

ADVANTECH

Enabling an Intelligent Planet

Advantech IIoT EtherCAT Edge Controller AMAX-5000 Series Smaller & Faster PAC Solution



R1
AUTOMAZIONE
&
INNOVAZIONE



Industry 4.0 Common Platform AMAX-5000

Open

Compact



Scalable




AMAX-5000: Integrate wireless, edge computing, sensing and control


AMAX-5580, IIoT EtherCAT Edge Controller


Scalable Embedded Automation System, Bridging IT & OT

Wireless LAN/ Cellular Network  

AI Inference 

PoE / USB Camera 

Fieldbus Master 

RS-232/422/485 



PC Peripherals Extension



Real-time I/O Sensing

EtherCAT

 Temperature

 Current

 Voltage

 Switch

 Indicator



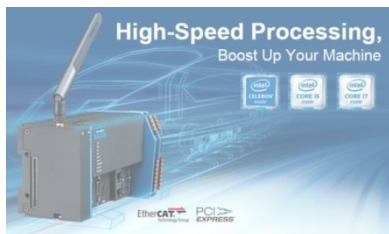
Driver/Motor

Information Technology

- Intel Core 6th Gen CPU
- Dual Display HDMI + VGA
- Windows7 / 10
- DAQnavi API/SDK for IO
- ODBC connection
- MQTT / OPC UA

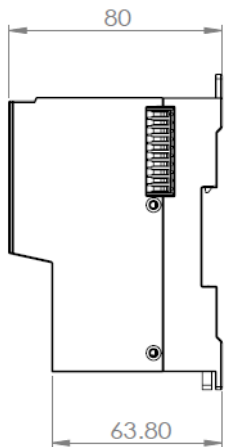
Operation Technology

- CODESYS RTE
- IEC-61131-3 softlogic
- 100 us Real-time
- Smart Power Diagnosis
- Softmotion FBD
- Fieldbus Master

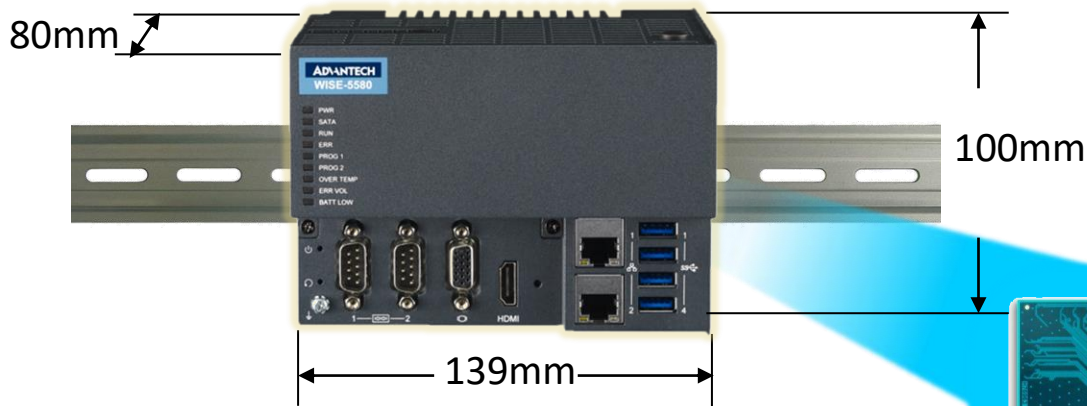


AMAX-5580, IIoT Controller Platform

Powerful Embedded IPC on DIN-rail, Front Accessibility Design

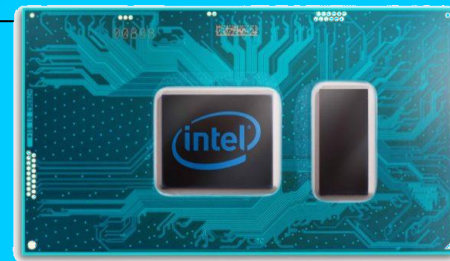


Step-wise Depth
Easy for IO Wiring



Standard Height for DIN-Rail mount

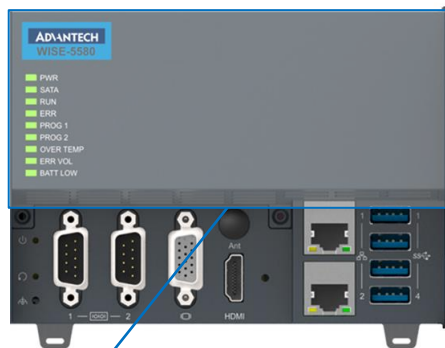
Within 2x ADAM Width, embed Core i7 Dual Core CPU and max. 32G DDR4 in Fanless Design



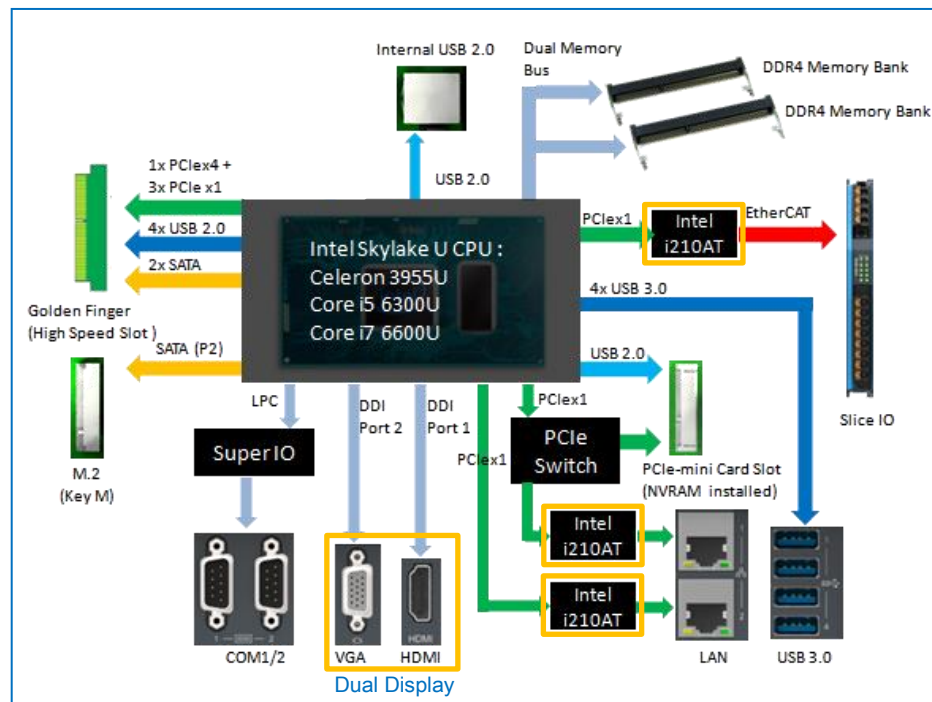
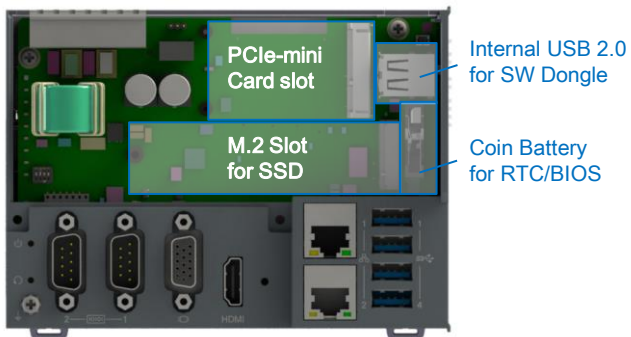
Intel Skylake U CPU :
Core i7 6600U 2.6GHz
Core i5 6300U 2.4GHz
Celeron 3955U 2.0GHz

AMAX-5580, IIoT Controller Platform

Embedded IPC on DIN-rail, w/ Dual Display, 3xLAN, Scalable I/O



Open Front Cover

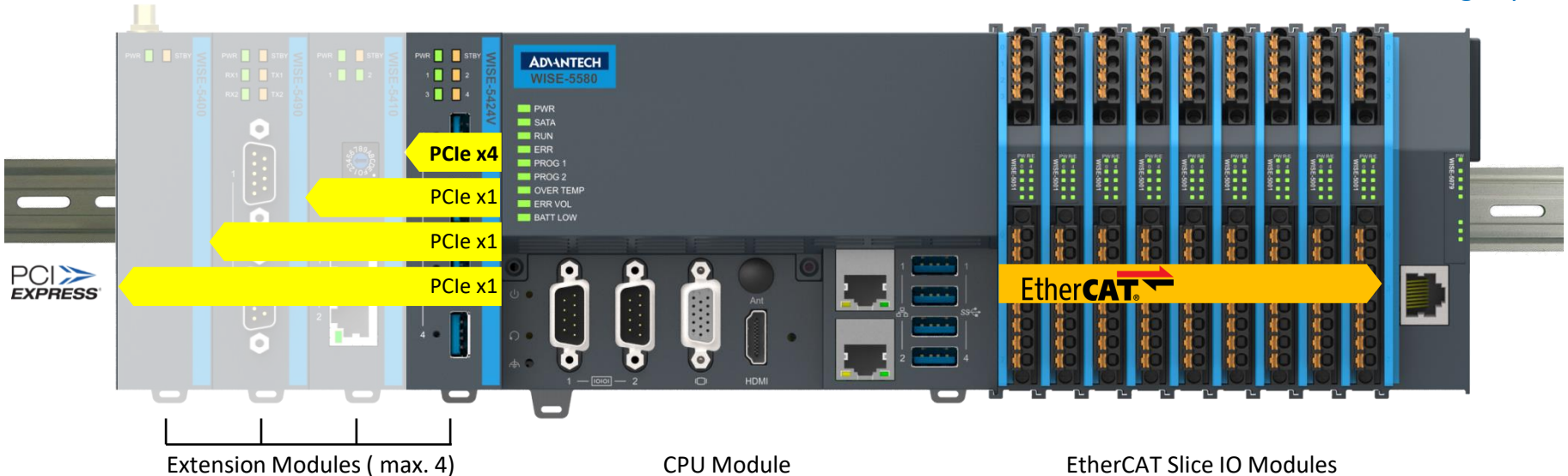


AMAX-5580, IIoT Controller Platform

Scalable Embedded System on DIN-Rail

Save as more space as possible in your Control Cabinet

Max. 65534 slave module addressing capability



AMAX-5400 Series, Easy Expansion for PC Peripheral

Add Wireless / LAN / PoE / USB3.0 / Serial easily on DIN-rail



PCI EXPRESS

Expansion Module

- | | |
|------------|---------------------------------|
| AMAX-5400E | Mini PCIe Expansion w/SIM |
| AMAX-5410 | 2-Ch GigE for Vision |
| AMAX-5410P | 2-Ch PoE for Vision |
| AMAX-5424V | 4-Port USB3.0 for Vision |
| AMAX-5490 | 2-Port Isolated RS-232/422/485 |
| AMAX-5495 | 2-Port Isolated CAN NEW |

AI Inference

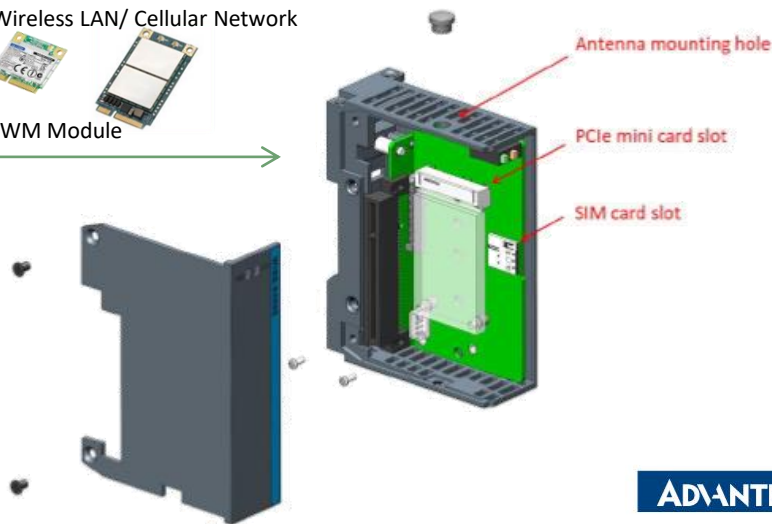


VEGA-330

Wireless LAN/ Cellular Network



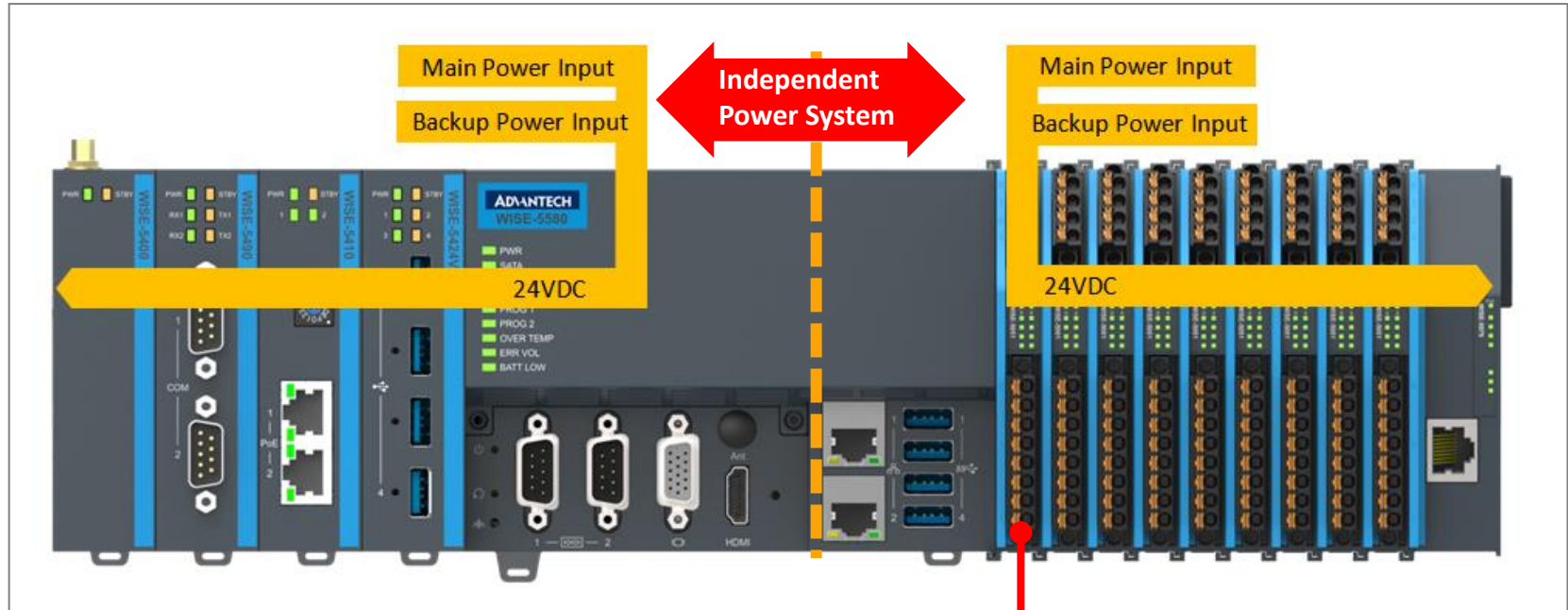
EWM Module



ADVANTECH

AMAX-5580, IIoT Controller Platform

Independent & Dual Power Input Design Enhance System Reliability



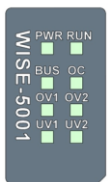
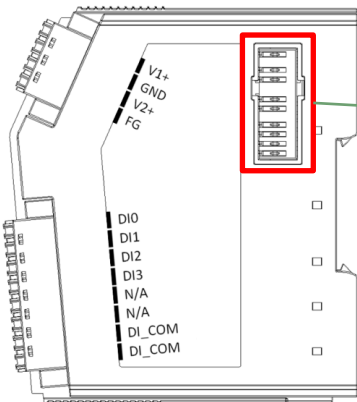
AMAX-5001 Smart Power Input Module

(One AMAX-5001 can supply power for ~20* I/O modules or ~10* AO modules)

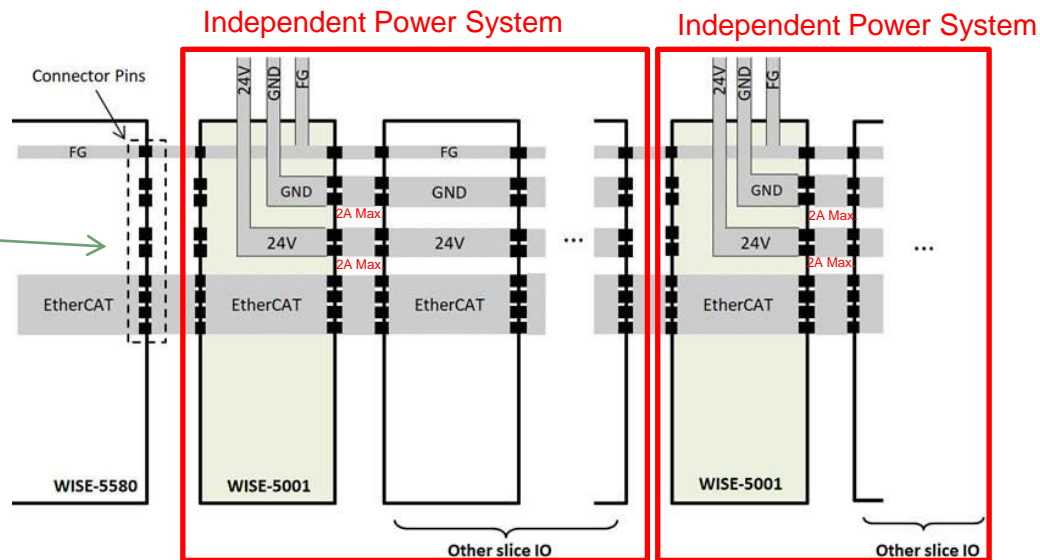
AMAX-5000, EtherCAT Slice IO System

AMAX-5001, Construct Power System for AMAX-5000 Slice IO System

AMAX-5001

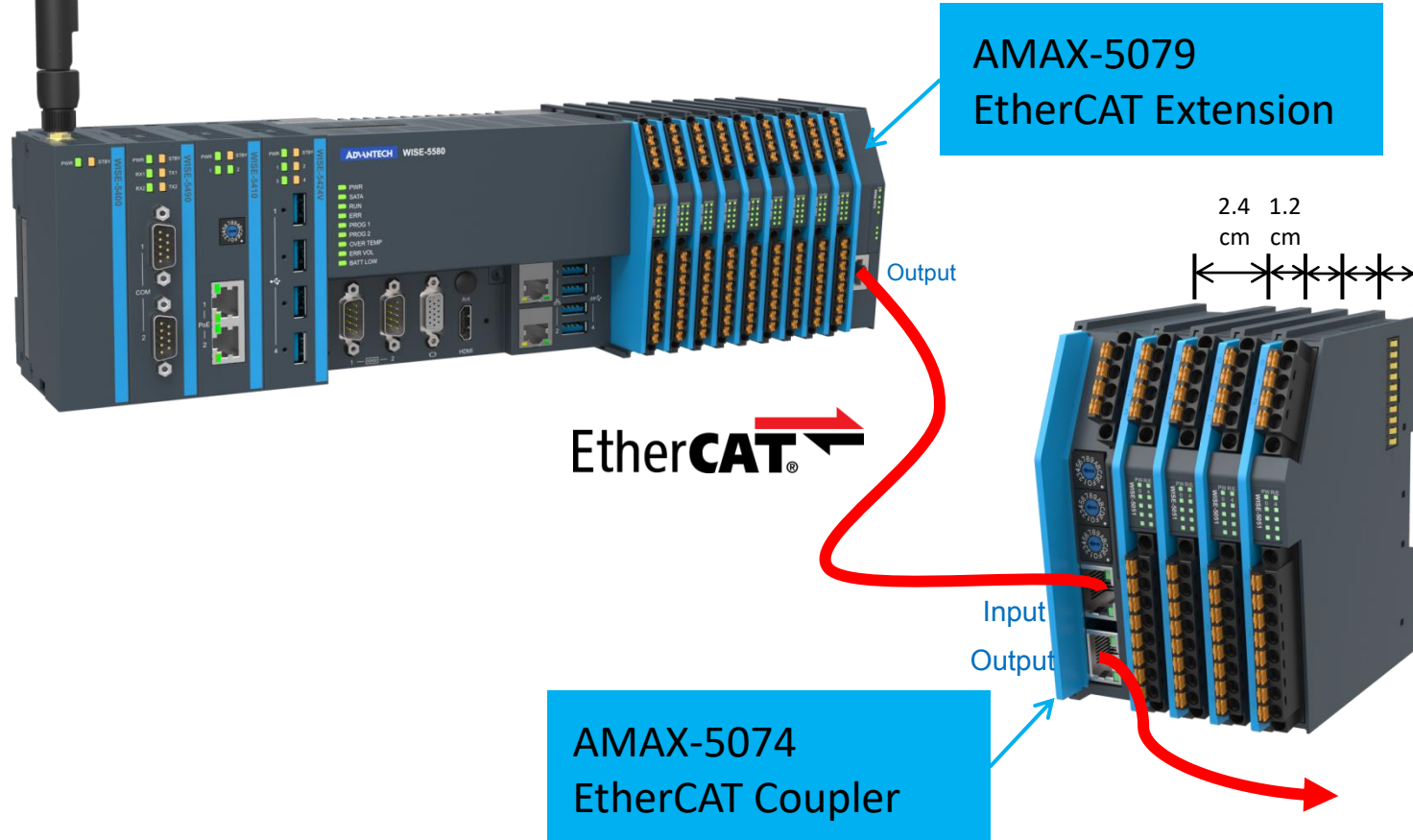


LED-	Color-	Indication-	Behavior-
PWR	Green-	ON-	Power on-
Run-	Green-	ON-	EtherCAT connection-
BUS	Green-	ON-	BUS power on-
OC-	RED-	ON-	BUS over current-
OV1-	RED-	ON-	Vin1 over voltage (30V)-
OV2-	RED-	ON-	Vin2 over voltage (30V)-
UV1-	RED-	ON-	Vin1 under voltage (10.7V)-
UV2-	RED-	ON-	Vin2 under voltage(10.7V)-

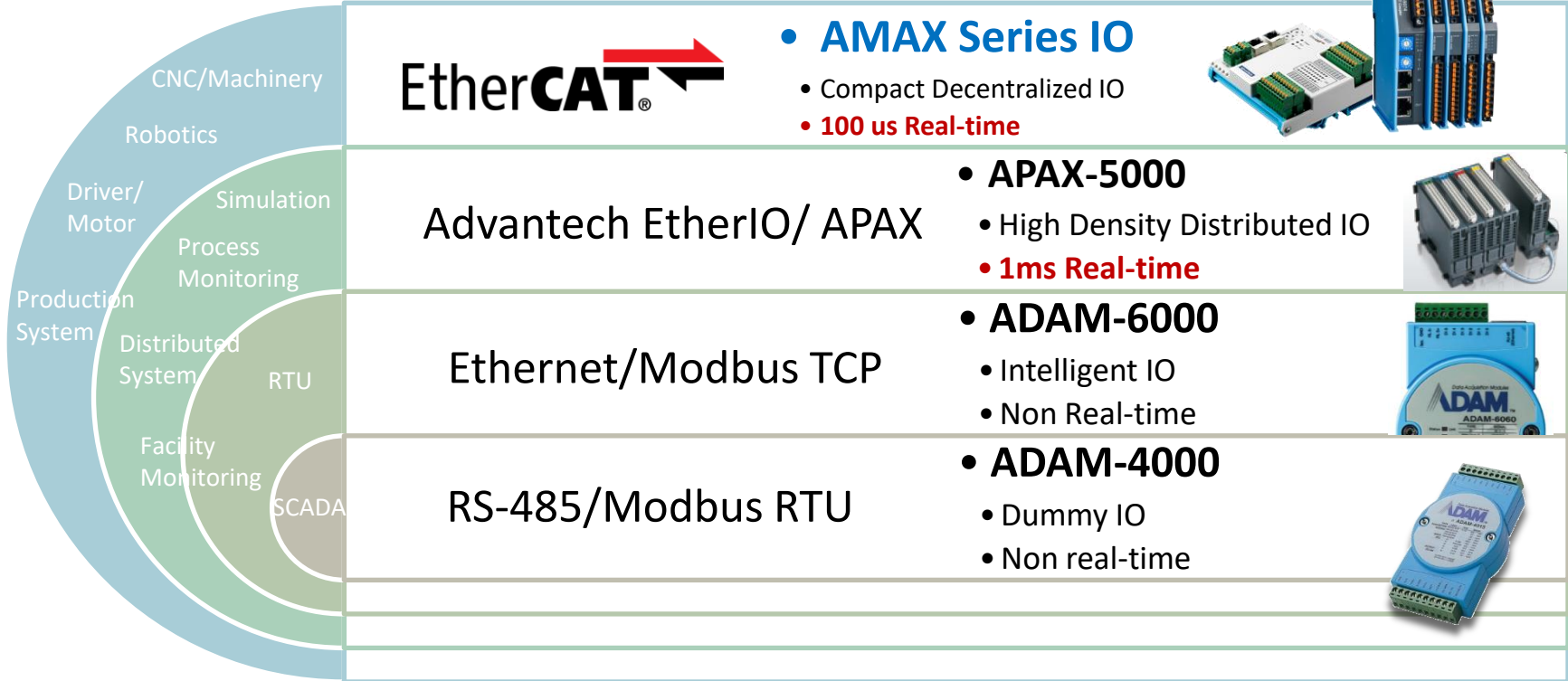


1. AMAX-5001 supply 24VDC to the right hand side modules, and is isolated to the left-hand side contact pin.
2. One AMAX-5001 can supply up to 20 piece modules, however AO module consume more power, so 10 piece AO modules could be supplied.
3. AMAX-5001 can identify the power quality and show on the System Variable and LED Indicator.
4. If over current, AMAX-5001 would cut the power supply to protect the system. Then another AMAX-5001 is necessary to continue the I/O system construction.

AMAX-5000, EtherCAT Slice IO System

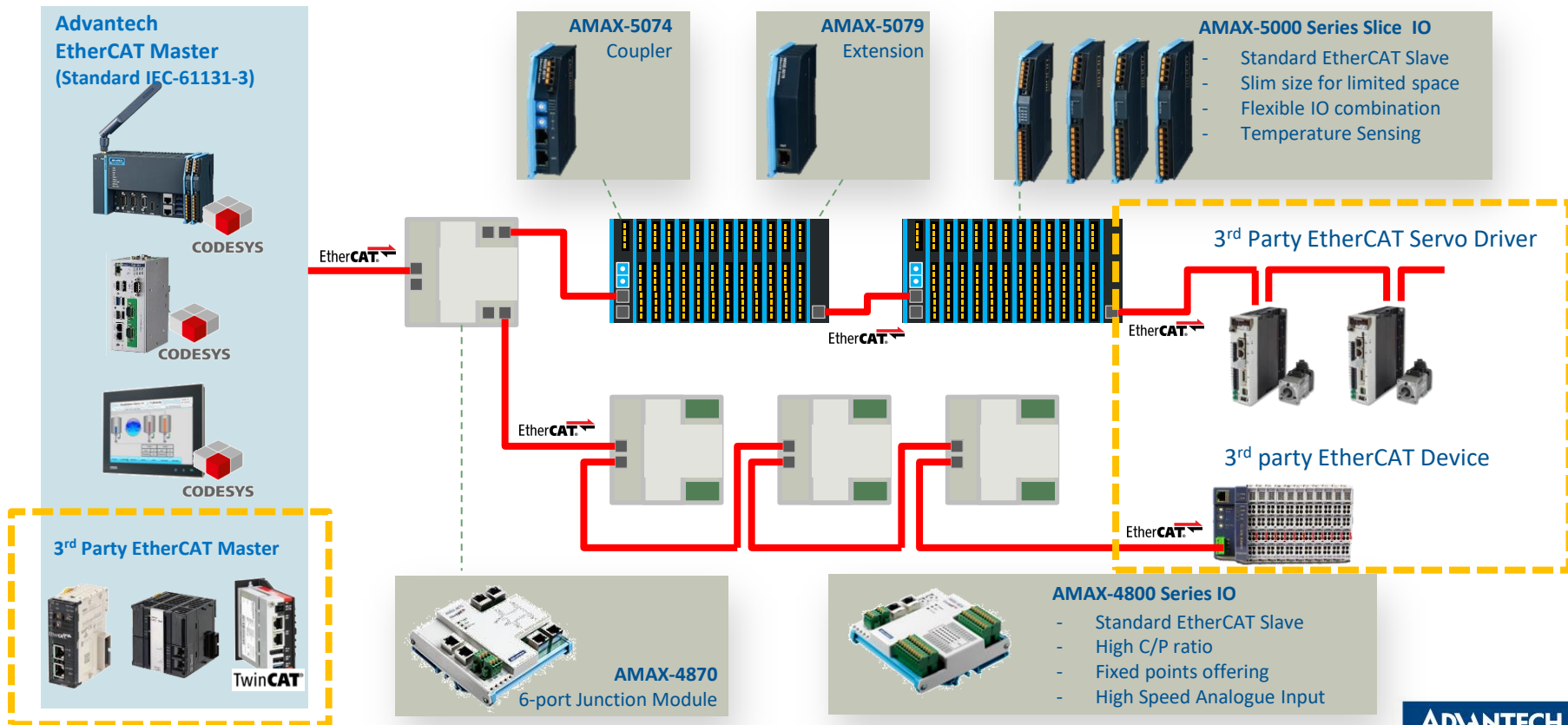


Evolution of Remote I/O Technology



Advantech EtherCAT Remote IO Architecture

Open EtherCAT IO system architecture, AMAX-5000/AMAX-4800



Advantech EtherCAT Remote IO Architecture

AMAX-5000, EtherCAT Slice IO Module Series



Engineer Friendly

- Front access and LED indicator
- Removable push-in terminal
- Wiring instruction on side label
- Dual Power-input

Intelligent function

- Support different range in a module
- Reduce SKUs for customer inventory
- FW update & IO config. via EtherCAT



AMAX-5000
Slice I/O

EtherCAT[®]

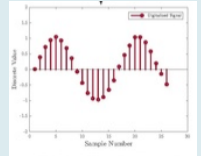


Slim Module

- 1.2cm width slice IO
- Equip more I/O in limited space
- Better fit in control cabinet

Advanced DAQ

- Advanced A/D & D/A technology
- Better resolution / Accuracy
- Support basic 100Hz / channel



Advantech EtherCAT Remote IO Architecture

AMAX-5000 EtherCAT® Slice IO Module Series



Power Input Module

AMAX-5001 Power Input Module with Diagnosis

Digital Input / Output Module

AMAX-5051 8-Ch Digital Input Module
AMAX-5052 16-Ch Digital Input Module
AMAX-5056 8-Ch Digital Output Module (Sink)
AMAX-5056SO 8-Ch Digital Output Module (Source)
AMAX-5057 16-Ch Digital Output Module (Sink)
AMAX-5057SO 16-Ch Digital Output Module (Source)

Position Measurement Module

AMAX-5080 2-Ch Counter / Encoder Module

EtherCAT Infrastructure

AMAX-5074 EtherCAT Coupler w/ ID (with Power Input)
AMAX-5079 EtherCAT Extension

Temperature Input Module

AMAX-5015 4-Ch RTD Input Module (2/3 wire, Pt-100/1000,)
AMAX-5018 6-Ch Thermocouple Input (J, K, T, E, R, S, B, mV)

Analogue Input / Output Module

AMAX-5017V 6-Ch Voltage AI ($\pm 150\text{mV}$, $\pm 500\text{mV}$, $\pm 1\text{V}$, $\pm 5\text{V}$, $\pm 10\text{V}$)
AMAX-5017C 6-Ch Current AI ($\pm 20\text{mA}$, $0\sim 20\text{mA}$, $4\sim 20\text{mA}$)
AMAX-5024 4-Ch AO ($0\sim 5\text{V}$, $0\sim 10\text{V}$, $\pm 5\text{V}$, $\pm 10\text{V}$, $4\sim 20\text{mA}$, $0\sim 20\text{mA}$)

Advantech EtherCAT Remote IO Architecture

AMAX-4800, EtherCAT® High Density I/O Module



Quick Selection Table

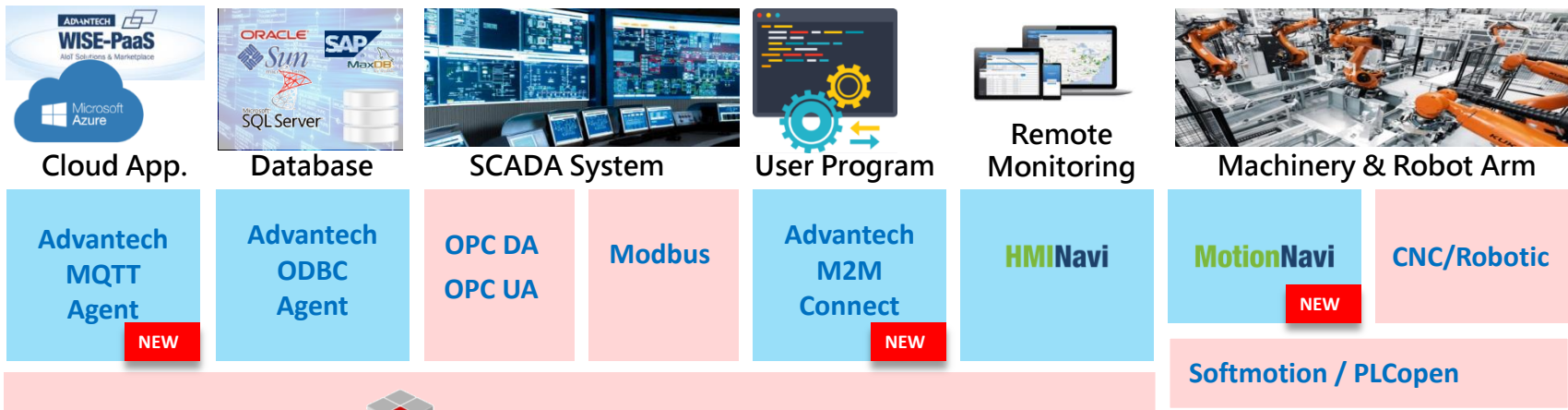
Model	Isolated Digital Input/Output				Relay Output				Analog Input	Analog Output
	AMAX-4830	AMAX-4833	AMAX-4834	AMAX-4856	AMAX-4850	AMAX-4860	AMAX-4855	AMAX-4862	AMAX-4817	AMAX-4820
Isolated Digital Input	16	32		32	16	8	32	16		
Isolated Digital Output	16		32	32						
PhotoMOS Relay Output					8		16			
Relay Output						8		16		
Analog Input									8	
Analog Output										4

- ✓ High Density, Cost Effective
- ✓ Front Assessable, LED Indicator
- ✓ Removable Push-in Terminal
- ✓ Dual Power Input



Advantech CODESYS Value-added Solution

Cloud & Service	Smart Factory	Machine / Equipment Manufacturer
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Advantech CODESYS Value-added Solution

- Consolidate ESRP offering and ready stock for Quickly POC and Engineer Testing.

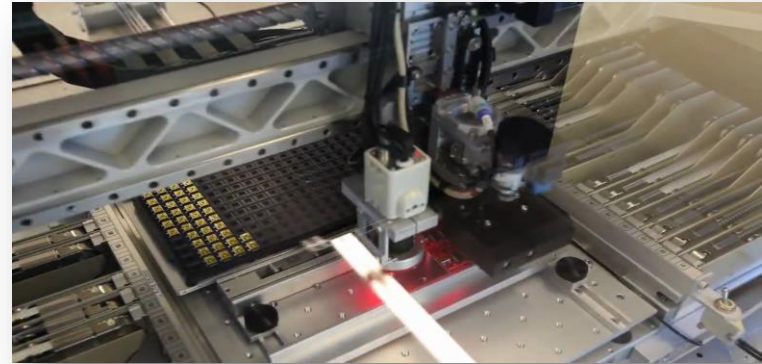
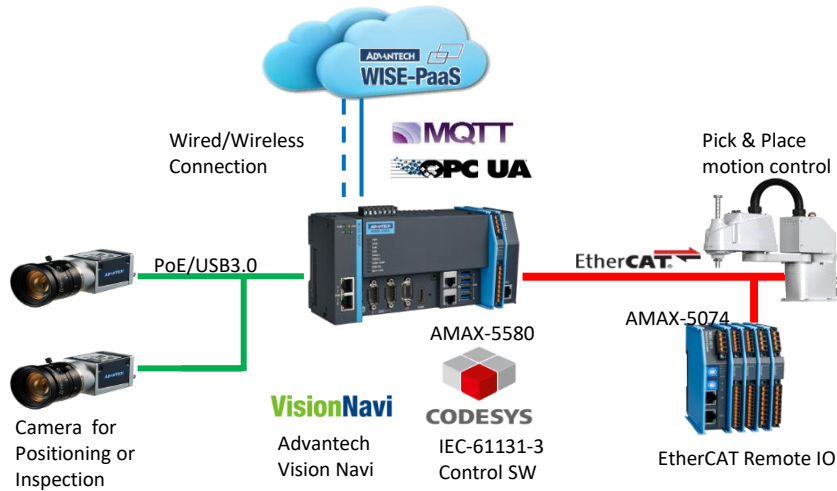
P/N	ESRP-SCS-W5580-CR0	ESRP-SCS-W5580-5M1	ESRP-SCS-W5580-7C1
Application	Pure Logic Control &DAQ	Simple Motion (P2P)	Advanced Motion (CNC/Robotics)
Configuration	Celeron/4G DDR4 64G SSD / MRAM	Core i5/8G DDR4 64G SSD / MRAM	Core i7/8G DDR4 64G SSD / MRAM
OS	WE7P x64	WE7P x64	WE7P x64
CODESYS ver.	V3.5 SP15	V3.5 SP15	V3.5 SP15
Safe Stock	TWH1 : 5	TWH1 : 3	TWH1 : 3
Price	\$	\$\$	\$\$\$

Advantech CODESYS Value-added Solution

- Ready resource for self-learning of CODESYS, tutorials with sample project.

	Tutorial Materials	Sample Code for Hands-on
Basic	 <p>Module1_Introduction to CODESYS.pptx</p>  <p>Module2_Fieldbus Support by CODESYS.pptx</p>  <p>Module3_Server Support by CODESYS.pptx</p>  <p>Module4_CODESYS Visualization.pptx</p>  <p>Module5_Reference Resource.pptx</p>	 <p>Hands-On (1) Create Variable</p>  <p>Hands-On (2) Create array of structure</p>  <p>Hands-On (3) (4) (5) Calculator Function Block</p>  <p>Hands-On (6) (7) (8) Self-hold circuit</p>  <p>Hands-On (9) For loop example</p>
Advanced	 <p>Module1_CODESYS Introduction.pptx</p>  <p>Module2_CODESYS_JEC61131_3.pptx</p>  <p>Module3_CODESYS_Softmotion.pptx</p>	 <p>Hands-On (1) Status Diagram</p>  <p>Hands-On (2) PositionProfile Demo</p>  <p>Hands-On (3) JOG</p>  <p>Hands-On (4) CAM</p>  <p>Hands-On (5) Home</p>

AMAX-5000, Vision + Motion Application



Auto Test Equipment in Semi-conductor function test

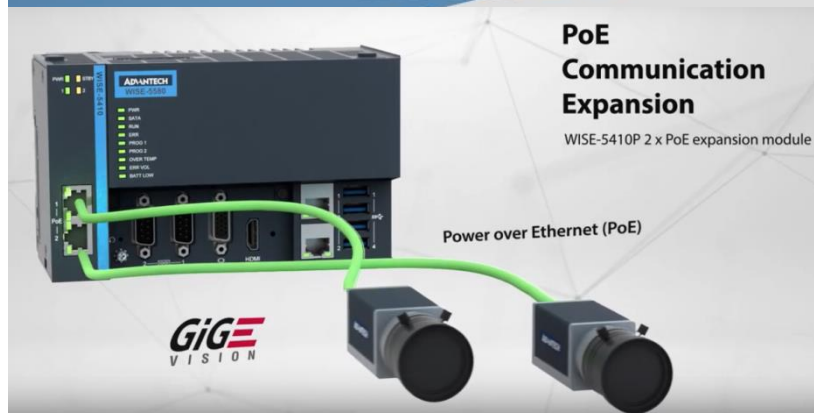
System Description:

1. AMAX-5580 with Core i7/i5/Celeron CPU can integrate CODESYS and VisionNavi into one device.
2. AMAX-5424V can be the expansion interface to USB 3.0 Camera, and AMAX-5410P is for PoE camera
3. CODESYS provide IEC-6113-3 and PLCOpen standard FB for motion automation. Full support of P2P motion and Robotic motion.
4. AMAX-5074, EtherCAT Coupler can combine with AMAX-5000 Slice IO to be EtherCAT Remote IO

Solution Advantages :

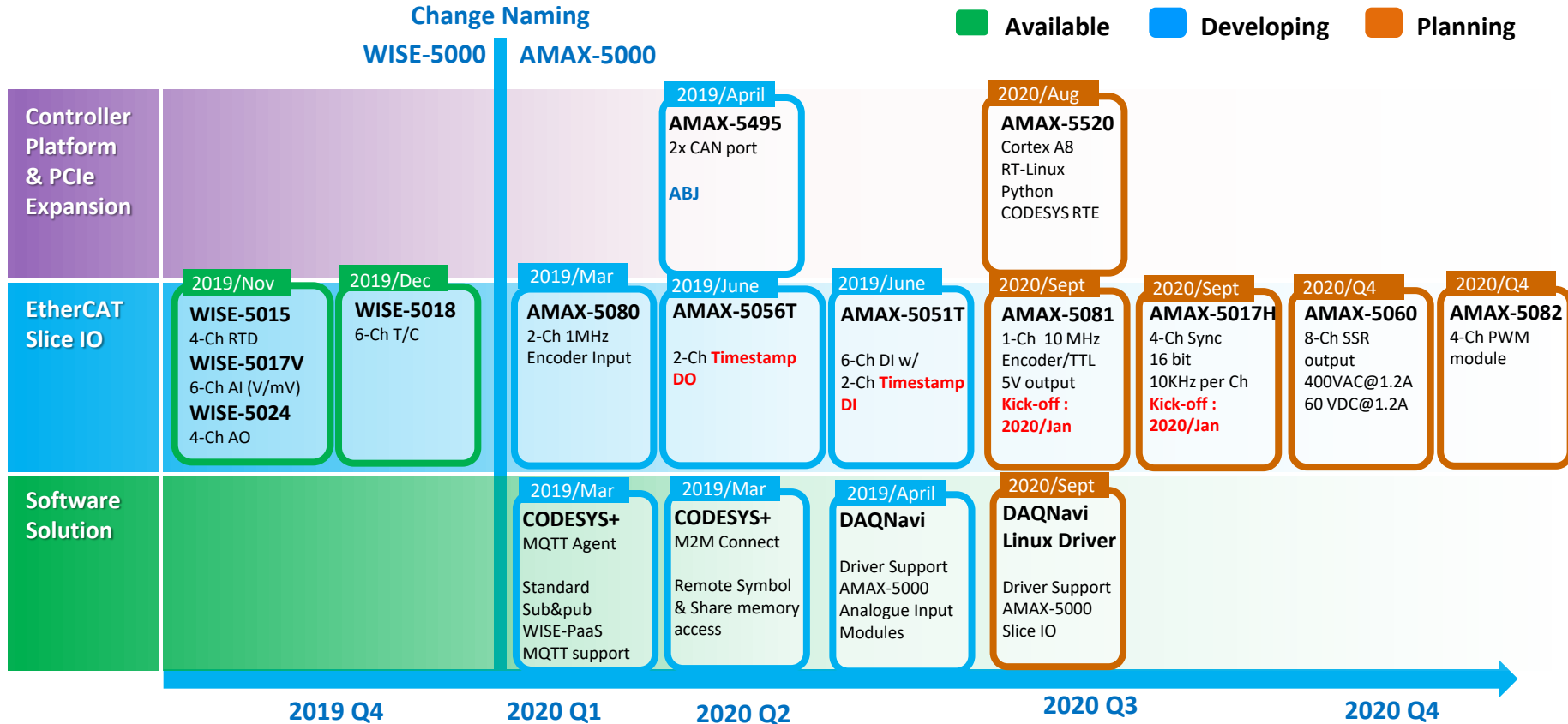
1. **Small footprint**, can integrate maximum function in one limited space in an equipment/machine
2. AMAX-5580 integrate Motion Control and Vision Inspection into one device will speed up the solution **efficiency**
3. Multiple **interface for camera**, can support upto 4x USB3.0 and 8x PoE Cameras
4. Advantech VisionNavi provide **easy interface** to facilitate user to develop vision applications
5. Support up to 128 axis and 65535 devices through **EtherCAT** networking

VisionNavi Edge SRP in AMAX-5580



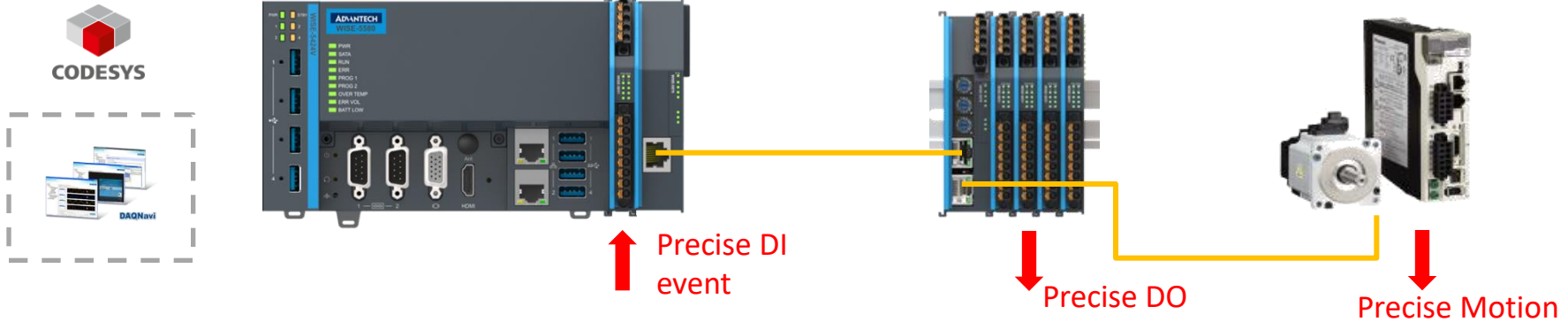
Hardware Features		
Part No.	ESRP-VAI-W5580-P1	ESRP-VAI-W5580-P7
Processor	Intel® Celeron 3955U, 2.0GHz Dual Core	Intel® Core™ i7-6600U, 2.6GHz Dual Core
Memory/ Storage	8GB DDR/ 128G SSD	
Form Factor	Passive Cooling and Front Accessible	
Dimension(W x H x D)	139 x 100 x 80 mm	
Display	1 x VGA, 1 x HDMI	
Peripheral I/O	2 x RJ45, 10/100/1000 Mbps 4 x USB 3.0 1 x internal USB 2 x DB9 (RS-232/422/485)	
Camera Interface	2 x GigE Vision	4 x GigE Vision
Digital I/O	16 x Isolation DI (optional); 16 x Isolation DO (optional)	
Power Consumption	15W (Typical), 42 W (Max); 24VDC	
Environment	Operating Temperature: - 20 - 60°C Vibration:1 Grms; Shock:10G	
Certification	CE, FCC, UL CB (62368), CB (60950)	

Product Roadmap & Product Offering

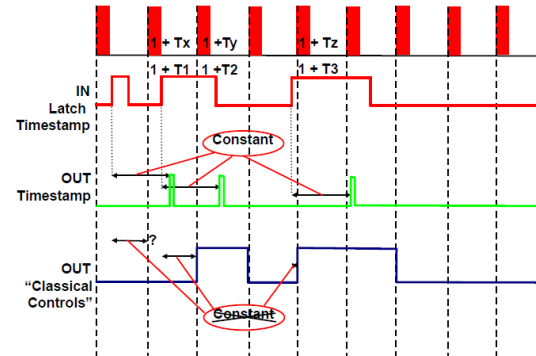


AMAX-5000 New Developing Modules for IEM

AMAX-5051T/5056T DI/DO with Timestamp

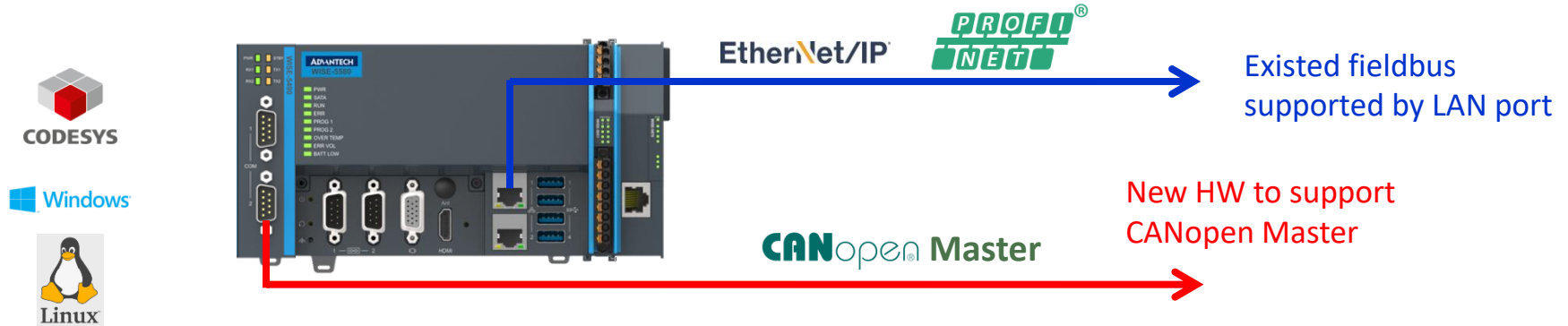


- High speed DI with **100us** response time
- 2-Ch with 0.5us response time and **1ns** resolution time-stamp support



AMAX-5000 New Developing Modules for IEM

AMAX-5495 CAN Expansion Module



- Standard SJA1000 CAN control IC
- Supports Windows 7/10 drivers and utilities
- Linux Kernel 2.4.xx, 2.6.xx and newer
- CODESYS CANopen Protocol Supported

*Go Together,
We Go Far and Grow Big*



ErreUno S.r.l.

Via Novella ,13
43058 Sorbolo (PR) Italy

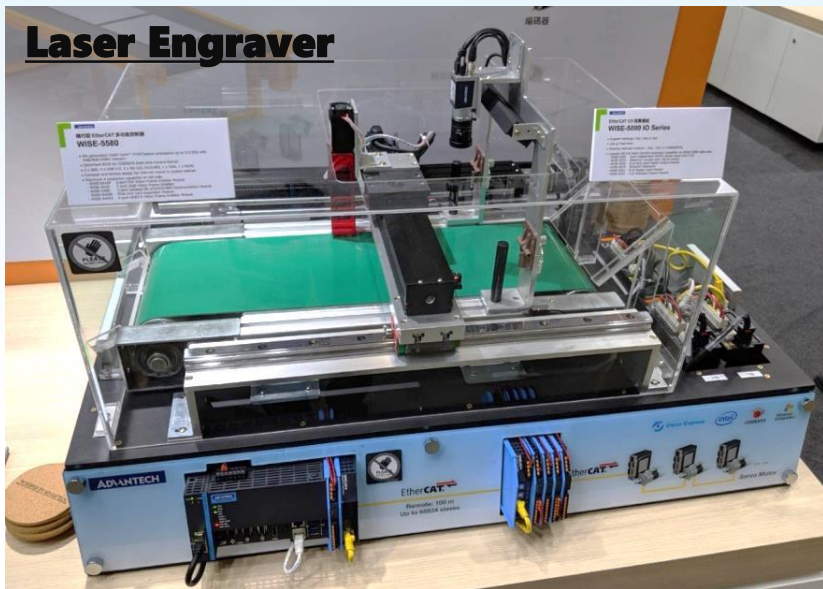
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Fax: +39 0521-1851863
email: info@erre1.it
P.I / CF : 02379290345
RAE : 233443



Live Demo Showcase

By experiencing our WISE-PaaS/WISE.M+

You can customize your own coaster !



WISE.M+ [Create Order](#)

Order Progress

Now Printing No. **126** Your Order No. **126**

Machine Overview

Availability

15.24%

Total Completed Orders

Total Completed Orders

(number)

(hour)

Pending Orders (6)

NO.118	20:00	20:04
NO.119	20:04	20:07
NO.120	20:07	20:11
NO.121	20:11	20:14
NO.122	20:14	20:18

[Click Here to Create Order !](#)



High Quality Diatomite Coaster



Create Order & Process Monitoring



WISE-PaaS/WISE.M+

- Real-time Monitoring
- Equipment Management
- Device Access
- Order Management

Wired / Wireless
Connection



AMAX-5580
Decentralize automation
control PAC



QCAM-GM2440-020CE
Industrial Camera for
Positioning and Incoming Inspection

VisionNavi

Advantech programmable
machine vision software



CODESYS

IEC-61131-3
Control SW

EtherCAT



AMAX-5000

EtherCAT Remote IO for:

- Laser Emitter Control
- Material Incoming Sensing
- Limit Switch
- Blower Control
- Emergency Stop Button



EtherCAT Driver and servo motors for:

- Material incoming control
- Conveyor
- X-Y table control