OFP-15W38-O1

15.6" Full-HD PCAP Multi-Touch Fanless Open Frame Panel PC with 11th Generation Intel® Core™ i3/i5/i7 Processors (With OOB Module)

Quick Reference Guide

1st Ed – 19 November 2024

Part No. E2017O158A3R

Document Amendment History

Revision	Date	By	Comment
1st	November 2024	Avalue	Initial Release

Declaration of Conformity

This device complies with part 15 fcc rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "a" digital device, pursuant to part 15 of the fcc rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE statement

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

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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Microsoft Windows is registered trademark of Microsoft Corp.

All other product names or trademarks are properties of their respective owners.

Disclaimer

This manual is intended to be used as a practical and informative guide only and is subject to change without notice. It does not represent a commitment on the part of Avalue. This

product might include unintentional technical or typographical errors. Changes are periodically made to the information herein to correct such errors, and these changes are incorporated into new editions of the publication.

A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support and Assistance

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

To receive the latest version of the user's manual; please visit our Web site at:
www.avalue.com

Product Warranty (Returns & Warranties policy)

1. Purpose
Avalue establishes the following maintenance specifications and operation procedures for providing the best quality of service and shortened repair time to our customers.

2. Warranty
2.1 Warranty Period
Avalue endeavors to offer customers the most comprehensive post-sales services and protection; besides offering a 2-year warranty for standard Avalue products, an extended warranty service can also be provided based on additional request from the customer. Within the warranty period, customers are entitled to receive comprehensive and prompt repair and warranty.

Standard products manufactured by Avalue are offered a 2-year warranty, from the date of delivery from Avalue. For ODM/OEM products manufactured by Avalue or PCBA with conformal coating, will follow up the define warranty of the agreement, otherwise will be offered 1-year warranty for ODM/OEM products but non-warranty for PCBA with conformal coating. For outsourcing parts kit by Avalue (ex: Motherboard, LCD touch panel, CPU, RAM, HDD) are offered a 6-month warranty, and Mobile/Tablet PC battery are offered a warranty of the half year, from the date of delivery by Avalue. Products before the mass production stage, i.e. engineering samples are not applied in this warranty or service policy. For extended warranty and cross-territory services, product defects resulting from design, production process or material are covered by the pre-set warranty period after the date of delivery from Avalue. For non-Avalue products, the product warranty and repair time shall be based on the service standards provided by the original manufacturer; in principle Avalue will provide these products a warranty service for no more than one year.

2.2 Maintenance services within the warranty period
In the case of Avalue product DOA (Defect-on-Arrival) when the customer finds any defect within 1 month after the delivery, Avalue will replace it with a new product in a soonest way. Except for custom products, once the customer is approved of a Cross-Shipment Agreement, which allows for delivery a new product to the customer before receiving the defective one, Avalue will immediately proceed with new product replacement for the said DOA case. On validation of the confirmed defect, Avalue is entitled to reserve the right whether to provide a new product for replacement. For the returned defective new product, it is necessary to verify that there shall be no bruise, alteration, scratch or marking to the appearance, and that none of the delivered accessories missing; otherwise, the customer will be requested to pay a processing fee. On the other hand, if the new product defect is resulting from incorrect configuration or erroneous use by the user instead of any problem of the hardware itself, the customer will also be requested to pay for relevant handling fees.

As for other conditions, Avalue will handle defects by way of repair. The customer will be requested to send the defective product to an Avalue authorized service center, and Avalue will return the repaired product back to the customer as soon as possible.

2.3 Ruling of an out-of-warranty defect

The following situations are not included in the warranty:

- The warranty period has expired.
- Product has been altered or its label of the serial number has been torn off.
- Product functionality issues resulting from improper use by the user, unauthorized dismantle or alteration, unfit operation environment, improper maintenance, accident or other causes. Avalue reserves the right for the ruling of the aforementioned situations.
- Product damage resulting from lightning, flood, earthquake or other calamities.
- The warranty rules of non-Avalue products and accessories shall be in accordance with standards set up by the original manufacturer. These products and accessories include RAM, HDD, FDD, CD-ROM, CPU, FAN, etc.
- Product upgrade request or test request submitted by the customer after expiration of the warranty.
- PCBA with conformal coating.
- Avalue semi-product and outsourced products without Avalue serial number.
- Products before the mass production stage, i.e. engineering samples.

3. Procedure for sending for repair

3.1 Attain a RMA number

A customer's rejected product returned for repair shall have a RMA (Return Merchandise Authorization) number. Without a RMA number, Avalue will not provide any repair service for the rejected product, and the product will be returned to the customer at customer's cost. Avalue will not issue any notice for the return of the product.

Each returned product for repair shall have a RMA number, which is simply the authorization of the return for repair; it is not a guarantee that the returned goods can be repaired or replaced. For applying for a RMA number, the customer may enter the eRMA webpage of Avalue https://www.avalue.com/en/member and log-in with an account number and a password authorized by Avalue. The system will then automatically issue a RMA number.

When applying for the RMA number, it is essential to fill in basic information of the customer and the product, together with detailed description of the problem encountered. If possible, avoid using ambiguous words such as "does not work" or "problematic". Without a substantial description of the problem, it is hard to start the repair and will cause prolonged repair time. Lacking detailed statement of fault steps also makes the problem hard to be identified, sometimes resulting in second-time repairs.

In case the customer can't define the cause of problem, please contact Avalue application engineers. Sometimes when the problem can be resolved even before the customer sends back the product.

On the other hand, if the customer only returns the key parts to Avalue for repair, it is necessary that the serial number of the entire unit is given in the "Problem Description" field, so that warranty period can be ruled accordingly; or Avalue will handle the case as an Out-of- warranty case.

3.2 Return of faulty product for repair

It is recommended that the customer not to return the accessories (manual, connection cables, etc.) with the products for repair, devices such as CPU, DRAM, CF memory card, etc., shall also be removed from the faulty goods before return for repair. If these devices are relevant to described repair problems and necessary to be returned with the goods; please clearly indicate the items included in the eRMA application form. Avalue shall not be responsible for any item that is not itemized. Moreover, make sure the problem(s) are detailed in the "Problem Description" field.

In the list of delivery, the customer may fill-in a value which is lower than the actual value, to prevent customs levying a higher tax over the excessive value of the return goods. The customer shall be held responsible for extra fees caused by this. We strongly recommend that "Invoice for customs purpose only with no commercial value" be indicated on the delivery note. Also for the purpose of expedited handling, please printout the RMA number and put it in the carton, also indicate the number outside of the carton, with the recipient addressing to Avalue RMA Department.

When returning the defective product, please use an anti-static bag or ESD material to pack it properly. In case of improper packing resulting in damages in the transportation process, Avalue reserves the right to reject the un-repaired faulty good at the customer's costs. Furthermore, it is suggested that the faulty goods shall be sent via a door-to-door courier service. The customer shall be held responsible for any customs clearance fee or extra expenses if Air-Cargo is used for the delivery.

In case of a DOA situation of a new product, Avalue will be responsible for the product and the freight. If the faulty goods are within the warranty period, the sender will take responsibility for the freight. For an out-of-warranty case, the customer shall be responsible for the freight of both trips.

3.3 Maintenance Charge

Avalue will charge a moderate repair fee for the following conditions:
- The warranty period has expired.
- Product has been altered or its label of the serial number has been torn off.
- Product functionality issues resulting from improper use by the user, unauthorized dismantle or alteration, unfit operation environment, improper maintenance, accident

or other causes. Avalue reserves the right for the ruling of the aforementioned situations.

- Product damage resulting from lightning, flood, earthquake or other calamities.
- The warranty rules for non-Avalue products and accessories shall be in accordance with standards set up by the original supplier. These products and accessories include RAM, HDD, FDD, CD-ROM, CPU, FAN, etc.
- Product upgrade request or test request submitted by the customer after expiry of the warranty.
- PCBA with conformal coating.
- Avalue semi-product and outsourced products without Avalue serial number
- Products before the mass production stage, i.e. engineering samples.
- In case the products received are examined as NPF (No Problem Found) within the warranty period, the customer shall be responsible for the freight of both trips.
- Please contact your local distributor to examine in advance to prevent unnecessary freight cost.

For system failure of out-of-warranty products, Avalue will provide a quotation prior to repair service. When the customer applies for the cost, please refer to the Quotation number. In case the customer does not return the DOA product that has already been replaced by a new one, or the customer does not sign back the quotation of the out-of-warranty maintenance, Avalue reserves the right of whether or not to provide the repair service. In case the customer does not reply in 3 months, Avalue shall directly scrap or return the product back to customer at customer's cost without further notice to the customer.

3.4 Maintenance service of phased-out products

For servicing phased-out products, Avalue provides an extended period, starting the date of phase-out, as a guaranteed maintenance period of such products, for continuance of the maintenance service to meet customer's requirements. In case of unexpected factors causing Avalue to be unable to repair/replace a warranted but phased-out product, Avalue will, depending on the availability, upgrade the product (free of charge with continued warranty period as of the original product), or, give partial refund (based on the length of the remaining warranty period) to solve this kind of problem.

3.5 Maintenance Report

On completion of repair of a defective product, a Maintenance Report indicating the maintenance result and part(s) replaced (if any) will be sent to the customer together with the product. If the customer demands an additional maintenance analysis report, a service fee of various level will be charged depending on the warranty status. In case the analysis result shows that the defect attributes to Avalue's faulty design or process, the analysis fee will be exempted.

4. Service Products

Avalue provides service products to manage with different customer needs. Should you have any need, please consult to Avalue Sales Department.

Defect Analysis Report (DAR)

Avalue provides DAR (Defect Analysis Report) services aiming to elevating customer satisfaction. A DAR includes defect cause identification/verification/suggestion and improvement precautions, with instructions on correct usage for the avoidance of any reoccurrence.

Upgrade Service

Avalue is capable to provide system upgrade service for customization requirements. This upgrade service is applicable for main parts, such as CPU, memory, HDD, SSD, storage devices; also replacements motherboards of systems. Please contact Avalue sales for details to evaluate the possibility of system upgrade service and obtain information of lead time and price.

Safety Instructions

Safety Precautions

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

1. Read these safety instructions carefully.

2. Keep this User's Manual for future reference.

3. Disconnected this equipment from any AC outlet before cleaning.

4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.

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

8. Use a power cord that has been approved for using with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to

avoid damage by transient overvoltage.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel. If one of the following situations arises, get the equipment checked by service personnel:

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well, or you cannot get it work according to the user's manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.

14. CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

15. Equipment intended only for use in a RESTRICTED ACCESS AREA.

16. This equipment is not suitable for use in locations where children are likely to be present.

17. CAUTION: Risk of fire or explosion if the battery is replaced by an incorrect type.

Explanation of Graphical Symbols

	Warning	A WARNING statement provides important information about a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Caution	A CAUTION statement provides important information about a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the user or patient or in damage to the equipment or other property.
	Note	A NOTE provides additional information intended to avoid inconveniences during operation.
DC		Direct current.
AC		Alternating current
		Stand-by, Power on
FC		FCC Certification
CE		CE Certification
		Follow the national requirements for disposal of equipment.
3		Stacking layer limit
		This side up

		Fragile Packaging
		Beware of water damage, moisture-proof
		Carton recyclable
		Handle with care
		Follow operating instructions of consult instructions for use.

Disposing of your old product

WARNING:

There is danger of explosion if the battery is mishandled or incorretly replaced. Replace only with the same type of battery. Do not disassemble it or attempt to recharge it outside the system. Do not crush, puncture, dispose of in fire, short the external contacts, or expose to water or ther liquids. Dispose of the battery in accordance with local regulations and instructions from your service provider.

CAUTION:

- Lithium Battery Caution: Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type. Dispose batteries according to manufacturer's instructions.
- Disposal of a BATTERY into fire or a hot oven, or mechanically crushing or cutting of a BATTERY, that can result in an EXPLOSION
- Leaving a BATTERY in an extremely high temperature surrounding environment that can result in an EXPLOSION or the leakage of flammable liquid or gas.
- A BATTERY subjected to extremely low air pressure that may result in an EXPLOSION or the leakage of flammable liquid or gas.

Mise en garde!

AVERTISSEMENT : Il existe un risque d'explosion si la batterie est mal manipulée ou remplacée de manière incorrecte. Remplacez uniquement par le même type de batterie. Ne le démontez pas et ne tentez pas de le recharger en dehors du système. Ne pas écraser, percer, jeter au feu, court-circuiter les contacts externes ou exposer à l'eau ou à d'autres liquides. Jetez la batterie conformément aux réglementations locales et aux instructions de votre fournisseur de services.

MISE EN GARDE:

- Pile au lithium Attention : Danger d'explosion si la pile n'est pas remplacée correctement. Remplacer uniquement par un type identique ou équivalent. Jetez les piles conformément aux instructions du fabricant.
- L'élimination d'une BATTERIE dans le feu ou dans un four chaud, ou l'écrasement ou le découpage mécanique d'une BATTERIE, pouvant entraîner une EXPLOSION
- Laisser une BATTERIE dans un environnement à température extrêmement élevée pouvant entraîner une EXPLOSION ou une fuite de liquide ou de gaz inflammable.
- UNE BATTERIE soumise à une pression d'air extrêmement basse pouvant entraîner une EXPLOSION ou une fuite de liquide ou de gaz inflammable.

Content

1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

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

Item	Description	Q'ty
1	OFP-15W38 Panel PC (With OOB Module)	1
2	Screws for VESA	4

If any of the above items is damaged or missing, contact your retailer.

Purposes and Applications

OFP-15W38-O1 is based on the Intel Tiger Lake platform, the performance is powered by Intel Core i3/i5/i7 processor. It works with Windows and Linux with rich expansion slots like SATA for storage and M.2 key E for WIFI/BT support. With USB, COM ports, it can be easily connected with several kinds of peripherals such as cameras, NFC, MSR, and so on. It can monitor, remediate remotely and reduce downtime through OOB technology.

Unpacking

Note:

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the Avalue reseller or vendor the product was purchased from or contact an Avalue sales representative directly by sending an email to sales@avalue.com.

To unpack the flat bezel panel PC, follow the steps below.
WARNING!
The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the fiat bezel panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.
Step 2: Open the outside box.
Step 3: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.
Step 4: Open the inside box.
Step 5: Lift the panel PC out of the boxes.
Step 6: Remove the peripheral parts box from the main box.

1.3 System Specifications

System Information	
SBC	EMX-TGLP-S05-A2R (6305E, 15W) EMX-TGLP-S15-A2R (i3-1115G4E, 15W) EMX-TGLP-S45-A2R (i5-1145G7E, 15W) EMX-TGLP-S85-A2R (i7-1185G7E, 15W)
Processor	11th Generation Intel® Core™ i3/i5/i7 & Celeron® BGA Processors Intel® Celeron® 6305E Processor, 4M Cache, up to 1.80 GHz Intel® Core™ i3-1115G4E Processor, 6M Cache, up to 3.00 GHz Intel® Core™ i5-1145G7E Processor, 8M Cache, up to 2.60 GHz Intel® Core™ i7-1185G7E Processor, 12M Cache, up to 2.80 GHz
Daughter Board	RIM-OOBM
CPU Cooler (Type)	Fanless
System Memory	2x 260-pin DDR4 3200 MHz SO-DIMM socket, supports up to 64GB Max (non ECC only)
I/O Chipset	EC iTE IT8528E
Watchdog Timer	H/W Reset, 1sec. – 65535sec./min.1sec. or 1min. step
TPM	TPM 2.0
Wireless LAN	ACC-OFP-WIFI-03R (Optional), M.2 WIFI6 Kit for OFP-15/21W38(2230,A/E) Antenna/Cable/BT5.2/802.11ax Dual-band
Bluetooth	BT5.1 (optional)
Operating System	Win10, Win11, Linux
Expansion Card	1 x M.2 Key B 3042/3052/2242/2260/2280 Support 1xPCIE/SATA/USB3.0/USB2.0 with 1 x SIM card slot, support WWAN+GNSS * M.2 key B SATA share from SATA2 1 x M.2 Key E 2230 support WiFi module and CNVi (1 x PCI-e x1 & USB 2.0 Signal)
Storage	
Solid State Drive	Default with 1 x 2.5" Drive Bay design *For OOB backup and recovery function, default Apacer 2.5" SSD SV25C-25 series (60/120/240/480GB)
Other Storage Device	Option for M.2 Type B 3042/3052/2242/2260/2280 SSD (SATA/NVMe) * M.2 key B SATA share from SATA2 (No OOB function)
Panel	
LCD Panel	15.6", 16:9
Display Type	Full HD

Resolution	1920 x 1080
Pixel pitch	179.25um(H) x 179.25um(V)
Luminance	220 cd/m2
Contrast ratio	800
Viewing angle	85 (U), 85 (D), 85 (L), 85 (R)
Response time	30 ms
Backlight	LED
Touch Type	Projective capacitive multi-touch up to 10 points
Touch Light Transmission	89%
Touch Controller	EETI
Rear I/O	
Serial Port	• 1 x RS232(default)/422/485, • 1 x RS232/422/485(optional), 2 x RS232 (optional)
USB Port	• 3 x USB3.1 Gen2 • 1 x USB 3.1 Gen1 • 2 x USB 2.0 (optional)
Video Port	2 x DP++: 1920 x 1080@60 Hz
Audio Port	Mic-in, Line-out

LAN Port	• 2 x RJ45 LAN port:
	   - 1 x Intel® I219LM Gigabit Ethernet PHY (LAN1)
	   - 1 x Intel® I225LM 2.5 Gigabit Ethernet (LAN2)
	 • 1 x RJ45 LAN port: 10/100 Mbps for OOB connectivity

Wireless LAN Antenna	6 x Antenna Mounting with Dust Cover
DC in Connector	+12~24V DC-in, Mini Din 4-pin DC in Jack
Onboard I/O	

COM	• COM 1 & COM2:
	   - Support RS232/422/485 connector, with / +5V & +12V Supported and RS422/485 by BIOS setting
	   - 2 x 2 x 5 pin, pitch 2.00mm connector support RS-232 connector, Pin 9 with / +5V & +12V Supported
	   - 2 x 2 x 3 pin, pitch 2.00mm connector support RS422/485 connector, Pin 5 with / +5V Supported
	 • COM3~6:
	   - Support RS-232 connector
	   - 1 x 2 x 20 pin, pitch 2.00mm connector

USB	2 x 2 x 5 pin, pitch 2.54mm connector for 4 USB 2.0
GPIO	1 x 2 x 10 pin, pitch 2.00mm connector for GPIO: 16 bits & +3.3S Level SMBus

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SATA	2 x SATA III
SATA Power	2 x SATA Power
Buzzer	Onboard Buzzer
RTC Battery	CR2042 Battery
AT/ATX Selector	1 x 1 x 3 pin pitch 2.54mm connector. Default is AT mode.
Clear CMOS	1 x 3 pin, pitch 2.00mm connector
Power Requirement	
DC Input Voltage	+12~24V DC-in (for system) +5V DC/1A stand by power (for RIM-OOBM daughter board)
Power Mode	Default AT mode.
Power Connector Type	1 x Mini Din 4-pin DC Jack
Power Adapter	AC/DC adapter 24V/3.75A PWR DIN Plug
Mechanical	
Dimension	387 x 235 x 48mm
Weight	4.9 Kgs
Construction-Front	Open frame
Construction-Rear	Open frame
Thermal Solution	Fanless
Reliability	
Vibration Test	Random Vibration Operation 1. Test PSD : 0.00454G²/Hz , 1.5 Grms 2. System condition : operation mode 3. Test frequency : 5~500 Hz 4. Test axis : X,Y and Z axis 5. Test time : 30 minutes per each axis 6. IEC60068-2-64 Test Fh 7. Storage : mSATA Sine Vibration test (Non-operation) 1. Test Acceleration : 2G 2. Test frequency : 5~500 Hz 3. Sweep：1 Oct/ per one minute. (logarithmic) 4. Test Axis : X,Y and Z axis 5. Test time :30 min. each axis 6. 6 System condition : Non-Operating mode 7. Reference IEC 60068-2-6 Testing procedures

	Package Vibration Test: 1. Test PSD : 0.026G²/Hz , 2.16 Grms 2. Test frequency : 5~500 Hz 3. Test axis : X,Y and Z axis 4. Test time : 30 minutes per each axis 5. IEC 60068-2-64 Test Fh
Mechanical Shock Test	1. Wave from : Half Sine wave 2. Acceleration Rate : 10g for operation mode 3. Duration Time : 11ms 4. No. of shock : Z axis 300 times 5. Test Axis : Z axis 6. Operation mode 7. Reference IEC 60068-2-27 testing procedures 8. Test Eb : Shock Test
Drop Test	Package drop test Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed Test Ea : Drop Test 1. Test phase : One corner, three edges, six faces 2. Test high : 96.5cm 3. Package weight : 4.9 kg 4. Test drawing
Operating Temperature	0°C ~ 45°C (32°F ~ 113°F) *Air flow=0.5 m/s
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)

Note: Specifications are subject to change without notice.

1.4 System Overview

1.4.1 I/O View

1 x LAN for OOB

Optional +12 ~ 24V DC In 2 x DP++ 2 x LAN
1 x COM 1 x COM
2 x USB 4 x USB Mic-in
Line-out

Optional 2 x COM (or GPIO)
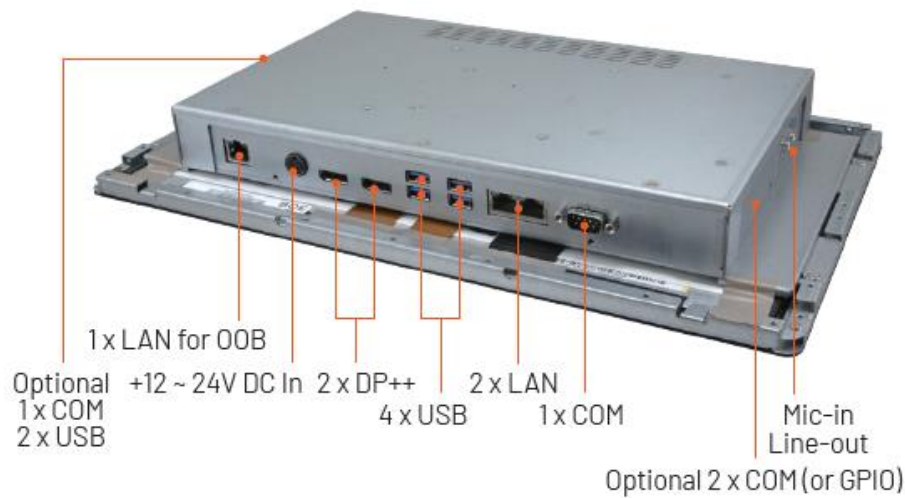
Connectors

Label	Function	Note
LAN	2 x RJ-45 Ethernet 1 x RJ-45 Ethernet for OOB	
+12~24V DC In	+12~24V DC power-in connector	
DP++	2 x DP connector	
USB	4 x USB 3.0 connector 2 x USB 2.0 connector (optional)	
Mic-in	Mic-in audio jack	
Line-out	Line-out audio jack	
COM	Serial port connector	1 x RS232/422/485 (RS-232 default) DB9 connector 1 x RS-232 DB9 connector (optional) 2 x RS232/GPIO connector (optional)

1.5 System Dimensions

387±0.3

235±0.3

48±0.5

11.6

100

4−M4

100
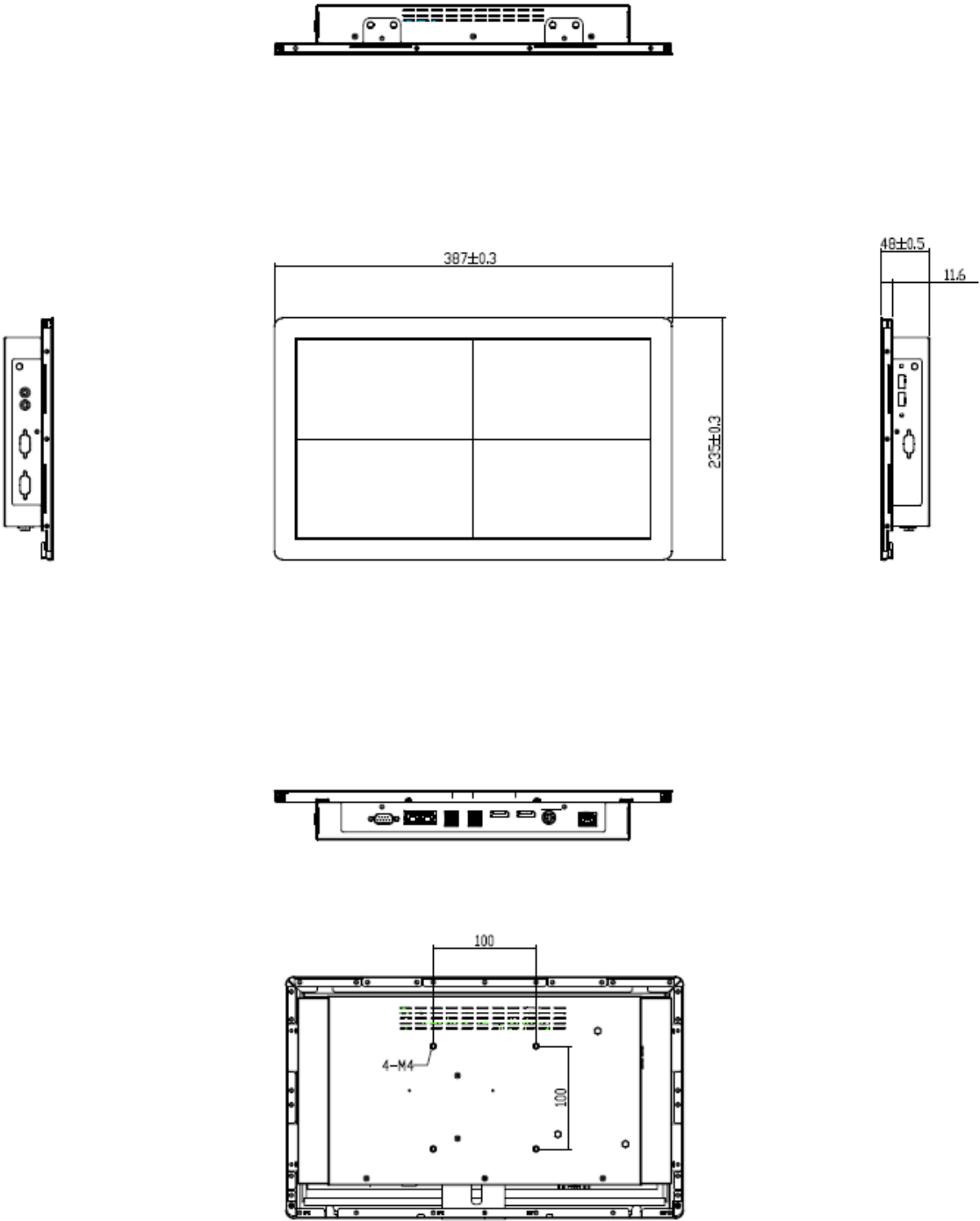
(Unit: mm)

2. Hardware Configuration

For advanced information, please refer to:

1- EMX-TGLP included in this manual.

Note: If you need more information, please visit our website:
www.avalue.com

2.1 OFP-15W38-O1 connector mapping

2.1.1 Serial port connector (COM)
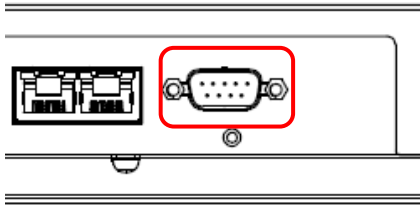
* Default

Note:

Please set BIOS settings and change pin header.
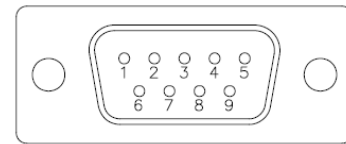
RS-232*

Signal	PIN	PIN	Signal
DCD	1	6	DSR
RXD	2	7	RTS
TXD	3	8	CTS
DTR	4	9	RI
GND	5		

RS-422

Signal	PIN	PIN	Signal
TxD-	1	6	NC
TxD+	2	7	NC
RxD+	3	8	NC
RxD-	4	9	NC
GND	5		

RS-485

Signal	PIN	PIN	Signal
DATA-	1	6	NC
DATA+	2	7	NC
NC	3	8	NC
NC	4	9	NC
GND	5		

2.2 Powering On the System

To power on the system, follow the steps below.

Step 1: Connect the power cord to the power adapter. Connect the other end of the power cord to a power source. Ensure to connect the power cord to a socket-outlet with earthing connection.

Step 2: Connect the power adapter to the power connector of the product. (Default is AT mode)

Power Input Connector
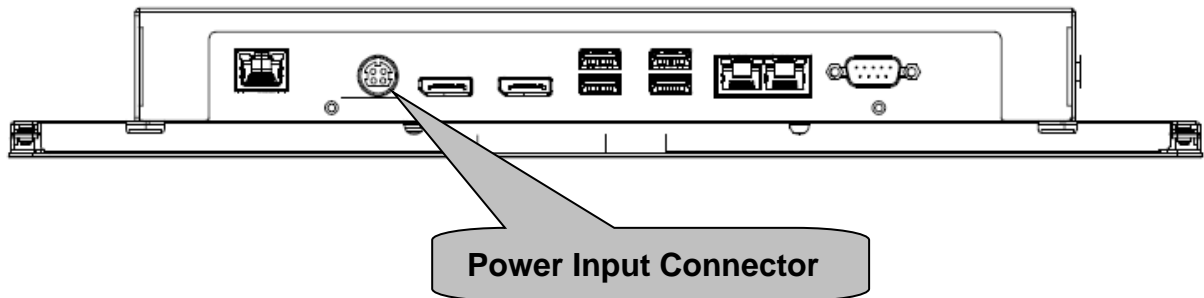
2.3 EMX-TGLP Overview
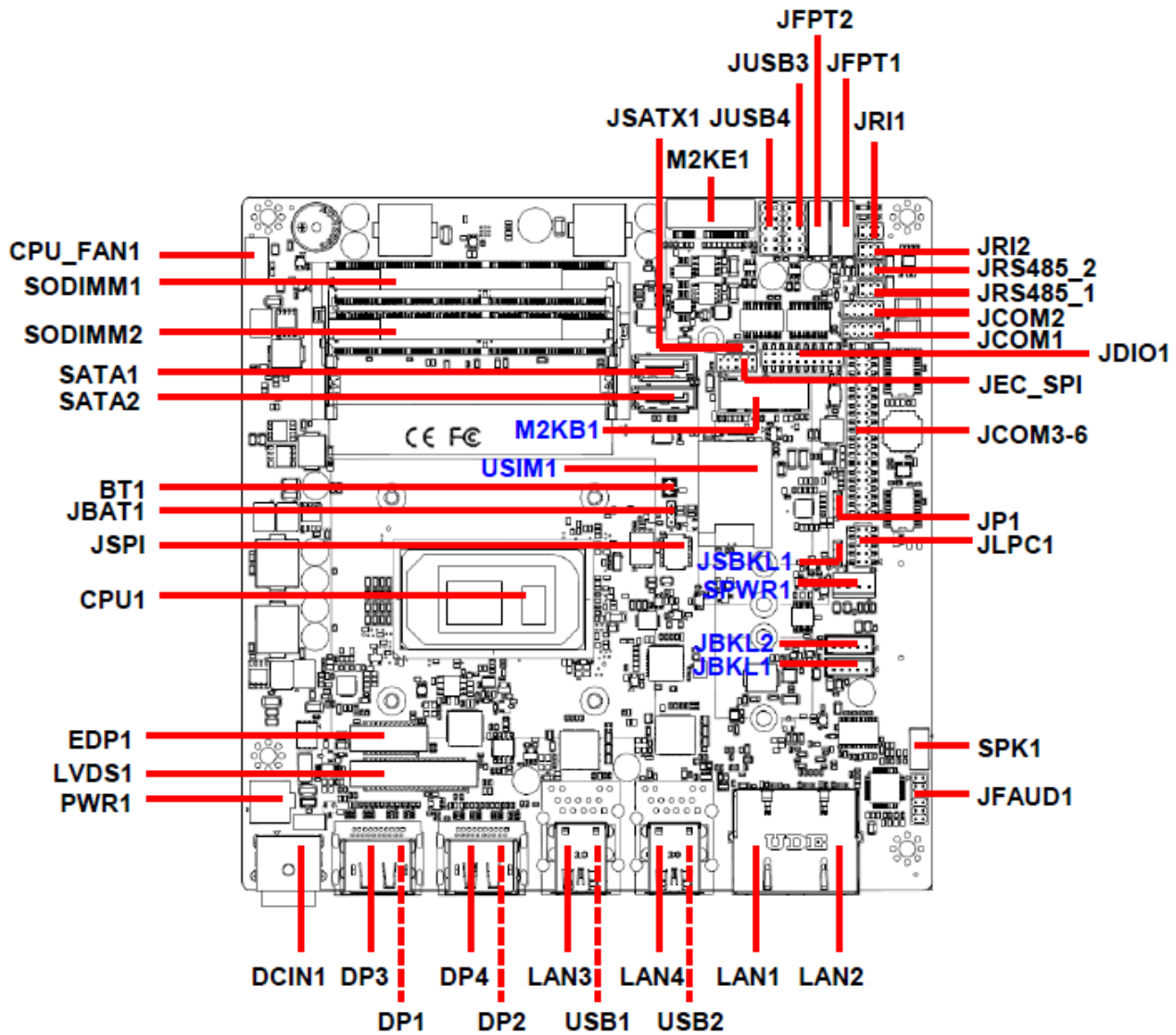
2.4 EMX-TGLP Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.
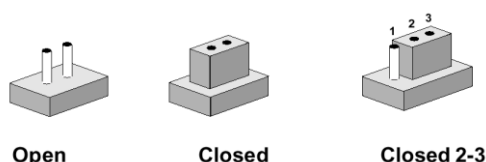
The jumper settings are schematically depicted in this manual as follows:
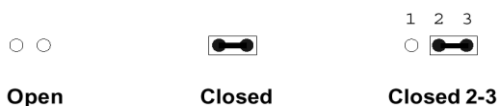
A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function	Note
JRI1/2	Serial port 1/2 pin9 signal select	3 x 2 header, pitch 2.00mm
JSBKL1	LVDS Back Light power selection	3 x 1 header, pitch 2.00mm
JSATX1	AT/ATX Power Mode Select	3 x 1 header, pitch 2.54mm
JP1	M2KB1 Voltage setting	3 x 1 header, pitch 2.00mm
JBAT1	Clear CMOS	2 x 1 wafer, pitch 2.00mm

Connectors

Label	Function	Note
FPT1	Miscellaneous setting connector 1	5 x 2 header, pitch 2.54mm
FPT2	Miscellaneous setting connector 2	5 x 2 header, pitch 2.54mm
SODIMM1/2	206-pin DDR4 SO-DIMM socket	
JFAUD1	Front Audio connector	6 x 2 header, pitch 2.00mm

JBKL1/2	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm
JSPI1	SPI connector	4 x 2 header, pitch 2.00mm
JEC_SPI	EC Debug	5 x 2 header, pitch 2.00mm
JCOM1	Serial Port 1 connector	5 x 2 header, pitch 2.00mm
JCOM2	Serial Port 2 connector	5 x 2 header, pitch 2.00mm
JCOM3-6	Serial Port 3-6 connector	20 x 2 header, pitch 2.00mm
JDIO1	General purpose I/O connector	10 x 2 header, pitch 2.00mm
SPK1	Speaker connector	4 x 1 wafer, pitch 2.00mm
LVDS1	LVDS Connector	20 x 2 wafer, pitch 1.25mm
EDP1	eDP_Panel connector	10 x 2 wafer, pitch 1.25mm
USB1/2	USB connector 1/2	
JUSB3/4	USB connector 3/4	5 x 2 header, pitch 2.54mm
LAN1/2/3/4	RJ-45 Ethernet 1/2/3/4	
BT1	Battery connector	2 x 1 wafer, pitch 1.25mm
M2KE1	M.2 2230 Type E Slot	
M2KB1	M.2 3042/2242/2260/2280 Type B Slot	
DP1/2/3/4	DP connector 1/2/3/4	
JRS485_1/2	Serial Port 1/2 RS485/422 Mode connector	3 x 2 header, pitch 2.00mm
JLPC	LPC connector	5 x 2 header, pitch 2.00mm
DCIN1	DC Power-in connector	
PWR1	Power connector	2 x 2 wafer, pitch 4.20mm
SATA1/2	Serial ATA connector 1/2	
SPWR1	SATA Power connector 1	4 x 1 wafer, pitch 2.54mm
USIM1	USIM card slot	
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm

2.5 EMX-TGLC-B1 Jumpers & Connectors settings

2.5.1 Serial port 1/2 pin9 signal select (JRI1/JRI2)

Ring*

+5V

+12V
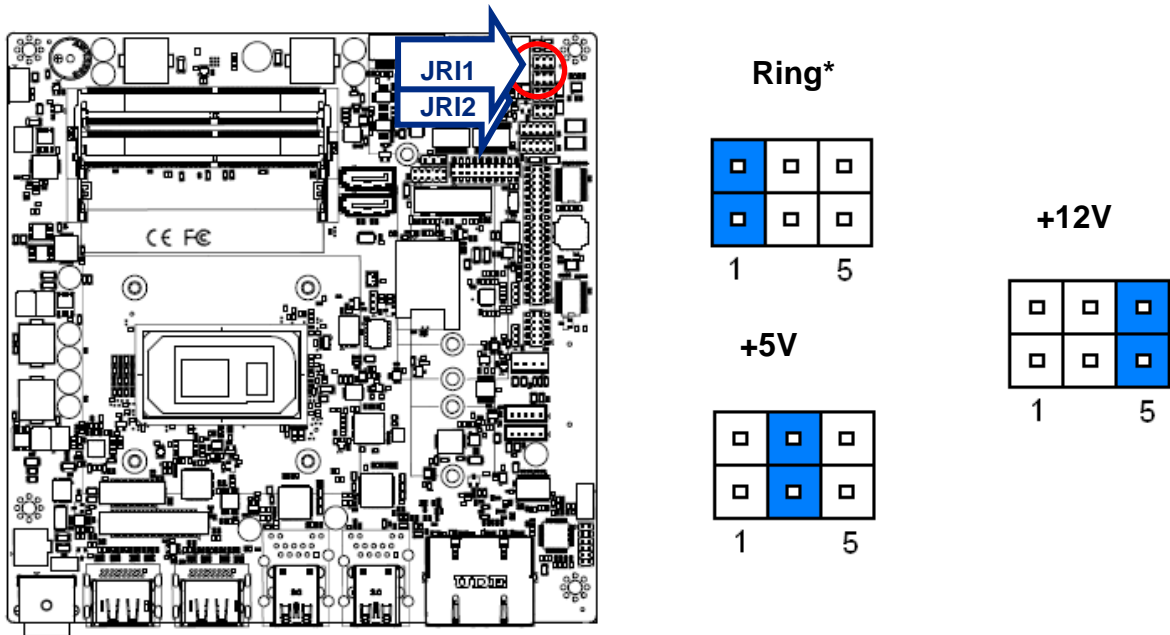
* Default

2.5.2 LVDS Back Light power selection (JSBKL1)

PWM Mode*

DC Mode
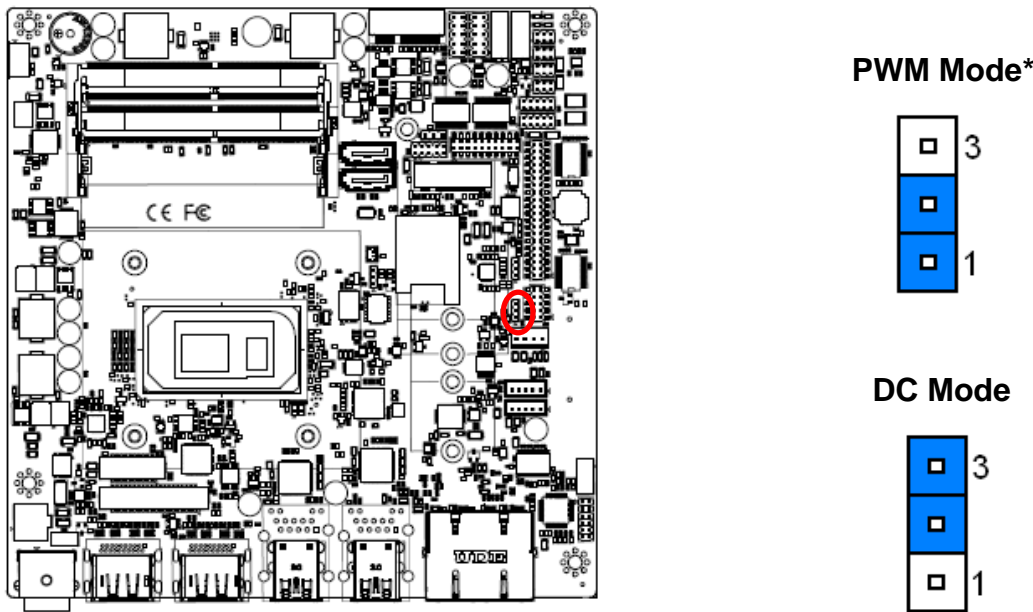
* Default

2.5.3　AT/ATX Power Mode Select (JSATX1)
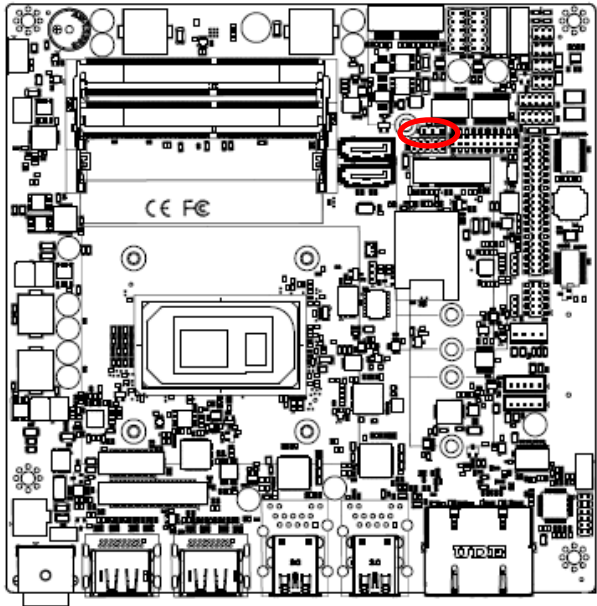
ATX*
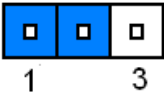
AT
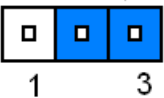
* **Default**

2.5.4　M2KB1 Voltage setting (JP1)

+3.8V

+3.3V*

* **Default**

OFP-15W38-O1
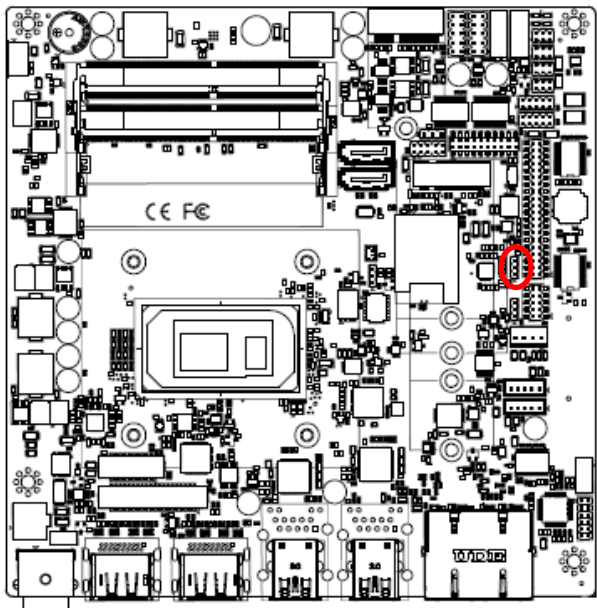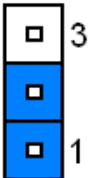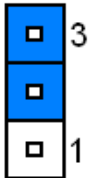
2.5.5   Clear CMOS (JBAT1)

Protect*

3
1

Clear CMOS

3
1
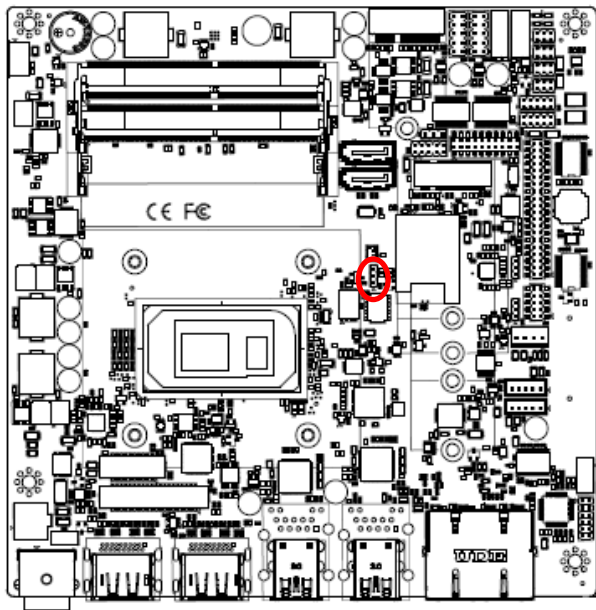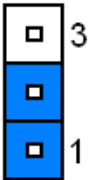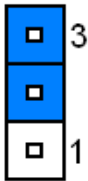
* **Default**

2.5.6   LCD Inverter connector (JBKL1)

5   1
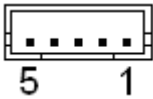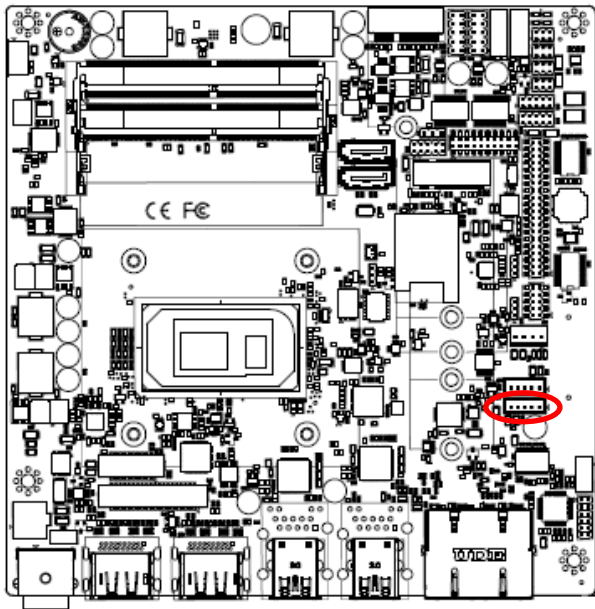
PIN	Signal
1	+12V
2	GND
3	LVDS_BKLT_EN
4	LVDS_BKLTCTL
5	+5V

2.5.7 LCD Inverter connector (JBKL2)
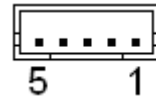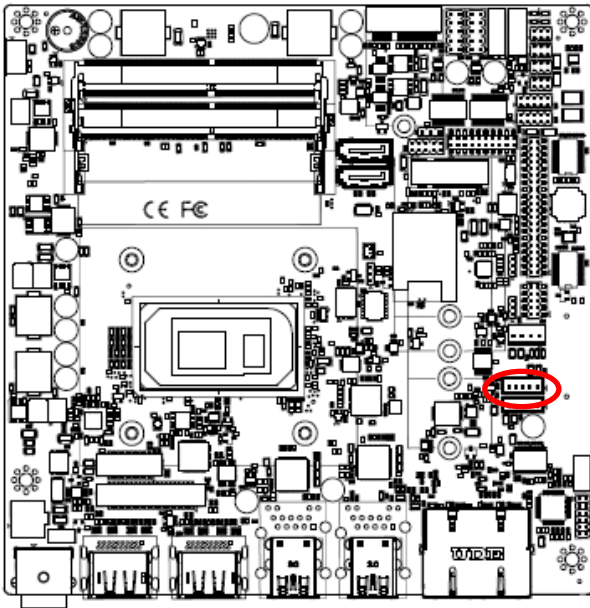
PIN	Signal
1	+12V
2	GND
3	EDP2_BKLTEN
4	EDP2_BKLT_CTL
5	+5V

2.5.8 LVDS connector (LVDS1)
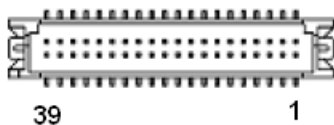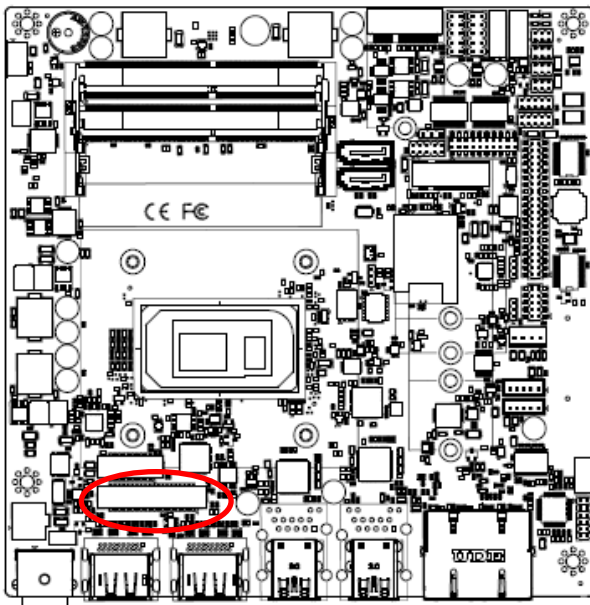
Signal	PIN	PIN	Signal
+V5S_LVDS	2	1	+ V3.3S_LVDS
+V5S_LVDS	4	3	+ V3.3S_LVDS
NC	6	5	NC
GND	8	7	GND
LVDS_DATA0_P	10	9	LVDS_DATA1_P
LVDS_DATA0_N	12	11	LVDS_DATA1_N
GND	14	13	GND
LVDS_DATA2_P	16	15	LVDS_DATA3_P
LVDS_DATA2_N	18	17	LVDS_DATA3_N
GND	20	19	GND
LVDS_DATA4_P	22	21	LVDS_DATA5_P
LVDS_DATA4_N	24	23	LVDS_DATA5_N
GND	26	25	GND
LVDS_DATA6_P	28	27	LVDS_DATA7_P
LVDS_DATA6_N	30	29	LVDS_DATA7_N
GND	32	31	GND
LVDS_CLK1_P	34	33	LVDS_CLK2_P
LVDS_ CLK1_N	36	35	LVDS_ CLK2_N
GND	38	37	GND
+V12S_LVDS	40	39	+V12S_LVDS

2.5.9 eDP_Panel connector (EDP1)
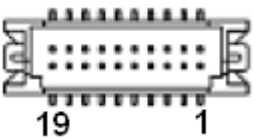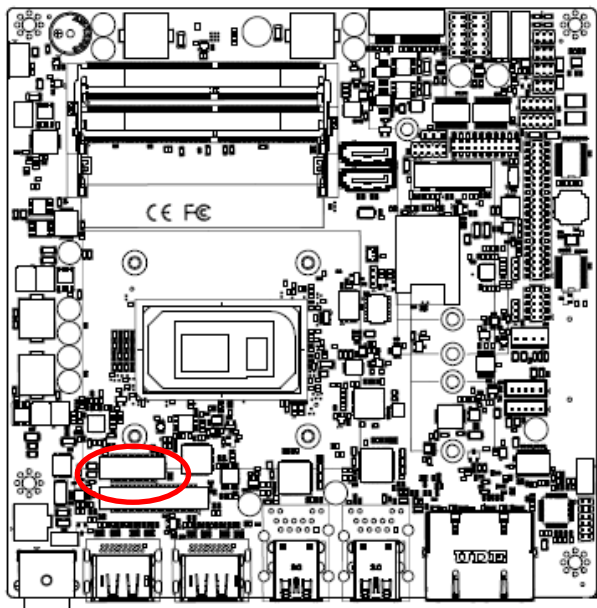
Signal	PIN	PIN	Signal
GND	1	2	GND
EDP_PANEL_TXN0	3	4	EDP_PANEL_TXN3
EDP_PANEL_TXP0	5	6	EDP_PANEL_TXP3
GND	7	8	NC
EDP_PANEL_TXN1	9	10	GND
EDP_PANEL_TXP1	11	12	EDP_PANEL_AUXN
GND	13	14	EDP_PANEL_AUXP
EDP_PANEL_TXN2	15	16	GND
EDP_PANEL_TXP2	17	18	EDP_PANEL_HPD
+V35_EDP	19	20	+V35_EDP

2.5.10 General purpose I/O connector (DIO1)
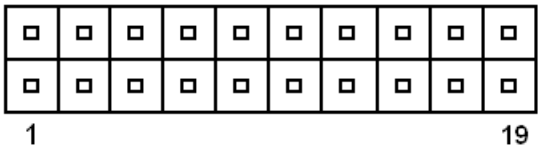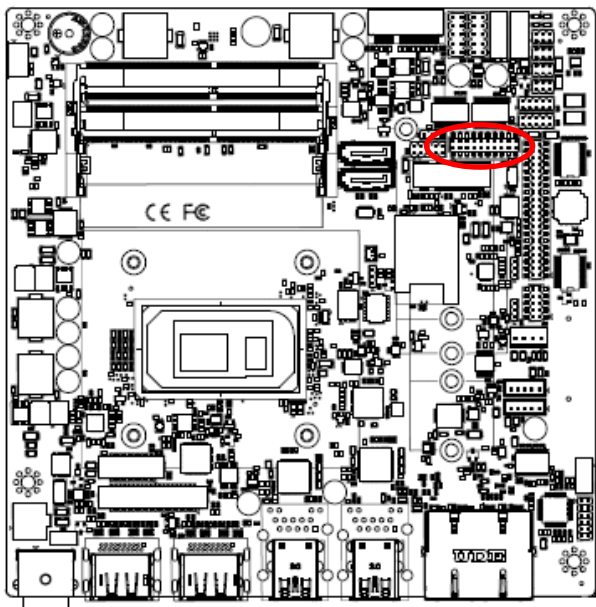
Signal	PIN	PIN	Signal
DI0	1	2	DO0
DI1	3	4	DO1
DI2	5	6	DO2
DI3	7	8	DO3
DI4	9	10	DO4
DI5	11	12	DO5
DI6	13	14	DO6
DI7	15	16	DO7
SMB_SCL_S0_3P3EXT	17	18	SMB_SDA_S0_3P3EXT
GND	19	20	+5V (Max current = 0.5A)

2.5.11 Serial port1 connector (JCOM1)
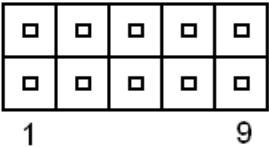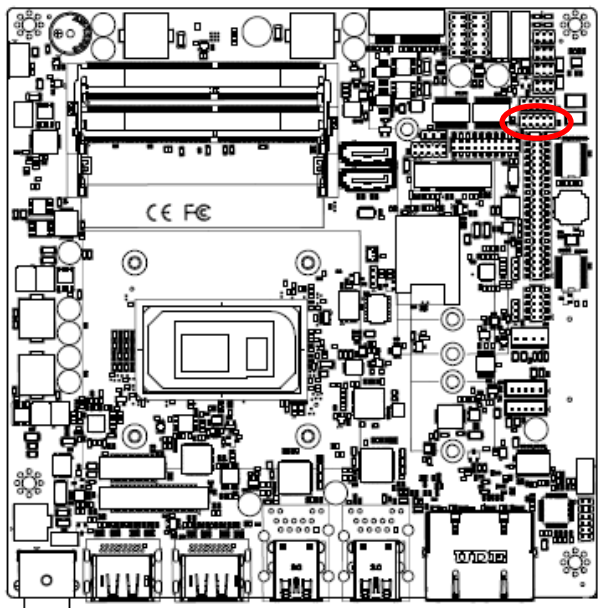
Signal	PIN	PIN	Signal
COM_DCD#_1	1	2	COM_RXD_1
COM_TXD_1	3	4	COM_DTR#_1
GND	5	6	COM_DSR#_1
COM_RTS#_1	7	8	COM_CTS#_1
COM_RI#_1	9	10	NC

2.5.12 Serial port2 connector (JCOM2)
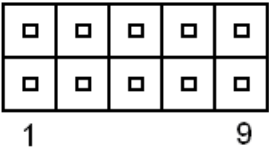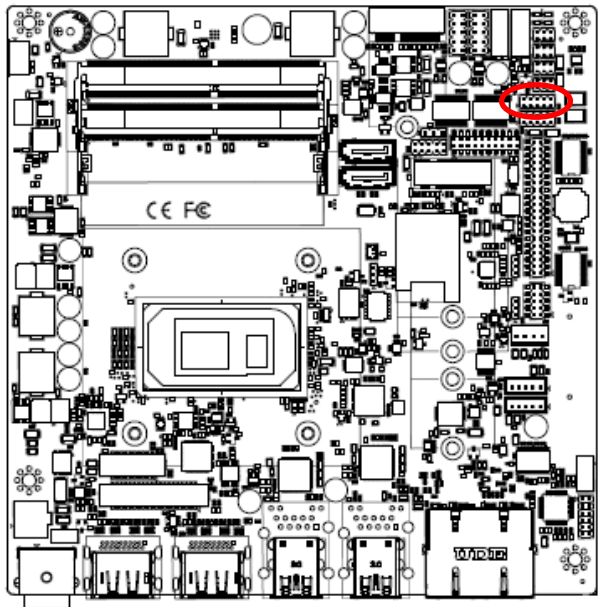
Signal	PIN	PIN	Signal
COM_DCD#_2	1	2	COM_RXD_2
COM_TXD_2	3	4	COM_DTR#_2
GND	5	6	COM_DSR#_2
COM_RTS#_2	7	8	COM_CTS#_2
COM_RI#_2	9	10	NC

2.5.13 Serial port 3/4/5/6 connector (JCOM3/4/5/6)
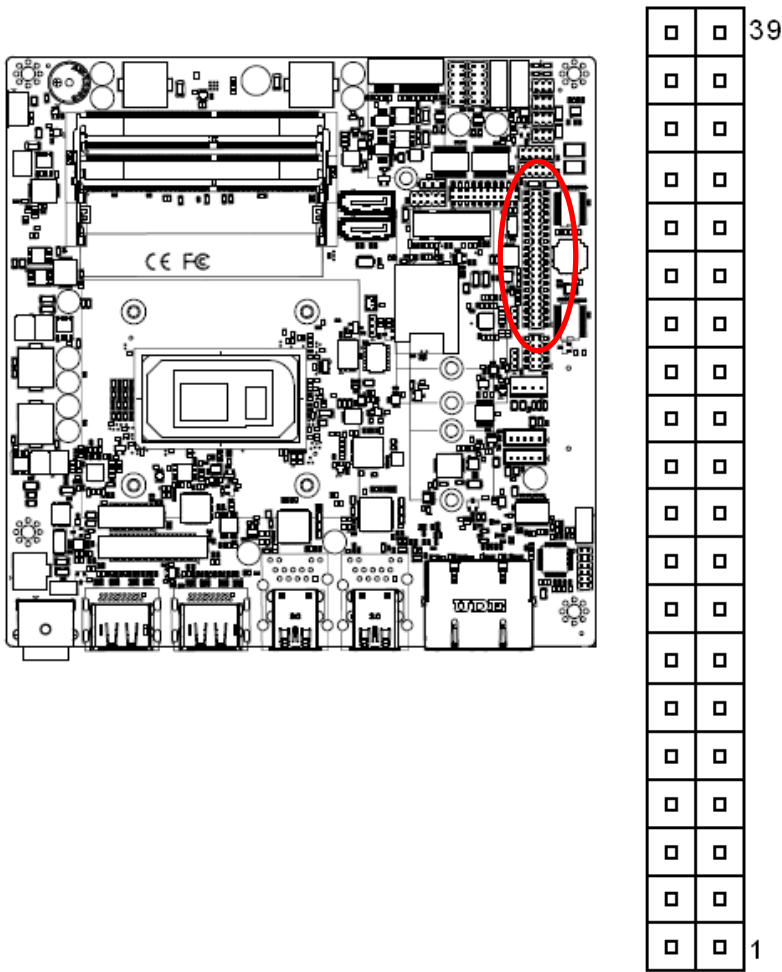
Signal	PIN	PIN	Signal
NC	40	39	COM_RI#_6
COM_CTS#_6	38	37	COM_RTS#_6
COM_DSR#_6	36	35	GND
COM_DTR#_6	34	33	COM_TXD_6
COM_RXD_6	32	31	COM_DCD#_6
NC	30	29	COM_RI#_5
COM_CTS#_5	28	27	COM_RTS#_5
COM_DSR#_5	26	25	GND
COM_DTR#_5	24	23	COM_TXD_5
COM_RXD_5	22	21	COM_DCD#_5
NC	20	19	COM_RI#_4
COM_CTS#_4	18	17	COM_RTS#_4
COM_DSR#_4	16	15	GND
COM_DTR#_4	14	13	COM_TXD_4
COM_RXD_4	12	11	COM_DCD#_4
NC	10	9	COM_RI#_3
COM_CTS#_3	8	7	COM_RTS#_3
COM_DSR#_3	6	5	GND
COM_DTR#_3	4	3	COM_TXD_3
COM_RXD_3	2	1	COM_DCD#_3

2.5.14 Serial Port 1/2 RS485/422 Mode connector (JRS485_1/2)
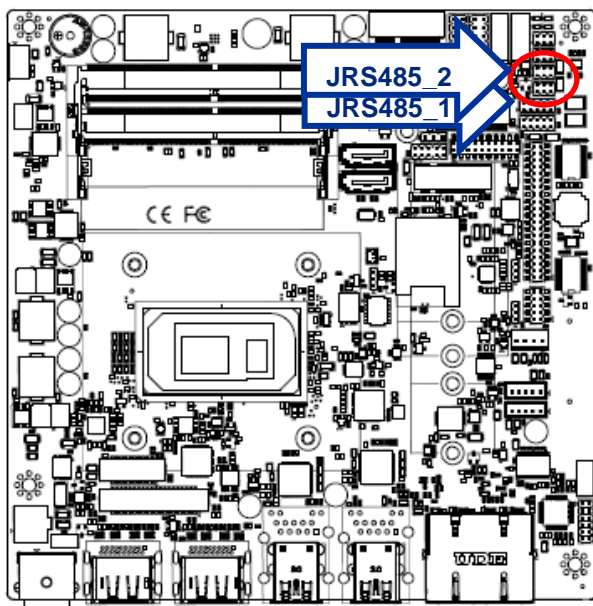
Signal	PIN	PIN	Signal
485_422TX-	1	2	422RX-
485_422TX+	3	4	422RX+
+5V	5	6	GND

2.5.15   SATA Power connector 1 (SPWR1)
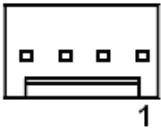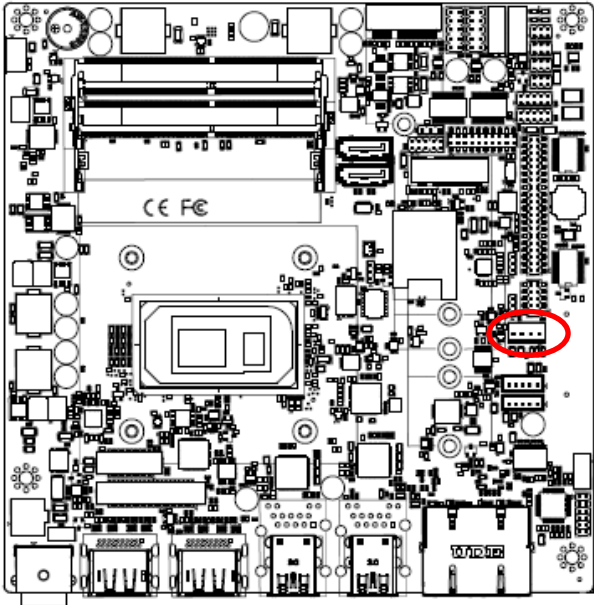
PIN	Signal
1	+V5S_SATA
2	GND
3	GND
4	+V12S_SATA

2.5.16   Power connector (PWR1)
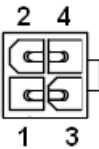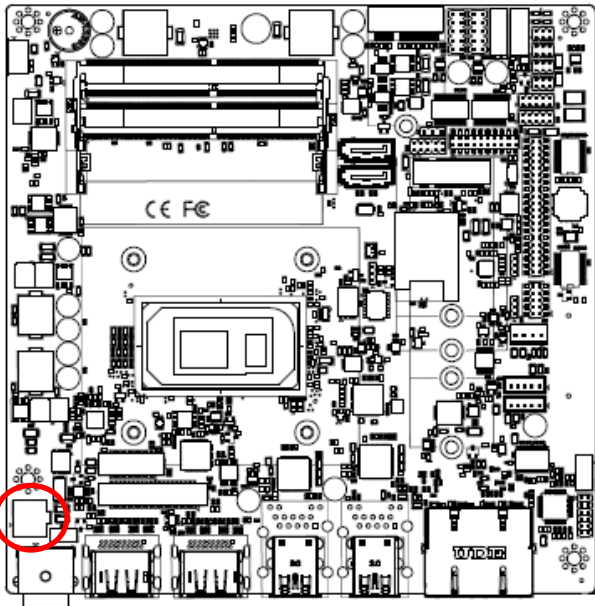
Signal	PIN	PIN	Signal
GND	2	4	+VIN
GND	1	3	+VIN

2.5.17 USB connector 3 (JUSB3)
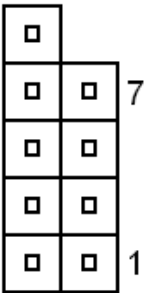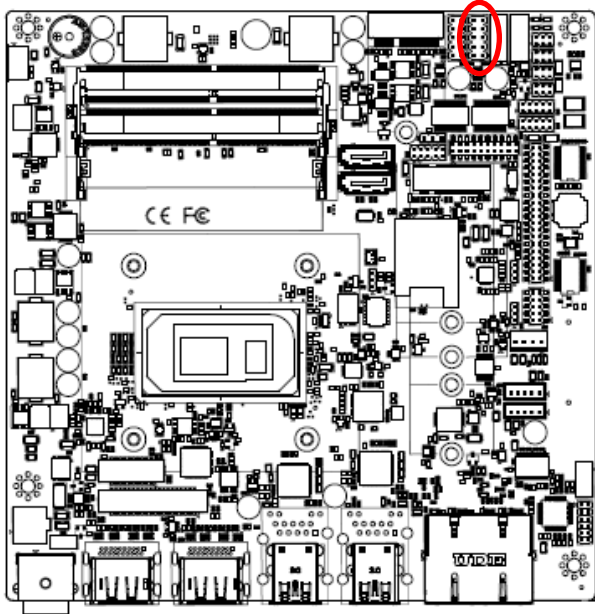
Signal	PIN	PIN	Signal
+V5A_USB56	1	2	+V5A_USB56
USB_DN5	3	4	USB_DN6
USB_DP5	5	6	USB_DP6
GND	7	8	GND
		10	GND

2.5.18 USB connector 4 (JUSB4)
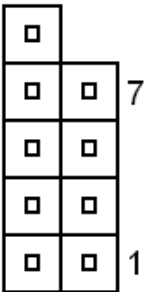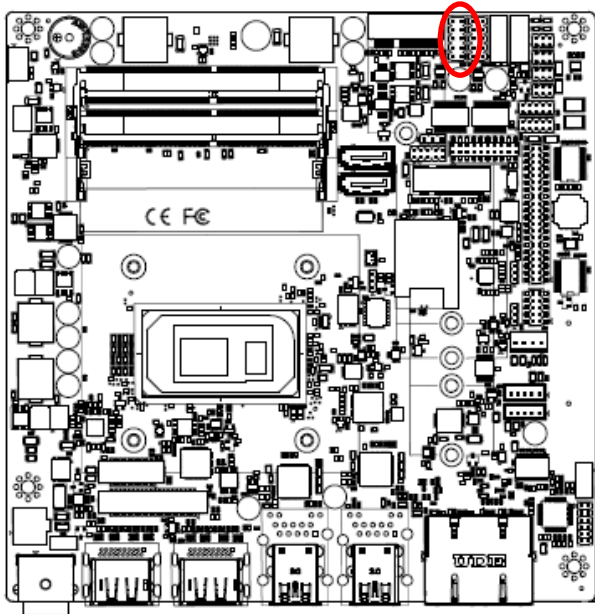
Signal	PIN	PIN	Signal
+V5A_USB78	1	2	+V5A_USB78
USB_DN7	3	4	USB2_ DN8
USB_DP7	5	6	USB2_ DP8
GND	7	8	GND
		10	GND

2.5.19   Speaker connector (SPK1)
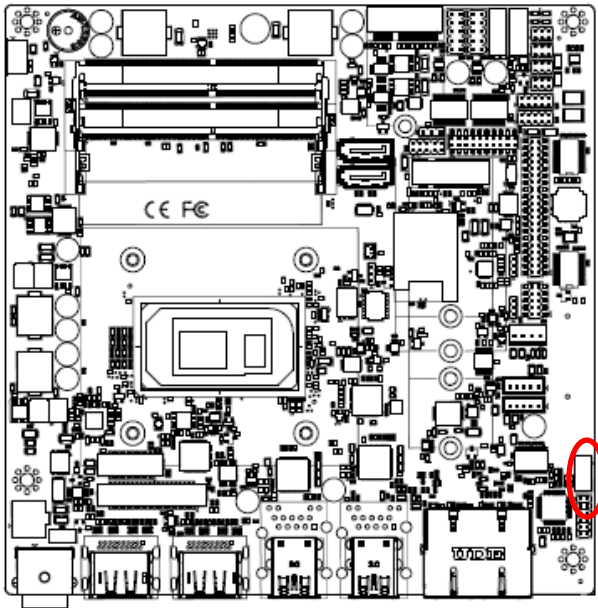
Signal	PIN
SPK_L+	1
SPK_L-	2
SPK_R+	3
SPK_R-	4

2.5.20   SPI connector (JSPI1)
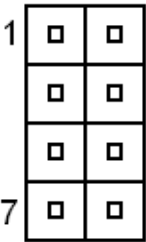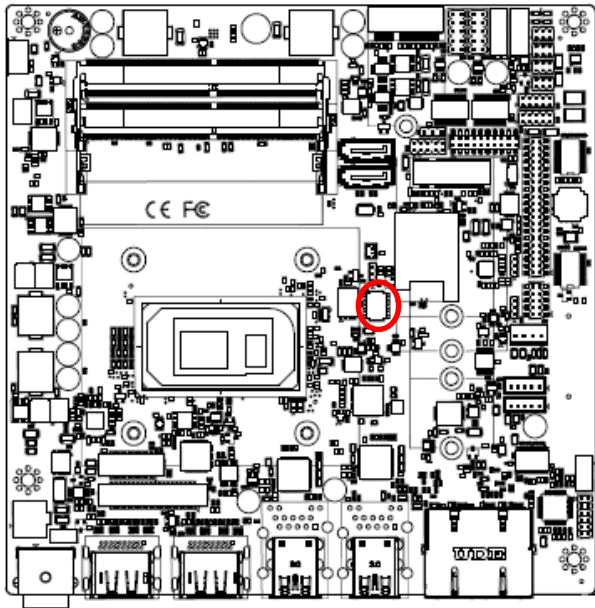
Signal	PIN	PIN	Signal
+V3.3A_1.8A_SPI	1	2	GND
SPI0_CS0#	3	4	SPI0_BIOS_CLK
SPI0_BIOS_MISO	5	6	SPI0_BIOS_MOSI
BIOS_HOLD#	7	8	BIOS_WP#

2.5.21 Battery connector (BT1)
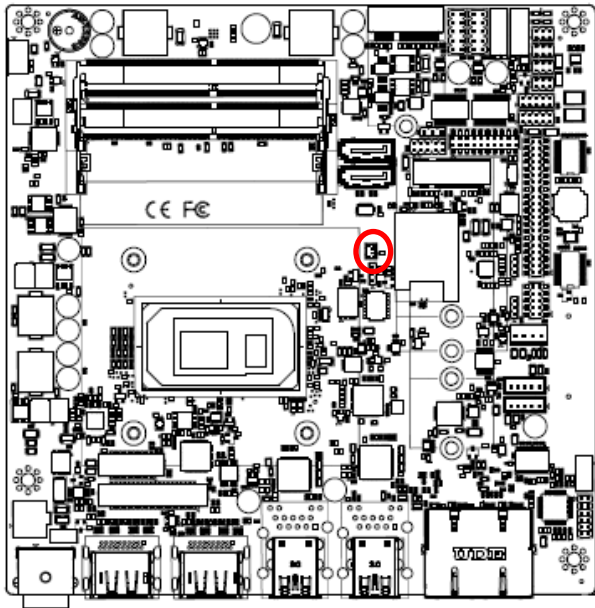
PIN	Signal
1	+RTCBAT
2	GND

2.5.22 Audio connector (JFAUD1)
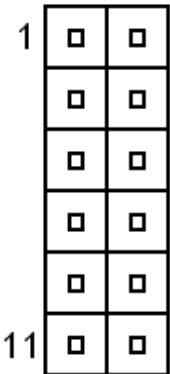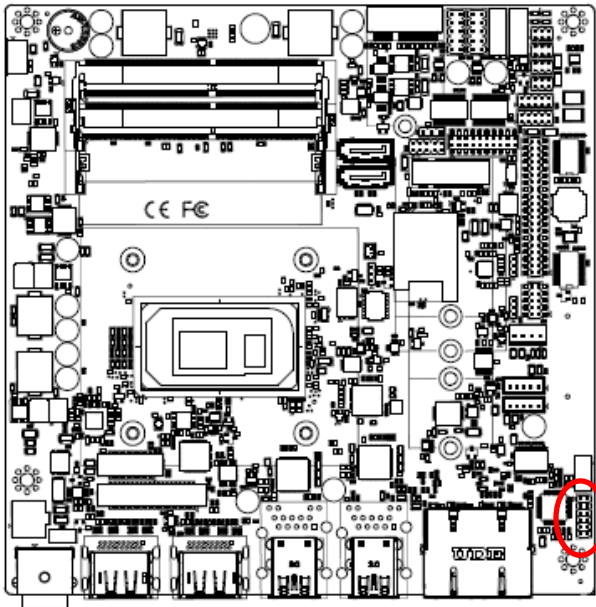
Signal	PIN	PIN	Signal
LINEOUT_R	1	2	LINEOUT_L
GND_AUD	3	4	GND_AUD
LINEIN_R	5	6	LINEIN_L
MICIN_R	7	8	MICIN_L
LINEOUT1_JD	9	10	LINE1-JD
MIC1_JD	11	12	GND_AUD

2.5.23 EC Debug (JEC_SPI)
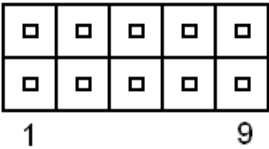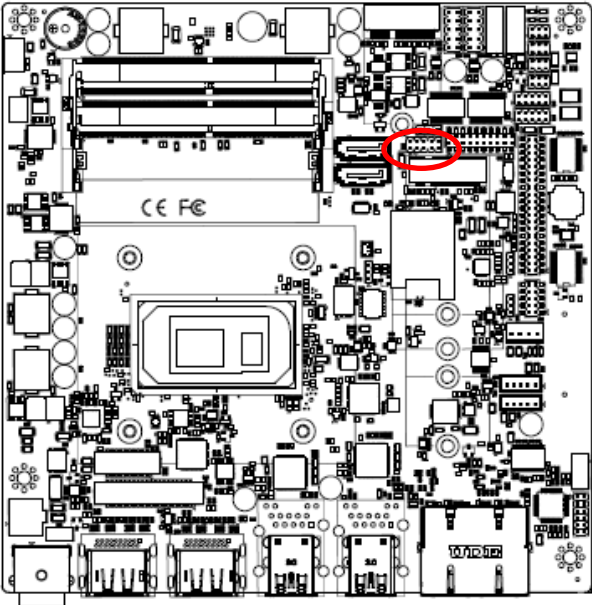
Signal	PIN	PIN	Signal
+V3.3A_EC	1	2	GND
EC_FSCE#	3	4	EC_FSCK
EC_FMISO	5	6	EC_FMOSI
EC_HOLD#	7	8	NC
EC_SMCLK_DEBUG	9	10	EC_SMDAT_DEBUG

2.5.24 Miscellaneous setting connector 1 (JFPT1)
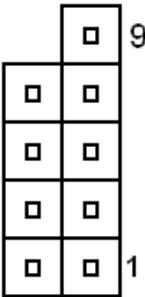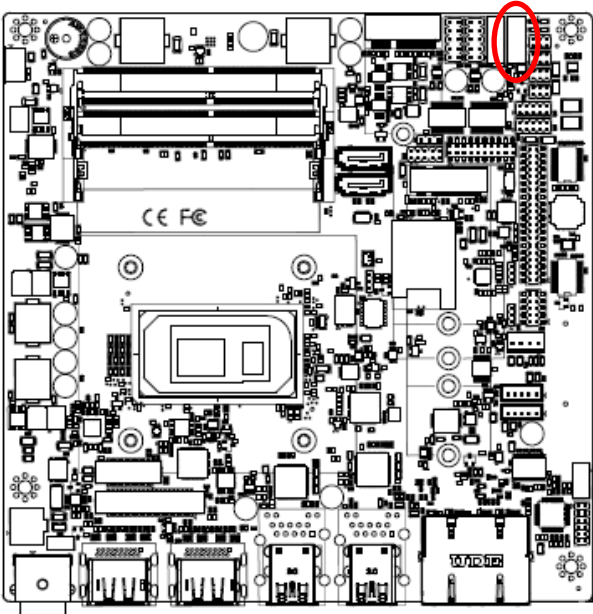
Signal	PIN	PIN	Signal
		9	NC
-PWR_BNT	8	7	-Reset
+PWR_BNT	6	5	+Reset
-PWR_LED	4	3	-HD_LED
+PWR_LED	2	1	+HD_LED

2.5.25   Miscellaneous setting connector 2 (FPT2)
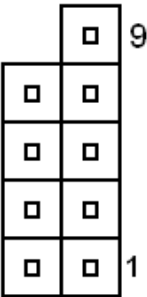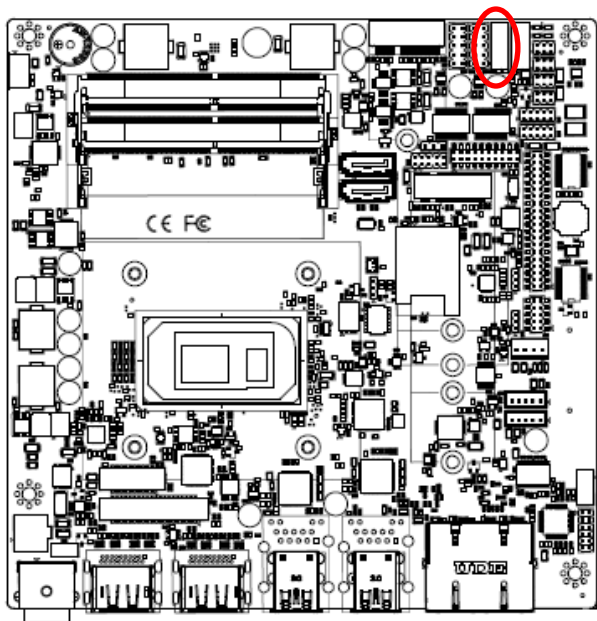
Signal	PIN	PIN	Signal
		9	NC
GND	8	7	Speaker-
BLK_DN	6	5	NC
BLK_UP	4	3	NC
BLK_VR(10K)	2	1	Speaker+

2.5.26   LPC connector (JLPC1)
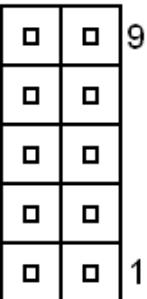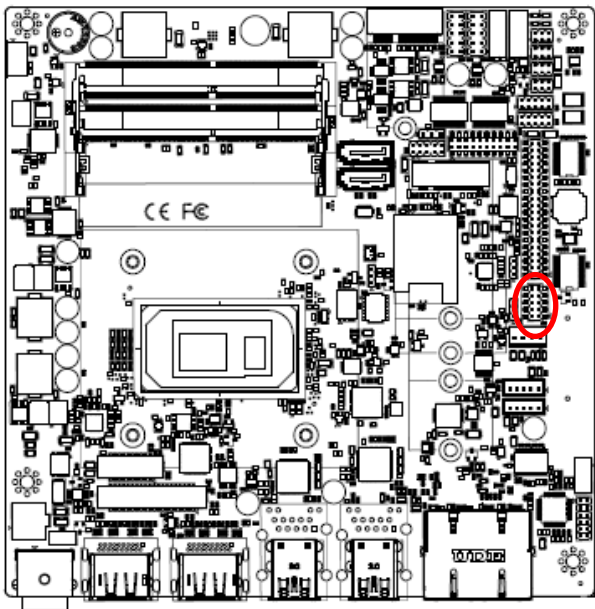
Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	PLT_BUF_RST#
LPC_AD2	5	6	LPC_LFRAME#
LPC_AD3	7	8	CLK_24M_80
LPC_SERIRQ	9	10	GND

2.5.27 CPU fan connector (CPU_FAN1)
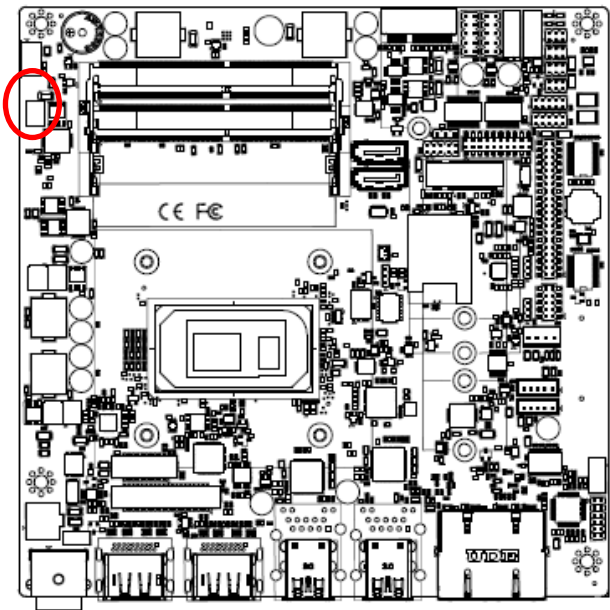
Signal	PIN
GND	1
+12V	2
CPU_FANIN	3
FAN_PWM0	4

2.5.28 Power connector (DCIN1)
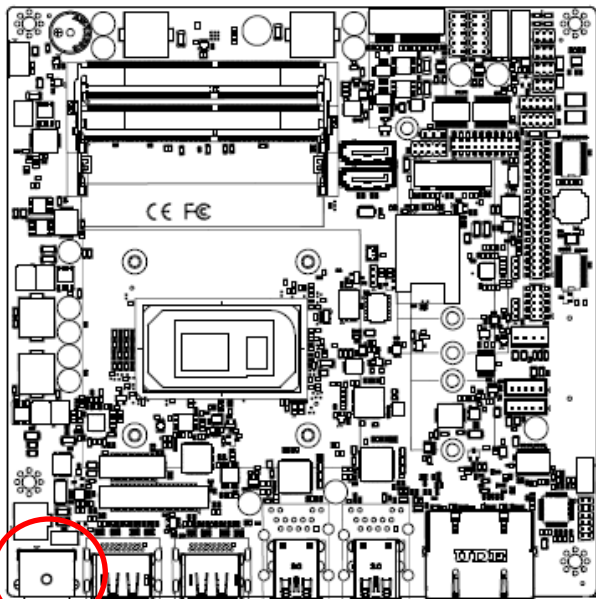
Signal	PIN	PIN	Signal
+VIN_12-24V	1	2	+VIN_12-24V
GND	3	4	GND

Note: Vin = 12~24V

2.6 RIM-OOBM Overview
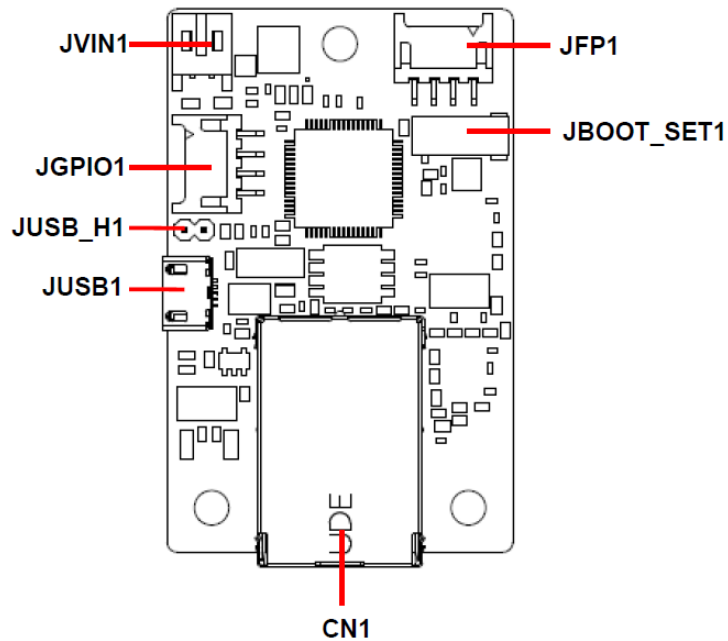
2.7 RIM-OOBM Connector List

Connectors

Label	Function	Note
CN1	RJ45 connector	
JFP1	Miscellaneous setting connector	4 x 2 wafer, pitch 2.00 mm
JBOOT_SET1	Boot switch	
JVIN1	DC in connector	2 x 1 wafer, pitch 2.00 mm
JGPIO1	General purpose I/O connector	4 x 2 wafer, pitch 2.00 mm
JUSB_H1	USB ID	2 x 1 header, pitch 2.00mm
JUSB1	USB connector	

2.8 Setting Jumpers & Connectors

2.8.1 Boot switch (JBOOT_SET1)
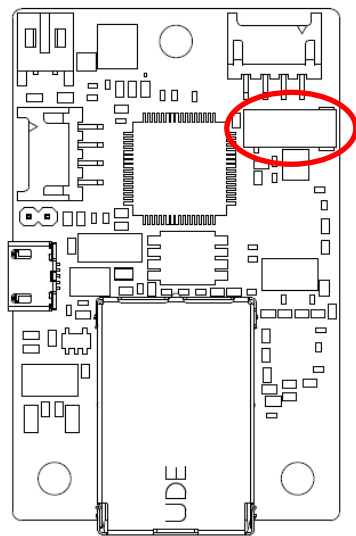
Signal	PIN	PIN	Signal
PSON_SET0	1	4	GND
PSON_SET1	2	3	GND

2.8.2 Miscellaneous setting connector (JFP1)
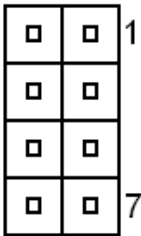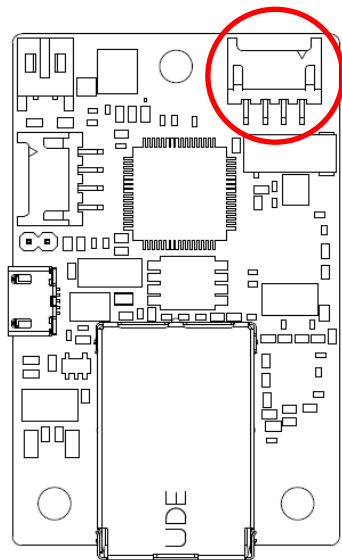
Signal	PIN	PIN	Signal
RSTBUT_IN	2	1	RSTBUT_OUT
PWRBUT_IN	4	3	PWRBUT_OUT
UART0_TXD	6	5	GND
UART0_RXD	8	7	GND

2.8.3   DC in connector (JVIN1)
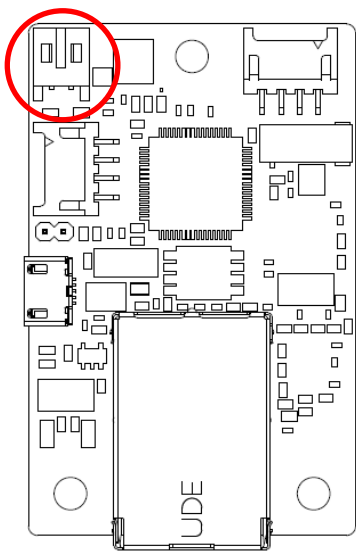
Signal	PIN	PIN	Signal
GND	2	1	+V5A_VIN

2.8.4   General purpose I/O connector (JGPIO1)
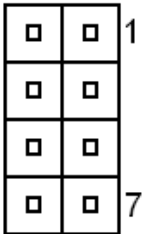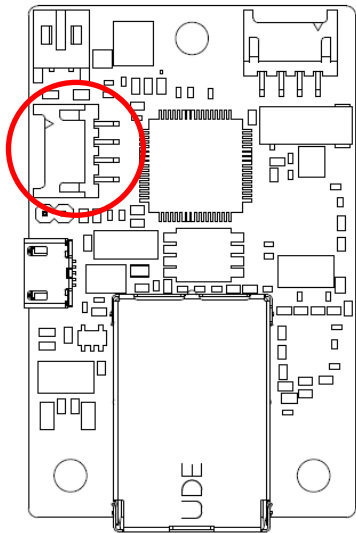
Signal	PIN	PIN	Signal
I2C_SDA	2	1	I2C_CLK
GPO_1	4	3	GPI_1
GPO_2	6	5	GPI_2
GND	8	7	GND

3. OOB (Out-Of-Band) Installation

3.1 System settings in Windows

Before start with OOB installation, please ensure to make System settings in Windows as shown on below.
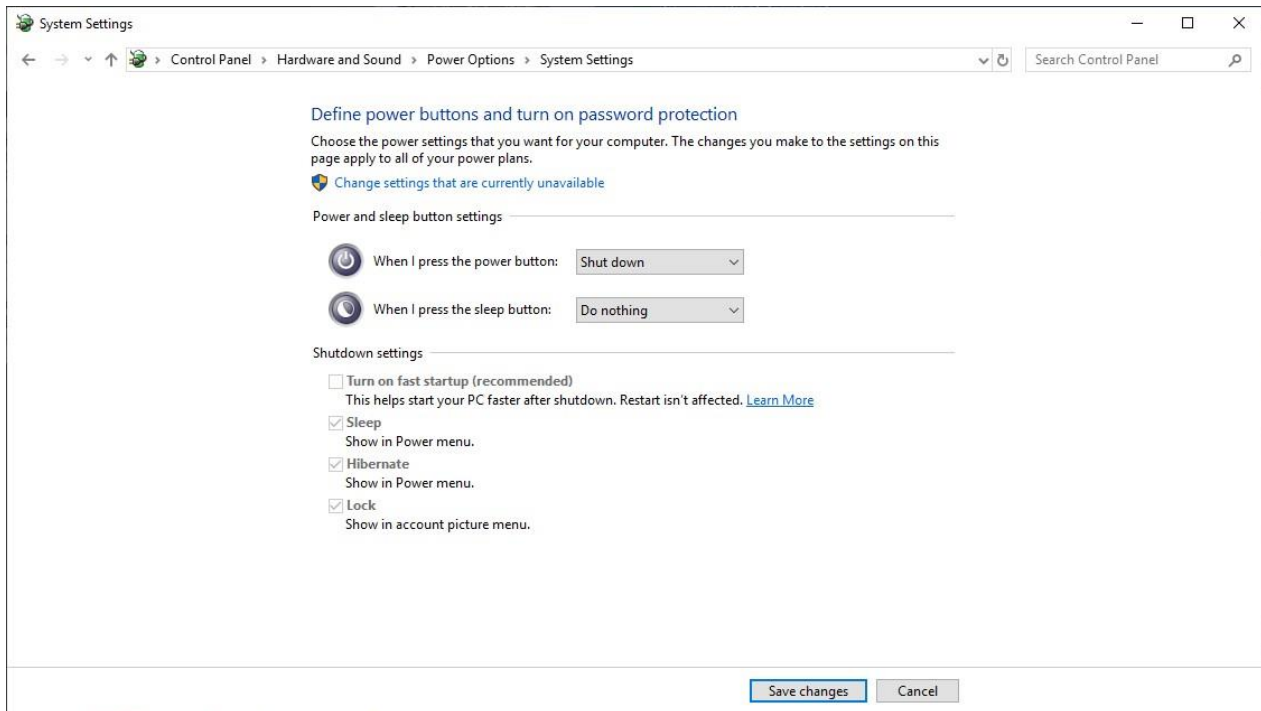
3.2 Apply account & password

Navigate to [Allxon Portal](#).

Type in your "Work Email" and click "Next" to create account.

Receive an activation email

You will receive an activation email with Subject: Activate Your Allxon from Allxon (no-reply@allxon.net). Please check your inbox for the activation email and complete the account setup.
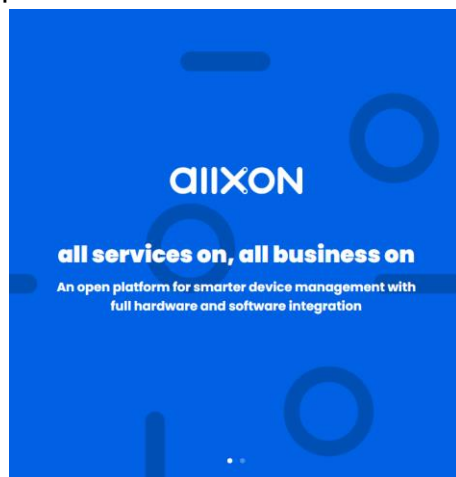
You will receive an activation email from Allxon, click the "Activate" button to proceed to the

activation process.
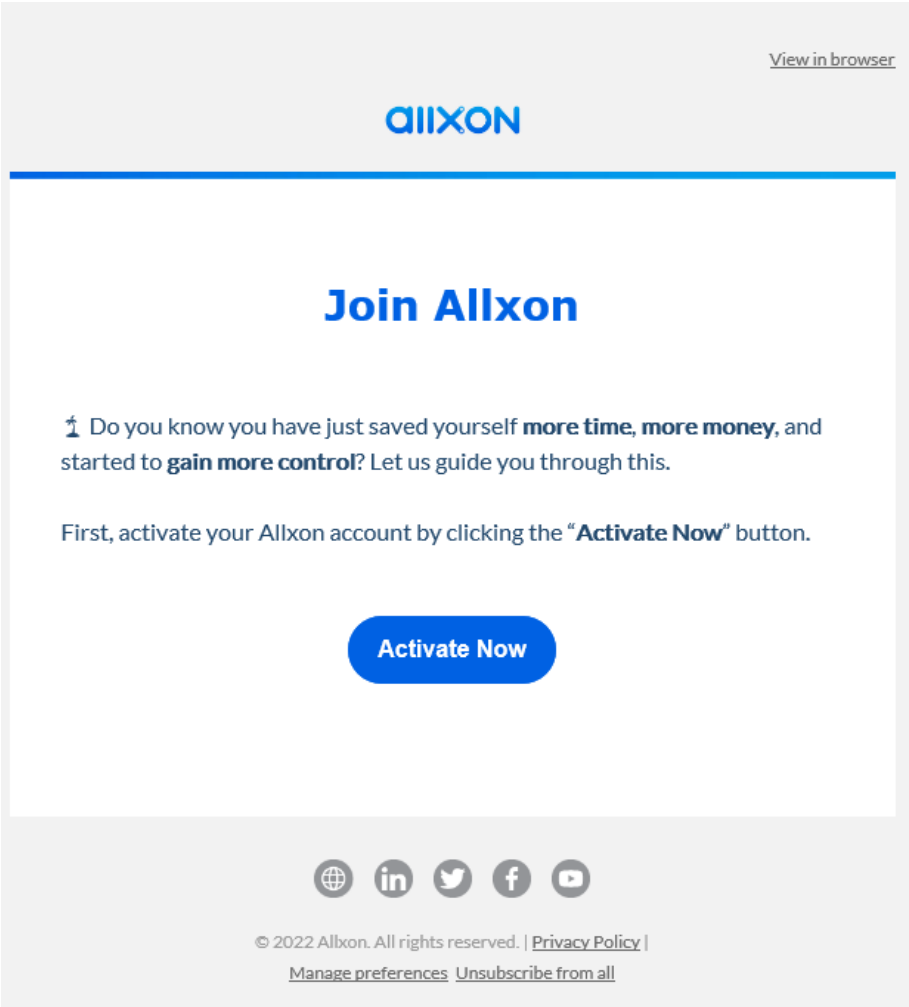
Enter password.
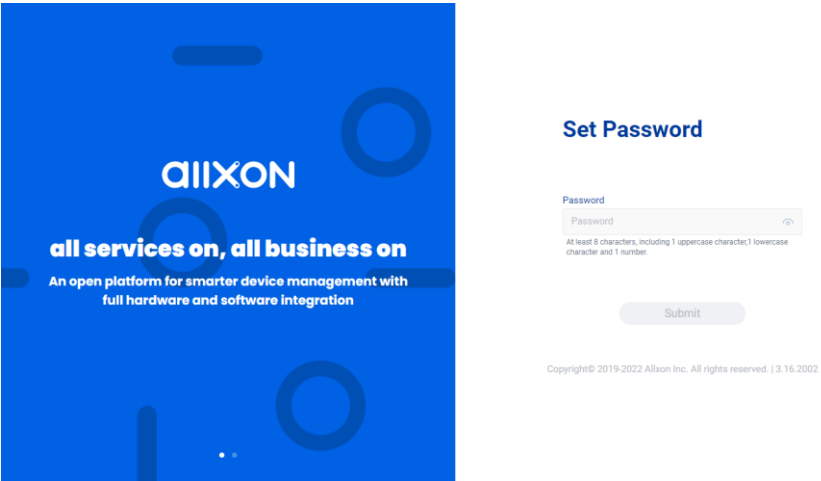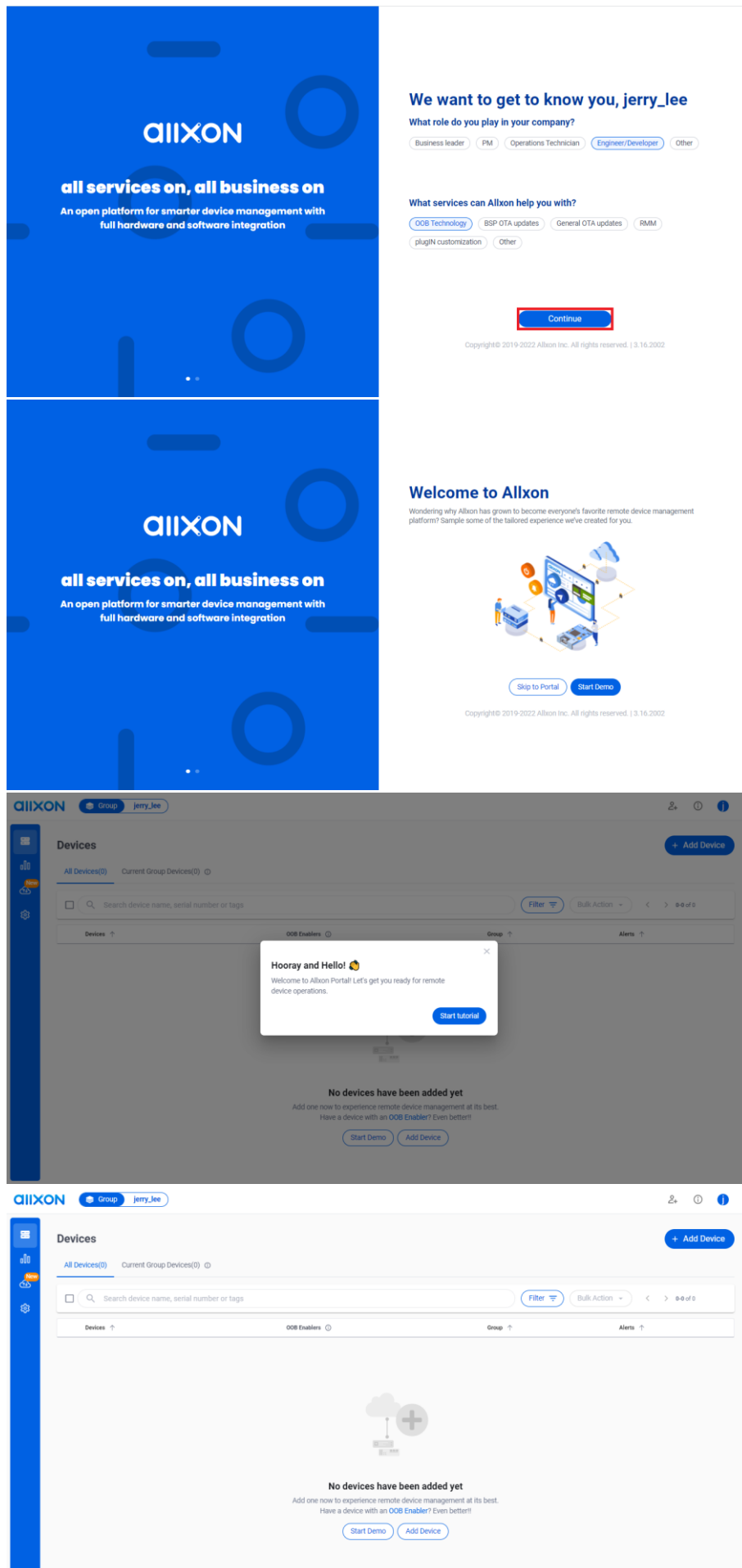
3.3 Register Devices

3.3.1   Install Allxon Agent via Command

To install Allxon Agent via command prompt, please follow the instructions below. By entering the command, the installation process of Allxon Agent and the related packages will start automatically.

Windows:

1. **Open the Powershell as an Admin.**
2. **Enter the installation command with desired options (refer to Step 2.):**

Set-ExecutionPolicy RemoteSigned -Scope Process -Force; Invoke-WebRequest -Uri "https://get.allxon.net/windows" -OutFile "$env:TEMP\allxon-installer.ps1"; & "$env:TEMP\allxon-installer.ps1"
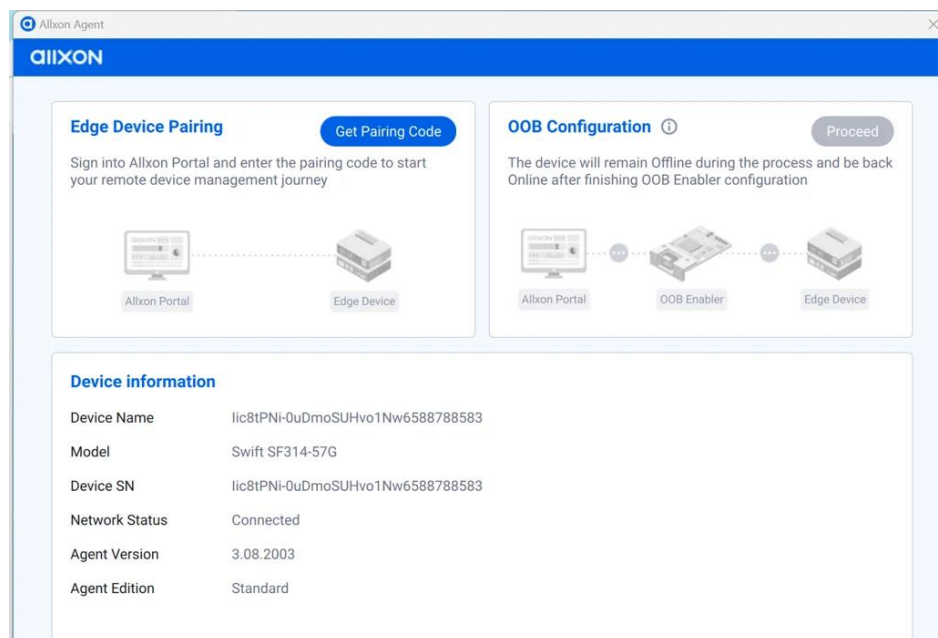
Upon successful installation, Allxon Agent should start up automatically. If Allxon Agent does not start, please press Ctrl + Shift + B to start the agent.

Allxon Agent is now installed on your edge device. Proceed to Get Device Pairing Code to add your edge device onto Allxon Portal and start managing now!

3.3.2 Get Device Pairing Code

To pair your edge device, make sure Allxon Agent is already installed on your device. Then follow the steps below to get the pairing code.

Depending on your environment, you can choose between the following methods to obtain the device pairing code: **Graphical User Interface (GUI)**

Using Graphical User Interface (GUI)

<Environment>

Allxon Agent on edge device with **Graphical User Interface.**

Bring up Allxon Agent by entering "Ctrl + Shift + B" on your device

<Note> If your device does not have Allxon Agent Installed on it, head to Install Allxon Agent on Edge Device to complete the installation.

Click "Get device pairing code" button.
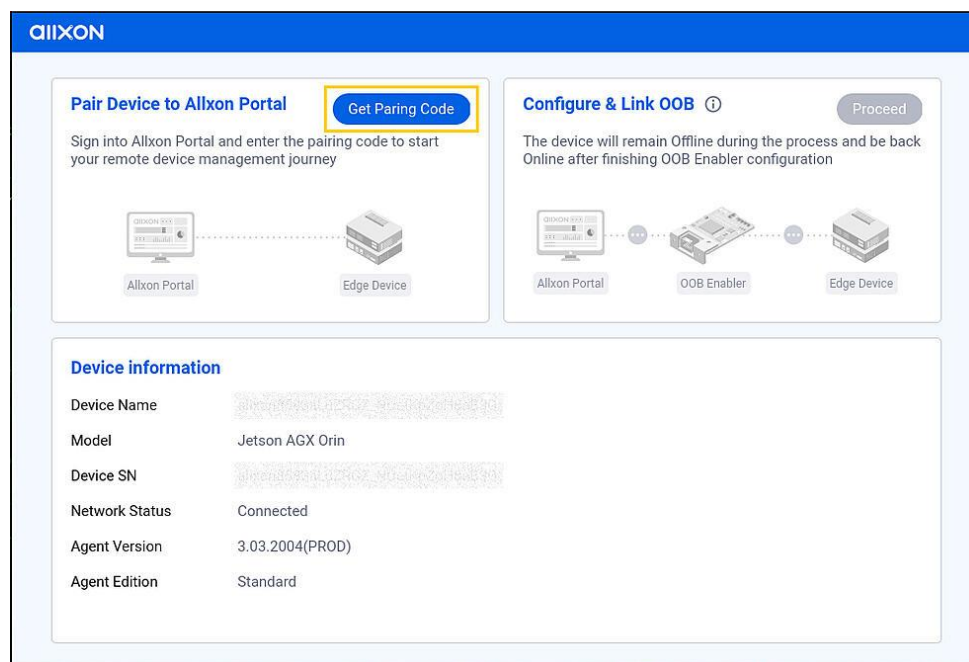
A device pairing code will be generated and ready for pairing.
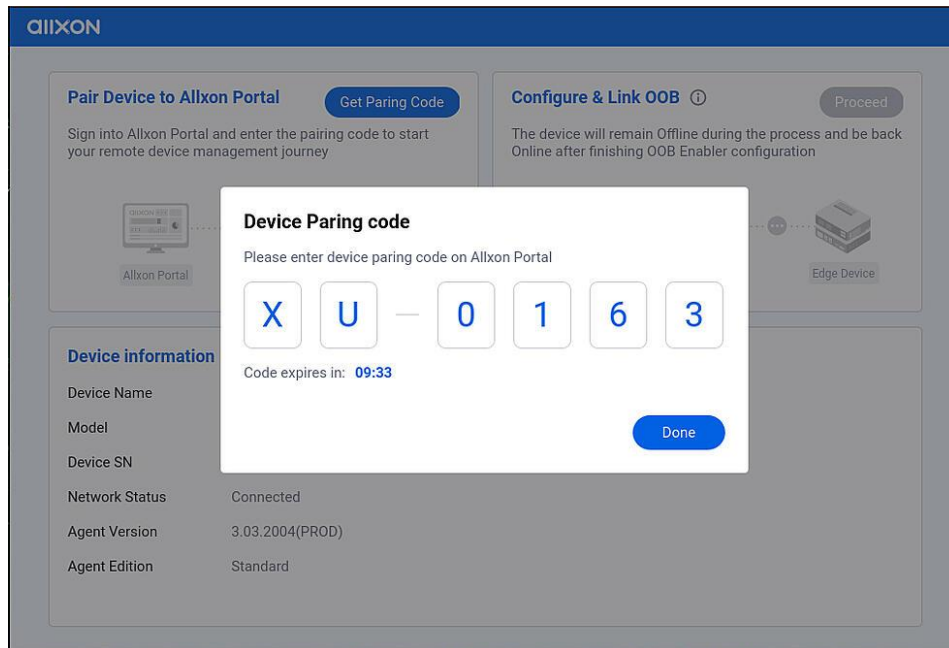
3.3.3   Add Your Device on Allxon Portal

Instruction

Allxon Agent makes pairing In-Band devices and Out-Of-Band Enablers to Allxon Portal quick and easy.

Get Ready for Device Pairing

Sign in to Allxon Portal and hover over to the left navigation panel. Click on Devices. Click on +Add button and have your device pairing code ready.
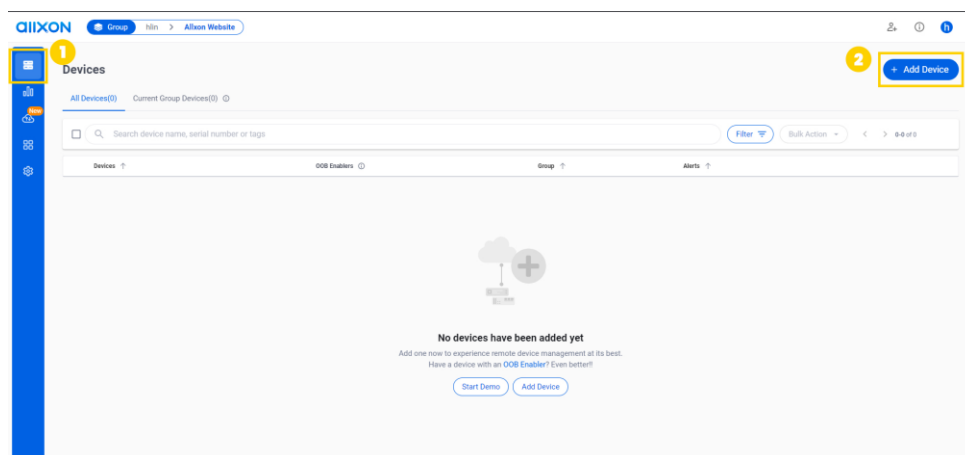
On Allxon Portal, enter the device pairing code obtained in the previous step. (Get Device Pairing Code)

After entering the device pairing code, you should see a "Pairing Completed" message. You can click "v" to redeem exclusive offers with promotion codes, (see Appendix A: Redeem Promotion Code for detail), or click "Done" to finish the pairing process.

Once the pairing process is complete, your edge device will appear on your Device page list with some general information and remote management tools readily available.
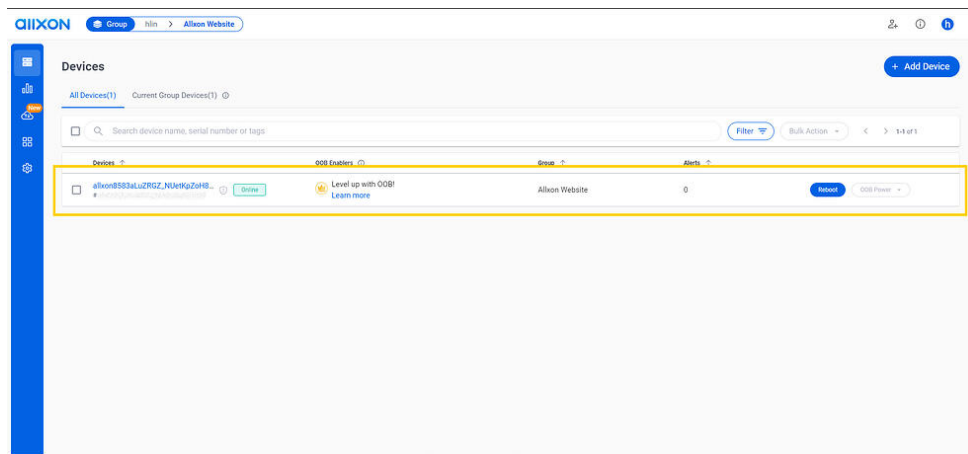
To fully experience Allxon with Out-Of-Band disaster recover solutions, head over to Enable Out-Of-Band Control on Device, to learn how to connect an Allxon swiftDR OOB Enabler onto your device.

3.3.4 Enable Out-Of-Band Control on Device

Bring up Allxon Agent on Edge Device

Bring up Allxon Agent by pressing Ctrl + Shift + B on your edge device. The pairing status: Paired on the top left indicates the successful connection between Allxon Agent and your Allxon Portal account. Upon successful paring, you can now go ahead and configure the OOB Enabler by clicking Proceed button on the top right.
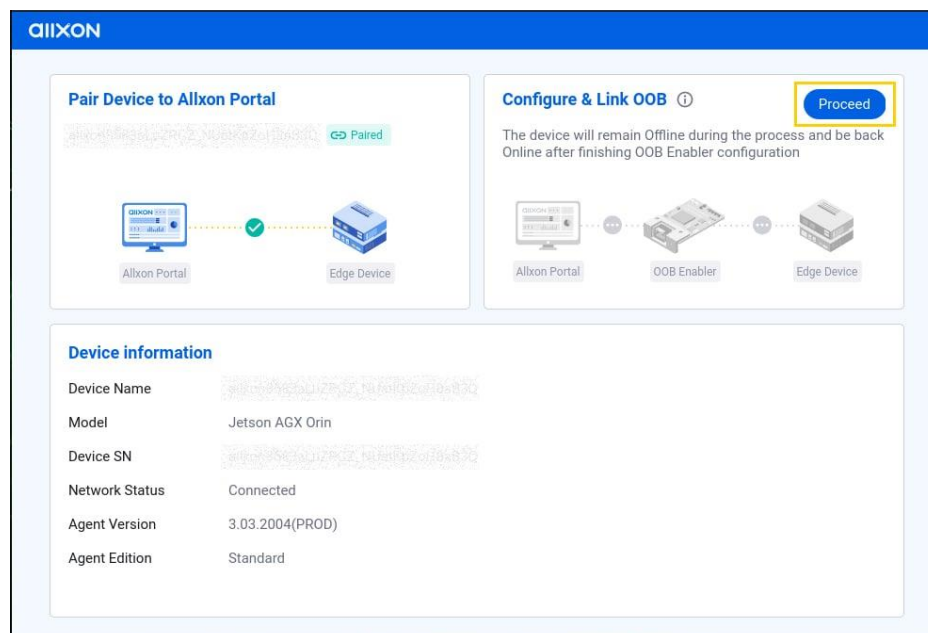
Connect Device to OOB Enabler

1. Disconnect the Device's Ethernet port from the Internet.
2. Use the same Ethernet cable to connect both the device's and the OOB Enabler's Ethernet ports.
3. Click on Next when both ports have been connected using the same Ethernet cable.

OFP-15W38-O1
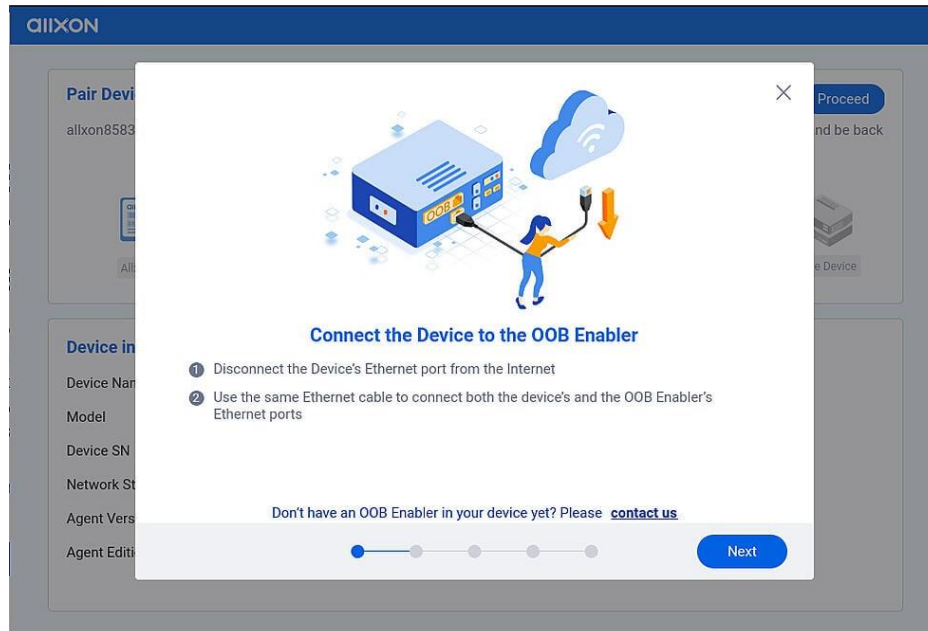
OOB Enabler Network Setting

1. To set the OOB Enabler's network, it is recommended to use the Default network setting with DHCP for easier and faster configuration. If you'd like to configure the network on your own, select Customize network setting.
   - Default network setting with DHCP
   - Customize network setting (IP, Net mask, Gateway, DNS server)
2. Click Next to start the network configuration.
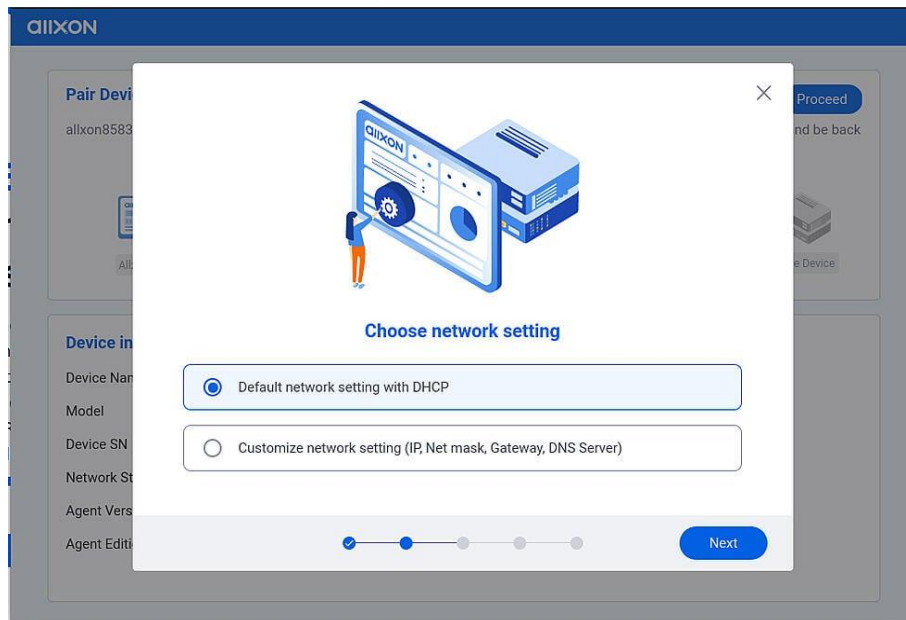
3. Click **Next** when the network configuration is complete.
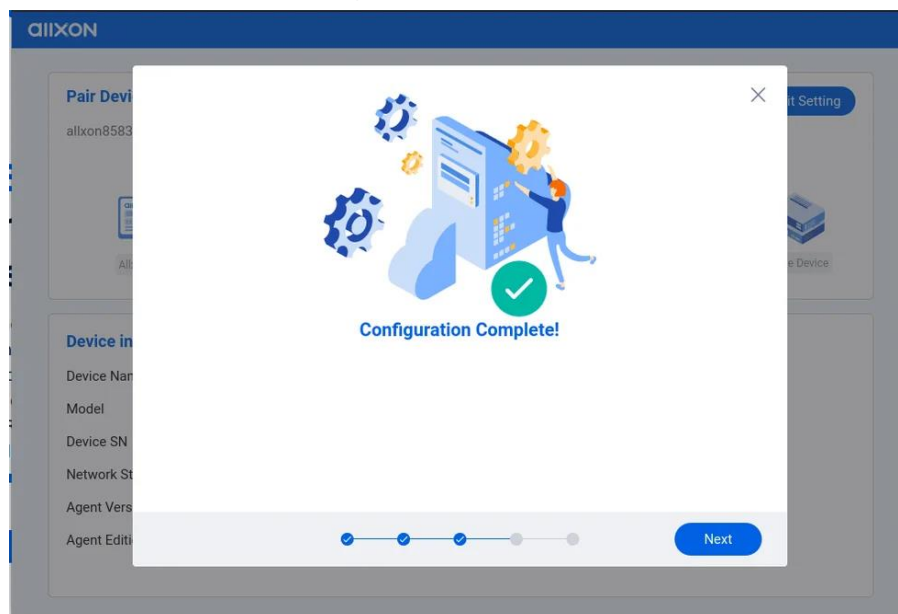
Reconnect LAN

Your OOB Enabler is now successfully linked to your edge device. Please follow the instructions below to reconnect both the device and the OOB Enabler to the network.

1. Disconnect the Ethernet cable from the device Ethernet port and OOB Ethernet port.
2. Reconnect the device Ethernet port to the internet with one Ethernet cable.
3. Reconnect the OOB Ethernet port to the internet with another Ethernet cable.
4. Click Next.
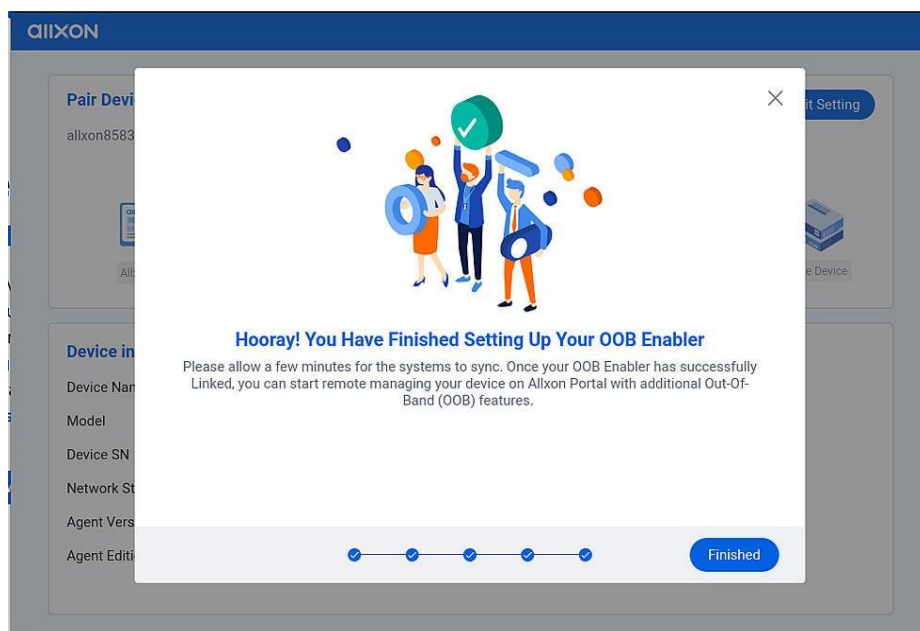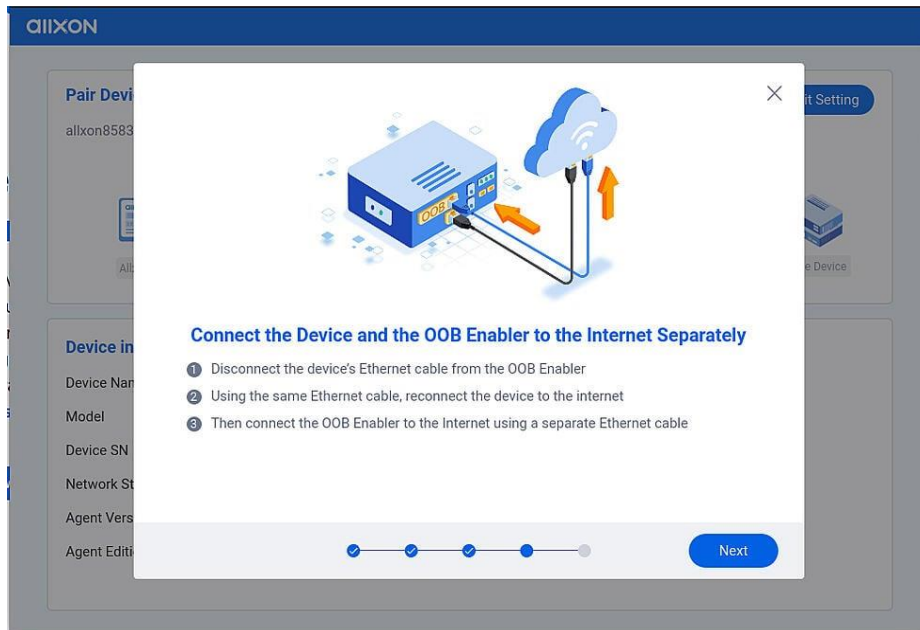
Upon successfully linking the device and OOB Enabler together, and reconnecting both of them to the network, the serial number of your OOB Enabler should appear on the top right of Allxon Agent with a Linked status indicated on the side.
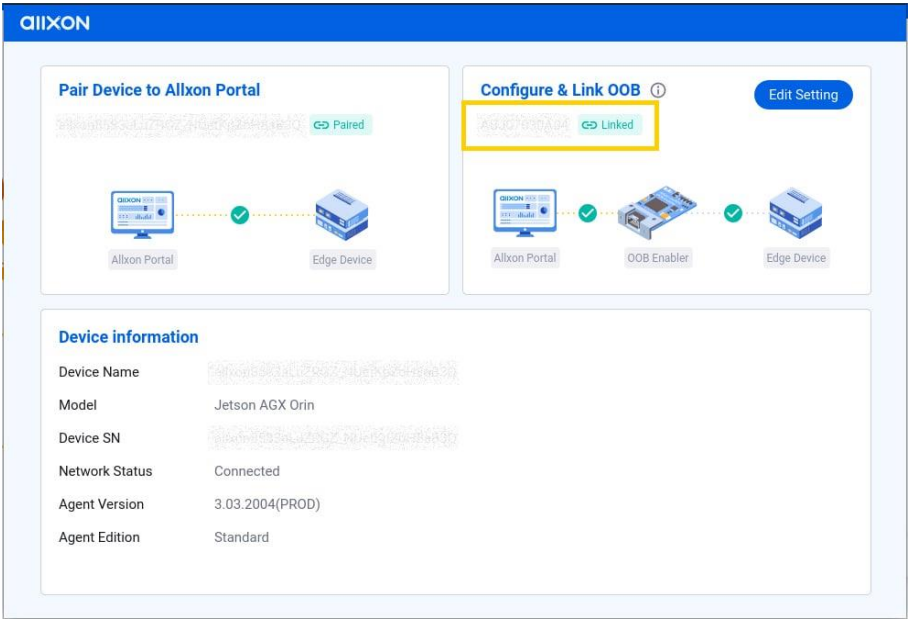
You can now head over to Allxon Portal to start managing your device with additional Out-Of-Band features.

4. Drivers Installation

All the drivers are available on Avalue Downloads Area (**https://www.avalue.com/en/support/download**). Type the model name and press Enter to find all the relevant software, utilities, and documentation.

Note:
The panel PC with projected capacitive type touchscreen and Windows 7 (or later) OS does not require touch driver installation. This is because there is a HID touch digitizer built-in driver in Windows 7 or later.

Chipset 1	Audio 1	Graphics 1	LAN 1	Other 1

Chipset   Total **1** Files

No.	Release Date	Title	Description	Download
01	2023-09-20	Intel Chipset Driver for Win10 x64	Windows 10 64bit	

Audio   Total **1** Files

No.	Release Date	Title	Description	Download
01	2023-09-20	Realtek Audio Driver for Win10 x64	Windows 10 64bit	

(For reference only)

Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

4.1 Install Chipset Driver

All drivers can be found on the Avalue Official Website:

www.avalue.com

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.
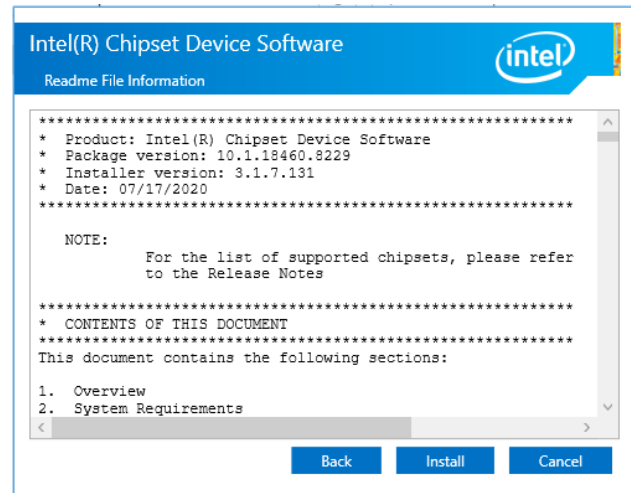
Step 3. Click **Install**.
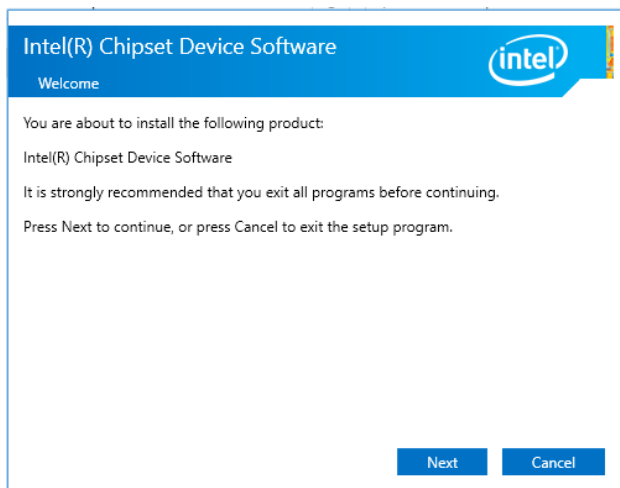
Step1. Click **Next**.
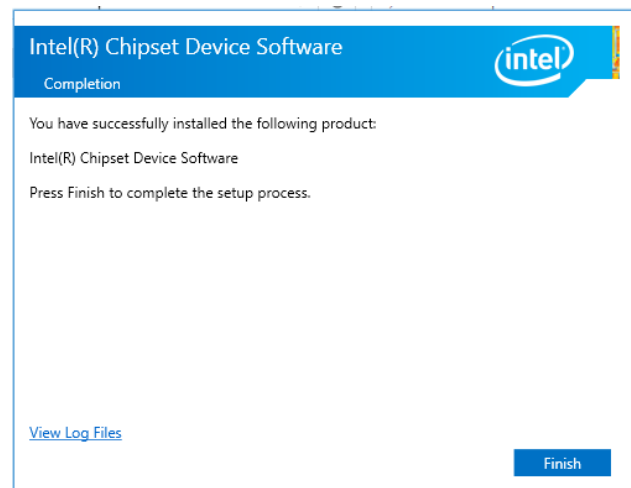
Step 4. Complete setup.
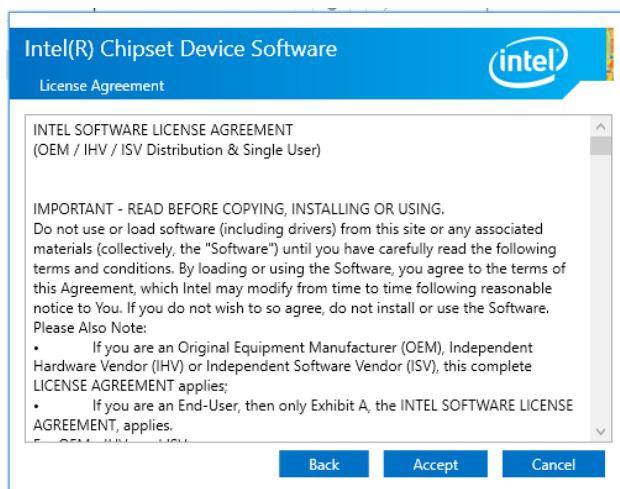
Step 2. Click **Accept**.

4.2 Install VGA Driver

All drivers can be found on the Avalue
Official Website:

www.avalue.com

Note: The installation procedures and
screen shots in this section are
based on Windows 11 operation
system. If the warning message
appears while the installation
process, click Continue to go on.
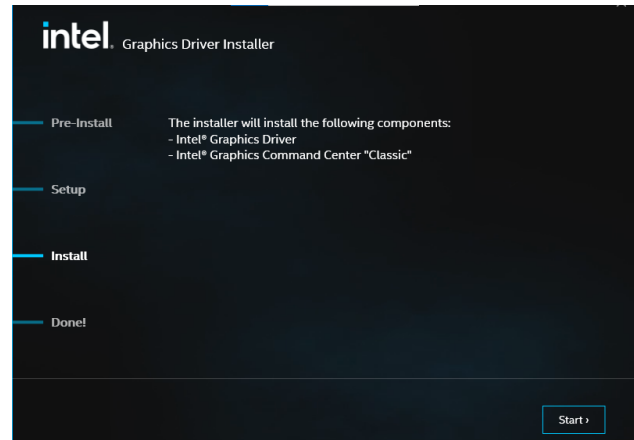
Step 3. Click **Start.**

Step 1. Click **Begin installation**.
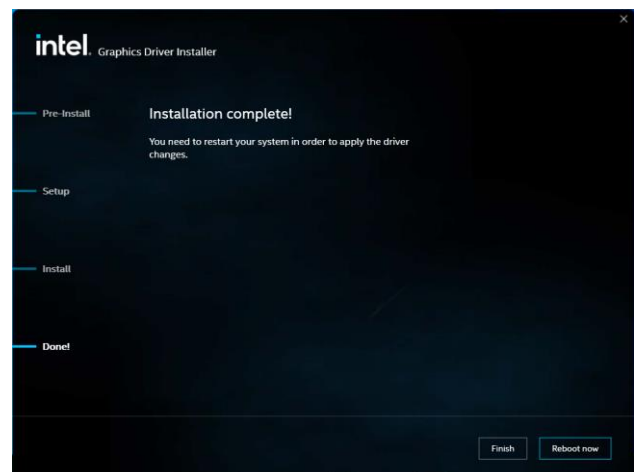
Step 4. Click **Reboot now.**
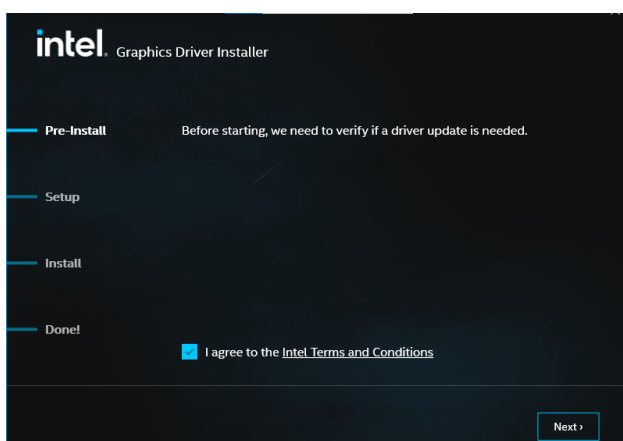
Step 2.
Click **Next** to accept license agreement.

4.3 Install ME Driver

All drivers can be found on the Avalue Official Website:

www.avalue.com

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.

Setup — Intel® Management Engine Components — Destination Folder

Click Next to install to the default folder, or click Change to choose another destination folder.

C:\Program Files (x86)\Intel\Intel(R) Management Engine Components

Change...

Intel Corporation   < Back   Next >   Cancel

Step 3. Click **Next**.

Setup — Intel® Management Engine Components — Welcome

You are about to install the following product:

Intel® Management Engine Components 2044.15.0.1941

It is strongly recommended that you exit all programs before continuing.
Click Next to continue, or click Cancel to exit the setup program.

Intel Corporation   < Back   Next >   Cancel
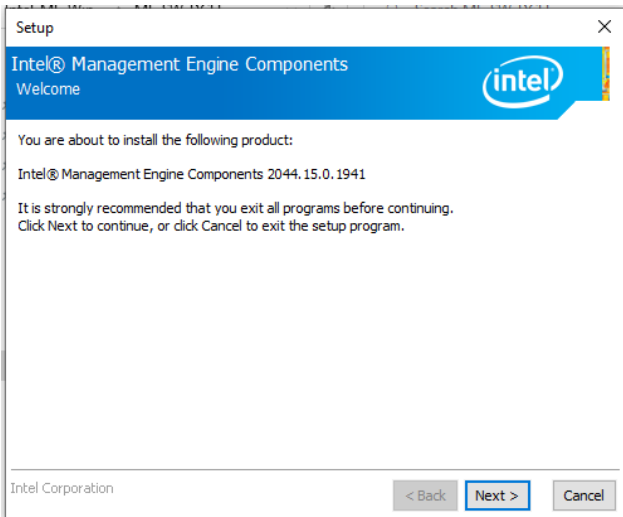
Step 1. Click **Next** to continue setup.

Setup — Intel® Management Engine Components — Completion

You have successfully installed the following components:

- Intel® Management Engine Interface
- Serial Over LAN
- Intel® Wireless Manageability Driver
- Local Management Service
- Intel® Dynamic Application Loader

Click here to open log file location.

Intel Corporation   < Back   Next >   Finish

Step 4. Click **Finish** to complete setup.

Setup — Intel® Management Engine Components — License Agreement

INTEL SOFTWARE LICENSE AGREEMENT(OEM / IHV / ISV Distribution & Single User)

IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
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• If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT, applies.

For OEMs, IHVs and ISVs:

LICENSE. Subject to the terms of this Agreement, Intel grants to You a nonexclusive,

☑ I accept the terms in the License Agreement.

Intel Corporation   < Back   Next >   Cancel

Step 2. Click **Next**.

4.4 Install Audio Driver (For Realtek ALC897 and ALC888S HD Audio)

All drivers can be found on the Avalue
Official Website:
www.avalue.com

Note: The installation procedures and
screen shots in this section are
based on Windows 11 operation
system. If the warning message
appears while the installation
process, click Continue to go on.
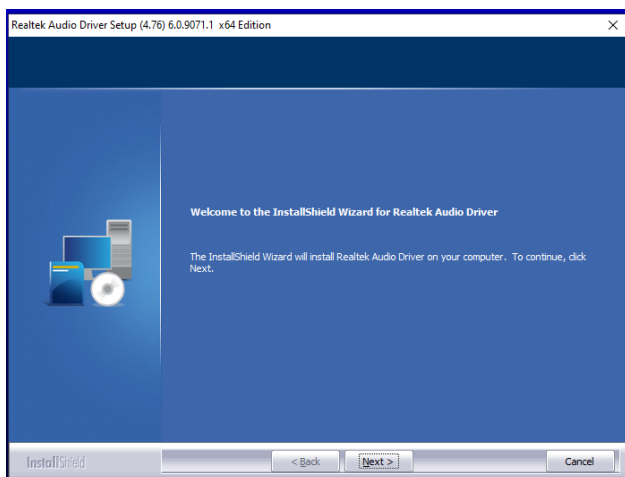
Step1. Click **Next** to Install.
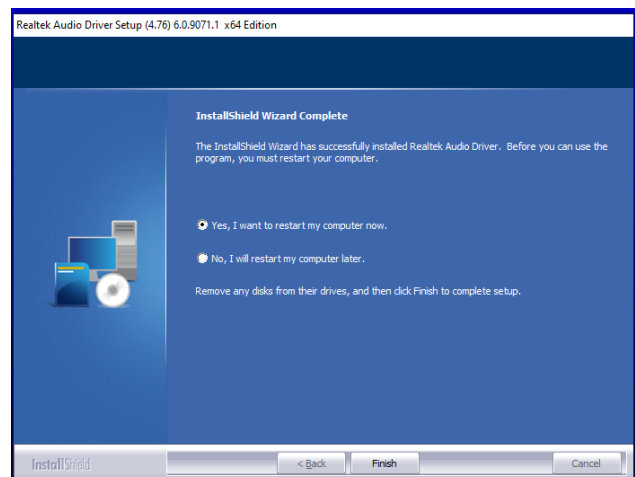
Step 2. Click **Finish** to complete setup.

4.5 Install LAN Driver

All drivers can be found on the Avalue Official Website:

www.avalue.com

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.
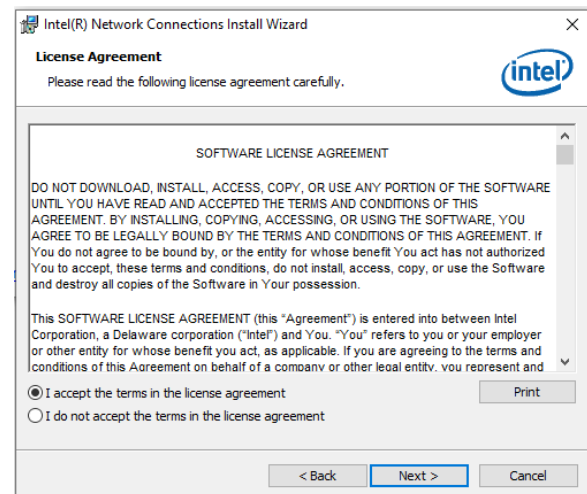
Step 3. Click **Next**.
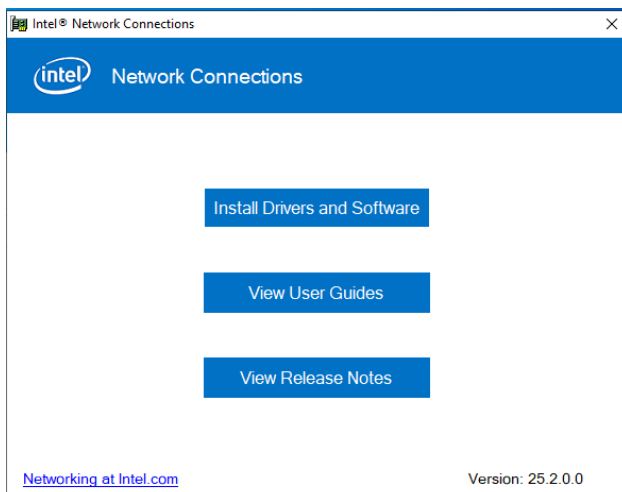
Step 1. Click **Next** to continue installation.
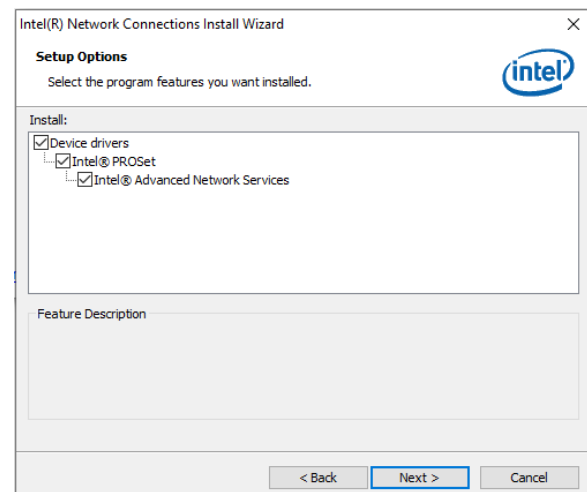
Step 4. Click **Yes**.
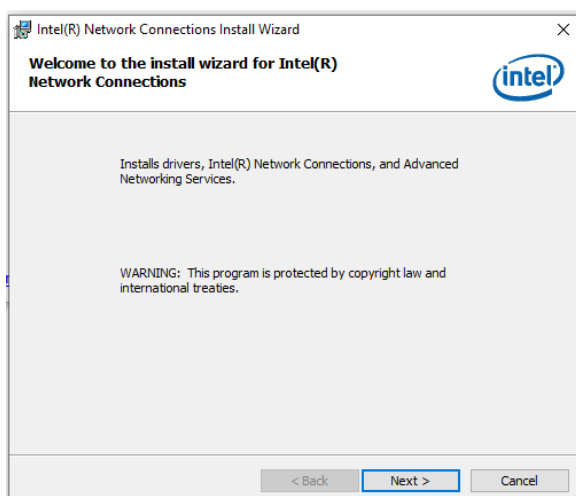
Step 2. Click **Next**.
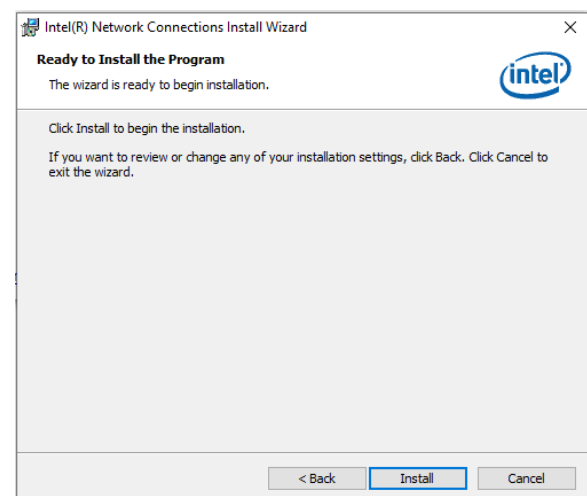
Step 5. Click **Install**.
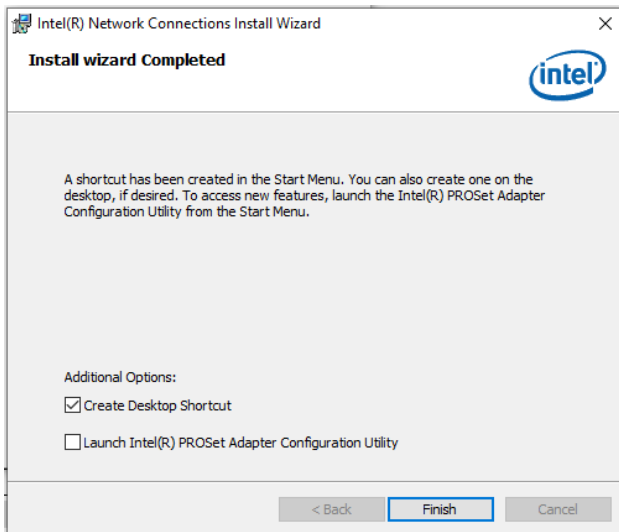
Step 6. Click **Finish** to complete setup.

4.6 Install RST for RAID Driver

All drivers can be found on the Avalue
Official Website:
www.avalue.com

Note: The installation procedures and
screen shots in this section are
based on Windows 11 operation
system. If the warning message
appears while the installation
process, click Continue to go on.
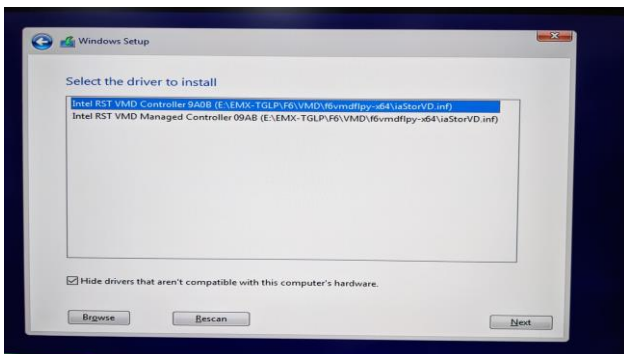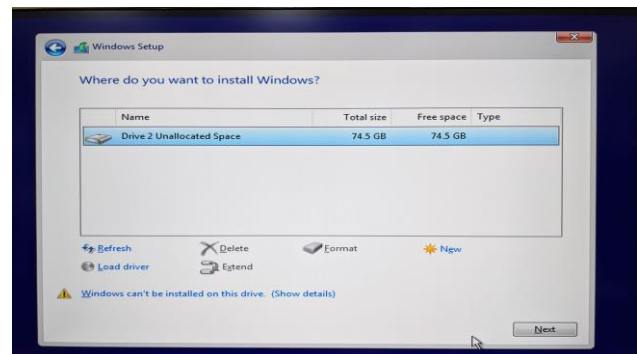
Step 1. Click **Next** to continue installation.	**Step 2.** Click **Next**.

4.7 Ascending Network Adapter

All drivers can be found on the Avalue Official Website:

www.avalue.com

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.

Step 1. Copy file:
"AscendingSortNetworkAdapterByMac.zip"
to C:\

Step 2. Unzip file:
"AscendingSortNetworkAdapterByMac.zip"

Step 3.

change path to **C:** and execute the file

Step 4. it will generate **Avalue** folder.
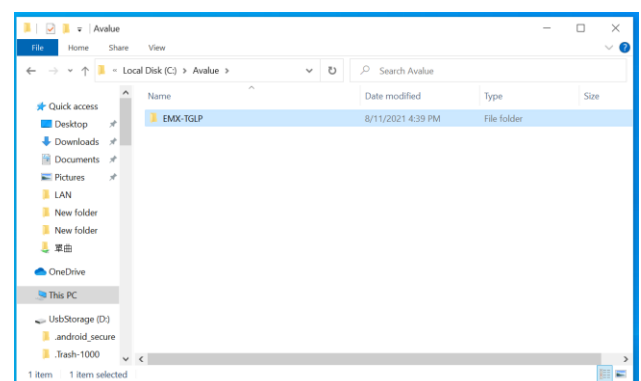
Step 5.

Click and enter C:\Avalue**EMX-TGLP** folder , execute administratoramode "ExecuteAscendingSortNetworkAdaptersX64.bat".
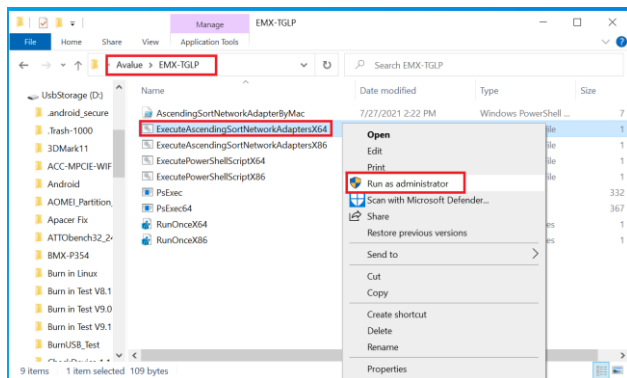
Step 6. After execute
"ExecuteAscendingSortNetworkAdaptersX64.bat",
it will auto Restart.
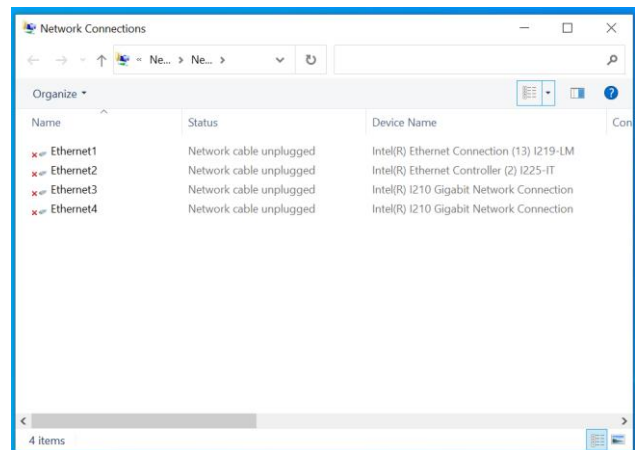
Step 7.
Ethernet1=>INTEL I219LM
Ethernet2=>INTEL I225IT
Ethernet3=>INTEL I210
Ethernet4=>INTEL I210

Note:

If customer would like to patch LAN order sequence, please refer to Avalue website for EMX-TGLP Sort
Network Adapter By Mac Address.

Other

No.	Release Date	Model	Description	Download
1	2021-08-12	EMX-TGLP	SortNetwork Tool Device:Other	

5. BIOS Setup

5.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

5.2 Starting Setup

The AMI BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:
By pressing <Del> or <F2> immediately after switching the system on, or
By pressing the <Del> or <F2> key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press <Del> or <F2> to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press F1 to Continue, DEL to enter SETUP

5.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑↓→←	Move
Enter	Select
+/-	Value
Esc	Exit
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit Setup
<K>	Scroll help area upwards
<M>	Scroll help area downwards

- **Navigating Through The Menu Bar**

  Use the left and right arrow keys to choose the menu you want to be in.

  Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>.   A "➢" pointer marks all sub menus.

5.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or <Enter> key.

5.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the NVRAM settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

5.6 BIOS setup

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

5.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.

```
                          Aptio Setup – AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit

   BIOS Information                                    Choose the system default
   BIOS Vendor              American Megatrends        language
   Core Version             5.19
   Compliancy               UEFI 2.7; PI 1.6
   Project Version          1AXRR 0.08 x64
   Build Date and Time      12/27/2022 14:55:13
   Access Level             Administrator
   EC 8528 Firmware         8E
   BIOS Name                OFP15383

   System Language          [English]
 ▶ Intel RC Version

   System Date              [Fri 11/15/2024]           →←: Select Screen
   System Time              [17:15:49]                 ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

```
                          Aptio Setup – AMI
   Main

   Intel RC Version

   Board Information
   Board Name               EMX-TGLP(OFP15383)

   Processor Information
   Name                     TigerLake ULT
   Type                     11th Gen Intel(R)
                            Core(TM) i7-1185G7 @
                            3.00GHz
   Speed                    1800 MHz
   ID                       0x806C1
   Stepping                 B0
   Package                  Not Implemented Yet        →←: Select Screen
   Number of Processors     4Core(s) / 8Thread(s)      ↑↓: Select Item
   Microcode Revision       8A                         Enter: Select
   GT Info                  0x9A49                      +/-: Change Opt.
                                                       F1: General Help
   IGFX GOP Version         17.0.1064                  F2: Previous Values
   PCIe GEN4 Dekel FW Version  0.0                     F3: Optimized Defaults
   Memory RC Version        2.0.2.0                    F4: Save & Exit
   Total Memory              4096 MB                   ESC: Exit
   Memory Speed              2400 MT/s

   PCH Information

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```

5.6.1.1 System Language

This option allows choosing the system default language.

5.6.1.2 System Date

Use the system date option to set the system date. Manually enter the month, day and year.

5.6.1.3 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the Avalue website (www.avalue.com) to download the latest product and BIOS information.

5.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

```
                          Aptio Setup – AMI
        Main  Advanced  Chipset  Security  Boot  Save & Exit
─────────────────────────────────────────────────────────────────────
▶ Connectivity Configuration              Configure Connectivity related
▶ CPU Configuration                       options
▶ Power & Performance
▶ PCH-FW Configuration
▶ Trusted Computing
▶ ACPI Settings
▶ IT8528 Super IO Configuration
▶ EC 8528 HW monitor
▶ S5 RTC Wake Settings
▶ Serial Port Console Redirection
▶ USB Configuration
▶ Network Stack Configuration
▶ NVMe Configuration
                                          →←: Select Screen
                                          ↑↓: Select Item
                                          Enter: Select
                                          +/-: Change Opt.
                                          F1: General Help
                                          F2: Previous Values
                                          F3: Optimized Defaults
                                          F4: Save & Exit
                                          ESC: Exit

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```

5.6.2.1 Connectivity Configuration

```
                              Aptio Setup - AMI
        Advanced

   CNVi present                    No                 This option configures       ▲
   CNVi Configuration                                 Connectivity.
     CNVi Mode                     [Disable Integrated]  [Auto Detection] means that if
                                                      Discrete solution is
                                                      discovered it will be enabled
                                                      by default. Otherwise
                                                      Integrated solution (CNVi)
                                                      will be enabled;
                                                      [Disable Integrated] disables
                                                      Integrated Solution.
                                                      NOTE: When CNVi is present,   ▼


                                                      ↔: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit



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```

Item	Options	Description
CNVi Mode	Disable Integrated**[Default]** Auto Detection	This option configures Connectivity. [Auto Detection] means that if Discrete solution is discovered it will be enabled by default. Otherwise Integrated solution (CNVi) will be enabled; [Disable Integrated] disables Integrated Solution. NOTE: When CNVi is present, the GPIO pins that are used for radio

5.6.2.2 CPU Configuration

```
                              Aptio Setup - AMI
        Main

   CPU Configuration                                  When enabled, a VMM can
                                                      utilize the additional
   Type                       11th Gen Intel(R)       hardware capabilities provided
                              Core(TM) i7-1185G7E @   by Vanderpool Technology.
                              2.80GHz
   ID                         0x806C1
   Speed                      2800 MHz
   L1 Data Cache              48 KB x 4
   L1 Instruction Cache       32 KB x 4
   L2 Cache                   1280 KB x 4
   L3 Cache                   12 MB
   L4 Cache                   N/A
   VMX                        Supported
   SMX/TXT                    Supported              ↔: Select Screen
                                                     ↑↓: Select Item
   Intel (VMX) Virtualization [Enabled]             Enter: Select
   Technology                                        +/-: Change Opt.
   Active Processor Cores     [All]                  F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




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```

Item	Options	Description
Intel (VMX) Virtualization Technology	Disabled Enabled**[Default]**,	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Active Processor Cores	All**[Default]**, 1 2 3	Number of cores to enable in each processor package.

5.6.2.3 Power & Performance

```
                              Aptio Setup - AMI
        Advanced

 Power & Performance                                CPU - Power Management Control
                                                    Options
 ▶ CPU - Power Management Control




                                                    ↔: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit


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```

5.6.2.3.1 CPU - Power Management Control

```
                              Aptio Setup - AMI
        Main

 CPU - Power Management Control                     Allows more than two frequency
                                                    ranges to be supported.
 Intel(R) SpeedStep(tm)            [Enabled]
 Intel(R) Speed Shift Technology   [Enabled]
 C states                          [Enabled]
   Enhanced C-states               [Enabled]




                                                    ↔: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit


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```

Item	Options	Description
Intel(R) SpeedStep(tm)	Disabled Enabled**[Default]**,	Allows more than two frequency ranges to be supported.
Intel(R) Speed Shift Technology	Disabled Enabled**[Default]**,	Enable/Disable Intel(R) Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states.
C states	Disabled Enabled**[Default]**,	Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.
Enhanced C-states	Disabled Enabled**[Default]**,	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.

5.6.2.4   PCH-FW Configuration

```
                              Aptio Setup - AMI
        Advanced

   ME Firmware Version          15.0.23.1706           Configure Management Engine
   ME Firmware Mode             Normal Mode            Technology Parameters
   ME Firmware SKU              Corporate SKU
   ME Firmware Status 1         0x90000255
   ME Firmware Status 2         0x30858106

   ME State                     [Enabled]

 ▶ Firmware Update Configuration




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

5.6.2.4.1   Firmware Update Configuration

```
                              Aptio Setup - AMI
        Advanced

   Me FW Image Re-Flash             [Disabled]          Enable/Disable Me FW Image
                                                        Re-Flash function.








                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

Item	Options	Description
Me FW Image Re-Flash	Disabled**[Default]**, Enabled	Enable/Disable Me FW Image Re-Flash function.

5.6.2.5 Trusted Computing
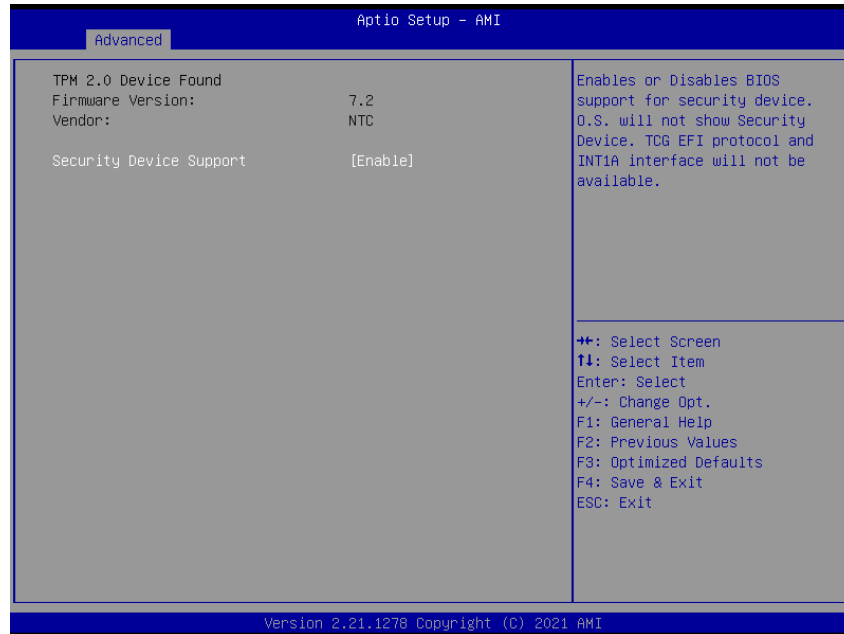
Item	Options	Description
Security Device Support	Disabled Enabled**[Default]**,	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

5.6.2.6 ACPI Settings
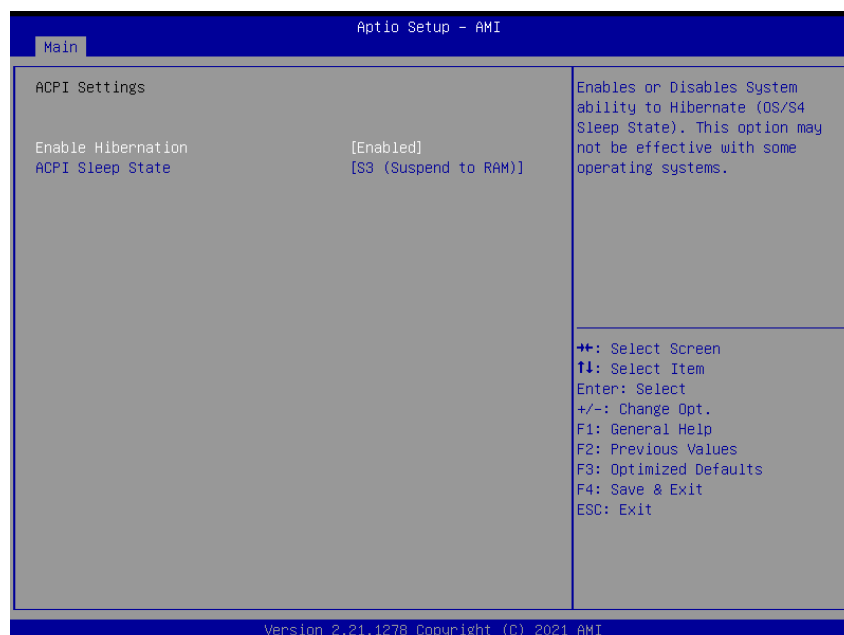
Item	Options	Description
Enable Hibernation	Disabled Enabled**[Default]**,	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM)**[Default]**	Select the highest ACPI sleep state the system will enter when the SUSPEDN button is pressed.

5.6.2.7 IT8528 Super IO Configuration

You can use this item to set up or change the IT8528 Super IO configuration for serial ports. Please refer to 5.6.2.7.1~ 5.6.2.7.5 for more information.

```
                          Aptio Setup - AMI
        Advanced

    IT8528 Super IO Configuration              Set Parameters of Serial Port
                                               1 (COMA)
    Super IO Chip              IT8528
  ▶ Serial Port 1 Configuration
  ▶ Serial Port 2 Configuration

    Super IO Chip              F81216
  ▶ Serial Port 3 Configuration
  ▶ Serial Port 4 Configuration
  ▶ Serial Port 5 Configuration



                                               ↔: Select Screen
                                               ↑↓: Select Item
                                               Enter: Select
                                               +/-: Change Opt.
                                               F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Exit
                                               ESC: Exit



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```

Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC).
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD).
Serial Port 5 Configuration	Set Parameters of Serial Port 5 (COME).

5.6.2.7.1 Serial Port 1 Configuration

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).
UART 232 422 485	UART 232**[Default]**, UART 422, UART 485	Change the Serial Port as RS232/422/485.

5.6.2.7.2 Serial Port 2 Configuration
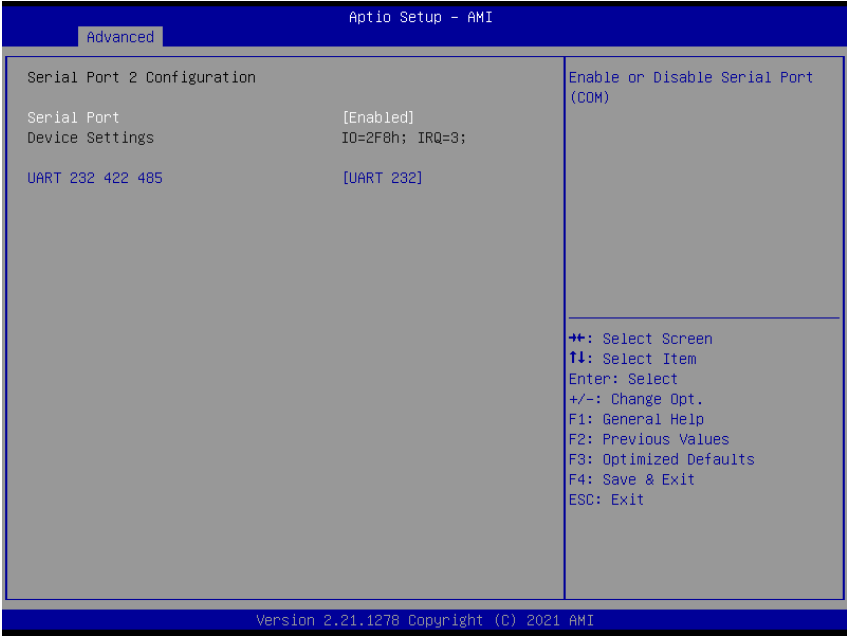
Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).
UART 232 422 485	UART 232**[Default]**, UART 422, UART 485	Change the Serial Port as RS232/422/485.

5.6.2.7.3 Serial Port 3 Configuration
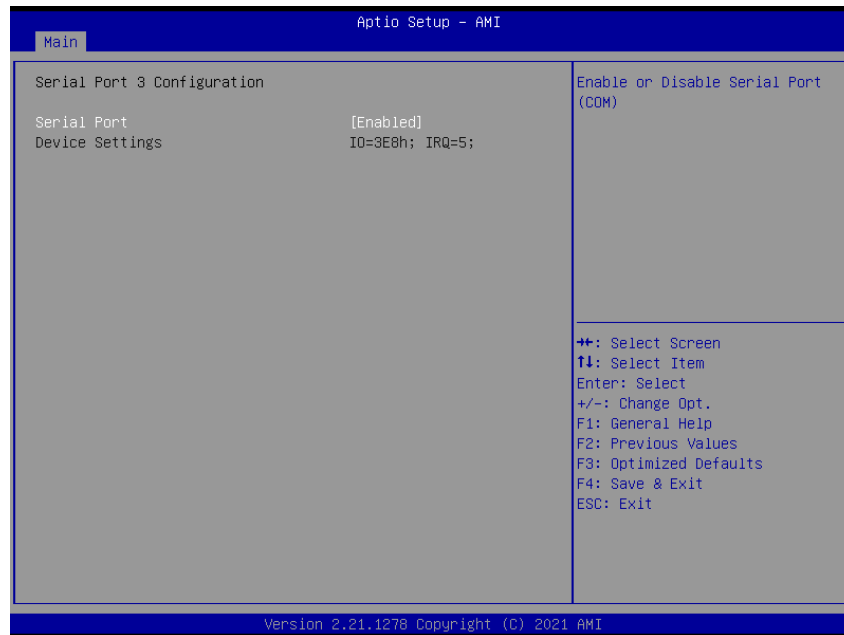
```
                              Aptio Setup – AMI
     Main

     Serial Port 3 Configuration                        Enable or Disable Serial Port
                                                         (COM)
     Serial Port                     [Enabled]
     Device Settings                 IO=3E8h; IRQ=5;




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/−: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit




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```

Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

5.6.2.7.4 Serial Port 4 Configuration

```
                              Aptio Setup – AMI
     Main

     Serial Port 4 Configuration                        Enable or Disable Serial Port
                                                         (COM)
     Serial Port                     [Enabled]
     Device Settings                 IO=2E8h; IRQ=5;




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/−: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit




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```

Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

5.6.2.7.5 Serial Port 5 Configuration
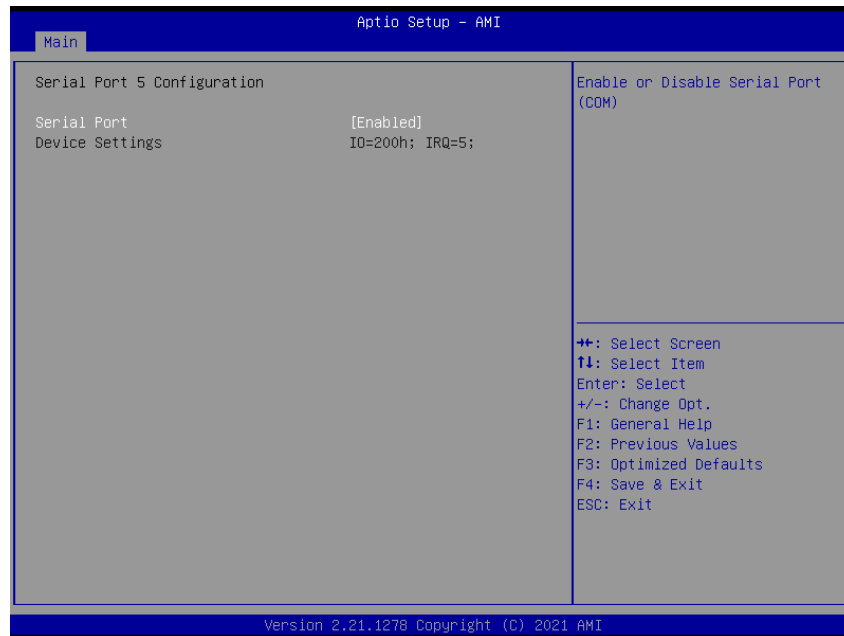
```
                         Aptio Setup - AMI
      Main

      Serial Port 5 Configuration                      Enable or Disable Serial Port
                                                       (COM)
      Serial Port                    [Enabled]
      Device Settings                IO=200h; IRQ=5;




                                                       ++: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

5.6.2.8 EC 8528 H/W monitor

```
                         Aptio Setup - AMI
           Advanced

      Pc Health Status

      CPU temperature                : +32 C
      System temperature             : +28 C
      DCIN                           : +11.507 V
      VCORE                          : +1.253 V




                                                       ++: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

5.6.2.9 S5 RTC Wake Settings

```
                              Aptio Setup - AMI
          Advanced

    Wake system from S5             [Disabled]            Enable or disable System wake
                                                          on alarm event. Select
                                                          FixedTime, system will wake on
                                                          the hr::min::sec specified.
                                                          Select DynamicTime , System
                                                          will wake on the current time
                                                          + Increase minute(s)


                                                          ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit




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```

Item	Options	Description
Wake system from S5	Disabled**[Default]**, Fixed Time Dynamic Time	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime, System will wake on the current time + Increase minutes(s).

5.6.2.10 Serial Port Console Redirection

```
                              Aptio Setup - AMI
              Advanced
                                                          Console Redirection Enable or
                                                          Disable.
    COM0
    Console Redirection              [Disabled]
 ▶ Console Redirection Settings

    COM1(Pci Bus0,Dev0,Func0) (Disabled)
    Console Redirection              Port Is Disabled

    Legacy Console Redirection
 ▶ Legacy Console Redirection Settings

    Serial Port for Out-of-Band Management/
    Windows Emergency Management Services (EMS)
    Console Redirection EMS          [Disabled]
 ▶ Console Redirection Settings                           ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit



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```

Item	Options	Description
Console Redirection	Disabled**[Default]**, Enabled	Console Redirection Enable or Disable.

Console Redirection EMS	Disabled[Default], Enabled	Console Redirection Enable or Disable.

5.6.2.10.1 Legacy Console Redirection Settings

Item	Options	Description
Redirection COM Port	COM0	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages

5.6.2.11 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.
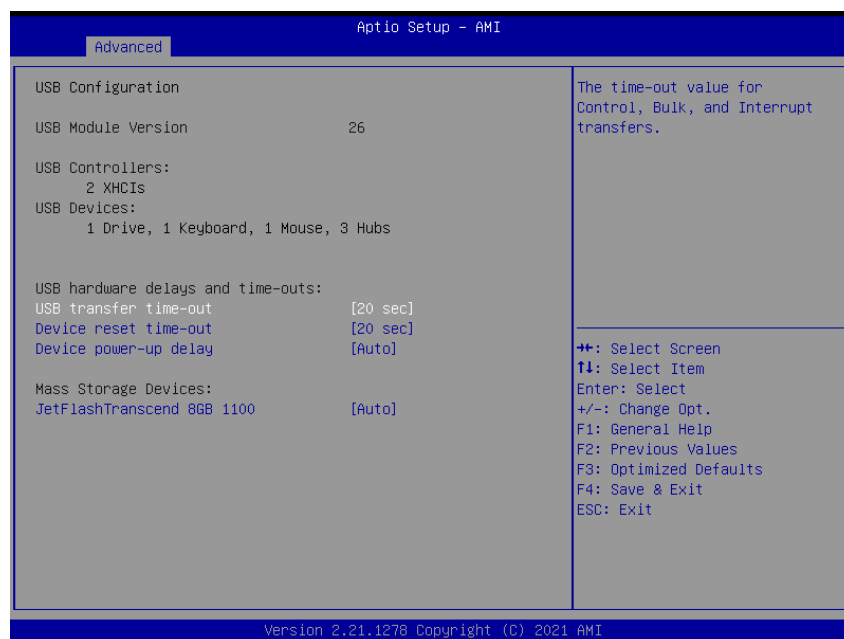
Item	Options	Description
USB transfer time-out	1 sec 5 sec 10 sec	The time-out value for Control, Bulk, and Interrupt transfers.

	20 sec**[Default]**	
Device reset time-out	10 sec 20 sec**[Default]** 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto**[Default]** Manual	Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken form Hub descriptor.
Mass Storage Devices	Auto**[Default]** Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

5.6.2.12 Network Stack Configuration

Item	Options	Description
Network Stack	Enabled Disabled**[Default]**	Enable/Disable UEFI Network Stack.

5.6.2.13 NVMe Configuration

```
                              Aptio Setup - AMI
     Advanced

  NVMe Configuration

  No NVME Device Found

                                                   →←: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit

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```

5.6.3 Chipset

```
                              Aptio Setup - AMI
      Main  Advanced  Chipset  Security  Boot  Save & Exit

  ▶ System Agent (SA) Configuration       System Agent (SA) Parameters
  ▶ PCH-IO Configuration
  ▶ Board & Panel Configuration




                                                   →←: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit

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```

5.6.3.1　System Agent (SA) Configuration

Item	Option	Description
VT-d	Disabled Enabled**[Default]**	VT-d capability.

5.6.3.1.1 Memory Configuration

5.6.3.1.2 Graphics Configuration

```
                        Aptio Setup - AMI
        Chipset

 Graphics Configuration                          Select which of IGFX/PEG/PCI
                                                 Graphics device should be
 Primary Display                [Auto]           Primary Display Or select HG
                                                 for Hybrid Gfx.




                                                 ←→: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit




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```
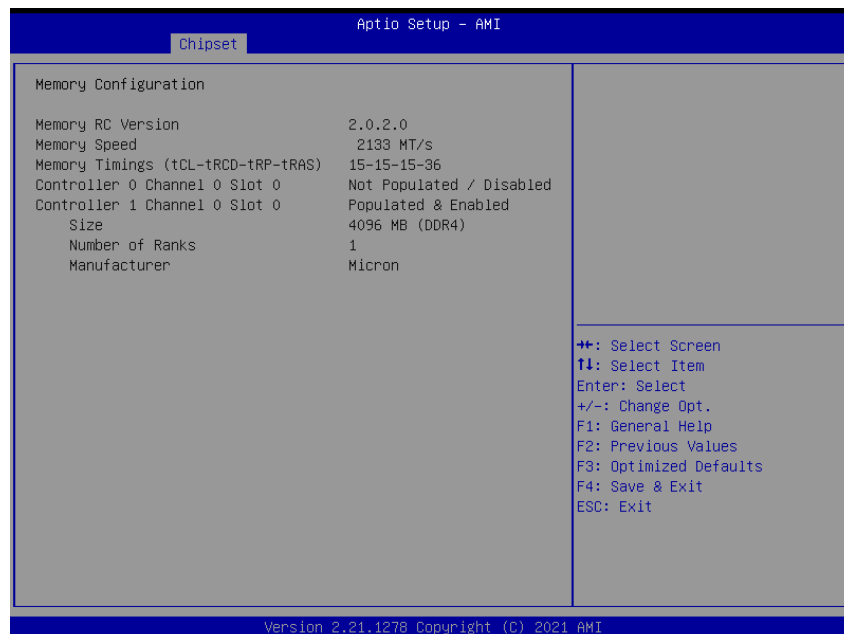
Item	Option	Description
Primary Display	Auto**[Default]** IGFX	Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select HG for Hybrid Gfx.

5.6.3.1.3 VMD Configuration

```
                        Aptio Setup - AMI
        Chipset

 VMD Configuration                               Enable/Disable to VMD
                                                 controller
 Enable VMD controller          [Disabled]




                                                 ←→: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit




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```
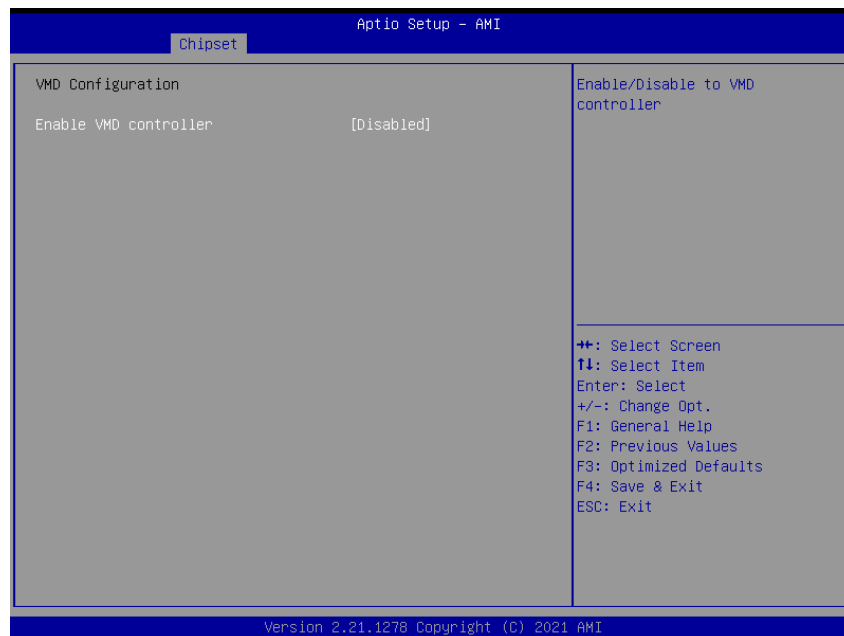
Item	Option	Description
Enable VMD controller	Disabled**[Default]** Enabled	Enable/Disable to VMD controller

5.6.3.2   PCH-IO Configuration

```
                              Aptio Setup - AMI
              Chipset

    PCH-IO Configuration                                      PCI Express Configuration
                                                             settings
  ▶ PCI Express Configuration
  ▶ SATA And RST Configuration
  ▶ HD Audio Configuration

    PCH LAN Controller              [Enabled]




                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit




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```

Item	Option	Description
PCH LAN Controller	Enabled**[Default]** Disabled	Enable/Disable onboard NIC.

5.6.3.2.1 PCI Express Configuration

```
                              Aptio Setup - AMI
              Chipset

    PCI Express Configuration                                PCI Express Root Port Settings.

  ▶ PCI Express Root Port 5(LAN2-I225)
  ▶ PCI Express Root Port 6(M.2 KeyE)
    PCI Express Root Port 7(LAN1-I219)   Lane configured as
                                         USB/SATA/UFS/GbE
  ▶ PCI Express Root Port 9(M.2 KeyB)




                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit


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```

5.6.3.2.1.1 PCI Express Root Port 5(LAN2-I225)
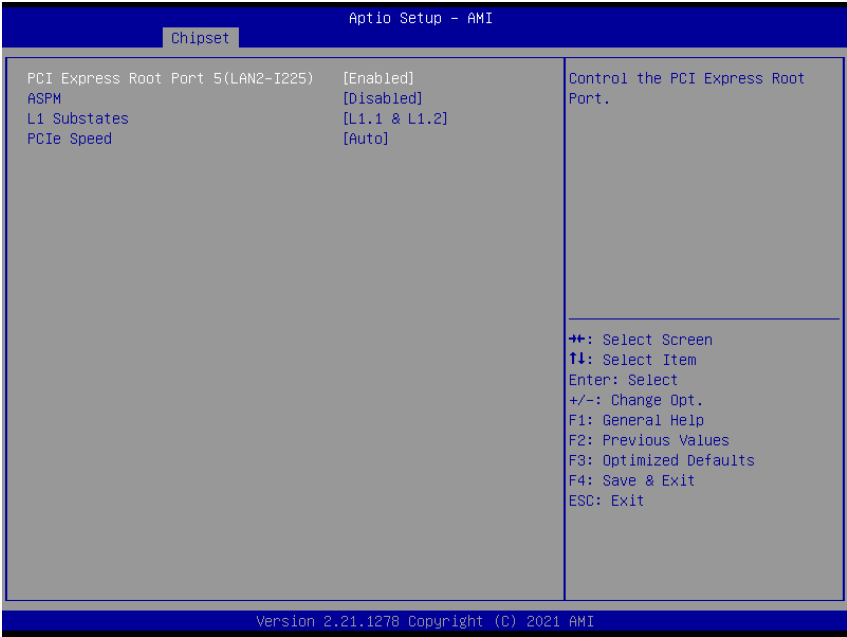
Item	Option	Description
PCI Express Root Port 5(LAN2-I225)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**,	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Select PCIe speed.

5.6.3.2.1.2   PCI Express Root Port 6(M.2 KeyE)

```
                              Aptio Setup - AMI
              Chipset

 PCI Express Root Port 6(M.2 KeyE)    [Enabled]        Control the PCI Express Root
 ASPM                                 [Disabled]       Port.
 L1 Substates                         [L1.1 & L1.2]
 PCIe Speed                           [Auto]



                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit


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```
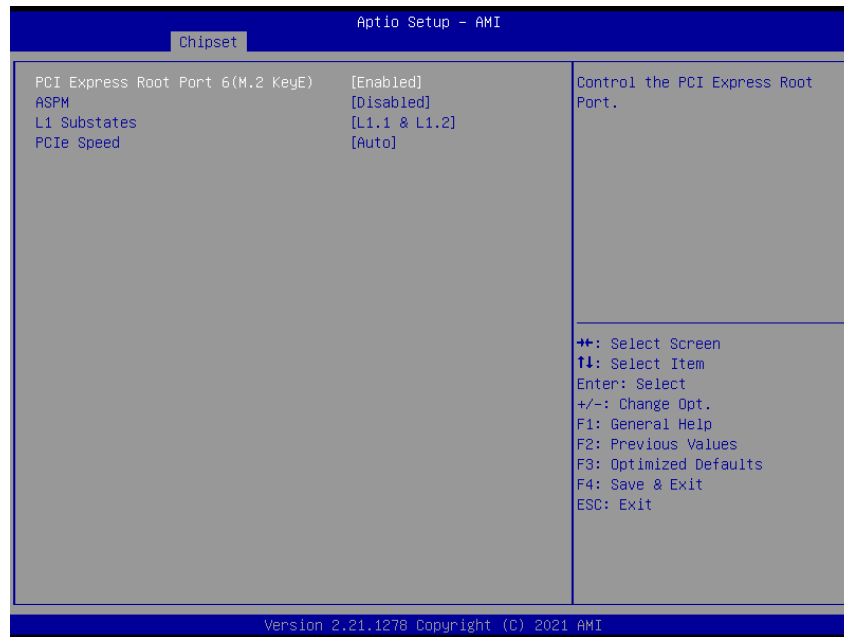
Item	Option	Description
PCI Express Root Port 6(M.2 KeyE)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**,	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Select PCIe speed.

5.6.3.2.1.3 PCI Express Root Port 9(M.2 KeyB)

```
                              Aptio Setup – AMI
              Chipset

PCI Express Root Port 9(M.2 KeyB)    [Enabled]         Control the PCI Express Root
ASPM                                 [Disabled]        Port.
L1 Substates                         [L1.1 & L1.2]
PCIe Speed                           [Auto]




                                                      ──────────────────────────────
                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/−: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit




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```
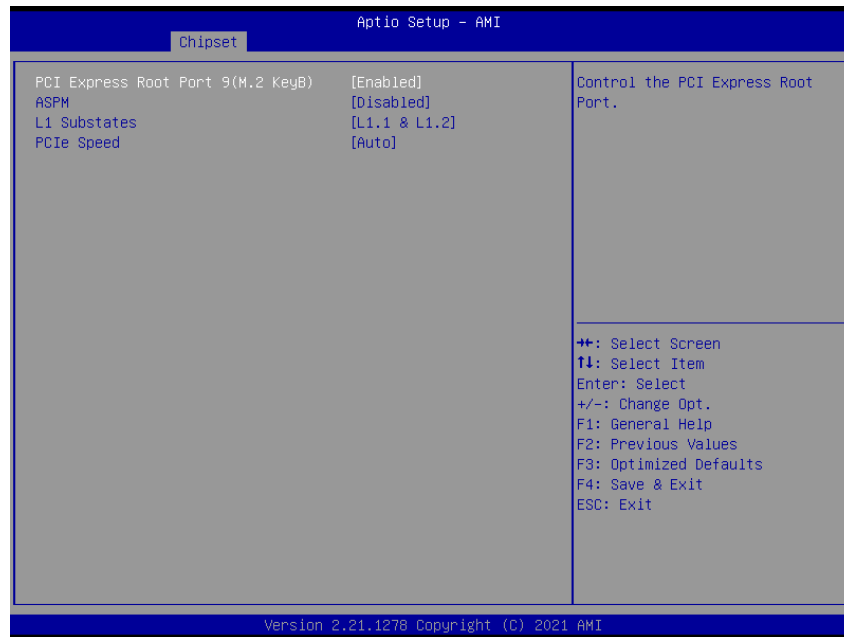
Item	Option	Description
PCI Express Root Port 9 (M.2 KeyB)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**,	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Select PCIe speed.

5.6.3.2.2 SATA And RST Configuration

```
                              Aptio Setup - AMI
                  Chipset

  SATA And RST Configuration                                Enable/Disable SATA Device.

  SATA Controller(s)              [Enabled]
  SATA Mode Selection             [AHCI]

  Serial ATA Port 0(SATA1)        Empty
    Port 0                        [Enabled]
    SATA Port 0 DevSlp            [Enabled]

  Serial ATA Port 1(SATA2/M.2 KeyB)  Empty
    Port 1                        [Enabled]
    SATA Port 1 DevSlp            [Enabled]

                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit



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```

Item	Option	Description
SATA Controller(s)	Disabled Enabled**[Default]**,	Enable/Disable SATA Device.
Port 0	Disabled Enabled**[Default]**,	Enable or Disable SATA Port
SATA Port 0 Devslp	Disabled Enabled**[Default]**,	Enable/Disable SATA Port 0 DevSlp. For DevSlp to work, both hard drive and SATA port need to support DevSlp function, otherwise an unexpected behaviour might happen. Please check board design before enabling it.
Port 1	Disabled Enabled**[Default]**,	Enable or Disable SATA Port
SATA Port 1 Devslp	Disabled Enabled**[Default]**,	Enable/Disable SATA Port 1 DevSlp. For DevSlp to work, both hard drive and SATA port need to support DevSlp function, otherwise an unexpected behaviour might happen. Please check board design before enabling it.

5.6.3.2.3 HD Audio Configuration

```
                           Aptio Setup - AMI
        Chipset

 HD Audio Subsystem Configuration Settings           Control Detection of the
                                                     HD-Audio device.
 HD Audio                         [Enabled]          Disabled = HDA will be
                                                     unconditionally disabled
                                                     Enabled = HDA will be
                                                     unconditionally enabled.




                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




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```

Item	Option	Description
HD Audio	Disabled Enabled**[Default]**,	Control Detection of the HD-Audio device. Disable = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled.

5.6.3.3   Board & Panel Configuration

```
                           Aptio Setup - AMI
        Chipset

 Board & Panel Configuration                         ErP Function (Deep S5).

 ErP Function                     [Disabled]
 PWR-On After PWR-Fail            [Off]
 Wake Up by Ring                  [Enabled]
 Watch Dog                        [Disabled]
 USB Standby Power                [Enabled]
 Amplifier Gain                   [2W]

 SHOW DMI INFO                    [Disabled]




                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




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```

Item	Option	Description
ErP Function	Disabled**[Default]**, Enabled	ErP Function (Deep S5).
PWR-On After PWR-Fail	Off**[Default]**, On	AC loss resume.

	Last State	
Wake Up by Ring	Disabled Enabled**[Default]**,	Wake Up by Ring from S3/S4/S5
Watch Dog	Disabled**[Default]**, 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.
USB Standby Power	Disabled Enabled**[Default]**,	Enabled/Disabled USB Standby Power during S3/S4/S5
Amplifier Gain	2W**[Default]**, 6W	Amplifier Gain
SHOW DMI INFO	Disabled**[Default]**, Enabled	SHOW DMI INFO

5.6.4 Security

● **Administrator Password**
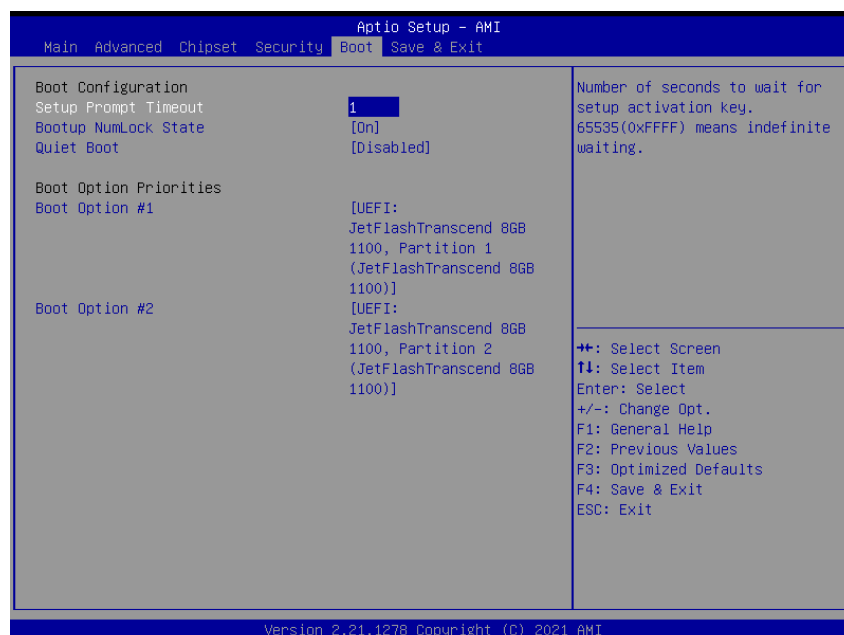
Set setup Administrator Password

● **User Password**

Set User Password

5.6.4.1 Secure Boot menu

```
                          Aptio Setup - AMI
                 Security

  System Mode              Setup                  Secure Boot feature is Active
                                                  if Secure Boot is Enabled,
  Secure Boot              [Enabled]              Platform Key(PK) is enrolled
                           Not Active             and the System is in User mode.
                                                  The mode change requires
  Secure Boot Mode         [Standard]             platform reset
▶ Restore Factory Keys
▶ Reset To Setup Mode

▶ Key Management

                                                  ➔←: Select Screen
                                                  ↑↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC: Exit


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```

Item	Option	Description
Secure Boot	Disabled Enabled**[Default]**	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset
Secure Boot Mode	Standard**[Default]** Custom	Secure Boot mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication

5.6.5 Boot

```
                          Aptio Setup - AMI
        Main  Advanced  Chipset  Security  Boot  Save & Exit

  Boot Configuration                              Number of seconds to wait for
  Setup Prompt Timeout           1                setup activation key.
  Bootup NumLock State           [On]             65535(0xFFFF) means indefinite
  Quiet Boot                     [Disabled]       waiting.

  Boot Option Priorities
  Boot Option #1                 [UEFI:
                                 JetFlashTranscend 8GB
                                 1100, Partition 1
                                 (JetFlashTranscend 8GB
                                 1100)]
  Boot Option #2                 [UEFI:
                                 JetFlashTranscend 8GB
                                 1100, Partition 2          ➔←: Select Screen
                                 (JetFlashTranscend 8GB     ↑↓: Select Item
                                 1100)]                     Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit


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```

Item	Option	Description
Setup Prompt Timeout	1	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On**[Default]** Off	Select the Keyboard NumLock state
Quiet Boot	Disabled**[Default]** Enabled	Enables or disables Quiet Boot option
Boot Option #1	Set the system boot order.	
Boot Option #2	Set the system boot order.	

5.6.6   Save and exit
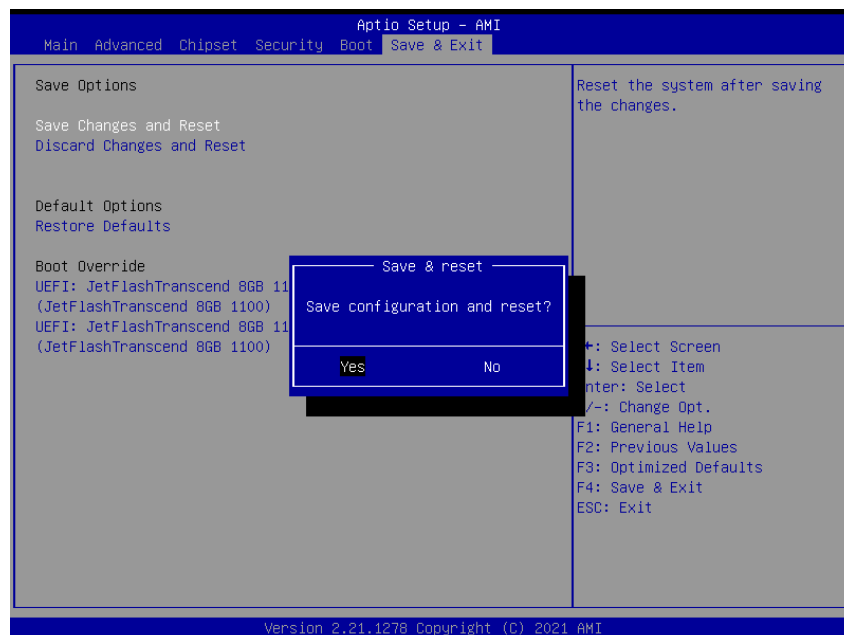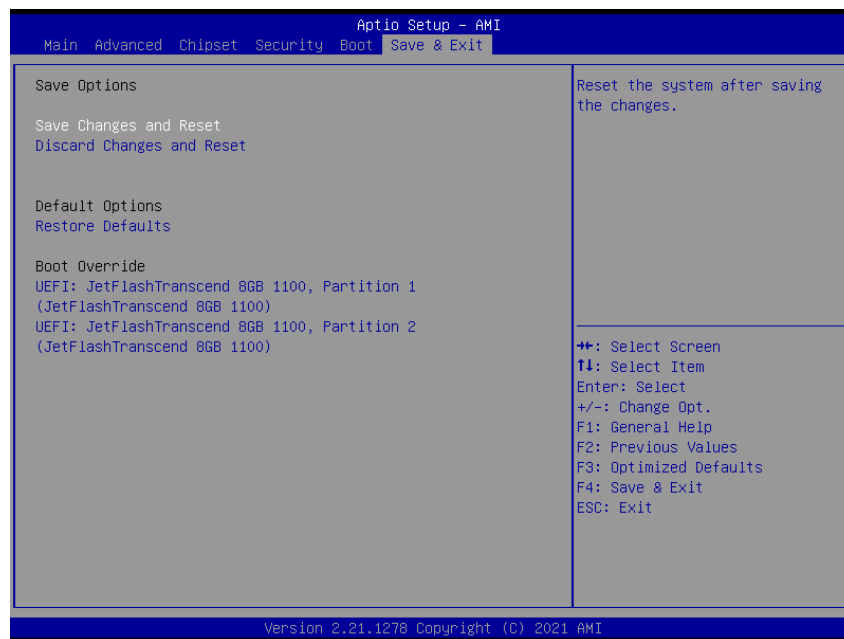
5.6.6.1   Save Changes and Reset

Reset the system after saving the changes.

5.6.6.2   Discard Changes and Reset

Reset system setup without saving any changes.

5.6.6.3   Restore Defaults

Restore/Load Default values for all the setup options.

5.6.6.4   Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices.

6. Maintenance & Troubleshooting

System Maintenance Introduction

If the components of the product fail they must be replaced.

Please contact the system reseller or vendor to purchase the replacement parts. Please follow the safety precautions outlined in the sections that follow:

General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

1. Follow the electrostatic precautions outlined below whenever the device is opened.

2. Make sure the power is turned off and the power cord is disconnected whenever the product is being installed, moved or modified.

3. To prevent the risk of electric shock, make sure power cord is unplugged from wall socket. To fully disengage the power to the unit, please disconnect the power cord from the AC outlet. Refer servicing to qualified service personnel. The AC outlet shall be readily available and accessible.

4. Do not apply voltage levels that exceed the specified voltage range. Doing so may cause fire and/or an electrical shock. Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.

5. Electric shocks can occur if the product chassis is opened when it is running. To avoid risk of electric shock, this device must only be connected to a supply mains with protective earth.

6. Do not drop or insert any objects into the ventilation openings of the product.

7. If considerable amounts of dust, water, or fluids enter the device, turn off the power supply immediately, unplug the power cord, and contact your dealer or the nearest service center.

8. This equipment is not suitable for use in locations where children are likely to be present.

9. DO NOT:

- Drop the device against a hard surface.
- Strike or exert excessive force onto the LCD panel.
- Touch any of the LCD panels with a sharp object.
- In a site where the ambient temperature exceeds the rated temperature.

Anti-Static Precautions

WARNING:

Failure to take ESD precautions during the installation of the product may result in permanent damage to the product and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the product. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the product is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

● Wear an anti-static wristband: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
● Self-grounding: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
● Use an anti-static pad: When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
● Only handle the edges of the electrical component. When handling the electrical component, hold the electrical component by its edges. Please ensure the following safety precautions are adhered to at all times.
1. Follow the electrostatic precautions outlined below whenever the device is opened.
2. Make sure the power is turned off and the power cord is disconnected

Maintenance and Cleaning

When maintaining or cleaning the product, please follow the guidelines below.

WARNING:
● For safety reasons, turn-off the power and unplug the panel PC before cleaning.
● If you dropped any material or liquid such as water onto the panel PC when cleaning, unplug the power cable immediately and contact your dealer or the nearest service center. Always make sure your hands are dry when unplugging the power cable.

Maintenance and Cleaning

Prior to cleaning any part or component of the product, please read the details below.
● Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
● The interior of the device does not require cleaning. Keep fluids away from the device interior.
● Be cautious of all small removable components when vacuuming the device.
● Never drop any objects or liquids through the openings of the device.
● Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the device.
● Avoid eating, drinking and smoking within vicinity of the device.

Maintenance and Cleaning

Cleaning Tools

Some components in the panel PC may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the panel PC.

- Cloth: Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the device.
- Water or rubbing alcohol: A cloth moistened with water or rubbing alcohol can be used to clean the device.
- Using solvents: The use of solvents is not recommended when cleaning the device as they may damage the plastic parts.
- Vacuum cleaner: Using a vacuum specifically designed for computers is one of the best methods of cleaning the device. Dust and dirt can restrict the airflow in the device and cause its circuitry to corrode.
- Cotton swabs: Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- Foam swabs: Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Basic Troubleshooting

PEI Beep Codes

# of Beeps	Description
1	Memory not Installed
2	Recovery started
3	Typically for development use. The beep code is generated when DXEIPL PPI or DXE Core is not found.
4	Recovery failed
4	S3 Resume failed
7	Typically for development use. The beep code is generated when platform cannot be reset because reset PPI is not available.

DXE Beep Codes

# of Beeps	Description
1	Invalid password
4	Typically for development use. The beep code is generated when some of the Architectural Protocols are not available.
5	No Console Input or Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Typically for development use. The beep code is generated when platform cannot be reset because reset protocol is not available.
8	Platform PCI resource requirements cannot be met

Platform Initialization (PI) Boot Phases
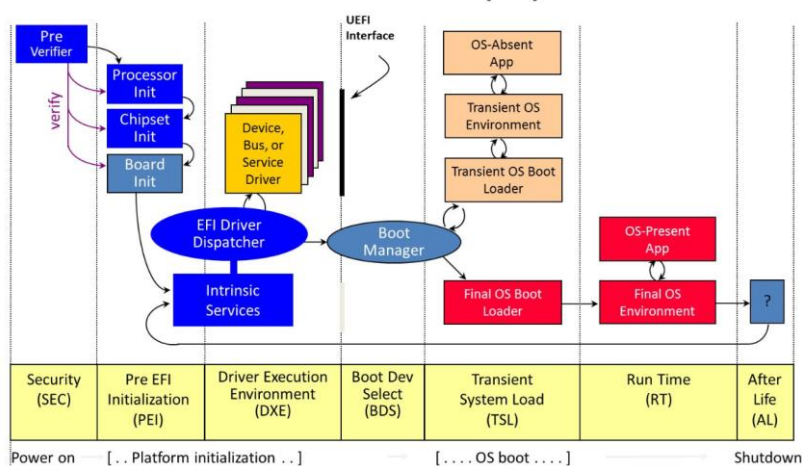
https://uefi.org/specs/PI/1.8/V2_Overview.html

7. Product Application

For detailed instructions on the operation of the Watchdog Timer and Digital I/O (DIO) features of this Panel PC, please refer to the comprehensive guide available in the "AvalueIOAPI" manual. Please reaching out to your respective distributors, Avalue technical support team, or Avalue customer service representatives for further information. Feel free to inquire about this supplementary resource to enhance your understanding of the Watchdog Timer and Digital I/O (DIO) Application for optimal utilization of your Panel PC.

8. Operating the Device

The Multi-Touch mode was pre-installed on the Panel PC and need tools for any customizations. Should you have specific requirements or encounter scenarios where a customized touch mode is necessary, we recommend reaching out to your local distributors, Avalue technical support team, or Avalue customer service representatives. These professionals can provide tailored guidance and assistance to address any unique needs related to Multi-Touch mode adjustments.