OFP-07W33

7" Open Frame Panel PC

Quick Reference Guide

2nd Ed – 04 October, 2022

Part No. E2017O073A2R

Federal Communication Commission Interference Statement

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Notice:

(1) A Unshielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord by used.

(2) Use only shielded cables to connect I/O devices to this equipment.

(3) Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

<u>FCC RF Radiation Exposure Statement</u>

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65 and found compliant to the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices. The radiated output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized. When nearby persons has to be kept to ensure RF exposure compliance, in order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20 cm.

<u>WARNING</u>

"CAUTION – Use suitable mounting apparatus to avoid risk of injury."

"CAUTION – This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures"

"CAUTION –Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions."

"CAUTION - 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."

"WARNING – To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth."

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

- 1 x OFP-07W33 Open Frame Panel PC

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

1.3 System Specifications

Board Specification	
Mother Board	ECM-APL2-B1
CPU	Onboard Intel® Pentium®/Celeron®/Atom™ BGA Processor N3350/J3455
CPU Cooler (Type)	Fanless
Memory	Default with 4GB DDR3L memory, Max. Up to 8GB DDR3L 1866MHz
Wireless LAN	Option by mini PCIe module
Bluetooth	Option by mini PCIe module
Operating System	Windows 10 Android x86 8.1 Ubuntu 16.04
Expansion Card	1 x Full size Mini PCIe Supports mSATA: ACC-MSA-64G-11R 1 x Half size Mini PCIe for Wi-Fi/BT(option): ACC-MPCIE-WIFI-16R (WPET-236ACN(BT))
Storage	
Other Storage Device	1 x Full size Mini PCIe Supports mSATA
Panel	
LCD Panel	7" LVDS Panel (E9689407005R) APEX TBF57003BFL20N 7"_800*1280_LVDS
LCD Control Board	Built in
Touch Screen	7" PCAP Touch (E968X000251R) 7" P-Cap Touch ST-070C27A-AF-USB (Sense)
External I/O	
Serial Port	1 x RS-232(COM1 by DB9, RS-232 only) 1 x RS-232(JCOM2 by header, RS-232 by default) or 1 x RS422/485 by jumper (J422_485)
USB Port	4 x USB 3.2 (Gen1x1, 5Gbps), 2 x USB 2.0(pin header)
Video Port	HDMI: Max. Resolution 3840 x 2160 @ 30Hz 1 x HDMI (1.4b)
LAN Port	2 x RJ45 LAN port (2 x Intel® I211AT, 10/100/1000 Base-Tx GbE compatible)
Wireless LAN Antenna	Option by 2 x PIFA Antenna 2.4/5.0GHz-IPEX or 2 X SMA Antenna 2.4/5.0GHz-IPEX

OFP-07W33

Mechanical	
Power Type	+12V~26V DC in
Power Connector Type	Lockable DC in
Dimension	183.1 x 115.85 x 48.1 mm
Weight	0.7 Kg
Color	Silver
Fanless	Fanless
OS Support	Windows 10 Ubuntu 16.04 Android x86 8.1
Reliability	
EMI Test	CE/FCC Class A
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 6 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 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
	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 : 5Kg
	4 Test drawing
Operating Temperature	0°C ~ 45°C (32°F ~ 113°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Storage Temperature	-10°C ~ 50°C
Power Consumption	Max. load 19.28W with intel N3350/4GB/32GB(mSATA), 26V DC in

Note: Specifications are subject to change without notice.

1.4 System Overview

1.4.1   Bottom View
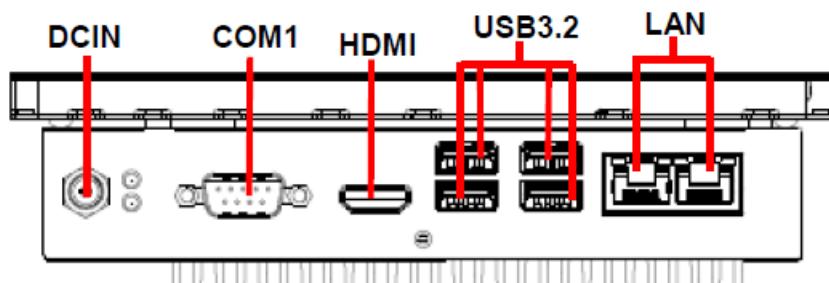
Connectors

Label	Function	Note
DC in	DC power-in connector	
COM1	Serial port 1 connector	
HDMI	HDMI connector	
USB3.2	4 x USB 3.2 (Gen1x1) connector	
LAN	2 x RJ-45 Ethernet	

1.5 System Dimensions

1.5.1   Front and Rear side
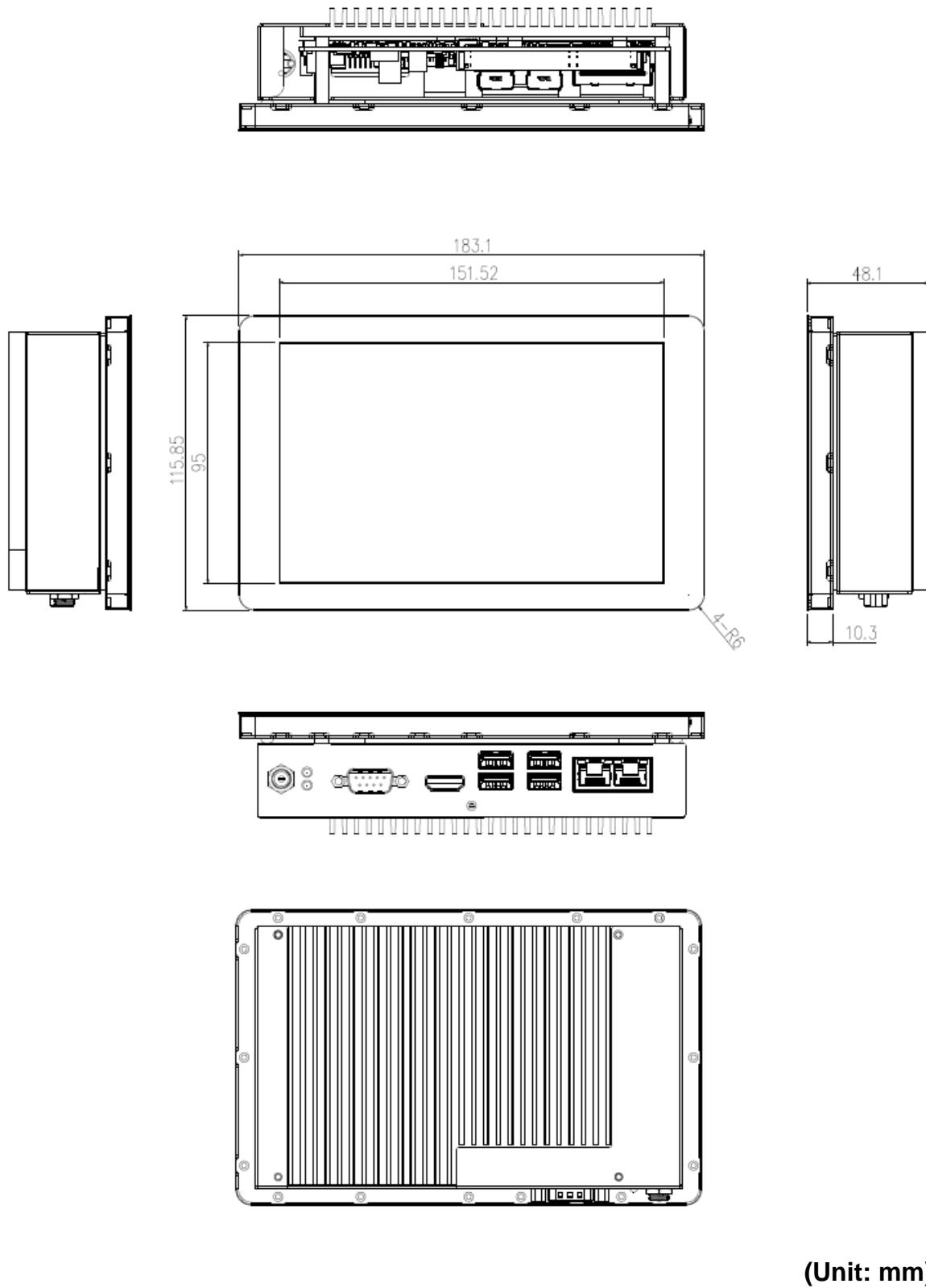
(Unit: mm)

1.6 Panel Mounting

Panel mount is the solution for mounting OFP into the opening of wall (or cabinet).

The dimension of opening is as below:

(Opening dimension)
$186.3^{+1.5}_{-0}$

$119.1^{+1.5}_{-0}$
(Opening dimension)

(Panel thickness)

$1\sim19$

(Installation surface)

(Unit: mm)
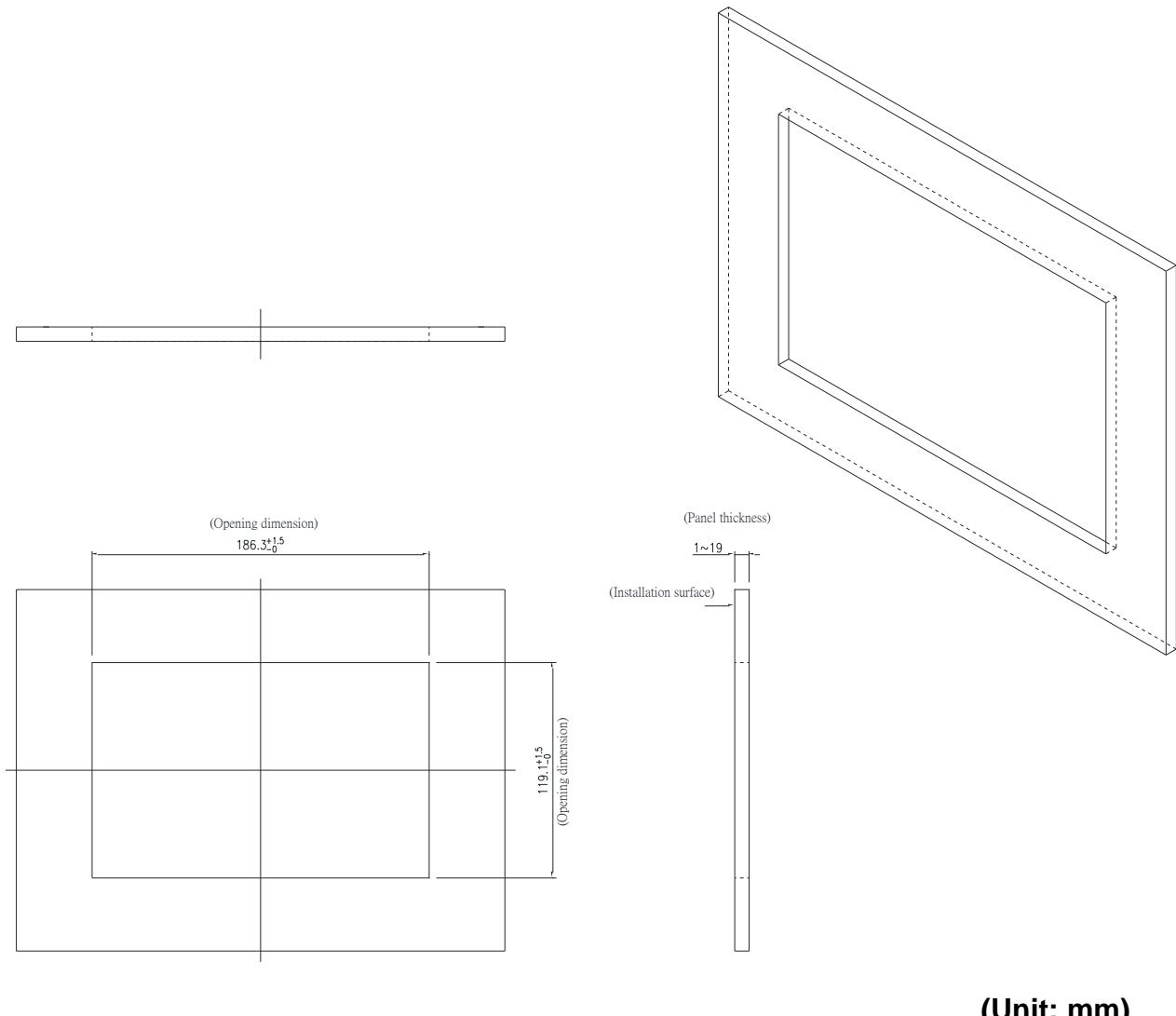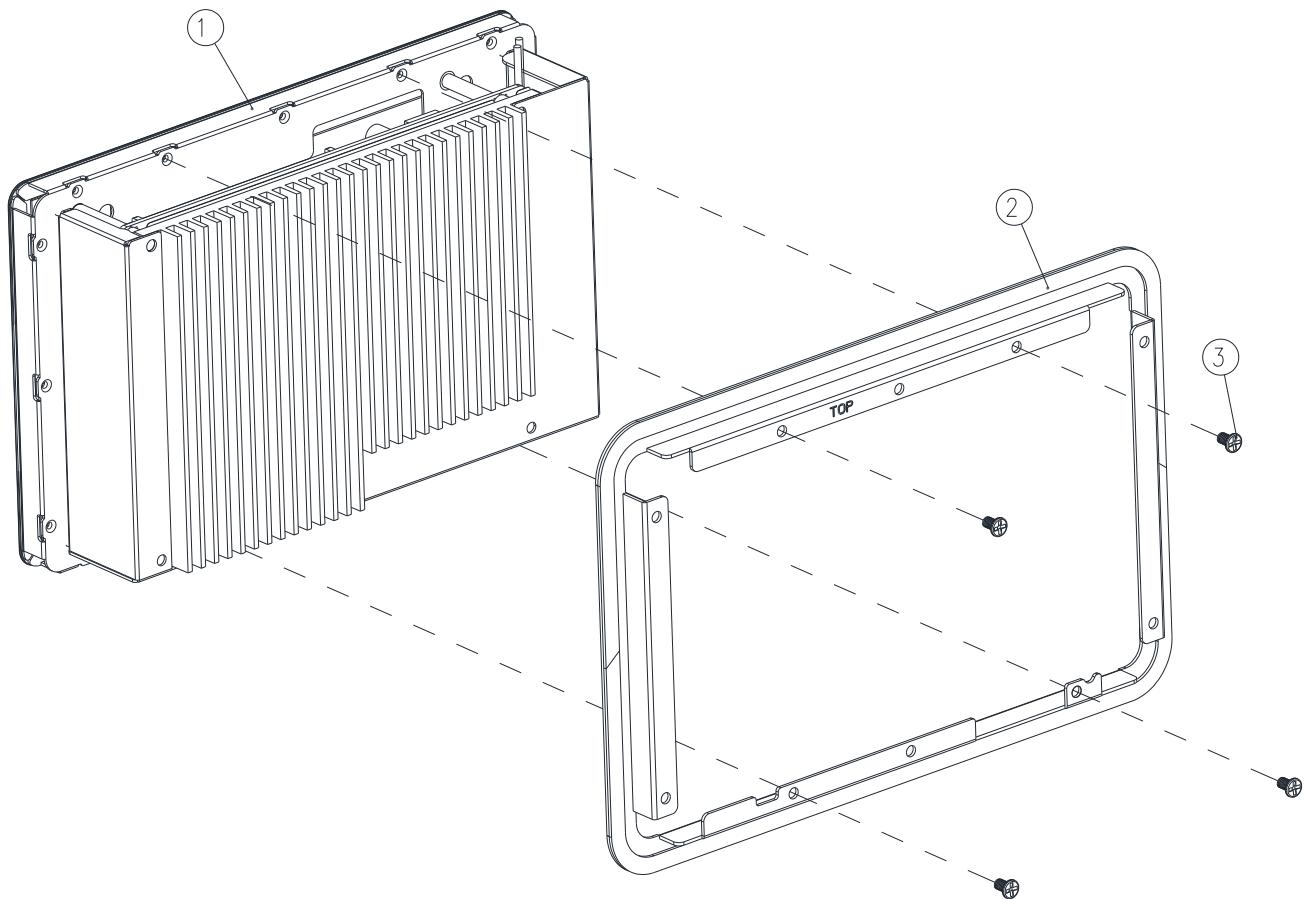
Step1. Assemble the Front bracket to OFP-07W33 and fasten 4 screws on the corresponding screw holes.

3	Screw	4
2	Front Bracket	1
1	OFP-07W33	1
Item	Part Name	Quantity
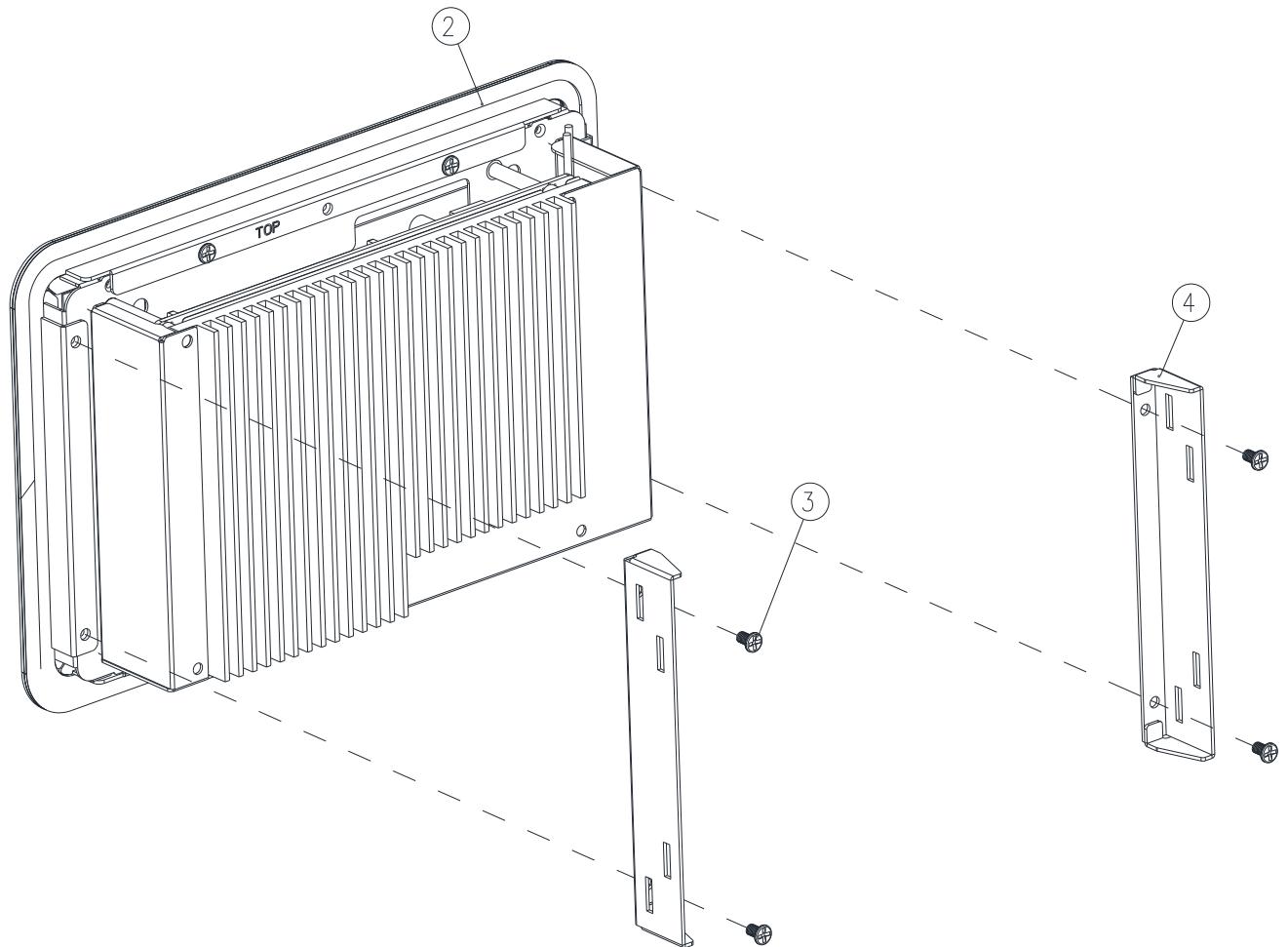
Step2. Assemble the 2pcs Bracket R/L on the Front Bracket and fasten the 4 pcs screws to the corresponding holes.

4	Bracket R/L	2
3	Screw	4
2	Front Bracket	1
Item	Part Name	Quantity
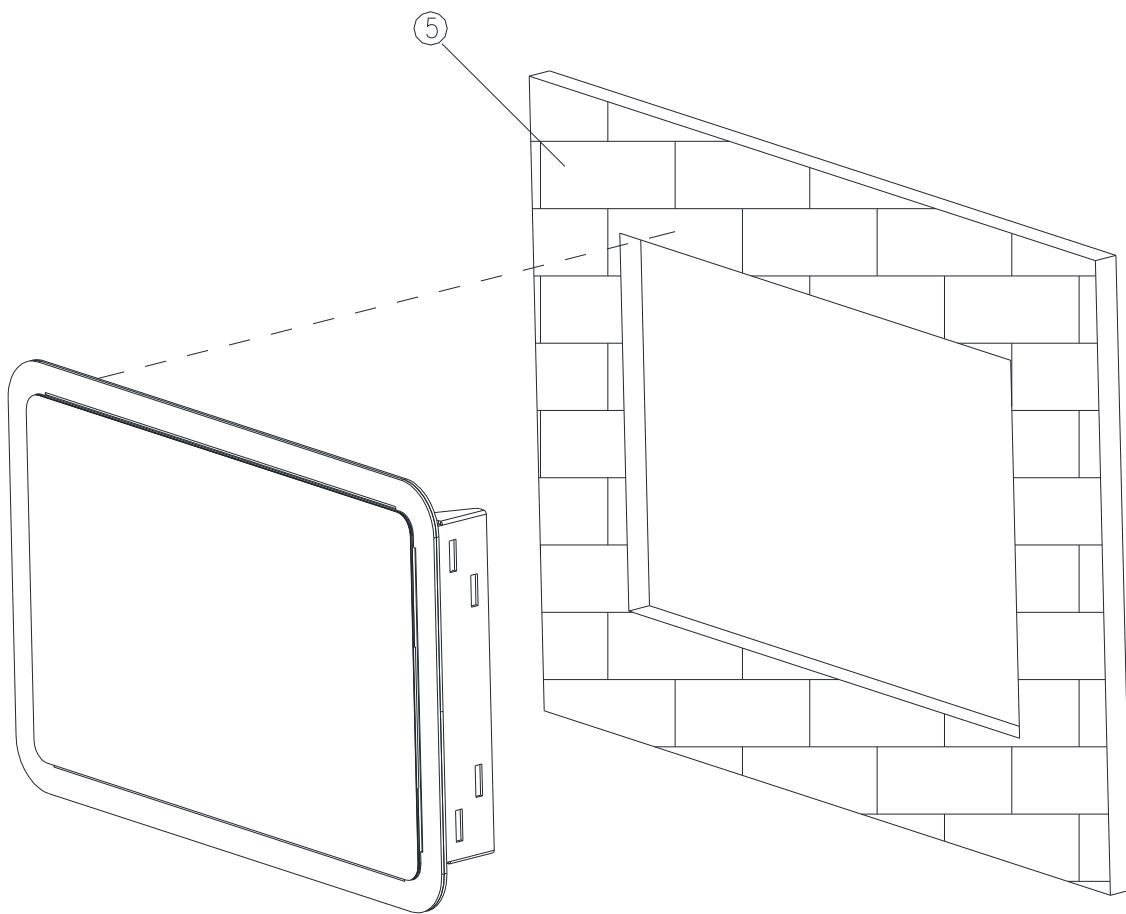
(outside the wall (or cabinet) opening)

Step3. Embed the OFP-07W33 semi-finished product into the wall (or cabinet) opening.

5	Wall	1
Item	Part Name	Quantity

(inside the wall (or cabinet))
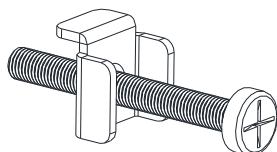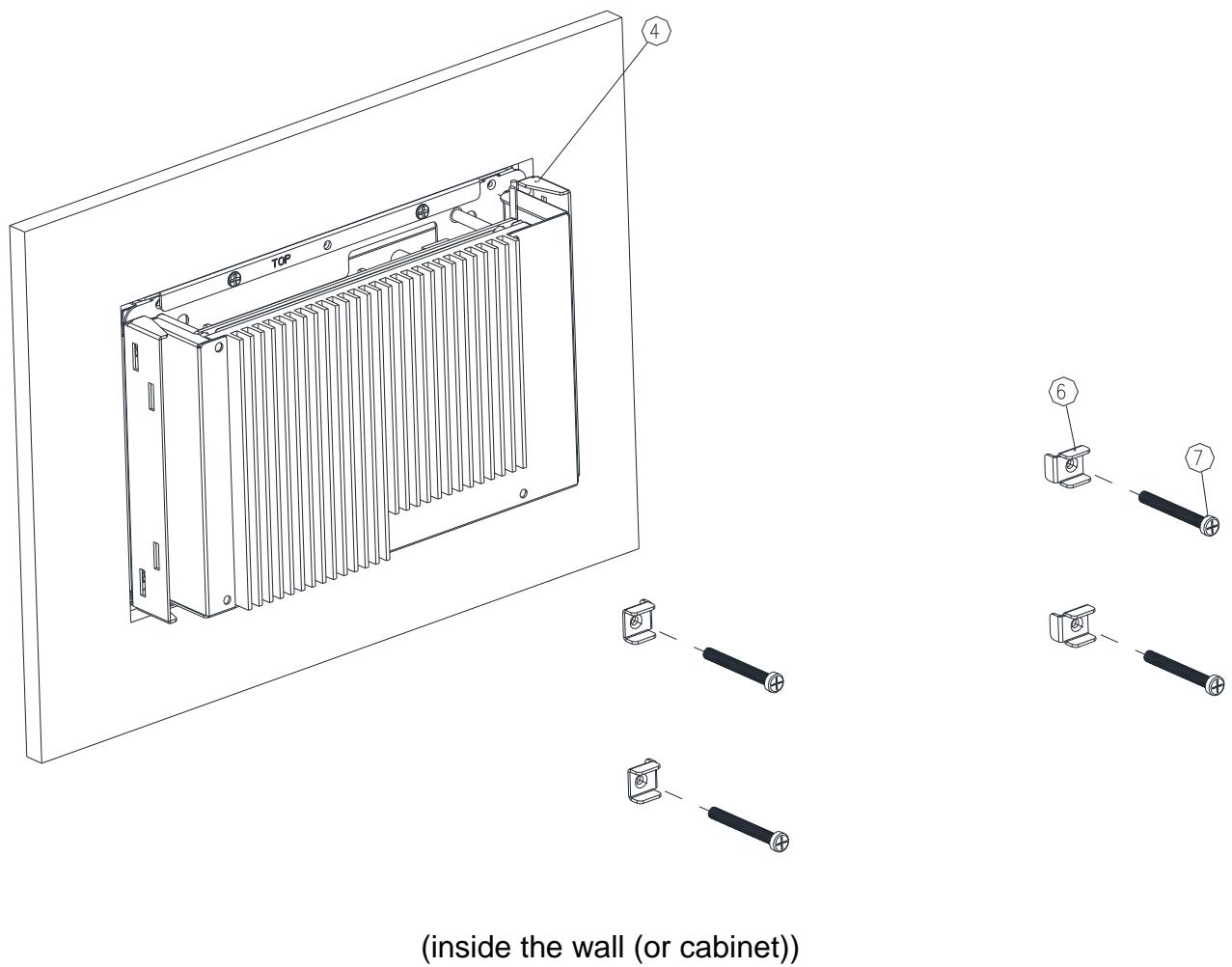
Figure 4-1

Step4. Fasten the Panel mount screw*4 to the Panel mount bracket*4 (as shown in Figure 4-1), and then attach them to the fixing slots of Bracket R/L*2.

7	Panel mount Screw	4
6	Panel mount Bracket	4
4	Bracket R/L	2
Item	Part Name	Quantity
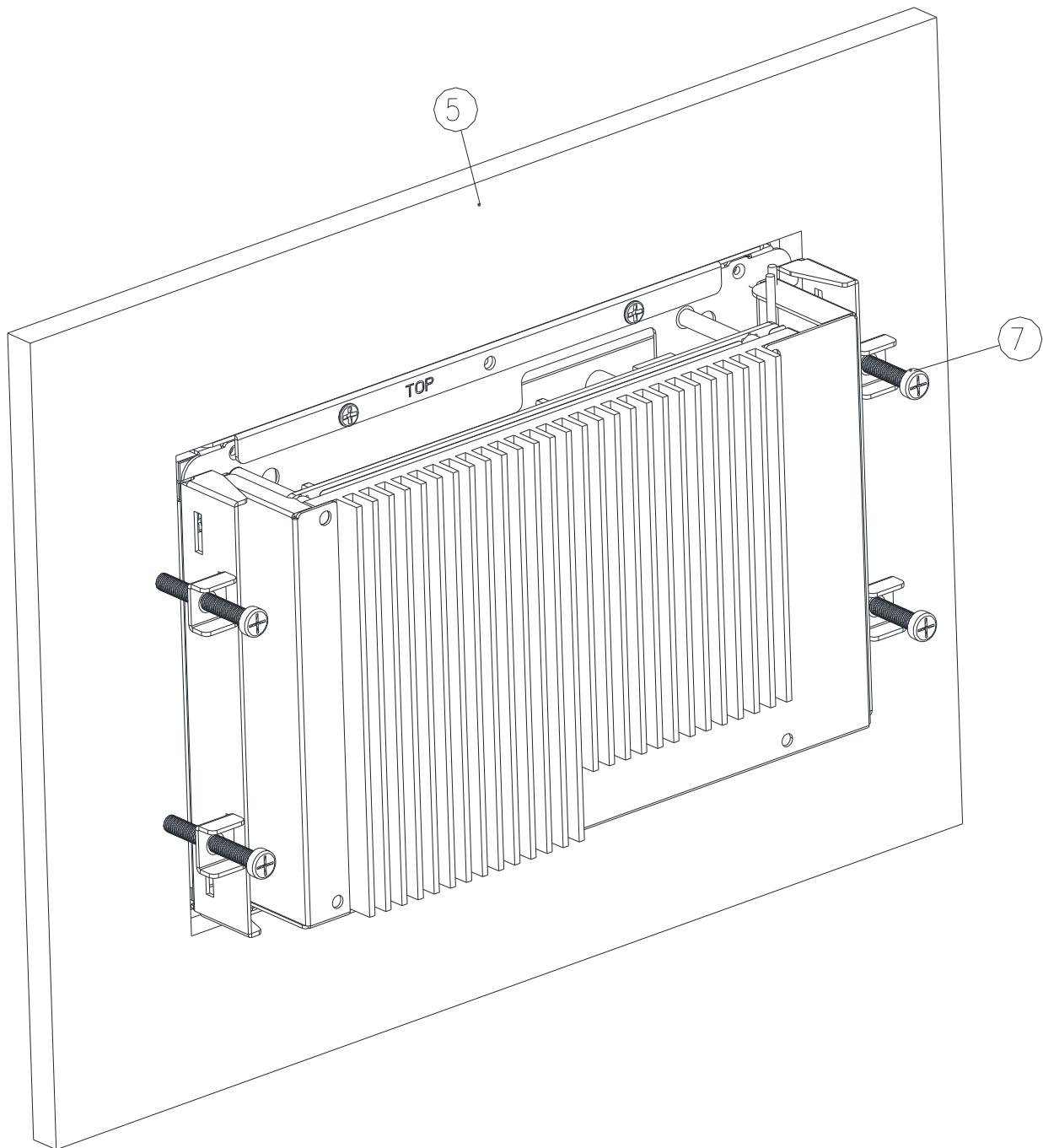
Step5. Fasten the Panel mount screw*4 against the wall, so that the entire module can be secured by the Panel mount screws and Panel mount brackets.

7	Panel mount Screw	4
5	Wall	1
Item	Part Name	Quantity
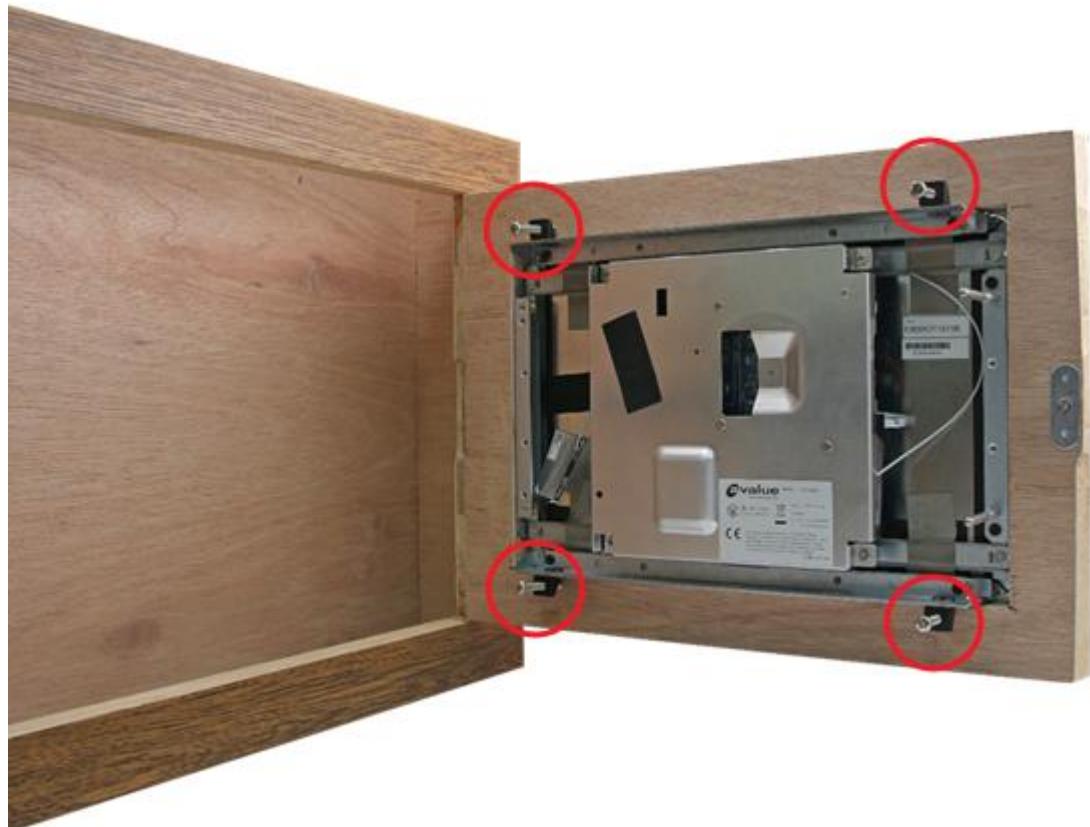
(The diagram is demonstrated by OFP-10W01, but the concept "the entire module can be secured by fastening the Panel mount screws against the wall" is the same)
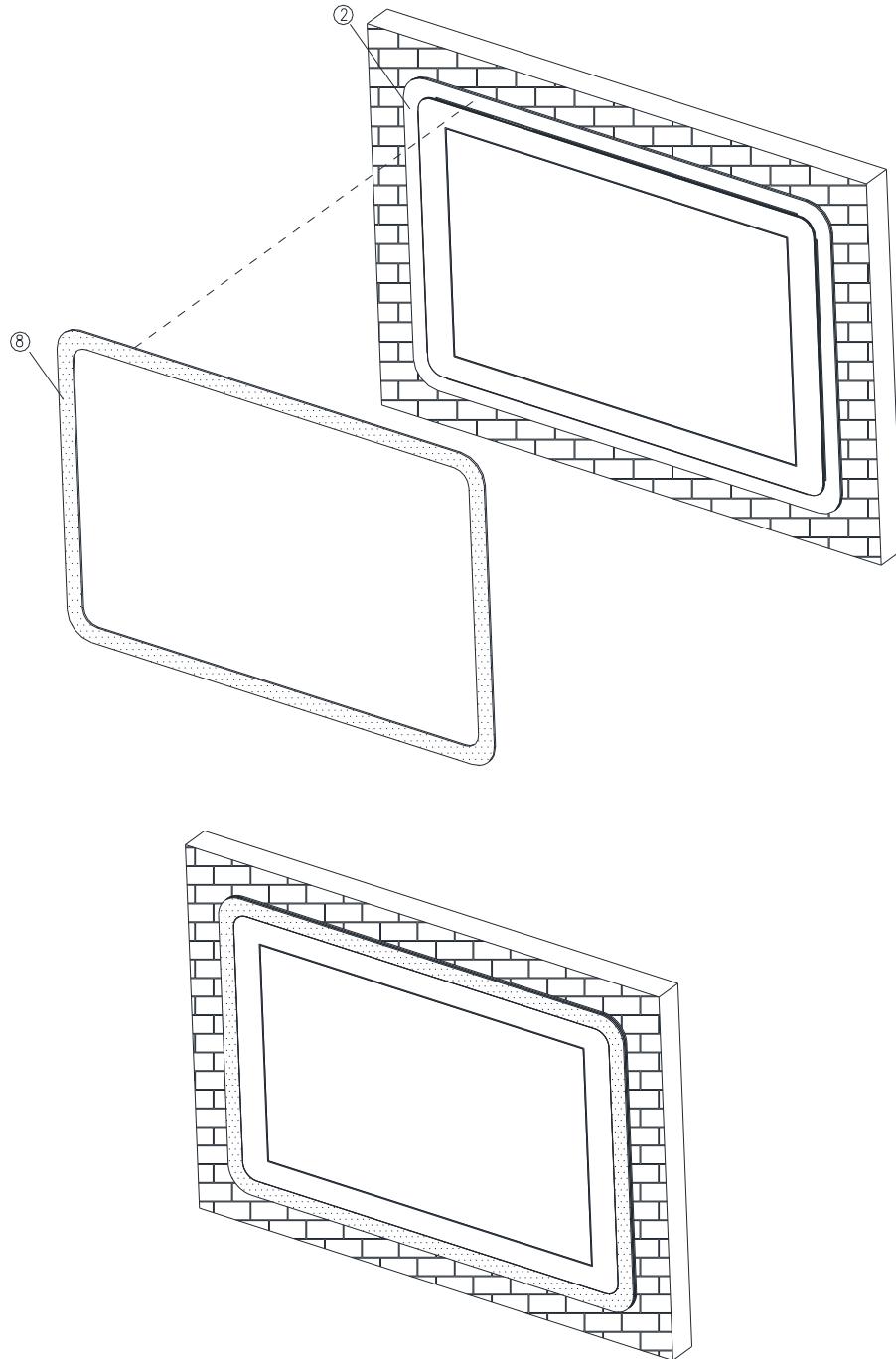
Step6. Paste the Decoration Plate on the Front bracket to complete installation.

8	Decoration Plate	1
2	Front Bracket	1
Item	Part Name	Quantity

2. Hardware Configuration

For advanced information, please refer to:

1- ECM-APL2-B1 included in this manual.

Note: If you need more information, please visit our website:

http://www.avalue.com.tw

2.1 OFP-07W33 connector mapping

2.1.1   Serial Port connector (COM1)
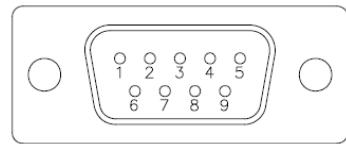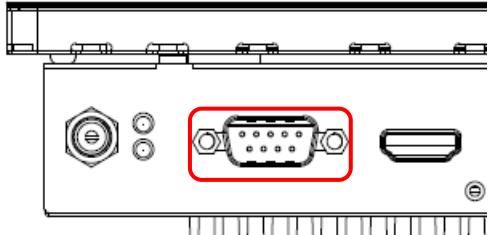
Signal	PIN	PIN	Signal
NDCD#	1	6	NDSR#
NRXD	2	7	NRTS#
NTXD	3	8	NCTS#
NDTR#	4	9	NRI#
GND	5		

2.2 Product Overview
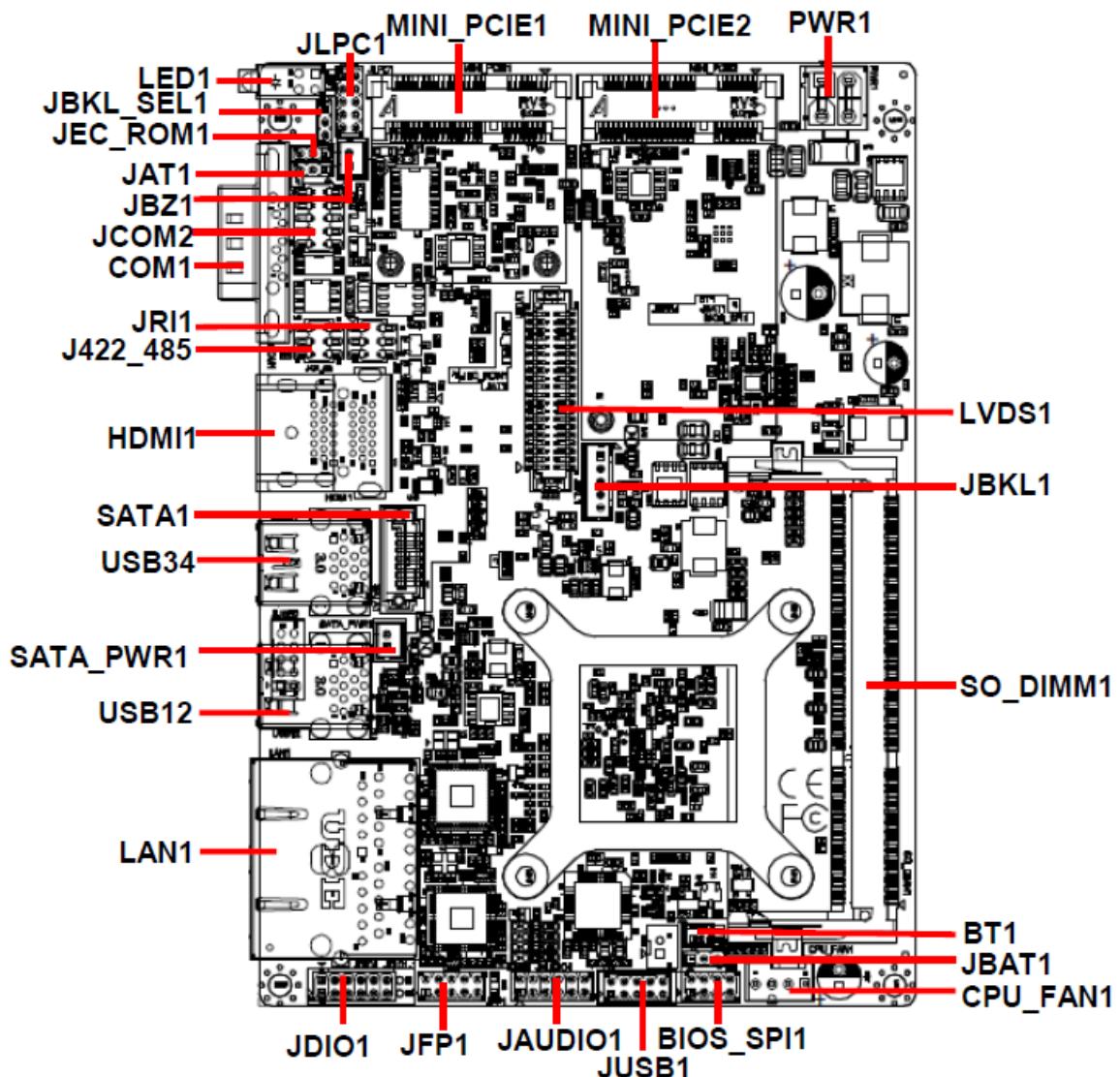
2.3 Jumper and Connector List

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.
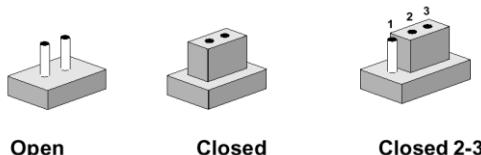
The jumper settings are schematically depicted in this manual as follows:
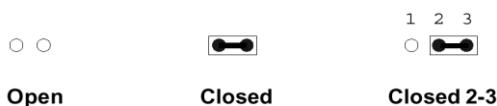
A pair of needle-nose pliers may be helpful when working with jumpers.

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
JBAT1	Clear CMOS	3 x 1 header, pitch 2.00 mm
JRI1	Serial port 1 pin9 signal select	3 x 2 header, pitch 2.00 mm
JBKL_SEL1	LCD backlight brightness adjustment	3 x 1 header, pitch 2.00 mm
JAT1	AT/ATX Input power select	3 x 1 header, pitch 2.00 mm

Connectors

Label	Function	Note
BT1	Battery connector	2 x 1 wafer, pitch 1.25 mm
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54 mm
JAUDIO1	Audio connector	6 x 2 header, pitch 2.00 mm
JBKL1	LCD inverter connector	5 x 1 wafer, pitch 2.00 mm Matching Connector: JST

		PHR-5
J422_485	Serial port 2 in RS-422/485 mode	3 x 2 header, pitch 2.00 mm
COM1	Serial port 1 connector	D-sub 9-pin, male
JCOM2	Serial port 2 connector	5 x 2 header, pitch 2.00 mm **Note**：JCOM2 support RS422/485 by BIOS setting
JDIO1	General purpose I/O connector	6 x 2 header, pitch 2.00 mm
JFP1	Miscellaneous setting connector	5 x 2 header, pitch 2.00 mm
JLPC1	Low pin count interface	5 x 2 header, pitch 2.00 mm
USB12/34	4 x USB3.0 connector	
JUSB1	USB connector 1	5 x 2 header, pitch 2.00 mm
JEC_ROM1	EC Debug connector	3 x 1 header, pitch 2.00 mm
LAN1	2 x RJ-45 Ethernet connector	
LED1	HDD/Power LED indicator	
PWR1	Power connector	2 x 2 wafer, pitch 4.20 mm
JBZ1	PC Buzzer connector	2 x 1 wafer, pitch 2.00 mm
SATA_PWR1	SATA Power header	2 x 1 wafer, pitch 2.00 mm
SATA1	Serial ATA connector 1	
HDMI1	HDMI connector	
BIOS_SPI1	BIOS SPI header	4 x 2 header, pitch 2.00 mm
MINI_PCIE1/2	Mini-PCI connector 1/2	
SO_DIMM1	DDR3 SODIMM connector	
LVDS1	LVDS connector	20 x 2 wafer, pitch 1.25 mm Matching Connector: Hirose DF13-40DS-1.25C

1.6 Setting Jumpers & Connectors

1.6.1   AT/ATX Input power select (JAT1)

AT*

1

ATX

1
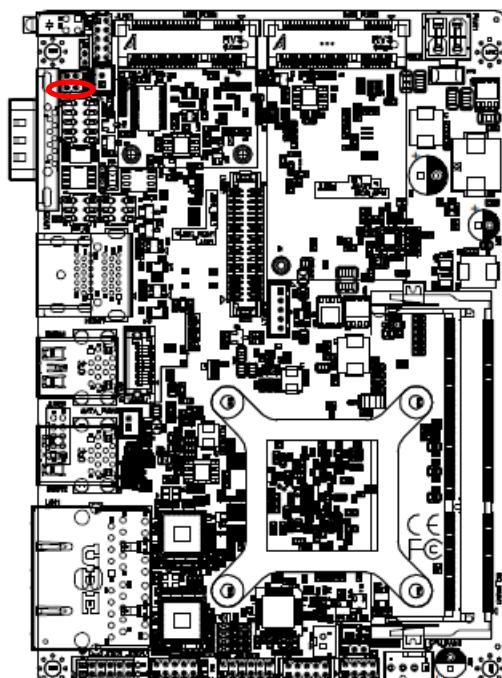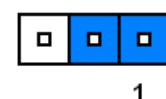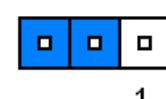
 *** Default**

1.6.2   Clear CMOS (JBAT1)

Protect*

1

Clear CMOS

1
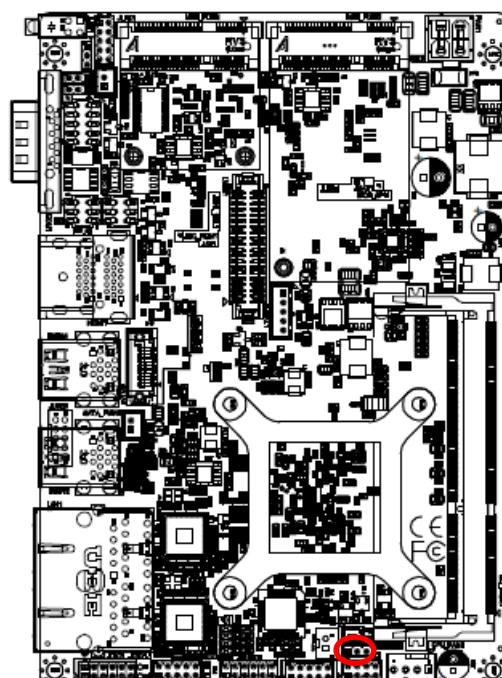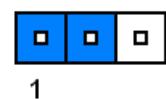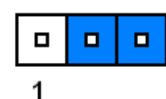
 *** Default**

1.6.3 Serial port 1 pin9 signal select (JRI1)

Ring*

+5V

+12V
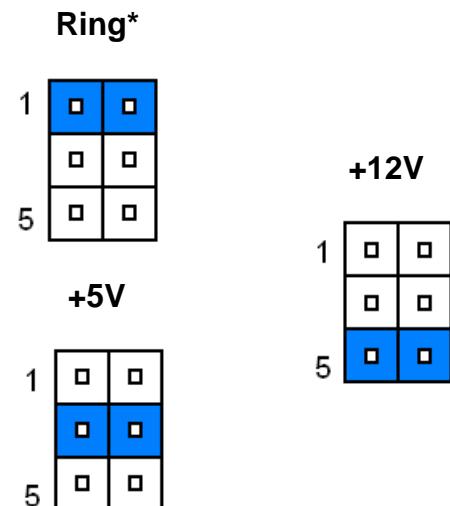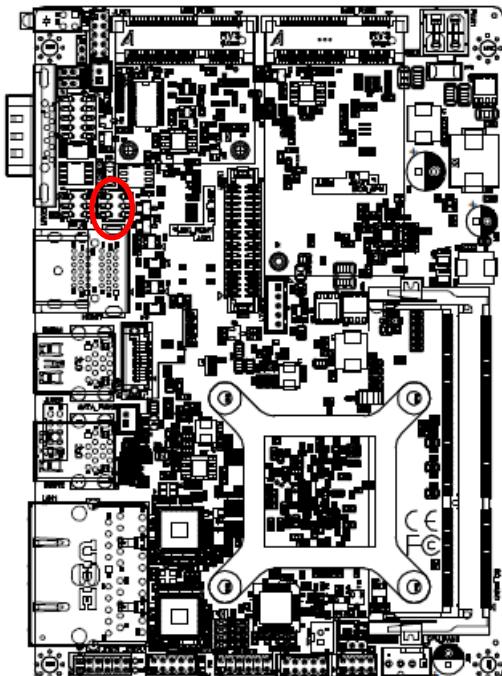
 * Default

1.6.4 LCD backlight brightness adjustment (JBKL_SEL1)

PWM Mode*

DC Mode
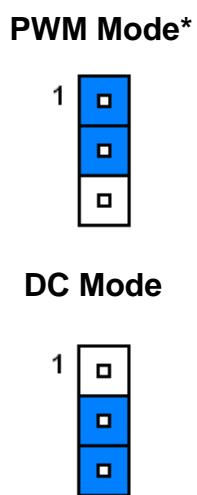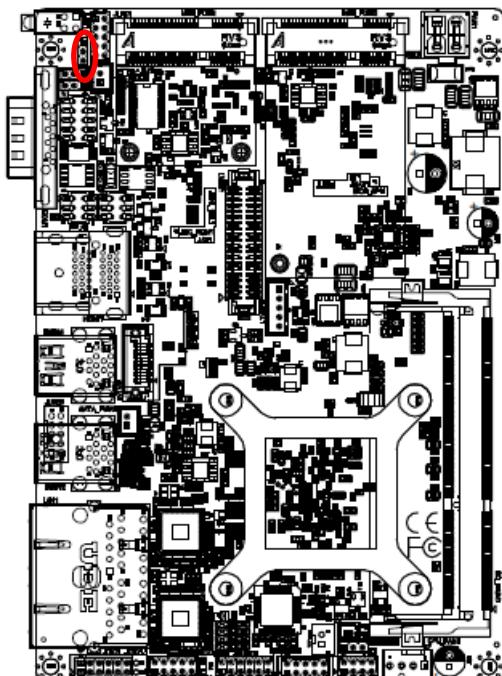
 * Default

1.6.5 LCD Inverter connector (JBKL1)
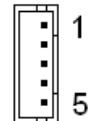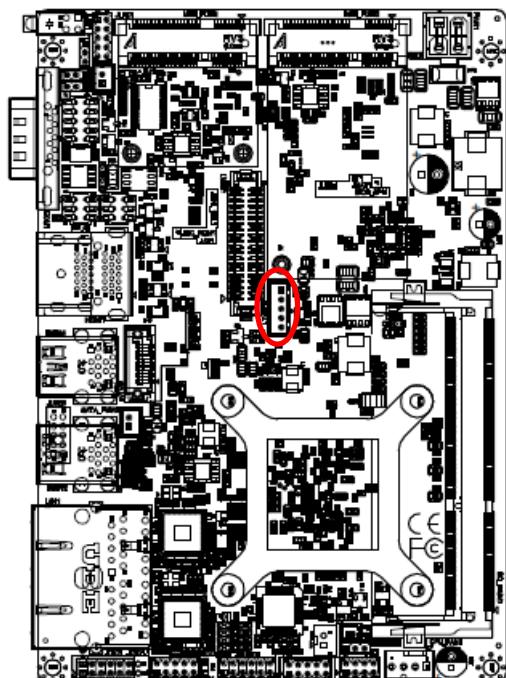
Signal	PIN
+12V	1
GND	2
BKLEN	3
VBRIGHT	4
+5V	5

1.6.6 CPU fan connector (CPU_FAN1)
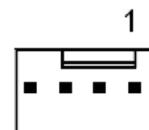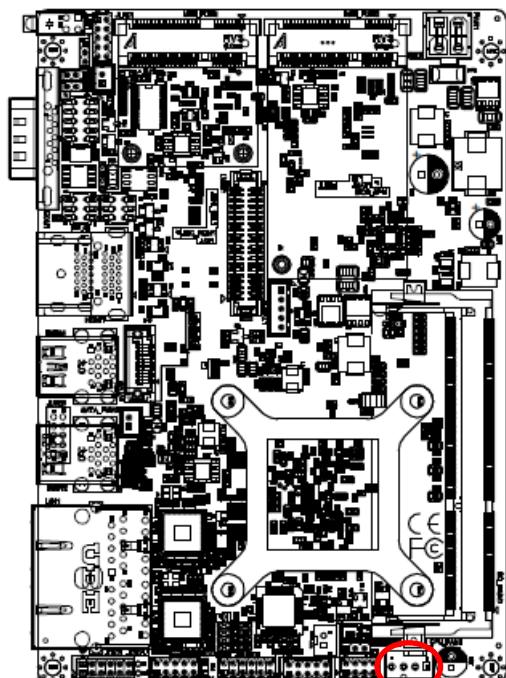
Signal	PIN
GND	1
+12V	2
EC_TACH0	3
FAN_PWM0	4

1.6.7   Serial port 2 in RS-422/485 mode (J422_485)
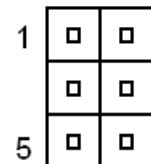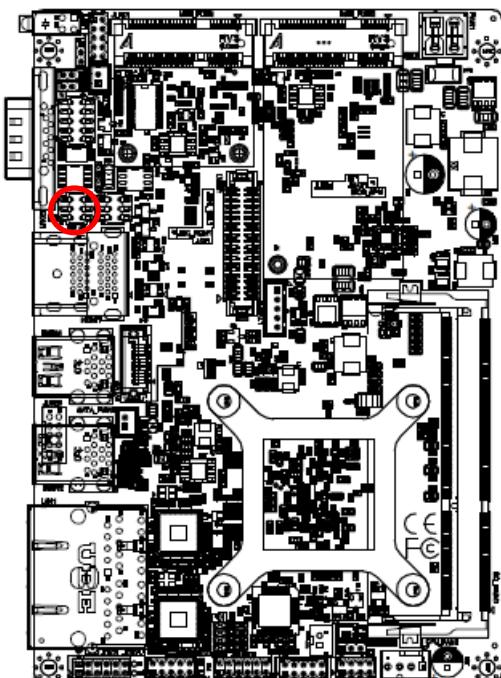
Signal	PIN	PIN	Signal
485TX2-	1	2	485TX2+
485RX2+	3	4	485RX2-
+5V	5	6	GND

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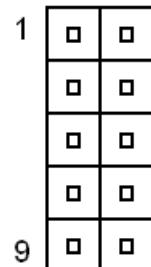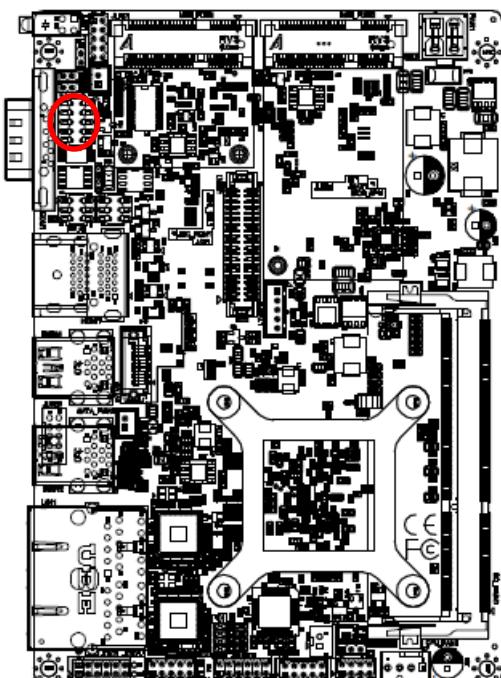
Signal	PIN	PIN	Signal
COM_DCD#_2	1	2	COM_RXD_2
COM_TXD_2	3	4	COM_DTR#_2
GND	5	6	COM_DSR#_2
COM_RTS#_2	7	8	COM_CTS#_2
COM_RI#_2	9	10	NC

1.6.9 General purpose I/O connector (JDIO1)
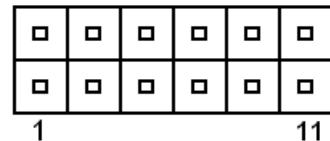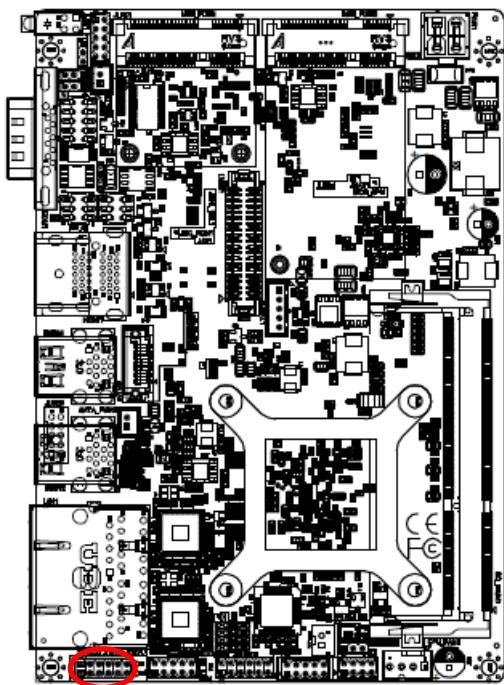
Signal	PIN	PIN	Signal
DIO_GP20	1	2	DIO_GP10
DIO_GP21	3	4	DIO_GP11
DIO_GP22	5	6	DIO_GP12
DIO_GP23	7	8	DIO_GP13
SMB_SCL_S0	9	10	SMB_SDA_S0
GND	11	12	+5V

1.6.10 SATA Power header (SATA_PWR1)
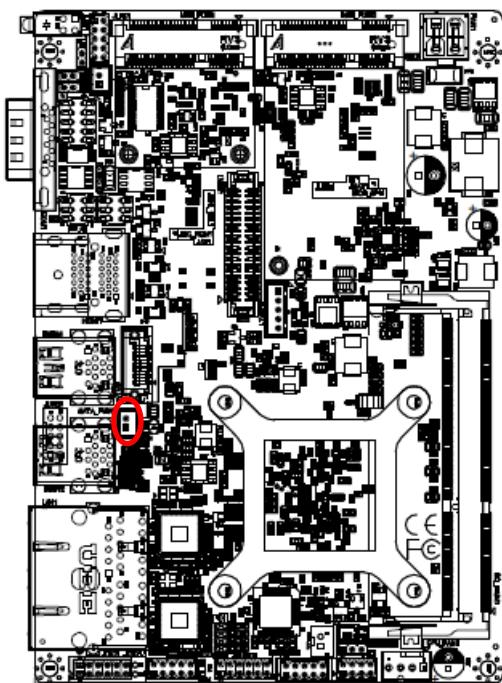
Signal	PIN
+5V	2
GND	1

1.6.11 Power connector (PWR1)
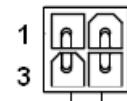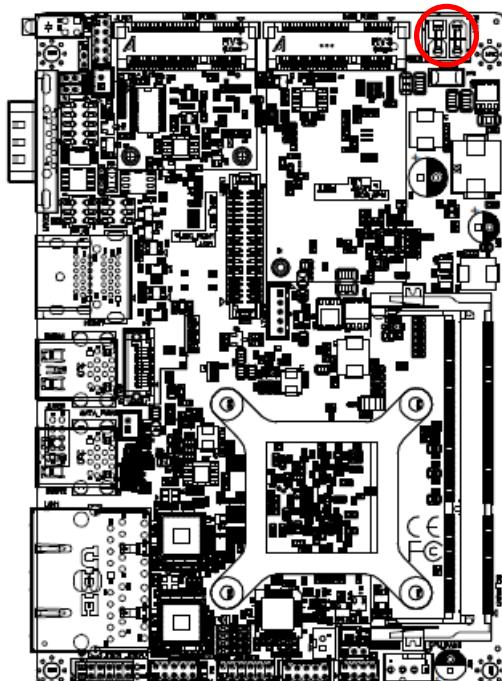
Signal	PIN	PIN	Signal
GND	1	2	GND
+26V_VIN_VIN	3	4	+26V_VIN_VIN

1.6.12 Low pin count interface (JLPC1)
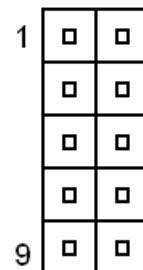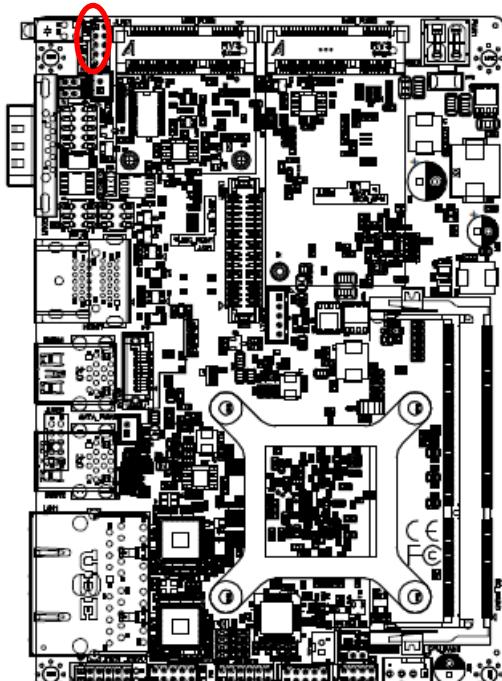
Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	PLT_RST_BUF#
LPC_AD2	5	6	LPC_FRAME#
LPC_AD3	7	8	LPC_PORT80_CLK
LPC_SERIRQ	9	10	GND

1.6.13 USB connector 1 (JUSB1)
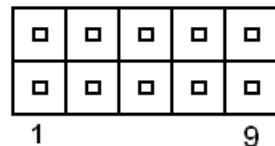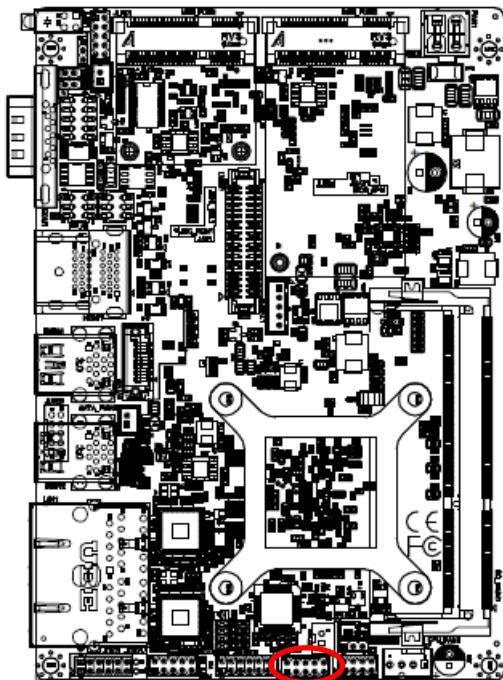
Signal	PIN	PIN	Signal
+5VSB	1	2	GND
USB_R_DN4	3	4	GND
USB_R_DP4	5	6	USB_R_DP7
GND	7	8	USB_R_DN7
GND	9	10	+5VSB

1.6.14 EC Debug connector (JEC_ROM1)
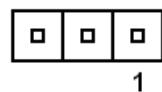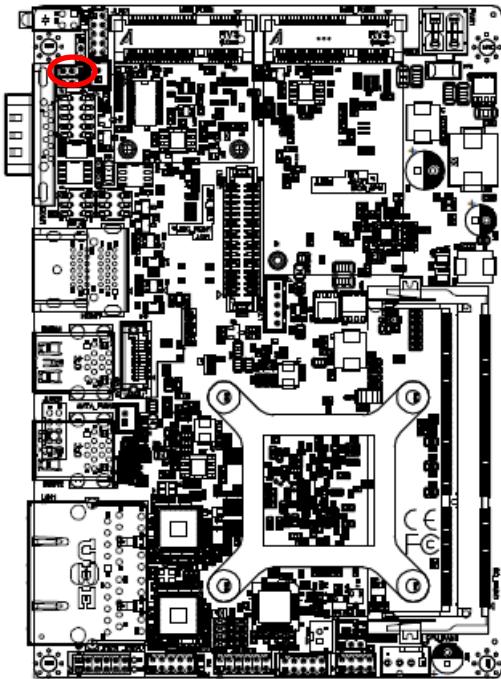
Signal	PIN
EC_SMCLK_DEBUG	1
EC_SMDAT_DEBUG	2
GND	3

1.6.15 Miscellaneous setting connector (JFP1)
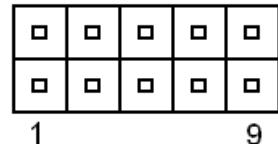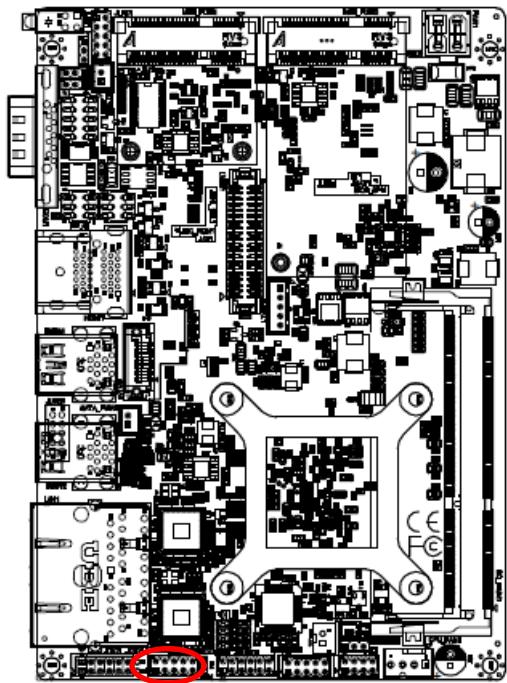
Signal	PIN	PIN	Signal
PWR_BTN_IN_EC#	1	2	GND
PMU_RSTBTN#	3	4	GND
FP_PWR_LED+	5	6	PWR_LED#
HDD_LED#	7	8	+5V
CASE_OPEN#	9	10	GND

1.6.16 BIOS SPI header (BIOS_SPI1)
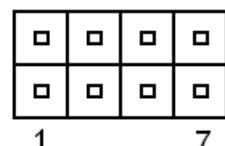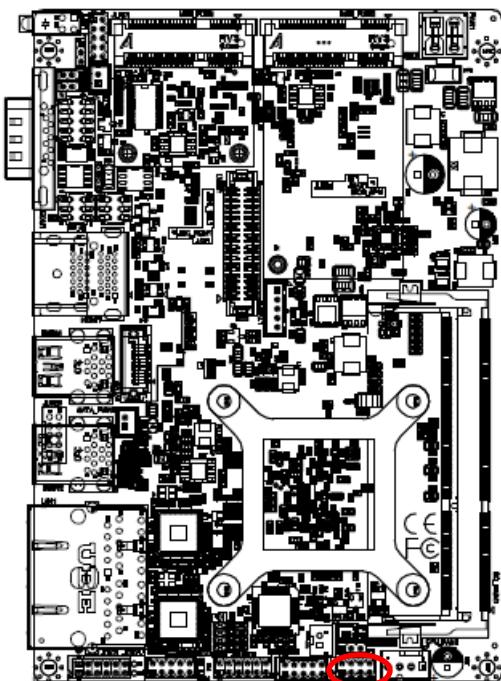
Signal	PIN	PIN	Signal
+1.8VSB	1	2	GND
SPI_CS#0	3	4	SPI_CLK
SPI_MISO	5	6	SPI_MOSI
SPI_HOLD#	7	8	SPI_WP#

1.6.17 PC Buzzer connector (JBZ1)
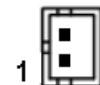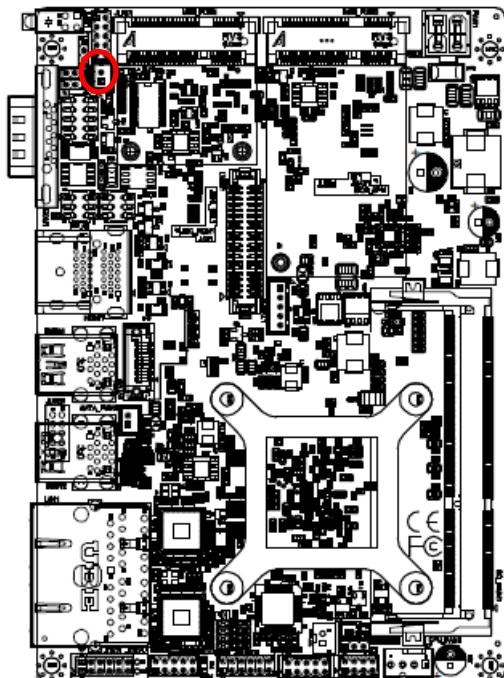
Signal	PIN
+5v	2
SOC_SPKR_R	1

1.6.18 Battery connector (BT1)
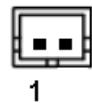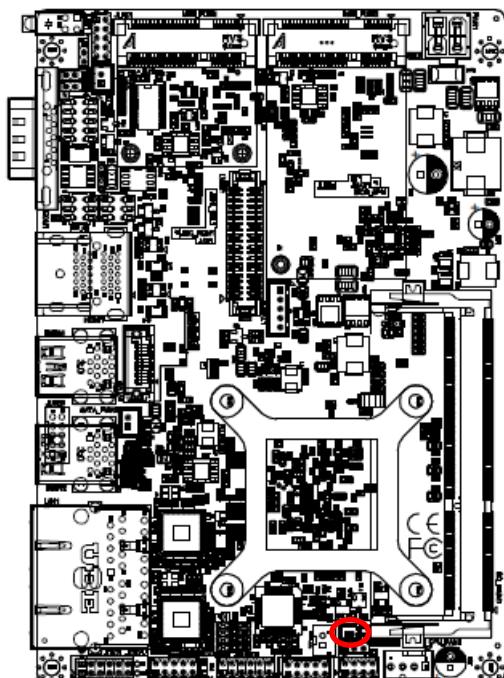
Signal	PIN
+RTCBATT	1
GND	2

1.6.19 Audio connector (JAUDIO1)
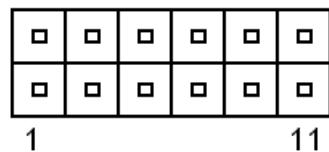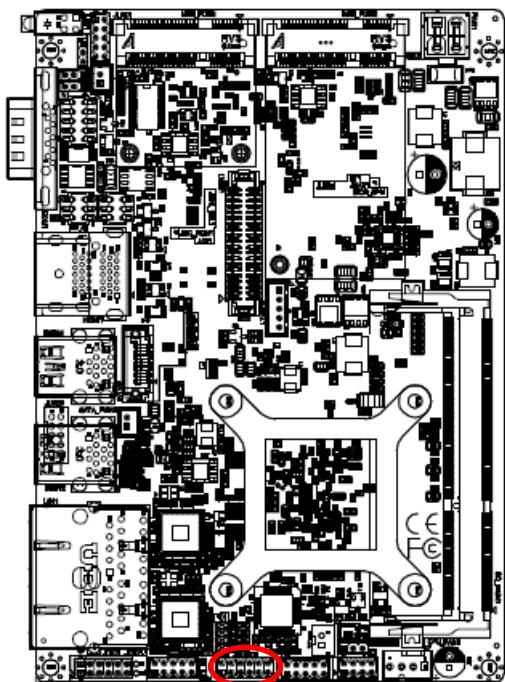
Signal	PIN	PIN	Signal
FRONT-R-OUT	1	2	FRONT-L-OUT
HD_AGND	3	4	HD_AGND
LINE1-R-IN	5	6	LINE1-L-IN
MIC1-R-IN	7	8	MIC1-L-IN
FRONT-JD	9	10	LINE1-JD
MIC1-JD	11	12	HD_AGND

2.3.19.1 Signal Description – Audio connector (JAUDIO1)

Signal	Signal Description
LINE1-JD	AUDIO IN (LINE_RIN/LIN)sense pin
FRONT-JD	AUDIO Out(ROUT/LOUT) sense pin
MIC1-JD	MIC IN (MIC_RIN/LIN) sense pin

1.6.20 LVDS connector (LVDS1)
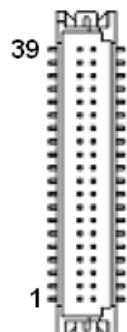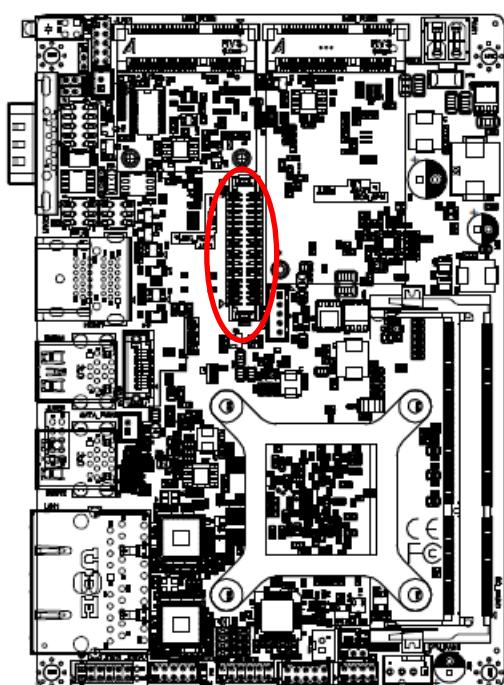
Signal	PIN	PIN	Signal
+12V	39	40	+12V
GND	37	38	GND
LVDS_CLK2_N	35	36	LVDS_CLK1_N
LVDS_CLK2_P	33	34	LVDS_CLK1_P
GND	31	32	GND
LVDS_DATA7_N	29	30	LVDS_DATA6_N
LVDS_DATA7_P	27	28	LVDS_DATA6_P
GND	25	26	GND
LVDS_DATA5_N	23	24	LVDS_DATA4_N
LVDS_DATA5_P	21	22	LVDS_DATA4_P
GND	19	20	GND
LVDS_DATA3_N	17	18	LVDS_DATA2_N
LVDS_DATA3_P	15	16	LVDS_DATA2_P
GND	13	14	GND
LVDS_DATA1_N	11	12	LVDS_DATA0_N
LVDS_DATA1_P	9	10	LVDS_DATA0_P
GND	7	8	GND
NC	5	6	NC
+3.3V	3	4	+5V
+3.3V	1	2	+5V

3.BIOS Setup

3.1 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.

3.2 Starting Setup

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 <ESC> immediately after switching the system on, or
By pressing the <DEL> or <ESC> key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press <DEL> or <ESC> 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.

3.3 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 key	General Help
F2 key	Previous Values
F3 key	Optimized Defaults
F4 key	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.

3.4 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.

3.5 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.

3.6 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.

3.6.1 Main Menu

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

```
          Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
   Main  Advanced  Chipset  Security  Boot  Save & Exit

   BIOS Information                                        Choose the system default
   BIOS Vendor                 American Megatrends         language
   Core Version                5.12
   Compliancy                  UEFI 2.5; PI 1.4
   Project Version             1ATJS 0.54 x64
   Build Date and Time         08/09/2021 10:01:34
   Access Level                Administrator
   EC 8528 Firmware            B5
   BIOS Name                   OFT07335

   System Language             [English]
 ▶ Intel RC Version

   System Date                 [Tue 08/17/2021]          →←: Select Screen
   System Time                 [10:48:49]                ↑↓: 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 Utility - Copyright (C) 2021 American Megatrends, Inc.
   Main

   Intel RC Version

   Platform firmware Information
   BXT SOC                     F1
   MRC Version                 0.56
   PUNIT FW                    1E
   PMC FW                      03.20
   TXE FW                      3.1.65.2288
   ISH FW                      N/A
   GOP                         10.0.1036
   CPU Flavor                  BXT Notebook/Desktop ...
   Board ID                    Oxbow Hill CRB (06)
   Fab ID                      FAB A
                                                         →←: Select Screen
                                                         ↑↓: Select Item
   Memory Information                                    Enter: Select
   Total Memory                4096 MB                   +/-: Change Opt.
   Memory Speed                1600 MHz                  F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



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```

3.6.1.1 System Language

This option allows choosing the system default language.

3.6.1.2 System Date

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

3.6.1.3 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.tw) to download the latest product and BIOS information.

3.6.2 Advanced Menu

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

```
         Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
   Main   Advanced   Chipset   Security   Boot   Save & Exit

▶ Trusted Computing                                    Trusted Computing Settings
▶ ACPI Settings
▶ IT8528 Super IO Configuration
▶ Hardware Monitor
▶ S5 RTC Wake Settings
▶ Serial Port Console Redirection
▶ CPU Configuration
▶ Network Stack Configuration
▶ USB Configuration
▶ Security Configuration

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

          Version 2.18.1263. Copyright (C) 2020 American Megatrends, Inc.
```

3.6.2.1 Trusted Computing

```
            Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Advanced

       TPM20 Device Found                               Enables or Disables BIOS
       Firmware Version:            1.3                 support for security device.
       Vendor:                      NTC                 O.S. will not show Security
                                                        Device. TCG EFI protocol and
       Security Device Support      [Enable]            INT1A interface will not be
                                                        available.



                                                        →←: 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
Security Device Support	Disable Enable**[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.

3.6.2.2 APCI Settings

```
            Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Advanced

       ACPI Settings                                    Enables or Disables System
                                                        ability to Hibernate (OS/S4
                                                        Sleep State). This option may
       Enable Hibernation           [Enabled]           be not effective with some OS.
       ACPI Sleep State             [S3 (Suspend to RAM)]

       ErP Function                 [Disabled]
       PWR-On After PWR-Fail        [Off]
       Watch Dog                    [Disabled]
       USB Standby Power Setting    [Enabled]
       Wake Up by Ring              [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
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 SUSPEND button is pressed.
ErP Function	Disabled**[Default]**, Enabled	ErP Function (Deep S5).
Pwr-On After PWR-Fail	Off**[Default]** On Last state	AC loss resume.
Watch Dog	Disabled**[Default]**, 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.
USB Standby Power Setting	Disabled Enabled**[Default]**	Enabled/Disabled USB Standby Power during S3/S4/S5.
Wake Up By Ring	Disabled Enabled**[Default]**	Wake Up by Ring from S3/S4/S5.

3.6.2.3 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 3.6.2.3.1~ 3.6.2.3.2 for more information.

```
                    Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Advanced

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

3.6.2.3.1 Serial Port 1 Configuration
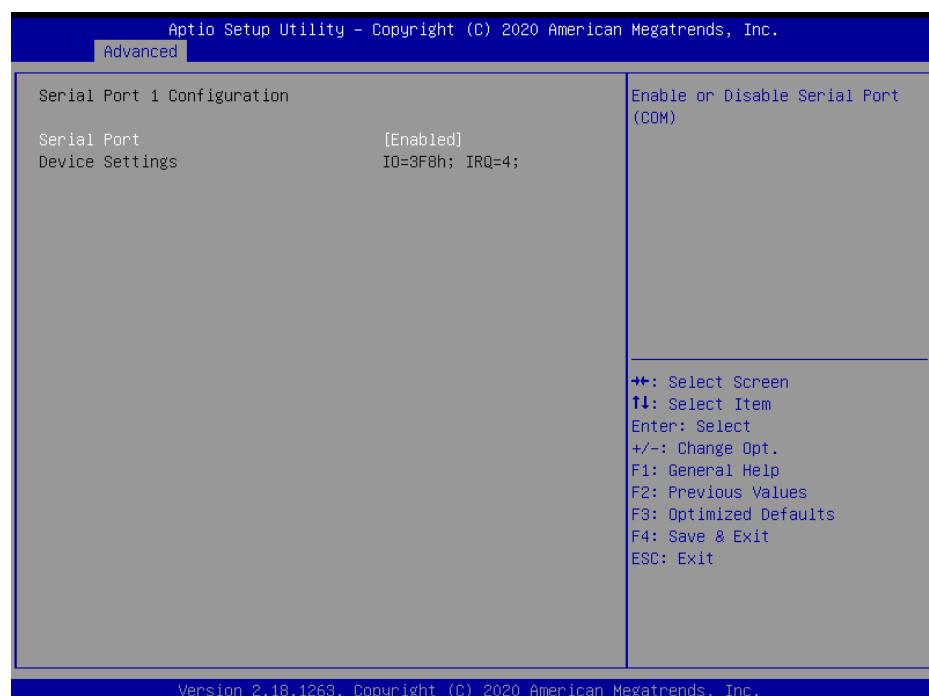
```
                    Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Advanced

       Serial Port 1 Configuration                               Enable or Disable Serial Port
                                                                  (COM)
       Serial Port                        [Enabled]
       Device Settings                    IO=3F8h; IRQ=4;


                                                                  →←: 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	Disabled Enabled**[Default]**	Enable or Disable Serial Port (COM).

3.6.2.3.2 Serial Port 2 Configuration
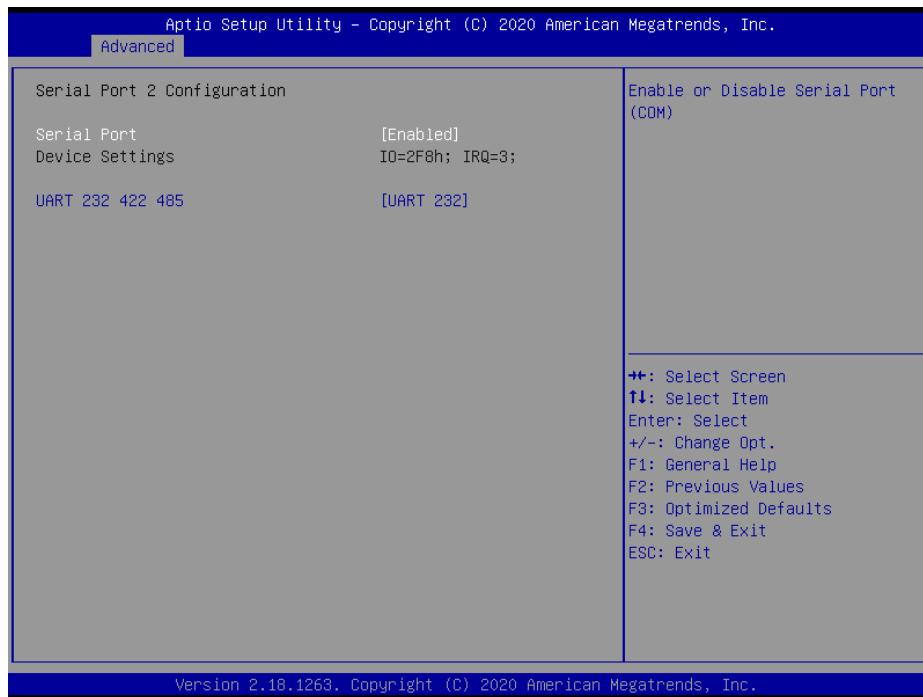
```
               Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
          Advanced

        Serial Port 2 Configuration                                  Enable or Disable Serial Port
                                                                     (COM)
        Serial Port                       [Enabled]
        Device Settings                   IO=2F8h; IRQ=3;

        UART 232 422 485                  [UART 232]




                                                                     ➔←: 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	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.

3.6.2.4 H/W Monitor

```
               Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
    Advanced

  Pc Health Status                                        Enable or Disable Smart Fan

  Smart Fan Function              [Disabled]
  CPU temperature                 : +42 C
  Fan1 Speed                      : N/A
  VIN                             : +11.812 V
  VCORE                           : +0.878 V
  VDDR                            : +1.371 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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```

Item	Options	Description
Smart Fan Function	Enabled, Disabled**[Default]**	Enables or Disables Smart Fan.

3.6.2.5 S5 RTC Wake Settings

```
               Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
       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	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified.

	Dynamic Time	Select Dynamic Time, System will wake on the current time + Increase minute(s).

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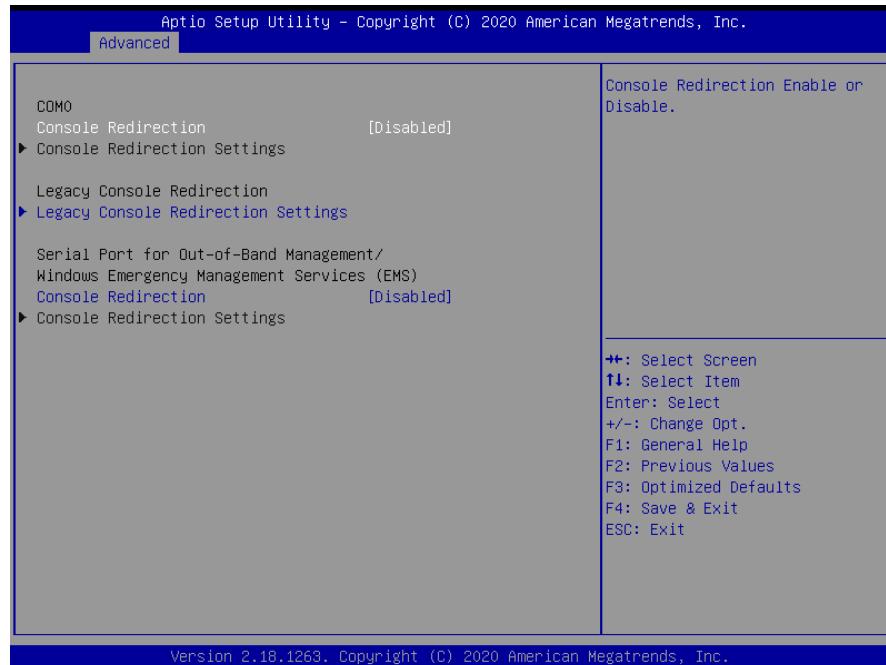
Item	Options	Description
Console Redirection	Disabled**[Default]**, Enabled	Console Redirection Enable or Disable.

3.6.2.6.1 Legacy Console Redirection Settings
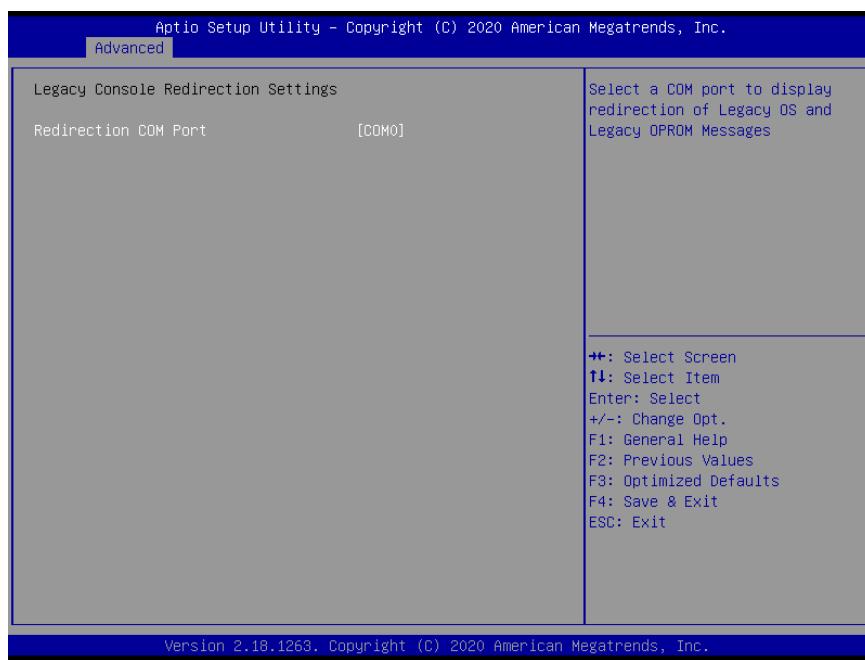
Item	Option	Description
Redirection COM Port	COM0**[Default]**	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.

3.6.2.7 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.
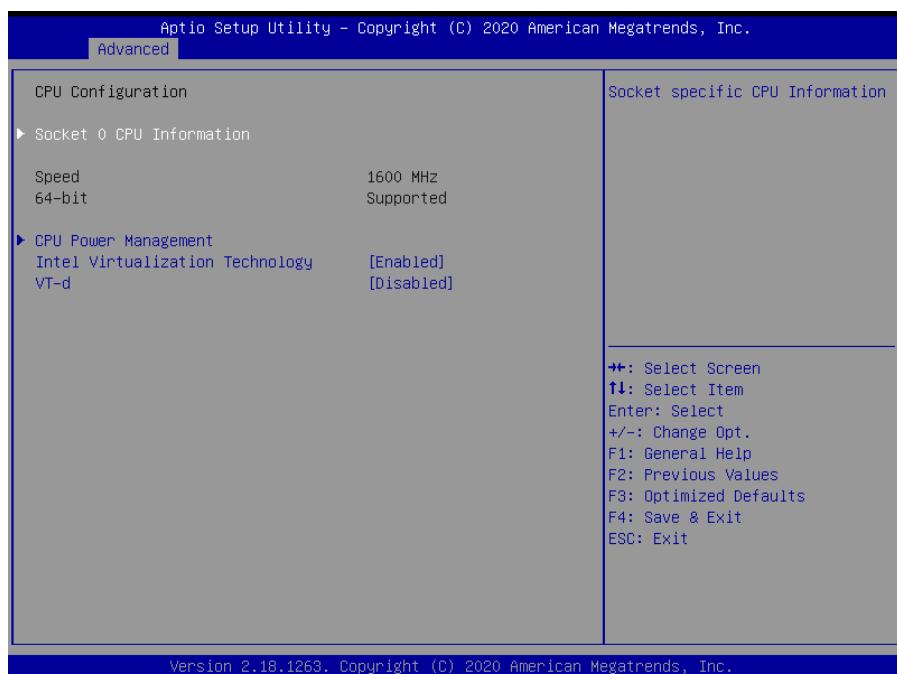
Item	Options	Description
Intel Virtualization Technology	Disabled Enabled**[Default]**	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
VT-d	Disabled**[Default]** Enabled	Enable/Disable CPU VT-d.

3.6.2.7.1 Socket 0 CPU Information

```
                  Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
        Advanced

     Socket 0 CPU Information

     Intel(R) Atom(TM) Processor E3950 @ 1.60GHz
     CPU Signature                    506CA
     Microcode Patch                  1A
     Max CPU Speed                    1600 MHz
     Min CPU Speed                    800 MHz
     Processor Cores                  4
     Intel HT Technology              Not Supported
     Intel VT-x Technology            Supported

     L1 Data Cache                    24 kB x 4
     L1 Code Cache                    32 kB x 4
     L2 Cache                         1024 kB x 2        →←: Select Screen
     L3 Cache                         Not Present        ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit




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```

3.6.2.7.2 CPU Power Management Configuration

```
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        Advanced

     CPU Power Management Configuration              Enable/Disable Intel SpeedStep
     EIST                             [Enabled]
     Turbo Mode                       [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
EIST	Disabled Enabled**[Default]**	Enable/Disable Intel SpeedStep.
Turbo Mode	Disabled Enabled**[Default]**	Turbo Mode.

3.6.2.8 Network Stack Configuration

```
                  Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
           Advanced

     Network Stack                    [Disabled]              Enable/Disable UEFI Network
                                                              Stack




                                                              ←→: 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
Network Stack	Disabled**[Default]** Enabled	Enable/Disable UEFI Network Stack.

3.6.2.9 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.

```
                  Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
           Advanced

     USB Configuration                                        This is a workaround for OSes
                                                              without XHCI hand-off support.
     USB Module Version               17                      The XHCI ownership change
                                                              should be claimed by XHCI
     USB Controllers:                                         driver.
          1 XHCI
     USB Devices:
          1 Drive, 1 Keyboard, 1 Mouse, 1 Hub

     XHCI Hand-off                    [Enabled]
     USB Mass Storage Driver Support  [Enabled]

     USB hardware delays and time-outs:
     USB transfer time-out            [20 sec]
     Device reset time-out            [20 sec]                ←→: Select Screen
     Device power-up delay            [Auto]                  ↑↓: Select Item
                                                              Enter: Select
     Mass Storage Devices:                                    +/-: Change Opt.
     JetFlashTranscend 8GB 1100       [Auto]                  F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit



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```

Item	Options	Description
XHCI Hand-off	Disabled Enabled**[Default]**	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Disabled Enabled**[Default]**	Enable/Disable USB Mass Storage Driver Support.
USB transfer time-out	1 sec 5 sec 10 sec 20 sec**[Default]**	The time-out value for Control, Bulk, and Interrupt transfers.
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.

3.6.2.10 Security Configuration
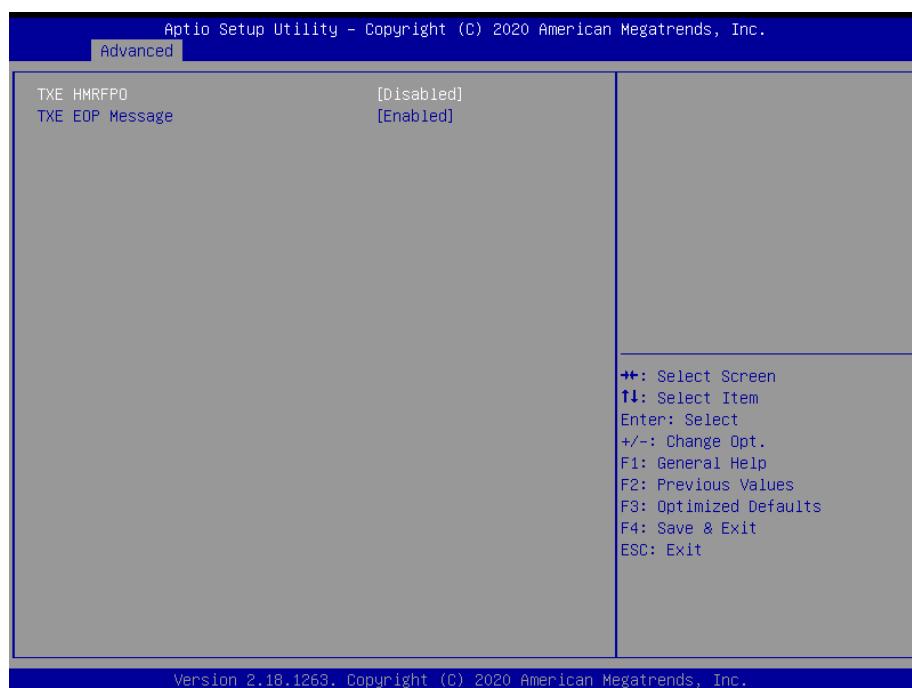
Item	Options	Description
TXE HMRFPO	Enabled Disabled**[Default]**	TXE HMRFPO.

TXE EOP Message	Enabled**[Default]** Disabled	Send EOP Message Before Enter OS.

3.6.3 Chipset

```
          Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Main  Advanced  Chipset  Security  Boot  Save & Exit

   ▶ North Bridge                                    North Bridge Parameters
   ▶ South Bridge
   ▶ Uncore Configuration
   ▶ South Cluster Configuration




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


          Version 2.18.1263. Copyright (C) 2020 American Megatrends, Inc.
```

3.6.3.1 North Bridge

```
          Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
          Chipset

   Memory Information

   Total Memory              4096 MB (DDR3L)

   Memory Slot0              4096 MB (DDR3L)




                                                     →←: 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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```

3.6.3.2 South Bridge

Item	Option	Description
OS Selection	Windows**[Default]** Android Intel Linux	Select the target OS.

3.6.3.3 Uncore Configuration

```
              Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
               Chipset

        IGD - LCD Control                                      Active Internal
        Active LVDS(Ch7511)            [Enabled]               LVDS(eDP->Ch7511-to-LVDS)
        CH7511 EDID Panel Option       [ 800x1280 18/1]
        Brightness Control Method      [BIOS]
        LVDS Back Light PWM            [100%]
        LVDS Back Light PWM Frequency  [  1k]




                                                              →←: 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
Active LVDS(Ch7511)	Enabled**[Default]** Disabled	Active Internal LVDS(eDP->Ch7511-to-LVDS).
CH7511 EDID Panel Option	1024x768 24/1 800x600 18/1 1024x768 18/1 1366x768 18/1 1024x600 18/1 800x1280 18/1**[Default]** 1920x1200 24/2 1920x1080 18/2 1280x1024 24/2 1440x900 18/2 1600x1200 24/2 1366x768 24/1 1920x1080 24/2 1680x1050 24/2	Port1-EDP to LVDS(Chrotel 7511) Panel EDID Option.
Brightness Control Method	BIOS**[Default]** OS Driver	LVDS Brightness Control Method. 1.BIOS 2.OS Driver
LVDS Back Light PWM	0% 25% 50% 75%	Select LVDS back light PWM duty.

	100%**[Default]**	
LVDS Back Light PWM Frequency	200 300 400 500 700 1 k**[Default]** 2 k 3 k 5 k 10 k 20 k	Select LVDS back light PWM Frequency.

3.6.3.4   South Cluster Configuration

```
        Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
             Chipset

                                                    HD-Audio Configuration Settings
 ▶ HD-Audio Configuration
 ▶ PCI Express Configuration
 ▶ SATA Drives
 ▶ USB 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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```

3.6.3.4.1 HD-Audio Configuration

```
              Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
                   Chipset

     HD-Audio Configuration                                Enable/Disable HD-Audio Support
     HD-Audio Support                    [Enable]




                                                           →←: 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 Support	Disable Enable**[Default]**	Enable/Disable HD-Audio Support.

3.6.3.4.2 PCI Express Configuration

```
              Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
                   Chipset

     PCI Express Configuration                             Control the PCI Express Root
   ▶ PCI Express Root Port 3(i210/211)                     Port.
   ▶ PCI Express Root Port 4(i210/211)                     AUTO: To disable unused root
   ▶ PCI Express Root Port 5(mPCIe half)                   port automatically for the
   ▶ PCI Express Root Port 6(mPCIe)                        most optimum power savings.
                                                           Enable: Enable PCIe root port
                                                           Disable: Disable PCIe root port


                                                           →←: 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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```

3.6.3.4.2.1 PCI Express Root Port 3(i210/211)

```
                    Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
                    Chipset

     PCI Express Root Port 3(i210/211)    [Enable]              Control the PCI Express Root
     ASPM                                 [Disable]             Port.
     L1 Substates                         [Disabled]            AUTO: To disable unused root
     PCIe Speed                           [Auto]                port automatically for the
                                                                most optimum power savings.
                                                                Enable: Enable PCIe root port
                                                                Disable: Disable PCIe root port


                                                                →←: 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 3(i210/211)	Disable Enable**[Default]**	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
ASPM	Disable**[Default]** L0s L1 L0sL1 Auto	PCI Express Active State Power Management settings.
L1 Substates	Disabled**[Default]** L1.1 L1.2 L1.1 & L1.2	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2	Configure PCIe Speed.

3.6.3.4.2.2 PCI Express Root Port 4(i210/211)

```
              Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
                Chipset

   PCI Express Root Port 4(i210/211)    [Enable]            Control the PCI Express Root
   ASPM                                 [Disable]           Port.
   L1 Substates                         [Disabled]          AUTO: To disable unused root
   PCIe Speed                           [Auto]              port automatically for the
                                                            most optimum power savings.
                                                            Enable: Enable PCIe root port
                                                            Disable: Disable PCIe root port




                                                            →←: 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 4(i210/211)	Disable Enable**[Default]**	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
ASPM	Disable**[Default]** L0s L1 L0sL1 Auto	PCI Express Active State Power Management settings.
L1 Substates	Disabled**[Default]** L1.1 L1.2 L1.1 & L1.2	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2	Configure PCIe Speed.

3.6.3.4.2.3 PCI Express Root Port 5(mPCIe half)

```
              Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
          Chipset

  PCI Express Root Port 5(mPCIe half     [Enable]          Control the PCI Express Root
  ASPM                                   [Disable]         Port.
  L1 Substates                           [Disabled]        AUTO: To disable unused root
  PCIe Speed                             [Auto]            port automatically for the
                                                           most optimum power savings.
                                                           Enable: Enable PCIe root port
                                                           Disable: Disable PCIe root port


                                                           →←: 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 5(mPCIe half)	Disable Enable**[Default]**	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
ASPM	Disable**[Default]** L0s L1 L0sL1 Auto	PCI Express Active State Power Management settings.
L1 Substates	Disabled**[Default]** L1.1 L1.2 L1.1 & L1.2	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2	Configure PCIe Speed.

3.6.3.4.2.4 PCI Express Root Port 6(mPCIe)

```
                    Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
                      Chipset

          PCI Express Root Port 6(mPCIe)      [Enable]          Control the PCI Express Root
          ASPM                                [Disable]         Port.
          L1 Substates                        [Disabled]        AUTO: To disable unused root
          PCIe Speed                          [Auto]            port automatically for the
                                                                most optimum power savings.
                                                                Enable: Enable PCIe root port
                                                                Disable: Disable PCIe root port



                                                                →←: 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(mPCIe)	Disable Enable**[Default]**	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
ASPM	Disable**[Default]** L0s L1 L0sL1 Auto	PCI Express Active State Power Management settings.
L1 Substates	Disabled**[Default]** L1.1 L1.2 L1.1 & L1.2	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2	Configure PCIe Speed.

3.6.3.4.3 SATA Drives
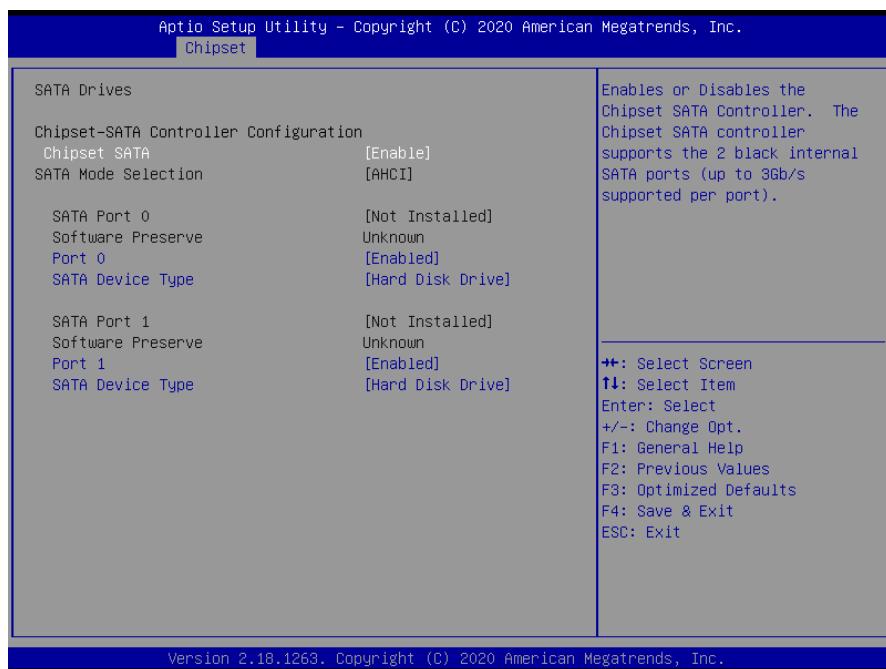
Item	Option	Description
Chipset SATA	Enable**[Default]** Disable	Enables or Disables the Chipset SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).
Port 0/1	Disabled Enabled**[Default]**	Enable or Disable SATA Port.
SATA Device Type	Hard Disk Drive**[Default]** Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

3.6.3.4.4 USB Configuration

Item	Option	Description
XHCI Pre-Boot Driver	Enable Disable**[Default]**	Enable/Disable XHCI Pre-Boot Driver support.

3.6.4 Security

```
              Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Main  Advanced  Chipset  Security  Boot  Save & Exit

  Password Description                               Set Setup Administrator
                                                     Password
  If ONLY the Administrator's password is set,
  then this only limits access to Setup and is
  only asked for when entering Setup.
  If ONLY the User's password is set, then this
  is a power on password and must be entered to
  boot or enter Setup. In Setup the User will
  have Administrator rights.
  The password length must be
  in the following range:
  Minimum length               3
  Maximum length               20                    ↔: Select Screen
                                                     ↑↓: Select Item
  Setup Administrator Password                       Enter: Select
  User Password                                      +/-: Change Opt.
                                                     F1: General Help
▶ Secure Boot                                        F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




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```

● **Setup Administrator Password**

Set setup Administrator Password

● **User Password**

Set User Password

3.6.4.1   Secure Boot
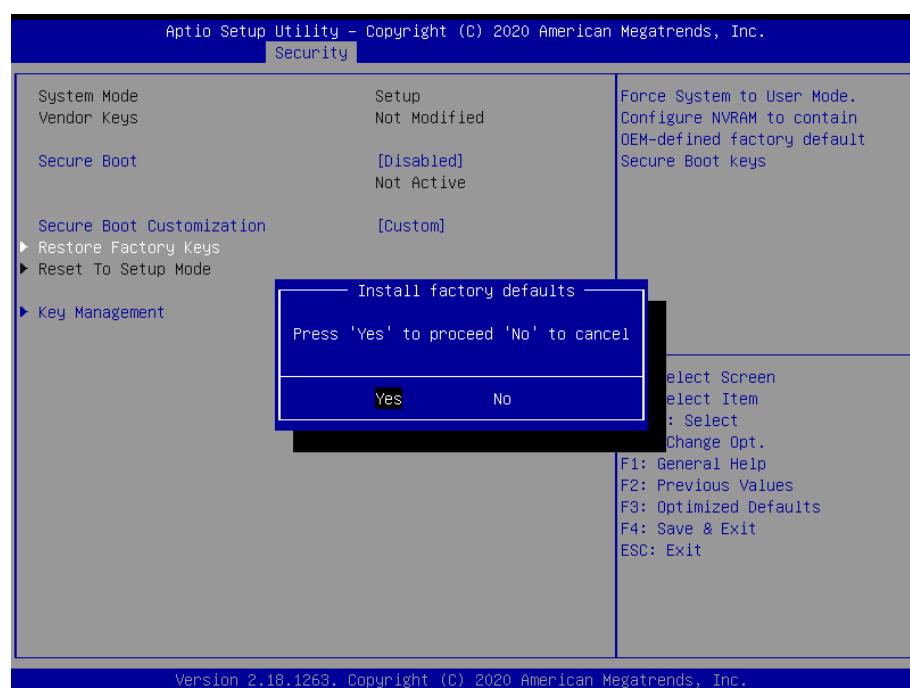
Item	Option	Description
Secure Boot	Disabled**[Default]** Enabled	Secure Boot activated when Platform Key(PK) is enrolled, System mode is User/Deployed, and CSM function is disabled.
Secure Boot Customization	Standard Custom**[Default]**	Secure Boot Mode – Custom_Standard, Set UEFI Secure Boot Mode to STANDARD mode or CUSTOM mode, this change is effect after save. And after reset, the mode will return to STANDARD mode.

3.6.4.1.1 Key Management
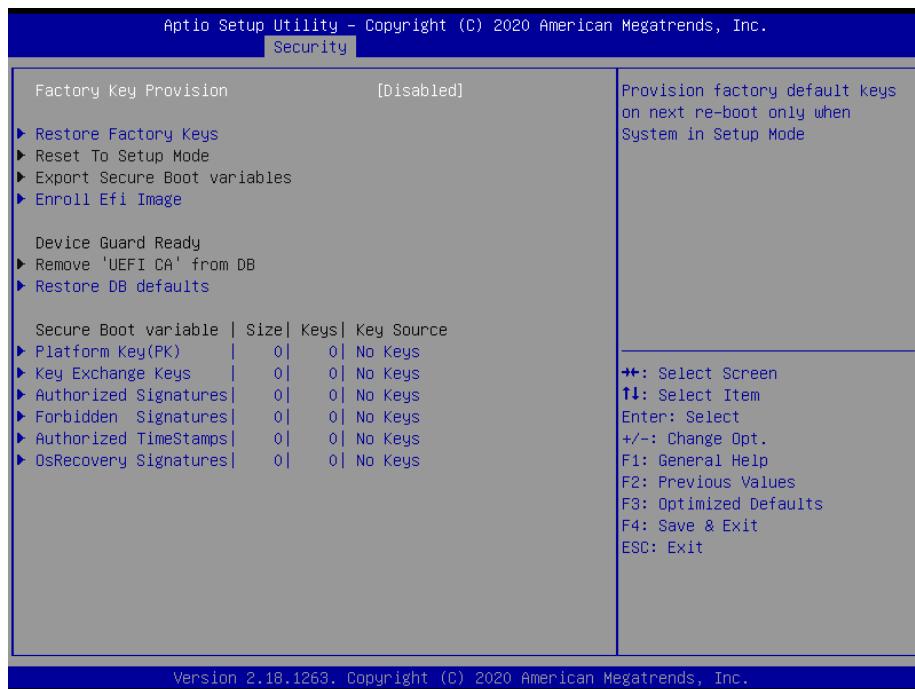
Item	Options	Description
Factory Key Provision	Disabled**[Default]** Enabled	Provision factory default keys on next re-boot only when System in Setup Mode.

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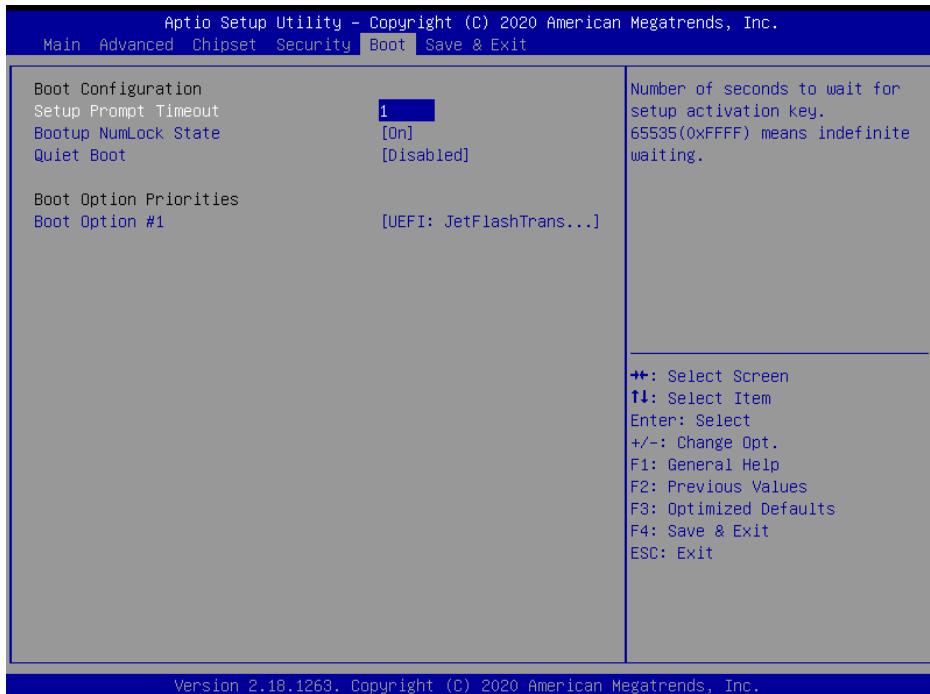
Item	Option	Description
Setup Prompt Timeout	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On**[Default]** Off	Select the Keyboard NumLock state
Quiet Boot	Disabled**[Default]** Enabled	Enables or disables Quiet Boot option
Boot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

3.6.6 Save and exit
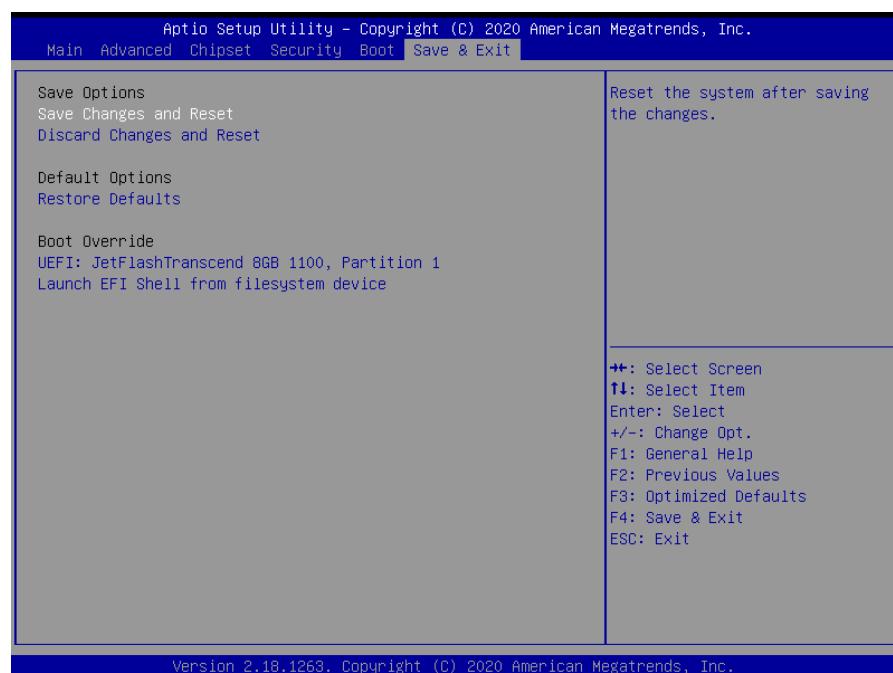
3.6.6.1 Save Changes and Reset

Reset the system after saving the changes.

3.6.6.2 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.6.3 Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

3.6.6.4   Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

4. Drivers Installation

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:

http://www.avalue.com.tw.

> **Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system.
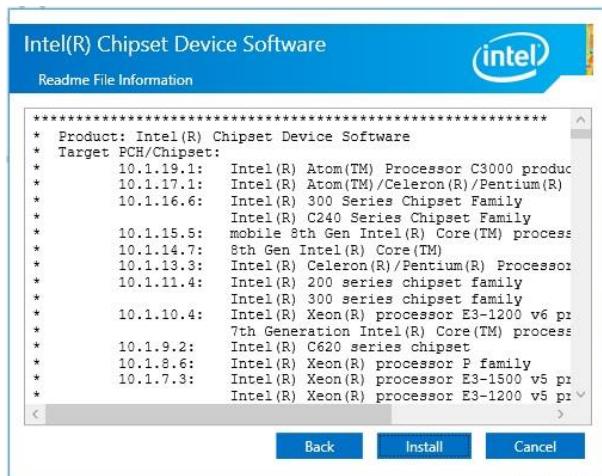
Step 3. Click **Install**.

Step1. Click **Next**.

Step 4. Complete setup.

Step 2. Click **Accept**.

4.2 Install TXE Driver

All drivers can be found on the Avalue Official Website: **http://www.avalue.com.tw**.

*Note:* The installation procedures and screen shots in this section are based on Windows 10 operation system.
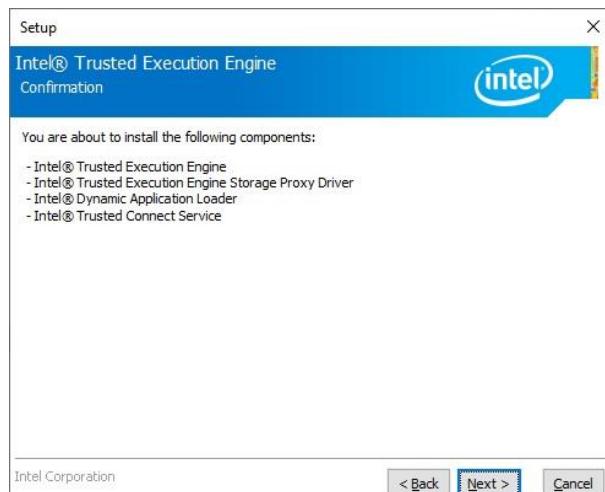
Step 3. Click **Next** to continue installation.
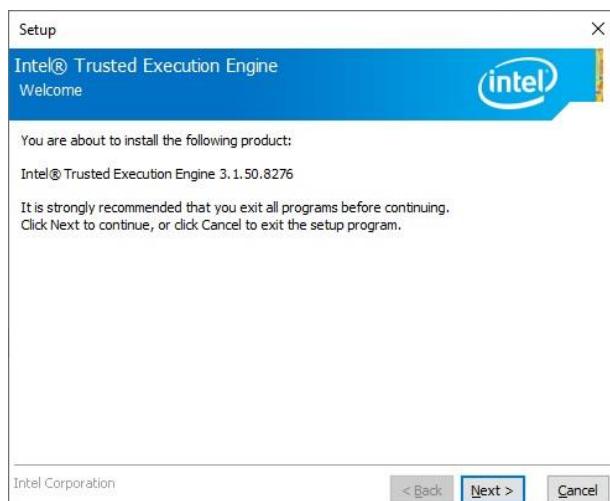
Step1. Click **Next** to start installation.
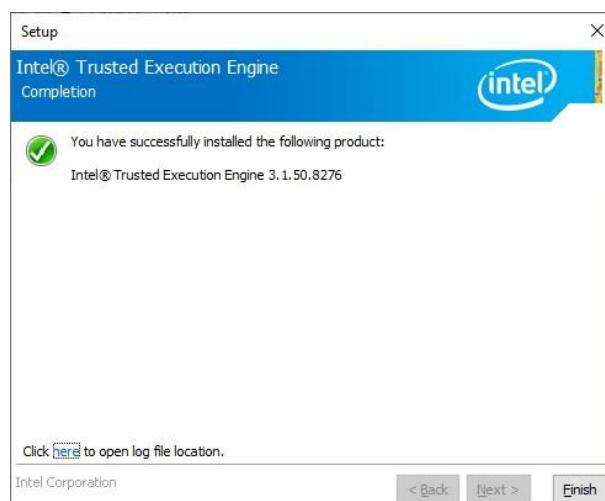
Step 4. Click **Finish** to complete setup.
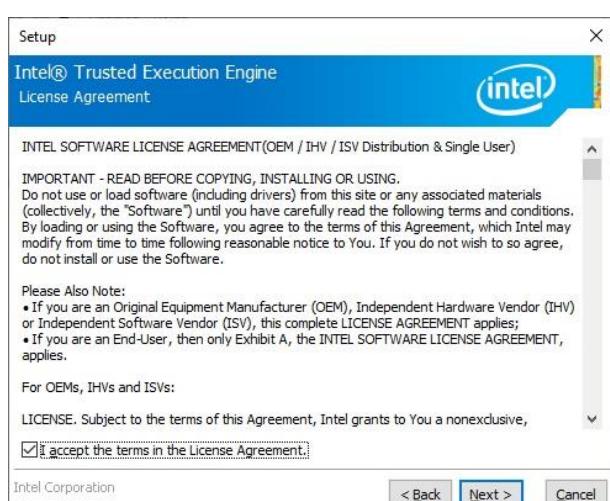
Step 2. Click **Next**.

4.3 Install VGA Driver

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

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.
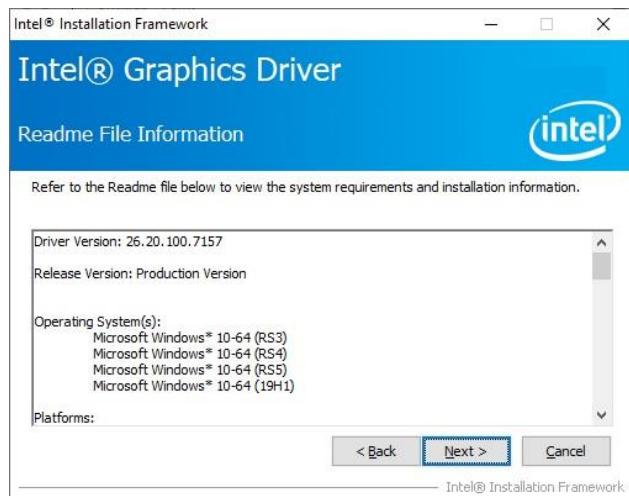
Step 3. Click **Next.**
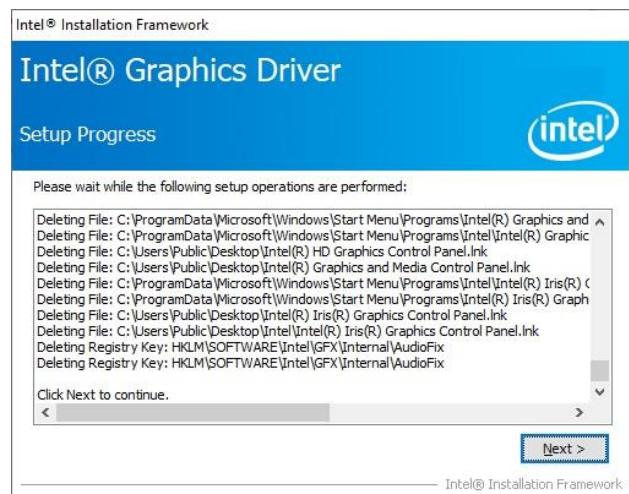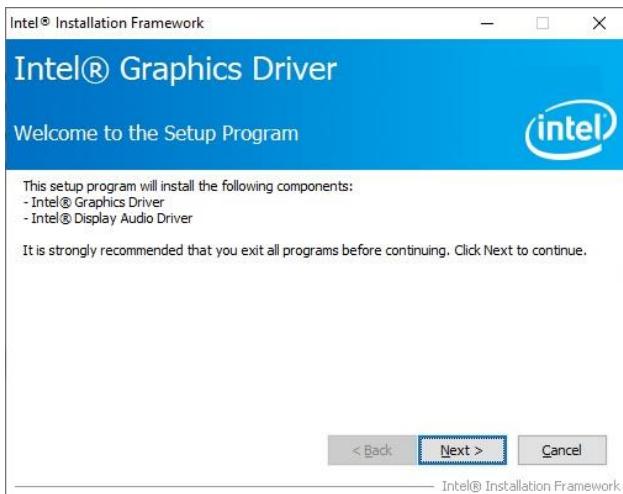
Step 1. Click **Next**.
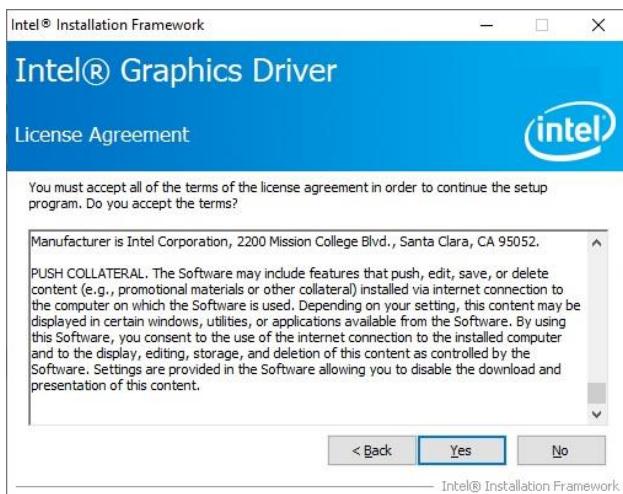
Step 4. Click **Next**.

Step 2.
Click **Yes** to accept license agreement.
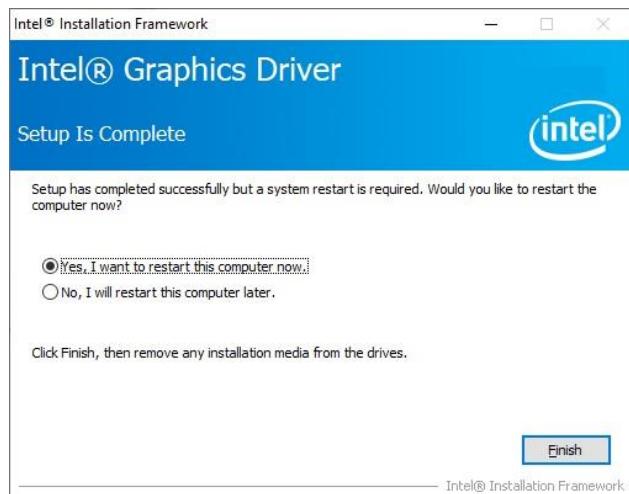
Step 5. Click **Finish** to complete setup.

4.4 Install Ethernet Driver

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

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.
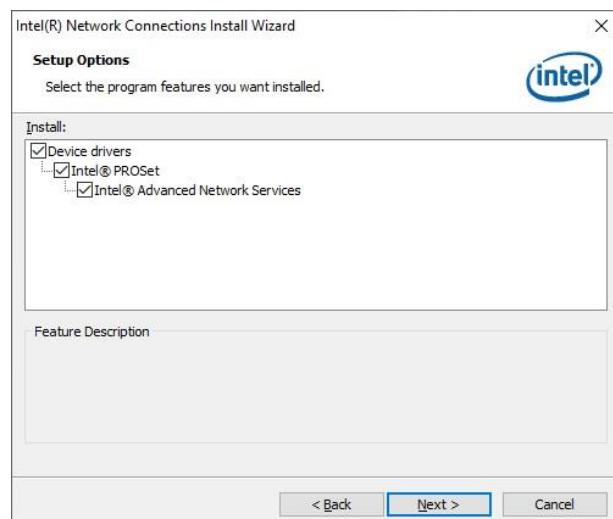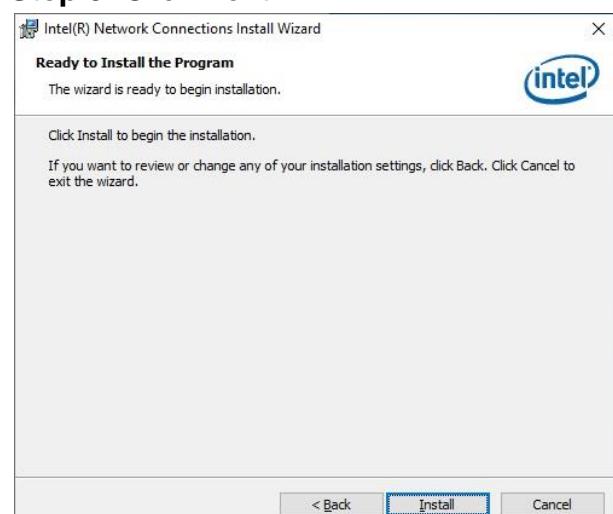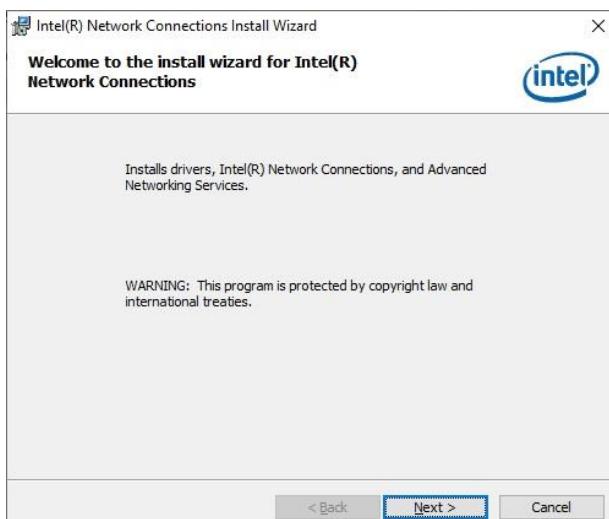
Step 3. Click **Next**.

Step 1. Click **Next** to proceed.

Step 4. Click **Install**.
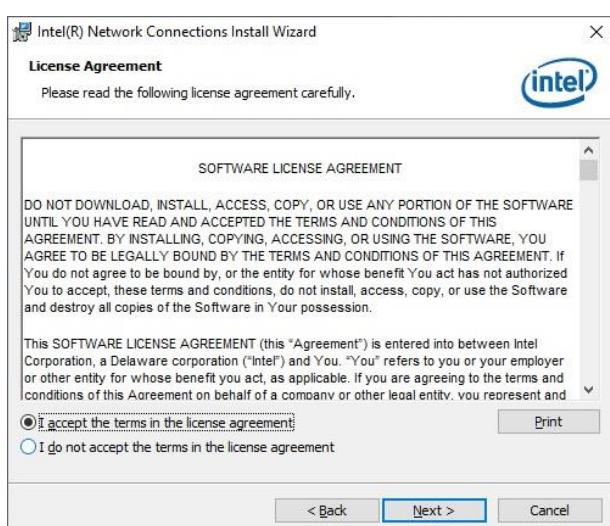
Step 2. Click **Next**.

**Step 5.** Click **Finish** to complete the setup.

4.5 Install Audio Driver (For Realtek ALC892)

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

Note: The installation procedures and
screen shots in this section are
based on Windows 10 operation
system.
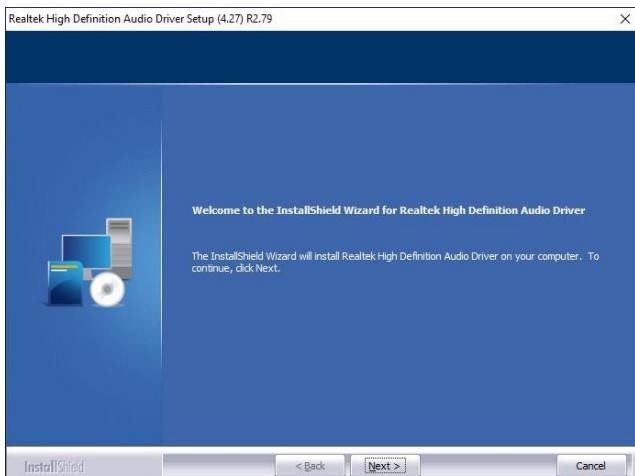
Step 1. Click **Next** to continue setup.

Step 2. Click **Finish** to complete the
setup.