NEXCOM International Co., Ltd.

IoT Automation Solutions Business Group

Industrial Panel PC

IPPC xx11-C11 Series

User Manual

NEXCOM International Co., Ltd.
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PREFACE

Copyright

Disclaimer

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Acknowledgements

IPPC 2411-C11 and IPPC 1611-C11 are trademarks of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of 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 instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

The product(s) described in this manual complies with all applicable 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.

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2011/65/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2013 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

1. NEXCOM makes products in accordance with the Industry standard and, NEXCOM warrants that all her Industry-grade IPC and System products will be free from defect in neither material nor workmanship for twenty-four (24) months from the day of invoice issued.

2. For NEXCOM Panel PC product lines (the APPC, MPPC series), they are also guaranteed against defect in materials and workmanship for the period of twenty-four (24) months in their motherboard design. For 3rd party parts, it follows with original suppliers' standard: 12 months for battery pack and LCD, 24 months for adaptor / add on modules (including GSM module, RFID module, and antenna).

3. If NEXCOM determines customer's warranty claim is valid, NEXCOM will repair or replace product(s) without additional charge for parts and labor. An extended Warranty Program will extend the warranty period of the product accordingly.

Warranty Coverage

The warranty applies only to products manufactured or distributed by NEXCOM and her subsidiaries. This warranty covers all the products/ shipments except for:

1. Any claimed defect, products that have been repaired or modified by persons who have not been authorized by NEXCOM or, products which have been subjected to misuse, abuse, accident, improper installation, or usage not in accordance with the product instruction. NEXCOM assumes no liability as a consequence of such events under the term of this warranty.

   One example is the replacement of Tablet's or Hand-held's LCD display due to scratching stains or other degradation; these will not be covered under this warranty.

2. Damages caused by customers' delivery/shipping of the product or, product failure resulted from electrical power/voltage shock, or, installation of parts/components which are not supplied/approved by NEXCOM in advance.

3. Third-party products:

   a. Software, such as the device drivers,

   b. External devices such as HDD, printer, scanner, mouse, LCD panel, battery, and so on,

   c. Accessory/parts that were not approved by NEXCOM and,

   d. Accessory/parts were added to products after they were shipped from NEXCOM.

Product will be treated as "Out of Warranty " if:

a. It expires the warranted 24 months period from the day it was purchased.

b. It had been altered by persons other than an authorized NEXCOM service person or, which have been subjected to misuse, abuse, accident, or improper installation.

c. It doesn't have the original NEXCOM Serial Number labeling for NEXCOM's warranty period identification or, tracking.

RMA that NEXCOM has determined not to be covered by the warranty will be charged the NEXCOM Standard Repair Fee for the repairing. If a RMA is determined to be not repairable, customer will be notified and product(s) may be returned to customer at their request; a minimum service fee may be charged however.

NEXCOM Return Merchandise Authorization (RMA) Procedure

For the RMA (Return Merchandise Authorization) shipment, customer is responsible for packaging and shipping the product to the designated NEXCOM service sites, with shipping charges prepaid by the customer. The original NEXCOM shipping box should be used whenever possible. NEXCOM shall pay for the return of the product to the customer's location. In case of expedited shipping request, an extra service charge shall be assessed and the customer is responsible for this extra return shipping charge.

1. Customers should enclose the "NEXCOM RMA Service Form" with the returned products.
2. Customers need to write down all the information related to the problem on the " NEXCOM RMA Service Form " when applying for the RMA service; information will help to understand the problem, including the fault description, on-screen messages, and pictures if possible.
3. Customers could send back the faulty product with or without the accessories and key parts such as the CPU and DIMM. If the key parts are included, please be noted clearly within the return form. NEXCOM takes no responsibility for the parts which are not listed in the return form.
4. Customers hold the responsibility to ensure that the packing of defective products is durable enough to be resistant against further damage due to the transportation; damage caused by transportation is treated as " Out of Warranty " under our Warranty specification.
5. RMA product(s) returned by NEXCOM to any location other than the customer registered delivery address will incur an extra shipping charge, the customer is responsible for paying the extra shipping charges, duties, and taxes of this shipment.

Product Repairing

1. NEXCOM will repair defective products covered under this limited warranty that are returned to NEXCOM; if products do prove to be defective, they will be repaired during their warranty period unless other warranty terms have been specified.
2. NEXCOM owns all parts removed from repaired products.
3. NEXCOM will use parts made by various manufacturers in performing the repair.
4. The repaired products will be warranted subjected to the original warranty coverage and period only.
5. For products returned as defective but, proved to be no defect/fault after the RMA process, NEXCOM reserves the right to claim for a NDF (No Defect Found) Service Charge.
6. NEXCOM will issue RMA Report which included Repair Detailed Information to the customer when the defective products were repaired and returned.
7. In addition to the above, NEXCOM may authorize Independent/Third-party suppliers to repair the defective products for NEXCOM.

Out Of Warranty Service

There will be a service charge from NEXCOM for the "Out Of Warranty" product service; they are the Basic Diagnostic Service Fee and the Advanced Component Replacement Fee respectively. And, if the product can not be repaired, NEXCOM will either return the product to the customer or, just scrap it, followed by customer's instruction.

1. Testing and Parts Replacement

   NEXCOM will have the following Handling Charges for those OoW products that returned:

   a. Basic Labor Cost and Testing Fee: as Table listed.

   b. Parts Fee: NEXCOM will charge for main IC chipsets such as the N.B., S.B., Super-IO, LAN, Sound, Memory, and so on.

   c. 3rd-party Device Fee: products replacement for CPU, DIMM, HDD, Chassis, and UPS.

2. Out of Warranty product will have a three months warranty for the fixed issues. If the product failed with different problem within 3 months, they will still incur the service charge of "Out of Warranty".

3. Out of Warranty "products will not be repaired without a signed PI from the customer, the agreement of the repair process.

   Add-on card, 3rd Party Device and board level repair cost higher than new product prices, customer can abandon to sign PI to repair and, please contact with sales to buy new products.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

1. Read these safety instructions carefully.

2. Keep this User Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for 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 stable surface during installation. Dropping it or letting it fall may cause damage.

7. The openings on the enclosure are for air convection to protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use 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.

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.

14. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.

15. Do not place heavy objects on the equipment.

16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.

17. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

Safety Precautions Cont.

18. Battery used only. CAUTION RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

19. ATTENTION: IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGÉES

20. This product is intended to be supplied by a Listed Power Adapter, rated 12-30Vdc, 5-2A minimum and Tma 60 degree C minimum and LPS, if need further assistance, please contact NEXCOM INTERNATIONAL CO., LTD. for further information.

21. The product intended for vertical use only.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.

2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
   - Product name and serial number
   - Detailed information of the peripheral devices
   - Detailed information of the installed software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.

2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

3. CFast: Turn off the unit's power before inserting or removing a CFast storage card.

Conventions Used in this Manual

Warning:
Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

Global Service Contact Information

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Package Contents

Before continuing, verify that the package you received is complete. Your package should have all the items listed in the table.

IPPC 1611-C11

Item	Part number	Name	Description	Qty
1	4NCPM00203X00	TERMINAL BLOCKS 2P PHOENIX CONTACT:1803578 ASSY 3.81mm MALE 90D GREEN	ASSY 3.81mm MALE 90D GREEN	1
2	4NCPM00302X00	(T)TERMINAL BLOCKS 3P PHOENIX CONTACT:1777992 5.08mm MALE DIP GREEN	5.08mm MALE DIP GREEN	1
3	50311F0294X00	I HEAD SCREW LONG FEI:I2x4 NYLOK NIGP I2x4 NI NYLOK	I2x4 NI NYLOK	1
4	50311F0326X00	FLAT HEAD SCREW LONG FEI:F3x5 NYLOK NI+HEAT TREATMENT F3x5 NYLOK NI+HEAT TREATMENT	F3x5 NYLOK NI+HEAT TREATMENT	2
5	50311T0075X00	ROUND HEAD SCREW VER:A LONG FEI M4x6mm ISO NI NYLOK	M4x6mm ISO NI NYLOK	10
6	50311T0113X00	(P)I HEAD SCREW LONG FEI:I2.5x4.5 M2.5x4.5L ISO NI	M2.5x4.5L ISO NI	1
7	5040410215X00	MOUNT CORNER BRACKET-1 FOR IPPC1611-C11 VER:A CHYUAN-JYH 48.5x48.5x10mm SECC T=1.0mm	48.5x48.5x10mm SECC T=1.0mm	2
8	5040410216X00	MOUNT CORNER BRACKET-2 FOR IPPC1611-C11 VER:A CHYUAN-JYH 38.5x38.5x10mm SECC T=1.0mm	38.5x38.5x10mm SECC T=1.0mm	2
9	5040410217X00	SATA M2 BRACKET FOR IPPC1611-C11 VER:A CHYUAN-JYH 22x10x2.05mm SECC T=1.0mm	22x10x2.05mm SECC T=1.0mm	1
10	5040410222X00	PANEL MOUNT BRACKETS FOR IPPCXX11 SERIES VER:A YUNGCHAN 34x17x12mm SECC T=1.5mm	34x17x12mm SECC T=1.5mm	10
11	5060200641X00	THERMAL PAD E-LIN 35x25x2mm K=8W/mk T-TOP81	35x25x2mm K=8W/mk T-TOP81	1
12	5060200642X00	THERMAL PAD E-LIN 35x30x2mm K=8W/mk T-TOP81	35x30x2mm K=8W/mk T-TOP81	1
13	5060200643X00	THERMAL PAD E-LIN 60x25x2mm K=8W/mk T-TOP81	60x25x2mm K=8W/mk T-TOP81	1
14	5060200655X00	THERMAL PAD FOR nROK7252 SERIES CPU EAPUS 40x35x0.5mm PG80B K=13W/mK	40x35x0.5mm PG80B K=13W/mK	1
15	50311F0396X00	I HEAD SCREW LONG FEI:I3x3 ISO+NYLOK BLACK I3x3 ISO+NYLOK BLACK	I3x3 ISO+NYLOK BLACK	1

IPPC 2111-C11

Item	Part number	Name	Description	Qty
1	4NCPM00203X00	TERMINAL BLOCKS 2P PHOENIX CONTACT:1803578 ASSY 3.81mm MALE 90D GREEN	ASSY 3.81mm MALE 90D GREEN	1
2	4NCPM00302X00	(T)TERMINAL BLOCKS 3P PHOENIX CONTACT:1777992 5.08mm MALE DIP GREEN	5.08mm MALE DIP GREEN	1
3	50311F0294X00	I HEAD SCREW LONG FEI:I2x4 NYLOK NIGP I2x4 NI NYLOK	I2x4 NI NYLOK	1
4	50311F0326X00	FLAT HEAD SCREW LONG FEI:F3x5 NYLOK NI+HEAT TREATMENT F3x5 NYLOK NI+HEAT TREATMENT	F3x5 NYLOK NI+HEAT TREATMENT	2
5	50311T0075X00	ROUND HEAD SCREW VER:A LONG FEI M4x6mm ISO NI NYLOK	M4x6mm ISO NI NYLOK	16
6	50311T0113X00	(P)I HEAD SCREW LONG FEI:I2.5x4.5 M2.5x4.5L ISO NI	M2.5x4.5L ISO NI	1
7	5040410217X00	SATA M2 BRACKET FOR IPPC1611-C11 VER:A CHYUAN-JYH 22x10x2.05mm SECC T=1.0mm	22x10x2.05mm SECC T=1.0mm	1
8	5040410222X00	PANEL MOUNT BRACKETS FOR IPPCXX11 SERIES VER:A YUNGCHAN 34x17x12mm SECC T=1.5mm	34x17x12mm SECC T=1.5mm	16
9	5060200641X00	THERMAL PAD E-LIN 35x25x2mm K=8W/mk T-TOP81	35x25x2mm K=8W/mk T-TOP81	1
10	5060200642X00	THERMAL PAD E-LIN 35x30x2mm K=8W/mk T-TOP81	35x30x2mm K=8W/mk T-TOP81	1
11	5060200643X00	THERMAL PAD E-LIN 60x25x2mm K=8W/mk T-TOP81	60x25x2mm K=8W/mk T-TOP81	1
12	5060200655X00	THERMAL PAD FOR nROK7252 SERIES CPU EAPUS 40x35x0.5mm PG80B K=13W/mK	40x35x0.5mm PG80B K=13W/mK	1
13	50311F0396X00	I HEAD SCREW LONG FEI:I3x3 ISO+NYLOK BLACK I3x3 ISO+NYLOK BLACK	I3x3 ISO+NYLOK BLACK	1
14	5040410228X00	MOUNT_CORNER_BRACKET FOR IPPC2111-C11 VER:A JAN YU 46x46x10mm SECC T=1.2mm	46x46x10mm SECC T=1.2mm	4

IPPC 2411-C11

Item	Part number	Name	Description	Qty
1	4NCPM00203X00	TERMINAL BLOCKS 2P PHOENIX CONTACT:1803578	ASSY 3.81mm MALE 90D GREEN	1
2	4NCPM00302X00	(T)TERMINAL BLOCKS 3P PHOENIX CONTACT:1777992	5.08mm MALE DIP GREEN	1
3	50311F0294X00	I HEAD SCREW LONG FEI:I2x4 NYLOK NIGP	I2x4 NI NYLOK	1
4	50311F0326X00	FLAT HEAD SCREW LONG FEI:F3x5 NYLOK NI+HEAT TREATMENT	F3x5 NYLOK NI+HEAT TREATMENT	2
5	50311T0113X00	I HEAD SCREW LONG FEI:I2.5x4.5	M2.5x4.5L ISO NI	1
6	5040410217X00	SATA M2 BRACKET FOR IPPC1611-C11 VER:A CHYUAN-JYH	22x10x2.05mm SECC T=1.0mm	1
7	5060200641X00	THERMAL PAD E-LIN	35x25x2mm K=8W/mk T-TOP81	1
8	5060200642X00	THERMAL PAD E-LIN	35x30x2mm K=8W/mk T-TOP81	1
9	5060200643X00	THERMAL PAD E-LIN	60x25x2mm K=8W/mk T-TOP81	1
10	5060200655X00	THERMAL PAD FOR nROK7252 SERIES CPU EAPUS	40x35x0.5mm PG80B K=13W/mK	1
11	5040410222X00	PANEL MOUNT BRACKETS FOR IPPCXX11 SERIES VER:A YUNGCHAN	34x17x12mm SECC T=1.5mm	16
12	5040410225X00	PANEL MOUNT BRACKET FOR IPPC2411-C11 VER:A YUNGCHAN	56.2x56.2x10mm SECC T=1.2mm	4
13	50311S0170X00	FLAT HEAD SCREW LONG FEI	F3x8 ISO T8 SUS410 BLACK NYLOK	8
14	50311T0075X00	ROUND HEAD SCREW VER:A LONG FEI	M4x6mm ISO NI NYLOK	16
15	50311F0396X00	I HEAD SCREW LONG FEI:I3x3 ISO+NYLOK BLACK	I3x3 ISO+NYLOK BLACK	1

Package contents may vary depending on your country region, some items may be optional. Please contact your local distributor for more information.

Ordering Information

The following information below provides ordering information for the Industrial Panel PC series.

Barebone

- **IPPC 1611-C11 (P/N: 10II0161100X0)**
  15.6" TFT HD 16:9 heavy industrial panel PC 10th Gen Intel® Core™ i processor support, P-Cap screen, DDR4, PCIe slot supported

- **IPPC 2111-C11 (P/N: 10II0211100X0)**
  21.5" TFT FHD 16:9 heavy industrial panel PC 10th Gen Intel® Core™ i processor support, P-Cap screen, DDR4, PCIe slot supported

- **IPPC 2411-C11 (P/N: 10II0241100X0)**
  23.8" TFT HD 16:9 heavy industrial panel PC 10th Gen Intel® Core™ i processor support, P-Cap screen, DDR4, PCIe slot supported

Optional

- 24V, 60W AC/DC power adapter w/o power cord (P/N: 7400060061X00)
- 24V, 120W AC/DC power adapter w/o power cord (P/N: 7400120029X00)

Chapter 1: Product Introduction

IPPC 1611-C11

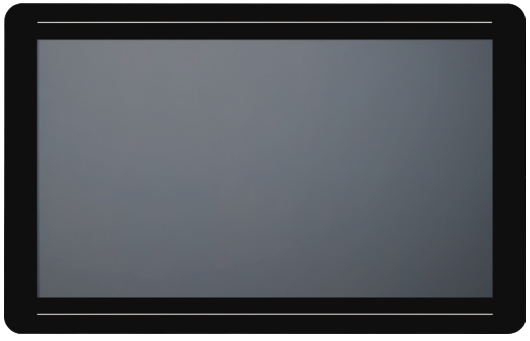
Overview

Key Features

- Support 35W 10th Gen Intel® Core™ i9/i7/i5/i3/Pentium/Celeron processor (Comet Lake-S)
- Stylish slim bezel, metal housing with robust aluminum front zero bezel for harsh environment
- 10 points P-Cap touch with zero bezel flush front design
- 2 X DDR4 2933MHz memory, up to 32GB (non-ECC)
- Dual Intel® GbE LAN ports/DP++/dual USB 3.0
- 1 x RS232,1 x RS232/422/485 with isolation (optional)
- Internal support :
  - 1 x mini-PCIe (PCIe x1, USB 2.0, SATA)
  - 1 x M.2 3042/3052 Key B (PCIe x1, USB 3.0, USB 2.0)
  - 1 x M.2 2242 Key B (USB 2.0, SATA)
- 24VDC input, support AT/ATX power mode
- 1 x PCIe x4 expansion

IPPC 2111-C11

Overview



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  - 1 x M.2 2242 Key B (USB 2.0, SATA)
- 24VDC input, support AT/ATX power mode
- 1 x PCIe x4 expansion

Specifications

IPPC 1611-C11

Panel

- LCD size: 15.6”, 16:9
- LCD interface : LVDS
- Resolution: HD (WXGA) 1366 x 768
- Luminance: 400cd/m²
- Contrast ratio: 500
- Viewing angle: 80 (U), 80 (D), 85 (L), 85 (R)
- Backlight: LED

Touch Screen

- Ten points P Cap (projected capacitive touch)
- Light transmission: 87%
- Interface: USB
- Anti-scratch surface: 6H hardness

System

- CPU (optional): support 10th Gen Intel® Core™ i processor family, LGA 1200 socket type, max 35W.
  - 10th Gen Intel® Core™ i9-10900TE (20M Cache 1.8GHz up to 4.5GHz)
  - 10th Gen Intel® Core™ i7-10700TE (16M Cache 2.0GHz up to 4.4GHz)
  - 10th Gen Intel® Core™ i5-10500TE (12M Cache 2.3GHz up to 3.7GHz)
  - 10th Gen Intel® Core™ i3-10100TE (8M Cache 2.3GHz up to 3.6GHz)
  - 10th Gen Intel® Pentium® G6400TE (4M Cache 3.2GHz)
  - 10th Gen Intel® Celeron® G5900TE (4M Cache 3.0GHz)
- BIOS: AMI BIOS
- System chipset: Intel® H420E PCH
- System memory (optional): 2 x 260-pin DDR4 SO-DIMM socket, support up to max 32GB DDR4 2933MHz (non-ECC)
- Storage device:
  - 1 x M.2 2242 Key B
  - 1 x mini-PCIe
  - 1 x Hard drive tray

Rear I/O

- 2 x DB9 for COM1 & COM2
  - COM1: RS232
  - COM2: RS232/422/485 auto flow control (isolation)
- 2 x USB 3.1 ports (900mA per each)
- 1 x DP++
- 2 x Intel® I210-IT GbE LAN ports; support WoL, teaming and PXE
- 1 x 2-pin remote power on/off switch
- 24V DC input

Expansion Slot

- One PCIe x4 expansion slot: FHFL, 40W max
- 1 x mini-PCIe for Wi-Fi / mSATA
- 1 x M.2 3042/3052 Key B for 5G/Wi-Fi
- 1 x Nano SIM card onboard

Power Requirements

- AT/ATX power mode (default: ATX power mode)
- Power input: +24V DC
- Power adapter: optional AC to DC power adapter (24V DC, 120W)

Dimensions

- 397mm x 257.1mm x 71.7mm

Construction

- Support Panel/ Wall/ VESA (100 x 100mm) mount
- IP65 Rating front panel

Environment

- Operating temperature:
  - Ambient with air flow: 0°C to 50°C
  - Storage temperature: -20°C to 75°C
- Relative humidity: 10% to 90% (non-condensing)
- Shock protection:
  - HDD: 20G, half sine, 11ms, IEC60068-2-27
  - M.2: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection with SSD&M.2 condition:
  - 2.0Grms @ random condition, 5~500Hz, 1hr/axis (M.2/ SSD operating)

Certifications

- CE (EN61000-6-2/EN61000-6-4)
- FCC Class A

OS Support

- Windows 10 64-bit
- Windows 11 64-bit

Weight Information

- 7kg

IPPC 2111-C11

Panel

- LCD size: 21.5”, 16:9
- LCD interface: LVDS
- Resolution: FHD 1920 x 1080
- Luminance: 250cd/m²
- Viewing angle: 89 (U), 89 (D), 89 (L), 89 (R)
- Backlight: LED

Touch Screen

- Ten points P Cap (projected capacitive touch)
- Light transmission: 90±3%
- Interface: USB
- Anti-scratch surface: 7H hardness

System

- CPU (optional): support 10th Gen Intel® Core™ i processor family, LGA 1200 socket type, max 35W.
  - 10th Gen Intel® Core™ i9-10900TE (20M Cache 1.8GHz up to 4.5GHz)
  - 10th Gen Intel® Core™ i7-10700TE (16M Cache 2.0GHz up to 4.4GHz)
  - 10th Gen Intel® Core™ i5-10500TE (12M Cache 2.3GHz up to 3.7GHz)
  - 10th Gen Intel® Core™ i3-10100TE (8M Cache 2.3GHz up to 3.6GHz)
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- BIOS: AMI BIOS
- System chipset: Intel® H420E PCH
- System memory (optional): 2 x 260-pin DDR4 SO-DIMM socket, support
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- Storage device:
  - 1 x M.2 2242 Key B
  - 1 x mini-PCIe
  - 1 x Hard drive tray

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- 2 x DB9 for COM1 & COM2
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Expansion Slot

- One PCIe x4 expansion slot: FHFL, 40W max
- 1 x mini-PCIe for Wi-Fi / mSATA
- 1 x M.2 3042/3052 Key B for 5G/Wi-Fi
- 1 x Nano SIM card onboard

Power Requirements

- AT/ATX power mode (default: ATX power mode)
- Power input: +24V DC
- Power adapter: optional AC to DC power adapter (24V DC, 120W)

Dimensions

- 549.2mm x 345.8mm x 71.7mm

Construction

- Aluminum and metal chassis with fanless design
- Support Panel/ Wall/ VESA(100 x100mm) mount
- IP66 Rating Front Panel

Environment

- Operating temperature:
  - Ambient with air flow: 0°C to 50°C
  - Storage temperature: -20°C to 75°C
- Relative humidity: 10% to 90% (non-condensing)
- Shock protection:
  - HDD: 20G, half sine, 11ms, IEC60068-2-27
  - M.2: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection with SSD&M.2 condition:
  - 2.0Grms @ random condition, 5~500Hz, 1hr/axis (M.2/ SSD operating)

Certifications

- CE (EN61000-6-2/EN61000-6-4)
- FCC Class A

OS Support

- Windows 10 64-bit
- Windows 11 64-bit

Weight Information

- 10.5kg

IPPC 2411-C11

Panel

- LCD size: 23.8”, 16:9
- LCD interface: LVDS
- Resolution: FHD 1920 x 1080
- Luminance: 450cd/m²
- Viewing angle: 178 (H), 178(V)
- Backlight: LED

Touch Screen

- Ten points P-Cap (projected capacitive touch)
- Light transmission: 90 +/- 3%
- Interface: USB
- Anti-scratch surface: 7H hardness

System

- CPU (optional): support 10th Gen Intel® Core™ i processor family, LGA 1200 socket type, max 35W.
  - 10th Gen Intel® Core™ i9-10900TE (20M Cache 1.8GHz up to 4.5GHz)
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- 24V DC input

Expansion Slot

- One PCIe x4 expansion slot: FHFL, 40W max
- 1 x mini-PCIe for Wi-Fi / mSATA
- 1 x M.2 3042/3052 Key B for 5G/Wi-Fi
- 1 x Nano SIM card onboard

Power Requirements

- AT/ATX power mode (default: ATX power mode)
- Power input: +24V DC
- Power adapter: optional AC to DC power adapter (24V DC, 120W)

Dimensions

- 590mm x 366.6mm x 77.66mm

Construction

- Support Panel/ Wall/ VESA (100x100mm) mount
- IP65 Rating front panel

Environment

- Operating temperature:
  - Ambient with air flow: 0°C to 50°C
  - Storage temperature: -20°C to 75°C
- Relative humidity: 10% to 90% (non-condensing)
- Shock protection:
  - HDD: 20G, half sine, 11ms, IEC60068-2-27
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- Vibration protection with SSD&M.2 condition:
  - 2.0Grms @ random condition, 5~500Hz, 1hr/axis (M.2/ SSD operating)

Certifications

- CE (EN61000-6-2/EN61000-6-4)
- FCC Class A

OS Support

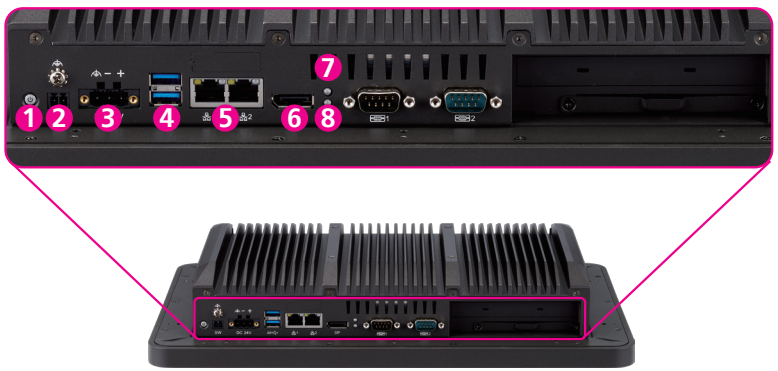
- Windows 10 64-bit
- Windows 11 64-bit

Weight Information

- 11.5kg

Knowing Your IPPC 1611-C11

Rear Bottom



1. Power Switch

Press to turn or off the power.

2. Remote Power Switch

Connect a remote to power on or off the system.

3. DC Input (24VDC)

Connect a DC power cord.

4. USB 3.1

Connect to USB 3.0/2.0 devices.

5. GbE LAN Ports

Connect to a local area network (both ports support Wake Up on LAN).

6. DisplayPort

Connect to a DisplayPort monitor (version 1.2, resolution up to 4096x2160 @60Hz).

7. Storage Driver Signal LED

Lights up in yellow when a 2.5" storage device is connected.

8. GPIO Programmable LED

Define the LED by the user.

9. COM1

Connect to a serial device (RS232).

10. COM2

Connect to a serial device (RS232/ 422/ 485 BIOS selectable).

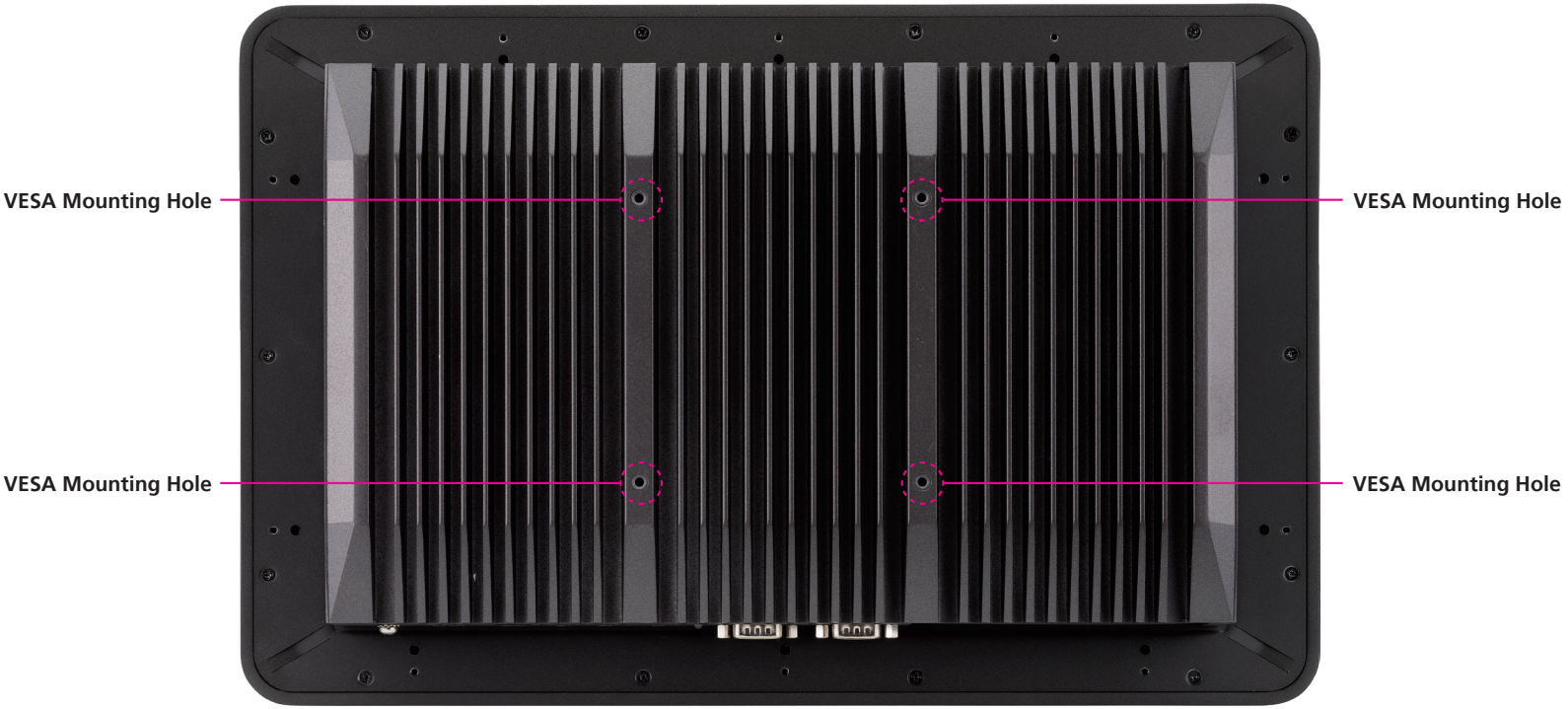
11. PCIe x4 Expansion Slot (Single-width FHFL)

Plug to an expansion card with a PCIe interface (PCIe x4).

12. 2.5" Storage Driver Slot

Connect to a storage device with a 2.5" SATA interface.

Rear

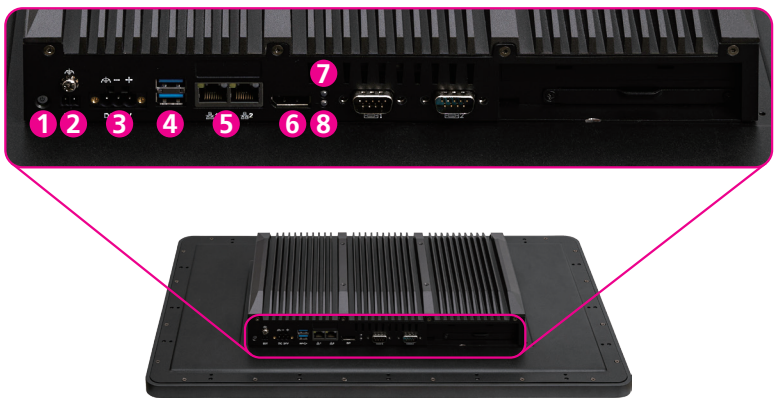


VESA Mounting Holes

These are the mounting holes for VESA mount (100x100mm).

Knowing Your IPPC 2111-C11

Rear Bottom



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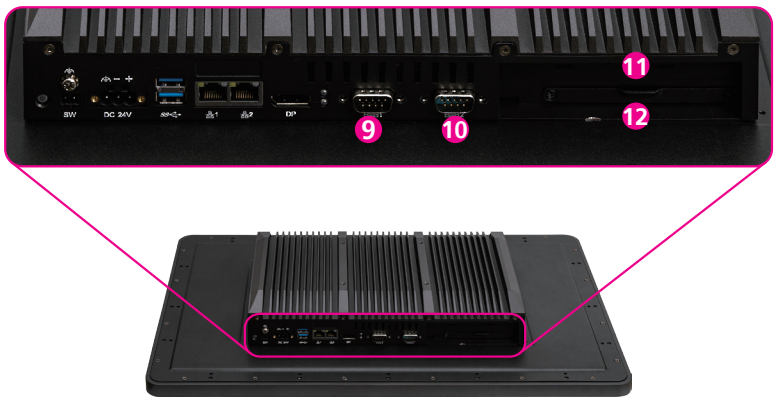


9. COM1

Connect to a serial device (RS232).

10. COM2

Connect to a serial device (RS232/422/485 BIOS selectable).

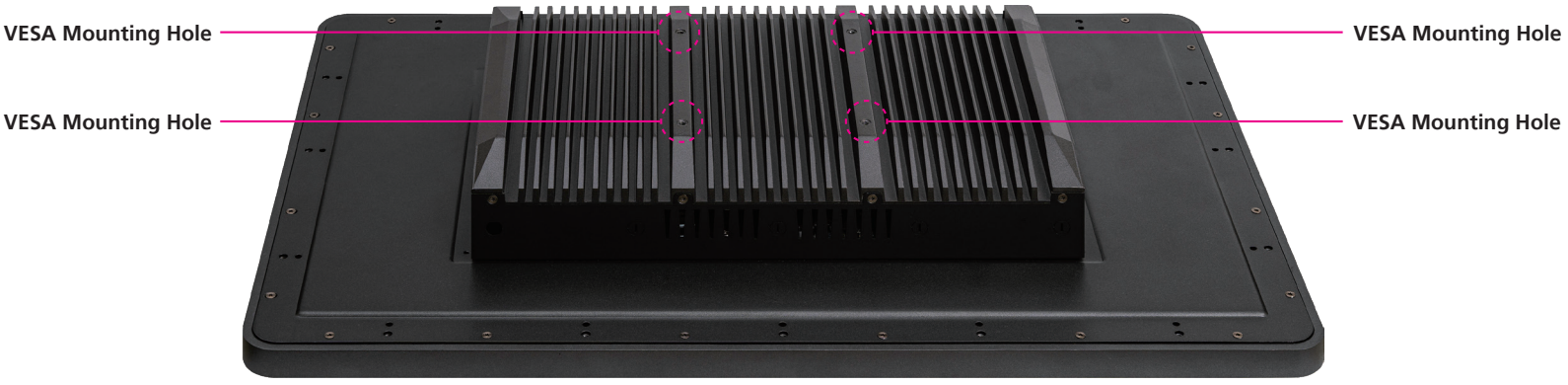
11. PCIe x4 Expansion Slot (Single-width FHFL)

Plug to an expansion card with a PCIe interface (PCIe x4).

12. 2.5" Storage Driver Slot

Connect to a storage device with a 2.5" SATA interface.

Rear

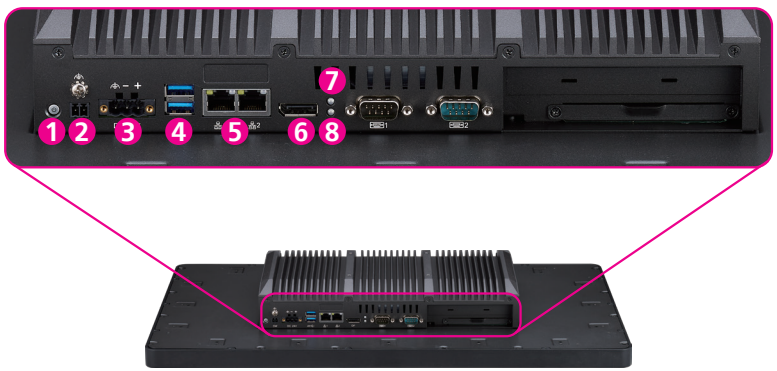


VESA Mounting Holes

These are the mounting holes for VESA mount (100x100mm).

Knowing Your IPPC 2411-C11

Rear Bottom



1. Power Switch

Press to turn or off the power.

2. Remote Power Switch

Connect a remote to power on or off the system.

3. DC Input (24VDC)

Connect a DC power cord.

4. USB 3.1

Connect to USB 3.0/2.0 devices.

5. GbE LAN Ports

Connect to a local area network (both ports support Wake Up on LAN).

6. DisplayPort

Connect to a DisplayPort monitor (version 1.2, resolution up to 4096x2160 @60Hz).

7. Storage Driver Signal LED

Lights up in yellow when a 2.5" storage device is connected.

8. GPIO Programmable LED

Define the LED by the user.

9. COM1

Connect to a serial device (RS232).

10. COM2

Connect to a serial device (RS232/422/485 BIOS selectable).

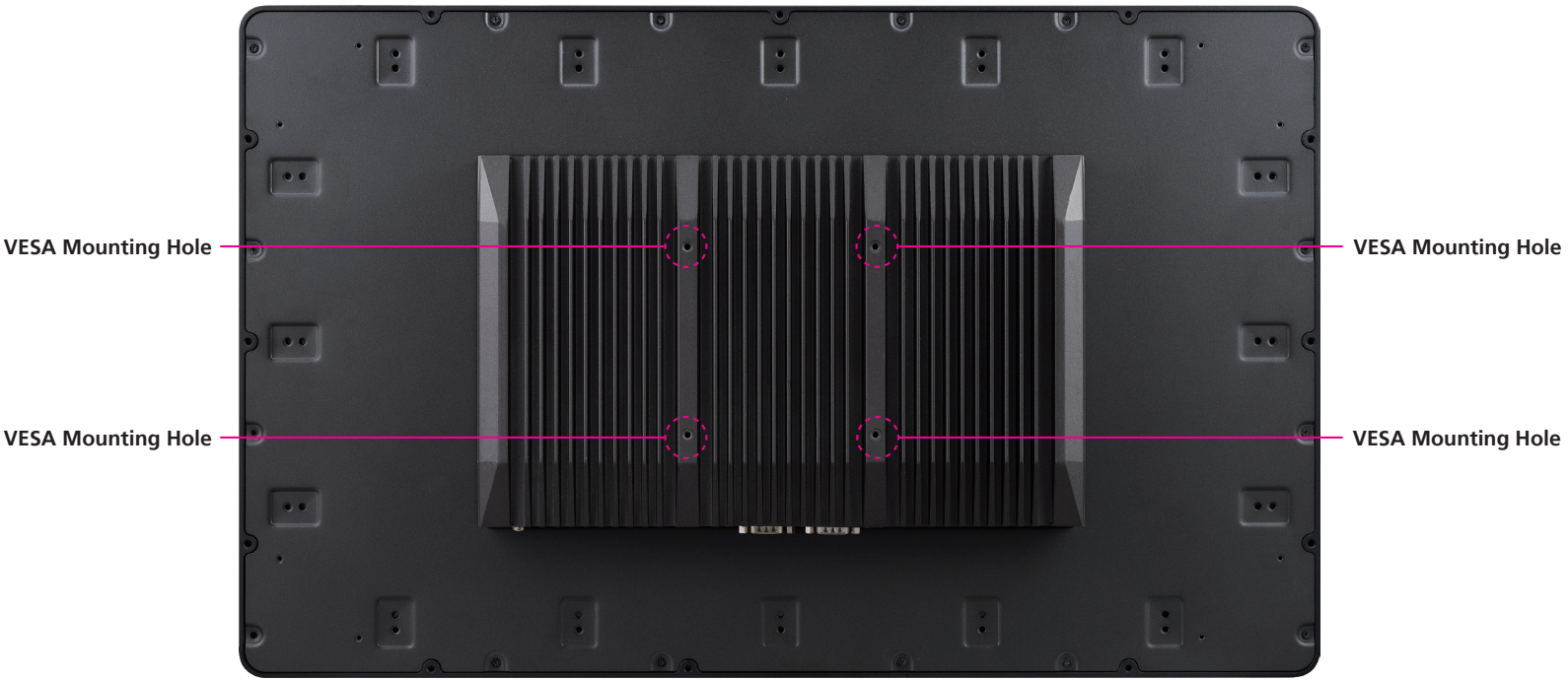
11. PCIe x4 Expansion Slot (Single-width FHFL)

Plug to an expansion card with a PCIe interface (PCIe x4).

12. 2.5" Storage Driver Slot

Connect to a storage device with a 2.5" SATA interface.

Rear

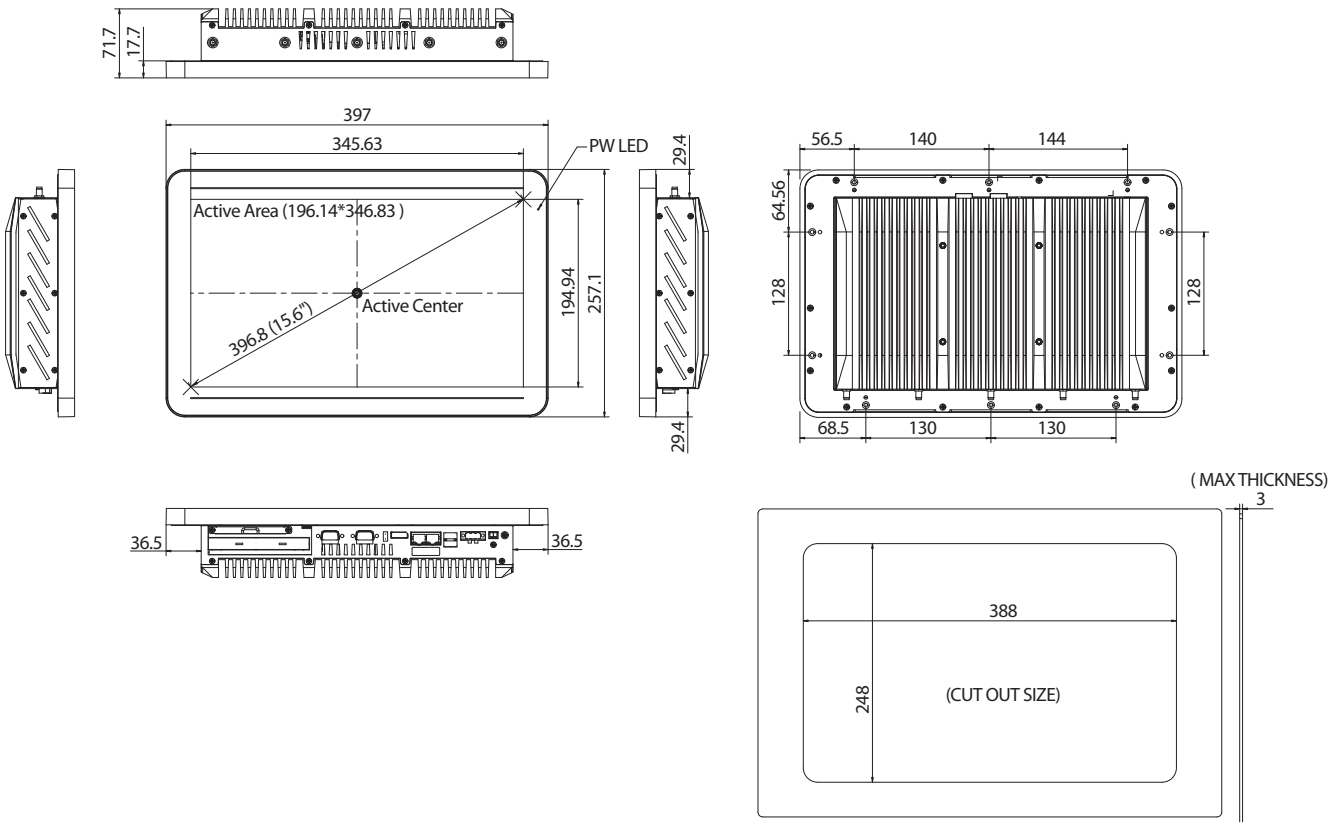


VESA Mounting Holes

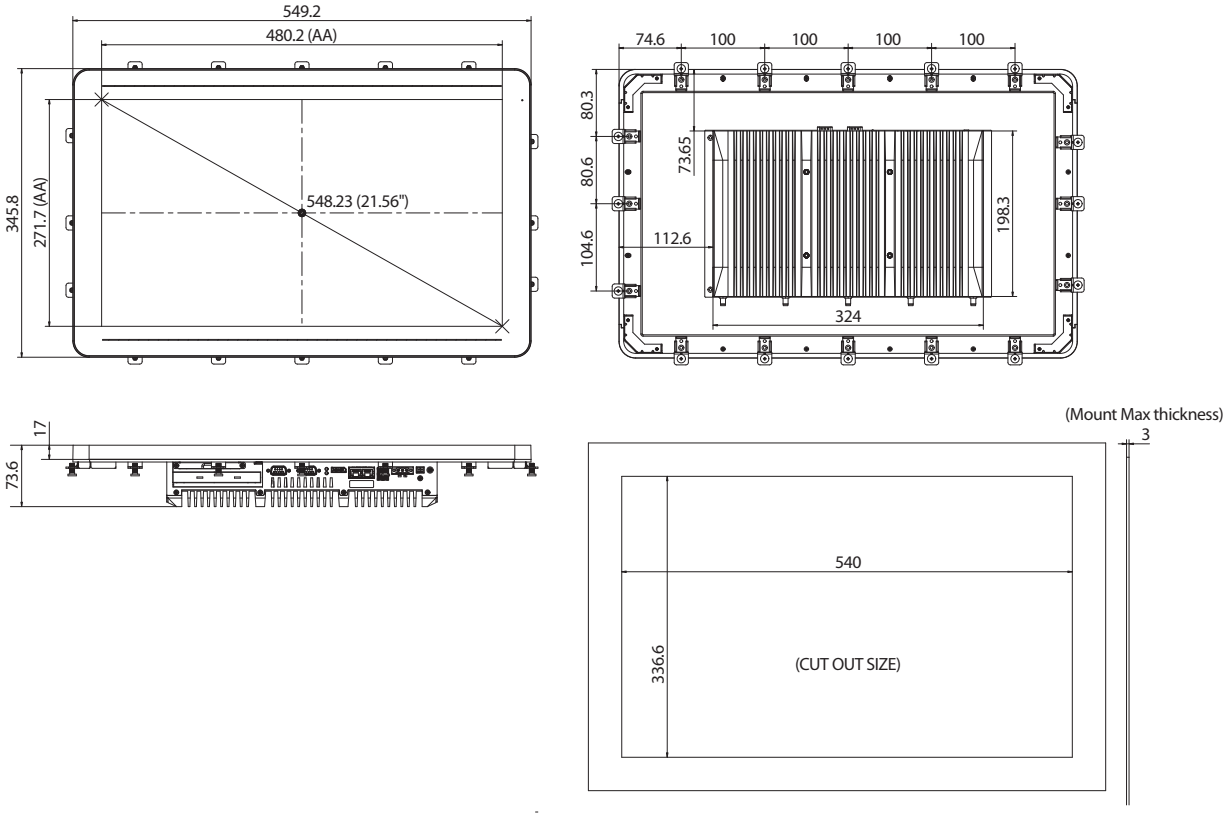
These are the mounting holes for VESA mount (100x100mm).

Mechanical Dimensions

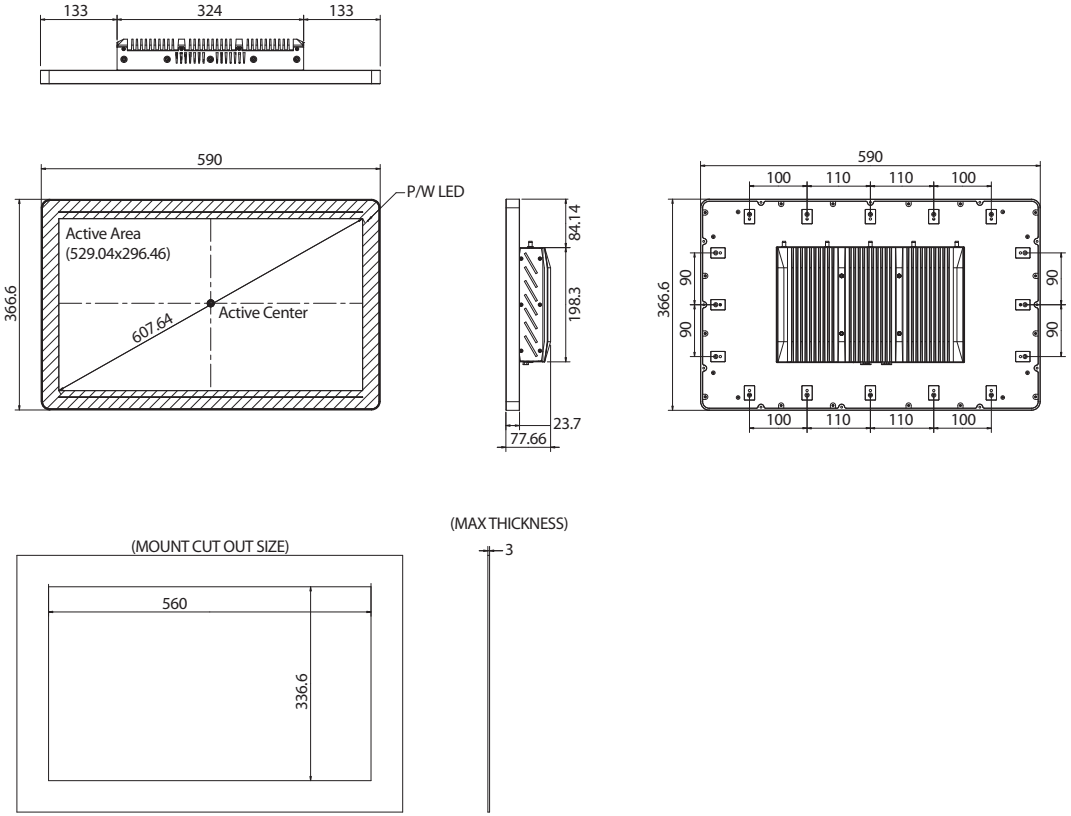
IPPC 1611-C11



IPPC 2111-C11



IPPC 2411-C11



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the motherboard. Note that information in this chapter applies to IPPC xx11-C11 series.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
  - A Philips screwdriver
  - A flat-tipped screwdriver
  - A set of jewelers screwdrivers
  - A grounding strap
  - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

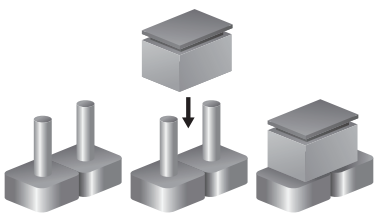
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation. Use correct screws and do not over tighten screws.

Jumper Settings

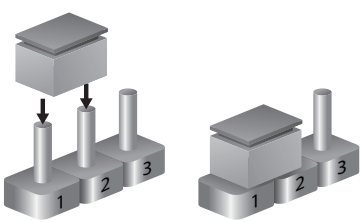
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is open.

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

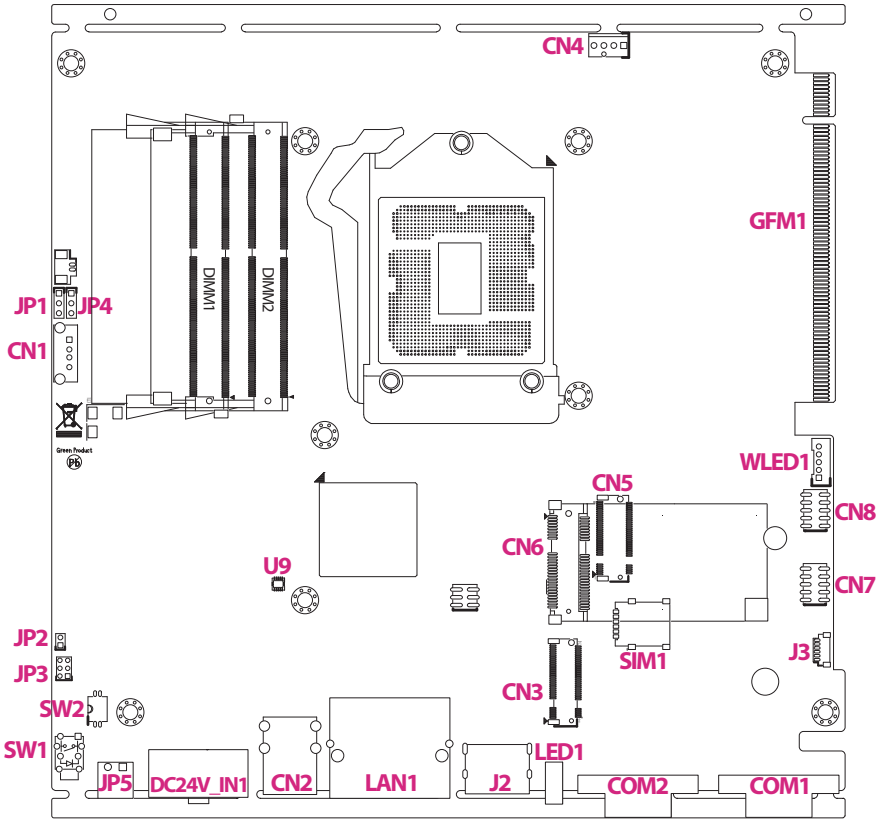
Two-Pin Jumpers: Open (Left) and Short (Right)



Three-Pin Jumpers: Pins 1 and 2 are Short



IPPC xx11-C11 Jumpers and Connectors



Jumper

AT/ATX Select Switch

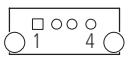
Connector type: DC24V 25mA PIT:1.27mm SMD
Connector location: SW2

Pin 1-4	Pin 2-3	Mode
ON	ON	AT (PWR BT Available)
ON	Off	AT (PWR BT Available)
Off	ON	ATX

Internal I/O Pin Definitions

USB2.0 Port Connector

Connector type: 4P 180D Female DIP 14.4x7x15mm
Connector location: CN1



Pin	Definition	Type	Description
1	+5V	O	USB Port3 5V Power
2	USB2_N3	I/O	USB2 Port3 DN signal
3	USB2_P3	I/O	USB2 Port3 DP signal
4	GND		Digital GND

M.2 Key B Connector

Connector type: SMD H: 8.5mm 90D Gold Flash Pit: 0.5mm
Connector singal: PCIe x1, USB 3.0, USB 2.0, SIM
Connector location: CN3

Pin	Definition	Type	Description	Pin	Definition	Type	Description
1	CFG1	I	CONFIG3	2	3VSB	O	+3.3V
3	GND		Digital Ground	4	3VSB	O	+3.3V
5	GND		Digital Ground	6	PWROFF#	I	POWER_OFF#
7	USB11P	BI	USBD+	8	M2TEDISL#	I	W_DISABLE#
9	USB11N	BI	USBD-	10	NC		NC
11	GND		REFCLK-	12	NC		NC
13	NC		NC	14	NC		NC
15	NC		NC	16	NC		NC
17	NC		NC	18	NC		NC
19	NC		NC	20	NC		NC
21	CFG0	I	CONFIG0	22	NC		NC
23	WAKE#	O	GPIO_11	24	NC		NC
25	NC		NC	26	NC		NC
27	GND		Digital Ground	28	UIMVPP	O	GPIO_8

Continued on the next page

29	USB3_RX8N	BI	USB3_RX-	30	UIMRESET	O	UIM_RESET
31	USB3_RX8P	BI	USB3_RX+	32	UIMCLK	O	UIM-CLK
33	GND		Digital Ground	34	UIMDATA	BI	UIM-DATA
35	USB_TX8N	BI	USB3_TX-	36	UIMPWR	O	UIM-PWR
37	USB_TX8P	BI	USB3_TX+	38	SATA_DEVSLP3	O	DEVSLP
39	GND		Digital Ground	40	NC		NC
41	PCIE_RX7N	BI	PERN0	42	NC		NC
43	PCIE_RX7P	BI	PERP0	44	NC		NC
45	GND		Digital Ground	46	NC		NC
47	PCIE_TX7N	BI	PETN0	48	NC		NC
49	PCIE_TX7P	BI	PETP0	50	RESET#	I	PERST#
51	GND		Digital Ground	52	SRCCLKREQ14	O	CLKREQ#
53	PCIE_CLK_14N	BI	REFCLKN	54	WAKE#	O	PEWAKE#
55	PCIE_CLK_14P	BI	REFCLKP	56	NC		NC
57	GND		Digital Ground	58	NC		NC
59	NC		NC	60	NC		NC
61	NC		NC	62	NC		NC
63	NC		NC	64	NC		NC
65	NC		NC	66	NC		NC
67	M2_PLTRST#	O	RESET#	68	I_SUSCLK	BI	SUSCLK
69	CFG1	I	CONFIG1	70	3VSB	O	+3.3V
71	GND		Digital Ground	72	3VSB	O	+3.3V
73	GND		Digital Ground	74	3VSB	O	+3.3V
75	CFG2	I	CONFIG2				

SYS Fan Connector

Connector type: 2.54mm Male 180D DIP Wide: 5.08mm
Connector location: CN4

Pin	Definition	Type	Description
1	GND	I	Chasis Ground
2	VCC12	I	12V
3	FANTACH	O	FANIN
4	FANPWM	O	FANOUT

M.2 Key B Connector

Connector type: SMD H: 4.8mm 90D Gold Flash Pit: 0.5mm
Connector signal: USB2.0, SATA 3.0
Connector location: CN5

Pin	Definition	Type	Description	Pin	Definition	Type	Description
1	CFG1	I	CONFIG3	2	3VSB	O	+3.3V
3	GND		Digital Ground	4	3VSB	O	+3.3V
5	GND		Digital Ground	6	PWROFF#	I	POWER_OFF#
7	USB10P	BI	USBD+	8	M2TEDISL#	I	W_DISABLE#
9	USB10N	BI	USBD-	10	NC		NC
11	GND		REFCLK-	12	NC		NC
13	NC		NC	14	NC		NC
15	NC		NC	16	NC		NC
17	NC		NC	18	NC		NC
19	NC		NC	20	NC		NC
21	CFG0	I	CONFIG0	22	NC		NC
23	WAKE#	O	GPIO_11	24	NC		NC
25	NC		NC	26	NC		NC
27	GND		Digital Ground	28	NC		NC

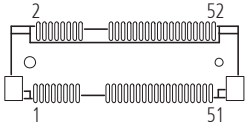
Continued on the next page

29	PCIE_RX6N	BI	PERN	30	NC		NC
31	PCIE_RX6P	BI	PERP	32	NC		NC
33	GND		Digital Ground	34	NC		NC
35	PCIE_TX6N	BI	PETN	36	NC		NC
37	PCIE_TX6P	BI	PETP	38	SATA_DEVSLP2	O	DEVSLP
39	GND		Digital Ground	40	NC		NC
41	SATA_0BRXP	BI	SATAB+	42	NC		NC
43	SATA_0BRXN	BI	SATAB-	44	NC		NC
45	GND		Digital Ground	46	NC		NC
47	SATA_0BTXN	BI	SATAA-	48	NC		NC
49	SATA_0BTXP	BI	SATAA+	50	RESET#	I	PERST#
51	GND		Digital Ground	52	SRCCLKREQ15	O	CLKREQ#
53	PCIE_CLK_15N	BI	REFCLKN	54	WAKE#	O	PEWAKE#
55	PCIE_CLK_15P	BI	REFCLKP	56	NC		NC
57	GND		Digital Ground	58	NC		NC
59	NC		NC	60	NC		NC
61	NC		NC	62	NC		NC
63	NC		NC	64	NC		NC
65	NC		NC	66	NC		NC
67	M2_PLTRST#	O	RESET#	68	I_SUSCLK	BI	SUSCLK
69	CFG1	I	CONFIG1	70	3VSB	O	+3.3V
71	GND		Digital Ground	72	3VSB	O	+3.3V
73	GND		Digital Ground	74	3VSB	O	+3.3V
75	CFG2	I	CONFIG2				

The CN5 and CN6 connectors are alternative options to connect peripheral devices, only one connector can be used at a time.

Mini PCIE Connector

Connector type: H: 9.9mm 90D 10u SMD
Connector location: CN6



Pin	Definition	Type	Description	Pin	Definition	Type	Description
1	S_WAKE#	O	WAKE#	2	3VSB	O	3.3V
3	NC		NC	4	GND		CHASIS_ GND
5	NC		NC	6	VCC1V5	O	1.5V
7	SRCCLKREQ2N	BI	CLKREQ#	8	UIM_PWR	O	UIM-PWR
9	USB11N	BI	CHASIS_ GND	10	UIM_DATA	O	UIM-DATA
11	S_CLKOUT_PCIE_N2	BI	REFCLK-	12	UIM_CLK	O	UIM-CLK
13	S_CLKOUT_PCIE_P2	BI	REFCLK+	14	UIM_RESET	O	UIM-RESET
15	GND		CHASIS_ GND	16	UIM_VPP	O	UIM-VPP
17	NC		NC	18	GND		CHASIS_ GND
19	NC		NC	20	3.3V	O	W_DISABLE#
21	GND		CHASIS_ GND	22	PLTRST#	O	PERST#
23	PCIE_mSATA_RXP	BI	PERN0/SATARXP	24	3VSB	O	3.3V
25	PCIE_mSATA_RXN	BI	PERP0/SATARXN	26	GND		CHASIS_ GND
27	GND		CHASIS_ GND	28	VCC1V5	O	1.5V

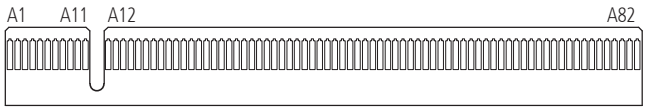
Continued on the next page

29	GND		CHASIS_ GND	30	SMB_CLK	BI	SMBUS_CLK
31	PCIE_mSATA_TXN	BI	PETN0/SATATXN	32	SMB_DAT	BI	SMBUS_DATA
33	PCIE_mSATA_TXP	BI	PETP0/SATATXP	34	GND		CHASIS_ GND
35	GND		CHASIS_ GND	36	USB_7N	BI	USBD-
37	GND		CHASIS_ GND	38	USB_7P	BI	USBD+
39	3VSB	O	3.3V	40	GND		CHASIS_ GND
41	3VSB	O	3.3V	42	NC		NC
43	GND		CHASIS_ GND	44	NC		NC
45	NC		NC	46	NC		NC
47	NC		NC	48	VCC1V5	O	1.5V
49	NC		NC	50	GND		CHASIS_ GND
51	SEL	O	PCIE/mSATA detect	52	3VSB	O	3.3V

The CN5 and CN6 connectors are alternative options to connect peripheral devices, only one connector can be used at a time.

PCIE x16 Gold Finger

Connector type: 164P PCI-E x16 non-Standard Pinout
Connector location: GFM1



Pin	Definition	Type	Description	Pin	Definition	Type	Description
A1	5VSB	O	5V	B1	VCC5	O	5V
A2	5VSB	O	5V	B2	VCC5	O	5V
A3	VCC12	O	12V	B3	VCC5	O	5V
A4	VCC12	O	12V	B4	VCC5	O	5V
A5	VCC12	O	12V	B5	VCC5	O	5V
A6	VCC12	O	12V	B6	GND		Digital GND
A7	VCC12	O	12V	B7	SMBCLK	O	SMBUS CLOCK
A8	VCC12	O	12V	B8	SMBDATA	BI	SMBUS DATA
A9	VCC12	O	12V	B9	GND		+TRST#
A10	GND		Digital GND	B10	GND		Digital GND
A11	PERSR#	I	PCI-Express Reset signal	B11	Wake	O	Link Reactivation
A12	GND		Digital GND	B12	NA		NA
A13	NA		NA	B13	GND		Digital GND
A14	NA		NA	B14	SOP7	O	Transmitter Lane 7, Differential pair+

Continued on the next page

A15	GND		Digital GND	B15	SON7	O	Transmitter Lane 7, Differential pair-
A16	SIP7	I	Receiver Lane 7 Differential pair+	B16	GND		Digital GND
A17	SIN7	I	Receiver Lane 7 Differential pair-	B17	PRSNT#2	O	Hotplug detect
A18	GND		Digital GND	B18	GND		Digital GND
A19	NA		NA	B19	SOP6	O	Transmitter Lane 6, Differential pair+
A20	GND		Digital GND	B20	SON6	O	Transmitter Lane 6, Differential pair-
A21	SIP6	I	Receiver Lane 6 Differential pair+	B21	GND		Digital GND
A22	SIN6	I	Receiver Lane 6 Differential pair-	B22	GND		Digital GND
A23	GND		Digital GND	B23	SOP5	O	Transmitter Lane 5, Differential pair+
A24	GND		Digital GND	B24	SON5	O	Transmitter Lane 5, Differential pair-
A25	SIP5	I	Receiver Lane 5 Differential pair+	B25	GND		Digital GND
A26	SIN5	I	Receiver Lane 5 Differential pair-	B26	GND		Digital GND
A27	GND		Digital GND	B27	SOP4	O	Transmitter Lane 4, Differential pair+
A28	GND		Digital GND	B28	SON4	O	Transmitter Lane, Differential pair-
A29	SIP4	I	Receiver Lane 4 Differential pair+	B29	GND		Digital GND

Continued on the next page

A30	SIN4	I	Receiver Lane 4 Differential pair-	B30	NA		NA
A31	GND		Digital GND	B31	PRSNT#2	O	Hot plug detect
A32	NA		NA	B32	GND		Digital GND
A33	NA		NA	B33	SOP3	O	Transmitter Lane 3, Differential pair+
A34	GND		Digital GND	B34	SON3	O	Transmitter Lane 3, Differential pair-
A35	SIP3	I	Receiver Lane 3 Differential pair+	B35	GND		Digital GND
A36	SIN3	I	Receiver Lane 3 Differential pair-	B36	GND		Digital GND
A37	GND		Digital GND	B37	SOP2	O	Transmitter Lane 2, Differential pair+
A38	GND		Digital GND	B38	SON2	O	Transmitter Lane 2, Differential pair-
A39	SIP2	I	Receiver Lane 2 Differential pair+	B39	GND		Digital GND
A40	SIN2	I	Receiver Lane 2 Differential pair-	B40	GND		Digital GND
A41	GND		Digital GND	B41	SOP1	O	Transmitter Lane 1, Differential pair+
A42	GND		Digital GND	B42	SON1	O	Transmitter Lane 1, Differential pair-
A43	SIP1	I	Receiver Lane 1 Differential pair+	B43	GND		Digital GND
A44	SIN1	I	Receiver Lane 1 Differential pair-	B44	GND		Digital GND

Continued on the next page

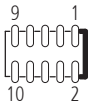
A45	GND		Digital GND	B45	SOP0	O	Transmitter Lane 0, Differential pair+
A46	GND		Digital GND	B46	SON0	O	Transmitter Lane 0, Differential pair-
A47	SIP0	I	Receiver Lane 0 Differential pair+	B47	GND		Digital GND
A48	SIN0	I	Receiver Lane 0 Differential pair-	B48	PRSNT#2		Hot plug detect
A49	GND		Digital GND	B49	GND		Digital GND
A50	GND		Digital GND	B50	GND		Digital GND
A51	GND		Digital GND	B51	GND		Digital GND
A52	GND		Digital GND	B52	3VSB	O	3.3V
A53	GND		Digital GND	B53	3VSB	O	3.3V
A54	GND		Digital GND	B54	3VSB	O	3.3V
A55	S_USB2_OC#7	O	USB OC	B55	3VSB	O	3.3V
A56	GND		Digital GND	B56	VCC3	O	3.3V
A57	USB2_8N	BI	USB Port DN signal	B57	VCC3	O	3.3V
A58	USB2_8P	BI	USB Port DP signal	B58	VCC3	O	3.3V
A59	GND		Digital GND	B59	VCC3	O	3.3V
A60	GND		Digital GND	B60	VCC3	O	3.3V
A61	USB2_9N	BI	USB Port DN signal	B61	VCC3	O	3.3V
A62	USB2_9P	BI	USB Port DP signal	B62	GND		Digital GND
A63	GND		Digital GND	B63	PWROK	O	Power OK
A64	GND		Digital GND	B64	GND		Digital GND
A65	GND		Digital GND	B65	PLTRST#		Platform Reset#
A66	GND		Digital GND	B66	ESPICLK	O	eSPI Clock
A67	eDP_VDDEN		eDP Power Enable	B67	ESPI_CS1#	O	eSPI chip selects

Continued on the next page

A68	eDP_TXN0	O	embedded DisplayPort* Transmit	B68	ESPI0	BI	Bi-directional data signals
A69	eDP_TXP0	O	embedded DisplayPort* Transmit	B69	ESPI1	BI	Bi-directional data signals
A70	eDP_TXN1	O	embedded DisplayPort* Transmit	B70	ESPI2	BI	Bi-directional data signals

USB2.0 Port / I2C Connector

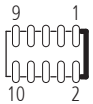
Connector type: 2.0mm Male 180D SMD
Connector location: CN7



Pin	Definition	Type	Description
1	LINE_L	O	LINE Input Left
2	LINE_OUT_L	O	LINE Output Left
3	LINE_R	BI	LINE Input Right
4	LINE_OUT_R	O	LINE Output Right
5	LININ_JD	BI	LINE Input detect
6	LINE2_JD	BI	LINE Output detect
7	GND		AUDIO_GND
8	GND		AUDIO_GND
9	GND		AUDIO_GND
10	GND		AUDIO_GND

USB2.0 Port / I2C Connector

Connector type: 2.0mm Male 180D SMD
Connector location: CN8



Pin	Definition	Type	Description
1	+5V	O	USB Port1 5V Power
2	GND		Digital GND
3	USB2_N4	BI	USB2 Port4 DN signal
4	USB2_P5	BI	USB2 Port5 DP signal
5	USB2_P4	BI	USB2 Port4 DP signal
6	USB2_N5	BI	USB2 Port5 DN signal
7	GND		Digital GND
8	+5V	O	USB Port1 5V Power
9	I2C_CLK	BI	I2C Clock
10	I2C_DAT	BI	I2C Data

Speaker Connector

Connector type: 1.0mm Male 180D 1A SMD
Connector location: J3

Pin	Definition	Type	Description
1	GND		AUDIO_GND
2	ROUTP	O	Right Output +
3	ROUTN	O	Right Output -
4	GND		AUDIO_GND
5	LOUTP	O	Left Output +
6	LOUTN	O	Left Output -

RTC Reset Connector

Connector type: 2.54mm Male 180D SMD
Connector location: JP1

Pin	Definition	Type	Description
1	NC		
2	RTC_RESET	O	RTC Reset
3	GND		Ground

Speaker Connector

Connector type: 2.0mm Male 180D SMD
Connector location: JP2

Pin	Definition	Type	Description
1	SYSRST#	O	System Reset
2	GND		Digital Ground

Front IO Connector

Connector type: 2.0mm Male 180D DIP
Connector location: JP3

Pin	Definition	Type	Description
1	SLP_S3	O	SLP_S3
2	PS_ON	O	Power Supply On
3	ATX_PBT	I	Power Button
4	GND		Digital Ground
5	SYSRESET#	O	System Reset
6	GND		Digital Ground

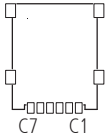
Remote Connector

Connector type: 2.54mm Male 180D SMD
Connector location: JP4

Pin	Definition	Type	Description
1	NC		
2	SRTC_RESET	O	SRTC Reset
3	GND		Ground

SIM Card Slot

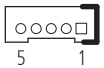
Connector type: 6P 12.4x14x1.5mm SMD No Push Type
Connector location: SIM1



Pin	Definition	Type	Description
C1	VCC		UIMPWR
C2	RESET		UIMRESET
C3	CLK		UIMCLK
C5	GND		Digital Ground
C6	VPP		UIMVPP
C7	I/O		UIMDATA

LED Connector

Connector type: 2.0mm Male 180D DIP
Connector location: WLED1

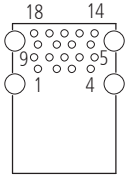


Pin	Definition	Type	Description
1	SATALED#	O	HDD_LED-
2	SATALEDPWR	O	HDD_LED+
3	GND	I	Chasis Ground
4	STBYLEDPWR		Standby_LED+
5	PWRLED	O	Power LED+

External I/O Pin Definitions

USB3.0 Port Connectors

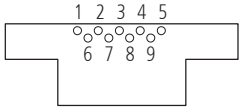
Connector type: 18P 90D Female DIP 30u 13.7x19.8x15.39mm
Connector location: CN2



Pin	Definition	Type	Description	Pin	Definition	Type	Description
1	+5V	O	USB Port1 5V Power	10	+5V	O	USB Port2 5V Power
2	USB2_N1	I/O	USB2 Port1 DN signal	11	USB2_N2	I/O	USB2 Port2 DN signal
3	USB2_P1	I/O	USB2 Port1 DP signal	12	USB2_P2	I/O	USB2 Port2 DP signal
4	GND		Digital GND	13	GND		Digital GND
5	USB3_RXN1	I/O	USB3 Port1 RXN signal	14	USB3_RXN2	I/O	USB3 Port2 RXN signal
6	USB3_RXP1	I/O	USB3 Port1 RXP signal	15	USB3_RXP2	I/O	USB3 Port2 RXP signal
7	GND		Digital GND	16	GND		Digital GND
8	USB3_TXN1	I/O	USB3 Port1 TXN signal	17	USB3_TXN2	I/O	USB3 Port2 TXN signal
9	USB3_TXP1	I/O	USB3 Port1 TXP signal	18	USB3_TXP2	I/O	USB3 Port2 TXP signal
MH1	CHASIS_GND		Chassis GND	MH2	CHASIS_GND		Chassis GND
MH3	CHASIS_GND		Chassis GND	MH4	CHASIS_GND		Chassis GND

COM1 Connector (RS232)

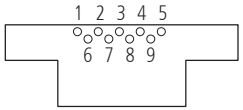
Connector type: 9P 90D Male DIP 30.81x12.55x4.5mm w/screw
Connector location: COM1



Pin	Definition	Type	Description	Pin	Definition	Type	Description
1	DCD	I	Data Carrier	2	RXD	I	Receive Data
3	TXD	O	Transmit Data	4	DTR	O	Data Terminal
5	GND		Isolation Ground	6	DSR	I	Data Set Ready
7	RTS	O	Request to Send	8	CTS	I	Clear to Send
9	RI	I	Ringing Indicator	10			

COM2 Connector (RS232/422/485, BIOS selectable)

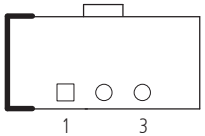
Connector type: 9P 90D Male DIP 30.81x12.55x4.5mm w/screw
Connector location: COM2



Pin	Definition	Type	Description	Pin	Definition	Type	Description
1	DCD	I	Data Carrier	2	RXD	I	Receive Data
3	TXD	O	Transmit Data	4	DTR	O	Data Terminal
5	GND		Isolation Ground	6	DSR	I	Data Set Ready
7	RTS	O	Request to Send	8	CTS	I	Clear to Send
9	RI	I	Ringing Indicator	10			

DC Input Connector

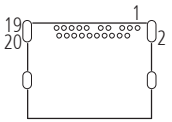
Connector type: 5.08mm Female 90D DIP
Connector location: DC24V_IN1



Pin	Definition	Type	Description
1	VINP		Power Postive
2	VINN	O	Power Native
3	Chasis_GND		CHASIS Ground

DP++ Port Connector

Connector type: 20P 90D Female DIP 16.4x12.6x6.08mm
Connector location: J2



Pin	Definition	Type	Description	Pin	Definition	Type	Description
1	DPTX0P	I/O	Lane 0 (positive)	11	GND		Ground
2	GND		Ground	12	DPTX3N	I/O	Lane 3 (negative)
3	DPTX0N	I/O	Lane 0 (negative)	13	CFG1	I/O	CONFIG1(H:AUX L:DDC)
4	DPTX1P	I/O	Lane 1 (positive)	14	CFG2	I/O	CONFIG2
5	GND		Ground	15	DPAUXPCLK	I/O	Auxiliary channel (positive)/DDCCLK
6	DPTX1N	I/O	Lane 1 (negative)	16	GND		Ground
7	DPTX2P	I/O	Lane 2 (positive)	17	DPAUXNDAT	I/O	Auxiliary channel (negative)/DDCDAT
8	GND		Ground	18	HPD	O	Hot plug detect
9	DPTX2N	I/O	Lane 2 (negative)	19	GND		Return for power
10	DPTX3P	I/O	Lane 3 (positive)	20	VCC3DP	O	Power for connector
MH1	GND		CHASIS GND	MH3	GND		CHASIS GND
MH2	GND		CHASIS GND	MH4	GND		CHASIS GND

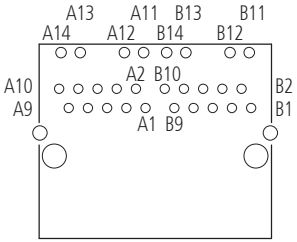
Remote Connector

Connector type: 2.0mm Male 180D SMD
Connector location: JP5

Pin	Definition	Type	Description
1	GND		Digital Ground
2	PWRBTN	O	Power Button

LAN Port Connectors

Connector type: 30.47x25.6x13.45mm 90D DIP w/TF&LED
Connector location: LAN1



Pin	Definition	Type	Description	Pin	Definition	Type	Description
A1	L1MDI0P	I/O	MDX0+	B1	L2MDI0P	I/O	MDX0+
A2	L1MDI0N	I/O	MDX0-	B2	L2MDI0N	I/O	MDX0-
A3	L1MDI1P	I/O	MDX1+	B3	L2MDI1P	I/O	MDX1+
A4	L1MDI1N	I/O	MDX1-	B4	L2MDI1N	I/O	MDX1-
A5	LAN1TCT	O	Transformer VCC	B5	LAN2TCT	O	Transformer VCC
A6	LAN1TCTG		Transformer GND	B6	LAN2TCTG		Transformer GND
A7	L1MDI2P	I/O	MDX2+	B7	L2MDI2P	I/O	MDX2+
A8	L1MDI2N	I/O	MDX2-	B8	L2MDI2N	I/O	MDX2-
A9	L1MDI3P	I/O	MDX3+	B9	L2MDI3P	I/O	MDX3+
A10	L1MDI3N	I/O	MDX3-	B10	L2MDI3N	I/O	MDX3-
A11	LAN1LINK1000L	O	LEDA-	B11	LAN2LINK1000L	O	LEDA-
A12	LAN1LINK100L	O	LEDA+	B12	LAN2LINK100L	O	LEDA+
A13	LAN1LEDACTL	O	LEDB-	B13	LAN2LEDACTL	O	LEDB-
A14	VCC3	O	LEDB+	B14	VCC3	O	LEDB+
MH1	GND		CHASIS GND	MH2	GND		CHASIS GND

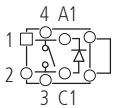
LED Housing

Connector type: GRE(LED1)YEL(LED2) H: 9.65mm 90D DIP
Connector location: LED1

Pin	Definition	Type	Description
A1	LED+		GREEN LED Postive
A2	LED+	O	YELLOW LED Postive
C1	LED-		GREEN LED Minus
C2	LED-		YELLOW LED Minus

Power Button Connector

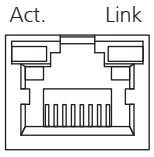
Connector type: DC12V 50mA DIP 8P 90D w/LED Blue/Red
Connector location: SW1



Pin	Definition	Type	Description
1	GND		A contact
2	ATX Button	O	B contact
3	ATX Button		B contact
4	GND		A contact
A1	LED+		LED Plus
C1	LED-		LED Minus

Lights blue when power is on, lights red when power is off.

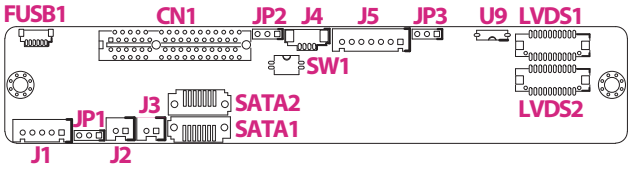
LAN LED Indicators



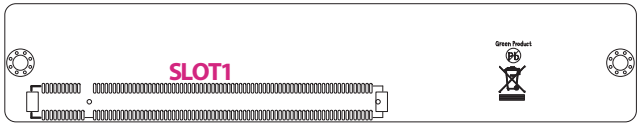
LAN Speed	Act. LED (Left)	Link LED (Right)
10	Yellow (Flash)	No light
100	Yellow (Flash)	Orange (Always On)
1000	Yellow (Flash)	Green (Always On)

Expansion Card Jumpers and Connectors

Top View



Bottom View



DIP Switch and Jumpers

Wire Selection

Connector type: 2.54mm H:8.5mm Male 180D
Connector location: JP1

Pin	Definition	Type	Description
1	NA	O	NA
2	TOUCH_YU	O	5 wire select
3	SENSE	O	4 wire select

Pin	Definition
1-2	5 Wire (Default)
2-3	4 Wire

Panel PWM Voltage Selection

Connector type: 2.54mm H:8.5mm Male 180D
Connector location: JP2

Pin	Definition	Type	Description
1-2	VCC3	O	3.3V
2-3	VCC5	O	5V

Panel Power Selection

Connector type: 2.54mm H:8.5mm Male 180D
Connector location: JP3

Pin	Definition	Type	Description
1-2	VCC3	O	3.3V
2-3	VCC5	O	5V

PWM / CCFL DIP Switch

Connector type: 4P 4.1x8x2.5 mm
Connector location: SW1

Mode	CCFL Mode	PWM Mode
SW2-1	OFF	ON
SW2-2	ON	OFF

eDP/LVDS Function DIP Switch

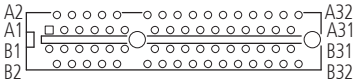
Connector type: 2P 2.5x8x2.5 mm
Connector location: U9

Pin	Definition	Type	Description
1	OFF	O	eDP (HIGH)
2	ON	O	LVDS (LOW)

I/O Pin Definitions

PCIe x4 Slot

Connector type: 64P PCIe x4 Standard Slot
Connector location: CN1



Pin	Definition	Type	Description	Pin	Definition	Type	Description
A1	PRSNT1	I	PRESENT 1	B1	VCC12	O	12V
A2	VCC12	O	12V	B2	VCC12	O	12V
A3	VCC12	O	12V	B3	VCC12	O	12V
A4	GND		Digital GND	B4	GND		Digital GND
A5	JTAG2	O	TCK	B5	SMCLK	BI	SMBus clock
A6	JTAG3	I	TDI	B6	SMDAT	BI	SMBus data
A7	JTAG4	O	TDO	B7	GND		Digital GND
A8	JTAG5	I	TMS	B8	VCC3	O	3.3V
A9	VCC3	O	3.3V	B9	JTAG1	O	+TRST#
A10	VCC3	O	3.3V	B10	3.3Vaux	O	3.3V
A11	PERST#	I	PCI-Express Reset signal	B11	WAKE#	O	Link Reactivation
A12	GND		Digital GND	B12	RSVD		Reserved
A13	REFCLK+	O	Reference Clock ifferential pair+	B13	GND		Digital GND

Continued on the next page

A14	REFCLK-	O	Reference Clock Differential pair-	B14	SOP0	O	Transmitter Lane 0, Differential pair+
A15	GND		Digital GND	B15	SON0	O	Transmitter Lane 0, Differential pair-
A16	SIP0	I	Receiver Lane 0, Differential pair+	B16	GND		Digital GND
A17	SIN0	I	Receiver Lane 0, Differential pair-	B17	PRSNT2	I	HotPlug detect
A18	GND		Digital GND	B18	GND		Digital GND
A19	RSVD		Reserved	B19	SOP1	O	Transmitter Lane 1, Differential pair+
A20	GND		Digital GND	B20	SON1	O	Transmitter Lane 1, Differential pair-
A21	SIP1	I	Receiver Lane 1 Differential pair+	B21	GND		Digital GND
A22	SIN1	I	Receiver Lane 1, ifferential pair-	B22	GND		Digital GND
A23	GND		Digital GND	B23	SOP2	O	Transmitter Lane 2 Differential pair+
A24	GND		Digital GND	B24	SON2	O	Transmitter Lane 2 Differential pair-
A25	SIP2	I	Receiver Lane 2 Differential pair+	B25	GND		Digital GND
A26	SIN2	I	Receiver Lane 2 Differential pair-	B26	GND		Digital GND
A27	GND		Digital GND	B27	SOP3	O	Transmitter Lane 3 Differential pair+

Continued on the next page

A28	GND		Digital GND	B28	SON3	O	Transmitter Lane 3 Differential pair-
A29	SIP3	I	Receiver Lane 3 Differential pair+	B29	GND		Digital GND
A30	SIN3	I	Receiver Lane 3 Differential pair-	B30	RSVD		Reserved
A31	GND		Digital GND	B31	PRSNT2	I	HotPlug detect
A32	RSVD		Reserved	B32	GND		Digital GND

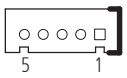
Resistance Touch Connector

Connector type: 6P 180D Male SMD 5x6, 4x8mm
Connector location: FUSB1

Pin	Definition	Type	Description
1	+5V	O	USB Port 5V Power
2	+5V	O	USB Port 5V Power
3	USB_N	BI	USB Port DN signal
4	USB_P	BI	USB Port DP signal
5	GND		GROUND
6	GND		GROUND

Resistance Touch Connector

Connector type: 5P 180D Male DIP 15x5.7x7mm
Connector location: J1



5-Wire

Pin	Definition	Type	Description
1	TOUCH_YD	O	UR(H)
2	TOUCH_XR	O	LR(X)
3	SENSE	O	SENSE(S)
4	TOUCH_YU	O	UL(Y)
5	TOUCH_XL	O	LL(L)

4-Wire

Pin	Definition	Type	Description
1	TOUCH_YD	O	BOTTOM
2	TOUCH_XR	O	RIGHT
3	SENSE	O	N/A
4	TOUCH_YU	O	TOP
5	TOUCH_XL	O	LEFT

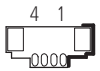
SATA Power Connectors

Connector type: 2P 7.5x5.7x7 mm Wafer DIP
Connector location: J2 and J3

Pin	Definition	Type	Description
1	VCC5	O	5V
2	GND		Digital GND

eDP Inverter Connector

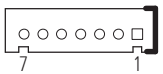
Connector type: 4P 2.54mm 9.65x5x3.7mm 180D Wafer DIP
Connector location: J4



Pin	Definition	Type	Description
1	GND		Digital GND
2	BKLTCTRL	O	Backlight Control
3	GND		Digital GND
4	BKLTEN	O	Backlight Enable

LVDS Inverter Connector

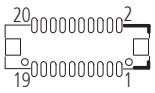
Connector type: 7P 2.54mm 20x5.7x7mm 180D Wafer DIP
Connector location: J5



Pin	Definition	Type	Description
1	VCC5	O	5V
2	V_INV	O	12V
3	V_INV	O	12V
4	BKLTCTRL	O	Backlight Control
5	GND		Digital GND
6	GND		Digital GND
7	BKLTEN	O	Backlight Enable

LVDS / eDP Connector

Connector type: 20P 1.25mm Male 180D DIP
Connector location: LVDS1

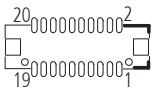


Pin	Definition	Type	Description
1	CH_GPIO0	O	GPIO
2	CH_GPIO1	O	GPIO
3	VCCLCD	O	LCD POWER
4	LVDS_DAT0P	O	LVDS DATA0P/eDP_HPD
5	LVDS_DAT3P	O	DATA3P
6	LVDS_DAT0N	O	DATA0N
7	LVDS_DAT03N	O	DATA3N
8	VCCLCD	O	LCD POWER
9	GND		GROUND
10	LVDS_DAT1P	O	LVDS DATA1P/eDP_TX1P

Pin	Definition	Type	Description
11	LVDS_CLK1P	O	LVDS CLK1P/ eDP_AUXP
12	LVDS_DAT1N	O	LVDS DATA1N/ eDP_TX1P
13	LVDS_CLK1N	O	LVDS CLK1N/ eDP_AUXN
14	GND		GROUND
15	GND		GROUND
16	V_INV	O	12V
17	LVDS_DAT2P	O	LVDS DATA2P/ eDP_TX0P
18	V_INV	O	12V
19	LVDS_DAT2N	O	LVDS DATA2N/ eDP_ TX0N
20	GND		GROUND

LVDS Connector

Connector type: 20P 1.25mm Male 180D DIP
Connector location: LVDS2

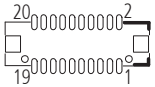


Pin	Definition	Type	Description
1	CH_GPIO2	O	GPIO
2	CH_GPIO3	O	GPIO
3	VCCLCD	O	LCD POWER
4	LVDS_DAT4P	O	LVDS DATA4P
5	LVDS_DAT7P	O	DATA7P
6	LVDS_DAT4N	O	DATA4N
7	LVDS_DAT07N	O	DATA7N
8	VCCLCD	O	LCD POWER
9	GND		GROUND
10	LVDS_DAT5P	O	LVDS DATA5P

Pin	Definition	Type	Description
11	LVDS_CLK2P	O	LVDS CLK2P
12	LVDS_DAT5N	O	LVDS DATA5N
13	LVDS_CLK2N	O	LVDS CLK2N
14	GND		GROUND
15	GND		GROUND
16	V_INV	O	12V
17	LVDS_DAT6P	O	LVDS DATA6P
18	V_INV	O	12V
19	LVDS_DAT6N	O	LVDS DATA6N
20	GND		GROUND

SATA Connectors

Connector type: 7P 4.1x8x2.5 mm
Connector location: SATA1 and SATA2



Pin	Definition	Type	Description
1	GND		Digital GND
2	TXP	O	SATA TRANSMIT+
3	TXN	O	SATA TRANSMIT-
4	GND		Digital GND
5	RXN	I	SATA RECEIVE-
6	RXP	I	SATA RECEIVE+
7	GND		Digital GND

PCIe x16 Slot

Connector type: 164P PCIe x16 non-Standard Pinout
Connector location: SLOT1

Pin	Definition	Type	Description	Pin	Definition	Type	Description
A1	5VSB	O	5V	B1	VCC5	O	5V
A2	5VSB	O	5V	B2	VCC5	O	5V
A3	VCC12	O	12V	B3	VCC5	O	5V
A4	VCC12	O	12V	B4	VCC5	O	5V
A5	VCC12	O	12V	B5	VCC5	O	5V
A6	VCC12	O	12V	B6	GND		Digital GND
A7	VCC12	O	12V	B7	SMBCLK	O	SMBus clock
A8	VCC12	O	12V	B8	SMBDATA	BI	MAIN_SMBDATA
A9	VCC12	O	12V	B9	GND		+TRST#
A10	GND		Digital GND	B10	GND		Digital GND
A11	PERSR#	I	PCI-Express Reset signal	B11	Wake	O	Link Reactivation
A12	GND		Digital GND	B12	NA		NA
A13	NA		NA	B13	GND		Digital GND
A14	NA		NA	B14	NA		NA

Continued on the next page

A15	GND		Digital GND	B15	NA		NA
A16	NA		NA	B16	GND		Digital GND
A17	NA		NA	B17	PRSNT#2	O	Hotplug detect
A18	GND		Digital GND	B18	GND		Digital GND
A19	NA		NA	B19	NA		NA
A20	GND		Digital GND	B20	NA		NA
A21	NA		NA	B21	GND		Digital GND
A22	NA		NA	B22	GND		Digital GND
A23	GND		Digital GND	B23	NA		NA
A24	GND		Digital GND	B24	NA		NA
A25	NA		NA	B25	GND		Digital GND
A26	NA		NA	B26	GND		Digital GND
A27	GND		Digital GND	B27	NA		NA
A28	GND		Digital GND	B28	NA		NA
A29	NA		NA	B29	GND		Digital GND
A30	NA		NA	B30	NA		NA
A31	GND		Digital GND	B31	PRSNT#2	O	Hot plug detect
A32	NA		NA	B32	GND		Digital GND
A33	NA		NA	B33	SOP3	O	Transmitter Lane 3, Differential pair+
A34	GND		Digital GND	B34	SON3	O	Transmitter Lane 3, Differential pair-
A35	SIP3	I	Receiver Lane 3 Differential pair+	B35	GND		Digital GND
A36	SIN3	I	Receiver Lane 3 Differential pair-	B36	GND		Digital GND
A37	GND		Digital GND	B37	SOP2	O	Transmitter Lane 2, Differential pair+

Continued on the next page

A38	GND		Digital GND	B38	SON2	O	Transmitter Lane 2, Differential pair-
A39	SIP2	I	Receiver Lane 2 Differential pair+	B39	GND		Digital GND
A40	SIN2	I	Receiver Lane 2 Differential pair-	B40	GND		Digital GND
A41	GND		Digital GND	B41	SOP1	O	Transmitter Lane 1, Differential pair+
A42	GND		Digital GND	B42	SON1	O	Transmitter Lane 1, Differential pair-
A43	SIP1	I	Receiver Lane 1 Differential pair+	B43	GND		Digital GND
A44	SIN1	I	Receiver Lane 1 Differential pair-	B44	GND		Digital GND
A45	GND		Digital GND	B45	SOP0	O	Transmitter Lane 0, Differential pair+
A46	GND		Digital GND	B46	SON0	O	Transmitter Lane 0, Differential pair-
A47	SIP0	I	Receiver Lane 0 Differential pair+	B47	GND		Digital GND
A48	SIN0	I	Receiver Lane 0 Differential pair-	B48	PRSNT#2		Hot plug detect
A49	GND		Digital GND	B49	GND		Digital GND
A50	GND		Digital GND	B50	GND		Digital GND
A51	GND		Digital GND	B51	GND		Digital GND
A52	GND		Digital GND	B52	3VSB	O	3.3V
A53	GND		Digital GND	B53	3VSB	O	3.3V
A54	GND		Digital GND	B54	3VSB	O	3.3V

Continued on the next page

A55	S_USB2_OC#7	O	USB OC	B55	3VSB	O	3.3V
A56	GND		Digital GND	B56	VCC3	O	3.3V
A57	USB2_8N	BI	USB Port DN signal	B57	VCC3	O	3.3V
A58	USB2_8P	BI	USB Port DP signal	B58	VCC3	O	3.3V
A59	GND		Digital GND	B59	VCC3	O	3.3V
A60	GND		Digital GND	B60	VCC3	O	3.3V
A61	USB2_9N	BI	USB Port DN signal	B61	VCC3	O	3.3V
A62	USB2_9P	BI	USB Port DP signal	B62	GND		Digital GND
A63	GND		Digital GND	B63	PWROK	O	Power OK
A64	GND		Digital GND	B64	GND		Digital GND
A65	GND		Digital GND	B65	NA		NA
A66	GND		Digital GND	B66	ESPICLK	O	eSPI Clock
A67	eDP_VDDEN		eDP Power Enable	B67	ESPI_CS1#	O	eSPI chip selects
A68	eDP_TXN0	O	embedded DisplayPort* Transmit	B68	ESPI0	BI	Bi-directional data signals
A69	eDP_TXP0	O	embedded DisplayPort* Transmit	B69	ESPI1	BI	Bi-directional data signals
A70	eDP_TXN1	O	embedded DisplayPort* Transmit	B70	ESPI2	BI	Bi-directional data signals
A71	eDP_TXP1	O	embedded DisplayPort* Transmit	B71	ESPI3	BI	Bi-directional data signals
A72	eDP_TXN2	O	embedded DisplayPort* Transmit	B72	ESPI_ALERT	O	ESPI Alert
A73	eDP_TXP2	O	embedded DisplayPort* Transmit	B73	ESPI_RST	O	eSPI reset
A74	eDP_TXN3	O	embedded DisplayPort* Transmit	B74	GND		Digital GND

Continued on the next page

A75	eDP_TXP3	O	embedded DisplayPort* Transmit	B75	SATA2_RXN	BI	SATA Receive -
A76	eDP_AUXN	BI	embedded DisplayPort* Auxiliary:	B76	SATA2_RXP	BI	SATA Receive +
A77	eDP_AUXP	BI	embedded DisplayPort* Auxiliary:	B77	SATA2_TXN	BI	SATA Transmit -
A78	eDP_BKLTCTL	O	embedded Backlight Control	B78	SATA2_TXP	BI	SATA Transmit +
A79	eDP_HPD	O	embedded Hotplug	B79	SATA3_RXN	BI	SATA Receive -
A80	eDP_BKLEN		embedded Backlight Enable	B80	SATA3_RXP	BI	SATA Receive +
A81	REFCLK+	O	Reference Clock Differential pair+	B81	SATA3_TXN	BI	SATA Transmit -
A82	REFCLK-	O	Reference Clock Differential pair-	B82	SATA3_TXP	BI	SATA Transmit +

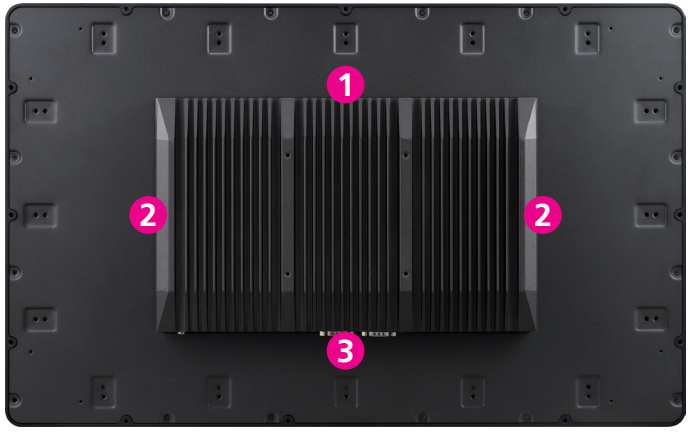
Chapter 3: System Setup

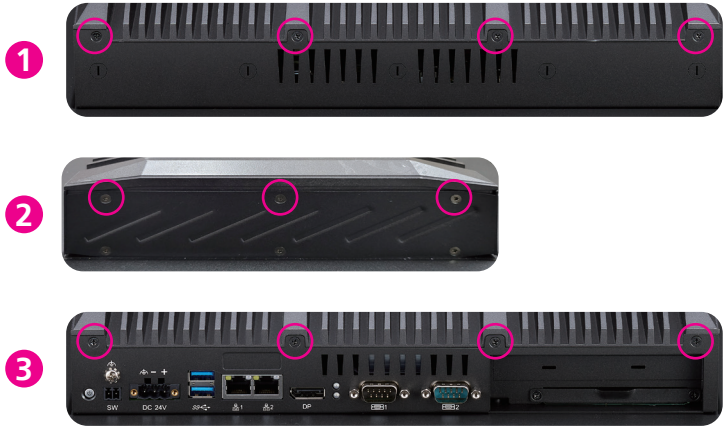
Removing the Chassis Bottom Cover

Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

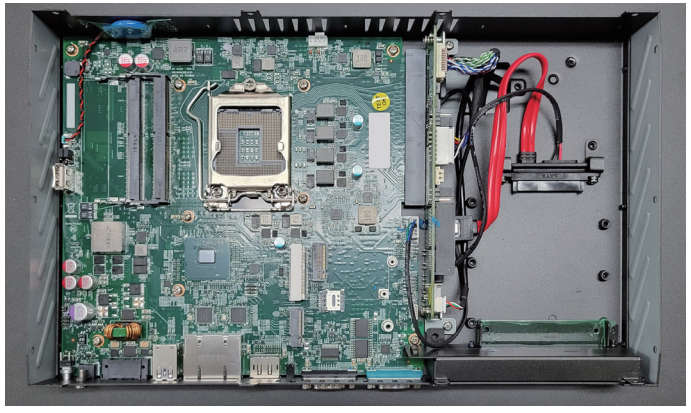
The installations shown in this chapter use the IPPC 2411-C11 as an example; the installations for the other models in this series are the same.

1. Locate and remove the 14 mounting screws from the rear panel.



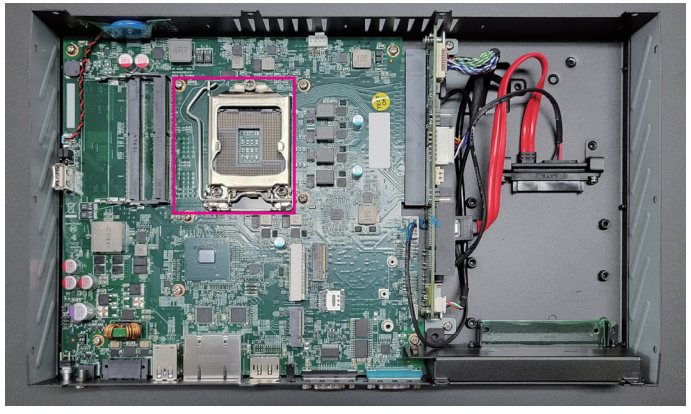


2. With the screws removed, lift up the cover and remove it from the chassis.



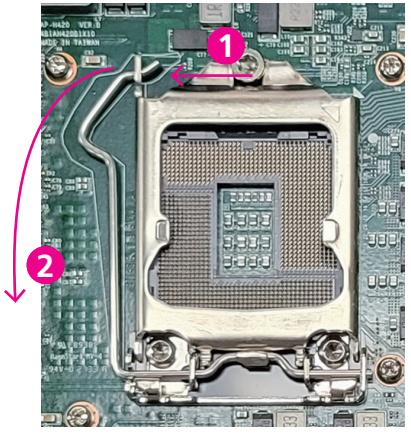
Installing a CPU

1. Locate the CPU socket on the motherboard.

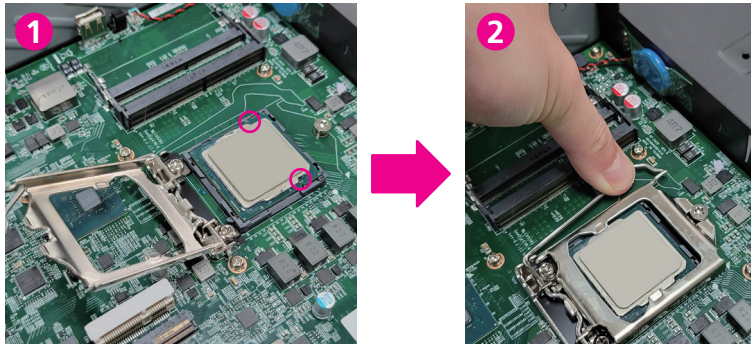


Remove the protective cover from the CPU socket before installing a CPU.

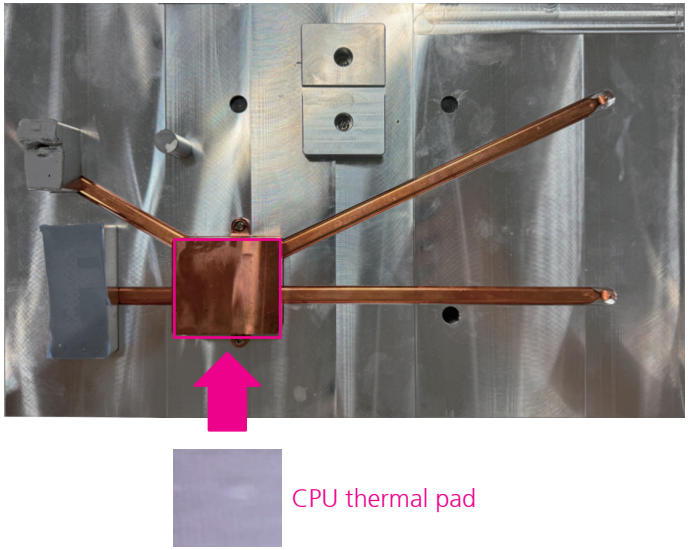
2. Push the CPU socket lever outward (1) and lift it upwards to open the socket (2).



3. Install the CPU into the socket, making sure to align the "foolproof" marks (1), and secure it in place by gently lowering the lever until it clicks into place (2).

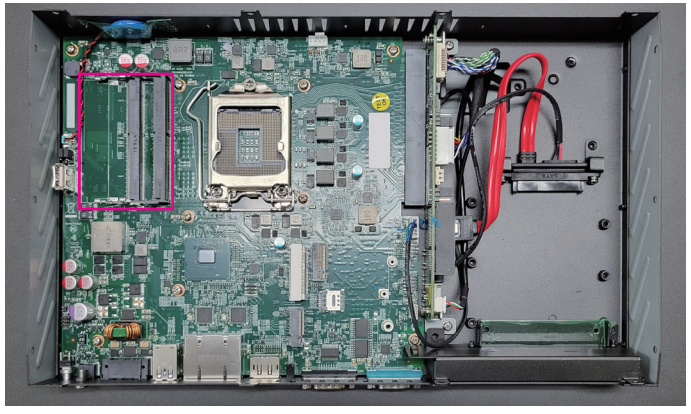


4. Attach the CPU thermal pad provided in the accessory box on the top cover, ensuring that it is evenly and firmly attached, and remove the protective film before use.



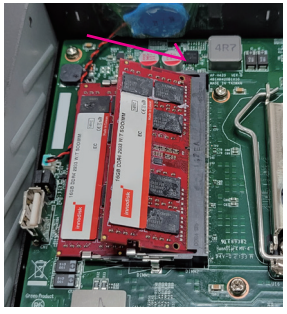
Installing a SO-DIMM Memory Module

1. Locate the SO-DIMM socket on the motherboard.



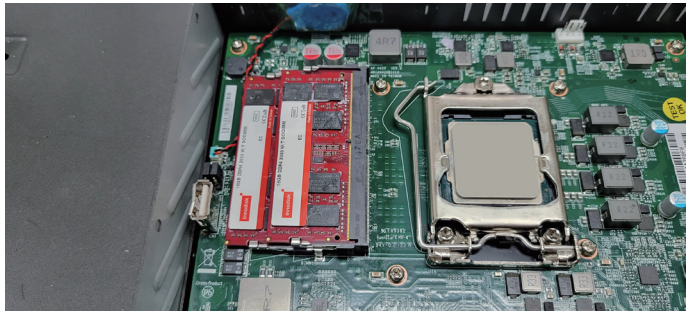
Remove the top cover before installing a SO-DIMM.

2. Insert the module into the socket at an approximately 30-degree angle. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.

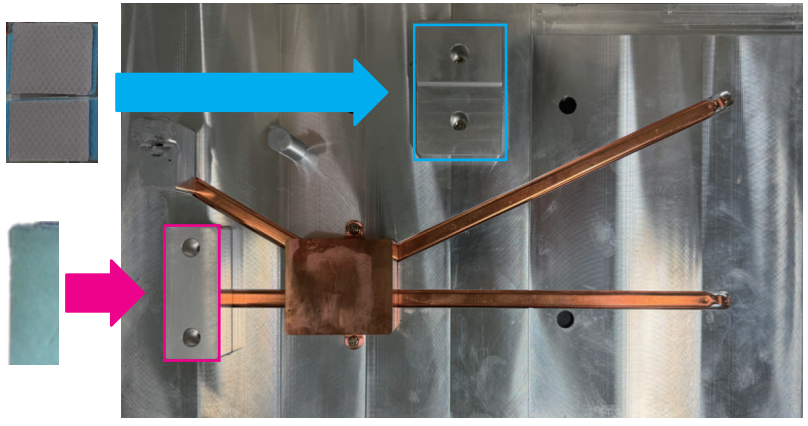


There is no particular order for inserting memory modules.

3. Push the module down until the clips on both sides of the socket lock into position.

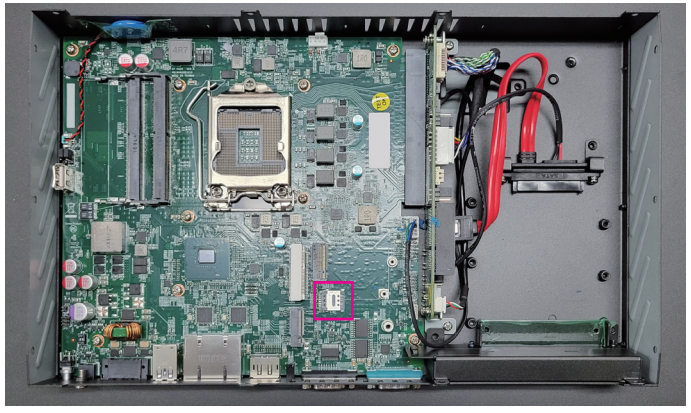


4. Attach the thermal pad (refer to the red square below) provided in the accessory box for the memory module on the top cover, ensuring it is evenly and securely attached, and remove the protective film before use. The blue square marks the area where the thermal pad for the mini-PCIe/M.2 module should be attached.

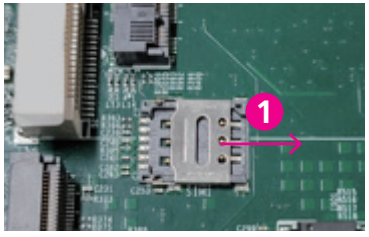


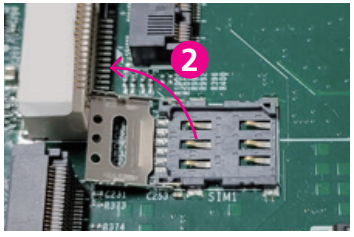
Installing an SIM card

1. Locate the SIM holder on the motherboard.

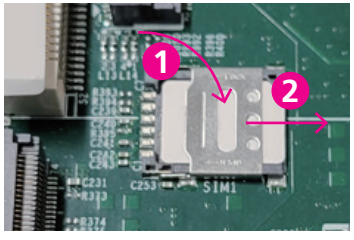


2. Slide the SIM holder cover forward (1) and lift it up (2).



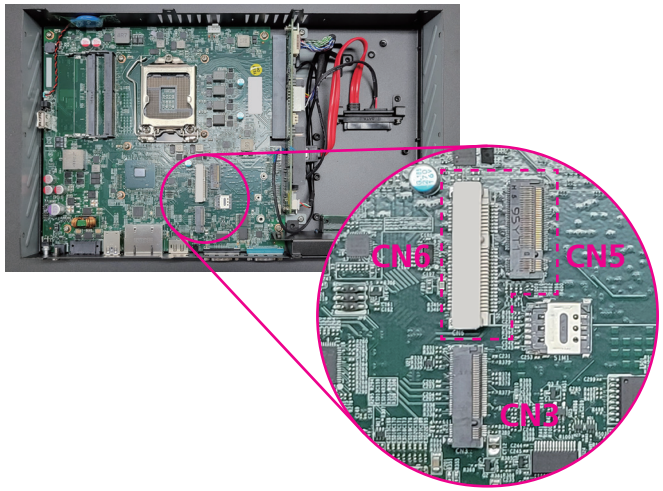


3. Insert your SIM card into the holder. Reverse the previous step to secure the SIM card holder cover.

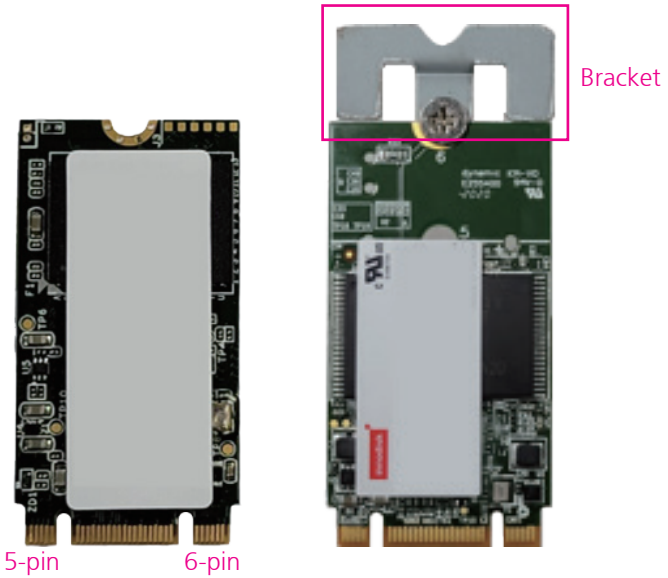


Installing an M.2 Module

1. Locate the M.2 Key B slots (CN3, CN5) on the board.



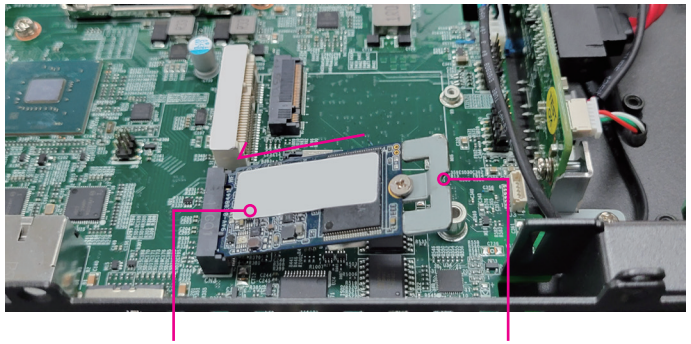
2. Make sure the gold-plated 5-pin connector on the edge of the module is on the left, while the 6-pin connector is on the right.



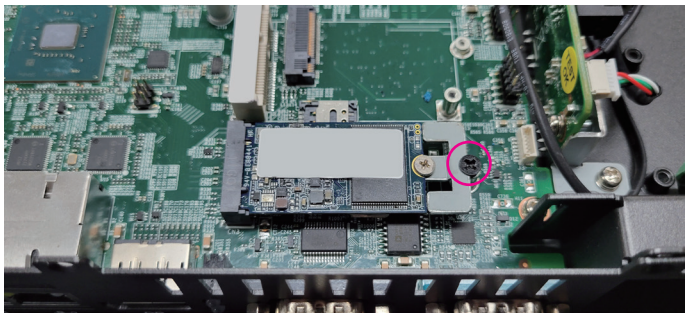
The M.2 slot (CN5) that overlaps with the miniPCIe (CN6) slot is alternate.

To install a 2242 M.2 card on slot CN3, please mount a bracket with the M.2 card.

3. Insert the M.2 module into the M.2 slot at 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.

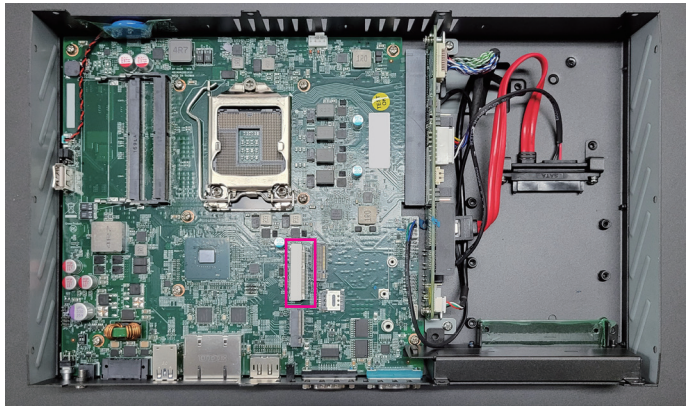


4. Push the module down and secure it with a screw.



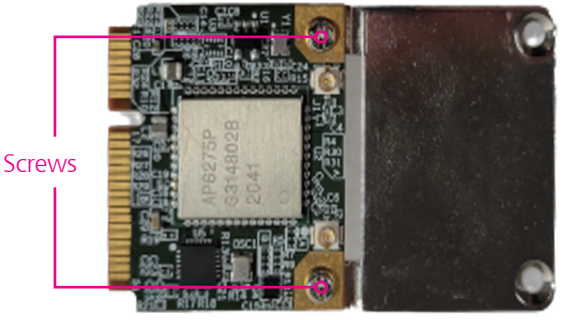
Installing a mini-PCIe Module

1. Locate the mini-PCIe slot on the motherboard.

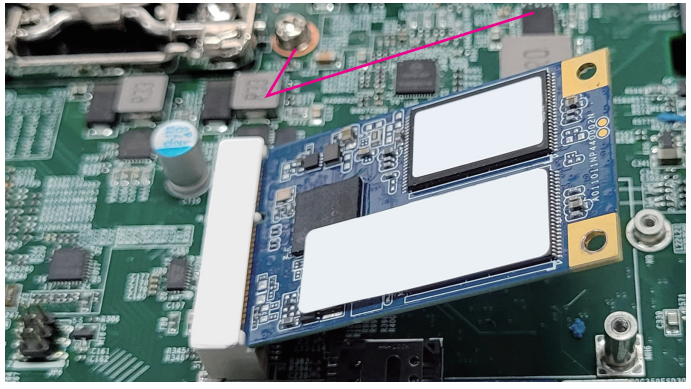


The M.2 slot (CN5) that overlaps with the miniPCIe (CN6) slot is alternate.

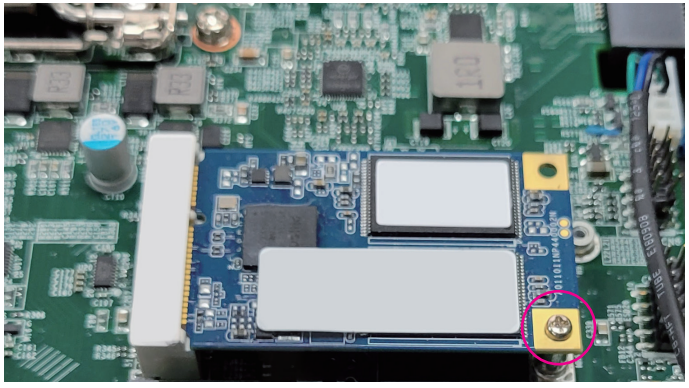
2. Install the mini-PCIe bracket to the mini-PCIe module (When using a half-size module).



3. Insert the WLAN module into the mini-PCIe slot at 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.



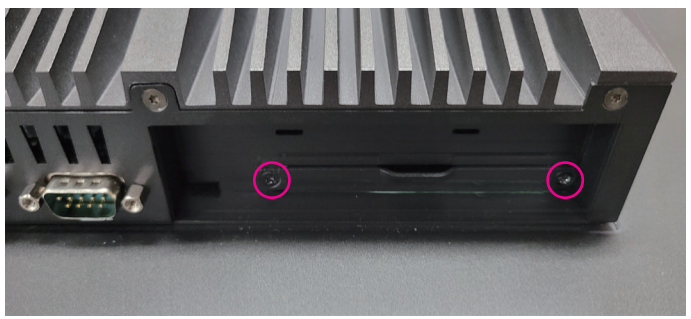
4. Push the module down and secure it with a screw.



Installing a 2.5” SSD

1. Locate the 2.5” SSD tray on the system.

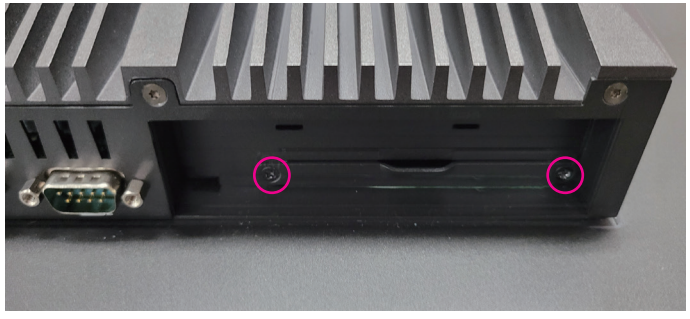
2. Loosen the 2 screws and pull out the tray.



3. Follow the steps shown in the images below to assemble the tray with a 2.5” SSD.

4. Insert the SSD with the tray installed into the system.

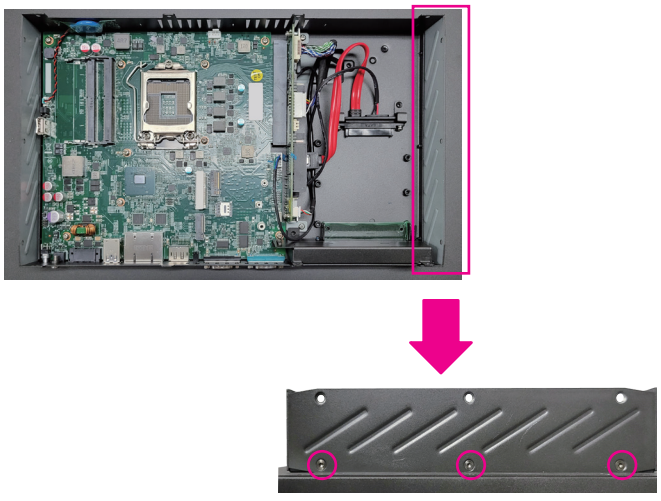
5. Secure it with 2 screws.



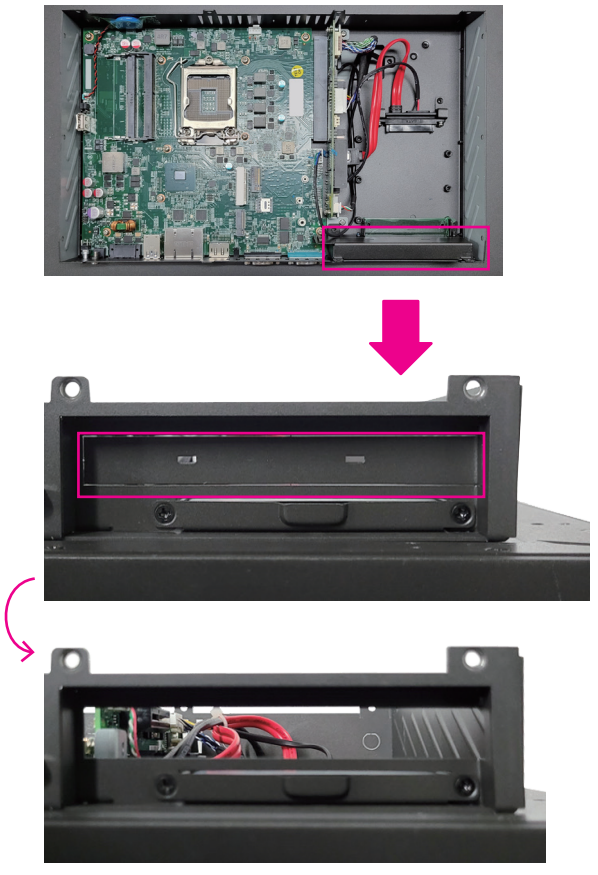
This system only supports SSDs (Solid-State Drives) and does not recommend the installation of traditional HDDs (Hard Disk Drives).

Installing a PCIe x4 Card

1. Remove the side panel by unscrewing the screws.



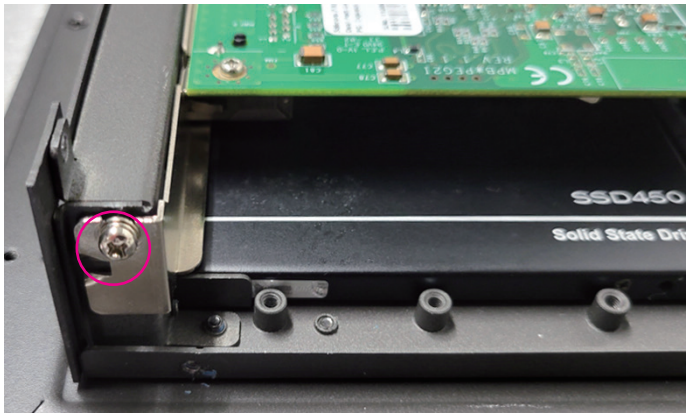
2. Refer to the images below to remove the expansion slot cover.



3. Carefully insert the PCIe expansion card into the PCIe x4 slot (CN1).

Before inserting a PCIe card, ensure that the attached expansion card is firmly inserted into the motherboard.

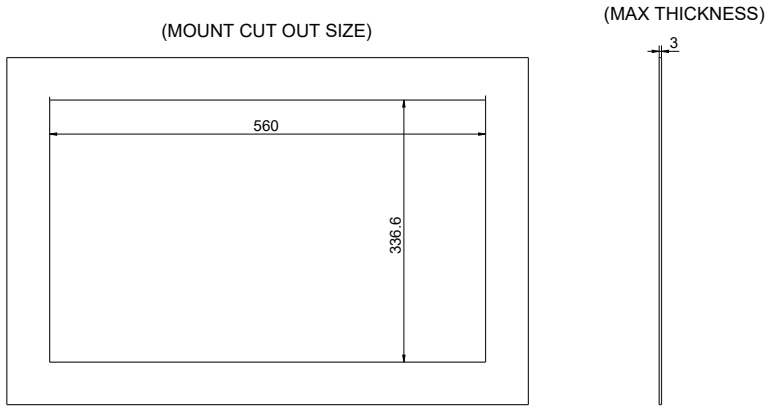
4. Lock the bracket of the PCIe card into the chassis.



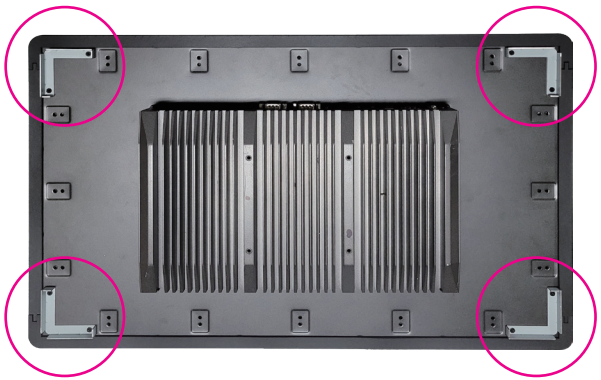
5. Install the side panel back.

Panel mount

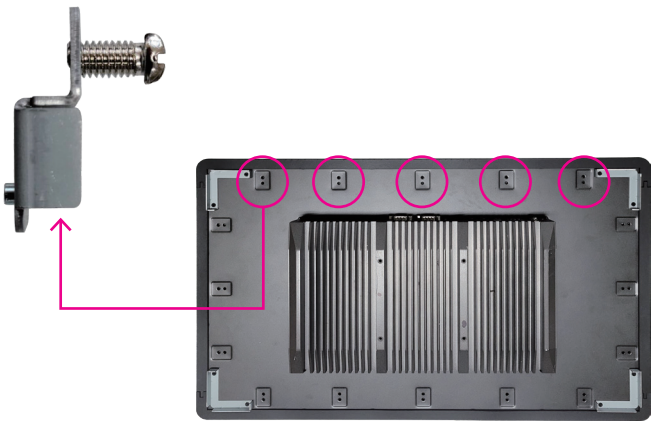
- Select a place on the panel where you will mount the Panel PC.
- Cut out a shape on the panel that corresponds to the Panel PC's rear dimensions. The thickness of the panel (e.g. steel board, plank, acrylic board, wall, etc.) where you will mount the industrial panel PCs must not be more than 3mm. If the distance between the front bezel and panel mount hole is too wide, it will not fit the panel mount kit.



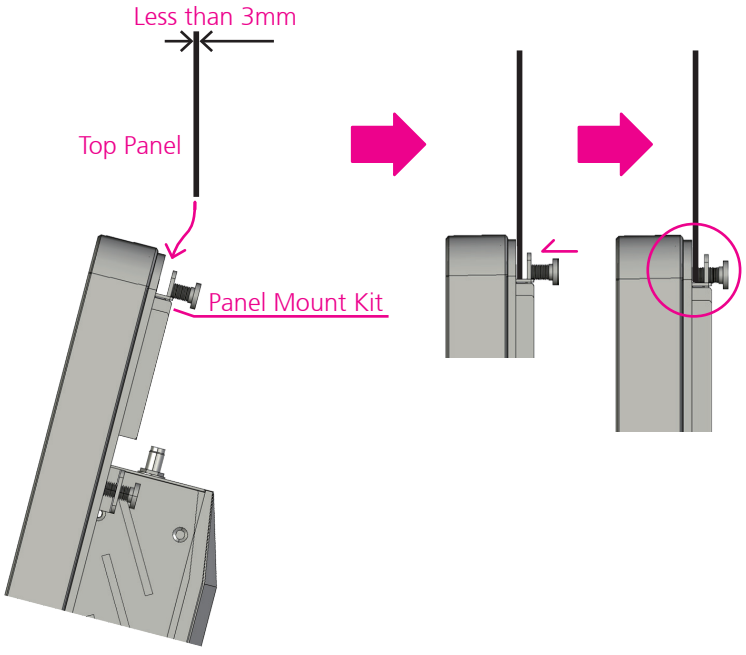
1. Install the panel mount corner brackets.



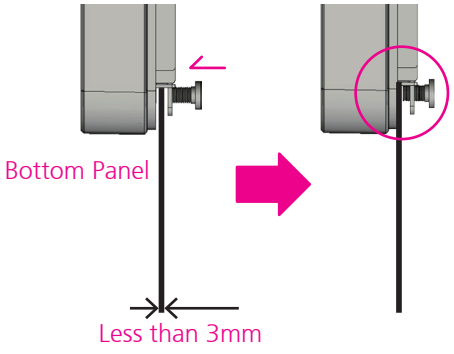
2. Install top side panel mount kit. Make sure the screw is in the high position.



3. Follow the illustrations below to mount the system to the top panel, then tighten the mounting kit screws.

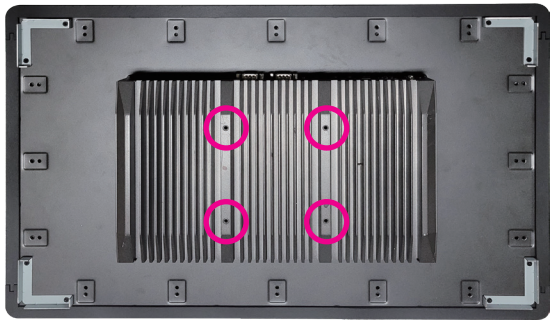


4. Follow the previous procedure to mount the system to the bottom panel. Ensure that all screws are tightened.



VESA Mounting

1. Align the mounting holes on the VESA mounting bracket with the VESA mounting holes on the back of the Panel PC, then secure the VESA mounting bracket with screws.



VESA mounting bracket

It is recommended that the screw specification used to secure the VESA mounting is M4 x 5mm.

2. Secure the VESA bracket base to the wall/surface with screws.

VESA bracket base

3. Slide the VESA mounting bracket onto the base of the bracket until the Panel PC is firmly fixed to the wall/surface. Then fasten screws into the mounting holes between the brackets to secure the Panel PC in place.

Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the IPPC xx11-C11 series. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM Web site at www.nexcom.com.tw.

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the setup options, and second, to make settings appropriate for the way you use the computer.

When to Configure the BIOS

- This program should be executed under the following conditions:
- When changing the system configuration
- When a configuration error is detected by the system and you are prompted to make changes to the setup program
- When resetting the system clock
- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

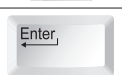
- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <Del> allows you to enter Setup.

Press the 

key to enter Setup:

Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menus or fields.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	Press <Enter> to enter the highlighted sub-menu

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

When "▶" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press 

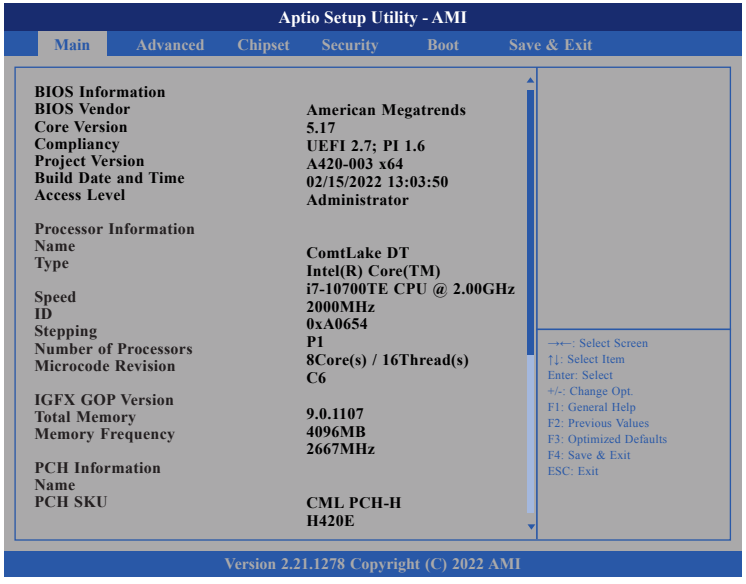
.

BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press Enter to accept or enter the submenu.

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

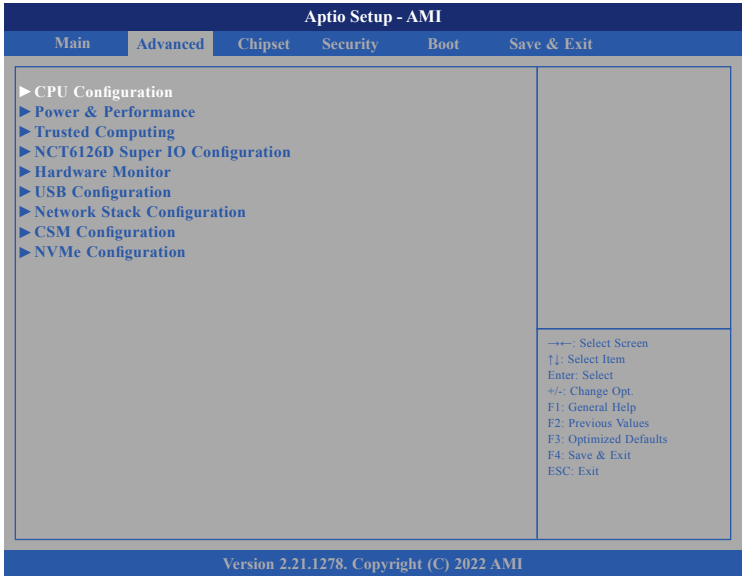
System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

Advanced

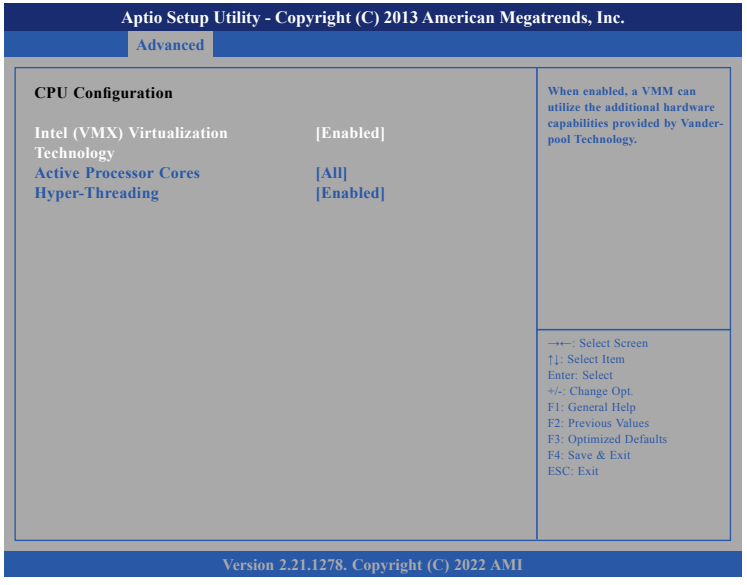
The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to configure CPU settings.



Intel (VMX) Virtualization Technology

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Processor Cores

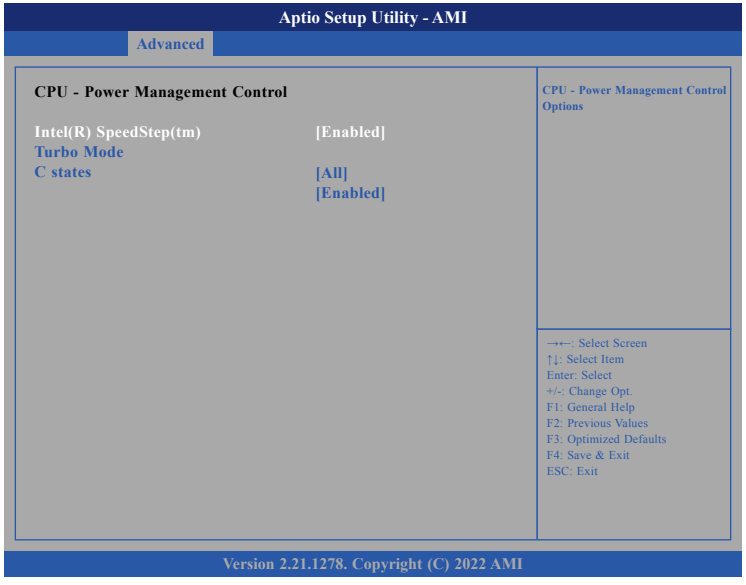
Select the number of cores to enable in each processor package.

Hyper-threading

Enable or disable hyper-threading technology.

Power & Performance > CPU - Power Management Control

This section is used to configure the CPU power management features.



Intel(R) SpeedStep(tm)

Enable or disable Intel® SpeedStep.

Turbo mode

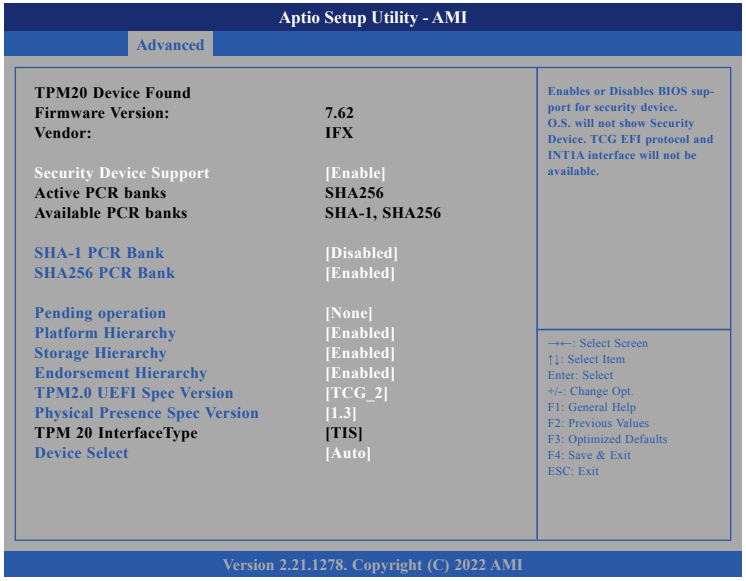
Enable or disable processor turbo mode.

C states

Enable or disable CPU power management. It allows CPU to go to C states when it's not 100% utilized.

Trusted Computing

This section is used to configure Trusted Platform Module (TPM) settings.



Security Device Support
Enable or disable BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

SHA-1 PCR Bank
Enable or disable SHA-1 PCR Bank.

SHA256 PCR Bank
Enable or disable SHA256 PCR Bank.

Pending operation
Schedule an operation for the security device. Note that your device will reboot during restart in order to change State of Security Device.

Platform Hierarchy
Enable or disable platform hierarchy.

Storage Hierarchy
Enable or disable storage hierarchy.

Endorsement Hierarchy
Enable or disable endorsement hierarchy.

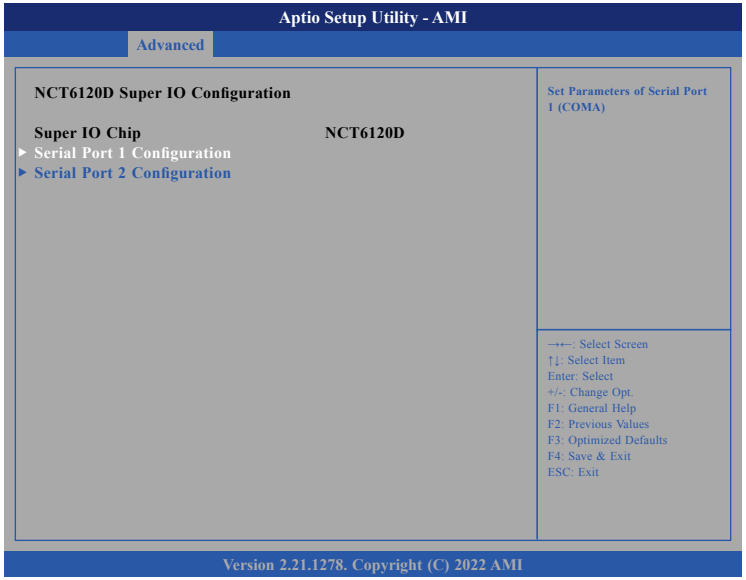
TPM2.0 UEFI Spec Version
Configure the TPM 2.0 UEFI spec version.
TCG_1_2: Compatible mode for Win8/WIn10.
TCG_2: Support new TGG2 protocol and event format for Win10 or later.

Physical Presence Spec Version
Configure the physical presence spec version. Note that some HCK tests might not support 1.3.

Device Select
Configure the TPM version. TPM 1.2 will restrict support to TPM 1.2 devices and TPM 2.0 will restrict support to TPM 2.0 devices. Auto will support both TPM 1.2 and 2.0 devices with the default set to TPM 2.0 devices if not found, and TPM 1.2 devices will be enumerated.

NCT6126D Super IO Configuration

This section is used to configure the serial ports.



Super IO Chip
Displays the Super I/O chip used on the board.

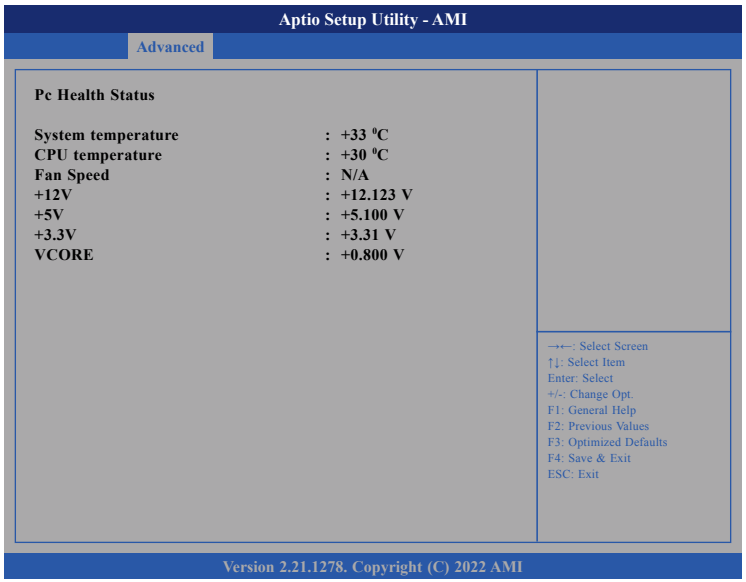
Serial Port 1 Configuration > Serial Port
Enable or disable the serial port.

Serial Port 2 Configuration > Serial Port
Enable or disable the serial port.

Serial Port 2 Configuration > Onboard Serial Port Mode
Select to change the serial port mode to RS232, RS422, RS485, or RS485 Auto.

Hardware Monitor

This section is used to monitor hardware status such as temperature, fan speed, and voltages.



System Temperature

Detect and display the current system temperature.

CPU Temperature

Detect and display the current CPU temperature.

Fan Speed

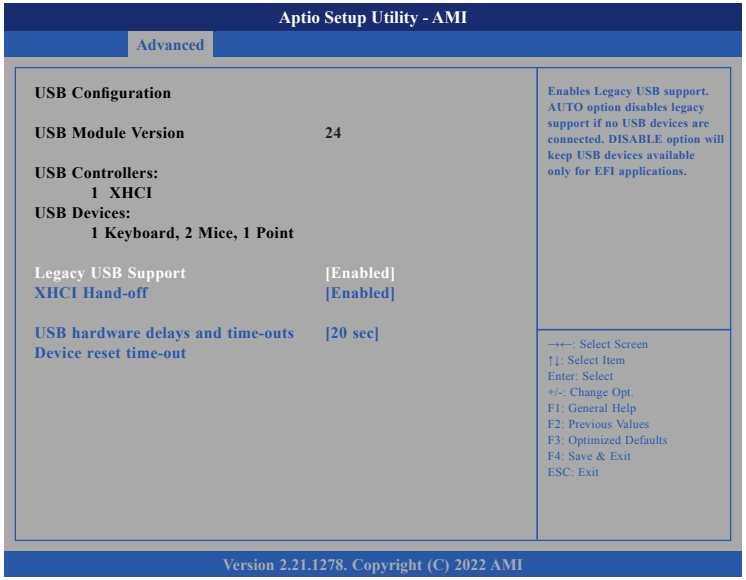
Detect and display the system fan speed.

VCore

Detect and display the Vcore CPU voltage.

USB Configuration

This section is used to configure the USB.



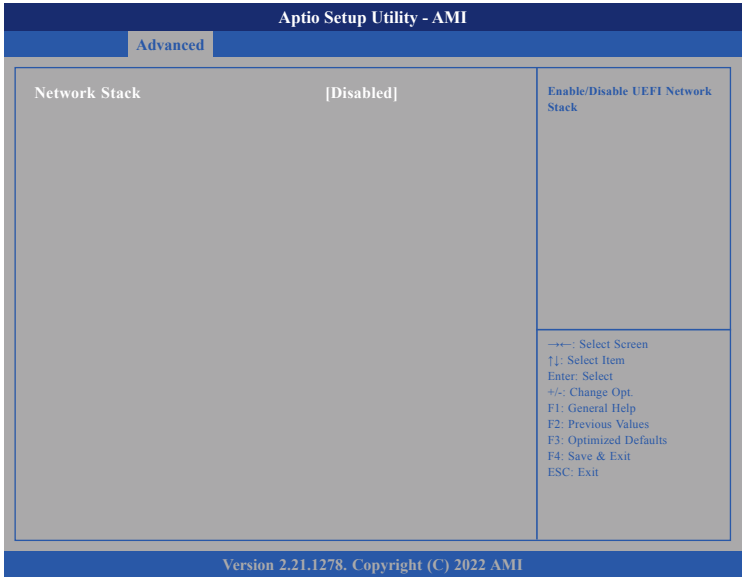
Legacy USB Support
Enable: Enables Legacy USB.
Auto: Disables support for Legacy when no USB devices are connected.
Disable: Keeps USB devices available only for EFI applications.

XHCI Hand-off
This is a workaround for OSs without XHCI hnd-off support. The XHCI ownership change should be claimed by XHCI driver.

Device reset time-out
Select the USB mass storage device's start unit command time-out.

Network Stack Configuration

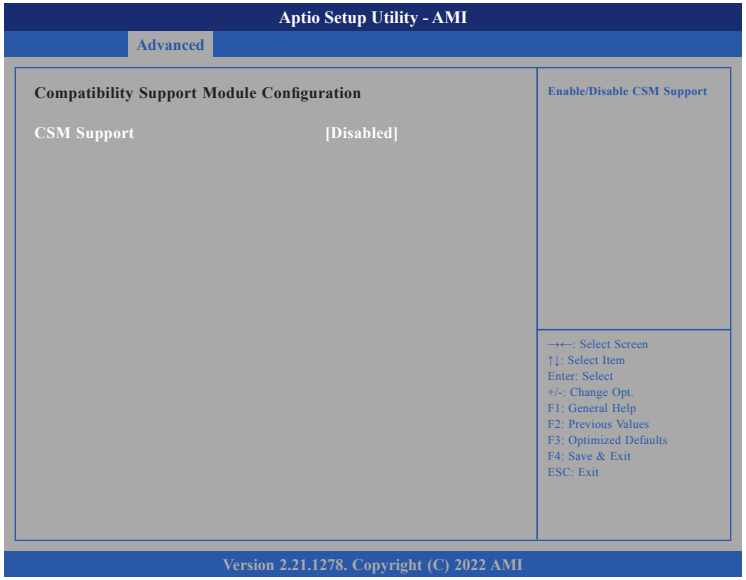
This section is used to configure the network stack settings.



Network Stack
Enable or disable UEFI network stack.

CSM Configuration

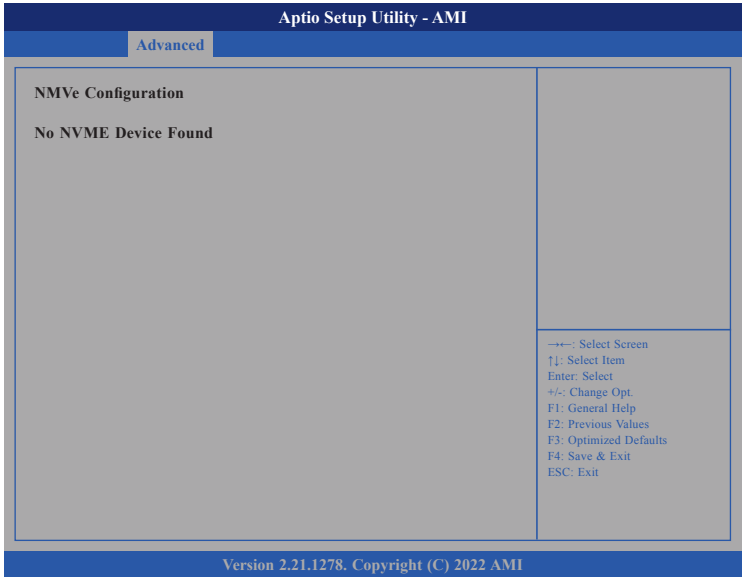
This section is used to configure the compatibility support module features.



CSM Support
This field is used to enable or disable CSM support, if Auto option is selected, based on OS, CSM will be enabled or disabled automatically.

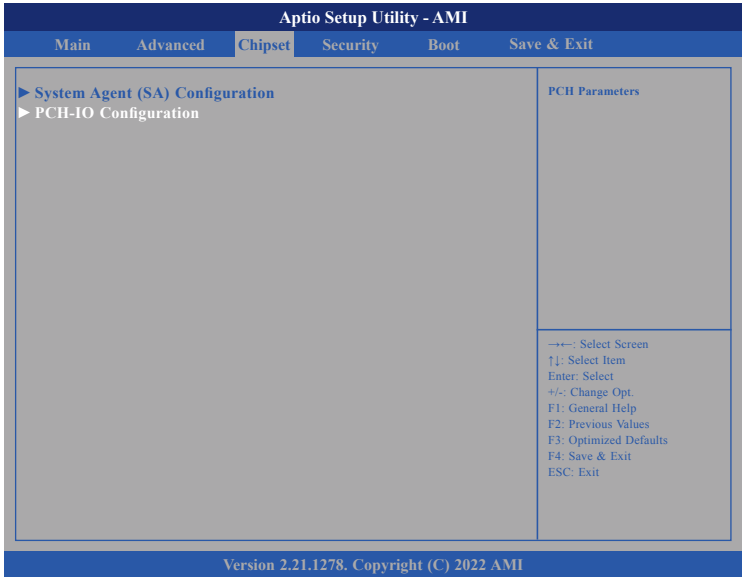
NVMe Configuration

This section is used to display information on the NVMe devices installed.



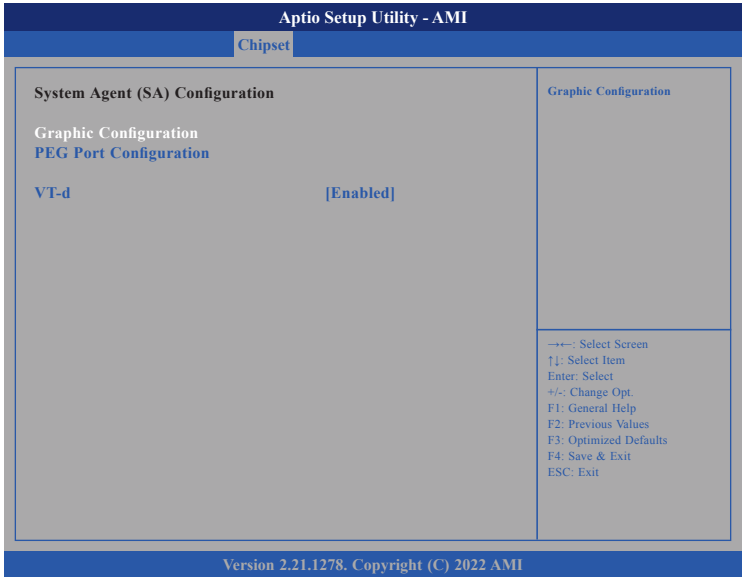
Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



System Agent (SA) Configuration

This section is used to configure the System Agent (SA) configuration.



Graphic Configuration > DVMT Pre-Allocated
Select DVMT 5.0 Pre-Allocated (Fixed) graphic memory size used by the internal graphic device.

Graphic Configuration > DVMT Total Gfx Mem
Select DVMT 5.0 total graphic memory size used by the internal graphic device.

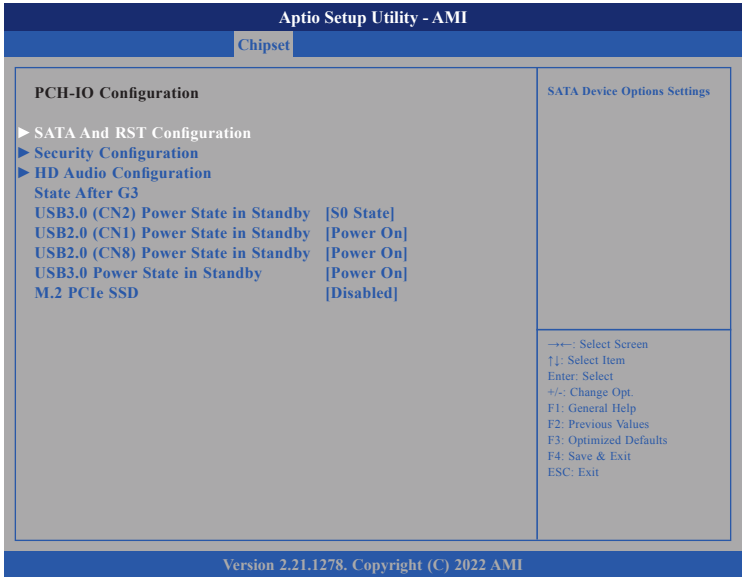
PEG Port Configuration > Enable Root Port
Enable or disable the root port.

PEG Port Configuration > Max Link Speed
Configure maximum link speed of the PEG device (PEG 0:1:0).

VT-d
Enable or disable VT-d function on MCH.

PCH-IO Configuration

This section is used to configure PCH-IO configuration.



SATA and RST Configuration
Enter the SATA and RST configuration sub-menu.

SATA and RST Configuration > SATA Controller(s)
Enable or disable the SATA controller.

SATA and RST Configuration > Port 0, Port 1, Port 2, and Port 3
Enable or disable SATA port 0, port 1, port 2, and port 3.

Security Configuration
Enter the Security Configuration sub-menu.

Security Configuration > RTC Memory Lock
Enable will lock bytes 38h-3Fh in the lower/upper 128-byte bank of RTC RAM.

HD Audio Configuration
Enter the HD Audio Configuration sub-menu.

HD Audio Configuration > HD Audio
Control detection of the HD audio device.
Disabled: HD audio will be unconditionally disabled.
Enabled: HD audio will be unconditionally enabled.
Auto: HD audio will be enabled if present, disabled otherwise.

State After G3
Specify what state to go to when power is re-applied after a power failure (G3 state).

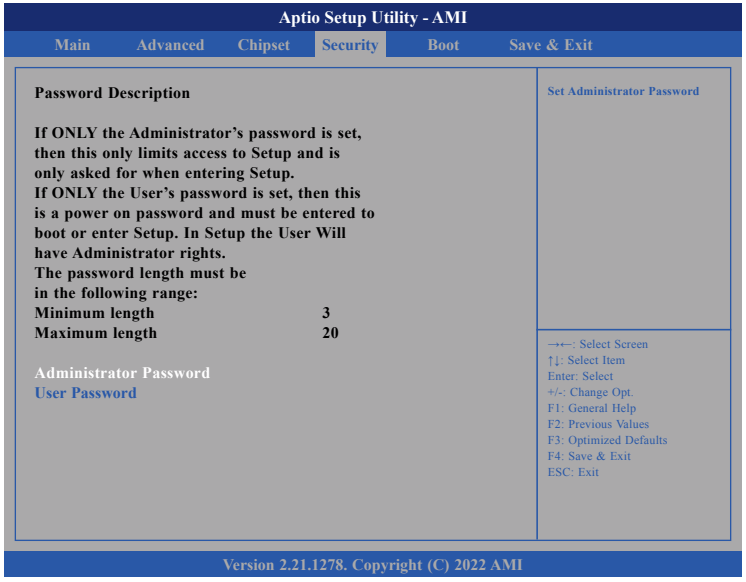
USB3.0 (CN2) Power State in Standby
Select USB 3.0 power state in standby mode.

USB2.0 (CN1) Power State in Standby
Select USB 2.0 power state in standby mode.

USB2.0 (CN8) Power State in Standby
Select USB 2.0 power state in standby mode.

M.2 PCie SSD
Enable or disable this USB physical connector (physical port). Once disabled, any USB device plug into the connector will not be detected by BIOS or OS.

Security

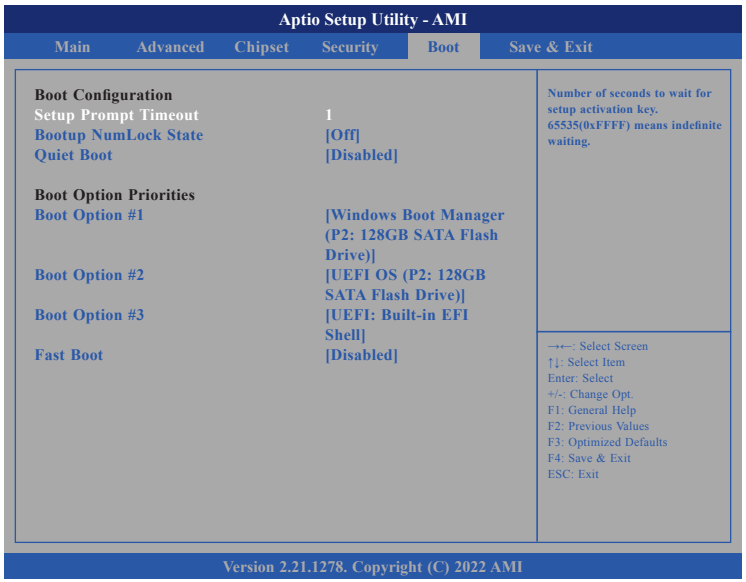


Administrator Password
Select this to reconfigure the administrator's password.

User Password
Select this to reconfigure the user's password.

Boot

This section is used to configure the boot features.



Setup Prompt Timeout
Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

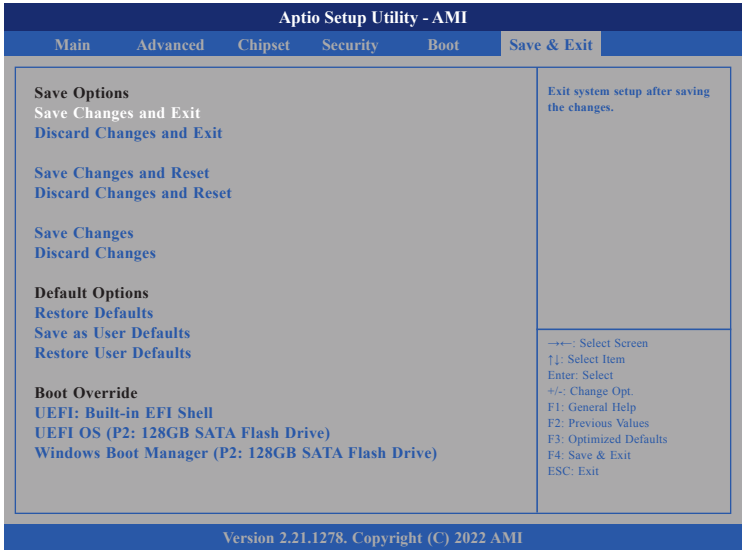
Bootup NumLock State
This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Quiet Boot
Enable or disable quiet boot option.

Boot Option Priorities
Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

Fast Boot
Enables or disables fast boot technology to speed up the system boot time. This is achieved by skipping specific tests during BIOS POST routine. When enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.

Save & Exit



Save Changes and Exit
To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes. You can also press <F4> to save and exit Setup.

Discard Changes and Exit
To exit the Setup utility without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting. You can also press <ESC> to exit without saving the changes.

Save Changes and Reset
To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes and Reset
To exit the Setup utility and reset without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

Save Changes
To save changes and continue configuring the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes
To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

Restore Defaults
To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Save as User Defaults
To use the current configurations as user default settings for the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Restore User Defaults
To restore the BIOS to user default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecing Yes.

Boot Override
To bypass the boot sequence from the Boot Option List and boot from a particular device, select the desired device and press <Enter>.