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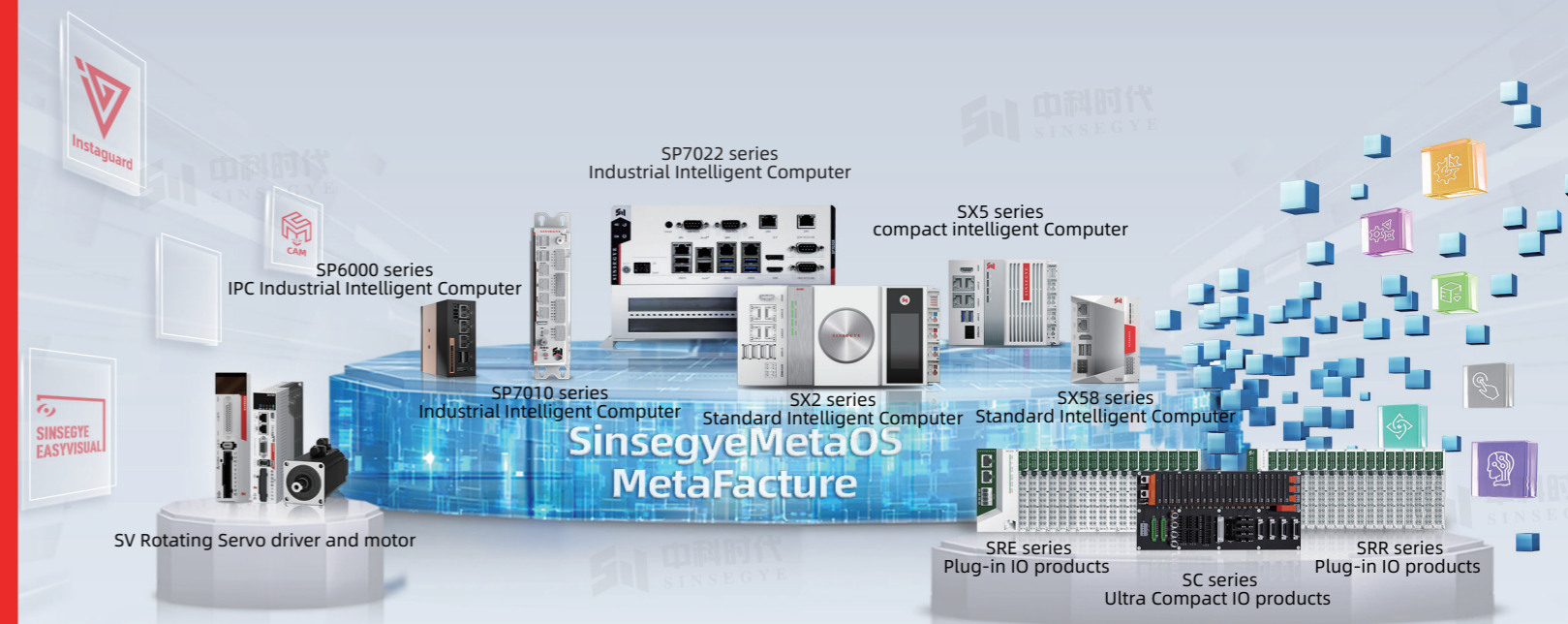
2024 V1.0



# A New Era of Industrial Intelligent Computer Based on PC Technology

PC based iComputer comes SINSEGYE

Product Cataloge



THE VERY BEGINNING OF THE NEW WORLD

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SX2 series standard intelligent computer



SX5 series compact intelligent computer



SX58 series compact intelligent computer

## Industrial intelligent computer SX series embedded controller

### 1. Computing + Control:

A set of controller integrates the functions of motion control, logic control, machine vision, configuration display and edge computing. A set of software is compatible with the development of motion control, logic control, machine vision, and configuration display. A set of programs simultaneously solves the applications of motion control, logic control, machine vision, and configuration display.

#### a. Software stringency, high programming efficiency, and everyone can program

Integrate PLC control, PC, motion control, machine vision, edge computing and other functions in the same control platform. Seamlessly connect PLC control, machine vision, database, and cloud platform, and integrate third-party software to achieve high real-time automation control. Besides, it is easier to achieve the integration of motion control and machine vision, as well as the integration of IT and OT.

#### b. Rich algorithms and simpler control

Integrate PLCopen (part1, part2, part4) standardized functional blocks and Basic (CAM)/CNC/Robotics. Built in visual basic algorithms such as image pre-processing, image calibration, visual measurement, defect recognition and localization, OCR and QR code.

#### c. Realize high real-time, strong computing, speed and accuracy

Equipped with the latest X86 architecture processor, support 64 bit floating-point computing, it can provide 1000Mbps communication link to connect IO modules and third-party devices, greatly improving the real-time capabilities and accuracy of SX series products in transmitting and processing big data.

#### d. More interfaces and strong interconnectivity

Support up to 4 Gigabit Ethernet interfaces, 4 x USB 3.0, 1 x 485/232/422, 1 x CAN, and 1x HDMI.

### 2. Compact and flexible, with flexible expansion:

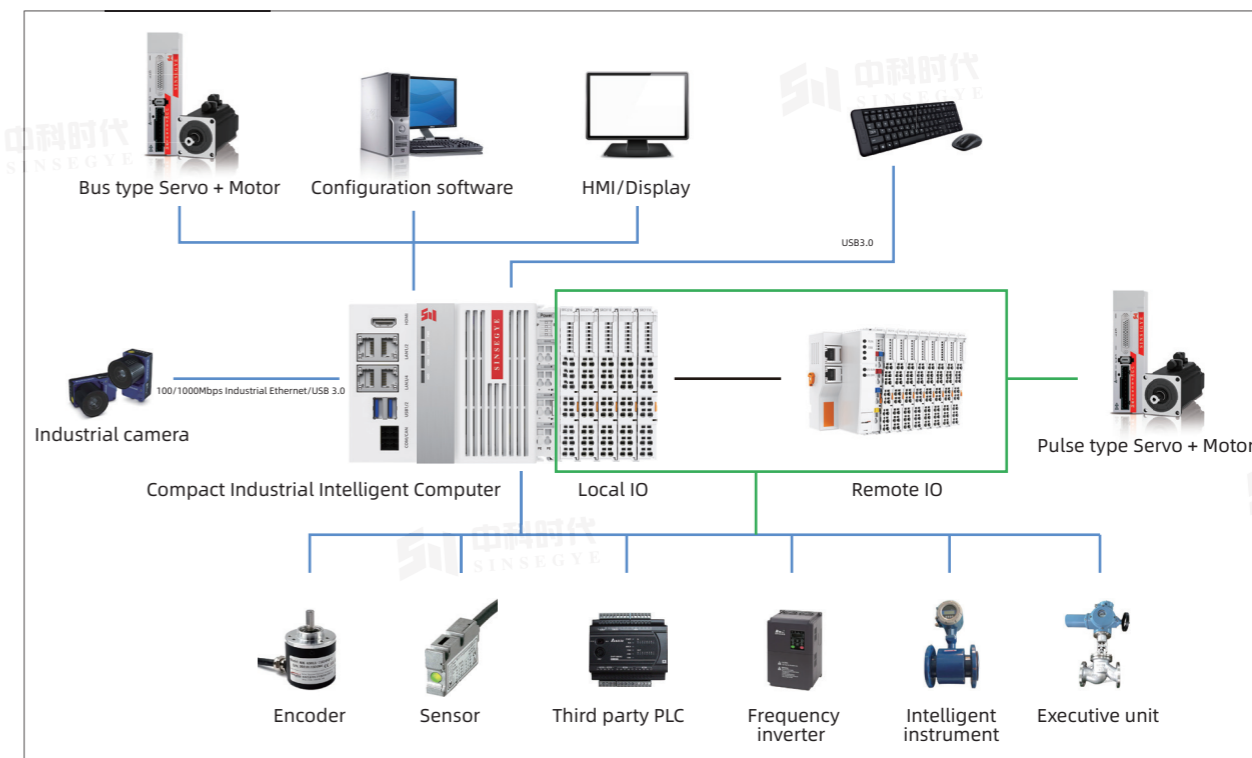
- Compact structure, standard DIN rail installation method, saving 75% installation space.
- Modular design enables to maintain scalability and accurate matching, meet practical needs and avoid wasting additional equipment resources.
- Support local expansion modules and remote IO modules, providing users with diverse I/O and process modules for data collection, control, and transmission.

### 3. Safe and reliable :

- More ports, realize high response axis control and easily achieve EtherCAT ring networking.
- Independent network card design, safely isolate control layer network and information layer network.
- Customize heat dissipation profiles and apply high-quality thermal conductive materials.
- Comply with the requirements for EMC level 3 and front IP20, and meet strict industrial application requirements.

### System architecture:

An intelligent computer can simultaneously meet different control needs in complex industrial environments, promoting the development of industrial manufacturing towards intelligence and efficiency.



#### Highly real-time capability:

- Single axis minimum control cycle: 125us;
- 128 axis minimum control cycle: 0.8ms;
- The efficiency of instruction execution can reach ns level;
- Axis capacity greater than 256 axes.

#### Various connection and networking methods :

- Support up to 4 Gigabit Ethernet interfaces, 4 x USB 3.0, 1 x 485/232/422, 1 x CAN, and 1x HDMI;
- Support OPC/UA data services, Modbus, EtherCAT, Profinet, CANopen and Ethernet/IP;
- Can directly connect mainstream industrial cameras that support up to 3 Gige/USB 3.0 interfaces;
- Support up to 4 EtherCAT communication channels, supporting star, bus, tree, and ring networking.

#### Rich algorithm modules:

- With PLCopen certified POU library, achieve single axis and multi axis lateral collaborative motion;
- CNC control (graphical DIN 66025 editor (support G code)/online CAM editor and CNC editor/3D CNC application tutorial example/-comprehensive interpolation function from linear to spline interpolation/CNC tool radius compensation, etc.);
- Robotics (multiple standard robot models (gantry robot (2/3/5 axis), tripod robot and SCARA robot)/comprehensive path planning of multi-coordinate robot coordinate values, etc.);
- ST Vision library (basic visual algorithms such as image pre-processing, image calibration, visual measurement, defect recognition and localization, OCR and QR code).

#### Rich applications:

- Support data collection, data storage, and other data applications;
- Pre-install four industry apps, including Instaguard for intelligent monitoring and diagnosis, MesPV for process optimization and control of polycrystalline silicon reduction furnaces, MesApps for injection molding process optimization recommendation, and Spark-Cv for visual intelligent monitoring;
- Compatible with third-party applications based on Linux ecosystem;
- Supports edge Qclouds.

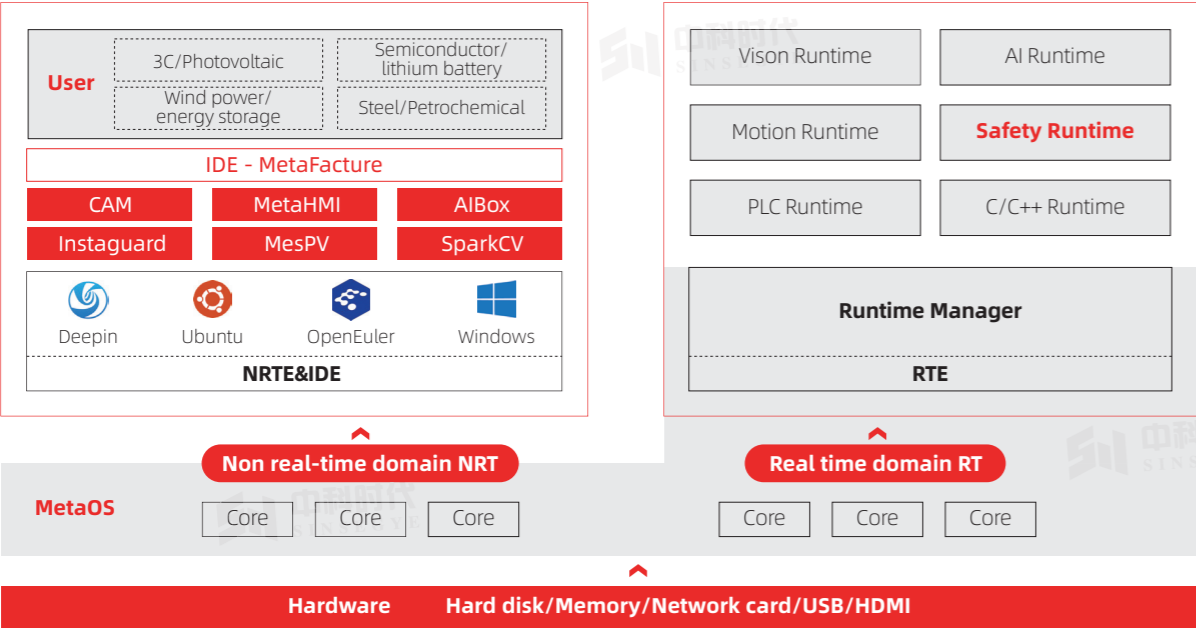
#### Rich programming methods :

- Real-time side: IEC61131-3 standard programming methods (ladder diagram (LD)/structured text (ST)/sequential function chart(SFC)/functional block dimension(FBD)/continuous function chart (CFC)), support C and C++interface;
- Non real-time side: high-level languages such as C, C++, Java, C # and Go Lang.


Build in dual domain operating system with integrated computing and control:



To ensure the openness and real-time control of Ubuntu, Meta dual cores (non real-time core + real-time core) are running on the same CPU hardware platform. Real time and non real-time domains can flexibly allocate hardware resources according to on-site usage scenarios, ensuring the real-time performance of the system.

Compared with traditional PLC+industrial control computers and other forms of products, dual domain communication can achieve high-speed information exchange through shared memory/MODBUS/tag communication and other information exchange methods, and data is what you see is what you get. In case desktop system crashes, the real-time core is not affected.



Product features and application scenarios:

Product series	Product features	Typical application scenarios
 SX2 standard intelligent computer	<p><b>1. Computing + control.</b></p> <p>2. All core components are made-in-China. The domestic operating systems can be safely and stably supplied due to deep real-time development.</p> <p>3. Support I/O, serial port, network port, graphics card, 4G/5G/WIFI module expansion, accurately matching to meet practical needs.</p> <p>4. X86 architecture processor, gigabit network communication link, support graphics card expansion; Meet the needs of big data, high real-time, and large computing ability.</p> <p><b>5. Compatible with domestic operating systems and Windows operating system ecosystem; Ensure localization while quickly inheriting third-party software.</b></p> <p>6. Support 4 network ports, 4 USB 3.0 ports, and can expand up to 4 network ports and 2 serial ports.</p>	<p>1. 3C: High precision control, multi axis group or multi axis linkage high-precision control.</p> <p>2. Semiconductors and photovoltaic: high-precision control, multi axis group with more than 80 axes.</p> <p>3. Packaging: High speed visual quality inspection, logic control, with axis capability.</p> <p>4. Printing: Multi axis group networking, high-speed visual quality inspection.</p> <p>5. Digital business in the process industry, equipped with self-developed application software such as Instagard, Messapp and Sparkcv.</p> <p>6. Laser processing: high-precision multi axis linkage, high-speed visual detection and positioning.</p>

Product series	Product features	Typical application scenarios
 SX5 series compact intelligent computer	<p><b>1. Computer + control.</b></p> <p>2. The latest Atom processor, with a maximum main frequency of 2.0 GHz, can meet the requirements of big data and high real-time computing.</p> <p>3. Support common DI/DO, AI/AO local extensions.</p> <p>4. Support process module expansion.</p>	<p>1. 3C Electronics, semiconductors, and photovoltaic: Solid crystal machines, dispensing machines (visual + motion control), laminating machines (axis capability + real-time capability), sorting machines (motion control).</p> <p>2. Packaging inspection: Lamp inspection machine (visual + motion control), tobacco machine packaging.</p> <p>3. Printing industry: Full wheel offset printing machines (with networking capabilities and visual inspection technology) .</p> <p>4. Software + hardware (small production line level control) polycrystalline silicon reduction furnace, injection molding machine + module automatic parameter adjustment.</p>
 SX58 series compact intelligent computer	<p><b>1. Computing + control.</b></p> <p>2. Developed based on the SX5 series intelligent computer, SX58 series intelligent computer has more compact structure and can meet various integrated computing and control application scenarios.</p> <p>3. Equipped with a Celeron processor, have low power consumption and a maximum main frequency of 2.0GHz, have four cores and four threads, meeting the requirements of big data and high real-time computing.</p> <p>4. Support high and low speed local expansion modules (adaptive).</p>	<p>1.3C Electronics, semiconductors and photovoltaic: Solid crystal dispensing machine (visual + motion control), high-precision multi axis linkage, high-speed visual positioning.</p> <p>2. Packaging inspection: Lamp inspection machine (visual+motion control), tobacco machine packaging.</p> <p>3. Printing industry: Full wheel offset printing machines (with networking capabilities and visual inspection technology) .</p> <p>4. Software + hardware (small production line level control); Polycrystalline silicon reduction furnace, injection molding machine+module automatic parameter adjustment.</p> <p>5. Wind power, energy storage (large computing power + software definition + networking capability).</p>

Product parameters:

		SX20 series	SX21 series	SX5 series	SX5H series	SX58 series
CPU	Architecture	X86 processor	X86 processor	Intel Atom® processor	Intel Atom® processor	Intel Celeron® processor
Memory		16G memory Support memory expansion	16G memory Support memory expansion	4G	8G	4G
Graphics card		External graphics card	External graphics card	Integrated graphics	Integrated graphics	Integrated graphics
Storage		Default 256G, can expand to 1T		Default 128G, can expand to 1T		Default 64G, can expand
Hardware interface	Network interface	4	4	2/4	2/4	2
	USB	4	4	2	2	2
	Serial port	1*RS232/485/422				
	CAN	1				
	HDMI	1				

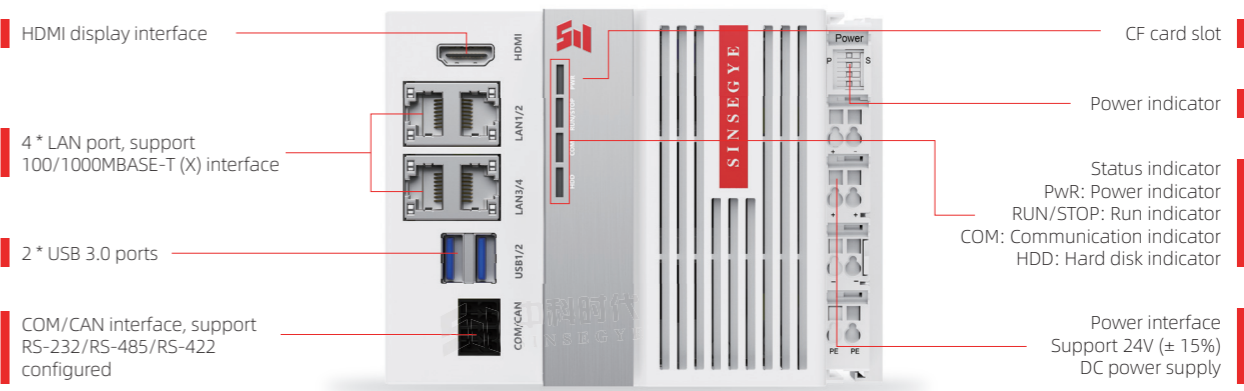
Product parameters:

		SX20 series	SX21 series	SX5 series	SX5H series	SX58 series
Software interface	Programming language	Support IEC61131-3 (LD/ST/CFC/SFC/LBD)				
	Program download	Support binary object code download, support user engineering (active and passive) download				
	Program upload	✓	✓	✓	✓	✓
	Program encryption	Support user engineering and POU encryption, support target file encryption				
	Controller encryption	Support controller locking/unlocking				
	Power outage maintenance	✓	✓	✓	✓	✓
	Automatic library addition function	✓	✓	✓	✓	✓
Online system upgrade		✓	✓	✓	✓	✓
Desktop operating system		Ubuntu	Ubuntu/Win10	Ubuntu	Ubuntu	Ubuntu
Real time clock (length of time)		Yes (15 days), supports week/year/month/day/hour/minute/second time format, with an accuracy of ± 60 seconds/month				
Module power supply	Working voltage	20.4VDC ~ 28.8VDC(24.0VDC -15%~+20%)	20.4VDC ~ 28.8VDC(24.0VDC -15%~+20%)	20.4VDC ~ 28.8VDC(24.0VDC -15%~+20%)	20.4VDC ~ 28.8VDC(24.0VDC -15%~+20%)	20.4VDC ~ 28.8VDC(24.0VDC -15%~+20%)
	Rated voltage	24.0VDC	24.0VDC	24.0VDC	24.0VDC	24.0VDC
	Withstand voltage	19.2 VDC ~ 30 VDC	19.2 VDC ~ 30 VDC	19.2 VDC ~ 30 VDC	19.2 VDC ~ 30 VDC	19.2 VDC ~ 30 VDC
	Power consumption	Average 60W for host	Average 80W for host	< 45W	< 45W	< 45W
	Reverse wire protection	Not supported				
Environment	Working temperature	-40 ~ 60°C (host)				-10 ~ 60°C (host)
	Storage temperature	-40 ~ 80°C				
	Humidity	5-95% without condensation				
Reliability		IEC 61000-4-2 (ESD)、Air: ±8KV;Contact: ±6kVIEC 61000-4-4 (EFT)、DC Power Port:±2kV、Signal Port:±2kV IEC 61000-4-5 (Surge)、Power Port:±1kV/DM、±2kV/CM, Signal Port:±1kV (line to line) 、Signal Port:±2kV (line to earth)				

SX20/SX21 Standard Industrial Intelligent Computer Product Details:



SX50/SX51 Compact Industrial Computer Product Details:



SX series

SP series

SRE series

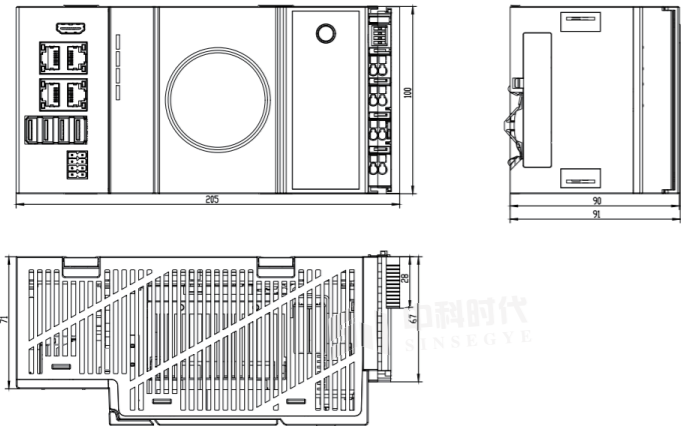
SRR series

SC series

SV series

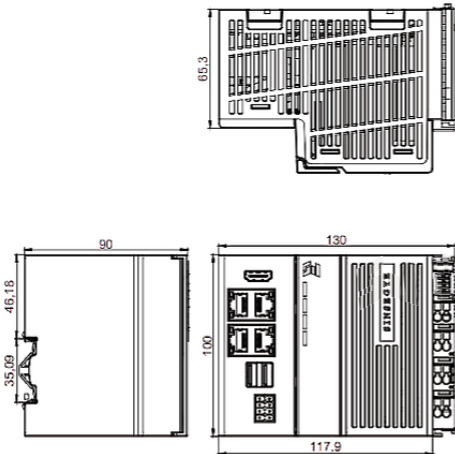
Automation

Dimensional drawing of SX20/SX21 standard industrial intelligent computer



Unit: mm

Dimensional drawing of SX50/SX51 compact industrial intelligent computer



Unit: mm



SP7022 series Industrial Intelligent Computer



SP7010 series Industrial Intelligent Computer



SP5010 series IPC Industrial Intelligent Computer



SP5040 series IPC Industrial Intelligent Computer



SP6000 series IPC Industrial Intelligent Computer

## Industrial Intelligent Computer

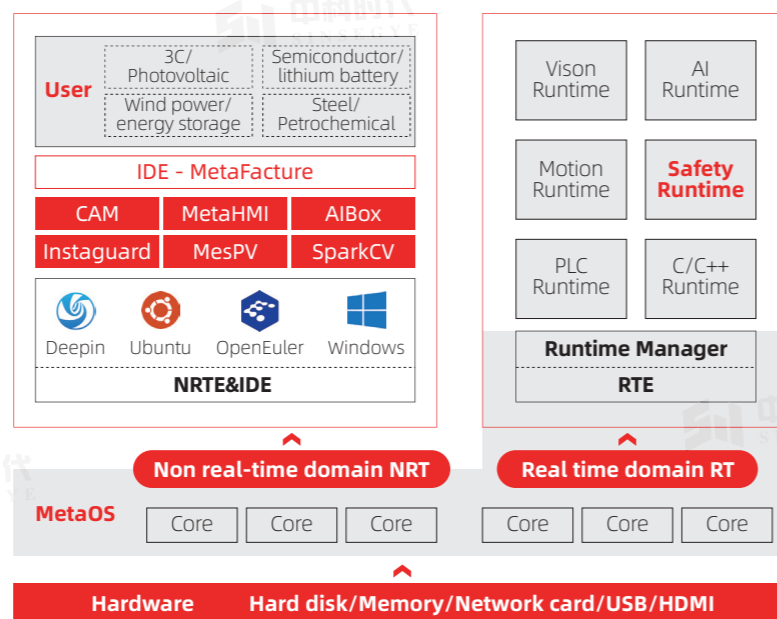
### SP series IPC controller

#### 1. Computing + control:

A set of controller integrates the functions of motion control, logic control, machine vision, configuration display and edge computing. A set of software is compatible with the development of motion control, logic control, machine vision, and configuration display. A set of programs simultaneously solves the applications of motion control, logic control, machine vision, and configuration display.

Build in dual domain operating system with integrated computing and control:

To ensure the openness and real-time control of Windows, Meta dual cores (non real-time core + real-time core) are run on the same CPU hardware platform. Real time and non real-time domains can flexibly allocate hardware resources according to on-site usage scenarios, ensuring the real-time performance of the system. Compared with traditional PLC+industrial control computers and other forms of products, dual domain communication can achieve high-speed information exchange through shared memory/MODBUS/tag communication and other information exchange methods, and data is what you see is what you get. Even in case the CPU, memory, disk, network, USB, and IO usage reaches 100% in non real-time domains, the real-time side will not be affected. In case desktop system crashes, real-time core will not be affected.



**a. Software convergence, high programming efficiency**  
Support IEC 61131-3 PLC programming language and high-level language. It can achieve motion control, machine vision, logic control, configuration software programming in one programming platform. Besides, it can achieve information-based database and cloud platform interaction and integrate third-party software, making it easier for equipment manufacturers to achieve the application of motion control and machine vision, IT and OT.

**b. Rich algorithms and simpler control**  
Integrate PLCopen (part1, part2, part4) standardized functional blocks and Basic (CAM)/CNC/Robotics. Build in visual basic algorithms such as image preprocessing, image calibration, visual measurement, defect recognition and localization, OCR and QR code.

**c. High real-time, strong computing, high speed and accuracy**  
Equipped with an Intel high computing power CPU that supports 64 bit floating-point computing, it can provide up to 1000Mbps communication links to connect IO modules and third-party devices, greatly improving the real-time and accuracy of SP series products in transmitting and processing big data.

**d. More interfaces - strong interconnectivity**  
Support PCIe extension, making it convenient to expand network ports, serial ports, USB ports, and graphics cards, suitable for various application scenarios.

#### 2. Different form factors to meet different application scenarios:

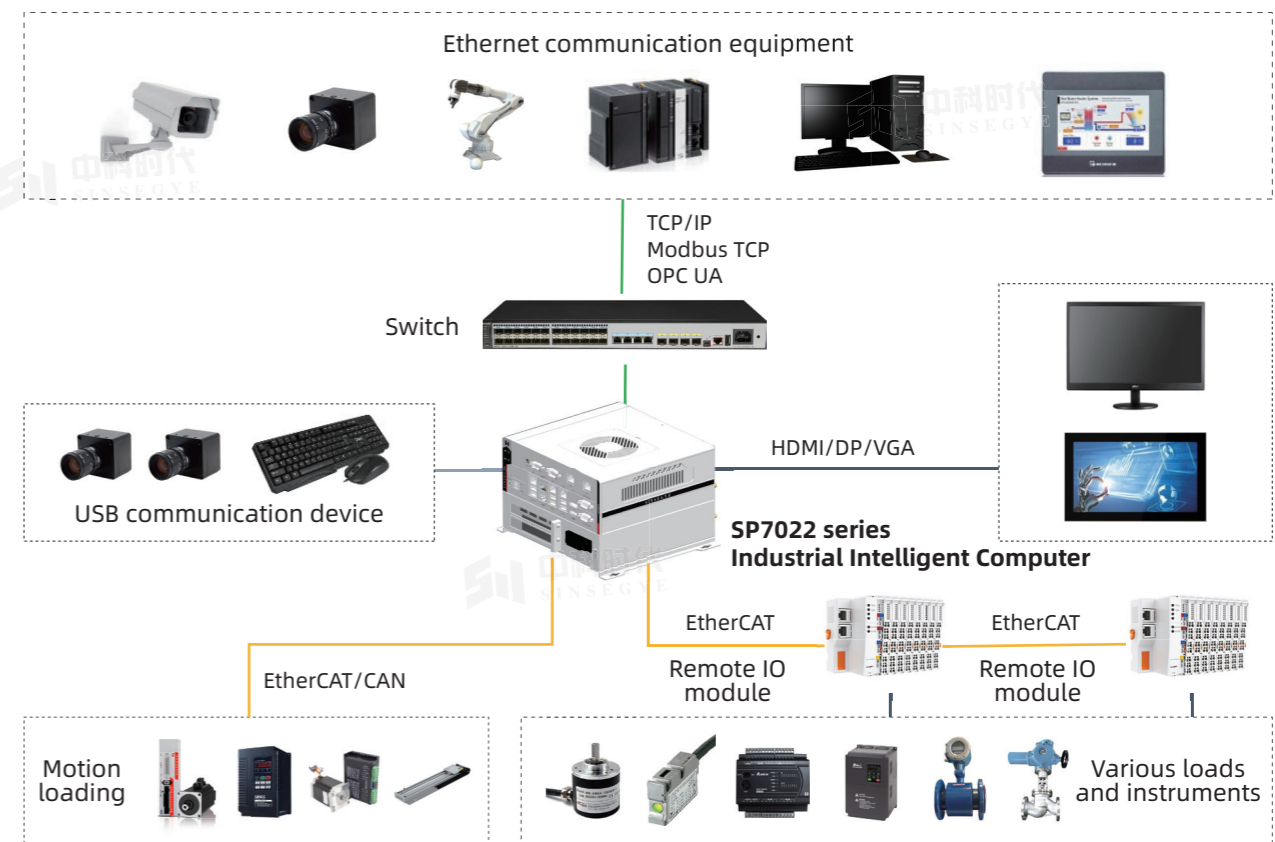
- Book type, fanless type, 1U and 4U frame type, can meet various control needs.
- Some products support local I/O, and all products support remote I/O modules, providing users with diverse I/O and process modules for data collection, control, and transmission.

#### 3. Safe and reliable:

- Multiple network ports design, balancing high response axis control while easily achieving EtherCAT ring networking. The network interface has an independent IP, which can complete control layer networking, information layer networking, visual networking, IP separation, and security isolation.
- Craftsmanship design meets the requirements of strict industrial application scenarios.

#### System architecture:

An industrial intelligent computer can simultaneously meet different control needs in complex industrial environments, promoting the development of industrial manufacturing towards intelligence and efficiency.



#### Highly real-time capability :

- Single axis minimum control cycle: 125us;
- 128 axis minimum control cycle: 0.8ms;
- The efficiency of instruction execution can reach ns level;

#### Diversified programming methods:

- Real-time side: IEC61131-3 standard programming methods (ladder diagram (LD)/structured text (ST)/sequential function chart(SFC)/functional block dimension(FBD)/continuous function chart (CFC)), support C and C++interface;
- Non real-time side: high-level languages such as C, C++, Java, C # and Go Lang.

#### Various connection and networking methods:

- Multiple Gigabit Ethernet interfaces, multiple USB 3.0, multiple 485/232/422 communication and video output interfaces such as HDMI and DP;
- Support OPC/UA data services, Modbus, EtherCAT, Profinet, CANopen and Ethernet/IP;
- Directly connect mainstream industrial cameras that support up to 10 Gige/USB 3.0;
- Support up to 4 EtherCAT communication channels, support star, bus, tree, and ring networking.
- Support up to 128 axis connections.

#### Rich algorithm modules:

- With PLCopen certified POU library, achieve single axis and multi axis lateral collaborative motion;
- CNC control (graphical DIN 66025 editor (support G code)/online CAM editor and CNC editor/3D CNC application tutorial example/comprehensive interpolation function from linear to spline interpolation/CNC tool radius compensation, etc.);
- Robotics (developing multi axis robot controllers/exchange libraries (for backup and data exchange) through PLCopen Motion Part 4 and axis group editor to support the development of industrial robots with different kinematics/integrating multiple standard robot models (various gantry robots (2/3/5 axes), tripod robots, and SCARA robots)/comprehensive path planning with robot coordinate values in different coordinate systems);
- ST Vision library (basic visual algorithms such as image pre-processing, image calibration, visual measurement, defect recognition and localization, OCR and QR code).

#### Build in NC core (soft board card, replacing traditional hard operation control card):

Software defined NC core control, perfectly replacing traditional motion control cards.

- **Programming:** API function interface, compatible with software engineers to maintain usage habits;
- **Customer confidentiality:** based on standard interfaces, customers can develop underlying operational control or process algorithms;
- **Operation and control function:** 128 axis<1ms, high-speed, forward-looking, 32 + robot attitude solution algorithm;
- **Special functions:** high-speed position comparison (PSO), high-speed position latch, and space vector comparison;
- **High real-time performance:** instructions based on memory interaction, with instruction cycles of us level.

#### Rich applications:

- Support data collection, data storage, and other data applications;
- Pre-install four industry apps, including Instaguard for intelligent monitoring and diagnosis, MesApps for production decision support system, visual care tracking system SparkCV, and the robotic arm module sensing system Octo;
- Compatible with third-party applications based on Linux/Windows ecosystem;
- Supports edge Qclouds.

### SP7020 series Industrial Intelligent Computer:



#### Product features:

##### Computing + control + display, with high computing power

High-performance hardware carrier that perfectly integrates computing, control, and display, with a Windows open ecosystem and powerful PLC control capabilities.

##### Rich interfaces and flexible expansion

CAN card, Ethernet card, serial card, graphics card, etc.

##### Easily switch OS

Default Windows

Win11(64)/Win10(64)/Ubuntu22.0(64)/Red hat (64)/Win7(64)/Win7(32)/WinXP(32)/other systems (64/32)

#### Product parameters:

		SP7020-2231	SP7022-2231
Hardware interface	CPU	Intel i5-12400	
	Memory	16G	
	Solid state drive 1	128G	
	Solid state drive 2	512G	
	PCIe expand	0	PCIe 4 *1 PCIe 16 *1
	Graphics card	✓	
	Basic USB quantity	USB3.0*4 USB2.0*2	
	Basic number of serial ports	4 (expandable)	
	Number of basic network ports	LAN Gigabit*7 (expandable)	
	Basic IO quantity	-	
Power supply	Working voltage	12v	
	Rated voltage	-	
	Withstand voltage	-	

		SP7020-2231	SP7022-2231
Software interface	Programming language	Support IEC61131-3 (LD/ST/CEC/SFC/LBD)	
	Program download	Support binary object code download Support user engineering (active and passive) download	
	Program upload	✓	
	Program encryption	Support user engineering and POU, support target file encryption	
	Controller encryption	Support controller locking/unlocking	
	Power lost maintenance	✓	
	Automatic library addition function	✓	
	NC CORE	✓	
	Online system upgrade	✓	
Desktop operating system		Win10/Ubuntu	
Environment	Working temperature	-10°C~50°C	
	Storage temperature	-30°C~+70°C	
	Storage humidity	10%~95% non-condensing	
Reliability	Random vibration	5~500Hz, 2Grms (SSD) operation 5~500Hz, 1Grms (HDD) operation	
	Sine vibration	5~500Hz, 2G Non- operation	
	Mechanical shock	Operation: 10G@11; Non-operation: 20G@11ms	
	EMC	EN61131-2 Zone B/EN61000-6-2/ EN61000-6-4	
3C certification		✓	

## SP7010 series Industrial Intelligent Computer:



SP7010-1211		
Hardware interface	CPU	Intel® Celeron® N97
	Memory	16G
	SSD 1	128G
	SSD 2	128G
	Basic USB quantity	USB3.0*2; USB2.0*2
	Basic number of serial ports	RS485*4; RS232*2
Software interface	Number of basic network ports	LAN Gigabit*4
	Basic IO quantity	DI*8; DO*8
	Programming language	Support IEC61131-3 (LD/ST/CEC/SFC/LBD)
	Program download	Support binary object code download Support user engineering (active and passive) download
	Program upload	✓
	Program encryption	Support user engineering and POU, support target file encryption
	Controller encryption	Support controller locking/unlocking
	Power lost maintenance	✓
	Automatic library addition function	✓
	NC CORE	✓
	Online system upgrade	✓
Desk operating system		Win10/Ubuntu
Power supply	Working voltage	DC 12V-28V
	Rated voltage	24VDC
	Withstand voltage	DC 12V-28V
Environment	Working temperature	-10~50°C
	Storage temperature	-40°C~+60°C
	Storage humidity	10%~95% non-condensing
Reliability	Random vibration	5~500Hz, 2Grms (SSD) operation 5~500Hz, 1Grms (HDD) operation
	Sine vibration	5~500Hz, 2G Non- operation
	Mechanical shock	Operation: 10G@11; Non-operation: 20G@11ms
	EMC	EN61131-2 Zone B/EN61000-6-2/ EN61000-6-4
	3C certification	✓

## Product features:

### Small volume, great wisdom

Palm-sized, save installation space, use advanced CPUs with superior performance and rich hardware interfaces.

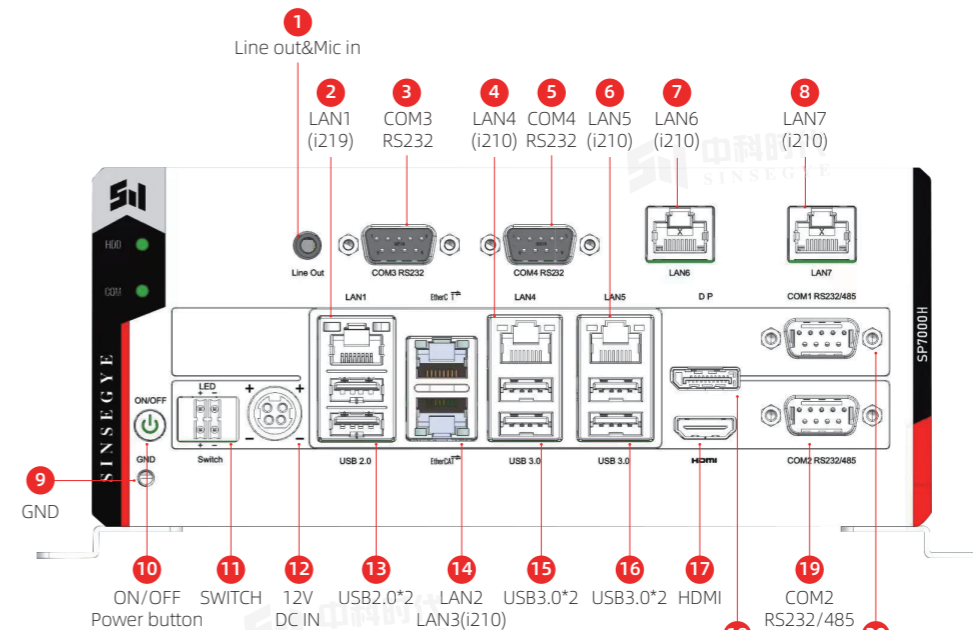
### Strong compatibility

The default Windows desktop system has a Windows open ecosystem and also has PLC control function, perfectly adapting to various industry applications.

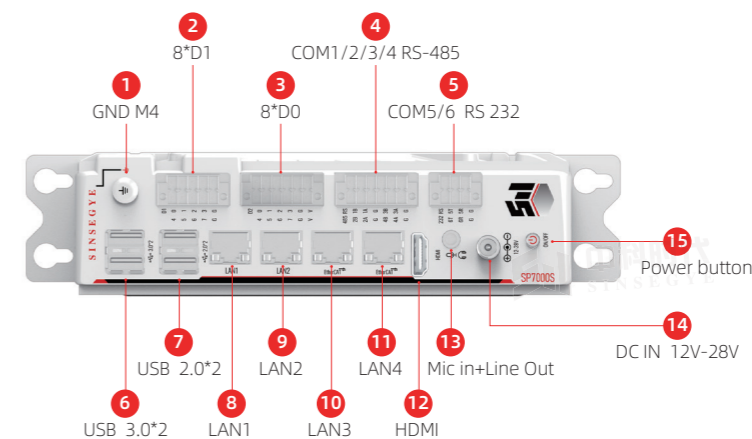
## Application industry:

Industrial Intelligent Computers are widely used in industries such as 3C electronics, semiconductors, lasers, CNC, printing and packaging, photovoltaic, wind power, petrochemicals, and steel.

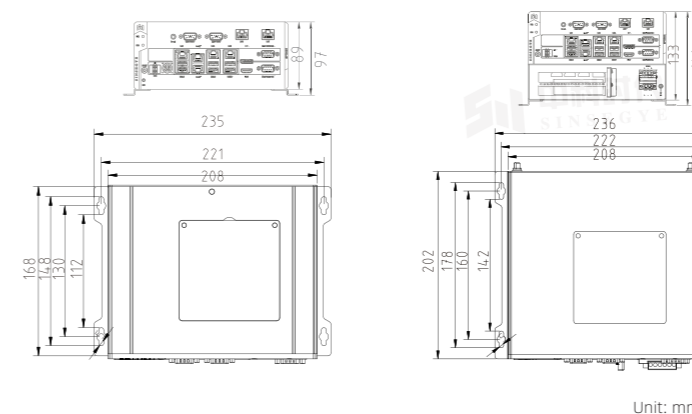
## Interface definition:



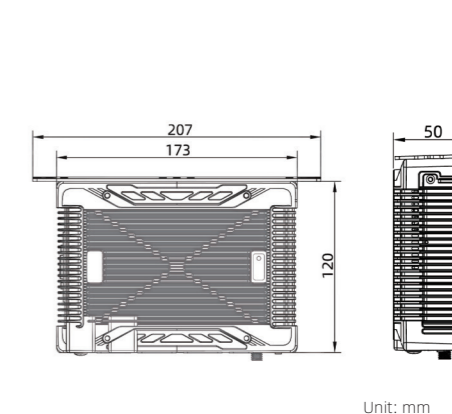
## Interface definition:



Dimension diagram of  
SP7020 series






Dimension diagram of  
SP7010 series



SP50/60 series IPC industrial intelligent computer:

Product parameters:

		SP5040-3331/SP5040-4331		SP5010-5231	SP6000
		4U		1U	Thin
Product form					
Basic parameters	CPU	i7-13700	i9-12900K	HYGONG3350	Intel Atom 4cores
	Main board	ATX industry motherboard	ATX industry motherboard	ATX industry motherboard	/
	Memory	32G (Max. 64G)	32G (Max. 128G)	DDR4 16GB (Max. 128GB)	4G
	Hard drive 1	256G SSD	256G SSD	256G SSD	64G
	Hard Disk 2	512G SSD	512G SSD	512G SSD	/
	PCIe	3 PCIe, 4 PCI	5 PCIe, 2 PCI	/	/
	Graphics card	Integrated graphics card, support various standard graphics cards and GPU cards		Discrete graphics	/
	USB	4xUSB3.0 6xUSB2.0	6xUSB3.0 2xUSB2.0	Rear plate: 4 USB3.2, 4 SB2.0 Front plate: 2 USB2.0	1xUSB3.0; 1xUSB2.0
	Com port	2 sets,can expanded to 4 sets	1 set, can expanded to 4 sets	Four serial ports: COM1,COM2:RS485 COM3,COM4:RS232	/
	Ethernet port	2 gigabit network ports	3 gigabit network ports	Totally three, including: Two Onboard network port: RTL8111 One mini PCIe expand network port	3xDual Gigabit Ethernet ports
Operating system		Win10/Ubuntu		Win10/Ubuntu	Win10/Ubuntu
Power supply	Working voltage	220V AC		220V AC	24V DC
	Rated voltage	220V AC +/- 5%		220V AC +/- 5%	24V DC±15%
Environment	Working temperature	0°C~40°C		0°C~40°C	0°C~40°C
	Storage temperature	-40°C~+60°C		-40°C~+60°C	-40°C~+60°C
	Storage humidity	10%~95%non-condense		10%~95%non-condense	10%~95%non-condensing
Construction	Dimension	428x177x480mm (W*H*D)		482x44.5x400mm (W*H*D)	40x88x85mm (W*H*D)
	Material	Heavy steel		Heavy steel	Customized galvanized shell
	Color	Black		Black	Black + golden

Product features and application scenarios



SP5040 series IPC Industrial Intelligent Computer



SP5010 series IPC Industrial Intelligent Computer



SP6000 series IPC Industrial Intelligent Computer

Product feature

Application scenarios

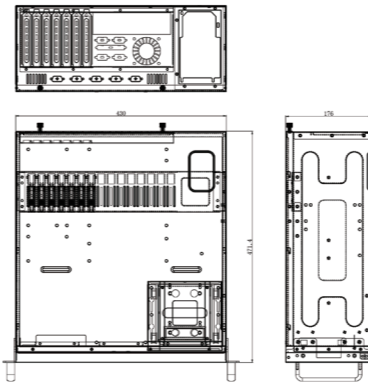
- Effective air intake area increased by 106% compared to competitors
- Customized speed-adjustable fan, MTBF 50000 hours for ultimate protection
- Support high-power GPU cards for AI computing

- Industrial host and upper computer
- Motion control, equipment matching computing power equipment
- Machine vision and defect detection
- DCS/MES, HMI, and central control management

- Compact design, small form factor for limited installation space
- Rich interfaces, including 3 Ethernet ports, 2 USB ports, and 1 HDMI, meet various connection needs
- Cost effective, stable performance, wide range of applications, supports main OS and various application control software

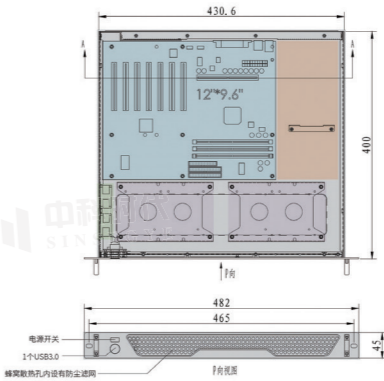
- 3C electronics, semiconductors and other discrete manufacturing industries: suitable for control systems and application software
- New energy industries such as photovoltaics and wind power: suitable for centralized cabinet support and miniaturized control systems
- Industrial site comprehensive control equipment and information publishing machine

Dimension drawing of SP5040 IPC Product



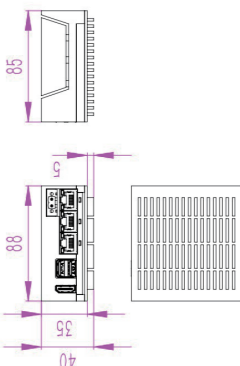
Unit: mm

Dimension drawing of SP5010 IPC Product

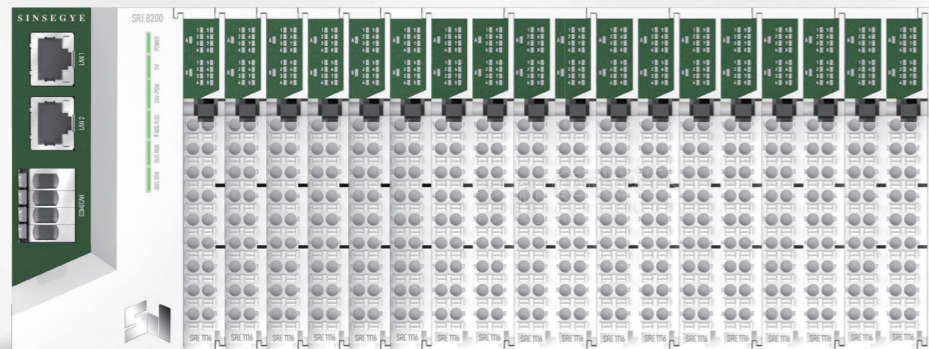


Unit: mm

Dimension drawing of SP6000 IPC Product



Unit: mm



## New generation plug-in IO

### SRE series plug-in IO products

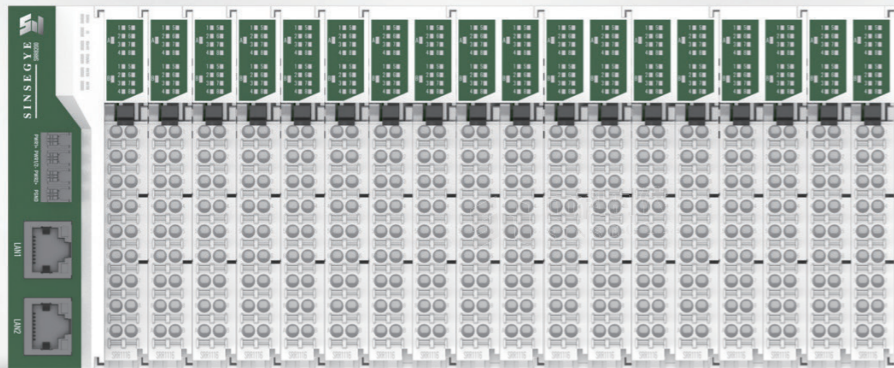
SRE series modules are suitable for high-speed and high-precision real-time bus control scenarios; SRR series and SRE series are two types of plug-in I/O products with different backplane buses. Both types of coupler modules can be connected to SRRIO module and SRE IO module respectively.

- 01 Strong carrying capacity** A single coupler can support up to 64 expansion modules.
- 02 Compact** 12mm thickness, compact design, substantially reduce the installation space of electrical cabinets.
- 03 Quick installation** Detachable terminals, high maintenance efficiency, and wiring without tools.
- 04 Easy to diagnose** With built-in diagnostic information, the status can be easily detected and maintained.
- 05 Rich in types** Digital module, analog module, temperature module, encoder module, protocol conversion module, to meet various scene requirements.
- 06 Stable and reliable** More rigorous EMC and other reliability tests, more reliable than industry standards.
- 07 High real-time and fast response** SRE series IO modules support 100M high-speed backplane bus, achieving microsecond level IO response.
- 08 Easy to plug and unplug** Easily replace or add/remove modules to adapt to system changes without affecting system operation.

### Product parameters:

#### SRE series IO

Model	Description	Specifications
<b>SRE8200</b>	EtherCAT bus coupler module	EtherCAT bus, 2 RJ45 port high-performance backplane buses, can expand up to 64 modules.
<b>SRE1016</b>	16 channel digital input module	16 channel digital input module (Support bidirectional input), 24VDC.
<b>SRE1032</b>	32 channel digital input module	32 channel digital input module (Support bidirectional input), 24VDC.
<b>SRE2216</b>	16 channel digital output module	16 channel digital output, transistor PNP, rated at 24VDC/0.5A.
<b>SRE2232</b>	32 channel digital output module	32 channel digital output, transistor PNP, rated at 24VDC/0.5A.
<b>SRE2116</b>	16 channel digital output module	16 channel digital output, transistor NPN, rated OVDC ( $\pm 3V$ )/0.5A.
<b>SRE2132</b>	32 channel digital output module	32 channel digital output, transistor NPN, rated OVDC ( $\pm 3V$ )/0.5A.
<b>SRE1432</b>	16 channel digital input 16 channel digital output module	16 channel PNP input, 16 channel transistor PNP output.
<b>SRE1332</b>	16 channel digital input 16 channel digital output module	16 channel NPN input, 16 channel transistor NPN output.
<b>SRE3204</b>	4 point analog input module	16 bit accuracy, 4 channel voltage/current input.
<b>SRE3208</b>	8 point analog input module	16 bit accuracy, 8 channel voltage/current input.
<b>SRE3522</b>	2 channel analog fast acquisition module	2-channel analog fast acquisition module ( $\sim 10V-10V$ , 16 bit precision).
<b>SRE4204</b>	4 point analog output module	4 channel voltage or current, $\pm 10V$ or 0-20mA, 16 bit accuracy.
<b>SRE4208</b>	8 point analog output module	8 channel voltage or current, $\pm 10V$ or 0-20mA, 16 bit accuracy.
<b>SRE6002</b>	2 channel serial communication module	2 RS422/RS232/RS485 interfaces, support Modbus RTU and free port protocols, with a baud rate of up to 115.2Kbps. Serial port parameters are configured through XML files, and the main station does not require programming, making it easy to use.
<b>SRE6004</b>	4 channel serial communication module	4 RS422/RS232/RS485 interfaces, support Modbus RTU and free port protocols, with a baud rate of up to 115.2Kbps. Serial port parameters are configured through XML files, and the main station does not require programming, making it easy to use.
<b>SRE5012</b>	2 channel high-speed counting module	2 sets of A, B, and C counting inputs, single ended (rated 24V maximum 200KHZ, support PNP/NPN input) or differential (5V maximum 4MHZ), support normal counting function, and relevant parameters can be configured through XML files.
<b>SRE5034</b>	4 channel high-speed counting module	4 sets of A, B, and C counting inputs, differential (5V maximum 4MHZ), support normal counting function, and relevant parameters can be configured through XML files.
<b>SRE5234</b>	4 channel pulse output module	4 axis PTO output, NPN output with a maximum of 400KHZ (at 5V), and differential output with a maximum of 1MHz. Relevant parameters can be configured through XML files.
<b>SRE5202</b>	Digital fast output module	Equipped with DC distributed clock and oversampling function, maximum output frequency of 1MHz, 2 outputs, transistor PNP, rated at 24VDC/0.5A, with module diagnostic function.
<b>SRE5204</b>	Digital fast output module	Equipped with DC distributed clock and oversampling function, maximum output frequency of 1MHz, 4 outputs, transistor PNP, rated at 24VDC/0.5A, with module diagnostic function.
<b>SRE1632</b>	32 channel digital input (PNP 16 channel housing)	32 channel digital input (connected to horn terminal), support PNP input and 24VDC.
<b>SRE1532</b>	32 channel digital input (NPN 16 channel housing)	32 channel digital input (connected to horn terminal), support NPN input and 24VDC.
<b>SRE2632</b>	32 channel digital output (PNP 16 channel housing)	32 channel digital output (connected to horn terminals), transistor PNP, rated at 24VDC/0.5A, with a total of no more than 10A per module, with module diagnostic function.
<b>SRE2532</b>	32 channel digital output (NPN 16 channel housing)	32 channel digital output (connected to horn terminals), transistor NPN, rated OVDC ( $\pm 3V$ )/0.5A, with a total of no more than 10A per module, with module diagnostic function.
<b>SRE6081</b>	1 channel DeviceNet communication module	1 DeviceNet interface, supports DeviceNet, supports baud rate of 125250500, and can configure 32 slave stations.
<b>SRE6042</b>	2 channel modbus TCP communication module	2 Ethernet interfaces, supports Modbus TCP, can configure 32 commands.
<b>SRE6051</b>	1 Channel CAN communication module	1 CAN interface, support CANopen and CAN2.0B.
<b>SRE6072</b>	2 channel EIP communication module	2 Ethernet interfaces, support EtherNet/IP, and can be configured with 4 adapters.



## New generation plug-in IO

### SRR series plug-in IO products

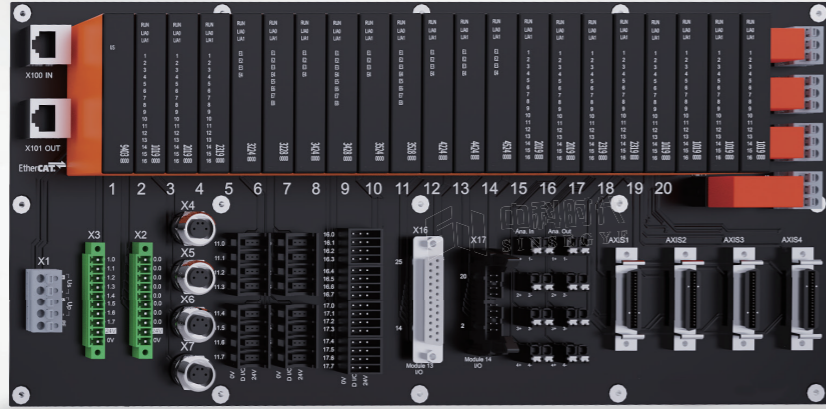
SRR series modules are SC-Bus modules, suitable for general industrial real-time control scenarios. SRR series and SRE series are two types of plug-in I/O products with different backplane buses. Both types of coupler modules can be connected to SRR I/O module and SRE IO module respectively.

- Less nodes** A node consists of a bus coupler, 1~32 I/O modules, and an end cap.
- Flexible configuration** Multiple types of plug-in I/O modules can be combined freely.
- Small volume** Compact structure with small space.
- Fast speed** The backplane adopts SC bus bus: the maximum scanning cycle is 1ms.
- Easy to install** DIN 35 mm standard rail installation. Use spring wiring terminals, convenient and fast wiring.
- Easy to diagnose** Complete indicators, well-defined module status, and convenient detection and maintenance.
- Strong compatibility** Coupler communication interface complies with communication standards and supports mainstream PROFINET and EtherCAT master stations.
- Diversified functional extensions** Support flexible expansion, with a complete range of I/O types; Can integrate multiple digital modules, analog modules, and temperature modules, suitable for different application requirements.

### Product parameters:

#### SRR series IO

Model	Description	Specifications
<b>SRR8200</b>	EtherCAT bus coupler module	EtherCAT bus, 2 RJ45 ports, expand up to 32 modules, 24VDC.
<b>SRR8300</b>	PROFINET bus coupler module	PROFINET bus, 2 RJ45 ports, can expand up to 32 modules, 24VDC.
<b>SRR9001</b>	Power module	/
<b>SRR1032</b>	32 channel digital input	32 channel digital input module, compatible with NPN/PNP input, 24VDC, default input filtering of 3ms.
<b>SRR2132</b>	32 channel digital output, NPN	32 channel digital output, transistor NPN, single channel rated current maximum: 200mA, output channel protection: short circuit protection (automatic recovery mechanism), module protection: reverse connection protection (automatic recovery mechanism), on-site surge protection.
<b>SRR2232</b>	32 channel digital output, PNP	32 channel digital output, transistor PNP, single channel rated current maximum: 200mA, output channel protection: short circuit protection (automatic recovery mechanism), module protection: reverse connection protection (automatic recovery mechanism), on-site surge protection.
<b>SRR1332</b>	16 channel digital input 16 channel digital output module	16 channel NPN input, 16 channel transistor NPN output.
<b>SRR1432</b>	16 channel digital input 16 channel digital output module	16 channel PNP input, 16 channel transistor PNP output, with module diagnostic function.
<b>SRR3238</b>	Analog 8 channel current input	16 bit accuracy, 8 channel current input (Disabled, 4mA~20mA, 0mA~20mA (adjustable range, default to Disabled)).
<b>SRR4038</b>	Analog 8 channel current output	16 bit accuracy, 8 channel current output (4mA~20mA, 0mA~20mA (adjustable range)).
<b>SRR3218</b>	Analog 8 channel voltage input	16 bit accuracy, 8 channel current input (Disabled, -10V~+10V, 0V~10V, 0V~+5V, 1V~5V, -5V~+5V (adjustable range, default to Disabled)).
<b>SRR4018</b>	Analog quantity 8 channel voltage output	16 bit accuracy, 8 channel voltage output (-10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V (adjustable range)).
<b>SRR3294</b>	4-Channel Temperature Measurement Module	16 bit accuracy, 4 channel temperature measurement module (thermocouple (2-wire, B: 50~1800°C, E 200~1000°C, J: -200~1200 °C, K: -200~1370°C, S: -50~1690°C), thermal resistance (2-wire, 3-wire Pt100: -200~850°C, Pt200: -200~850°C, Pt500: -200~850°C, Pt1000: -200~850°C, Ni100: -100~260°C, Ni1000: -100~260°C), resistance (2-wire, 3-wire 15Q~3kQ).
<b>SRR6001</b>	1 channel serial communication module	1 RS422/RS232/RS485 interface, supporting six modes that can be set: MRM/MRS/MAM/MAS/FP/PT. Supports three interfaces: RS485/RS422/RS232. Supports Modbus RTU/ASCII.
<b>SRR5001</b>	1 channel high-speed counting module	Supports AB orthogonality (ABZ), directional pulse (Pul+Dir), and dual pulse (CW/CCW). Support Z-phase zeroing function. Support comparison output. Supports probe locking.
<b>SRR5031</b>	1 channel high-speed counting module	Supports AB orthogonality (ABZ), directional pulse (Pul+Dir), and dual pulse (CW/CCW). Support Z-phase zeroing function. Support comparison output. Supports probe locking.
<b>SRR5041</b>	1 channel high-speed counting module	Support SSL encoder input. Supports frame length, LSB, and MSB settings. Supports Gray code and binary code. Supports bidirectional counting. Support pulse capture function.



# New generation compact IO

## SC series ultra compact IO products

The SC series ultra compact IO products are suitable for high-speed, high-precision real-time buses and control scenarios with high volume requirements. They are characterized by rich types, plug and play, high real-time fast response, convenient installation, and can effectively reduce usage costs.

- 01

More types

Digital module, analog module, temperature module, encoder module, protocol conversion module, modular combination can adapt to the demand for I/O signals from various devices.
- 02

Plug and use

By distributing signals and power to I/O modules and dedicated connectors, I/O system assembly can be quickly completed, greatly simplifying I/O system wiring.
- 03

High real-time and fast response

100M high-speed backplane bus, microsecond level IO response.
- 04

Ultra compact design

Dimension 12mm x 62mm x 55mm.
- 05

Easy installation

Mechanical coding, prefabricated wiring harnesses, and connector foolproof and other measures are taken to reduce production costs and faults.

### Product parameters:

#### SC series IO

Model	Description	Specifications
SC1116	16 channel digital input module, NPN, 24VDC, filtering 3ms	16 channel digital input, support NPN input, 24VDC, with module diagnostic function.
SC1216	16 channel digital input, support PNP input, 24VDC, with module diagnostic function	16 channel digital input, support PNP input, 24VDC, with module diagnostic function.
SC2116	16 channel digital output module, NPN, 24VDC, 0.5A	16 channel digital output, transistor NPN, rated at 24VDC/0.5A (short circuit protection).
SC2216	16 channel digital output module, PNP, 24VDC, 0.5A	16 channel digital output, transistor PNP, rated at 24VDC/0.5A (short circuit protection).
SC3228	8 channel analog voltage input module,Single input, ±10V, 16 bit	Signal voltage -10V- +10V, 16 bit resolution, input filtering cutoff frequency of 10KHz, support synchronous switching between SM and DC.
SC3234	4 channel analog current input module 0mA-20mA, 16 bit	Signal power supply 0mA-20mA, 16 bit resolution, input filtering cutoff frequency 10KHz, support synchronous switching between SM and DC.
SC3238	8 channel analog current input module 0mA-20mA, 16 bit	Signal power supply 0mA-20mA, 16 bit resolution, input filtering cutoff frequency 10KHz, support synchronous switching between SM and DC.
SC3244	4 channel analog current input module 4mA- 20mA, 16 bit	Signal power supply 4mA-20mA, 16 bit resolution, input filtering cutoff frequency 10KHz, support synchronous switching between SM and DC.
SC3248	8 channel analog current input module 4mA- 20mA, 16 bit	Signal power supply 4mA-20mA, 16 bit resolution, input filtering cutoff frequency 10KHz, support synchronous switching between SM and DC.
SC3258	8 channel analog voltage input module, Differential input, 0-10V, 16	Signal voltage 0--+10V, 16 bit resolution, input filtering cutoff frequency 10KHz, support synchronous switching between SM and DC.
SC4244	4 channel analog current output module 4mA- 20mA, 16 bit	4 channel 4-20mA analog current output module with 16 bit resolution, all output channels have a common ground potential, 24V for output stage.
SC4224	4 channel analog voltage output module -10V -+10V, 16 bit	4 channel ±10V analog voltage output module, 16 bit resolution, all output channels have a common ground potential, and the output stage is powered by a 24V power supply.
SC4234	4 channel analog current output module 0mA-20mA, 16 bit	4 channel 0.20mA analog current output module with 16 bit resolution, all output channels have a common ground potential, 24V for output stage.
SC3274	4 channel thermistor input module, 16 bit	4 input interfaces and 16 bit resolution, it is used for thermal resistance temperature acquisition. It can simultaneously connect 4 3-wire sensors and supports three types of sensors: PT100, PT1000, and NI100.
SC3284	4 channel thermocouple input module, 16 bit	Equipped with 4 input interfaces and 16 bit resolution, used for thermocouple temperature acquisition.
SC9001	Power module	Input voltage 24VDC (-15%/+20%), short-circuit protection function, rated output current 3A, short-circuit protection current 4A.
SC9100	Occupying module	/
SC3208	4 channel analog voltage input module, 4 channel current input module	/
SC5032	2 channel 5V differential input counting module	2 5V differential encoder signal input interfaces, 2 encoder latch interfaces, 2 encoder signal access ports, pulse input indicators, and latch signal indicators.
SC6011	1 channel RS485 communication module	1 RS485 interface, support Modbus RTU, with baud rate up to 115.2Kbps.
SC6021	1 channel RS232 communication module	1 RS232 interface, support Modbus RTU, with baud rate up to 115.2Kbps.
SC6031	1 channel RS422 communication module	1 RS422 interface support Modbus RTU, with baud rate up to 115.2Kbps.
SC6042	2 channel Modbus TCP communication module	2 Ethernet interfaces, support Modbus TCP, can be configured with 32 commands.
SC6072	2 channel EIP communication module	2 Ethernet interfaces, support EtherNet/IP, and can be configured with 4 adapters.
SC6081	1 channel DeviceNet communication module	1 DeviceNet interface, support DeviceNet, supports baud rate of 125,250 and 500, and can configure 32 slave stations.



## Motion control

### SV series rotary servo driver and motor

- 1 Maximum power 7.5kw
- 2 High precision
- 3 High synchronization
- 4 Enhanced vibration suppression
- 5 Support for gantry function
- 6 Supports EtherCAT, Profinet, CANopen

**Product advantage:** Cost effective and high performance

#### Applicable industries and equipment:

- Customers requiring for high cost performance.
- Woodworking, packaging, textile, and robotic industries.

#### Applicable equipment



Cutting machine



Carving machine

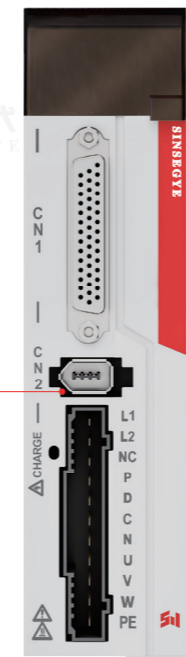


Mechanical arm



Material packaging line

#### Servo SV2 model definition - Driver:



Digital input signal common terminal	COM	16	A1			Metal casing grounding
Digital input 8	DI8	1	31	DO1+		Digital input 1
Digital input 7	DI7	17	32	DO1-		
Digital input 6	DI6	2	33	DO2+		Digital input 2
Digital input 5	DI5	18	34	DO2-		
Digital input 4	DI4	3	35	DO3+		Digital input 3
Digital input 3	DI3	19	36	DO3-		
Digital input 2	DI2	4	37	DO4+		Digital input 4
Digital input 1	DI1	20	38	DO4-		
			39	DO5+		Digital input 5
			40	DO5-		
RS485 communication negative terminal	RSB	10	41	DO6+		Digital input 6
RS485 communication positive end	RSA	26	42	DO6-		
Internal digital model ground	GND	11	43	E0V		
Z-phase collector electrode open circuit output	CZ-OUT	27	44	E24V		Internal isolation 24V power output
Internal digital model ground	GND	12				
A-phase signal output	OA+	28				
	OA-	13				
B-phase signal output	OB+	29				
	OB-	14				
Z-phase signal output	OZ+	30				
	OZ-	15	A2			Metal casing grounding

CN2	Pin No.	Signal name
Motor encoder Connector 1394-6P	1	SD+
	2	SD-
	3	-
	4	-
	5	VCC
	6	GND

SV2 model	Power supply voltage	Max. current/A	Rated power supply/A
SV2-ES2R8	AC220	9	2.8
SV2-ES3R5	AC220	12	3.5
SV2-ES7R6	AC220	18	7.6

#### Naming rules for selection:



SV 2-E S 3R5 -XX

⑤ Customized function: D: Dual ECT chip

④ Rated current: 2R8:2.8A, 3R5: 3.5A, 7R6:7.6A

③ Voltage level: S: single-phase 220V

② Communication method: E:EtherCAT

① Series: SV2 Series

Servo model SM2 definition - Motor:



Naming rules for selection:

**SM2** - **DB** **80** - **024** **30** - **A7** - **A** **B**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧



①	With driver series
SM2	With SV2 motor
④	Rated torque (* 0.1N. m)
024	Rated torque2.4N.m


⑤	Rated speed RPM
30	3000
20	2000
10	1000

②	Motor type
DN	DN series 220VAC motor (4 pairs of poles)
DB	DB series 220VAC motor (5 pairs of poles)
⑥	Encoder resolution
A1	Multi turn absolute value 17 bit encoder
A7	Single turn absolute value 21 bit encoder
B4	Multi turn absolute value 23 bit encoder

③	Flange
40	40mm
60	60mm
80	80mm
130	130mm
180	180mm
⑦	Type of plug
A	Amp plug
H	Aviation plug
HZ	Aviation direct insertion
⑧	Type of band brake
B	With band brake
Blank	Without band brake

Servo SV3 model definition - Cost effective driver:



**SV3S - E S 3R5**  
 ① ② ③ ④






① Series	④ Rated current	Rated power
SV3 series standard model	1R6	1.6A 200w
	2R8	2.8A 400w
	5R5	5.5A 750w
	7R6	7.6A 1kw
	012	12A 1.5kw
	014	14A 2kw


② Communication method  
 E:EtherCAT  
 P:Pulse

③ Voltage level  
 S:Single-phase 220V  
 T:Three-phase 380V  
 U:Three-phase 220V

Note: Model 012 and 014 support single-phase/three-phase 220V and will be launched soon.

Servo SV3 model definition - High performance driver:



**SV3H - E S 3R5 - S C**  
 ① ② ③ ④ ⑤ ⑥

① Product series No.	② Instruction type
SV3H: SV3 series high-performance servo	P: Pulse instruction
	E: EtherCAT
	R: RS485
	C: CANopen
	F: PROFINET
③ Drive motor type	⑥ Optional funtions
S: Single-phase/ Three-phase 220V	Empty: Standard machine
U: Three-phase 220V	C: Full close-loop
T: Three-phase 380V	G: Qantry machine
⑤ Safety functions	
Empty: Standard machine	A: Analog quantity interface *
S: Safety function (STO)*	*Options for CANopen and RS485 models
*CANopen、RS485 models do not support optional STO	

④ Rated output	
Single-phase/-three-phase 220V models	
Rated current	1R6 2R8 5R5 7R6 012 014*
Rated power	200W 400W 750W 1kW 1.5kW 2kW
Three-phase 220V model	018* 022* 027*
Rated current	18.0A 22.0A 27.0A
Rated power	4kW 4.5kW 5.5kW
380V model	3R5 5R4 8R4 012 017 021 026
Rated current	3.5A 5.4A 8.4A 11.9A 16.5A 20.8A 26.0A
Rated power	1kW 1.5kW 2kW 3kW 5kW 6kW 7.5kW

Note: Models 5014, U018, U022, and U027 are to be launched soon.

SM3-M2 model definition - Motor:

SM 3-M2    H 130 - S 85B 15C - P H 1 B 1  
                     ①                      ②                      ③                      ④                      ⑤                      ⑥                      ⑦                      ⑧                      ⑨                      ⑩                      ⑪

① Product series	② Inertia capacity	③ Motor flange	④ Rated voltage
SM3-M2: SM3-M2 series Servo motor	A: Low inertia M: Medium inertia H: High inertia	130: 130 Flange 180: 180 Flange	S: AC 220V T: AC 380V

⑤ Rated power	⑥ Rated speed
85B: 850W	15C: 1500RPM
10C: 1.0kW	20C: 2000RPM
15C: 1.5kW	30C: 3000RPM
22C: 2.2kW	
44C: 4.4kW	
12C: 1.2kW	
18C: 1.8kW	
29C: 2.9kW	
55C: 5.5kW	
13C: 1.3kW	
20C: 2.0kW	
30C: 3.0kW	
75C: 7.5kW	

⑦ Encoder type	⑧ Interface type	⑨ Axis connection method	⑩ Brakes	⑪ Oil seal
M: 17bit single ring absolute value P: 23 bit multi rings absolute value	N: 17bit multi rings absolute value H: Aerial insertion type	0: Optical axis 1: With keys	N: NA B: Yes	0: NA 1: Yes

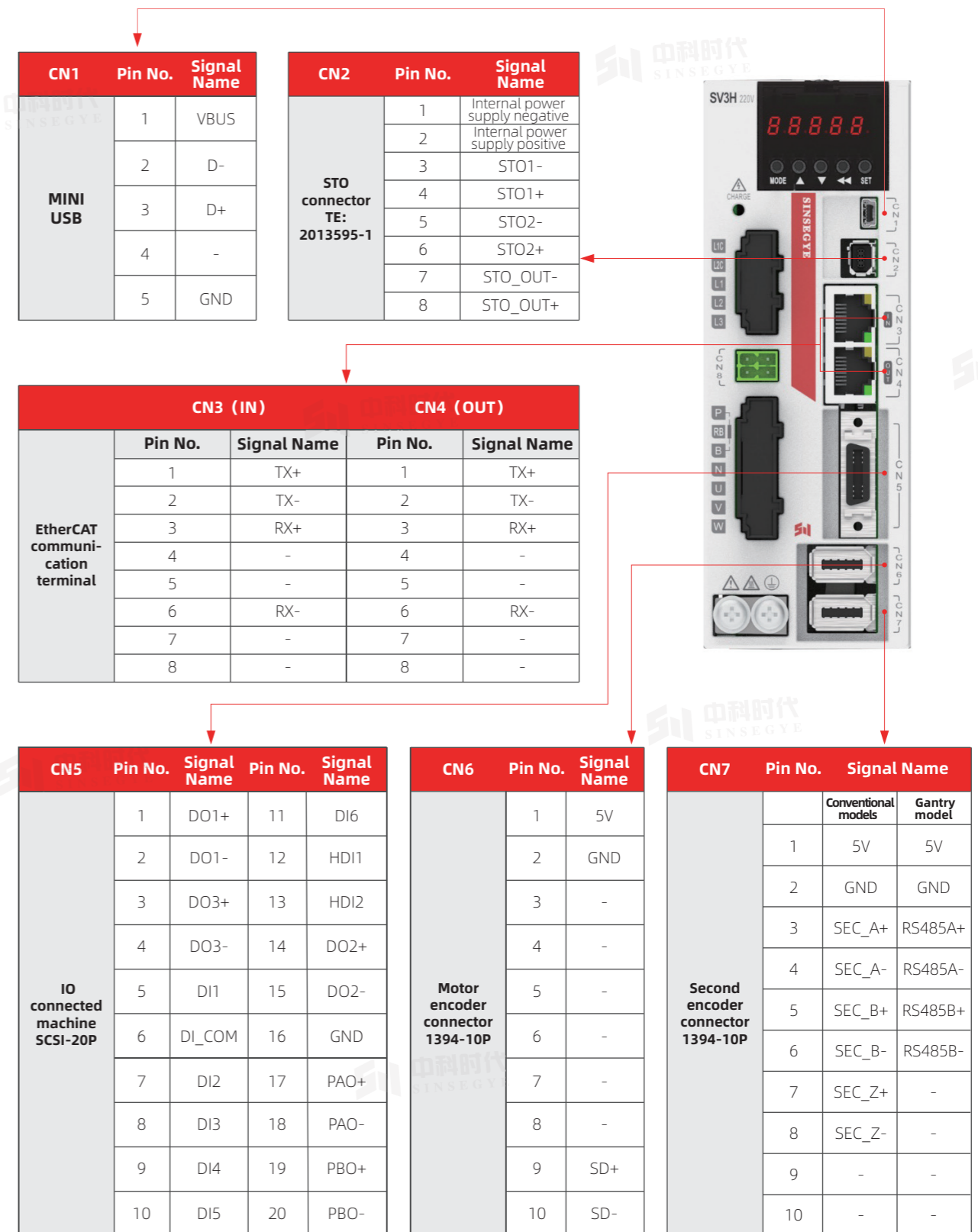
SM3-M3 model definition - motor:

SM 3-M3    H 080 - S 75B 30C - M T 1 N 1  
                     ①                      ②                      ③                      ④                      ⑤                      ⑥                      ⑦                      ⑧                      ⑨                      ⑩                      ⑪

① Product series	② Inertia capacity	③ Drive motor type	④ Rated voltage	⑤ Rated power	⑥ RPM
SM3-M3: SM3-M3 series Servo Motor	A: Low inertia M: Medium inertia H: High inertia	S: Single-phase/ Three-phase 220V U: Three-phase 220V T: Three-phase 380V	S: AC 220V	10B: 100W    20B: 200W 40B: 400W    75B: 750W 10C: 1000W	30C: 3000RPM

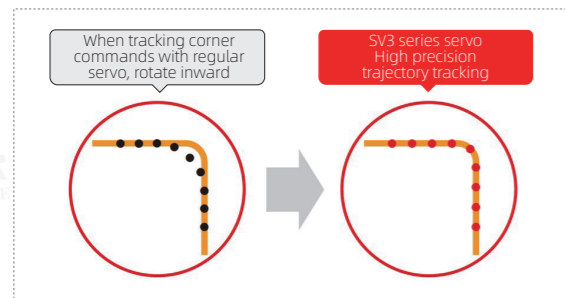
⑦ Encoder type	⑧ Interface type	⑨ Axis connection method	⑩ Brake	⑪ Oil seal
M: 17bit single ring absolute value P: 23 bit multi rings absolute value	N: 17bit multi rings absolute value T: Terminal type	0: Optical axis 1: With keys	N: NA B: Yes	0: NA 1: Yes

Servo SV3H pin definition - Driver:



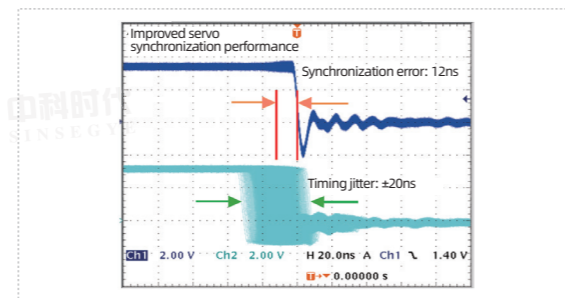
### Product advantages: 1.High precision

Build in high-precision trajectory tracking algorithm with high dynamic response, greatly improving trajectory tracking performance; Support a 17bit-23bit single/multi turn absolute encoder, significantly improving device positioning accuracy.



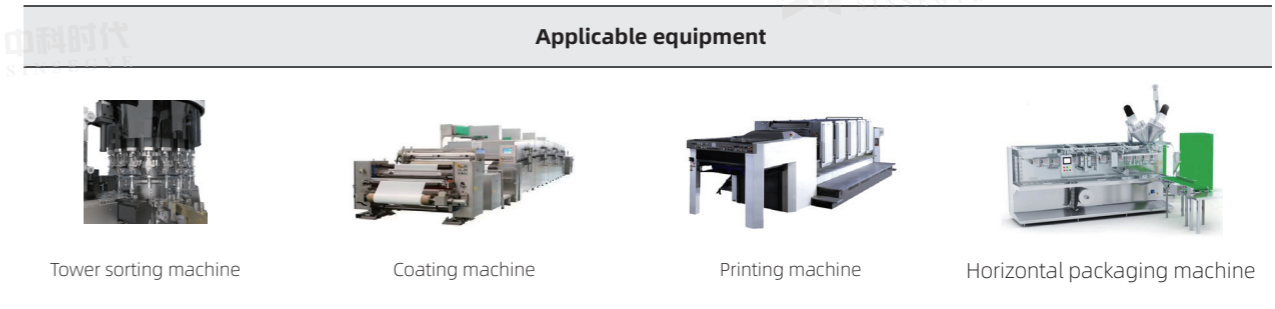
### Product advantages: 2.High synchronization

High synchronization characteristics, have a distributed clock module, timing jitter at sub-microsecond, jitter error within 1μs, and meets the needs of multiple on-site multi axis synchronous control.



### Applicable industries and equipments:

It has two major characteristics of universality and platformization, support communication such as RS485, CANopen, EtherCAT and PROFINET, with a power range ranging from 0.1 to 7.5kw. Suitable for industries such as lithium batteries, semiconductors, packaging, printing, steel, textiles, and filling.



### Product advantages: 3.Refresh performance

Adopt new ARM+FPGA architecture, lower control delay, the current loop response bandwidth is as high as 3kHz, the instruction follows faster, and the position setting time is effectively shortened. High speed, high precision, and high efficiency, maximizing the performance of mechanical equipment.

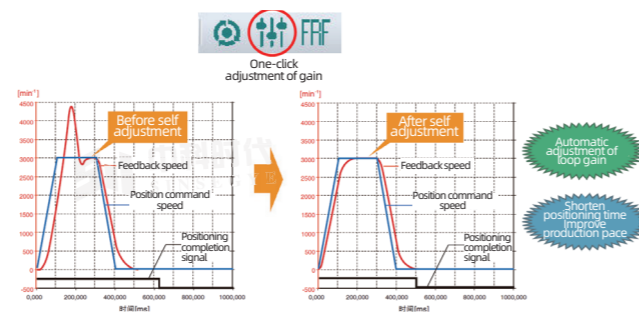
Specifications	Refresh frequency
Carrier frequency	8kHz
Current loop frequency	16kHz
Speed loop frequency	16kHz
Position loop frequency	4kHz

### Comparison of servo SV:

Sinsegye Servo	Basic parameters	Communication protocol	Basic functions	Application functions	Software function	Features
SV2	Encoder accuracy 23bit Basic power 100w-2kw	EtherCAT	<ul style="list-style-type: none"> <li>✗ Dynamic braking</li> <li>✗ Weak magnetic function</li> <li>✗ Feedforward gain adjustment</li> <li>✗ Notch filter</li> <li>✗ Inertia recognition</li> <li>✗ Automatic gain adjustment</li> <li>✓ Position filtering</li> <li>✗ Second encoder</li> </ul>	<ul style="list-style-type: none"> <li>✓ Dual probes</li> <li>✗ Safe STO</li> <li>✗ Second encoder</li> <li>✓ Analog encoder output</li> </ul>	To be released	<b>Affordable</b>
SV3	Encoder accuracy 23bit SV3S power 50w-2kw SV3H model 50w-7.5kw	Pulse Input EtherCAT CANopen (SV3H optional) Modbus (SV3H optional) PROFINET (SV3H optional)	<ul style="list-style-type: none"> <li>✓ Dynamic braking</li> <li>✓ Weak magnetic function</li> <li>✓ Feedforward gain adjustment</li> <li>✓ Notch filter</li> <li>✓ Inertia recognition</li> <li>✓ Automatic gain adjustment</li> <li>✓ Position filtering</li> <li>✓ <b>Second encoder</b></li> </ul>	<ul style="list-style-type: none"> <li>✓ Dual probes</li> <li>✓ Safety STO (Optional for high end product)</li> <li>✓ <b>Second encoder (Optional for high end product)</b></li> <li>✓ Analog encoder output</li> </ul>	Driver parameter management (Backup) Parameter monitoring and collection One click self-tuning Bode plot collection	Rich communication protocols, wide industry use, convenient servo debugging

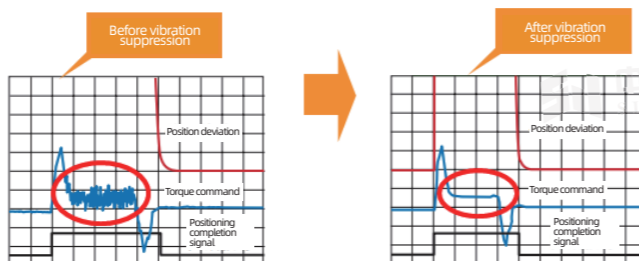
### Product advantages: 4.Gain self-adjustment

Equipped with two automatic tuning loop parameter functions of "single parameter" and "self adjustment", it greatly shortens the servo debugging time and significantly improves usability.



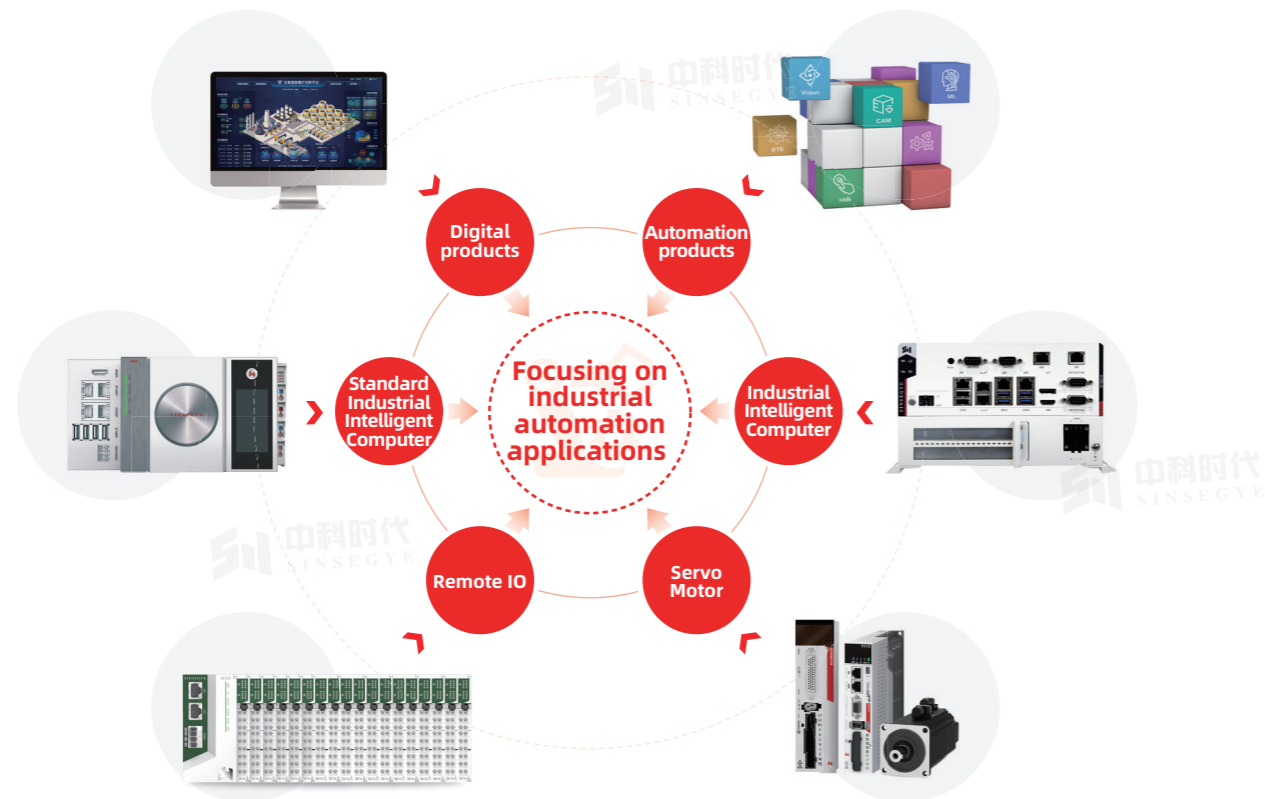
### Product advantages: 5.Enhanced vibration suppression

Have enhanced vibration suppression function, equipped with four resonance suppression filters, second-order torque low-pass filters, input shaping filters, and position notch filters, solving vibration problems in various frequency bands of low frequency, medium frequency, and high frequency.



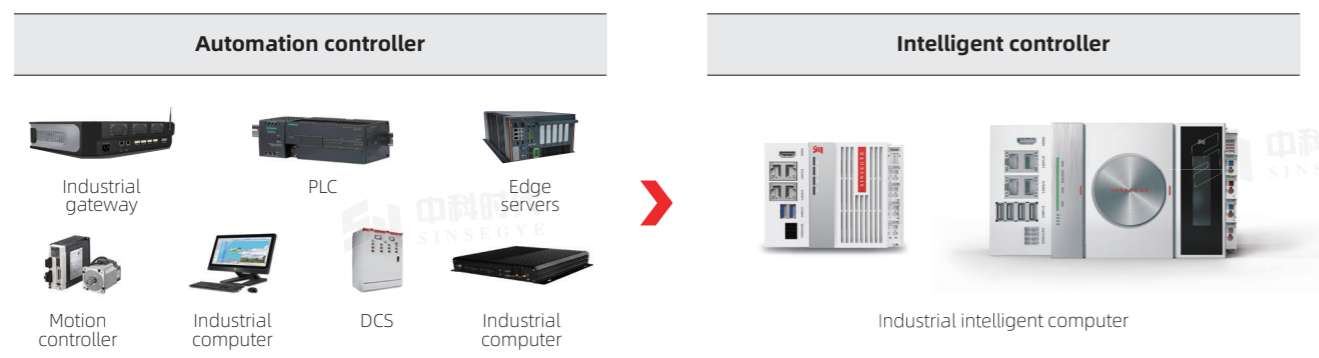
# Automation

MetaOS MetaFacture



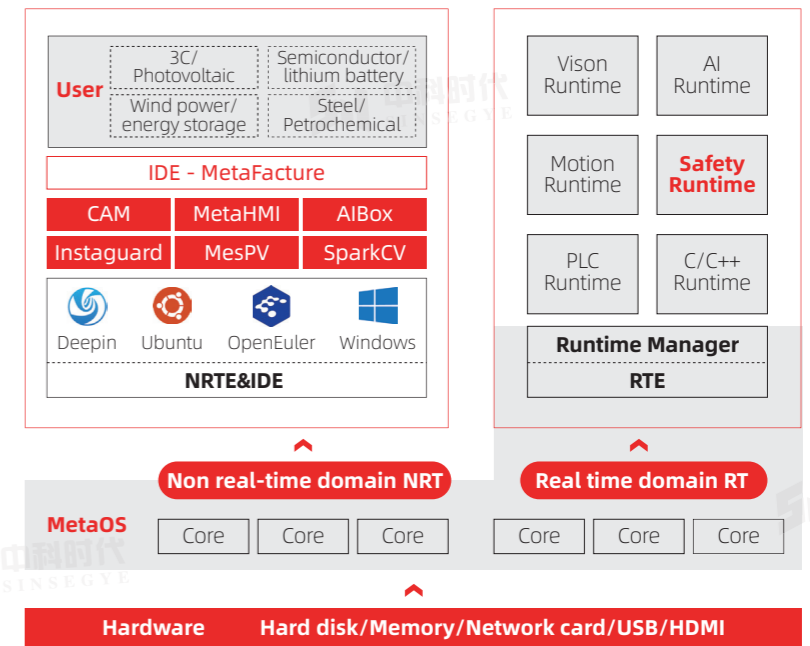
## Technical concept: Based on PC and software definition

- **Based on PC and software definition - Industrial Automation**  
Enable traditional automation control equipment (PLC) computable and intelligent, make traditional automated production equipment intellectualized.
- **Industrial intelligent computer**  
It will replace the traditional PLC, industrial computer, controller, industrial gateway, edge computing server and other control equipment to become the core controller of future industrial automation integrated with computing and control.



## Automation product series:

- **SOxxxx**  
Operating system, real-time core, virtualization, task scheduling, priority
- **SFxxxx**  
Various extension function plugins: Backup communication functions, data-base interfaces, and motion control
- **SExxxx**  
Development environment, programming environment, debugging environment, diagnostic tools  
Configuration mode/PLC expert mode/SDK expert mode
- **STxxxx**  
Engineering templates and software frameworks  
Laser industry, plastic machine industry, energy industry
- **SDxxxx**  
DCS systems in the process industry and steel industry

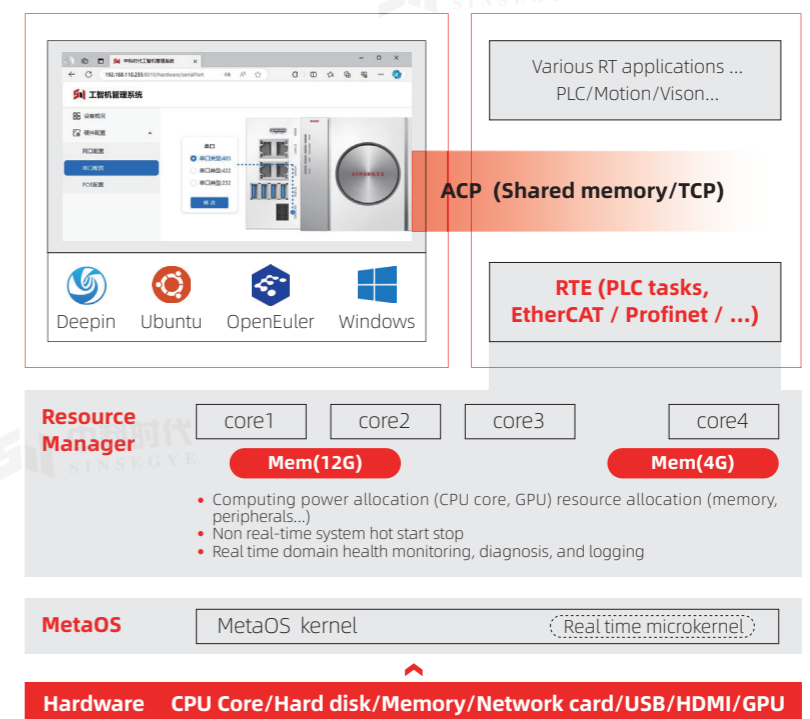


## Automation product series - SOxxxx MetaOS

- SO1xxx MetaOS
- SO2xxx MetaOS + RTE + Windows
- SO3xxx MetaOS + RTE + OpenEuler
- SO4xxx MetaOS + RTE + Deepin

## Advantages:

- High computing power, hard real-time, multitasking, low jitter
- Hybrid kernel dual domain isolation, non interference between NRT and RT
- Support multiple desktop ecosystems
- Flexible allocation of real-time and non-real time domain resources



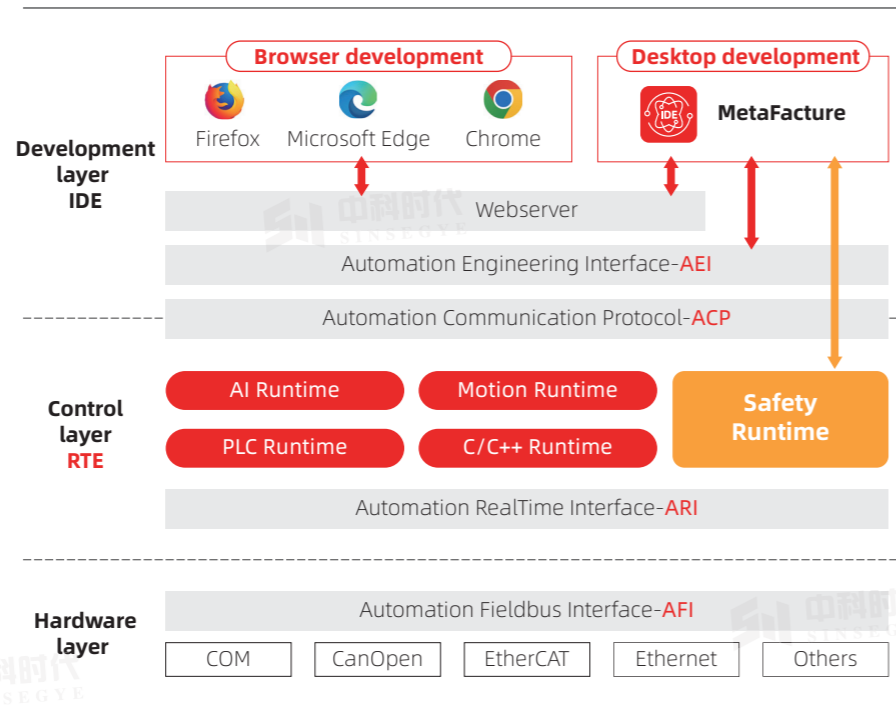
## Automation Product Series - SFxxxx

### SFxxxx

- SF1xxx basic functions
- SF2xxx vision, machine learning
- SF3xxx HMI human-machine interaction
- SF4xxx extended function products
- SF50/51xx Motion control
- SF6xxx SIL3 Safety

### Advantages:

- Open and unified interface
- Modular design concept
- Cross platform applications
- IT technology integration



## Automation Product Series - STxxxx

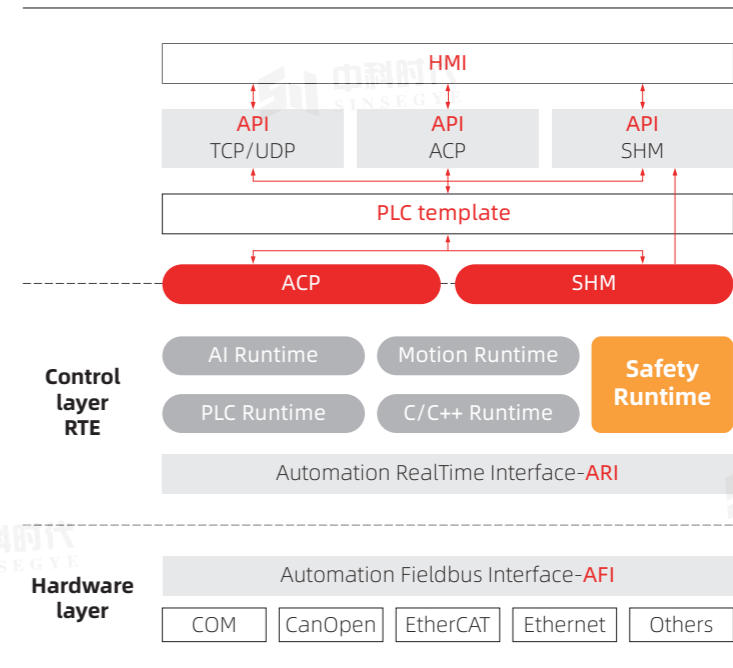
### STxxxx

#### STxxxx engineering template

- ST1xxx basic engineering template
- ST2xxx soft board card (3C, Photovoltaic, Semiconductor)
- ST3xxx laser (cutting, marking, welding)
- ST4xxx energy (wind power, energy storage, wind farm)
- ST5xxx packaging (lithium battery, food and beverage, production line)
- ST6xxx tertiary industry (stage, entertainment)

### Advantages:

- Standards for key industries and key equipment control applications programming framework
- Default integration of basic function plugins such as PLC, Motion, HMI, and communication
- Default integrated key functions such as fault alarm, log, data presentation, and report forms
- Using this framework can reduce the R&D time cycle for both old and new models of customers



## Digital series products - SDxxxx

## Automation Product Series - SExxxx

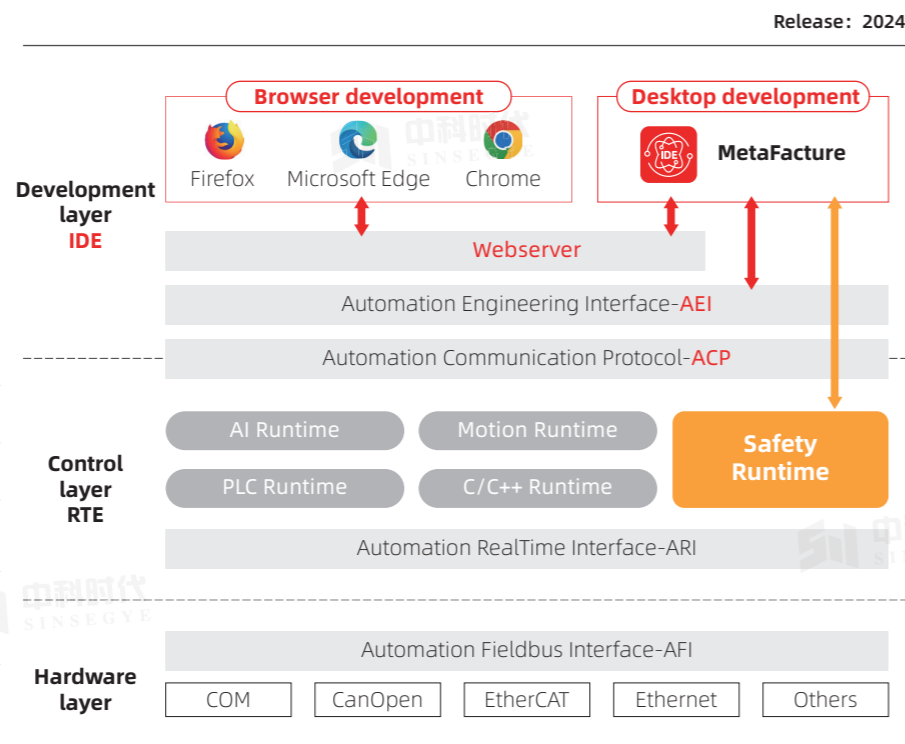
### SExxxx

#### SExxxx development environment

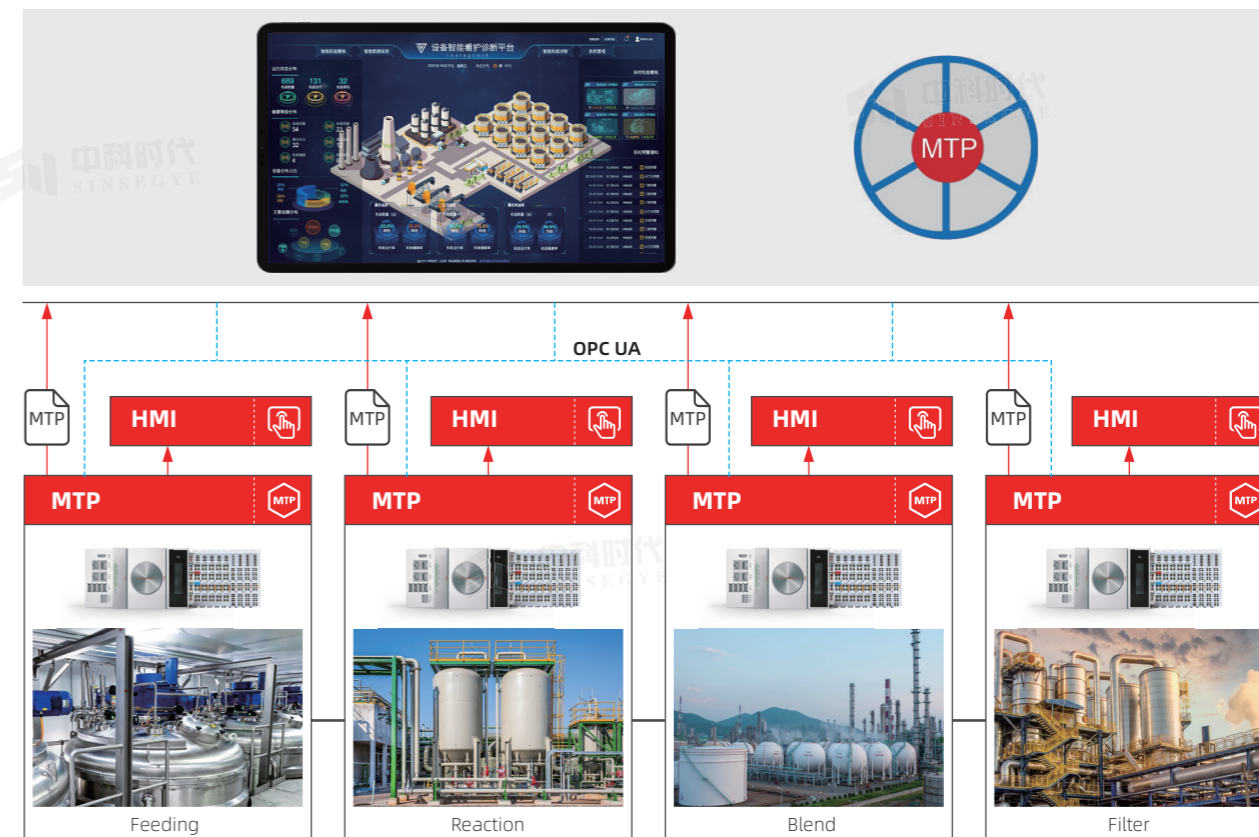
- SE1xxx basic development toolkit
- SE2xxx AI development toolkit
- SE4xxx plugin development toolkit
- SE5xxx Motion development toolkit
- SE6xxx Safety development toolkit
- SE8xxx Device Manager toolkit

### Advantages:

- Unified, unique, and complete project development toolkit
- Integrate and complete PLC programming and debugging functions
- Integrate complete C/C++-programming and debugging functions
- Integrate Motion function to meet the development needs of various motion control projects
- Integrate AI function to meet customer needs for artificial intelligence and industrial machine learning project development
- Integrate low code and automatic code generation functions to reduce development workload and improve development efficiency



### Distributed Control System Visualization



Digital product series - SDxxxx

Instaguard

Equipment intelligent care diagnosis system



Application devices



Centrifugal pump



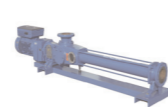
Plunger pump



Gear pump



Vane pump



Screw pump



Water ring pump



Centrifugal fan



Axial flow fan



High voltage motor



AC fixed frequency motor



AC variable frequency motor



Planetary gearbox



Parallel gearbox

Perception

Determine

Decision-making

Implement

Application area



Petroleum



Artifice



Metallurgy



Water service



Mining



Equipment

Automation product line:

Product Description		
SO series	SO1xxx MetaOS Basic	MetaOS (Linux kernel without desktop) MetaOS+RTE (Linux kernel without desktop) MetaOS+Deepin desktop system MetaOS+Ubutun desktop system
	SO2xxx MetaOS + Windows	MetaOS+Windows desktop system Win7_x86 embedded version MetaOS+Windows desktop system Win7_x86 professional version MetaOS+Windows desktop system Win7_x86 flagship version MetaOS+Windows desktop system Win7_x64 embedded version MetaOS+Windows desktop system Win7_x64 professional version MetaOS+Windows desktop system Win7_x64 flagship version MetaOS+Windows desktop system Win10_x86 embedded version MetaOS+Windows desktop system Win10_x86 professional version MetaOS+Windows desktop system Win10_x86 Server version MetaOS+Windows desktop system Win10_x64 embedded version MetaOS+Windows desktop system Win10_x64 professional version MetaOS+Windows desktop system Win10_x64 flagship version MetaOS+Windows desktop system Win10_x64 Server version MetaOS+Windows desktop system Win11_x64 IOT version MetaOS+Windows desktop system Win11_x64 professional version MetaOS+Windows desktop system Win11_x64 enterprise version MetaOS+Windows desktop system Win11_x64 Workstation version
	SO3xx MetaOS + OpenEuler	MetaOS (New System Extension)
	SO8xxx MetaOS + Dual system	MetaOS (Ubutun desktop system+Windows desktop system+RTE) MetaOS (OpenEuler desktop system+Windows desktop system+RTE) MetaOS (Ubutun desktop system+Windows desktop system+RTE) MetaOS (Ubutun desktop system+Windows desktop system+RTE)
Product Description		
SF series (RTE)	SF1xxx Base Runtime	When the IO module is running, CAN and Devicenet PLC runtime C/C++at the time of operating Module generated by MATLAB®/Simulink® PLC runtime, C/C++runtime C/C++at the time of operating, module generated by MATLAB®/Simulink® Redundancy of therCAT cables generated by PLC runtime, C/C++runtime, MATLAB®/Simulink® modules Air brake redundancy Scope data oscilloscope local data storage Scope data oscilloscope TCP communication remote storage Scope data oscilloscope IOT remote storage
	SF2xxx AI Runtime	Time series operators (time domain, frequency domain) Vision Visual Signal Processing USB, TCP Hardware Driver Layer Vision Visual Signal Processing GigE Hardware Driver Layer Vision Basic Operators Machine learning real-time inference engine - discrete process data Machine Learning Real time Inference Engine - Time Series Process Data Machine Learning Real time Reasoning Engine - Image Data Machine learning non real-time inference - discrete process data Machine Learning Non Real Time Inference - Time Series Process Data Machine Learning Non Real Time Inference - Image Data Text to speech function plugin
	SF3xxx HMI Runtime	HMI Basic Product C/S Rack Core HMI Basic Product B/S Architecture HMI plugin products OPC UA communication plugin HMI plugin products IOT MQTT communication plugin HMI plugin product user management HMI plugin product formula HMI plugin product alarm Touch screen hardware device via HDMI and USB interface

SX series

SP series

SRE series

SRR series

SC series

SV series

Automation

SF series (RTE)	SF4xxx Functions Runtime	ACP communication protocol plugin TCP mode ACP communication protocol plugin UDP mode, Pub/Sub Modbus communication plugin Modbus RTU, COM, ASCII Modbus communication plugin Modbus TCP Ethernet communication plugin TCP/IP/UDP Ethernet communication plugin FTP protocol (Client/Server) Ethernet communication plugin IOT MQTT protocol Ethernet communication plugin HTTP/Rest protocol OPCUA communication plugin OPC UA (TCP) (Client/Server) OPCUA communication plugin OPC UA (UDP) Pub/Sub Database communication plugin XML Database Serve Database communication plugin OLE Database Server IEC61850 Power Communication Protocol Json processing
	SF50xx SoftMotion	Basic motion control SM3_Basic CNC function SM3_CNC Axis group functionality SM3_Robotics
	SF51xx NcCore	NC PTP, support up to 10 axes NC PTP, support up to 25 axes NC PTP, support up to 255 axes NC Camming, electronic cam Flying Saw NC Axes Coupling, FIFO position following Surface compensation motion NCI Kinematic transformation, model level 1 Kinematic transformation, model level 2 Kinematic transformation, model level 3 Kinematic transformation, model level 4 Robot CNC Hydraulic control PID and signal processing Packaging Industry Specification PackML Library
	SF6xxx Safety	Safety function block
	SF80xx Device Manager	Industrial and intelligent equipment management tools
Product Description		
SE series (IDE)	SE1xxx Base Engineering	The development environment supports PLC programming and debugging, and supports C/C++-high-level language programming Environmental redundancy and hot standby redundancy development toolkit Development toolkit for data recording and waveform display Matlab algorithm integration Matlab Simulink Interface (ACP) Matlab algorithm integration Simulink runtime Matlab algorithm integration Matlab S-Function Matlab algorithm integration FMI EPLAN and other electrical drawing software related development toolkits Mechanical Integration Solidworks Interface Mechanical Integration Inventor Interface Mechanical integration NX-MCD interface
	SE2xxx AI	Machine vision development toolkit Machine learning development toolkit, including real-time and non real-time inference, etc
	SE3xxx HMI	HMI development tool, supporting B/S, C/S architecture, and template based engineering creation
	SE4xxx Functions	ACP protocol packet capture and analysis tool Modbus RTU/TCP communication configuration tool TCP/IP TCP/UDP and other communication configuration tools OPC UA Communication Protocol Configuration Tool Database Access Configuration Tool
	SE50xx SoftMotion	Development tools for motion control (positioning, cam, interpolation, etc.)
	SE51xx NcCore	NC core (soft motion control board) development tool

Automation product line:

SE series (IDE)	SE6xxx Safety	Security feature development tools
	SE8xxx Target Manager	Auxiliary Service Tool Collection Package
Product Description		
ST series (Template)	ST10xx Basic Skill Template	IO module management template Log management engineering template Formula management engineering template Alarm engineering template High speed IO management engineering template Linear tension control library template Winder control winding control library template Traversing control cable control library template Rotate knife circular knife control library template Flaying saw flying shear control library template Printing axis printing axis control library template Register control color adjustment library template CamTool Cam application library template Handwheel control management engineering template 2D CAM 3D CAM Soft board UDP communication method (SoftMotion) Soft board PLCHandler communication method (SoftMotion) Soft board ACP communication method (SoftMotion) Soft Motion, a shared memory communication method for soft board cards Soft board PLCHandler communication method (NcCore) Soft board ACP communication method (NcCore) Soft board OPC UA communication method (NcCore) Soft ware board shared memory communication method (NcCore)
	ST20xx 3C	Standard templates for robot communication, visual upper computer communication, and RFID communication Template for device state machine and OEE data statistics function HMI device template Device handshake signal and product information transmission final shift Template for device state machine and OEE data statistics function HMI line template 2D camera flying shooting function module Device state machine and signal triggering logic
	ST30xx laser	Laser marking, QR code marking, mes communication Infinite dimensions, mirror control with XY axis control Special marking requirements such as laser cleaning Flat laser welding system 3D laser welding system Robot laser welding system XY platform laser cutting Double drive gantry laser cutting damage Multi axis and multi laser head cutting Robot laser cutting system Automation+Laser
	ST40xx wind from	PLC engineering template HMI engineering template Operations and maintenance tools
	ST50xx precision machining	PLC engineering template (gantry control) HMI engineering template
	Product Description	
Digitization SD Series+DCS	SD1xxx DCS Runtime	-
	SD2xxx DCS IDE	-
	Instaguard	· <b>Predictive maintenance of equipment</b> Keeping pace with well-known enterprises such as Bohua, Y-Link and Ronds, we aim to create intelligent diagnostic products for pure AI devices without human intervention · <b>Discrete Industry Equipment Management</b> A small and precise equipment management and fault diagnosis platform for discrete equipment management in different industries and scenarios

SX series

SP series

SRE series

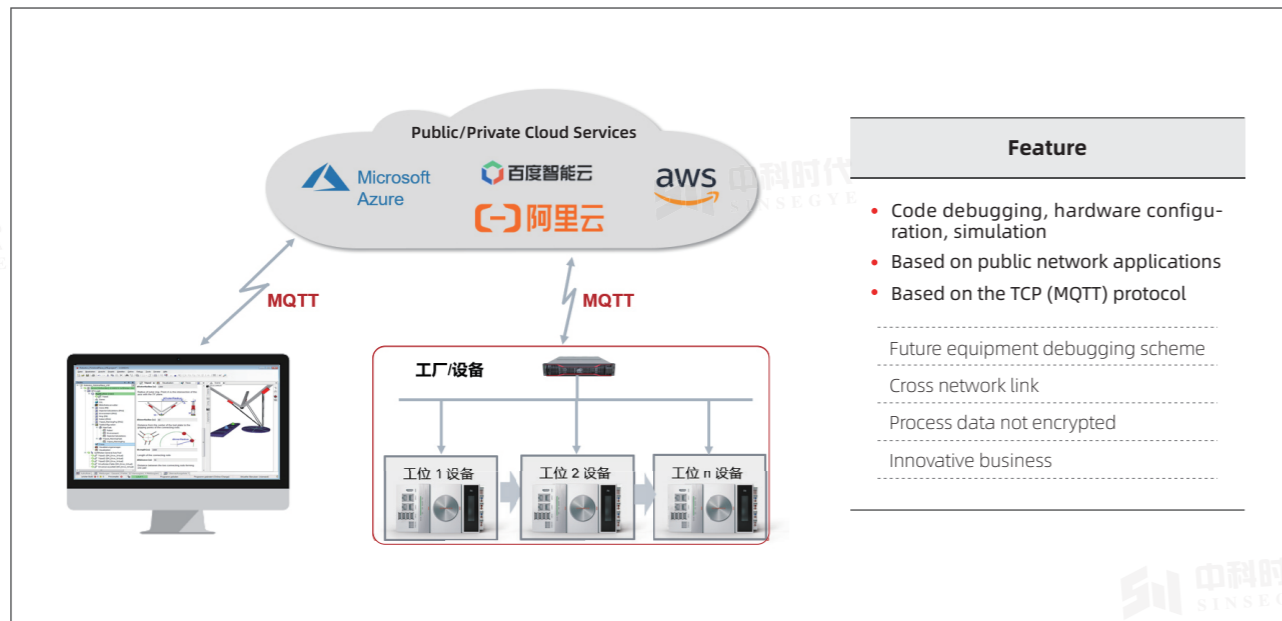
SRR series

SC series

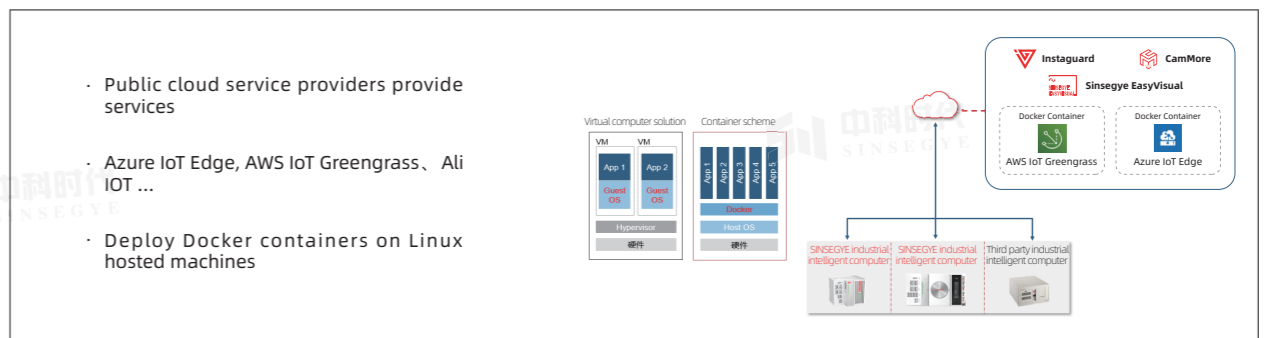
SV series

Automation

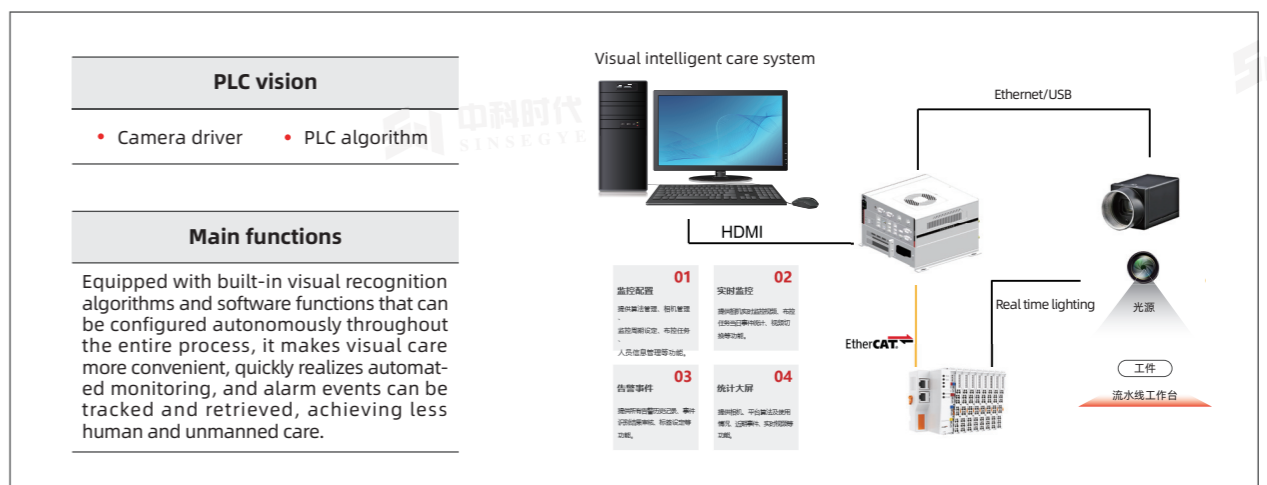
**Scenarios:** 1.Equipment development and debugging - integrating IOT debugging technology



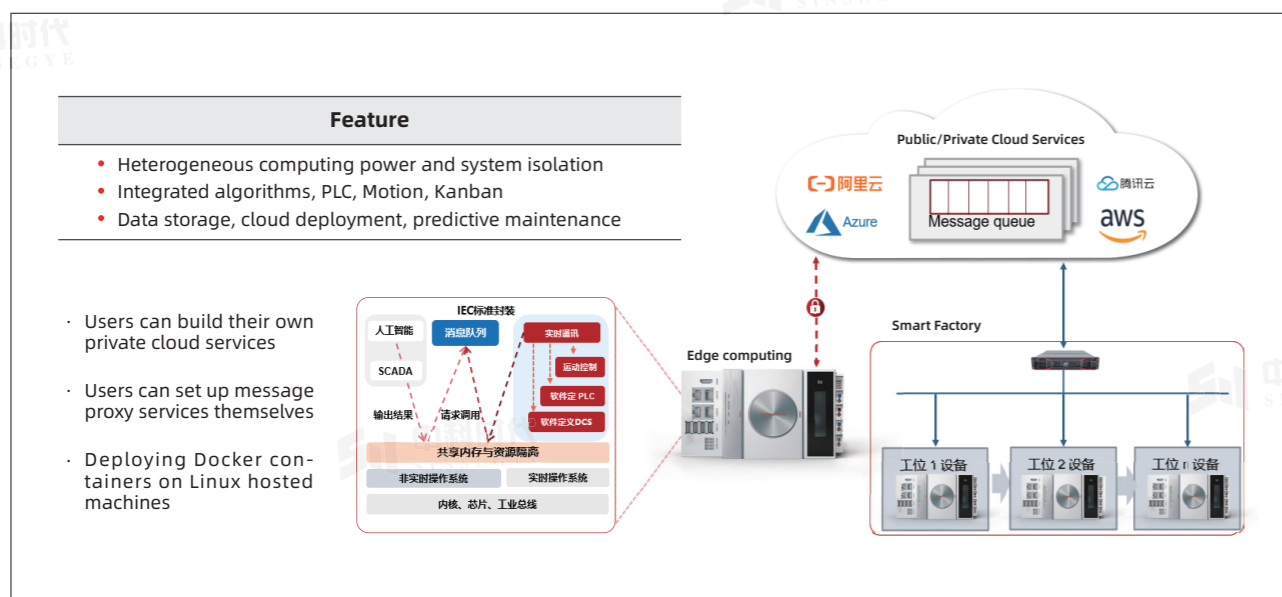
**Scenarios:** 3.Cloud computing



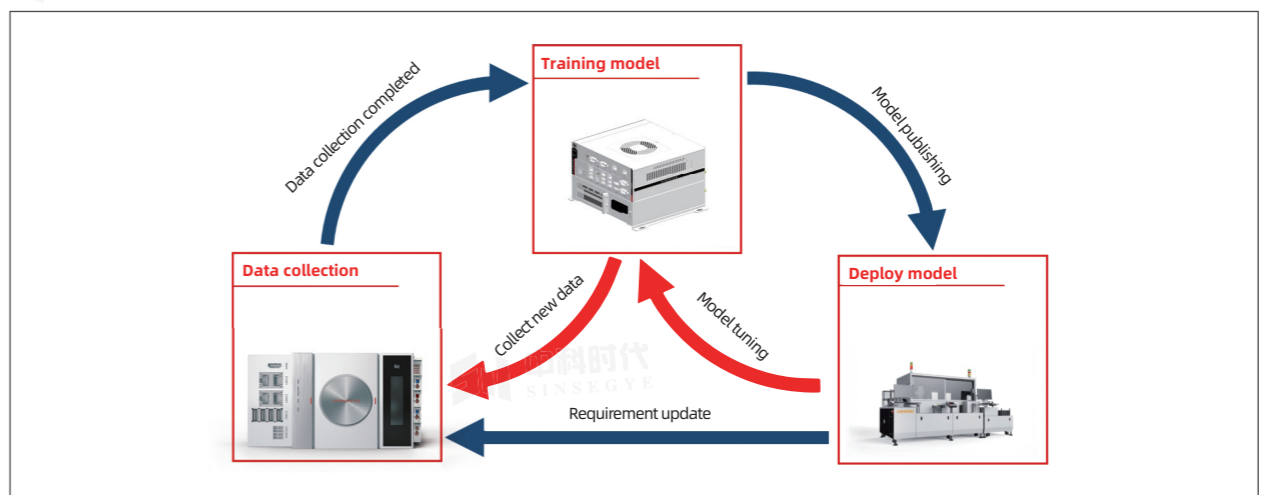
**Scenarios:** 4. Machine vision



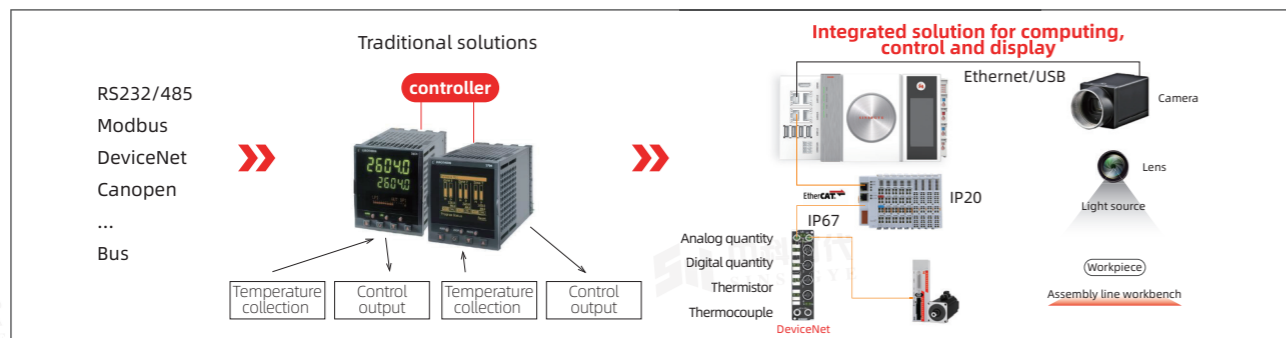
## Scenarios: 2.Edge computing



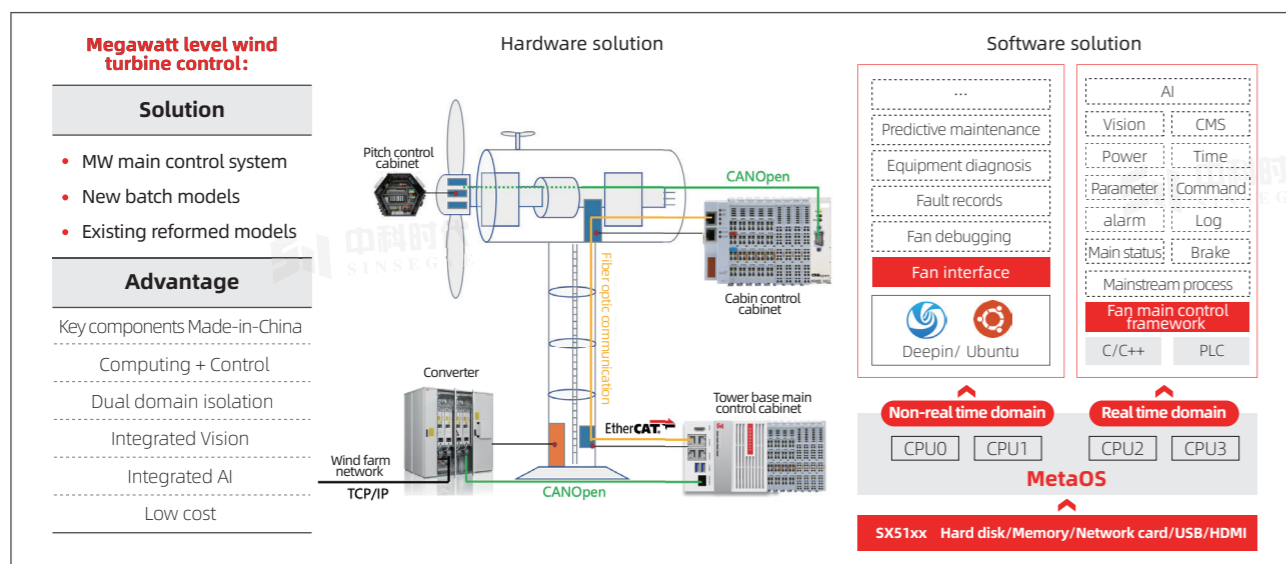
**Scenarios:** 5. Machine learning



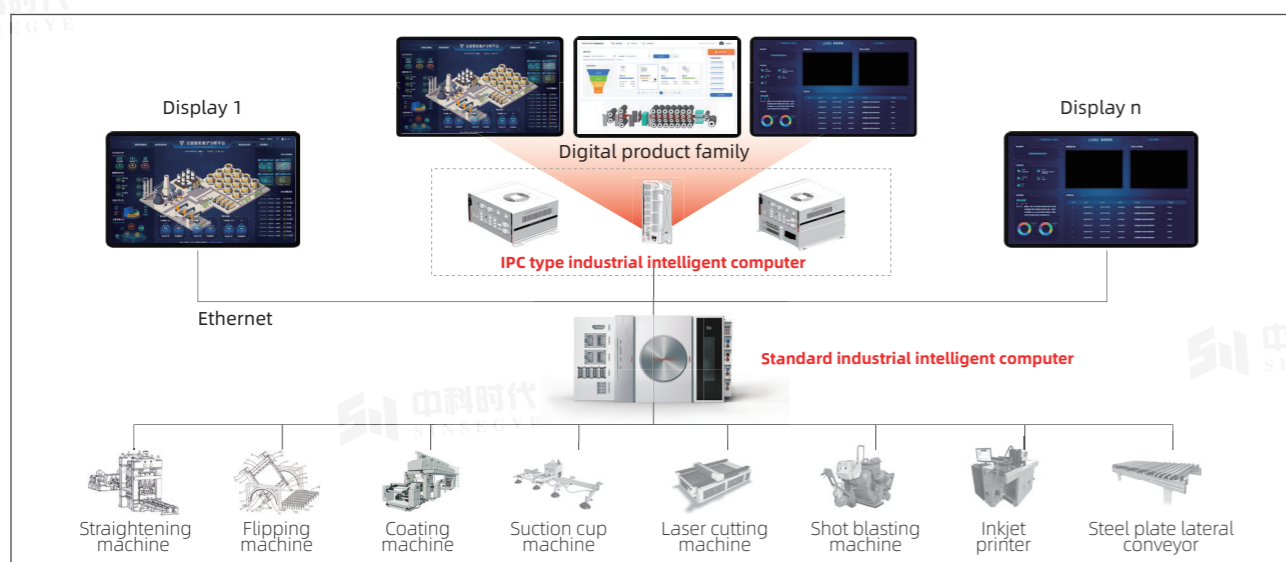
## Scenarios: 6.EtherCAT+dual domain semiconductor real-time control



## Scenarios: 7.Application scenarios of wind power generation



## Scenarios: 8.Steel application scenarios



## Made-in-China Industrial Intelligent Computer SX2 Extended Function Module



### Graphics card expansion module

### Technical model

### SX2-E GPU1

### SX2-E GPU0



#### Mechanical dimensions

117\*100\*70mm

117\*100\*70mm

#### Module weight

500g

500g

#### Environmental adaptation

0°C ~ 60°C (operation/storage)

0°C ~ 60°C (operation/storage)

#### Protection level

IP20

IP20

#### Panel interface

Display HDMI

NA

#### Module power supply

Bus powered

Bus powered

#### Module performance

NVIDIA P1000

4 \* MUL220

#### Adapted model

SX2 series

SX2 series

### Serial port expansion module

### Technical model

### SX2-E SER0



#### Mechanical dimensions

40\*100\*70mm

#### Module weight

200g

#### Environmental adaptation

-40 °C~60 °C (operation/storage)

#### Protection level

IP20

#### Connection interface

2X DB9 (9-pin)

#### Panel interface

RS232/RS485/RS422/CAN

#### Module power supply

Bus powered

#### Adapted model

SX2 series

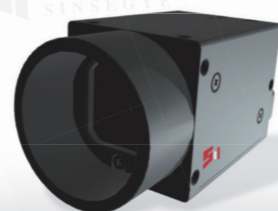
## Made-in-China Industrial Intelligent Computer

### SX2 Extended Function Module



Network port expansion module	Technical model	SX2-E EN04	SX2-E EN02
	<b>Mechanical dimensions</b>	40*100*70mm	40*100*70mm
	<b>Module weight</b>	200g	200g
	<b>Environmental adaptation</b>	-40°C~60°C (operation/storage)	-40°C~60°C (operation/storage)
	<b>Protection level</b>	IP20	IP20
	<b>Panel interface</b>	4 x Gigabit Ethernet	2 x Gigabit Ethernet
	<b>Module power supply</b>	Bus powered	Bus powered
	<b>Adapted model</b>	SX2 series	SX2 series

### Industrial vision camera:



#### Comprehensive functionality

- Support hard trigger, soft trigger, and free running modes
- Compact structure, suitable for installation in small spaces
- Compatible with GenICam standards and seamlessly connected to third-party software platforms

#### Easy to deploy

- Provide 1Gbps bandwidth, with a maximum transmission distance of up to 100m
- Support POE power supply, DC9-24V wide voltage power supply
- Universal C/CS interface, easy to match with related visual devices

#### Application industry

- Logistics, electronic semiconductors, visual automation, food, etc

## Open shelf touch display



#### Touch technology

Projective capacitor, surface acoustic wave, Five wire resistor



#### Display screen

High sealing performance,Front surface IP54 dustproof and waterproof



#### Support Touch through

Can penetrate up to 6mm thick glass, achieve touch control, and support glove wearing operation



#### Durable and sturdy

The front surface has passed UL ball drop test and has an IK-07 impact resistance rating



#### Industrial level

Suitable for 24/7 complex environments all day long



#### Video interface

Cover mainstream industrial video interfaces VGA, HDMI, DP



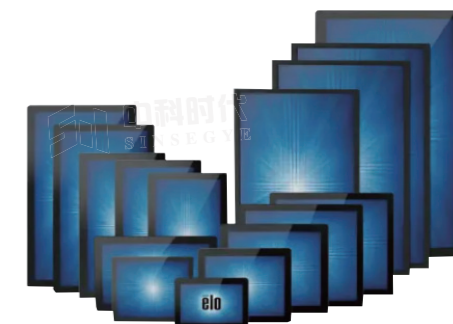
#### Mean time between failures

Strict factory aging test  
Real machine verification takes 50000 hours



#### Three year warranty

Multiple extended warranty options available



### Product parameters:

	15 inches		22 inches	
<b>Screen size</b>	15", 4:3	15", 16:9	22", 16:9	22", 16:9
<b>Best resolution</b>	1024x768	1366x768	1920x1080	1920x1080
<b>Brightness (panel)</b>	250 nits	300 nits	250 nits	400 nits
<b>Visual angle</b>	160°/150°	160°/160°	178°/178°	178°/178°
<b>Touch technology</b>	Projection capacitor			
<b>Video interface</b>	VGA, HDMI, DP			