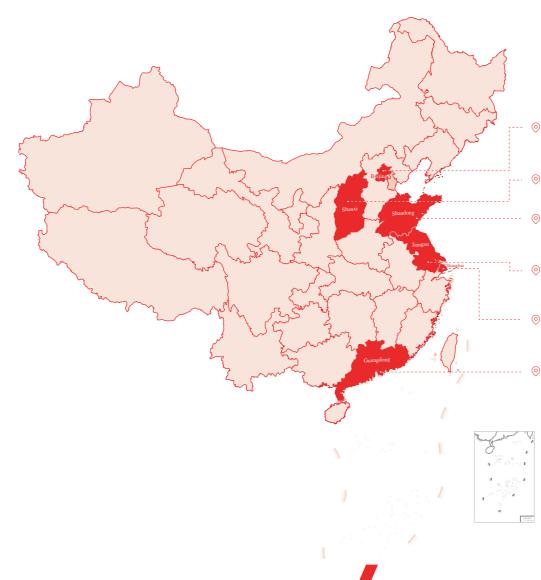


About Us

Sinsegye is a product-driven company that leverages research and development technologies from the Institute of Computing Technology at the Chinese Academy of Sciences. Our founding team consists of core experts from the Institute of Computing Technology, each with nearly 20 years of experience in industrial intelligent computing and control technology R&D. Our company specializes in PC control, dual-domain operating system development, automation control, and industrial software algorithms, solidifying the foundation for our technological innovation. We have clearly defined its goal of achieving industrial intelligence based on intelligent PC technology and software-defined technology. We have obtained multiple national invention patents and utility model patents due to core technologies. Continuous and intensive PC full technology R&D capabilities are our core competency, covering areas such as motion control chip design, AI chip tool chain, parallel computing, compilers, runtime, real time micro-kernel, operating system isolation, virtualization, motion control acceleration, industrial bus, IDE, and algorithms. With "Industrial intelligent computer" as the driving force and automation as the core, we provide an intelligent industrial automation solution that integrates computing + control of PLC, industrial computers, motion controllers, and edge servers. Our flexible product combination of IO/Motion/Acceleration/Digitization offers efficient, stable, and reliable solutions for industrial scenarios. This solution has been successfully applied in advanced manufacturing, new energy, and process industries.

Meanwhile, we have received support from well-known investment institutions such Cowin Capital, Z&Y Capital, Shenzhen Qianhai FOF Fund, Lenovo Capital (LCIG), Zhongke Turing Capital, Galaxy Aerospace Investment, Chinese Academy of Sciences Investment, Chinese Academy of Sciences Capital, Tianchuang Venture Capital, Cornerstone Capital, Guozhong Capital, Zhongke (Shenzhen) Advanced Fund, Sugon, Xinhenglida Capital, and Bojiang Capital. The company also benefits from the leadership of two academicians of the Chinese Academy of Engineering from the Institute of Computing Technology, providing sufficient financial support for our development.

As one of the representatives of China's Industry 4.0, We will further realize domestic industrial chip, domestic virtualization dual-domain operating system, domestic industrial software, and other industrial technologies. We aim to build a self-controllable industrial infrastructure centered on "Industrial intelligent computer" and surpass the traditional form of computers with the next-generation computer-controller (algo-controller), supporting China's transformation from manufacturing to smart manufacturing, challenging international competitors, driving national industrial development, and leading the era of computable manufacturing.



SINSEGYE (Beijing) Technology Co., Ltd. Room 1801, Jinhui Building, East Wangjing, Chaoyang District, Beijing City

SINSEGYE (Taiyuan) Technology Co., Ltd. No.10, Huarunyuefu, Wanbolin District, Taiyuan City

SINSEGYE (Qingdao) Technology Co., Ltd. #1 Building, No.119, Chunyang Road, Chengyang District, Qingdao City

SINSEGYE (Suzhou) Technology Co., Ltd. Room 504, #2 Building, No.209, Zhuyuan Road, Gaoxin District, Suzhou City

SINSEGYE (Shanghai) Technology Co., Ltd. Room 1704 (International Procurement Center), No. 235, Shanghai City

SINSEGYE (Shenzhen) Computer System Co., Ltd. B25, 14th Floor, West Tower, Baidu International Building, No.8 Haitian 1st Road, Nanshan District, Shenzhen City

Why choose us

Technical skills

The research and development technologies derives from the Institute of Computing Technology at the Chinese Academy of Sciences, and the core technologies have obtained multiple national invention patents and utility model patents.

Team strength

The founding team comes from the Institute of Computing Technology at the Chinese Academy of Sciences and its incubated listed companies. The team members come from Alibaba, Beckhoff, Siemens, Lead Intelligent Equipment, Kyland Technology, Luster, Hollysys, Inovance Technology, Lenovo, Sugon, Li Auto, NIO and other well-known domestic and foreign companies.

Capital guarantee

We have received support from well-known investment institutions such Cowin Capital, Z&Y Capital, Shenzhen Qianhai FOF Fund, Lenovo Capital (LCIG), Zhongke Turing Capital, Galaxy Aerospace Investment, Chinese Academy of Sciences Investment, Chinese Academy of Sciences Capital, Tianchuang Venture Capital, Cornerstone Capital, Shenzhen Guozhong Capital, Zhongke (Shenzhen) Advanced Fund, Sugon, Shenzhen New Vakue Capital, and Bojiang Capital. The company also benefits from the leadership of two academicians of the Chinese Academy of Engineering from the Institute of Computing Technology.

Wide application

Offer efficient, stable, and reliable solutions for industrial automation and intelligence by providing an intelligent industrial automation solution that integrates PLCs, industrial computers, motion controllers, and edge servers. This solution has been successfully applied in advanced manufacturing, new energy, and process industries.

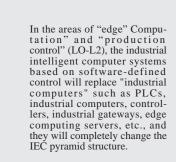
PC based iComputer comes SINSEGYE



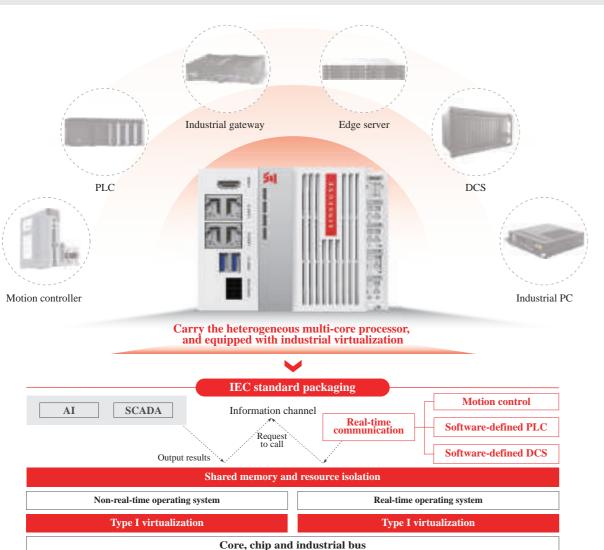
The very beginning of the new world

Industrial Intelligent Computer Era Change

iphone in industrial automation: Edge AI acceleration + real-time control acceleration + virtualization acceleration.









PC based iComputer comes SINSEGYE



SC series Ultra Compact IO products

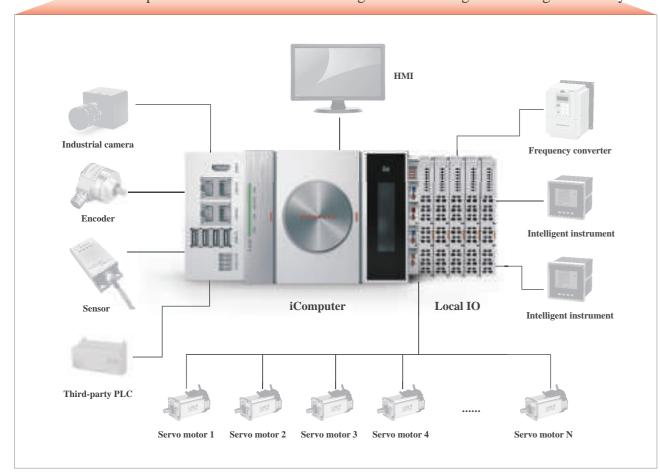
SRE series Plug-in IO products

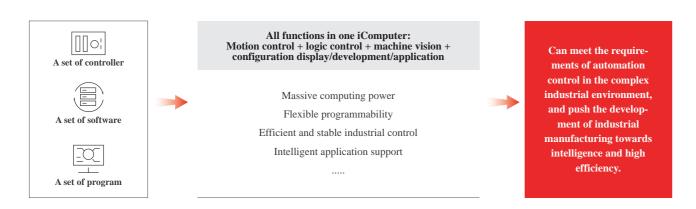
The very beginning of the new world

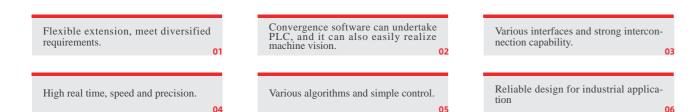
SRR series Plug-in IO products

Meeting different control requirements in complex industrial environment by one set of iComputer

Push the development of industrial manufacturing towards intelligence and high efficiency







SX series embedded controller

SINSEGYE



SX5 series compact iComputer



SX2 series standard iComputer



SX2 series domestic iComputer

Computing + control

The functions of motion control, logic control, machine vision, configuration display and edge computation are provided simultaneously in one set of controller. The applications of motion control, logic control, machine vision and configuration display are solved by adopting one set of program.

Small form factor and flexible extension

- With compact structure and the standard DIN guide rail installation mode, 75% of the installation space can be saved.
- With modular design, the actual requirements can be met while maintaining scalability and accurate matching, and additional waste in equipment and sources can be avoided.
- Support the local extension module and the remote IO module, so that diversified I/O and process modules can be provided for users during data acquisition, control and transmission.

Safe and reliable

- Multiple network interfaces design, and high response axis, realize the independent network card design for EtherCAT ring networking, and isolate the networks in the control layer and the information layer.
- Customize heat dissipation profiles and adopt high-quality heat conductive materials.
- Meeting the requirements of EMC Level 3, IP20 protection level for the front, and harsh industrial application scenarios.

Highly real-time performance

- · Minimum control cycle of 125us for a single axle
- Minimum control cycle of 0.8ms for 128 axles
- The command execution efficiency can reach ns level
- Support up to 256 axles connection

Various connection and networking modes

- Various programming modes Various algorithm modules
- · Various applications

SP series IPC controller

SINSEGYE



SP70 series fanless iComputer



SP6000 series Industrial Intelligent Computer



SP5040 series 4U Industrial Intelligent Computer

Computing + control

A set of controller has the functions of motion control,logic control, machine vision, configuration display, and edge computing at the same time, realizing the functions of motion control soft board (replacing industrial PC+motion control card,saving costs). A set of software is compatible with the development of motion control, logic control, machine vision and configuration display. A set of program simultaneously solve the application of motion control, logic control, machine vision, and configuration display.

With rich configurations, satisfy different application scenarios

- With the book type, the fanless type, the tower type/wall-mounted type and the 4U rack-mounted type, it can meet various control needs.
- Some types support the body IO, and the whole series supports remote IO modules, providing users with a variety of I/O and process modules for data acquisition, control and transmission.

Reasonable gene, safe and reliable

- Through the design of multiple network interfaces, the EtherCAT ring networking is easily realized while taking high-response axle control into account. With the independent IP of the network interface, the networking in the control layer and the information layer as well as the vision networking can be completed with separate IPs, and they are securely isolated.
- With the delicate design, meeting the requirements of harsh industrial application scenarios.

Highly real-time performance

- · Minimum control cycle of 125us for a single axle
- Minimum control cycle of 0.8ms for 128 axles
- The command execution efficiency can reach the ns level

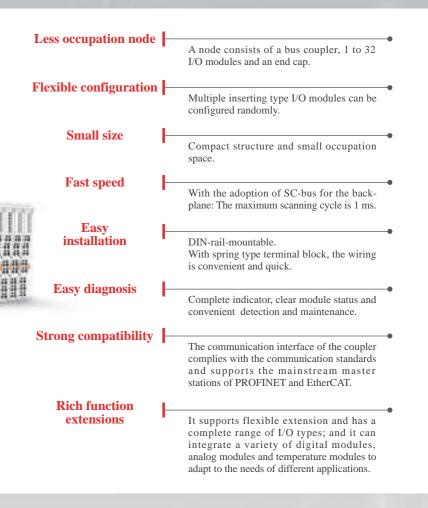
Rich connection and networking modes

· Rich programming modes

IO/Motion

SRC series new-generation plugged-in remote IO

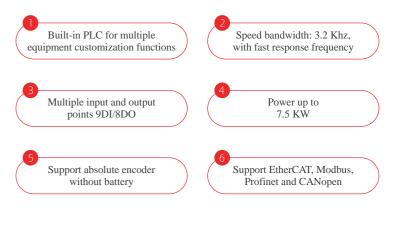
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Motion control

SV series rotary servo driver and motor

SINSEGY



Advantages of product

Built-in PLC function

Built-in rolling-cut function

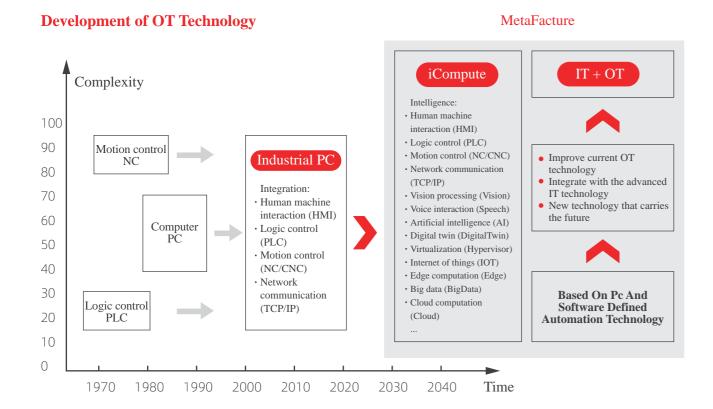
Function of giving communication position

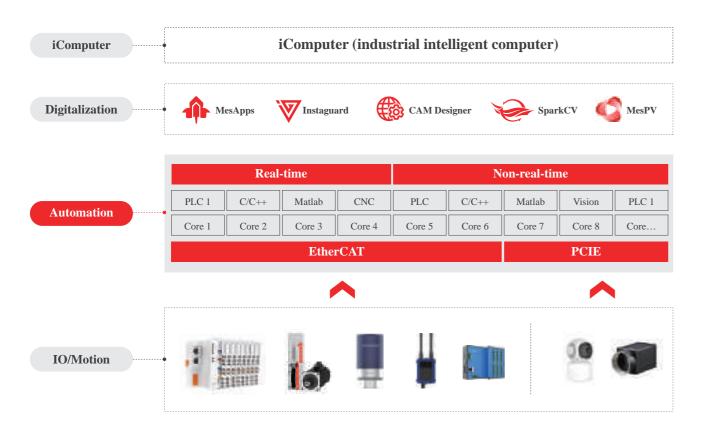
Automation- MetaFacture



Based On Pc And Soft Ware Defined Automation Technology



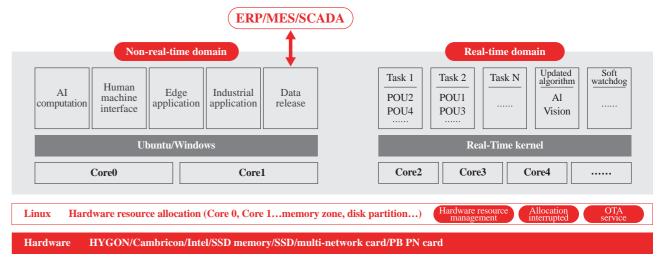




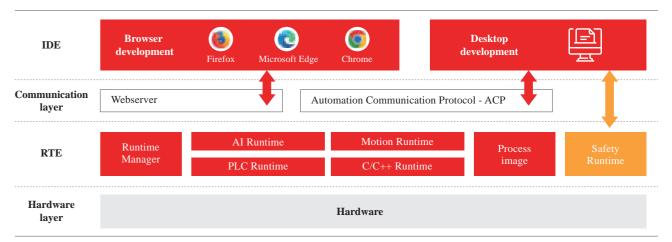
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Automation- 🕰 MetaFacture

MetaFacture so - Dual-domain operating system:



MetaFacture IDE & RTE:



Features: Domes

- · Dual-domain operating system
- Type I virtualization technology
- Complete isolation of real-time domain and non-real-time domain
- Cross-platform development of application
- Hard real-time, multi-core and multiple tasks
- · Convenient and efficient development
- Modular management and dispatching
- IOT debugging technology
- Seamless integration of IT resources

Domestic mainstream solutions:

Our PC architecture and software-defined technologies: multi-core and massive-computing-power chips, type I virtualization, operating system isolation and hybrid programming

Heterogeneous and massive-computing-power chip + operating system isolation + hybrid programming

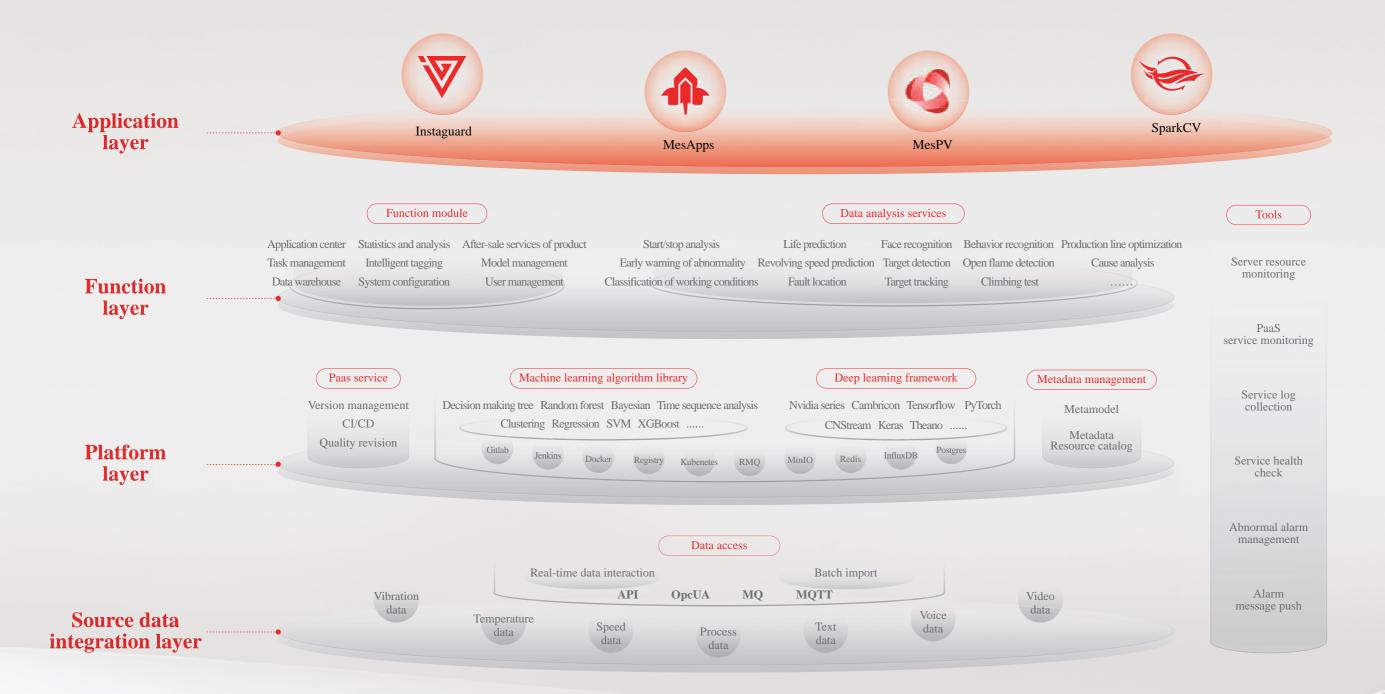
Medium-computing-power chip + desktop operating system + real-time patches of operating system + or + extension of hard motion control card

Medium- and low-computing-power chip + real-time operating

Medium- and low-computing-power chip + real-time operating system + upper computer (desktop non-real-time operating system)

Tier 3

Digitization



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Instaguard intelligent guard and diagnosis system for equipment

The intelligent guard and diagnosis system for equipment is a PHM application system with self-diagnosis, self-learning and self-control. It helps enterprises reduce losses from unscheduled downtime, improve the guard and analysis capability for equipment, and make the guard of enterprise equipment easier.

Product structure:



Product value:

Use AI to carry out jointly analysis, extend the guard from the equipment body to the upstream and downstream areas of production, and finally the decision-making layer is notified in real time to help the enterprise to reduce non-downtime losses.

- · Non-downtime reduced by more than 100h/month
- · The unscheduled downtime losses are

Judge

Execute

reduced by more than 70% · The costs of redundant personnel are reduced by more than 40%

Sense

19

With AI diagnosis, the guard

Use AI technology to detect equipment failures in advance, and use professional tools to improve the guard capability of monitoring personnel.

- · The guard quantity is increased to more than 1,000 sets/person
- · The fault location time is reduced by more than 40%
- The unit analysis time is shortened by more than 50%
- The guard time of a single unit is shortened by more than 5h

With rapid integration, the

Through standardized data input and output, more customers or integrators can have the guard diagnosis capability more quickly, so that the difficulty and cost of user data integration are reduced.

- · The data docking time is saved by more than 15 days
- The system integration time is saved by more than 20 days
- · The docking cost is reduced by more than 67%



Intelligent control system for MesPV polysilicon reduction furnace

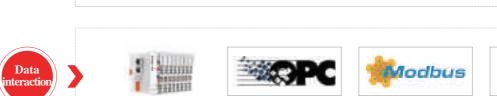
Integrated computing and control

MesPV integrates multiple tasks such as on-site working condition sensing, intelligent optimization of the reduction furnace, real-time control, production management, etc. to create an innovative industrial system with independent and intelligent decision-making capability. At the same time, the core hardware equipment, underlying operating system, intelligent optimization algorithms, etc. are all independently developed, which fundamentally ensures safety and controllability of the system.

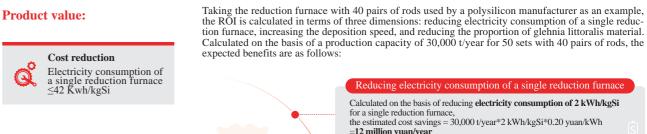
Many extra-large new energy enterprise with the annual output value of more than 10 billion in northwest China are configured with the MesPV polysilicon reduction furnace optimization control system. Compared with the traditional control method, the electricity consumption of a single reduction furnace achieves 42 kWh/kgSi or less, with the deposition rate of 2,110 kg/h and a dense material ratio of 255%, helping the enterprise improve quality, reduce costs, increase efficiency and control risks.

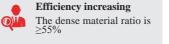
Product structure:





OPC UA





the realized economic benefits are expected to be: ≥ 12 million

Estimated by 30,000 t/year,

yuan/year Quality improvement Deposition rate ≥ 110 kg/h

IO module

DCS

Modbus

Calculated on the basis of increasing the deposition rate of 5%, with the profit of 10,000 yuan/t, the estimated annual output value increase = 30,000 t/year*5%*10,000 yuan/t

Reducing the proportion of glehnia littoralis

Calculated on the basis of reducing the proportion of glehnia littoralis by 10%, with the price difference of 5,000 yuan/t between glehnia littoralis and dense materials

the estimated annual output value increase = 30,000 t/year*10%*5,000 yuan/t



MesApps injection molding process optimization and recommendation system

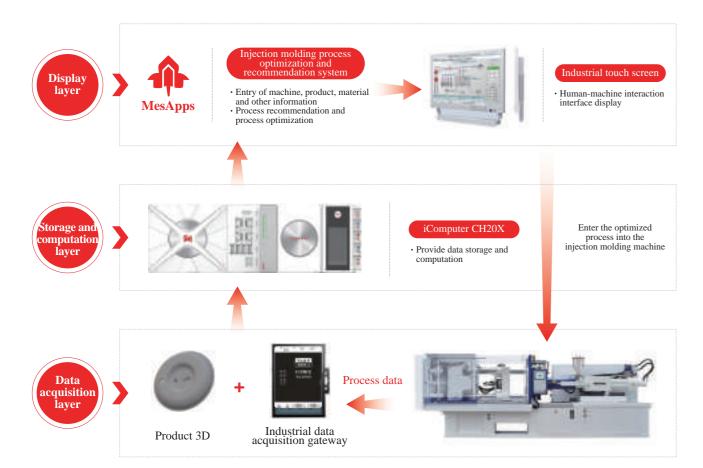
Data management P

Process recommendation

(Inowledge graph

The intelligent optimization assistant of injection molding process is an intelligent parameter adjustment tool dedicated to lowering the injection molding parameter adjustment threshold and using intelligent algorithms to help injection molding sites solve process parameter adjustment problems. It can help companies reduce labor costs and production costs, and enable the companies to adapt to the rapidly changing market environment.

Product structure:





Value 1

Automatically generate process parameters and recommend process optimization solutions through intelligent algorithms, shorten parameter adjustment time and lower the parameter adjustment threshold.

Value 2

Track and record each parameter adjustment process and feedback information, build the knowledge graph for parameter adjustment, further shorten the parameter adjustment time, and improve product quality.

Value 3

Provide professional technical support services to solve all parameter adjustment problems of customers.

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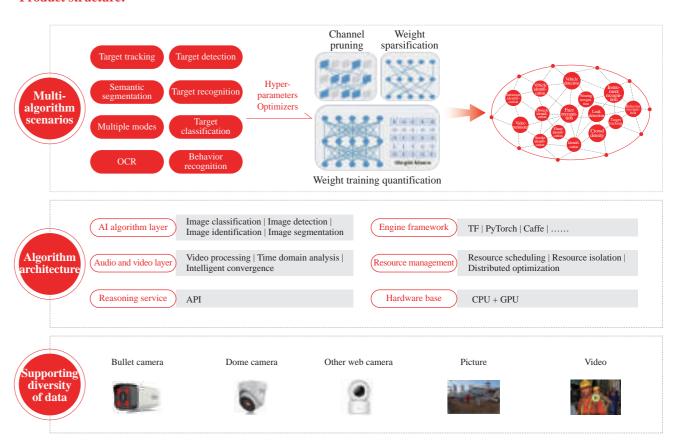
SparkCV visual guard system

0

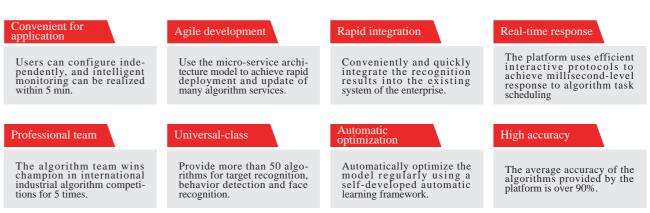
Make visual guard more convenient

The intelligent visual guard system SparkCV changes the traditional monitoring method purely relying on personnel. By building in rich visual recognition algorithms and independently configurable software functions in the whole process, visual guard is more convenient, automation monitoring can be quickly realized, and alarm events can be tracked and backtracked, realizing less-man and unattended guard.

Product structure:



Platform advantages:

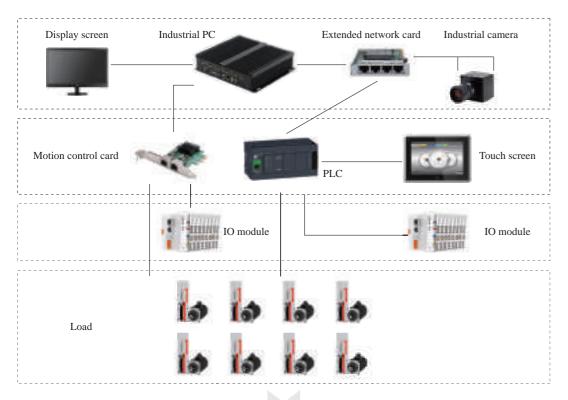


PC based iComputer comes SINSEGYE PC based iComputer comes SINSEGYE

Comparison Of Control Schemes

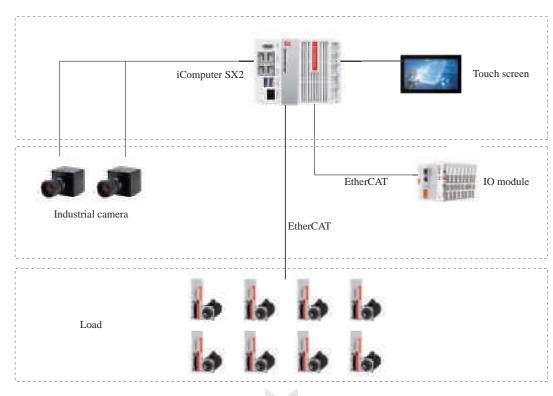


Control Architecture Diagram for Conventional Scheme



Conventional solutions The conventional system is of an architecture composed of the industrial PC + PLC and other controllers, it has 2 to 3 layers, and it has a large size Hardware integration Distributed architecture, low real-time performance of the system Real-time performance The conventional automation equipment requires all-round personnel for upper/lower computer development, and the software shall be deployed in each controller separately Software integration Traditionally, the upper computer shall be installed with expansion boards and extension slots are required, resulting in limited extension and rising cost Flexible extension Conventional controllers are of only domestic brands Multiple interfaces Single interface protocol and limited flexibility of protocol docking The adaptation of the upper and lower computer requires a lot of transfer and adaptation work Information interaction Due to limited computing power, the conventional architecture control layer cannot efficiently process large amounts of data Performance Digital transformation and intelligent scenario adaptation are not friendly Scenario adaptation Due to multiple devices, the purchasing cost, equipment, debugging/labor costs go up

Control Architecture Diagram of SINSEGYE Computable Manufacturing Scheme



	PC based iComputer comes SINSEGYE
Hardware integration	One set of controller has the functions of motion control, logic control, machine vision and configuration display at the same time, and it is compact in size
Real-time performance	The dual-domain operating system of real-time domain and non-real-time domain share the memory interaction mechanism, and the transmission and control has low delay, ensuring real-time performance
Software integration	A set of software is compatible with the development of motion control, logic control and machine vision configuration display, improving programming efficiency and allowing everyone to program
Flexible extension	Support local and remote I/O extension modules to carry out data acquisition and control for users, transmit and offer a variety of I/O and process modules, simultaneously support the extension modules of graphic cards, network interfaces, serial ports, 4/5GWIFI, and meet on-site functional requirements of customers
Domestication	The core chips such as CPU, graphics card, etc. for the product are all made of domestic materials. Product performance is available in high and low configurations. Customers can choose domestic controllers with different performance according to their needs
Multiple interfaces	Flexible configuration of interface protocols, support most mainstream control protocols
Information interaction	Through shared memory between operation domains, transmit large amounts of data efficiently and stably
Performance	PC-based controller has high computing power and can allocate computing power in real-time domain and non-real time domain in accordance with needs
Scenario adaptation	Adapt to the digital and intelligent scenarios
Cost	Integration facilitates deployment, reduces equipment costs, and improves development and debugging efficiency



Polycrystalline silicon reduction furnace automatic control project for a top 100 global new energy company in Xinjiang

The integrated solution of computation and control businesses such as MesPV polysilicon process control system optimizes the production process of polysilicon reduction furnace,can save energy, improve quality and efficiency.





new energy, processing industry.

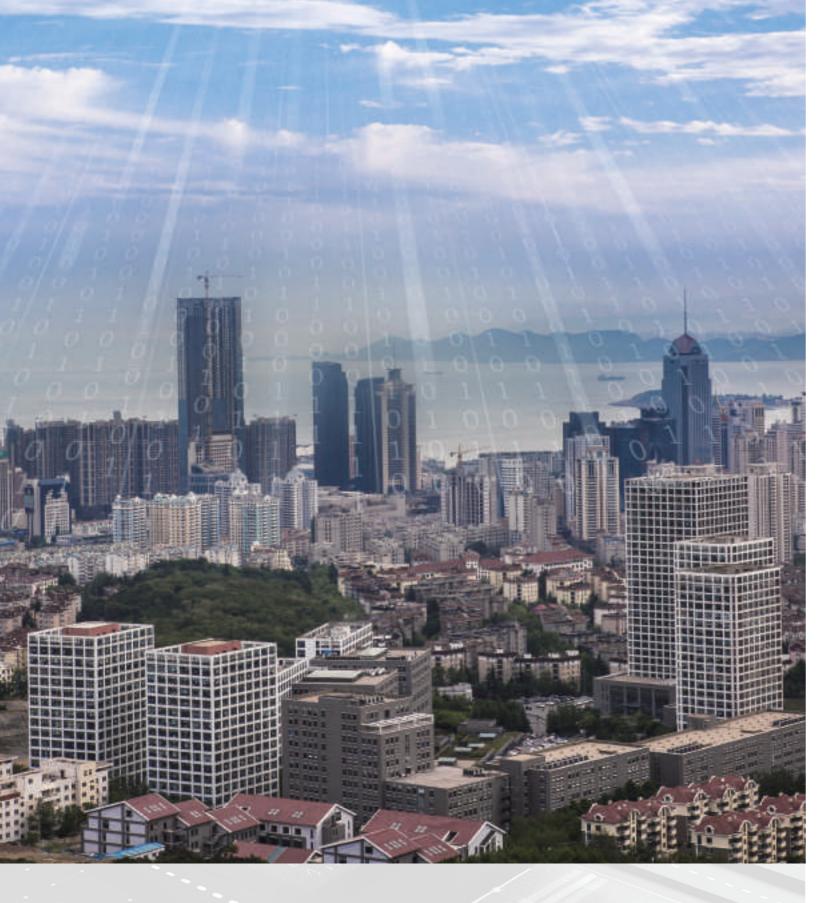
Well-known brand controller replacement project for a world-leading AI and optoelectronic information company

The integration of vision with control greatly saves costs. Improved three-axis interpolation function and communication efficiency between vision and control, increasing the overall beat speed.











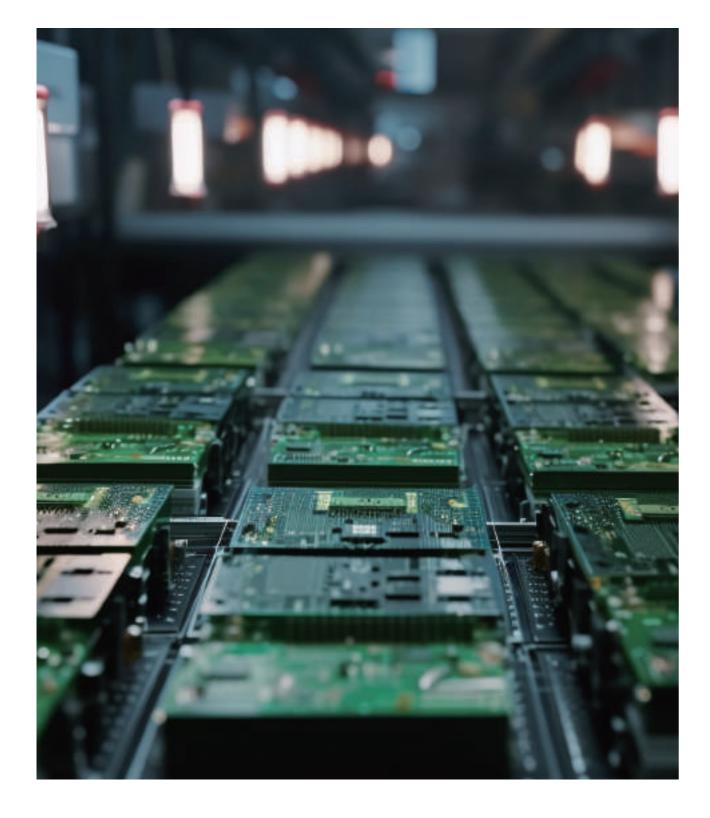
Equipment monitoring project of an intelligent photovoltaic pilot demonstration enterprise in Qingdao

By combining IDE with upper software, realize the calling and application of real-time algorithm functions in non-real-time applications, and enable customers to more flexibly configure their own process requirements.



Advantech industrial PC and Leadshine motion control card project for a national leading enterprise of intelligent manufacturing equipment

The NC core (soft card processing) application of the iComputer is significantly more stable than the conventional motion control board, and it effectively saves costs by about 20%. The vision + control application improves the data exchange efficiency and the beat through internal communication methods.







Well-known brand controller replacement project for a listed photovoltaic equipment company in Jiangsu

The control cycle of 100 axes in 2MS, and the upper computer screen is integrated, cut down cost by about 30%.