OFP-15W33

15.6" Open Frame Panel PC

Quick Reference Guide

3rd Ed – 04 October, 2022

Part No. E2017O153A4R

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.

FCC RF Radiation Exposure Statement

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.

WARNING

“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-15W33 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	EMX-APLP (EMX-APLP-34-A1-01R(eDP Ver))
CPU	Intel® Celeron® J3455 (F1 stepping)
CPU Cooler (Type)	Fanless
Memory	2 x 204-pin DDR3L 1600 & 1333MHz SO-DIMM supports up to 16GB
Wireless LAN	IEEE802.11 ac/a/b/g/n 2.4 GHz, 5 GHz (Optional)
Bluetooth	BT4.0 (Optional)
Operating System	Windows 10 Ubuntu 16.04
Expansion Card	1 x full size Mini PCI-e support mSATA (SATA III and mSATA By auto switch IC) with 1 x SIM card slot 1 x M.2 (2230) A-Key, support WiFi module
Storage	
Solid State Drive	N/A (Reserve space for future1 x 2.5” Drive Bay design)
Other Storage Device	Default by 1 x mSATA (Shared mPCIe)
Panel	
LCD Panel	15.6" eDP Panel, BOE NV156FHM-N42 1920*1080 or Innolux N156HCE-EBA 1920*1080
LCD Control Board	Built in
Touch Screen	15.6" PCAP Touch, Henghao: HD-T156WP05-F4SB or ACDC119
External I/O	
Serial Port	1 x RS232(default)/422/485 4 x RS232 (option)
USB Port	4 x USB 3.0, 4 x USB 2.0 (option)
Video Port	DP++, HDMI/DP(HDMI/DP: 3840 x 2160 @ 30Hz, 2560 x 1600 @ 30Hz)
Audio Port	Line-out, Mic-in
LAN Port	2 x RJ45 LAN port (2 x Intel® I211AT, 10/100/1000 Base-Tx Gigabit Ethernet Compatible)
Wireless LAN Antenna	2 x Antenna Mounting with Dust Cover
Switch	2 pins Phoenix connector default for system reset function (option for power on/off)

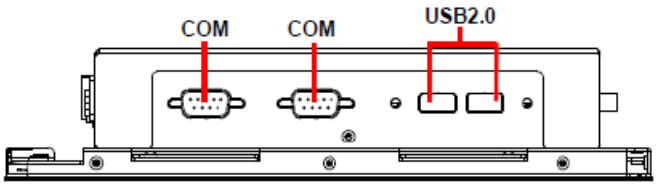
	*Do not connect any power source to this connector to avoid damage of motherboard
Mechanical	
Power Type	+12V~24V DC in
Power Connector Type	3 pins Phoenix connector and Lockable DC in
Dimension	387 x 235 x 47 mm
Weight	2.5 Kg
Color	Silver
Fanless	Fanless
OS Support	Windows 10 Ubuntu 16.04 Android x86 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	1 Wave from : Half Sine wave

Test	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 4-feet drop resistance without package MIL-STD-810G
Operating Temperature	0°C ~ 45°C (32°F ~ 113°F)
Operating Humidity	0% ~ 90% Relative Humidity, Non-condensing
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Power Consumption	Max. load 38.87W with intel J3455/4GB/32GB(mSATA) , 12V DC in

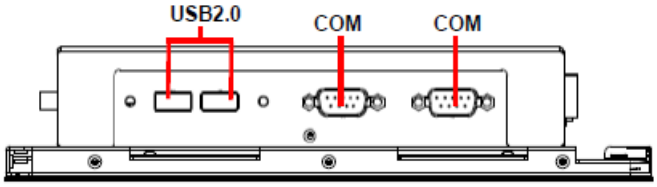
Note: Specifications are subject to change without notice.

1.4 System Overview

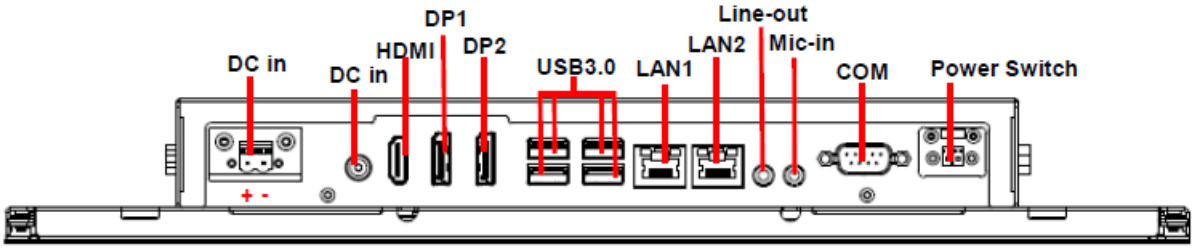
1.4.1 Right View



1.4.2 Left View



1.4.3 Bottom View

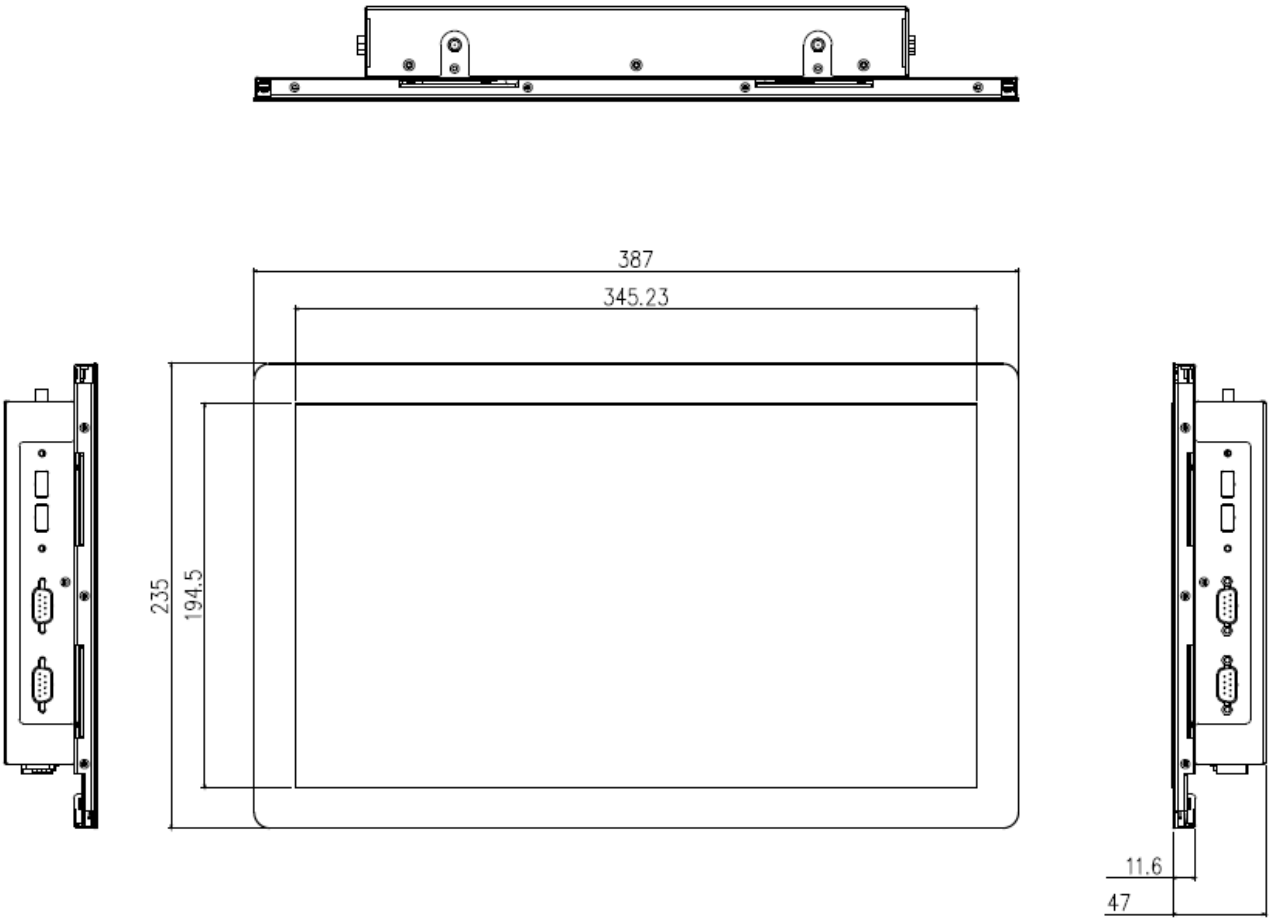


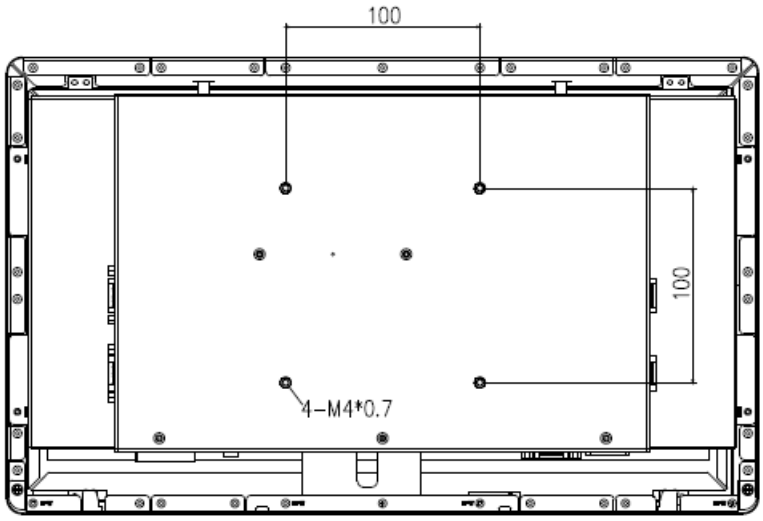
Connectors

Label	Function	Note
COM	5 x Serial port connector	1 x RS232(default)/422/485 4 x RS232(option)
HDMI	HDMI connector	
USB3.0	4 x USB 3.0 connector	
USB2.0	4 x USB 2.0 connector(option)	
LAN1/2	2 x RJ-45 Ethernet	
Line-out	Line-out jack	
Mic-in	Mic-in audio jack	
DC in	DC power-in connector	
DC in	2 pins Phoenix connector	
DP1/2	2 x DP connector	
Power Switch	2 pins Phoenix connector default for system reset function (option for power on/off)	Do not connect any power source to this connector to avoid damage of motherboard

1.5 System Dimensions

1.5.1 Front and Rear side



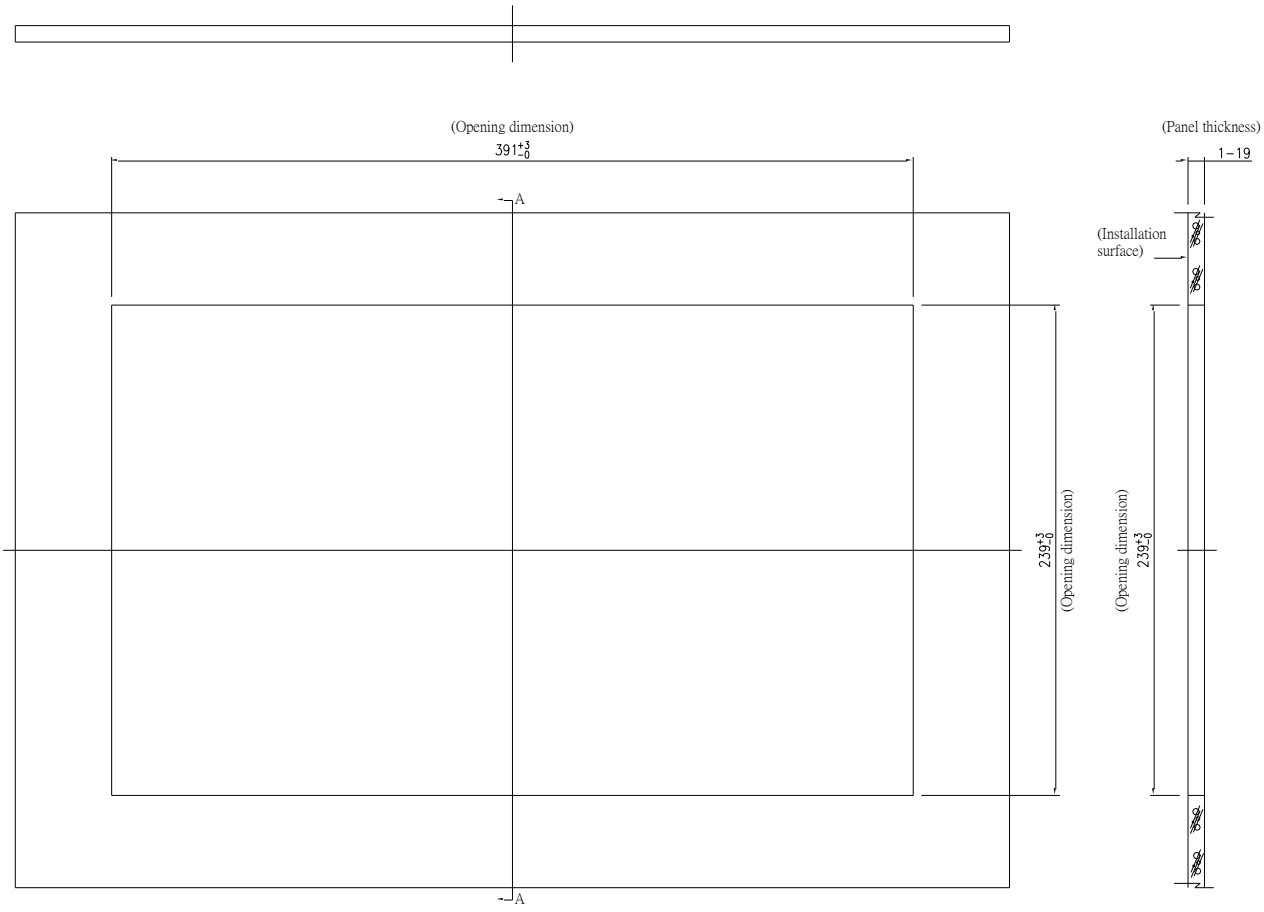


(Unit: mm)

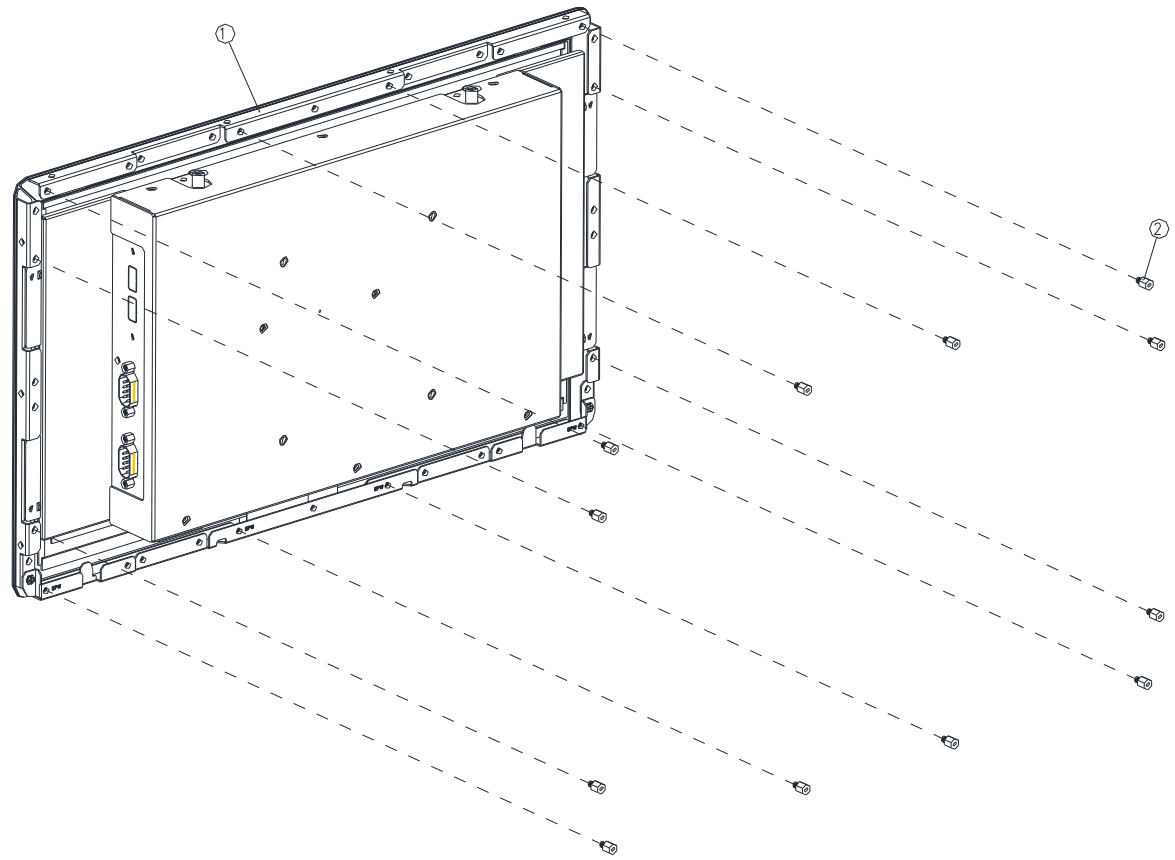
1.6 Panel Mounting

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

The dimension of opening is as below:

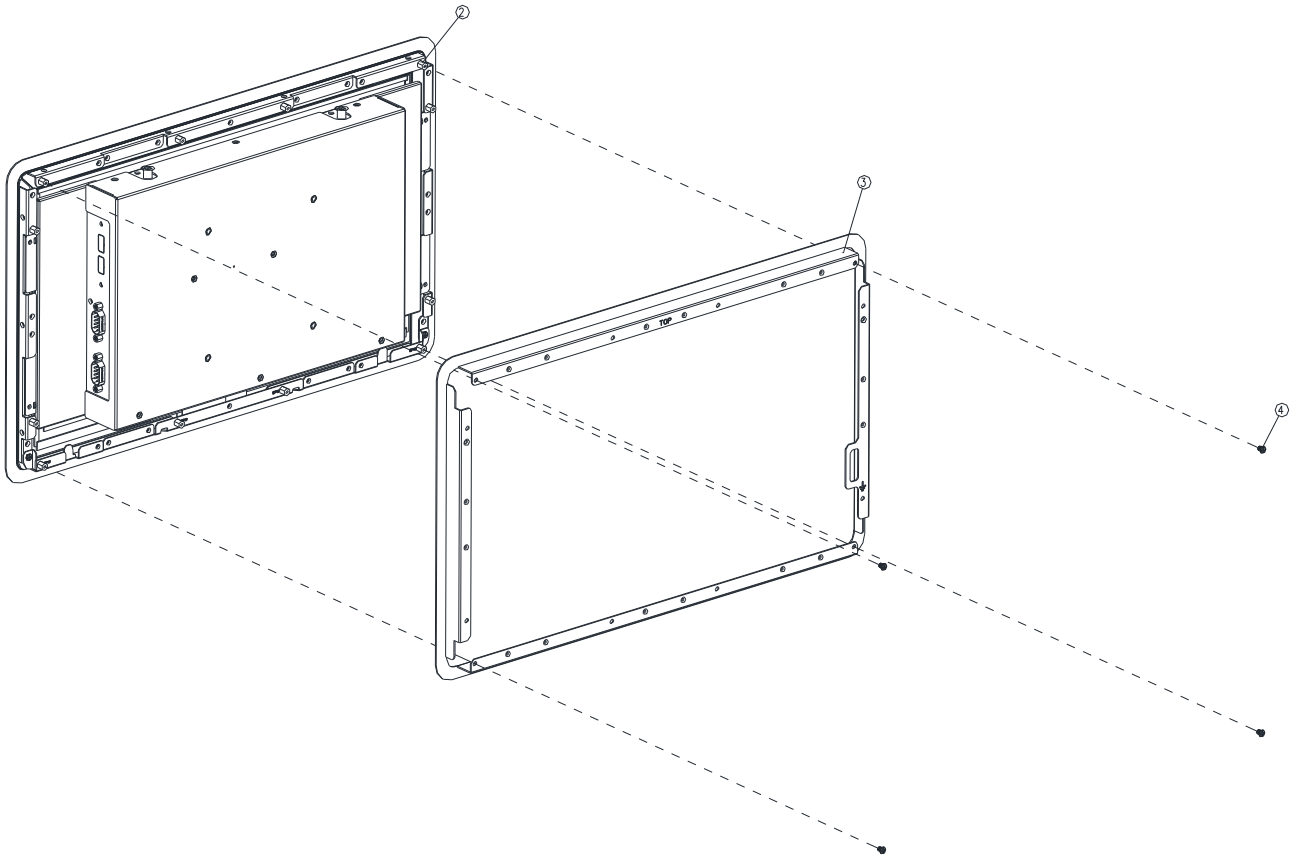


(Unit: mm)



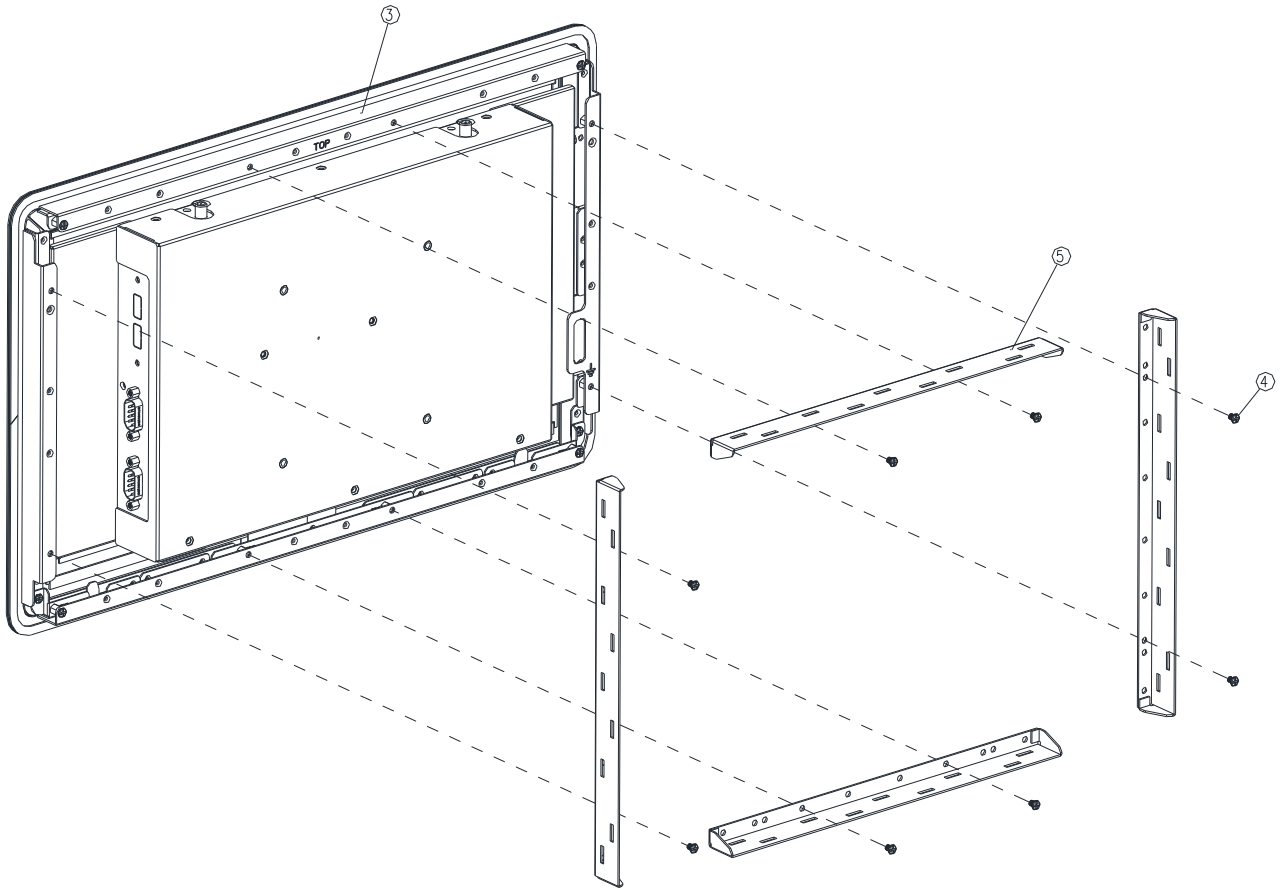
Step1. Insert and fasten 12 pcs Hexagon Studs on each side of the OFP-15W33 Bracket.

2	Hexagon Stud	12
1	OFP-15W33	1
Item	Part Name	Quantity



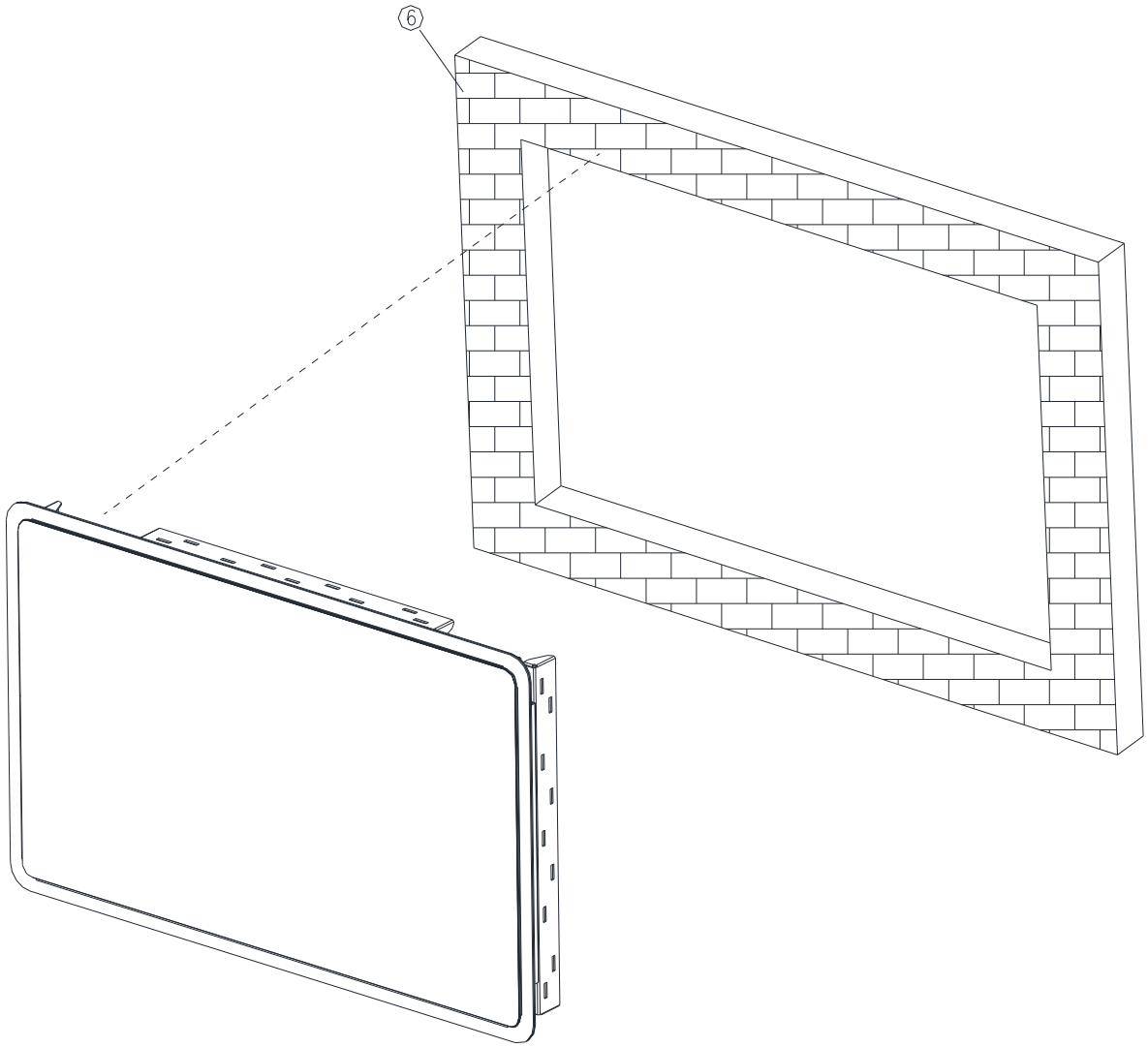
Step2. Assemble the Front bracket to OFP-15W33 and fasten 4 screws on the corresponding Hexagon Studs.

4	Screw	4
3	Front Bracket	1
2	Hexagon Stud	4
Item	Part Name	Quantity



Step3. Assemble the 4pcs Panel Mount Brackets on the Front Bracket and fasten the 8 pcs screws to the corresponding holes.

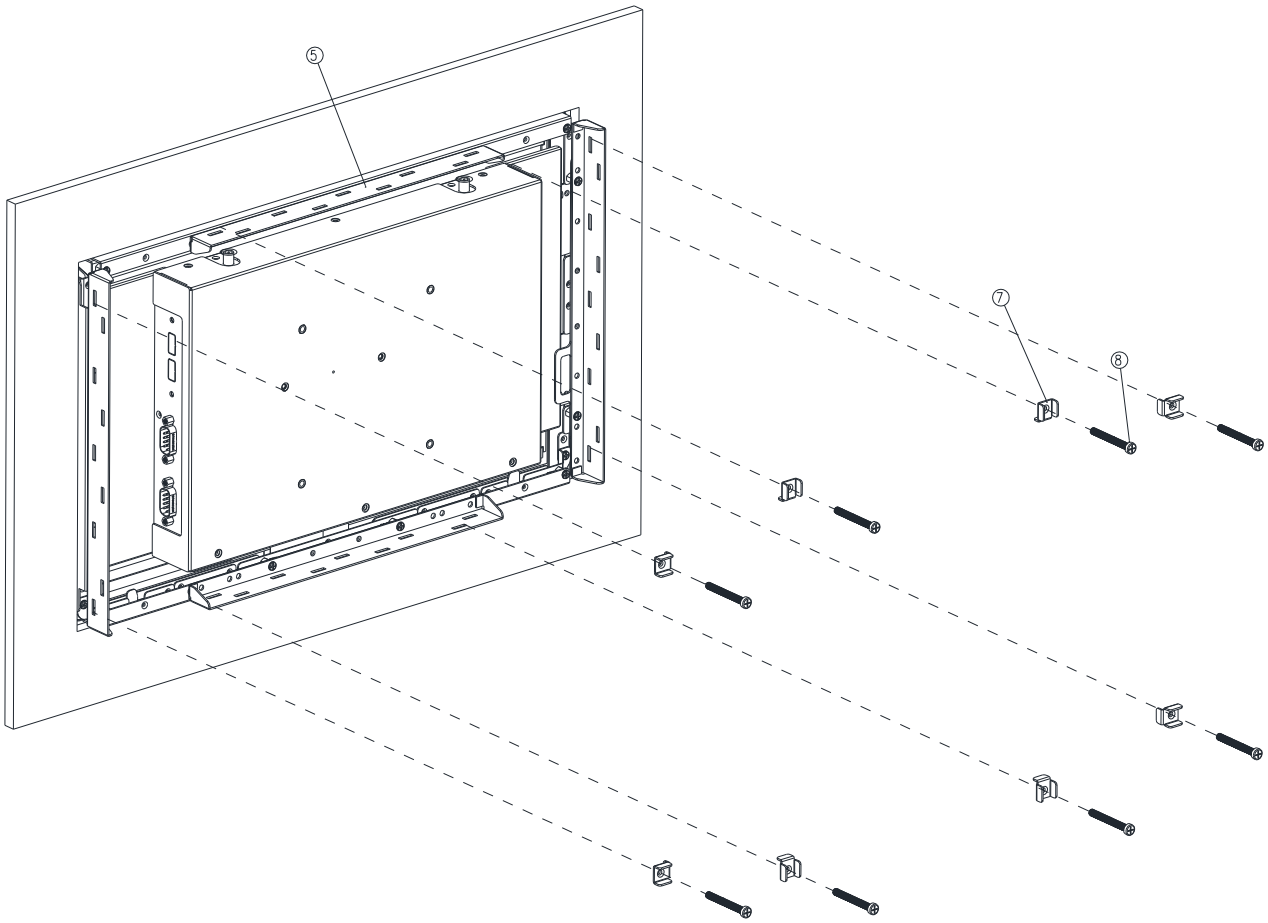
5	Panel Mount Bracket	4
4	Screw	8
3	Front Bracket	1
Item	Part Name	Quantity



(outside the wall (or cabinet) opening)

Step4. Embed the OFP-15W33 semi-finished product into the wall (or cabinet) opening.

6	Wall	1
Item	Part Name	Quantity



(inside the wall (or cabinet))

Step5. Fasten the Panel mount screw*8 to the Panel mount kit bracket*8 (as shown in Figure 5-1), and then attach them to the Panel Mount Bracket*4 fixing slots.

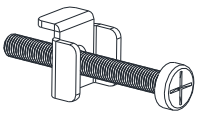
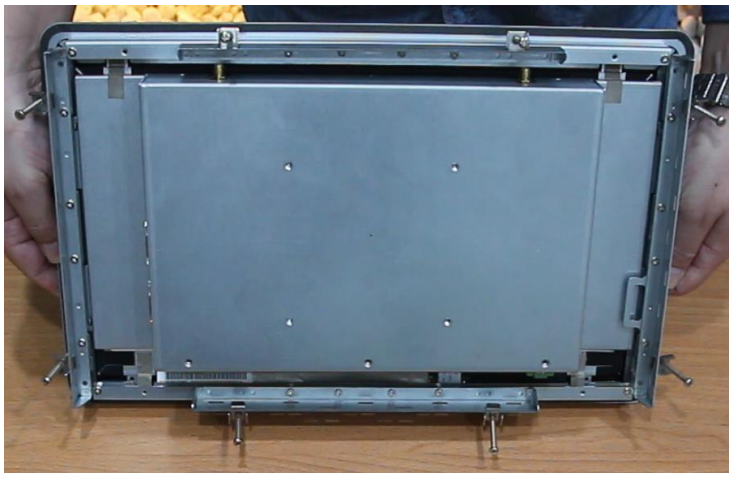
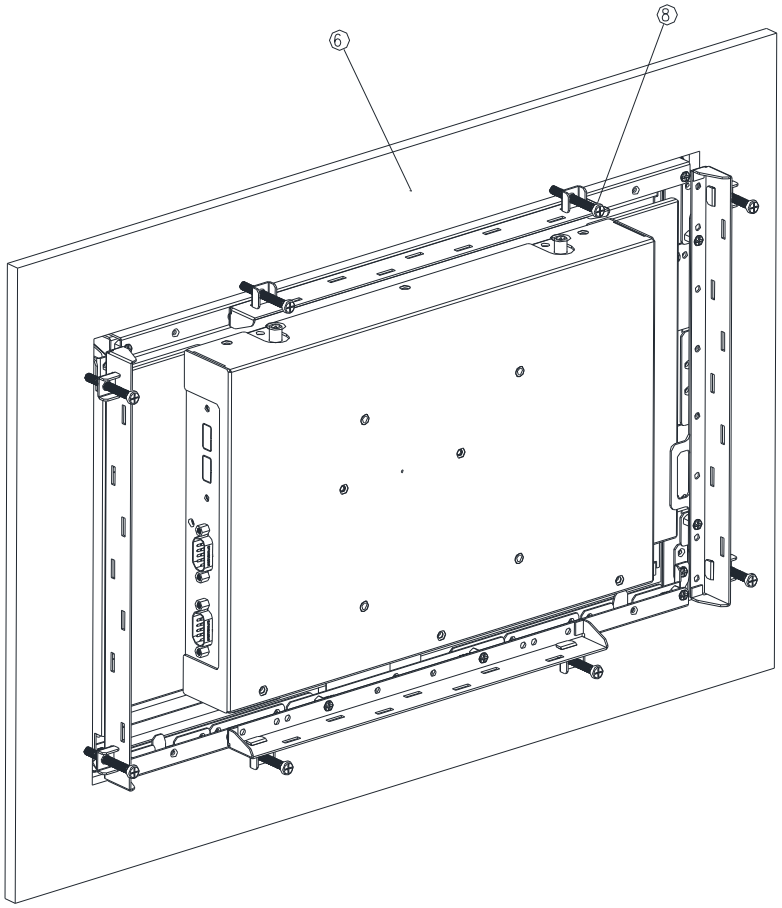


Figure 5-1

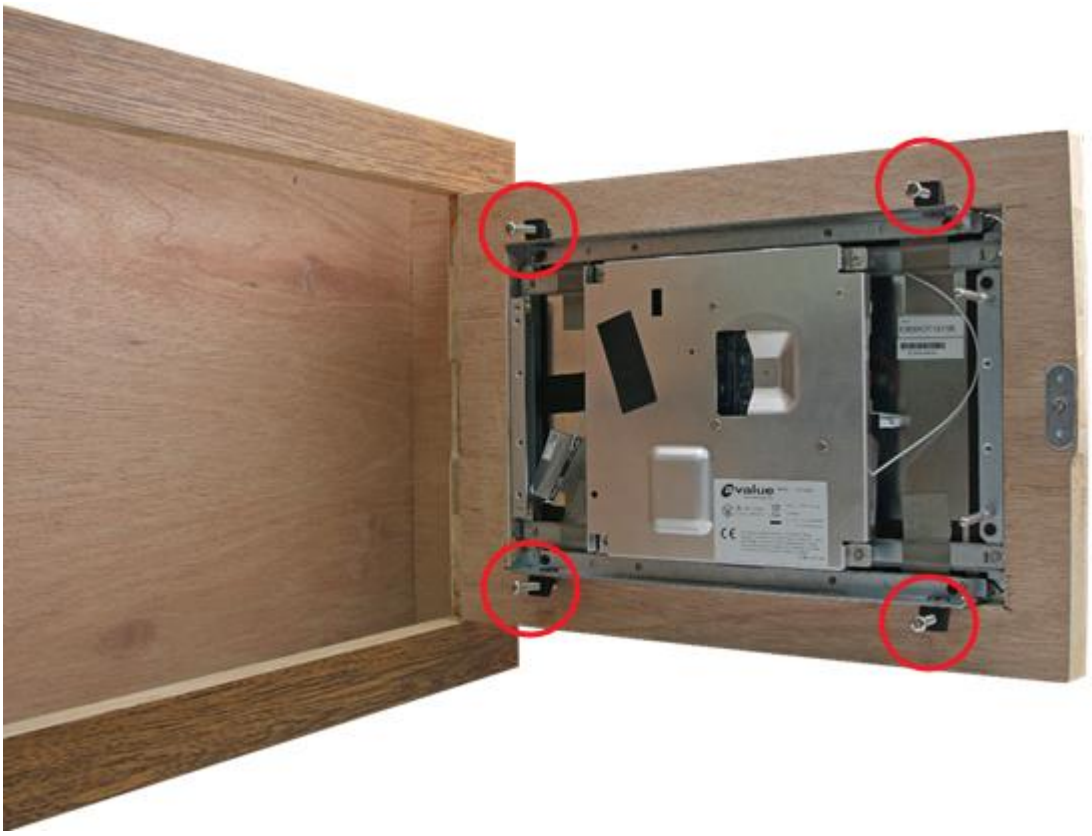
8	Panel mount Screw	8
7	Panel Mount Kit Bracket	8
5	Panel Mount Bracket	4
Item	Part Name	Quantity



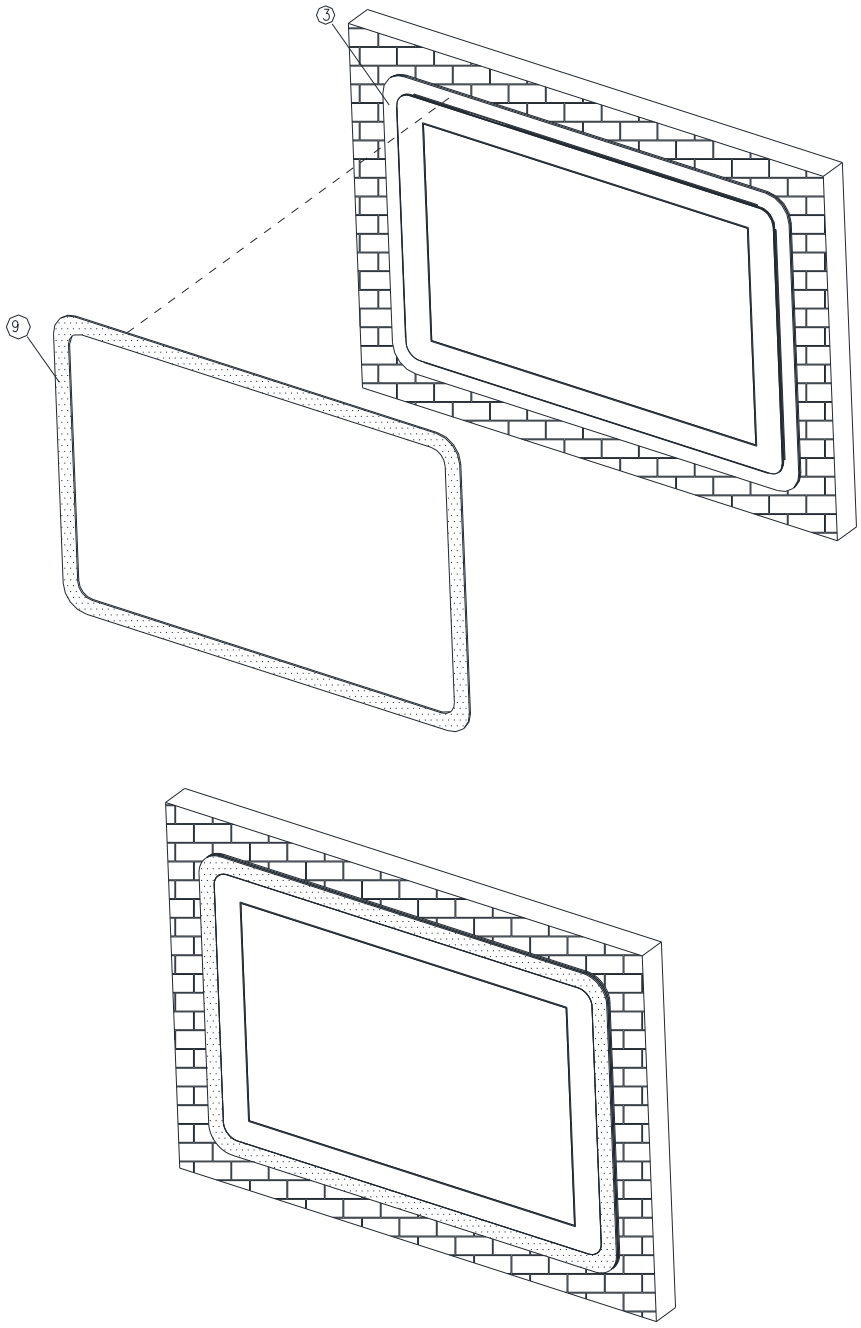


Step6. Fasten the Panel mount screw*8 against the wall, so that the entire module can be secured by the Panel mount screws and Panel mount kit brackets..

8	Panel mount Screw	8
6	Wall	1
Item	Part Name	Quantity

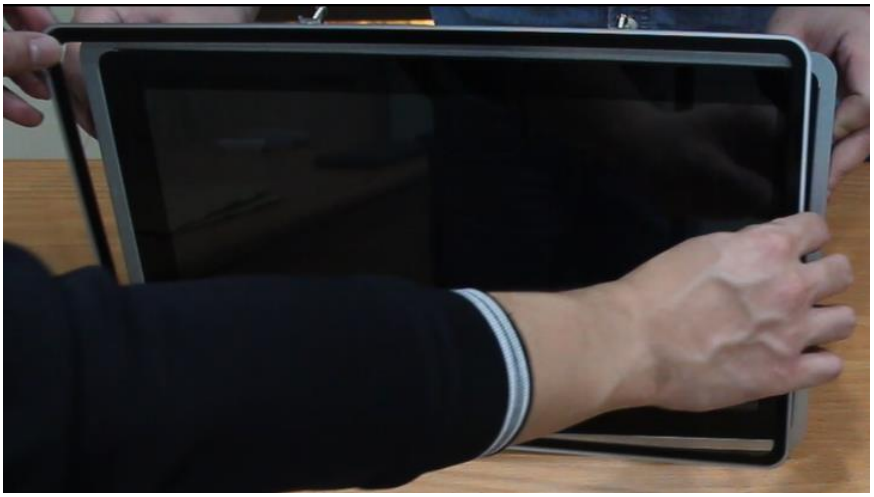


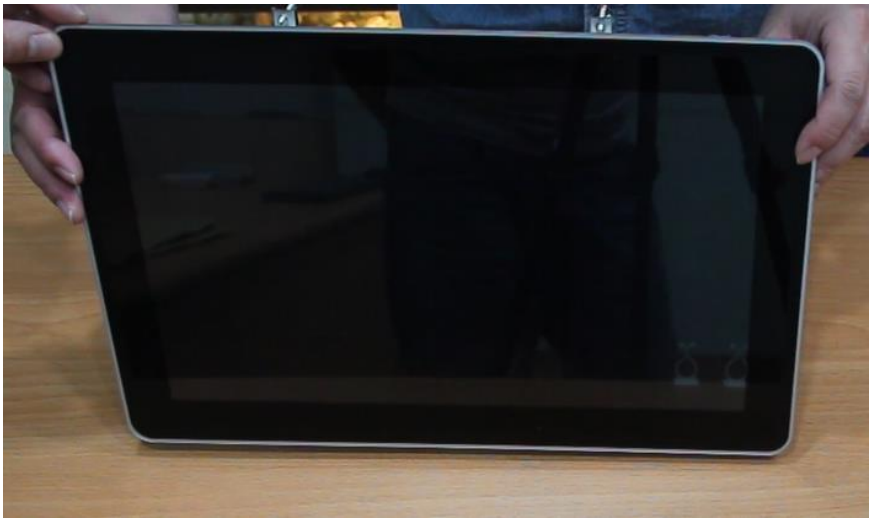
(The diagram is demonstrated by OFP-10W01, but the concept “the entire module can be secured by fastening the Panel mount screws against the wall” is the same)



Step7. Paste the Decoration Plate on the Front bracket to complete installation.

9	Decoration Plate	1
3	Front Bracket	1
Item	Part Name	Quantity

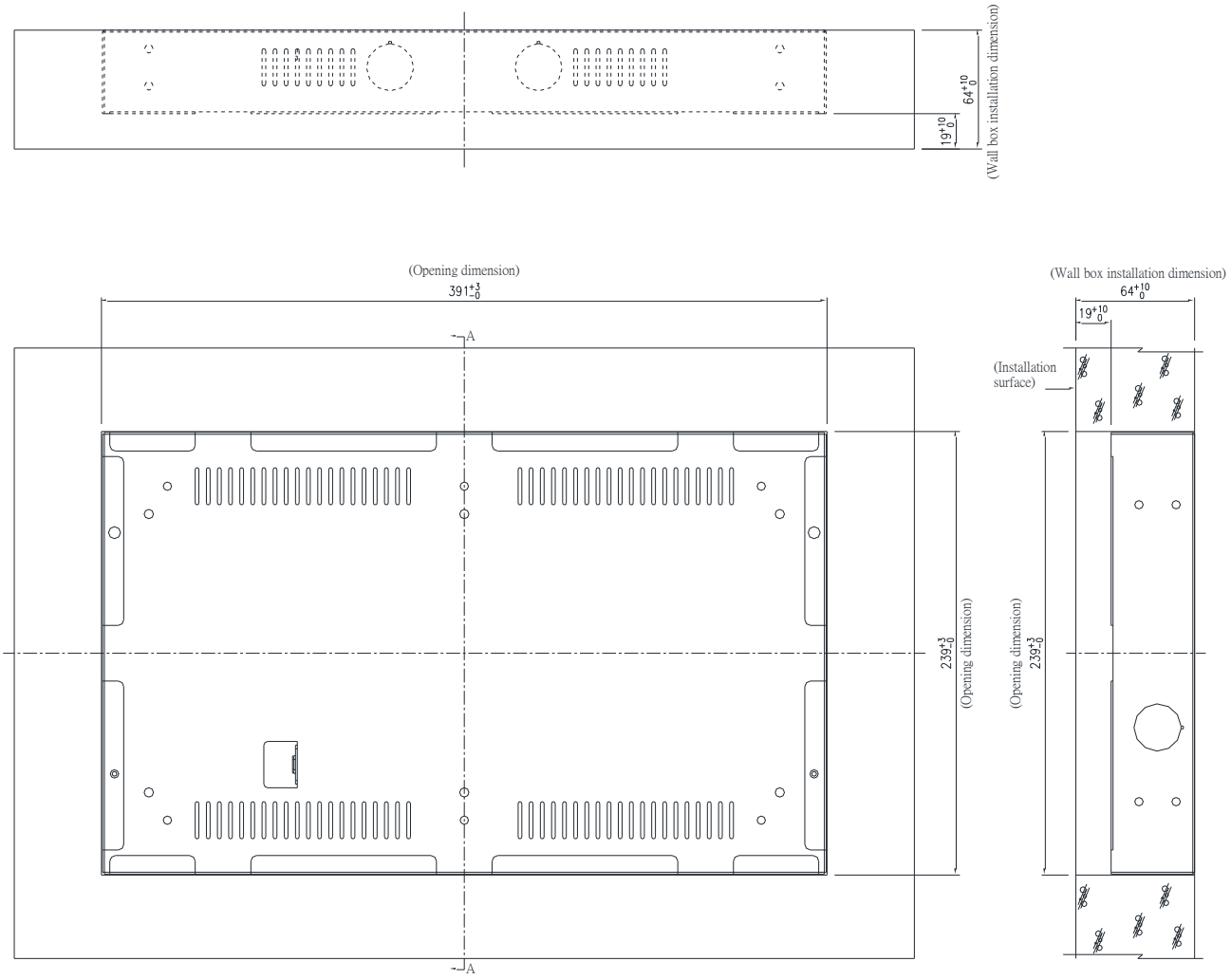




1.7 Wall Mounting

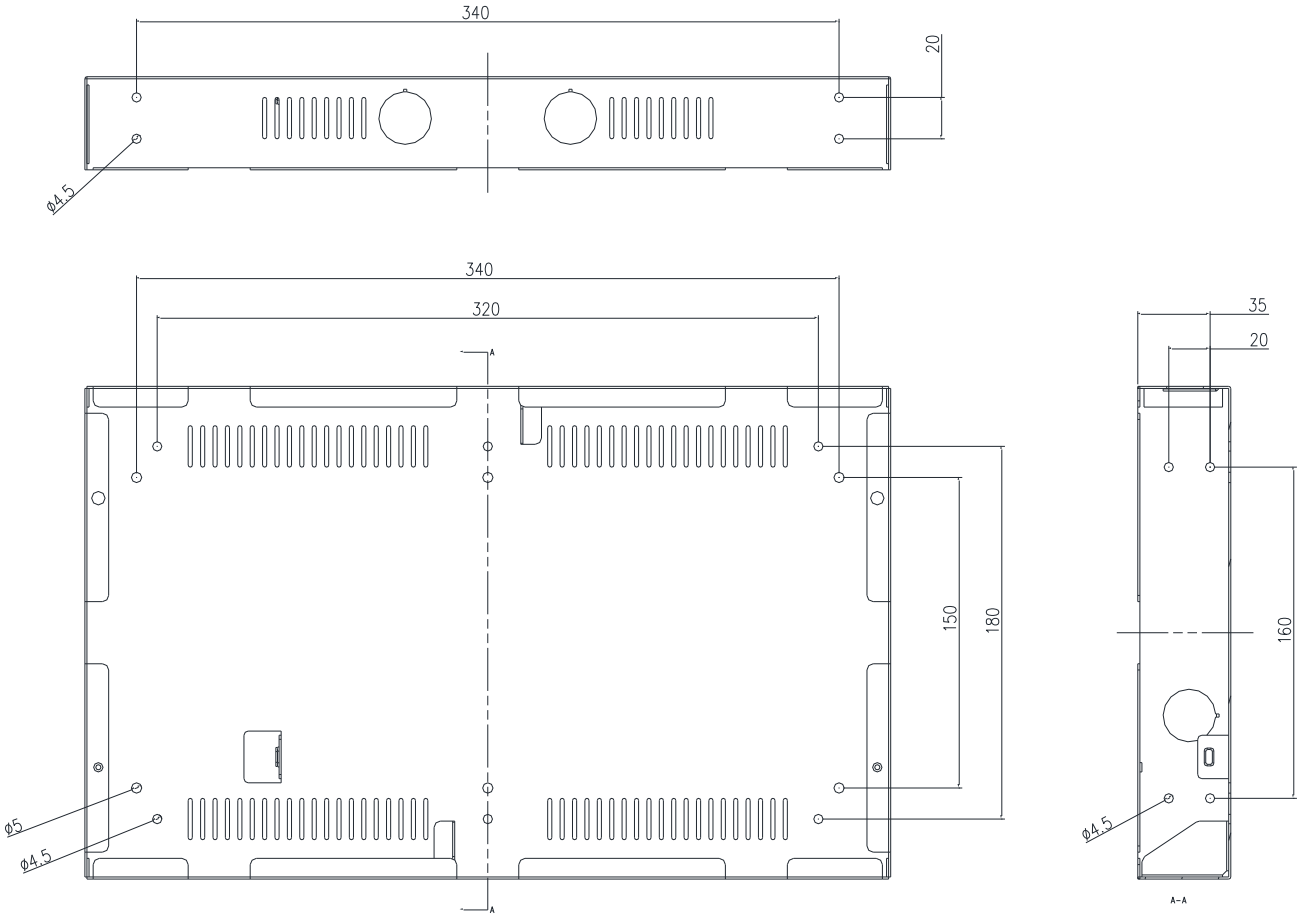
Wall mount is the solution for mounting OFP into the wall.

Size of the opening:

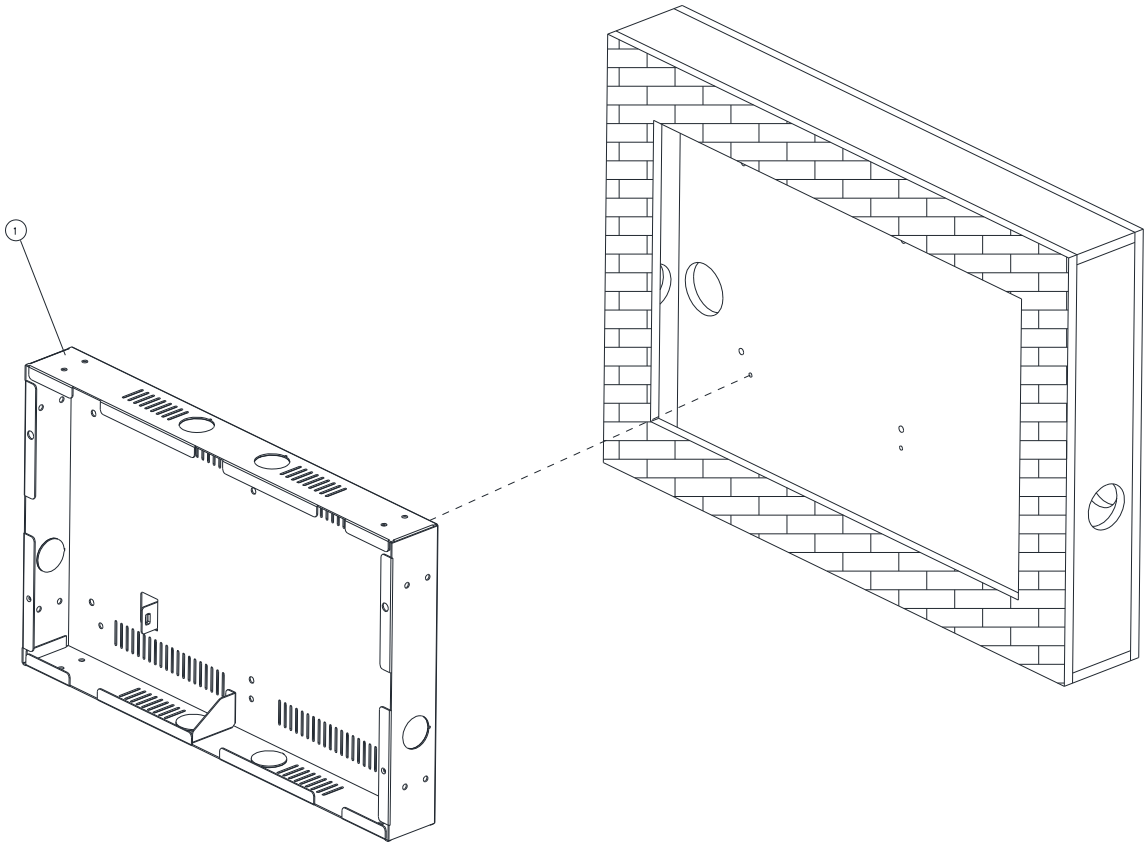


(Unit: mm)

Screw hole location:

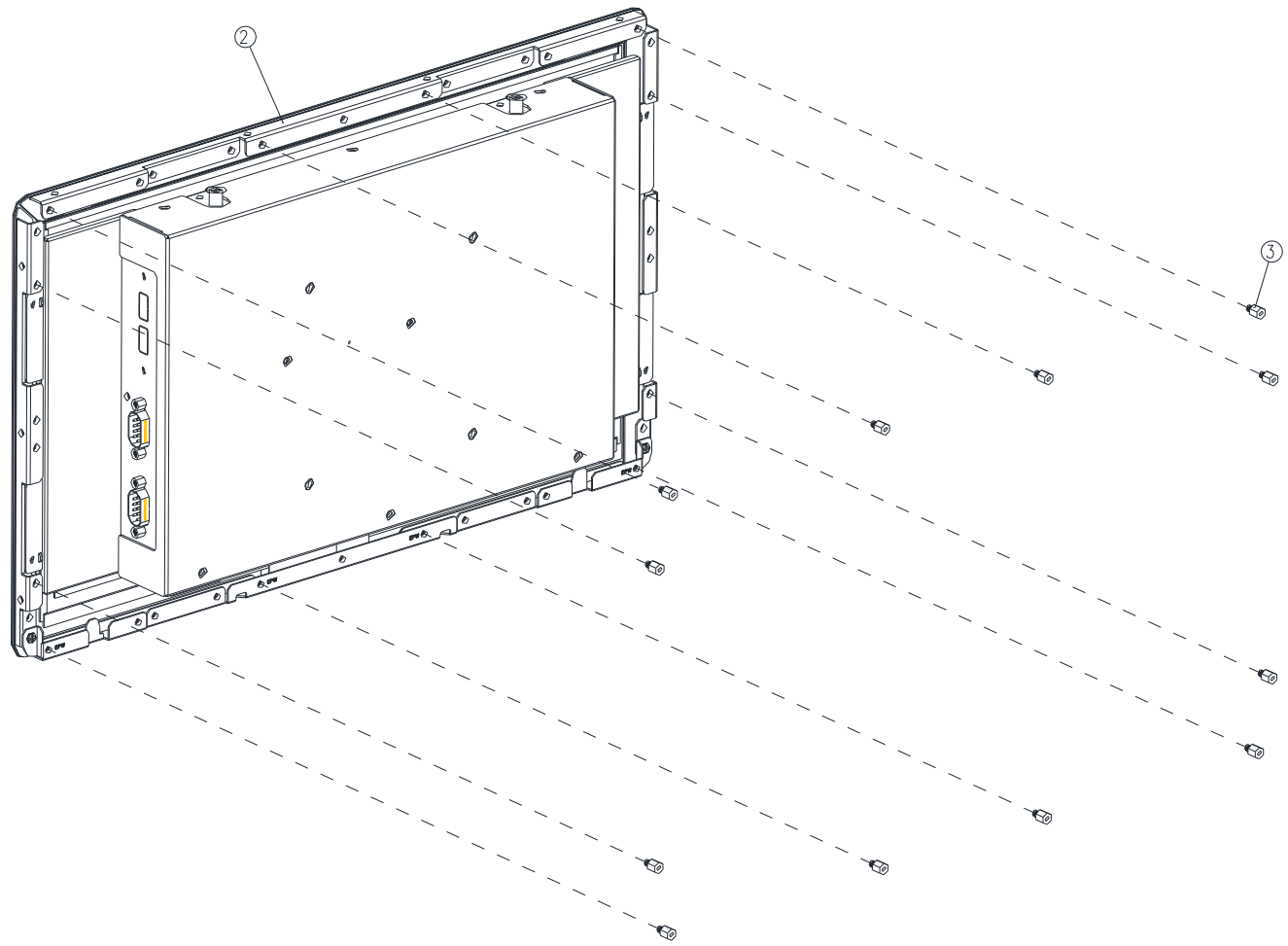


(Unit: mm)



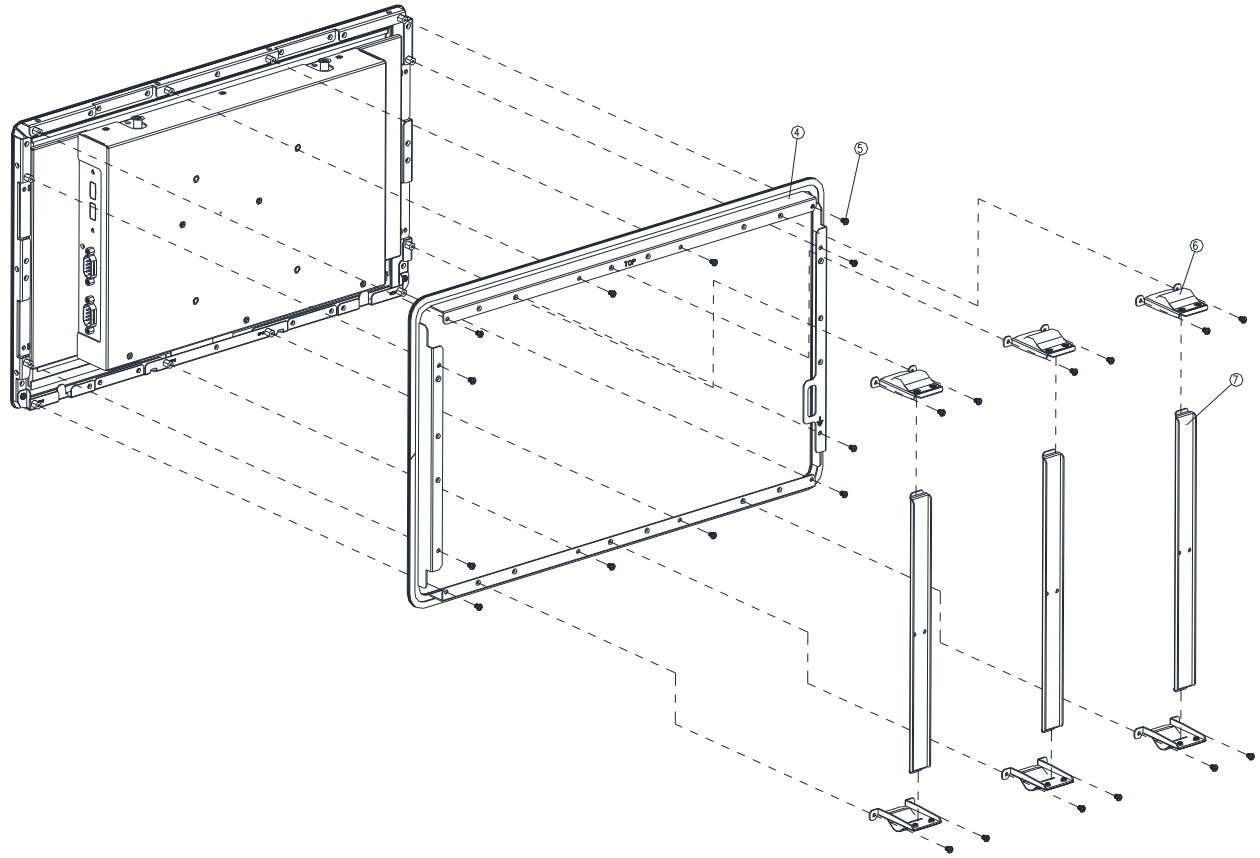
Step1. Install the 15” Wall Box and fix it on the wall, and use suitable screws to lock the wall box (the screws can be purchased according to actual needs)

1	Wall box	1
Item	Part Name	Quantity



Step2. Fasten 12pcs Hexagon Studs on each side of the OFP-15W33 Panel Bracket.

3	Hexagon Stud	12
2	OFP-15W33	1
Item	Part Name	Quantity



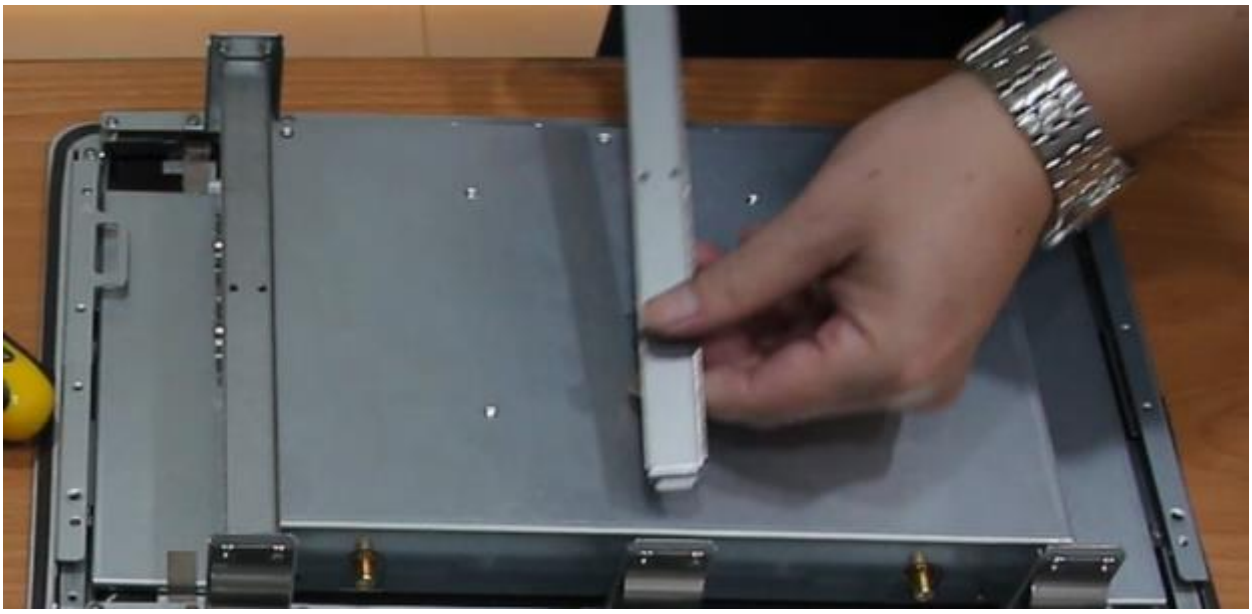
Step3-1. Assemble the Front bracket to the OFP-15W33, and fasten the 12 pcs screws on the corresponding Hexagon Studs;

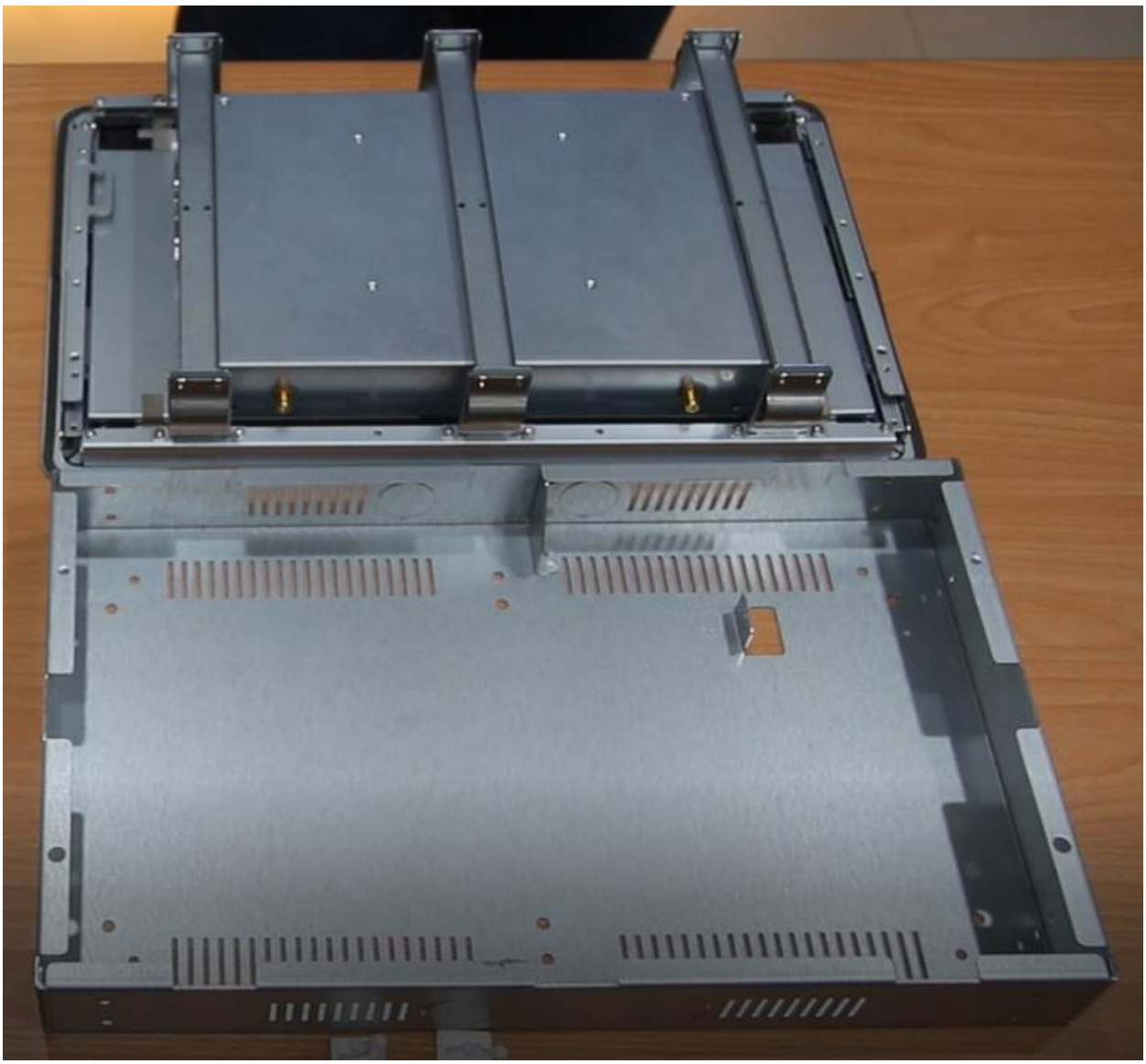
Step3-2. Assemble the 3 pcs Wall mount kit to the Front bracket with 6pcs screws.

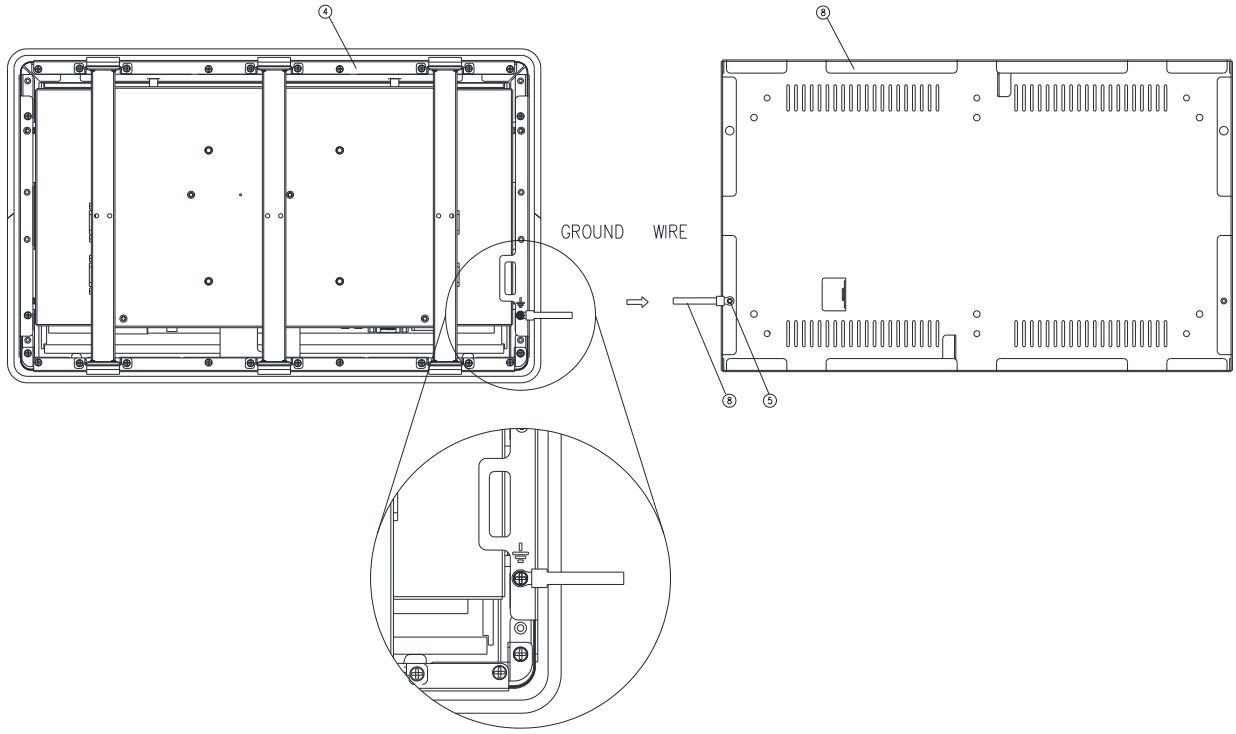
Step3-3. Insert the 3 pcs Support Bracket into the rectangular hole of Wall mount kit.

Step3-4. Insert the 3 pcs Wall mount kit's rectangular hole into the 3 pcs Support Bracket and fasten 6 pcs screws into the front bracket.

7	Support Bracket	3
6	Wall mount kit	6
5	Screw	24
4	Front bracket	1
Item	Part Name	Quantity

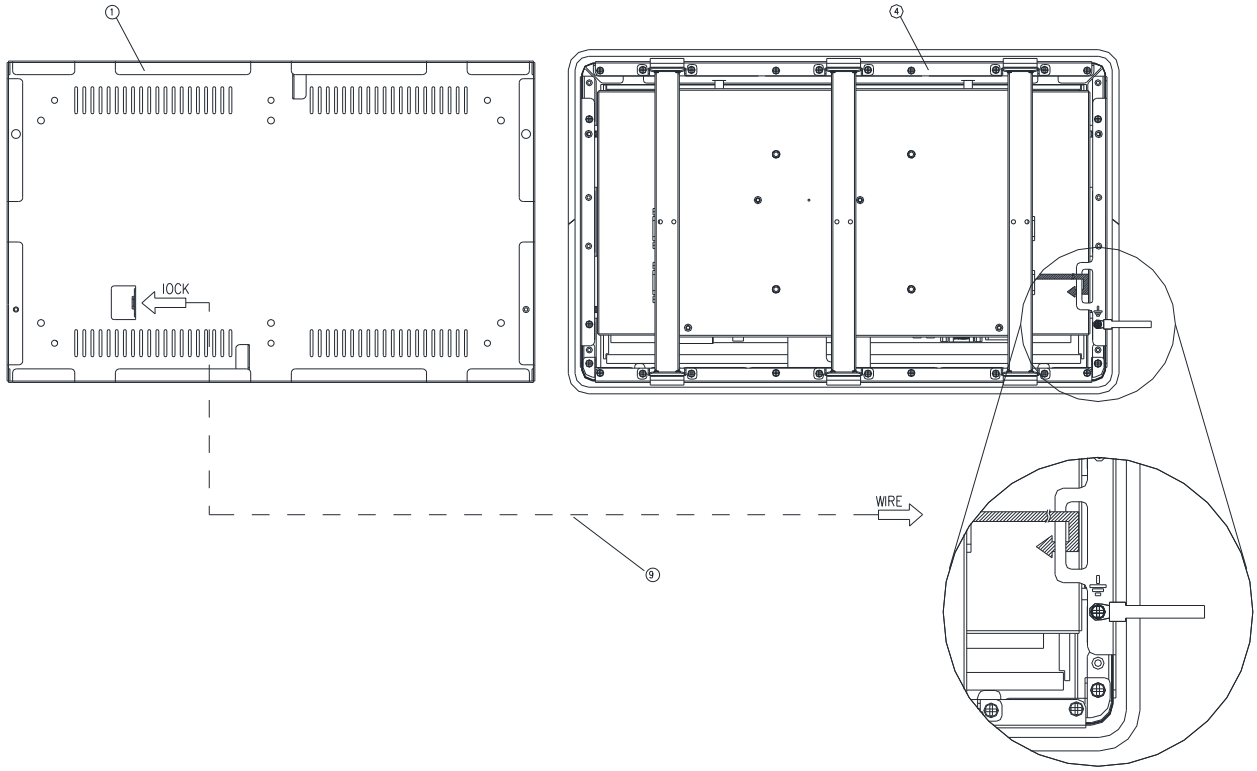






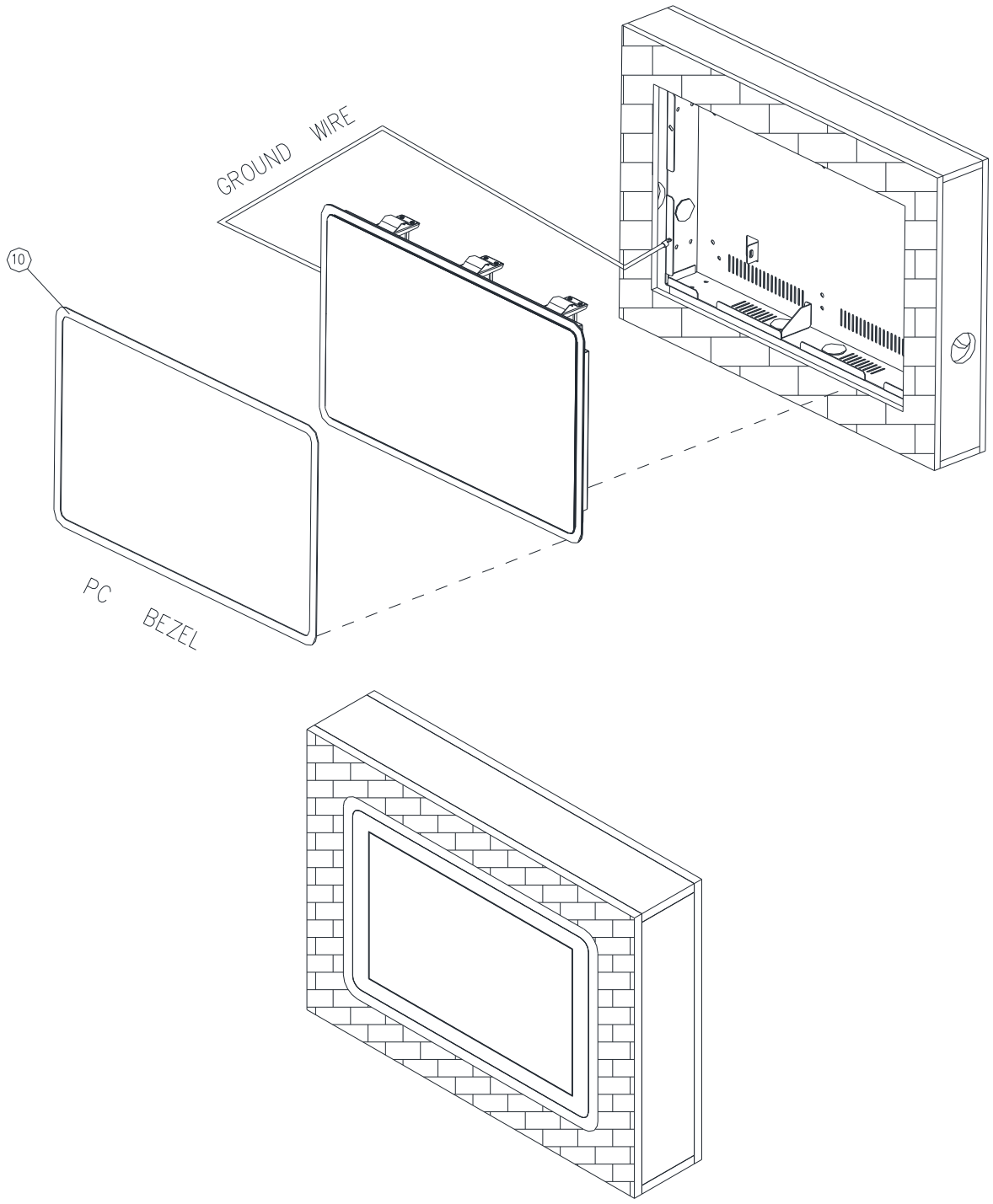
Step4. Fasten the Ground wire with 2 screws on the ground screw holes of Front bracket and Wall box.

8	Ground wire	1
5	Screw	2
4	Front bracket	1
1	Wall box	1
Item	Part Name	Quantity



Step5. Wrap the Kensington lock (option) around the hole in the Front bracket and attach the lock to the keyhole in the Wall box.

9	Kensington lock	1
4	Front bracket	1
1	Wall box	1
Item	Part Name	Quantity



Step6-1. Store the Ground wire and Kensington lock in the Wall box and embed the OFP-15W33 semi-finished product into the wall (Wall Box).

Step6-2. Paste the Decoration Plate on the Front bracket to complete installation.

10	PC bezel	1
Item	Part Name	Quantity

2. Hardware Configuration

For advanced information, please refer to:

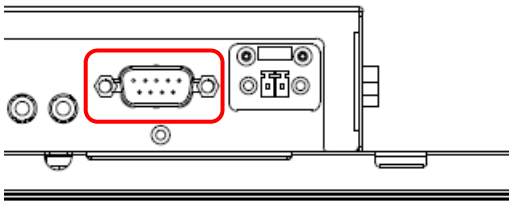
1- EMX-APLP included in this manual.

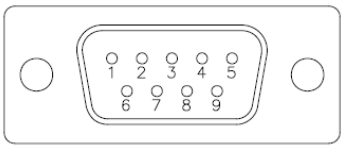
Note: If you need more information, please visit our website:

http://www.avalue.com.tw

2.1 OFP-15W33 connector mapping

2.1.1 Serial Port connector (COM)





In RS-232 Mode

Signal	PIN	PIN	Signal
NDCD#	1	6	NDSR#
NRXD	2	7	NRTS#
NTXD	3	8	NCTS#
NDTR#	4	9	NRI#
GND	5		

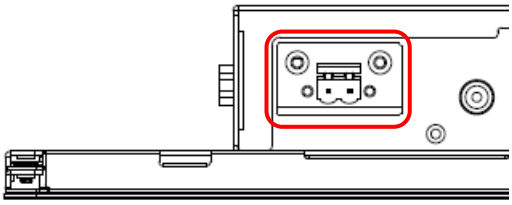
In RS-422 Mode

Signal	PIN	PIN	Signal
TxD1-	1	6	NC
TxD1+	2	7	NC
RxD1+	3	8	NC
RxD1-	4	9	NC
GND	5		

In RS-485 Mode

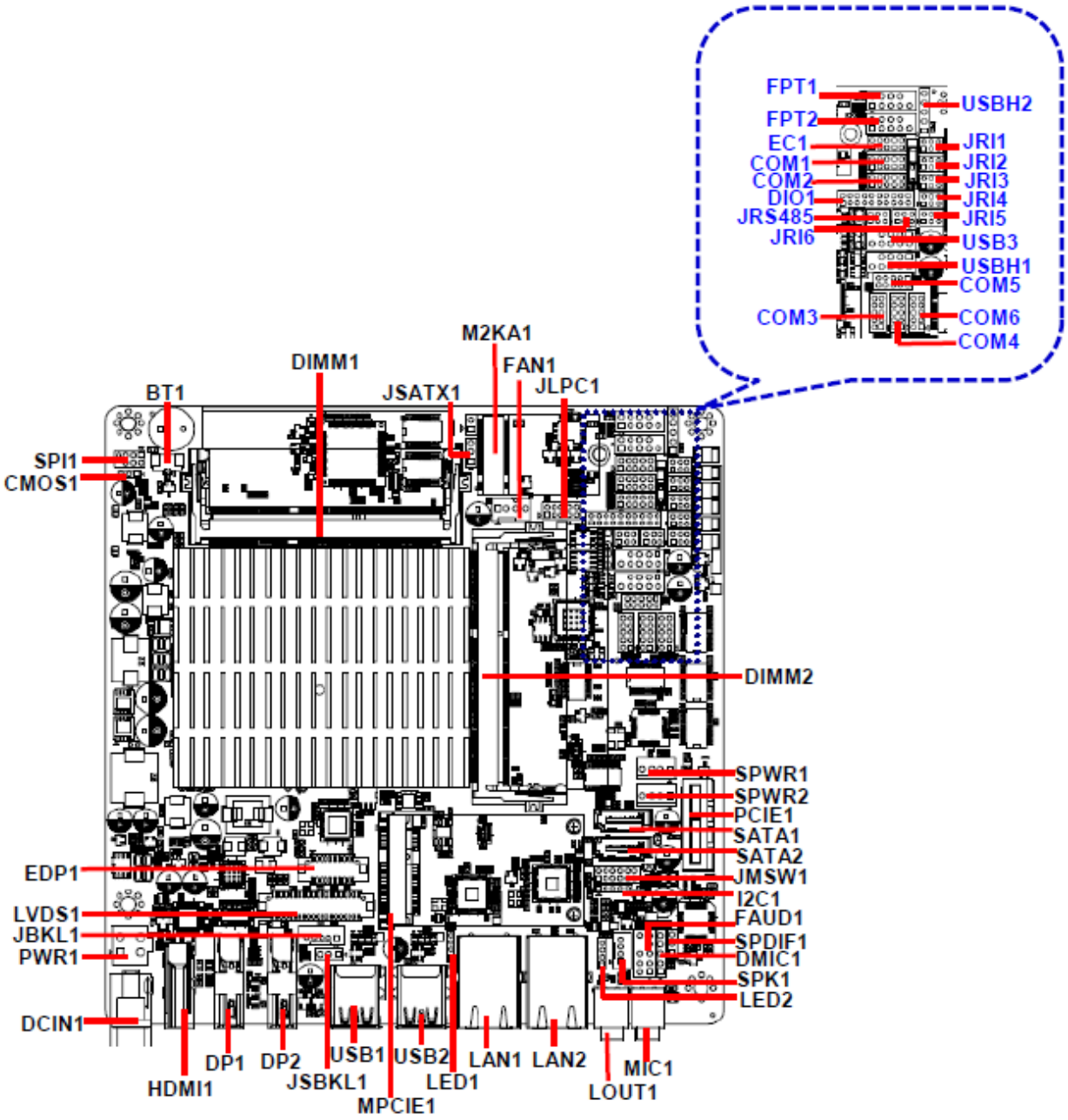
Signal	PIN	PIN	Signal
DATA1-	1	6	NC
DATA1+	2	7	NC
NC	3	8	NC
NC	4	9	NC
GND	5		

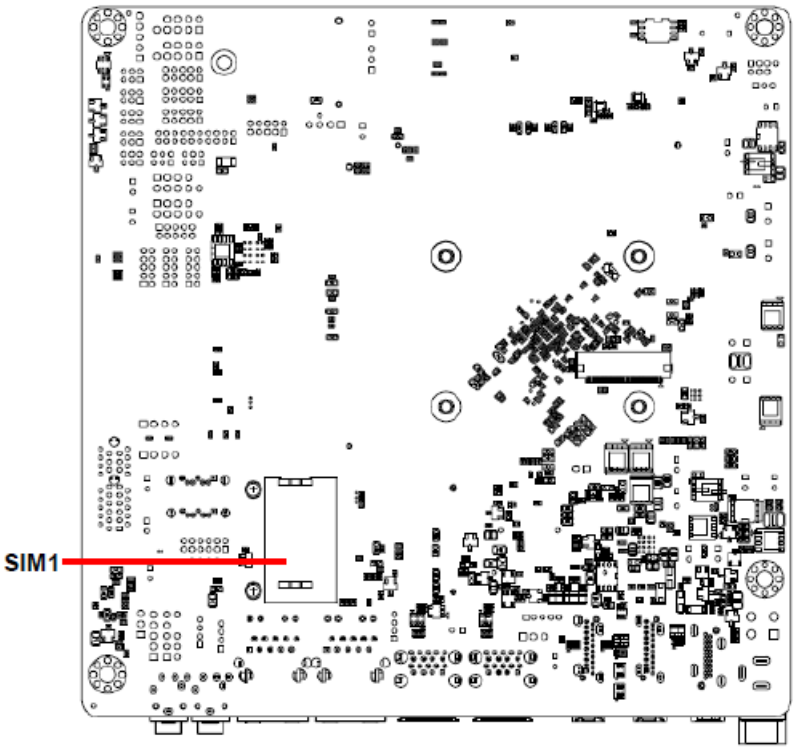
2.1.2 DC power-in connector (DC in)



Signal	PIN
+V12-24_DCIN	1
GND	2

2.2 Product Overview

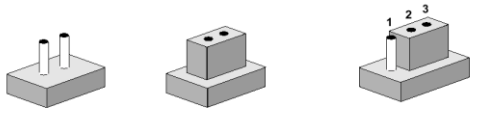



SIM1

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.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2-3

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
JRI1/2/3/4/5/6	Serial port 1/2/3/4/5/6 pin9 signal select	3 x 2 header, pitch 2.00mm
JMSW1	SATA2/MSATA1 mPCIe slot selector	6 x 2 header, pitch 2.00mm
JSBKL1	LVDS Back Light power selection	3 x 1 header, pitch 2.54mm
JSATX1	AT/ATX Power Mode Select	3 x 1 header, pitch 2.54mm
CMOS1	Clear CMOS	3 x 1 header, pitch 2.00mm

Connectors

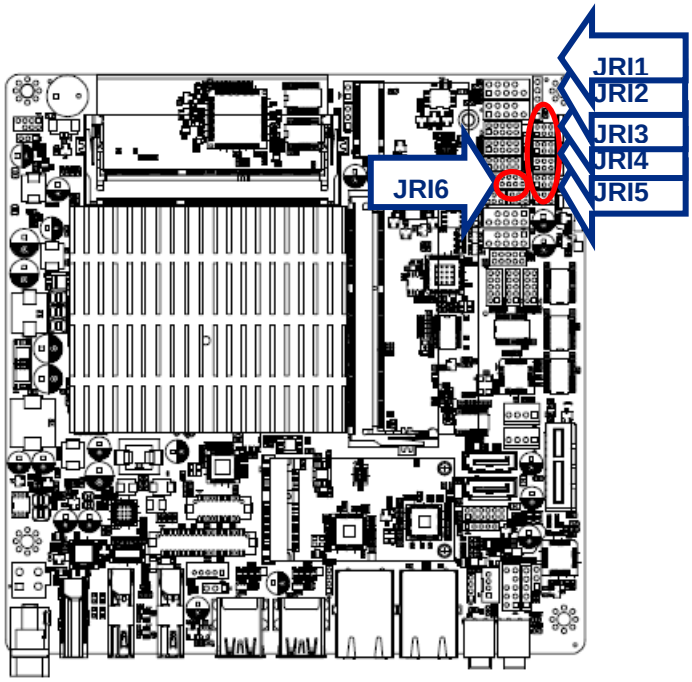
Label	Function	Note
FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
FPT1	Front Panel connector 1	5 x 2 header, pitch 2.54mm
FPT2	Front Panel connector 2	5 x 2 header, pitch 2.54mm

DIMM1/2	204-pin DDR3L DIMM socket	
FAUD1	Front Audio connector	5 x 2 header, pitch 2.54mm
JBKL1	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm Compatible with Connector: JST PHR-5
SPI1	SPI connector	4 x 2 header, pitch 2.00mm
COM1	Serial Port 1 connector	5 x 2 header, pitch 2.00mm
COM2	Serial Port 2 connector	5 x 2 header, pitch 2.00mm
COM3	Serial Port 3 connector	5 x 2 header, pitch 2.00mm
COM4	Serial Port 4 connector	5 x 2 header, pitch 2.00mm
COM5	Serial Port 5 connector	5 x 2 header, pitch 2.00mm
COM6	Serial Port 6 connector	5 x 2 header, pitch 2.00mm
JRS485	Serial Port 1 RS485/422 Mode connector	3 x 2 header, pitch 2.00mm
DIO1	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	DIN 40-pin wafer, pitch 1.25mm Compatible with Connector: Hirose DF13-40DS-1.25C
USB1/2	USB connector 1/2	
USB3	USB 2.0 connector	5 x 2 header, pitch 2.54mm
USBH1	USB 2.0 connector	5 x 2 header, pitch 2.54mm
USBH2	USB 2.0 connector	5 x 1 header, pitch 2.54mm
SPDIF1	Sony/Philips Digital Interface	3 x 1 header, pitch 2.54mm
LAN1/2	RJ-45 Ethernet 1/2	
PCIE1	PCIe connector	
LED1	LED indicator connector 1	4 x 1 header, pitch 2.00mm
LED2	LED indicator connector 2	4 x 1 header, pitch 2.00mm
DP1/2	DP connector 1/2	
EDP1	eDP connector	10 x 2 wafer, pitch 1.25mm
BT1	Battery connector	2 x 1 wafer, pitch 1.25mm
M2KA1	M.2 Type A 2230 connector	
MPCIE1	Mini-PCIe connector 1	
JLPC1	LPC connector	5 x 2 header, pitch 2.00mm
PWR1	Power connector	2 x 2 wafer, pitch 4.20mm
SATA1/2	Serial ATA connector 1/2	
SPWR1/2	SATA Power connector 1/2	4 x 1 wafer, pitch 2.54mm

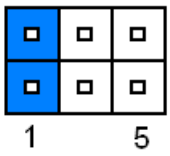
EC1	EC_Program	5 x 2 header, pitch 2.00mm
DCIN1	DC Power-in connector	
I2C1	I2C connector	5 x 1 header, pitch 2.00mm
HDMI1	HDMI connector	
LOUT1	Line-out audio jack	
MIC1	Mic-in audio jack	
DMIC1	Digital Microphone connector	5 x 1 header, pitch 2.54mm
SIM1	SIM card slot	

2.4 Setting Jumpers & Connectors

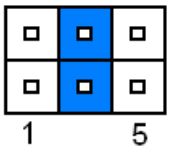
2.4.1 Serial port 1/2/3/4/5/6 pin9 signal select (JRI1/JRI2/JRI3/JRI4/JRI5/JRI6)



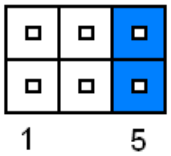
Ring*



+5V

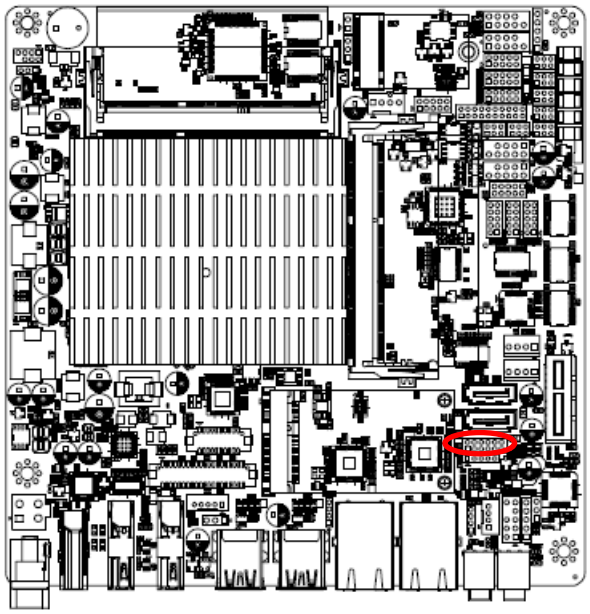


+12V



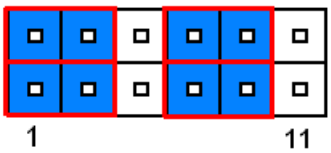
*** Default**

2.4.2 SATA2/MSATA1 mPCIe slot selector (JMSW1)



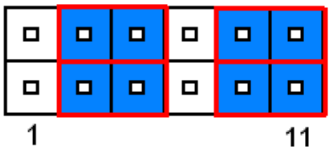
SATA2 Connector*

(SATA2 Connector enabled, MSATA1 slot Disabled)



MSATA1 mPCIe slot

(MSATA1 slot enabled, SATA2 Connector Disabled)

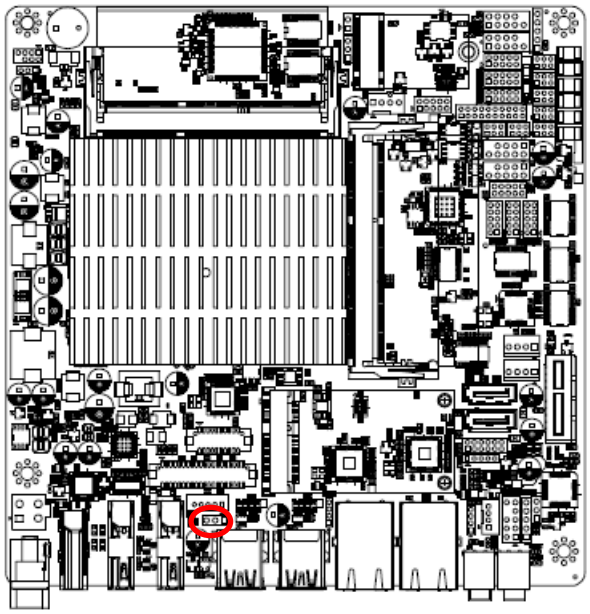


*** Default**

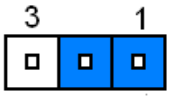
Note:

SATA2/MSATA1 shared SATA signal, can not be used simultaneously.

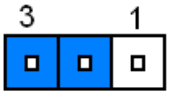
2.4.3 LVDS Back Light power selection (JSBKL1)



PWM Mode*(Max current: 2A)

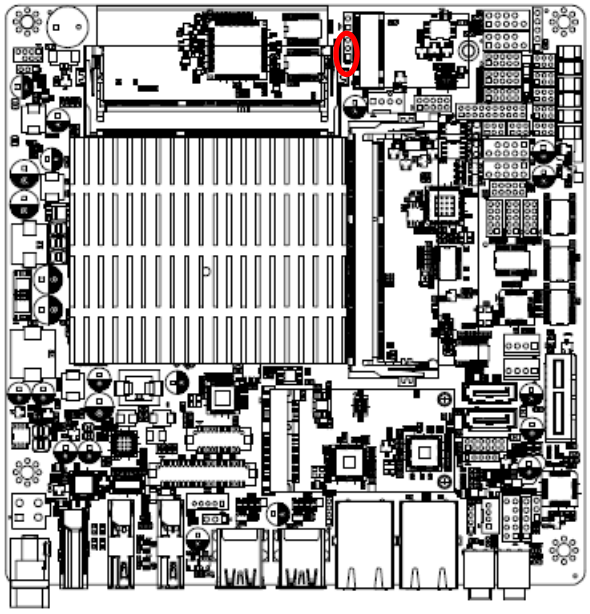


DC Mode(Max current: 2A)

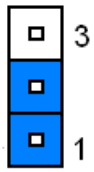


*** Default**

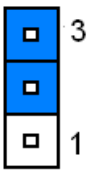
2.4.4 AT/ATX Power Mode Select (JSATX1)



ATX*

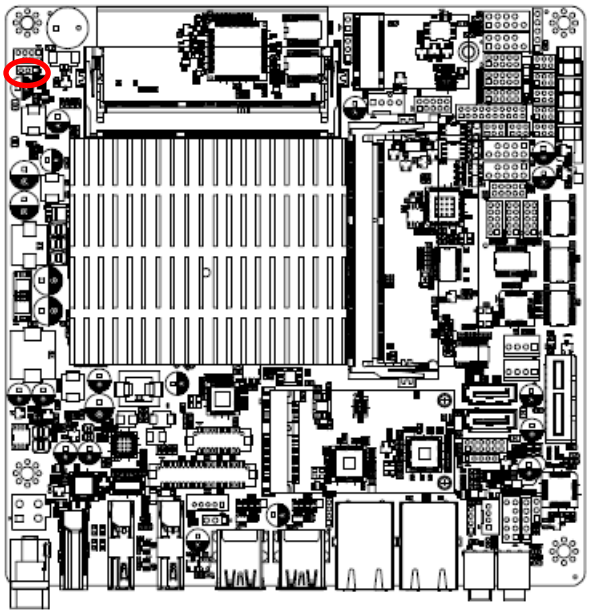


AT

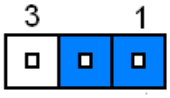


*** Default**

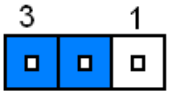
2.4.5 Clear CMOS (CMOS1)



Protect*

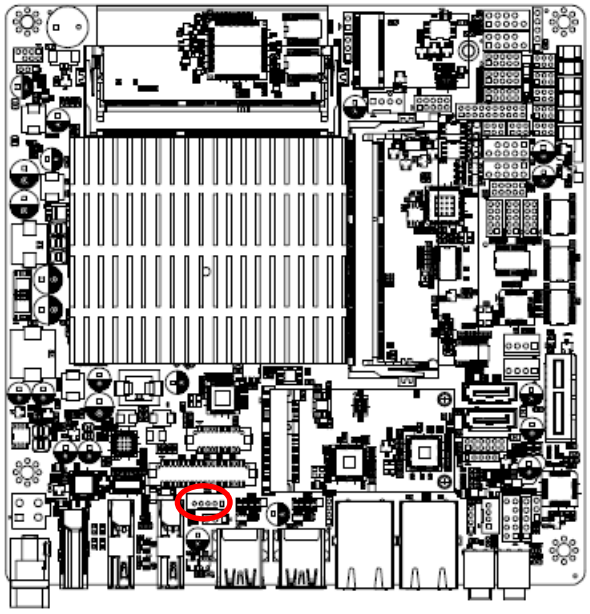


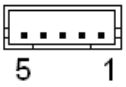
Clear CMOS



*** Default**

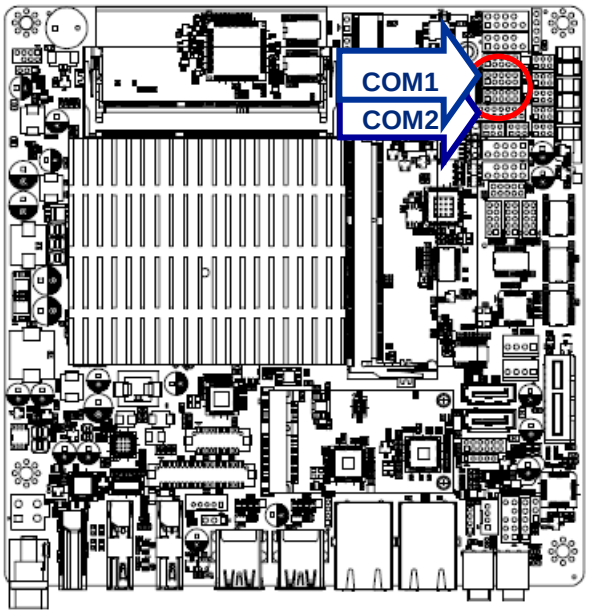
2.4.6 LCD Inverter connector (JBKL1)

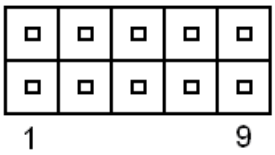




PIN	Signal
1	+12V
2	GND
3	LVDS_BKLTEN
4	LVDS_BKLADJ
5	+5V

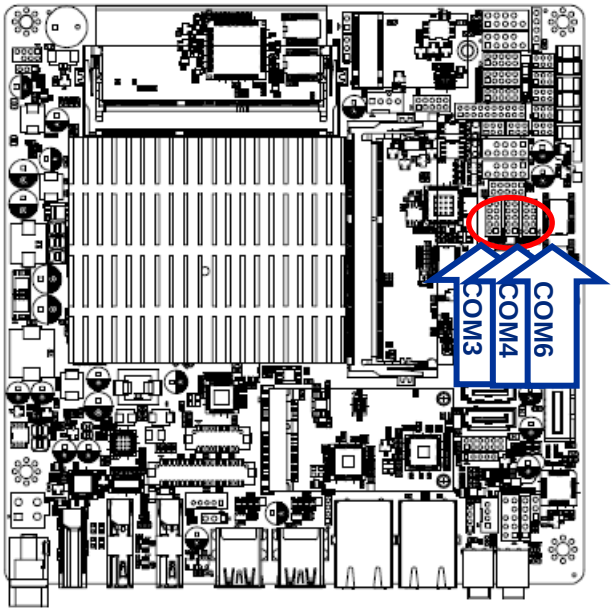
2.4.7 Serial port 1/2 connector (COM1/2)

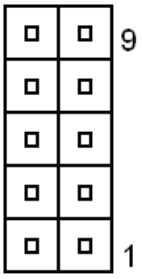




Signal	PIN	PIN	Signal
DCD	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

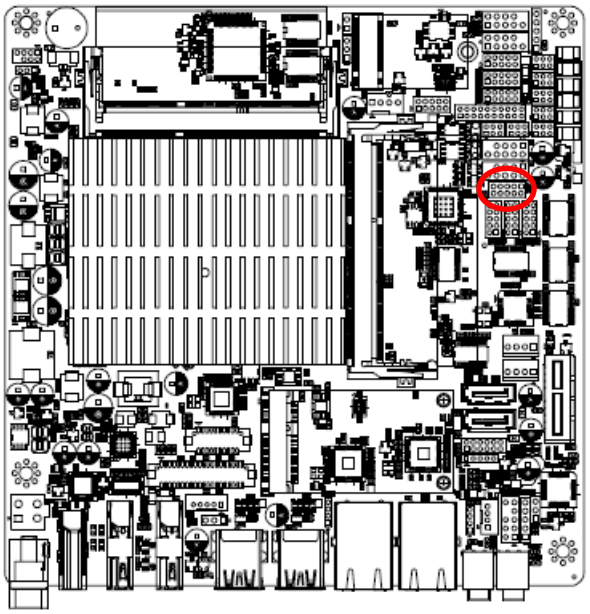
2.4.8 Serial port 3/4/6 connector (COM3/4/6)

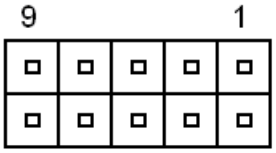




Signal	PIN	PIN	Signal
NC	10	9	RI
CTS	8	7	RTS
DSR	6	5	GND
DTR	4	3	TXD
RXD	2	1	DCD

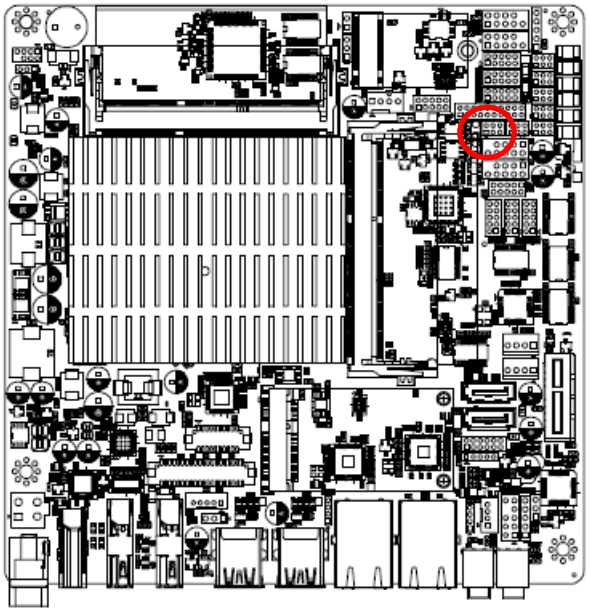
2.4.9 Serial port 5 connector (COM5)

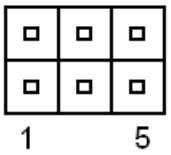




Signal	PIN	PIN	Signal
NDCD#	1	2	NRXD
NTXD	3	4	NDTR#
GND	5	6	NDSR#
NRTS#	7	8	NCTS#
NRI#	9	10	NC

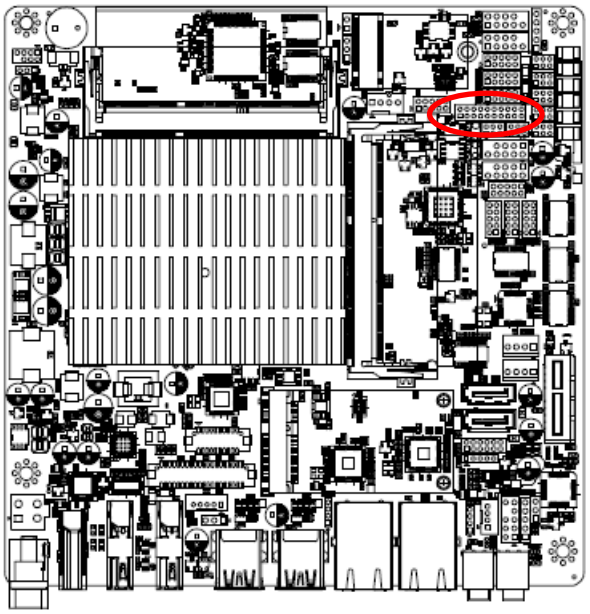
2.4.10 Serial Port 1 RS485/422 Mode connector (JRS485)

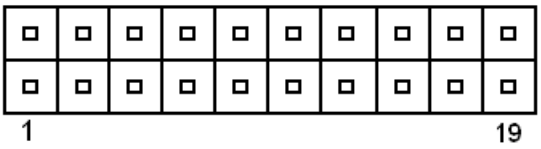




Signal	PIN	PIN	Signal
485TX-	1	2	422RX-
485TX+	3	4	422RX+
GND	5	6	GND

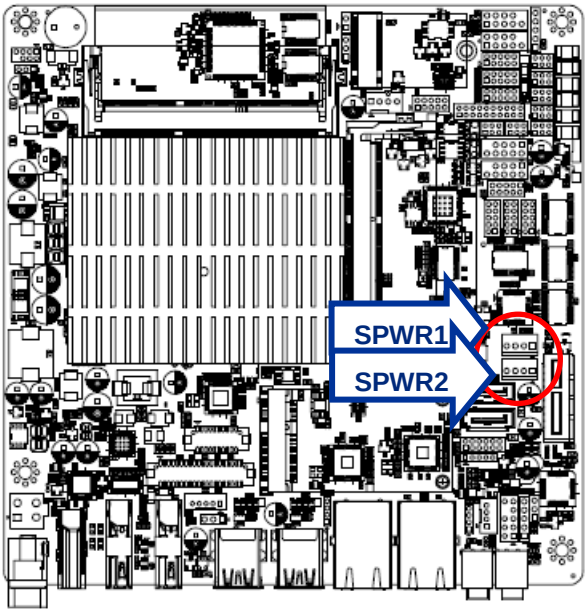
2.4.11 General purpose I/O connector (DIO1)

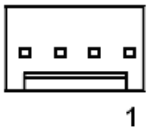




Signal	PIN	PIN	Signal
DI0	1	2	DO0
DI1	3	4	DO1
DI2	5	6	DO2
DI3	7	8	DO3
DI4	9	10	DO4
DI5	11	12	DO5
DI6	13	14	DO6
DI7	15	16	DO7
SMB_CLK	17	18	SMB_DATA
GND	19	20	+5V

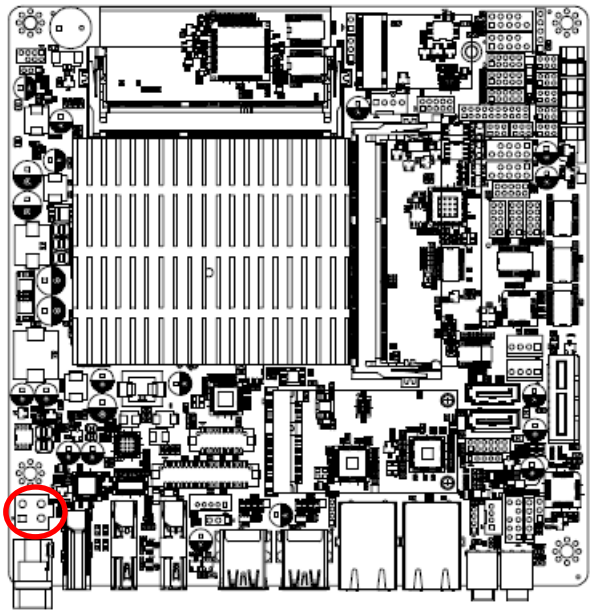
2.4.12 SATA Power connector 1/2 (SPWR1/2)

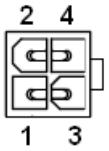




PIN	Signal
1	+V5S_SATA
2	GND
3	GND
4	+V12S_SATA

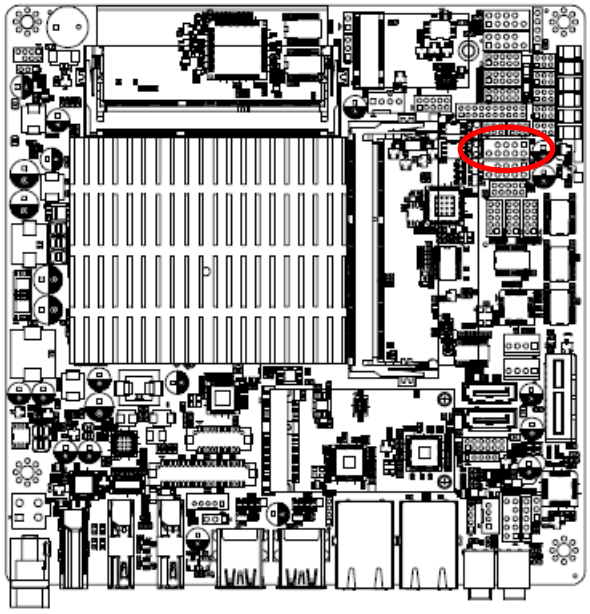
2.4.13 Power connector (PWR1)

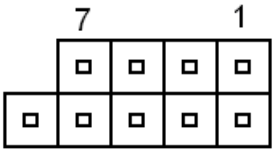




Signal	PIN	PIN	Signal
GND	1	2	GND
+V12-24_DCIN	3	4	+V12-24_DCIN

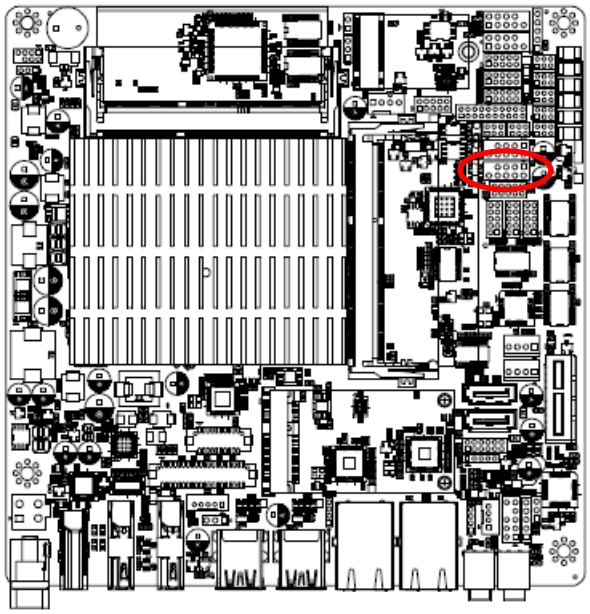
2.4.14 USB2.0 connector (USB3)

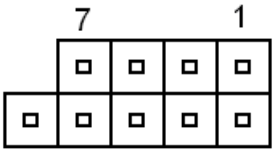




Signal	PIN	PIN	Signal
+5VSB	1	2	+5VSB
USBDN4	3	4	USBDN5
USBDP4	5	6	USBDP5
GND	7	8	GND
		10	NC

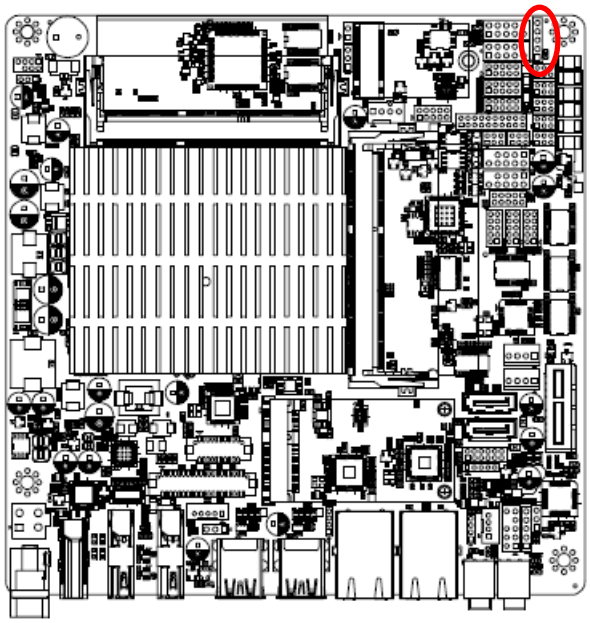
2.4.15 USB2.0 connector (USBH1)

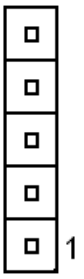




Signal	PIN	PIN	Signal
+5VSB	1	2	+5VSB
USB_HDN1	3	4	USB_HDN2
USB_ HDP1	5	6	USB_ HDP2
GND	7	8	GND
		10	NC

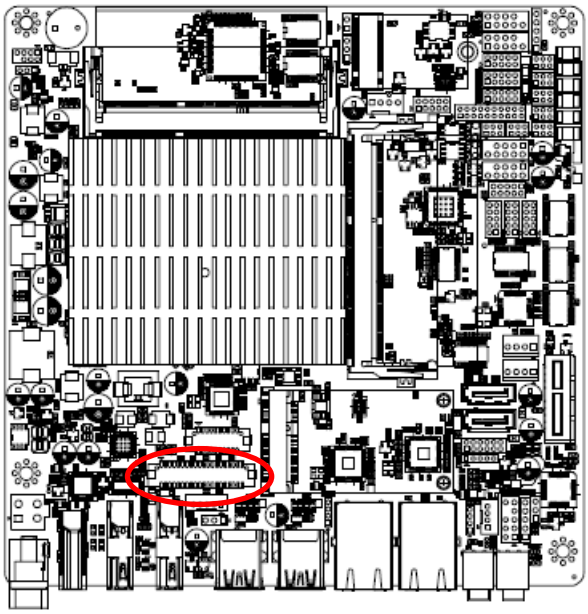
2.4.16 USB2.0 connector (USBH2)

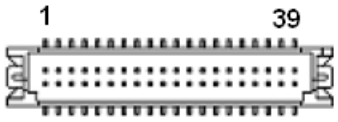




PIN	Signal
5	NC
4	GND
3	USB_ HDP4
2	USB_HDN4
1	+5VSB

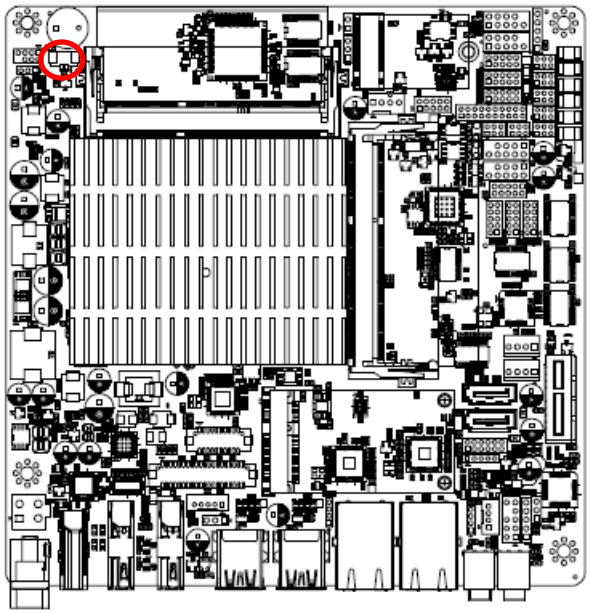
2.4.17 LVDS connector (LVDS1)

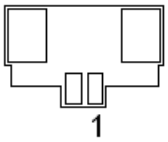




Signal	PIN	PIN	Signal
+3.3V	1	2	+5V
+3.3V	3	4	+5V
NC	5	6	NC
GND	7	8	GND
LVDS_DATAP1	9	10	LVDS_DATAP0
LVDS_DATAN1	11	12	LVDS_DATAN0
GND	13	14	GND
LVDS_DATAP3	15	16	LVDS_DATAP2
LVDS_DATAN3	17	18	LVDS_DATAN2
GND	19	20	GND
LVDS_DATAP5	21	22	LVDS_DATAP4
LVDS_DATAN5	23	24	LVDS_DATAN4
GND	25	26	GND
LVDS_DATAP7	27	28	LVDS_DATAP6
LVDS_DATAN7	29	30	LVDS_DATAN6
GND	31	32	GND
LVDS_CLK2P	33	34	LVDS_CLK1P
LVDS_ CLK2N	35	36	LVDS_ CLK1N
GND	37	38	GND
+12V	39	40	+12V

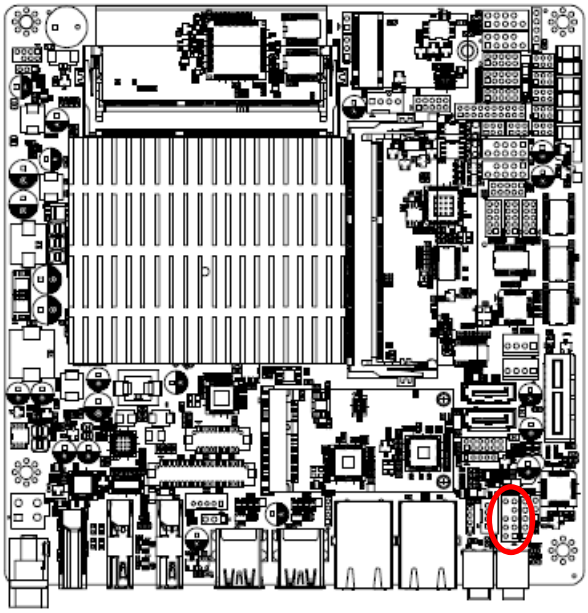
2.4.18 Battery connector (BT1)

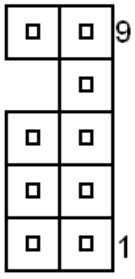




PIN	Signal
1	+3.3VSB
2	GND

2.4.19 Front Audio connector (FAUD1)



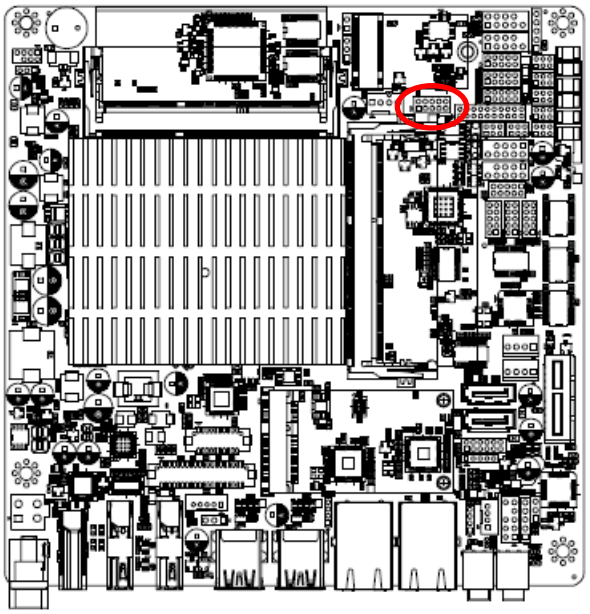


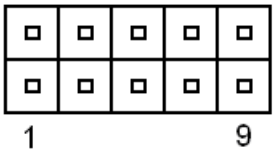
Signal	PIN	PIN	Signal
LINE2_JD	10	9	LINE2_L
		7	SENSE_B
MIC2_JD	6	5	LINE2_R
AUD_FRONT_DET	4	3	MIC2_R
GND	2	1	MIC2_L

2.3.19.1 Signal Description –Front Audio connector (FAUD1)

Signal	Signal Description
LINE2_JD	AUDIO IN (LINE_RIN/LIN)sense pin
MIC2_JD	MIC IN (MIC_RIN/LIN) sense pin

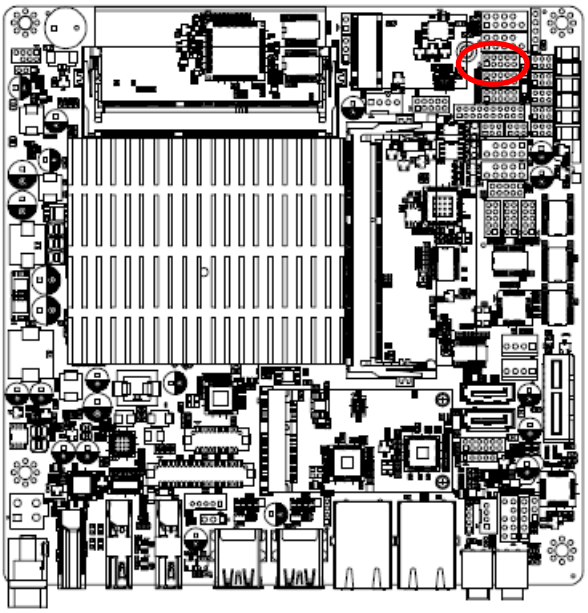
2.4.20 LPC connector (JLPC1)

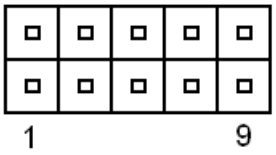




Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	PLT_RST#
LPC_AD2	5	6	LPC_FRAME#
LPC_AD3	7	8	LPC_CLK_DEB
LPC_SERIRQ	9	10	GND

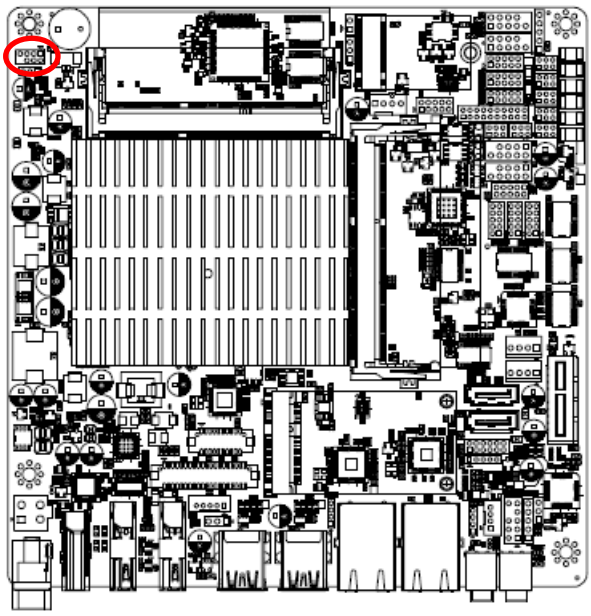
2.4.21 EC_Program (EC1)

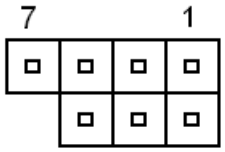




Signal	PIN	PIN	Signal
+3.3A_ECSPI	1	2	GND
EC_FSCE#	3	4	EC_FSCK
EC_FSMIOSO	5	6	EC_FSMOSI
EC_HOLD#	7	8	NC
EC_SMBCLK	9	10	EC_SMBDATA

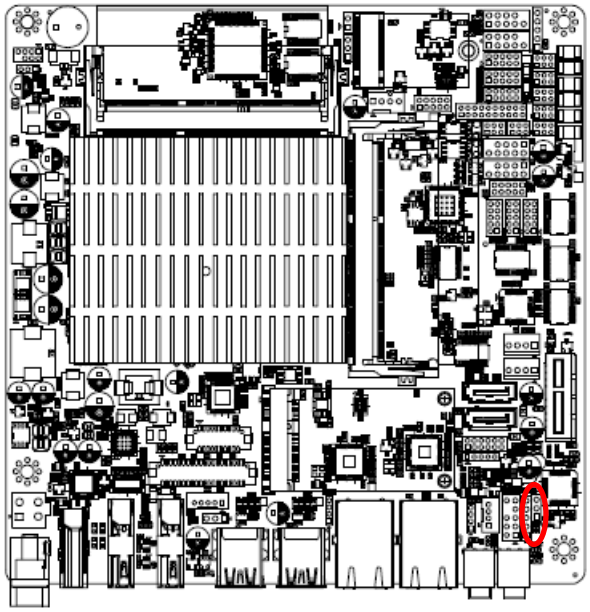
2.4.22 SPI connector (SPI1)

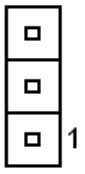




Signal	PIN	PIN	Signal
+1.8VSB	1	2	GND
SPI_CS0#	3	4	SPI_CLK
SPI_MISO	5	6	SPI_MOSI
SPI_HOLD#	7		

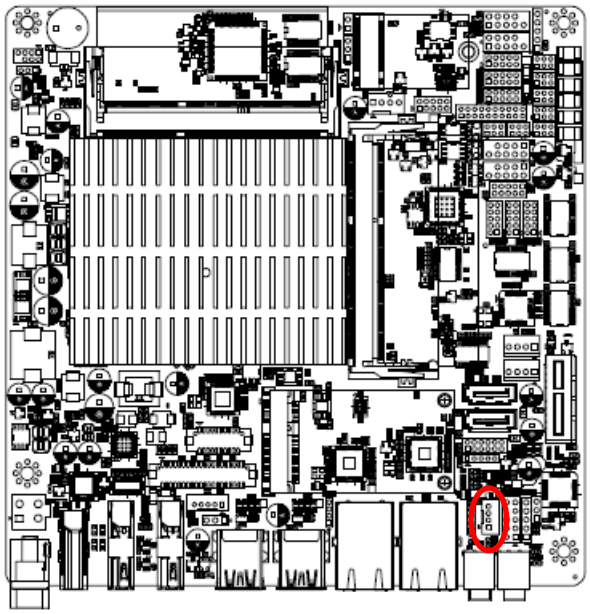
2.4.23 Sony/Philips Digital Interface (SPDIF1)





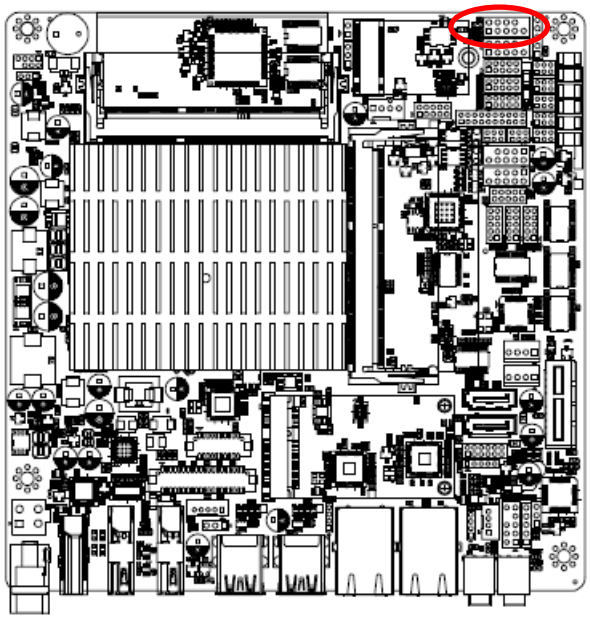
PIN	Signal
3	GND
2	SPDIF_OUT
1	+5V

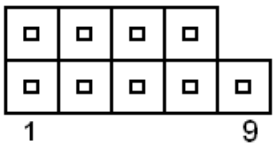
2.4.24 Speaker connector (SPK1)



PIN	Signal
4	RSPK-
3	RSPK+
2	LSPK-
1	LSPK+

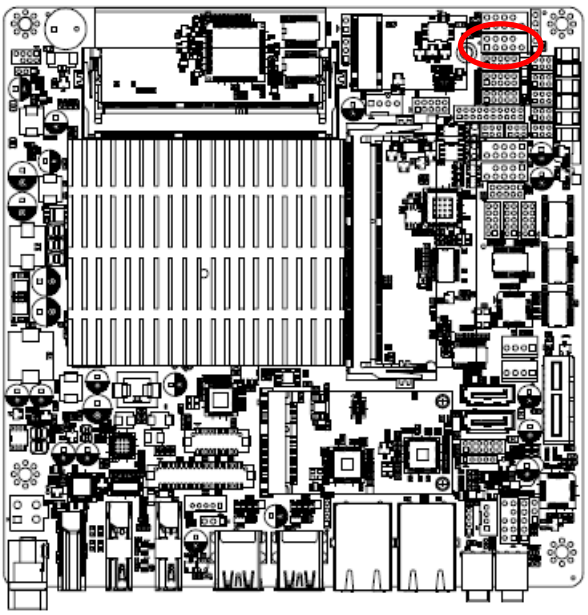
2.4.25 Front Panel connector 1 (FPT1)

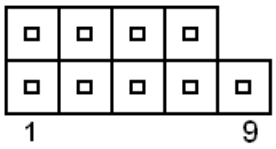




Signal	PIN	PIN	Signal
+HD_LED	1	2	+PWR_LED
-HD_LED	3	4	-PWE_LED
+Reset	5	6	+PWR_BNT
-Reset	7	8	-PWR_BNT
NC	9		

2.4.26 Front Panel connector 2 (FPT2)



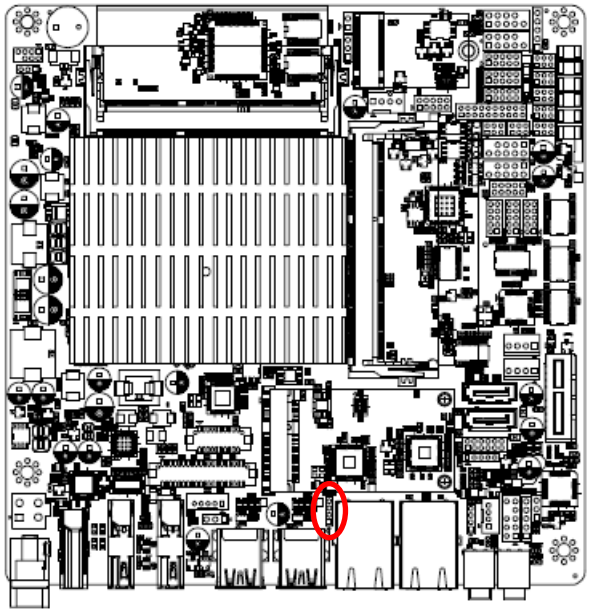


Signal	PIN	PIN	Signal
Speaker+	1	2	BLK_VR(10K)
NC	3	4	BLK_UP
NC	5	6	BLK_DN
Speaker-	7	8	GND
NC	9	10	

Note:

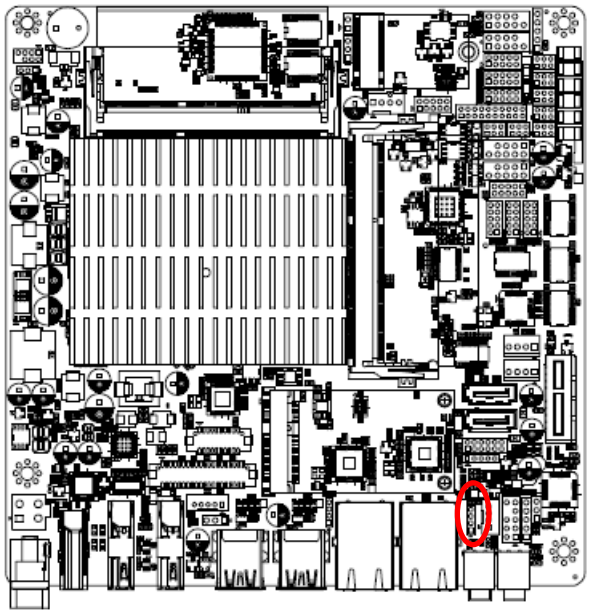
1. Pin2 with GND: Control LVDS Backlight by use Variable Resistor.
2. BLK_UP with GND/BLK_DN with GND: Step control LVDS Backlight by use button and BIOS must to be set “BR Button”. (Please refer to page.61)

2.4.27 LED indicator connector 1 (LED1)



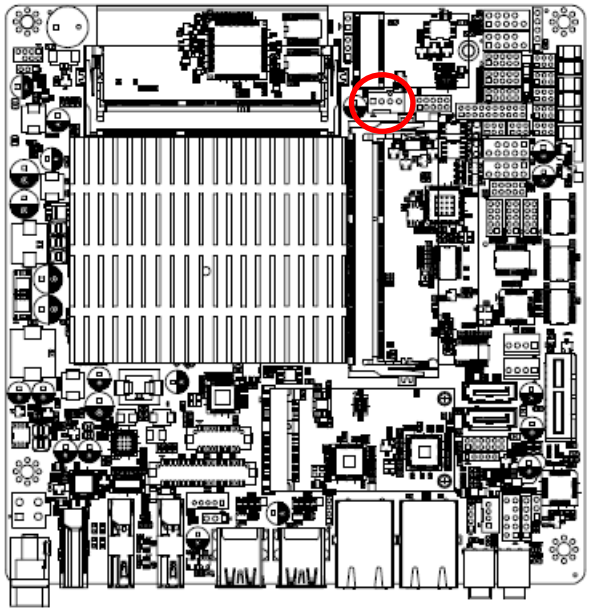
PIN	Signal
4	L1_1000#_LED
3	L1_100#_LED
2	L1_ACT_N
1	L1_ACT_P

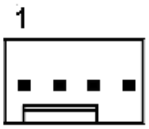
2.4.28 LED indicator connector 2 (LED2)



PIN	Signal
4	L2_1000#_LED
3	L2_100#_LED
2	L2_ACT_N
1	L2_ACT_P

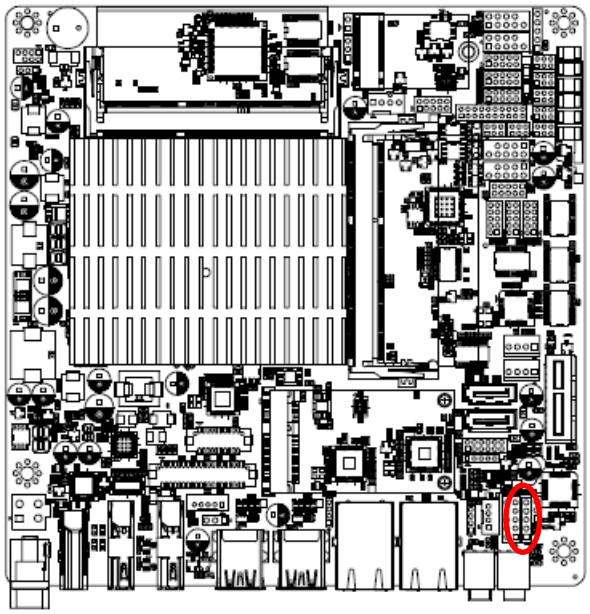
2.4.29 CPU fan connector (FAN1)

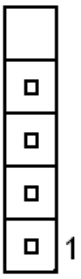




PIN	Signal
1	GND
2	+12V
3	CPU_FANIN
4	CPU_FANOUT

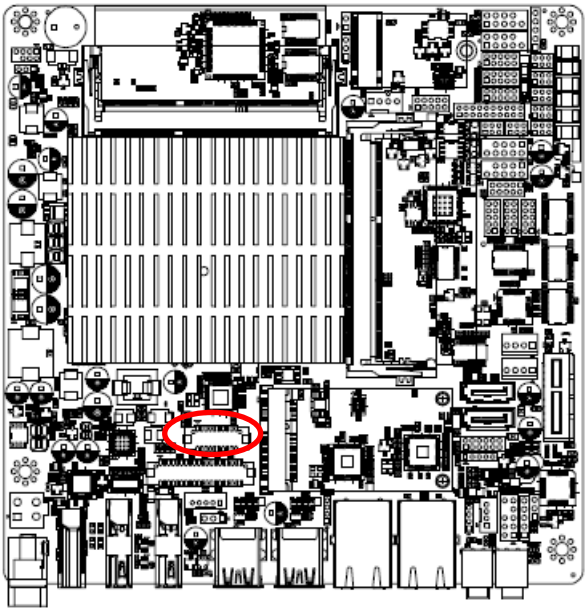
2.4.30 Digital Microphone connector (DMIC1)

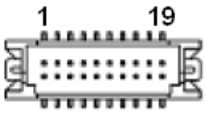




PIN	Signal
5	
4	DMIC_CLK
3	GND
2	DMIC_DAT
1	+3.3VSB

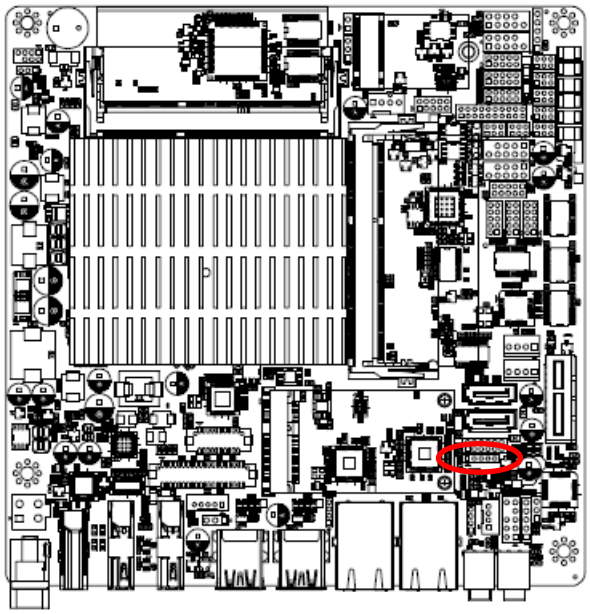
2.4.31 eDP connector (EDP1)

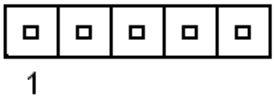




Signal	PIN	PIN	Signal
GND	1	2	GND
EDP_TXN0	3	4	EDP_TXN3
EDP_TXP0	5	6	EDP_TXP3
GND	7	8	NC
EDP_TXN1	9	10	GND
EDP_TXP1	11	12	EDP_AUXN
GND	13	14	EDP_AUXP
EDP_TXN2	15	16	GND
EDP_TXP2	17	18	EDP_C_HPD
EDP_VCC_PAL	19	20	EDP_VCC_PAL

2.4.32 I2C connector (I2C1)





PIN	Signal
1	+3.3V
2	I2C5_INT#
3	I2C5_LS_CLK
4	I2C5_LS_DATA
5	GND

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

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

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 to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values.
F3 key	Optimized defaults
F4 key	Save & Exit Setup

- **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 the F1 key again.

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.

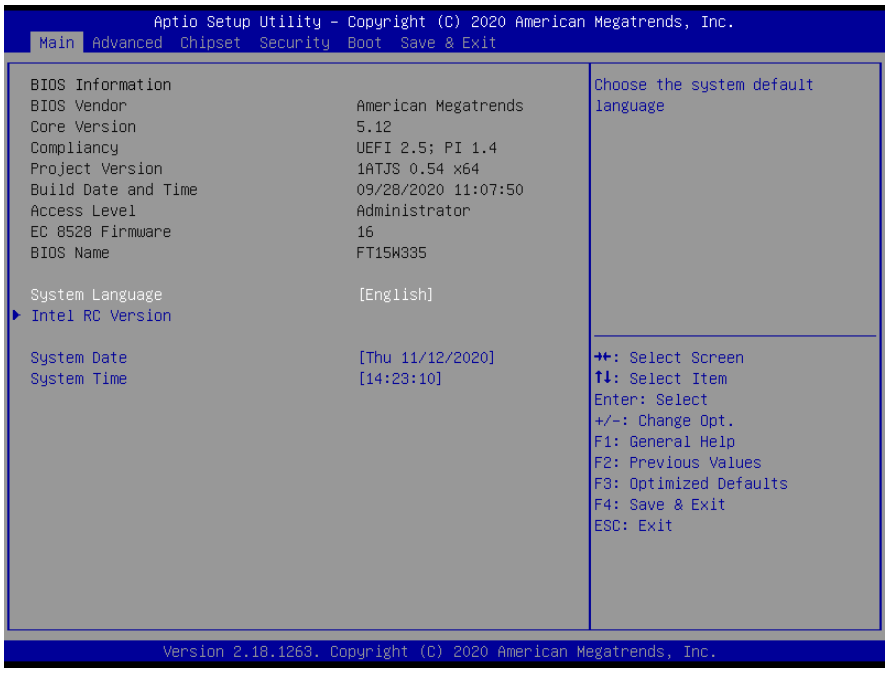
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance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

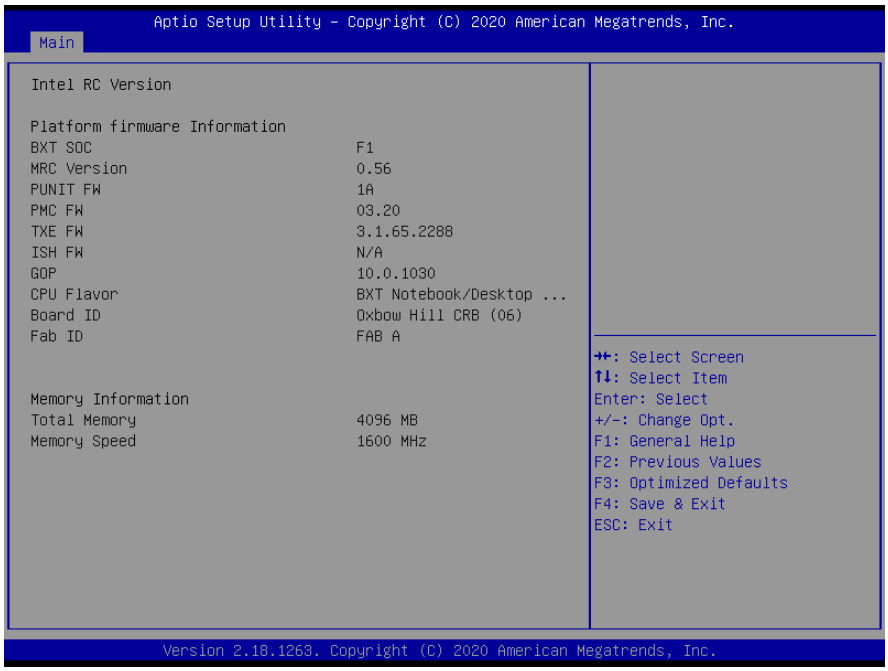
3.6 BIOS setup

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.





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.

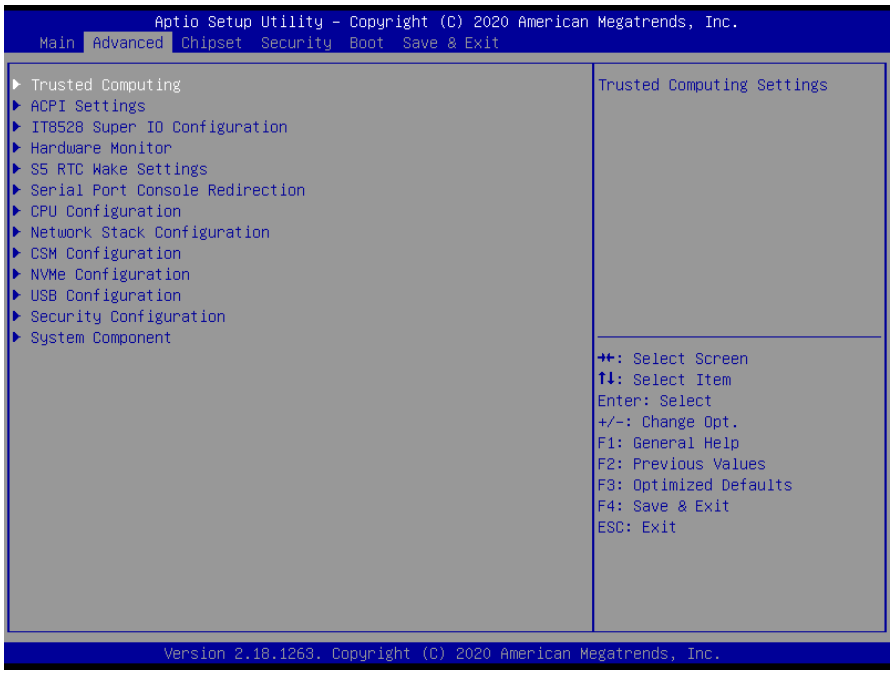
3.6.1.3 System Time

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

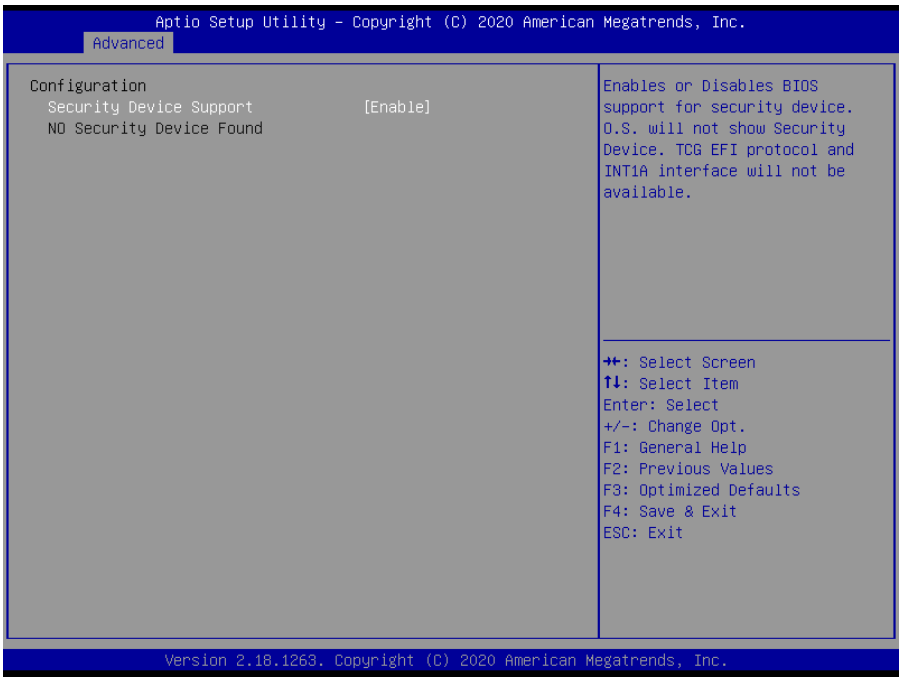
Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

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.

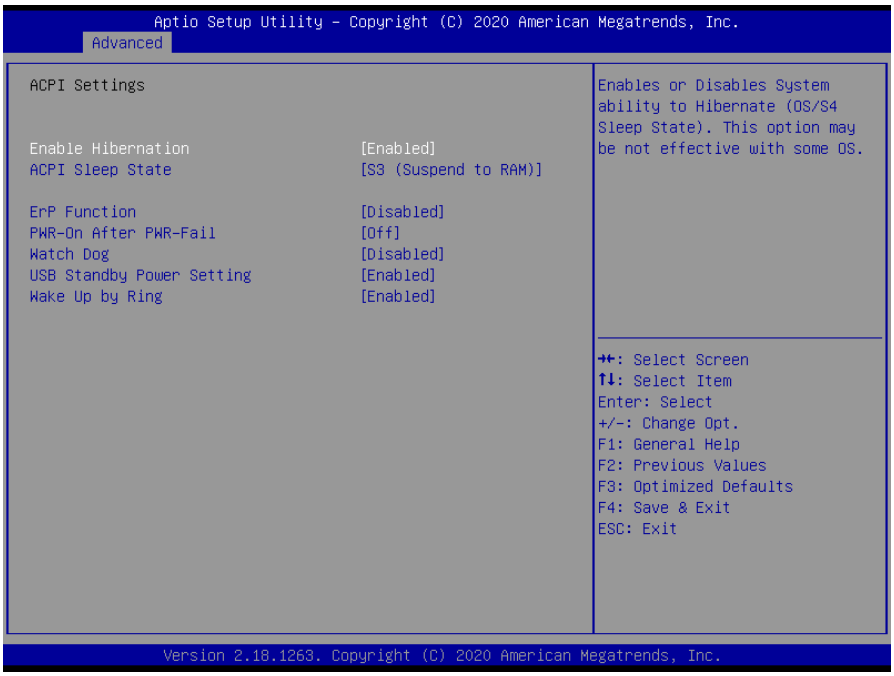


3.6.2.1 Trusted Computing



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 INT1Ainterface will not be available.

3.6.2.2 ACPI Settings

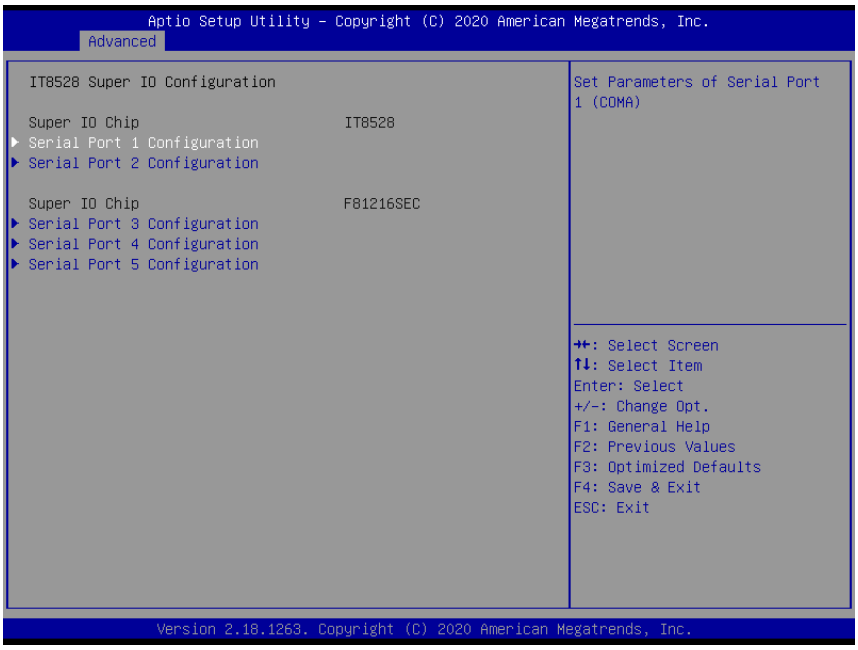


Item	Options	Description
Enable Hibernation	Disabled Enabled**[Default]**,	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some

		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.
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

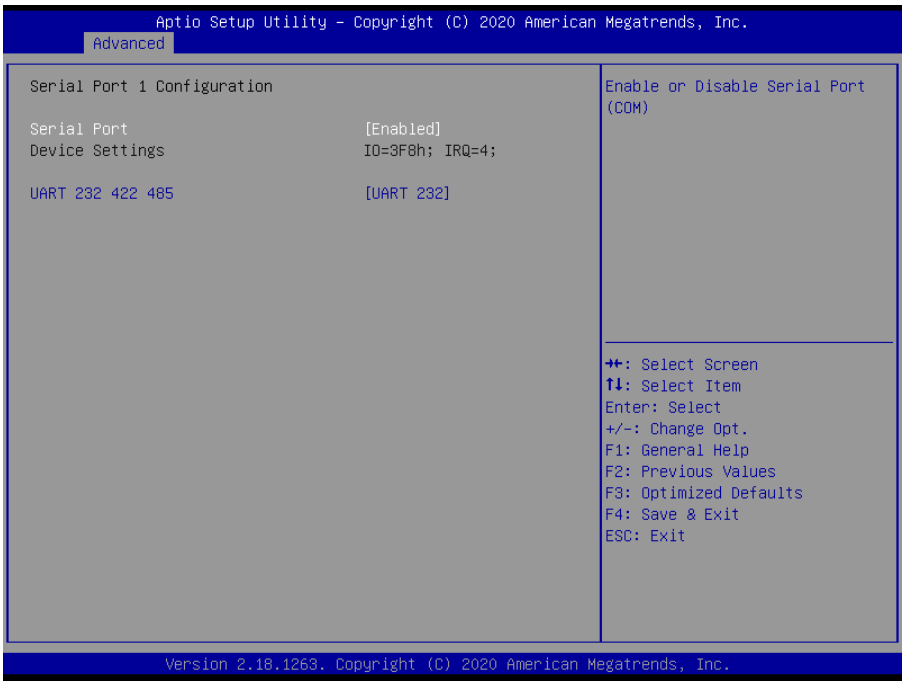
You can use this item to set up or change the IT8528 Super IO configuration for serial ports. Please refer to 3.6.2.3.1~ 3.6.2.3.5 for more information.



Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).

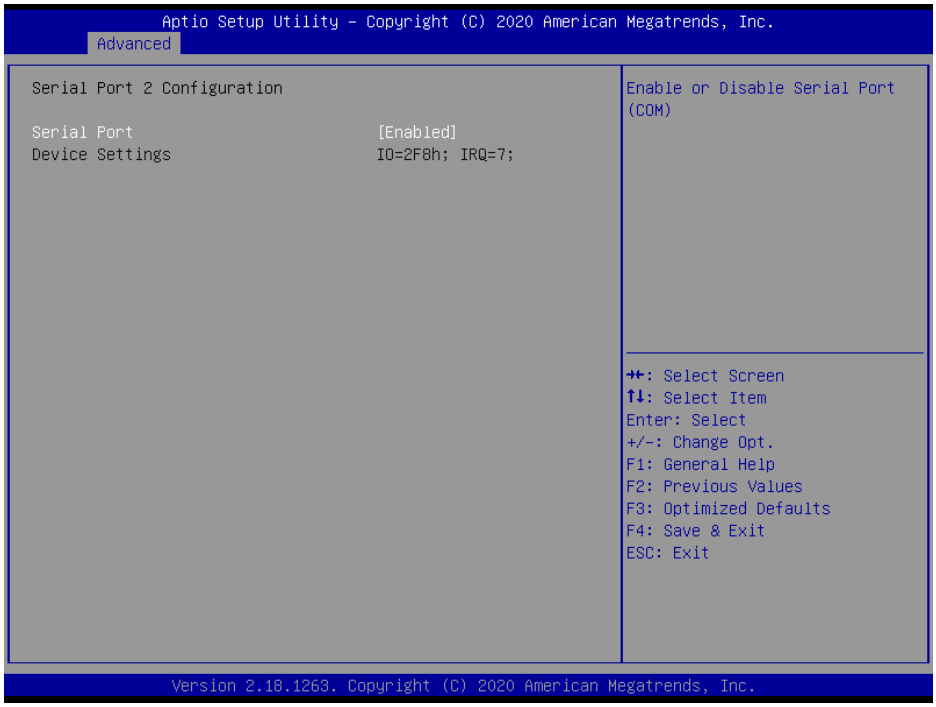
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC).
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD).
Serial Port 5 Configuration	Set Parameters of Serial Port 5 (COME).

3.6.2.3.1 Serial Port 1 Configuration



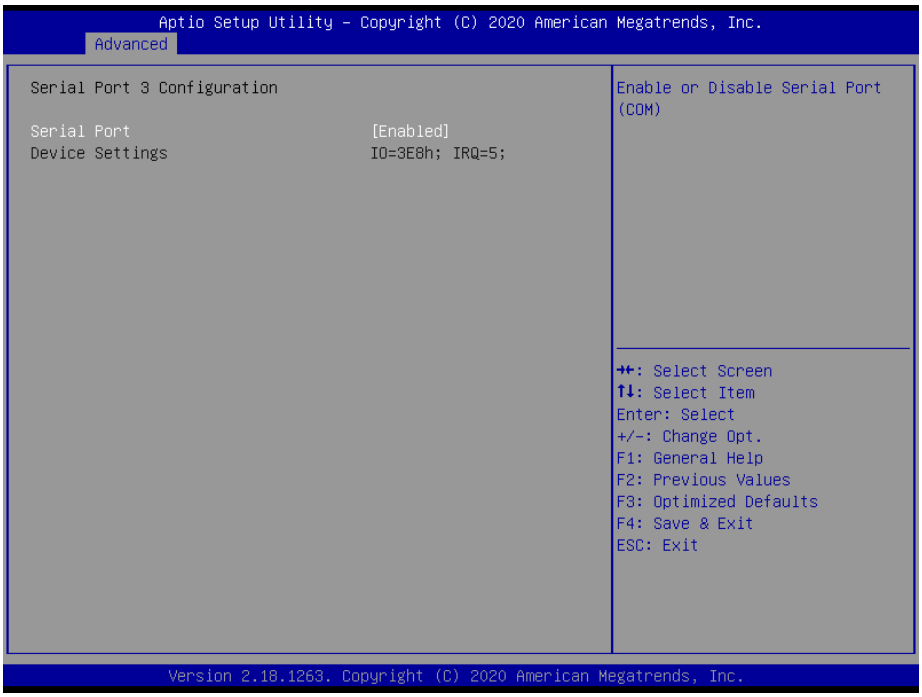
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).
UART 232 422 485	UART 232**[Default]**, UART 422, UART 485	Change the Serial Port as RS232/422/485.

3.6.2.3.2 Serial Port 2 Configuration



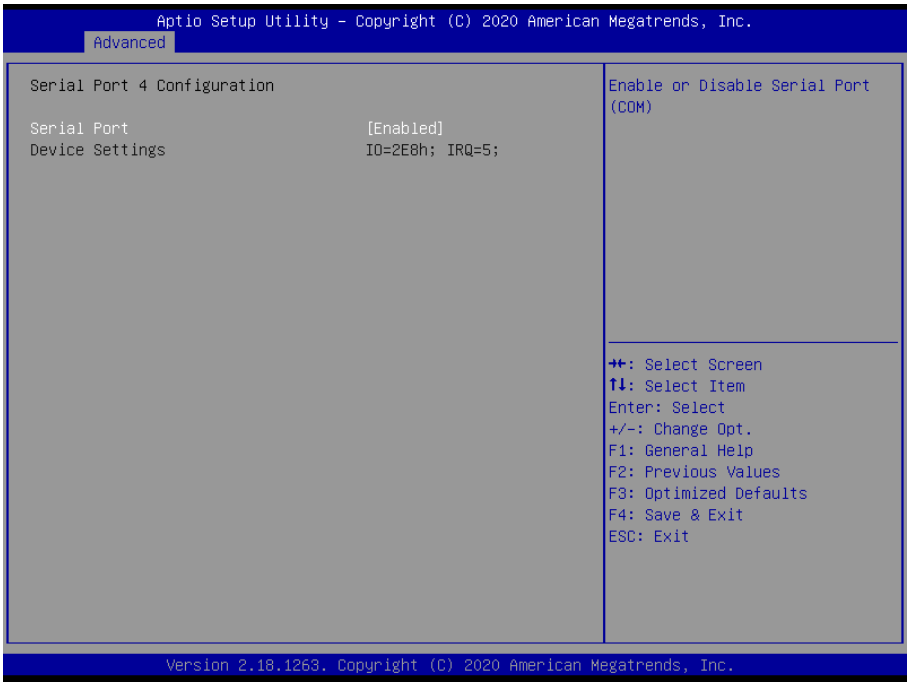
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

3.6.2.3.3 Serial Port 3 Configuration



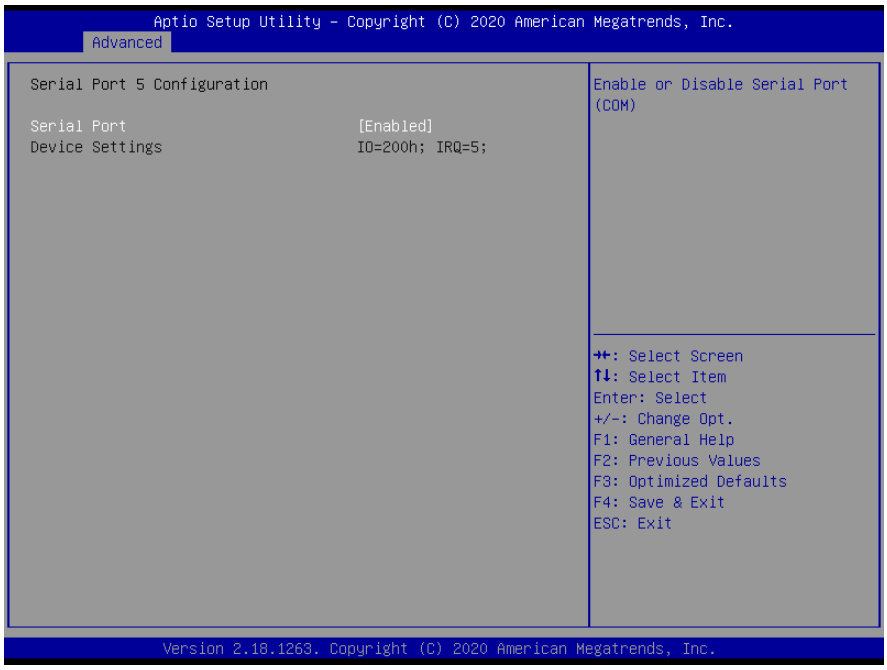
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

3.6.2.3.4 Serial Port 4 Configuration



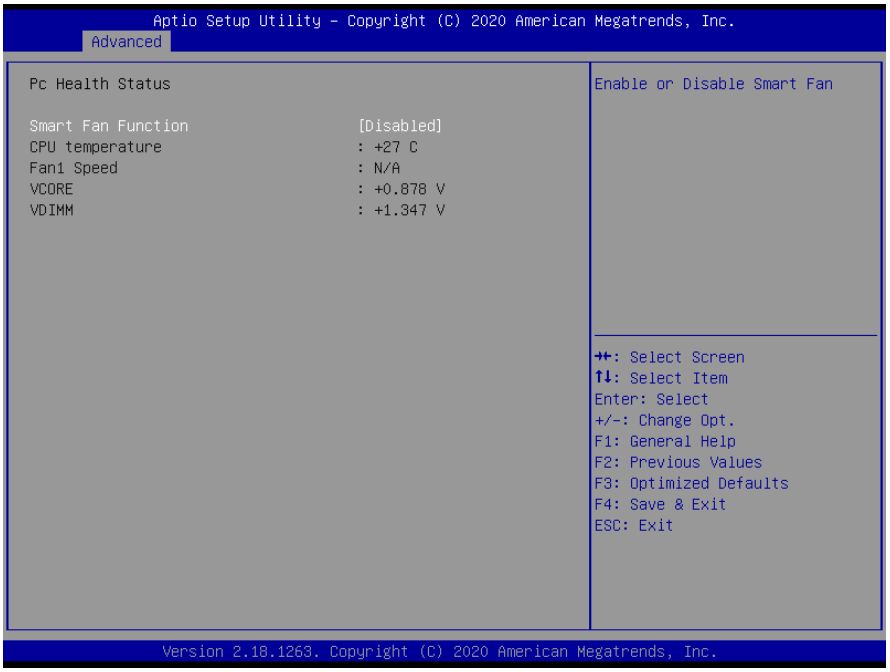
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

3.6.2.3.5 Serial Port 5 Configuration



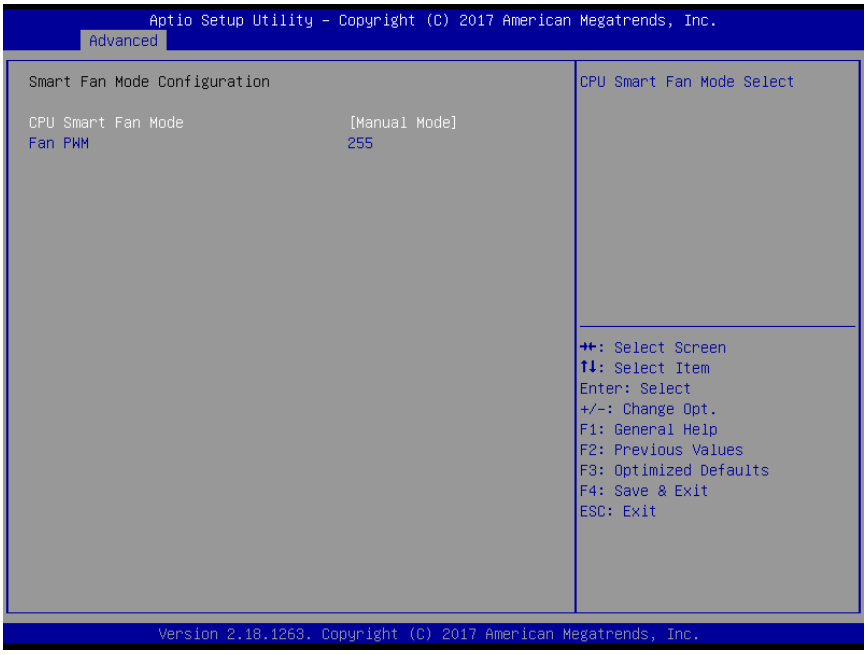
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

3.6.2.4 H/W Monitor



Item	Options	Description
Smart Fan Function	Enabled, Disabled**[Default]**	Enable or Disable Smart Fan.

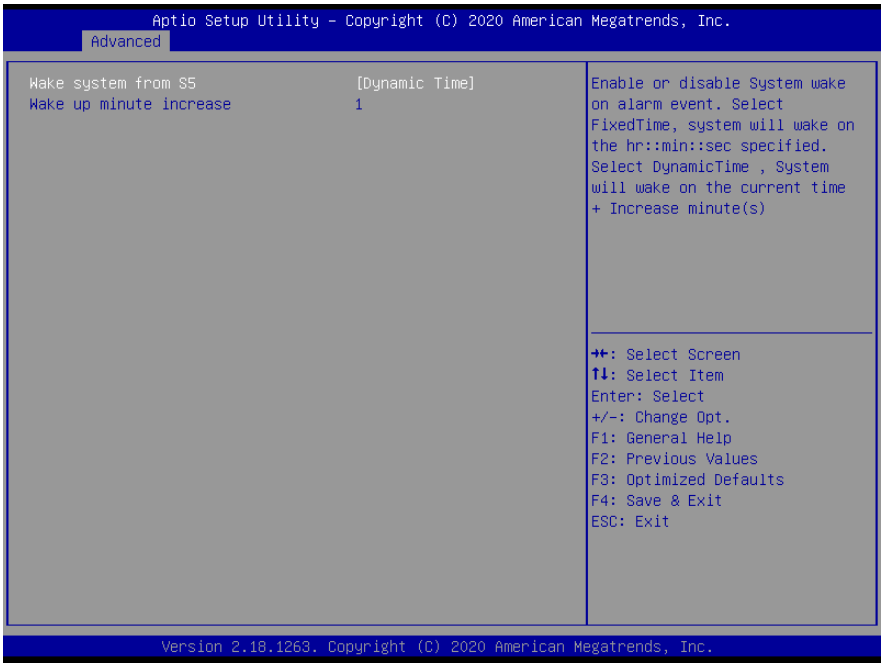
3.6.2.4.1 Smart Fan Mode Configuration



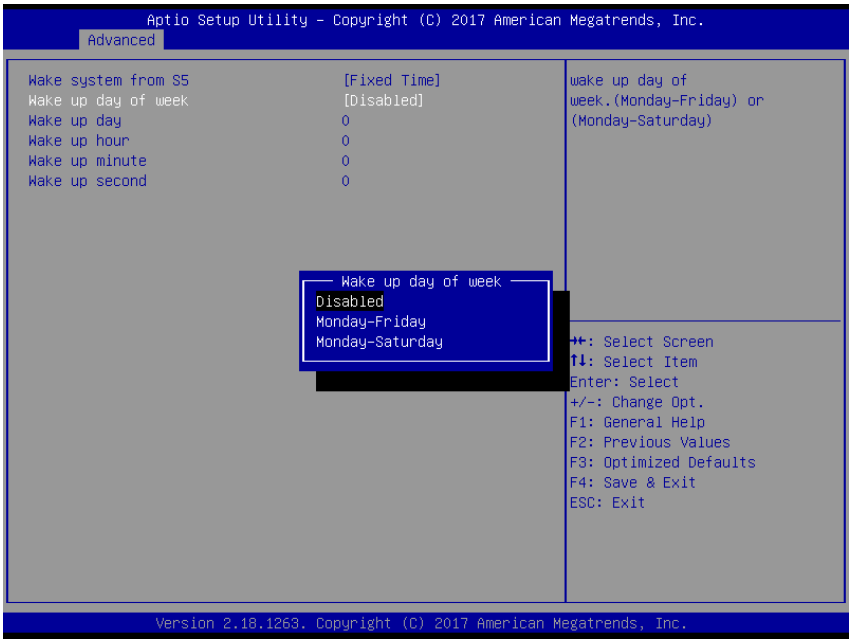
Item	Option	Description
CPU Smart Fan Mode	Manual Mode**[Default]**/Mode 01/Mode 02/Mode 03/Mode 04/Mode 05/Mode 06/Mode	CPU Smart Fan Mode Select.

	07/Mode 08/Mode 09/Mode 10/Mode 11/Mode 12/Mode 13/Mode 14/Mode 15/Mode 16/Mode 17/Mode 18/Mode 19/Mode 20	
Fan PWM	0-255	Fan PWM duty.

3.6.2.5 S5 RTC Wake Settings

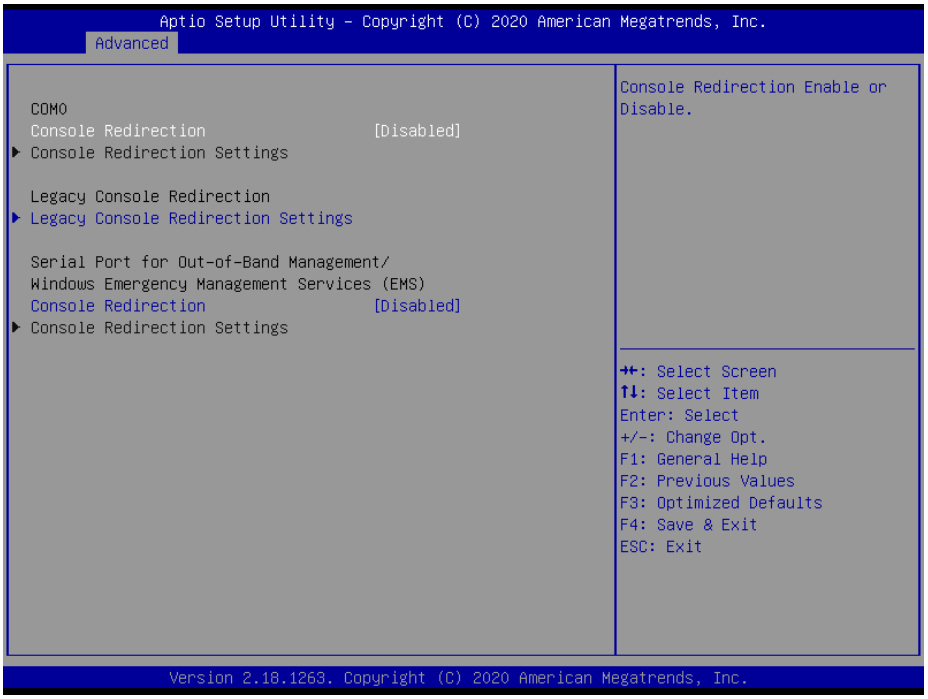


Item	Options	Description
Wake system from S5	Disabled**[Default]**, Fixed Time Dynamic Time	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified. Select Dynamic Time, System will wake on the current time + Increase minute(s).
Wake up minute increase	1-5	Wake up minute increase.



Item	Options	Description
Wake system from S5	Disabled, Fixed Time**[Default]** Dynamic Time	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified. Select Dynamic Time, System will wake on the current time + Increase minute(s).
Wake up day of week	Disabled**[Default]** Monday-Friday Monday-Saturday	Wake up day of week. (Monday-Friday) or (Monday-Saturday).
Wake up day	1-31	Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up.
Wake up hour	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.
Wake up minute	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.
Wake up second	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.

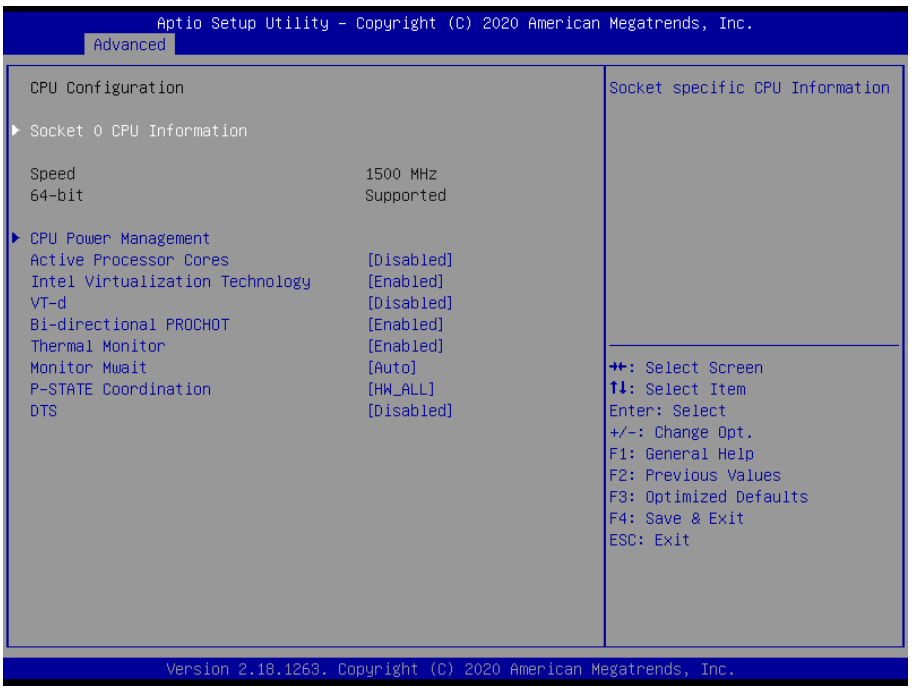
3.6.2.6 Serial Port Console Redirection



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

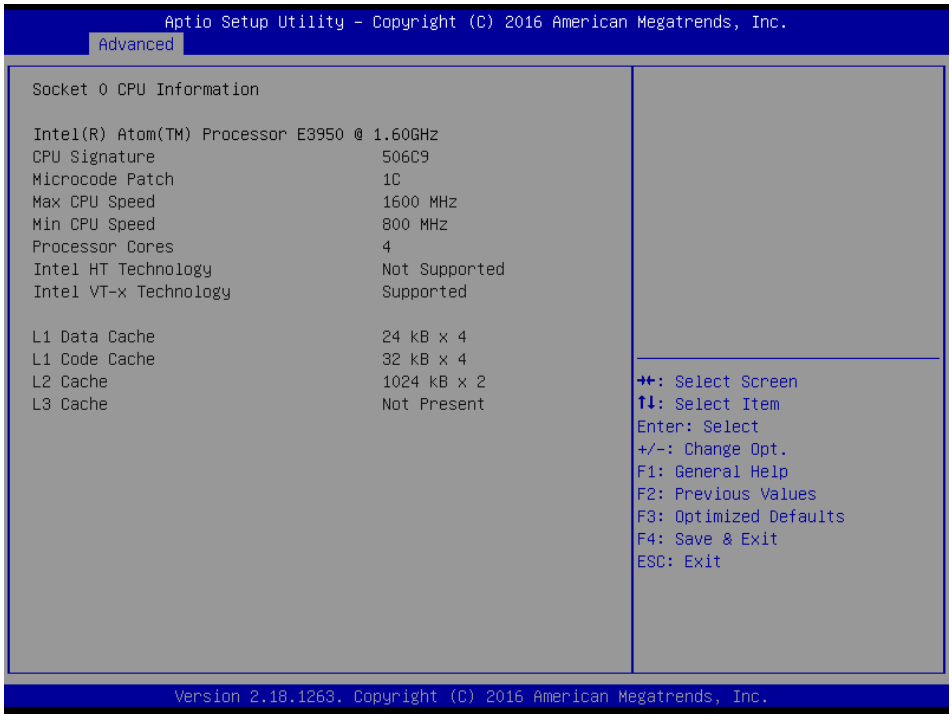
3.6.2.7 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.

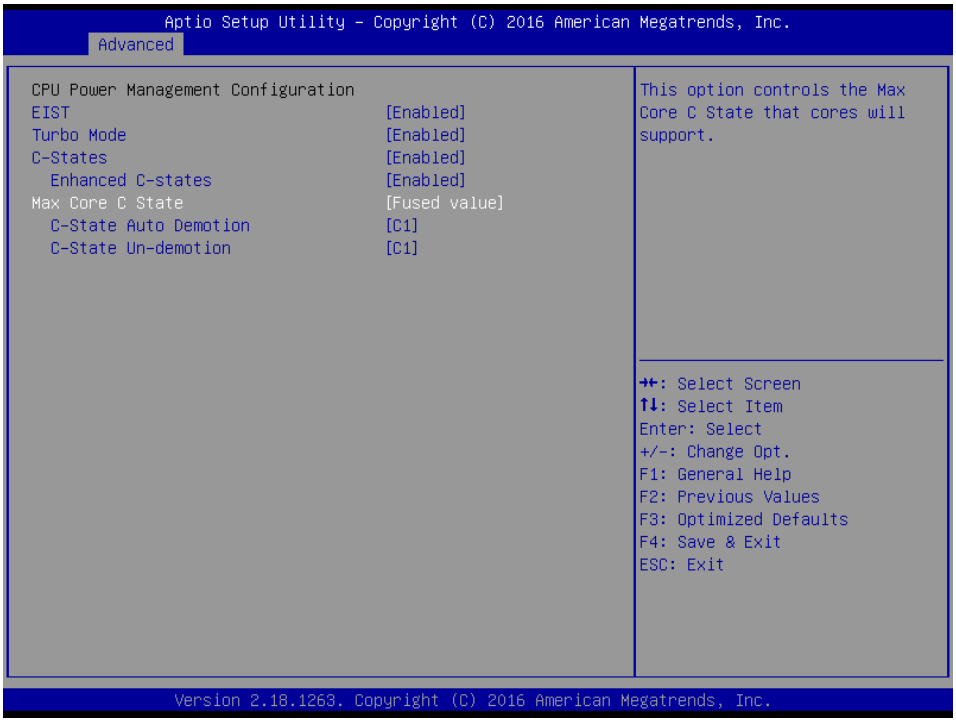


Item	Options	Description
Active Processor Cores	Disabled**[Default]**, Enabled	Number of cores to enable in each processor package.
Intel Virtualization Technology	Disabled, Enabled**[Default]**	When enabled, a VMM can utilize the additional hardware capabilities provided by Virtualization Technology.
VT-d	Disabled**[Default]**, Enabled	Enable/Disable CPU VT-d.
Bi-directional PROCHOT	Disabled, Enabled**[Default]**	When a processor thermal sensor trips (either core), the PROCHOT# will be driven. If bi-direction is enabled, external agents can drive PROCHOT# to throttle the processor.
Thermal Monitor	Disabled, Enabled**[Default]**	Enable/Disable Thermal Monitor.
Monitor Mwait	Disabled, Enabled Auto**[Default]**	Enable/Disable Monitor Mwait.
P-STATE Coordination	HW_ALL**[Default]** SW_ALL SW_ANY	Change P-STATE Coordination type.
DTS	Disabled**[Default]**, Enabled	Enable/Disable Digital Thermal Sensor.

3.6.2.7.1 Socket 0 CPU Information

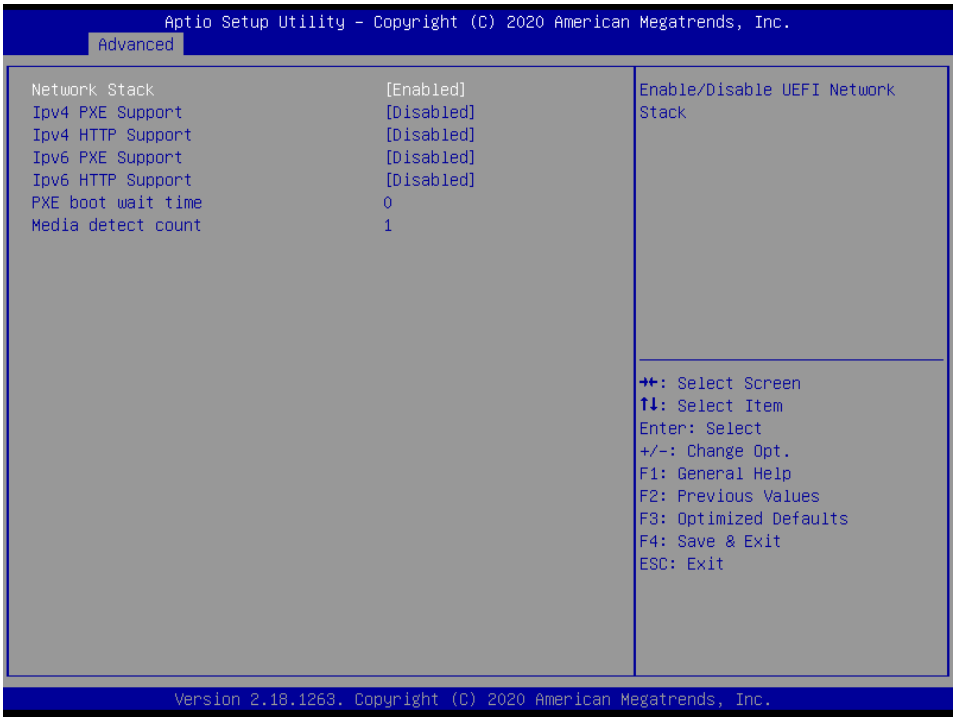


3.6.2.7.2 CPU Power Management Configuration



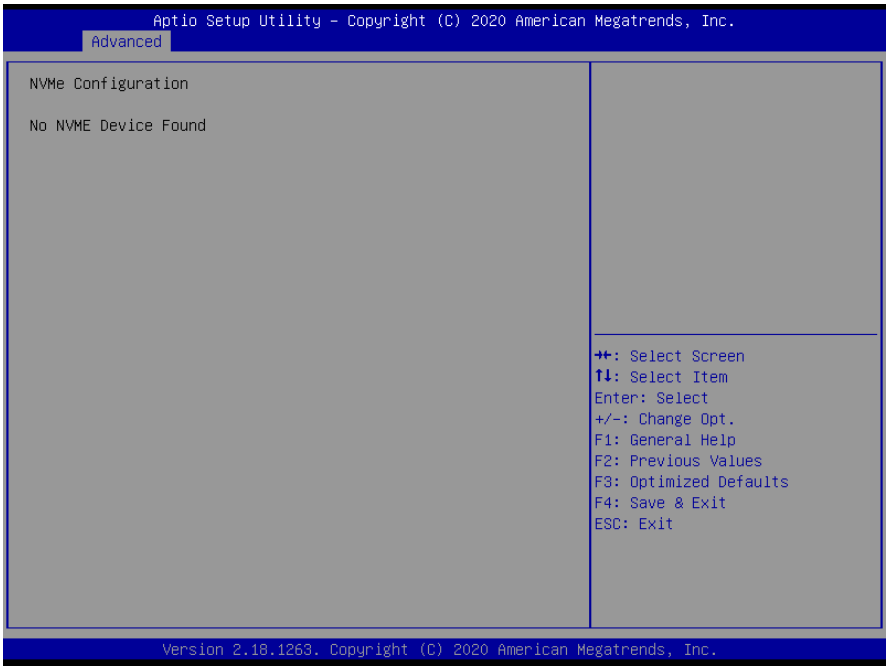
Item	Options	Description
EIST	Disabled, Enabled**[Default]**	Enable/Disable Intel SpeedStep.
Turbo Mode	Disabled, Enabled**[Default]**	Turbo Mode.
C-States	Disabled, Enabled**[Default]**	Enable/Disable C State.
Enhanced C-states	Disabled, Enabled**[Default]**	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.
Max Core C State	Fused value**[Default]** Core C10 Core C9 Core C8 Core C7 Core C6 Core C1 Unlimited	This option controls the Max Core C State that cores will support.
C-State Auto Demotion	Disabled C1**[Default]**	Configure C-State Auto Demotion.
C-State Un-demotion	Disabled C1**[Default]**	Configure C-State Un-demotion.

3.6.2.8 Network Stack Configuration

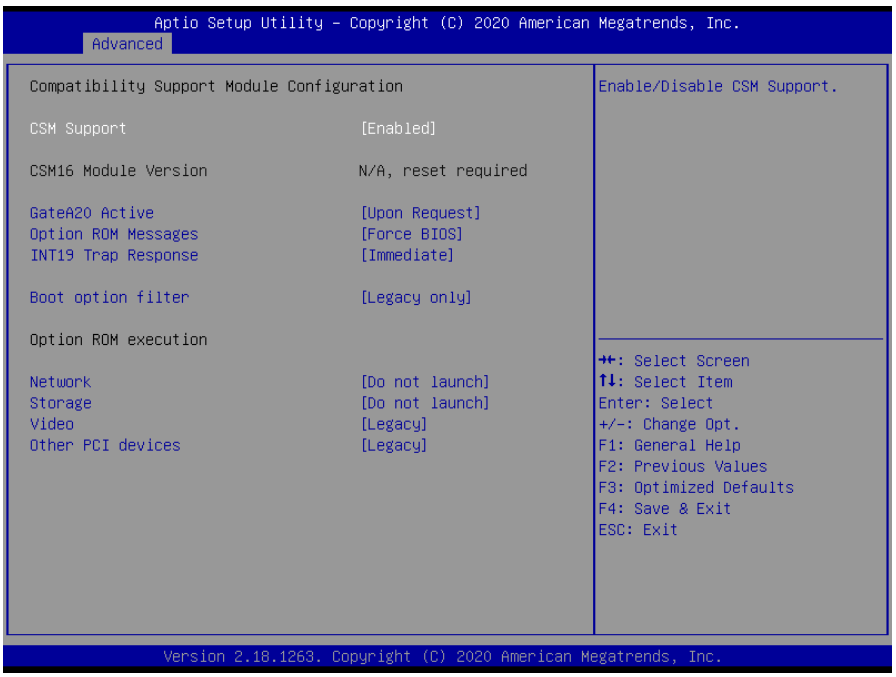


Item	Options	Description
Network Stack	Disabled**[Default]** Enabled	Enable/Disable UEFI Network Stack.
Ipv4 PXE Support	Disabled**[Default]** Enabled	Enable Ipv4 PXE Boot Support. If disabled IPV4 PXE boot option will not be created.
Ipv4 HTTP Support	Disabled**[Default]** Enabled	Enable Ipv4 HTTP Boot Support. If disabled IPV4 HTTP boot option will not be created.
Ipv6 PXE Support	Disabled**[Default]** Enabled	Enable Ipv6 PXE Boot Support. If disabled IPV6 PXE boot option will not be created.
Ipv6 HTTP Support	Disabled**[Default]** Enabled	Enable Ipv6 HTTP Boot Support. If disabled IPV6 HTTP boot option will not be created.
PXE boot wait time	0	Wait time to press ESC key to abort the PXE boot.
Media detect count	1	Number of times presence of media will be checked.

3.6.2.9 NVMe Configuration



3.6.2.10 CSM Configuration

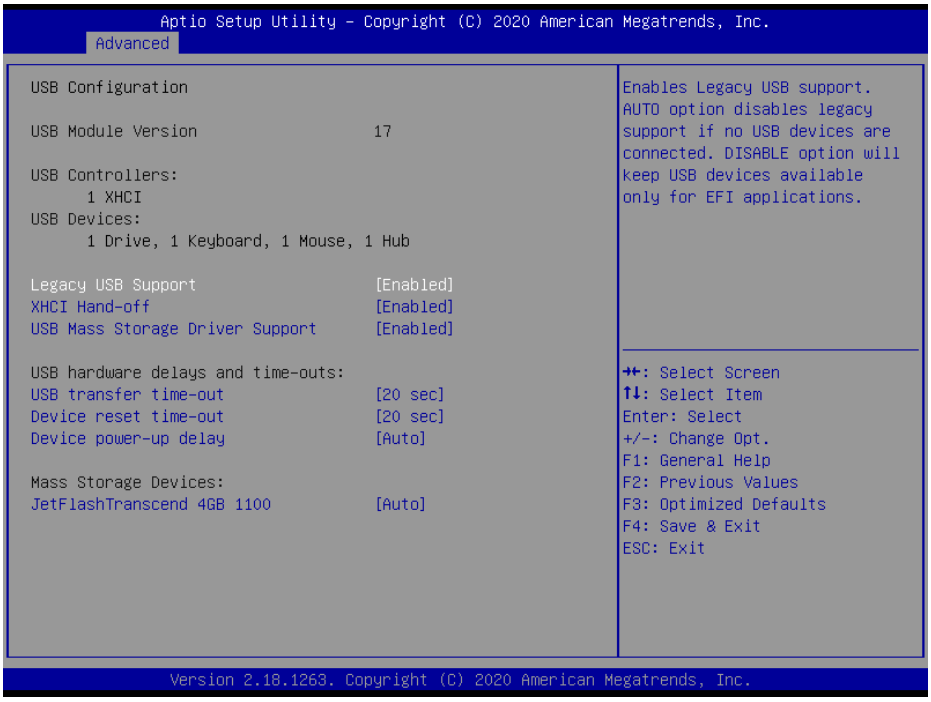


Item	Options	Description
CSM Support	Disabled**[Default]**, Enabled	Enable/Disable CSM Support.
GateA20 Active	Upon Request**[Default]** Always	UPON REQUEST – GA20 can be disabled using BIOS services. ALWAYS – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Option ROM Messages	Force BIOS Keep Current**[Default]**	Set display mode for Option ROM.
INT19 Trap Response	Immediate**[Default]** Postponed	BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE – execute the trap right away; POSTPONED – execute the trap during legacy boot.
Boot option filter	UEFI and Legacy Legacy only**[Default]** UEFI only	This option controls Legacy/UEFI ROMs priority.
Network	Do not launch**[Default]** UEFI Legacy	Controls the execution of UEFI and Legacy PXE OpROM.
Storage	Do not launch**[Default]** UEFI Legacy	Controls the execution of UEFI and Legacy Storage OpROM.
Video	Do not launch UEFI Legacy**[Default]**	Controls the execution of UEFI and Legacy Video OpROM.
Other PCI devices	Do not launch UEFI Legacy**[Default]**	Determines OpROM execution policy for devices other than Network, Storage, or Video.

3.6.2.11 USB Configuration

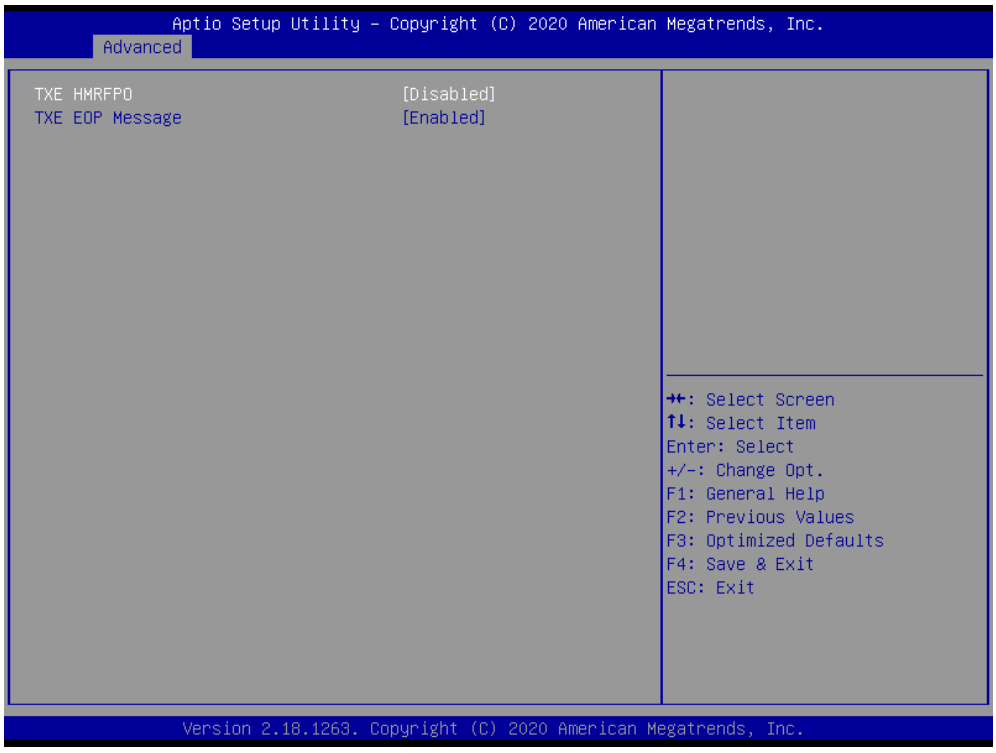
The USB Configuration menu helps read USB information and configures USB settings.



Item	Options	Description
Legacy USB Support	Enabled**[Default]** Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

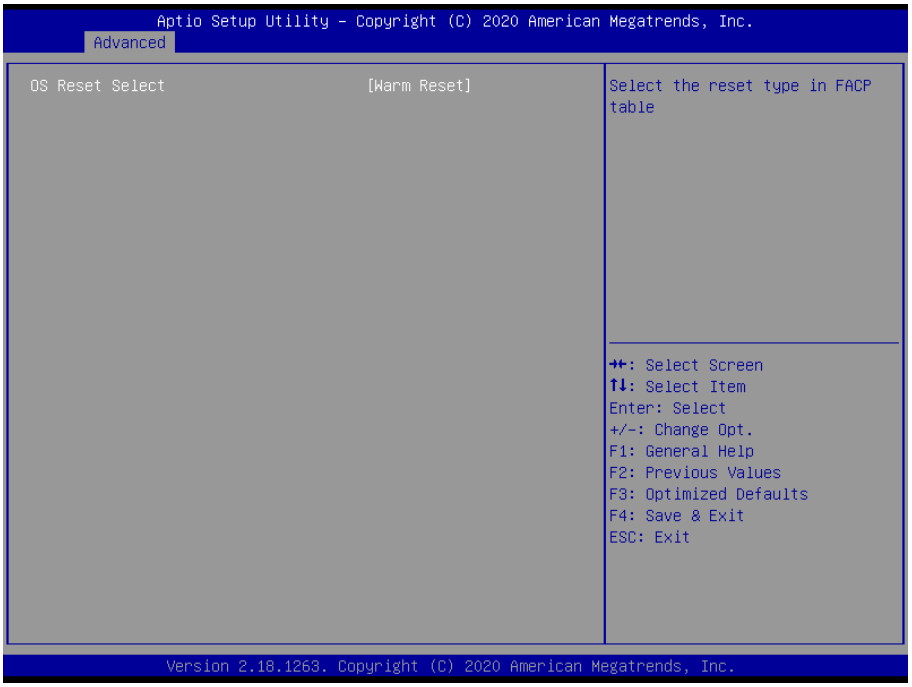
XHCI Hand-off	Enabled**[Default]** Disabled	This is a workaround for OSew without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Disabled Enabled**[Default]**	Enable/Disable USB Mass Storage Driver Support.
USB transfer time-out	1 sec 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.

3.6.2.12 Security Configuration



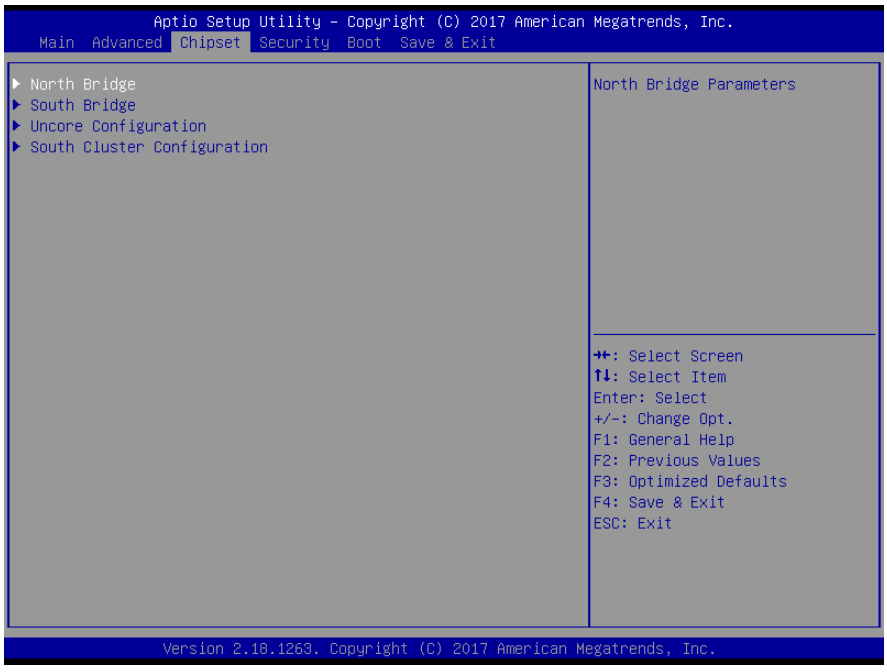
Item	Options	Description
TXE HMRFPO	Enabled, Disabled**[Default]**	TXE HMRFPO.
TXE EOP Message	Enabled**[Default]**, Disabled	Send EOP Message Before Enter OS.

3.6.2.13 System Component



Item	Options	Description
OS Reset Select	Warm Reset**[Default]** Cold Reset	Select the reset type in FACP table.

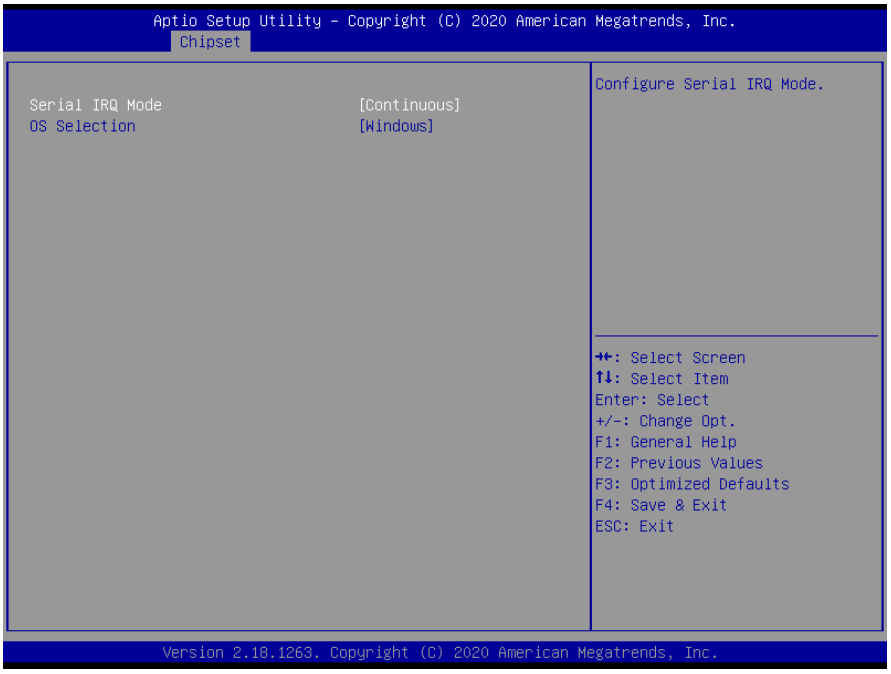
3.6.3 Chipset



3.6.3.1 North Bridge

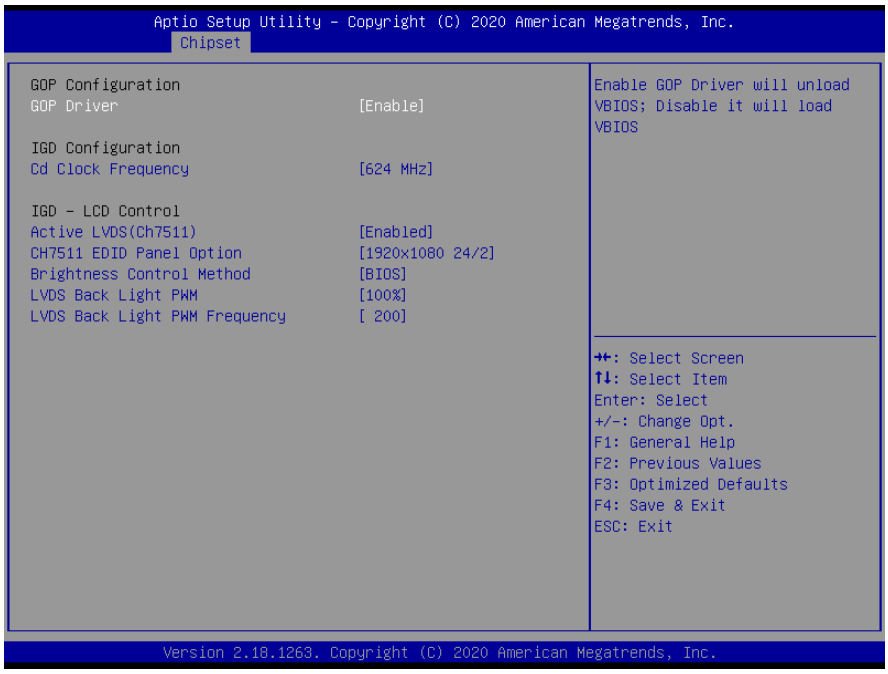
Item	Option	Description
Max TOLUD	2 GB**[Default]** 2.25 GB 2.5 GB 2.75 GB	Maximum Value of TOLUD.
Above 4GB MMIO BIOS assignment	Enabled Disabled**[Default]**	Enable/Disabel above 4GB MemoryMappedIO BIOS assignment This is disabled automatically when Aperture Size is set to 2048MB.

3.6.3.2 South Bridge



Item	Option	Description
Serial IRQ Mode	Quiet Continuous**[Default]**	Configure Serial IRQ Mode.
OS Selection	Windows**[Default]** Android Intel Linux	Select the target OS.

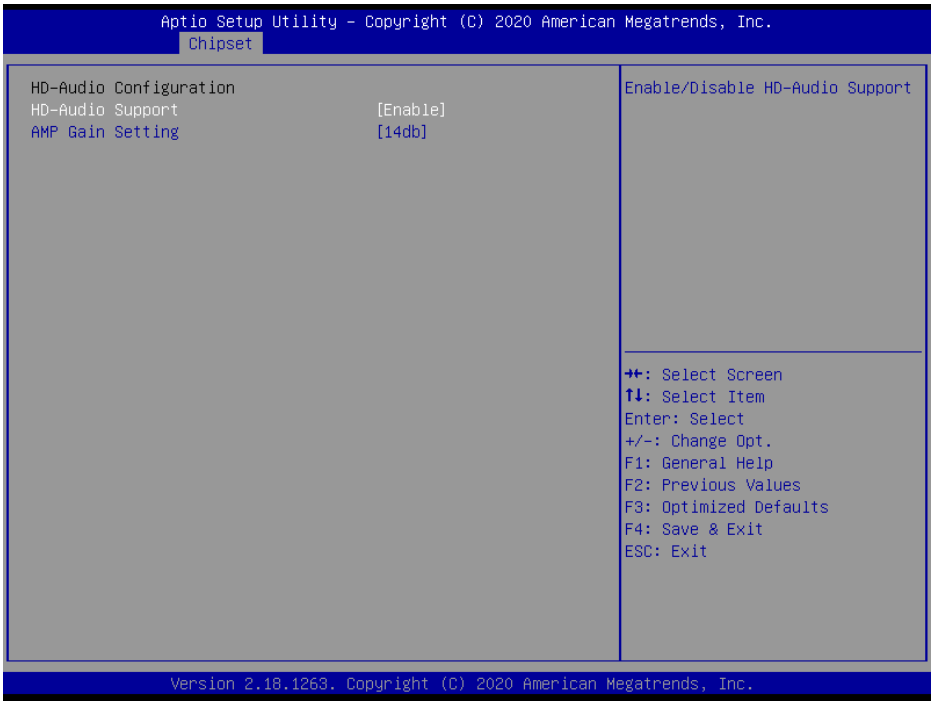
3.6.3.3 Uncore Configuration



Item	Option	Description
GOP Driver	Enable**[Default]** Disable	Enable GOP Driver will unload VBIOS; Disabled it will load VBIOS.
Cd Clock Frequency	144 MHz 288 MHz 384 MHz 576 MHz 624 MHz**[Default]**	Select the highest Cd Clock frequency supported by the platform.
Active LVDS (Ch7511)	Disabled**[Default]** Enabled	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 1280x800 18/1 1920x1200 24/2 1920x1080 18/2 1280x1024 24/2 1440x900 18/2 1600x1200 24/2 1366x768 24/1 1920x1080 24/2**[Default]** 1680x1050 24/2	Port1-EDP to LVDS(Chrotel 7511) Panel EDID Option.
Brightness Control Method	BIOS**[Default]** BR Button VR OS Driver	LVDS Brightness Control Method. 1.BIOS 2.Brightness Button 3.Variable Resistor 4.OS Driver.
LVDS Back Light PWM	00% 25% 50% 75% 100%**[Default]**	Select LVDS back light PWM duty.
LVDS Back Light PWM Frequency	200**[Default]** 300 400 500 700 1k 2k 3k 5k 10k 20k	Select LVDS back light PWM Frequency.

3.6.3.4 South Cluster Configuration

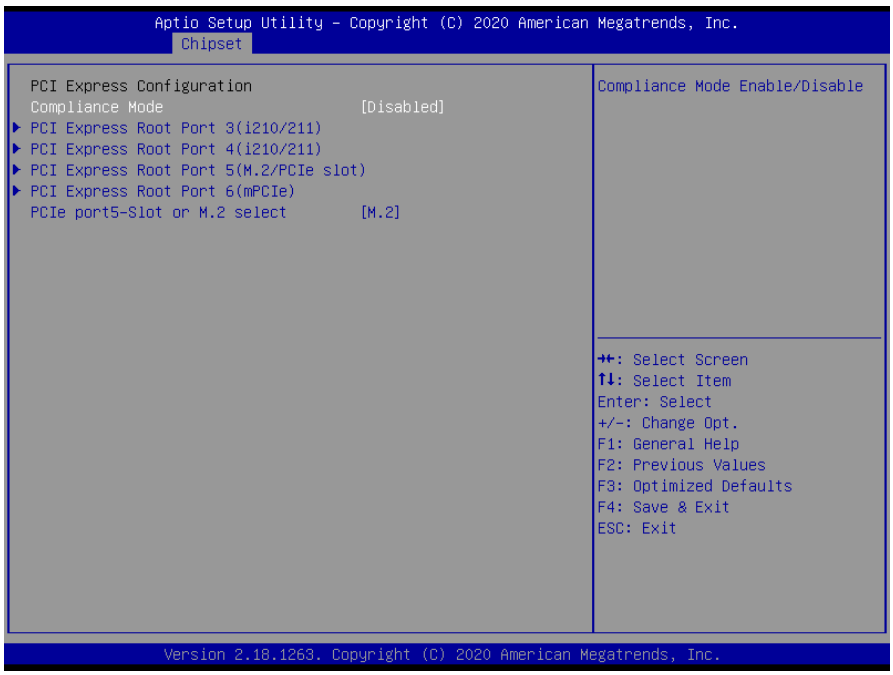
3.6.3.4.1 HD-Audio Configuration

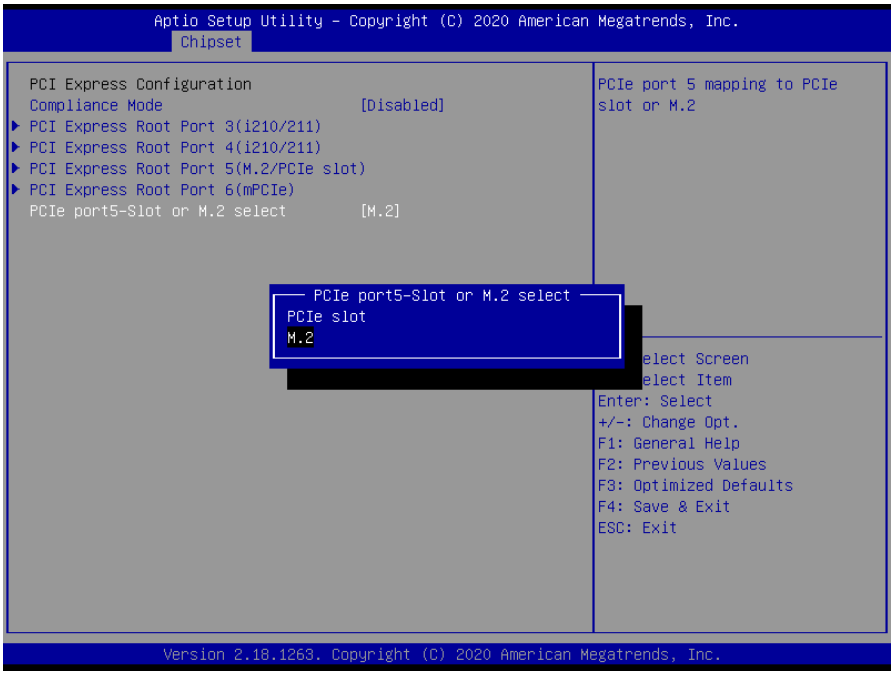


Item	Option	Description
HD-Audio Support	Disable Enable**[Default]**,	Enable/Disable HD-Audio Support.

AMP Gain Setting	11db 14db**[Default]** 19db 25db	Select AMP Gain db.

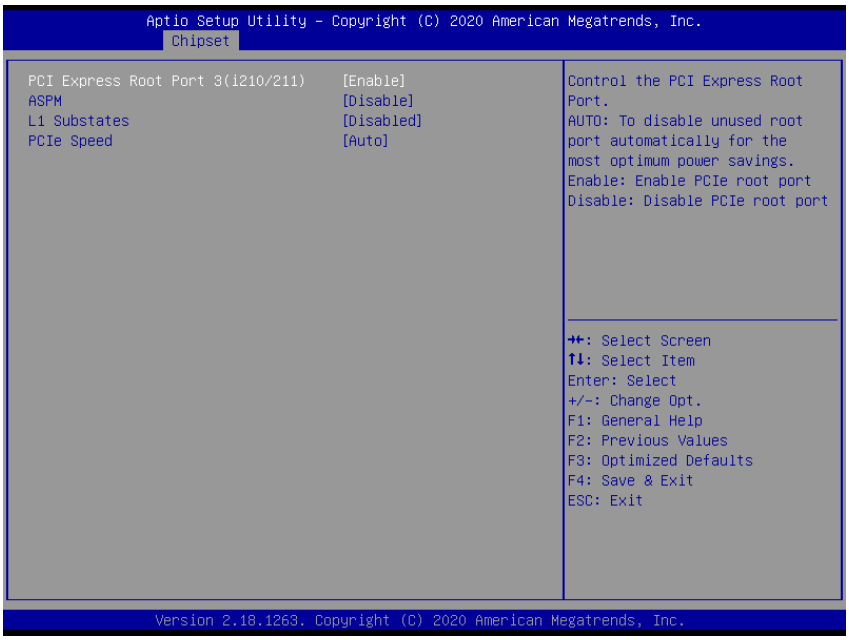
3.6.3.4.2 PCI Express Configuration





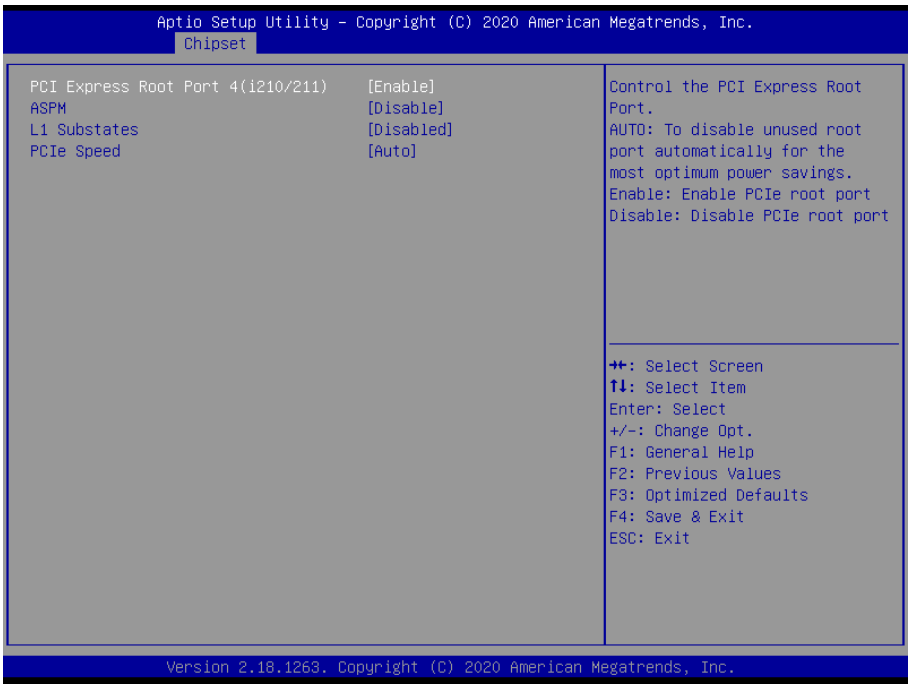
Item	Option	Description
PCIe port5-Slot or M.2 select	PCIe slot M.2**[Default]**,	PCIe port5 mapping to PCIe slot or M.2.

3.6.3.4.2.1 PCI Express Root Port 3(i210/211)



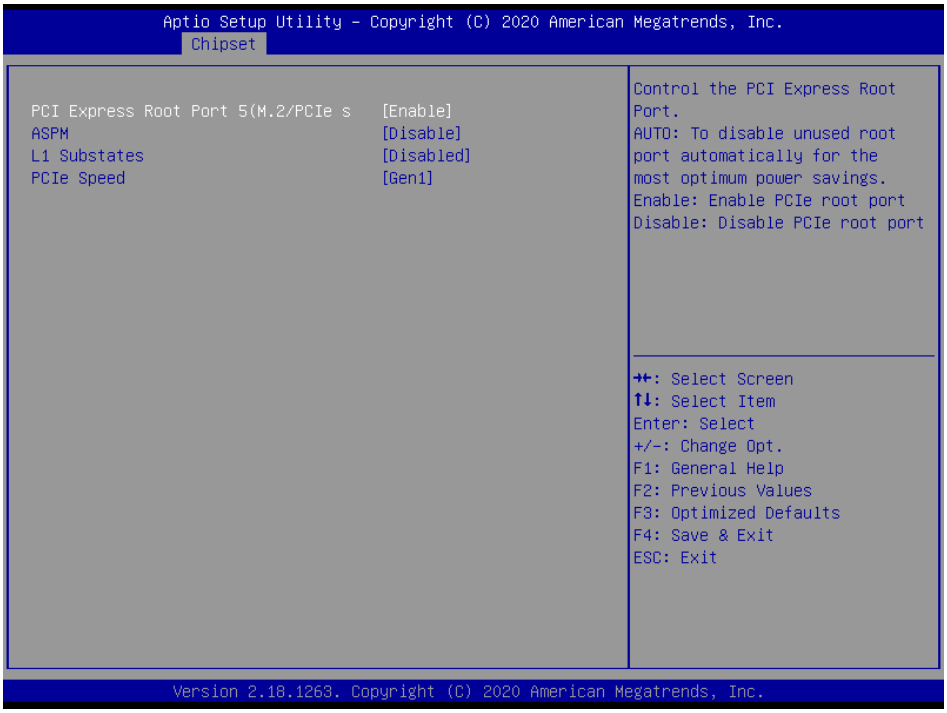
Item	Option	Description
PCI Express Root Port 3(i210/211)	Disable Enable**[Default]**	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
ASPM	Disable**[Default]** L0s L1 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]** Gen 1 Gen 2	Configure PCIe Speed.

3.6.3.4.2.2 PCI Express Root Port 4(i210/211)



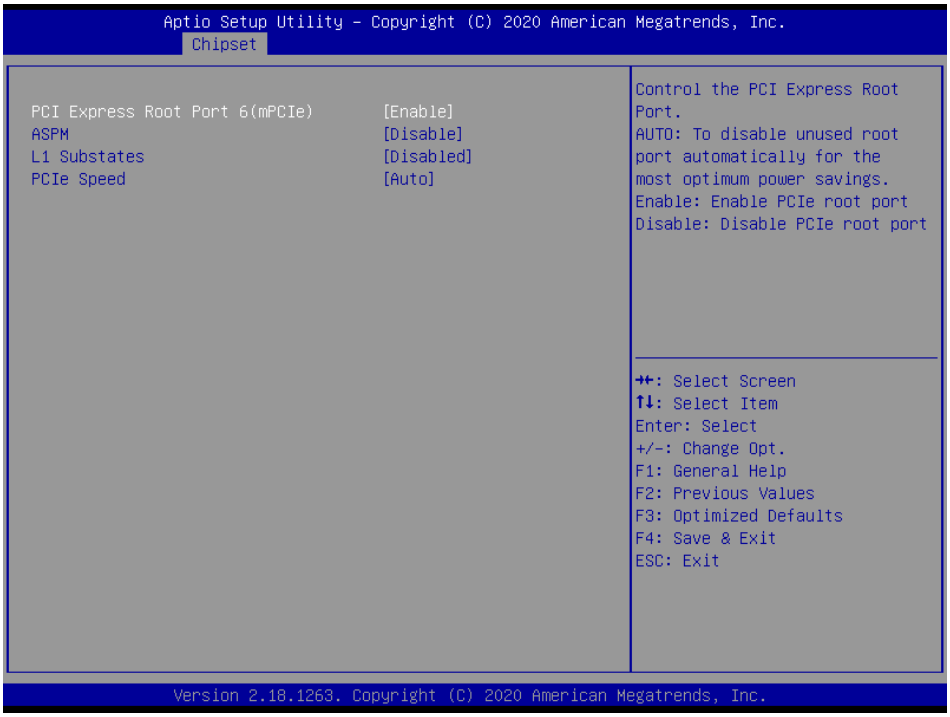
Item	Option	Description
PCI Express Root Port 4(i210/211)	Disable Enable**[Default]**	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
ASPM	Disable**[Default]** L0s L1 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]** Gen 1 Gen 2	Configure PCIe Speed.

3.6.3.4.2.3 PCI Express Root Port 5(M.2/PCIe slot)



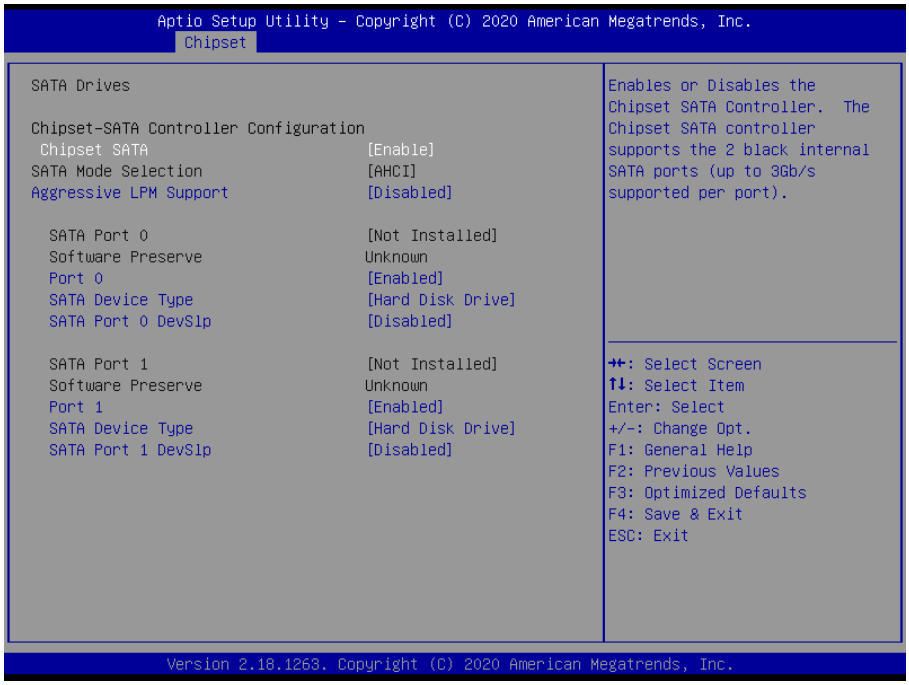
Item	Option	Description
PCI Express Root Port 5(M.2/PCIe slot)	Disable Enable**[Default]**	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
ASPM	Disable**[Default]** L0s 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 Gen 1**[Default]** Gen 2	Configure PCIe Speed.

3.6.3.4.2.4 PCI Express Root Port 6(mPCIe)



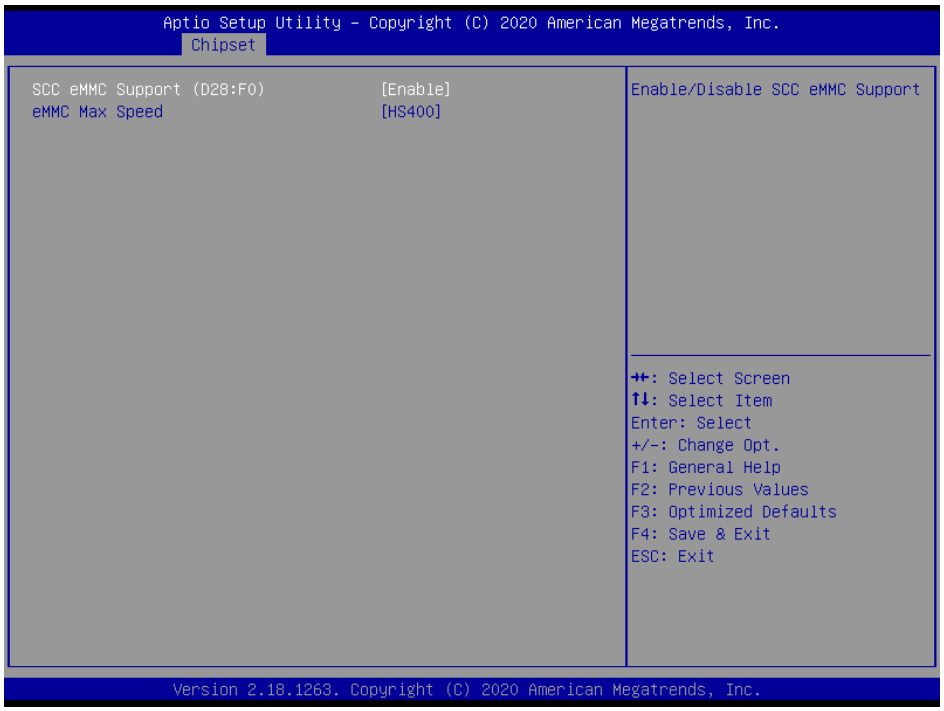
Item	Option	Description
PCI Express Root Port 6(mPCIe)	Disable Enable**[Default]**	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
ASPM	Disable**[Default]** L0s L1 L0sL1 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]** Gen 1 Gen 2	Configure PCIe Speed.

3.6.3.4.3 SATA Drives



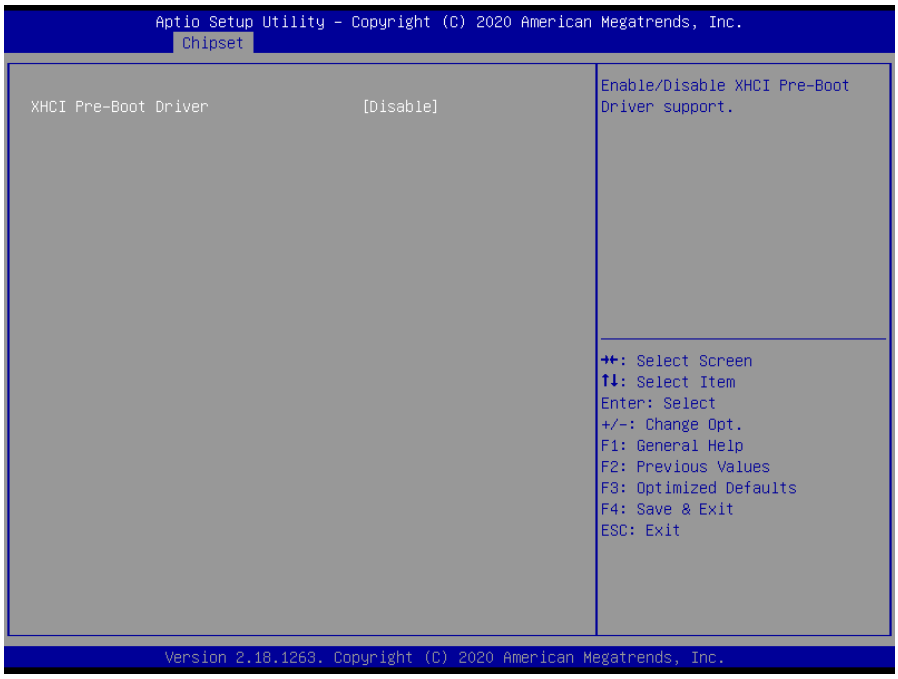
Item	Option	Description
Chipset SATA	Enable**[Default]**, Disable	Enables or Disables the Chipset the SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).
Aggressive LPM Support	Disabled**[Default]** Enabled	Enable PCH to aggressively enter link power state.
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 Driver or Hard Disk Drive.
SATA Port 0/1 DevSlp	Disabled**[Default]** Enabled	Enable/Disable SATA Port 0/1 DevSlp. Board rework for LP needed before enable.

3.6.3.4.4 SCC Configuration



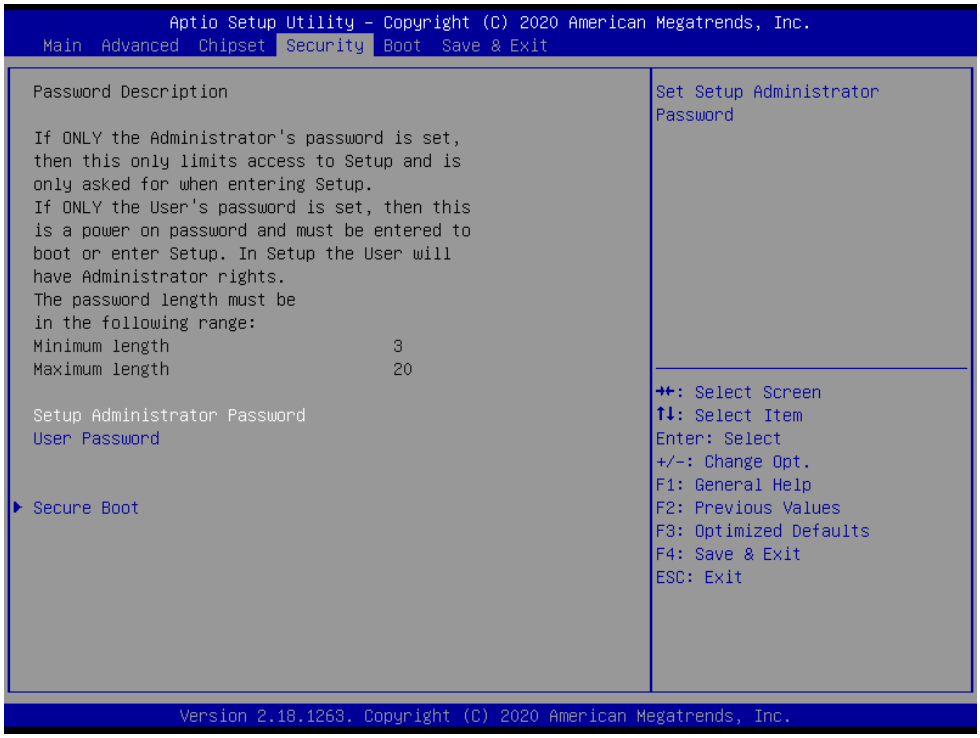
Item	Option	Description
SCC eMMC Support (D28:F0)	Disable Enable**[Default]**,	Enable/Disable SCC eMMC Support.
eMMC Max Speed	HS400**[Default]**, HS200 DDR50	Select the eMMC max Speed allowed.

3.6.3.4.5 USB Configuration



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

3.6.4 Security



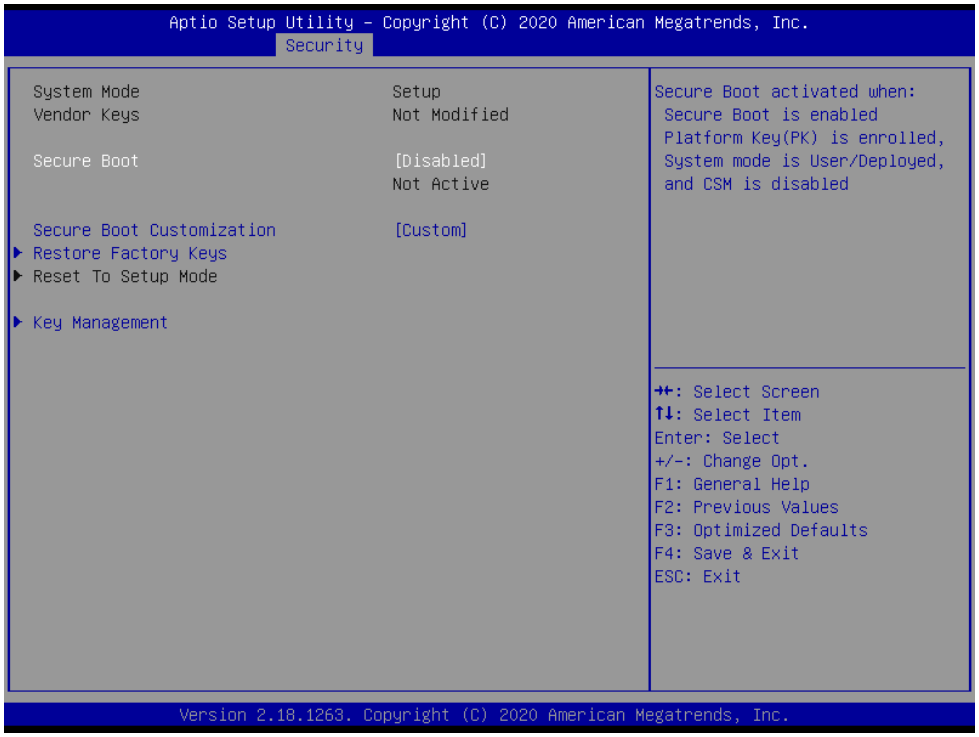
- **Setup Administrator Password**

Set setup Administrator Password

- **User Password**

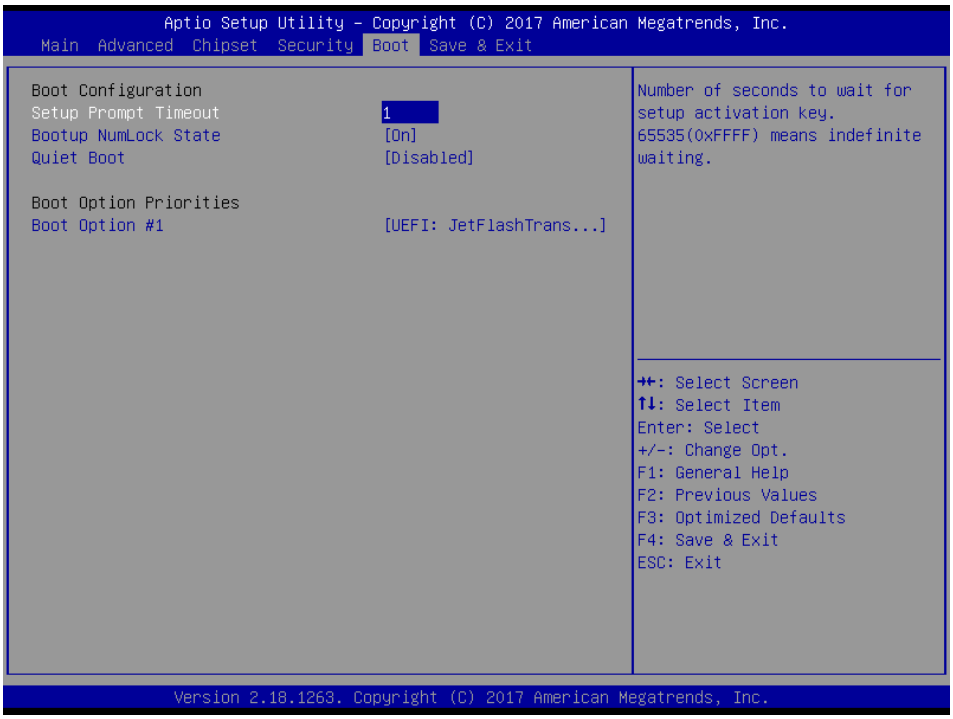
Set User Password

3.6.4.1 Secure Boot



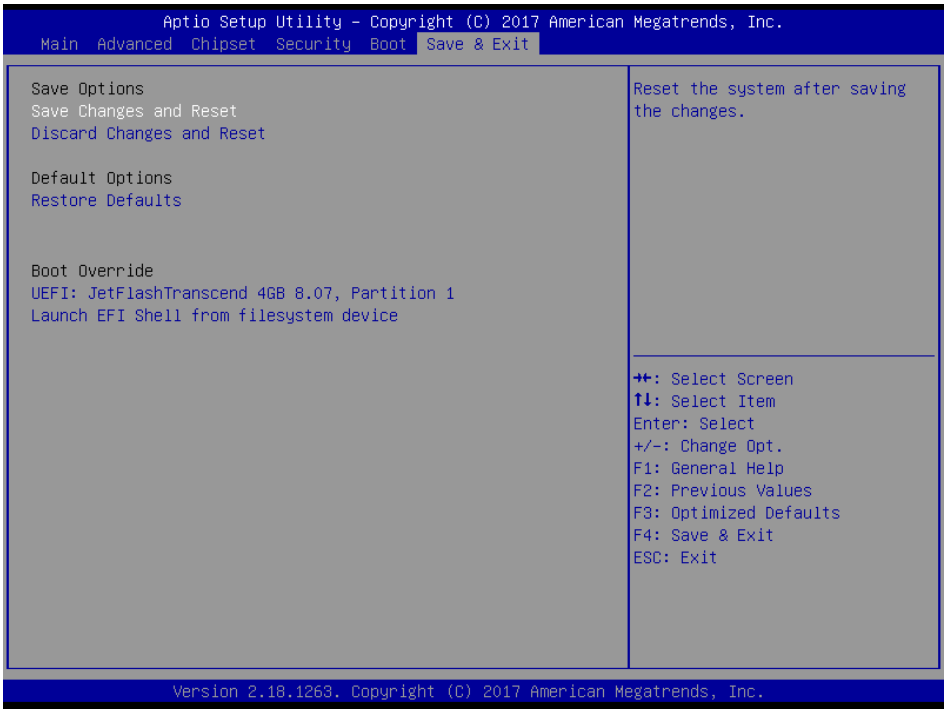
Item	Option	Description
Secure Boot Mode	Disabled**[Default]** Enabled	Secure Boot activated when:Secure Boot is enabled, Platform Key(PK) is enrolled, System mode is User/Deployed, and CSM is disabled.
Secure Boot Customization	Standard Custom**[Default]**	Secure Boot Mode –Custom_Standard, Set UEFI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

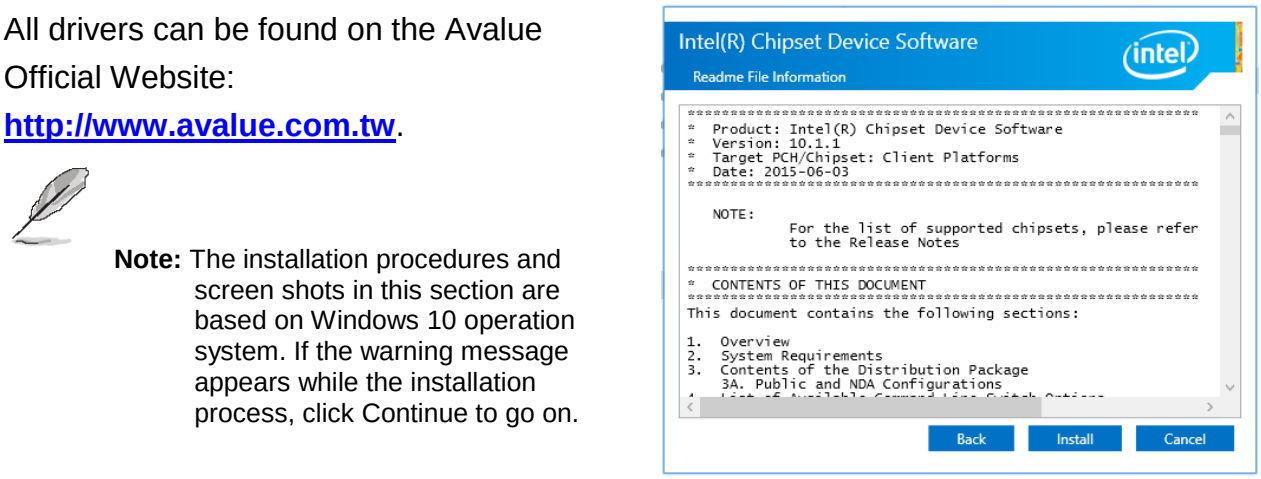
4. Drivers Installation

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.

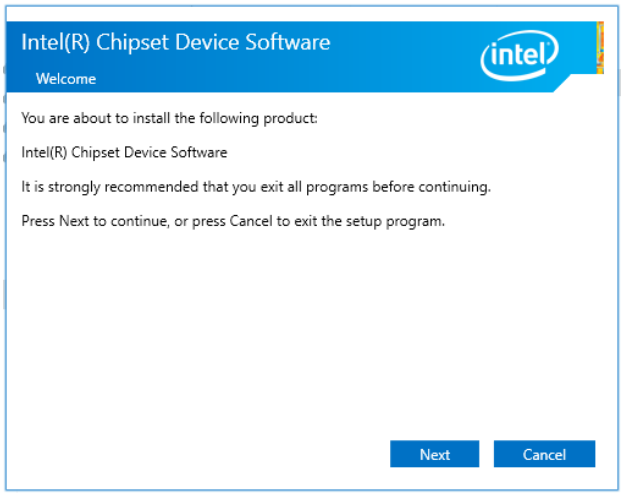
4.1 Install Chipset Driver

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. If the warning message appears while the installation process, click Continue to go on.



Step 3. Click **Install**.



Step1. Click **Next**.

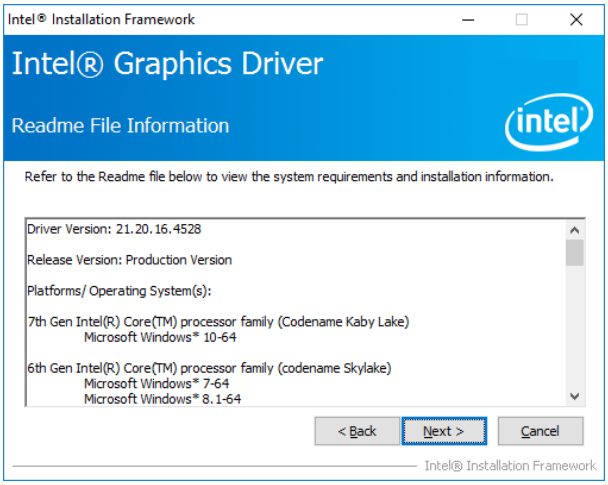
Step 4. Click **Finish** to complete setup.

Step 2. Click **Accept**.

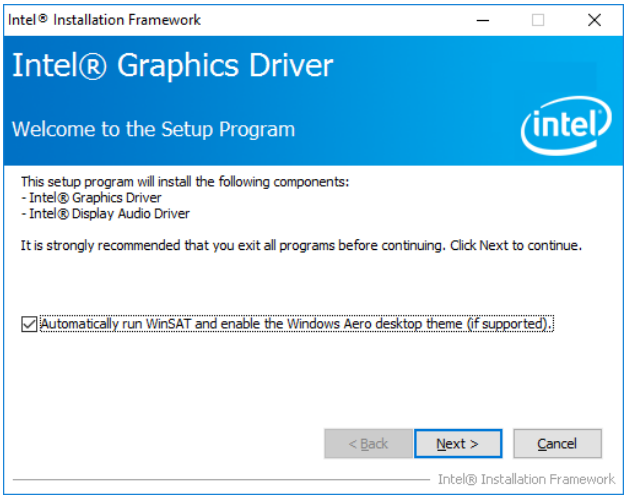
4.2 Install VGA Driver

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

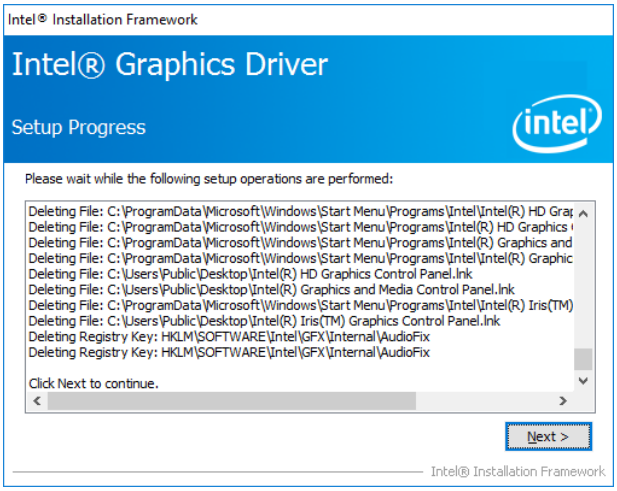
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



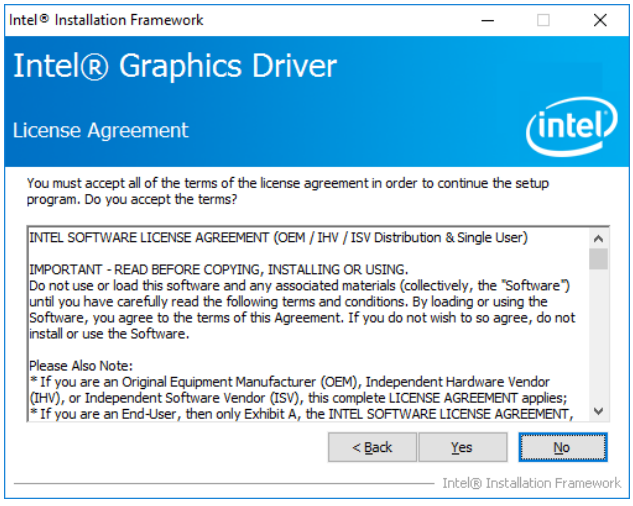
Step 3. Click **Next.**



Step 1. Click **Next** to continue installation.

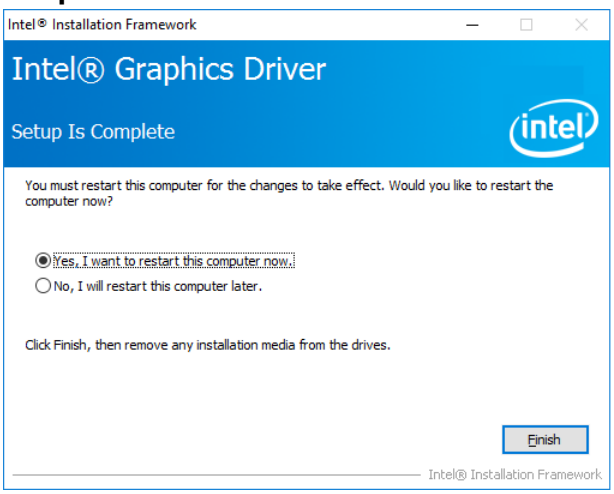


Step 4. Click **Next**.



Step 2.

Click **Yes** to accept license agreement.



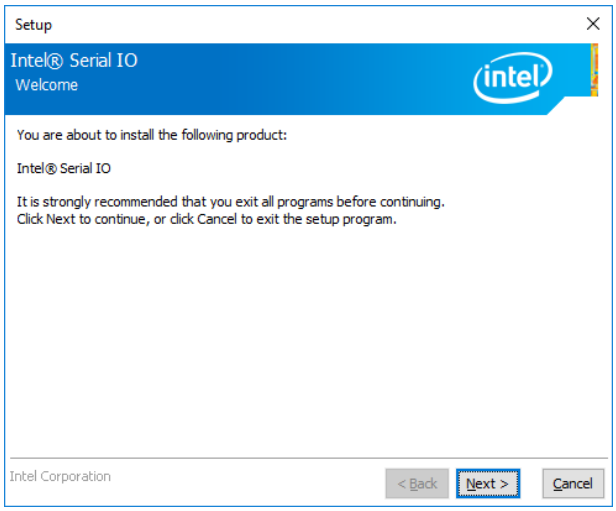
Step 5. Click **Finish** to complete setup.

4.3 Install Serial IO Driver

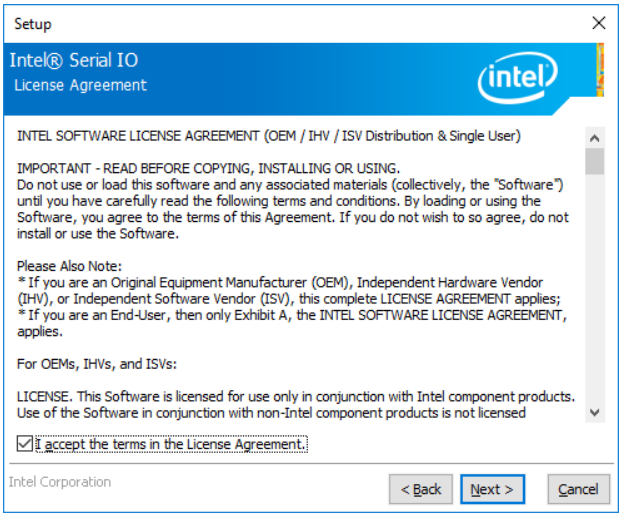
All drivers can be found on the Avalue Official Website:

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

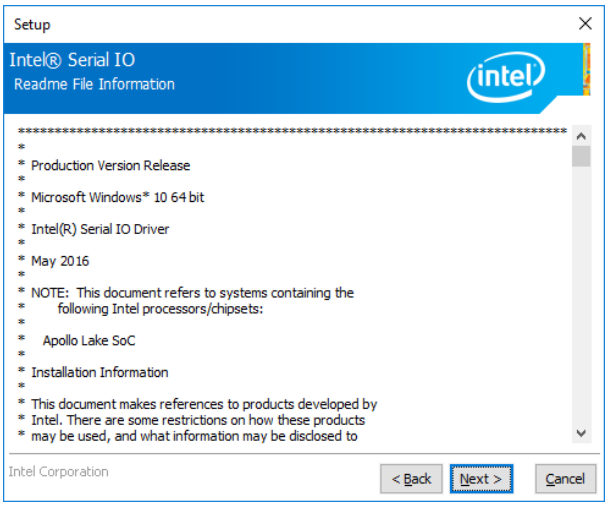
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



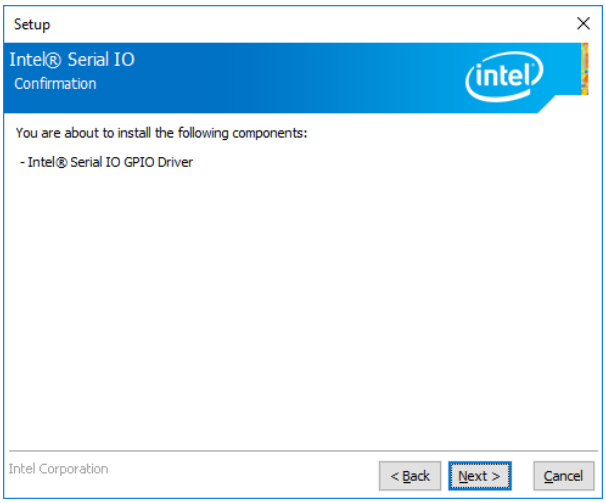
Step 1. Click **Next** to continue setup.



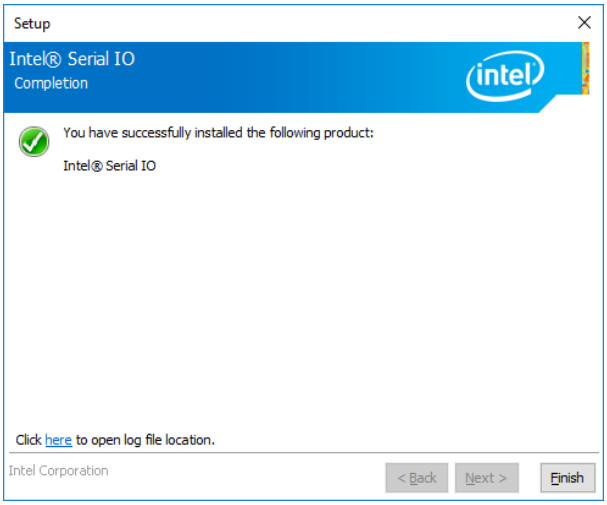
Step 2. Click **Next**.



Step 3. Click **Next**.



Step 4. Click **Next**.

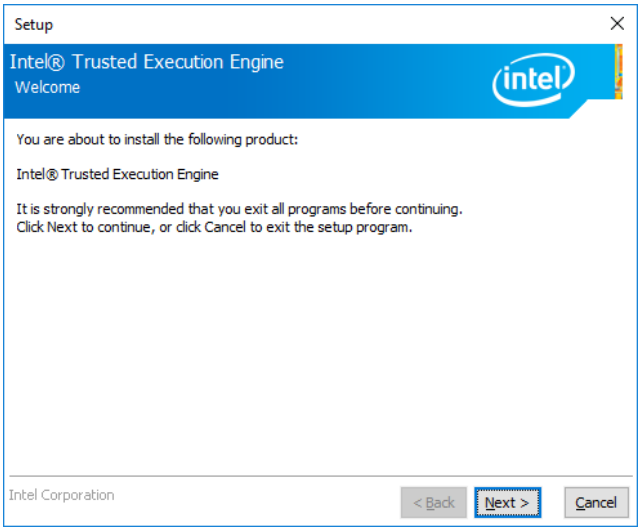


Step 5. Click **Finish** to complete the setup.

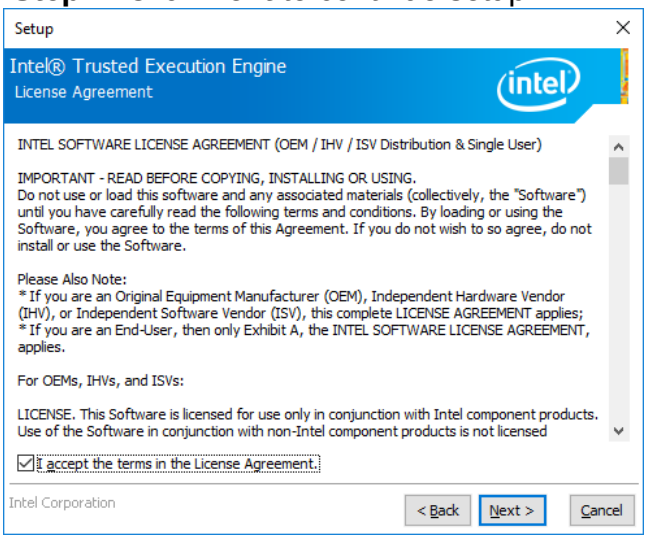
4.4 Install TXE Driver

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

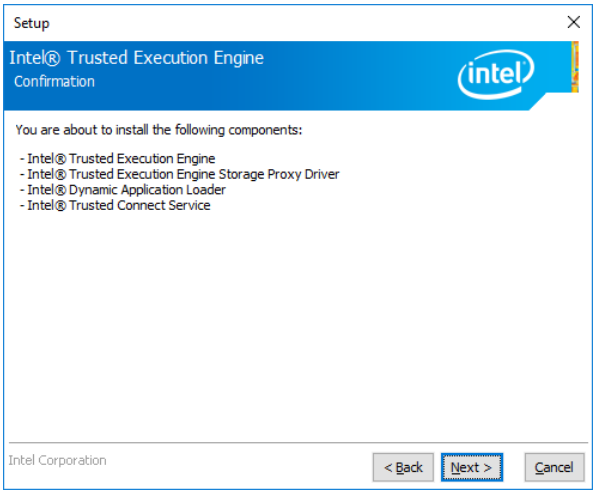
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



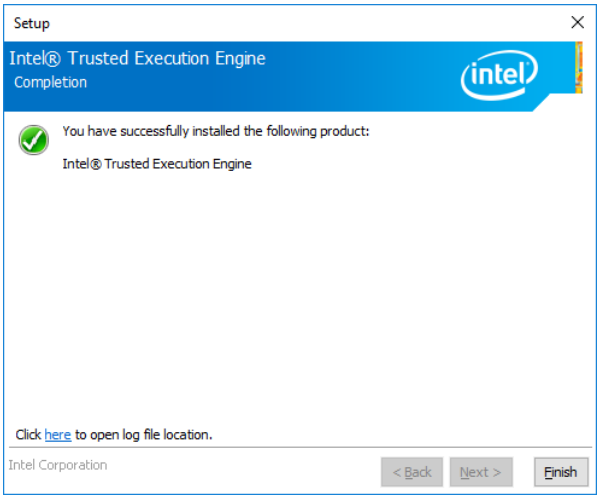
Step 1. Click **Next** to continue setup.



Step 2. Click **Next**.



Step 3. Click **Next**.

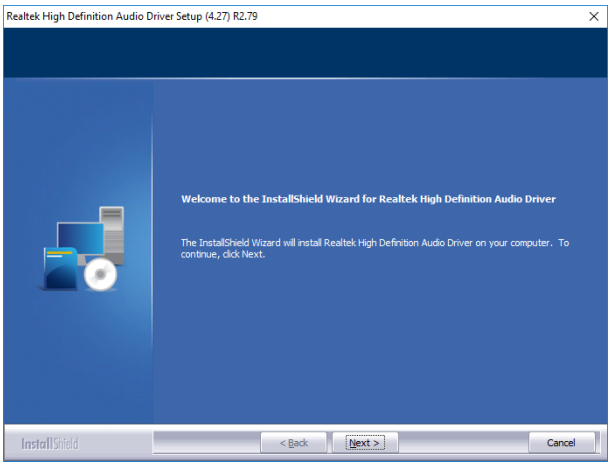


Step 4. Click **Finish** to complete the setup.

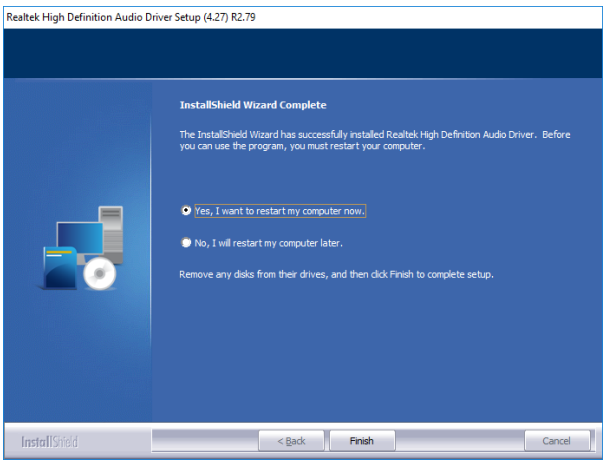
4.5 Install Audio Driver (For Realtek ALC662 HD Audio)

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. If the warning message appears while the installation process, click Continue to go on.



Step1. Click **Next** to Install.

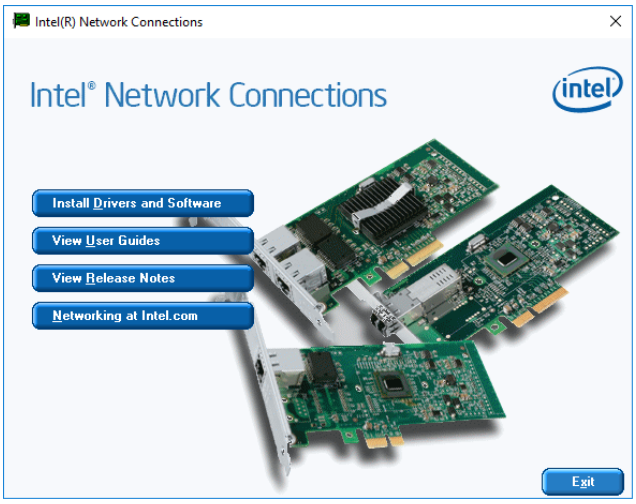


Step 2. Select **Finish** to complete Installation.

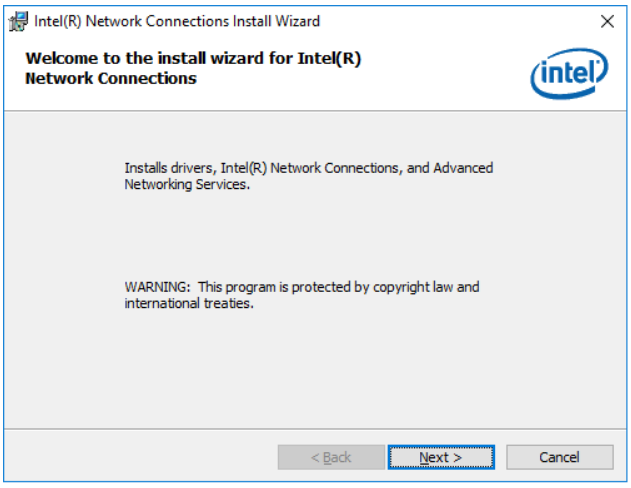
4.6 Install LAN Driver (For Intel I211AT)

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

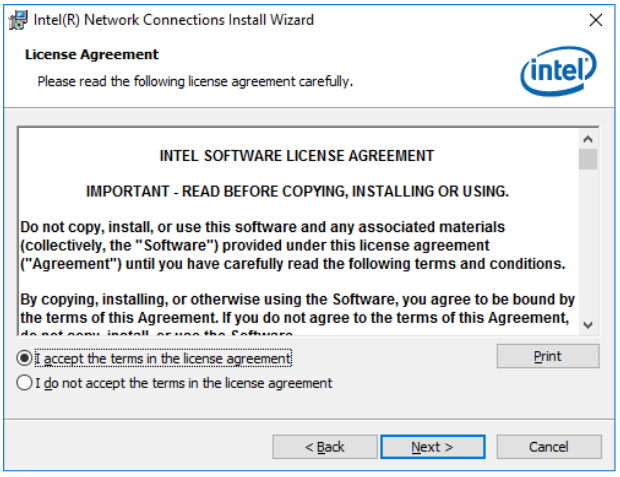
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



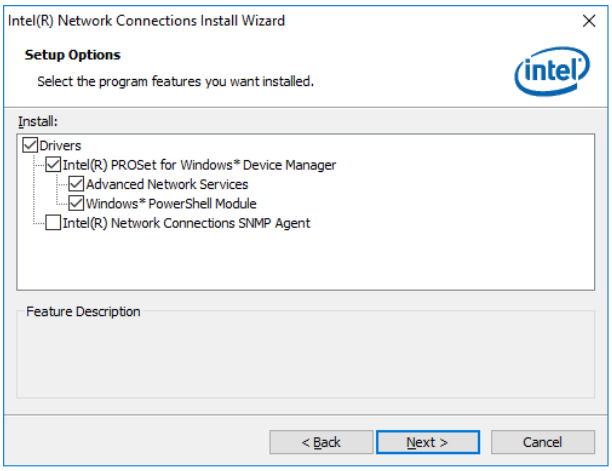
Step 1. Click **Install Drivers and Software**.



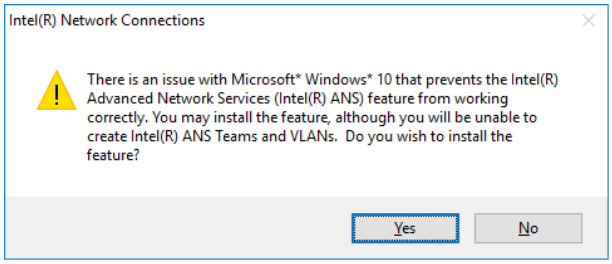
Step 2. Click **Next**.



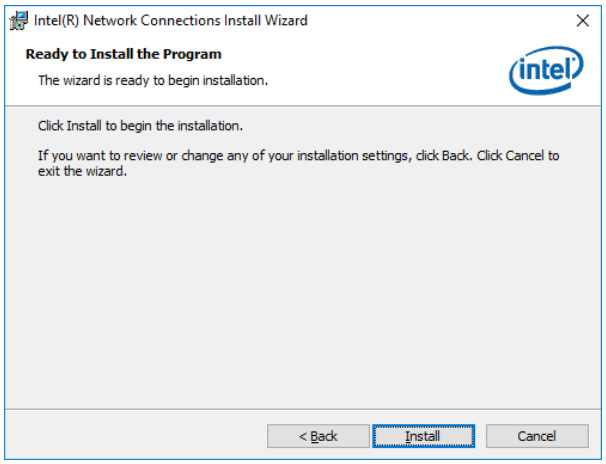
Step 3. Click **Next**.



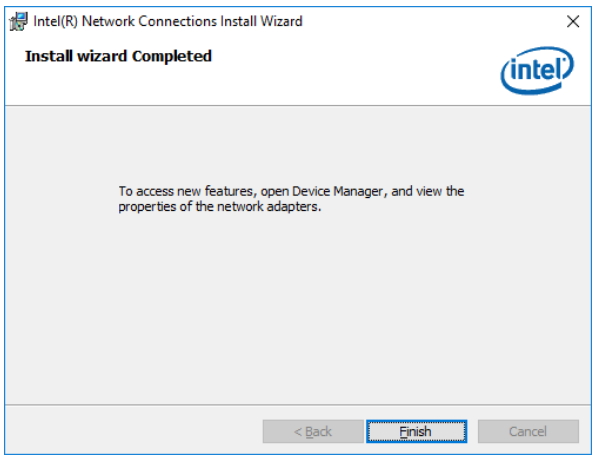
Step 4. Click **Next**.



Step 5. Click **Yes**.



Step 6. Click **Install**.



Step 7. Click **Finish** to complete setup.

5. Development Resource

Here you can find development resource for OFP-15W33

Datasheet

LCD Datasheet(eDP)

Touch Screen Datasheet

Adapter Datasheet

CE/FCC test Report (Product Design Verification Report)

Here you can find information for Software development

How to flash Android image file

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

http://www.avalue.com.tw