cincoze

CO-100/P2302 Series

User Manual

Open Frame Panel PC

TFT-LCD Modular and Expandable Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Slim / Expandable Embedded Computer

Version: V1.00

Contents

Preface

Revision

Revision	Description	Date
1.00	First Released	2025/08/22

Copyright Notice

Acknowledgement

Disclaimer

This manual is intended to be used as a practical and informative guide only and is subject to change without notice. It does not represent a commitment on the part of Cincoze. This product might include unintentional technical or typographical errors. Changes are periodically made to the information herein to correct such errors, and these changes are incorporated into new editions of the publication.

Declaration of Conformity

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE

The product(s) described in this manual complies with all application European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

Product Warranty Statement

Warranty

Cincoze products are warranted by Cincoze Co., Ltd. to be free from defect in materials and workmanship for 2 years from the date of purchase by the original purchaser. During the warranty period, we shall, at our option, either repair or replace any product that proves to be defective under normal operation. Defects, malfunctions, or failures of the warranted product caused by damage resulting from natural disasters (such as by lightening, flood, earthquake, etc.), environmental and atmospheric disturbances, other external forces such as power line disturbances, plugging the board in under power, or incorrect cabling, and damage caused by misuse, abuse, and unauthorized alteration or repair, and the product in question is either software, or an expendable item (such as a fuse, battery, etc.), are not warranted.

RMA

Before sending your product in, you will need to fill in Cincoze RMA Request Form and obtain an RMA number from us. Our staff is available at any time to provide you with the most friendly and immediate service.

- **RMA Instruction**
  - Customers must fill in Cincoze Return Merchandise Authorization (RMA) Request Form and obtain an RMA number prior to returning a defective product to Cincoze for service.
  - Customers must collect all the information about the problems encountered and note anything abnormal and describe the problems on the “Cincoze Service Form” for the RMA number apply process.
  - Charges may be incurred for certain repairs. Cincoze will charge for repairs to products whose warranty period has expired. Cincoze will also charge for repairs to products if the damage resulted from acts of God, environmental or atmospheric disturbances, or other external forces through misuse, abuse, or unauthorized alteration or repair. If charges will be incurred for a repair, Cincoze lists all charges, and will wait for customer’s approval before performing the repair.
  - Customers agree to ensure the product or assume the risk of loss or damage during transit, to prepay shipping charges, and to use the original shipping container or equivalent.
  - Customers can be sent back the faulty products with or without accessories (manuals, cable, etc.) and any components from the system. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, Cincoze is not responsible for the devices/parts.
  - Repaired items will be shipped along with a "Repair Report" detailing the findings and actions taken.

Limitation of Liability

Cincoze’ liability arising out of the manufacture, sale, or supplying of the product and its use, whether based on warranty, contract, negligence, product liability, or otherwise, shall not exceed the original selling price of the product. The remedies provided herein are the customer’s sole and exclusive remedies. In no event shall Cincoze be liable for direct, indirect, special or consequential damages whether based on contract of any other legal theory.

Technical Support and Assistance

1. Visit the Cincoze website at www.cincoze.com where you can find the latest information about the product.
2. Contact your distributor or our technical support team or sales representative for technical support if you need additional assistance. Please have following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Conventions Used in this Manual

WARNING (AVERTIR)

This indication alerts operators to an operation that, if not strictly observed, may result in severe injury.
(Cette indication avertit les opérateurs d'une opération qui, si elle n'est pas strictement observée, peut entraîner des blessures graves.)

CAUTION (ATTENTION)

This indication alerts operators to an operation that, if not strictly observed, may result in safety hazards to personnel or damage to equipment.
(Cette indication avertit les opérateurs d'une opération qui, si elle n'est pas strictement observée, peut entraîner des risques pour la sécurité du personnel ou des dommages à l'équipement.)

NOTE (NOTE)

This indication provides additional information to complete a task easily.
(Cette indication fournit des informations supplémentaires pour effectuer facilement une tâche.)

Safety Precautions

Before installing and using this device, please note the following precautions.

1. Read these safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Disconnected this equipment from any AC outlet before cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
8. Use a power cord that has been approved for using with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
    If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
14. CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.
15. Equipment intended only for use in a RESTRICTED ACCESS AREA.
16. Ensure to connect the power cord of power adapter to a socket-outlet with earthing connection.
17. Dispose of used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

Package Contents

Before installation, please ensure all the items listed in the following table are included in the package.

Item	Description	Q'ty
1	CO-100/P2302 Series Panel PC	1
2	Heatsink Kit	1
3	Power Terminal Block Connector	1
4	Remote Power On/Off Terminal Block Connector	1
5	DIO Terminal Block Connector	2
6	Screws Pack	4
7	PCI / PCIe Card Installation Kit (For P2302E Only)	1
8	M.2 Key B Type 3052 to Type 3042 Adapter Bracket	1

Note: Notify your sales representative if any of the above items are missing or damaged.

Ordering Information

Available Models

Model No.	Product Description
CO-119C/P2302	19“ TFT-LCD SXGA 5:4 Open Frame Display Modular Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Slim Embedded Computer and Projected Capacitive Touch
CO-119C/P2302E	19“ TFT-LCD SXGA 5:4 Open Frame Display Modular Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Expandable Embedded Computer, Supporting 1x PCI/PCIe Expansion Card and Projected Capacitive Touch
CO-W121C/P2302	21.5" TFT-LCD Full HD 16:9 Open Frame Display Modular Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Slim Embedded Computer and Projected Capacitive Touch
CO-W121C/P2302E	21.5" TFT-LCD Full HD 16:9 Open Frame Display Modular and Expandable Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Expandable Embedded Computer, Supporting 1x PCI/PCIe Expansion Card and Projected Capacitive Touch

CO-W124C/P2302	24" TFT-LCD Full HD 16:9 Open Frame Display Modular Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Slim Embedded Computer and Projected Capacitive Touch
CO-W124C/P2302E	24" TFT-LCD Full HD 16:9 Open Frame Display Modular Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Expandable Embedded Computer, Supporting 1x PCI/PCIe Expansion Card and Projected Capacitive Touch

Chapter 1
Product Introductions

1.1 Overview

The Cincoze high-performance open frame industrial panel PC series (CO-100/P2302) supports the latest Intel® Core Ultra processors (Meteor Lake-PS) and features rich I/O interfaces and flexible expansion. The biggest highlight is its adjustable mounting bracket design (Patent No.: D224544, D224545, I802427) that allows flexible adjustment and multi-stage locking to greatly improve the convenience of installation, effectively reducing the degree of customization required when integrating with equipment. The series is developed for equipment manufacturers, enabling integration in enclosures of different materials and thicknesses, and achieving overall consistency. The rugged design is also suited to field-side HMI in harsh industrial environments.

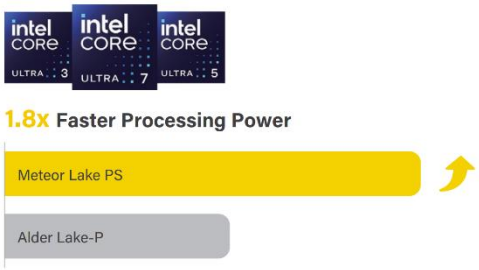
Key Features

- TFT-LCD with Projected Capacitive Touch
- Intel® Meteor Lake-PS Core™ Ultra 7/5/3 Processor
- 2x DDR5 SO-DIMM Socket, Supports up to 5600MHz 64GB Memory
- Quad Independent Display (CDS / HDMI / DP / VGA)
- 1x M.2 Key E Type 2230 Socket for Wireless / Bluetooth Module Expansion
- 1 x M.2 Key B Type 3052/3042 Socket for 5G/Storage/Add-on Card Expansion
- 1x M.2 Key B Type 3042 Socket for Storage/Add-on Card Expansion
- Front Panel IP65 Compliant

Improved Performance x

Power-Saving x AI Boost

The CO-100/P2302 series supports Intel® 4 Core Ultra 7/5/3 U Series (Meteor Lake-PS) processors with up to 12 cores and 15W low power consumption, providing 1.8 times the performance of the previous model. The new built-in Intel NPU provides faster and more efficient AI acceleration capabilities for high-volume image processing and AI recognition

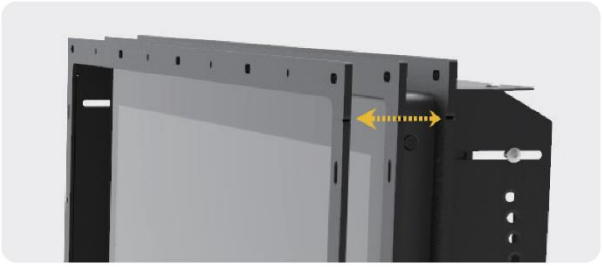


High Flexibility, Unlimited Applications

The P2302 series offers outstanding flexibility, supporting Core Ultra U-series LGA CPUs for customizable performance. It features M.2 Key B/E slots for 5G, Wi-Fi, Bluetooth, NVMe SSDs, and I/O expansion. The P2302E further supports PCI/PCIe slots for expansion cards (up to 75W, 111 × 169 mm), enabling diverse applications.

CDS Technology

Our exclusive CDS (Convertible Display System) technology enables easy maintenance in the field and simplifies future upgrades. Replacing the display or improving system performance only requires replacing a single component, significantly saving upgrade costs.



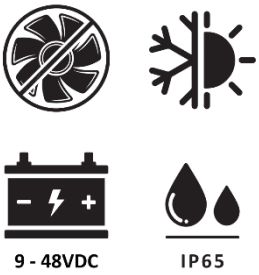
Easy to Install

The Adjustable Mounting Bracket has thickness adjustment options and supports multiple locking methods (Panel Type / Boss Type), providing a simpler and more convenient integration for industrial machines using flat and standard mounts.

Patent No. I802427, D224544, D224544

Integrated Structure

The series is flexible and reliable, supporting standalone use or integration in device machines. Its all-in-one design supports installation in a 19" rack or standalone use by removing the mounting bracket and installing via VESA mount.



Rugged, Safe, Reliable

The CO-100/P2302 series has industrial-grade protections, such as fanless design, wide temperature, wide voltage, and IP65 waterproof and dustproof front panel for field-side HMI applications in extreme industrial environments.

1.2 Specifications

1.2.1 CO-119C/P2302 Series

Model Name	CO-119C
Display	
LCD Size	• 19” (5:4)
Resolution	• 1280 x 1024 (SXGA)
Brightness (cd/m2)	• 350
Contrast Ratio	• 1000:1
LCD Color	• 16.7M
Pixel Pitch (mm)	• 0.294(H) x 0.294(V)
Viewing Angle	• 170 (H) / 160 (V)
Backlight LED Life Time	• 50,000 hrs (LED Backlight)
Touch Screen	
Touch Type	• Projected Capacitive Touch
Wet Touch Tracking	V
Physical	
Dimension (WxDxH)	• 472.8 x 397.5 x 63 mm
Weight	• 6.91KG
Construction	• One-piece and Slim Bezel Design
Mounting Type	• Flat / Standard / VESA / Rack Mount
Mounting Bracket	• Pre-installed Mounting Bracket with Adjustable Design (Support 11 different stages of adjustment)
Power	
Power Consumption	• 21W (Max.)
Protection	
Ingress Protection	• Front Panel IP65 Compliant * According to IEC60529
Environment	
Operating Temperature	• 0°C to 50°C (32°F to 122°F) (with Industrial Grade peripherals; Ambient with air flow)
Storage Temperature	• -20°C to 60°C (-4°F to 140°F)
Humidity	• 90% RH @ 40°C (Non-condensing)
EMC	• CE, UKCA, FCC, ICES-003 Class A
EMI	• CISPR 32 Conducted & Radiated: Class A • EN/BS EN 55032 Conducted & Radiated: Class A • EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A • EN/BS EN61000-3-3 Voltage fluctuations & flicker • FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A

EMS	• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 3 V/m • EN/IEC 61000-4-4 EFT: AC Power: 1 kV; DC Power: 0.5 kV; Signal: 0.5 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV • EN/IEC 61000-4-6 CS: 3V • EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 0.5 cycles at 50 Hz

Model Name	P2302	P2302E
System		
Processor	• Intel® Meteor Lake-PS Core™ Ultra 7/5/3 Processor - Intel® Core™ Ultra 7 Processor 165UL 12 Cores Up to 4.9 GHz, TDP 15W - Intel® Core™ Ultra 7 Processor 155UL 12 Cores Up to 4.8 GHz, TDP 15W - Intel® Core™ Ultra 5 Processor 135UL 12 Cores Up to 4.4 GHz, TDP 15W - Intel® Core™ Ultra 5 Processor 125UL 12 Cores Up to 4.3 GHz, TDP 15W - Intel® Core™ Ultra 3 Processor 105UL 8 Cores Up to 4.2 GHz, TDP 15W	
Memory	• 2x DDR5 5600 MHz SO-DIMM Socket, Supports Un-buffered and non-ECC Type, Up to 96 GB	
BIOS	• AMI BIOS	
Graphics		
Graphics Engine	• Intel® Graphics	
Maximum Display Output	• Supports Quad Independent Display	
CDS	• 1x CDS Connector (1920 x 1080 @60Hz)	
DP	• 1x DisplayPort Connector (4096 x 2304 @60Hz) * Verified maximum resolution: 3840 x 2160 @ 60Hz	
HDMI	• 1x HDMI Connector (3840 x 2160 @30Hz)	
VGA	• 1x VGA Connector (1920 x 1080 @60Hz)	
Audio		
Audio Codec	• Realtek® ALC888, High Definition Audio	
Line-out	• 1x Line-out, Phone Jack 3.5mm	
Mic-in	• 1x Mic-in, Phone Jack 3.5mm	
I/O		
LAN	• 2x 2.5 GbE LAN, RJ45 - GbE1: Intel® I225 - GbE2: Intel® I225	
COM	• 4x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9	
USB	• 2 x USB 3.2 Gen2x1 (10Gbps), Type A • 1 x USB 3.2 Gen1x1 (5Gbps), Type A • 1 x USB 2.0 (480Mbps), Type A	

DIO	• 16x Isolated Digital I/O (8in/8out), 20-Pin Terminal Block	
Storage/ Expansion		
2.5” SSD/HDD	• 2x 2.5” SATA HDD/SSD Bay (SATA3.0)	
M.2 Key E Socket	• 1x M.2 Key E Type 2230 Socket (PCIe Gen 3x1 / USB2.0), Support Wireless/Bluetooth Module Expansion	
M.2 Key B Socket	• 1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 4x2 / USB3.2 Gen2 x1 / USB2.0), Support 5G/GNSS/Storage/Add-on Card Expansion • 1x M.2 Key B Type 3042 (PCIe Gen 3x2), Support Storage/Add-on Card Expansion	
PCI Express	--	• 1x PCI or 1x PCIe Gen3x4 Expansion slot (with Optional Riser Card) • Supports maximum dimensions of add-on card (H x L): 111 x 169mm
SIM Socket	• 1 x Front Accessible SIM Socket	
CFM (Control Function Module) Interface	• 1x CFM Interface for optional IGN Module Expansion • 1x CFM Interface for optional PoE Module Expansion	
CDS (Convertible Display System) Interface	• 1x CDS Interface for Convertible Display Module	
Other Function		
RAID	• RAID 0/1	
Clear CMOS Switch	• 1x Clear CMOS Switch	
Reset Button	• 1x Reset Button	
Instant Reboot	• Support 0.2sec Instant Reboot Technology	
Watchdog Timer	• Software Programmable Supports 256 Levels System Reset	
OSD Button	• LCD On/Off, Brightness Up, Brightness Down	
Internal Speaker	• AMP 2W + 2W	
Status LED Indicator	• Power LED, Storage LED	
Antenna Holes	• 6x Antenna Holes	
Power		
Power Button	• 1x ATX Power On/Off Button	
Power Mode Switch	• 1x AT/ATX Mode Switch	
Power Input	• 9 - 48VDC, 3-pin Terminal Block	
Remote Power On/Off	• 1x Remote Power On/Off, 2-pin Terminal Block	
Max. Power Consumption	• Intel Core™ Ultra 7 Processor 165UL: 79.7W - Test conducted with CPU, 1x RAM, and 1x storage - 100% load during burn-in testing	
Inrush Current (Peak)	• Intel Core™ Ultra 7 Processor 165UL: 5.010 A@24V	
Operating System		
Windows	• Windows®11, Windows®10	
Linux	• Ubuntu Desktop 24.04 LTS	

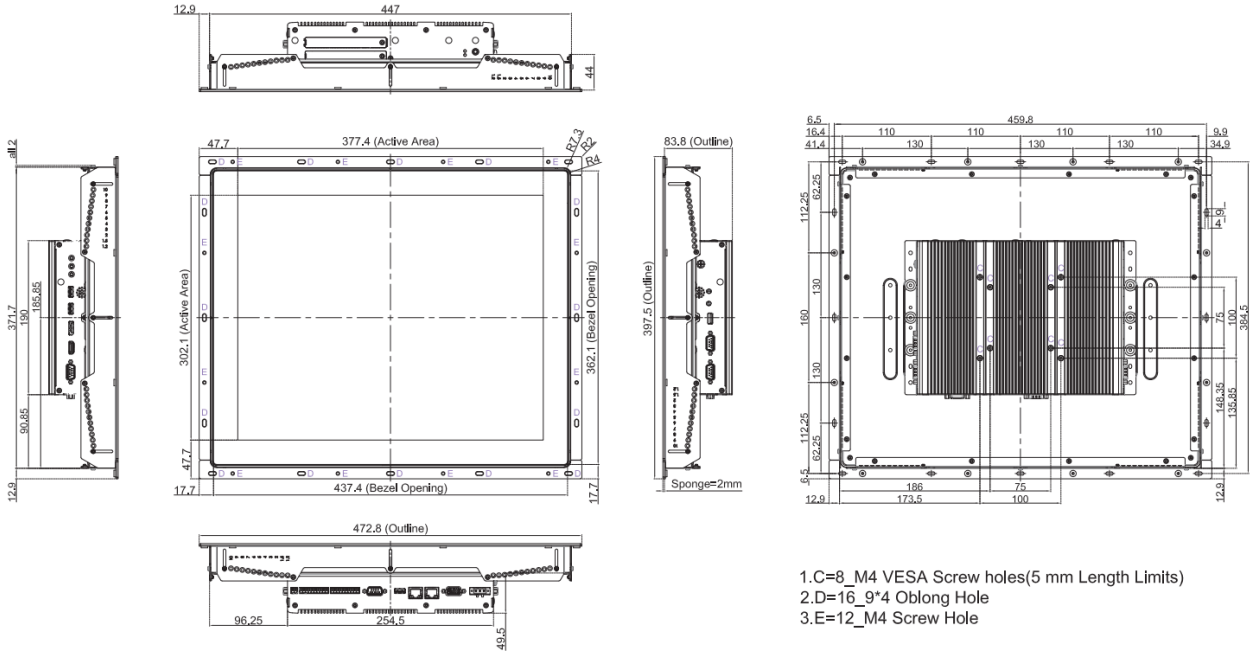
Physical		
Dimension (W x D x H)	• 254.5 X 190 X 49.5 mm	• 254.5 x 190 x 69 mm
Weight Information	• 2.16 kg	• 2.26 kg
Mechanical Construction	• Extruded Aluminum with Heavy Duty Metal	
Mounting	• Wall / VESA / CDS / DIN Rail	
Physical Design	• Fanless Design • Jumper-less Design	
Reliability & Protection		
Reverse Power Input Protection	• Yes	
Over Voltage Protection	• Protection Range: 51-58V • Protection Type: shut down operating voltage, re-power on at the present level to recover	
Over Current Protection	• 15A	
CMOS Battery Backup	• SuperCap Integrated for CMOS Battery Maintenance-free Operation	
MTBF	• 206,043 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3	
Environment		
Operating Temperature	• -40°C to 65°C (-40°F to 149°F) - PassMark BurnIn Test: 100% CPU, 2D/3D Graphics (without thermal throttling - With extended temperature peripherals; Ambient with air flow - According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14	
Storage Temperature	• -40°C to 85°C (-40°F to 185°F)	
Relative Humidity	• 95%RH @ 65°C (Non-condensing)	
Shock	• Operating, 50 Grms (w/SSD, according to IEC60068-2-27) • MIL-STD-810H	
Vibration	• Operating, 1 Grms, 10-500 Hz, 3 Axes (w/SSD, according to IEC60068-2-6) • MIL-STD-810H	
EMC	• CE, UKCA, FCC, ICES-003 Class A	
EMI	• CISPR 32 Conducted & Radiated: Class A • EN/BS EN 55032 Conducted & Radiated: Class A • EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A • EN/BS EN61000-3-3 Voltage fluctuations & flicker • FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A	
EMS	• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 10 V/m • EN/IEC 61000-4-4 EFT: AC Power: 2 kV; DC Power: 1 kV; Signal: 1 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV • EN/IEC 61000-4-6 CS: 10V • EN/IEC 61000-4-8 PFMF: 50 Hz, 30A/m	

	• EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 1 cycles at 60 Hz
Industrial Environment	• EMC - EN/BS/IEC 61000-6-4: 2019 Class A - EN/BS/IEC 61000-6-2: 2019
Safety	• UL, cUL, CB, IEC, EN 62368-1

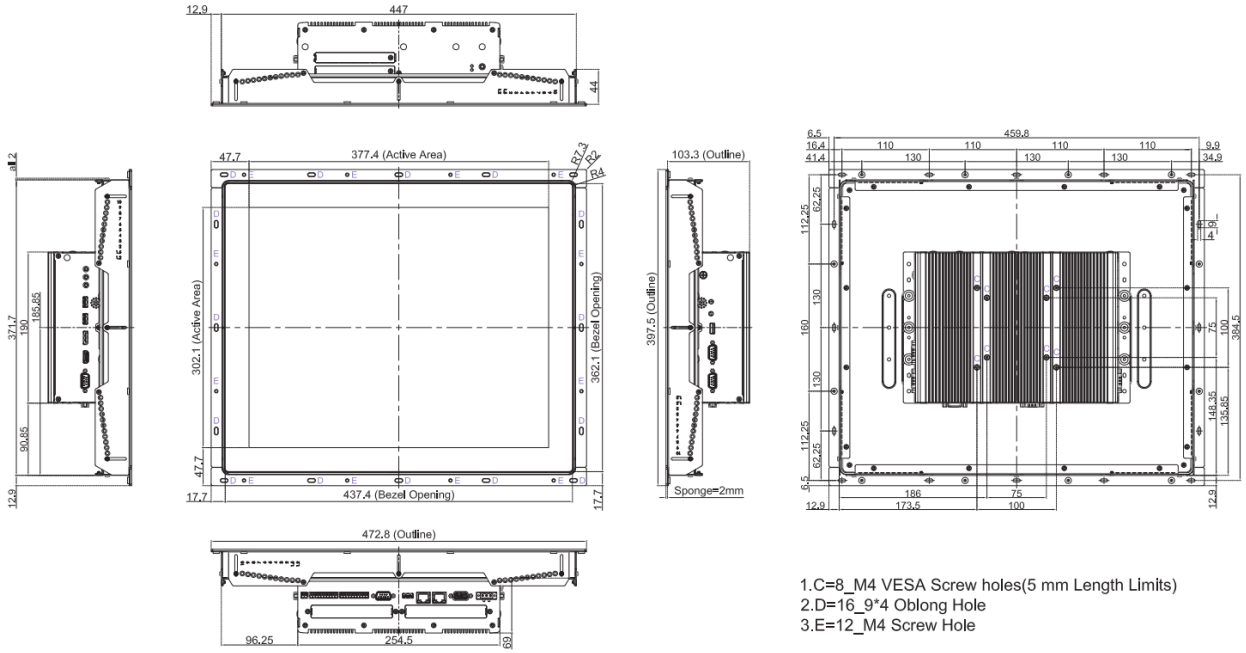
** Product Specifications and features are for reference only and are subject to change without prior notice. For more information, please refer to the latest product datasheet from Cincoze's website.*

Dimension

CO-119C/P2302 **Unit: mm**



CO-119C/P2302E **Unit: mm**



1.C=8_M4 VESA Screw holes(5 mm Length Limits)
2.D=16_9*4 Oblong Hole
3.E=12_M4 Screw Hole

1.2.2 CO-W121C/P2302 Series

Model Name	CO-W121C
Display	
LCD Size	• 21.5” (16:9)
Resolution	• 1920 x 1080 (Full HD)
Brightness (cd/m2)	• 300
Contrast Ratio	• 5000:1
LCD Color	• 16.7M
Pixel Pitch (mm)	• 0.24825(H) x 0.24825(V)
Viewing Angle	• 178 (H) / 178 (V)
Backlight LED Life Time	• 50,000 hrs
Touch Screen	
Touch Type	• Projected Capacitive Touch
Wet Touch Tracking	V
Physical	
Dimension (WxDxH)	• 550 x 343.7 x 63.3
Weight	• 7.16KG
Construction	• One-piece and Slim Bezel Design
Mounting Type	• Flat / Standard / VESA / Rack Mount
Mounting Bracket	• Pre-installed Mounting Bracket with Adjustable Design (Support 11 different stages of adjustment)
Power	
Power Consumption	• 24.8W (Max.)
Protection	
Ingress Protection	• Front Panel IP65 Compliant * According to IEC60529
Environment	
Operating Temperature	• 0°C to 60°C (32°F to 140°F) (With Industrial Grade Peripherals; Ambient with air flow)
Storage Temperature	• -20°C to 60°C (-4°F to 140°F)
Humidity	• 90% RH @ 40°C (Non-condensing)
EMC	• CE, UKCA, FCC, ICES-003 Class A
EMI	• CISPR 32 Conducted & Radiated: Class A • EN/BS EN 55032 Conducted & Radiated: Class A • EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A • EN/BS EN61000-3-3 Voltage fluctuations & flicker • FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A
EMS	• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 3 V/m

	• EN/IEC 61000-4-4 EFT: AC Power: 1 kV; DC Power: 0.5 kV; Signal: 0.5 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV • EN/IEC 61000-4-6 CS: 3V • EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 0.5 cycles at 50 Hz
Safety	• UL, cUL, CB, IEC, EN 62368-1

Model Name	**P2302**	**P2302E**
System		
Processor	• Intel® Meteor Lake-PS Core™ Ultra 7/5/3 Processor - Intel® Core™ Ultra 7 Processor 165UL 12 Cores Up to 4.9 GHz, TDP 15W - Intel® Core™ Ultra 7 Processor 155UL 12 Cores Up to 4.8 GHz, TDP 15W - Intel® Core™ Ultra 5 Processor 135UL 12 Cores Up to 4.4 GHz, TDP 15W - Intel® Core™ Ultra 5 Processor 125UL 12 Cores Up to 4.3 GHz, TDP 15W - Intel® Core™ Ultra 3 Processor 105UL 8 Cores Up to 4.2 GHz, TDP 15W	
Memory	• 2x DDR5 5600 MHz SO-DIMM Socket, Supports Un-buffered and non-ECC Type, Up to 96 GB	
BIOS	• AMI BIOS	
Graphics		
Graphics Engine	• Intel® Graphics	
Maximum Display Output	• Supports Quad Independent Display	
CDS	• 1x CDS Connector (1920 x 1080 @60Hz)	
DP	• 1x DisplayPort Connector (4096 x 2304 @60Hz) * Verified maximum resolution: 3840 x 2160 @ 60Hz	
HDMI	• 1x HDMI Connector (3840 x 2160 @30Hz)	
VGA	• 1x VGA Connector (1920 x 1080 @60Hz)	
Audio		
Audio Codec	• Realtek® ALC888, High Definition Audio	
Line-out	• 1x Line-out, Phone Jack 3.5mm	
Mic-in	• 1x Mic-in, Phone Jack 3.5mm	
I/O		
LAN	• 2x 2.5 GbE LAN, RJ45 - GbE1: Intel® I225 - GbE2: Intel® I225	
COM	• 4x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9	
USB	• 2 x USB 3.2 Gen2x1 (10Gbps), Type A • 1 x USB 3.2 Gen1x1 (5Gbps), Type A • 1 x USB 2.0 (480Mbps), Type A	
DIO	• 16x Isolated Digital I/O (8in/8out), 20-Pin Terminal Block	

Storage/ Expansion		
2.5” SSD/HDD	• 2x 2.5” SATA HDD/SSD Bay (SATA3.0)	
M.2 Key E Socket	• 1x M.2 Key E Type 2230 Socket (PCIe Gen 3x1 / USB2.0), Support Wireless/Bluetooth Module Expansion	
M.2 Key B Socket	• 1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 4x2 / USB3.2 Gen2 x1 / USB2.0), Support 5G/GNSS/Storage/Add-on Card Expansion • 1x M.2 Key B Type 3042 (PCIe Gen 3x2), Support Storage/Add-on Card Expansion	
PCI Express	--	• 1x PCI or 1x PCIe Gen3x4 Expansion slot (with Optional Riser Card) • Supports maximum dimensions of add-on card (H x L): 111 x 169mm
SIM Socket	• 1 x Front Accessible SIM Socket	
CFM (Control Function Module) Interface	• 1x CFM Interface for optional IGN Module Expansion • 1x CFM Interface for optional PoE Module Expansion	
CDS (Convertible Display System) Interface	• 1x CDS Interface for Convertible Display Module	
Other Function		
RAID	• RAID 0/1	
Clear CMOS Switch	• 1x Clear CMOS Switch	
Reset Button	• 1x Reset Button	
Instant Reboot	• Support 0.2sec Instant Reboot Technology	
Watchdog Timer	• Software Programmable Supports 256 Levels System Reset	
OSD Button	• LCD On/Off, Brightness Up, Brightness Down	
Internal Speaker	• AMP 2W + 2W	
Status LED Indicator	• Power LED, Storage LED	
Antenna Holes	• 6x Antenna Holes	
Power		
Power Button	• 1x ATX Power On/Off Button	
Power Mode Switch	• 1x AT/ATX Mode Switch	
Power Input	• 9 - 48VDC, 3-pin Terminal Block	
Remote Power On/Off	• 1x Remote Power On/Off, 2-pin Terminal Block	
Max. Power Consumption	• Intel Core™ Ultra 7 Processor 165UL: 79.7W - Test conducted with CPU, 1x RAM, and 1x storage - 100% load during burn-in testing	
Inrush Current (Peak)	• Intel Core™ Ultra 7 Processor 165UL: 5.010 A@24V	
Operating System		
Windows	• Windows®11, Windows®10	
Linux	• Ubuntu Desktop 24.04 LTS	
Physical		

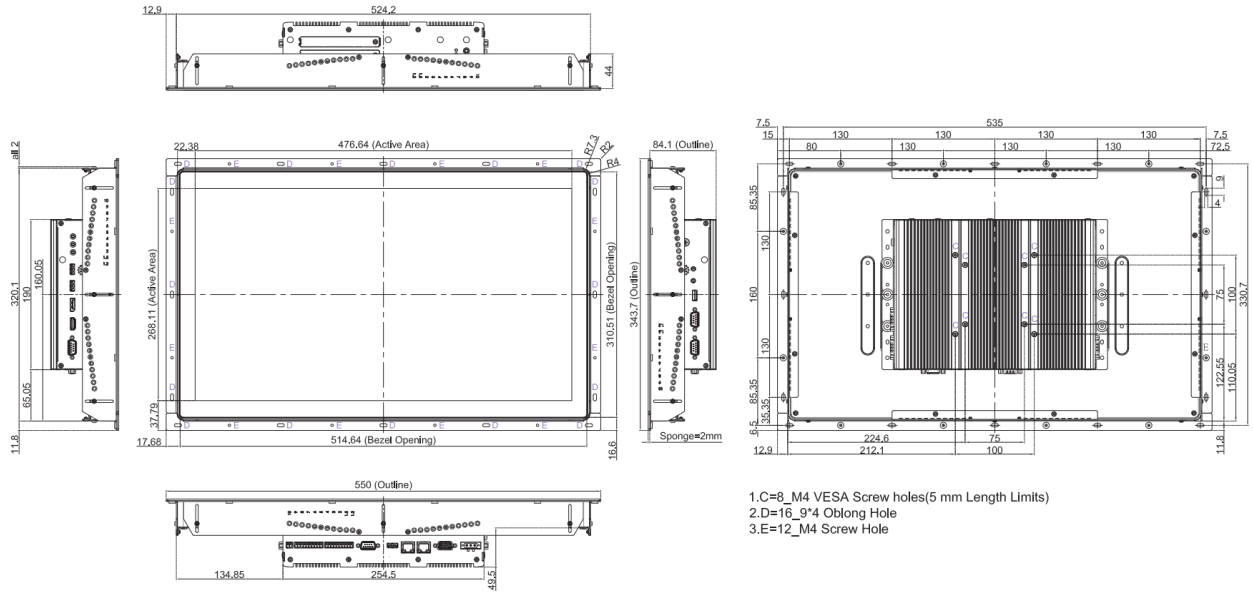
Dimension (W x D x H)	• 254.5 X 190 X 49.5 mm	• 254.5 x 190 x 69 mm
Weight Information	• 2.16 kg	• 2.26 kg
Mechanical Construction	• Extruded Aluminum with Heavy Duty Metal	
Mounting	• Wall / VESA / CDS / DIN Rail	
Physical Design	• Fanless Design • Jumper-less Design	
Reliability & Protection		
Reverse Power Input Protection	• Yes	
Over Voltage Protection	• Protection Range: 51-58V • Protection Type: shut down operating voltage, re-power on at the present level to recover	
Over Current Protection	• 15A	
CMOS Battery Backup	• SuperCap Integrated for CMOS Battery Maintenance-free Operation	
MTBF	• 206,043 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3	
Environment		
Operating Temperature	• -40°C to 65°C (-40°F to 149°F) - PassMark BurnIn Test: 100% CPU, 2D/3D Graphics (without thermal throttling - With extended temperature peripherals; Ambient with air flow - According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14	
Storage Temperature	• -40°C to 85°C (-40°F to 185°F)	
Relative Humidity	• 95%RH @ 65°C (Non-condensing)	
Shock	• Operating, 50 Grms (w/SSD, according to IEC60068-2-27) • MIL-STD-810H	
Vibration	• Operating, 1 Grms, 10-500 Hz, 3 Axes (w/SSD, according to IEC60068-2-6) • MIL-STD-810H	
EMC	• CE, UKCA, FCC, ICES-003 Class A	
EMI	• CISPR 32 Conducted & Radiated: Class A • EN/BS EN 55032 Conducted & Radiated: Class A • EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A • EN/BS EN61000-3-3 Voltage fluctuations & flicker • FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A	
EMS	• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 10 V/m • EN/IEC 61000-4-4 EFT: AC Power: 2 kV; DC Power: 1 kV; Signal: 1 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV • EN/IEC 61000-4-6 CS: 10V • EN/IEC 61000-4-8 PFMF: 50 Hz, 30A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 1 cycles at 60 Hz	

Industrial Environment	• EMC - EN/BS/IEC 61000-6-4: 2019 Class A - EN/BS/IEC 61000-6-2: 2019
Safety	• UL, cUL, CB, IEC, EN 62368-1

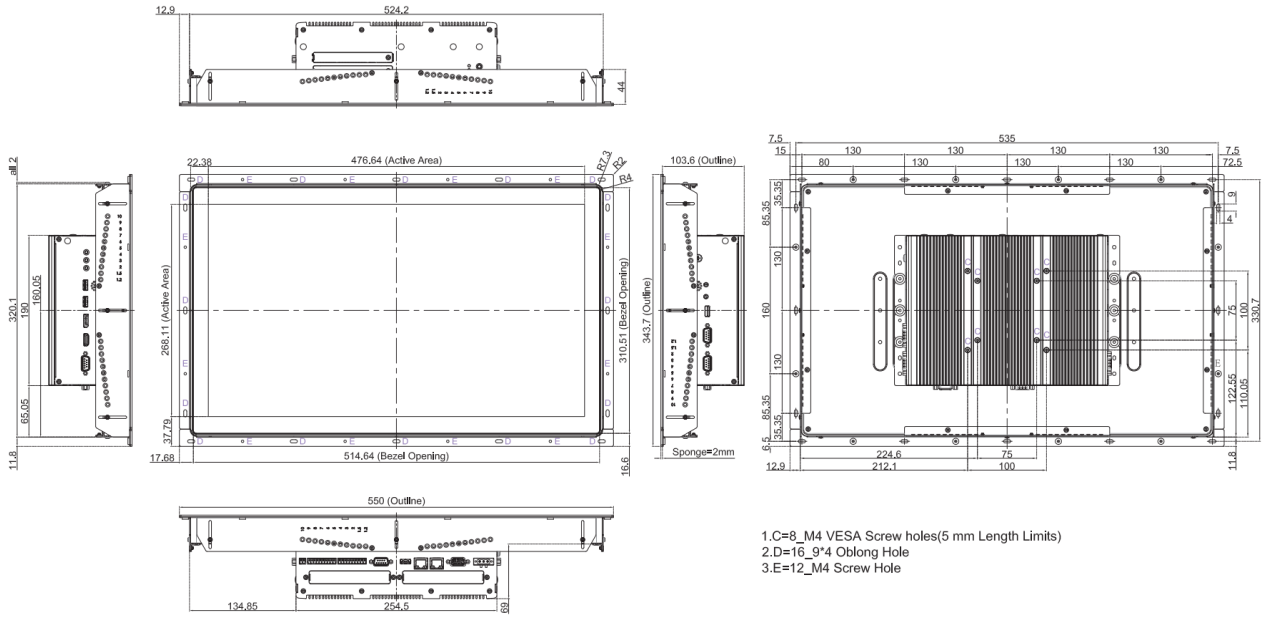
** Product Specifications and features are for reference only and are subject to change without prior notice. For more information, please refer to the latest product datasheet from Cincoze's website.*

Dimension

CO-W121C/P2302 **Unit: mm**



CO-W121C/P2302E **Unit: mm**



1.2.3 CO-W124C/P2302 Series

Model Name	CO-W124C
Display	
LCD Size	• 24” (16:9)
Resolution	• 1920 x 1080 (Full HD)
Brightness (cd/m2)	• 300
Contrast Ratio	• 5000:1
LCD Color	• 16.7M
Pixel Pitch (mm)	• 0.27675(H) x 0.27675(V)
Viewing Angle	• 178 (H) / 178 (V)
Backlight LED Life Time	• 50,000 hrs (LED Backlight)
Touch Screen	
Touch Type	• Projected Capacitive Touch
Wet Touch Tracking	V
Physical	
Dimension (WxDxH)	• 604 x 387.2 x 63.3mm
Weight	• 8.3 KG
Construction	• One-piece and Slim Bezel Design
Mounting Type	• Flat / Standard / VESA / Rack Mount
Mounting Bracket	• Pre-installed Mounting Bracket with Adjustable Design (Support 11 different stages of adjustment)
Power	
Power Consumption	• 23.75W (Max.)
Protection	
Ingress Protection	• Front Panel IP65 Compliant * According to IEC60529
Environment	
Operating Temperature	• -20°C to 70°C (-4°F to 158°F) (With Industrial Grade peripherals; Ambient with air flow)
Storage Temperature	• -30°C to 80°C (-22°F to 176°F)
Humidity	• 90% RH @ 40°C (Non-condensing)
EMC	• CE, UKCA, FCC, ICES-003 Class A
EMI	• CISPR 32 Conducted & Radiated: Class A • EN/BS EN 55032 Conducted & Radiated: Class A • EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A • EN/BS EN61000-3-3 Voltage fluctuations & flicker • FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A
EMS	• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 3 V/m

	• EN/IEC 61000-4-4 EFT: AC Power: 1 kV; DC Power: 0.5 kV; Signal: 0.5 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV • EN/IEC 61000-4-6 CS: 3V • EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 0.5 cycles at 50 Hz

Model Name	P2302	P2302E
System		
Processor	• Intel® Meteor Lake-PS Core™ Ultra 7/5/3 Processor - Intel® Core™ Ultra 7 Processor 165UL 12 Cores Up to 4.9 GHz, TDP 15W - Intel® Core™ Ultra 7 Processor 155UL 12 Cores Up to 4.8 GHz, TDP 15W - Intel® Core™ Ultra 5 Processor 135UL 12 Cores Up to 4.4 GHz, TDP 15W - Intel® Core™ Ultra 5 Processor 125UL 12 Cores Up to 4.3 GHz, TDP 15W - Intel® Core™ Ultra 3 Processor 105UL 8 Cores Up to 4.2 GHz, TDP 15W	
Memory	• 2x DDR5 5600 MHz SO-DIMM Socket, Supports Un-buffered and non-ECC Type, Up to 96 GB	
BIOS	• AMI BIOS	
Graphics		
Graphics Engine	• Intel® Graphics	
Maximum Display Output	• Supports Quad Independent Display	
CDS	• 1x CDS Connector (1920 x 1080 @60Hz)	
DP	• 1x DisplayPort Connector (4096 x 2304 @60Hz) * Verified maximum resolution: 3840 x 2160 @ 60Hz	
HDMI	• 1x HDMI Connector (3840 x 2160 @30Hz)	
VGA	• 1x VGA Connector (1920 x 1080 @60Hz)	
Audio		
Audio Codec	• Realtek® ALC888, High Definition Audio	
Line-out	• 1x Line-out, Phone Jack 3.5mm	
Mic-in	• 1x Mic-in, Phone Jack 3.5mm	
I/O		
LAN	• 2x 2.5 GbE LAN, RJ45 - GbE1: Intel® I225 - GbE2: Intel® I225	
COM	• 4x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9	
USB	• 2 x USB 3.2 Gen2x1 (10Gbps), Type A • 1 x USB 3.2 Gen1x1 (5Gbps), Type A • 1 x USB 2.0 (480Mbps), Type A	
DIO	• 16x Isolated Digital I/O (8in/8out), 20-Pin Terminal Block	
Storage/ Expansion		

2.5” SSD/HDD	• 2x 2.5” SATA HDD/SSD Bay (SATA3.0)	
M.2 Key E Socket	• 1x M.2 Key E Type 2230 Socket (PCIe Gen 3x1 / USB2.0), Support Wireless/Bluetooth Module Expansion	
M.2 Key B Socket	• 1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 4x2 / USB3.2 Gen2 x1 / USB2.0), Support 5G/GNSS/Storage/Add-on Card Expansion • 1x M.2 Key B Type 3042 (PCIe Gen 3x2), Support Storage/Add-on Card Expansion	
PCI Express	--	• 1x PCI or 1x PCIe Gen3x4 Expansion slot (with Optional Riser Card) • Supports maximum dimensions of add-on card (H x L): 111 x 169mm
SIM Socket	• 1 x Front Accessible SIM Socket	
CFM (Control Function Module) Interface	• 1x CFM Interface for optional IGN Module Expansion • 1x CFM Interface for optional PoE Module Expansion	
CDS (Convertible Display System) Interface	• 1x CDS Interface for Convertible Display Module	
Other Function		
RAID	• RAID 0/1	
Clear CMOS Switch	• 1x Clear CMOS Switch	
Reset Button	• 1x Reset Button	
Instant Reboot	• Support 0.2sec Instant Reboot Technology	
Watchdog Timer	• Software Programmable Supports 256 Levels System Reset	
OSD Button	• LCD On/Off, Brightness Up, Brightness Down	
Internal Speaker	• AMP 2W + 2W	
Status LED Indicator	• Power LED, Storage LED	
Antenna Holes	• 6x Antenna Holes	
Power		
Power Button	• 1x ATX Power On/Off Button	
Power Mode Switch	• 1x AT/ATX Mode Switch	
Power Input	• 9 - 48VDC, 3-pin Terminal Block	
Remote Power On/Off	• 1x Remote Power On/Off, 2-pin Terminal Block	
Max. Power Consumption	• Intel Core™ Ultra 7 Processor 165UL: 79.7W - Test conducted with CPU, 1x RAM, and 1x storage - 100% load during burn-in testing	
Inrush Current (Peak)	• Intel Core™ Ultra 7 Processor 165UL: 5.010 A@24V	
Operating System		
Windows	• Windows®11, Windows®10	
Linux	• Ubuntu Desktop 24.04 LTS	
Physical		
Dimension (W x D x H)	• 254.5 X 190 X 49.5 mm	• 254.5 x 190 x 69 mm

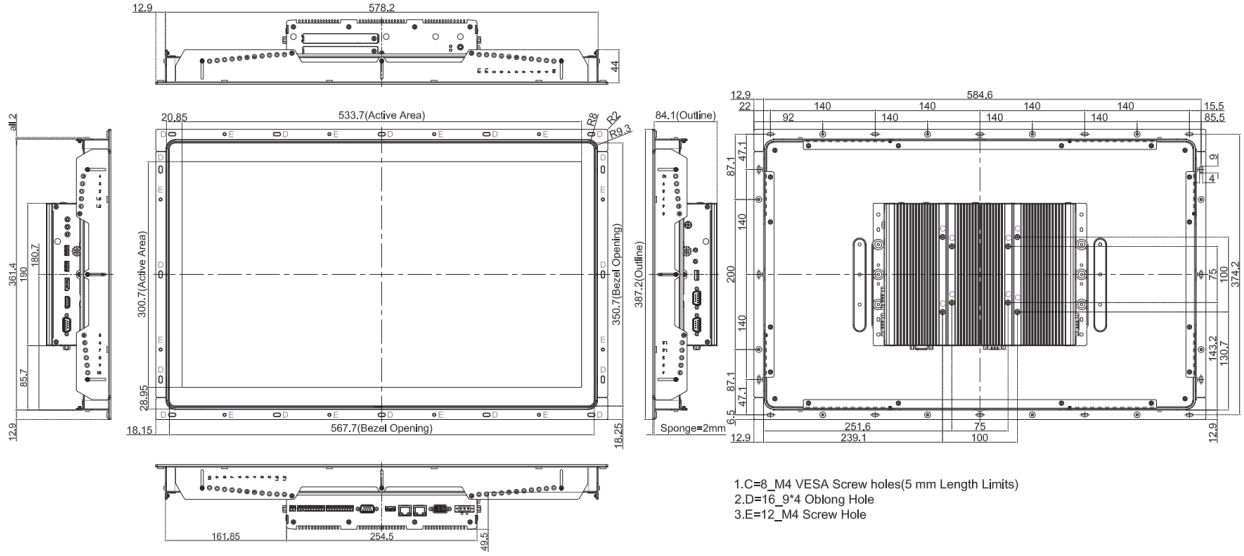
Weight Information	• 2.16 kg	• 2.26 kg
Mechanical Construction	• Extruded Aluminum with Heavy Duty Metal	
Mounting	• Wall / VESA / CDS / DIN Rail	
Physical Design	• Fanless Design • Jumper-less Design	
Reliability & Protection		
Reverse Power Input Protection	• Yes	
Over Voltage Protection	• Protection Range: 51-58V • Protection Type: shut down operating voltage, re-power on at the present level to recover	
Over Current Protection	• 15A	
CMOS Battery Backup	• SuperCap Integrated for CMOS Battery Maintenance-free Operation	
MTBF	• 206,043 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3	
Environment		
Operating Temperature	• -40°C to 65°C (-40°F to 149°F) - PassMark BurnIn Test: 100% CPU, 2D/3D Graphics (without thermal throttling - With extended temperature peripherals; Ambient with air flow - According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14	
Storage Temperature	• -40°C to 85°C (-40°F to 185°F)	
Relative Humidity	• 95%RH @ 65°C (Non-condensing)	
Shock	• Operating, 50 Grms (w/SSD, according to IEC60068-2-27) • MIL-STD-810H	
Vibration	• Operating, 1 Grms, 10-500 Hz, 3 Axes (w/SSD, according to IEC60068-2-6) • MIL-STD-810H	
EMC	• CE, UKCA, FCC, ICES-003 Class A	
EMI	• CISPR 32 Conducted & Radiated: Class A • EN/BS EN 55032 Conducted & Radiated: Class A • EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A • EN/BS EN61000-3-3 Voltage fluctuations & flicker • FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A	
EMS	• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 10 V/m • EN/IEC 61000-4-4 EFT: AC Power: 2 kV; DC Power: 1 kV; Signal: 1 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV • EN/IEC 61000-4-6 CS: 10V • EN/IEC 61000-4-8 PFMF: 50 Hz, 30A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 1 cycles at 60 Hz	
Industrial Environment	• EMC	

	- EN/BS/IEC 61000-6-4: 2019 Class A - EN/BS/IEC 61000-6-2: 2019
Safety	• UL, cUL, CB, IEC, EN 62368-1

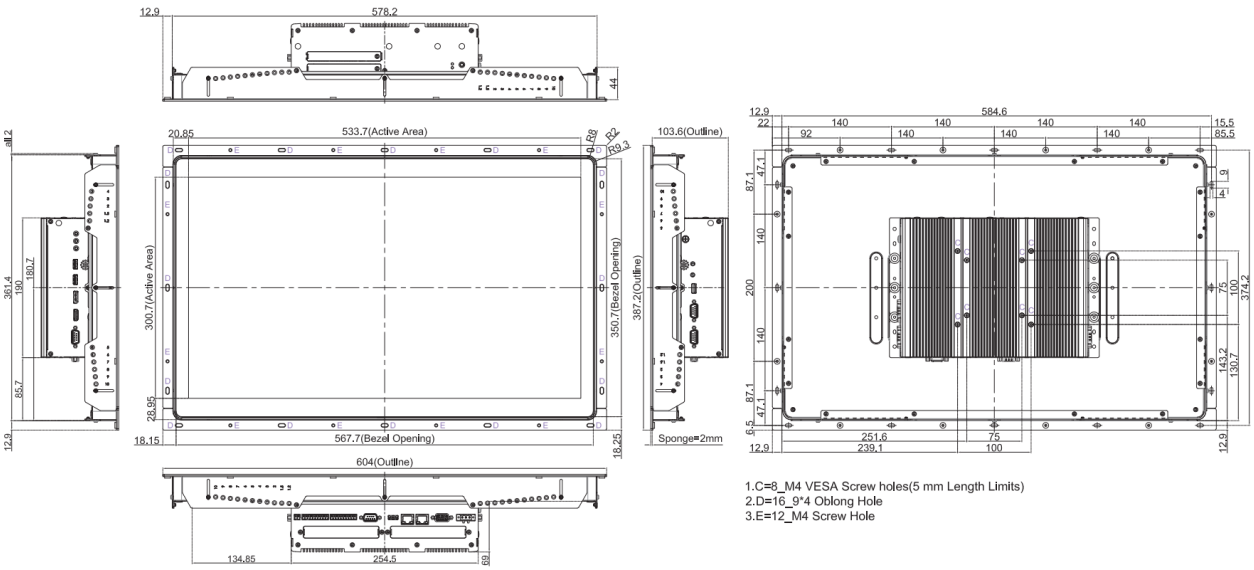
** Product Specifications and features are for reference only and are subject to change without prior notice. For more information, please refer to the latest product datasheet from Cincoze's website.*

Dimension

CO-W124C/P2302 **Unit: mm**



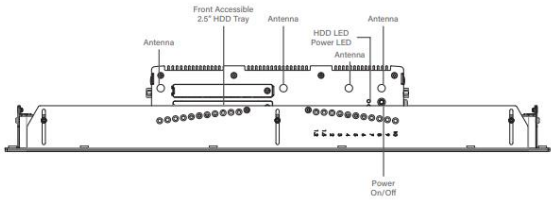
CO-W124C/P2302E **Unit: mm**



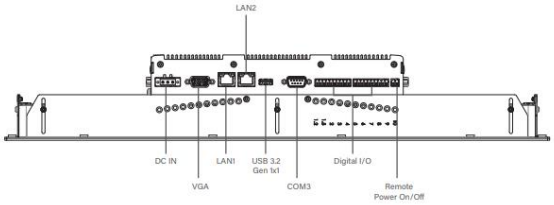
1.3 External Layout

1.3.1 CO-100/P2302

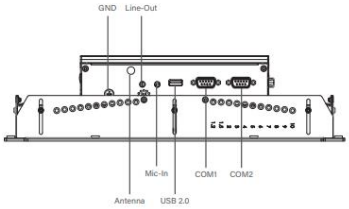
Front I/O



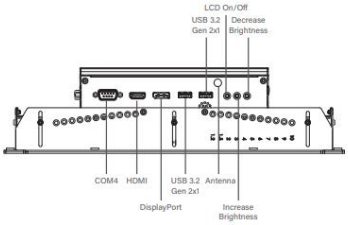
Rear I/O



Left I/O

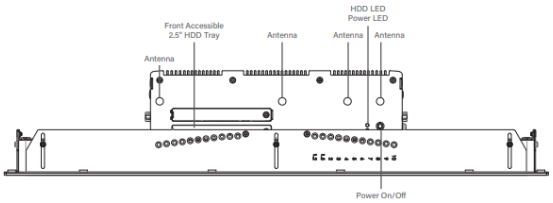


Right I/O

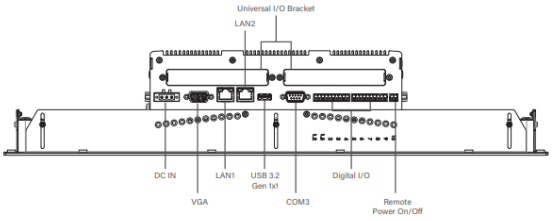


1.3.2 CO-100/P2302E

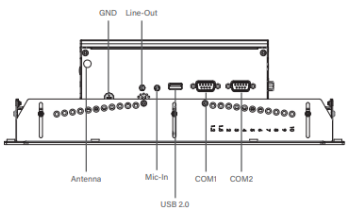
Front I/O



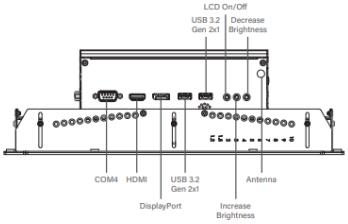
Rear I/O



Left I/O



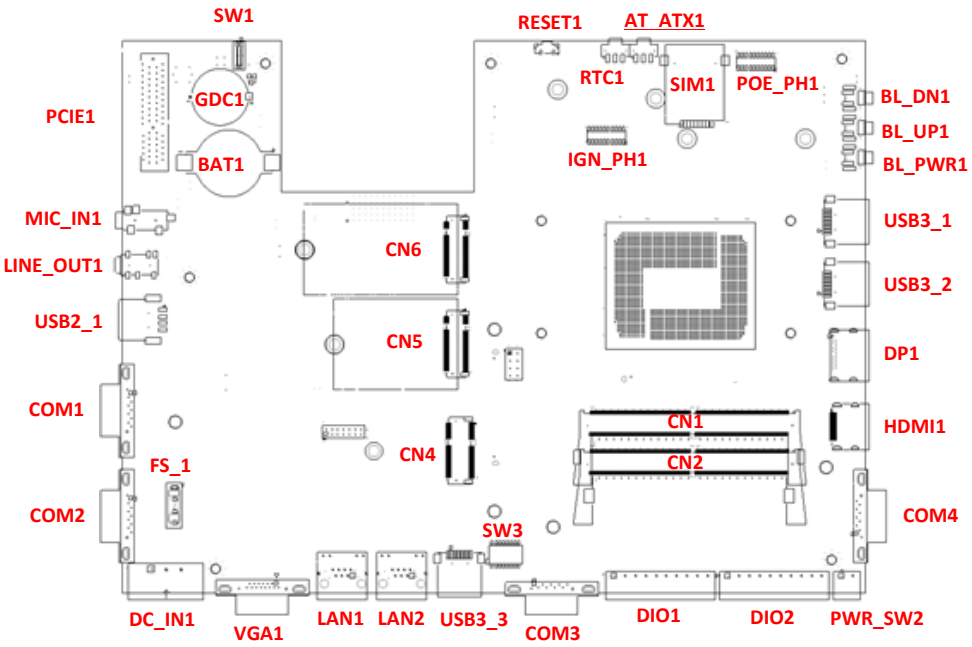
Right I/O



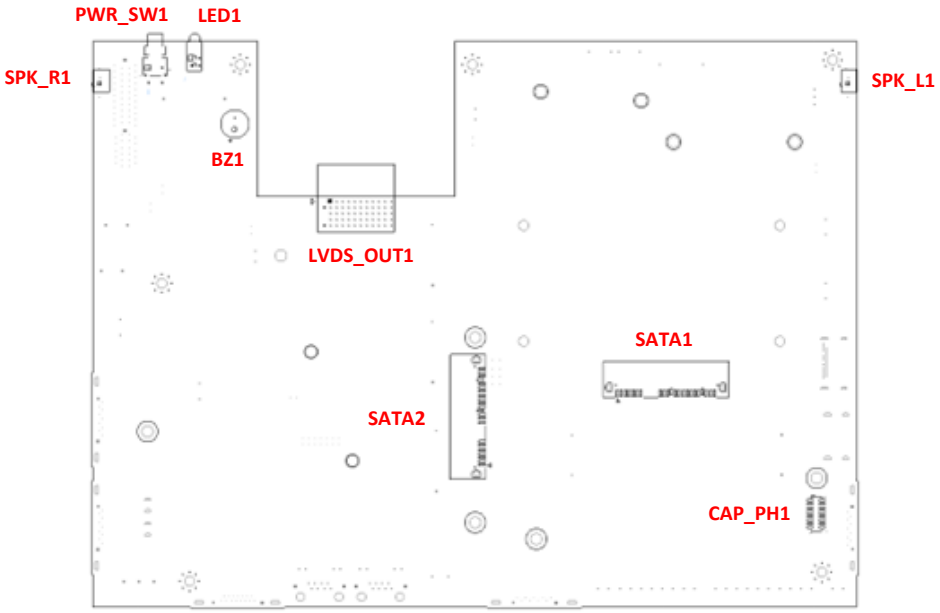
Chapter 2
Introduction to Switches and Connectors

2.1 Location of Switches and Connectors

2.1.1 Top View



2.1.2 Bottom View



2.2 Switches and Connectors Definition

List of Switches and Connectors

Location	Definition
AT_ATX1	AT / ATX Power Mode Switch
BAT1	Battery Holder
BL_DN1	Backlight Decrease Button
BL_PWR1	Backlight Power on/off Button
BL_UP1	Backlight Increase Button
BZ1	Buzzer
CAP_PH1	CAP Board to Board Connector
CN1, CN2	DDR5 SO-DIMM Socket
CN4	M.2 Key E 2230 Connector, support PCIE/USB2.0 interface
CN5	M.2 Key B 3042 Connector support PCIE x2/USB2.0 interface
CN6	M.2 Key B 3052 Connector w/SIM support PCIE x2/USB3.2/USB2.0
COM1, COM2, COM3, COM4	COM Connector, Support RS232 / RS422 / RS485
DC_IN1	3-pin DC 9-48V Power Input with Power Ignition Connector
DIO1	Digital 8 Output Connector
DIO2	Digital 8 Input Connector
DP1	Display Port
FS_1	DC Input Power Fuse Holder
GDC1	Super CAP for CMOS Backup
HDMI1	HDMI Connector
IGN_PH1	IGN Control Board Female Header
LAN1, LAN2	2.5 Giga LAN RJ45 Connector with i225
LED1	HDD / Power LED
LINE_OUT1	Line-out Jack
LVDS_OUT1	LVDS Connector
MIC_IN1	Mic-in Jack
PCIE1	PCIEx4 Slot
POE_PH1	PSE Board Male Header
PWR_SW1	Power Button
PWR_SW2	Remote Power on/off Connector
Reset1	Reset Button
RTC1	Clear COMS Switch
SATA1, SATA2	SATA Connector
SIM1	SIM Card Socket
SPK_L1	Speaker out Connector for Left Side

SPK_R1	Speaker out Connector for Right Side
SW1	Super CAP Switch
SW3	Power Select for COM1/COM2/COM3/COM4
USB2_1	USB 2.0 Connector
USB3_1, USB3_2	USB3.2 GEN2x1 connector
USB3_3	USB3.2 GEN1 connector
VGA1	VGA Connector (DB15)

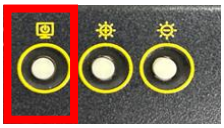
2.3 Definition of Switches

AT_ATX1: AT / ATX Power Mode Switch

Switch	Definition
Left	AT Power Mode
Right	ATX Power Mode (Default)

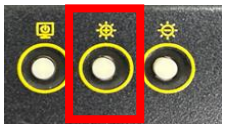
BL_PWR1: Backlight Power on / off

Switch	Definition
Push	Push to Control Backlight Power on / off switching



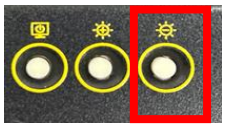
BL_UP1: Backlight Increase

Switch	Definition
Push	Push to Control Backlight Increase



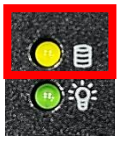
BL_DN1: Backlight Decrease

Switch	Definition
Push	Push to Control Backlight Decrease



LED1: HDD / Power LED

Switch	Definition	LED Color
HDD LED	HDD Read/Write	Yellow
	No Operation	Colorless
POWER LED	POWER ON	Green
	POWER OFF	Colorless
	Stand by	Blinking Green



PWR_SW1: Power Button

Switch	Definition
Push	Push to Power on/off the System Power

RESET1: Reset Button

Switch	Definition
Push	Push to Reset System

RTC1: Clear CMOS Switch

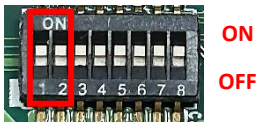
Switch	Definition
Left	Normal (Default)
Right	Clear CMOS

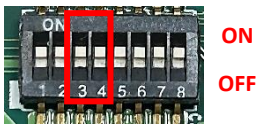
SW1: Super CAP Switch

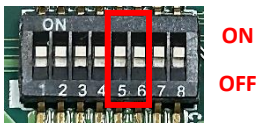
Location	Function	DIP1	DIP2
SW1	Super CAP Enabled	ON (Default)	ON (Default)
	Super CAP Disabled	OFF	

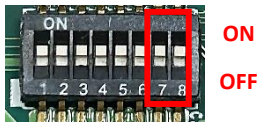
SW3: Power Select for COM1/COM2/COM3/COM4

Location	Function		DIP1	DIP2
SW3	COM1	0V(RI)	ON (Default)	ON (Default)
		5V	ON	OFF
		12V	OFF	OFF
Location	**Function**		**DIP3**	**DIP4**
SW3	COM2	0V(RI)	ON (Default)	ON (Default)
		5V	ON	OFF
		12V	OFF	OFF
Location	**Function**		**DIP5**	**DIP6**
SW3	COM3	0V(RI)	ON (Default)	ON (Default)
		5V	ON	OFF
		12V	OFF	OFF
Location	**Function**		**DIP7**	**DIP8**
SW3	COM4	0V(RI)	ON (Default)	ON (Default)
		5V	ON	OFF
		12V	OFF	OFF



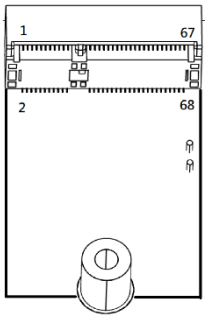






2.4 Definition of Connectors

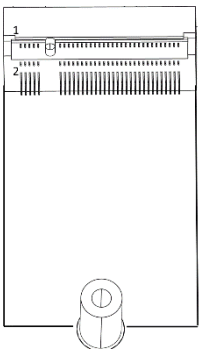
CN4 : M.2 Key E 2230 Connector, support PCIE /USB2.0 interface



Pin No.	PIN Name	Pin No.	Pin name
1	GND	2	+3.3V
3	USB_D+	4	+3.3V
5	USB_D-	6	NC
7	GND	8	PCM_CLK
9	NC	10	PCM_SYNC
11	NC	12	PCM_IN
13	GND	14	PCM_OUT
15	NC	16	NC
17	NC	18	GND
19	GND	20	UART_WAKE#
21	NC	22	UART_ RXD
23	NC	24	Key
25	Key	26	Key
27	Key	28	Key
29	Key	30	Key
31	Key	32	UART_TXD
33	GND	34	UART_CTS#
35	PETp0	36	UART_RTS#
37	PETn0	38	CLINK_RST#
39	GND	40	CLINK_ DATA
41	PERp0	42	CLINK_CLK
43	PERn0	44	COEX3
45	GND	46	COEX2
47	REFCLKp0	48	COEX1
49	REFCLKn0	50	SUSCLK
51	GND	52	PERST0#
53	CLKREQ0#	54	W_DISABLE2# (Pull-up)
55	PEWAKE0#	56	W_DISABLE1# (Pull-up)
57	GND	58	I2C_DATA
59	PETp1	60	I2C_CLK
61	PETn1	62	NC
63	GND	64	NC
65	PERp1	66	NC
67	PERn1	68	CLKREQ1#
69	GND	70	PEWAKE1#

71	REFCLKp1	72	+3.3V
73	REFCLKn1	74	+3.3V
75	GND		

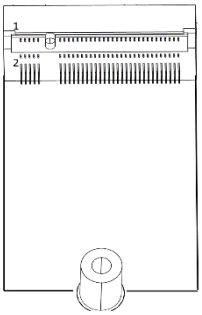
CN5 : M.2 Key B 3042 Connector support PCIE x2/USB2.0 interface



Pin No.	PIN Name	Pin No.	Pin name
1	CFG3	2	+3.3V
3	GND	4	+3.3V
5	GND	6	NC
7	USB2_D+	8	NC
9	USB2_D-	10	LED#1
11	GND	12	Key
13	Key	14	Key
15	Key	16	Key
17	Key	18	Key
19	Key	20	NC
21	CFG0	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	PERN1	30	NC
31	PERP1	32	NC
33	GND	34	NC
35	PETN1	36	NC
37	PETP1	38	NC
39	GND	40	NC
41	PERN0	42	NC
43	PERP0	44	NC
45	GND	46	NC
47	PETN0	48	NC
49	PETP0	50	PERST#
51	GND	52	CLKREQ#
53	REFCLKN	54	WAKE#
55	REFCLKP	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC

67	NC	68	SUSCLK
69	CFG1	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	CFG2		

CN6 : M.2 Key B Type 3052 Connector w/SIM support PCIE x2/USB3.2/USB2.0



Pin No.	PIN Name	Pin No.	Pin name
1	CFG3	2	+3.3V
3	GND	4	+3.3V
5	GND	6	FULL_CAR D_PWR_OFF#
7	USB2_D+	8	W_DISABLE1#
9	USB2_D-	10	LED#1
11	GND	12	Key
13	Key	14	Key
15	Key	16	Key
17	Key	18	Key
19	Key	20	NC
21	CFG0	22	NC
23	WAKE_WWAN#	24	NC
25	DPR	26	W_DISABLE2#
27	GND	28	NC
29	PERN1/USB3_RX-	30	USIM_RESET
31	PERP1/USB3_RX+	32	USIM_CLK
33	GND	34	USIM_DATA
35	PETN1/USB3_TX-	36	USIM_PWR
37	PETP1/USB3_TX+	38	NC
39	GND	40	NC
41	PERN0	42	NC
43	PERP0	44	NC
45	GND	46	NC
47	PETN0	48	NC
49	PETP0	50	PERST#
51	GND	52	CLKREQ#
53	REFCLKN	54	WAKE#
55	REFCLKP	56	NC
57	GND	58	NC
59	NC	60	COEX3
61	NC	62	COEX2

63	NC	64	COEX1
65	NC	66	USIM_DET
67	PERST2# FOR WWAN	68	SUSCLK
69	CFG1	70	+3.3V
71	GND	72	+3.3V
73	VIO_CFGX40	74	+3.3V
75	CFG2		

COM1 / COM2 / COM3/ COM4: COM Connector, Support RS232 / RS422 / RS485

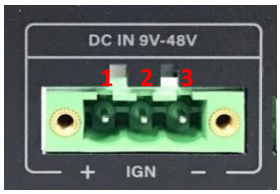
Connector Type: 9-pin D-Sub

Pin	RS232 Definition	RS422 / 485 Full Duplex Definition	RS485 Half Duplex Definition
1	DCD	TX-	DATA -
2	RXD	TX+	DATA +
3	TXD	RX+	
4	DTR	RX-	
5	GND		
6	DSR		
7	RTS		
8	CTS		
9	RI		

DC_IN1: 3 PINs DC 9-48V power input with power ignition connector

Connector Type: Terminal Block 1x3 3-pin, 5.0mm pitch

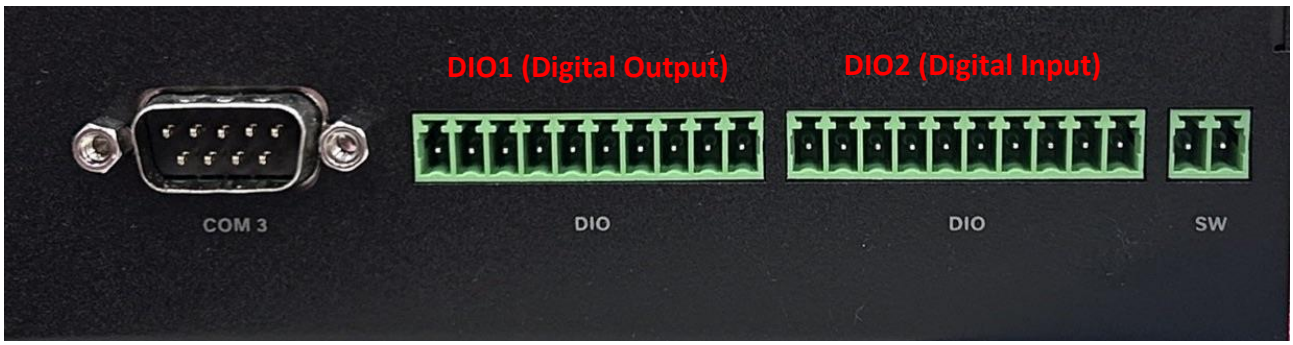
Pin	Definition
1	9_48VSB_IN
2	9_32VSB_ACC (IGN detection)
3	GND



CAUTION (ATTENTION)

Please disconnect the power source before mounting the DC power cables or connecting the DC power connector to system.

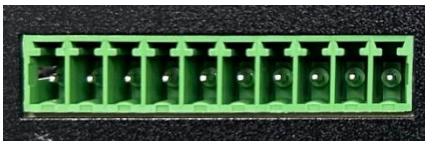
(Veuillez débrancher la source d'alimentation avant de monter les câbles d'alimentation CC ou de connecter le connecteur d'alimentation CC au système.)



DIO1: Digital 8 Output Connector

Connector Type: Terminal Block 1X10 10-pin, 3.5mm pitch

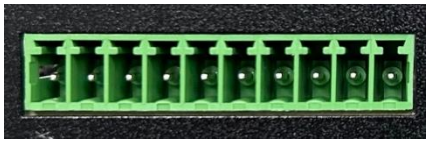
Pin	Definition	Pin	Definition
1	XCOM+(DC INPUT)	6	DO5
2	DO1	7	DO6
3	DO2	8	DO7
4	DO3	9	DO8
5	DO4	10	XCOM-(GND)



DIO2: Digital 8 Input Connector

Connector Type: Terminal Block 1X10 10-pin, 3.5mm pitch

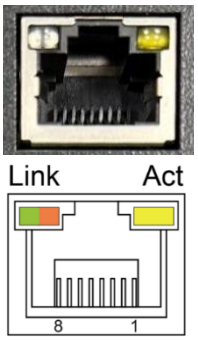
Pin	Definition	Pin	Definition
1	XCOM+(DC INPUT)	6	DI5
2	DI1	7	DI6
3	DI2	8	DI7
4	DI3	9	DI8
5	DI4	10	XCOM-(GND)



LAN1, LAN2: 2.5 Giga LAN RJ45 Connector with i225

LAN LED Status Definition

Link Speed LED Status	Definition
Steady Green	2.5 Gbps Network Link
Steady Orange	1 Gbps Network Link
Off	100 Mbps/ 10 Mbps Network Link
Link Act LED Status	**Definition**
Blinking Yellow	Link and Data Activity
Steady Yellow	Link but No Activity
Off	No Link



PWR_SW2: Remote Power on/off Connector

Connector Type: Terminal Block 1X2 2-pin, 3.5mm pitch

Pin	Definition
1	RMT_PWR_BTN_N
2	GND

WARNING (AVERTIR)

Do not apply power to this connector! This port is used to connect a SWITCH!

(Ne mettez pas sous tension ce connecteur! Ce port est utilisé pour connecter un SWITCH!)

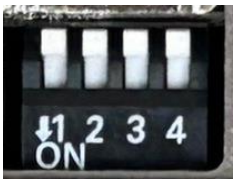
2.5 Optional Module Pin Definition & Settings

2.5.1 CFM-IGN101 Module

SW2 (on CFM-IGN101)：IGN Module Timing Setting Switch

Set shutdown delay timer when ACC is turned off

Pin 1	Pin 2	Pin 3	Pin 4	Definition
ON (IGN Enabled) / OFF (IGN Disabled)	ON	ON	ON	0 second
	ON	ON	OFF	1 minute
	ON	OFF	ON	5 minutes
	ON	OFF	OFF	10 minutes
	OFF	ON	ON	30 minutes
	OFF	ON	OFF	1 hour
	OFF	OFF	ON	2 hours
	OFF	OFF	OFF	Reserved (0 second)



Default setting of Pin1 to Pin4 is OFF/OFF/OFF/OFF.

24V_12V_1 (on the system)：IGN Module Voltage Mode Setting Switch

12V / 24V Car Battery Switch

Switch	Definition
Left	24V Car Battery Input (Default)
Right	12V Car Battery Input

Chapter 3
System Setup

This chapter uses the P2302 for hardware installation examples, except in “Installing PCI(e) Card” section which uses the P2302E.

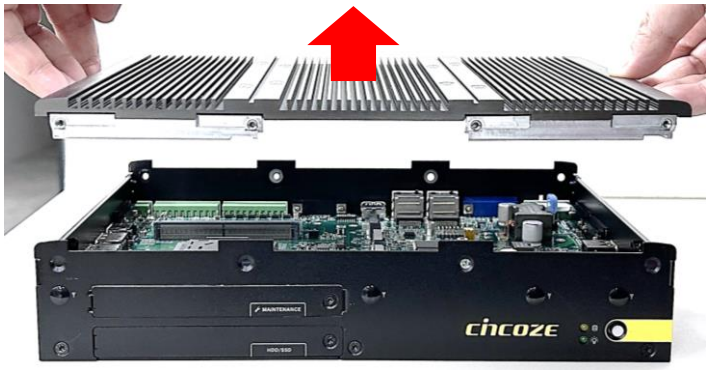
3.1 Removing Top Cover

WARNING
(AVERTIR)

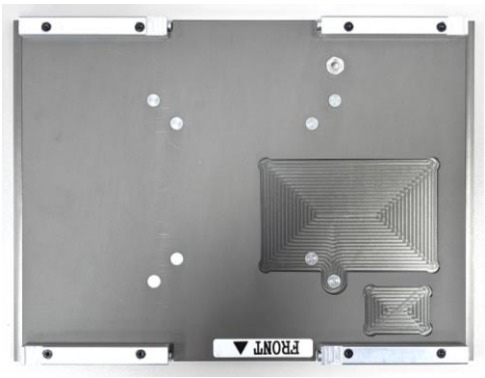
In order to prevent electric shock or system damage, must turn off power and disconnect the unit from power source before removing the chassis cover.
(Afin d'éviter tout risque d'électrocution ou d'endommagement du système, vous devez couper l'alimentation et débrancher l'appareil de la source d'alimentation avant de retirer le couvercle du châssis.)

Step 1. Loosen the eight screws on the front and rear panels of the system.

Step 2. Carefully lift the top cover and detach it from the chassis.



Step 3. Place the top cover aside gently.



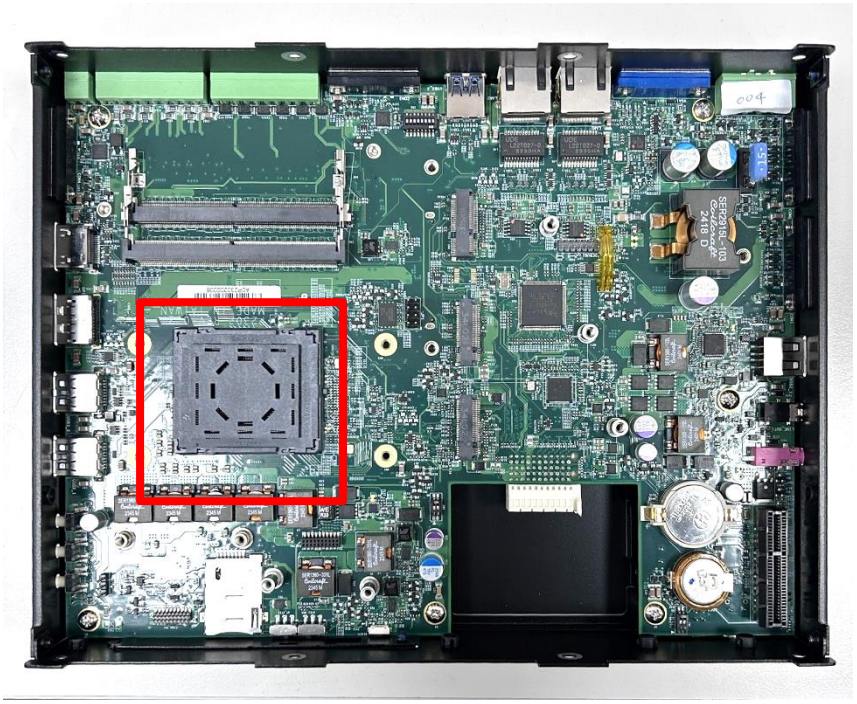
3.2 Installing CPU

WARNING (AVERTIR)

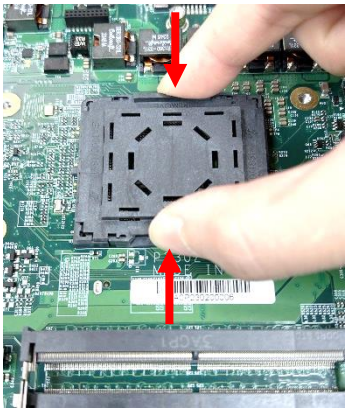
After replacing the CPU, please perform a Clear CMOS before powering on. According to Intel documentation (Clear CMOS after Hardware Configuration Change, Document Number: 337986-001), if you do not perform a Clear CMOS, the BIOS will apply settings from the old CPU to the new CPU, which may cause performance issues or startup failures. Therefore, Cincoze performs a Clear CMOS procedure before shipping. When customers power on the system for the first time, it will take several minutes to start. This is normal. During this process, the system will POST three times, and the Power LED will alternate between green and blue lights.

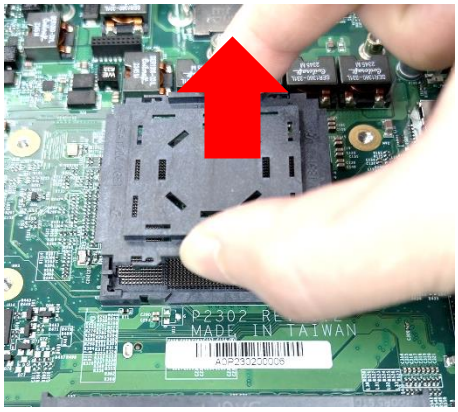
(Après avoir remplacé le CPU, veuillez effectuer un Clear CMOS avant de mettre sous tension. Selon la documentation Intel (Clear CMOS after Hardware Configuration Change, Document Number: 337986-001), si vous n'effectuez pas un Clear CMOS, le BIOS appliquera les paramètres de l'ancien CPU au nouveau CPU, ce qui peut entraîner des problèmes de performance ou des échecs de démarrage. Par conséquent, Cincoze effectue une procédure de Clear CMOS avant l'expédition. Lorsque les clients mettent le système sous tension pour la première fois, il faudra plusieurs minutes pour démarrer. Cela est normal. Pendant ce processus, le système effectuera trois fois le POST et la LED d'alimentation alternera entre les lumières verte et bleue.)

Step 1. Locate the CPU socket.

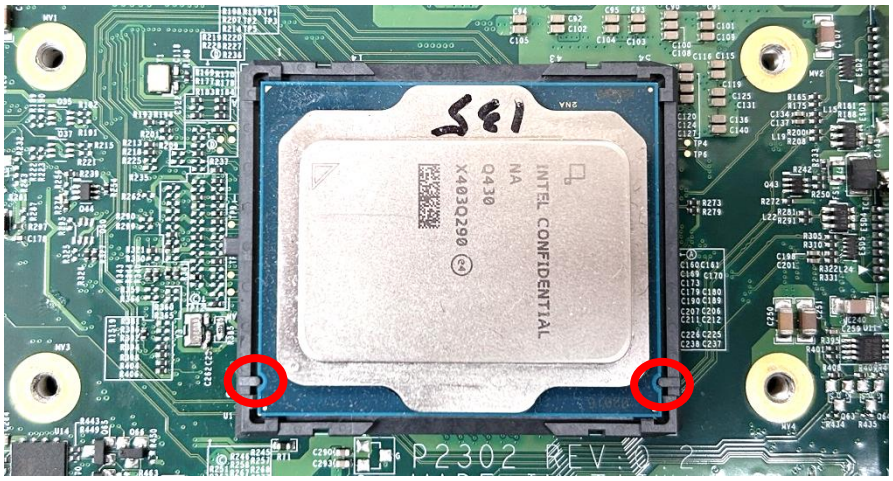


Step 2. Hold both sides of the cover of the CPU socket and remove it.

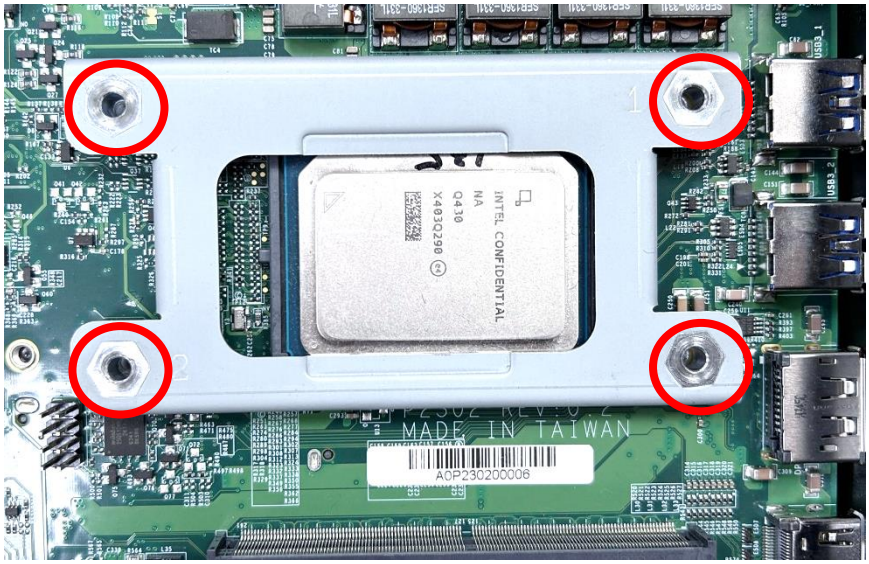




Step 3. Insert the CPU gently by aligning the notches of the socket.

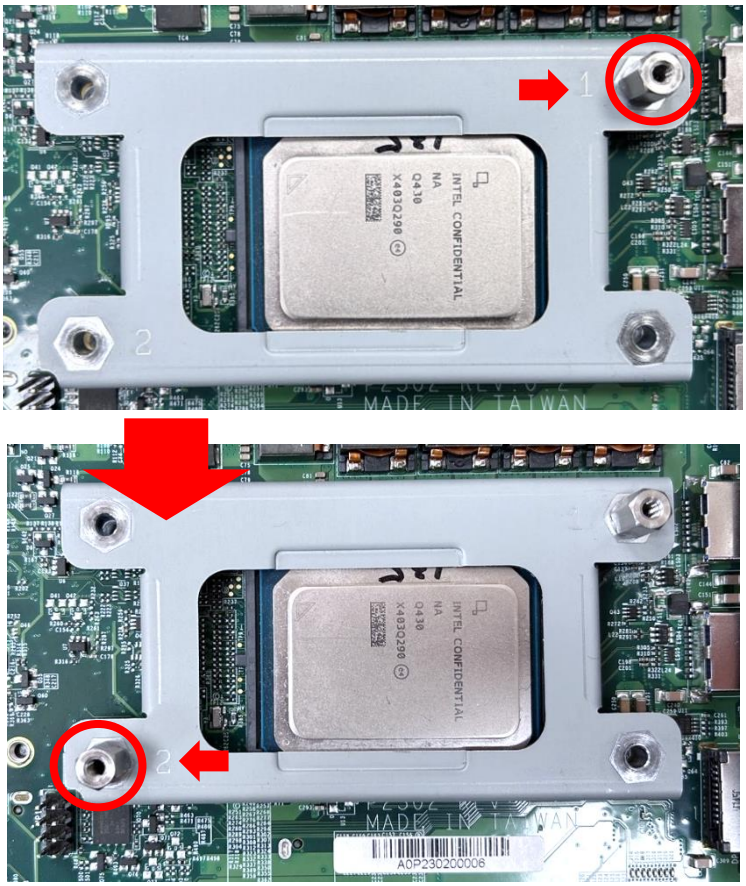


Step 4. Place the CPU bracket and ensure that the screw holes are properly aligned.



Step 5. Please use a torque screwdriver (manual type with adjustable torque setting), and set the torque to 5–5.5 kgf·cm when fastening the CPU bracket.

Follow the sequence 1 → 2 (as marked on the top surface of the bracket), and fasten the two hexagonal carbon steel standoffs (M3 × 8.4L, included in the package) with the torque screwdriver to complete the installation.



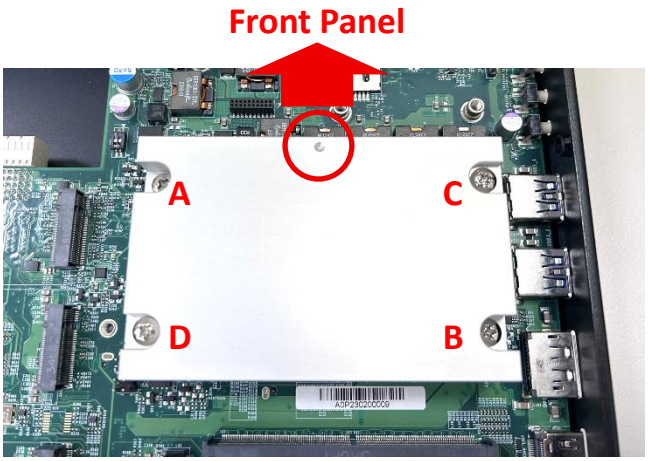
NOTE (NOTE)

Failure to apply the specified torque may result in system boot failure or other unpredictable errors. (Le non-respect du couple de serrage spécifié peut entraîner un échec du démarrage du système ou d'autres erreurs imprévisibles.)

Step 6. Make sure that the CPU surface is clean and then apply the thermal paste (included in the package) onto the CPU's surface as shown below. For more detailed information about the thermal paste application, please find the Intel official website.

Step 7. Penetrate the four screws through the corresponding holes on the heatsink. Use two M3 × 10L round head screws for the top-right and bottom-left corners, and two M3 × 20L round head screws for the top-left and bottom-right corners.

Step 8. Ensure that the circular indentation mark, as shown in the image, is facing the front panel of the system. Align the whole set with the four mounting holes and place it onto the CPU bracket. Use the torque screwdriver with torque 5–5.5 kgf·cm (mentioned in the step 5) to fasten the screws in the sequence A → B → C → D.



NOTE (NOTE)

Failure to apply the specified torque may result in system boot failure or other unpredictable errors. (Le non-respect du couple de serrage spécifié peut entraîner un échec du démarrage du système ou d'autres erreurs imprévisibles.)

Step 9. Peel off the protective film from one side of the thermal pad (included in the package) and place the peeled side onto the CPU heatsink. Then, remove the transparent protective film from the other side (top side) to complete the installation.

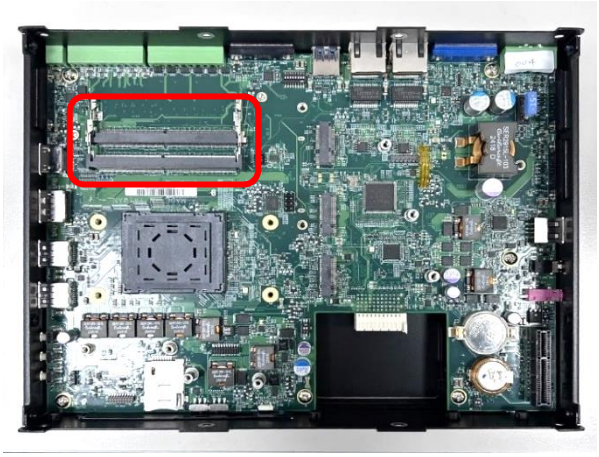
CAUTION (ATTENTION)

Before assembling the system's chassis cover, please make sure the protective films on the Thermal Pad have been removed!

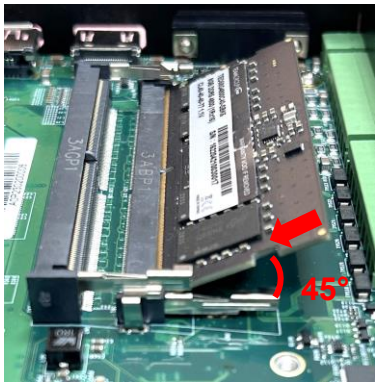
(Avant d'assembler le couvercle du châssis du système, assurez-vous que le film protecteur sur le coussin thermique a été retiré !)

3.3 Installing SO-DIMM

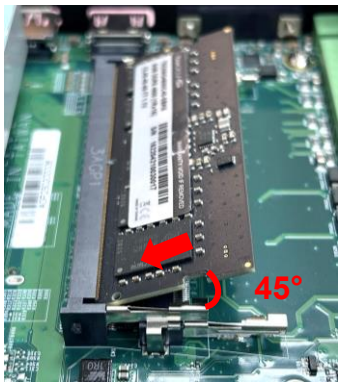
Step 1. Locate the SO-DIMM socket on the system board.



Step 2. Tilt the memory module at a 45-degree angle, and insert it into SO-DIMM socket until the golden finger connector of the module is seated firmly.

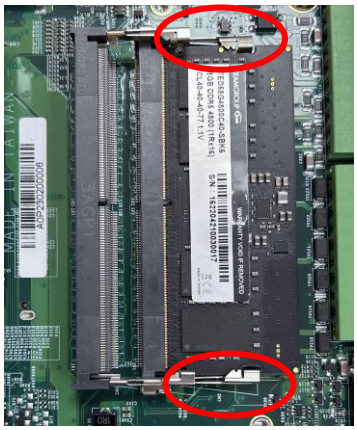


Lower socket

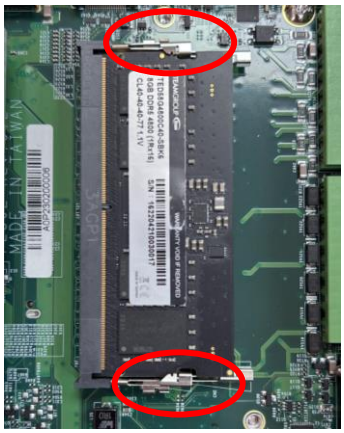


Upper socket

Step 3. Press down the memory module until retaining clips snap back in place.



Lower socket



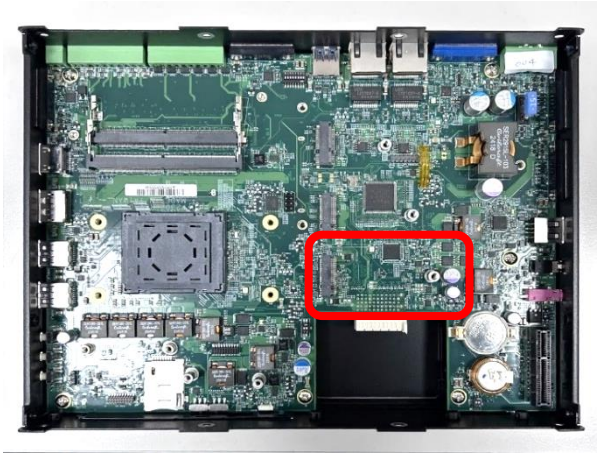
Upper socket

3.4 Installing M.2 Key B Module

3.4.1 M.2 Key B type 3052 Socket

3.4.1.1 M.2 Key B type 3052 Module

Step 1. Locate the M.2 Key B type 3052 connector (CN6) on the top side of the system motherboard.



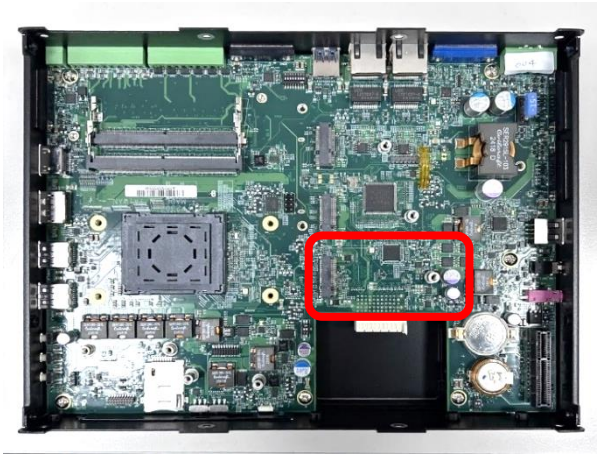
Step 2. Insert the M.2 Key B type 3052 module at a 45-degree angle and insert it to the slot until the gold-pated connector of module contacted firmly with the slot.

Step 3. Press down the module and fasten the screw to secure the module. (M3X5L, included in the screw pack).

3.4.1.2 M.2 Key B type 3042/2242 Module

In this section, we will use an M.2 Key B 2242 module as an example for installing demonstration.

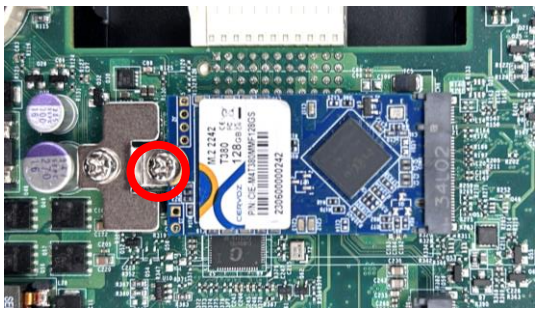
Step 1. Locate the M.2 Key B type 3052 connector (CN6) on the top side of the system motherboard.



Step 2. Align the M.2 Key B Type 3052 to 3042 Adapter Bracket (included in the Package) with the corresponding screw hole. Secure the bracket in place and fasten the screw (M3x4L, included in the Screw Pack).

Step 3. Insert the M.2 Key B module at a 45-degree angle and insert it to the slot until the gold-pated connector of module contacted firmly with the slot.

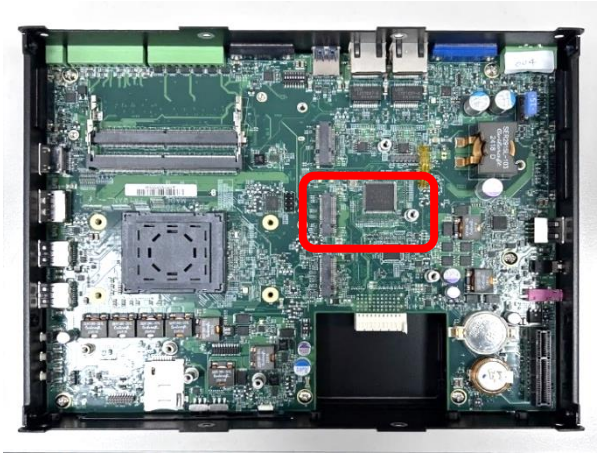
Step 4. Press down the module and fasten the screw to secure the module. (M3X5L, included in the screw pack).



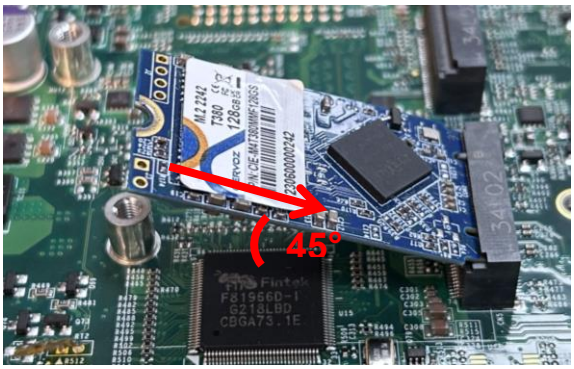
3.4.2 M.2 Key B type 3042 Socket

In this section, we will use an M.2 Key B 2242 module as an example for installing demonstration.

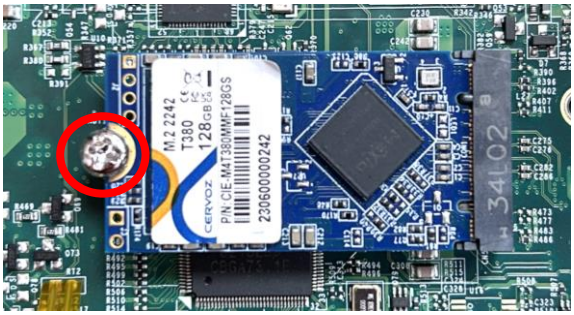
Step 1. Locate the M.2 Key B type 3042 connector (CN5) on the top side of the system motherboard.



Step 2. Insert the M.2 Key B type 2242 module at a 45-degree angle and insert it to the slot until the gold-pated connector of module contacted firmly with the slot.

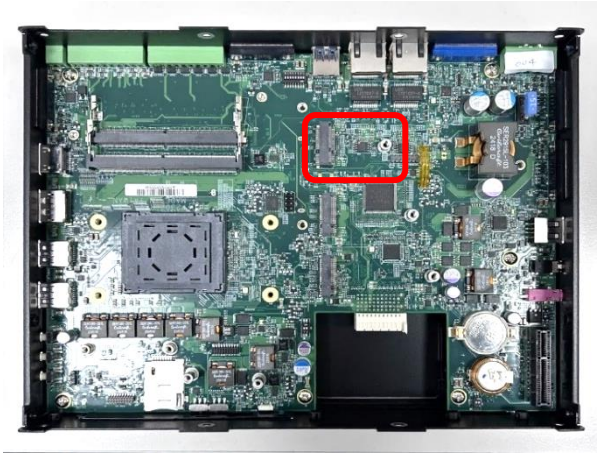


Step 3. Press down the module and fasten the screw (M3X5L, included in the screw pack) to secure the module.



3.5 Installing a M.2 Key E Module

Step 1. Locate the M.2 Key E socket (CN4) on the system board.



Step 2. Tilt the M.2 E Key card at a 45-degree angle and insert it to the socket until the golden finger connector of the card seated firmly.

Step 3. Press the module down and secure with the screw (M3x5L, included in the screw pack).

3.6 Installing Antenna

Step 1. Remove the antenna rubber cover on the front panel of the system.

Step 2. Insert the antenna jack through the hole, then attach the antenna's washer or nut and fasten it securely.

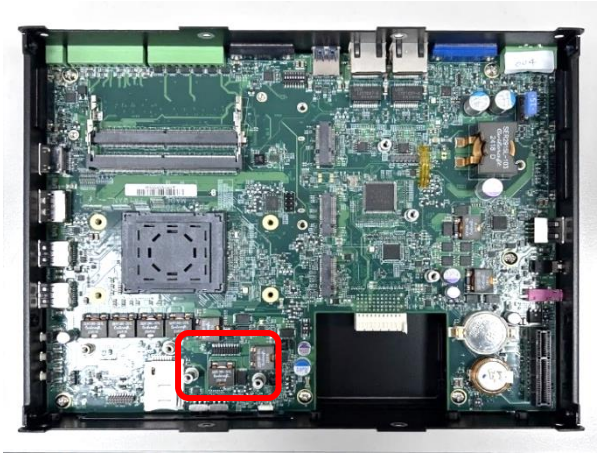
Step 3. Assemble the antenna and antenna jack together.

Step 4. Attach the RF connector at another end of the cable onto the card.

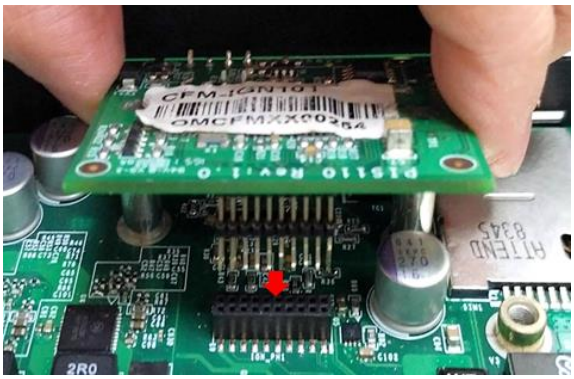
3.7 Installing CFM Module

3.7.1 CFM-IGN101

Step 1. Locate the power Ignition connector on system motherboard as indicated.



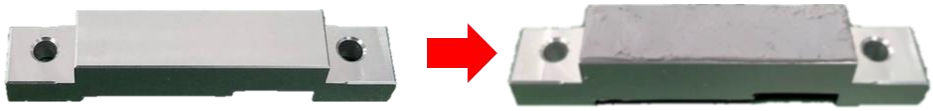
Step 2. Insert the female connector of power ignition board to the male connector on system motherboard.



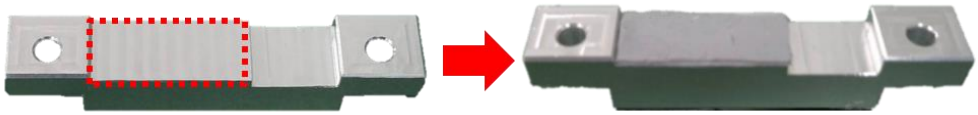
Step 3. Fasten two screws to secure the power ignition board.

3.7.2 CFM-PoE04

Step 1. Place a thermal pad on the top of the heatsink, and locate the two regions as marked.



Step 2. Turn over the heatsink and paste the thermal pad at the marked region.

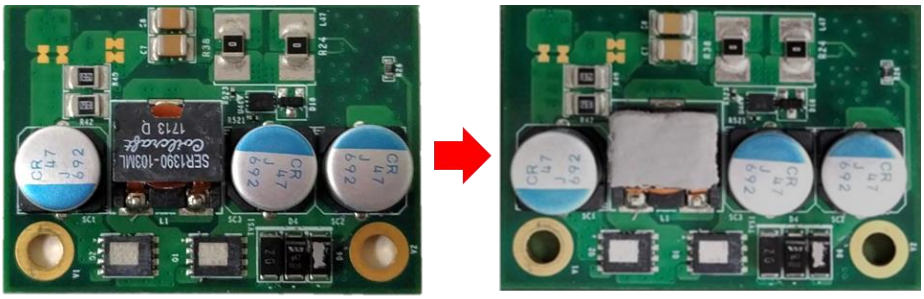


CAUTION (ATTENTION)

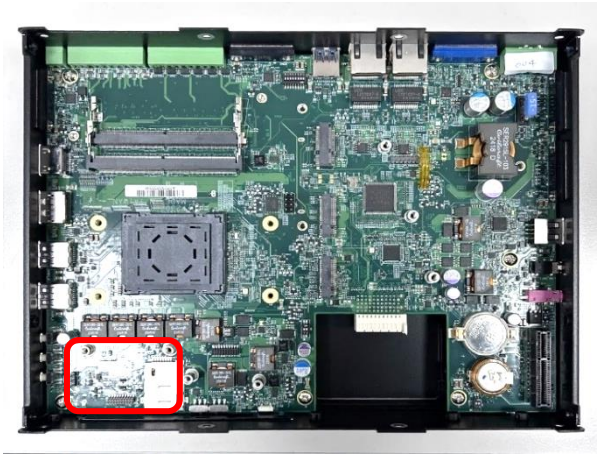
Before putting on the thermal block, please make sure the protective film on the Thermal Pad has been removed!

(Avant de mettre le bloc thermique, veuillez vous assurer que le film protecteur sur le coussin thermique a été retiré!)

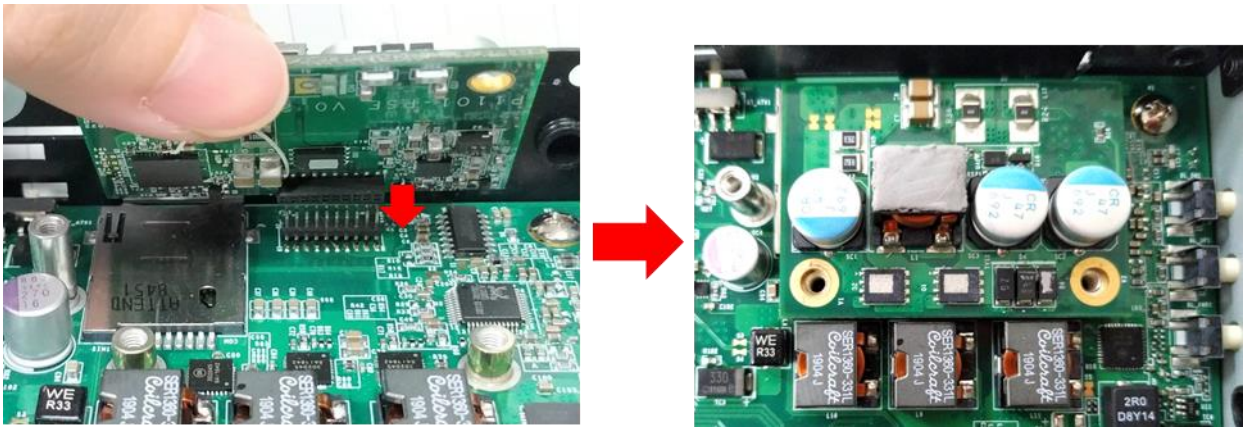
Step 3. Paste the thermal pad onto the coil of the CFM-PoE module.



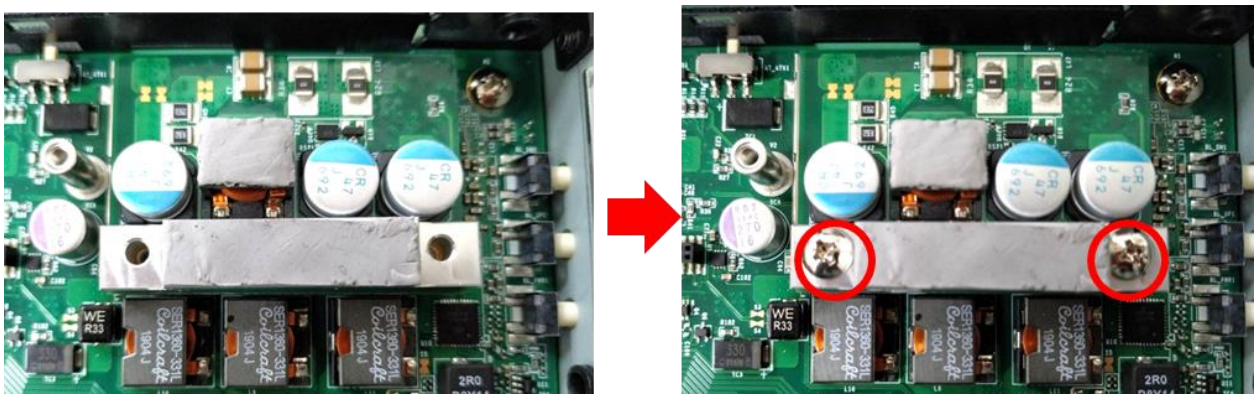
Step 4. Locate the PoE connector on system motherboard as indicated.



Step 5. Insert the female connector of PoE daughter board to the male connector on system motherboard.



Step 6. Put on the PoE thermal block and fasten two screws to secure the PoE board.



CAUTION (ATTENTION)

Before assembling the system's chassis cover, please make sure the protective films on the Thermal Pads have been removed!

(Avant d'assembler le capot du châssis du système, assurez-vous que les films de protection sur les coussinets thermiques ont été retirés !)

3.8 Installing PCI(e) Card

The applicable riser cards for the P2302E are listed in the table below.

Item	Model No.	Description	Compatible Model
1	RC-E4-02	Riser Card with 1 x PCIex4 Slot	P2302E
2	RC-PI-02	Riser Card with 1 x PCI Slot	P2302E

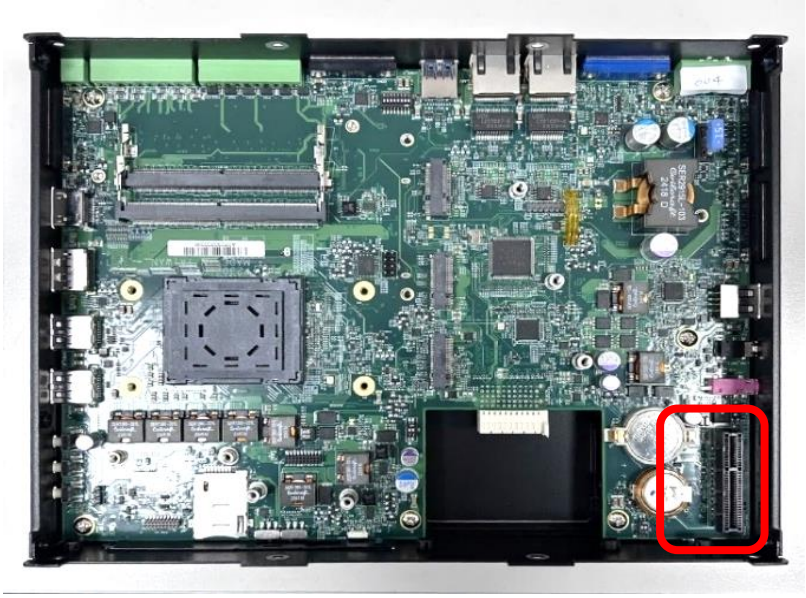
The installation method for both item 1 and item 2 is the same. Therefore, this chapter uses the P2302E with the RC-E4-02 riser card as an example to illustrate the installation steps.

Step 1. Loosen the two screws as indicated at rear panel.

Step 2. Attach the PCI / PCIe Card Installation Kit (included in the package), and fasten the two screws back onto the rear panel to secure it.

Step 3. Loosen the screw as indicated to remove the L-shaped bracket.

Step 4. Locate the PCIE1 connector.



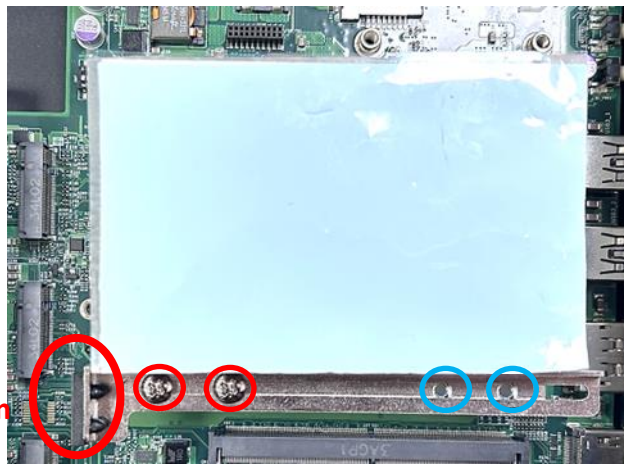
Step 5. Align the notch on the golden fingers of the riser card with the slot. Insert the card vertically, and press it straight down until it is firmly seated.

Step 6. Fasten the screw (M3x5L) to fix the riser card.

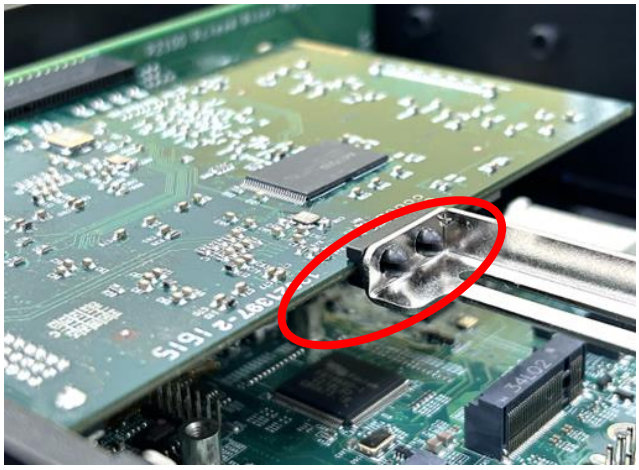
Step 7. Locate the PCI(e) slot on the riser card. Align the notch on the golden fingers of the PCI(e) card with the slot, then insert the card horizontally and press it firmly into place until fully seated.

Step 8. Fasten the screw back to secure the PCI(e) card.

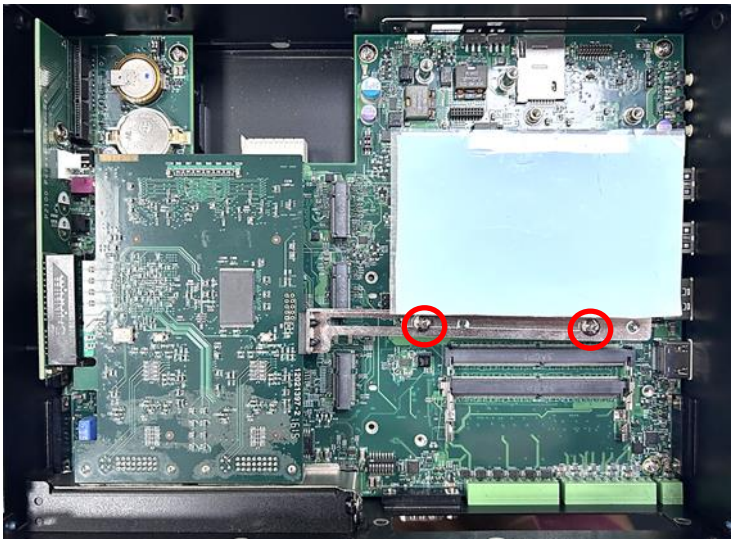
Step 9. Loosen the two screws or adjust their positions as needed. You may also relocate them to the screw holes indicated in blue, depending on the size of the PCI(e) card, to allow the clamp arm to slide freely and extend far enough to secure the card in place.



Step 10. Slide the clamp arm of retention module until it contacts the edge of PCI(e) card.

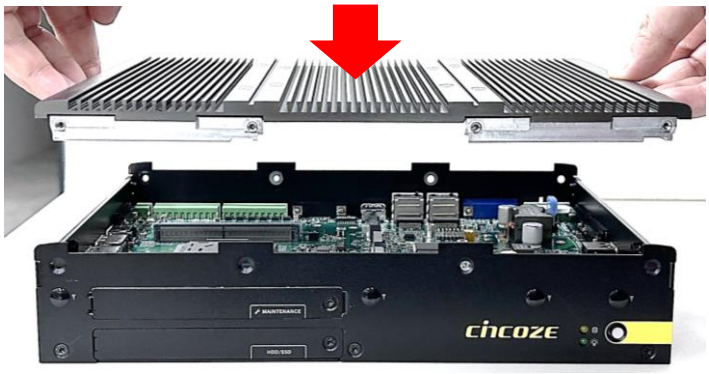


Step 11. Finally, fasten the two screws that were previously loosen halfway to fix the retention module.

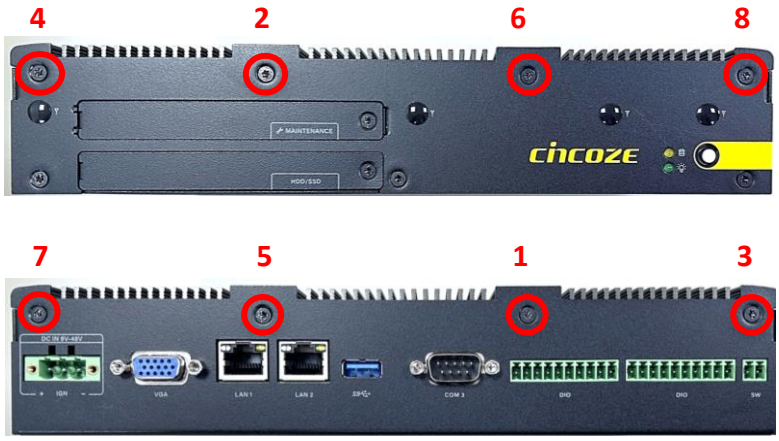


3.9 Installing Top Cover

Step 1. Place the top cover back onto the system.



Step 2. Gently press down on the top cover to align the screw holes, then fasten screws 1 to 4 in order. Once secured, proceed to fasten screws 5 to 8 in order.



3.10 Installing SATA Hard Drive at Front Panel

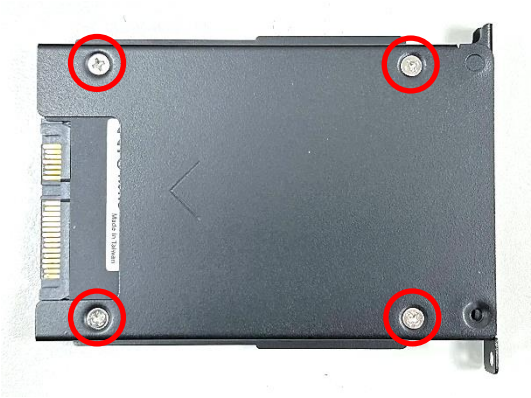
Step 1. Loosen the screw to remove the HDD bay cover bracket.

Step 2. Loosen the screw as indicated on the HDD bracket.

Step 3. Pull the rotating arm of HDD bracket outward as indicated.

Step 4. Hold the rotating arm to pull out the HDD bracket.

Step 5. Place the HDD bracket on screw-hole side of HDD. Use four screws provided to assemble HDD on the bracket.



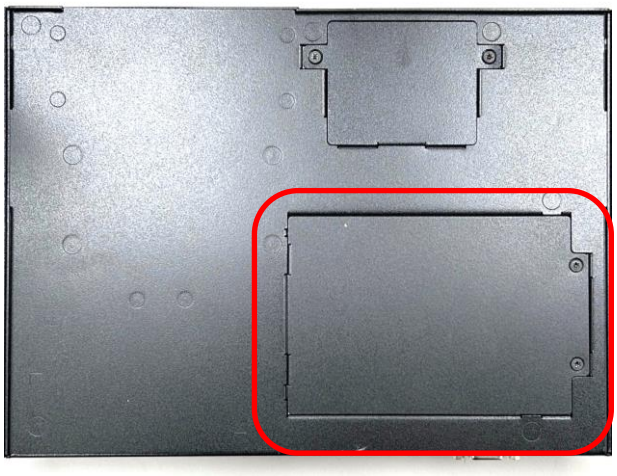
Step 6. Align the HDD bracket with the entrance of HDD bay. And insert the HDD bracket and push it until the edge connector of HDD fully inserted into SATA slot.

Step 7. Fasten the screw as indicated on the HDD bracket.

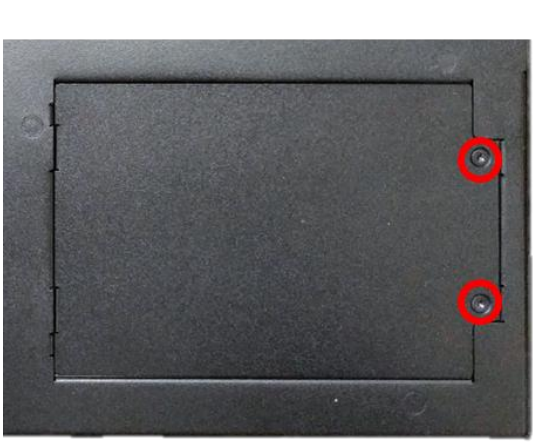
Step 8. Put back HDD bay cover at front panel, and fasten it with the screw.

3.11 Installing SATA hard drive on Bottom Side

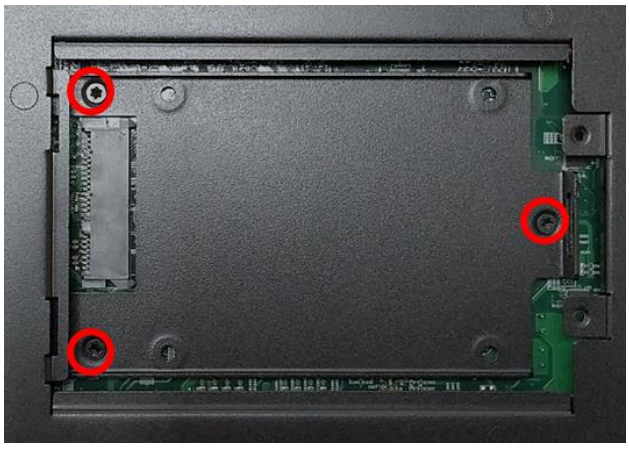
Step 1. Turn over the system to bottom side. Locate the cover of HDD compartment.



Step 2. Loosen the two screws, lift the cover, and then remove it.



Step 3. Loosen three screws and take the HDD bracket out of HDD compartment.



Step 4. Place the HDD bracket on screw-hole side of HDD. Use four screws provided to assemble HDD on the bracket.

Step 5. Seat the HDD bracket into HDD compartment, and line up the connector of HDD with SATA slot, then push it until HDD is fully connected into slot.

Step 6. Secure the HDD bracket with three screws.

Step 7. Put back the cover and fasten the two screws.

3.12 Installing SIM Card

Please install a 5G/4G module before the SIM card installation for the SIM application.

Step 1. Loosen the screw to remove the Maintenance cover bracket.

Step 2. Locate the SIM card slot.

Step 3. Insert a SIM card into the SIM slot with the gold contacts facing down. Please pay attention to the insert orientation as illustrated.

3.13 Installing Standard Mount

3.13.1 CO-119C and CO-W121C

The CO-100 series currently features two types of Mounting Bracket designs. For example, the Mounting Bracket designs of CO-W121C and CO-119C as illustrated below.

CO-W121C

CO-119C

CO-119C is essentially identical to CO-W121C in terms of installation, with the only difference being the design of the Mounting Bracket. The following steps will demonstrate the installation using CO-W121C as an example.

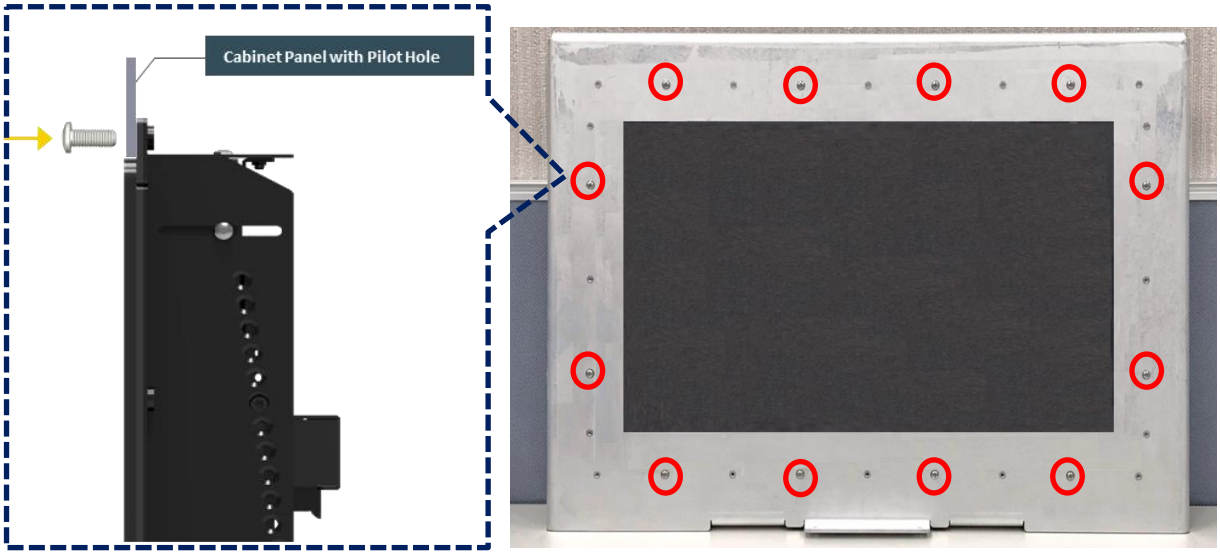
Before doing the following steps, please make sure the screw positions are fastened at the default positions as indicated in the following picture. The default positions are the correct positions for Standard Mount, so it does not need to change the screw positions additionally for Standard Mount.

Step 1. Put the CO-100/P2302 module onto the rack's back side.

There are two methods for fastening the CO-100/P2302 module onto the cabinet to complete the flat mount. One is to fix the CO-100/P2302 module from the front side of the cabinet, which is illustrated in chapter 3.13.1.1 The other one is to fix the CO-100/P2302 module from the rear side of the cabinet, which is illustrated in chapter 3.13.1.2.

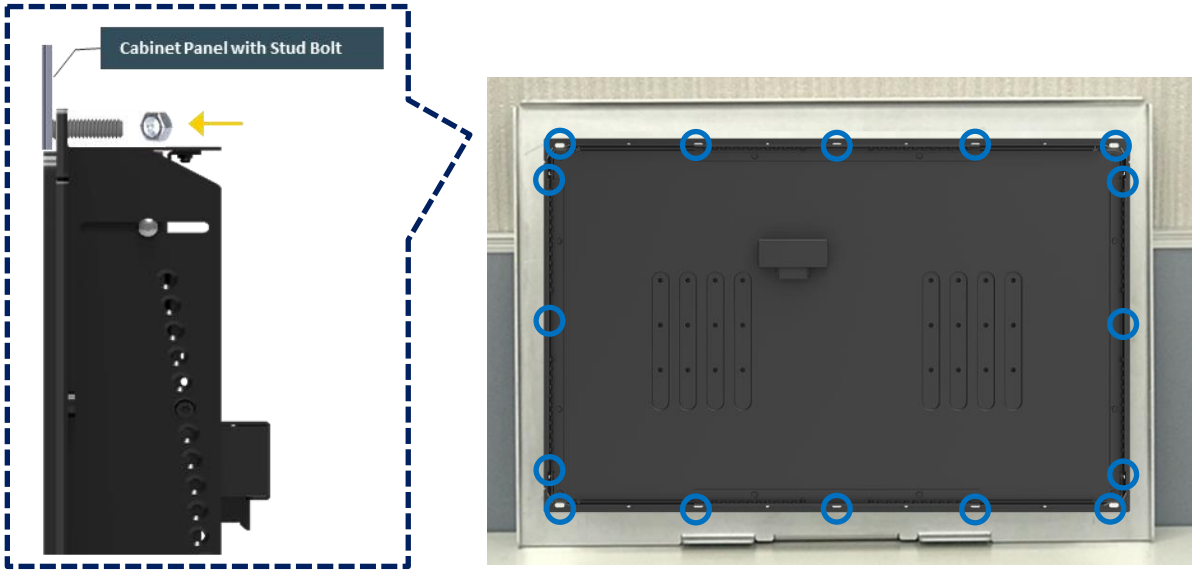
3.13.1.1 Fixing from front side

Step 2. Fasten the screws from the cabinet's front side. Please prepare 12 pcs of M4 screws for fixing the module through the circle holes (with screw thread).

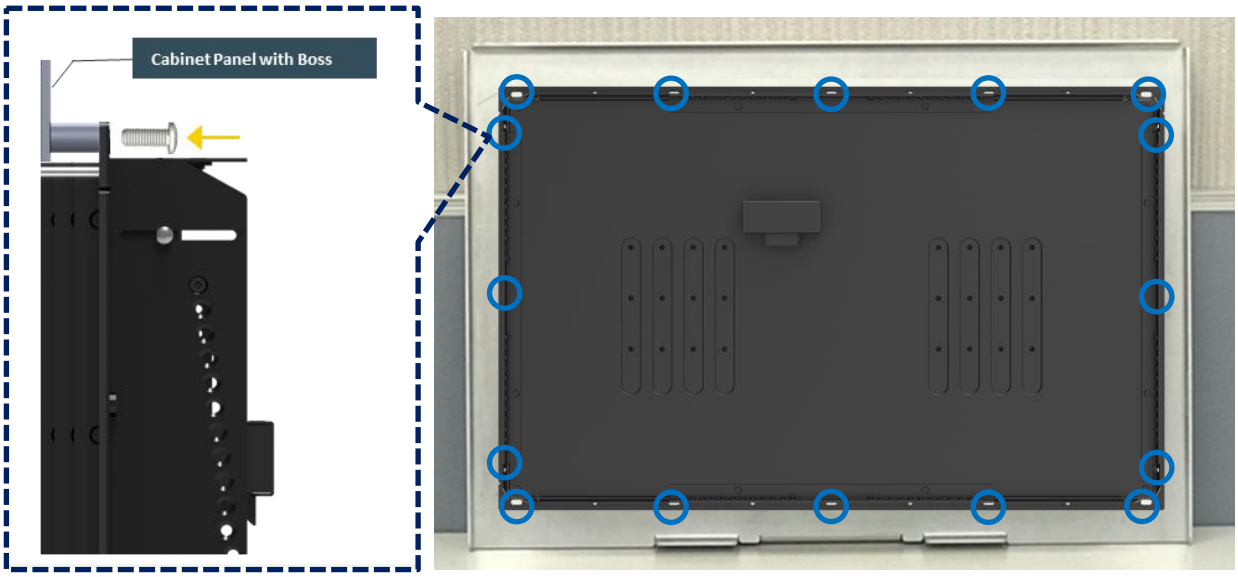


3.13.1.2 Fixing from rear side

Step 2. If the cabinet panel is with stud bolts as the following figure, user can prepare 16 pcs of nuts for fixing the module through the **oblong holes** (oblong hole size: 9mmx4mm, without screw thread)



If the cabinet panel is with bosses as the following figures, user can prepare 16 pcs of M4 screws for fixing the module through the **oblong holes** (oblong hole size: 9mmx 4mm, without screw thread).



3.13.2 CO-W124C

The CO-100 series includes various mounting bracket designs, and this section demonstrates the CO-W124C installation process.

Before starting the following steps, ensure the screws are secured in the default positions, as shown below. These positions are correct for Standard Mount, so no additional adjustments are necessary.

CO-W124C Top Side View

CO-W124C Bottom Side View

CO-W124C Left Side View

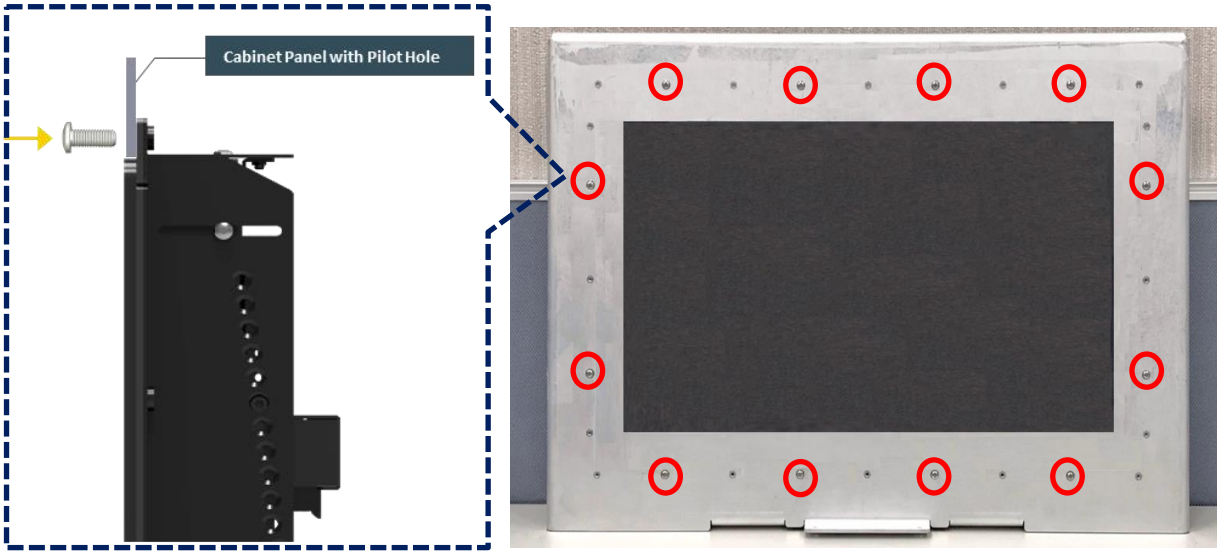
CO-W124C Right Side View

Step 3. Put the CO-100/P2302 module onto the rack's back side.

There are two methods for fastening the CO-100/P2302 module onto the cabinet to complete the flat mount. One is to fix the CO-100/P2302 module from the front side of the cabinet, which is illustrated in chapter 3.13.2.1. The other one is to fix the CO-100/P2302 module from the rear side of the cabinet, which is illustrated in chapter 3.13.2.2.

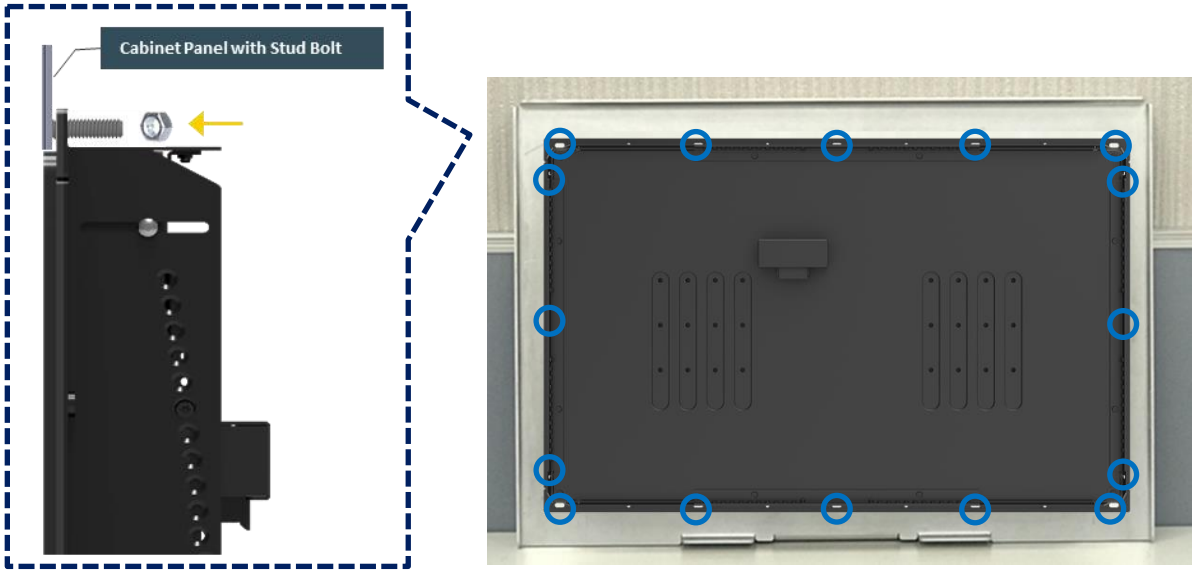
3.13.2.1 Fixing from front side

Step 4. Fasten the screws from the cabinet's front side. Please prepare 12 pcs of M4 screws for fixing the module through the circle holes (with screw thread).

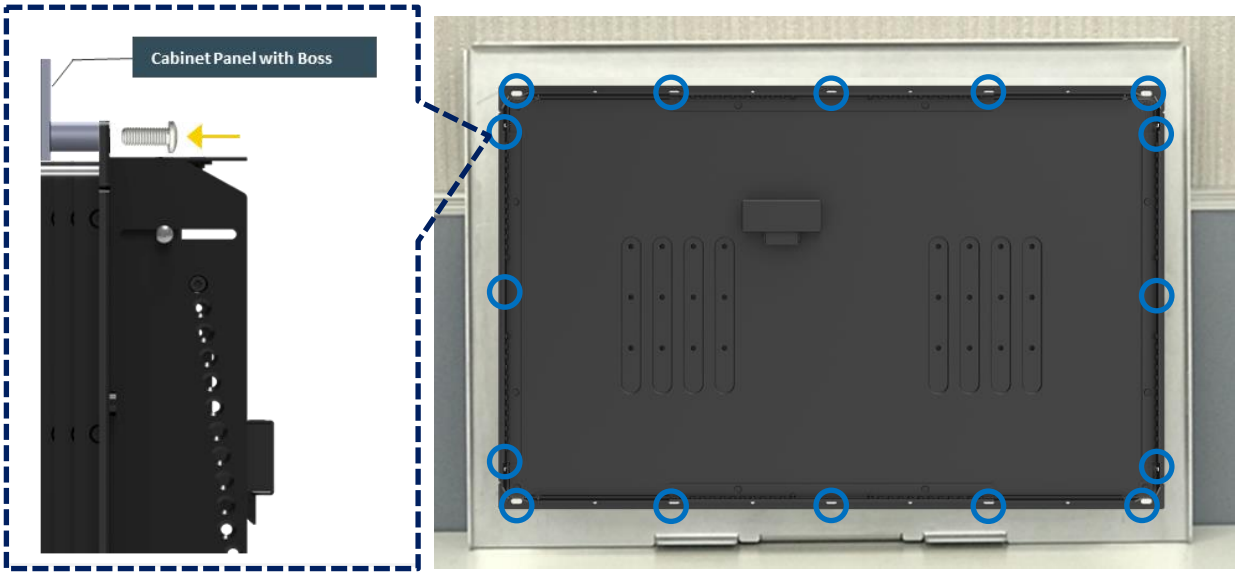


3.13.2.2 Fixing from rear side

Step4. If the cabinet panel is with stud bolts as the following figure, user can prepare 16 pcs of nuts for fixing the module through the **oblong holes** (oblong hole size: 9mmx4mm, without screw thread)



If the cabinet panel is with bosses as the following figures, user can prepare 16 pcs of M4 screws for fixing the module through the **oblong holes** (oblong hole size: 9mmx 4mm, without screw thread).



3.14 Installing Flat Mount

3.14.1 CO-119C and CO-W121C

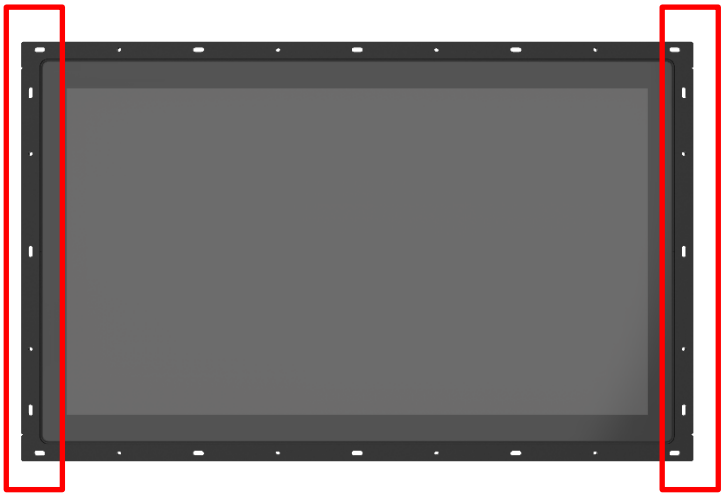
The CO-100 series currently features two types of Mounting Bracket designs. For example, the Mounting Bracket designs of CO-W121C and CO-119C as illustrated below.

CO-W121C

CO-119C

CO-119C is essentially identical to CO-W121C in terms of installation, with the only difference being the design of the Mounting Bracket. The following steps will demonstrate the installation using CO-W121C as an example.

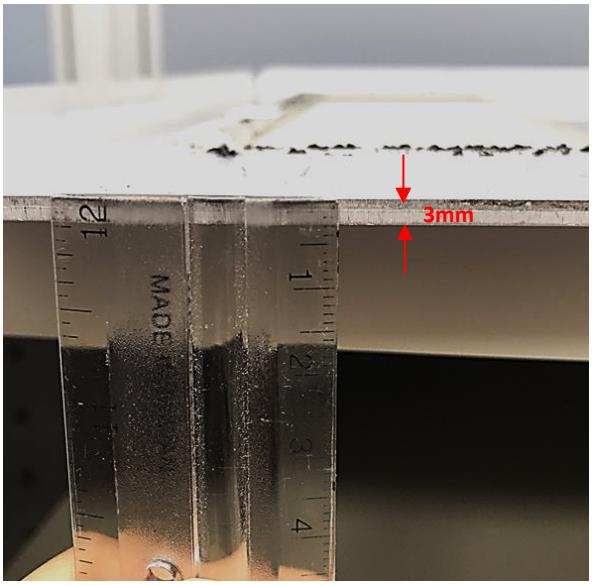
Step 1. Locate the left and right-side mounting brackets.



Step 2. Remove the two screws on the left and right-side mounting brackets.

Step 3. Loosen the three screws on the left and right-side mounting brackets.

Step 4. Measure the rack thickness. The thickness is measured 3mm in this example.



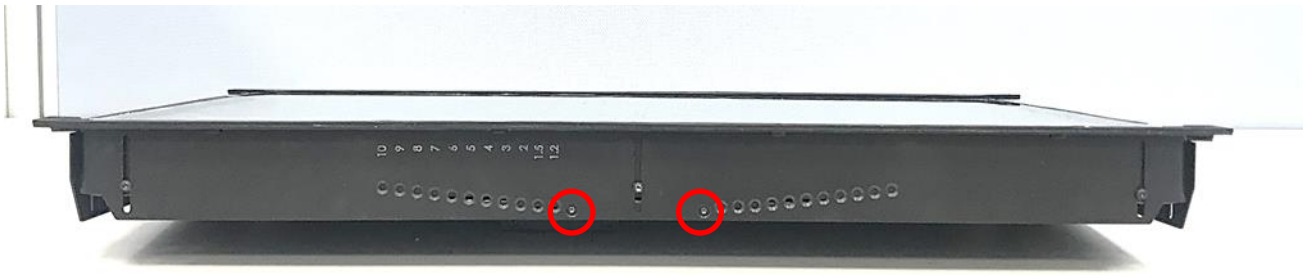
Step 5. According to the thickness = 3mm for the example, push down the left and right-side mounting brackets to the place at screw hole = 3mm.

Step 6. Fasten the two screws on the left and right-side mounting brackets.

Step 7. Fasten the three screws on the left and right-side mounting brackets.

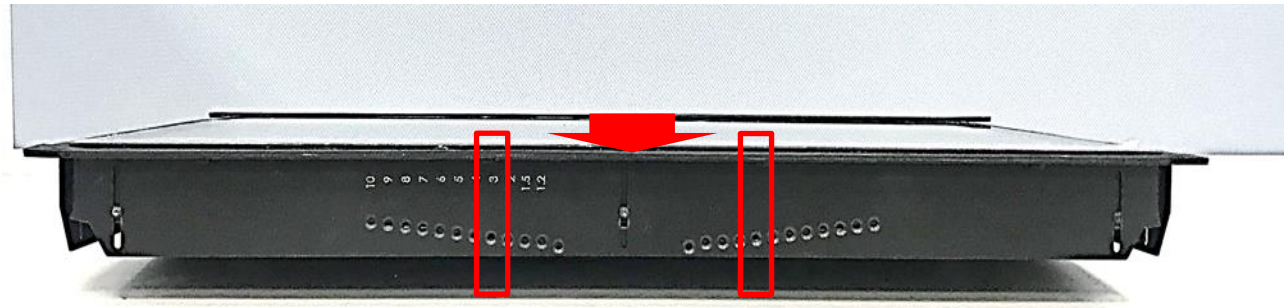
Step 8. Locate the top and bottom-side mounting brackets.

Step 9. Remove the two screws on the top and bottom-side mounting brackets.



Step 10. Loosen the three screws on the top and bottom-side mounting brackets.

Step 11. According to the thickness = 3mm for the example, push down the top and bottom-side mounting brackets to the place at screw hole = 3mm.



Step 12. Fasten the two screws on the top and bottom-side mounting brackets.

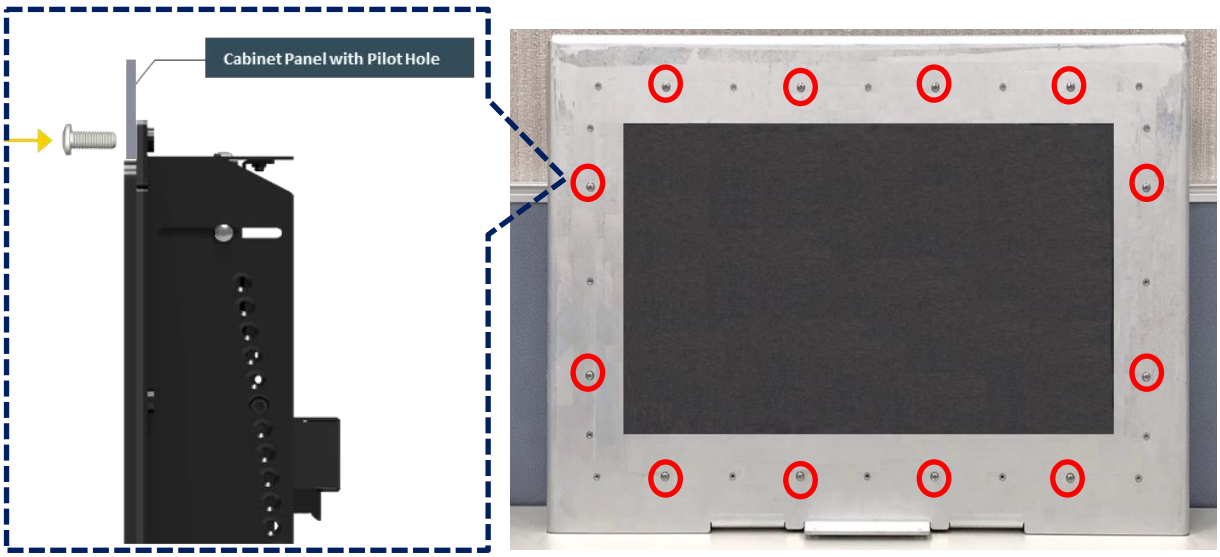
Step 13. Fasten the three screws on the top and bottom-side mounting brackets.

Step 14. Put the CO-100/P2302 module onto the rack back side.

There are two methods for fastening the CO-100/P2302 module onto the cabinet to complete the flat mount. One is to fix the CO-100/P2302 module from the front side of the cabinet, which is illustrated in chapter 3.14.1.1 The other one is to fix the CO-100/P2302 module from the rear side of the cabinet, which is illustrated in chapter 3.14.1.2.

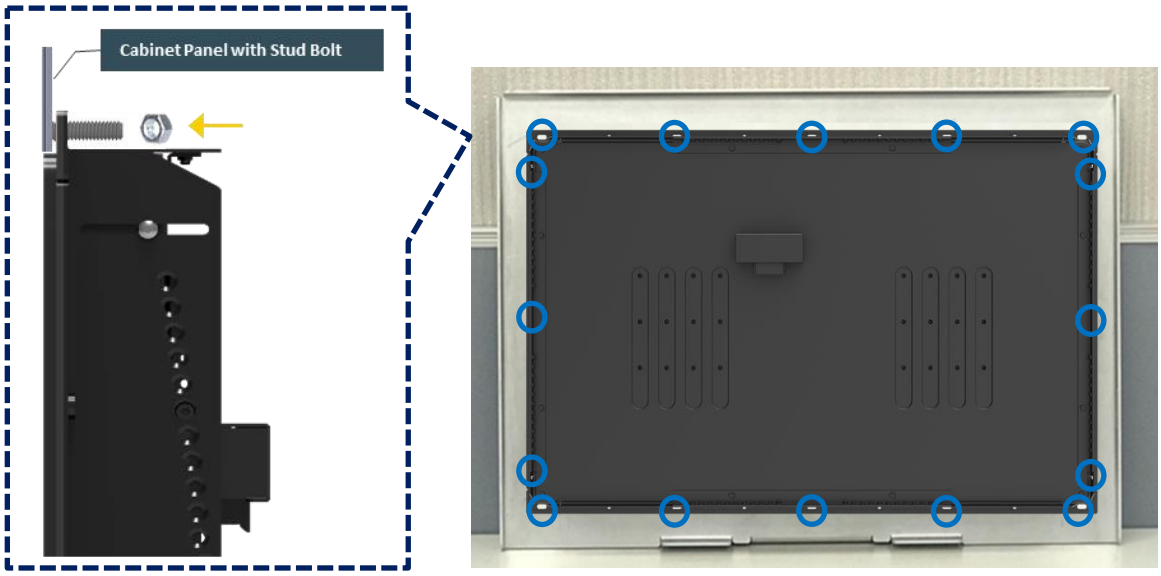
3.14.1.1 Fixing from front side

Step 15. Fasten the screws from the cabinet's front side. Please prepare 12 pcs of M4 screws for fixing the module through the circle holes (with screw thread).

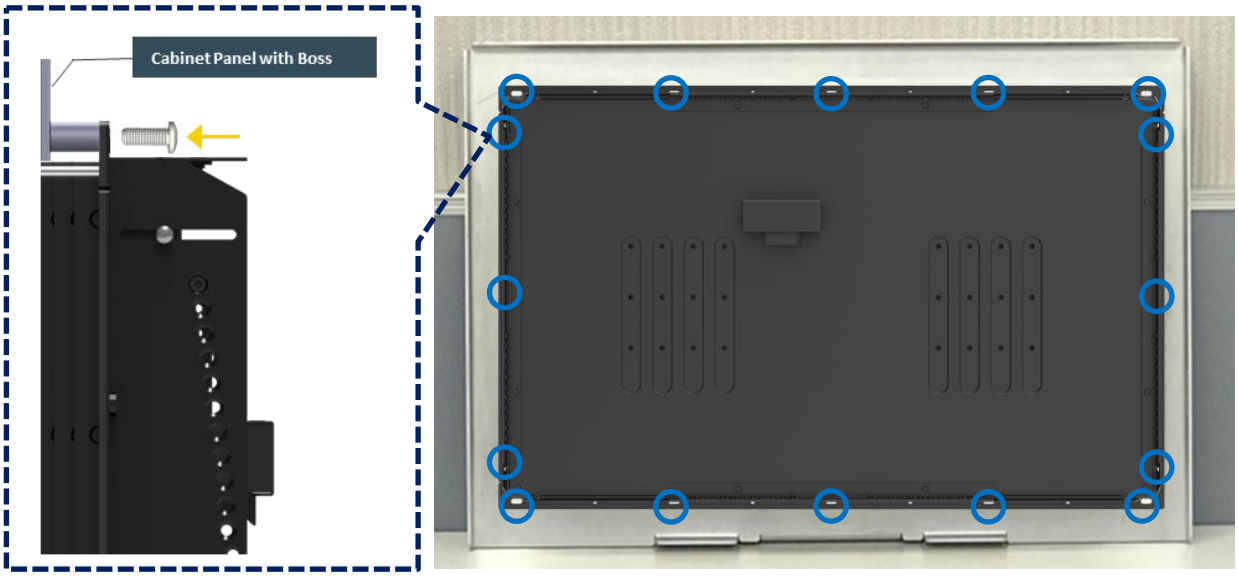


3.14.1.2 Fixing from rear side

Step 15. If the cabinet panel is with stud bolts as the following figure, user can prepare 16 pcs of nuts for fixing the module through the **oblong holes** (oblong hole size: 9mmx4mm, without screw thread)



If the cabinet panel is with bosses as the following figures, user can prepare 16 pcs of M4 screws for fixing the module through the **oblong holes** (oblong hole size: 9mmx 4mm, without screw thread).



3.14.2 CO-W124C

The CO-100 series includes various mounting bracket designs, and this section demonstrates the CO-W124C installation process.

Step 1. Loosen the screws marked with blue circles on all four sides of the module (Top, Bottom, Left, Right). Then, remove the positioning screws marked with red circles, as shown in the four

images below.

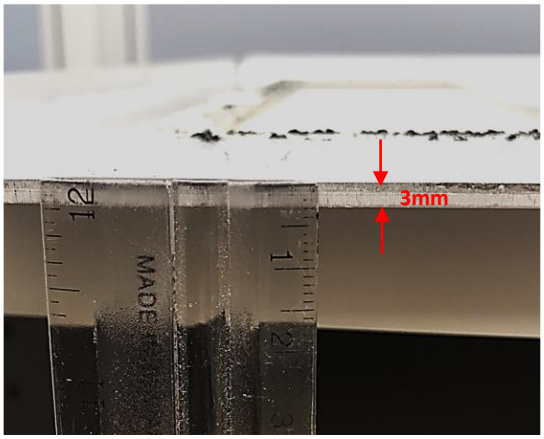
CO-W124C Top Side View

CO-W124C Bottom Side View

CO-W124C Left Side View

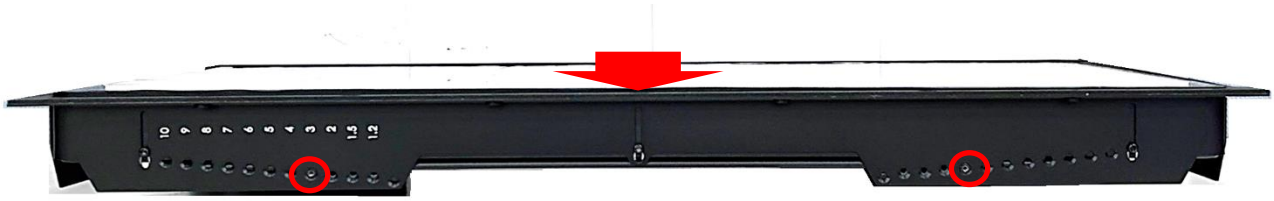
CO-W124C Right Side View

Step 2. Measure the cabinet or rack thickness. The thickness is measured 3mm in this example.



Step 3. Locate the top and bottom-side mounting brackets.

Step 4. According to the thickness = 3mm for the example, push down the top and bottom-side mounting brackets to the place at screw hole = 3mm; and then fasten back the two positioning screws on the top and bottom-side mounting brackets.



CO-W124C Top Side View

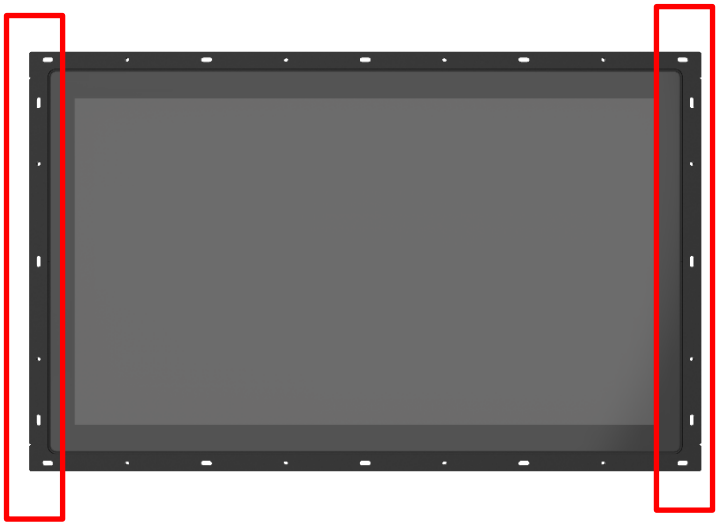
CO-W124C Bottom Side View

Step 5. Fasten the three screws on the top and bottom-side mounting brackets.

CO-W124C Top Side View

CO-W124C Bottom Side View

Step 6. Locate the left and right-side mounting brackets.



Step 7. According to the thickness = 3mm for the example, push down the left and right-side mounting brackets to the place at screw hole = 3mm; and then fasten back the one positioning screw on the left and right-side mounting brackets.

CO-W124C Left Side View

CO-W124C Right Side View

Step 8. Lift up the left and right-side mounting brackets with aligning the top and bottom-side mounting brackets, then fasten the three screws by the indicated sequence 1, 2, 3 on each side.

CO-W124C Left Side View

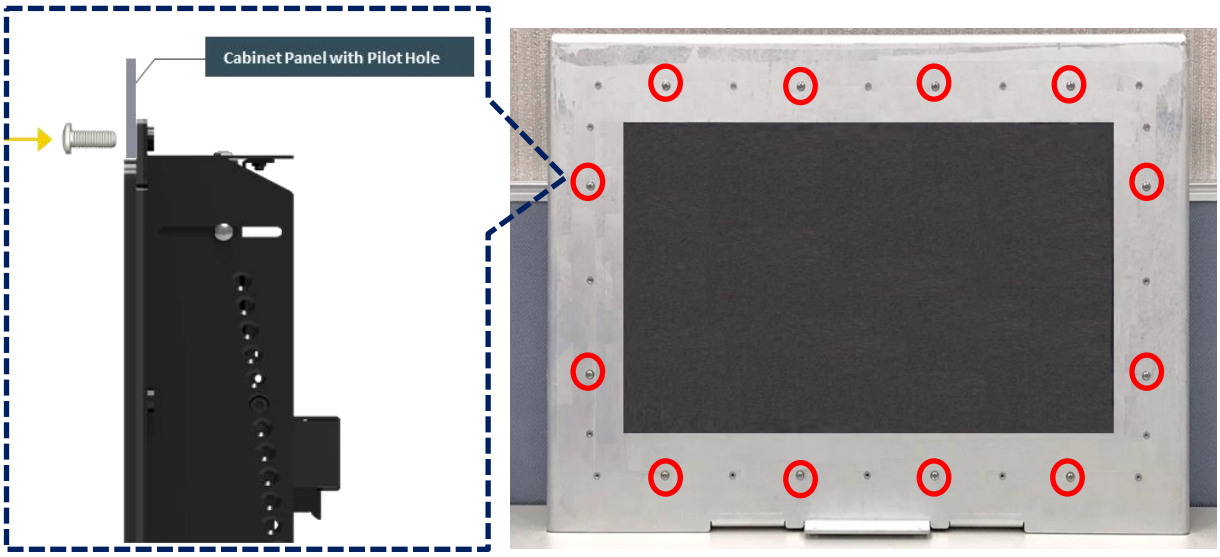
CO-W124C Right Side View

Step 9. Put the CO-100/P2302 module onto the rack back side.

There are two methods for fastening the CO-100/P2302 module onto the cabinet to complete the flat mount. One is to fix the CO-100/P2302 module from the front side of the cabinet, which is illustrated in chapter 3.14.2.1. The other one is to fix the CO-100/P2302 module from the rear side of the cabinet, which is illustrated in chapter 3.14.2.2.

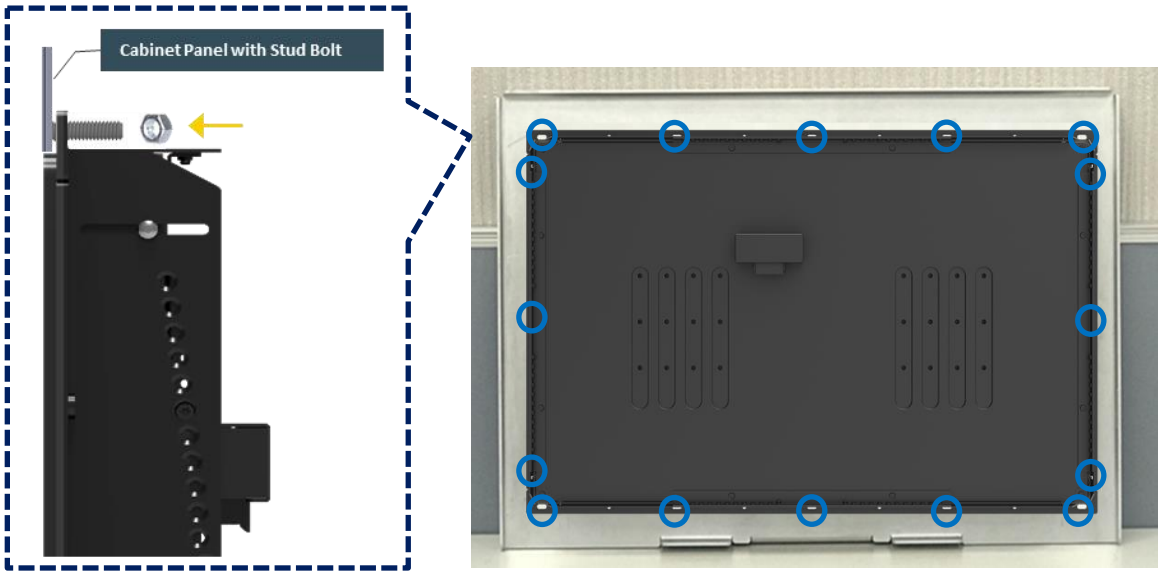
3.14.2.1 Fixing from front side

Step 10. Fasten the screws from the cabinet's front side. Please prepare 12 pcs of M4 screws for fixing the module through the circle holes (with screw thread).

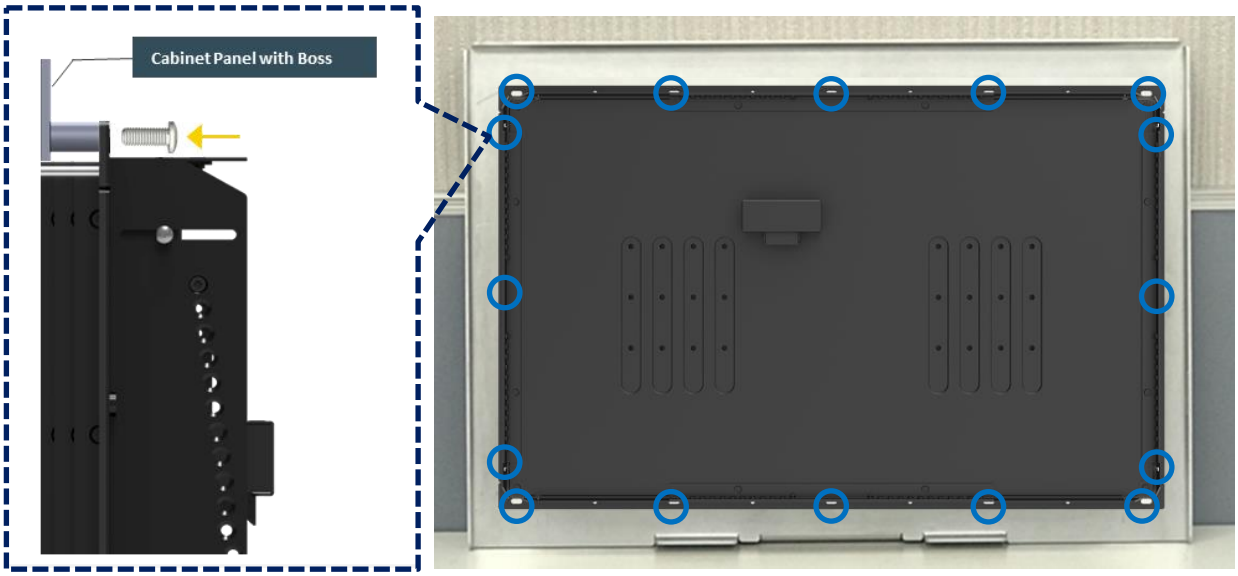


3.14.2.2 Fixing from rear side

Step 10. If the cabinet panel is with stud bolts as the following figure, user can prepare 16 pcs of nuts for fixing the module through the **oblong holes** (oblong hole size: 9mmx4mm, without screw thread)



If the cabinet panel is with bosses as the following figures, user can prepare 16 pcs of M4 screws for fixing the module through the **oblong holes** (oblong hole size: 9mmx 4mm, without screw thread).



3.15 Disassemble the mounting brackets

3.15.1 CO-119C and CO-W121C

The CO-100 series currently features two types of Mounting Bracket designs. For example, the Mounting Bracket designs of CO-W121C and CO-119C as illustrated below.

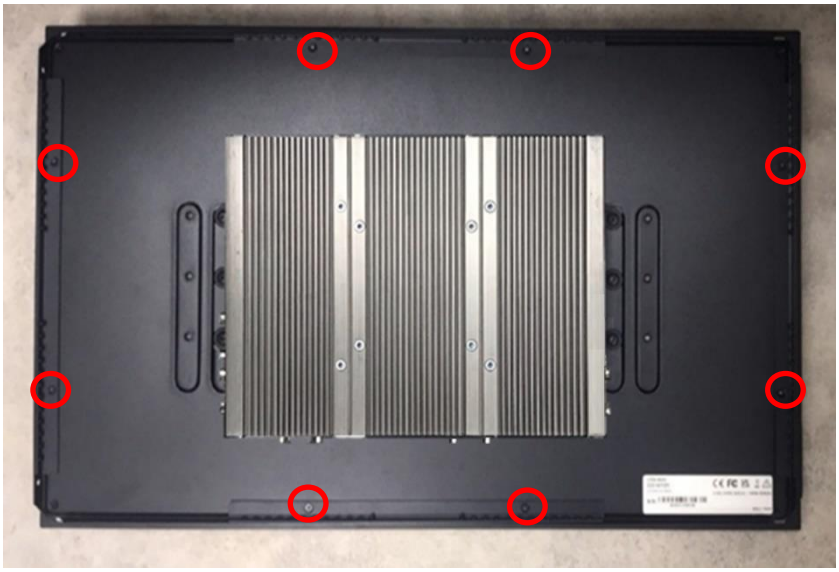
CO-W121C

CO-119C

CO-119C is essentially identical to CO-W121C in terms of installation, with the only difference being the design of the Mounting Bracket. The following steps will demonstrate the installation using CO-W121C as an example.

Before the installation of VESA mount and rack mount, user need to disassemble the mounting brackets on the CO display module first.

Step 1. Remove the 8 screws.



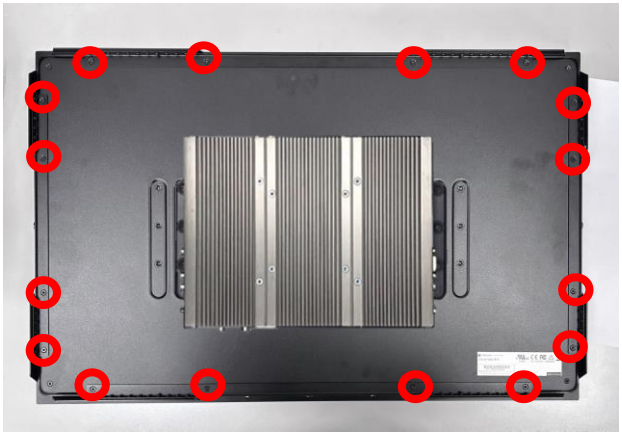
Step 2. Remove the 3 screws on the left and right side of mounting brackets.

Step 3. Remove the 3 screws on the top and bottom side of mounting brackets.

Step 4. Remove the four mounting brackets.

3.15.2 CO-W124C

Step 1. Remove the 16 screws.



Step 2. Remove the 3 screws on the left and right side of mounting brackets.

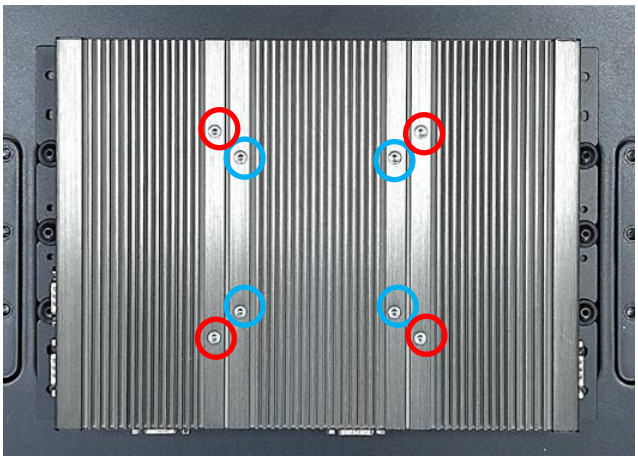
Step 3. Remove the 3 screws on the top and bottom side of mounting brackets.

Step 4. Remove the four mounting brackets.

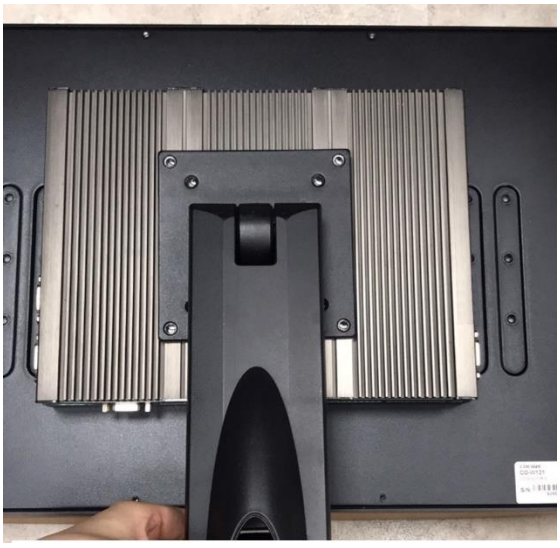
3.16 Installing VESA Mount

Before the installation of VESA mount, user need to follow the chapter 3.15 to disassemble the mounting brackets on the CO display module first.

This series supports VESA mounting that customer can mount system with panel complying with VESA 75mm and 100 mm standard for various usage. The 75mm VESA uses blue-circle-marked screw holes. The 100mm VESA uses red-circle-marked screw holes.



Step 1. The following picture uses a panel PC (P2302+ Display Module) as a demonstration. Align the VESA stand with the screw holes on the system, then secure it in place by tightening the corresponding number of screws as shown below. (Please note the VESA mounting holes deep 3 mm at the back of the terminal are provided with M4-type blind fasteners to fix the VESA mounting plate. Please select a suitable screw length (L) based on the on-site application.) After completing this step, the VESA mount installation for the system is complete.

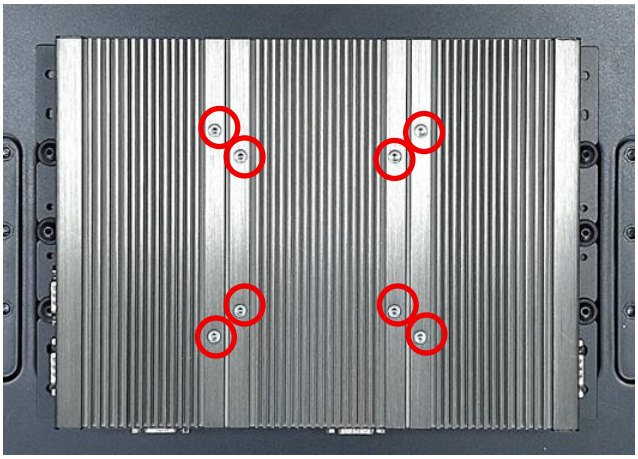


Step 2. Fasten the VESA mount screws to complete the VESA mounting.

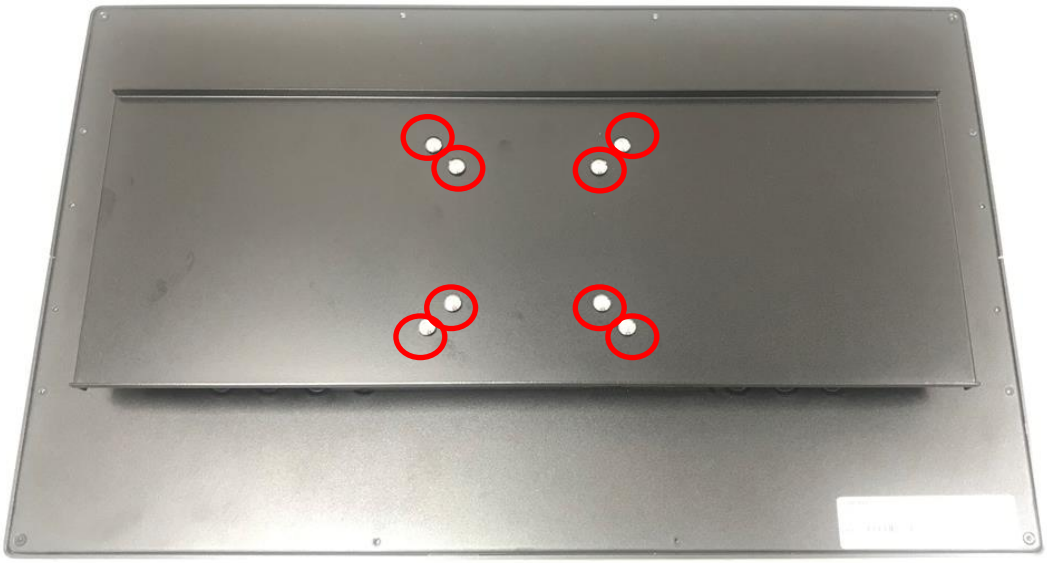
3.17 Installing Rack Mount

Before the installation of rack mount, user need to follow the chapter 3.15 to disassemble the mounting brackets on the CO display module first.

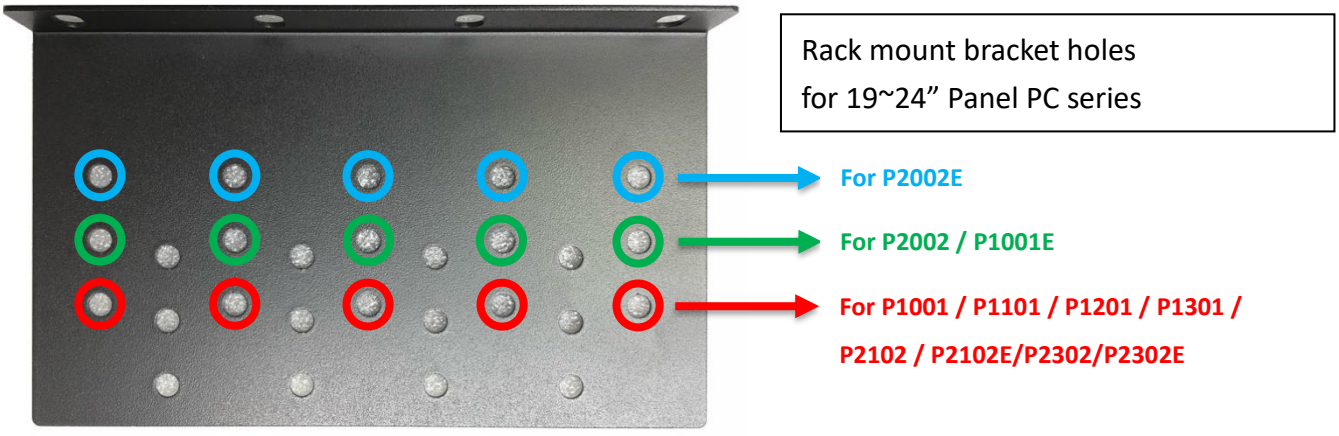
Step 1. Locate the screw holes on the PC or monitor module.



Step 2. Put on the rack mount base and fasten the screws.



Step 3. Assemble two rack mount brackets by fastening 4 screws (M5x6) at each side.



Left Right Bottom

Step 4. Assemble two rack mount brackets by fastening 4 screws (M5x12), flat washers and hex nuts at each side.

Chapter 4
BIOS Setup

4.1 BIOS Introduction

The BIOS (Basic Input/ Output System) is a program located on a Flash Memory on the motherboard. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self-test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization.

BIOS Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing <Ctrl>, <Alt> and <Delete> keys.

Control Keys	
<←> <→>	Move to select screen
<↑> <↓>	Move to select item
<Esc>	Quit the BIOS Setup
<Enter>	Select item
<Page Up/+>	Increases the numeric value or makes changes
<Page Down/->	Decreases the numeric value or makes changes
<Tab>	Select setup fields
<F1>	General help
<F2>	Previous value
<F3>	Load Optimized defaults
<F10>	Save configuration and Exit

Main Menu

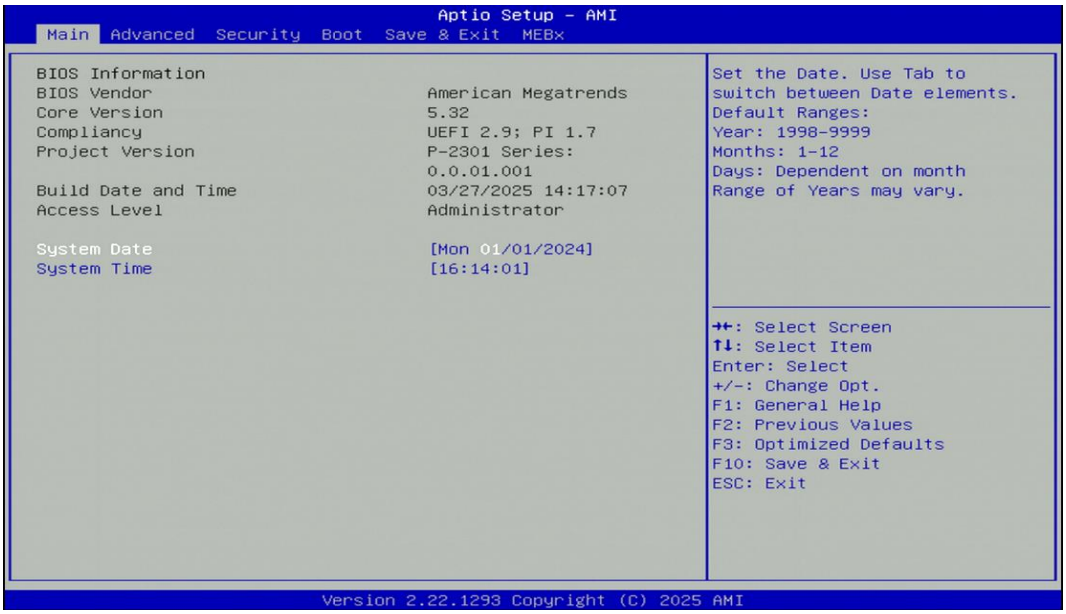
The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

4.2 Main Setup

Press <Del> to enter BIOS CMOS Setup Utility, the Main Menu (as shown below) will appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter a sub-menu.



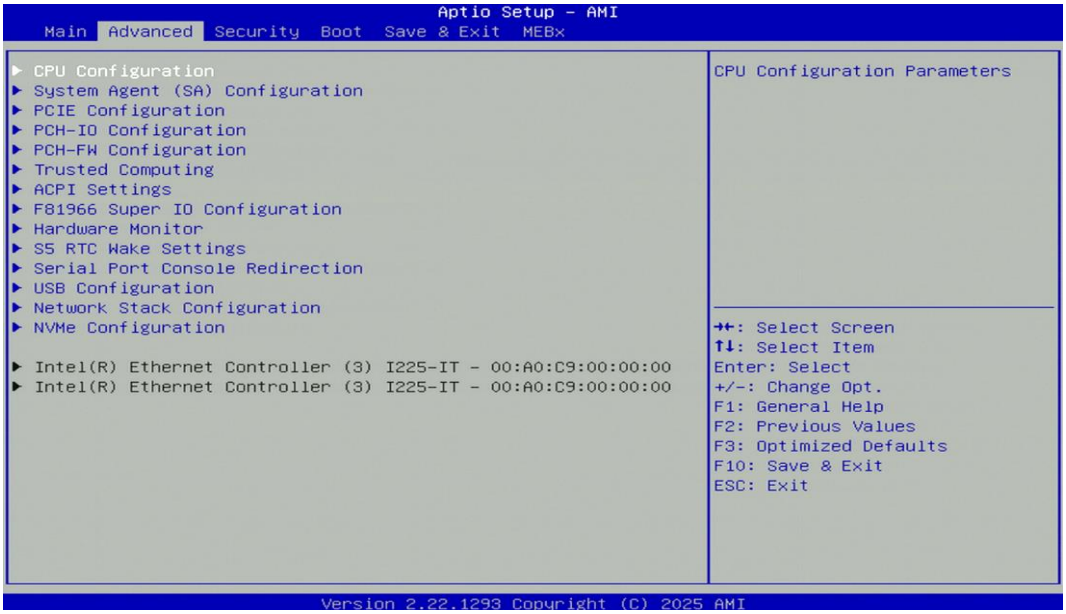
4.2.1 System Date

Set the date. Please use <Tab> to switch between date elements.

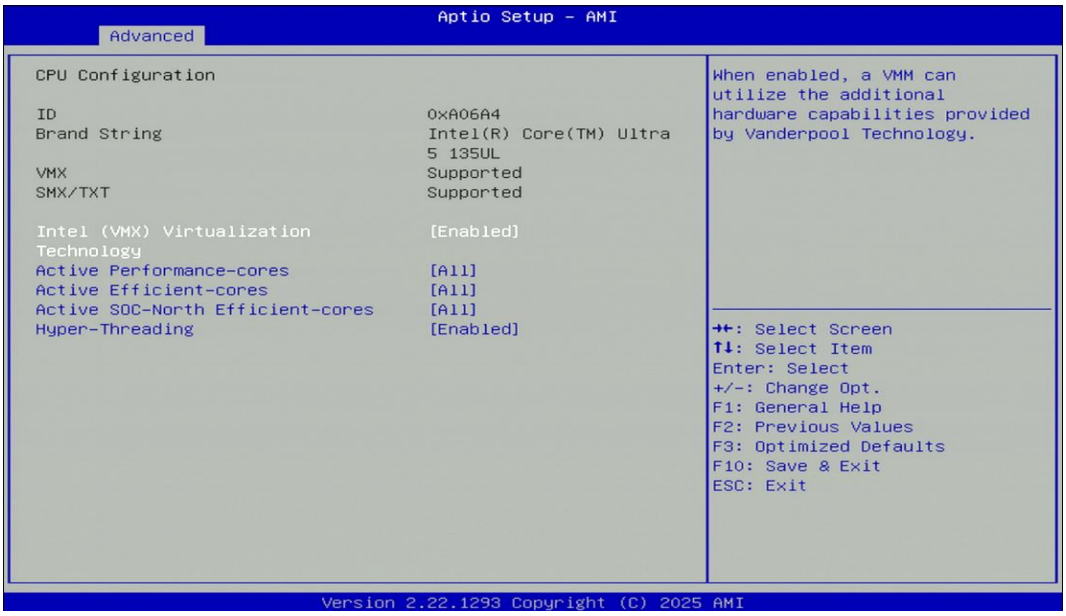
4.2.2 System Time

Set the time. Please use <Tab> to switch between time elements.

4.3 Advanced Setup



4.3.1 CPU Configuration



- **Intel® (VMX) Virtualization Technology [Enabled]**

  Enables or disables Intel® Virtualization Technology. Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems.

- **Active Performance-cores [All]**

  Allows you to choose the number of active performance cores.

  Configuration options: [All] [1]

- **Active Efficient-cores [All]**

  Allows you to choose the number of active efficient cores.

  Configuration options: [All] [7] [6] [5] [4] [3] [2] [1] [0]

- **Active SOC-North Efficient-cores [All]**

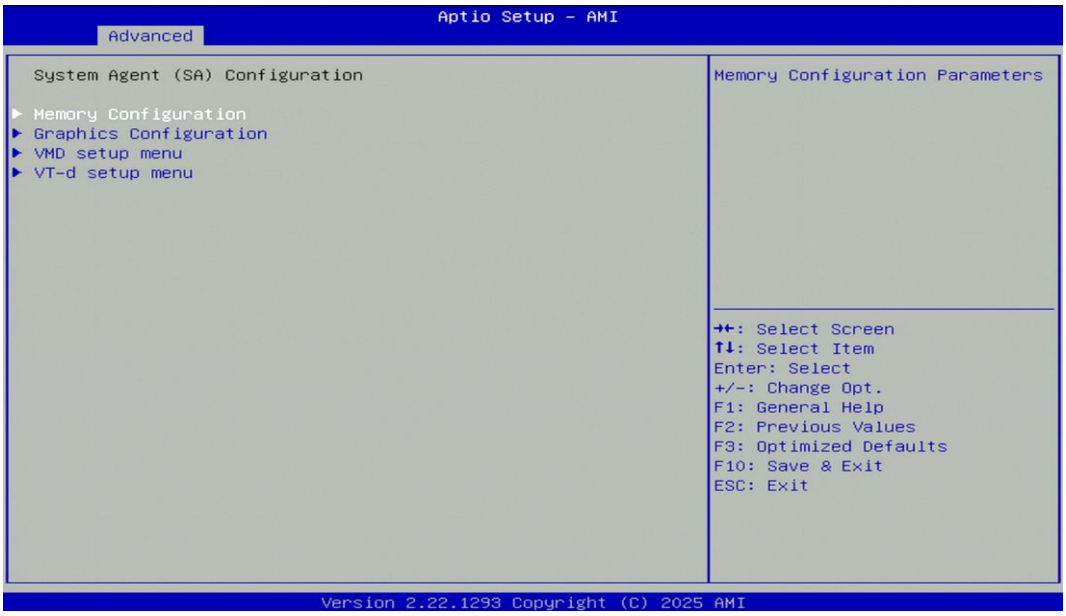
  Allows you to choose the number of active SOC-North Efficient-cores.

  Configuration options: [All] [1] [0]

- **Hyper-Threading [Enabled]**

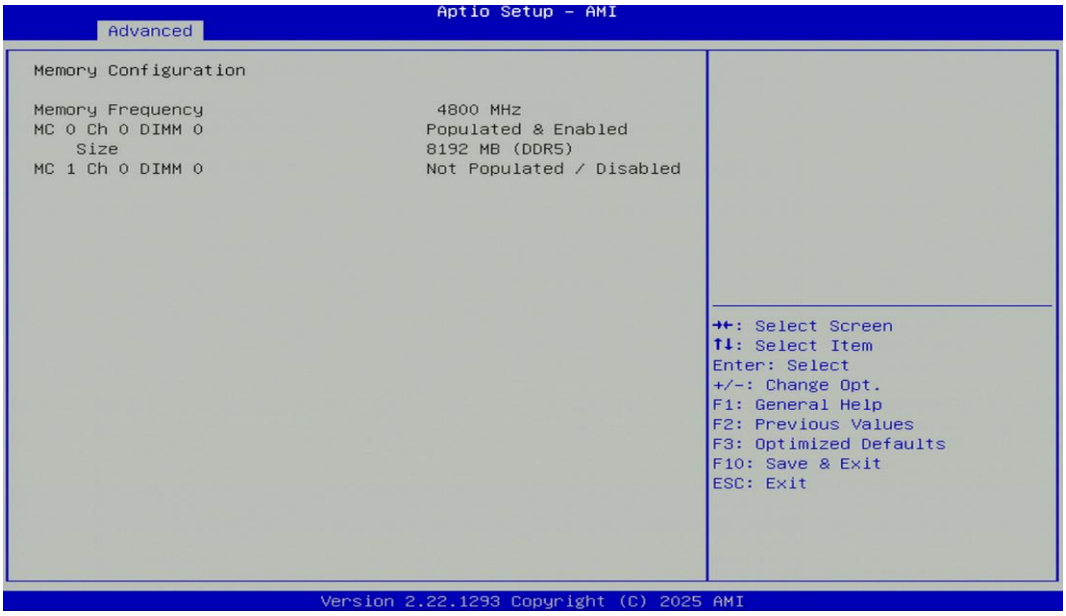
  Allows you to enable or disable Intel® Hyper-Threading function of processor.

4.3.2 System Agent (SA) Configuration

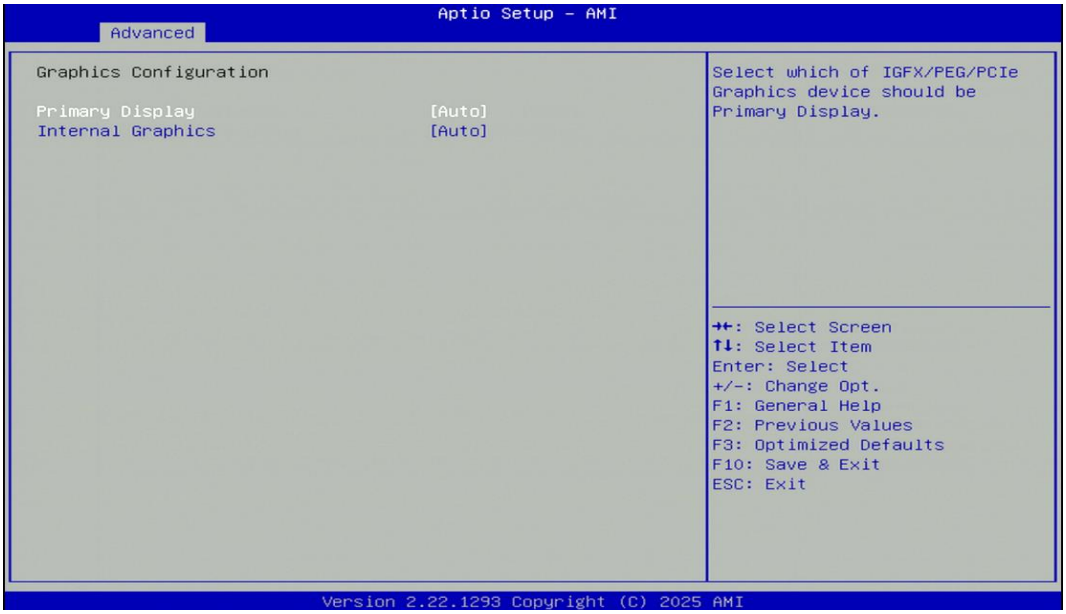


❑ **Memory Configuration**

This item displays detailed memory information in the system.



❑ Graphics Configuration



- **Primary Display [Auto]**

  Allows users to select which graphics device should be primary display or select SG for switchable graphics. Configuration options: [Auto] [IGFX]

- **Internal Graphics [Auto]**

  This item allows users to enable or disable Internal Graphics. When set to [Auto], it will detect by BIOS. Configuration options: [Auto] [Disabled] [Enabled]

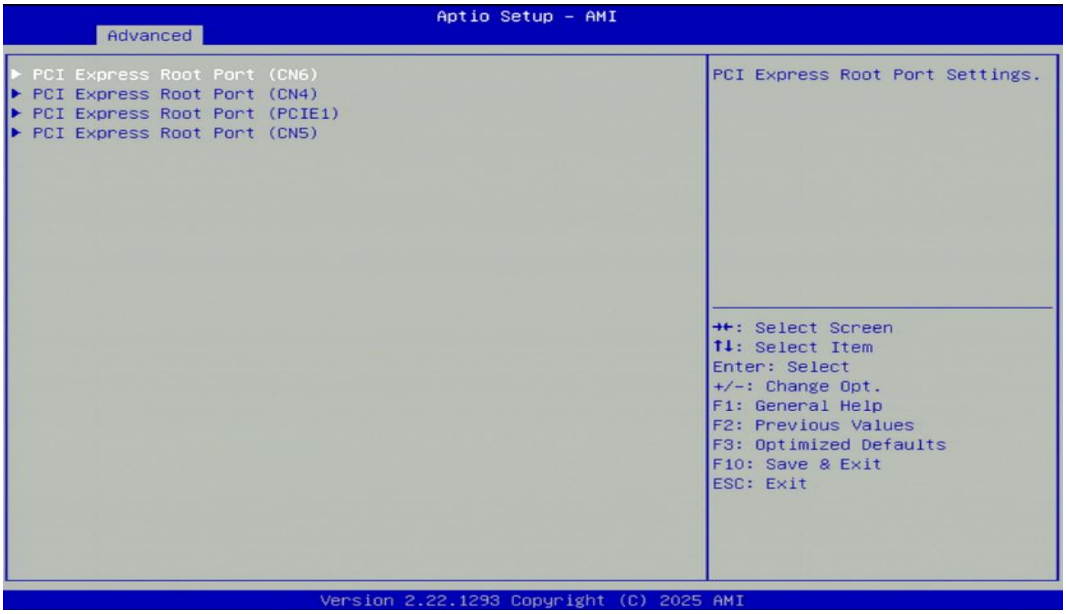
❑ VMD Setup Menu

- **Enable VMD controller [Disabled]**

  This item allows users to enable or disable VMD controller. Enable this function can support creating RAID.

❑ VT-d Configuration

❑ PCIE Configuration



❑ PCI Express Root Port CN6

- **PCI Express Root Port [Enabled]**

  Allows you to enable or disable the PCI Express Port.

- **PCIe Speed [Auto]**

  Allows you to select PCI Express interface speed.

  Configuration options: [Auto] [Gen1] [Gen2] [Gen3] [Gen4].

❑ PCI Express Root Port CN4

- **PCI Express Root Port [Enabled]**

  Allows you to enable or disable the PCI Express Port.

- **PCIe Speed [Auto]**

  Allows you to select PCI Express interface speed.

  Configuration options: [Auto] [Gen1] [Gen2] [Gen3] [Gen4].

❑ **PCI Express Root Port PCIE1**

■ **PCI Express Root Port [Enabled]**

Allows you to enable or disable the PCI Express Port.

■ **PCIe Speed [Auto]**

Allows you to select PCI Express interface speed.

Configuration options: [Auto] [Gen1] [Gen2] [Gen3].

❑ **PCI Express Root Port CN5**

■ **PCI Express Root Port [Enabled]**

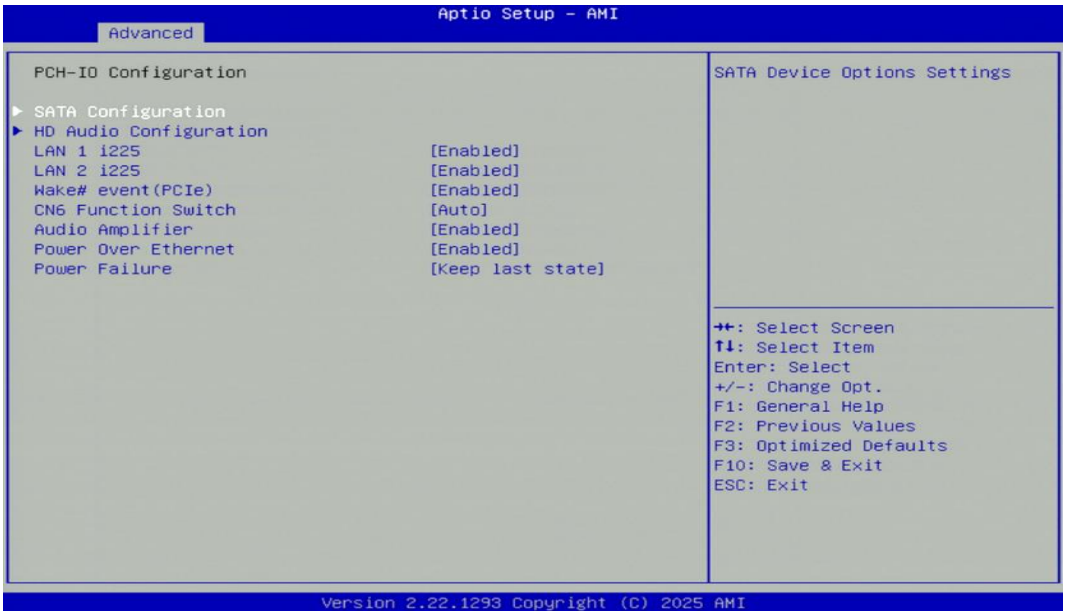
Allows you to enable or disable the PCI Express Port.

■ **PCIe Speed [Auto]**

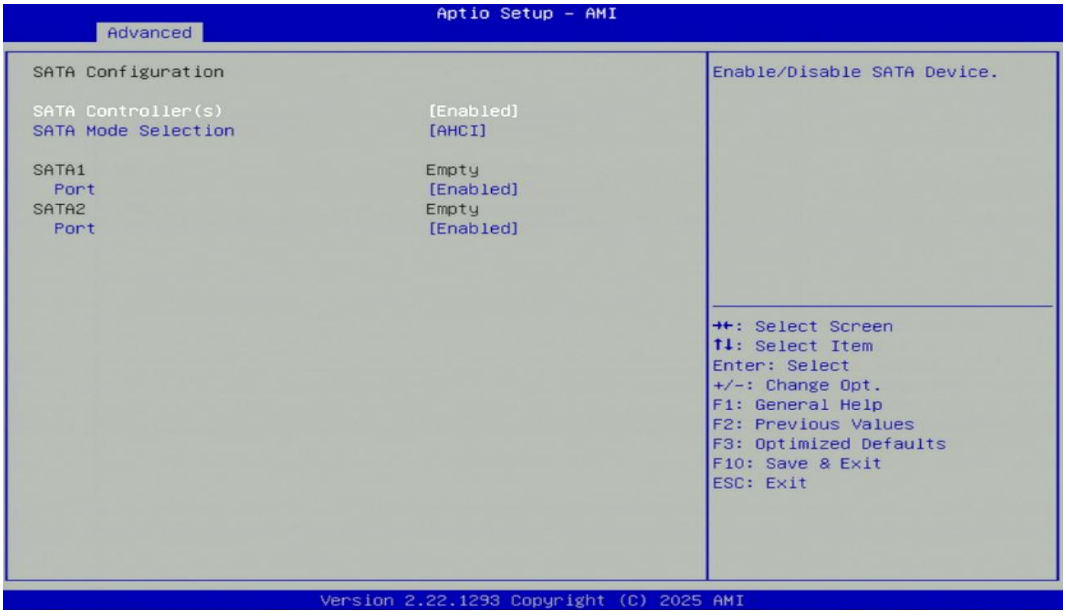
Allows you to select PCI Express interface speed.

Configuration options: [Auto] [Gen1] [Gen2] [Gen3] [Gen4].

4.3.3 PCH-IO Configuration



❑ **SATA Configuration**



- **SATA Controller(s) [Enabled]**

  Enables or disables Serial ATA controller.

- **SATA Mode [AHCI]**

  This item allows users to choose [AHCI] mode.

- **Serial ATA Port 1**

  Port [Enabled]

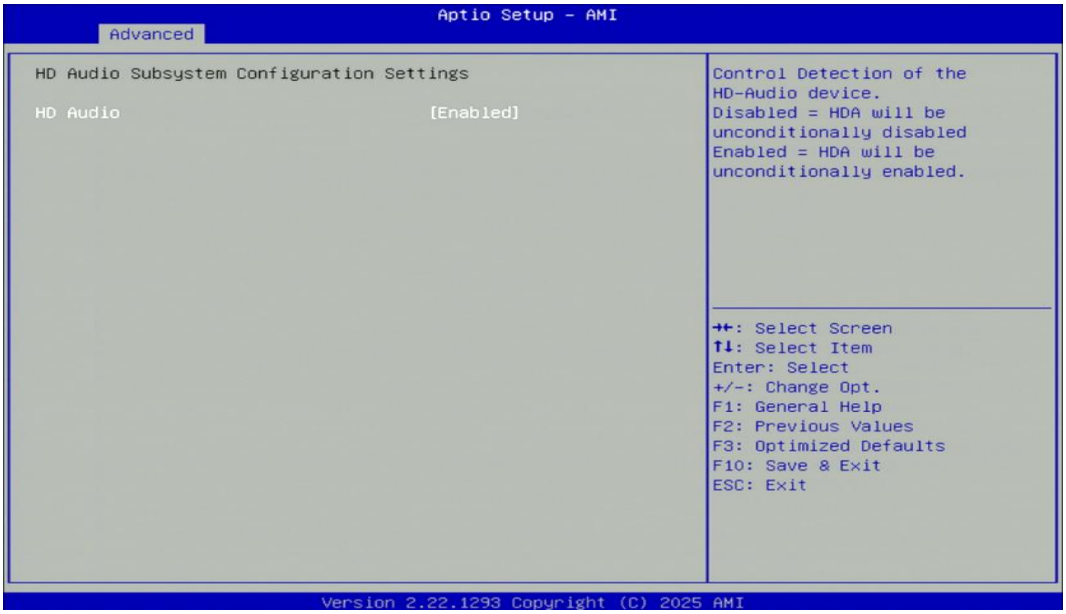
  Enables or disables SATA Port 1.

- **Serial ATA Port 2**

  Port [Enabled]

  Enables or disables SATA Port 2.

❑ **HD Audio Configuration**



- **HD Audio [Enabled]**

  Allows you to select HD Audio options.

  [Enabled]: HD Audio device is unconditionally enabled.

  [Disabled]: HD Audio device is unconditionally disabled.

- **LAN 1 i225 [Enabled]**

  Enables or disables i225 LAN Controller.

- **LAN 1 i225 [Enabled]**

  Enables or disables i225 LAN Controller.

- **Wake# event (PCIe) [Enabled]**

  Enables or disables Wake# event (PCIe).

- **CN6 Function Switch [Mini-PCIe]**

  Allows you to change Function as [Auto], [SSD-PCIe], [WWAN-PCIe], or [WWAN-USB3].

- **Audio Amplifier [Enabled]**

  Enable or disable Audio Amplifier.

- **Power Over Ethernet Function [Enabled]**

  Enable or disable Power Over Ethernet (POE) function.

■ **Power Failure [Keep last state]**

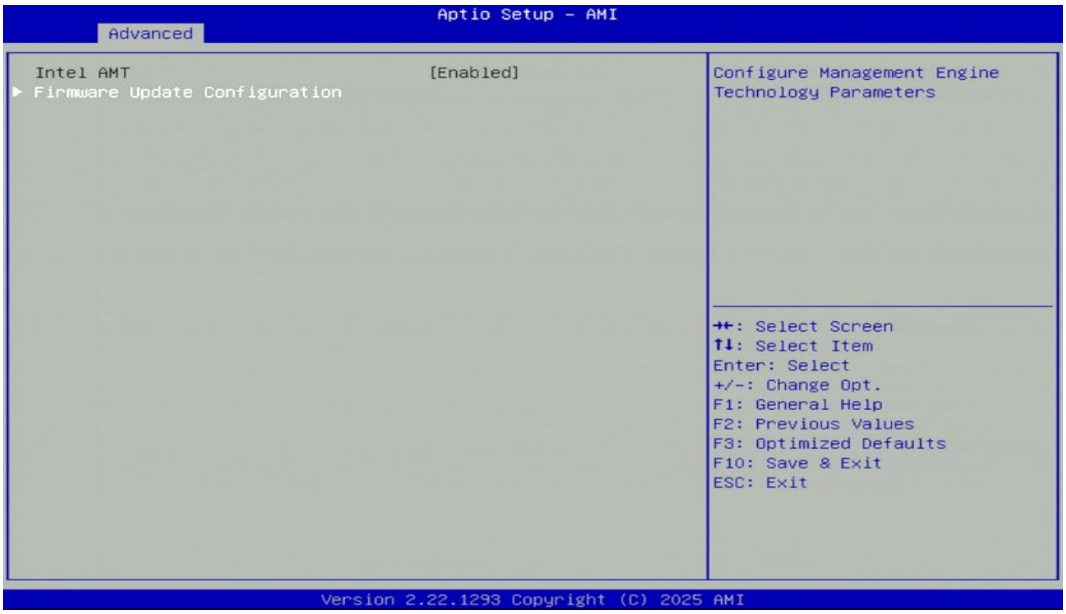
Allows you to specify which power state system will enter when power is resumed after a power failure (G3 state).

[Always on]: Enters to power on state.

[Always off]: Enters to power off state.

[Keep last state]: Enters to the last power state before a power failure.

4.3.4 PCH-FW Configuration

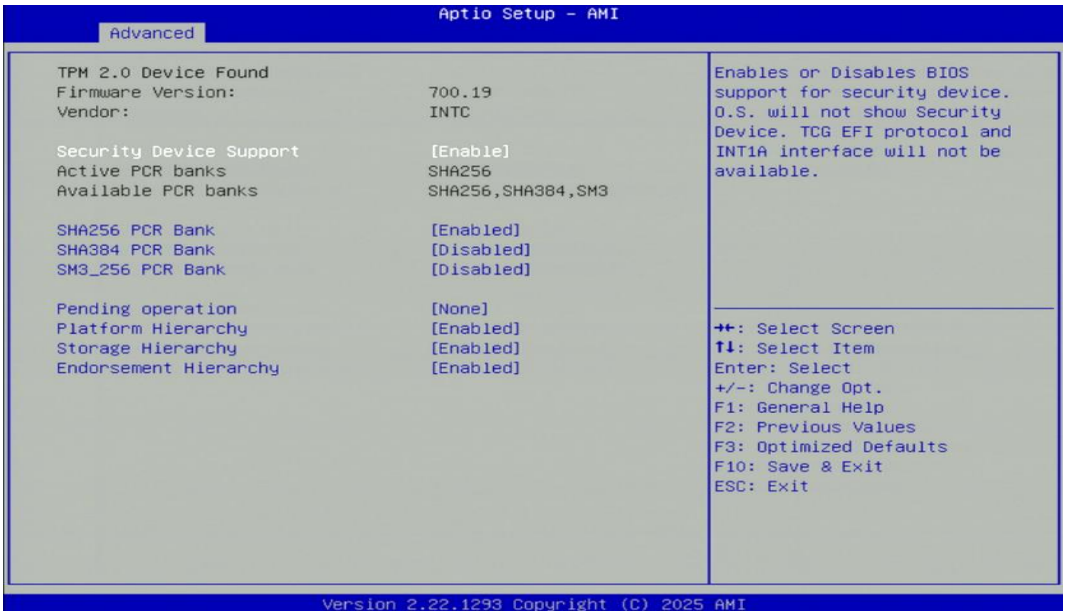


❑ **Firmware Update Configuration**

■ **ME FW Image Re-Flash [Disabled]**

Allows you to enable or disable ME firmware image re-flash function.

4.3.5 Trusted Computing



- **Security Device Support [Enable]**

  Allow you to enables or disables Security Device Support function.
- **SHA256 PCR Bank [Enabled]**

  Enables or disables SHA256 PCR Bank function.
- **SHA384 PCR Bank [Disabled]**

  Enables or disables SHA384 PCR Bank function.
- **SHA3_256 PCR Bank [Disabled]**

  Enables or disables SHA3_256 PCR Bank function.
- **Pending Operation [None]**

  Allows users to select which mode Pending Operation will operate.

  Configuration options: [None], [TPM Clear]
- **Platform Hierarchy [Enabled]**

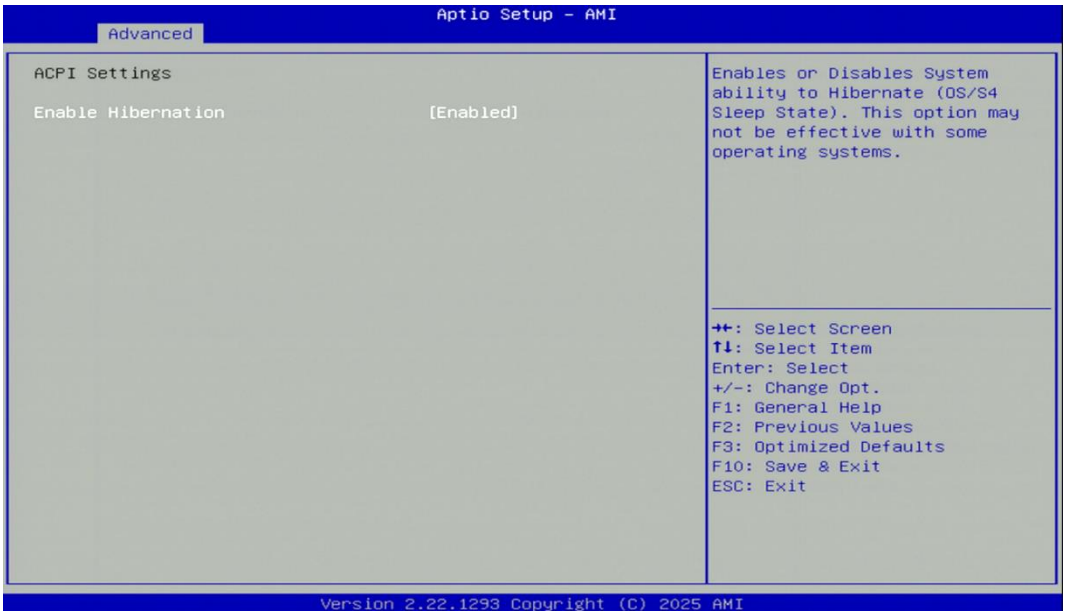
  Enables or disables Platform Hierarchy function.
- **Storage Hierarchy [Enabled]**

  Enables or disables Storage Hierarchy function.
- **Endorsement Hierarchy [Enabled]**

  Enables or disables Endorsement Hierarchy function.

4.3.6 ACPI Settings

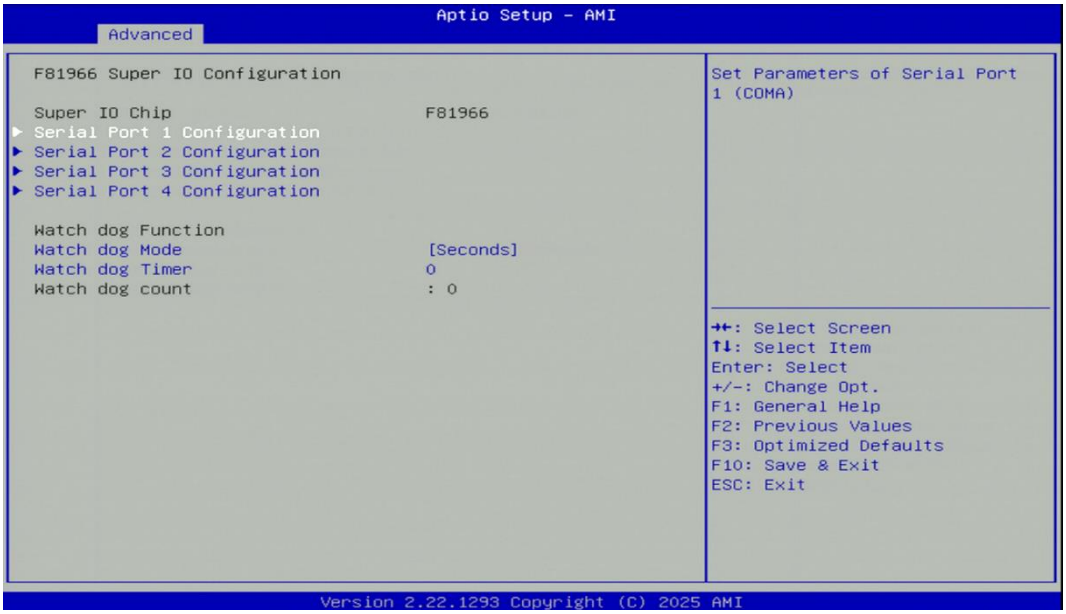
This item allows users to configure ACPI settings.



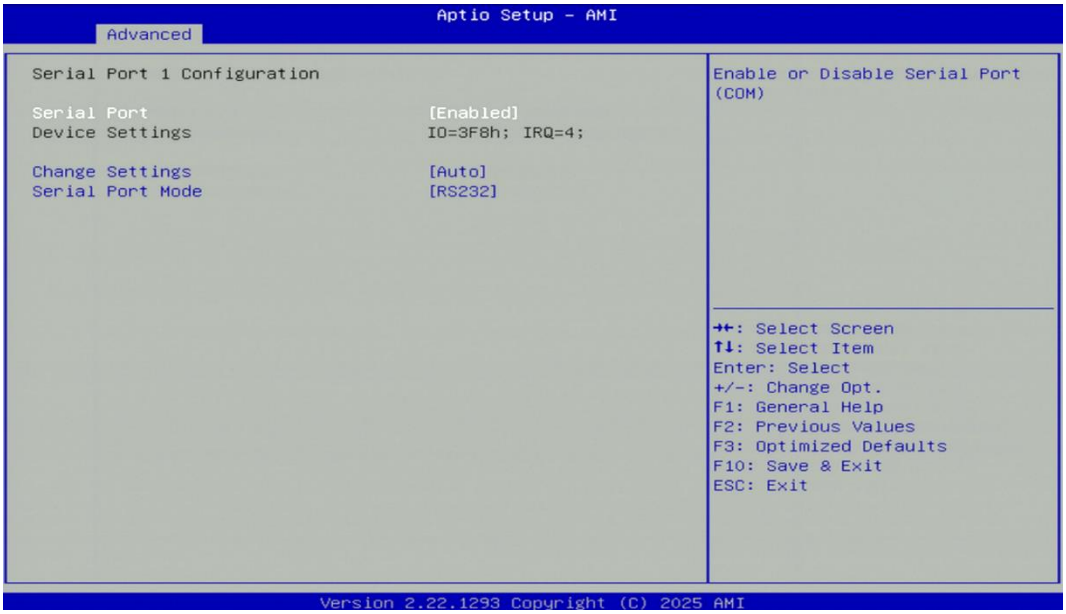
- **Enable ACPI Auto Configuration [Enabled]**
  Enables or disables BIOS Advanced Configuration Power Interface® (ACPI) auto configuration.

4.3.7 F81966 Super IO Configuration

The screen allows users to select options for the Super IO configuration, and change the value of the selected option.



❑ Serial Port 1~4 Configuration



- **Serial Port [Enabled]**

  This item allows users to enable or disable serial port.

- **Change Settings [Auto]**

  This item allows users to change the address & IRQ settings of the specified serial port.

- **Serial Port Mode [RS232]**

  This item allows users to select Serial Port Mode.

  Configuration options: [RS232] [RS422/RS485 Full Duplex] [RS485 Half Duplex]

- **Watch Dog [Disabled]**

  Enables or disables watch dog function.

- **Watch Dog Mode [Sec]**

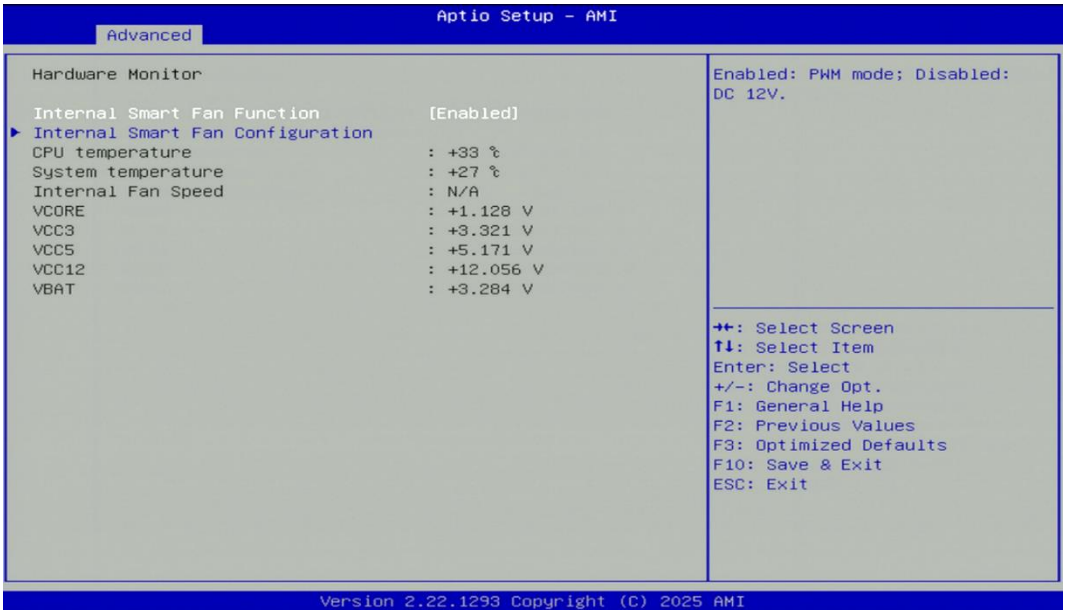
  Changes the Watch dog mode. Select [Sec] or [Min] mode.

- **Watch Dog Timer [0]**

  User can set a value in the range of 0 to 255.

4.3.8 Hardware Monitor

These items display the current status of all monitored hardware devices/ components such as voltages and temperatures.

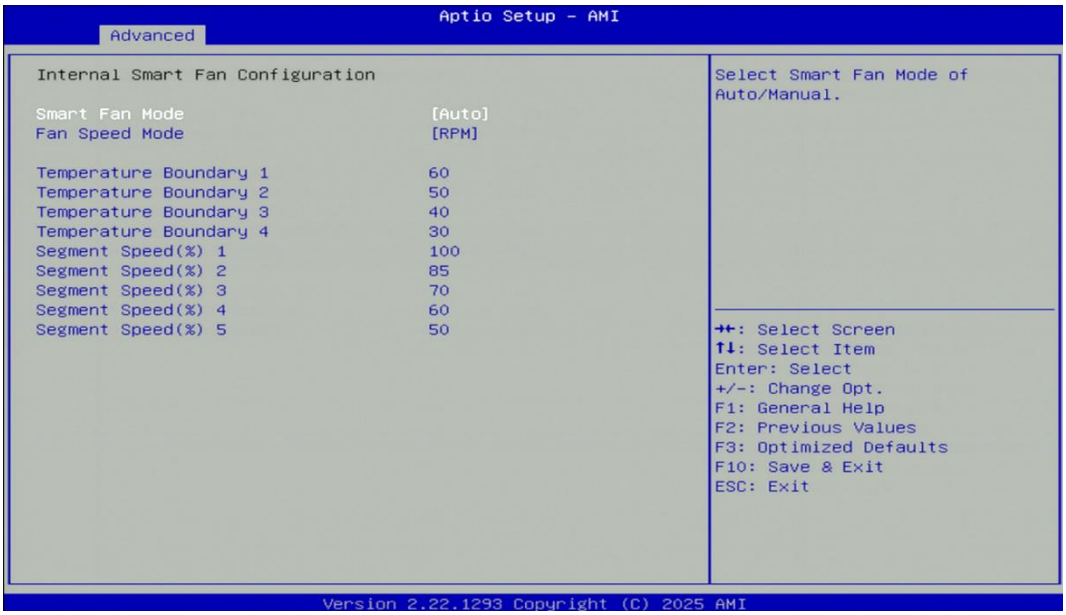


- **Internal Smart Fan Function [Enabled]**

  Enables or disables internal smart fan function. Please install the Riser Card (Model: RC-E4-02) and plug the power cord of the internal smart fan into the power socket on the Riser Card to effectively enable this function.

- **Internal Smart Fan Configuration**

Allows users to setting internal smart fan parameters.



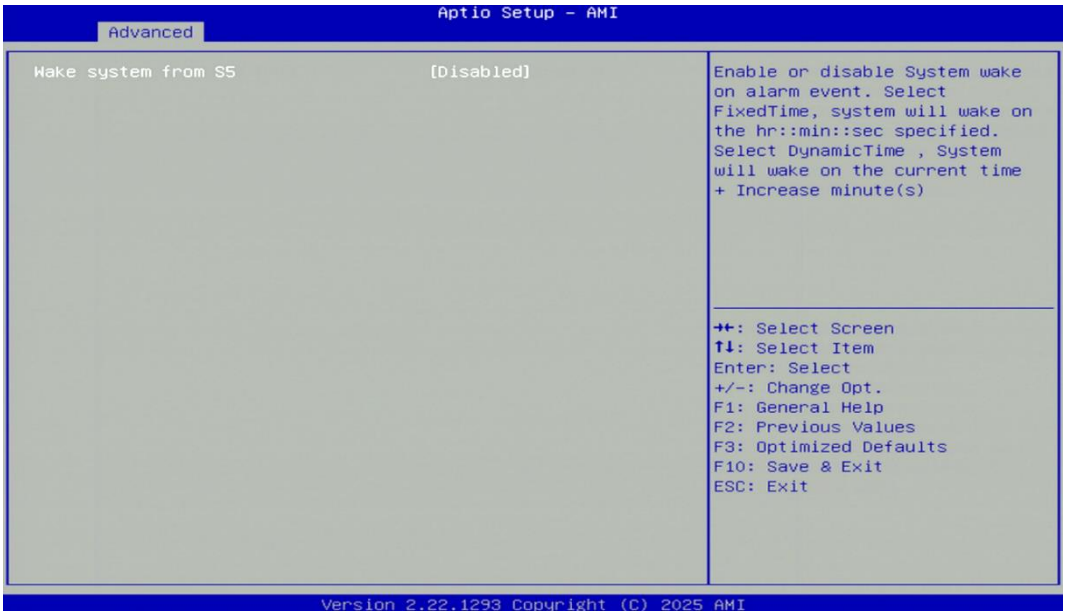
- **Smart Fan Mode [Auto]**

  This item allows users to select Auto or Manual for smart fan mode.

- **Fan Speed Mode [RPM]**

  This item allows users to select RPM or Duty for fan speed mode.

4.3.9 S5 RTC Wake Settings



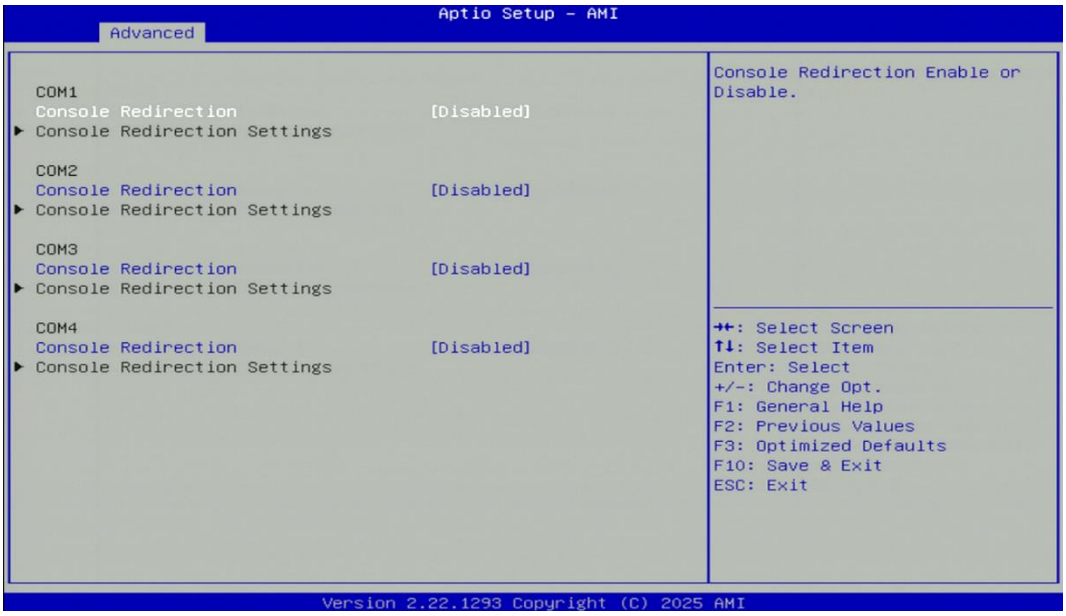
- **Wake System from S5 [Disabled]**

  This item allows users to change the way to wake system from S5 state.

  [Fixed Time]: Set the specified time (HH:MM:SS) to wake system.

  [Dynamic Time]: Set the increase time from current time to wake system.

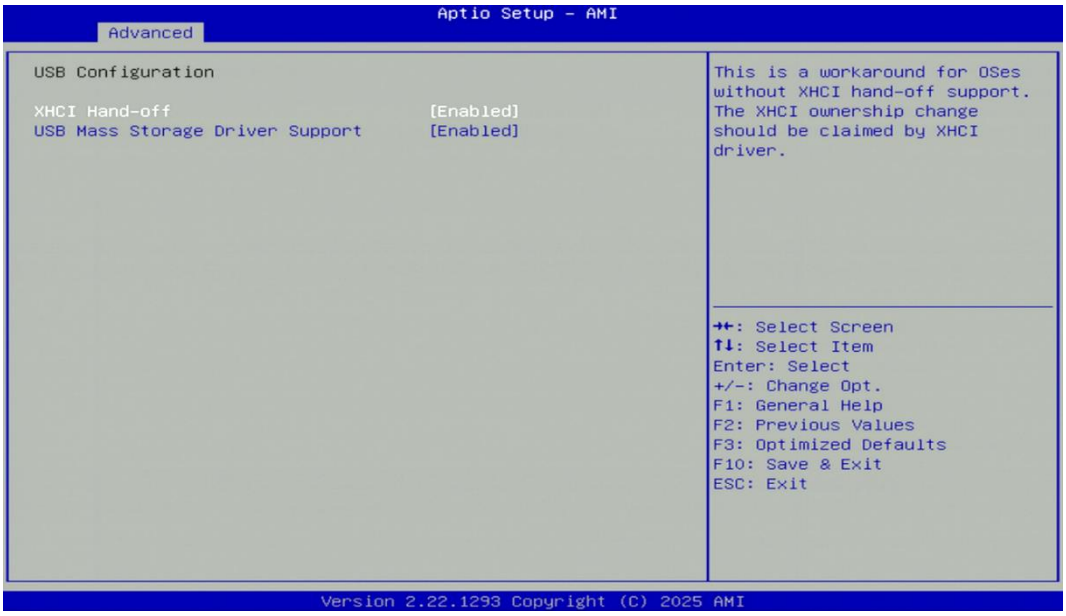
4.3.10 Serial Port Console Redirection



- **Console Redirection [Disabled]**

  These items allow users to enable or disable COM1, COM2, COM3, COM4 console redirection function.

4.3.11 USB Configuration



- **XHCI Hand-off [Enabled]**

  This item allows users to enable or disable XHCI (USB3.2) hand-off function.

- **USB Mass Storage Driver Support [Enabled]**

  Enables or disables support for USB mass storage devices.

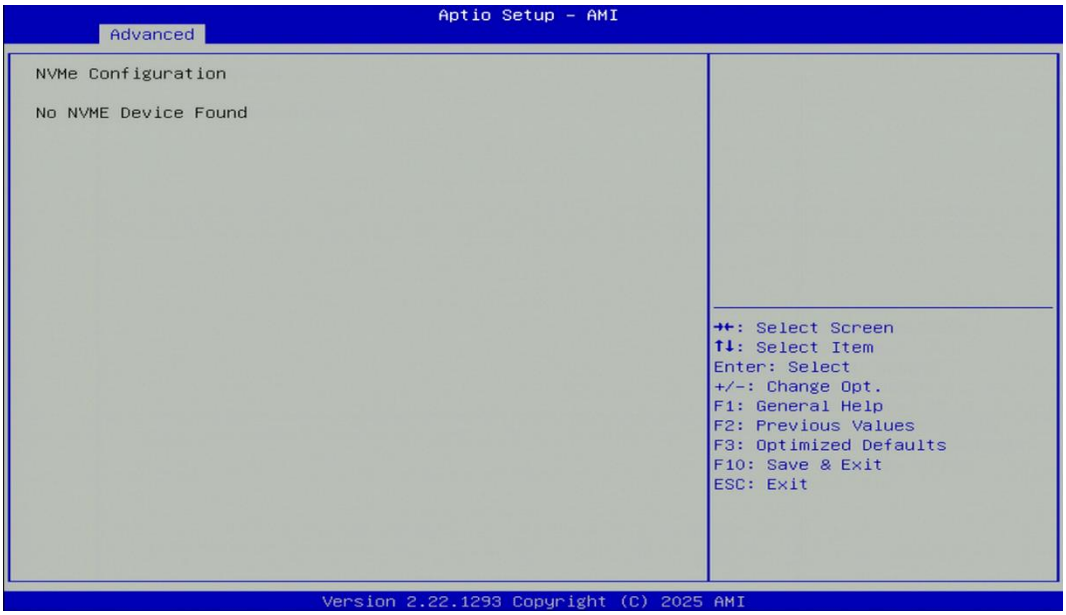
4.3.12 Network Stack Configuration

- **Network Stack [Disabled]**

  Enables or disables UEFI Network Stack.

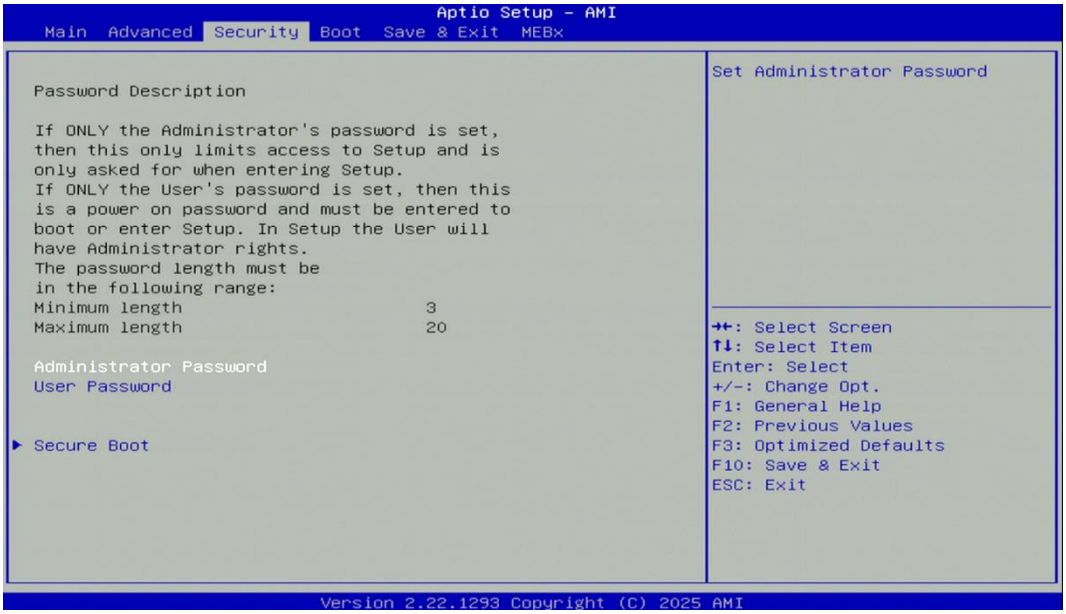
4.3.13 NVMe Configuration

The screen allows users to select options for the NVMe configuration, and change the value of the selected option. If there is NVMe Device detected, the options will show as the NVMe Device is found.



4.4 Security Setup

This section allows users to configure BIOS security settings.



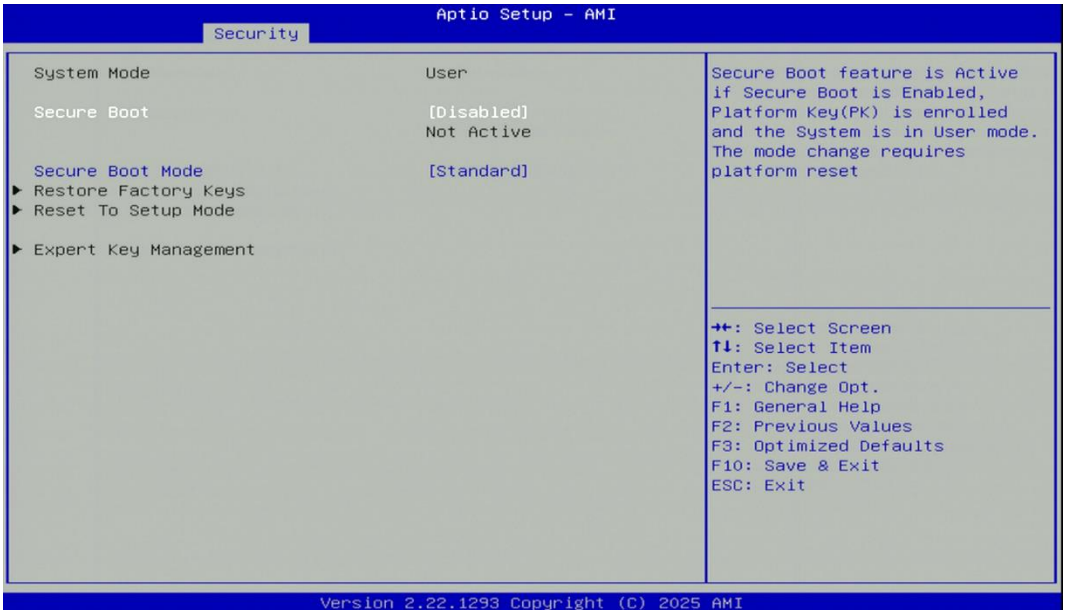
4.5.1 Administrator Password

Administrator Password controls access to the BIOS Setup utility.

4.5.2 User Password

User Password controls access to the system at boot and to the BIOS Setup utility.

4.4.3 Security Boot



- **Secure Boot [Disabled]**

  Enable or disable Secure Boot function.

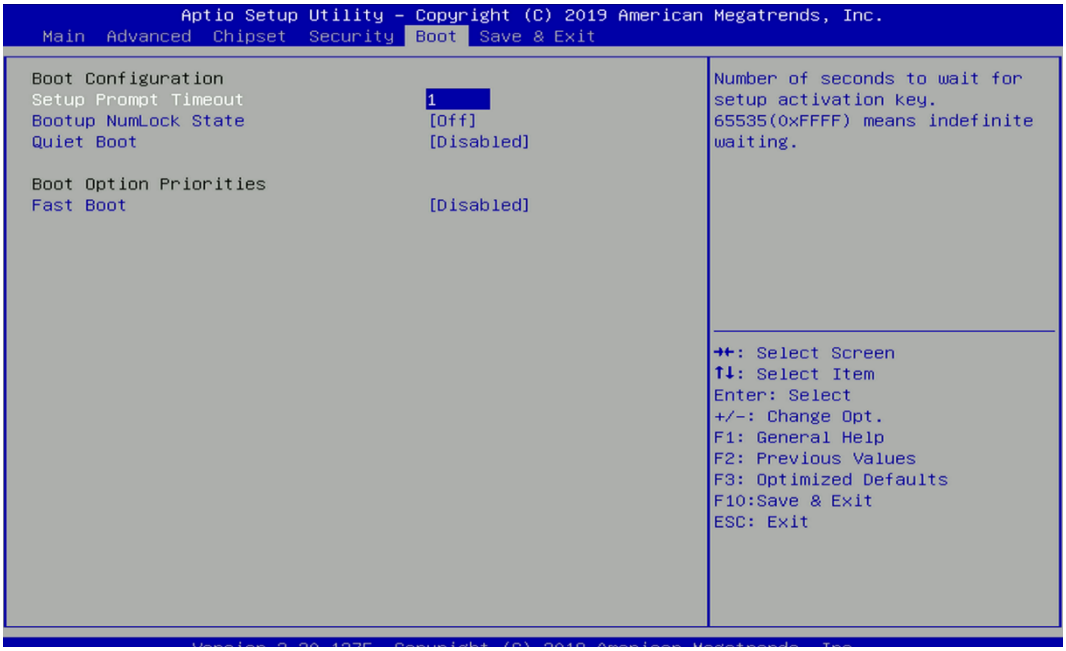
- **Secure Boot Mode [Standard]**

  Allows you to select Secure Boor Mode.

  Configuration options: [Standard] [Custom].

4.5 Boot Setup

This section allows you to configure Boot settings.



4.6.1 Setup Prompt Timeout [1]

Use this item to set number of seconds (1..65535) to wait for setup activation key.

4.6.2 Bootup NumLock State [Off]

Allows you to select the power-on state for keyboard NumLock.

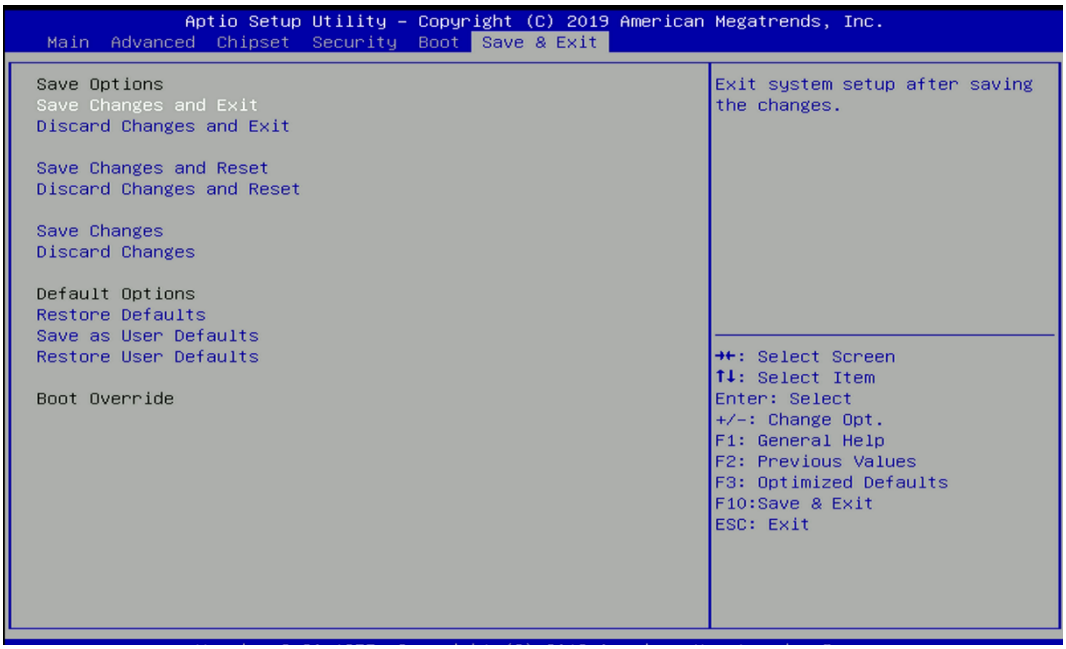
4.6.3 Quiet Boot [Disabled]

Allows you to enable or disable Quiet Boot function.

4.6.4 Fast Boot [Disabled]

Allows you to enable or disable Fast Boot function.

4.6 Save & Exit



4.7.1 Save Changes and Exit

This item allows you to exit system setup after saving changes.

4.7.2 Discard Changes and Exit

This item allows you to exit system setup without saving changes.

4.7.3 Save Changes and Reset

This item allows you to reset the system after saving changes.

4.7.4 Discard Changes and Reset

This item allows you to reset system setup without saving any changes.

4.7.5 Save Changes

This item allows you to save changes done so far to any of the setup options.

4.7.6 Discard Changes

This item allows you to discard changes done so far to any of the setup options.

4.7.7 Restore Defaults

This item allows you to restore/ load default values for all the options.

4.7.8 Save as User Defaults

This item allows you to save the changes done so far as user defaults.

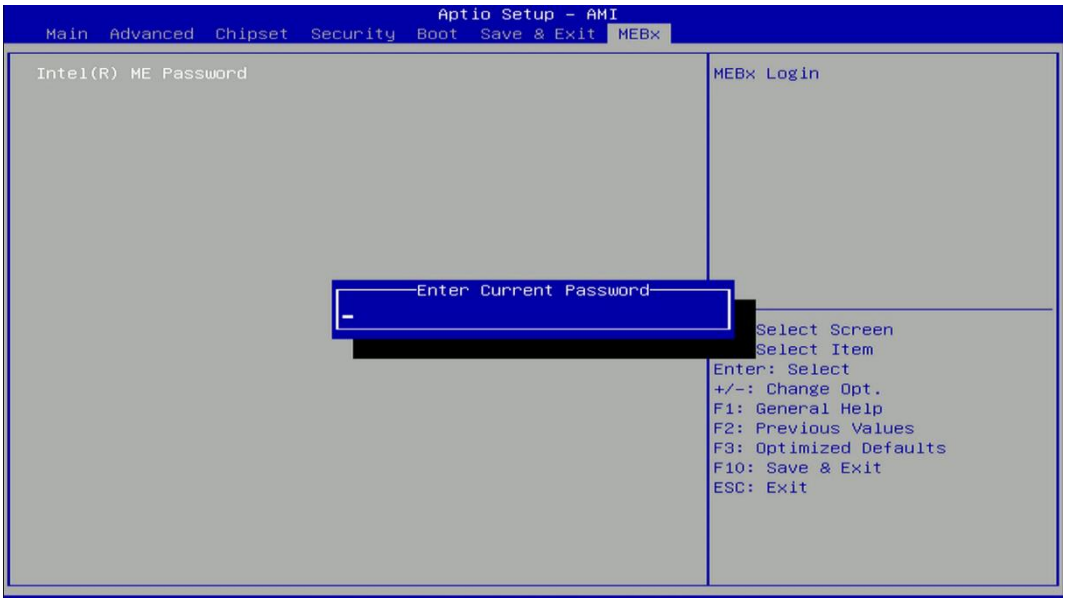
4.7.9 Restore User Defaults

This item allows you to restore the user defaults to all the options.

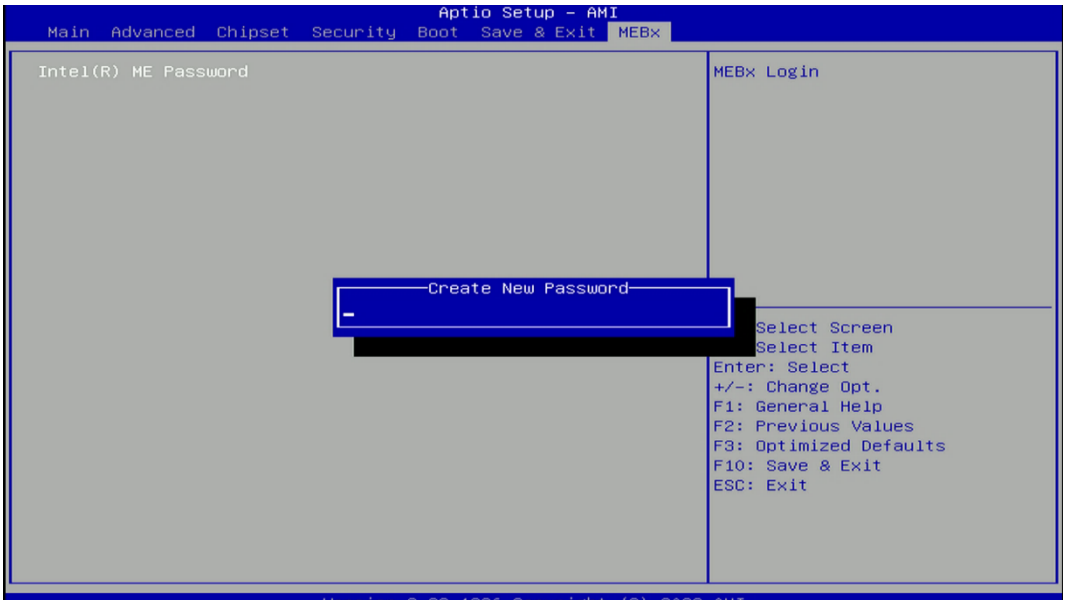
4.7 MEBx

This page is for ME function setting. Press the delete key to enter the BIOS menu then user can see the following MEBx page.

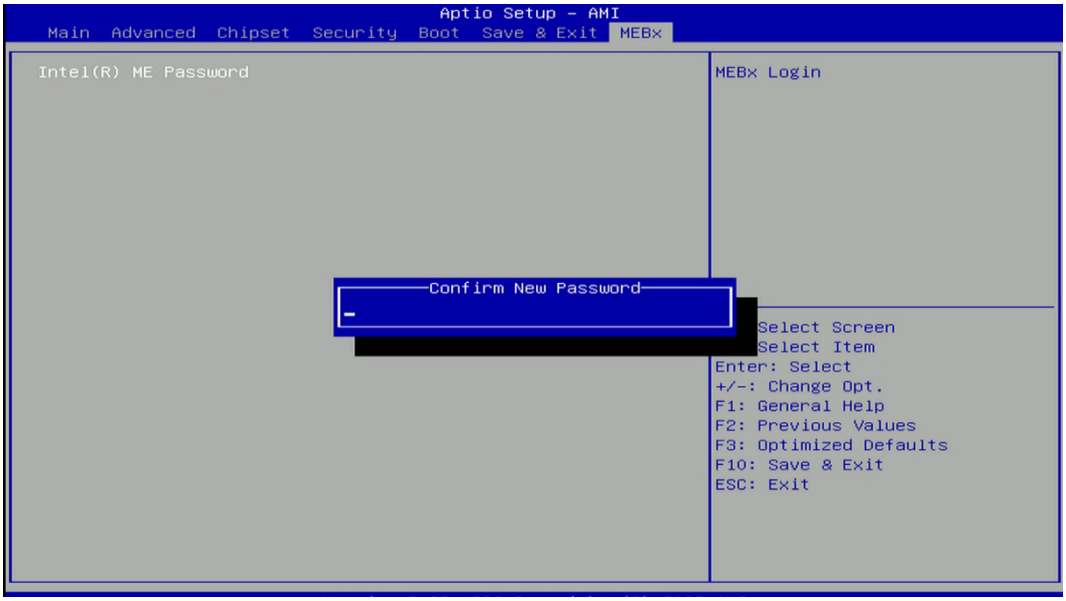
Press enter key to enter the default password "admin" to enter the next step for password creation.



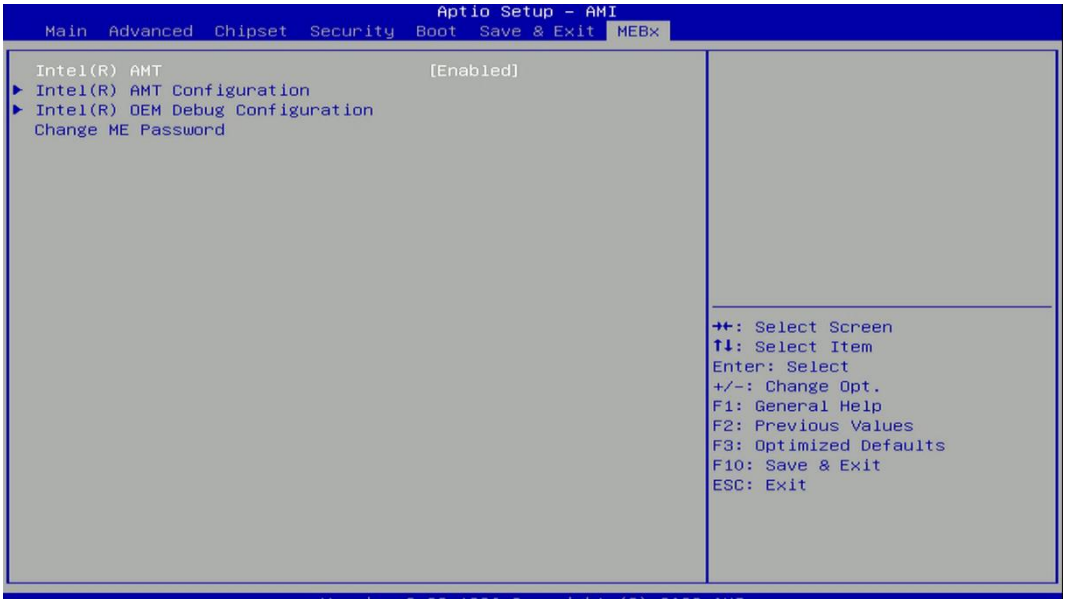
Create a new password using 8 characters including uppercase and lowercase letters, numbers and special symbols.



Enter the created password again for confirmation.



Then you can see the function setting page of MEBx.



Chapter 5
Product Application

5.1 Where to download drivers?

Drivers for the CO-100/P2302 Series can be downloaded from the CINCOZE website.

5.2 Where to find the technical documents?

The following documents are the most relevant technical references for the CO-100/P2302 Series. All documents can be accessed via the CINCOZE Partner Zone:

- **Application Notes**: Navigate to *Home > Partner Zone > Technical Support > Application Notes*.
- **Configure & Installation**: Navigate to *Home > Partner Zone > Technical Support > Configure & Installation*.
- **Other Product Information**: Navigate to *Home > Partner Zone > Product Center > Product Information > Industrial Panel PC & Monitor > Open Frame Panel PC > High Performance Open Frame Panel PC > CO-100/P2302 Series.*

Catalog	Document Tile
Application Notes	DIO Application Guide
	DIO Technical Guide
	Instant Reboot Application Guide
	WDT Application Guide
	WDT Technical Guide
Configure & Installation	AT ATX Function Manual
	BIOS Administrator User Password Function Manual
	Clear CMOS Function Manual
	COM Function Manual
	CSM Function Manual
	Digital I/O Function Manual
	How to import Secure Boot Key?
	How to restore Windows image with Clonezilla?
	How to set TPM function under Windows?
	How to stop automatic driver update in Windows SOP
	How to Update BIOS and ME under UEFI shell?
	How to Update BIOS under UEFI shell?
	How to Update BIOS under Windows?
	IGN Module User Manual
	Intel AMT with KVM Remote Control
	POE Module User Manual
	PXE Function Manual
	RAID Function Manual

	Remote Switch Function Manual
	Wake On LAN Function Manual
	WDT Function Manual