F35-ARU1
User's Manual

Revision: 1.0
Release Date: March 27, 2026

Trademark:

*** Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.**

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Environmental Protection and Safety Announcement

- Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及其电子组件	X	X	O	O	O	O
外部信号连接器及线材	X	X	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在

SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出

SJ/T 11363-2006 标准规定的限量要求。

备注: 此产品所标示之环保使用期限,系指在一般正常使用状况下。

China RoHS Requirements (EN)

Poisonous or Hazardous Substances or Elements in Products

Main Board/ Daughter Board/ Backplane

Name and content of hazardous substances in productPart Name						
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
PCB Assemblies	X	○	○	○	○	○
Connector and Cable	X	○	○	○	○	○
Chassis	○	○	○	○	○	○
Hard Disk	X	○	○	○	○	○
CPU and Memory	X	○	○	○	○	○
Power	X	○	○	○	○	○
Battery	X	○	○	○	○	○

The table is prepared in accordance with the provisions of SJ/T 11364.

○：Indicates that said hazardous substance contained in all of the homogenous materials for this product is below the limit requirement of GB/T 26572.

×：Indicates that said hazardous substance contained in at least one of the homogenous materials used for this part is above the limit requirement of GB/T 26572.

But this product still be compliance with 2011/65/EU Directive(allowed with 2011/65/EU Annex III of RoHS exemption with number 6(c),7(a),7(c)-1)

Notes：

1. This product defined period of use is under normal condition.
2. In above part, CPU/Memory/ Hard Disk/ Power are optional.

User's Notice

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Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	March 27, 2026

Packing List

Part Number	Description	QTY per System
F35-ARU1	F35-ARU1	1
G01-COM-H2M20-1F	COM Cable, Length = 220mm	2
G01-SATA3-BL-1F	SATA Cable	1
G01-PW4PS2S-322-1F	SATA Power cable	1
F05-JF35-04-F	Heat Sink(assembled)	1
F07-FN606010-F	FAN(assembled)	1

Optional Accessories

Part Number	Description	QTY per System
G01-COM-H2M20-1F	COM cable	1

Chapter 1 Introduction of the Motherboard

1-1 Specifications

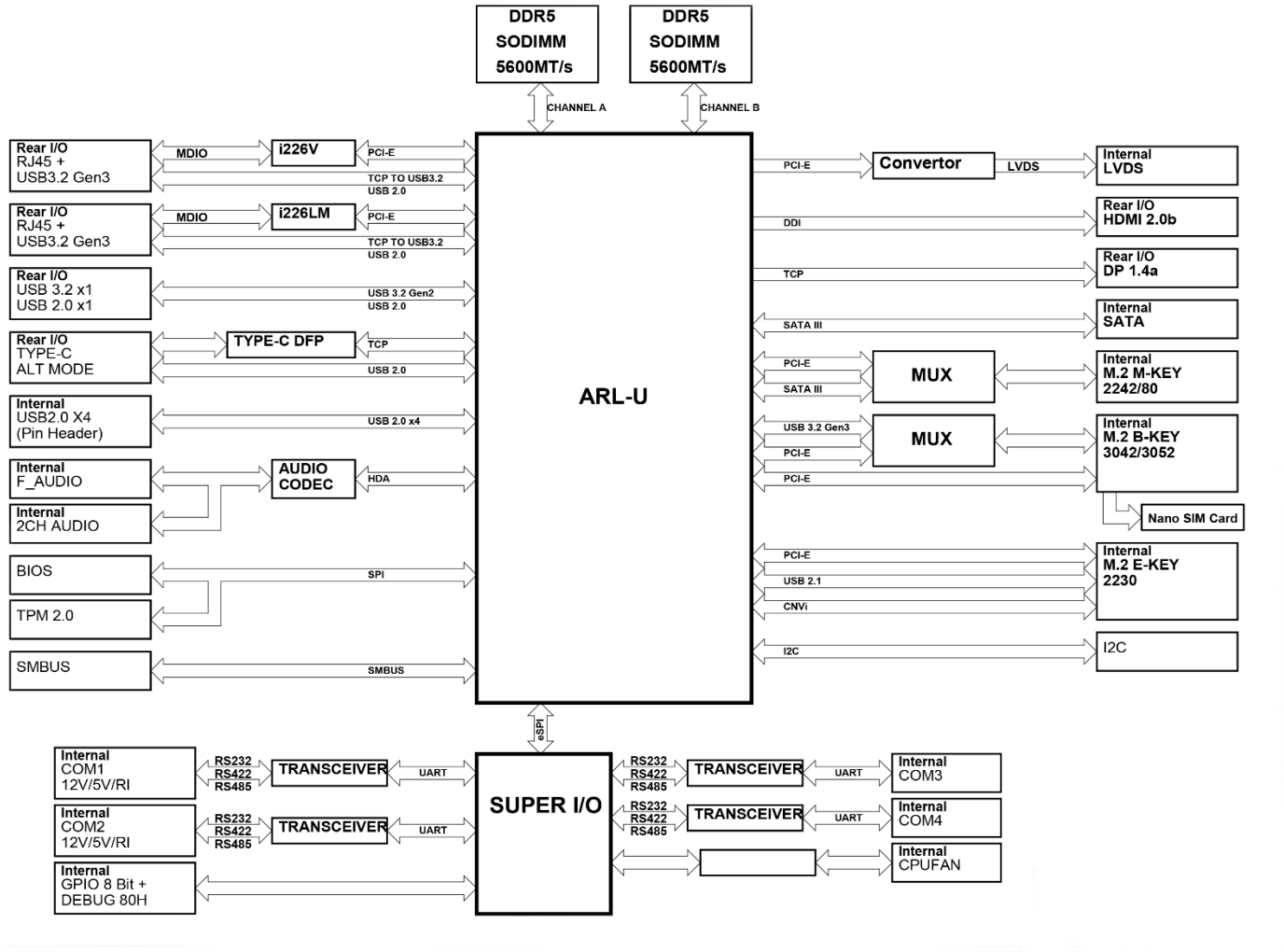
SYSTEM	
MB FORM FACTOR	3.5"
CPU	Onboard Intel® Core™ Ultra 5 Processor 225U (Formerly Arrow Lake-U, TDP 15W) Onboard Intel® Core™ Ultra 7 Processor 255U (Formerly Arrow Lake-U, TDP 15W) For additional compatible CPUs, please contact regional sales
CHIPSET	Intel® SoC
MEMORY	2 x DDR5 6400MT/s, Dual Channel CSO-DIMM, up to 128GB
BIOS	UEFI
WAKE ON LAN	Yes
WATCHDOG TIMER	255 Levels
SECURITY	TPM2.0 (dTPM, Optional)
RTC BATTERY	Lithium Battery
DIMENSION (W X D)	148.0 (W) x 102.0 (D) mm (5.8″ x 4.0″)
OS SUPPORT	Windows® 11 (64bit), Windows® 10 (64bit), Linux
POWER	
POWER REQUIREMENT	DC-in 12~36V
POWER ON MODE	AT / ATX (Default) Mode
CONNECTOR	DC Jack
DISPLAY	
GPU	Intel® Graphics
LVDS	1 x 24-bit Dual Channel LVDS (Max. Resolution: 1920 x 1200 @60Hz, co-layout eDP)
Type C DP	1 x Type-C DP 1.4 (Max Resolution: 4096 x 2160@60Hz)
DP	1 x DP1.4 (Max Resolution: 3840 x 2160@60Hz)
HDMI	1 x HDMI 2.0b (Max Resolution: 4096 x 2160@60Hz)
MULTIPLE DISPLAY	Support 4 Displays
AUDIO	
CODEC	Realtek Audio Codec
COMBO	1 x Internal Header
AMPLIFIER	3W
LAN	
ETHERNET	1 x RJ45 for Intel® I226-V 2.5GbE

	1 x RJ45 for Intel® I226-LM 2.5GbE
USB PORT	
USB	1 x USB 3.2 Gen 2x2 Type-C (20Gbps) 3 x USB 3.2 Gen 2x1 (10Gbps, Formerly USB 3.1 Gen 2) Internal Header for 4 x USB 2.0
SERIAL PORT	
COM	Internal Header for 4 x RS-232/422/485
INTERNAL I/O	
GPIO	8-Bit
SMBUS	Yes
I2C	Yes
FAN	1 x 4-pin Connector for CPU Fan (PWM Mode)
FRONT PANEL	HDD Active LED, Power LED, Power On/Off, Reset
ADDITIONAL	1 x Chassis Intrusion 1 x AT/ATX Mode Selection
STORAGE	
SATA	1 x SATA III 1 x SATA Power Connector
RAID	RAID 0/1
EXPANSION	
M.2	1 x E-Key 2230 (USB 2.0/PCIe 3.0 x1) Support CNVio 1 x B-Key 3042/3052 (USB 3.2/PCIe 3.0 x2) 1 x M-Key 2242/2280 (PCIe 4.0 x4 / SATA III) Support NVMe
SIM	1 x Nano SIM Card Slot
ENVIRONMENT & CERTIFICATION	
OPERATING TEMPERATURE	-20°C ~ 60°C (-4°F ~ 140°F)
STORAGE TEMPERATURE	-20°C ~ 85°C (-4°F ~ 185°F)
OPERATING HUMIDITY	10 ~ 90% relative humidity, non-condensing
CERTIFICATION	CE/FCC Class A

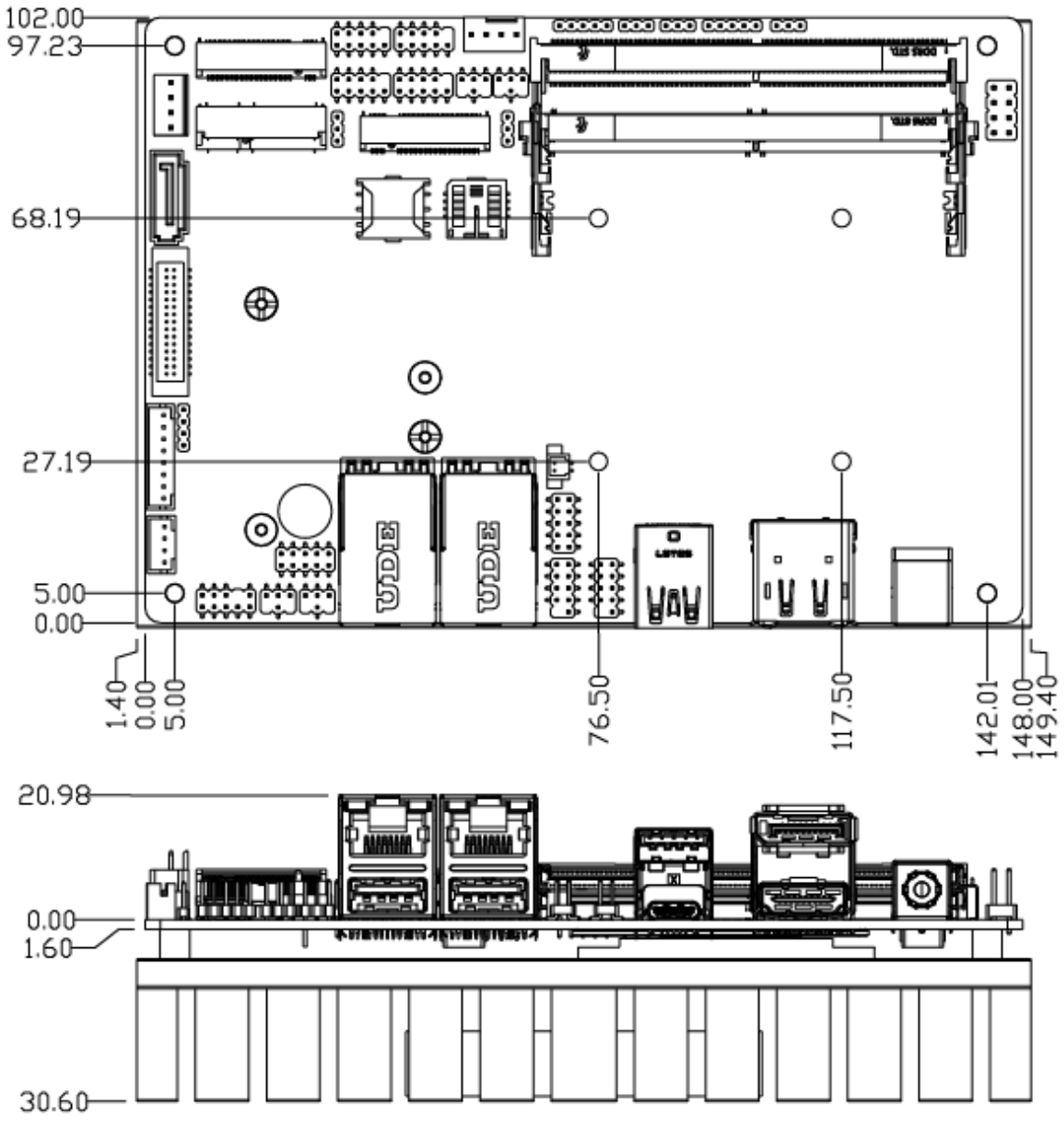
Ordering Information

Part Number	F35-ARU1-225U0020	F35-ARU1-225U0220	F35-ARU1-255U0220	F35-ARU1-255U0020
CPU	Intel® Core™ Ultra 5 225U	Intel® Core™ Ultra 5 225U	Intel® Core™ Ultra 7 255U	Intel® Core™ Ultra 7 255U
SECURITY	Intel® PTT (fTPM)	TPM2.0	Intel® PTT (fTPM)	TPM2.0

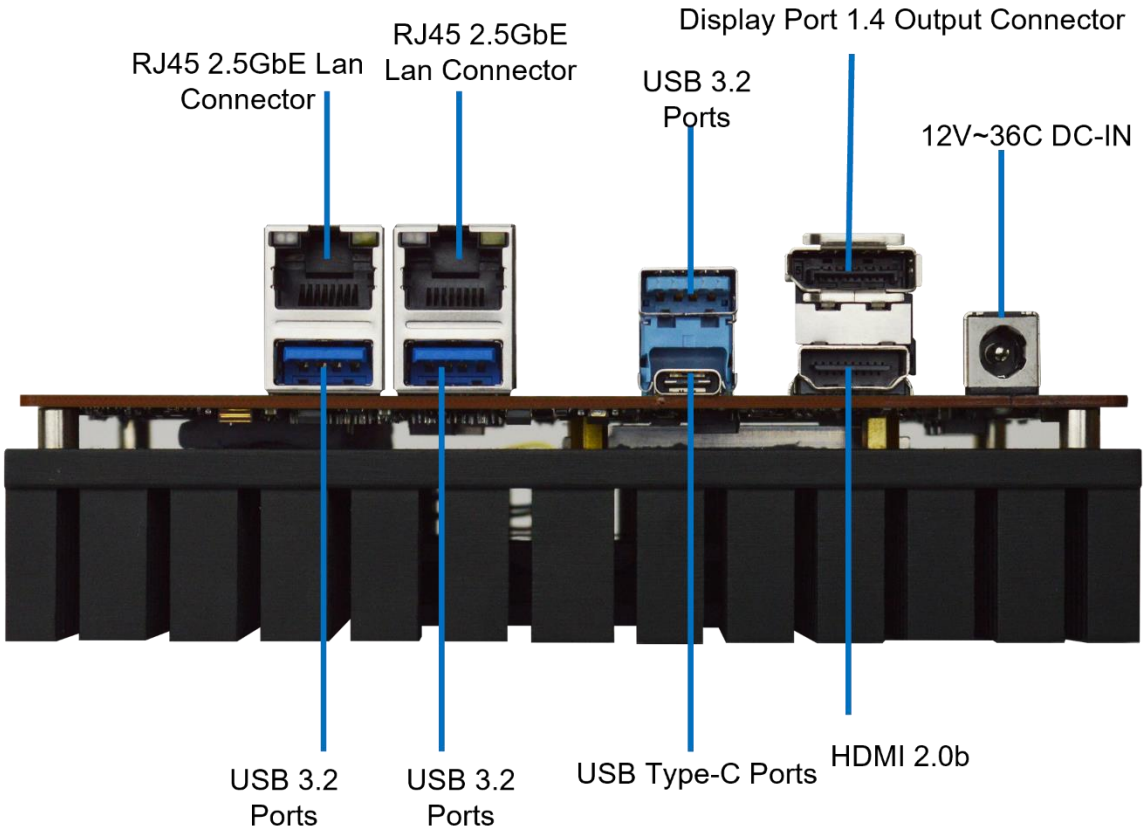
1-2 Block Diagram



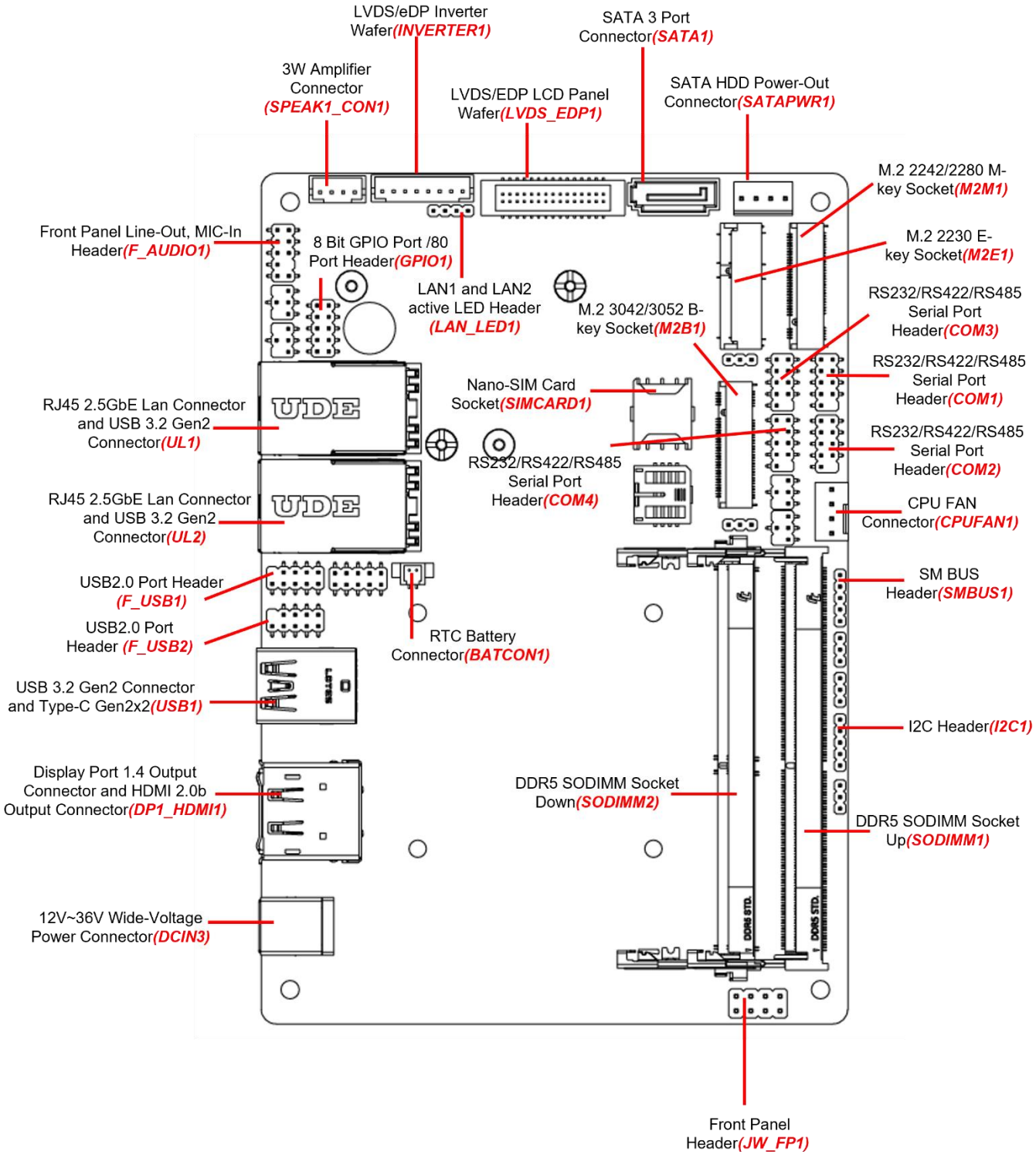
1-3 Dimension

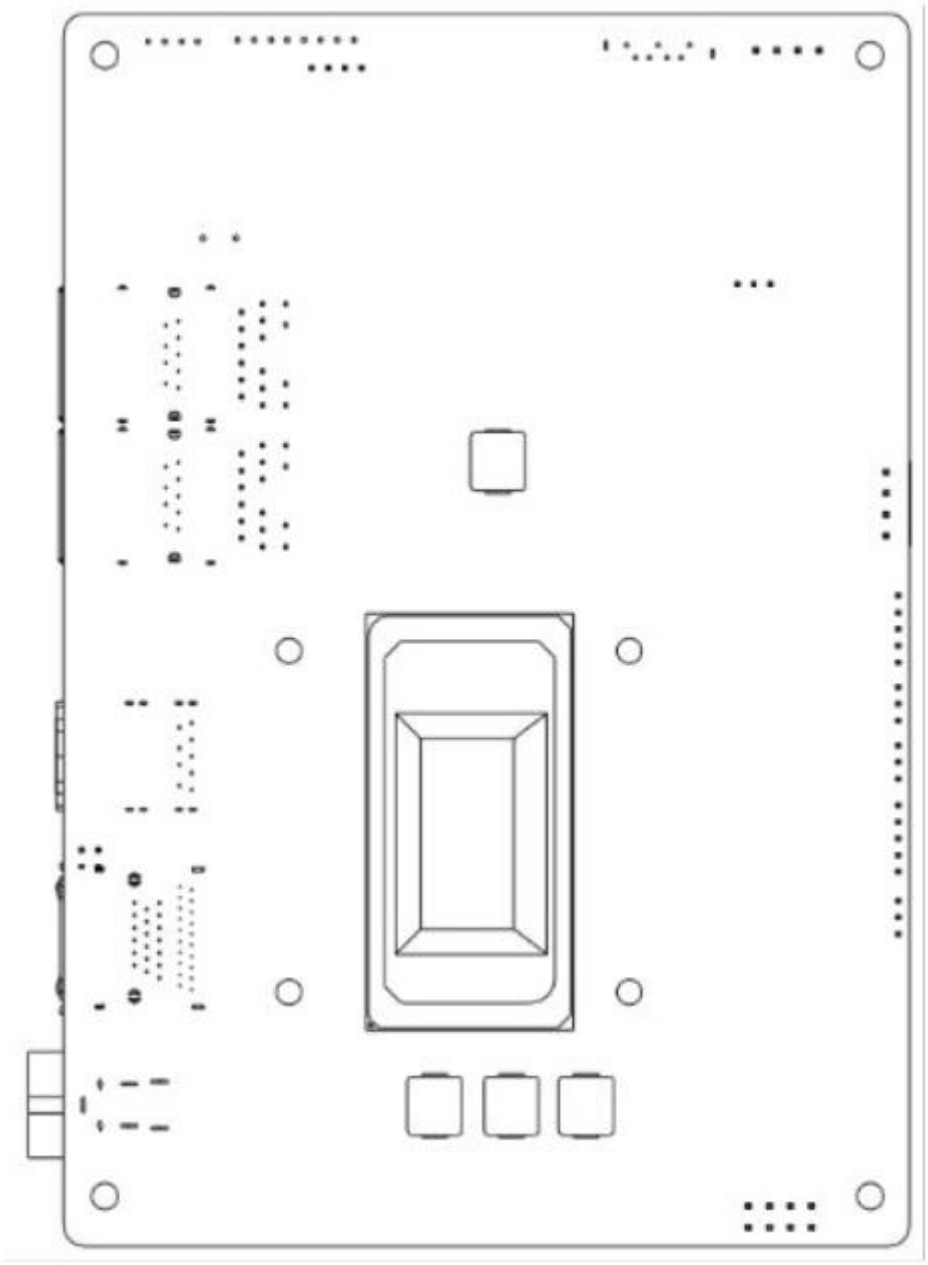


1-4 I/O Placement

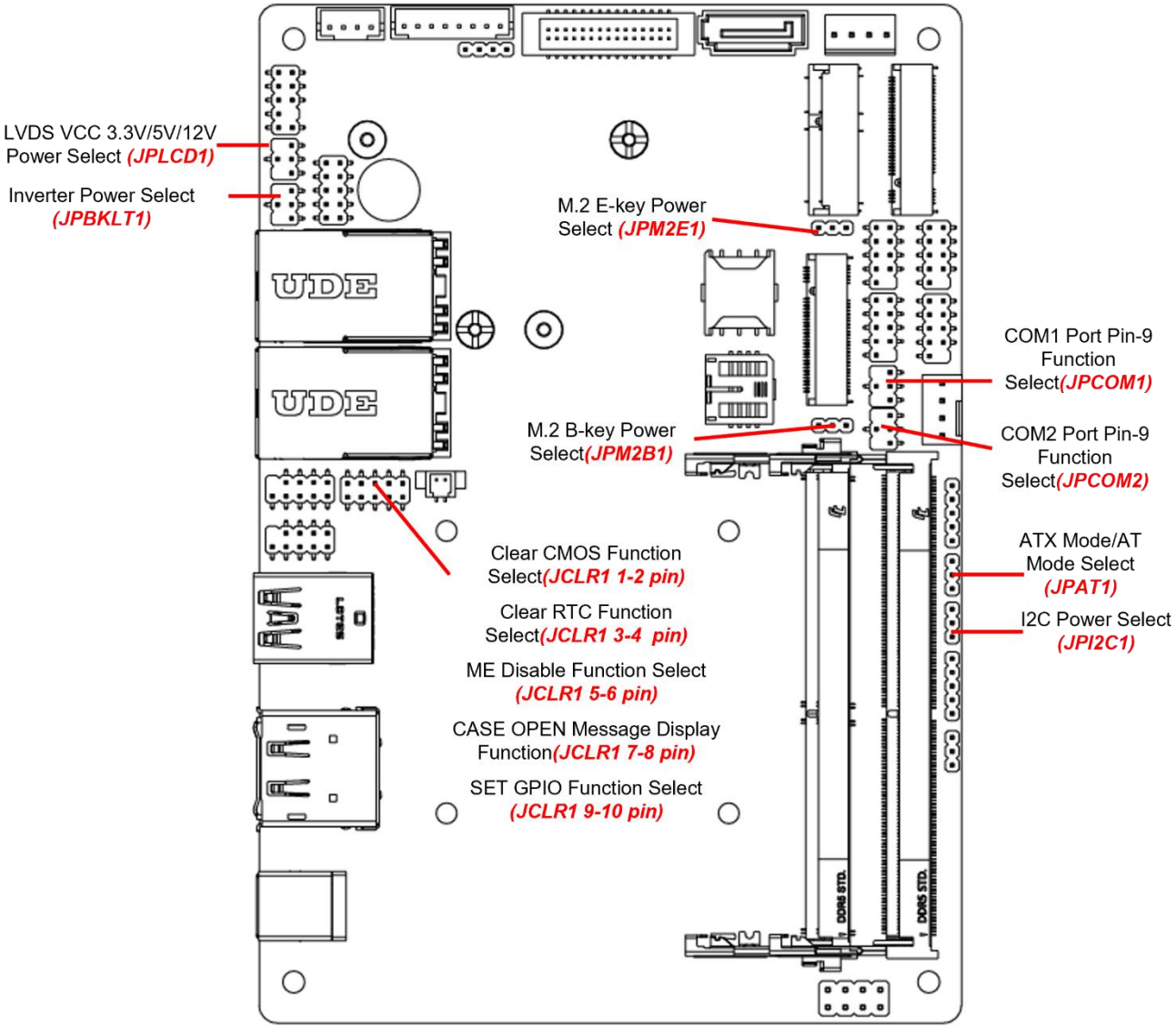


1-5 Motherboard Placement





1-6 Jumper Positions



Chapter 2 Hardware Information

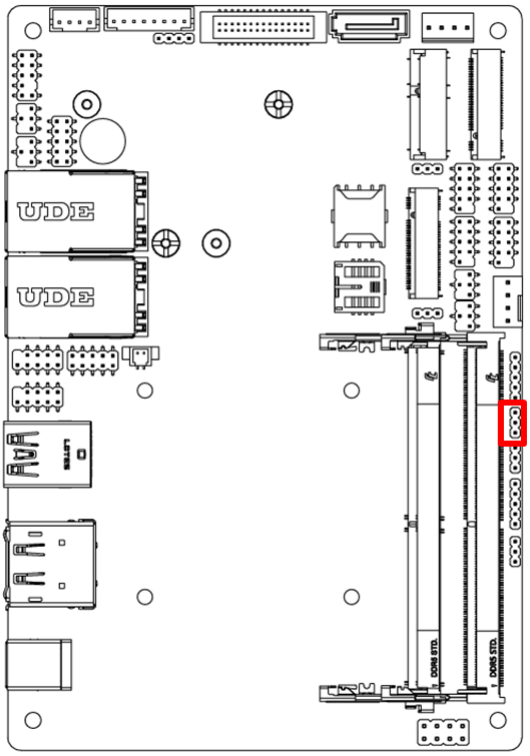
2-1 List of Jumpers

Please refer to the table below for all of the board's jumpers that you can configure for your application.

Location Printing	Function
JPAT1	ATX Mode/AT Mode Select
JPBKLT1	Inverter Power Select
JPI2C1	I2C Power Select
JPM2B1	M.2 B-key Power Select
JPM2E1	M.2 E-key Power Select
JPLCD1	LVDS PVCC 3.3V/5V/12V Power Select
JPCOM1	COM1 Port Pin-9 Function Select
JPCOM2	COM2 Port Pin-9 Function Select
JCLR1 (1-2 pin)	Clear CMOS Function Select
JCLR1 (3-4 pin)	Clear RTC Function Select
JCLR1 (5-6 pin)	ME Disable Function Select
JCLR1 (7-8 pin)	CASE OPEN Message Display Function
JCLR1 (9-10 pin)	SET GPIO Function Select

2-2 Jumper Settings

(1) ATX Mode/AT Mode Select (JPAT1)



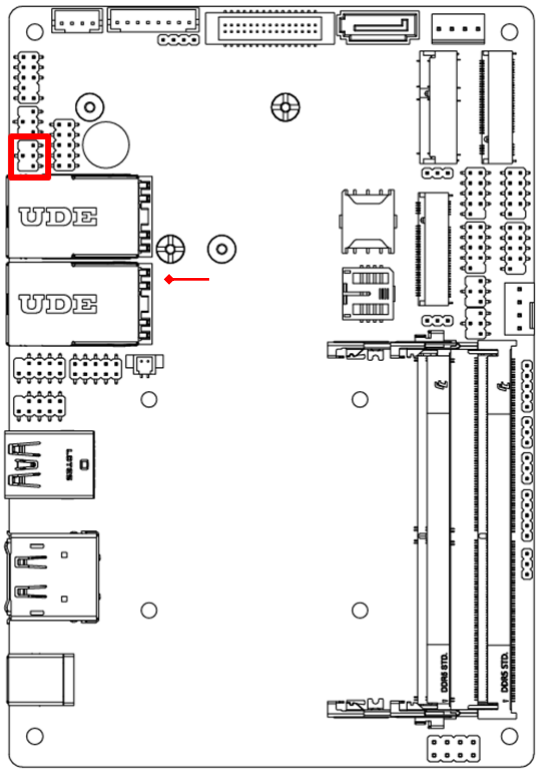


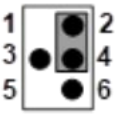
1-2 Closed: ATX Mode Selected;



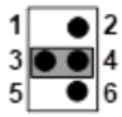
2-3 Closed: AT Mode Selected.

(2) ME Flash Override Select (JME1)

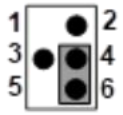




2-4 Closed: Backlight Power =5V;

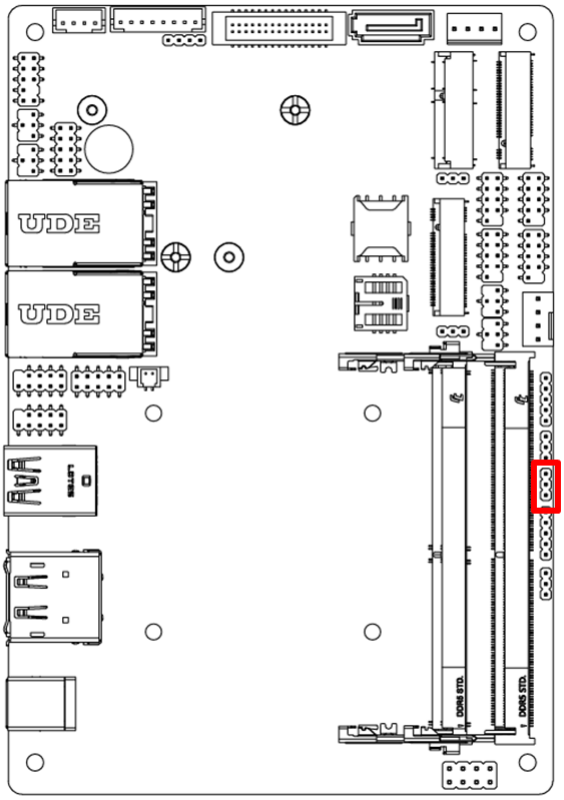


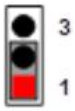
3-4 Closed: Backlight Power =12V;



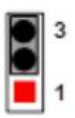
4-6 Closed: Backlight Power =Adp1236V-in

(3) I2C Power Select (JPI2C1)



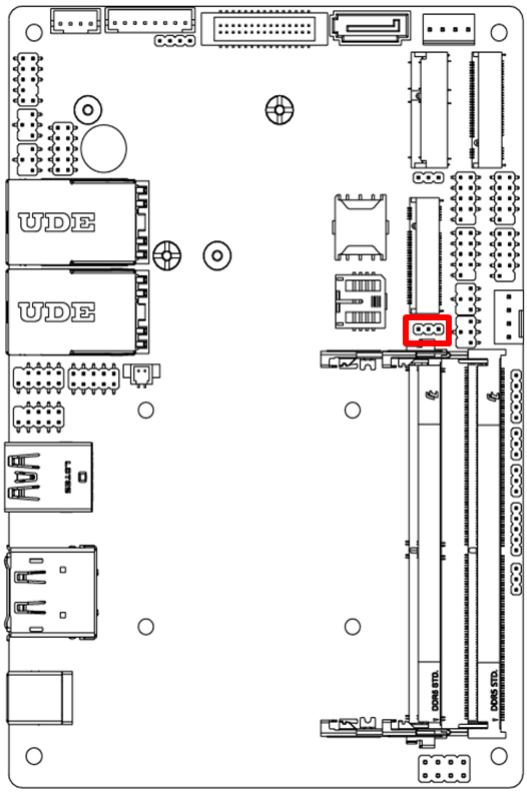


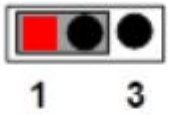
1-2 Closed: VCC=3VSB;



2-3 Closed: VCC=5VSB.

(4) M.2 B-key Power Select (JPM2B1)



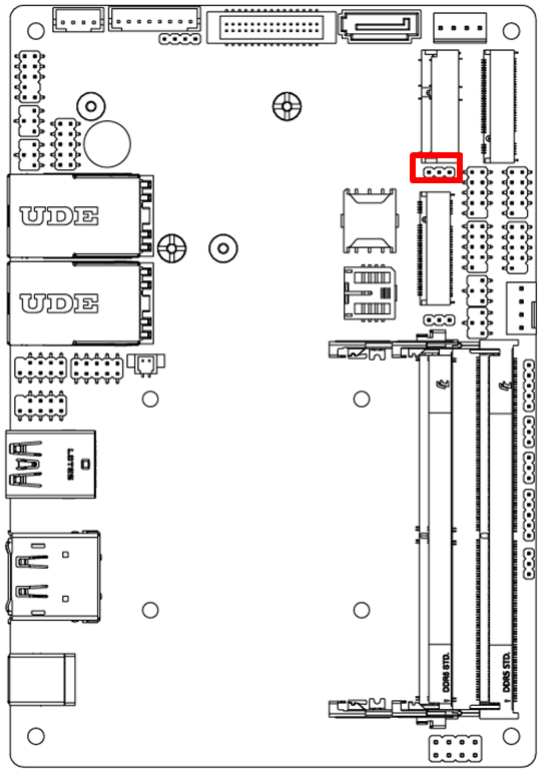


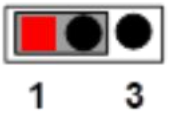
1-2 Closed: VCC=3.3V;



2-3 Closed: VCC=3VSB.

(5) M.2 E-key Power Select (JPM2E1)



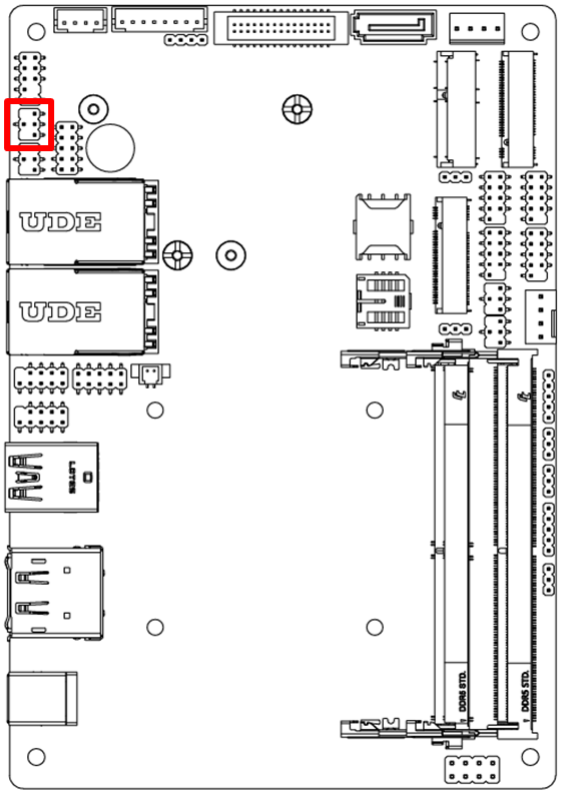


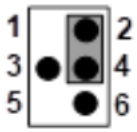
1-2 Closed: VCC=3.3V;



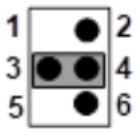
2-3 Closed: VCC=3VSB.

(6) LVDS VCC 3.3V/5V/12V Power Select (JPLCD1)

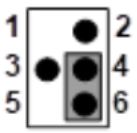




2-4 Closed:
VCC = 3.3V

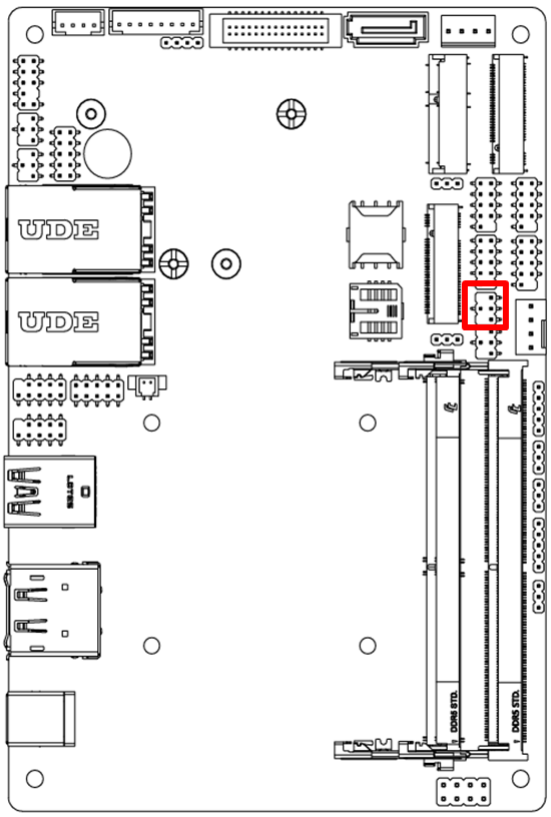


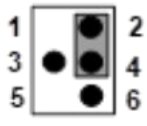
3-4 Closed:
VCC = 5V



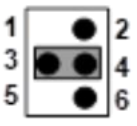
4-6 Closed:
VCC = 12V

(7) COM1 Port Pin-9 Function Select (JPCOM1)

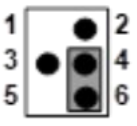




2-4 Closed:
RI=RS232;

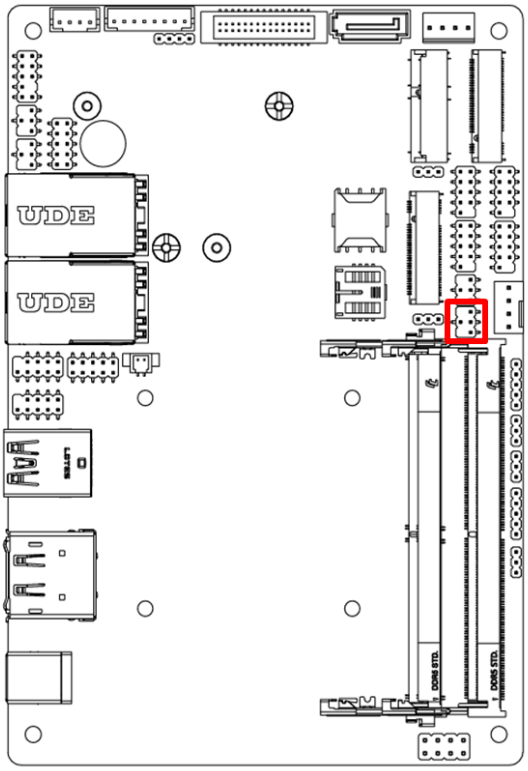


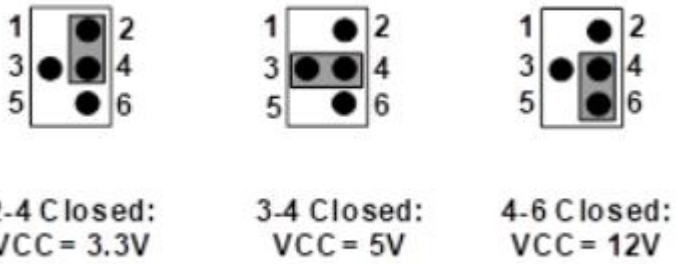
3-4 Closed:
RI=5V;



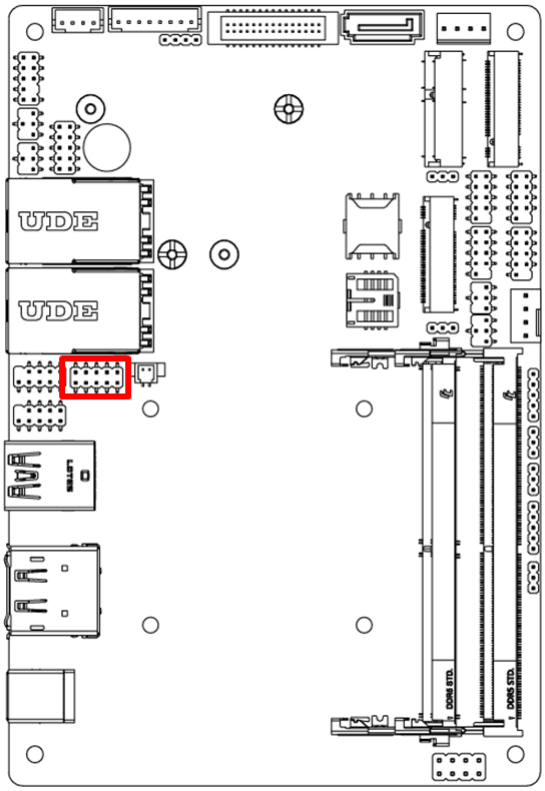
4-6 Closed:
RI=12V.

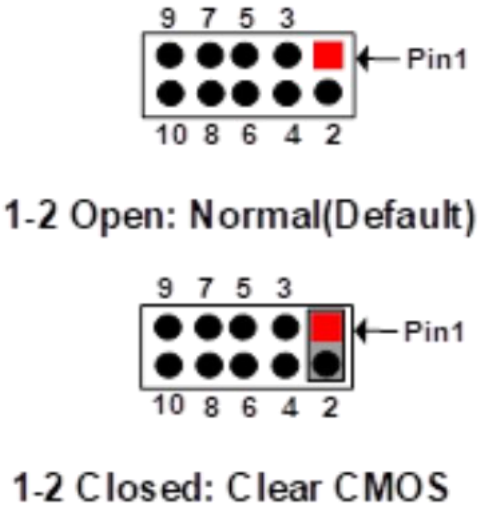
(8) COM2 Port Pin-9 Function Select (JPCOM2)



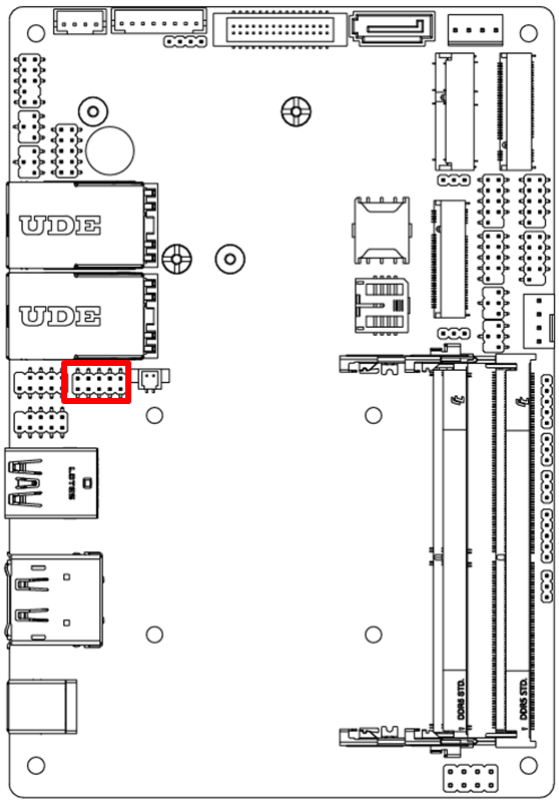


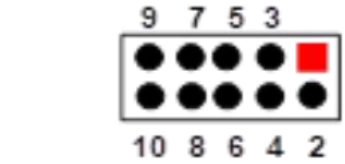
(9) Clear CMOS Function Select (JCLR1 1-2 pin)



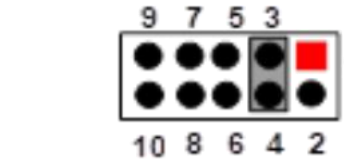


(10) Clear RTC Function Select (JCLR1 3-4 pin)



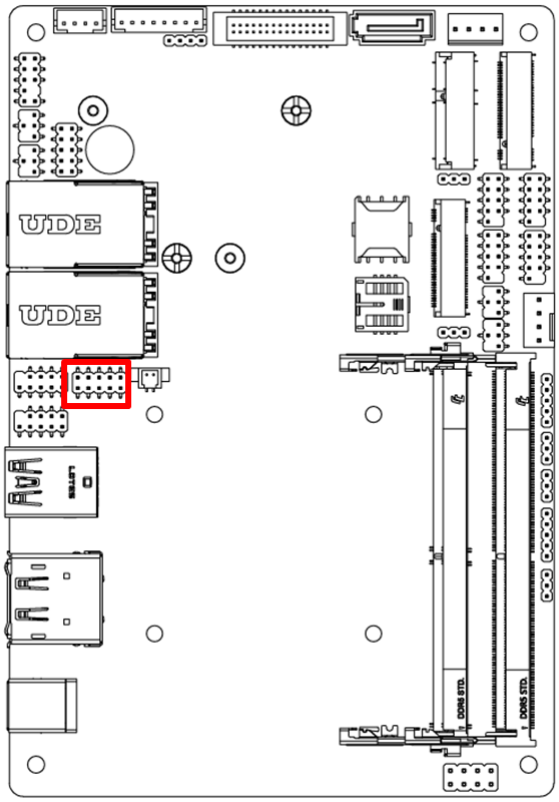


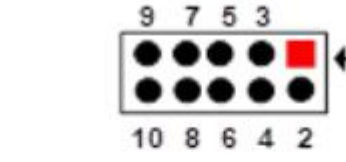
3-4 Open: Normal(Default)



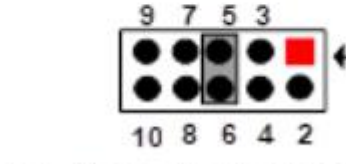
3-4 Closed: Clear RTC

(11) ME Disable Function Select (JCLR1 5-6 pin)



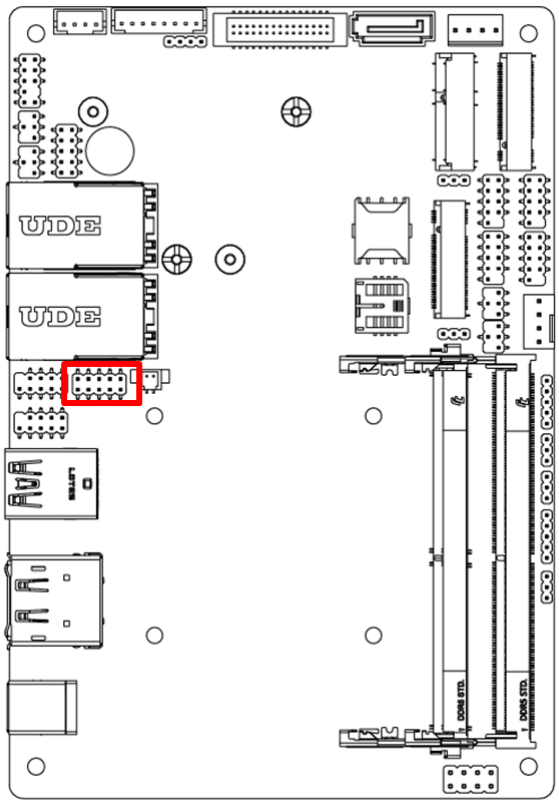


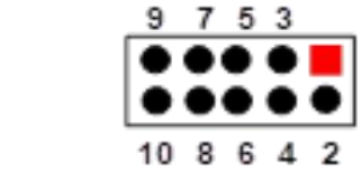
5-6 Open: Normal(Default)



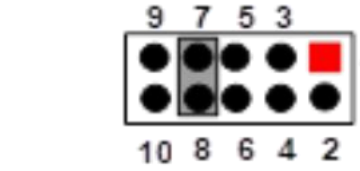
5-6 Closed: ME Disable

(12) CASE OPEN Message Display Function (JCLR1 7-8 pin)



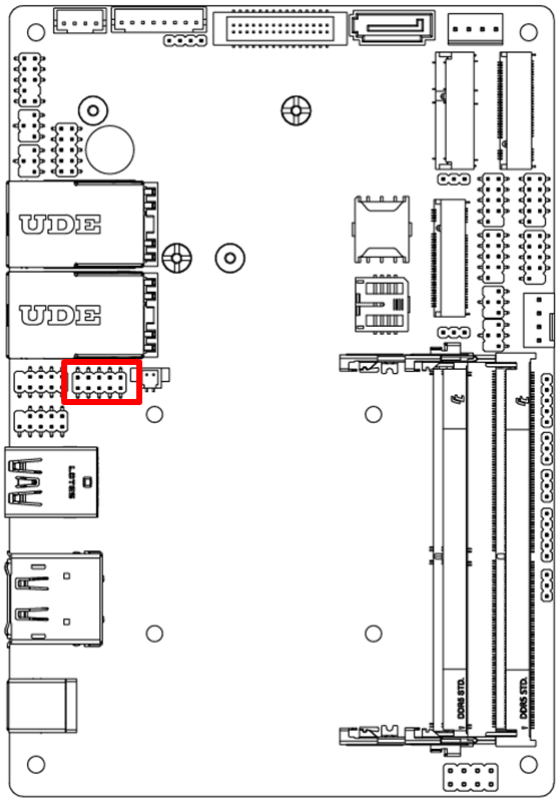


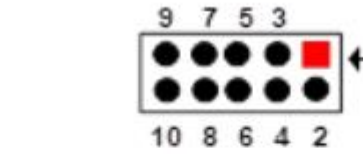
7-8 Open: Normal(Default)



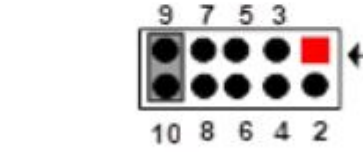
7-8 Closed: CASE OPEN

(13) SET GPIO Function Select (JCLR1 9-10 pin)





9-10 Open: Normal(Default)



9-10 Closed: SET GPIO

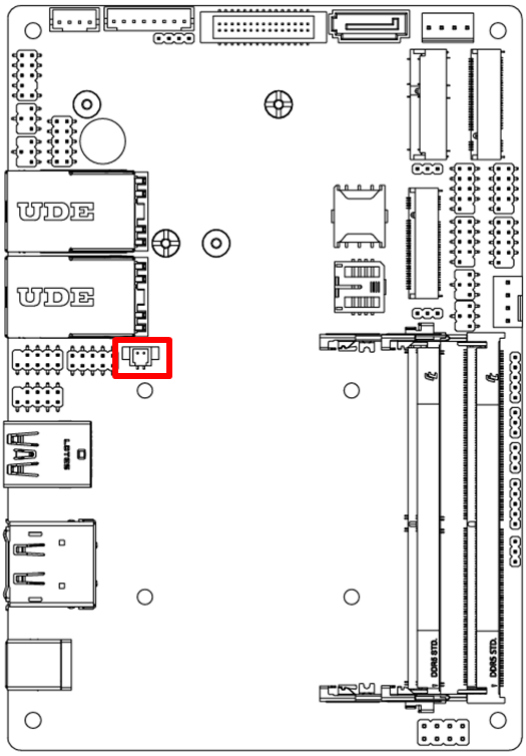
2-3 List of Connectors

Please refer to the table below for all of the board's jumpers that you can configure for your application.

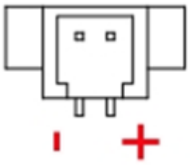
Location Printing	Function
BATCON1	RTC Battery Connector
UL1	RJ45 2.5GbE Lan Connector and USB 3.2 Gen2 Connector
UL2	RJ45 2.5GbE Lan Connector and USB 3.2 Gen2 Connector
DCIN3	Internal 12V~36V Wide-Voltage Power Connector
LAN_LED1	LAN1 and LAN2 active LED Header
CPUFAN1	CPU FAN Connector
SPEAK_CON1	3W Amplifier Connector
SATAPWR1	SATA HDD Power-Out Connector
I2C1	I2C Header
SMBUS1	SM BUS Header
SATA1	SATA 3 Port Connector
INVERTER1	LVDS/eDP Inverter Wafer
JW_FP1	Front Panel Header
F_AUDIO1	Front Panel Line-Out, MIC-In Header
F_USB1	USB2.0 Port Header
F_USB2	USB2.0 Port Header
COM1	RS232/RS422/RS485 Serial Port Header
COM2	RS232/RS422/RS485 Serial Port Header
COM3	RS232/RS422/RS485 Serial Port Header
COM4	RS232/RS422/RS485 Serial Port Header
GPIO1	8 Bit GPIO Port /80 Port Header
LVDS_EDP1	LVDS/EDP LCD Panel Wafer
USB1	USB 3.2 Gen2 Connector and Type-C Gen2x2 Connector
DP1_HDMI1	Display Port 1.4 Output Connector and HDMI 2.0b Output Connector
SIMCARD1	Nano-SIM Card Socket
M2M1	M.2 2242/2280 M-key Socket
M2B1	M.2 2242/3052 B-key Socket
M2E1	M.2 2230 E-key Socket
SODIMM1	DDR5 SODIMM Socket
SODIMM2	DDR5 SODIMM Socket

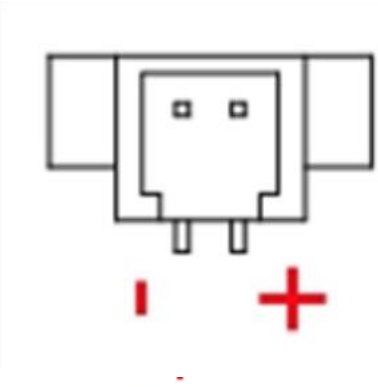
2-4 Connector Settings

(1) RTC Battery Connector (BATCON1)

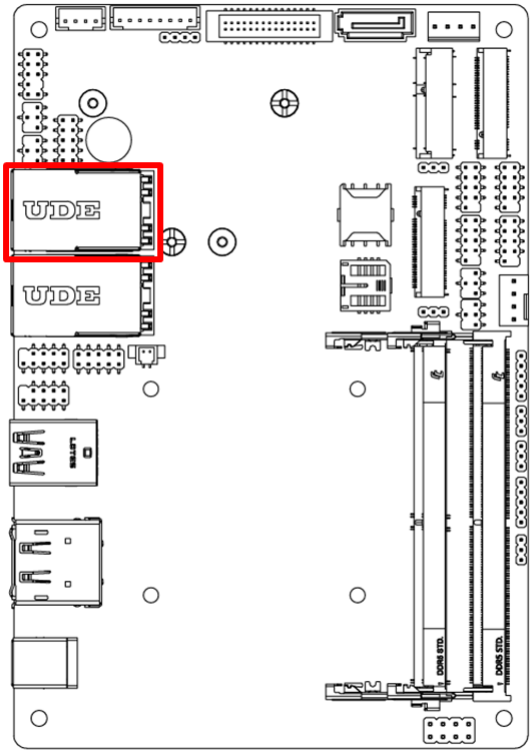


Note: Standard specifications.





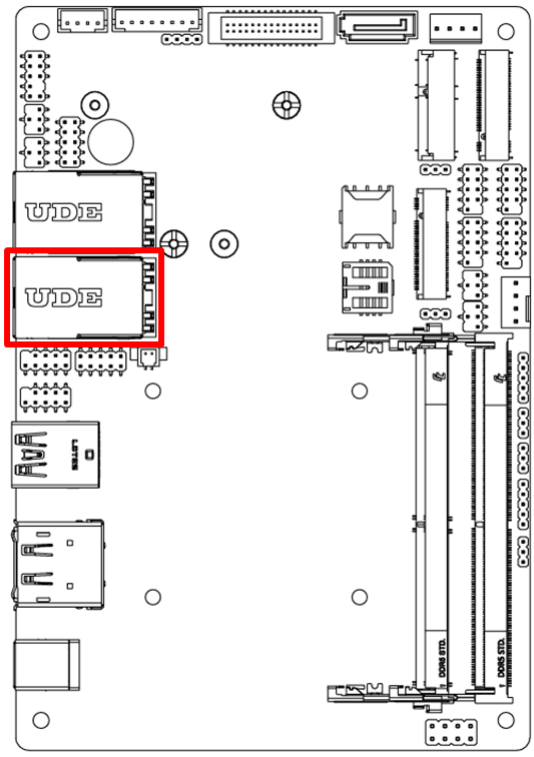
(2) RJ45 2.5GbE Lan Connector and USB 3.2 Gen2 Connector (UL1)





Note: Standard specifications.

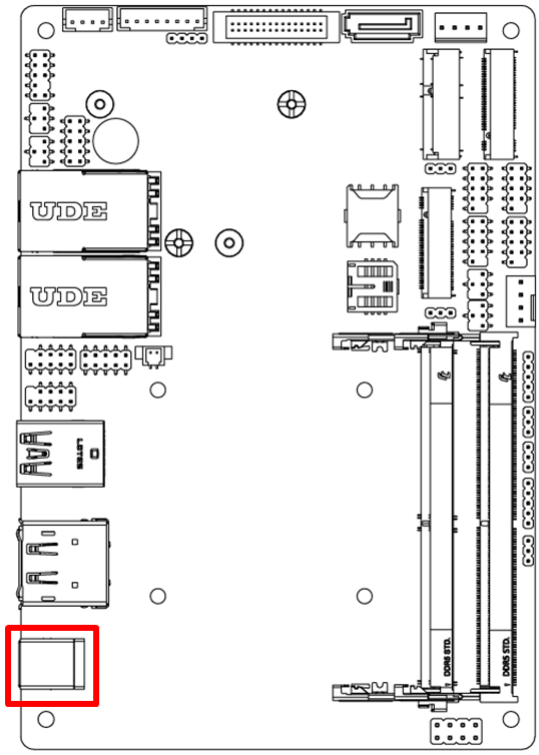
(3) RJ45 2.5GbE Lan Connector and USB 3.2 Gen2 Connector (UL2)





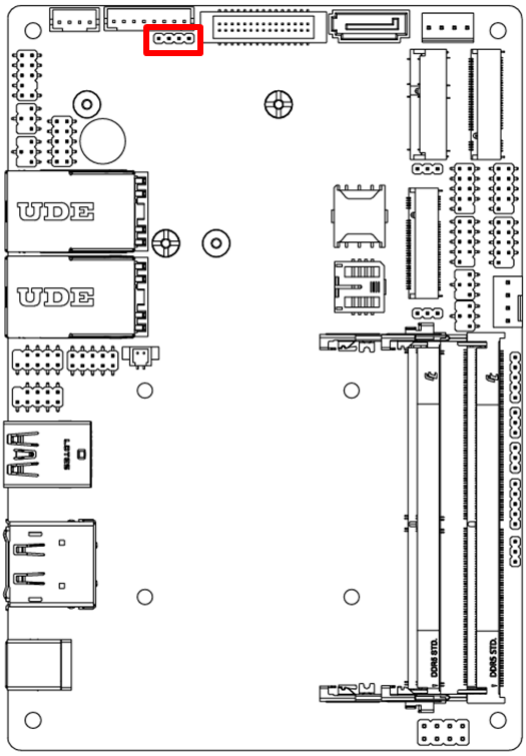
Note: Standard specifications.

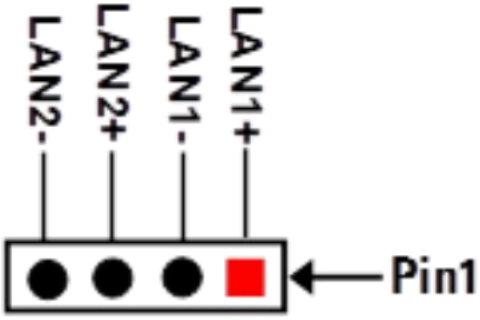
(4) 12V~36V Wide-Voltage Power Connector (DCIN3)



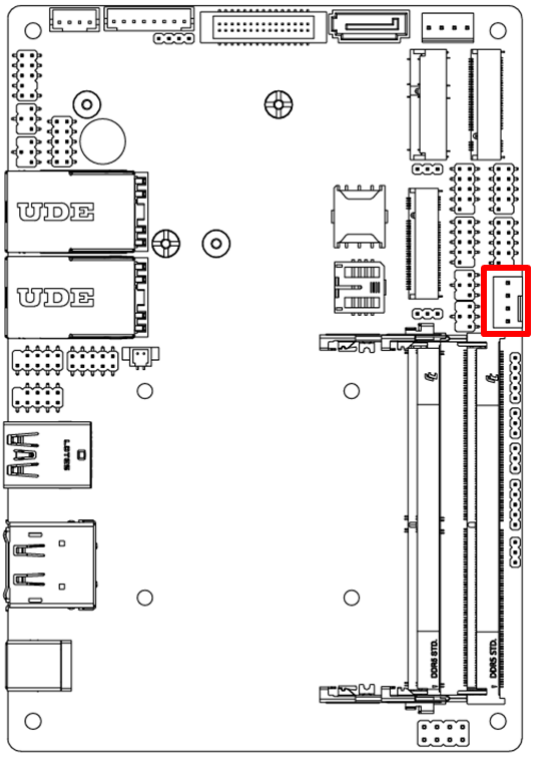


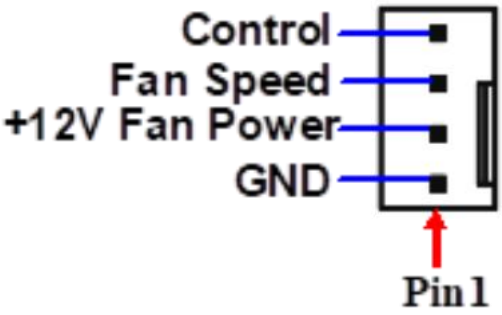
(5) LAN1 and LAN2 active LED Header (LAN_LED1



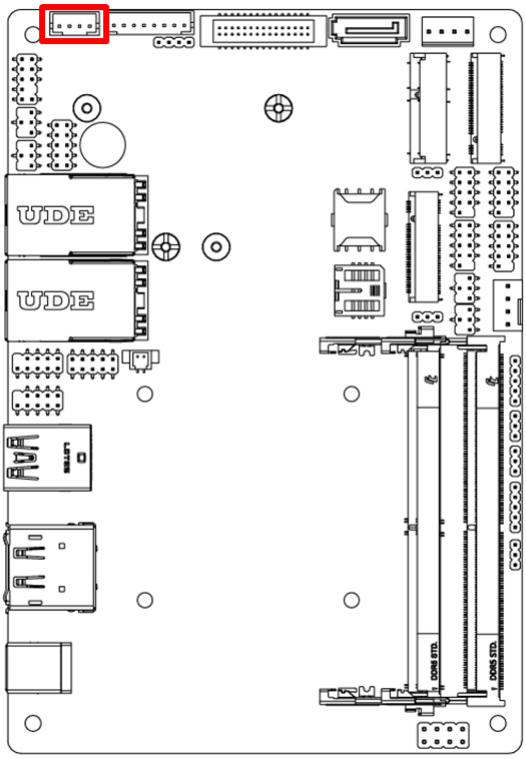


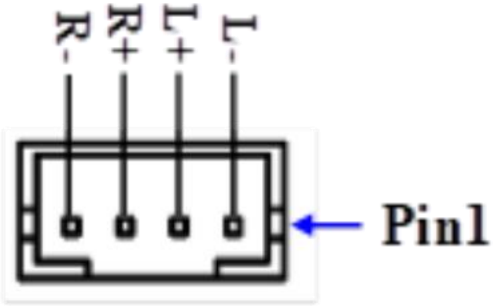
(6) CPU FAN Connector (CPUFAN1)



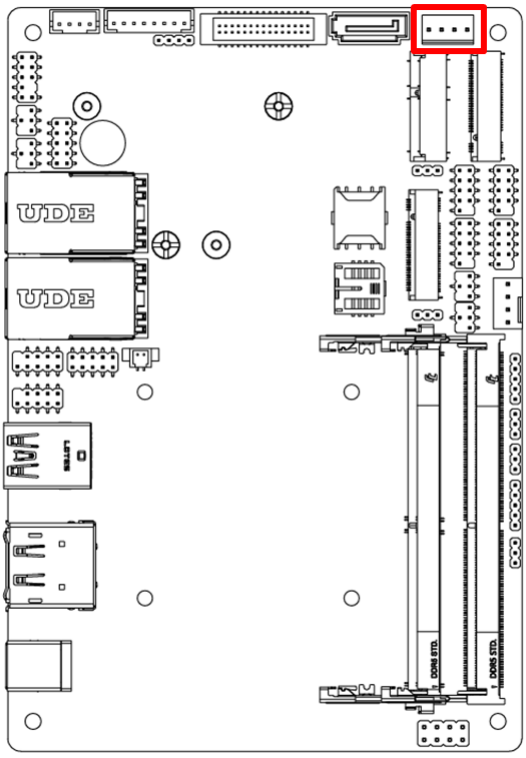


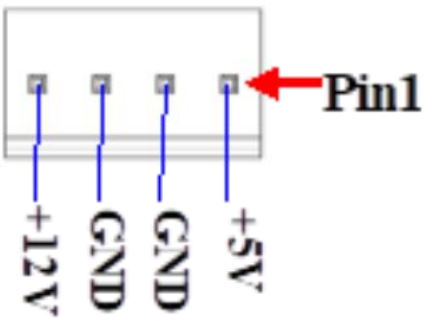
(7) 3W Amplifier Connector (SPEAK1_CON1)



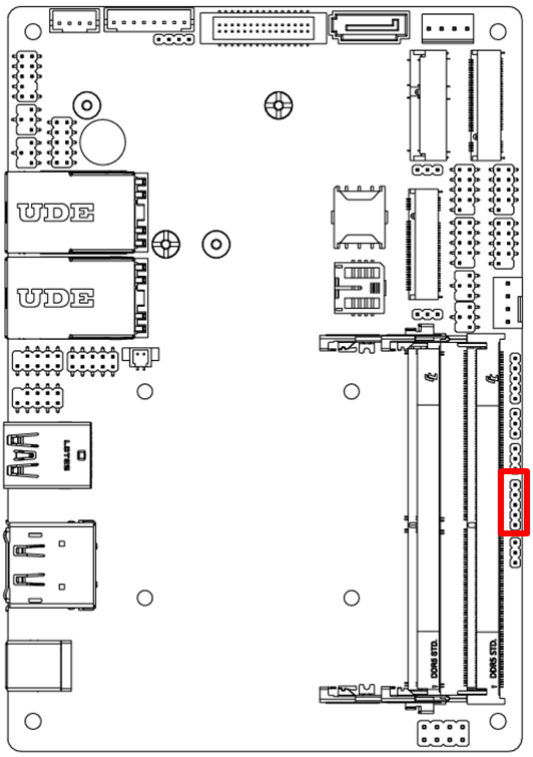


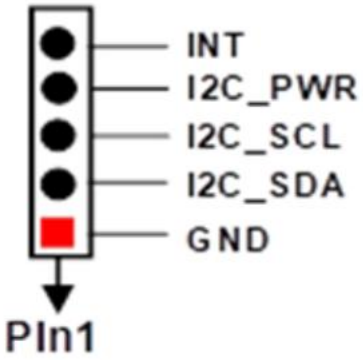
(8) SATA HDD Power-Out Connector (SATAPWR1)



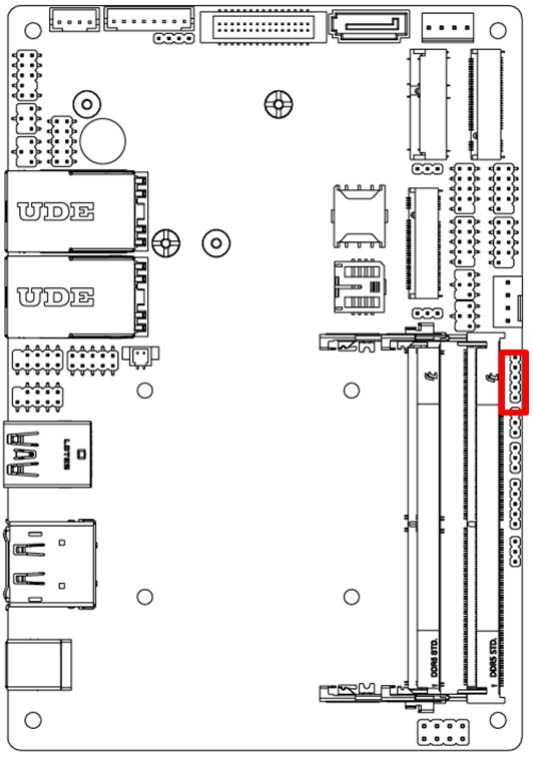


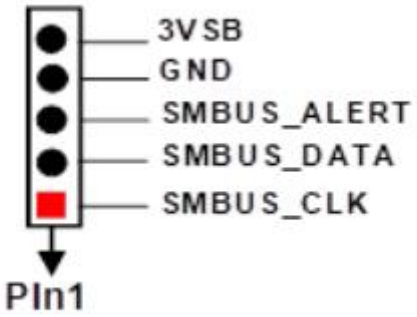
(9) I2C Header (I2C1)



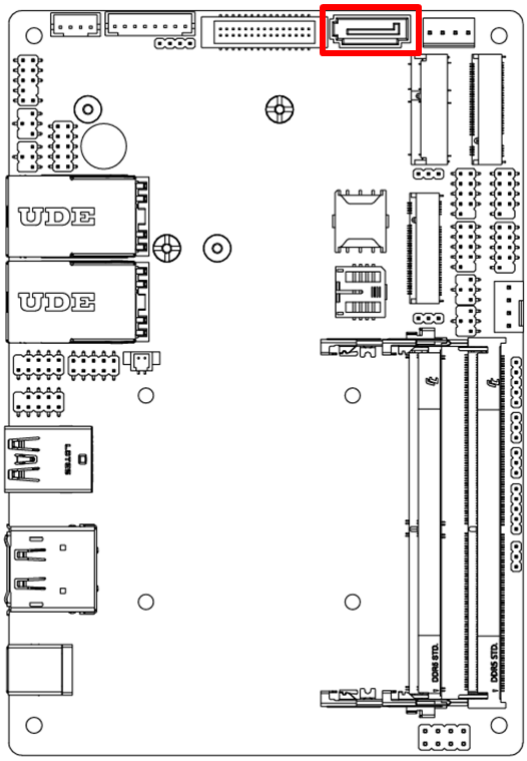


(10) SM BUS Header (SMBUS1)





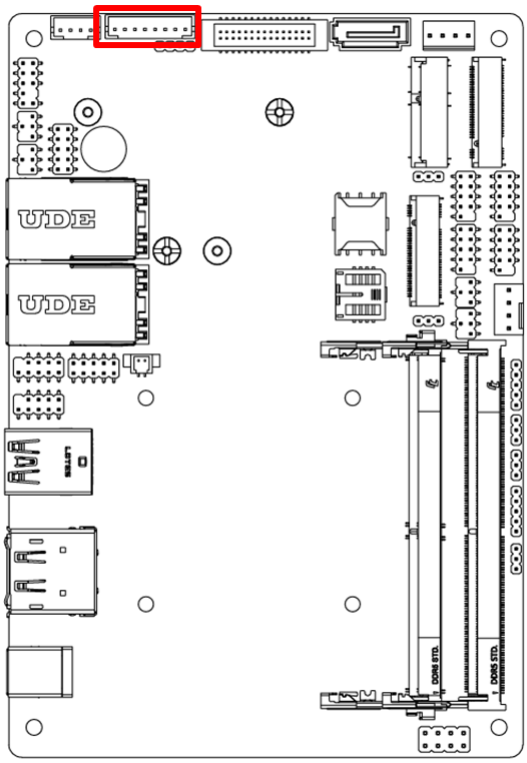
(11) SATA 3 Port Connector (SATA1)

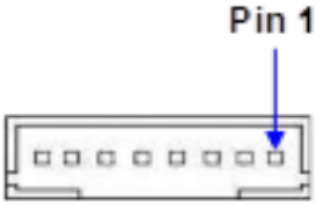


Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

Note: Standard specifications.

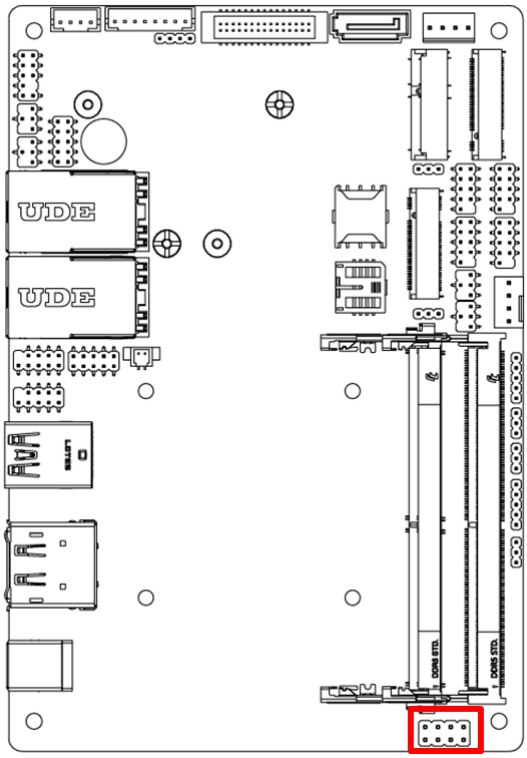
(12) LVDS/eDP Inverter Wafer (INVERTER1)

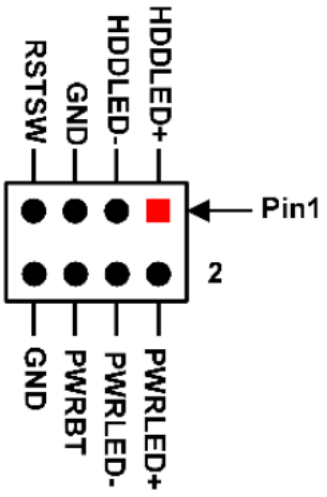




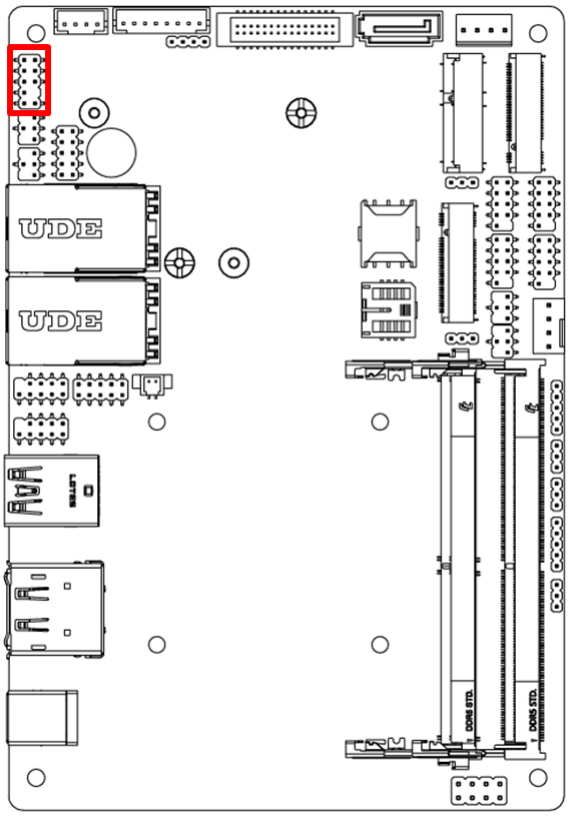
Pin No.	Definition
1	Backlight Enable
2	Backlight PWM
3	PVCC
4	PVCC
5	GND
6	GND
7	Backlight Up SW
8	Backlight Down SW

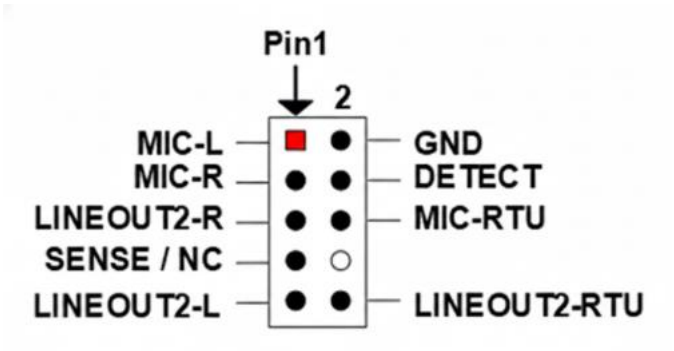
(13) Front Panel Header (JW_FP1)



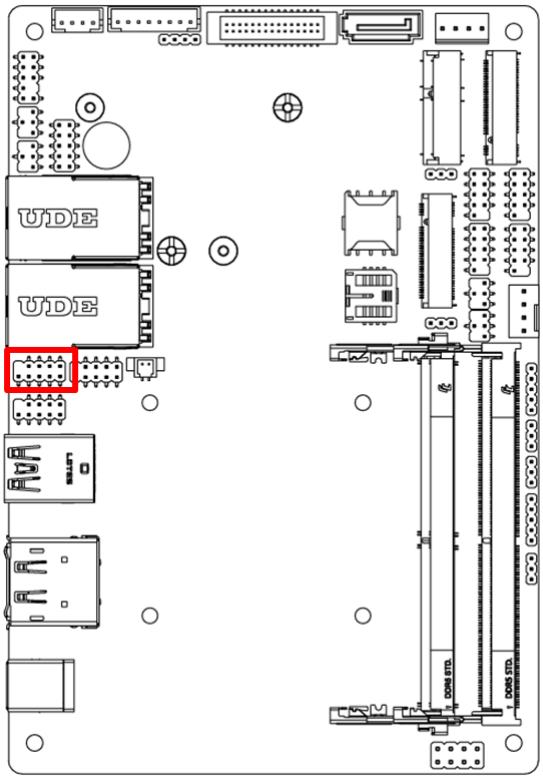


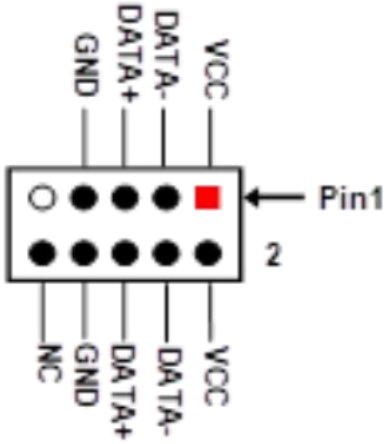
(14) Front Panel Line-Out, MIC-In Header (F_AUDIO1)



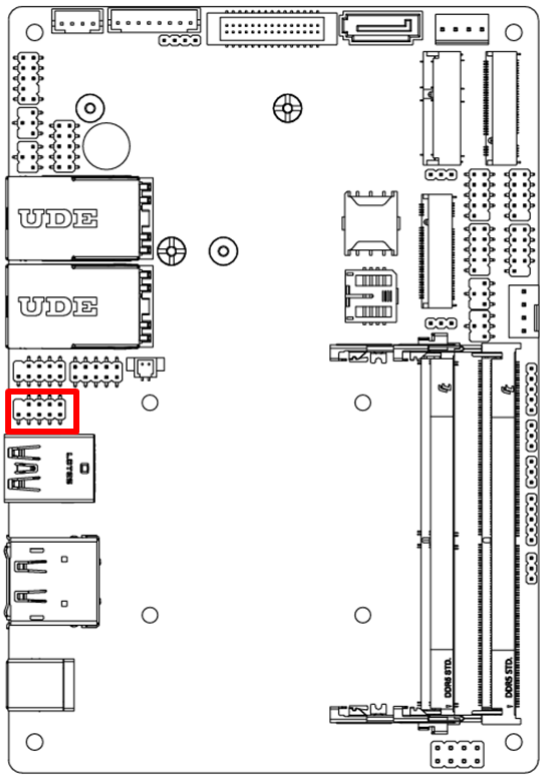


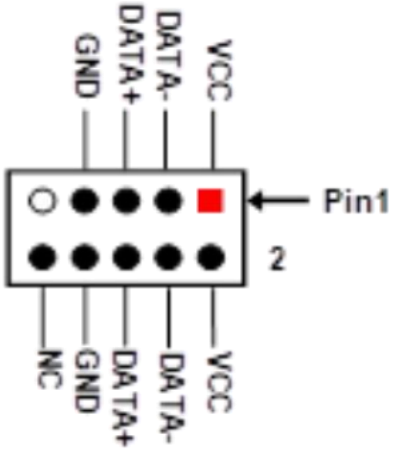
(15) USB2.0 Port Header (F_USB1)



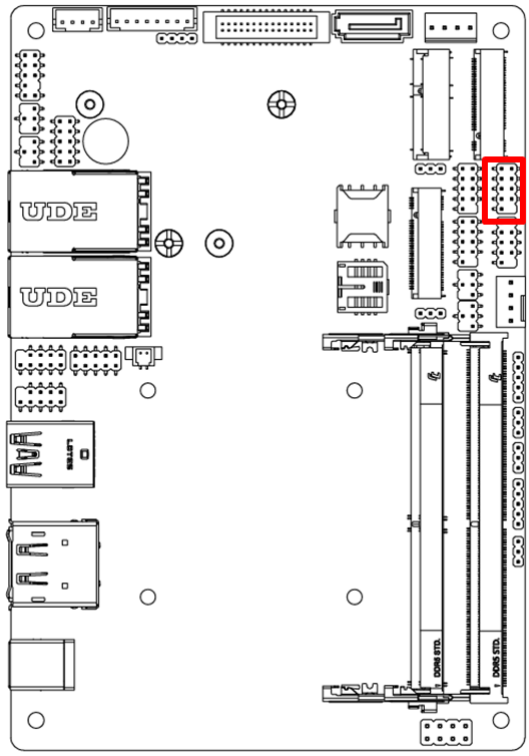


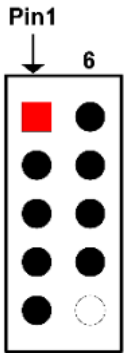
(16) USB2.0 Port Header (F_USB2)





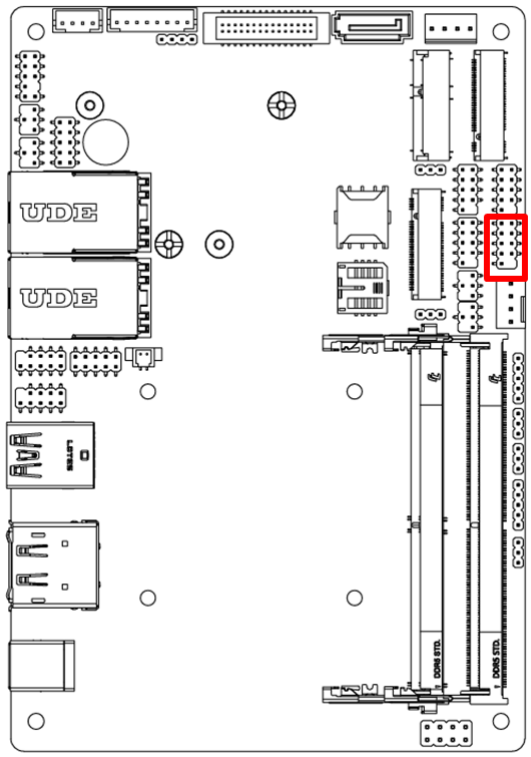
(17) RS232/RS422/RS485 Serial Port Header (COM1)

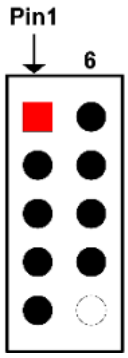




Pin NO.	RS232	*RS422	*RS485
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

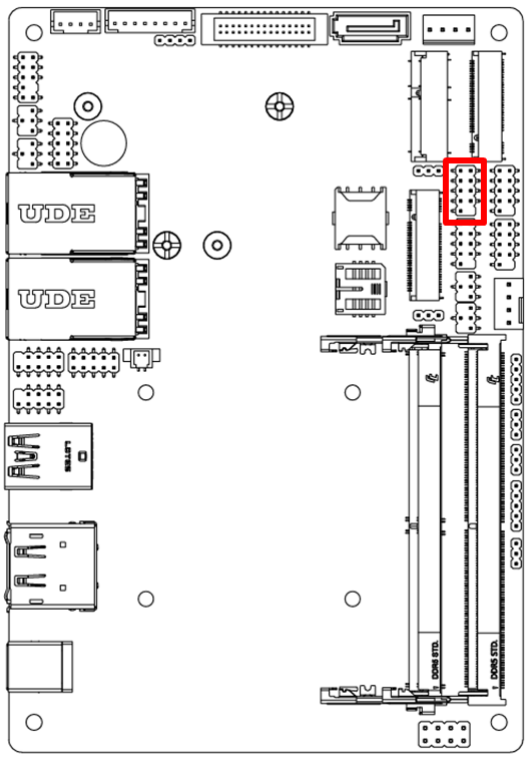
(18) RS232/RS422/RS485 Serial Port Header (COM2)

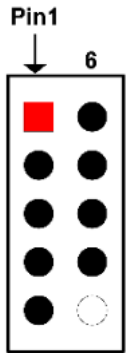




Pin NO.	RS232	*RS422	*RS485
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

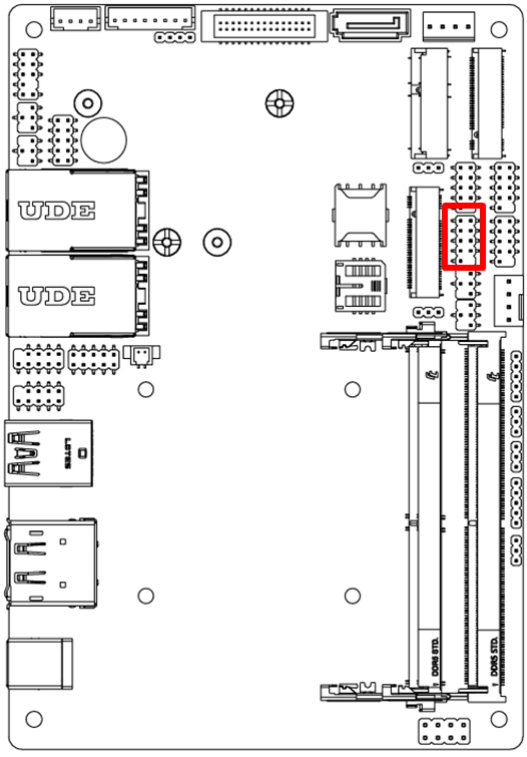
(19) RS232/RS422/RS485 Serial Port Header (COM3)

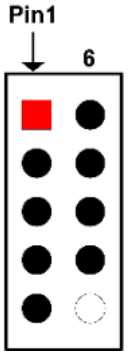




Pin NO.	RS232	*RS422	*RS485
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

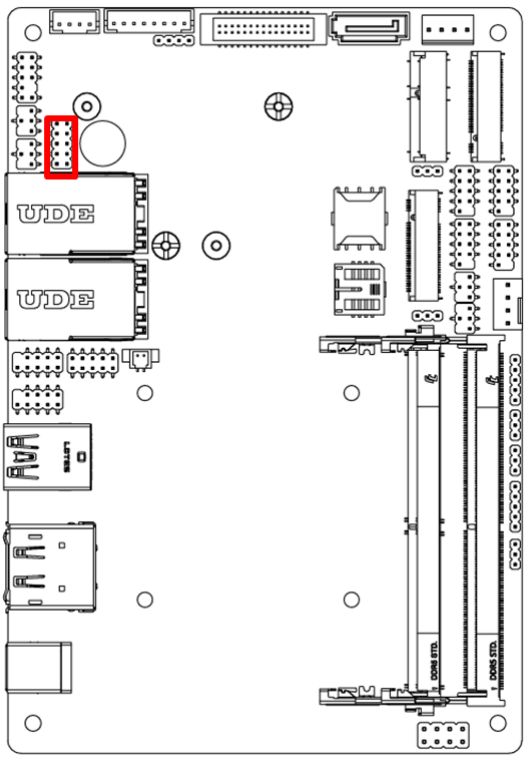
(20) RS232/RS422/RS485 Serial Port Header (COM3)

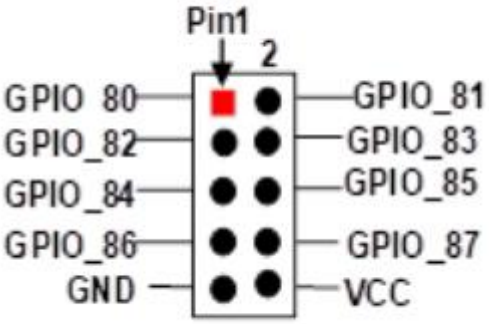




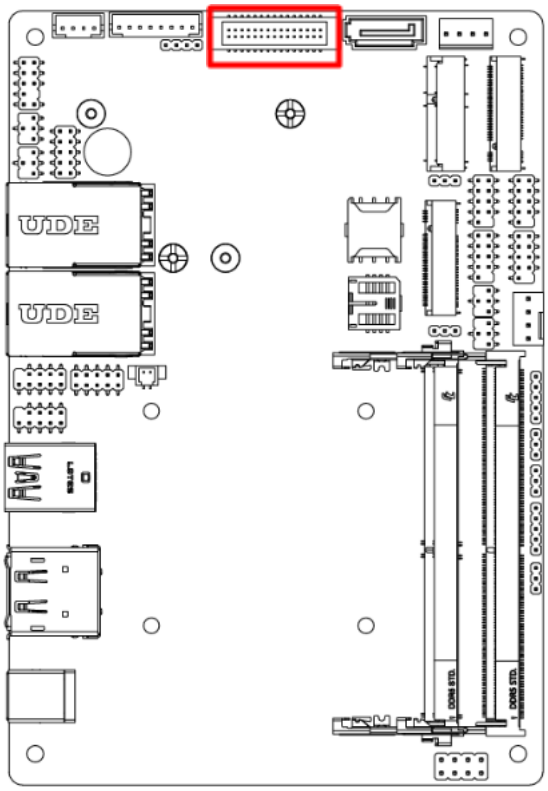
Pin NO.	RS232	*RS422	*RS485
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

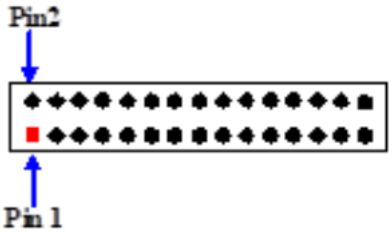
(21) 8 Bit GPIO Port /80 Port Header (GPIO1)





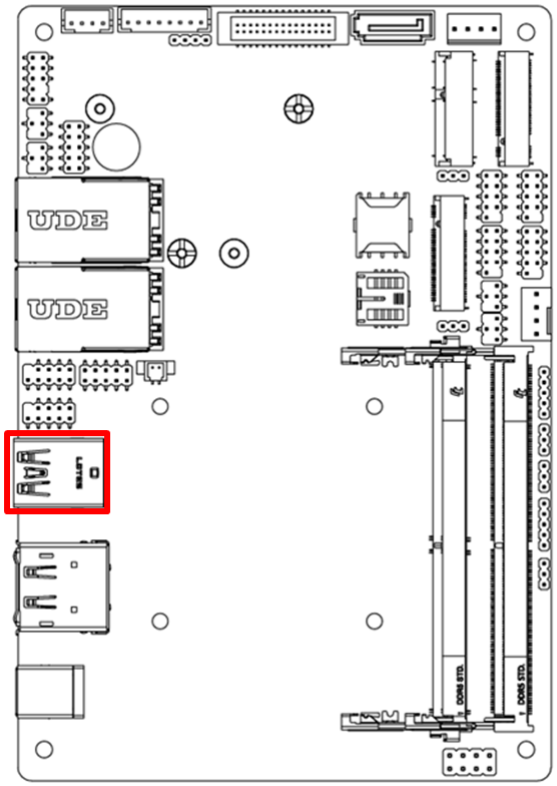
(22) LVDS/EDP LCD Panel Wafer (LVDS_EDP1)





Pin Define	Pin NO.	Pin NO.	Pin Define
LVDSB_DATAN3	Pin 1	Pin 2	LVDSB_DATAP3
LVDSB_CLKN	Pin 3	Pin 4	LVDSB_CLKP
LVDSB_DATAN2	Pin 5	Pin 6	LVDSB_DATAP2
LVDSB_DATAN1	Pin 7	Pin 8	LVDSB_DATAP1
LVDSB_DATAN0	Pin 9	Pin 10	LVDSB_DATAP0
LVDS_DDC_SDA	Pin 11	Pin 12	LVDS_DDC_SCL
GND	Pin 13	Pin 14	GND
GND	Pin 15	Pin 16	GND
LVDSA_DATAP3	Pin 17	Pin 18	LVDSA_DATAN3
LVDSA_CLKP/eDP_AUXP	Pin 19	Pin 20	LVDSA_CLKN/eDP_AUXN
LVDSA_DATAP2/eDP_TX0P	Pin 21	Pin 22	LVDSA_DATAN2/eDP_TX0N
LVDSA_DATAP1/eDP_TX1P	Pin 23	Pin 24	LVDSA_DATAN1/eDP_TX1N
LVDSA_DATAP0	Pin 25	Pin 26	LVDSA_DATAN0
LCD_VCC	Pin 27	Pin 28	LCD_VCC
LCD_VCC	Pin 29	Pin 30	LCD_VCC

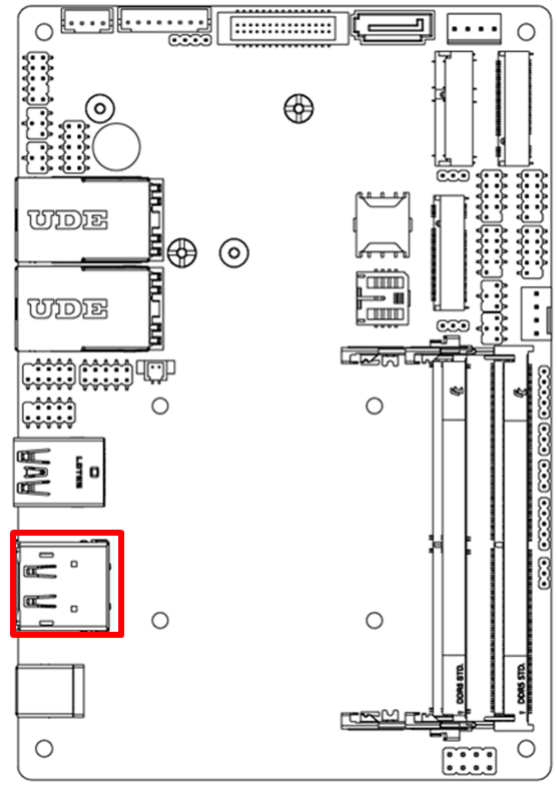
(23) USB 3.2 Gen2 Connector and Type-C Gen2x2 (USB1)





Note: Standard specifications.

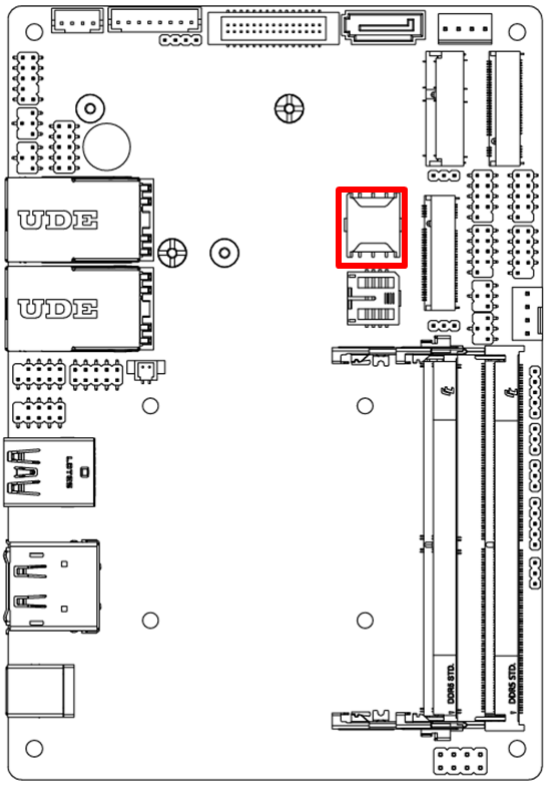
(24) Display Port 1.4 Output Connector and HDMI 2.0b Output Connector (DP1_HDMI1)

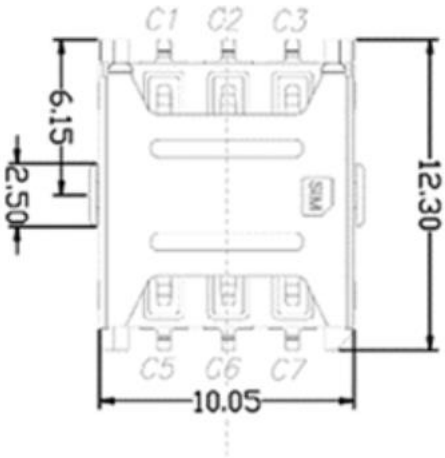




Note: Standard specifications

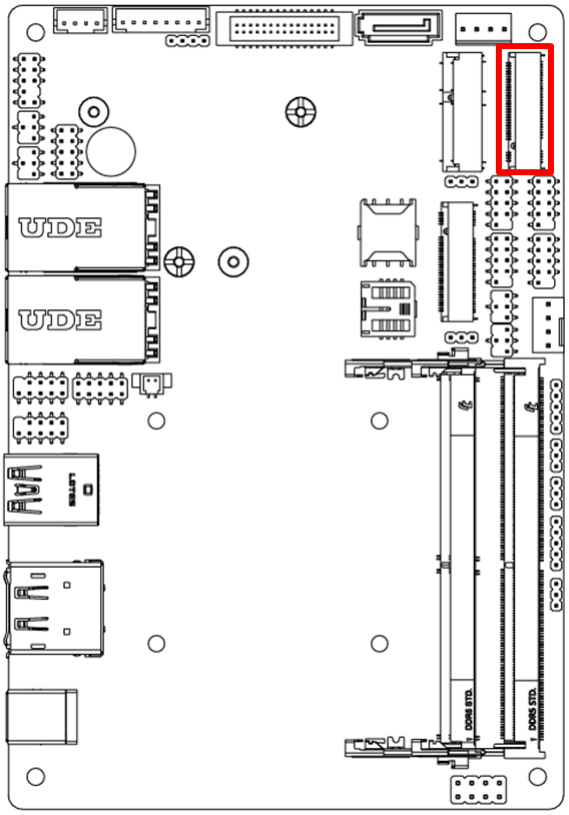
(25) Nano-SIM Card Socket (SIMCARD1)





Note: Standard specifications.

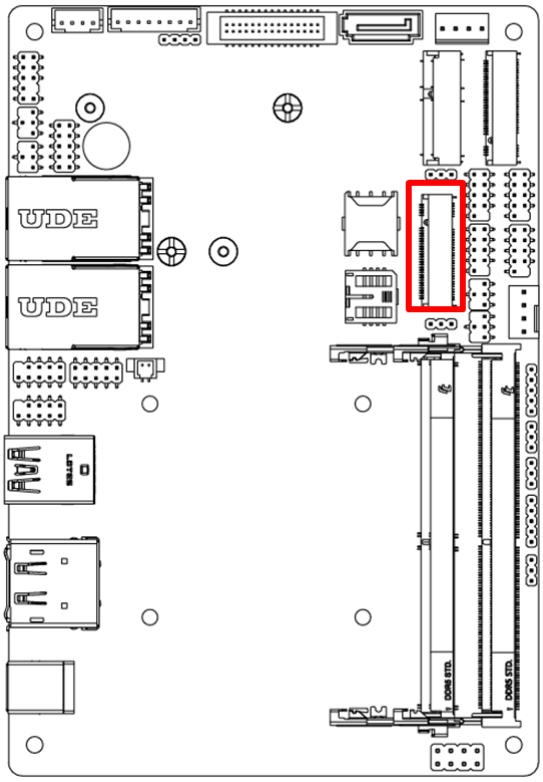
(26) M.2 2242/2280 KEY M Socket (M2M1)





Note: Standard specifications.

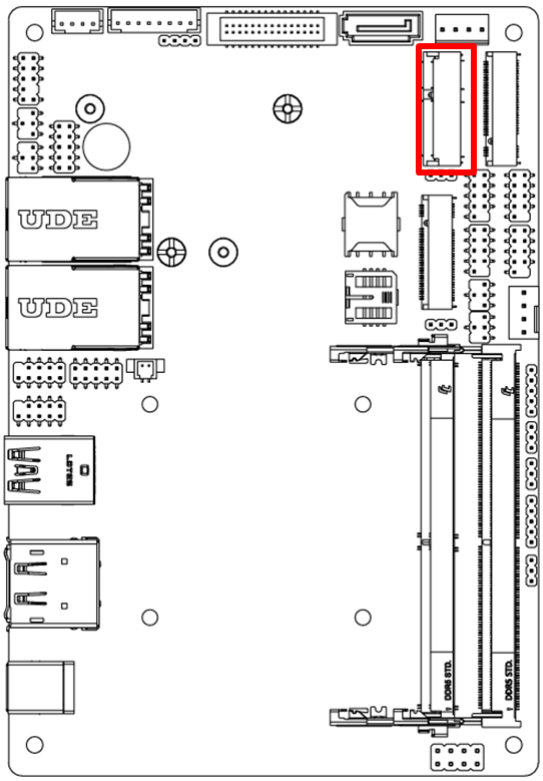
(27) M.2 3042/3052 KEY B Socket (M2B1)





Note: Standard specifications.

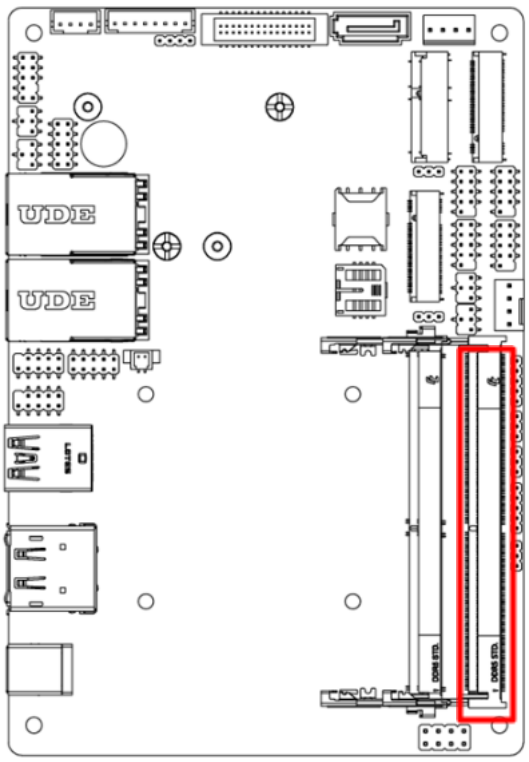
(28) M.2 3042/3052 KEY B Socket (M2B1)





Note: Standard specifications.

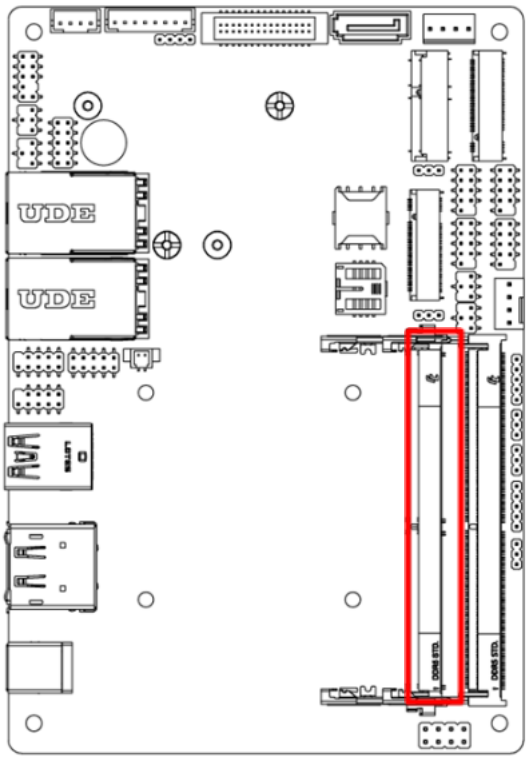
(29) DDR5 SODIMM Socket Up (SODIMM1)





Note: Standard specifications.

(30) DDR5 SODIMM Socket Down (SODIMM2)





Note: Standard specifications.

2-5 Maximum Voltage & Current Limit

Below is a list of maximum voltage & Current Limit specification for motherboard interface (including but not limited to slots, connectors and headers) for setup reference:

Parts		Working Voltage	Current Support
USB Port From	USB1	5V	900mA x1, 3A x1
	UL1	5V	900mA x2
	UL2	5V	900mA x2
	FP_USB1	5V	500mA x2
	FP_USB2	5V	500mA x2
LVDS/EDP1		3.3V/5V/12V	2A
INVERTER1		5V/12V/36V	2A
CPUFAN1		12V	1.5A
GPIO1		5V	1A
SMBUS1		3.3V	500mA
I2C1		3V/5V	500mA
JPCOM1		5V/12V	500mA
JPCOM2		5V/12V	500mA

Chapter 3 Introducing BIOS

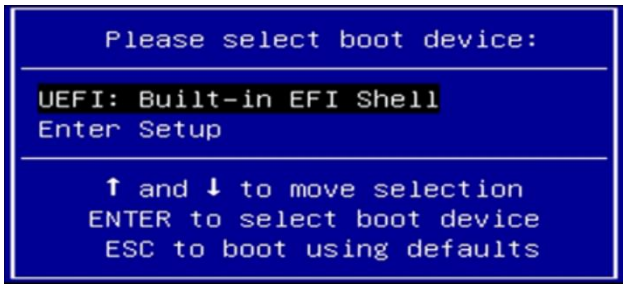
Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version from our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

3-1 Entering Setup

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

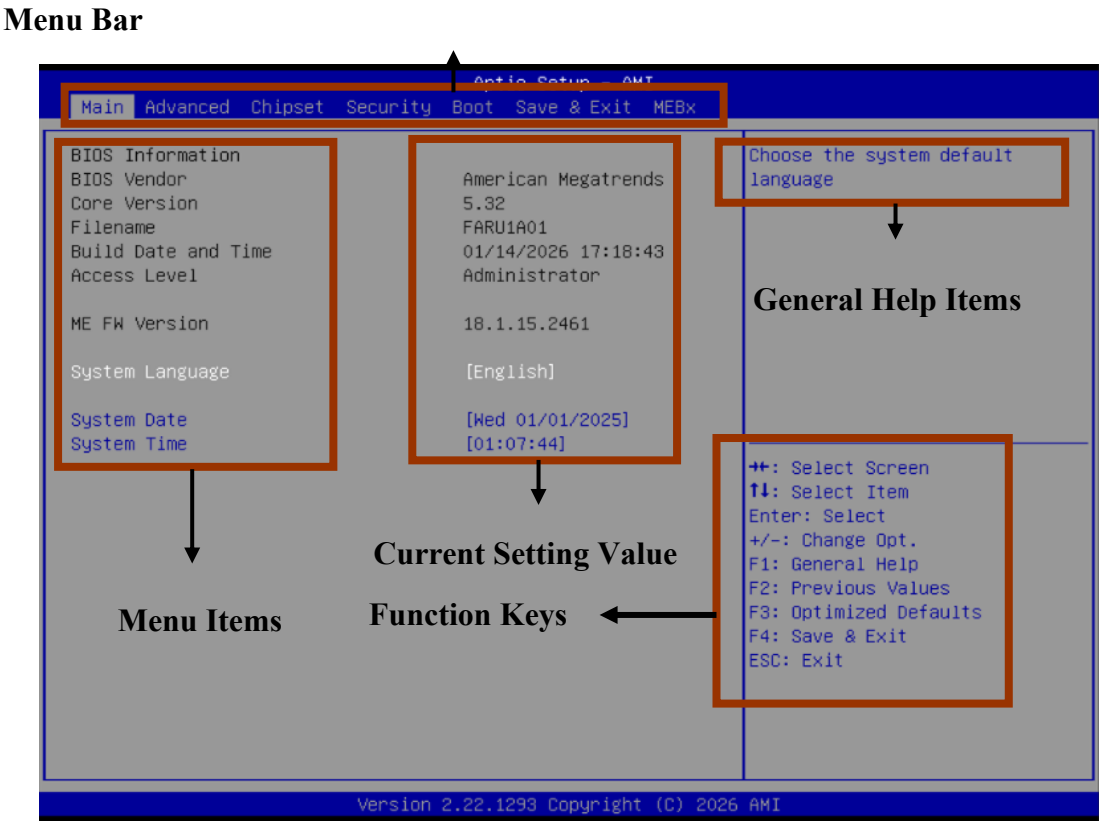
Press <Del> to enter Setup; press < F7> to enter pop-up Boot menu.



BIOS Boot Menu Screen (boot device options please refer to actual configuration)

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



3-3 Function Keys

In the above BIOS Setup main menu of, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

Press←→ (left, right) to select screen.

Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.

Press <Enter> to select.

Press <+>/<–> keys when you want to modify the BIOS parameters for the active option.

[F1]: General help.

[F2]: Previous values.

[F3]: Optimized defaults.

[F4]: Save & Exit.

Press <Esc> to exit from BIOS Setup.

3-4 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

Status Page Setup Menu/Option Page Setup Menu

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**>.

3-5 Menu Bars

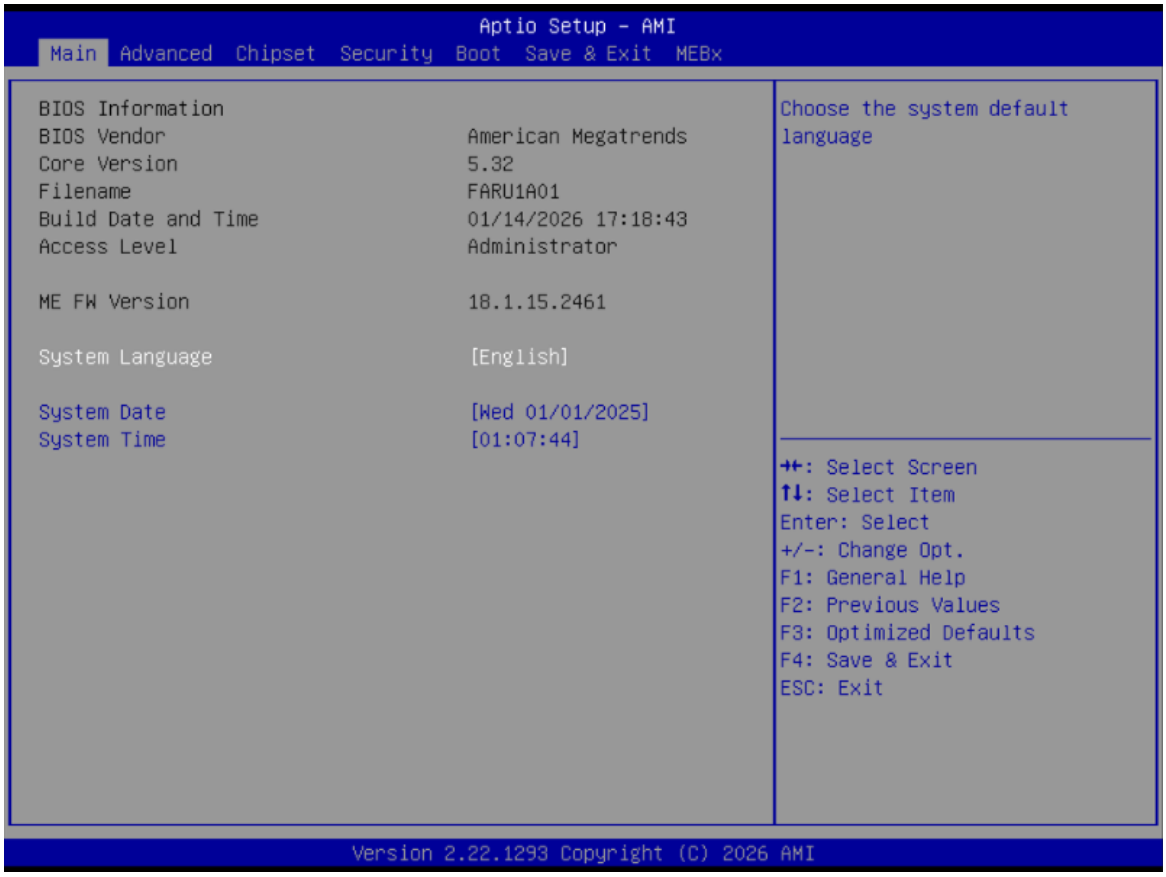
There are six menu bars on top of BIOS screen:

Main	To change system basic configuration
Advanced	To change system advanced configuration
Chipset	To change chipset configuration
Security	Password settings
Boot	To change boot settings
Save & Exit	Save setting, loading and exit options.

User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.

3-6 Main Menu

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.



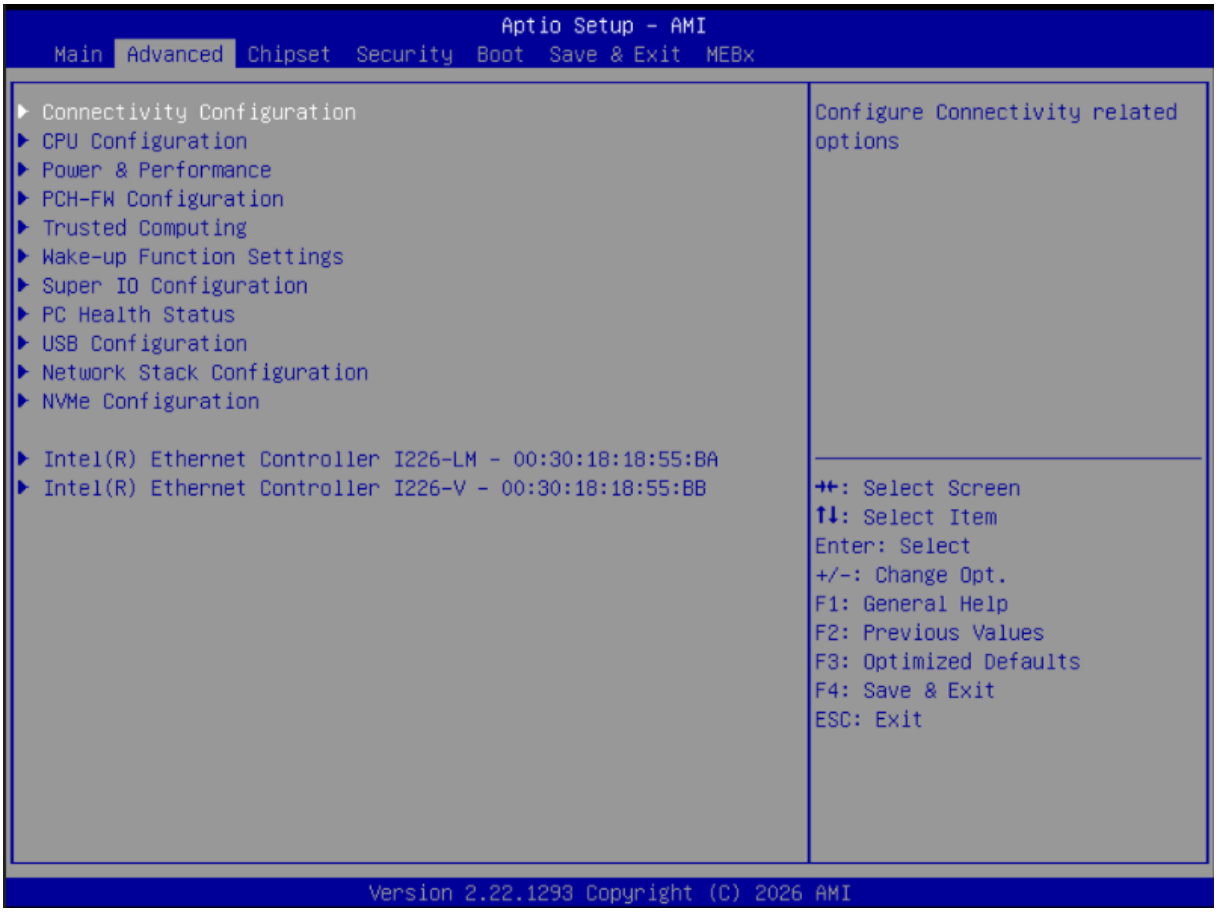
System Date

Set the date. Please use [Tab] to switch between date elements.

System Time

Set the time. Please use [Tab] to switch between time elements.

3-7 Advanced Menu



- **Connectivity Configuration**
  Use this item to configure Connectivity related options. Press [Enter] to make settings for the following sub-items:
- **CPU Configuration**
  Press [Enter] to view current CPU configuration and make settings for the following sub-items:
- **Efficient-Core Information**
  Use this item to displays the E-Core information.
  Press [Enter] to make settings for the following sub-items:

  L1 Date Cache/L1 Instruction Cache/L2 Cache/L3 Cache
- **Performance-Core Information**

  Boot Performance Mode
  Use this item to select the performance state that the BIOS will set starting from reset vector.
  Boot Performance Mode Set the default value to: [Max Non-Turbo Performance]
  The optional settings: [Max Battery]; [Max Non-Turbo Performance]; [Turbo Performance].

  Intel(R) SpeedStep(tm)
  This item allows more than two frequency ranges to be supported.
  Intel(R) SpeedStep(tm) Set the default value to: [Enabled]
  The optional settings: [Disabled]; [Enabled].

  Turbo Mode
  Use this item to enable or disable processor Turbo Mode (requires Intel Speed Step or Intel

Speed Shift to be available and enabled).
Turbo Mode Set the default value to: [Enabled]
The optional settings: [Disabled]; [Enabled]; [Customized]

C states

Use this item to enable or disable CPU Power Management. When set as [Enabled], it allows CPU to go to C states when it's not 100% utilized.
C states Set the default value to: [Enabled]
The optional settings: [Disabled]; [Enabled].

Enhanced C-states

Use this item to Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.
Enhanced C-states Set the default value to: [Enabled]
The optional settings: [Disabled]; [Enabled].

Package C State Limit

Use this item to maximum package C State Limit setting. CPU default: leaves to factory default value. Auto: initializes to deepest available package C State Limit.
Package C State Limit Set the default value to: [Auto]
The optional settings: [C0/C1]; [C2]; [C3]; [C6]; [C7]; [C7S]; [C8]; [C9]; [C10]; [CPU Default]; [Auto].

- **Power & Performance**

Press [Enter] to make settings for the following sub-items:

- **CPU – Power Management Control**

CPU-Power Management Control Options.
Press [Enter] to make settings for the following sub-items:

Power Limit 1

Use this item to set Power Limit 1 in Milli Watts. BIOS will round to the nearest 1/8W when programming.

0 = no custom override. For 12.50W, enter 12500.

Overclocking SKU: Value must be between Max and Min Power Limits (specified by PACKAGE_POWER_SKU_MSR).

Other SKUs: This value must be between Min Power Limit and Processor Base Power (TDP) Limit. If value is 0, BIOS will program Processor Base Power (TDP) value.
Power Limit 1 Set the default value to: [0]

Power Limit 1 Time Window

Use this item to set Power Limit 1 Time Window value in seconds. The value may vary from 0 to 128. 0 = default value (28 sec for Mobile and 8 sec for Desktop). Defines time window which Processor Base Power (TDP) value should be maintained.
Power Limit 1 Time Window Set the default value to: [0]
The optional settings are: [0]; [1]; [2]; [3]; [4]; [5]; [6]; [7]; [8]; [10]; [12]; [14]; [16]; [20]; [24]; [28]; [32]; [40]; [48]; [56]; [64]; [80]; [96]; [112]; [128].

Power Limit 2

Use this item to set Power Limit 2 Value in Milli Watts. BIOS will round to the nearest 1/8W when programming.

0=no custom override. For 12.50w, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

Power Limit 2 Set the default value to: [0]

Power Limit 4 Override

If this option is disabled, BIOS will leave the default values for Power Limit.

Power Limit 4 Override Set the default value to:[Disabled].

The optional settings: [Disabled]; [Enabled].

Power Limit 4

Power Limit 4 in Milli Watts.BIOS will round to the nearest1/8W when programming. For 12.50W, enter 12500. If the value is 0, BIOS leaves default value.

Power Limit 4 Set the default value to: [0]

- **GT/Media - Power Management Control**

Press [Enter] to make settings for the following sub-items:

RC6(Render Standby)

Use this item to check to enable render standby support.

RC6(Render Standby) Set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

Maximum GT frequency

Use this item to Maximum GT frequency limited by the user. Choose between 200MHZ (RPN) and 1200MHZ (RP0). Value beyond the range will be clipped to min/max supported by SKU.

Maximum GT frequency Set the default value to: [Default Max Frequency]

The optional settings: [Default Max Frequency]; [100Mhz] ; [150Mhz] ; [200Mhz] ; [250Mhz] ; [300Mhz] ; [350Mhz] ; [400Mhz] ; [450Mhz] ; [500Mhz] ; [550Mhz] ; [600Mhz] ; [650Mhz] ; [700Mhz] ; [750Mhz] ; [800Mhz] ; [850Mhz] ; [900Mhz] ; [950Mhz] ; [1000Mhz] ; [1050Mhz] ; [1100Mhz] ; [1150Mhz] ; [1200Mhz].

Disable Turbo GT frequency

Use this item to enabled: disables turbo GT frequency. Disabled: GT frequency is not limited.

Disable Turbo GT frequency Set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

- **PCH-FW Configuration**

Press [Enter] to make settings in the following sub-items:

TPM Device Selection

The optional settings: [dTPM]; [PTT].

TPM Device Selection Set the default value to: [PTT]

- **Trusted Computing**

Press [Enter] to make settings in the following sub-items:

Security Device Support

Use this item to 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.

The optional settings: [Disabled]; [Enabled].

Security Device Support Set the default value to: [Enabled]

When set as [Enabled], user can make setting in the following items that appear:

SHA256 PCR Bank

Use this item to enable or disable SHA256 PCR Bank.
The optional settings: [Disabled]; [Enabled].
SHA256 PCR Bank Set the default value to: [Enabled]

SHA384 PCR Bank

Use this item to enable or disable SHA384 PCR Bank.
The optional settings: [Disabled]; [Enabled].
SHA384 PCR Bank Set the default value to: [Disabled]

SM3_256 PCR Bank

Use this item to enable or disable SM3_256 PCR Bank.
The optional settings: [Disabled]; [Enabled].
SM3_256 PCR Bank Set the default value to: [Disabled]

Pending Operation

Use this item to schedule an operation for security device.
The optional settings: [None]; [TPM Clear].
Pending Operation Set the default value to: [None]
Note: Your computer will reboot during restart in order to change State of Security Device.

- **Wake-up Function Settings**

Wake-up System With Fixed Time

*This item will only show when 'Wake-up System with Dynamic Time' is set as [Disabled]. Use this item to enable or disable system wake-up by RTC alarm. When this function is enabled, system will wake on the time (hr::min::sec) specified.

The optional settings: [Disabled]; [Enabled].

Wake-up System With Fixed Time Set the default value to: [Disabled]

When set as [Enabled], user can make settings in the following items that appear:

Wake-up Hour

Use this item to select 0-23 for example enter 3 for 3am and 15 for 3pm.

Wake-up Hour Set the default value to: [0]

Wake-up Minute

Use this item to select 0-59.

Wake-up Minute Set the default value to: [0]

Wake-up Second

Use this item to select 0-59.

Wake-up Second Set the default value to: [0]

Wake-up System with Dynamic Time

*This item will only show when '**Wake-up System with Fixed Time**' is set as [Disabled].

Use this item to enable or disable system wake-up by RTC alarm. When enabled, system will wake on the current time + Increase minute(s).

Wake-up System with Dynamic Time Set the default value to: [Disabled]

When set as [Enabled], user can make settings in the following items that appear:

Wake-up Minute Increase

Use this item to select 1-60 minute(s).

Wake-up Minute Increase Set the default value to: [1]

PCIE Wake-up from S4-S5

The optional settings: [Disabled]; [Enabled].

PCIE Wake-up from S4-S5 Set the default value to: [Disabled]

USB S4 Wake-up

USB Wake-up is affected by ERP function in S4. Please disable ERP before activating this function in S4.

The optional settings: [Disabled]; [Enabled].

USB S4 Wake-up Set the default value to: [Disabled].

USB S5 Power

The optional settings: [Disabled]; [Enabled].

USB S5 Power Set the default value to: [Enabled].

- **Super IO Configuration**

  Press [Enter] to make settings for the following sub-items:

  Super IO Configuration

  ERP Support

  Use this item to make setting for energy-related products function. Disable ERP to active all wake-up function.

  The optional settings: [Disabled]; [Enabled]. ERP Support Set the default value to: [Disabled]

  Serial Port 1 Configuration

  Press [Enter] to make settings for the following items:

  Serial Port

  Use this item to enable or disable serial port (COM).

  The optional settings: [Disabled]; [Enabled].

  Serial Port Set the default value to: [Enabled]

  When set as [Enabled], user can make settings in the following items that appear:

  Change Settings

  Use this item to select an optimal settings for super IO device.

  The optional settings are: [IO=3F8h; IRQ=4]; [IO=3F8h; IRQ=3,4,5,7,10,11]; [IO=2F8h; IRQ=3,4,5,7,10,11]; [IO=3E8h; IRQ=3,4,5,7,10,11]]; [IO=2E8h; IRQ=3,4,5,7,10,11].

Change Settings Set the default value to: [IO=3F8h; IRQ=4]

Transmission Mode Select

The optional settings are: [RS422]; [RS232]; [RS485].

Transmission Mode Select Set the default value to: [RS232]

Mode Speed Select

Use this item to RS232/RS422/RS485 Speed Select.

The optional settings are: [RS232/RS422/RS485=250Kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

Mode Speed Select Set the default value to: [RS232=1Mbps, RS422/RS485=10Mbps]

- **Serial Port 2 Configuration**

Press [Enter] to make settings for the following items:

Serial Port

Use this item to enable or disable serial port (COM).

The optional settings: [Disabled]; [Enabled].

Serial Port Select Set the default value to: [Enabled]

When set as [Enabled], user can make settings in the following items that appear:

Change Settings

Use this item to select an optimal setting for super IO device.

The optional settings are: [IO=2F8h; IRQ=3]; [IO=3F8h; IRQ=3,4,5,7,10,11]; [IO=2F8h; IRQ=3,4,5,7,10,11]; [IO=3E8h; IRQ=3,4,5,7,10,11]]; [IO=2E8h; IRQ=3,4,5,7,10,11].

Change Settings Set the default value to: [IO=2F8h; IRQ=3]

Transmission Mode Select

The optional settings are: [RS422]; [RS232]; [RS485]. Transmission Mode Select Set the default value to: [RS232]

Mode Speed Select

Use this item to RS232/RS422/RS485 Speed Select.

The optional settings are: [RS232/RS422/RS485=250Kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

Mode Speed Select Set the default value to: [RS232=1Mbps, RS422/RS485=10Mbps]

- **Serial Port 3 Configuration**

Press [Enter] to make settings for the following items:

Serial Port

Use this item to enable or disable serial port (COM).

The optional settings: [Disabled]; [Enabled].

Serial Port Select Set the default value to: [Enabled]

When set as [Enabled], user can make settings in the following items that appear:

- **Change Settings**

Use this item to select an optimal setting for super IO device.

The optional settings are: [IO=3E8h; IRQ=10]; [IO=3F8h; IRQ=3,4,5,7,10,11]; [IO=2F8h; IRQ=3,4,5,7,10,11]; [IO=3E8h;

IRQ=3,4,5,7,10,11]; [IO=2E8h; IRQ=3,4,5,7,10,11] ; [IO=3E0h; IRQ=3,4,5,7,10,11] ;[IO=2E0h; IRQ=3,4,5,7,10,11].

Change Settings Set the default value to: [IO=3E8h; IRQ=10]

- Transmission Mode Select

The optional settings are: [RS422]; [RS232]; [RS485]. Transmission Mode Select Set the default value to: [RS232]

- Mode Speed Select

Use this item to RS232/RS422/RS485 Speed Select.

The optional settings are:

[RS232/RS422/RS485=250Kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

Mode Speed Select Set the default value to: [RS232=1Mbps, RS422/RS485=10Mbps]

- **Serial Port 4 Configuration**

Press [Enter] to make settings for the following items:

Serial Port

Use this item to enable or disable serial port (COM).

The optional settings: [Disabled]; [Enabled].

Serial Port Select Set the default value to: [Enabled]

When set as [Enabled], user can make settings in the following items that appear:

- **Change Settings**

Use this item to select an optimal setting for super IO device.

The optional settings are: [IO=2E8h; IRQ=10]; [IO=3F8h; IRQ=3,4,5,7,10,11]; [IO=2F8h; IRQ=3,4,5,7,10,11]; [IO=3E8h; IRQ=3,4,5,7,10,11] ; [IO=2E8h; IRQ=3,4,5,7,10,11] ; [IO=3E0h; IRQ=3,4,5,7,10,11] ; [IO=2E0h; IRQ=3,4,5,7,10,11].

Change Settings Set the default value to: [IO=2E8H; IRQ=10]

- Transmission Mode Select

The optional settings are: [RS422]; [RS232]; [RS485]. Transmission Mode Select Set the default value to: [RS232]

- Mode Speed Select

Use this item to RS232/RS422/RS485 Speed Select.

The optional settings are:

[RS232/RS422/RS485=250Kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

Mode Speed Select Set the default value to: [RS232=1Mbps, RS422/RS485=10Mbps]

WatchDog Reset Timer

Use this item to support WDT reset function.

The optional settings: [Disabled]; [Enabled].

WatchDog Reset Timer Set the default value to: [Disabled]

When set as [Enabled], user can make settings in the following items that appear:

WatchDog Reset Timer Value

User can set a value in the range of [10] to [255] seconds or [1] to [255] minutes.

WatchDog Reset Timer Value Set the default value to: [10]

WatchDog Reset Timer Unit

The optional settings are: [Sec.]; [Min.].

WatchDog Reset Timer Unit Set the default value to: [Sec]

ATX Power Emulate AT Power

This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select 'AT or ATX Mode' on MB jumper at first (refer to **ATX_Mode** jumper setting Pin 1&2 of for **ATX Mode** & Pin 2&3 of **AT Mode** Select).

Case Open Detect

Use this item to detect if case have ever been opened. Show message in POST.

The optional settings: [Disabled]; [Enabled].

Case Open Detect Set the default value to: [Disabled]

When set as [Enabled], system will detect if COPEN has been short or not (*refer to* **JCLAR** *jumper setting for Case Open Detection*); if Pin 7&8 of **JCLAR** are short, system will show Case Open Message during POST.

- **PC Health Status**

  Press [Enter] to view current hardware health status, make further settings in '**SmartFAN Configuration**'.

- **SmartFAN Configuration**

  Press [Enter] to make settings for SmartFAN Configuration:

SmartFAN Configuration

CPUFAN Smart Mode

The optional settings: [Disabled]; [Enabled].

CPUFAN Smart Mode Set the default value to: [Enabled]

When set as [Enabled], the following sub-items shall appear:

CPUFAN Full-Speed Temperature

Use this item to set CPUFAN full speed temperature. Fan will run at full speed when above this pre-set temperature.

CPUFAN Full-Speed Temperature Set the default value to: [60]

CPUFAN Full-Speed Duty

Use this item to set CPUFAN full-speed duty. Fan will run at full speed when above this pre-set duty.

CPUFAN Full-Speed Duty Set the default value to: [100]

CPUFAN Idle-Speed Temperature

Use this item to set CPUFAN idle speed temperature. Fan will run at idle speed when below this pre-set temperature.

CPUFAN Idle-Speed Temperature Set the default value to: [40]

CPUFAN Idle-Speed Duty

Use this item to set CPUFAN idle speed duty. Fan will run at idle speed when below this pre-set duty.
CPUFAN Idle-Speed Duty Set the default value to: [40]

- **USB Configuration**

Press [Enter] to make settings for the following sub-items:

USB Configuration

XHCI Hand-off

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

The optional settings: [Enabled]; [Disabled].

XHCI Hand-off Set the default value to: [Disabled].

USB Mass Storage Driver Support

Use this item to enable or disable USB Mass storage driver support.

The optional settings: [Disabled]; [Enabled].

USB Mass Storage Driver Support Set the default value to: [Enabled].

USB hardware delay and time-out

USB Transfer time-out

Use this item to set the time-out value for control, bulk, and interrupt transfers.

The optional settings: [1 sec]; [5 sec]; [10 sec]; [20 sec].

USB Transfer time-out Set the default value to: [20 sec]

Device reset time-out

Use this item to set USB mass storage device start unit command time-out.

The optional settings: [10 sec]; [20 sec]; [30 sec]; [40 sec].

Device reset time-out Set the default value to: [20 sec]

Device power-up delay

Use this item to set 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 100 ms, for a hub port the delay is taken from hub descriptor.
The optional settings: [Auto]; [Manual].
Device power-up delay Set the default value to: [Auto]
Select **[Manual]** you can set value for the following sub-item: '**Device power-up delay in seconds**', the delay range is 1 .. 40 seconds, in one second increments.

- **Network Stack Configuration**

Press [Enter] to go to '**Network Stack**' screen to make further settings.
Network Stack
Use this item to enable or disable UEFI Network Stack.
The optional settings: [Disabled]; [Enabled].
Network Stack Set the default value to: [Disabled]
When set as **[Enabled]**, the following sub-items shall appear:
IPv4 PXE Support
Use this item to enable/disable IPv4 PXE Boot Support. When set as [Disabled], IPv4 PXE boot support will not be available.

The optional settings: [Disabled]; [Enabled].
IPv4 PXE Support Set the default value to: [Enabled]

IPv6 PXE Support

Use this item to enable/disable IPv6 PXE Boot Support. When set as [Disabled], IPv6 PXE boot support will not be available.
The optional settings: [Disabled]; [Enabled].
IPv6 PXE Support Set the default value to: [Disabled]

PXE boot wait time

Wait time in seconds to press [ESC] key to abort the PXE boot.
Use either [+]/[-] or numeric keys to set the value.
PXE boot wait time Set the default value to: [5]

Media detect count

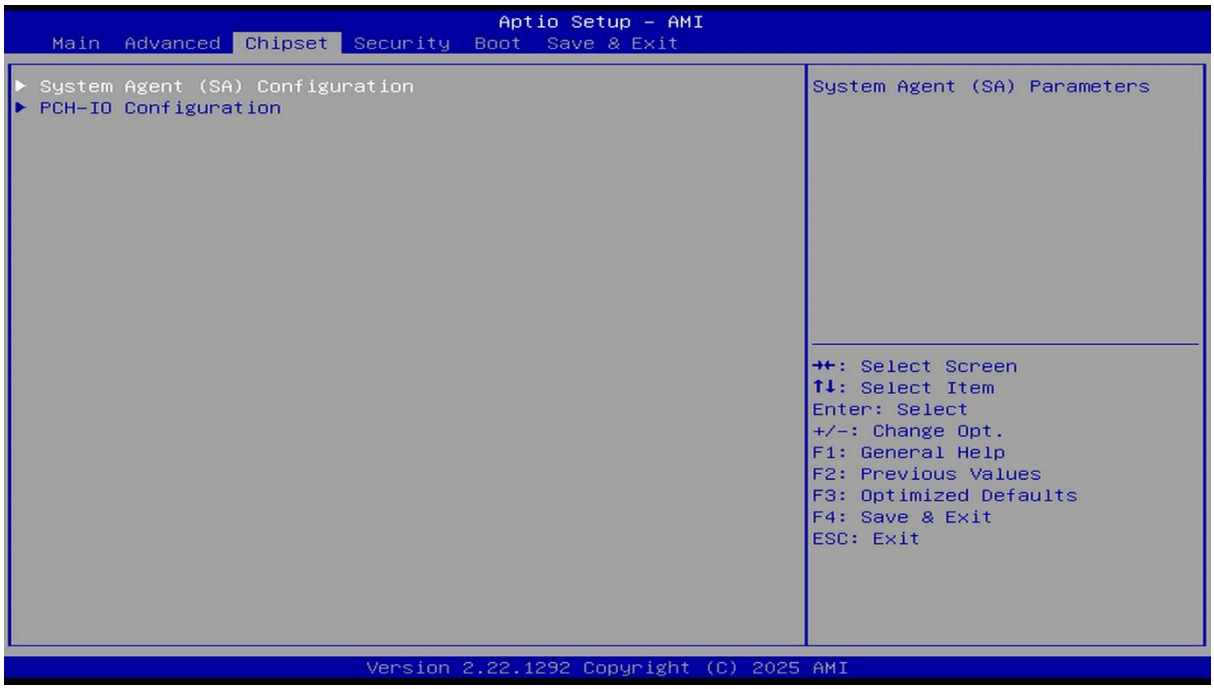
Use this item to set number of times presence of media will be checked.
Use either [+]/[-] or numeric keys to set the value.
Media detect count Set the default value to: [5]

- **NVMe Configuration**

  Use this item to set NVMe Device options settings.

  NVMe Configuration

3-8 Chipset Menu



- **System Agent (SA) Configuration**

Press [Enter] to make settings for the following sub-items:

System Agent (SA) Configuration

Maximum Memory Frequency

Maximum Memory Frequency Selections in Mhz.

The optional settings: [Auto]; [4000] ; [4400] ; [4800] ; [5000] ; [5200] ; [5400] ; [5600] ;[5800] ; [6000] ; [6200] ; [6400]

.Maximum Memory Frequency Set the default value to: [Auto]

- **Graphics Configuration**

Active LVDS/eDP

Use this item to select the Active LVDS/eDP Configuration.

The optional settings: [Disabled]; [Enabled].

Active LFP Set the default value to: [Disabled]

When set as [Enabled], the following sub-item shall appear:

Panel Type

The optional settings are: [800x480 1ch 18-bit]; [800x600 1ch 18-bit]; [800x600 1ch 24-bit]; [1024x600 1ch 18-bit]; [1024x768 1ch 18-bit]; [1024x768 1ch 24-bit]; [1280x800 1ch 18-bit]; [1280x800 1ch 24-bit]; [1366x768 1ch 18-bit]; [1366x768 1ch 24-bit]; [1440x900 2ch 18-bit]; [1440x900 2ch 24-bit]; [1280x1024 2ch 24-bit]; [1680x1050 2ch 24-bit]; [1920x1080 2ch 24-bit]; [eDP].

Panel Type Set the default value to: [eDP]

Backlight Control

Use this item to make back light control setting.

The optional settings are: [PWM Inverted]; [PWM Normal].
Backlight Control Set the default value to: [PWM Normal]

VMD setup menu
Press [Enter] to make settings for the following sub-items: Enable VMD controller

Use this item to enable/disable to VMD controller

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following sub-items shall appear:

Enable VMD Global Mapping

Use this item to enable/disable to VMD global mapping The optional settings: [Disabled]; [Enabled].

Enable VMD Global Mapping Set the default value to: [Disabled].

Map SOC SATA Controller under VMD

Use this item to Map/UnMap this root port to VMD The optional settings: [Disabled]; [Enabled].

Map SOC SATA Controller under VMD Set the default value to: [Disabled]

- **PCH-IO Configuration**

Press [Enter] to make settings for the following sub-items:

PCH-IO Configuration

- **SATA Configuration**

SATA Device Options Settings.

SATA Configuration

SATA Controller(s)

Use this item to enable/disable SATA Device.

The optional settings are: [Enabled]; [Disabled].

SATA Controller(s) Set the default value to: [Enabled]

When set as [Enabled], the following sub-items shall appear:

SATA1

Port

Use this item to enable or disable SATA Port.

The optional settings are: [Disabled]; [Enabled].

Port Set the default value to: [Enabled]

M.2

Port

Use this item to enable or disable SATA Port.

The optional settings are: [Disabled]; [Enabled].

Port Set the default value to: [Enabled]

HD Audio

Use this item to control detection of the HD-Audio device.

Disabled= HDA will be unconditionally disabled.

Enabled= HDA will be unconditionally enabled.

The optional settings: [Disabled]; [Enabled].

HD Audio Set the default value to: [Enabled]

eMMC Controller

The optional settings: [Disabled]; [Enabled].

eMMC Controller Set the default value to: [Enabled]

M2B Slot Select

The optional settings:[Auto]; [PCIex2]; [PCIex1+USB3].

M2B Slot Select Set the default value to: [Auto]

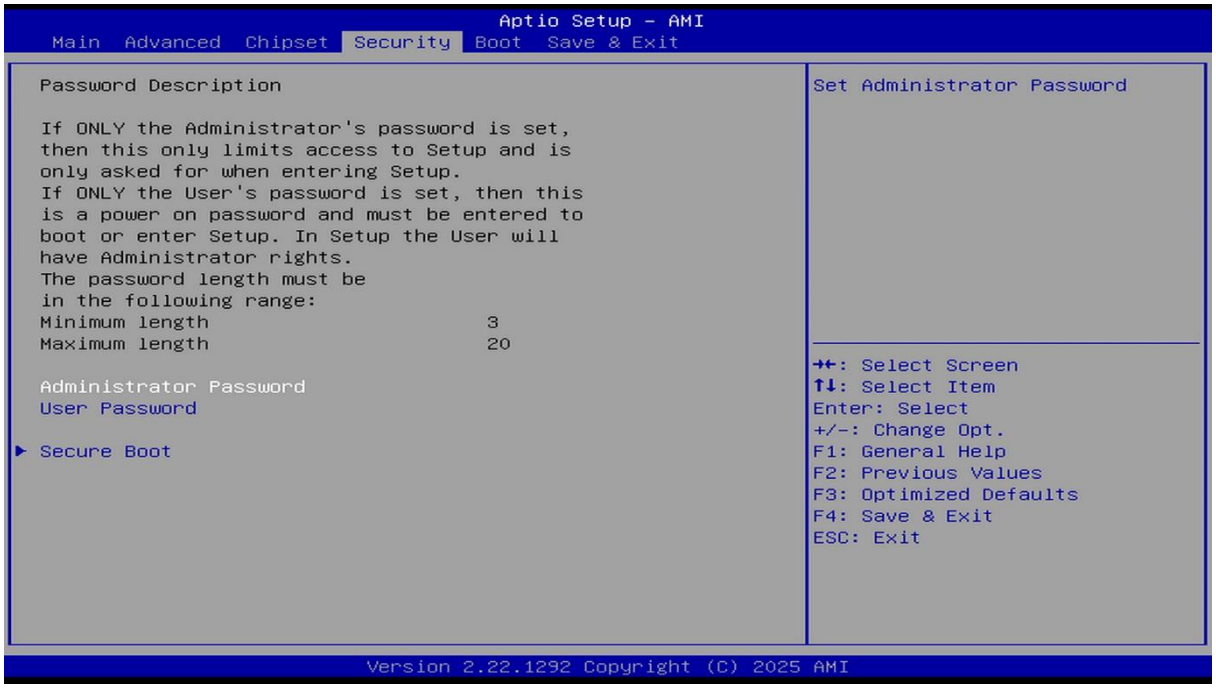
System State after Power Failure

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

The optional settings: [Always On]; [Always Off]; [Former State].

System State after Power Failure Set the default value to: [Always Off]

3-9 Security Menu



Security menu allow users to change administrator password and user password settings.

Administrator Password

If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

User Password

If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

- **Secure Boot**

  Press [Enter] to make customized secure settings:

  System Mode

Secure Boot
Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset.
The optional settings: [Disabled]; [Enabled].
Secure Boot Set the default value to: [Enabled]
Secure Boot Mode
Set UEFI Secure Boot Mode to Standard mode or Custom mode. This change is effective after save. After reset, this mode will return to Standard mode.
In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.
The optional settings: [Standard]; [Custom].
Secure Boot Mode Set the default value to: [Standard]
When set as [**Custom**], user can make further settings in the following items that show up:

- **Restore Factory Keys**

Use this item to force system to User Mode, to install factory default Secure Boot key databases.

- **Reset To Setup Mode**

Use this item to Delete all secure boot key databases from NVRAM.

- **Key Management**

This item enables expert users to modify Secure Boot Policy variables without full authentication, which includes the following items:
Vendor Keys

Factory Key Provision
This item is for user to install factory default Secure Boot keys after the platform reset and while the System is in Setup mode.
The optional settings: [Disabled]; [Enabled].
Factory Key Provision Set the default value to: [Disabled]

- **Restore Factory Keys**

Use this item to force system into User Mode. Install factory default Secure Boot key databases.

- **Reset To Setup Mode**

Use this item to Delete all Secure Boot key databases from NVRAM.

- **Enroll Efi Image**

This item allows the image to run in Secure Boot mode.
Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

- **Export Secure Boot variables**

Use this item to save NVRAM content of Secure Boot variables to a file.

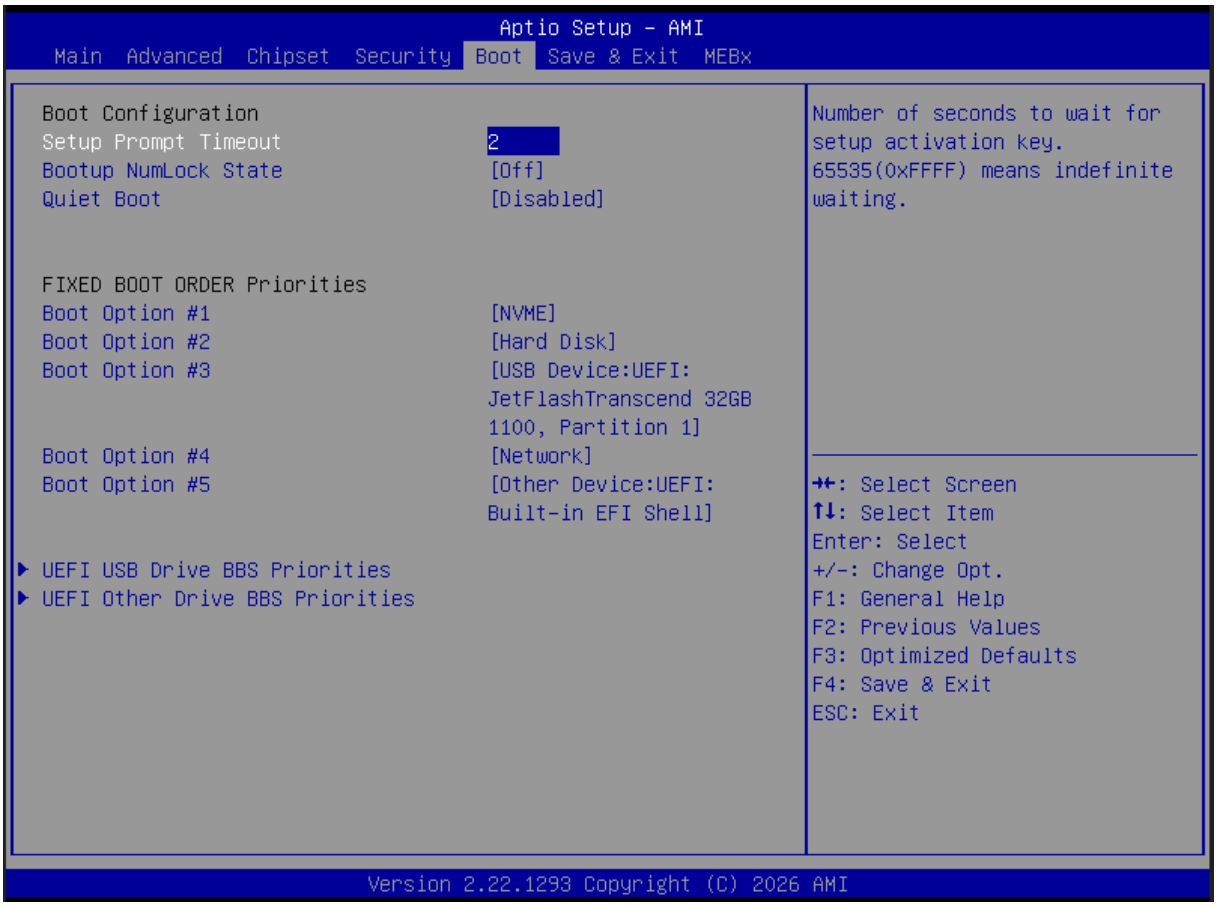
- **Export Secure Boot variables**

- **Platform Key(PK)**
- **Key Exchange Keys(KEK)**
- **Signatures(db)**
- **Forbidden Signatures(dbx)**
- **Authorized TimeStamps(dbt)**
- **OsRecovery Signatures(dbr)**

Use this item to enroll Factory Defaults or load certificates from a file:
1. Public Key Certificate:
   a) EFI_SIGNATURE_LIST
   b) EFI_ CERT_X509 (DER)
   c) EFI_ CERT_RSA2048 (bin)
   d) EFI_ CERT_SHAXXX

2. Authenticated UEFI Variable
3. EFI PE/COFF Image (SHA256)
Key Source: Factory, Modified, Mixed

3-10 Boot Menu



Boot Configuration

Setup Prompt Timeout

Use this item to set number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

Setup Prompt Timeout Set the default value to: [2]

Bootup NumLock State

Use this item to select keyboard NumLock state.

The optional settings: [On]; [Off].

Bootup NumLock State Set the default value to: [Off]

Quiet Boot

The optional settings: [Disabled]; [Enabled].

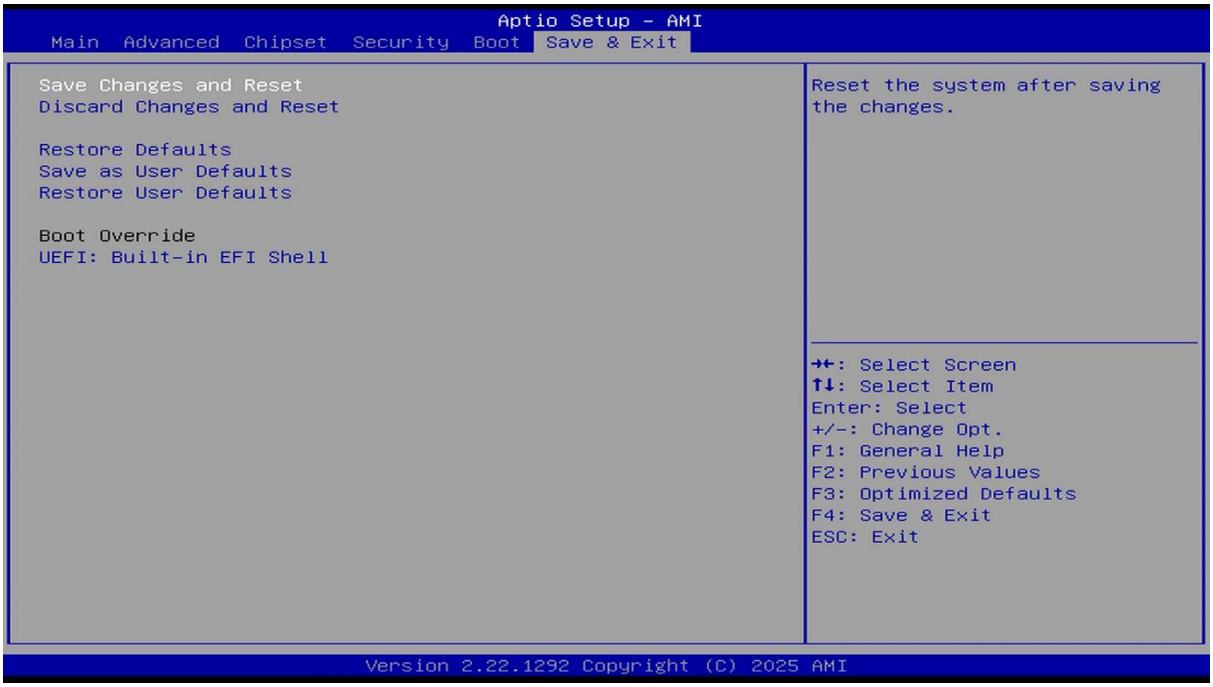
Quiet Boot Set the default value to: [Disabled]

Boot Option Priorities

Boot Option #1~#5 This item allows you to set the system boot order. Configuration options: [NVME];

[Hard Disk]; [USB Device]; [Network] ; [Other Device:UEFI:Built-in EFI-Shell]

3-11 Save & Exit Menu



Save Changes and Reset

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

Discard Changes and Reset

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

Restore Defaults

Use this item to restore /load default values for all the setup options.

Save as User Defaults

Use this item to save the changes done so far as user defaults.

Restore User Defaults

Use this item to restore the user defaults to all the setup options.

Boot Override

3-12 MEBx



Intel(R) ME Password

Use this item to MEBx Login

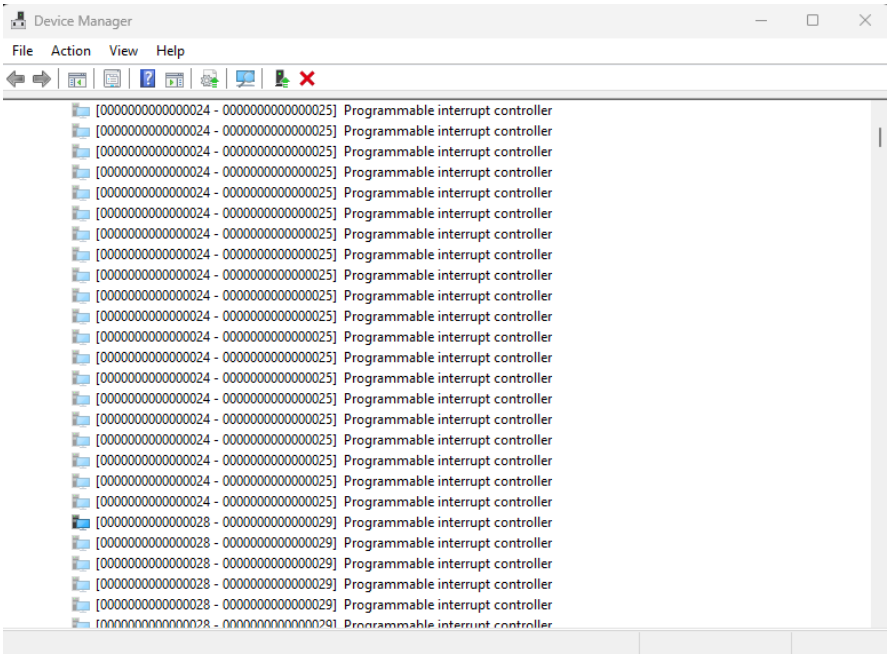
Appendix A

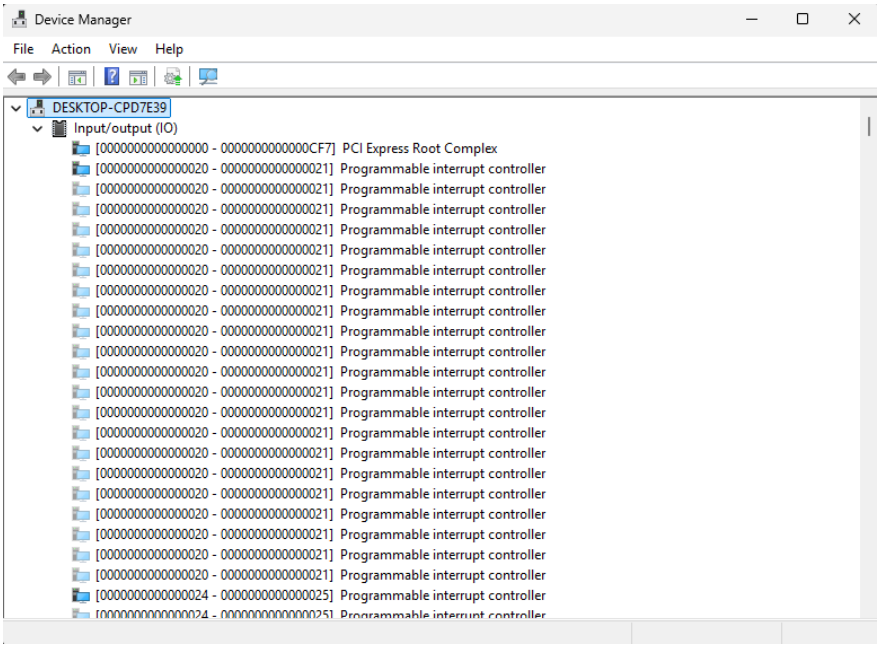
Mating Connectors

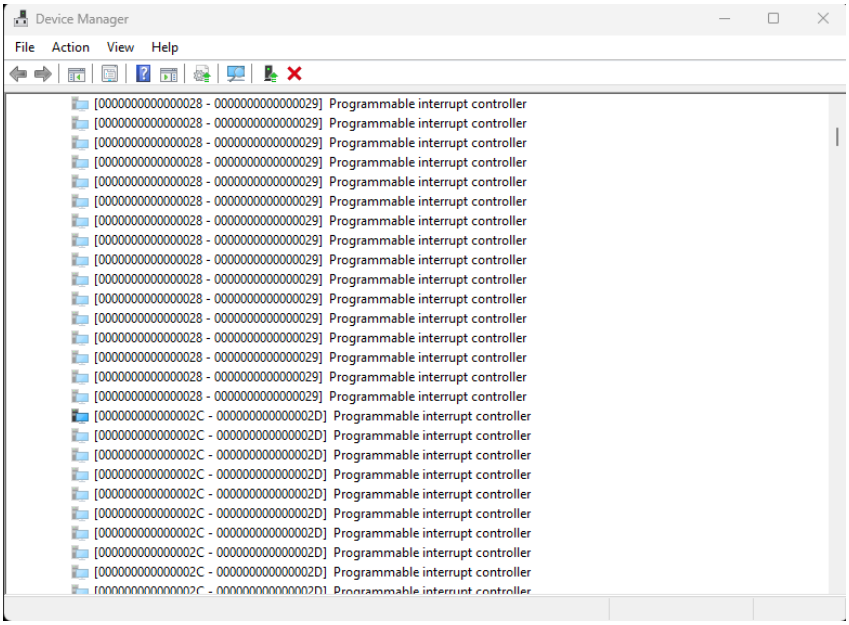
Location Printing	Function	Vendor	Vendor P/N
BATCON1	RTC Battery Connector	Topt	WF7-1102-T9N-B2-CR
COM1	RS232 Serial Port Header	Topt	PH200-205M-GBB00010D
COM2	RS232 Serial Port Header	Topt	PH200-205M-GBB00010D
COM3	RS232 Serial Port Header	Topt	PH200-205M-GBB00010D
COM4	RS232 Serial Port Header	Topt	PH200-205M-GBB00010D
CPUFAN1	CPU FAN Header	Topt	WF254-104S-TEW0004A
DCIN3	Internal 12V~36V Wide-Voltage Power Connector	GNE	DJ-D020A
F_AUDIO1	Front Panel Audio Header	Topt	PH200-205M-GBB0008D
F_USB1	USB 2.0 Port Header	Topt	PH200-205M-GBB0009D
GPIO1	GPIO/80 Port Header	Kunguang	PH2.0 2*5P SQ8.1/5.8(0)/4.2 SMT
I2C1	I2C Header	Topt	PH2-C105-S9B-G1
INVERTER1	LVDS Inverter Connector	Topt	WF2-1108-K-S6R-B0
JW_FP1	Front Panel Function Header	Topt	PH254-204S-GBB0004A
LAN_LED1	LAN1 and LAN2 active LED	DCNT	P420-XXSGO1ST4XX
LVDS_EDP1	LVDS Port Header	Topt	1.25-DF13 2*15P SMT
SATA1	SATA3 Port Connector	Lotes	ABA-SAT-056-K01
SATAPWR1	SATA HDD Power-Out Connector	Topt	WF5-1104-Q-S6W-B0
SMBUS1	SMBUS Header	Topt	PH2-C105-S9B-G1
SPEAK_CON1	3W Amplifier Connector	Topt	WF2-1104-K-S6N-B0

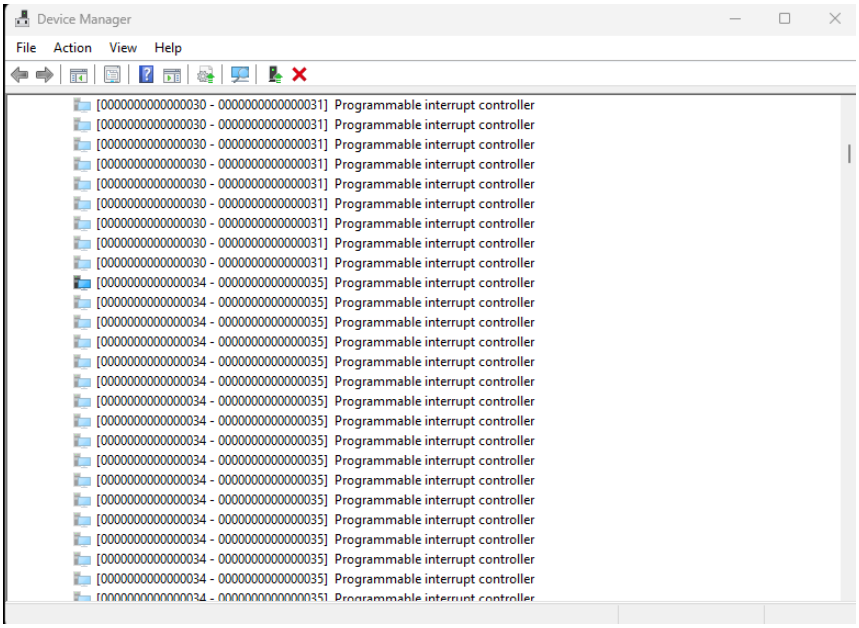
Appendix B

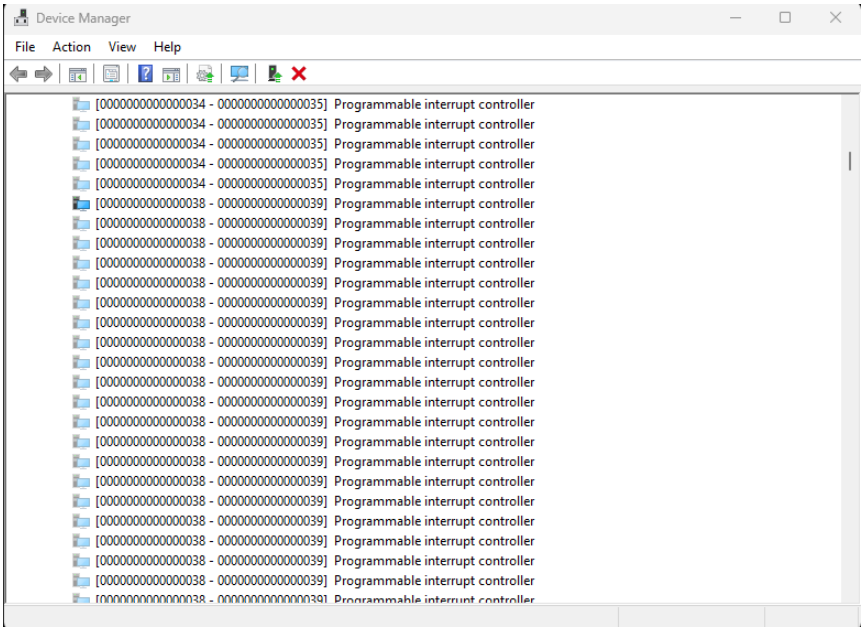
I/O Address Map

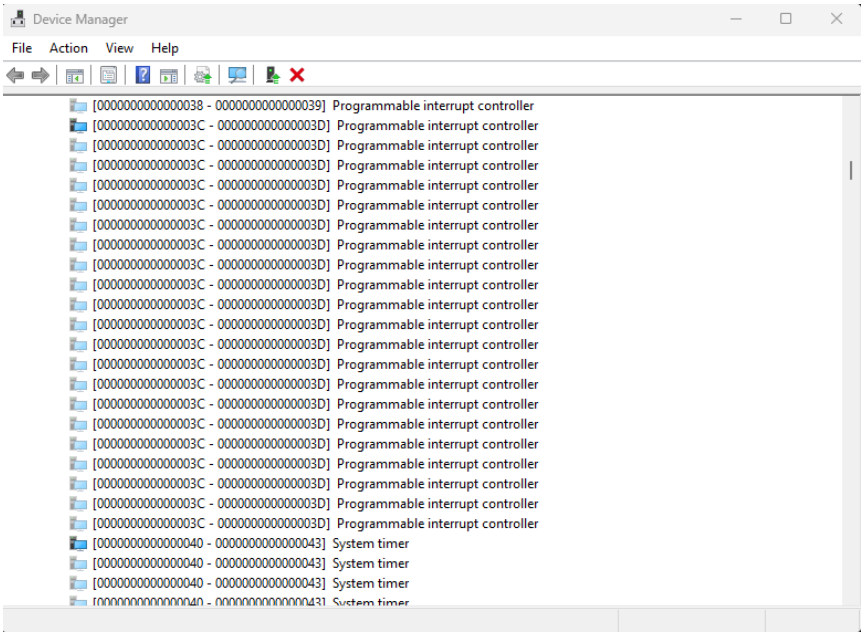


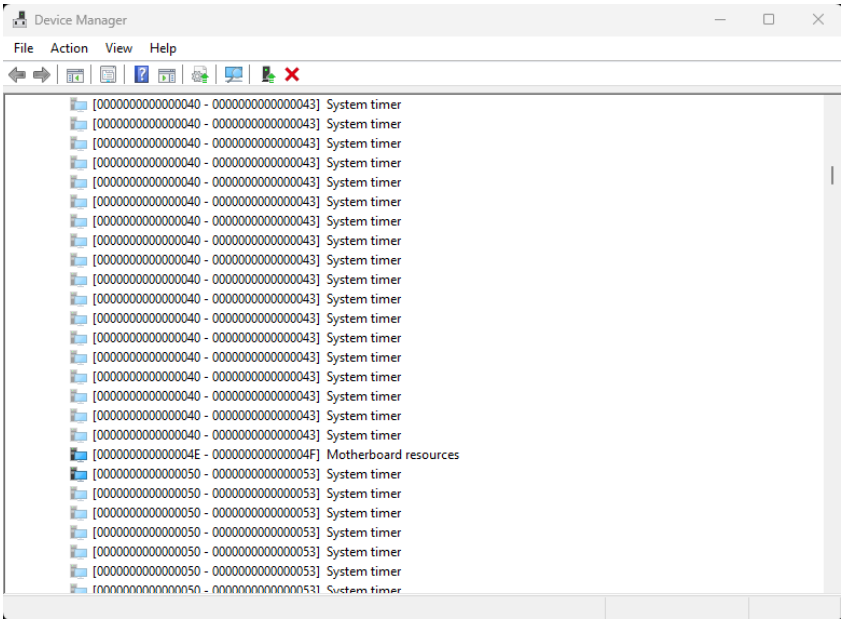


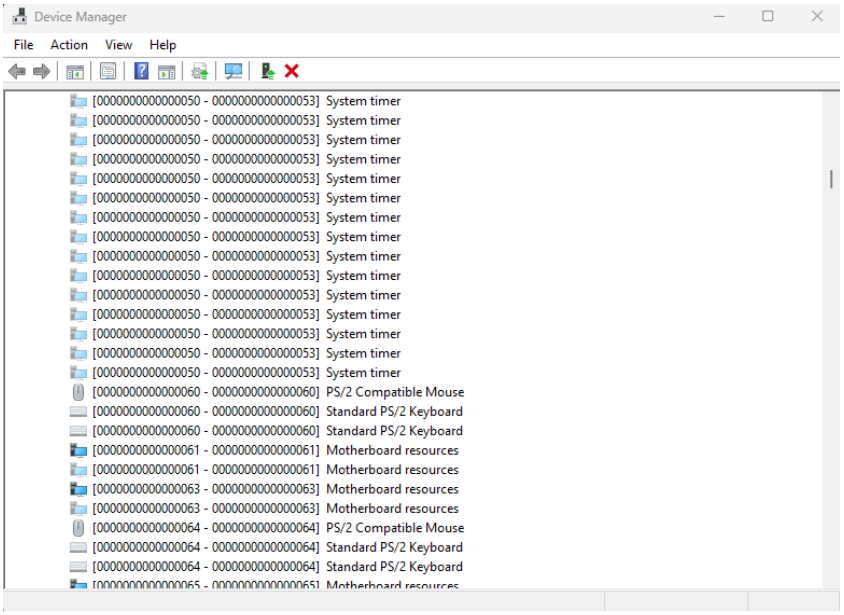

Device Manager
File Action View Help
[0000000000000028 - 0000000000000029] Programmable interrupt controller
[0000000000000028 - 0000000000000029] Programmable interrupt controller
[0000000000000028 - 0000000000000029] Programmable interrupt controller

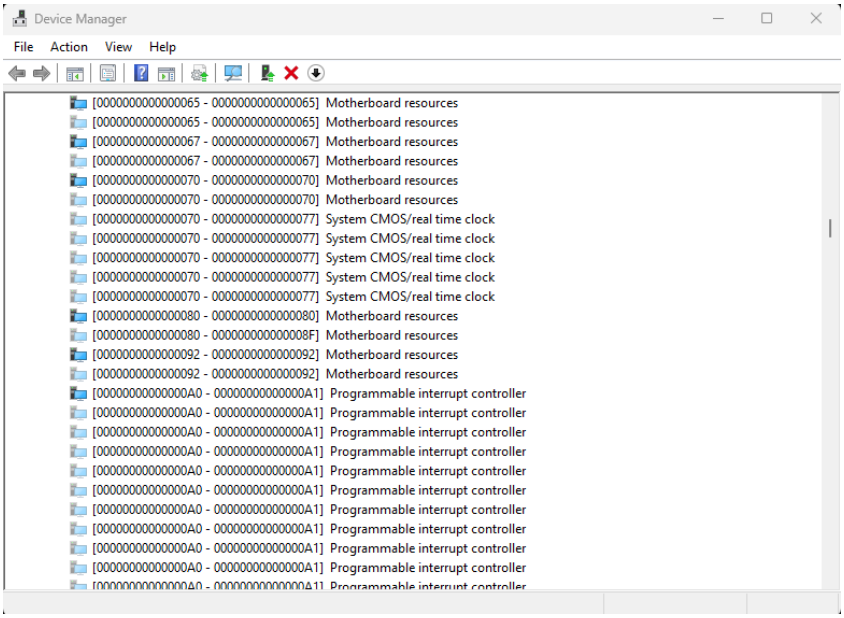

Device Manager
File Action View Help
[0000000000000030 - 0000000000000031] Programmable interrupt controller
[0000000000000034 - 0000000000000035] Programmable interrupt controller

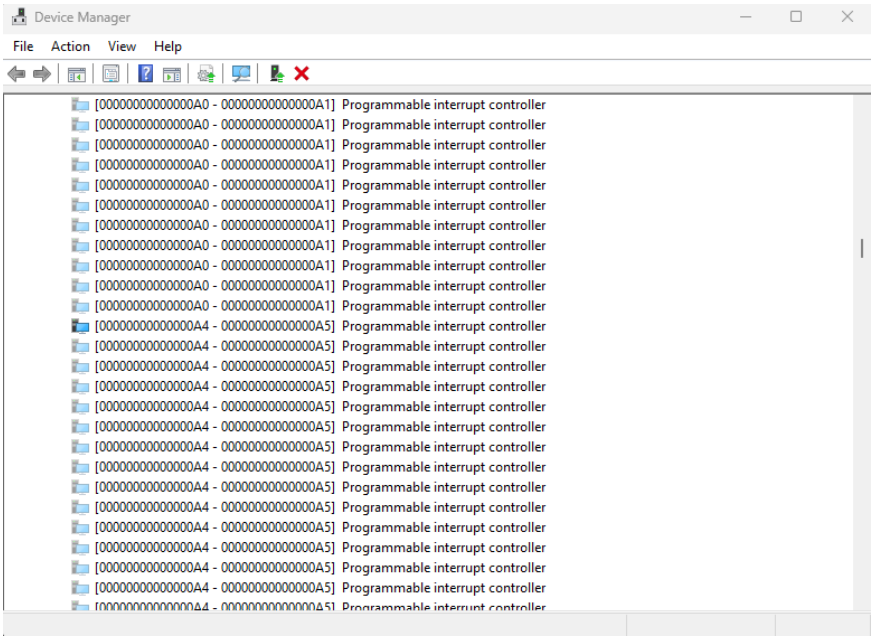

Device Manager
File Action View Help
[0000000000000034 - 0000000000000035] Programmable interrupt controller
[0000000000000038 - 0000000000000039] Programmable interrupt controller

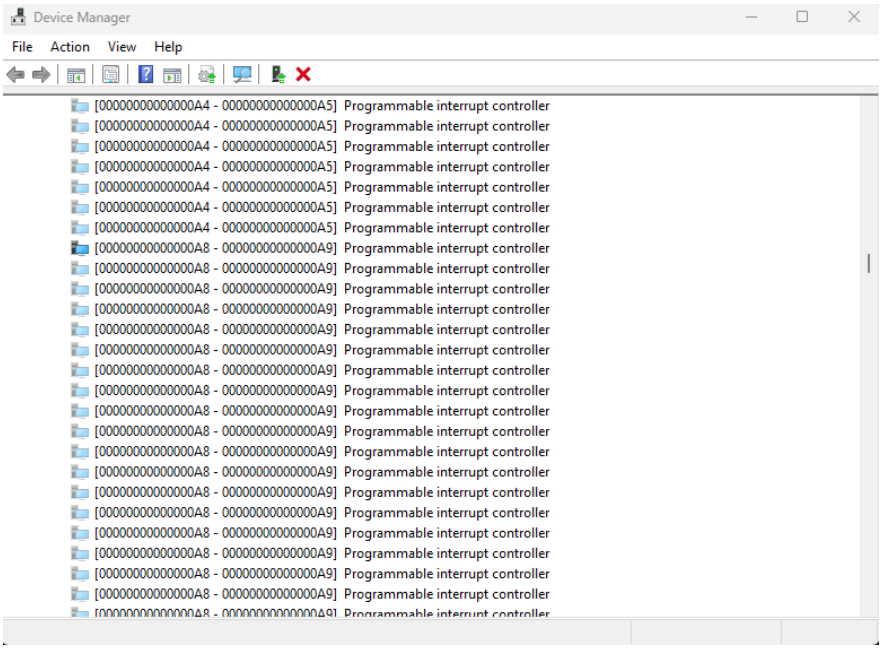

Device Manager
File Action View Help
[0000000000000038 - 0000000000000039] Programmable interrupt controller
[000000000000003C - 000000000000003D] Programmable interrupt controller
[0000000000000040 - 0000000000000043] System timer

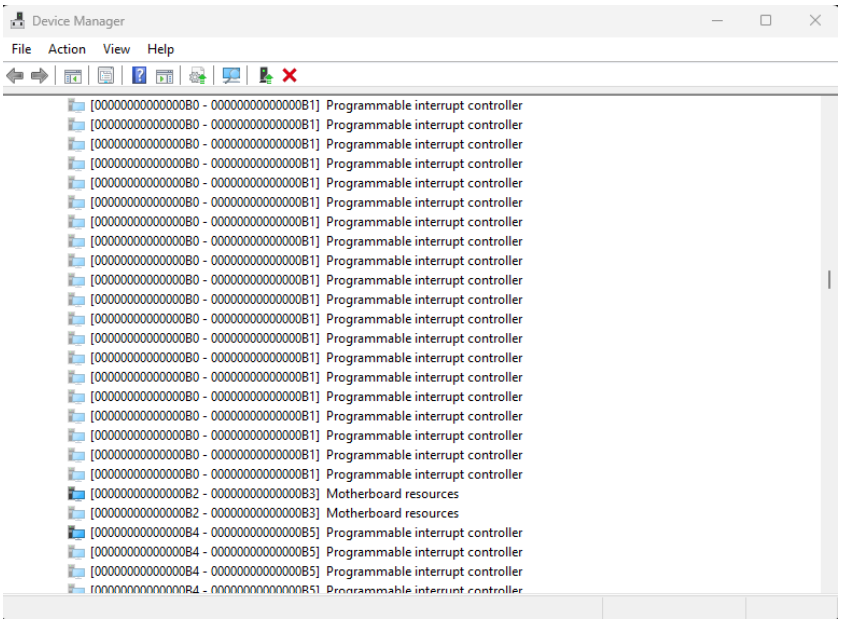

Device Manager
File Action View Help
[0000000000000040 - 0000000000000043] System timer
[000000000000004E - 000000000000004F] Motherboard resources
[0000000000000050 - 0000000000000053] System timer

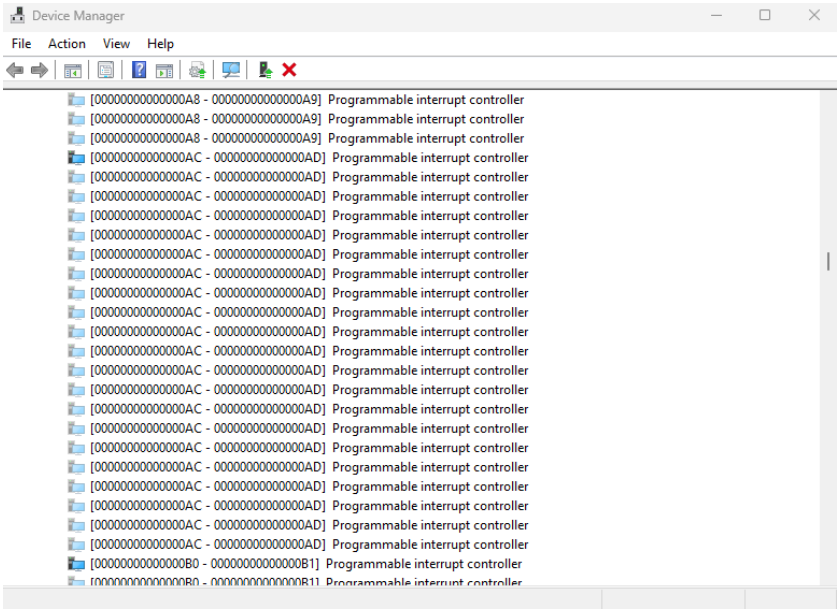

Device Manager
File Action View Help
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
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[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000060 - 0000000000000060] PS/2 Compatible Mouse
[0000000000000060 - 0000000000000060] Standard PS/2 Keyboard
[0000000000000060 - 0000000000000060] Standard PS/2 Keyboard
[0000000000000061 - 0000000000000061] Motherboard resources
[0000000000000061 - 0000000000000061] Motherboard resources
[0000000000000063 - 0000000000000063] Motherboard resources
[0000000000000063 - 0000000000000063] Motherboard resources
[0000000000000064 - 0000000000000064] PS/2 Compatible Mouse
[0000000000000064 - 0000000000000064] Standard PS/2 Keyboard
[0000000000000064 - 0000000000000064] Standard PS/2 Keyboard

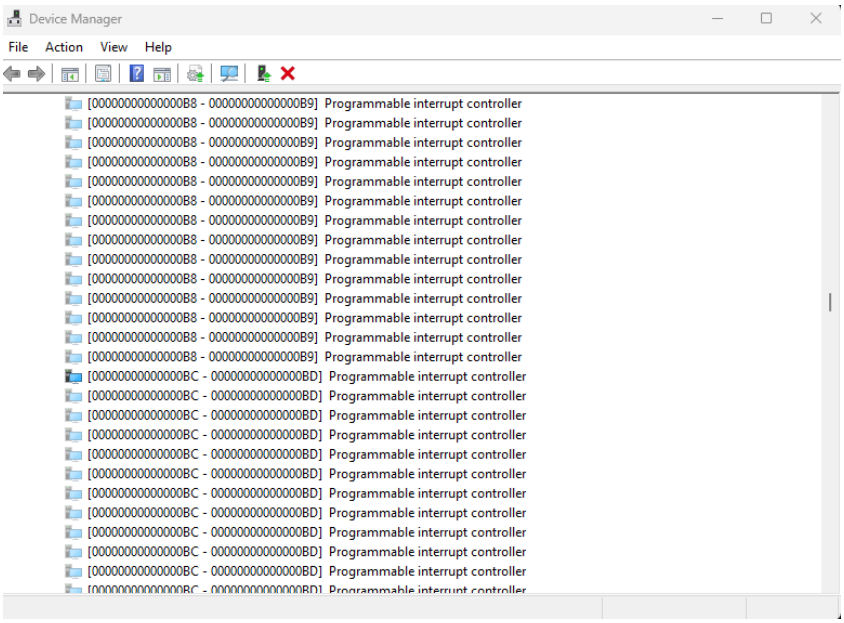

Device Manager
File Action View Help
[0000000000000065 - 0000000000000065] Motherboard resources
[0000000000000065 - 0000000000000065] Motherboard resources
[0000000000000067 - 0000000000000067] Motherboard resources
[0000000000000067 - 0000000000000067] Motherboard resources
[0000000000000070 - 0000000000000070] Motherboard resources
[0000000000000070 - 0000000000000070] Motherboard resources
[0000000000000070 - 0000000000000077] System CMOS/real time clock
[0000000000000070 - 0000000000000077] System CMOS/real time clock
[0000000000000070 - 0000000000000077] System CMOS/real time clock
[0000000000000070 - 0000000000000077] System CMOS/real time clock
[0000000000000070 - 0000000000000077] System CMOS/real time clock
[0000000000000080 - 0000000000000080] Motherboard resources
[0000000000000080 - 000000000000008F] Motherboard resources
[0000000000000092 - 0000000000000092] Motherboard resources
[0000000000000092 - 0000000000000092] Motherboard resources
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller

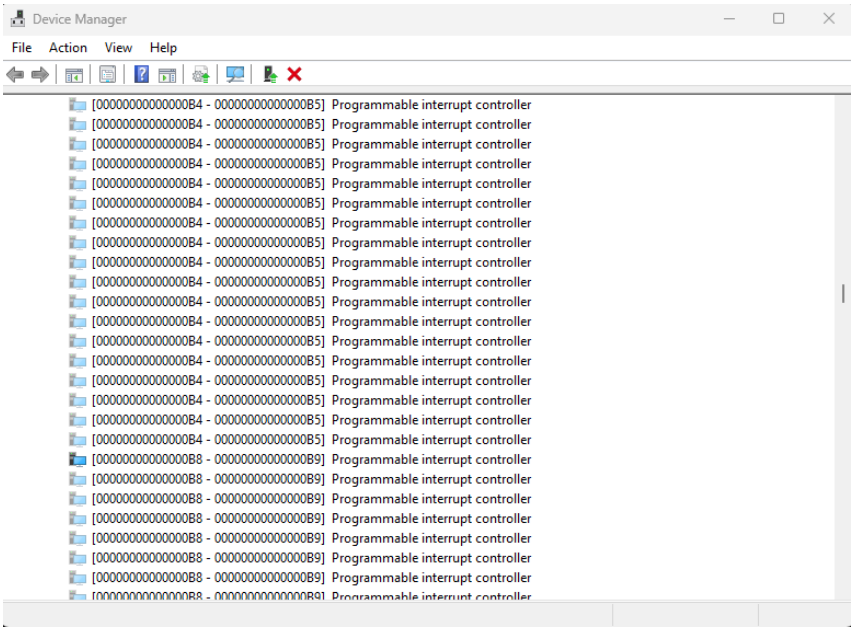

Device Manager
File Action View Help
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A4 - 00000000000000A5] Programmable interrupt controller

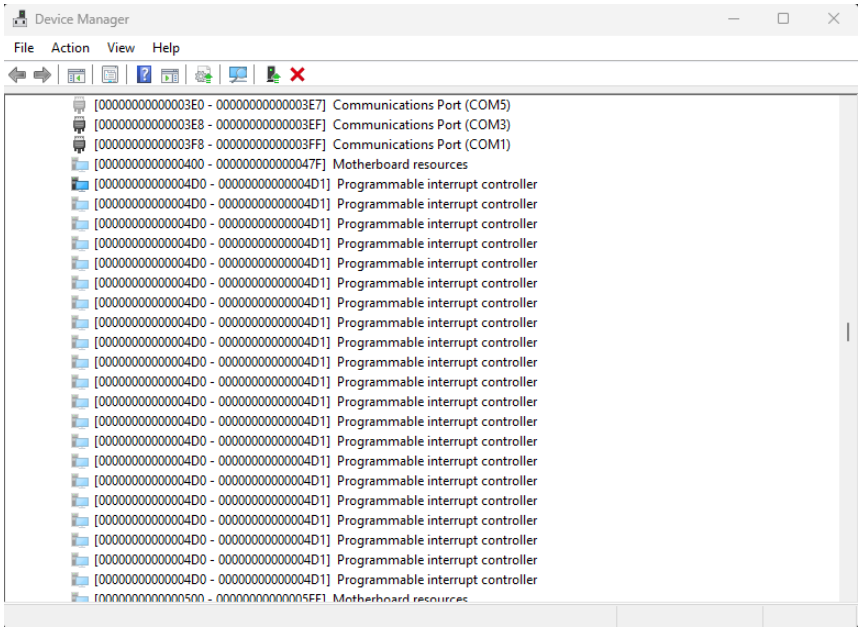

Device Manager
File Action View Help
[00000000000000A4 - 00000000000000A5] Programmable interrupt controller
[00000000000000A8 - 00000000000000A9] Programmable interrupt controller

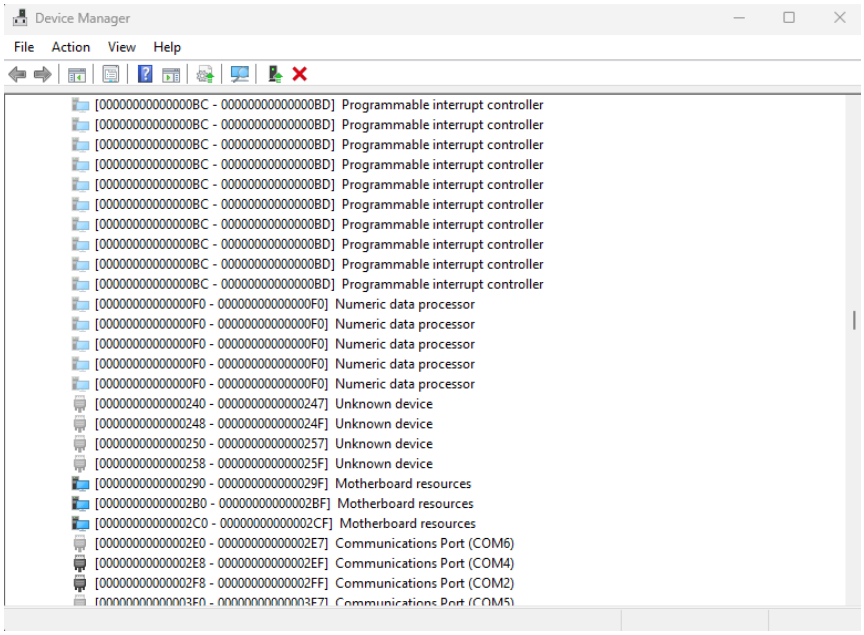

Device Manager
File Action View Help
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B2 - 00000000000000B3] Motherboard resources
[00000000000000B2 - 00000000000000B3] Motherboard resources
[00000000000000B4 - 00000000000000B5] Programmable interrupt controller
[00000000000000B4 - 00000000000000B5] Programmable interrupt controller
[00000000000000B4 - 00000000000000B5] Programmable interrupt controller

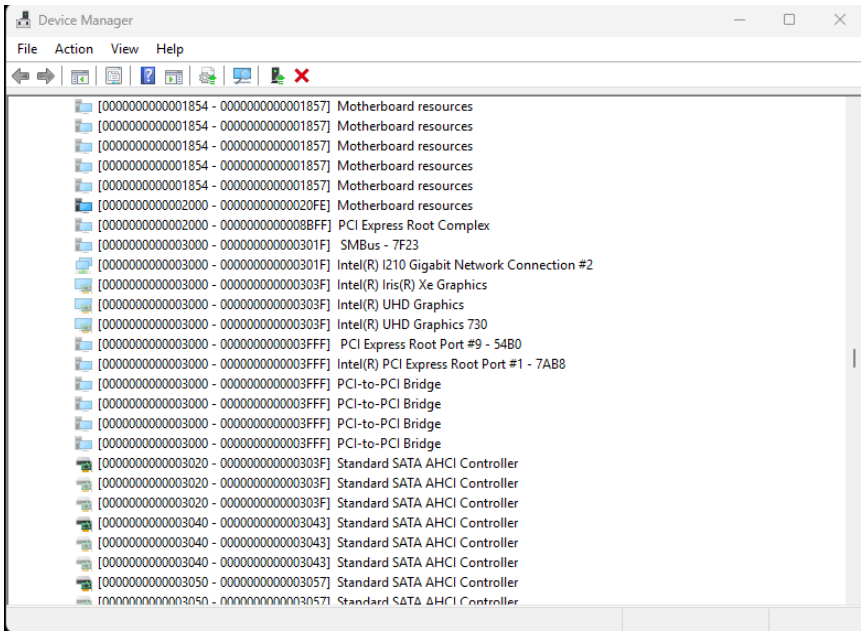

Device Manager
File Action View Help
[00000000000000A8 - 00000000000000A9] Programmable interrupt controller
[00000000000000A8 - 00000000000000A9] Programmable interrupt controller
[00000000000000A8 - 00000000000000A9] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
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[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller

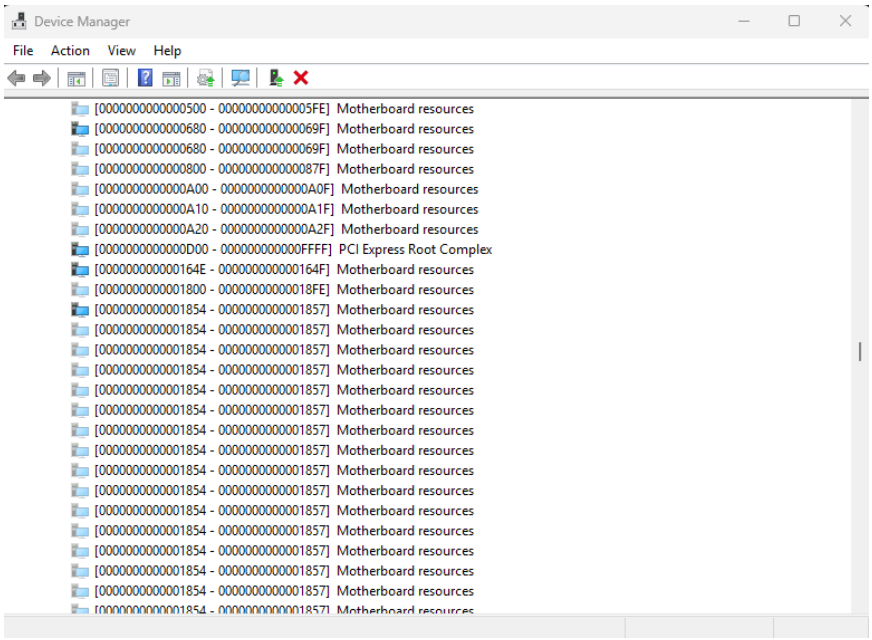

Device Manager
File Action View Help
[00000000000000B8 - 00000000000000B9] Programmable interrupt controller
[00000000000000BC - 00000000000000BD] Programmable interrupt controller

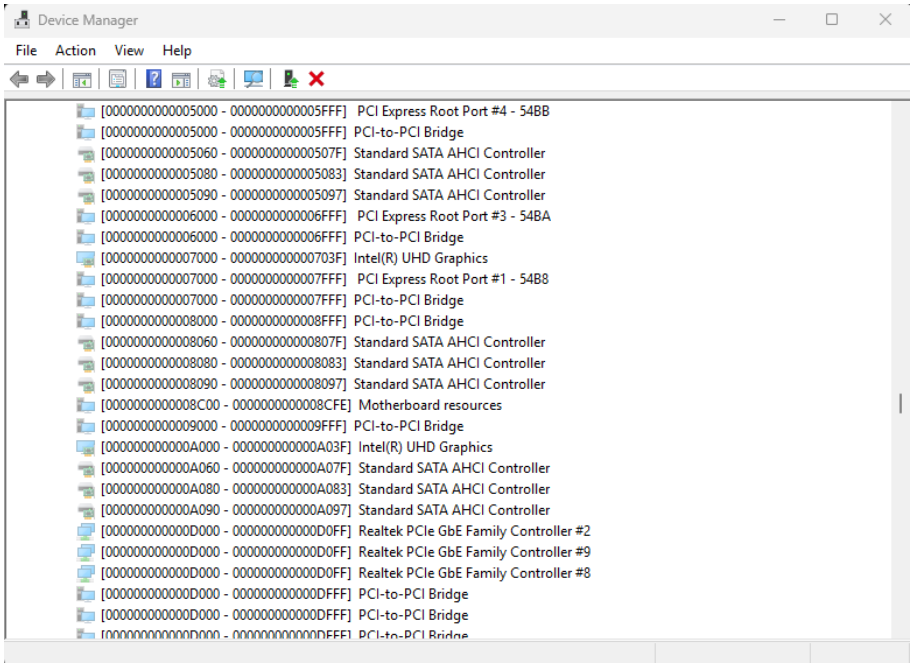

Device Manager
File Action View Help
[00000000000000B4 - 00000000000000B5] Programmable interrupt controller
[00000000000000B8 - 00000000000000B9] Programmable interrupt controller

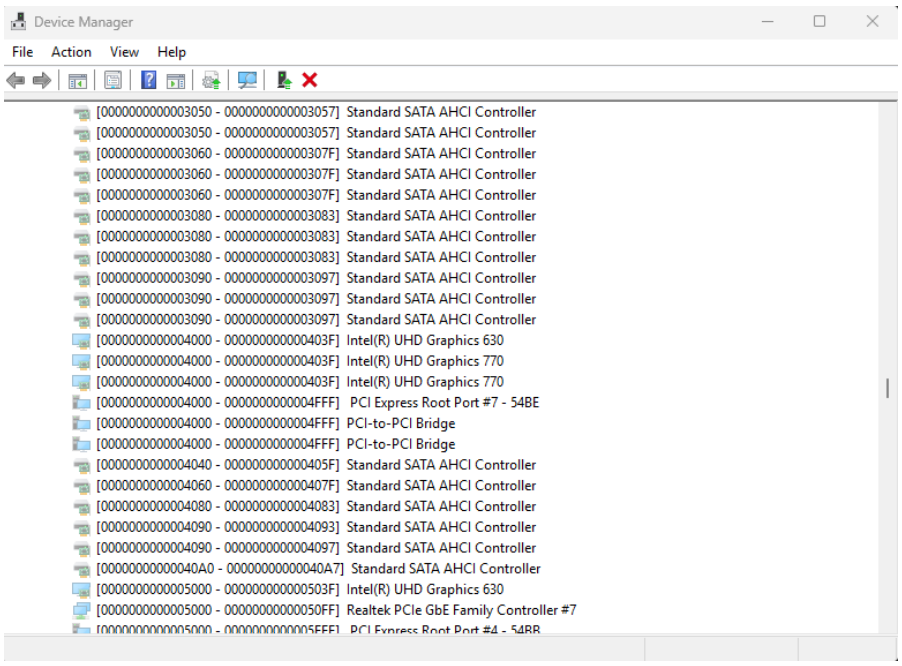

Device Manager
File Action View Help
[00000000000003E0 - 00000000000003E7] Communications Port (COM5)
[00000000000003E8 - 00000000000003EF] Communications Port (COM3)
[00000000000003F8 - 00000000000003FF] Communications Port (COM1)
[0000000000000400 - 000000000000047F] Motherboard resources
[00000000000004D0 - 00000000000004D1] Programmable interrupt controller

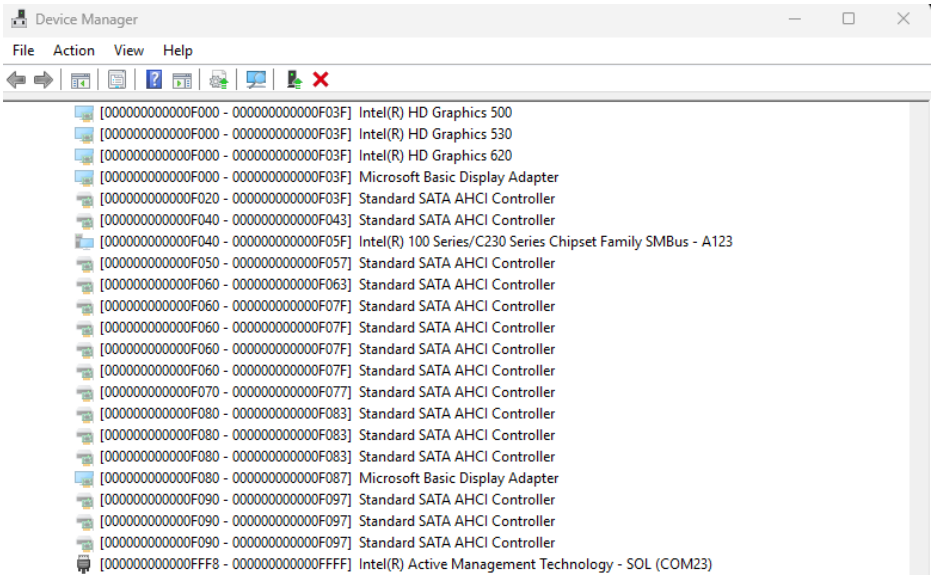

Device Manager
File Action View Help
[00000000000000BC - 00000000000000BD] Programmable interrupt controller
[00000000000000F0 - 00000000000000F0] Numeric data processor
[0000000000000240 - 0000000000000247] Unknown device
[0000000000000248 - 000000000000024F] Unknown device
[0000000000000250 - 0000000000000257] Unknown device
[0000000000000258 - 000000000000025F] Unknown device
[0000000000000290 - 000000000000029F] Motherboard resources
[00000000000002B0 - 00000000000002BF] Motherboard resources
[00000000000002C0 - 00000000000002CF] Motherboard resources
[00000000000002E0 - 00000000000002E7] Communications Port (COM6)
[00000000000002E8 - 00000000000002EF] Communications Port (COM4)
[00000000000002F8 - 00000000000002FF] Communications Port (COM2)

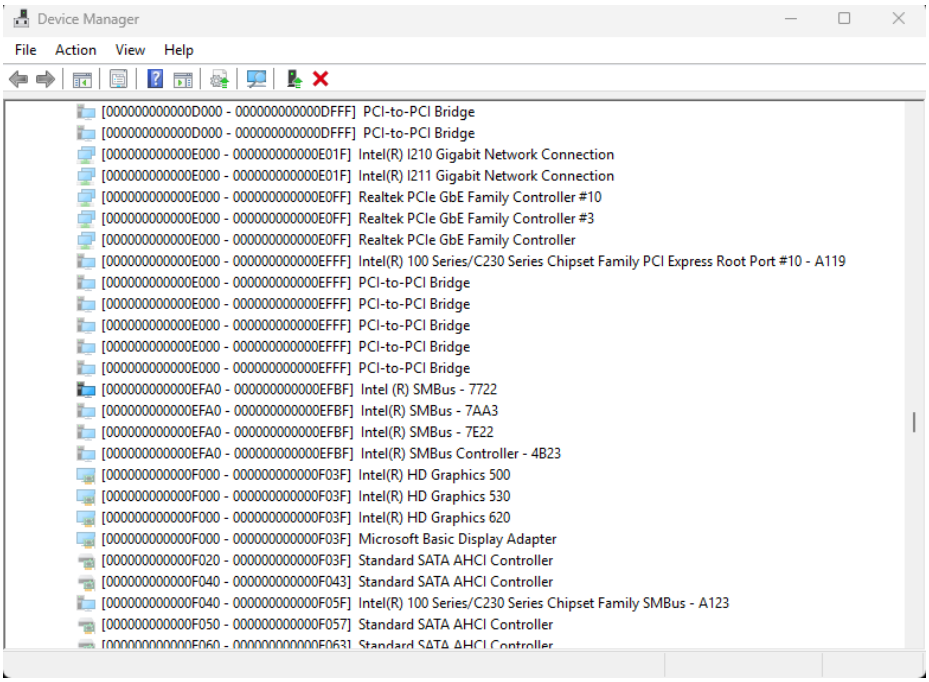

Device Manager
File Action View Help
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000002000 - 00000000000020FE] Motherboard resources
[0000000000002000 - 0000000000008BFF] PCI Express Root Complex
[0000000000003000 - 000000000000301F] SMBus - 7F23
[0000000000003000 - 000000000000301F] Intel(R) I210 Gigabit Network Connection #2
[0000000000003000 - 000000000000303F] Intel(R) Iris(R) Xe Graphics
[0000000000003000 - 000000000000303F] Intel(R) UHD Graphics
[0000000000003000 - 000000000000303F] Intel(R) UHD Graphics 730
[0000000000003000 - 00000000000003FFF] PCI Express Root Port #9 - 54B0
[0000000000003000 - 00000000000003FFF] Intel(R) PCI Express Root Port #1 - 7AB8
[0000000000003000 - 00000000000003FFF] PCI-to-PCI Bridge
[0000000000003000 - 00000000000003FFF] PCI-to-PCI Bridge
[0000000000003000 - 00000000000003FFF] PCI-to-PCI Bridge
[0000000000003000 - 00000000000003FFF] PCI-to-PCI Bridge
[0000000000003020 - 000000000000303F] Standard SATA AHCI Controller
[0000000000003020 - 000000000000303F] Standard SATA AHCI Controller
[0000000000003020 - 000000000000303F] Standard SATA AHCI Controller
[0000000000003040 - 0000000000003043] Standard SATA AHCI Controller
[0000000000003040 - 0000000000003043] Standard SATA AHCI Controller
[0000000000003040 - 0000000000003043] Standard SATA AHCI Controller
[0000000000003050 - 0000000000003057] Standard SATA AHCI Controller


Device Manager
File Action View Help
[0000000000000500 - 00000000000005FE] Motherboard resources
[0000000000000680 - 000000000000069F] Motherboard resources
[0000000000000680 - 000000000000069F] Motherboard resources
[0000000000000800 - 000000000000087F] Motherboard resources
[0000000000000A00 - 0000000000000A0F] Motherboard resources
[0000000000000A10 - 0000000000000A1F] Motherboard resources
[0000000000000A20 - 0000000000000A2F] Motherboard resources
[0000000000000D00 - 000000000000FFFF] PCI Express Root Complex
[000000000000164E - 000000000000164F] Motherboard resources
[0000000000001800 - 000000000000018F] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
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[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources

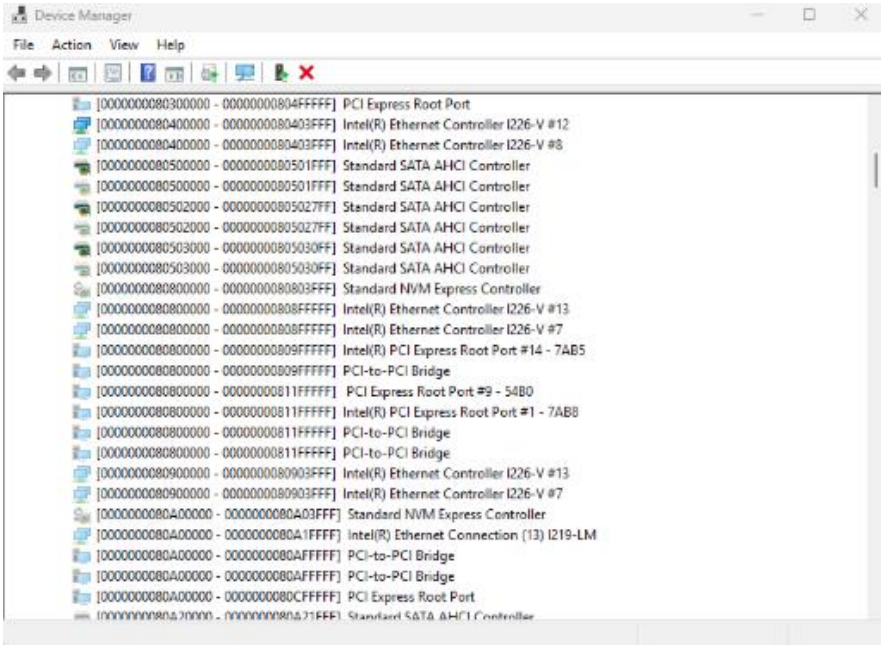

Device Manager
File Action View Help
[0000000000005000 - 0000000000005FFF] PCI Express Root Port #4 - 54BB
[0000000000005000 - 0000000000005FFF] PCI-to-PCI Bridge
[0000000000005060 - 000000000000507F] Standard SATA AHCI Controller
[0000000000005080 - 0000000000005083] Standard SATA AHCI Controller
[0000000000005090 - 0000000000005097] Standard SATA AHCI Controller
[0000000000006000 - 0000000000006FFF] PCI Express Root Port #3 - 54BA
[0000000000006000 - 0000000000006FFF] PCI-to-PCI Bridge
[0000000000007000 - 000000000000703F] Intel(R) UHD Graphics
[0000000000007000 - 0000000000007FFF] PCI Express Root Port #1 - 54B8
[0000000000007000 - 0000000000007FFF] PCI-to-PCI Bridge
[0000000000008000 - 0000000000008FFF] PCI-to-PCI Bridge
[0000000000008060 - 000000000000807F] Standard SATA AHCI Controller
[0000000000008080 - 0000000000008083] Standard SATA AHCI Controller
[0000000000008090 - 0000000000008097] Standard SATA AHCI Controller
[0000000000008C00 - 0000000000008CFE] Motherboard resources
[0000000000009000 - 0000000000009FFF] PCI-to-PCI Bridge
[000000000000A000 - 000000000000A03F] Intel(R) UHD Graphics
[000000000000A060 - 000000000000A07F] Standard SATA AHCI Controller
[000000000000A080 - 000000000000A083] Standard SATA AHCI Controller
[000000000000A090 - 000000000000A097] Standard SATA AHCI Controller
[000000000000D000 - 000000000000D0FF] Realtek PCIe GbE Family Controller #2
[000000000000D000 - 000000000000D0FF] Realtek PCIe GbE Family Controller #9
[000000000000D000 - 000000000000D0FF] Realtek PCIe GbE Family Controller #8
[000000000000D000 - 000000000000DFFF] PCI-to-PCI Bridge
[000000000000D000 - 000000000000DFFF] PCI-to-PCI Bridge

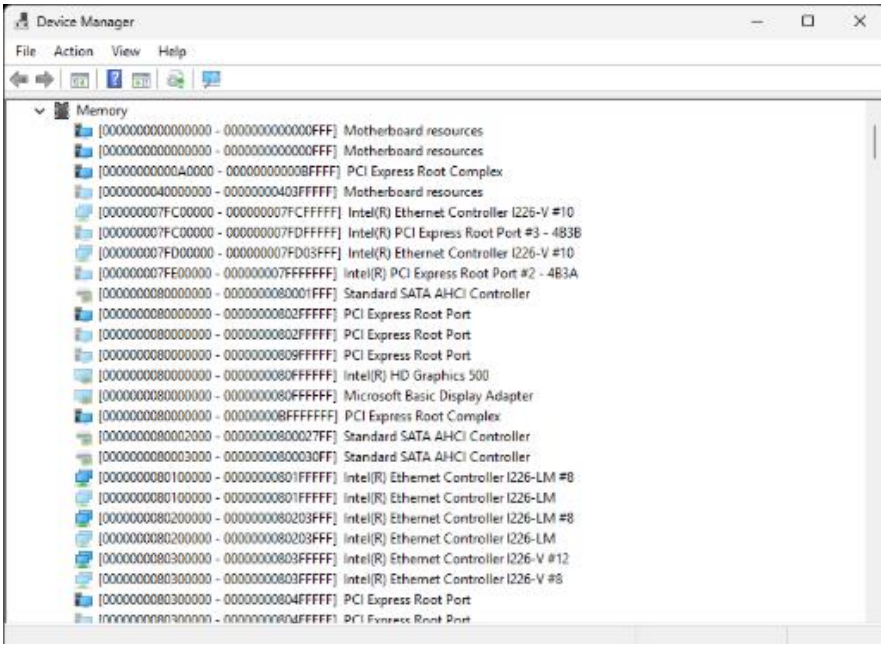

Device Manager
File Action View Help
[0000000000003050 - 0000000000003057] Standard SATA AHCI Controller
[0000000000003050 - 0000000000003057] Standard SATA AHCI Controller
[0000000000003060 - 000000000000307F] Standard SATA AHCI Controller
[0000000000003060 - 000000000000307F] Standard SATA AHCI Controller
[0000000000003060 - 000000000000307F] Standard SATA AHCI Controller
[0000000000003080 - 0000000000003083] Standard SATA AHCI Controller
[0000000000003080 - 0000000000003083] Standard SATA AHCI Controller
[0000000000003080 - 0000000000003083] Standard SATA AHCI Controller
[0000000000003090 - 0000000000003097] Standard SATA AHCI Controller
[0000000000003090 - 0000000000003097] Standard SATA AHCI Controller
[0000000000003090 - 0000000000003097] Standard SATA AHCI Controller
[0000000000004000 - 000000000000403F] Intel(R) UHD Graphics 630
[0000000000004000 - 000000000000403F] Intel(R) UHD Graphics 770
[0000000000004000 - 000000000000403F] Intel(R) UHD Graphics 770
[0000000000004000 - 0000000000004FFF] PCI Express Root Port #7 - 54BE
[0000000000004000 - 0000000000004FFF] PCI-to-PCI Bridge
[0000000000004000 - 0000000000004FFF] PCI-to-PCI Bridge
[0000000000004040 - 000000000000405F] Standard SATA AHCI Controller
[0000000000004060 - 000000000000407F] Standard SATA AHCI Controller
[0000000000004080 - 0000000000004083] Standard SATA AHCI Controller
[0000000000004090 - 0000000000004093] Standard SATA AHCI Controller
[0000000000004090 - 0000000000004097] Standard SATA AHCI Controller
[00000000000040A0 - 00000000000040A7] Standard SATA AHCI Controller
[0000000000005000 - 000000000000503F] Intel(R) UHD Graphics 630
[0000000000005000 - 000000000000050FF] Realtek PCIe GbE Family Controller #7

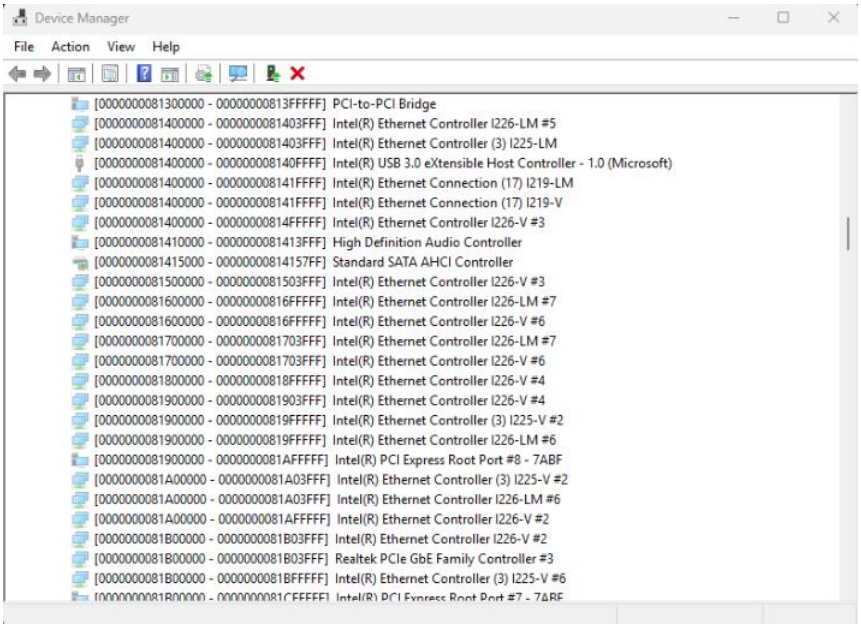

Device Manager
File Action View Help
[000000000000F000 - 000000000000F03F] Intel(R) HD Graphics 500
[000000000000F000 - 000000000000F03F] Intel(R) HD Graphics 530
[000000000000F000 - 000000000000F03F] Intel(R) HD Graphics 620
[000000000000F000 - 000000000000F03F] Microsoft Basic Display Adapter
[000000000000F020 - 000000000000F03F] Standard SATA AHCI Controller
[000000000000F040 - 000000000000F043] Standard SATA AHCI Controller
[000000000000F040 - 000000000000F05F] Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
[000000000000F050 - 000000000000F057] Standard SATA AHCI Controller
[000000000000F060 - 000000000000F063] Standard SATA AHCI Controller
[000000000000F060 - 000000000000F07F] Standard SATA AHCI Controller
[000000000000F060 - 000000000000F07F] Standard SATA AHCI Controller
[000000000000F060 - 000000000000F07F] Standard SATA AHCI Controller
[000000000000F060 - 000000000000F07F] Standard SATA AHCI Controller
[000000000000F070 - 000000000000F077] Standard SATA AHCI Controller
[000000000000F080 - 000000000000F083] Standard SATA AHCI Controller
[000000000000F080 - 000000000000F083] Standard SATA AHCI Controller
[000000000000F080 - 000000000000F083] Standard SATA AHCI Controller
[000000000000F080 - 000000000000F087] Microsoft Basic Display Adapter
[000000000000F090 - 000000000000F097] Standard SATA AHCI Controller
[000000000000F090 - 000000000000F097] Standard SATA AHCI Controller
[000000000000F090 - 000000000000F097] Standard SATA AHCI Controller
[000000000000FFF8 - 000000000000FFFF] Intel(R) Active Management Technology - SOL (COM23)

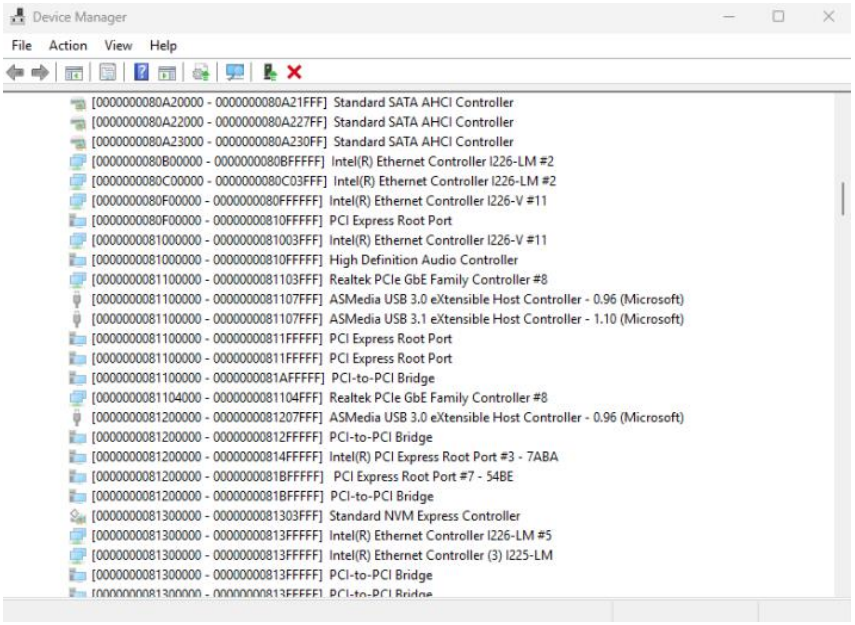

Device Manager
File Action View Help
[000000000000D000 - 000000000000DFFF] PCI-to-PCI Bridge
[000000000000D000 - 000000000000DFFF] PCI-to-PCI Bridge
[000000000000E000 - 000000000000E01F] Intel(R) I210 Gigabit Network Connection
[000000000000E000 - 000000000000E01F] Intel(R) I211 Gigabit Network Connection
[000000000000E000 - 000000000000E0FF] Realtek PCIe GbE Family Controller #10
[000000000000E000 - 000000000000E0FF] Realtek PCIe GbE Family Controller #3
[000000000000E000 - 000000000000E0FF] Realtek PCIe GbE Family Controller
[000000000000E000 - 000000000000EFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #10 - A119
[000000000000E000 - 000000000000EFFF] PCI-to-PCI Bridge
[000000000000E000 - 000000000000EFFF] PCI-to-PCI Bridge
[000000000000E000 - 000000000000EFFF] PCI-to-PCI Bridge
[000000000000E000 - 000000000000EFFF] PCI-to-PCI Bridge
[000000000000E000 - 000000000000EFFF] PCI-to-PCI Bridge
[000000000000EFA0 - 000000000000EFBF] Intel (R) SMBus - 7722
[000000000000EFA0 - 000000000000EFBF] Intel(R) SMBus - 7AA3
[000000000000EFA0 - 000000000000EFBF] Intel(R) SMBus - 7E22
[000000000000EFA0 - 000000000000EFBF] Intel(R) SMBus Controller - 4B23
[000000000000F000 - 000000000000F03F] Intel(R) HD Graphics 500
[000000000000F000 - 000000000000F03F] Intel(R) HD Graphics 530
[000000000000F000 - 000000000000F03F] Intel(R) HD Graphics 620
[000000000000F000 - 000000000000F03F] Microsoft Basic Display Adapter
[000000000000F020 - 000000000000F03F] Standard SATA AHCI Controller
[000000000000F040 - 000000000000F043] Standard SATA AHCI Controller
[000000000000F040 - 000000000000F05F] Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
[000000000000F050 - 000000000000F057] Standard SATA AHCI Controller

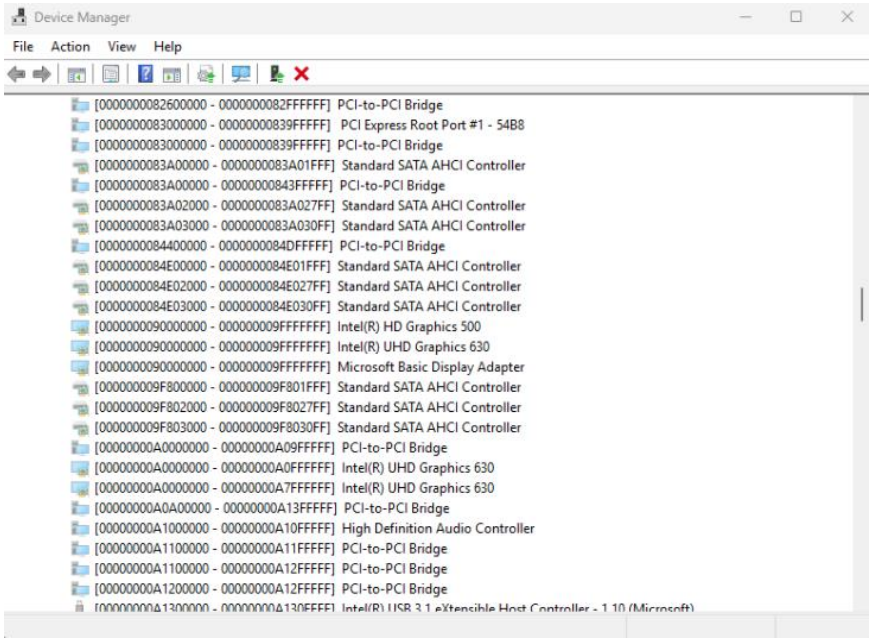
Memory Address Map

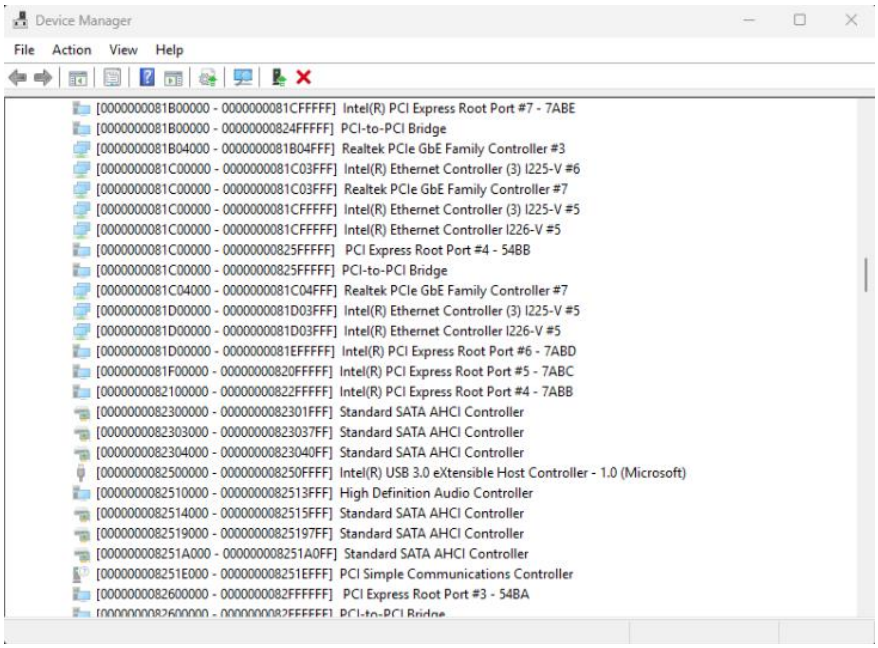


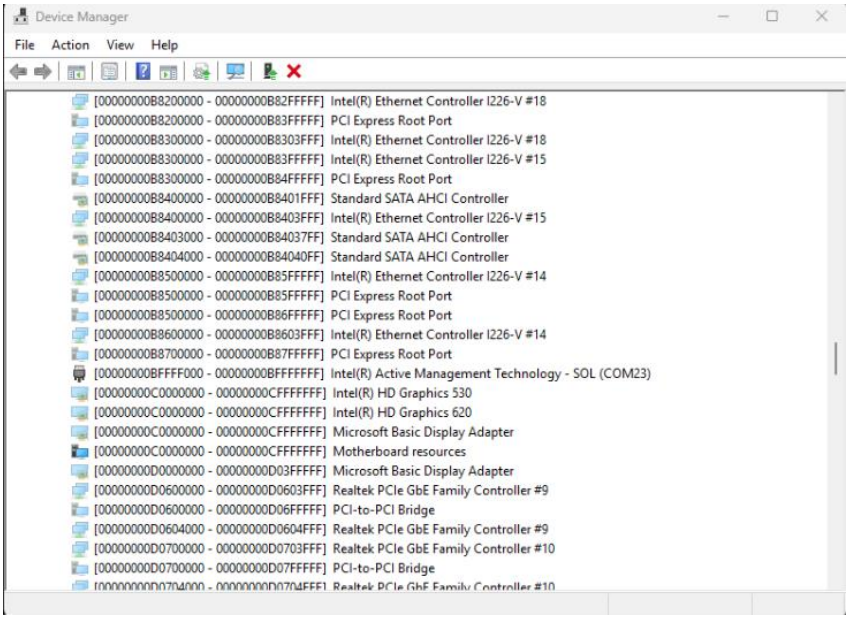


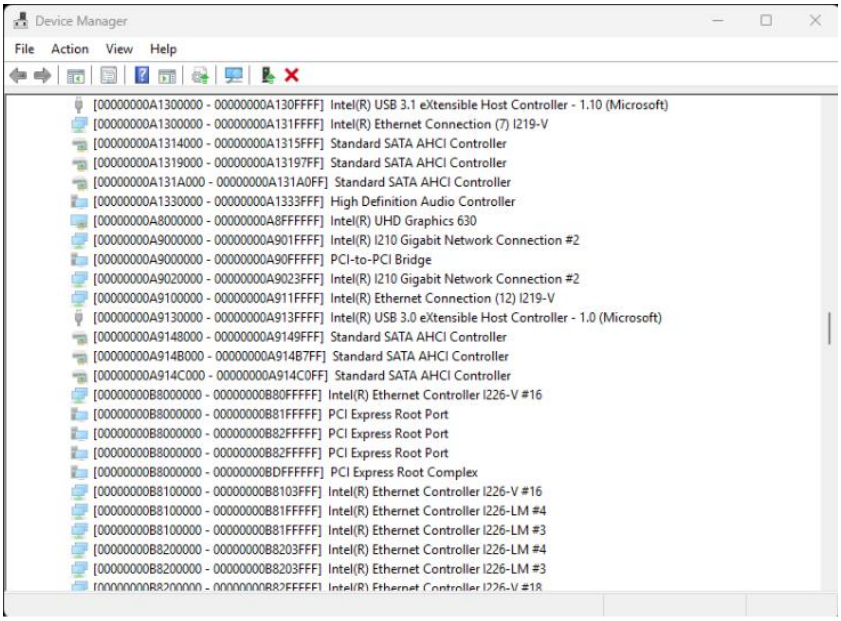

Device Manager
File Action View Help
[0000000081300000 - 00000000813FFFFF] PCI-to-PCI Bridge
[0000000081400000 - 0000000081403FFF] Intel(R) Ethernet Controller I226-LM #5
[0000000081400000 - 0000000081403FFF] Intel(R) Ethernet Controller (3) I225-LM
[0000000081400000 - 00000000814FFFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
[0000000081400000 - 00000000814FFFFF] Intel(R) Ethernet Connection (17) I219-LM
[0000000081400000 - 00000000814FFFFF] Intel(R) Ethernet Connection (17) I219-V
[0000000081400000 - 00000000814FFFFF] Intel(R) Ethernet Controller I226-V #3
[0000000081410000 - 0000000081413FFF] High Definition Audio Controller
[0000000081415000 - 0000000081415FFF] Standard SATA AHCI Controller
[0000000081500000 - 0000000081503FFF] Intel(R) Ethernet Controller I226-V #3
[0000000081600000 - 00000000816FFFFF] Intel(R) Ethernet Controller I226-LM #7
[0000000081600000 - 00000000816FFFFF] Intel(R) Ethernet Controller I226-V #6
[0000000081700000 - 0000000081703FFF] Intel(R) Ethernet Controller I226-LM #7
[0000000081700000 - 0000000081703FFF] Intel(R) Ethernet Controller I226-V #6
[0000000081800000 - 00000000818FFFFF] Intel(R) Ethernet Controller I226-V #4
[0000000081900000 - 0000000081903FFF] Intel(R) Ethernet Controller I226-V #4
[0000000081900000 - 00000000819FFFFF] Intel(R) Ethernet Controller (3) I225-V #2
[0000000081900000 - 00000000819FFFFF] Intel(R) Ethernet Controller I226-LM #6
[0000000081900000 - 0000000081AFFFFF] Intel(R) PCI Express Root Port #8 - 7ABF
[0000000081A00000 - 0000000081A03FFF] Intel(R) Ethernet Controller (3) I225-V #2
[0000000081A00000 - 0000000081A03FFF] Intel(R) Ethernet Controller I226-LM #6
[0000000081A00000 - 0000000081AFFFFF] Intel(R) Ethernet Controller I226-V #2
[0000000081B00000 - 0000000081B03FFF] Intel(R) Ethernet Controller I226-V #2
[0000000081B00000 - 0000000081B03FFF] Realtek PCIe GbE Family Controller #3
[0000000081B00000 - 0000000081BFFFFF] Intel(R) Ethernet Controller (3) I225-V #6

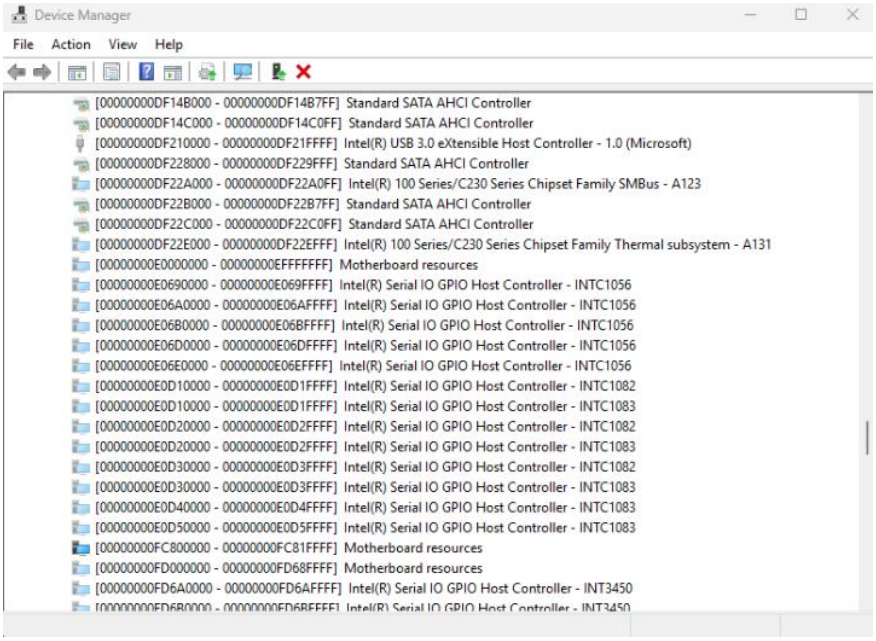

Device Manager
File Action View Help
[0000000080A20000 - 0000000080A21FFF] Standard SATA AHCI Controller
[0000000080A22000 - 0000000080A227FF] Standard SATA AHCI Controller
[0000000080A23000 - 0000000080A230FF] Standard SATA AHCI Controller
[0000000080B00000 - 0000000080BFFFFF] Intel(R) Ethernet Controller I226-LM #2
[0000000080C00000 - 0000000080C03FFF] Intel(R) Ethernet Controller I226-LM #2
[0000000080F00000 - 0000000080FFFFFF] Intel(R) Ethernet Controller I226-V #11
[0000000080F00000 - 00000000810FFFFF] PCI Express Root Port
[0000000081000000 - 0000000081003FFF] Intel(R) Ethernet Controller I226-V #11
[0000000081000000 - 00000000810FFFFF] High Definition Audio Controller
[0000000081100000 - 0000000081103FFF] Realtek PCIe GbE Family Controller #8
[0000000081100000 - 0000000081107FFF] ASMedia USB 3.0 eXtensible Host Controller - 0.96 (Microsoft)
[0000000081100000 - 0000000081107FFF] ASMedia USB 3.1 eXtensible Host Controller - 1.10 (Microsoft)
[0000000081100000 - 00000000811FFFFF] PCI Express Root Port
[0000000081100000 - 00000000811FFFFF] PCI Express Root Port
[0000000081100000 - 0000000081AFFFFF] PCI-to-PCI Bridge
[0000000081104000 - 0000000081104FFF] Realtek PCIe GbE Family Controller #8
[0000000081200000 - 0000000081207FFF] ASMedia USB 3.0 eXtensible Host Controller - 0.96 (Microsoft)
[0000000081200000 - 00000000812FFFFF] PCI-to-PCI Bridge
[0000000081200000 - 00000000814FFFFF] Intel(R) PCI Express Root Port #3 - 7ABA
[0000000081200000 - 0000000081BFFFFF] PCI Express Root Port #7 - 54BE
[0000000081200000 - 0000000081BFFFFF] PCI-to-PCI Bridge
[0000000081300000 - 0000000081303FFF] Standard NVM Express Controller
[0000000081300000 - 0000000081FFFFF] Intel(R) Ethernet Controller I226-LM #5
[0000000081300000 - 0000000081FFFFF] Intel(R) Ethernet Controller (3) I225-LM
[0000000081300000 - 0000000081FFFFF] PCI-to-PCI Bridge

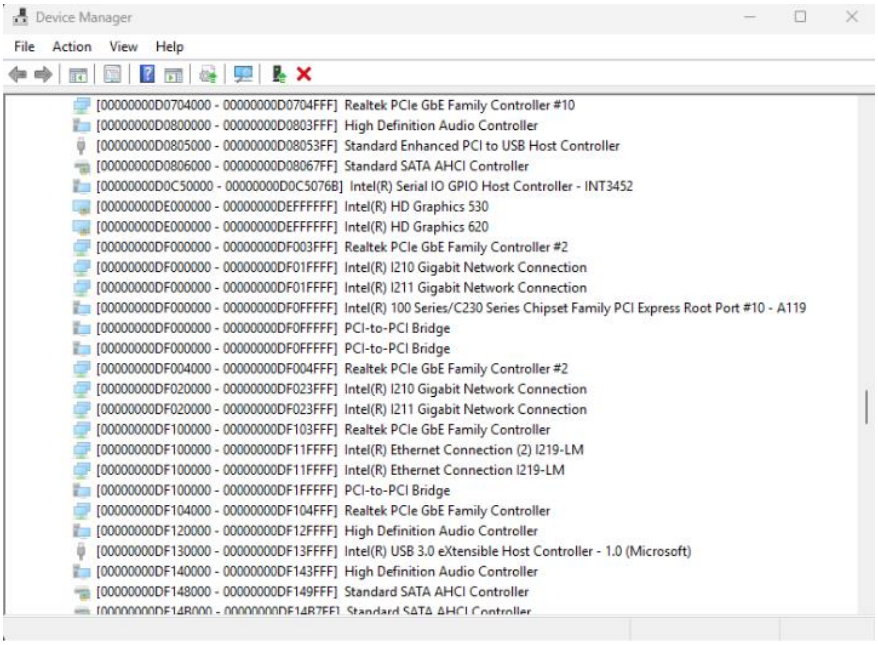

Device Manager
File Action View Help
[0000000082600000 - 0000000082FFFFFF] PCI-to-PCI Bridge
[0000000083000000 - 0000000839FFFFF] PCI Express Root Port #1 - 54B8
[0000000083000000 - 0000000839FFFFF] PCI-to-PCI Bridge
[0000000083A00000 - 0000000083A01FFF] Standard SATA AHCI Controller
[0000000083A00000 - 0000000843FFFFF] PCI-to-PCI Bridge
[0000000083A02000 - 0000000083A027FF] Standard SATA AHCI Controller
[0000000083A03000 - 0000000083A030FF] Standard SATA AHCI Controller
[0000000084400000 - 0000000084DFFFFF] PCI-to-PCI Bridge
[0000000084E00000 - 0000000084E01FFF] Standard SATA AHCI Controller
[0000000084E02000 - 0000000084E027FF] Standard SATA AHCI Controller
[0000000084E03000 - 0000000084E030FF] Standard SATA AHCI Controller
[0000000090000000 - 000000009FFFFFFF] Intel(R) HD Graphics 500
[0000000090000000 - 000000009FFFFFFF] Intel(R) UHD Graphics 630
[0000000090000000 - 000000009FFFFFFF] Microsoft Basic Display Adapter
[000000009F800000 - 000000009F801FFF] Standard SATA AHCI Controller
[000000009F802000 - 000000009F8027FF] Standard SATA AHCI Controller
[000000009F803000 - 000000009F8030FF] Standard SATA AHCI Controller
[00000000A0000000 - 00000000A09FFFFF] PCI-to-PCI Bridge
[00000000A0000000 - 00000000A0FFFFFF] Intel(R) UHD Graphics 630
[00000000A0000000 - 00000000A7FFFFFF] Intel(R) UHD Graphics 630
[00000000A0A00000 - 00000000A13FFFFF] PCI-to-PCI Bridge
[00000000A1000000 - 00000000A10FFFFF] High Definition Audio Controller
[00000000A1100000 - 00000000A11FFFFF] PCI-to-PCI Bridge
[00000000A1100000 - 00000000A12FFFFF] PCI-to-PCI Bridge
[00000000A1200000 - 00000000A12FFFFF] PCI-to-PCI Bridge

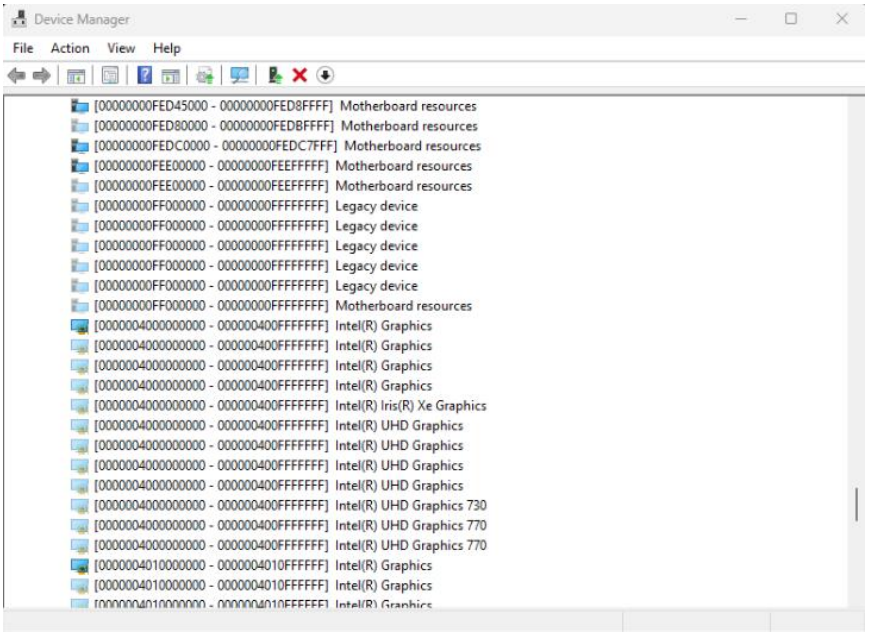

Device Manager
File Action View Help
[0000000081B00000 - 0000000081CFFFFF] Intel(R) PCI Express Root Port #7 - 7ABE
[0000000081B00000 - 00000000824FFFFF] PCI-to-PCI Bridge
[0000000081B04000 - 0000000081B04FFF] Realtek PCIe GbE Family Controller #3
[0000000081C00000 - 0000000081C03FFF] Intel(R) Ethernet Controller (3) I225-V #6
[0000000081C00000 - 0000000081C03FFF] Realtek PCIe GbE Family Controller #7
[0000000081C00000 - 0000000081CFFFFF] Intel(R) Ethernet Controller (3) I225-V #5
[0000000081C00000 - 0000000081CFFFFF] Intel(R) Ethernet Controller I226-V #5
[0000000081C00000 - 0000000825FFFFF] PCI Express Root Port #4 - 54BB
[0000000081C00000 - 0000000825FFFFF] PCI-to-PCI Bridge
[0000000081C04000 - 0000000081C04FFF] Realtek PCIe GbE Family Controller #7
[0000000081D00000 - 0000000081D03FFF] Intel(R) Ethernet Controller (3) I225-V #5
[0000000081D00000 - 0000000081D03FFF] Intel(R) Ethernet Controller I226-V #5
[0000000081D00000 - 0000000081EFFFFF] Intel(R) PCI Express Root Port #6 - 7ABD
[0000000081F00000 - 00000000820FFFFF] Intel(R) PCI Express Root Port #5 - 7ABC
[0000000082100000 - 00000000822FFFFF] Intel(R) PCI Express Root Port #4 - 7ABB
[0000000082300000 - 0000000082301FFF] Standard SATA AHCI Controller
[0000000082303000 - 00000000823037FF] Standard SATA AHCI Controller
[0000000082304000 - 00000000823040FF] Standard SATA AHCI Controller
[0000000082500000 - 000000008250FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
[0000000082510000 - 000000008251 3FFF] High Definition Audio Controller
[0000000082514000 - 0000000082515FFF] Standard SATA AHCI Controller
[0000000082519000 - 0000000825197FF] Standard SATA AHCI Controller
[000000008251A000 - 000000008251A0FF] Standard SATA AHCI Controller
[000000008251E000 - 000000008251EFFF] PCI Simple Communications Controller
[0000000082600000 - 0000000082FFFFFF] PCI Express Root Port #3 - 54BA

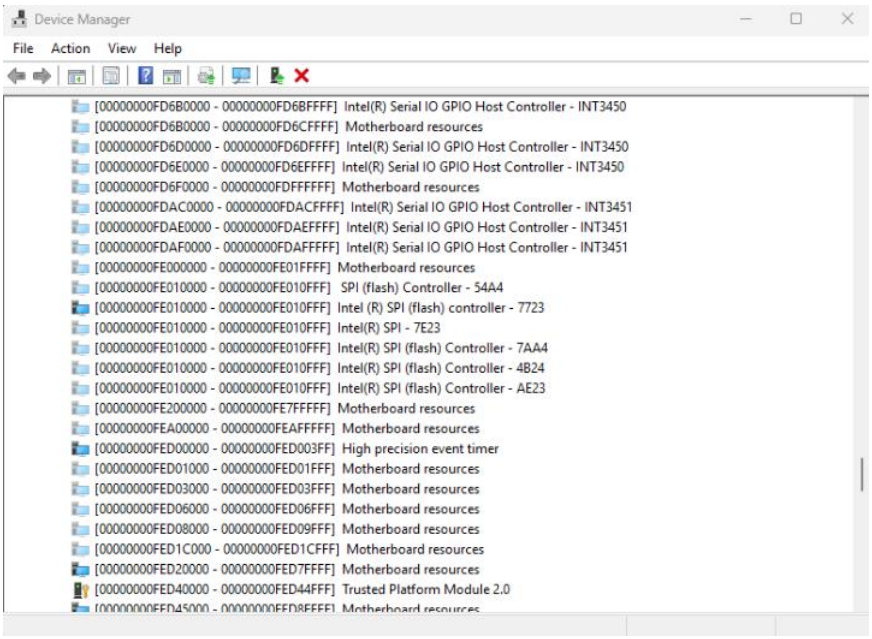

Device Manager
File Action View Help
[00000000B8200000 - 00000000B82FFFFF] Intel(R) Ethernet Controller I226-V #18
[00000000B8200000 - 00000000B83FFFFF] PCI Express Root Port
[00000000B8300000 - 00000000B8303FFF] Intel(R) Ethernet Controller I226-V #18
[00000000B8300000 - 00000000B83FFFFF] Intel(R) Ethernet Controller I226-V #15
[00000000B8300000 - 00000000B84FFFFF] PCI Express Root Port
[00000000B8400000 - 00000000B8401FFF] Standard SATA AHCI Controller
[00000000B8400000 - 00000000B8403FFF] Intel(R) Ethernet Controller I226-V #15
[00000000B8403000 - 00000000B84037FF] Standard SATA AHCI Controller
[00000000B8404000 - 00000000B84040FF] Standard SATA AHCI Controller
[00000000B8500000 - 00000000B85FFFFF] Intel(R) Ethernet Controller I226-V #14
[00000000B8500000 - 00000000B85FFFFF] PCI Express Root Port
[00000000B8500000 - 00000000B86FFFFF] PCI Express Root Port
[00000000B8600000 - 00000000B8603FFF] Intel(R) Ethernet Controller I226-V #14
[00000000B8700000 - 00000000B87FFFFF] PCI Express Root Port
[00000000BFFFF000 - 00000000BFFFFFFF] Intel(R) Active Management Technology - SOL (COM23)
[00000000C0000000 - 00000000CFFFFFFF] Intel(R) HD Graphics 530
[00000000C0000000 - 00000000CFFFFFFF] Intel(R) HD Graphics 620
[00000000C0000000 - 00000000CFFFFFFF] Microsoft Basic Display Adapter
[00000000C0000000 - 00000000CFFFFFFF] Motherboard resources
[00000000D0000000 - 00000000D03FFFFF] Microsoft Basic Display Adapter
[00000000D0600000 - 00000000D0603FFF] Realtek PCIe GbE Family Controller #9
[00000000D0600000 - 00000000D06FFFFF] PCI-to-PCI Bridge
[00000000D0604000 - 00000000D0604FFF] Realtek PCIe GbE Family Controller #9
[00000000D0700000 - 00000000D0703FFF] Realtek PCIe GbE Family Controller #10
[00000000D0700000 - 00000000D07FFFFF] PCI-to-PCI Bridge

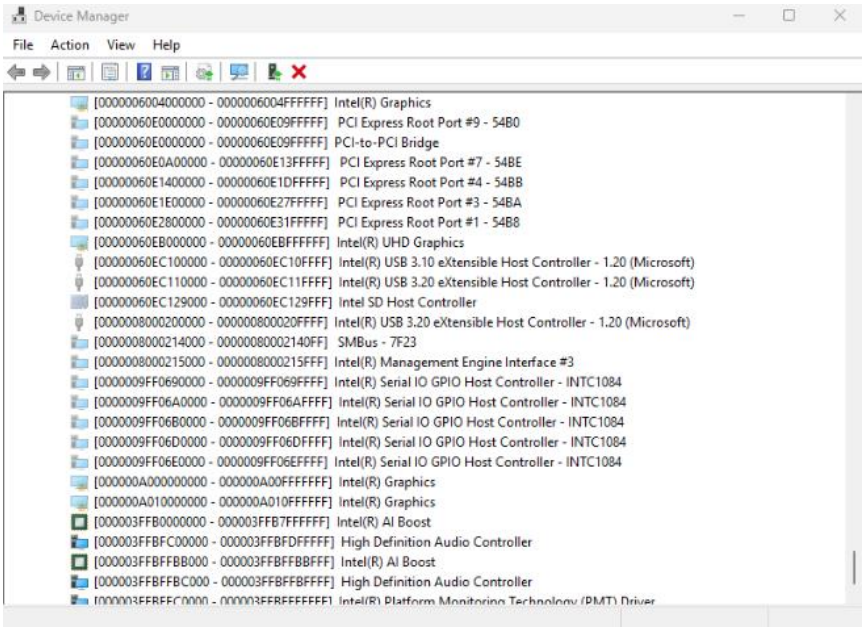

Device Manager
File Action View Help
[00000000A1300000 - 00000000A130FFFF] Intel(R) USB 3.1 eXtensible Host Controller - 1.10 (Microsoft)
[00000000A1300000 - 00000000A131FFFF] Intel(R) Ethernet Connection (7) I219-V
[00000000A1314000 - 00000000A1315FFF] Standard SATA AHCI Controller
[00000000A1319000 - 00000000A13197FF] Standard SATA AHCI Controller
[00000000A131A000 - 00000000A131A0FF] Standard SATA AHCI Controller
[00000000A1330000 - 00000000A1333FFF] High Definition Audio Controller
[00000000A8000000 - 00000000A8FFFFFF] Intel(R) UHD Graphics 630
[00000000A9000000 - 00000000A901FFFF] Intel(R) I210 Gigabit Network Connection #2
[00000000A9000000 - 00000000A90FFFFF] PCI-to-PCI Bridge
[00000000A9020000 - 00000000A9023FFF] Intel(R) I210 Gigabit Network Connection #2
[00000000A9100000 - 00000000A911FFFF] Intel(R) Ethernet Connection (12) I219-V
[00000000A9130000 - 00000000A913FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
[00000000A9148000 - 00000000A9149FFF] Standard SATA AHCI Controller
[00000000A914B000 - 00000000A914B7FF] Standard SATA AHCI Controller
[00000000A914C000 - 00000000A914C0FF] Standard SATA AHCI Controller
[00000000B8000000 - 00000000B80FFFFF] Intel(R) Ethernet Controller I226-V #16
[00000000B8000000 - 00000000B81FFFFF] PCI Express Root Port
[00000000B8000000 - 00000000B82FFFFF] PCI Express Root Port
[00000000B8000000 - 00000000B82FFFFF] PCI Express Root Port
[00000000B8000000 - 00000000BDFFFFFF] PCI Express Root Complex
[00000000B8100000 - 00000000B8103FFF] Intel(R) Ethernet Controller I226-V #16
[00000000B8100000 - 00000000B81FFFFF] Intel(R) Ethernet Controller I226-LM #4
[00000000B8100000 - 00000000B81FFFFF] Intel(R) Ethernet Controller I226-LM #3
[00000000B8200000 - 00000000B8203FFF] Intel(R) Ethernet Controller I226-LM #4
[00000000B8200000 - 00000000B8203FFF] Intel(R) Ethernet Controller I226-LM #3

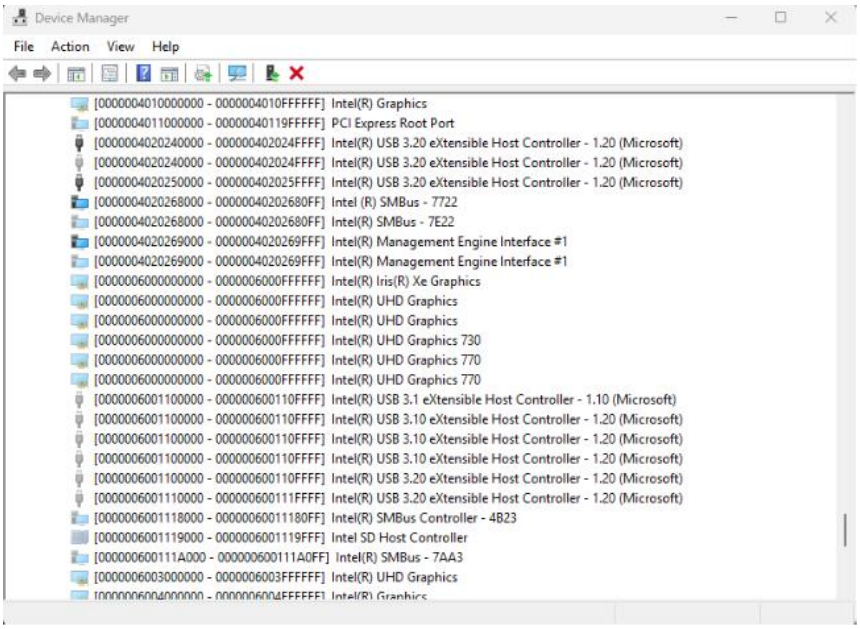

Device Manager
File Action View Help
[00000000DF14B000 - 00000000DF14B7FF] Standard SATA AHCI Controller
[00000000DF14C000 - 00000000DF14C0FF] Standard SATA AHCI Controller
[00000000DF210000 - 00000000DF21FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
[00000000DF228000 - 00000000DF229FFF] Standard SATA AHCI Controller
[00000000DF22A000 - 00000000DF22A0FF] Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
[00000000DF22B000 - 00000000DF22B7FF] Standard SATA AHCI Controller
[00000000DF22C000 - 00000000DF22C0FF] Standard SATA AHCI Controller
[00000000DF22E000 - 00000000DF22EFFF] Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
[00000000E0000000 - 00000000EFFFFFFF] Motherboard resources
[00000000E0690000 - 00000000E069FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1056
[00000000E06A0000 - 00000000E06AFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1056
[00000000E06B0000 - 00000000E06BFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1056
[00000000E06D0000 - 00000000E06DFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1056
[00000000E06E0000 - 00000000E06EFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1056
[00000000E0D10000 - 00000000E0D1FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1082
[00000000E0D10000 - 00000000E0D1FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1083
[00000000E0D20000 - 00000000E0D2FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1082
[00000000E0D20000 - 00000000E0D2FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1083
[00000000E0D30000 - 00000000E0D3FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1082
[00000000E0D30000 - 00000000E0D3FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1083
[00000000E0D40000 - 00000000E0D4FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1083
[00000000E0D50000 - 00000000E0D5FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1083
[00000000FC800000 - 00000000FC81FFFF] Motherboard resources
[00000000FD000000 - 00000000FD68FFFF] Motherboard resources
[00000000FD6A0000 - 00000000FD6AFFFF] Intel(R) Serial IO GPIO Host Controller - INT3450

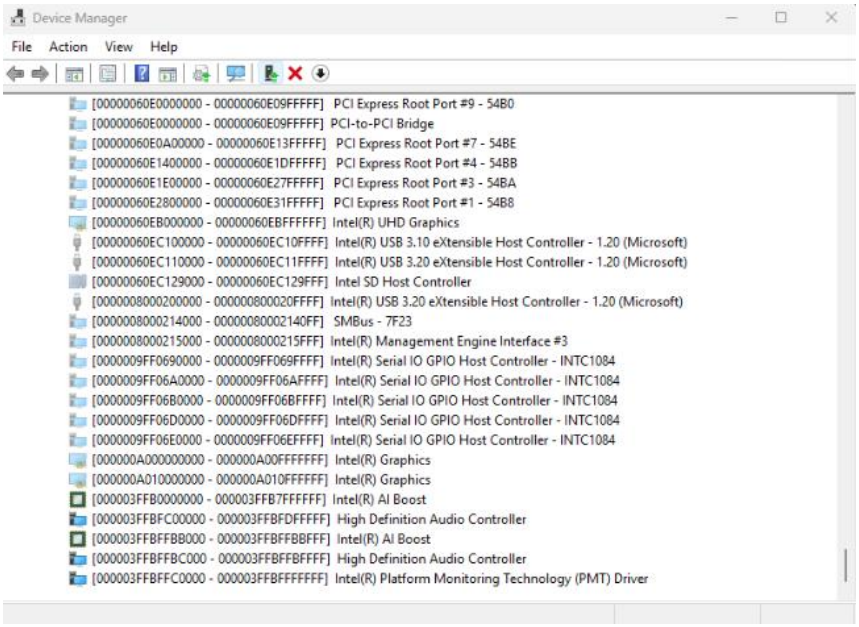

Device Manager
File Action View Help
[00000000D0704000 - 00000000D0704FFF] Realtek PCIe GbE Family Controller #10
[00000000D0800000 - 00000000D0803FFF] High Definition Audio Controller
[00000000D0805000 - 00000000D08053FF] Standard Enhanced PCI to USB Host Controller
[00000000D0806000 - 00000000D08067FF] Standard SATA AHCI Controller
[00000000D0C50000 - 00000000D0C5076B] Intel(R) Serial IO GPIO Host Controller - INT3452
[00000000DE000000 - 00000000DEFFFFFF] Intel(R) HD Graphics 530
[00000000DE000000 - 00000000DEFFFFFF] Intel(R) HD Graphics 620
[00000000DF000000 - 00000000DF003FFF] Realtek PCIe GbE Family Controller #2
[00000000DF000000 - 00000000DF01FFFF] Intel(R) I210 Gigabit Network Connection
[00000000DF000000 - 00000000DF01FFFF] Intel(R) I211 Gigabit Network Connection
[00000000DF000000 - 00000000DF0FFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #10 - A119
[00000000DF000000 - 00000000DF0FFFFF] PCI-to-PCI Bridge
[00000000DF000000 - 00000000DF0FFFFF] PCI-to-PCI Bridge
[00000000DF004000 - 00000000DF004FFF] Realtek PCIe GbE Family Controller #2
[00000000DF020000 - 00000000DF023FFF] Intel(R) I210 Gigabit Network Connection
[00000000DF020000 - 00000000DF023FFF] Intel(R) I211 Gigabit Network Connection
[00000000DF100000 - 00000000DF103FFF] Realtek PCIe GbE Family Controller
[00000000DF100000 - 00000000DF11FFFF] Intel(R) Ethernet Connection (2) I219-LM
[00000000DF100000 - 00000000DF11FFFF] Intel(R) Ethernet Connection I219-LM
[00000000DF100000 - 00000000DF1FFFFF] PCI-to-PCI Bridge
[00000000DF104000 - 00000000DF104FFF] Realtek PCIe GbE Family Controller
[00000000DF120000 - 00000000DF12FFFF] High Definition Audio Controller
[00000000DF130000 - 00000000DF13FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
[00000000DF140000 - 00000000DF143FFF] High Definition Audio Controller
[00000000DF148000 - 00000000DF149FFF] Standard SATA AHCI Controller


Device Manager
File Action View Help
[00000000FED45000 - 00000000FED8FFFF] Motherboard resources
[00000000FED80000 - 00000000FEDBFFFF] Motherboard resources
[00000000FEDC0000 - 00000000FEDC7FFF] Motherboard resources
[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
[00000000FF000000 - 00000000FFFFFFFF] Legacy device
[00000000FF000000 - 00000000FFFFFFFF] Legacy device
[00000000FF000000 - 00000000FFFFFFFF] Legacy device
[00000000FF000000 - 00000000FFFFFFFF] Legacy device
[00000000FF000000 - 00000000FFFFFFFF] Legacy device
[00000000FF000000 - 00000000FFFFFFFF] Motherboard resources
[0000004000000000 - 000000400FFFFFFF] Intel(R) Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) Iris(R) Xe Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics
[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics 730
[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics 770
[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics 770
[0000004010000000 - 000000401FFFFFFF] Intel(R) Graphics
[0000004010000000 - 000000401FFFFFFF] Intel(R) Graphics

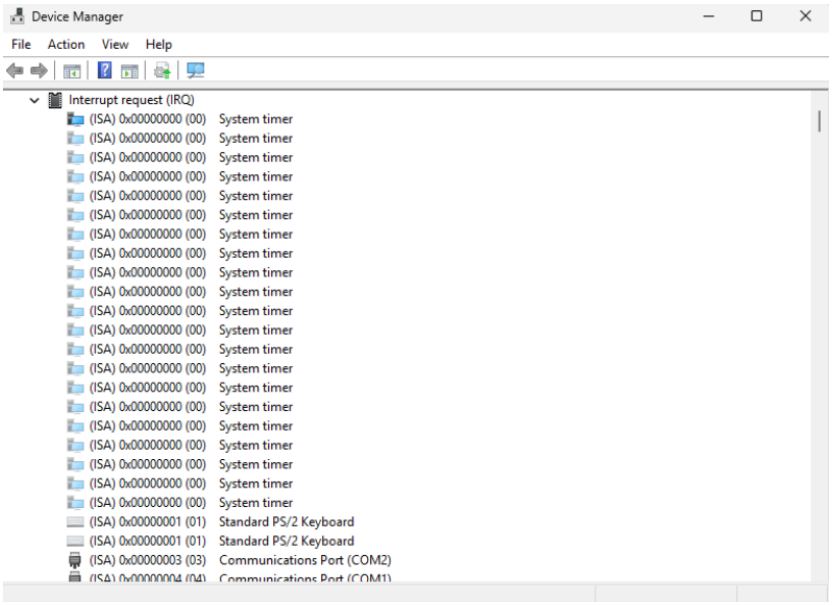

Device Manager
File Action View Help
[00000000FD6B0000 - 00000000FD6BFFFF] Intel(R) Serial IO GPIO Host Controller - INT3450
[00000000FD6B0000 - 00000000FD6CFFFF] Motherboard resources
[00000000FD6D0000 - 00000000FD6DFFFF] Intel(R) Serial IO GPIO Host Controller - INT3450
[00000000FD6E0000 - 00000000FD6EFFFF] Intel(R) Serial IO GPIO Host Controller - INT3450
[00000000FD6F0000 - 00000000FDFFFFFF] Motherboard resources
[00000000FDAC0000 - 00000000FDACFFFF] Intel(R) Serial IO GPIO Host Controller - INT3451
[00000000FDAE0000 - 00000000FDAEFFFF] Intel(R) Serial IO GPIO Host Controller - INT3451
[00000000FDAF0000 - 00000000FDAFFFFF] Intel(R) Serial IO GPIO Host Controller - INT3451
[00000000FE000000 - 00000000FE01FFFF] Motherboard resources
[00000000FE010000 - 00000000FE010FFF] SPI (flash) Controller - 54A4
[00000000FE010000 - 00000000FE010FFF] Intel (R) SPI (flash) controller - 7723
[00000000FE010000 - 00000000FE010FFF] Intel(R) SPI - 7E23
[00000000FE010000 - 00000000FE010FFF] Intel(R) SPI (flash) Controller - 7AA4
[00000000FE010000 - 00000000FE010FFF] Intel(R) SPI (flash) Controller - 4B24
[00000000FE010000 - 00000000FE010FFF] Intel(R) SPI (flash) Controller - AE23
[00000000FE200000 - 00000000FE7FFFFF] Motherboard resources
[00000000FEA00000 - 00000000FEAFFFFF] Motherboard resources
[00000000FED00000 - 00000000FED003FF] High precision event timer
[00000000FED01000 - 00000000FED01FFF] Motherboard resources
[00000000FED03000 - 00000000FED03FFF] Motherboard resources
[00000000FED06000 - 00000000FED06FFF] Motherboard resources
[00000000FED08000 - 00000000FED09FFF] Motherboard resources
[00000000FED1C000 - 00000000FED1CFFF] Motherboard resources
[00000000FED20000 - 00000000FED7FFFF] Motherboard resources
[00000000FED40000 - 00000000FED44FFF] Trusted Platform Module 2.0

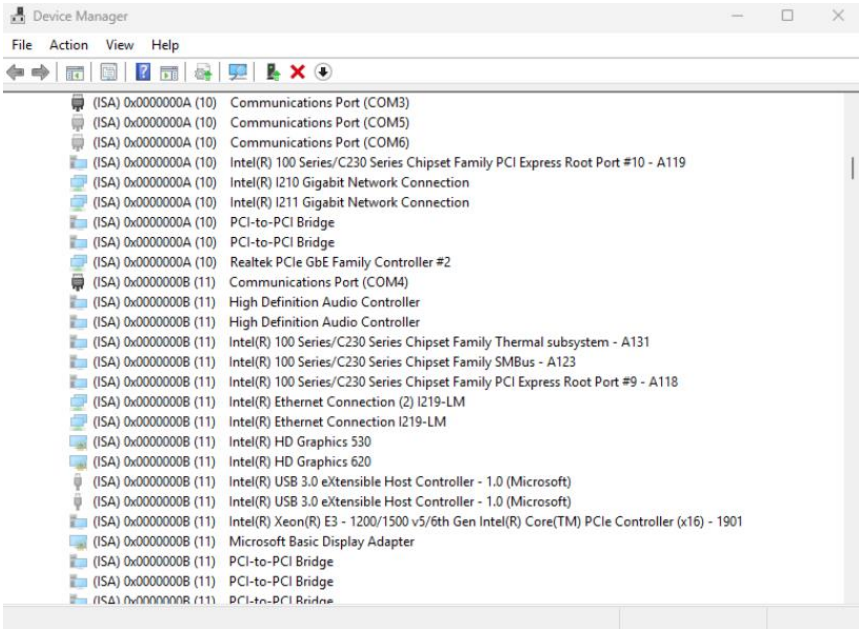

Device Manager
File Action View Help
[0000006004000000 - 0000006004FFFFFF] Intel(R) Graphics
[00000060E0000000 - 00000060E09FFFFF] PCI Express Root Port #9 - 54B0
[00000060E0000000 - 00000060E09FFFFF] PCI-to-PCI Bridge
[00000060E0A00000 - 00000060E13FFFFF] PCI Express Root Port #7 - 54BE
[00000060E1400000 - 00000060E1DFFFFF] PCI Express Root Port #4 - 54BB
[00000060E1E00000 - 00000060E27FFFFF] PCI Express Root Port #3 - 54BA
[00000060E2800000 - 00000060E31FFFFF] PCI Express Root Port #1 - 54B8
[00000060EB000000 - 00000060EBFFFFFF] Intel(R) UHD Graphics
[00000060EC100000 - 00000060EC10FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
[00000060EC110000 - 00000060EC11FFFF] Intel(R) USB 3.20 eXtensible Host Controller - 1.20 (Microsoft)
[00000060EC129000 - 00000060EC129FFF] Intel SD Host Controller
[0000008000200000 - 000000800020FFFF] Intel(R) USB 3.20 eXtensible Host Controller - 1.20 (Microsoft)
[0000008000214000 - 00000080002140FF] SMBus - 7F23
[0000008000215000 - 0000008000215FFF] Intel(R) Management Engine Interface #3
[0000009FF0690000 - 0000009FF069FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1084
[0000009FF06A0000 - 0000009FF06AFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1084
[0000009FF06B0000 - 0000009FF06BFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1084
[0000009FF06D0000 - 0000009FF06DFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1084
[0000009FF06E0000 - 0000009FF06EFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1084
[000000A000000000 - 000000A00FFFFFFF] Intel(R) Graphics
[000000A010000000 - 000000A010FFFFFF] Intel(R) Graphics
[000003FFB0000000 - 000003FFB7FFFFFF] Intel(R) AI Boost
[000003FFBFC00000 - 000003FFBFDFFFFF] High Definition Audio Controller
[000003FFBFFBB000 - 000003FFBFFBBFFF] Intel(R) AI Boost
[000003FFBFFBC000 - 000003FFBFFBFFFF] High Definition Audio Controller

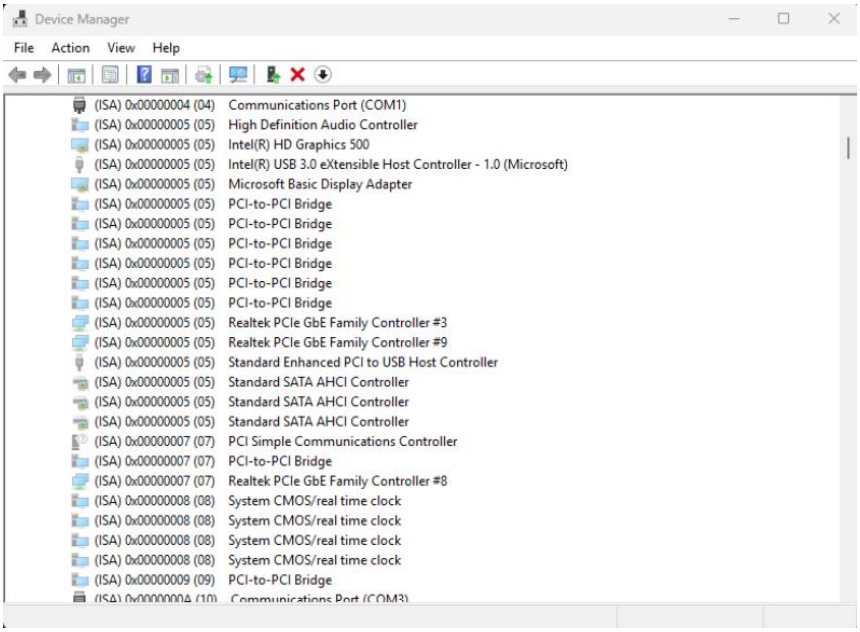

Device Manager
File Action View Help
[0000004010000000 - 0000004010FFFFFF] Intel(R) Graphics
[0000004011000000 - 0000004011FFFFFF] PCI Express Root Port
[0000004020240000 - 000000402024FFFF] Intel(R) USB 3.20 eXtensible Host Controller - 1.20 (Microsoft)
[0000004020240000 - 000000402024FFFF] Intel(R) USB 3.20 eXtensible Host Controller - 1.20 (Microsoft)
[0000004020250000 - 000000402025FFFF] Intel(R) USB 3.20 eXtensible Host Controller - 1.20 (Microsoft)
[0000004020268000 - 00000040202680FF] Intel (R) SMBus - 7722
[0000004020268000 - 00000040202680FF] Intel(R) SMBus - 7E22
[0000004020269000 - 0000004020269FFF] Intel(R) Management Engine Interface #1
[0000004020269000 - 0000004020269FFF] Intel(R) Management Engine Interface #1
[0000006000000000 - 0000006000FFFFFF] Intel(R) Iris(R) Xe Graphics
[0000006000000000 - 0000006000FFFFFF] Intel(R) UHD Graphics
[0000006000000000 - 0000006000FFFFFF] Intel(R) UHD Graphics
[0000006000000000 - 0000006000FFFFFF] Intel(R) UHD Graphics 730
[0000006000000000 - 0000006000FFFFFF] Intel(R) UHD Graphics 770
[0000006000000000 - 0000006000FFFFFF] Intel(R) UHD Graphics 770
[0000006001100000 - 000000600110FFFF] Intel(R) USB 3.1 eXtensible Host Controller - 1.10 (Microsoft)
[0000006001100000 - 000000600110FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
[0000006001100000 - 000000600110FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
[0000006001100000 - 000000600110FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
[0000006001100000 - 000000600110FFFF] Intel(R) USB 3.20 eXtensible Host Controller - 1.20 (Microsoft)
[0000006001110000 - 000000600111FFFF] Intel(R) USB 3.20 eXtensible Host Controller - 1.20 (Microsoft)
[0000006001118000 - 00000060011180FF] Intel(R) SMBus Controller - 4B23
[0000006001119000 - 0000006001119FFF] Intel SD Host Controller
[000000600111A000 - 000000600111A0FF] Intel(R) SMBus - 7AA3
[0000006003000000 - 0000006003FFFFFF] Intel(R) UHD Graphics

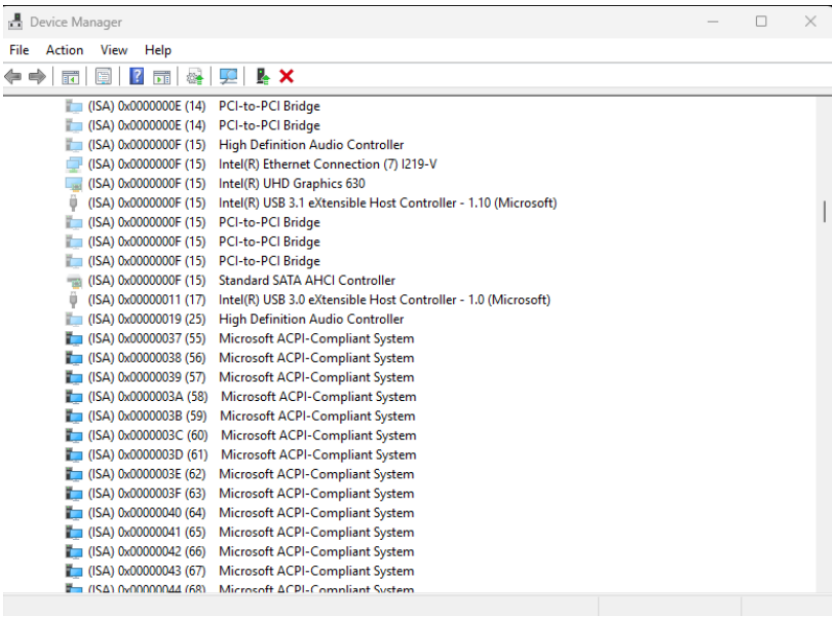


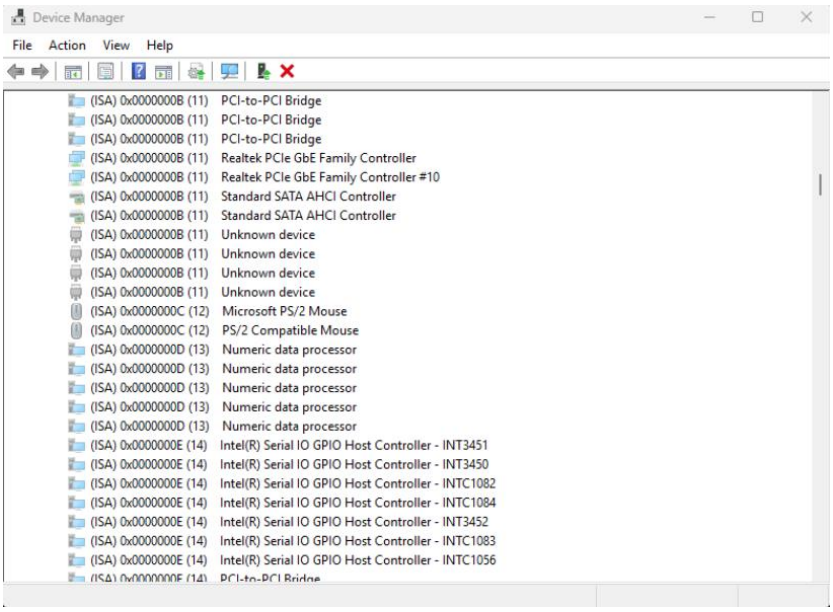
IRQ Mapping Chart

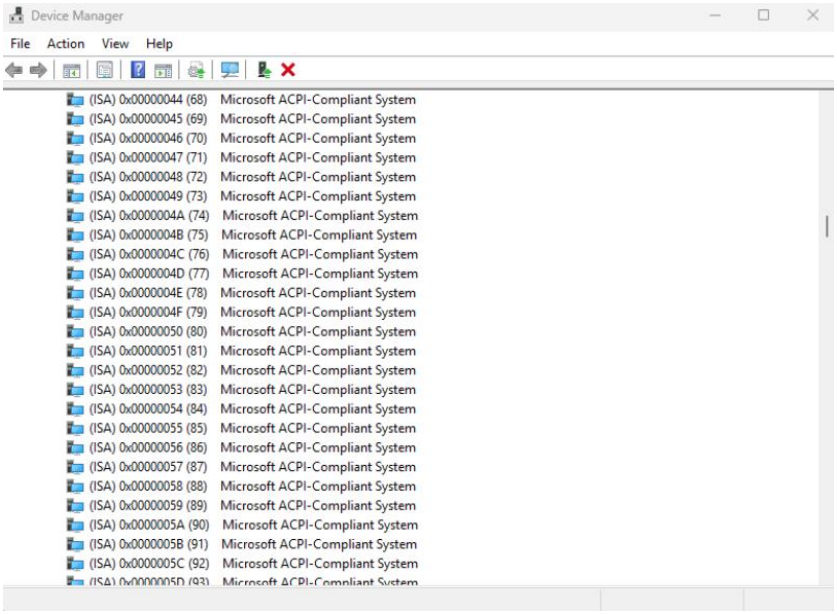


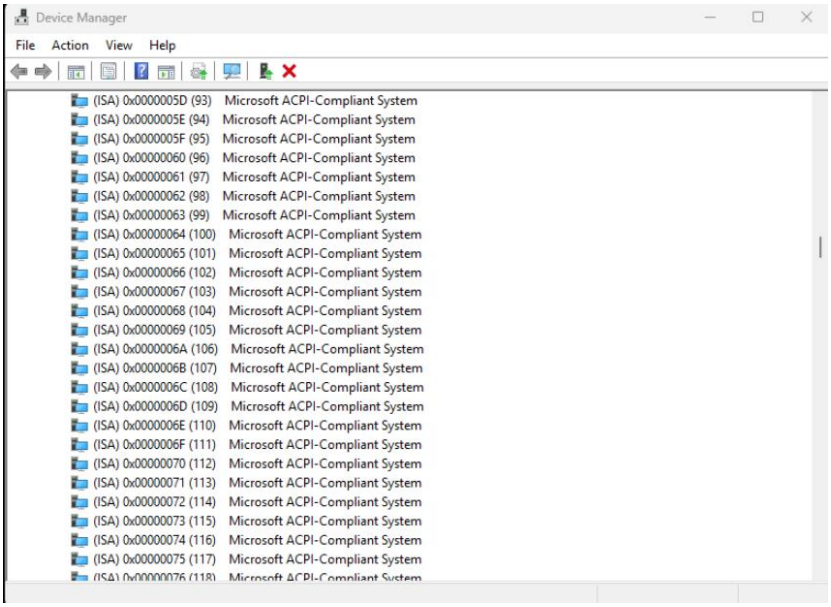

Device Manager
File Action View Help
(ISA) 0x0000000A (10) Communications Port (COM3)
(ISA) 0x0000000A (10) Communications Port (COM5)
(ISA) 0x0000000A (10) Communications Port (COM6)
(ISA) 0x0000000A (10) Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #10 - A119
(ISA) 0x0000000A (10) Intel(R) I210 Gigabit Network Connection
(ISA) 0x0000000A (10) Intel(R) I211 Gigabit Network Connection
(ISA) 0x0000000A (10) PCI-to-PCI Bridge
(ISA) 0x0000000A (10) PCI-to-PCI Bridge
(ISA) 0x0000000A (10) Realtek PCIe GbE Family Controller #2
(ISA) 0x0000000B (11) Communications Port (COM4)
(ISA) 0x0000000B (11) High Definition Audio Controller
(ISA) 0x0000000B (11) High Definition Audio Controller
(ISA) 0x0000000B (11) Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
(ISA) 0x0000000B (11) Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
(ISA) 0x0000000B (11) Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #9 - A118
(ISA) 0x0000000B (11) Intel(R) Ethernet Connection (2) I219-LM
(ISA) 0x0000000B (11) Intel(R) Ethernet Connection I219-LM
(ISA) 0x0000000B (11) Intel(R) HD Graphics 530
(ISA) 0x0000000B (11) Intel(R) HD Graphics 620
(ISA) 0x0000000B (11) Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x0000000B (11) Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x0000000B (11) Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) PCIe Controller (x16) - 1901
(ISA) 0x0000000B (11) Microsoft Basic Display Adapter
(ISA) 0x0000000B (11) PCI-to-PCI Bridge
(ISA) 0x0000000B (11) PCI-to-PCI Bridge

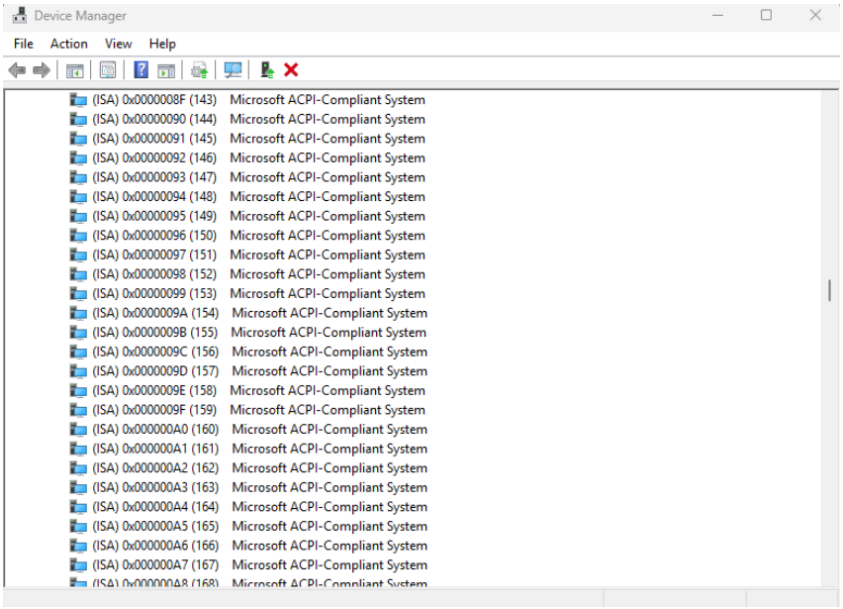

Device Manager
File Action View Help
(ISA) 0x00000004 (04) Communications Port (COM1)
(ISA) 0x00000005 (05) High Definition Audio Controller
(ISA) 0x00000005 (05) Intel(R) HD Graphics 500
(ISA) 0x00000005 (05) Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x00000005 (05) Microsoft Basic Display Adapter
(ISA) 0x00000005 (05) PCI-to-PCI Bridge
(ISA) 0x00000005 (05) PCI-to-PCI Bridge
(ISA) 0x00000005 (05) PCI-to-PCI Bridge
(ISA) 0x00000005 (05) PCI-to-PCI Bridge
(ISA) 0x00000005 (05) PCI-to-PCI Bridge
(ISA) 0x00000005 (05) PCI-to-PCI Bridge
(ISA) 0x00000005 (05) Realtek PCIe GbE Family Controller #3
(ISA) 0x00000005 (05) Realtek PCIe GbE Family Controller #9
(ISA) 0x00000005 (05) Standard Enhanced PCI to USB Host Controller
(ISA) 0x00000005 (05) Standard SATA AHCI Controller
(ISA) 0x00000005 (05) Standard SATA AHCI Controller
(ISA) 0x00000005 (05) Standard SATA AHCI Controller
(ISA) 0x00000007 (07) PCI Simple Communications Controller
(ISA) 0x00000007 (07) PCI-to-PCI Bridge
(ISA) 0x00000007 (07) Realtek PCIe GbE Family Controller #8
(ISA) 0x00000008 (08) System CMOS/real time clock
(ISA) 0x00000008 (08) System CMOS/real time clock
(ISA) 0x00000008 (08) System CMOS/real time clock
(ISA) 0x00000008 (08) System CMOS/real time clock
(ISA) 0x00000009 (09) PCI-to-PCI Bridge

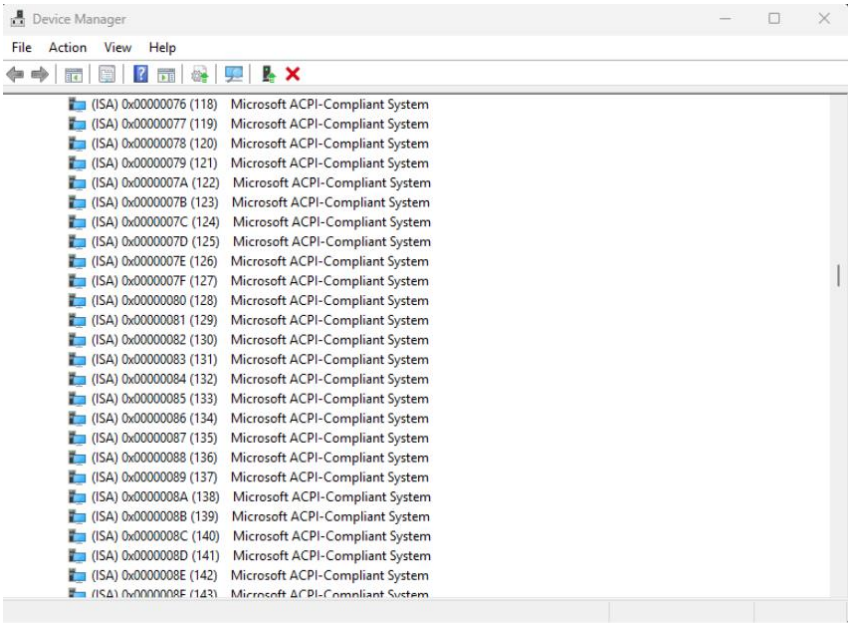

Device Manager
File Action View Help
(ISA) 0x0000000E (14) PCI-to-PCI Bridge
(ISA) 0x0000000E (14) PCI-to-PCI Bridge
(ISA) 0x0000000F (15) High Definition Audio Controller
(ISA) 0x0000000F (15) Intel(R) Ethernet Connection (7) I219-V
(ISA) 0x0000000F (15) Intel(R) UHD Graphics 630
(ISA) 0x0000000F (15) Intel(R) USB 3.1 eXtensible Host Controller - 1.10 (Microsoft)
(ISA) 0x0000000F (15) PCI-to-PCI Bridge
(ISA) 0x0000000F (15) PCI-to-PCI Bridge
(ISA) 0x0000000F (15) PCI-to-PCI Bridge
(ISA) 0x0000000F (15) Standard SATA AHCI Controller
(ISA) 0x00000011 (17) Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(ISA) 0x00000019 (25) High Definition Audio Controller
(ISA) 0x00000037 (55) Microsoft ACPI-Compliant System
(ISA) 0x00000038 (56) Microsoft ACPI-Compliant System
(ISA) 0x00000039 (57) Microsoft ACPI-Compliant System
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(ISA) 0x0000003B (59) Microsoft ACPI-Compliant System
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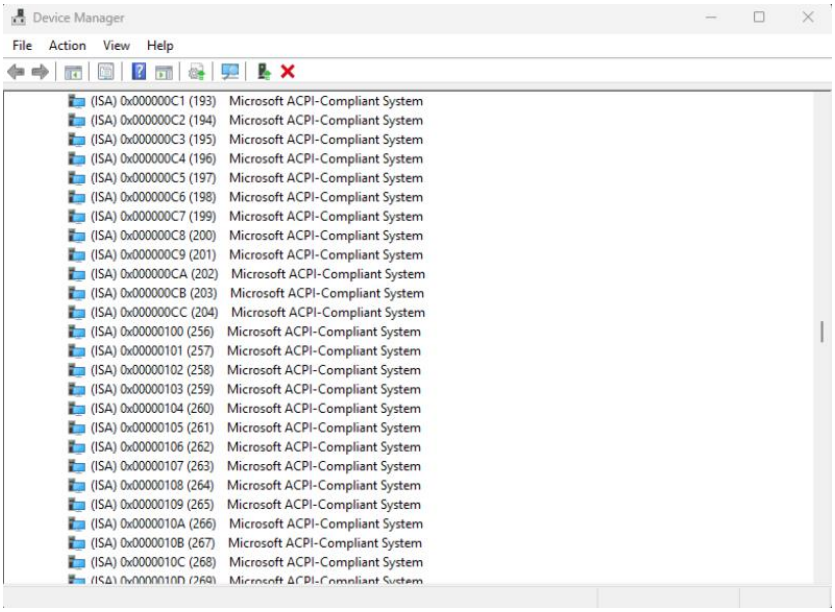

Device Manager
File Action View Help
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(ISA) 0x0000000B (11) PCI-to-PCI Bridge
(ISA) 0x0000000B (11) PCI-to-PCI Bridge
(ISA) 0x0000000B (11) Realtek PCIe GbE Family Controller
(ISA) 0x0000000B (11) Realtek PCIe GbE Family Controller #10
(ISA) 0x0000000B (11) Standard SATA AHCI Controller
(ISA) 0x0000000B (11) Standard SATA AHCI Controller
(ISA) 0x0000000B (11) Unknown device
(ISA) 0x0000000B (11) Unknown device
(ISA) 0x0000000B (11) Unknown device
(ISA) 0x0000000B (11) Unknown device
(ISA) 0x0000000C (12) Microsoft PS/2 Mouse
(ISA) 0x0000000C (12) PS/2 Compatible Mouse
(ISA) 0x0000000D (13) Numeric data processor
(ISA) 0x0000000D (13) Numeric data processor
(ISA) 0x0000000D (13) Numeric data processor
(ISA) 0x0000000D (13) Numeric data processor
(ISA) 0x0000000D (13) Numeric data processor
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(ISA) 0x0000000E (14) Intel(R) Serial IO GPIO Host Controller - INT3450
(ISA) 0x0000000E (14) Intel(R) Serial IO GPIO Host Controller - INTC1082
(ISA) 0x0000000E (14) Intel(R) Serial IO GPIO Host Controller - INTC1084
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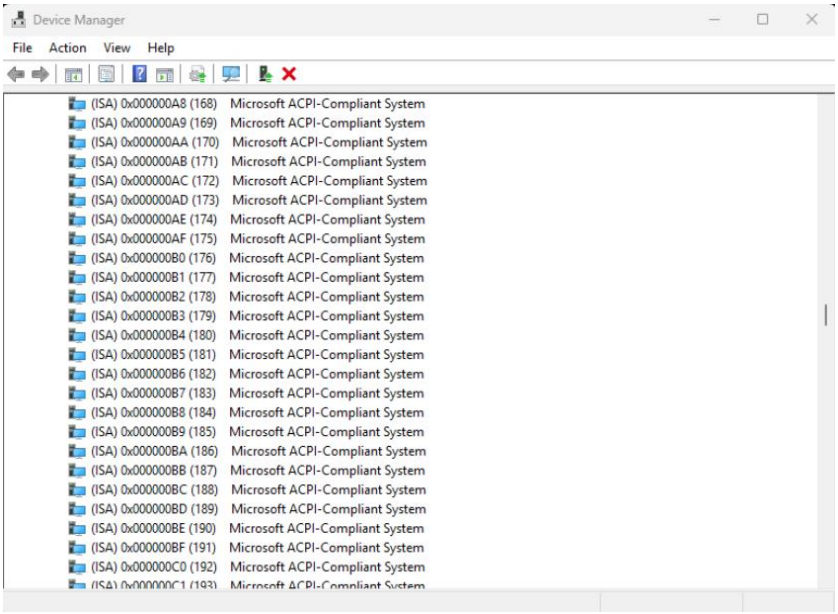

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File Action View Help
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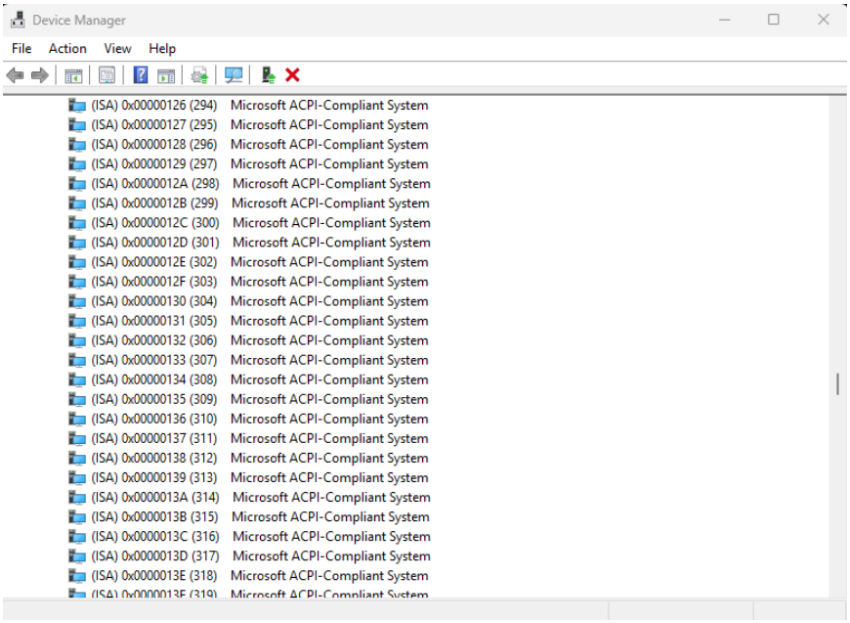

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File Action View Help
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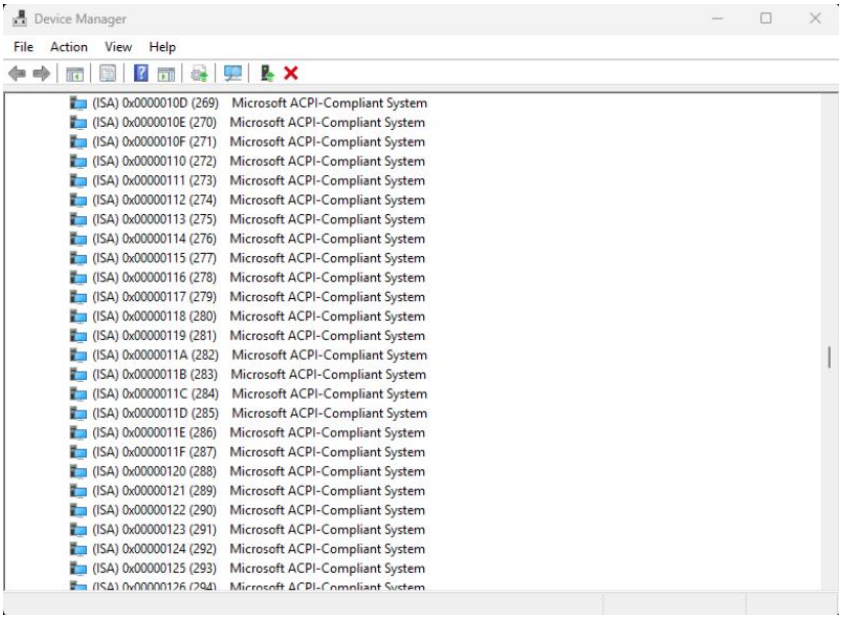

Device Manager
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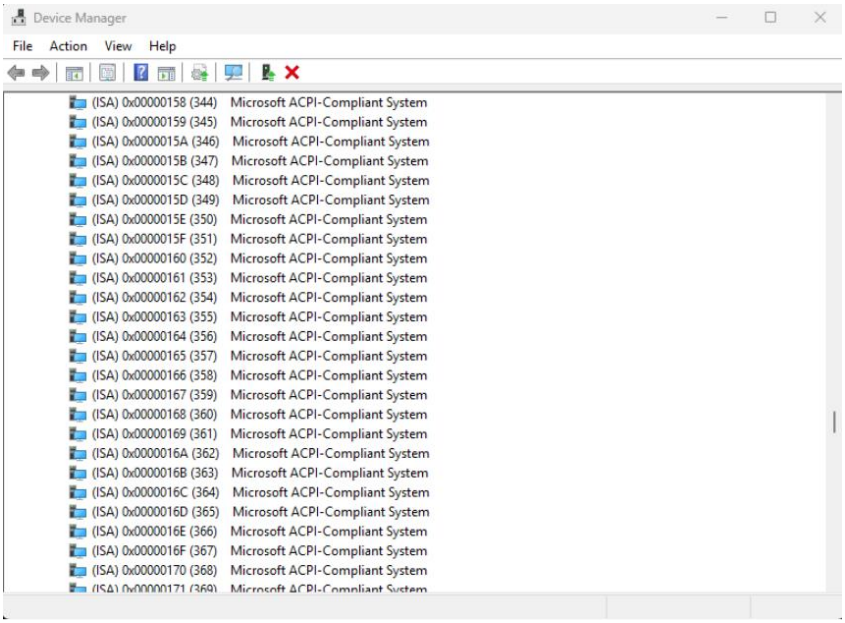

Device Manager
File Action View Help
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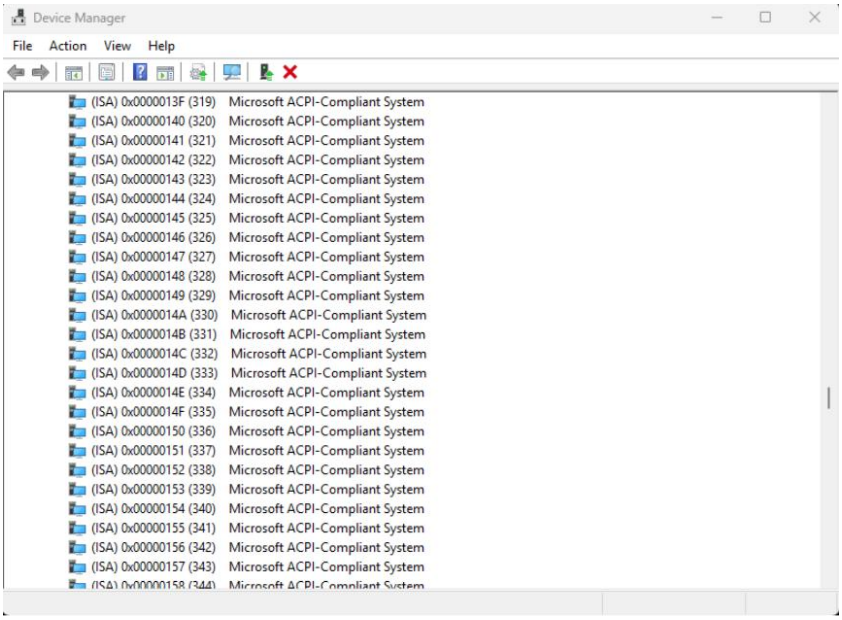

Device Manager
File Action View Help
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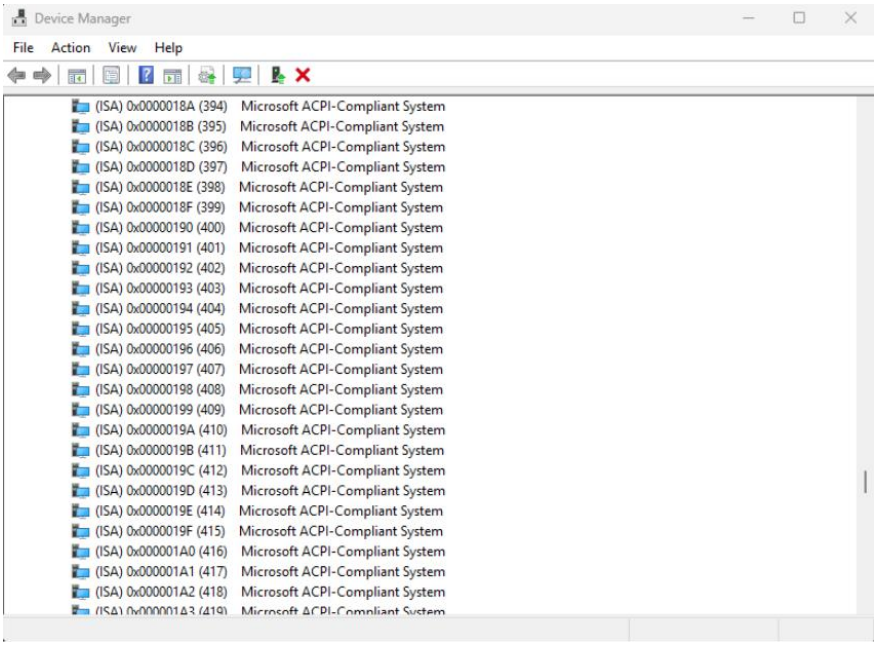

Device Manager
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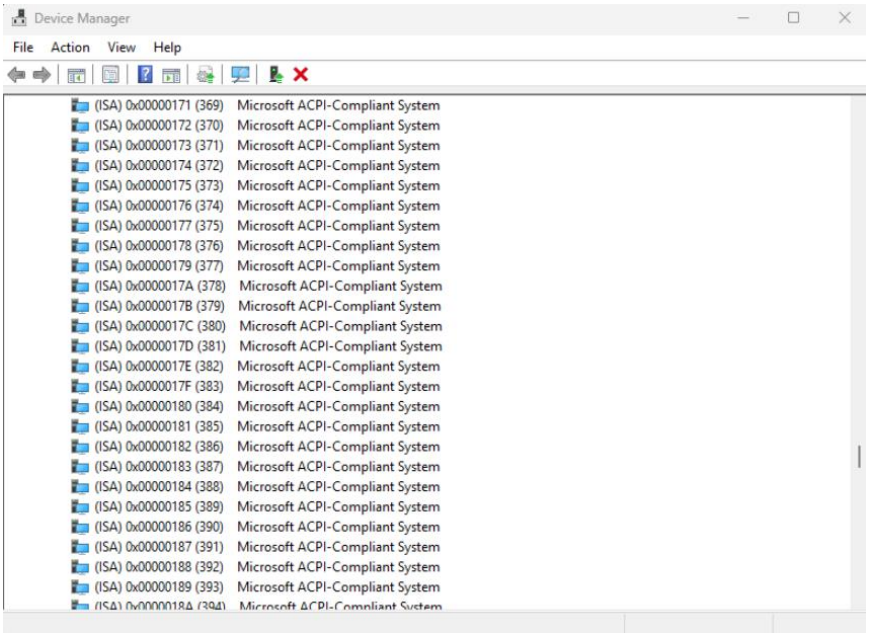

Device Manager
File Action View Help
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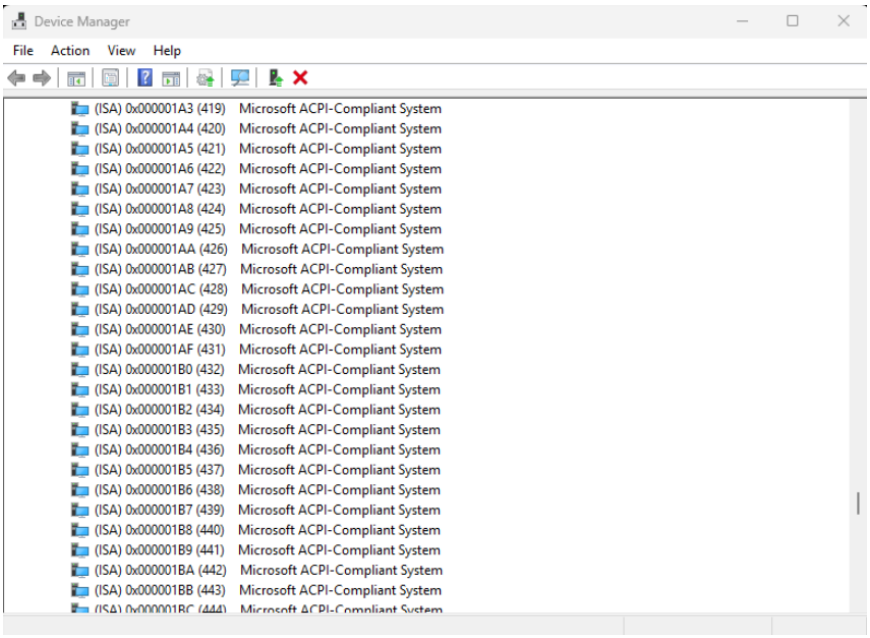

Device Manager
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Device Manager
File Action View Help
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Device Manager
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Device Manager
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Device Manager
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(ISA) 0x00000189 (393) Microsoft ACPI-Compliant System



Large Memory Address Map

