

cincoze

P2100 Series

8th Gen Intel Core U Series Embedded Computer with CDS Technology



Introduction

Key Features

- **High Performance per Watt**
- Slim Design with Multiple Functions
- Flexible Expansion
- CDS Technology



Whiskey Lake Platform: 8th Gen Core U Series



Better Overall Performance

- 14++ nm process, same as Coffee Lake
- Increased turbo clock



High Speed Connectivity

- Native USB 3.2 gen 2 support (10 Gbit/s)
- Integrated Intel CNVi (WiFi/Bluetooth) support



Immersive Graphics and Media

- Gen 9.5 graphic architecture

Process-Architecture-Optimization

More Cores, More Power



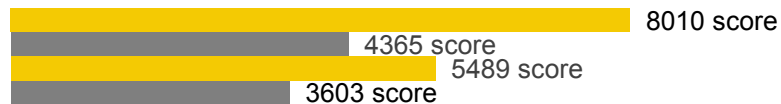
Up to
4-Core
i5-8365UE

Up to
4.1GHz
Turbo Boost

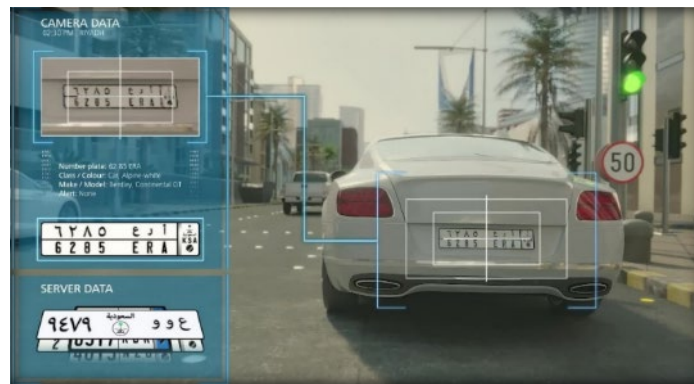
An increased number of cores allows more work to be done simultaneously

84% Higher

PassMark: CPU Benchmark



- Whiskey Lake i5-8365UE ■ Skylake i5-6300U
- Whiskey Lake i3-8145UE ■ Skylake i3-6100U



Automatic Number-Plate Recognition – Real-time & Multi-task Processing

Low Power Consumption



Power Consumption: 15W

Specially designed for embedded use conditions in which space and power are limited



Automated Guided Vehicle – Power Supplied by Battery



Mobile Surveillance Unit – Power Supplied by Solar Cell

Graphic Performance



Intel UHD Graphics 620

Delivering advanced, efficient performance for visual experience

27% Higher

PassMark: Graphic 3D Mark



- Whiskey Lake Intel UHD 620
- Skylake Intel HD 520



Soldering Inspection System – Image Processing

High Speed Memory Support



Up to
64GB

2x SO-DIMM Socket

Up to
2400MHz

DDR4 Memory

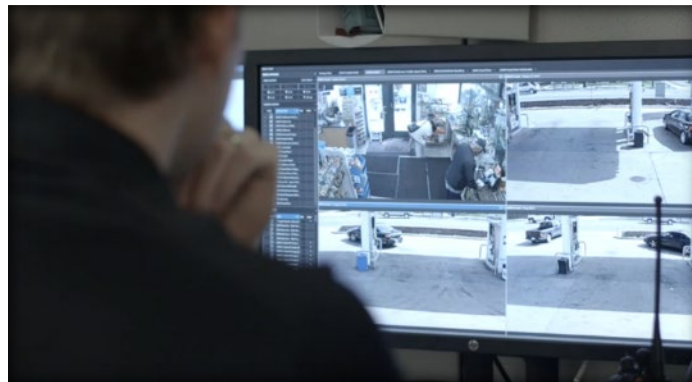
Performing faster working with large files, or
running multiple tasks

Maximum Data Transfer Rate

13% Higher



■ Whiskey Lake DDR4-2400MHz ■ Skylake 2133MHz



Surveillance System – High Definition & Multi-channel Video Transmission

Key Features

- High Performance per Watt
- **Slim Design with Multiple Functions**
- Flexible Expansion
- CDS Technology



Slim Form Factor



Thickness: 41.5mm

Perfect with wall mounting for space saving requirement



Control Cabinet Embedded System – Wall Mounting Installation

Rich I/O



1x VGA, 1x DisplayPort

2x GbE LAN

3x USB 3.2 Gen2, 2x USB 2.0

4x RS-232/422/485

1x Speaker-out, 1x Mic-in

1x Remote Power On/Off

16x Isolated DIO

2x Internal Speaker

A variety of I/O ports for Connectivity

Triple Independent Display



- DisplayPort: 4096 x 2304 @ 60Hz
- VGA: 1920 x 1200 @ 60Hz
- CDS: Convertible Display Module

Allowing more information displayed on dedicated screens at the same time



Airport Flight Information Player – Triple Independent Display



CNC Machine Panel PC & Monitor – Triple Independent Display

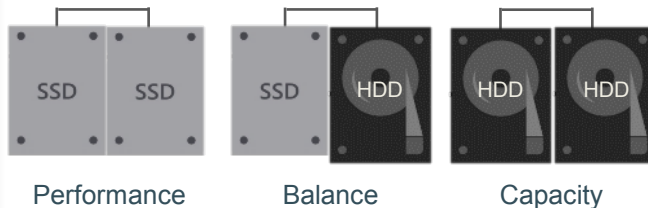
2x HDD/SSD Support



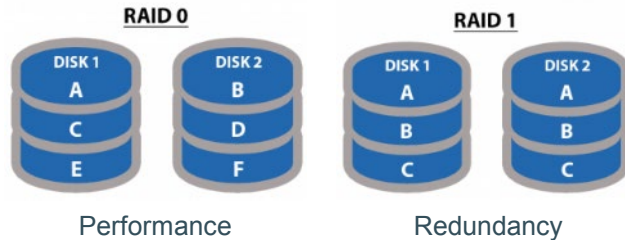
- Removable 2.5" Drive Bay
 - SATA 3.0
 - Supports 7mm/9.5mm HDD/SSD
 - Supports Raid 0/1
- 2.5" Drive Bay
 - SATA 3.0
 - Supports 7mm/9.5mm HDD/SSD
 - Supports Raid 0/1

Providing flexibility in storage management

Drive Types & Deployment Options



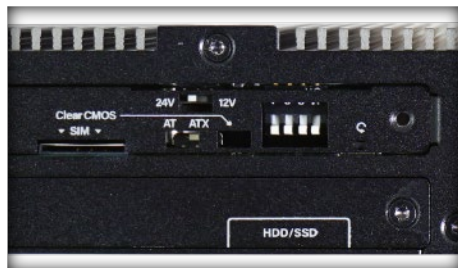
Raid Functions



Easy to Maintenance



Maintenance Area



- Clear CMOS switch
- AT/ATX mode switch
- Reset button
- SIM card socket
- IGN function switch (optional)

Integrated SuperCAP



For CMOS battery maintenance-free operation

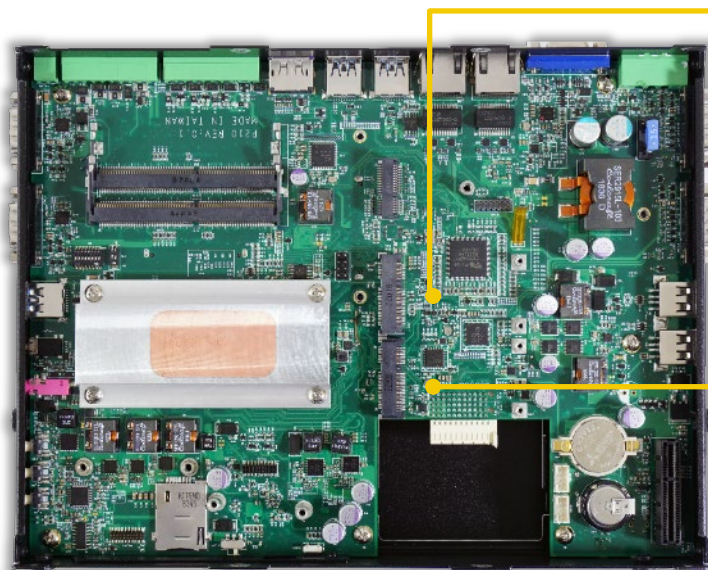
Exchangeable Fuse



Minimum cost of on-site repair

Reducing maintenance cost and downtime

Mini PCIe Expansion



Full-size Mini-PCle Socket

- Wireless expansion
- GPS expansion
- I/O expansion *

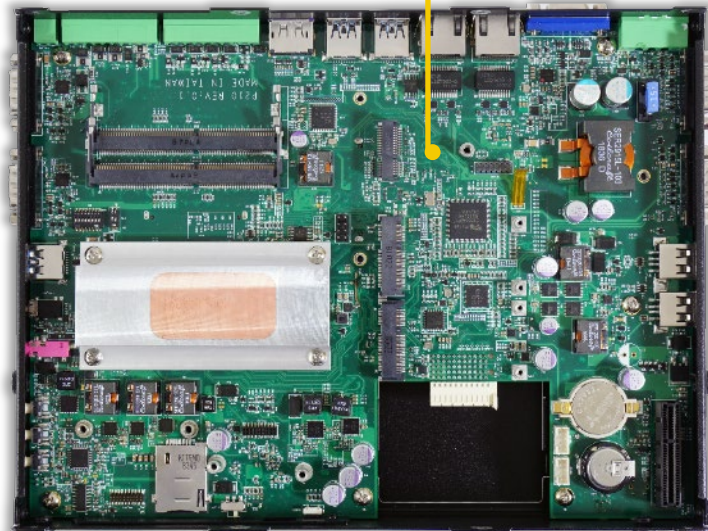
Full-size Mini-PCle Socket Interconnected with SIM Socket

- Wireless expansion
- 3G / LTE module support
- GPS expansion
- I/O expansion *

* I/O expansion is only available in P2102E with custom UB

Available for I/O or wireless expansion

M.2 Expansion



M.2 2230 E Key

- High speed WiFi expansion
- Supports Intel CRF module for saving power & cost

WiFi Standard	WiFi 5		WiFi 6	
Wireless Data Rate	433 Mbit/s	867 Mbit/s	1733 Mbit/s	2400 Mbit/s
Form Factor	Mini-PCIe		M.2 E Key	
Interface	PCIe		M.2 (PCIe x2) or CNVi	



Reliability



Capacity



Bandwidth



Better Coverage

WiFi 6 Solution

Enabling advanced WiFi communication

Application Driven

Instant Reboot



- Hardware: fast power signal discharge circuit
- Power: AT mode
- BIOS: [Always On] in restore AC power loss
- System: only take 0.2 sec to reboot

Optical Isolated DIO



- 16x optical isolated digital I/O (8DI/8DO)
- Sample code, test guide and DLL file available
- Isolation Voltage: 3750Vrms

Power over Ethernet



- Allows ethernet cable to provide both data connection and electric power to devices
- Complies with IEEE 802.at standard, individual port provide up to 25.5 W

Power over Serial



- Allows power for devices carried by serial cable rather than by power cord
- BIOS selectable for RS-232/422/485
- Selectable 5V/12V output

Ignition Sensing



- Allows computer to automatically power on or off as vehicle ignition is turned on or off
- Protects computer from sudden power on/off and vehicle battery from draining off

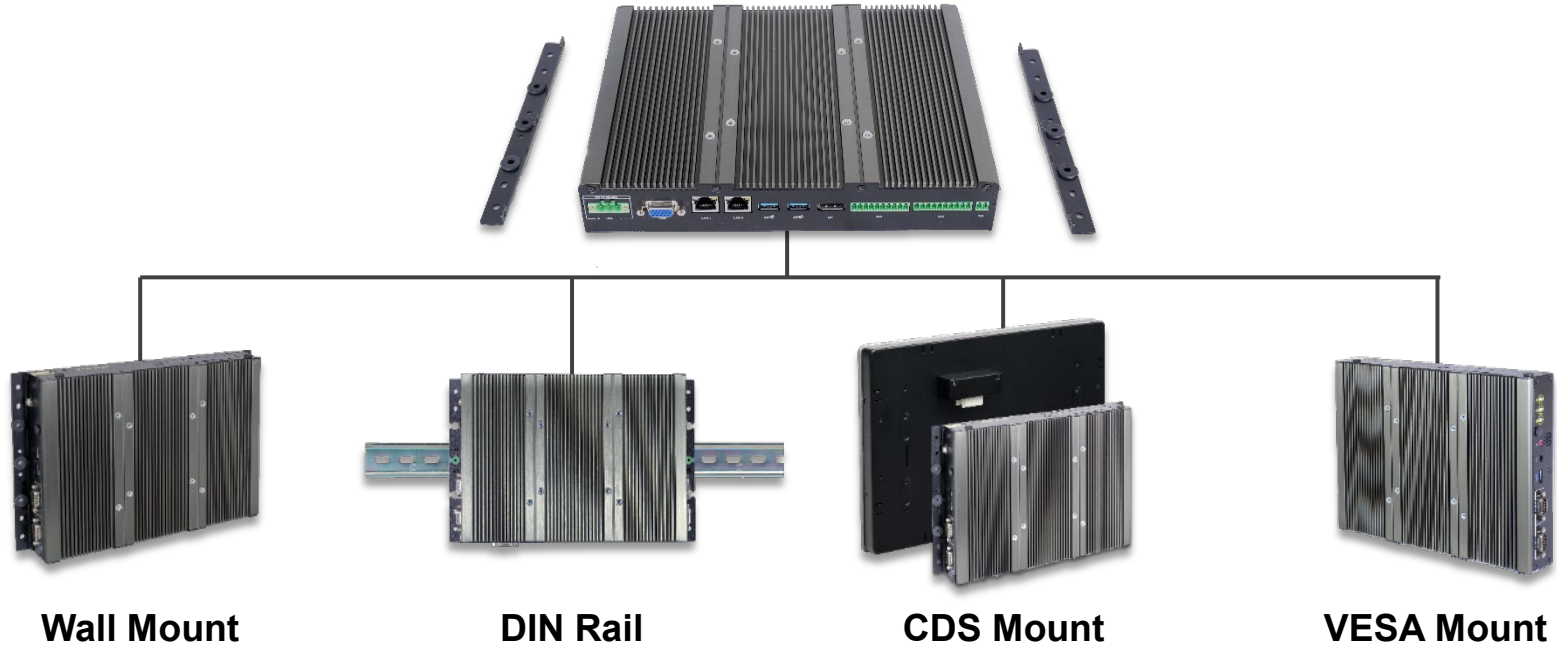
Multiple LAN



- Individual ports supports 10/100/1000 Gbe
- Default: 2x LAN
- Optional: additional 4x LAN



Various Mounting Methods



To be installed in everywhere

Rugged & Reliable



Fan-less Design

- No moving parts
- No noise



Jumper-less Design

- Integrated DIP switch for easy configuration



High Tolerance for Shock & Vibration

- Shock: 50 Grms
- Vibration: 5 Grms



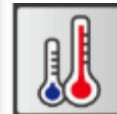
Industrial Grade Component

- Selection of wide-temp components
- High MTBF: 231,243 Hours



Special Heat Dissipation

- Unique Heat Sink Design
- Dedicated Thermal Module
- PCB component placement



Wide Operating Temperature

- -40 to +70 degree Celsius



Wide Range DC Power Input

- Support 9~48V DC
- Built in high standard power regulator



Reverse Power Input Protection

- Built in high voltage diode against the wrong polarity
- Won't start for wrong connection



Over Voltage Protection

- DC-in: 58V DC



Over Current Protection

- DC-in: 15A
- Exchangeable Fuse



ESD Protection

- All I/O ports:
+/-15kV(air), +/-8kV(contact)



Surge Protection

- DC-input: 3.84kV

Safety Standard



- The LVD (Low Voltage Directive) covers health and safety risks on electrical equipment operating with an input or output voltage of between 75 and 1500 V for direct current
- EN 60950-1 & EN 62368-1 is LVD standard for ICT (Information & Communication Technology) equipment
- EN 60950-1 will cease and EN 62368-1 will take over on December 20, 2020.

	IEC 60950-1	IEC 62368-1
Scope	<ul style="list-style-type: none"> • ICT equipment 	<ul style="list-style-type: none"> • ICT equipment • AV equipment • HBSE (Hazard Based Safety Engineering) principles applied
Publication Status	<ul style="list-style-type: none"> • Europe: effective date is 12/20, 2020 (EN 62368-1) • USA: effective date is 12/20, 2020 (UL 62368-1) • Japan: effective date was 7/20, 2018 (J 62368-1) • Korea: IEC 62368-1 is not accepted yet • Thailand: IEC 62368-1 is not accepted yet • South Africa: IEC 62368-1 is not accepted yet • South America: IEC 62368-1 is not accepted yet 	

Why both EN(IEC) 60950-1 & EN(IEC) 62368-1?



Responding to the trend of human-robot collaboration in manufacturing

Key Features

- High Performance per Watt
- Slim Design with Multiple Functions
- **Flexible Expansion**
- CDS Technology



Expansion Technology



P2102



P2102E

CFM
TECHNOLOGY

- Control Function Enhancement
- Innovative Technology
- Support Proprietary Module

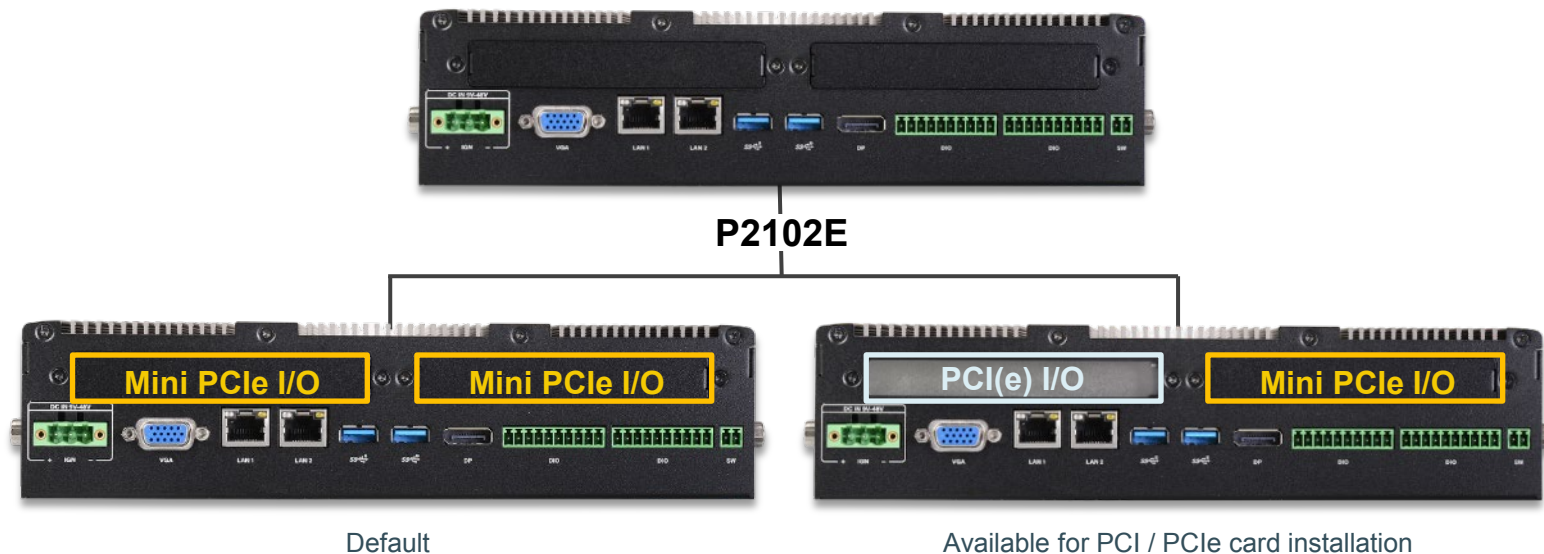
MEC
TECHNOLOGY

- Mini-PCIe Expansion Card
- Open Standard Technology
- A Full Series of Mini-PCIe Module

PCIe
EXPANSION

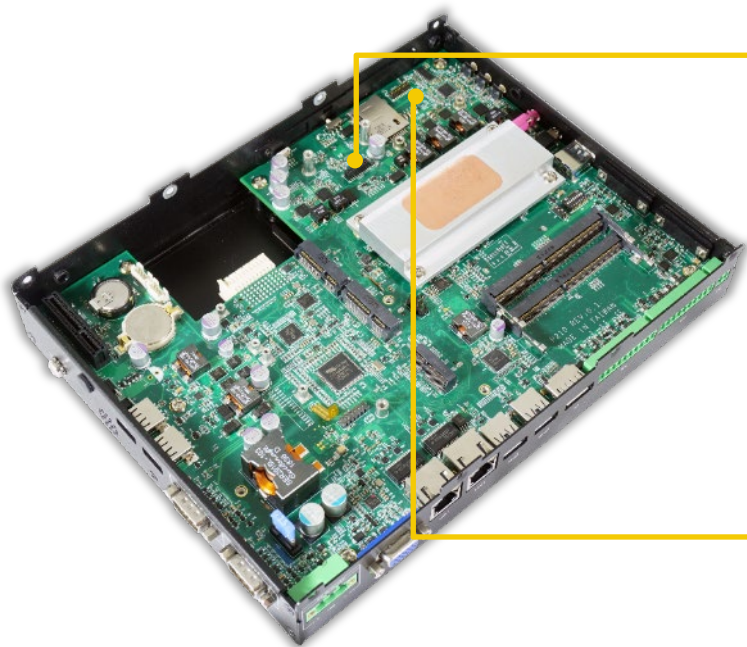
- Riser Card Series Available
- Open Standard Technology
- Support Third Party Add-on Card

Flexible Expansion



An expandable embedded computer with exceptional flexibility

CFM Module



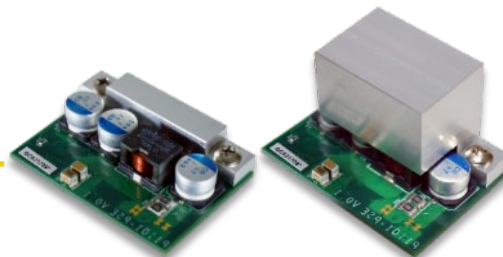
P2102 / P2102E

CFM-IGN101



- Ignition sensing control function module
- Power on/off delay time setting by dip switch
- 12 / 24 voltage detection selectable

CFM-PoE04 / CFM-PoE05



- PoE control function module
- IEEE 802.3at compliant
- Power boost 50-57V

MEC Module



P2102E

MEC-COM-M212(M334)/UB1203



- Serial transmission performance up to 921.6 Kbps baud rate
- 15 KV ESD protections on board

MEC-USB-M102-30/UB1214



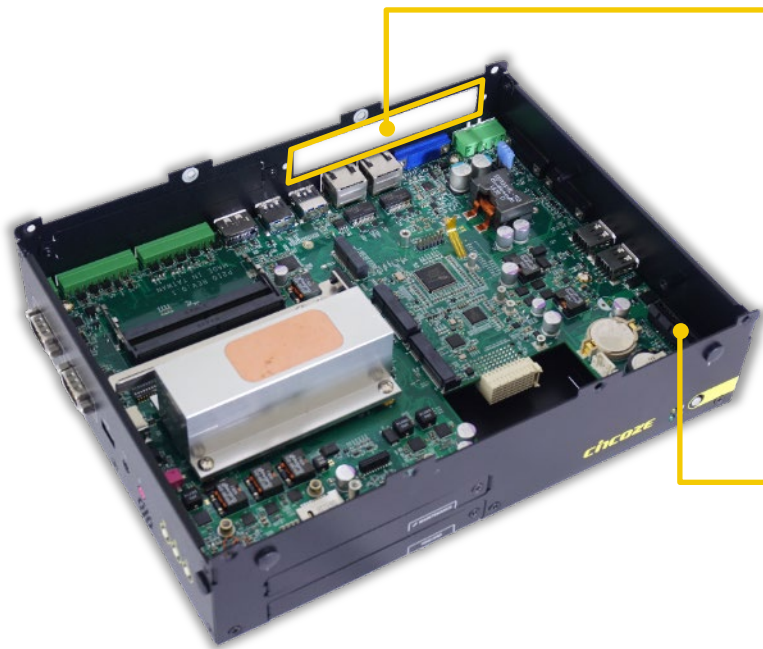
- Universal Serial Bus 3.0 specification revision 1.0 compliant
- Support hot-swap function

MEC-LAN-M002-30/UB1211



- Single-Lane (x1) PCIe with throughput up to 2.5Gbps
- IEEE 802.3, 802.3u, 802.3ab, and 802.3z compliant

PCI / PCIe Expansion



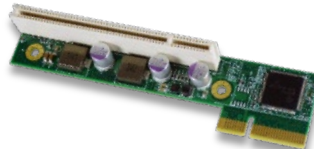
P2102E

PCI / PCIe card installation kit



- Standard accessory in P2102E
- Works with RC-PI-02 / RC-E4-02 for PCI / PCIe card installation

RC-PI-02



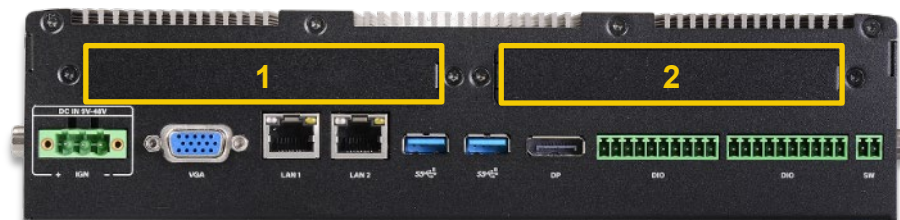
- Optional riser card with 1x PCI slot
- Supports max. length 180mm (half-length card)
- Supports power up to 75 watts

RC-E4-02



- Optional riser card with 1x PCIe x4 slot
- Supports max. length 180mm (half-length card)
- Supports power up to 75 watts

Configuration



P2102E

Model	1	2
RC-PI-02	V	--
RC-E4-02	V	--
MEC-COM-M212-TDB9/UB1203	V	V
MEC-COM-M334-TDB9/2x UB1203	V	V
MEC-USB-M102-30/UB1214	V	V
MEC-LAN-M002-30/UB1211	V	V

Key Features

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- **CDS Technology**

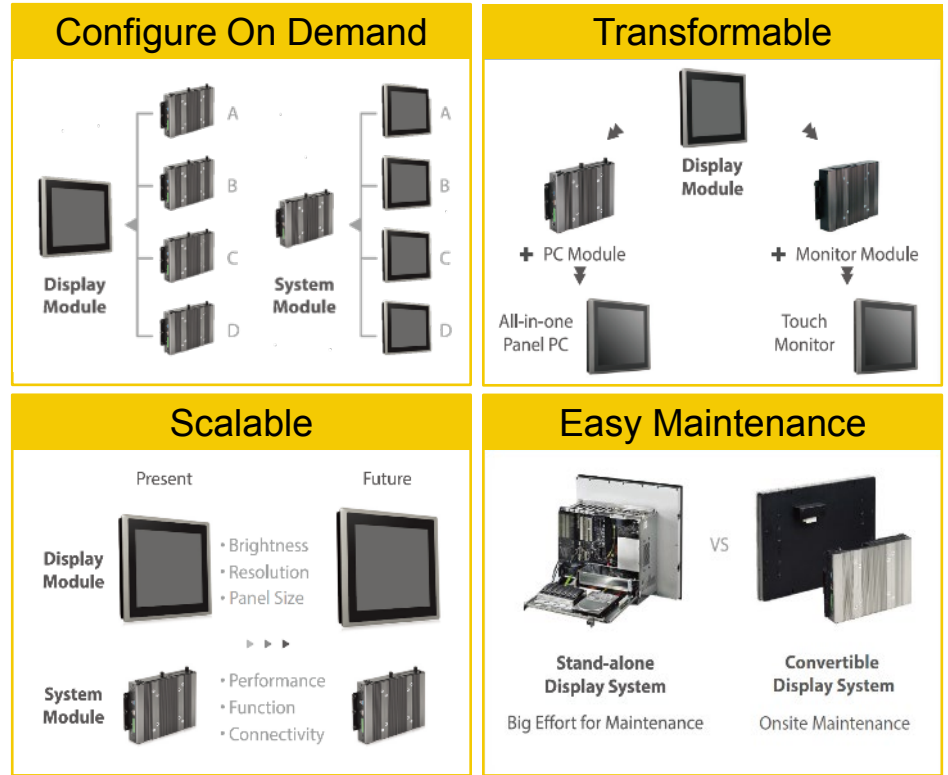


Revolutionary Design



Modular Design

- A patented technology invented by Cincoze, which is a revolutionary display computing solution for industrial applications.



CDS Module

System Module

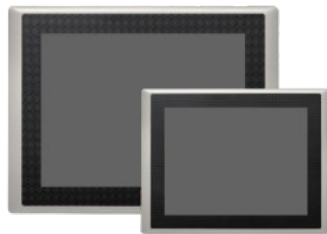


P2100 Series

- Platform: 8th Gen Intel Core U
- CPU: i5-8365UE/i3-8145UE
- Memory: DDR4, up to 64GB
- Storage: 2x 2.5" drive bay



Display Module



CV-100 Series

- Panel Size: 12.1"~24"
- Brightness: 350~500nits
- Operating temp.: 0~60°C
- Touch: P-CAP, Resistive
- Glass only available



CS-100 Series

- Panel Size: 12.1"~19"
- Brightness: 1500~1600nits
- Operating temp.: -20~70°C
- Touch: P-CAP
- Optical bonding available

Panel PC Installation



Plug & Play



Ready to go

Easy and quick installation

Display Computing Solution

Modular Panel PC



CV-100 Series / P2100 Series



Control Cabinet HMI – Indoor Usage



Engine of Panel PC

Sunlight Readable Panel PC



CS-100 Series / P2100 Series



Crane HMI – Outdoor Usage

Indoor

Environment

Outdoor

Display Module Compatible List

Panel Size (Resolution)	Display Modules	
	CV-100 Series (300-500 nits)	CS-100 Series (1,500-1,600 nits)
12.1" (800x600)	CV-112	--
12.1" (1024x768)	CV-112H	CS-112H
15" (1024x768)	CV-115	CS-115
17" (1280x1024)	CV-117	CS-117
19" (1280x1024)	CV-119	CS-119
15.6" (1368x768)	CV-W115	--
21.5" (1920x1080)	CV-W121	--
24" (1920x1080)	CV-W124	--



P2100 Series



Modular Panel PC



Sunlight Readable Panel PC

Selection Guide

Ordering Information



Slim



Expandable

Product Type	Model	Processor	Core Count	Base Frequency	Turbo Frequency
Slim	P2102-i5	i5-8365UE	4	1.6 GHz	4.1GHz
	P2102-i3	i3-8145UE	2	2.2 GHz	3.9 GHz
Expandable	P2102E-i5	i5-8365UE	4	1.6 GHz	4.1 GHz
	P2102E-i3	i3-8145UE	2	2.2 GHz	3.9 GHz

Optional Modules & Accessories

Product Type	Model	Description
CFM Module	CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, 12V/24V Selectable
	CFM-PoE04	CFM Module with PoE Control Function, Individual Port 25.5W
	CFM-PoE05	CFM Module with PoE Control Function, Individual Port 25.5W
Riser Card	RC-PI-02	Riser Card with 1x PCI Slot for P2102E
	RC-E4-02	Riser Card with 1x PCIe4 Slot for P2102E
MEC Module Kit	MEC-COM-M212-TDB9/UB1203	Mini-PCIe Module with 2x RS-232 Ports, 1x Thin DB9 Cable / 1x Universal Bracket with 2x DB9 Cutout for P2102E
	MEC-COM-M334-TDB9/2xUB1203	Mini-PCIe Module with 4x RS-232/422/485 Ports, 2x Thin DB9 Cable / 2x Universal Bracket each with 2x DB9 Cutout for P2102E
	MEC-USB-M102-30/UB1214	Mini-PCIe Module with 2x USB 3.0 Ports, 1x 30cm cable / 1x Universal Bracket with 2x USB Cutout for P2102E
	MEC-LAN-M002-30/UB1211	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout for P2102E

Modular Panel PC Available Models

Product Type	Panel Size	Resistive Touch	P-CAP Touch	Glass Only	Product Type	Panel Size	Resistive Touch	P-CAP Touch	Glass Only
Classic Screen Modular PPC	12.1" (800x600)	CV-112R/P2102-I5	CV-112C/P2102-I5	--	Wide Screen Modular PPC	15.6" (1366x768)	CV-W115R/P2102-I5	CV-W115C/P2102-I5	--
		CV-112R/P2102-I3	CV-112C/P2102-I3	--			CV-W115R/P2102-I3	CV-W115C/P2102-I3	--
		CV-112R/P2102E-I5	CV-112C/P2102E-I5	--			CV-W115R/P2102E-I5	CV-W115C/P2102E-I5	--
		CV-112R/P2102E-I3	CV-112C/P2102E-I3	--			CV-W115R/P2102E-I3	CV-W115C/P2102E-I3	--
	12.1" (1024x768)	CV-112HR/P2102-I5	CV-112HC/P2102-I5	--		21.5" (1920x1080)	CV-W121R/P2102-I5	CV-W121C/P2102-I5	CV-W121G/P2102-I5
		CV-112HR/P2102-I3	CV-112HC/P2102-I3	--			CV-W121R/P2102-I3	CV-W121C/P2102-I3	CV-W121G/P2102-I3
		CV-112HR/P2102E-I5	CV-112HC/P2102E-I5	--			CV-W121R/P2102E-I5	CV-W121C/P2102E-I5	CV-W121G/P2102E-I5
		CV-112HR/P2102E-I3	CV-112HC/P2102E-I3	--			CV-W121R/P2102E-I3	CV-W121C/P2102E-I3	CV-W121G/P2102E-I3
	15" (1024x768)	CV-115R/P2102-I5	CV-115C/P2102-I5	--		24" (1920x1080)	CV-W124R/P2102-I5	CV-W124C/P2102-I5	CV-W124G/P2102-I5
		CV-115R/P2102-I3	CV-115C/P2102-I3	--			CV-W124R/P2102-I3	CV-W124C/P2102-I3	CV-W124G/P2102-I3
		CV-115R/P2102E-I5	CV-115C/P2102E-I5	--			CV-W124R/P2102E-I5	CV-W124C/P2102E-I5	CV-W124G/P2102E-I5
		CV-115R/P2102E-I3	CV-115C/P2102E-I3	--			CV-W124R/P2102E-I3	CV-W124C/P2102E-I3	CV-W124G/P2102E-I3
	17" (1280x1024)	CV-117R/P2102-I5	CV-117C/P2102-I5	CV-117G/P2102-I5					
		CV-117R/P2102-I3	CV-117C/P2102-I3	CV-117G/P2102-I3					
		CV-117R/P2102E-I5	CV-117C/P2102E-I5	CV-117G/P2102E-I5					
		CV-117R/P2102E-I3	CV-117C/P2102E-I3	CV-117G/P2102E-I3					
	19" (1280x1024)	CV-119R/P2102-I5	CV-119C/P2102-I5	CV-119G/P2102-I5					
		CV-119R/P2102-I3	CV-119C/P2102-I3	CV-119G/P2102-I3					
		CV-119R/P2102E-I5	CV-119C/P2102E-I5	CV-119G/P2102E-I5					
		CV-119R/P2102E-I3	CV-119C/P2102E-I3	CV-119G/P2102E-I3					

Total 80 Models

Sunlight Readable Panel PC Available Models

Product Type	Panel Size	P-CAP Touch	P-CAP Touch with Optical Bonding
Sunlight Readable PPC	12.1" (1024x768)	CS-112HC/P2102-i5	CS-112HC-OB/P2102-i5
		CS-112HC/P2102-i3	CS-112HC-OB/P2102-i3
		CS-112HC/P2102E-i5	CS-112HC-OB/P2102E-i5
		CS-112HC/P2102E-i3	CS-112HC-OB/P2102E-i3
	15" (1024x768)	CS-115C/P2102-i5	CS-115C-OB/P2102-i5
		CS-115C/P2102-i3	CS-115C-OB/P2102-i3
		CS-115C/P2102E-i5	CS-115C-OB/P2102E-i5
		CS-115C/P2102E-i3	CS-115C-OB/P2102E-i3
	17" (1280x1024)	CS-117C/P2102-i5	CS-117C-OB/P2102-i5
		CS-117C/P2102-i3	CS-117C-OB/P2102-i3
		CS-117C/P2102E-i5	CS-117C-OB/P2102E-i5
		CS-117C/P2102E-i3	CS-117C-OB/P2102E-i3
	19" (1280x1024)	CS-119C/P2102-i5	CS-119C-OB/P2102-i5
		CS-119C/P2102-i3	CS-119C-OB/P2102-i3
		CS-119C/P2102E-i5	CS-119C-OB/P2102E-i5
		CS-119C/P2102E-i3	CS-119C-OB/P2102E-i3

Total 32 Models

Slim & Versatile



P2100 Series

More Than An Embedded Computer

cincoze

Expertise in Embedded Computing
