B382FRPU1
User's Manual

Revision: 2.0
Release Date: April 02, 2025

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.**

TABLE OF CONTENT

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 (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

Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	April 02, 2025

Packing List

Part Number	Description	QTY per System
B382FRPU1	B382FRPU1 Barebone	1
HCS370MWM01B-2-F	Wallmount Kit	2
HCS3XXDINRAILPS-F	Brackets DIN RAIL KITS	2
L01AS062-F	Lockable Adapter 19V/4.74A 90W	1
LCSCHBJC3XX-F	Screw Pack	1
Change according to shipping area	Power Cord (Region Specific)	1

Chapter 1 Introduction of the Motherboard

1-1 Specifications

SYSTEM	
MB FORM FACTOR	3.5"
CPU	Onboard Intel® 13th Gen Core™ i5-1335U (Formerly Raptor Lake-P, TDP 15W) Onboard Intel® 13th Gen Core™ i5-1335UE (Formerly Raptor Lake-P, TDP 15W)
CHIPSET	Intel® SoC
MEMORY	2 x DDR5 4800MHz, Dual Channel SO-DIMM, up to 64GB
BIOS	UEFI
WAKE ON LAN	Yes
WATCHDOG TIMER	255 Levels
SECURITY	TPM2.0
RTC BATTERY	Lithium Battery
OS SUPPORT	Windows® 11 (64bit) Windows® 10 (64bit) Linux
POWER REQUIREMENT	DC-in 12V~36V 90W Adapter: AC90~240V, DC19V/4.7A
POWER ON MODE	AT / ATX (Default) Mode
GPU	Intel® Iris® Xe Graphics
Type C DP	1 x Type C DP1.4 (Max Resolution: 4096 x 2160@60Hz)
DP	2 x DP1.4 (Max Resolution: 4096 x 2160@60Hz)
HDMI	2 x HDMI 2.0b (Max Resolution: 4096 x 2160@60Hz)
MULTIPLE DISPLAY	Support 4 Displays
AUDIO	
CODEC	Realtek Audio Codec
AMPLIFIER	3W
LAN	
ETHERNET	1 x RJ45 for Intel® I226-V 2.5GbE 1 x RJ45 for Intel® I226-LM 2.5GbE
SYSTEM I/O	
REAR PANEL I/O	4 x Antenna Holes 1 x DC-in (Lockable) 2 x HDMI 2.0b

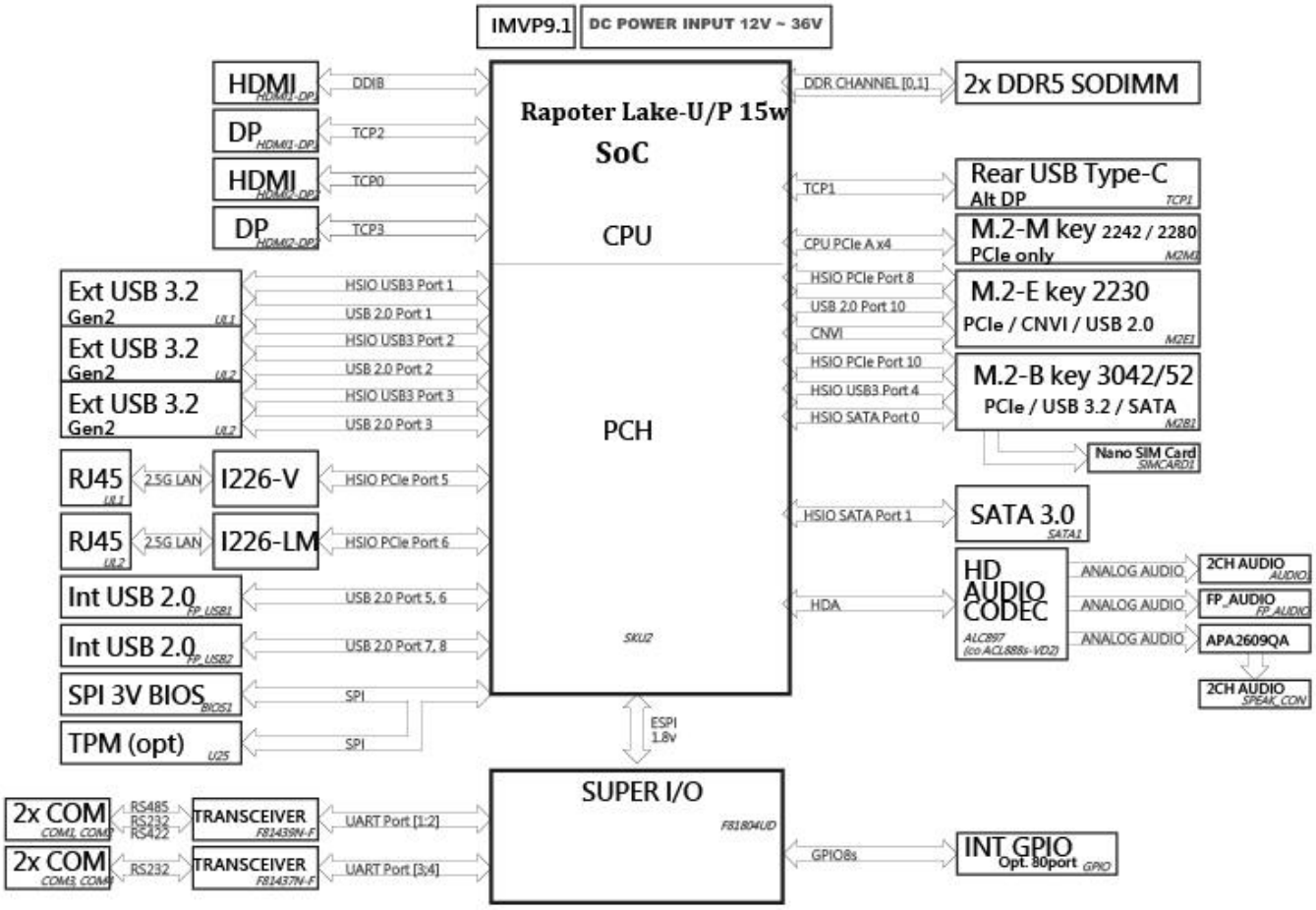
	2 x DP 1.4 3 x USB 3.2 Gen 2 1 x USB 3.2 Gen 1 Type C 2 x RJ45 1 x Audio (Line out, MIC) 1 x GND Hold
FRONT PANEL I/O	1 x Power Button 1 x Reset Button 1 x Power LED 1 x HDD LED 4 x USB 2.0 4 x RS-232/422/485
STORAGE	
SATA	1 x 2.5” SATA III 6Gb/s internal drive bay (Max. Height 9.5 mm)
EXPANSION	
M.2	1 x B+M-Key 2242 (SATA/PCIe 3×1) for SSD 1 x M-Key 2242/2280 (PCIe 4.0 x4) support NVMe 1 x E-Key 2230 (USB 2.0/PCIe 3.0 x1) Support CNVi
SIM	1 x Nano SIM Card Slot
MECHANICAL	
MOUNTING	Desktop, Wallmount, Din Rail
DIMENSIONS (W x H x D)	185.0 (W) x 142.0 (D) x 61.0 (H) mm (7.28" x 5.6" x 2.4")
NET WEIGHT	3.5 kg
ENVIRONMENT & CERTIFICATION	
OPERATING TEMPERATURE	-20°C ~ 60°C (-4°F ~ 140°F)
STORAGE TEMPERATURE	-40°C ~ 85°C (-40°F ~ 185°F)
OPERATING HUMIDITY	10 ~ 90% Relative Humidity, Non-condensing
CERTIFICATION	CE/FCC Class A LVD
ESG DECLARATION	China RoHS CMRT Report TSCA Declaration WEEE REACH

Ordering Information

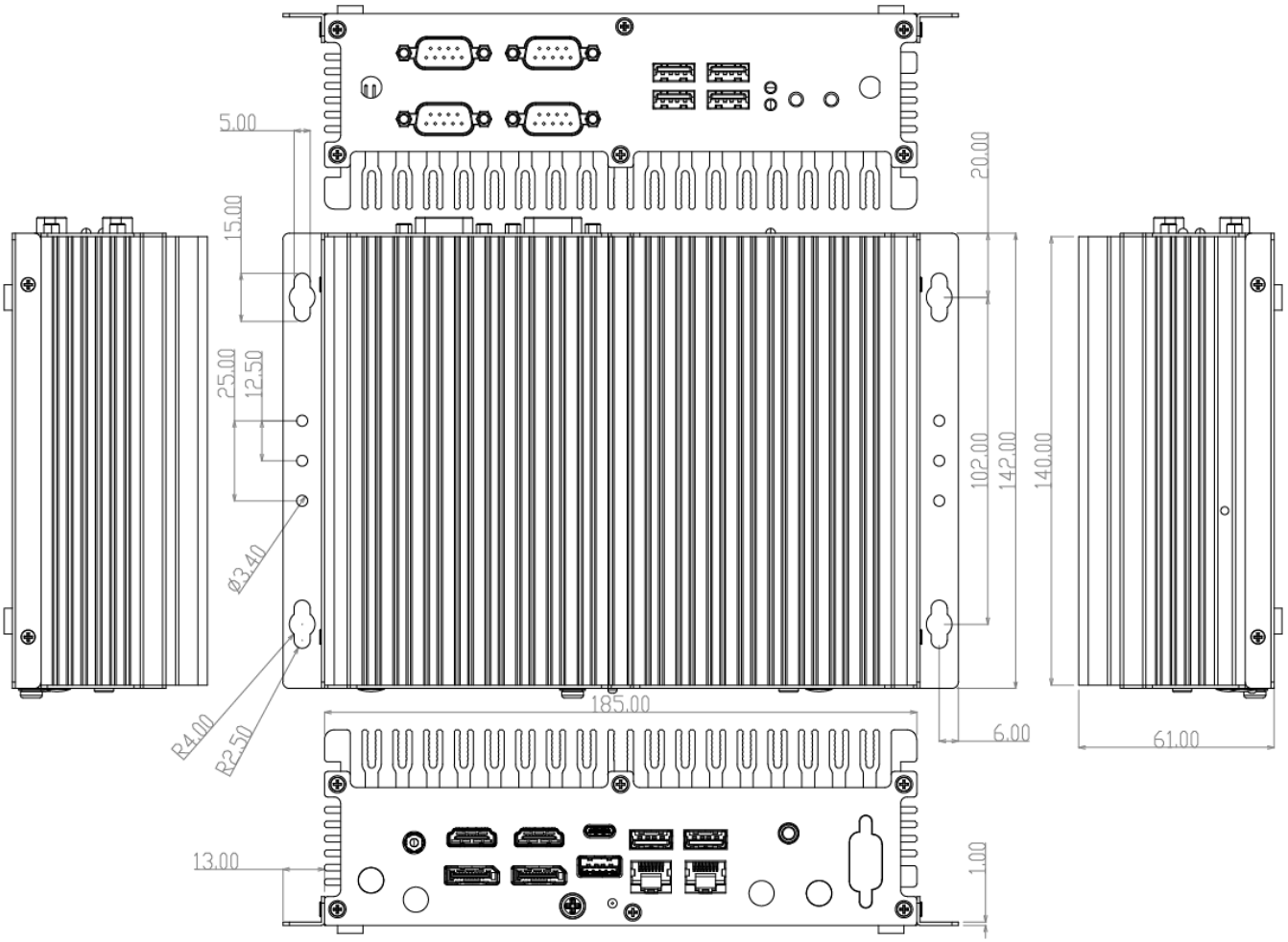
PART NUMBER	B382FRPU1-A111	B382FRPU1-A211	B382FRPU1-A311	B382FRPU1-A411
CPU	Intel® Core™ i5-1335U	Intel® Core™ i5-1335U	Intel® Core™ i5-1335UE	Intel® Core™ i5-1335UE
MEMORY	2 x DDR5 SO-DIMM, up to 64GB	2 x DDR5 SO-DIMM, up to 64GB	2 x DDR5 SO-DIMM, up to 64GB	2 x DDR5 SO-DIMM, up to 64GB
SECURITY	Intel® PTT (fTPM)	TPM2.0	Intel® PTT (fTPM)	TPM2.0
POWER REQUIREMENT	DC-in 19V	DC-in 19V	DC-in 19V	DC-in 19V
GPU	Intel® Xe Graphics	Intel® Xe Graphics	Intel® Xe Graphics	Intel® Xe Graphics
Type C DP	1 x Type C DP	1 x Type C DP	1 x Type C DP	1 x Type C DP
HDMI	2 x HDMI	2 x HDMI	2 x HDMI	2 x HDMI
MULTIPLE DISPLAY	Support 4 Displays	Support 4 Displays	Support 4 Displays	Support 4 Displays
ETHERNET	2 x 2.5GbE	2 x 2.5GbE	2 x 2.5GbE	2 x 2.5GbE
I/O	4 x WIFI ANT	4 x WIFI ANT	4 x WIFI ANT	4 x WIFI ANT
I/O	1 x DC Jack	1 x DC Jack	1 x DC Jack	1 x DC Jack
I/O	2 x HDMI	2 x HDMI	2 x HDMI	2 x HDMI
I/O	2 x DP	2 x DP	2 x DP	2 x DP
I/O	3 x USB 3.2 Gen 2	3 x USB 3.2 Gen 2	3 x USB 3.2 Gen 2	3 x USB 3.2 Gen 2
I/O	1 x USB 3.2 Gen 1 Type C	1 x USB 3.2 Gen 1 Type C	1 x USB 3.2 Gen 1 Type C	1 x USB 3.2 Gen 1 Type C
I/O	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
I/O	1 x Audio (Line-out, MIC)	1 x Audio (Line-out, MIC)	1 x Audio (Line-out, MIC)	1 x Audio (Line-out, MIC)
I/O	1 x GND Hold	1 x GND Hold	1 x GND Hold	1 x GND Hold
I/O	1 x Power Button	1 x Power Button	1 x Power Button	1 x Power Button
I/O	1 x Reset	1 x Reset	1 x Reset	1 x Reset
I/O	1 x Power LED	1 x Power LED	1 x Power LED	1 x Power LED
I/O	1 x HDD LED	1 x HDD LED	1 x HDD LED	1 x HDD LED
I/O	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0
I/O	4 x COM	4 x COM	4 x COM	4 x COM
SATA	1 x 2.5” SATA Device	1 x 2.5” SATA Device	1 x 2.5” SATA Device	1 x 2.5” SATA Device
M.2	1 x M-Key 2242/2280	1 x M-Key 2242/2280	1 x M-Key 2242/2280	1 x M-Key 2242/2280
M.2	1 x E-key 2230	1 x E-key 2230	1 x E-key 2230	1 x E-key 2230

M.2	1 x B-key 3042/3052	1 x B-key 3042/3052	1 x B-key 3042/3052	1 x B-key 3042/3052
M.2	1 x B+M-Key 2242	1 x B+M-Key 2242	1 x B+M-Key 2242	1 x B+M-Key 2242
OPERATING TEMPERATURE	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)

1-2 Block Diagram

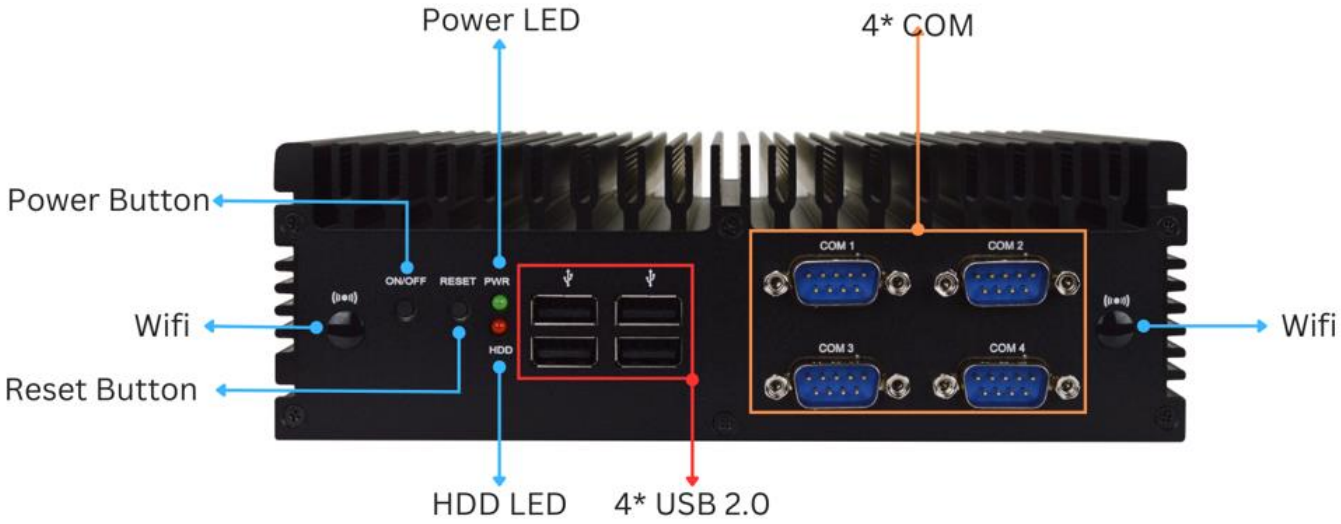


1-3 Dimension

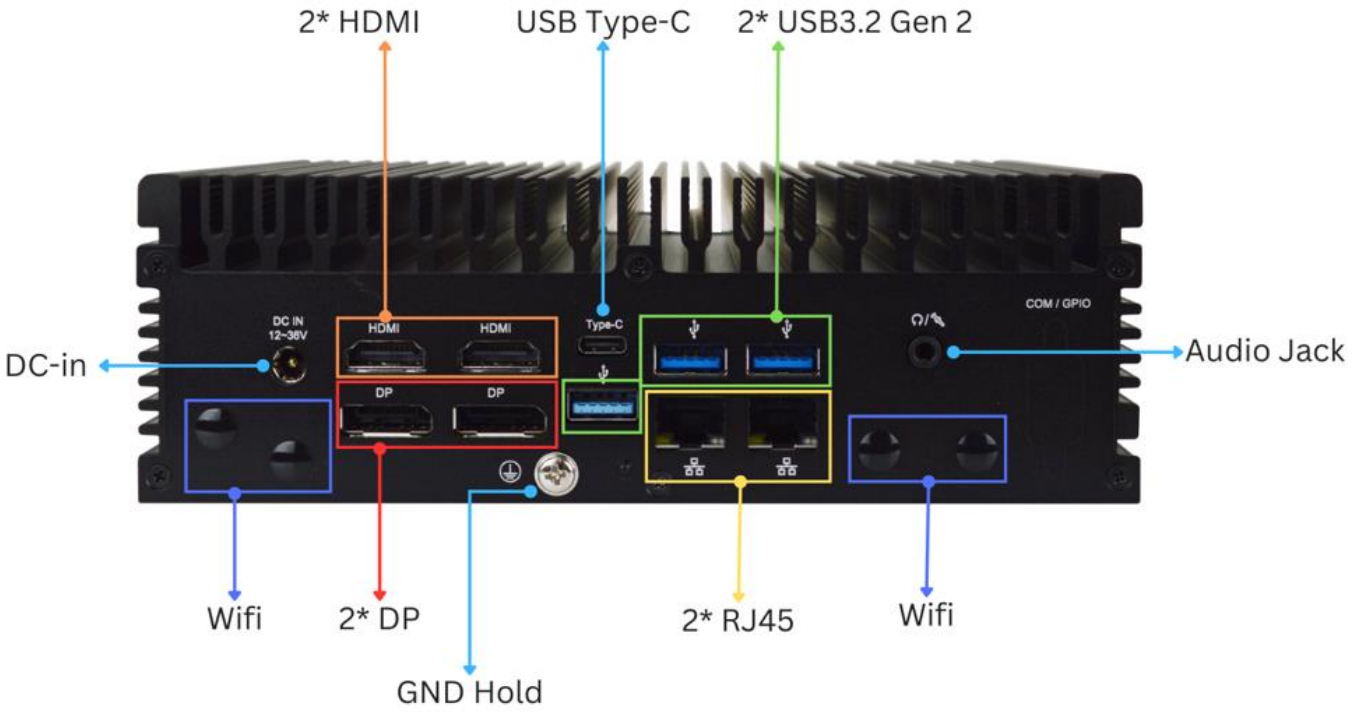


1-4 I/O Placement

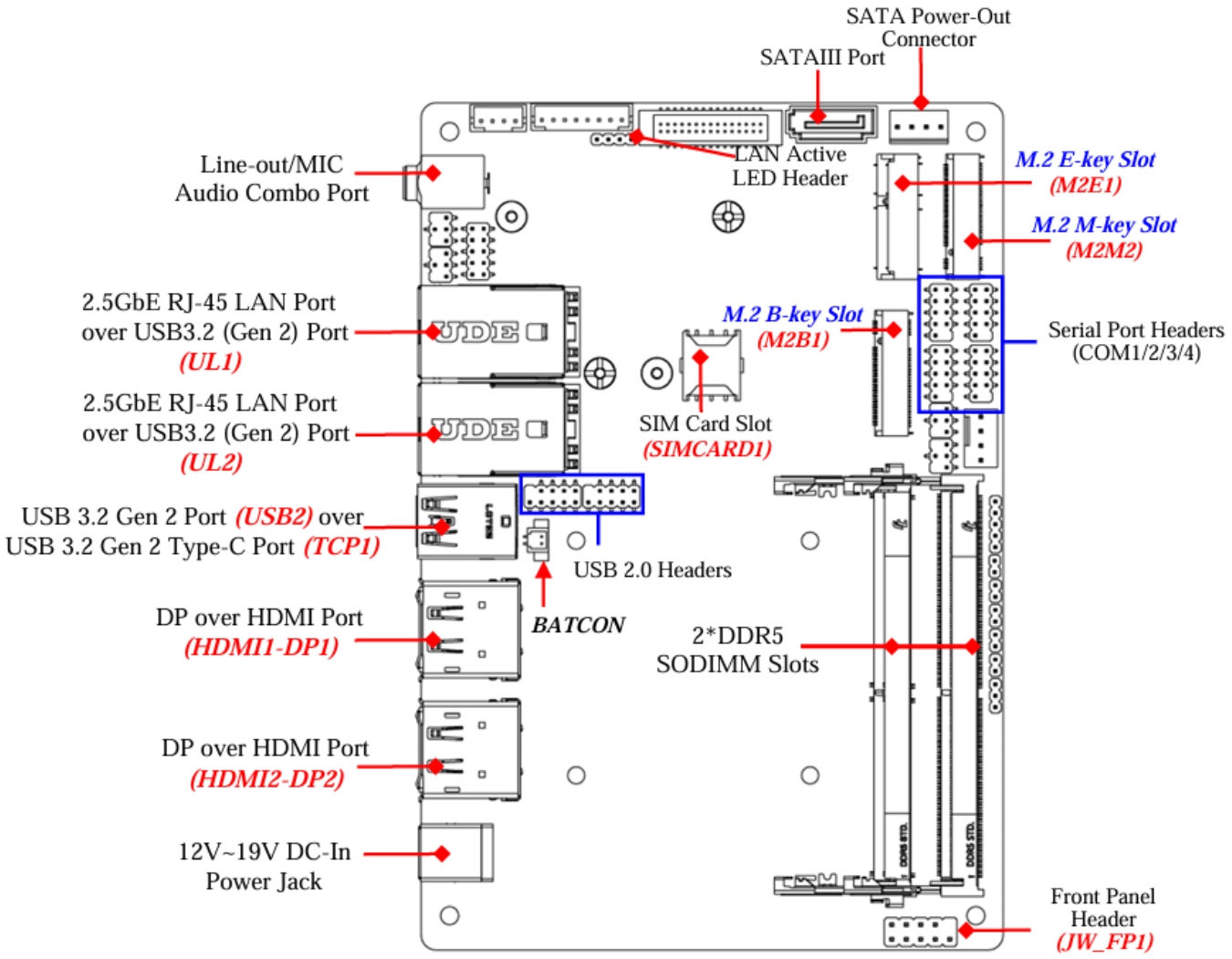
Front I/O



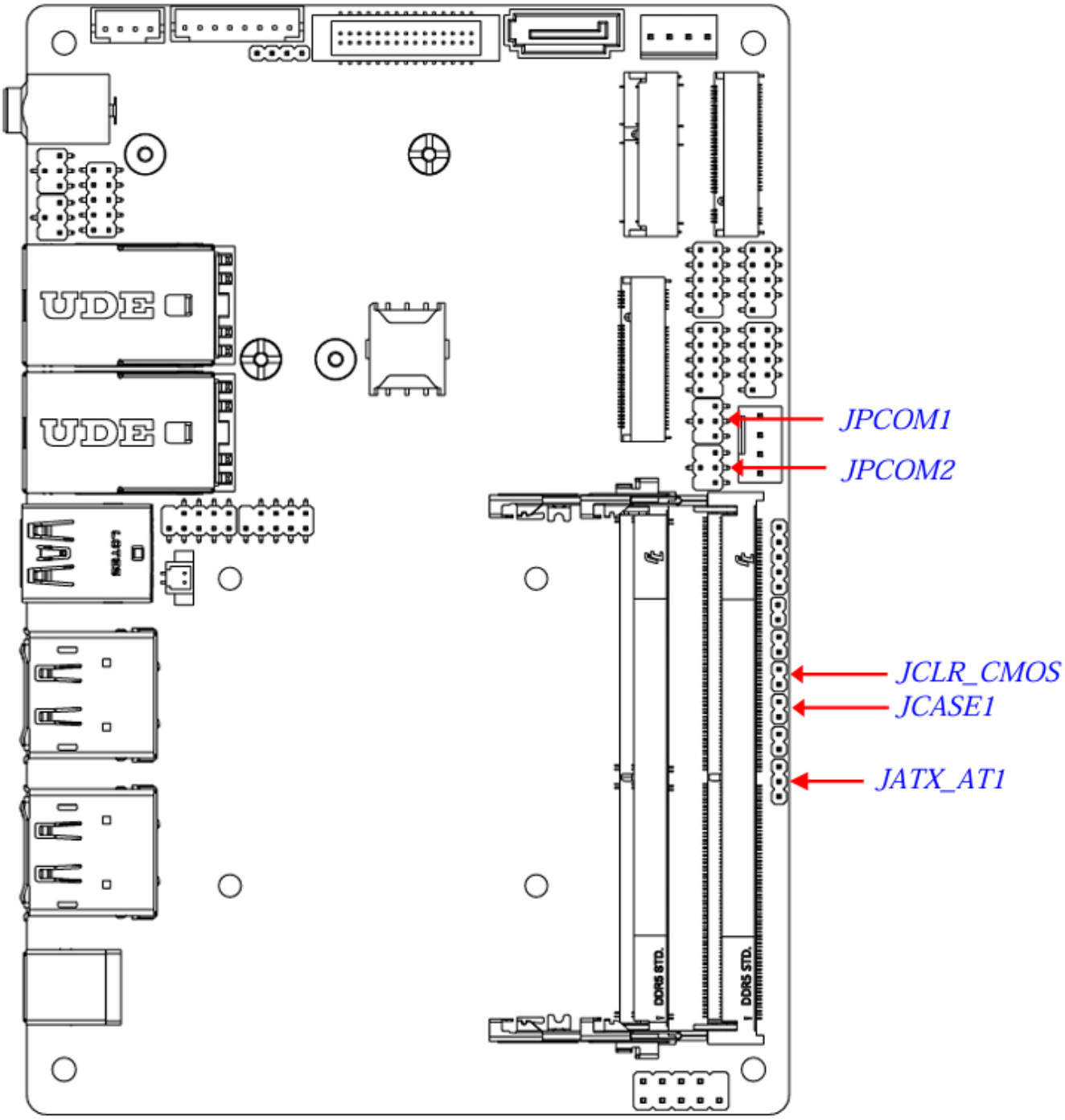
Rear I/O



1-5 Motherboard Placement



1-6 Jumper Positions



Chapter 2 Hardware Information

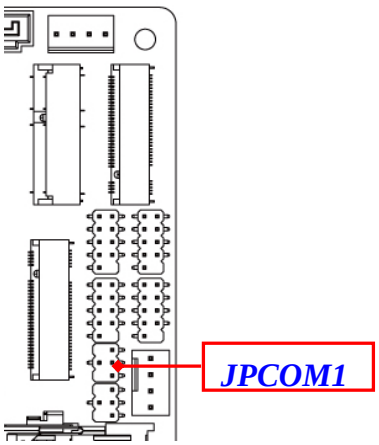
2-1 List of Jumpers

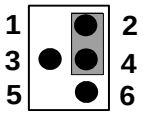
Please refer to the table below for all of the board's jumpers that you can configure for your application.

Location Printing	Function
JPCOM1	COM1 Header Pin-9 Function Select
JPCOM2	COM2 Header Pin-9 Function Select
JCLR_CMOS	Clear CMOS
JCASE1	Case Open Display Select
JATX_AT1	ATX/AT Mode Select

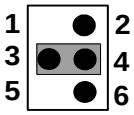
2-2 Jumper Settings

(1) COM1 Header Pin-9 Function Select (JPCOM1)

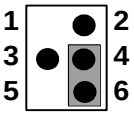




2-4 Closed: RI=RS232 (Default);

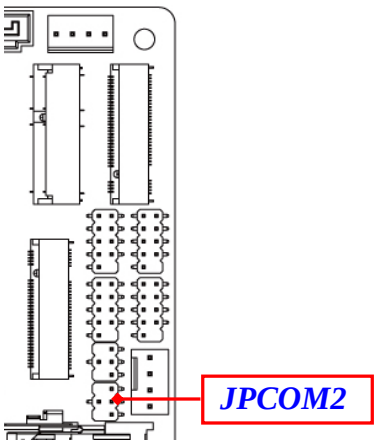


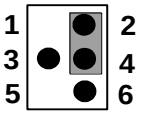
3-4 Closed: RI=+5V;



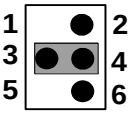
4-6 Closed: RI=+12V.

(2) COM2 Header Pin-9 Function Select (JPCOM2)

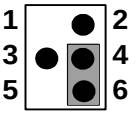




2-4 Closed: RI=RS232 (Default);

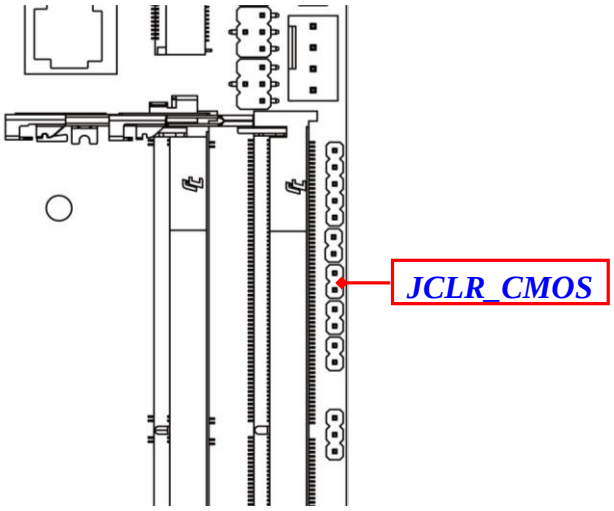


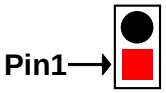
3-4 Closed: RI=+5V;



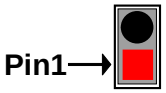
4-6 Closed: RI=+12V.

(3) Clear CMOS (JCLR_CMOS)



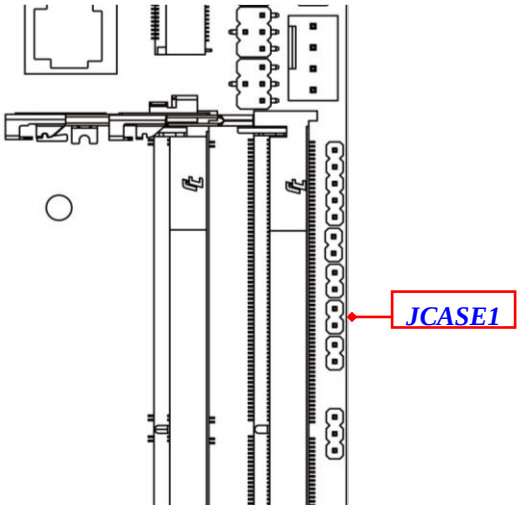


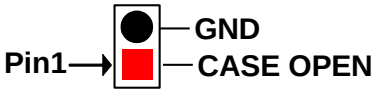
1-2 Open: Normal (Default);



1-2 Closed: Clear CMOS.

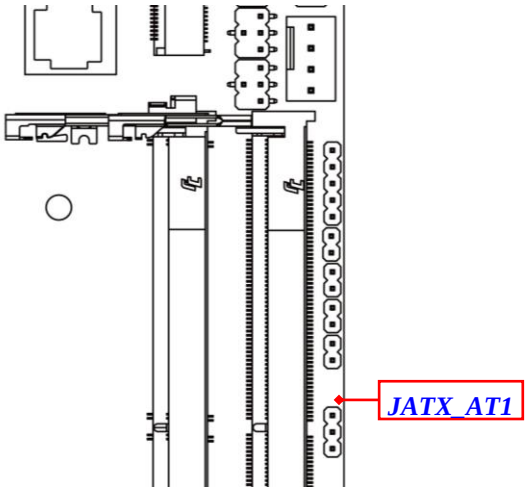
(4) Case Open Display Select (JCASE1)

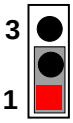




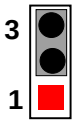
Default: Open.

(5) ATX/AT Mode Select (JATX_AT1)





1-2 Closed: ATX Mode Selected (Default);



2-3 Closed: AT Mode Selected.

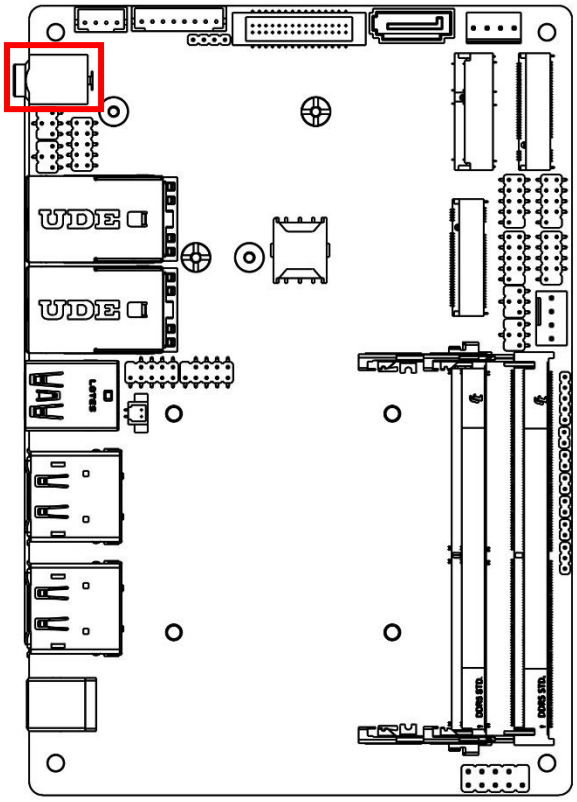
2-3 List of Connectors

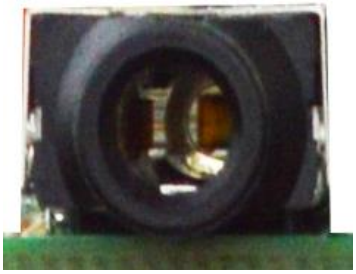
Please refer to the table below for all of the board's jumpers that you can configure for your application.

Location Printing	Function
ADUIO1	Audio Line Out /MIC Combo 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
USB2	USB3.2 Gen. 2 Port Connector
TCP1	USB3.2 Gen. 2 Type- C Port Connector
HDMI1-DP1/HDMI2-DP2	DP1.4 Port Connector and HDMI2.0b Port Connector
DCIN3	12~19V DC-in Power Jack
SATA1	SATAIII Port Connector
SATAPWR1	SATA Power out Connector
BATCON	CMOS Battery Connector
JW_FP1	Front Panel Header
COM1	RS232/RS422/RS485 Serial Port Header
COM2	RS232/RS422/RS485 Serial Port Header
COM3	RS232 Serial Port Header
COM4	RS232 Serial Port Header
FP_USB1	USB2.0 Header
FP_USB2	USB2.0 Header
SIMCARD1	Nano-SIM Card Socket
M2E2	M.2 2242/2280 KEY M Socket
M2E1	M.2 2230 KEY E Socket
M2B1	M.2 3042/3052 KEY B Socket
SODIMM1	DDR5 SODIMM Socket Up
SODIMM2	DDR5 SODIMM Socket Down

2-4 Connector Settings

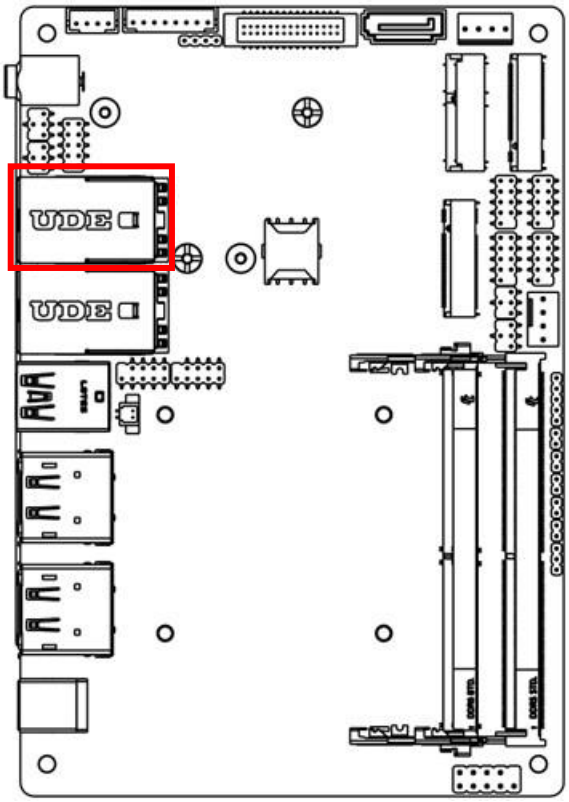
(1) Audio Line Out /MIC Combo Connector (ADUIO1)





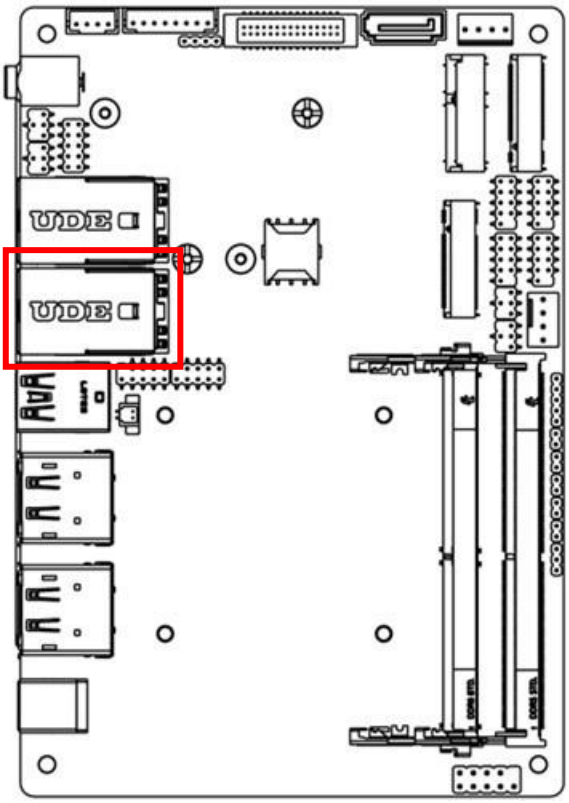
Note: Standard specifications.

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



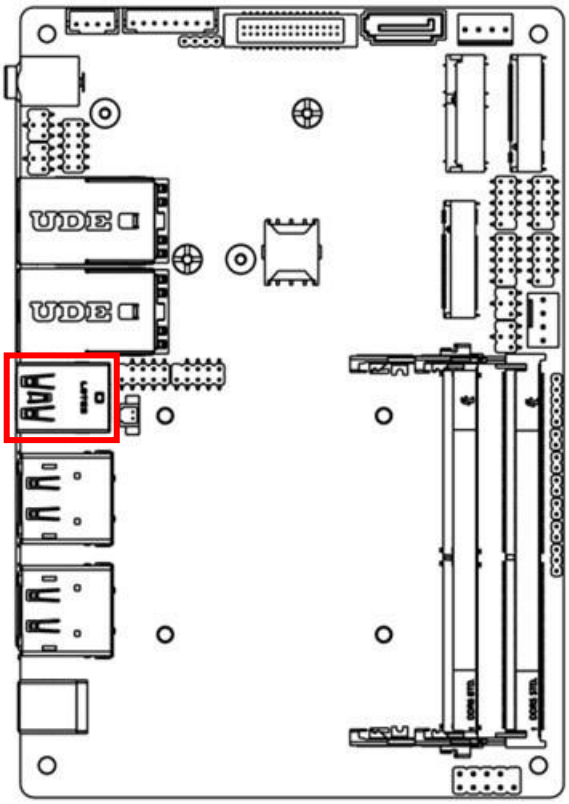
Note: Standard specifications.

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



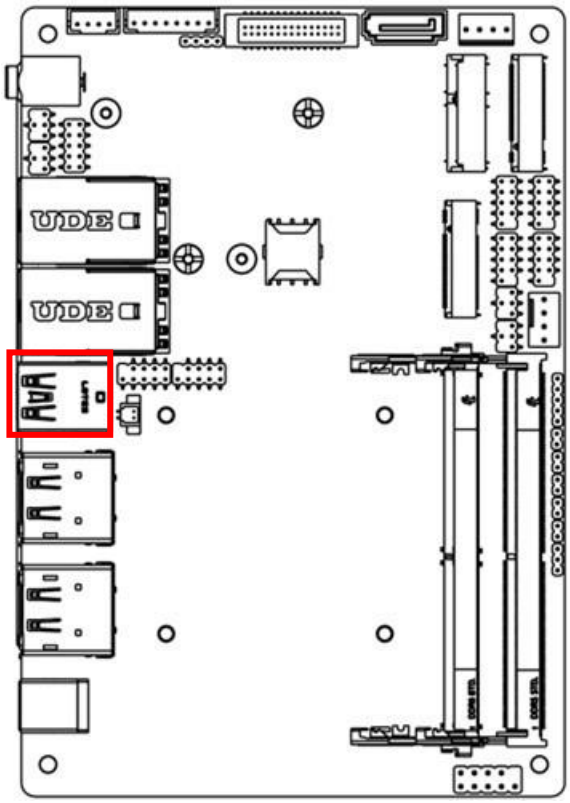
Note: Standard specifications.

(4) USB3.2 Gen. 2 Port Connector (USB2)



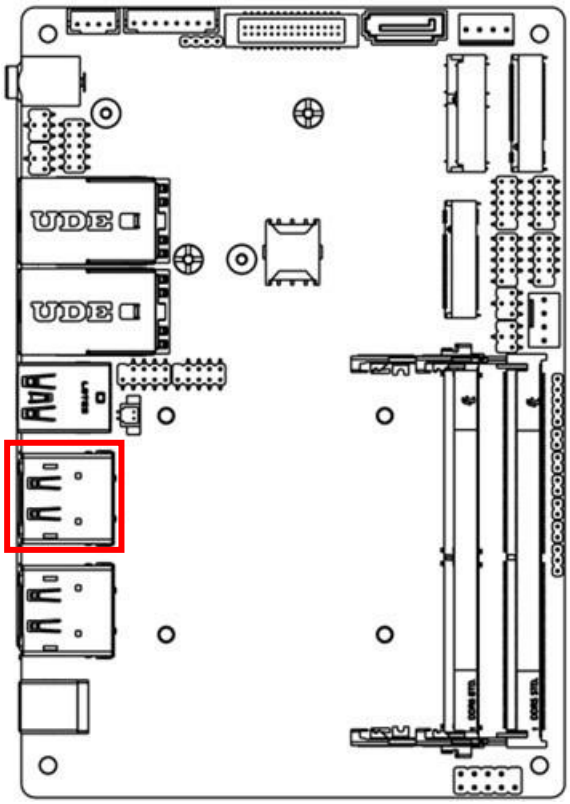
Note: Standard specifications.

(5) USB3.2 Gen. 2 Type- C Port Connector (TCP1)



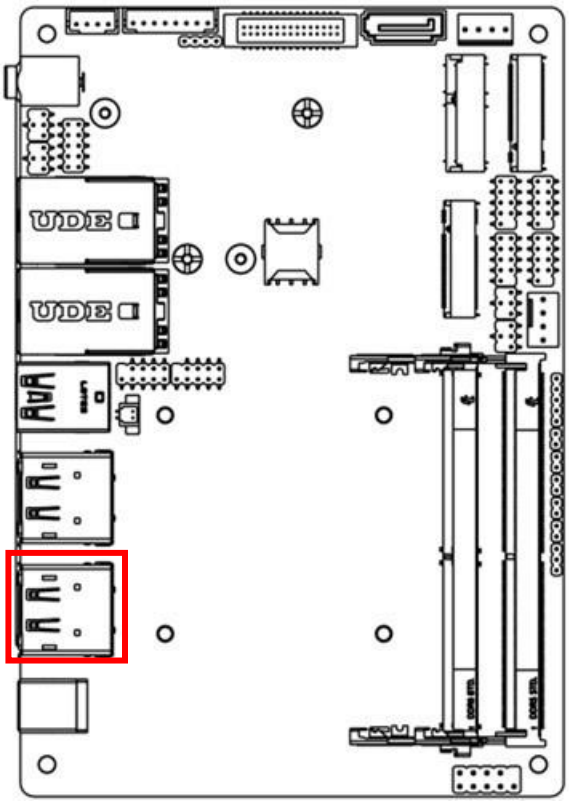
Note: Standard specifications.

(6) DP1.4 Port Connector and HDMI2.0b Port Connector (HDMI1-DP1)



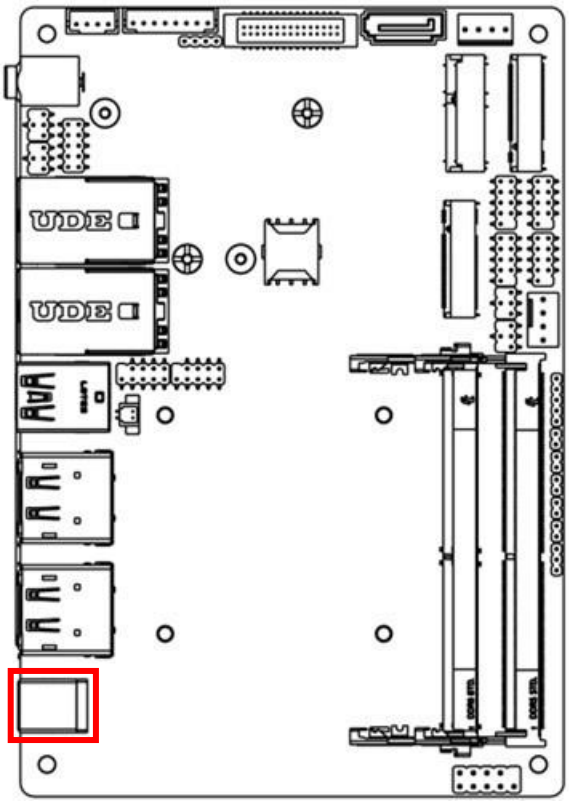
Note: Standard specifications.

(7) DP1.4 Port Connector and HDMI2.0b Port Connector (HDMI2-DP2)



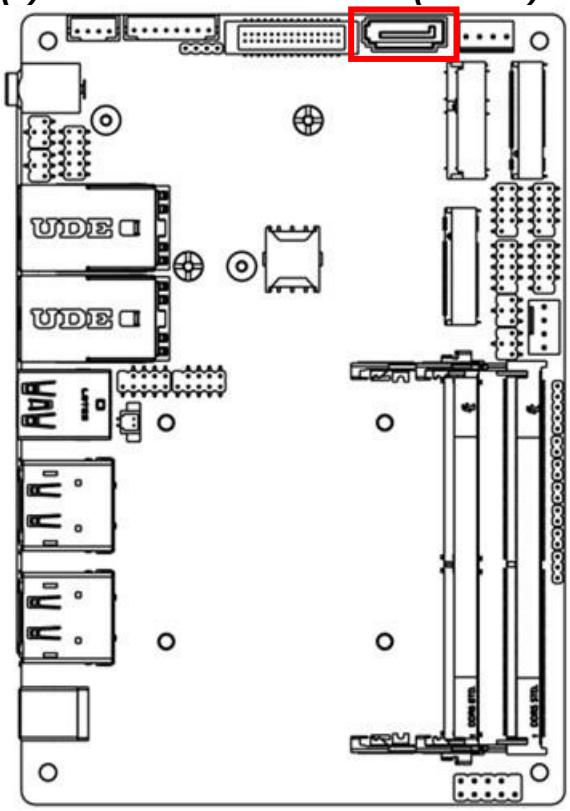
Note: Standard specifications.

(8) 12~19V DC-in Power Jack (DCIN1)



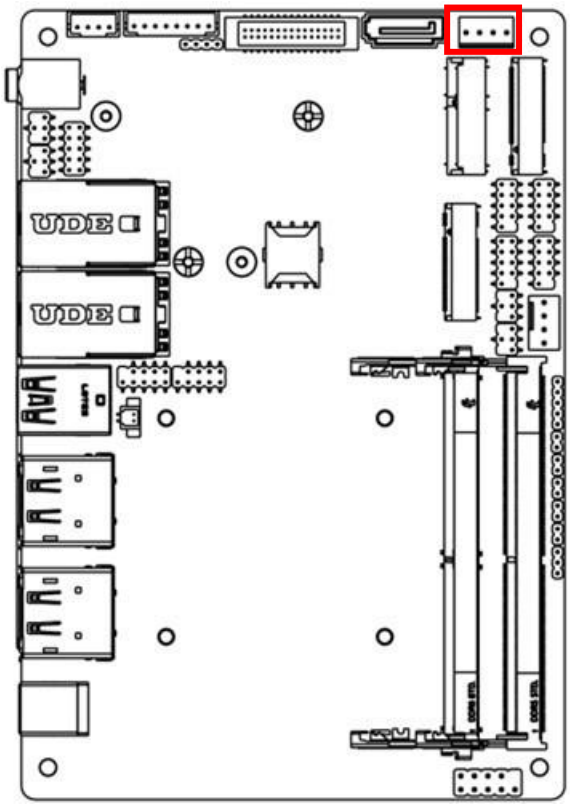
Note: Standard specifications.

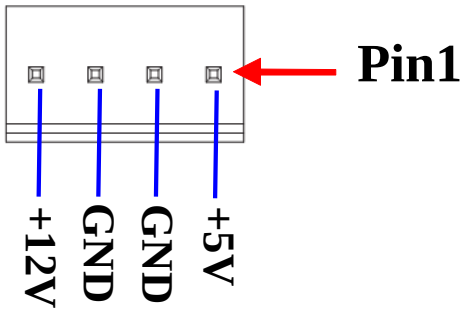
(9) SATAIII Port Connector (SATA1)



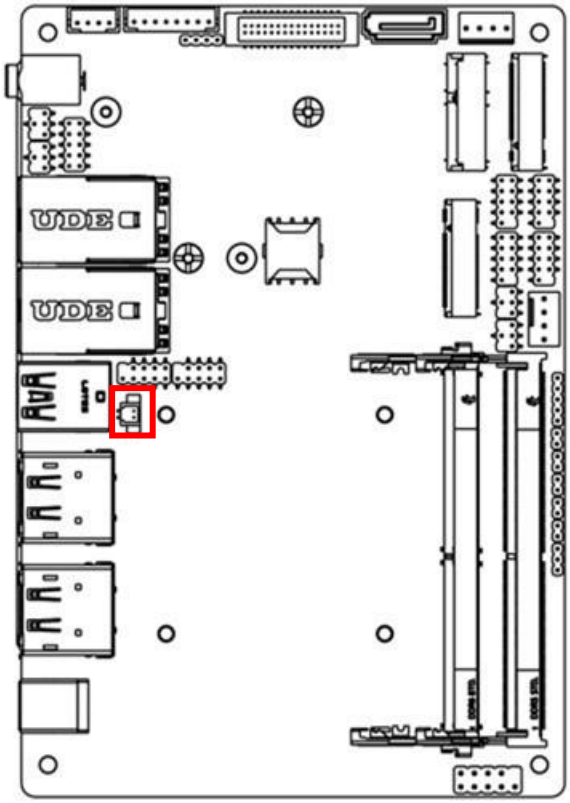
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

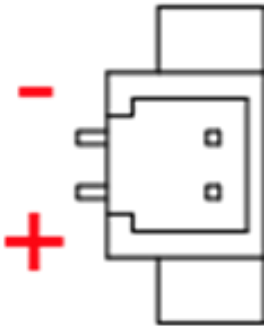
(10) SATA HDD Power-Out Connector (SATAPWR1)



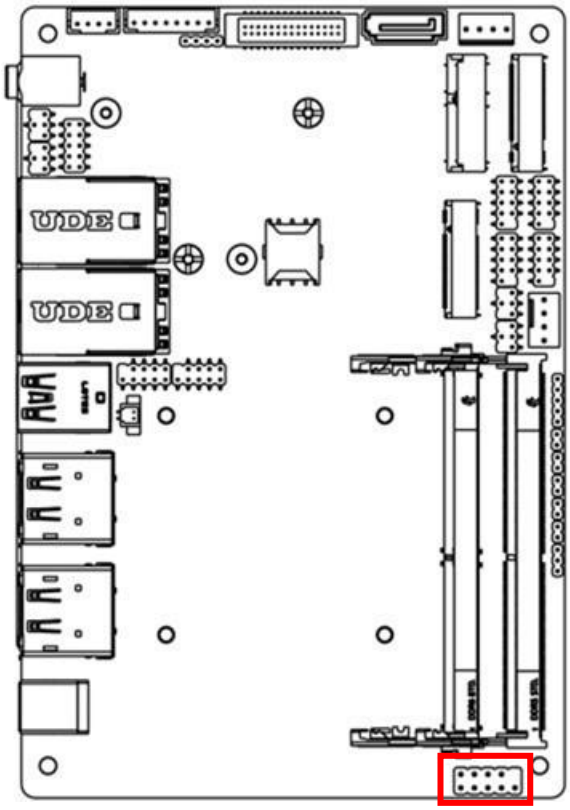


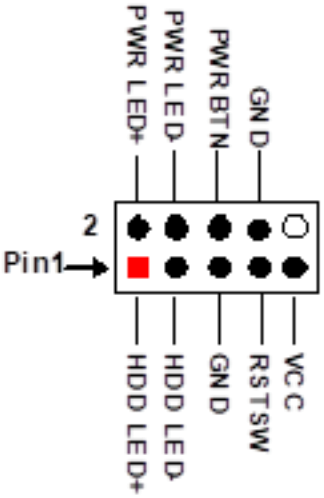
(11) CMOS Battery Connector (BATCON)





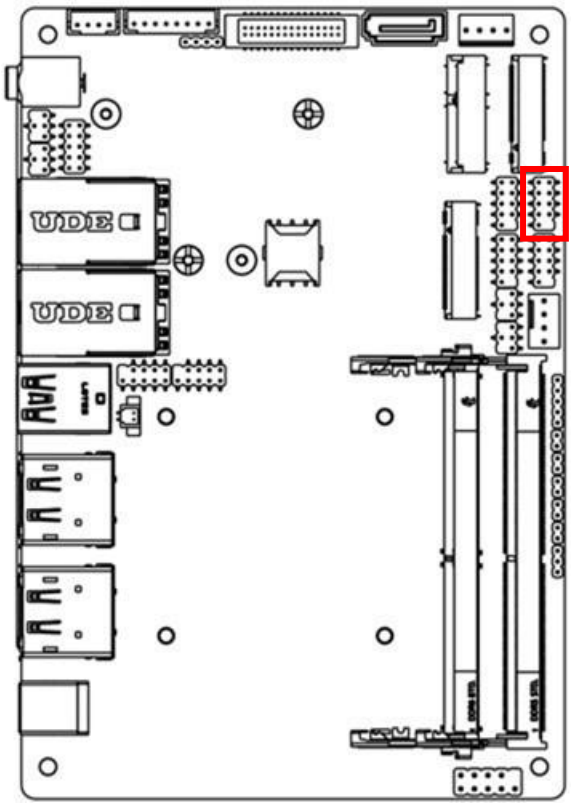
(12) Front Panel Header (JW_FP1)

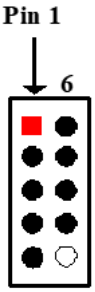




Note: Standard specifications.

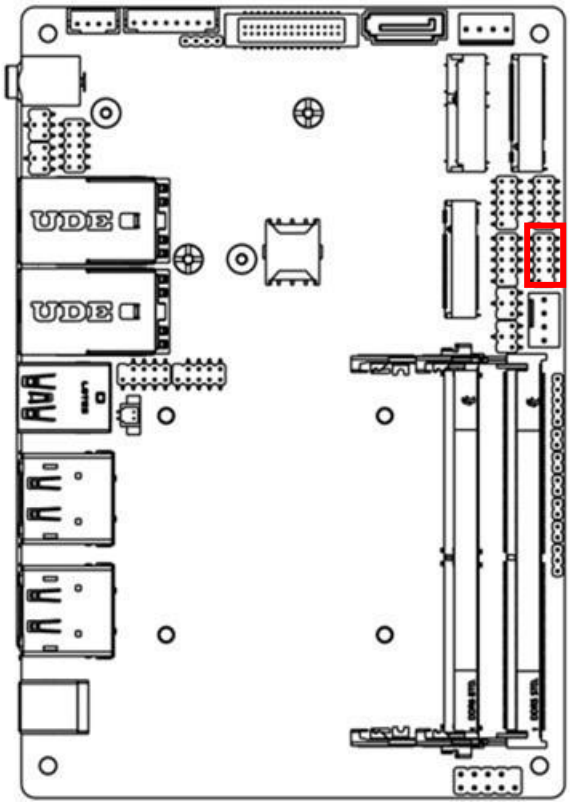
(13) RS232/RS422/RS485 Serial Port Header (COM1)

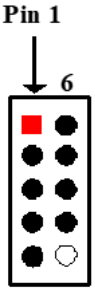




Pin NO.	RS232	*RS422*	*RS485*
Pin 1	DCD	TX-	DATA-
Pin 2	SIN-	TX+	DATA+
Pin 3	SO-	RX+	NC
Pin 4	DTR-	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR-	NC	NC
Pin 7	RTS-	NC	NC
Pin 8	CTS-	NC	NC
Pin 9	RI-	NC	NC

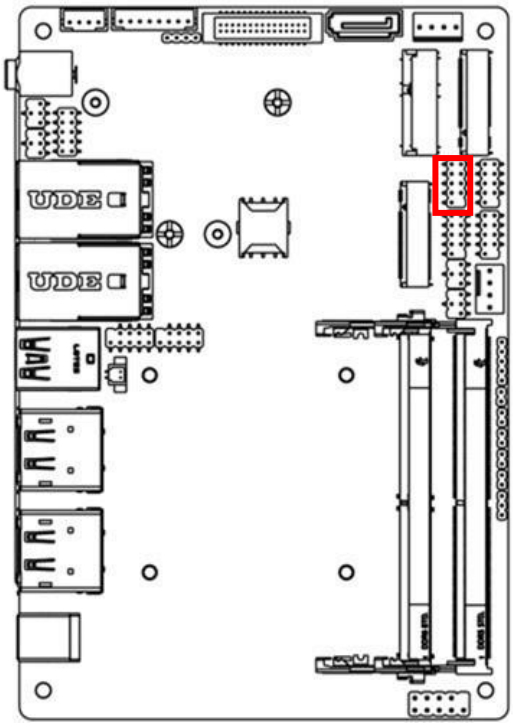
(14) RS232/RS422/RS485 Serial Port Header (COM2)





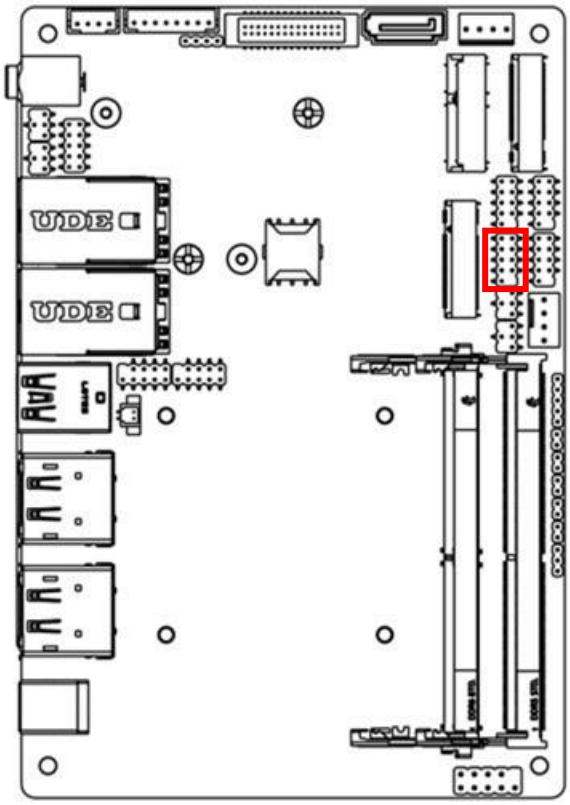
Pin NO.	RS232	*RS422*	*RS485*
Pin 1	DCD	TX-	DATA-
Pin 2	SIN-	TX+	DATA+
Pin 3	SO-	RX+	NC
Pin 4	DTR-	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR-	NC	NC
Pin 7	RTS-	NC	NC
Pin 8	CTS-	NC	NC
Pin 9	RI-	NC	NC

(15) RS232 Serial Port Header (COM3)



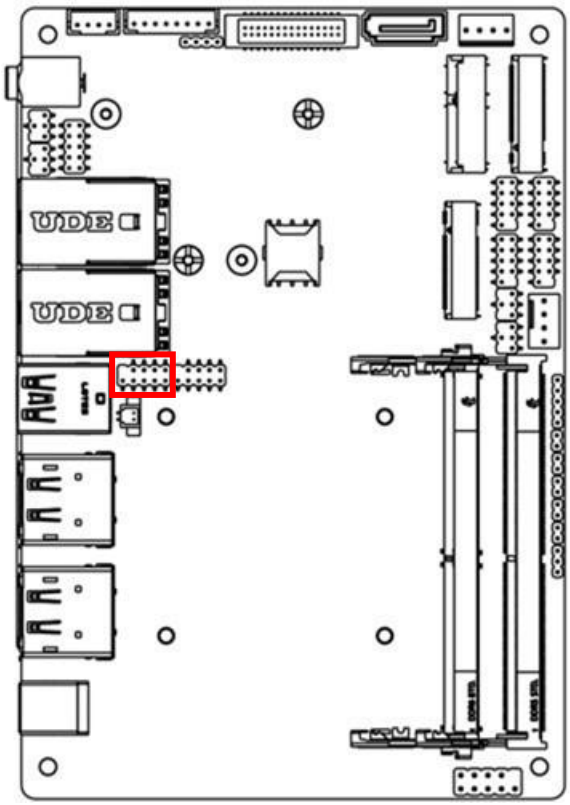
Pin NO.	RS232
Pin 1	DCD
Pin 2	SIN-
Pin 3	SO-
Pin 4	DTR-
Pin 5	GND
Pin 6	DSR-
Pin 7	RTS-
Pin 8	CTS-
Pin 9	RI-

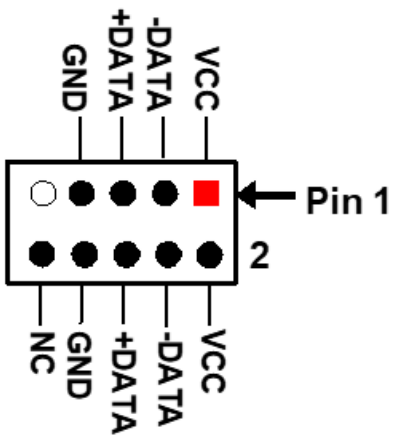
(16) RS232 Serial Port Header (COM4)



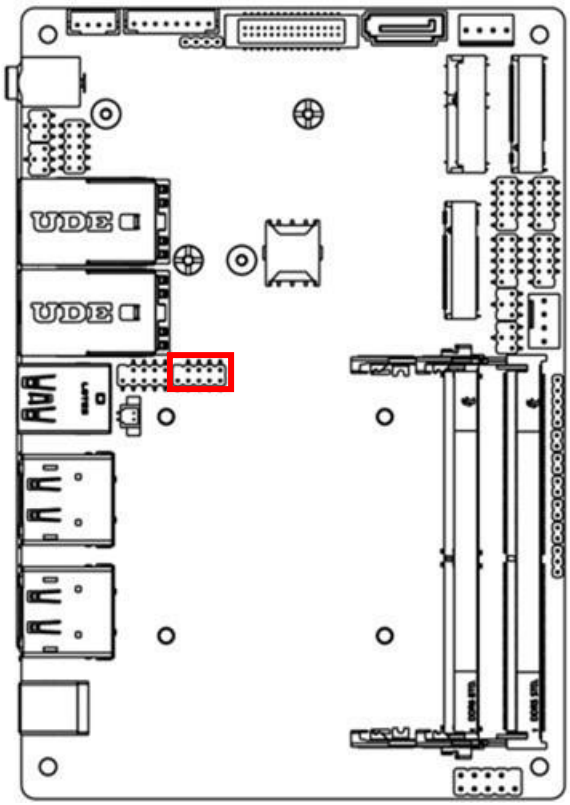
Pin NO.	RS232
Pin 1	DCD
Pin 2	SIN-
Pin 3	SO-
Pin 4	DTR-
Pin 5	GND
Pin 6	DSR-
Pin 7	RTS-
Pin 8	CTS-
Pin 9	RI-

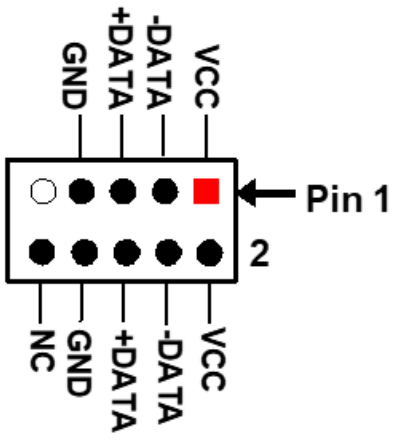
(17) USB2.0 Header (FP_USB1)



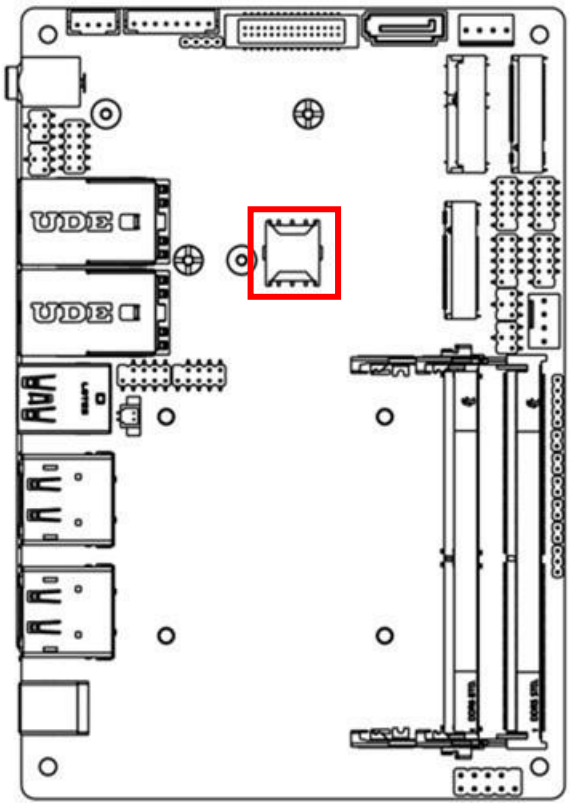


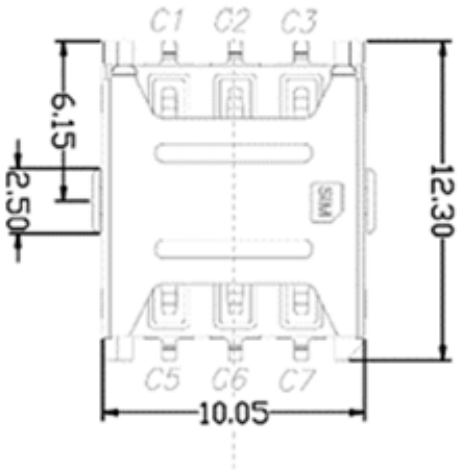
(18) USB2.0 Header (FP_USB2)





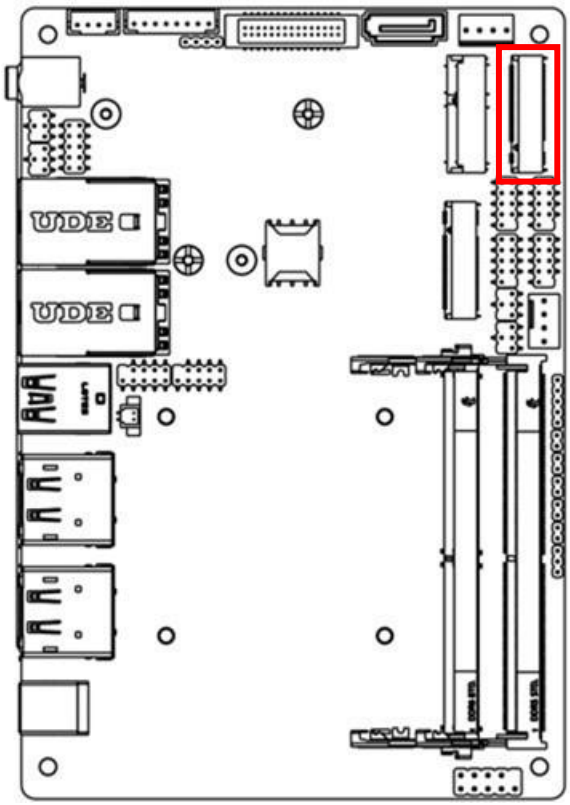
(19) Nano-SIM Card Socket (SIMCARD1)





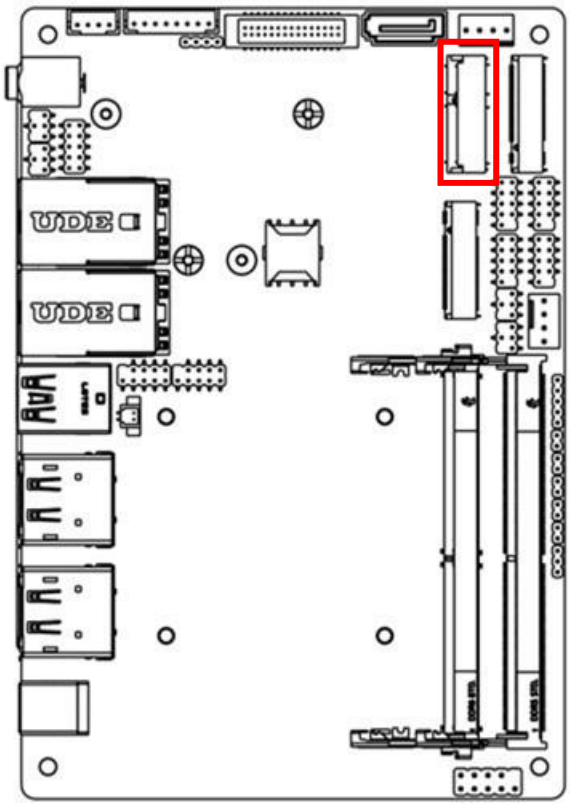
Note: Standard specifications.

(20) M.2 2242/2280 KEY M Socket (M2E2)



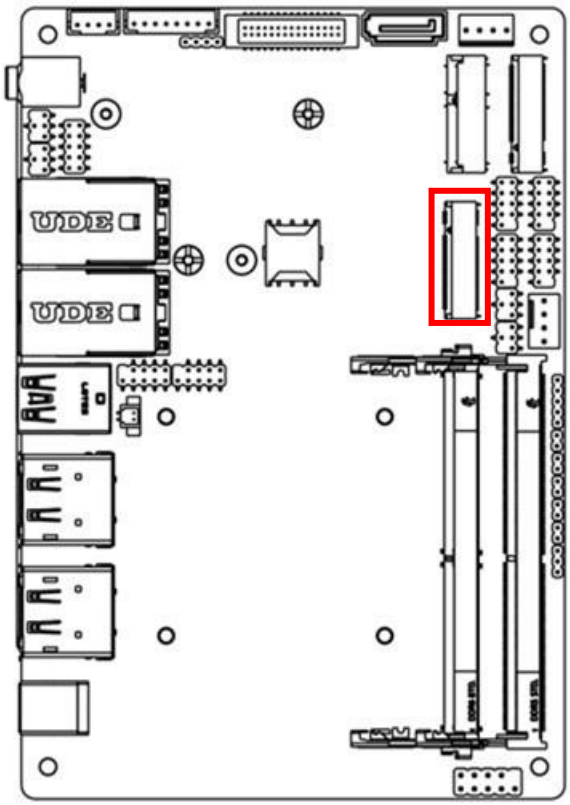
Note: Standard specifications.

(21) M.2 2230 KEY E Socket (M2E1)



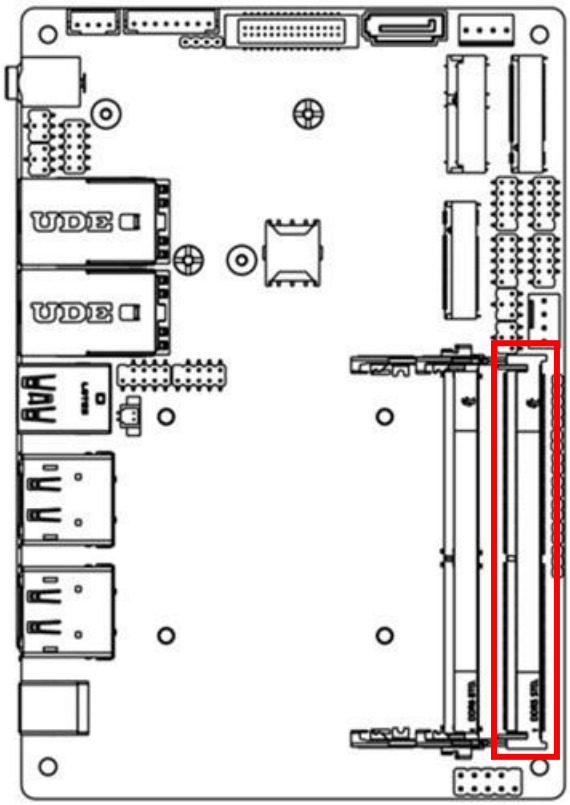
Note: Standard specifications.

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



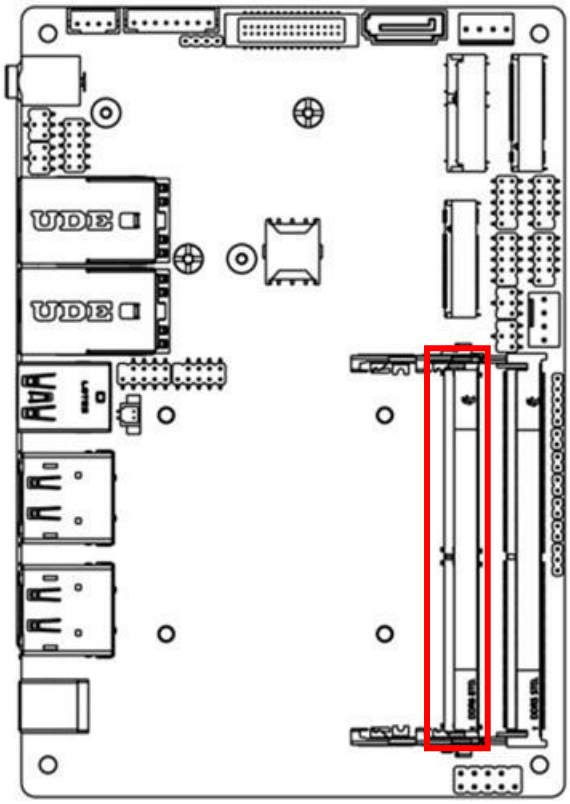
Note: Standard specifications.

(23) DDR5 SODIMM Socket Up (SODIMM1)



Note: Standard specifications.

(24) 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 Ports from	UL1(Down)/UL2(Down)	5V	1.5A
	USB2	5V	1.5A
	TCP1	5V	3A
	FP_USB1/ FP_USB 2	5V	1.0A
COM1		5V/12V(via JPCOM1)	0.5A
COM2		5V/12V(via JPCOM2)	0.5A
SATAPWR1		5V	1.0A
JW_FP1		5V	1A
JLANLED1		3.3V	0.3A

Chapter 3 Quick Installation Manual

Notice!	The photos in this file are for illustration purpose only. The model may not be the latest version. Please refer to the product you purchased for actual specification.

3-1 Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect the equipment from all AC outlets before cleaning.
   use only a damp cloth for cleaning. Do not use liquid or spray detergents.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
5. Protect the equipment from humidity.
6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
7. Ensure that the voltage is correct before connecting the equipment to a power outlet.
8. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
9. All cautions and warnings on the equipment should be noted.
10. If unused for a long time, disconnect the equipment from the power source to avoid damage from transient overvoltage.
11. Never pour liquid into an opening. This may cause fire or electrical shock.
12. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
13. If one of the following occurs, have the equipment checked by authorized service personnel:

●The power cord or plug is damaged.
●Liquid has penetrated the equipment.
●The equipment has been exposed to moisture.
●The equipment is malfunctioning or does not operate according to the user manual.
●The equipment has been dropped and damaged.
●The equipment shows obvious signs of breakage.

16. Any unverified components may cause unexpected damage. To ensure Correct installation, always use the components (e.g., screws) provided in the accessory box.
17. Batteries are at risk of exploding if incorrectly installed.
    Replace only with the same or equivalent type as recommended by the manufacturer.
    Discard used batteries according to the manufacturer's instructions.
18. Always disconnect the power cord from the chassis before manually handling the hardware.
    Do not implement connections or configuration changes while the device is powered on.

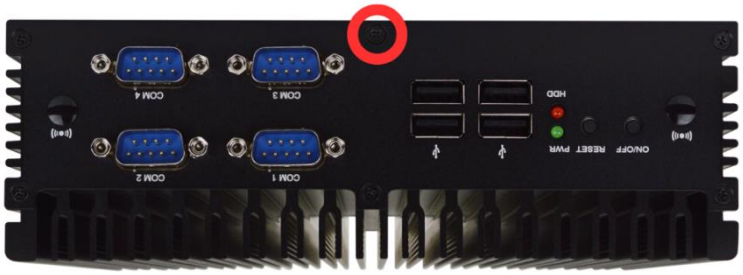
Sudden power surges may damage sensitive electronic components.

19.  **CAUTION OF HIGH HEAT FROM TOP COVER!!!**

In working mode, the **B382FRPU1** is capable of operating at an ambient temperature of up to 60 °C. In such cases, the temperature of the top cover may reach a high value. Under such a condition, accidental contact with the B382FRPU1 needs to be avoided. External surfaces do not need to be touched to operate the equipment. If touching cannot be avoided, please wear protective gloves.

3-2 Dissemble the Chassis

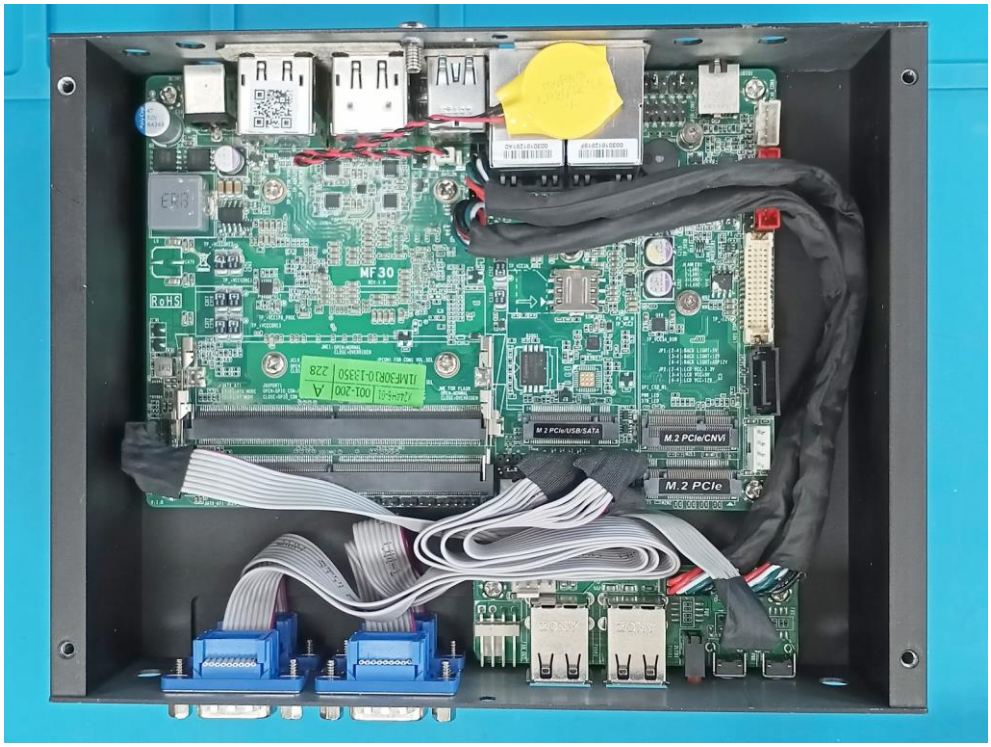
1. Locate the screws at the spots marked on this side of the system and unscrew them one by one.



2. Remove the marked screw on the front IO panel.

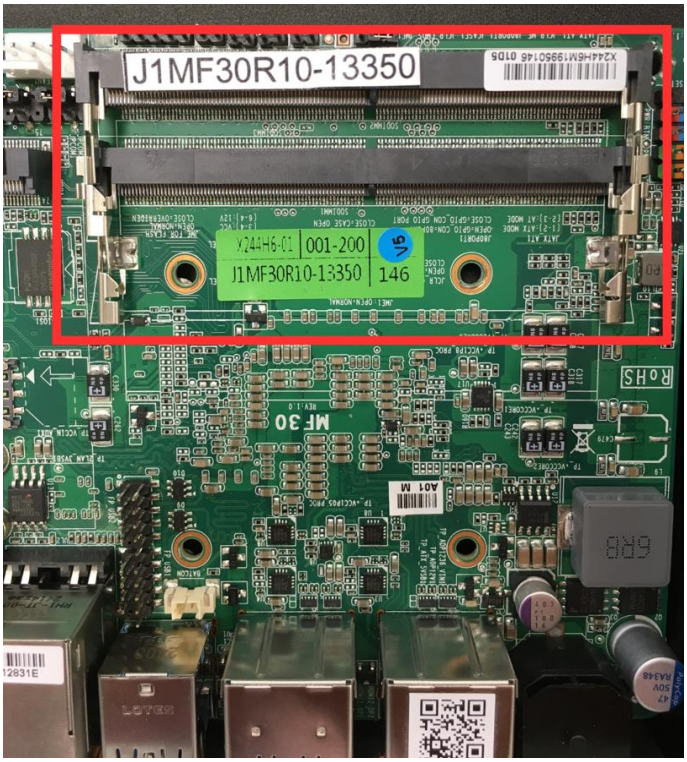
3. Remove the marked screw on the rear IO panel.

4. Lift the cover up to open the chassis.

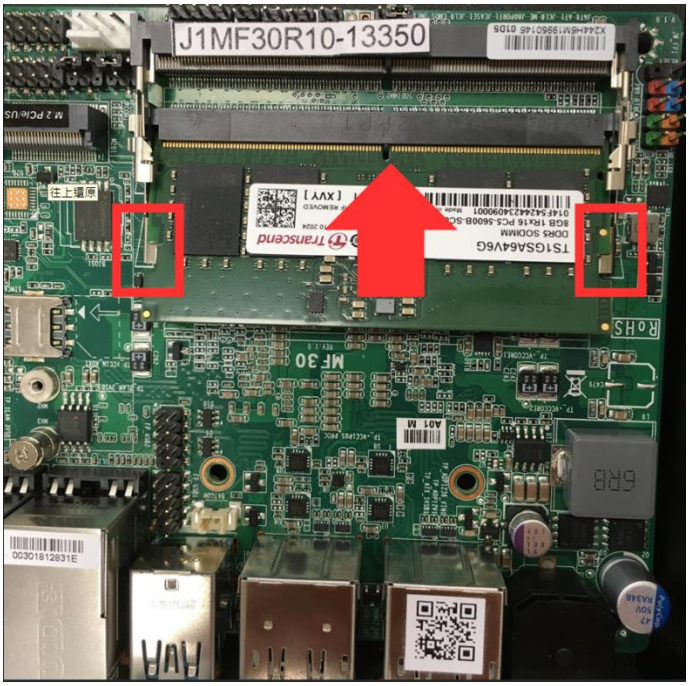


5. The overview of the internal structure of the system with HDD tray pre-installed.

3-3 To Install SO-DIMM to the board

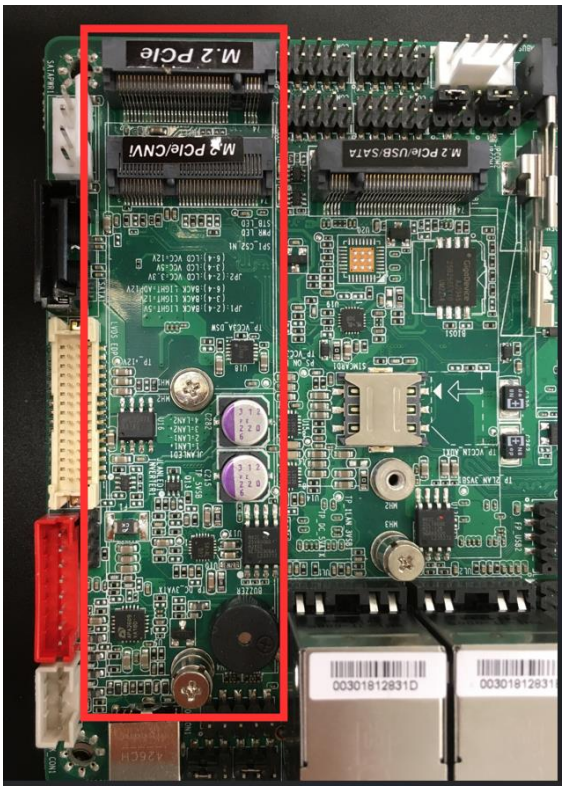


1. Locate the SO-DIMM memory slot on the board.



2. Insert the gold-figure side of the slot on the board compatible SO-DIMM into the slot at 30 degrees and press down. The eject tab will lock it if installed correctly. Press down to secure the SO-DIMM to the slot. The eject tabs will lock automatically if installing direction is correct.

3-4 To Install M.2 M-Key (2280) PCIe Card



1. Locate the M.2 M-Key PCIe (2280) slot on the board. Prepare compatible M.2 M-Key PCIe (2280) card.

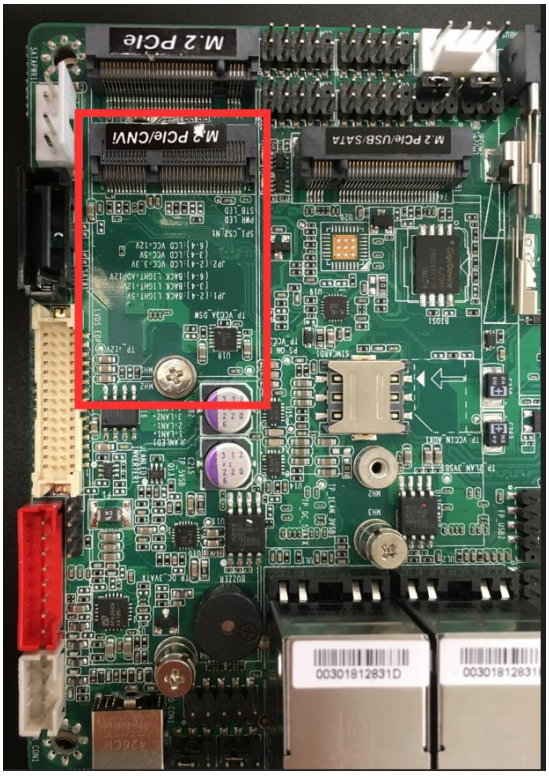
2. To install compatible card, please remove the screw in the marked spot at first.

3. Insert compatible M.2 PCIe (2280) card into the slot. See to it that the golden-finger side should be fully plugged into the slot.

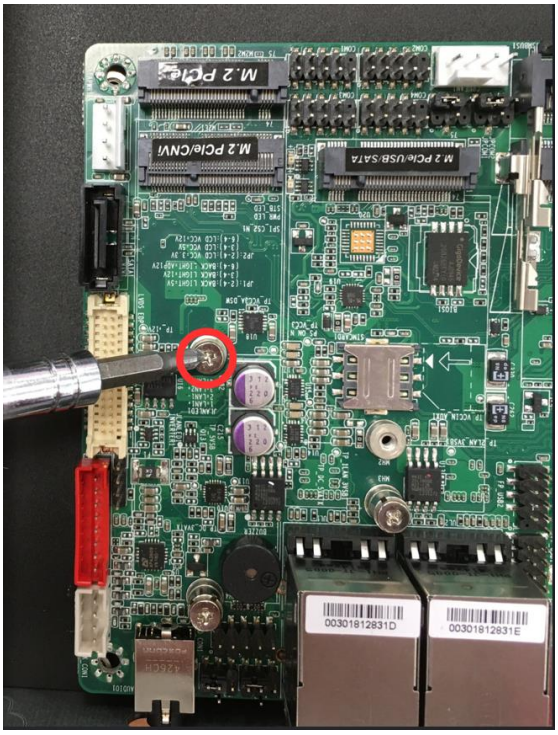
4. Tighten up the screw removed before to the marked spot to secure the card.

Note: *The screw post and nut fixed at location MH4 by default for 8cm type-2280 card installation.*

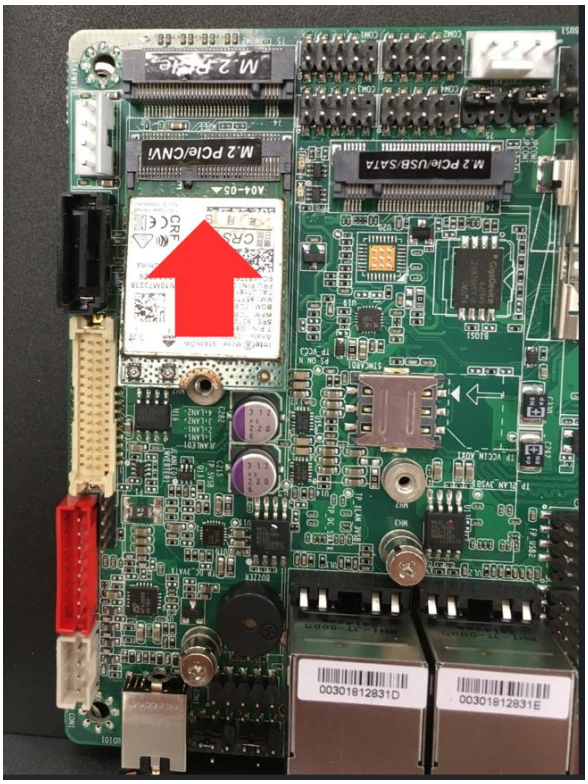
3-5 To Install M.2 E-Key (2230) USB 2.0/PCIe Card



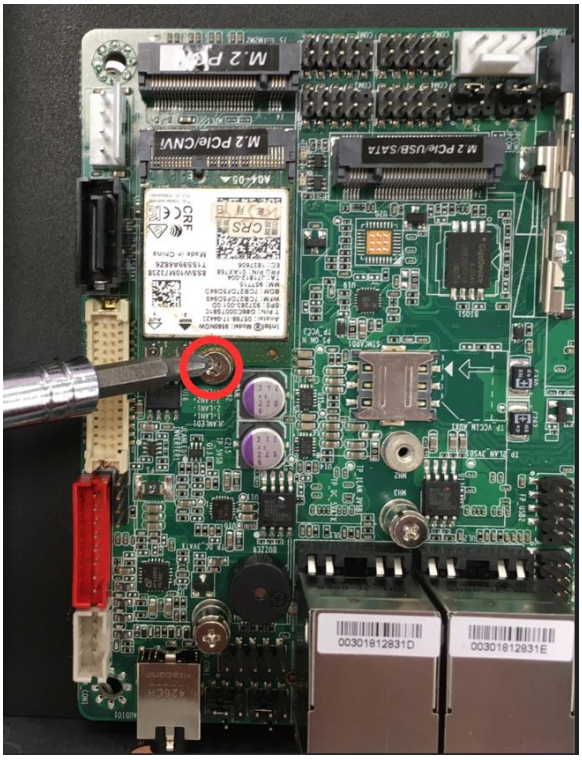
1. Locate the M.2 E-Key PCIe (2230) slot on the board. Prepare compatible M.2 PCIe, type -2230 card.



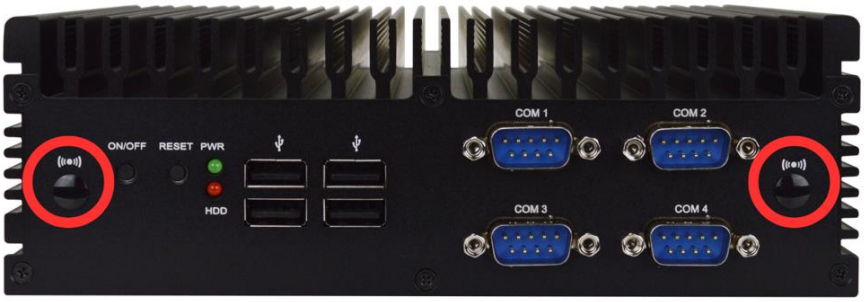
2. Remove the marked screw (MH2) and use it to lock compatible card to the slot in later installation.



3. Insert the gold-figure side of the compatible card into the slot and press down. See to it that the golden-finger side should be fully plugged into the slot.



4. Secure the card to the board by tightening up the screw to the marked spot.



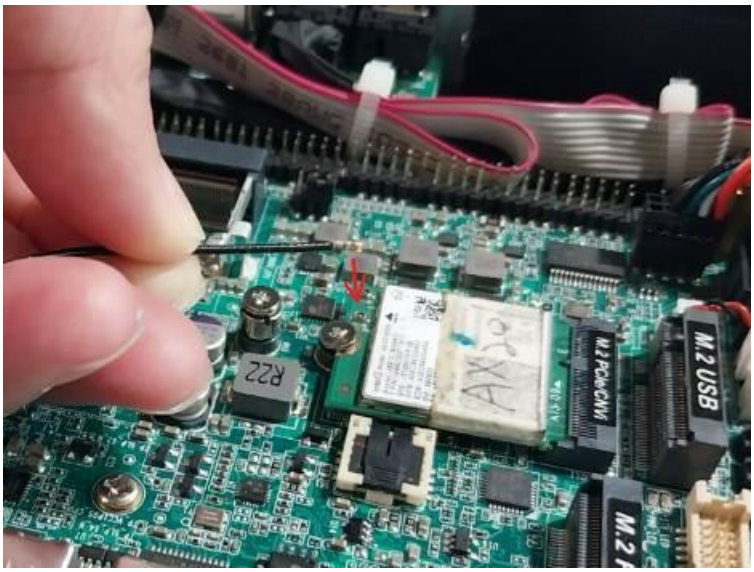
5. Locate the reserved antenna holes on the front and rear panels. Remove the dust-proof plugs at the marked locations on the panels to install the antennas.

6. Push this antenna screw head into antenna hole of the rear panel from the backside of the panel.

6-1 **6-2**

The washer ① & the hexagonal screw nut ②. Push the washer ① through the antenna head.

7. And then lock the antenna screw head to the front side of the rear panel with the hexagonal screw nut② and tighten it up.



8. Press the metal hat on the end of the antenna string to corresponding antenna slot on the card as shown.

9. Repeat step 6 to 8, to finish installation of the other antenna.

Notice: *When all necessary installations are finished, please make sure that all cables unplugged before installations are connected to their original locations before restoring the back cover to the chassis and screws on the front panel/back panel/top cover locked to its original locations* ***(Refer to Part I)****. See to it that the cables inside are not blocked or pressed.*

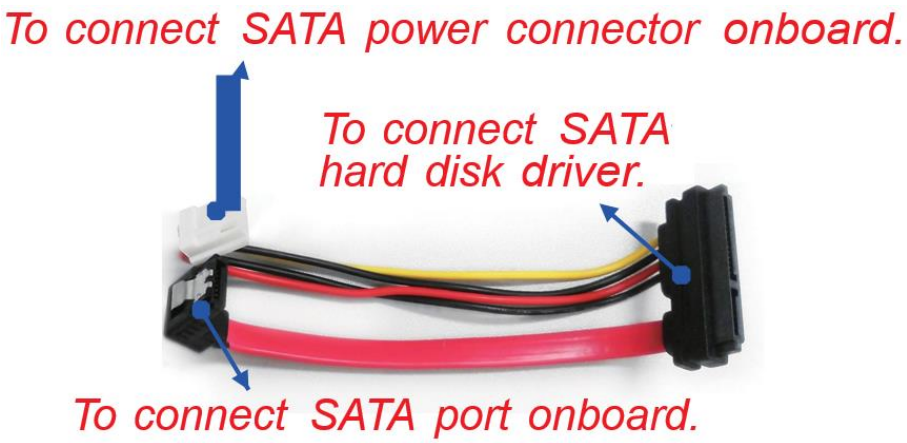
3-6 To Install Hard Disk

1. Find the top cover removed from the chassis (the cover already has HDD racks installed). Push the HDD between the racks with the side up as the photo shows. Pay attention to the direction of the golden figure. Then Adjust the HDD till the screw holes on both side of HDD matched with those in the HDD rack.

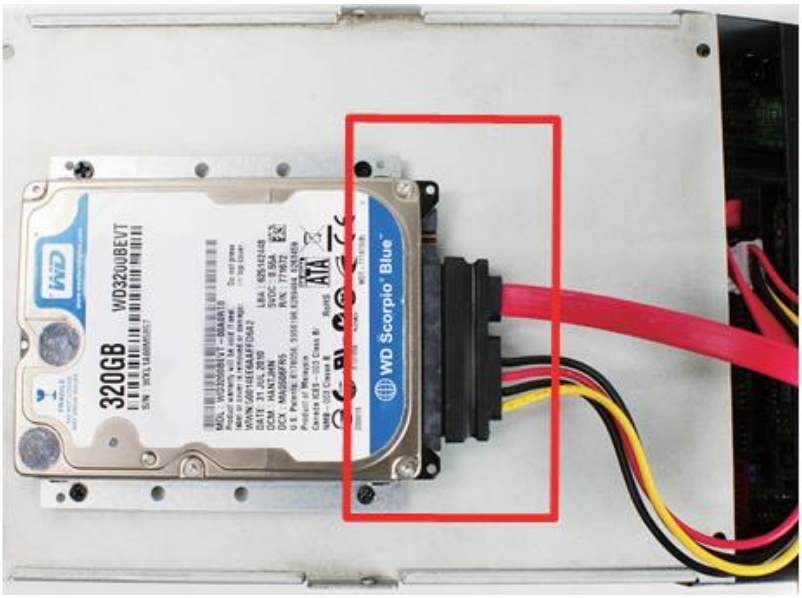
2. There should be a space between the HDD and the cover for successful installation, as the photo shows.

3. Lock the SATA hard disk to one of the racks by tightening the screws in the marked position.

4. Lock the SATA hard disk to the other rack by tightening the screws in the marked position.



5. Compatible SATA cable for the system.



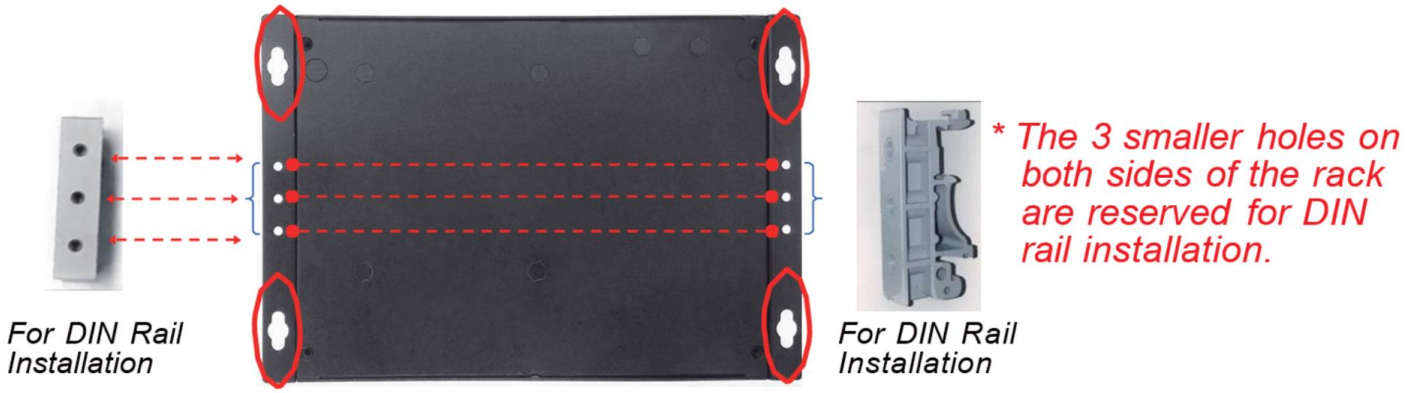
6. Plug this side of the cable to SATA power-in connector and SATA connector of the hard disk

7. Plug the other side cable to the power connector and SATA port connector on the board.

8. Put the cover to the original SATA place and tighten up the screws previously removed(refer to part I).

3-7 To Wall Mount the system

1. Install wall mount rack to the system by tightening two screws in the marked position.Then lock the other two screws on the other side in the same way..



2. Wall mount the system by tightening 4 screws in the marked positions on both sides of the wall racks. See to it that the three smaller screw hole on one installed rack should be parallel to those on the other racks; otherwise please readjust the racks for correct installation.

Chapter 4 Introducing BIOS

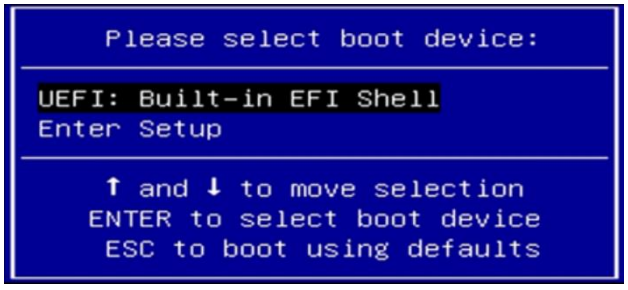
Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download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

4-1 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

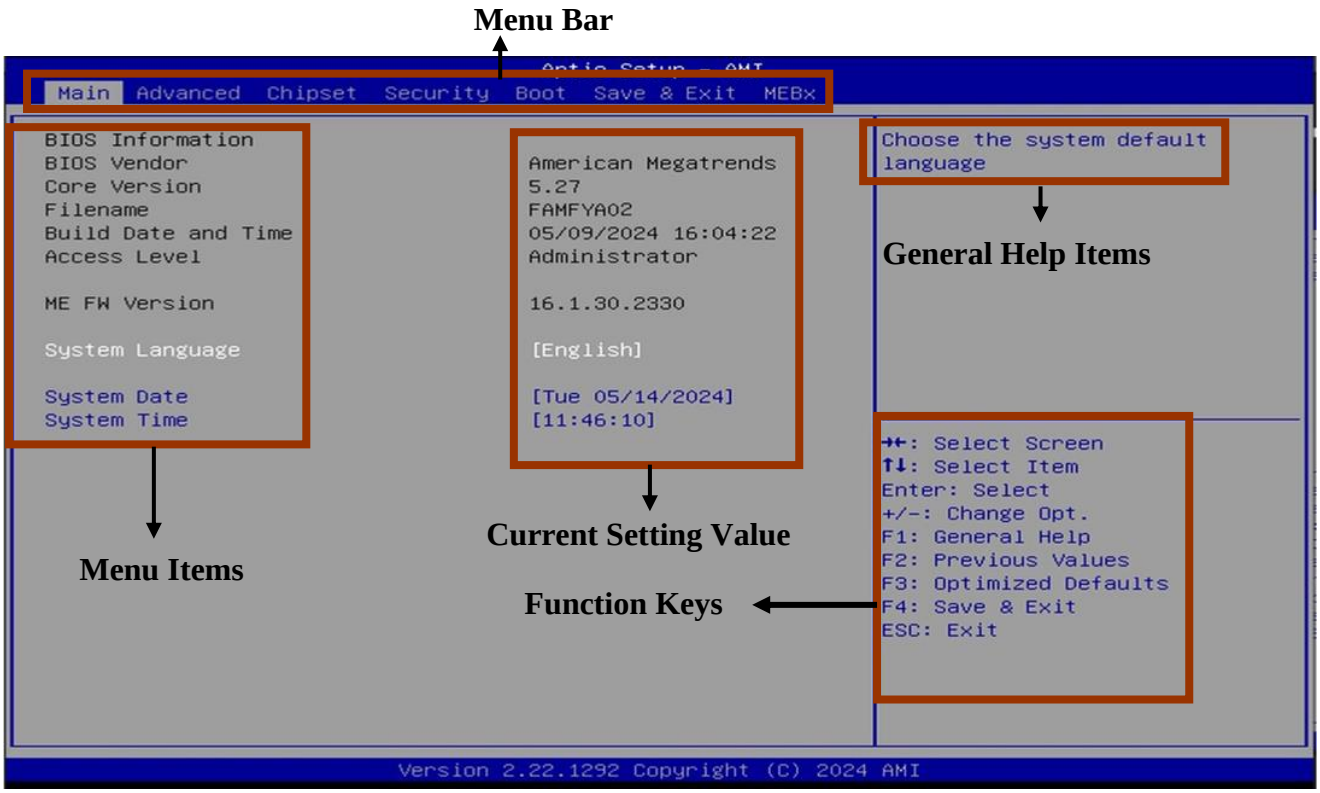
Press **<Del>** to enter Setup; press < **F7**> to enter pop-up Boot menu.



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

4-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



4-3 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.

4-4 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**>.

4-5 Menu Bars

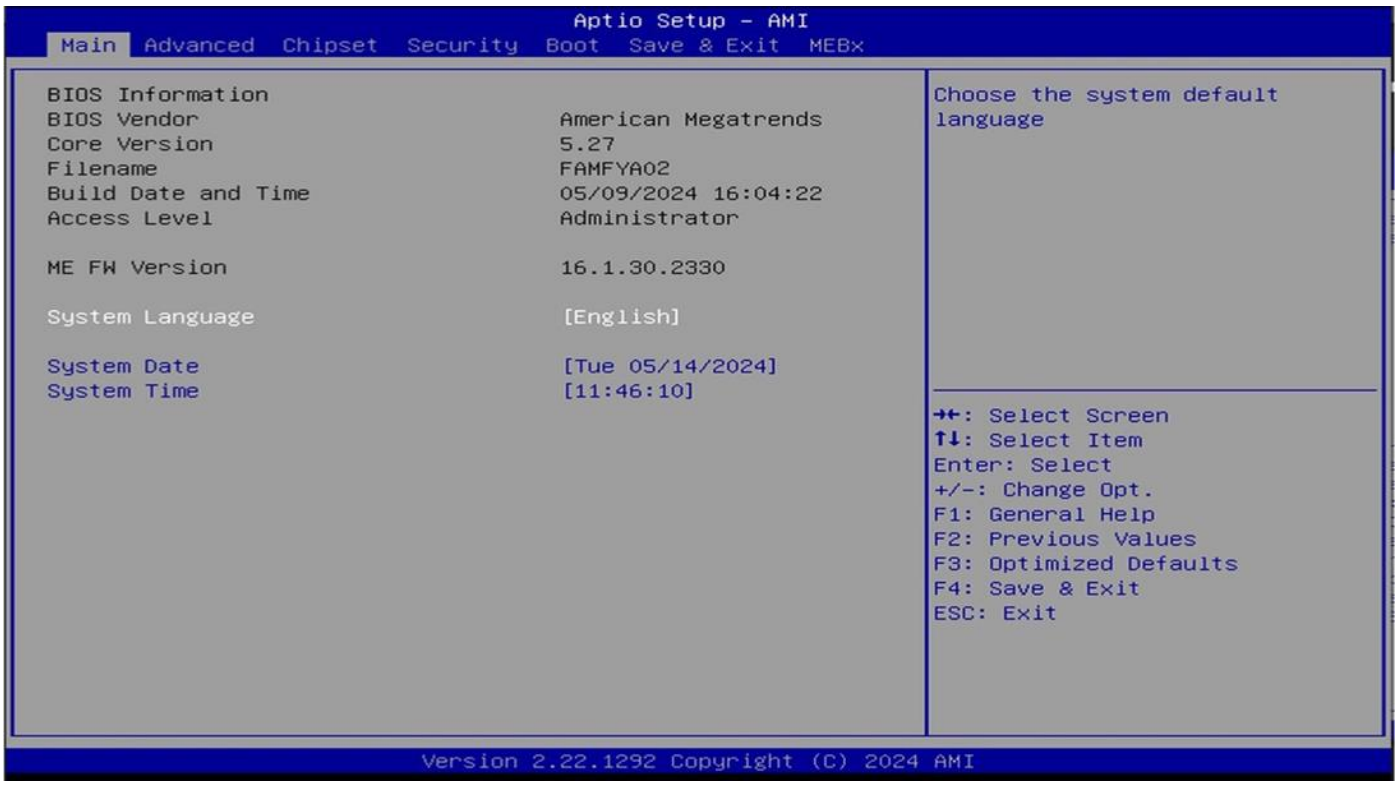
There are six menu bars on top of BIOS screen:

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.

4-6 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.



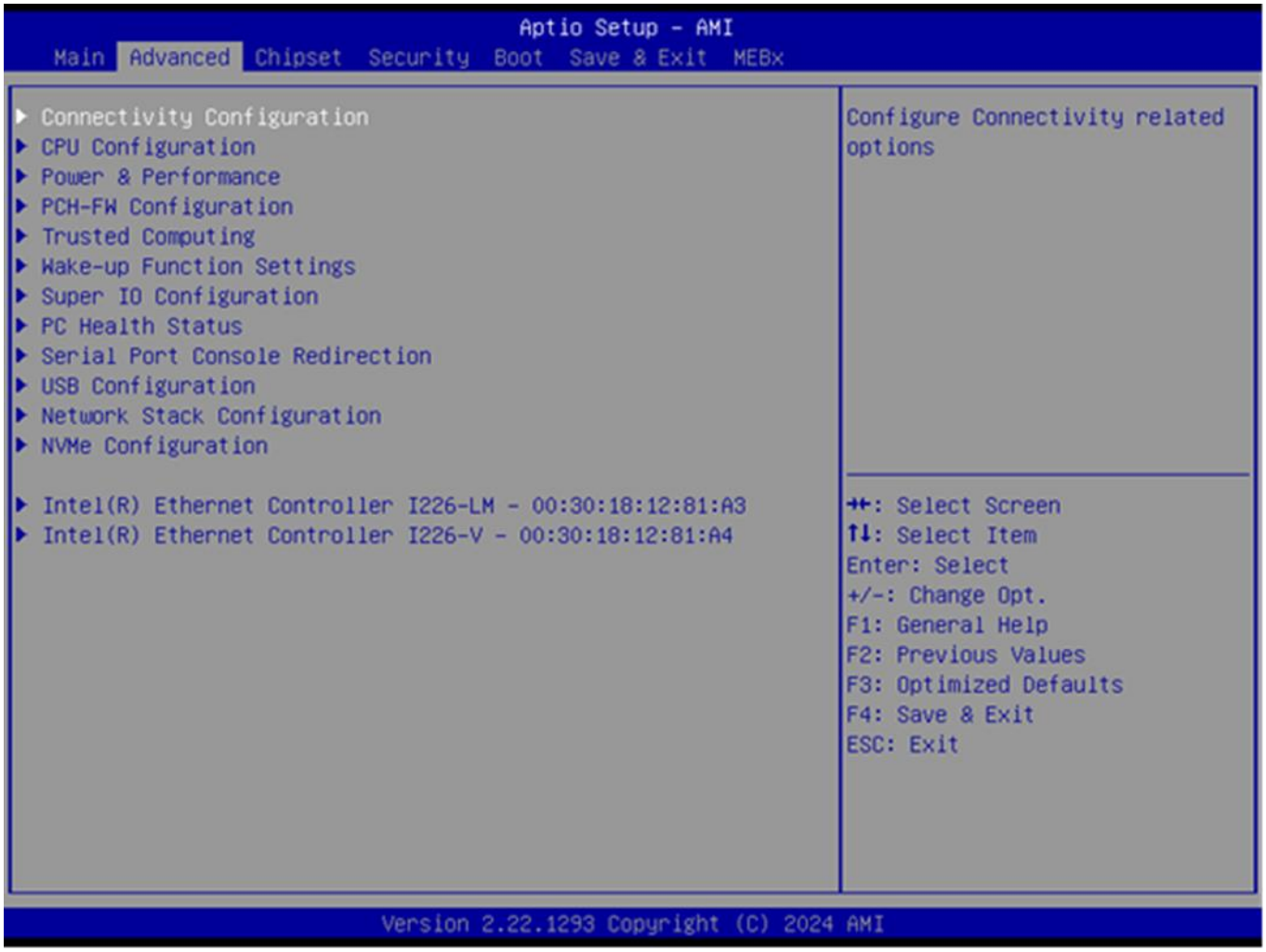
System Date

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

System Time

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

4-7 Advanced Menu



- **Connectivity Configuration**

  Use this item to configure Connectivity related options. Press [Enter] to make settings for the following sub-items:

  CNVi CRF Present

  CNVi Mode

  This option configures Connectivity.

  CNVi Mode Set the default value to: [Auto Detection]

  The optional settings: [Disabled Integrated]; [Auto Detection].

  [Auto Detection] means that if Discrete solution is discovered it will be enabled by default. Otherwise Integrated solution (CNVi) will be enabled;

  [Disabled Integrated] disables Integrated Solution.

- **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**

Use this item to displays the P-Core information.
Press [Enter] to make settings for the following sub-items:

L1 Date Cache/L1 Instruction Cache/L2 Cache/L3 Cache

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: [Min Non-Turbo Performance]; [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].

- **GT-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].

- **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]

SHA3_256 PCR Bank

Use this item to enable or disable SM3_256 PCR Bank.

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

SHA384 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.***

- **ACPI Settings**

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

ACPI Settings

ACPI Sleep State

Use this item to select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

The optional settings are: [Suspend Disabled]; [S3 (Suspend to RAM)].
ACPI Sleep State Set the default value to: [S3 (Suspend to RAM)].

- **Super IO Configuration**

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

Super IO Configuration

- **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: [Auto]; [IO=3F8h; IRQ=4]; [IO=2F8h; IRQ=3]; [IO=3E8h; IRQ=4]; [IO=2E8h; IRQ=3];

Change Settings Set the default value to: [Auto].

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: [Auto]; [IO=3F8h; IRQ=4]; [IO=2F8h; IRQ=3]; [IO=3E8h; IRQ=4]; [IO=2E8h; IRQ=3];

Change Settings Set the default value to: [Auto].

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: [Auto]; [IO=3F8h; IRQ=10]; [IO=2F8h; IRQ=10]; [IO=3E8h; IRQ=10]; [IO=2E8h; IRQ=10]; [IO=2F0h; IRQ=10]; [IO=2E0h; IRQ=10];

  Change Settings Set the default value to: [Auto].

- **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: [Auto]; [IO=3F8h; IRQ=10]; [IO=2F8h; IRQ=10]; [IO=3E8h; IRQ=10]; [IO=2E8h; IRQ=10]; [IO=2F0h; IRQ=10]; [IO=2E0h; IRQ=10];

  Change Settings Set the default value to: [Auto].

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]

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* ***JCASE1*** *jumper setting for Case Open Detection*); if Pin 1&2 of ***JCASE1*** are short, system will show Case Open Message during POST.

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].

WatchDog Wake-up Timer

Use this item to support WDT Wake-up.

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

WatchDog Wake-up Timer Set the default value to: [Disabled]

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

WatchDog Wake-up Timer Value

User can set a value in the range of [10]~[4095] seconds, or [1]~[4095] minutes.

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

WatchDog Wake-up 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 **JATX_AT1** jumper setting Pin 1&2 of for **ATX Mode** & Pin 2&3 of **AT Mode** Select)

- **Serial Port Console Redirection**

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

COM1

Console Redirection

Console Redirection enable or disable.

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

Console Redirection Set the default value to: [Disabled]

When set as **[Enabled]**, user can make further settings in the '**Console Redirection Settings**' screen:

- **Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

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

Terminal Type

The optional settings: [VT100]; [VT100Plus]; [VT-UTF8]; [ANSI].
[ANSI]: Extended ASCII char set;
[VT100]: ASCII char set;
[VT100Plus]: Extends VT100 to support color, function keys, etc.
[VT-UTF8]: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Terminal Type Set the default value to: [ANSI].

Bits per second

Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

The optional settings: [9600]; [19200]; [38400]; [57600]; [115200].

Bits per second Set the default value to: [115200]

Data Bits

The optional settings: [7]; [8].

Data Bits Set the default value to: [8].

Parity

A parity bit can be sent with the data bits to detect some transmission errors.
The optional settings: [None]; [Even]; [Odd]; [Mark]; [Space].
[Even]: parity bit is 0 if the num of 1's in the data bits is even;
[Odd]: parity bit is 0 if num of 1's in the data bits is odd;
[Mark]: parity bit is always 1;
[Space]: parity bit is always 0;
Parity Set the default value to: [None].
[Mark] and **[Space]**: parity do not allow for error detection. They can be used as an additional data bit.

Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.
The optional settings: [1]; [2].
Stop Bits Set the default value to: [1]

Flow Control

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.
The optional settings: [None]; [Hardware RTS/CTS].
Flow Control Set the default value to: [None].

VT-UTF8 Combo Key Support

Use this item to enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.
The optional settings: [Disabled]; [Enabled].
VT-UTF8 Combo Key Support Set the default value to: [Enabled]

Recorder Mode

With this mode enabled only text will be sent. This is to capture Terminal data.
The optional settings: [Disabled]; [Enabled].
Recorder Mode Set the default value to: [Disabled].

Resolution 100x31

Use this item to enable or disable extended terminal resolution.
The optional settings: [Disabled]; [Enabled].

Resolution 100x31 Set the default value to: [Disabled].

Putty KeyPad

Use this item to select FunctionKey and KeyPad on Putty.

The optional settings: [VT100]; [LINUX]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

Putty KeyPad Set the default value to: [VT100].

- **Legacy Console Redirection Settings**

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

  Redirection COM Port

  Use this item to select a COM port to display redirection of Legacy OS and Legacy OPROM Messages

  The optional settings: [COM1].

  Redirection COM Port Set the default value to: [COM1].

  Resolution

  Use this item to on legacy OS, the number of rows and columns supported redirection

  The optional settings: [80x24]; [80x25].

  Resolution Set the default value to: [80x24].

  Redirect After POST

  When bootloader is selected, then legacy console redirection is disabled before booting to legacy OS. When always enable is selected, the legacy console redirection is enabled for legacy OS. Default setting for this option is set to always enable.

  The optional settings: [Always Enable]; [BootLoader].

  Redirect After POST Set the default value to: [Always Enable].

Serial Port for Out-of-Band Management/

Windows Emergency Management Services (EMS)

Console Redirection EMS

Use this item to enable or disable console redirection.

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

Console Redirection EMS Set the default value to: [Disabled].

When set as **[Enabled]**, user can make further settings in '**Console Redirection Settings**' screen:

- **Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

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

Terminal Type EMS

The optional settings: [VT100]; [VT100Plus]; [VT-UTF8]; [ANSI].

[VT-UTF8] is the preferred terminal type for out-of-band management. The next best choice is **[VT100+]** and then **[VT100]**. See above, in Console Redirection Settings page, for more help with Terminal Type/Emulation.

Terminal Type EMS Set the default value to: [VT-UTF8]

Bits per second EMS

Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

The optional settings: [9600]; [19200]; [57600]; [115200].

Bits per second EMS Set the default value to: [115200].

Flow Control EMS

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a “stop” signal can be sent to stop the data flow. Once the buffers are empty, a “start” signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

The optional settings: [None]; [Hardware RTS/CTS]; [Software Xon/Xoff].

Flow Control EMS Set the default value to: [None].

Data Bits EMS

The default setting is: [8].

**This item may or may not show up, depending on different configuration.*

Parity EMS

The default setting is: [None].

**This item may or may not show up, depending on different configuration.*

Stop Bits EMS

The default setting is: [1].

**This item may or may not show up, depending on different configuration.*

- **PC Health Status**

  Press [Enter] to view current hardware health status, make further settings in ‘**SmartFAN Configuration**’ and set value in ‘**Shutdown Temperature**’.

- **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: [Enabled]

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: [2].

- **NVMe Configuration**

Use this item to set NVMe Device options settings.

NVMe Configuration

- **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].

USB Power Gating S4-S5

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 Power Gating S4-S5 Set the default value to: [Enabled].

PCIE Wake-up from S3-S5

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

PCIE Wake-up from S3-S5 Set the default value to: [Disabled].

- **PTT Configuration**

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

PTT Capability/state

TPM Device Selection

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

4-8 Chipset Menu

- **System Agent (SA) Configuration**

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

System Agent (SA) Configuration

- **VMD Setup Menu**

Press [Enter] to view brief information for the working memory module.

- **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].

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

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: [Enabled].

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

Map this Root Port under VMD

Use this item to Map/UnMap this root port to VMD.

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

Map this Root Port under VMD Set the default value to: [Enabled].

Root Port BDF details

GTT Size

Use this item to select GTT Size.

The optional settings are: [2MB]; [4MB]; [8MB].

GTT Size Set the default value to: [8MB].

DVMT Pre-Allocated

Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

The optional settings: [32M]; [64M]; [96M]; [128M]; [160M]; [8M]; [12M]; [16M]; [20M]; [24M]; [28M]; [32M/F7]; [36M]; [40M]; [44M]; [48M]; [52M]; [56M]; [60M].

DVMT Pre-Allocated Set the default value to: [128M].

Active LFP

Use this item to select the Active LFP 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]

- **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:

  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].

Serial Port

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].

System State after Power Failure

Use this item to specify what state to go to when power is re-applied after a power failure.

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

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

4-9 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**

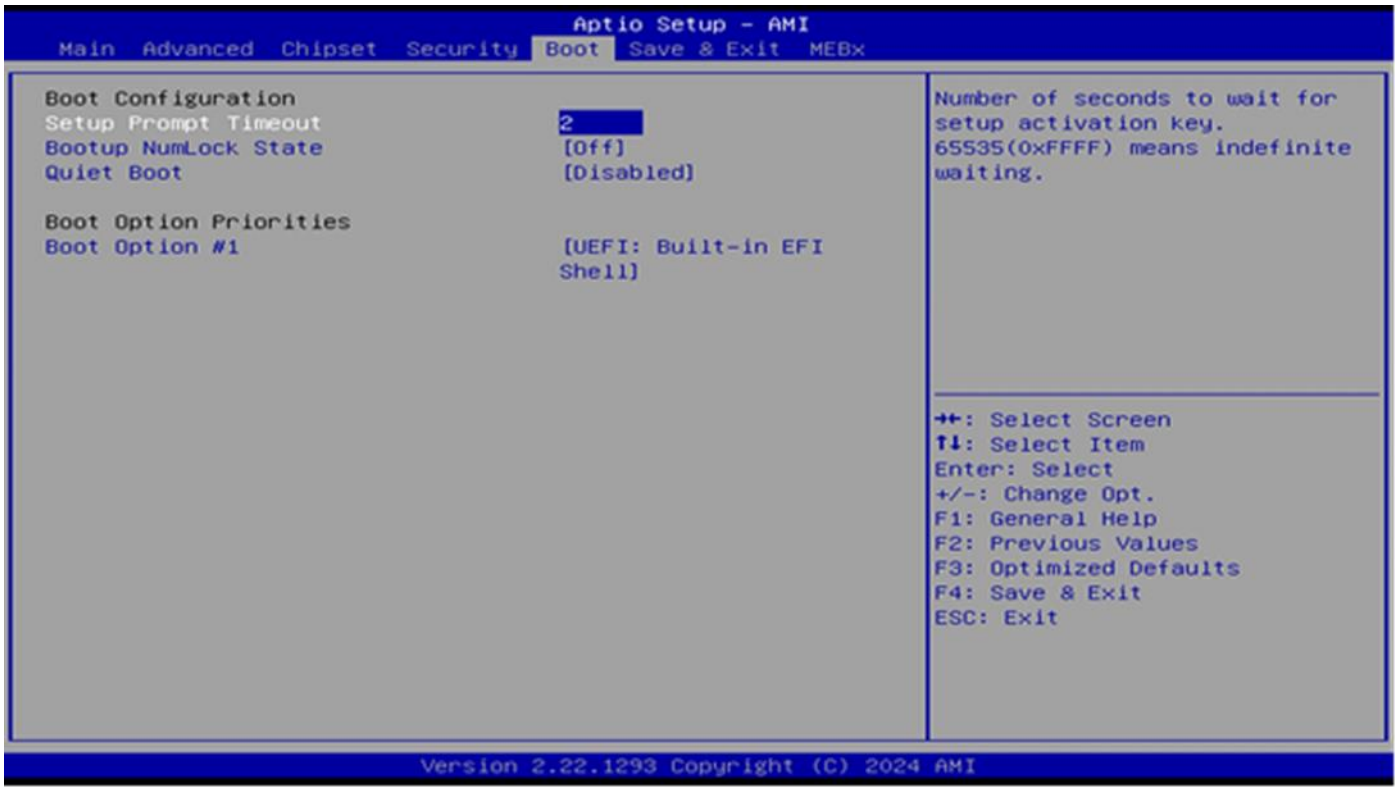
Use this item to save NVRAM content of Secure Boot variables to a file.

- **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

4-10 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

4-11 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

4-12 MEBx

- **Intel(R) ME Password**

  Use this item to MEBx Login

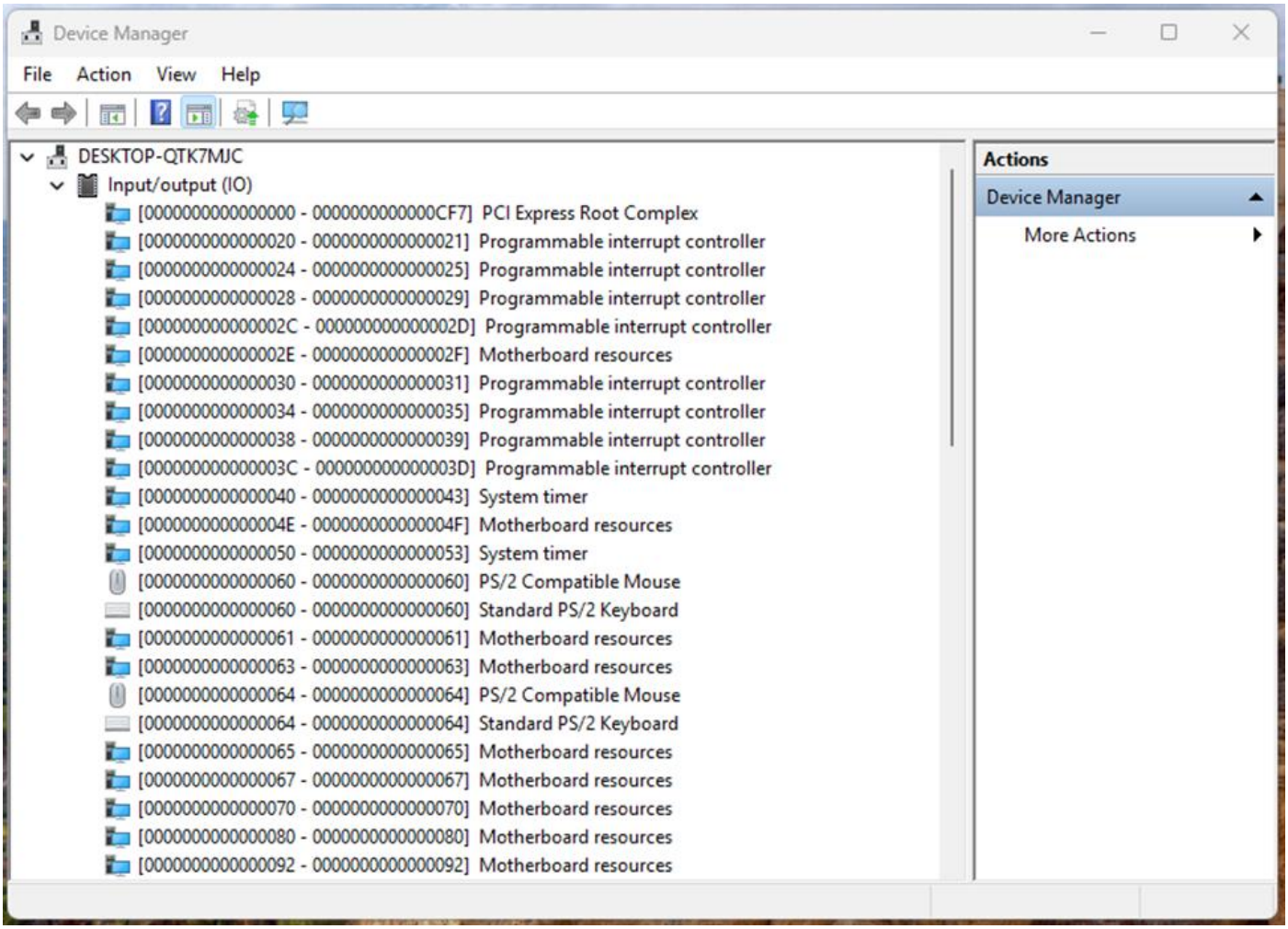
Appendix A

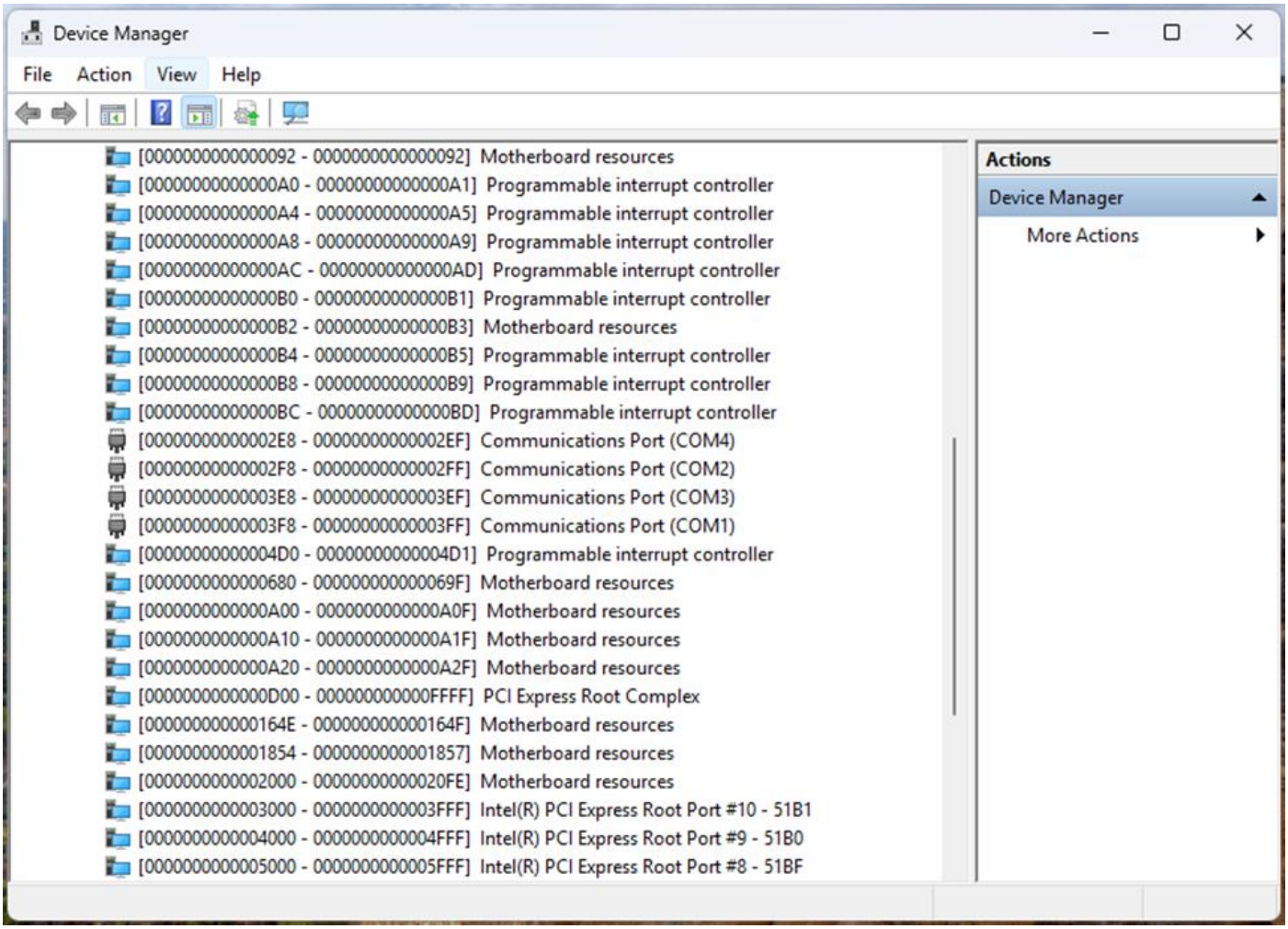
Mating Connectors

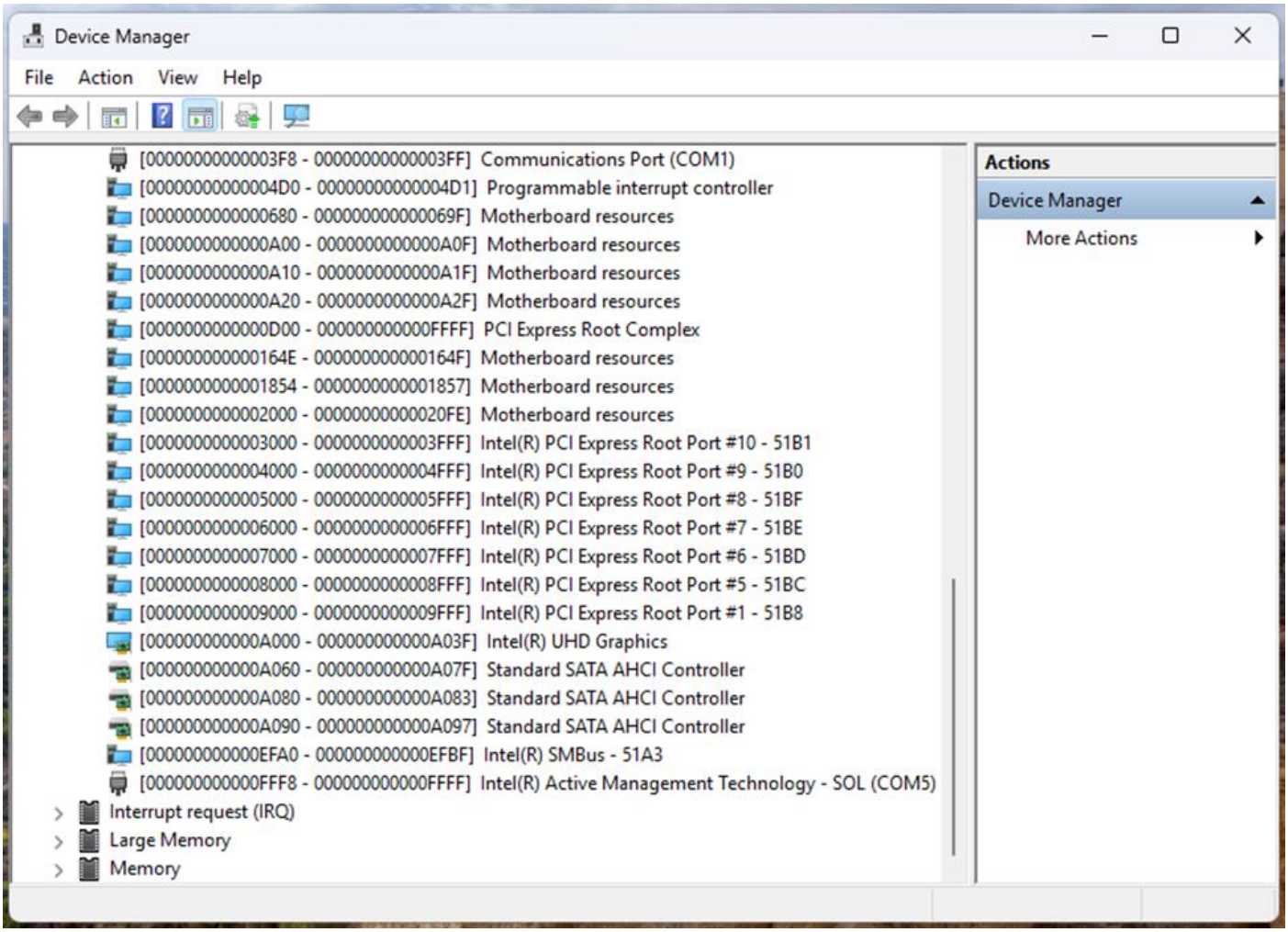
Location Printing	Function	Vendor	Vendor P/N
COM1	RS232 / RS422 / RS485 Serial Port Header	Topt	PH200-205M-GBB00010D
COM2	RS232 / RS422 / RS485 Serial Port Header	Topt	PH200-205M-GBB00010D
COM3	RS232 Serial Port Header	Topt	PH200-205M-GBB00010D
COM4	RS232 Serial Port Header	Topt	PH200-205M-GBB00010D
DCIN3	External 12 ~ 36V Wide-Range input DC Jack connector	SHENG CONG	DJ-D020A
AUDIO1	Audio Line Out /MIC Combo Connector	FOXCONN	JA6341- 2200T5B-7H
FUSB1 & FUSB2	Front Panel USB 2.0 Type-A connector	ZONY	A052010018
HDMI1-DP1 & HDMI2-DP2	DP1.4 Port Connector and HDMI2.0b Port Connector	ZONY	A132110S1-10
TCP1	USB3.2 Gen. 2 Type- C Port Connector	FOXCONN	UT12113-116B2-7H
USB2	USB3.2 Gen. 2 Port Connector	LOTES	AUSB0174-K004C
UL1 & UL2	RJ45 2.5GbE Lan Connector and USB 3.2 Gen2 Connector	UDE	RH1-JT-0005

Appendix B

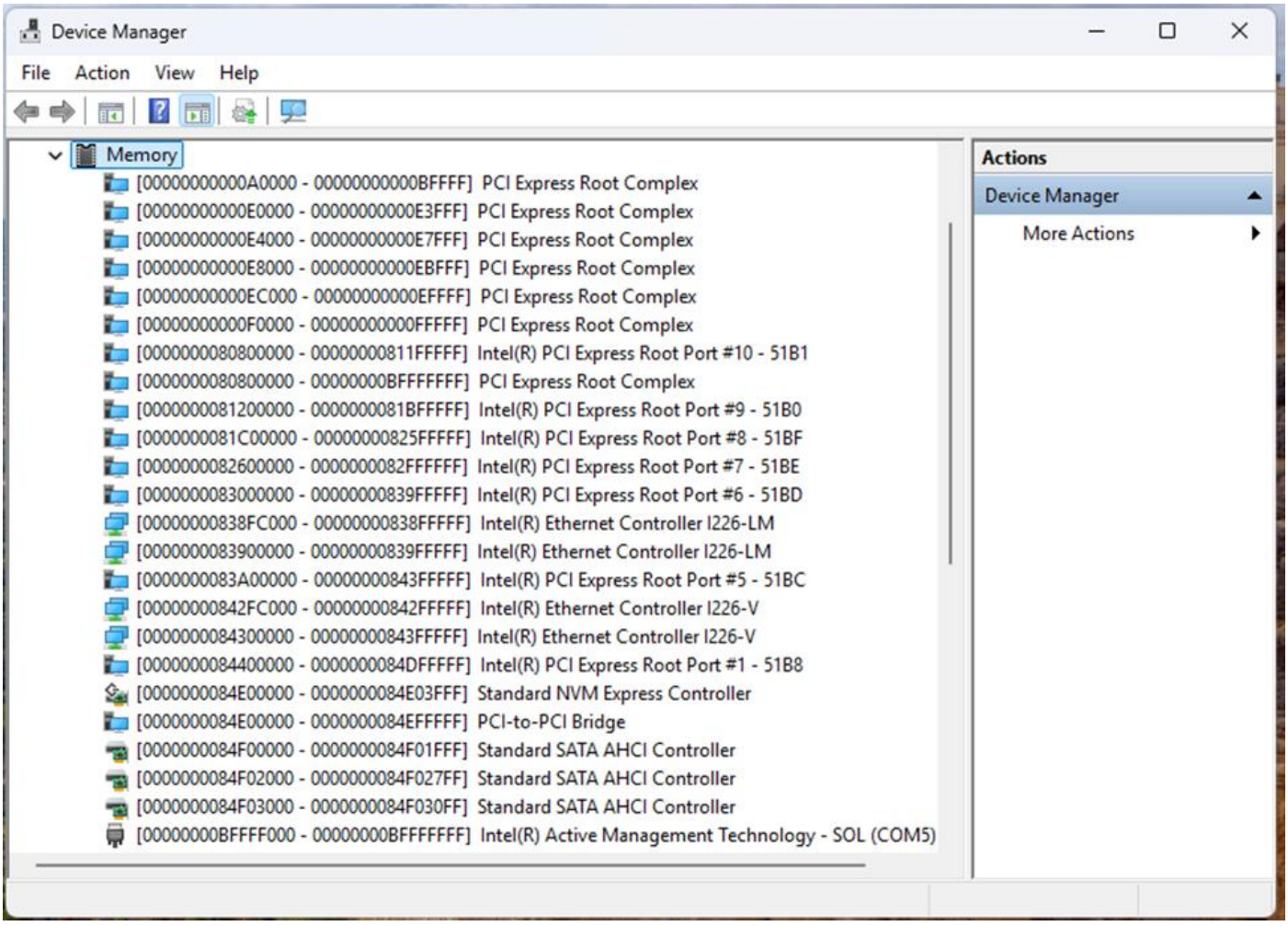
I/O Address Map

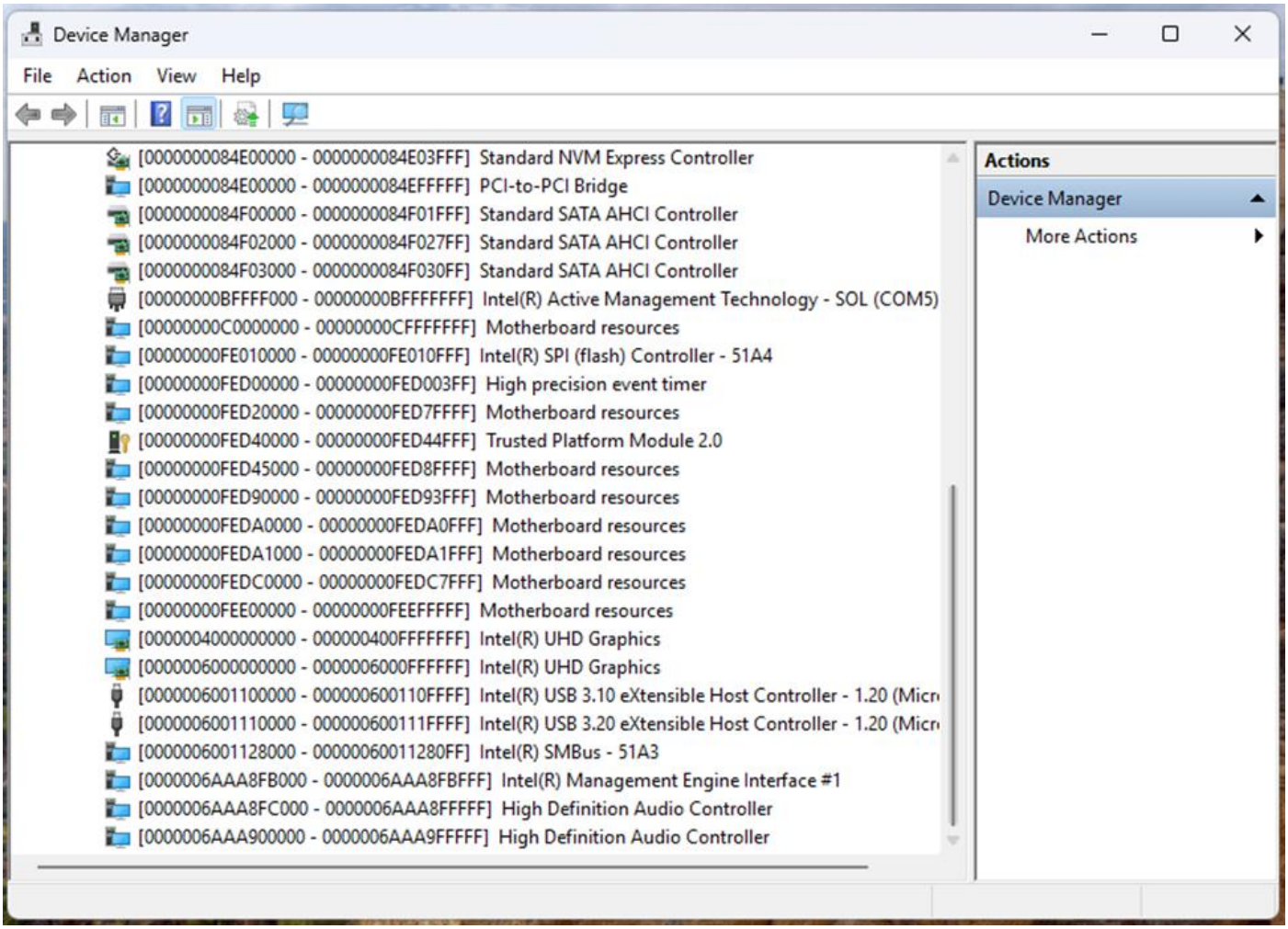



Device Manager
File Action View Help
[0000000000000092 - 0000000000000092] Motherboard resources
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A4 - 00000000000000A5] Programmable interrupt controller
[00000000000000A8 - 00000000000000A9] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B2 - 00000000000000B3] Motherboard resources
[00000000000000B4 - 00000000000000B5] Programmable interrupt controller
[00000000000000B8 - 00000000000000B9] Programmable interrupt controller
[00000000000000BC - 00000000000000BD] Programmable interrupt controller
[00000000000002E8 - 00000000000002EF] Communications Port (COM4)
[00000000000002F8 - 00000000000002FF] Communications Port (COM2)
[00000000000003E8 - 00000000000003EF] Communications Port (COM3)
[00000000000003F8 - 00000000000003FF] Communications Port (COM1)
[00000000000004D0 - 00000000000004D1] Programmable interrupt controller
[0000000000000680 - 000000000000069F] Motherboard resources
[0000000000000A00 - 0000000000000A0F] Motherboard resources
[0000000000000A10 - 0000000000000A1F] Motherboard resources
[0000000000000A20 - 0000000000000A2F] Motherboard resources
[0000000000000D00 - 000000000000FFFF] PCI Express Root Complex
[000000000000164E - 000000000000164F] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000002000 - 00000000000020FE] Motherboard resources
[0000000000003000 - 0000000000003FFF] Intel(R) PCI Express Root Port #10 - 51B1
[0000000000004000 - 0000000000004FFF] Intel(R) PCI Express Root Port #9 - 51B0
[0000000000005000 - 0000000000005FFF] Intel(R) PCI Express Root Port #8 - 51BF
Actions
Device Manager
More Actions

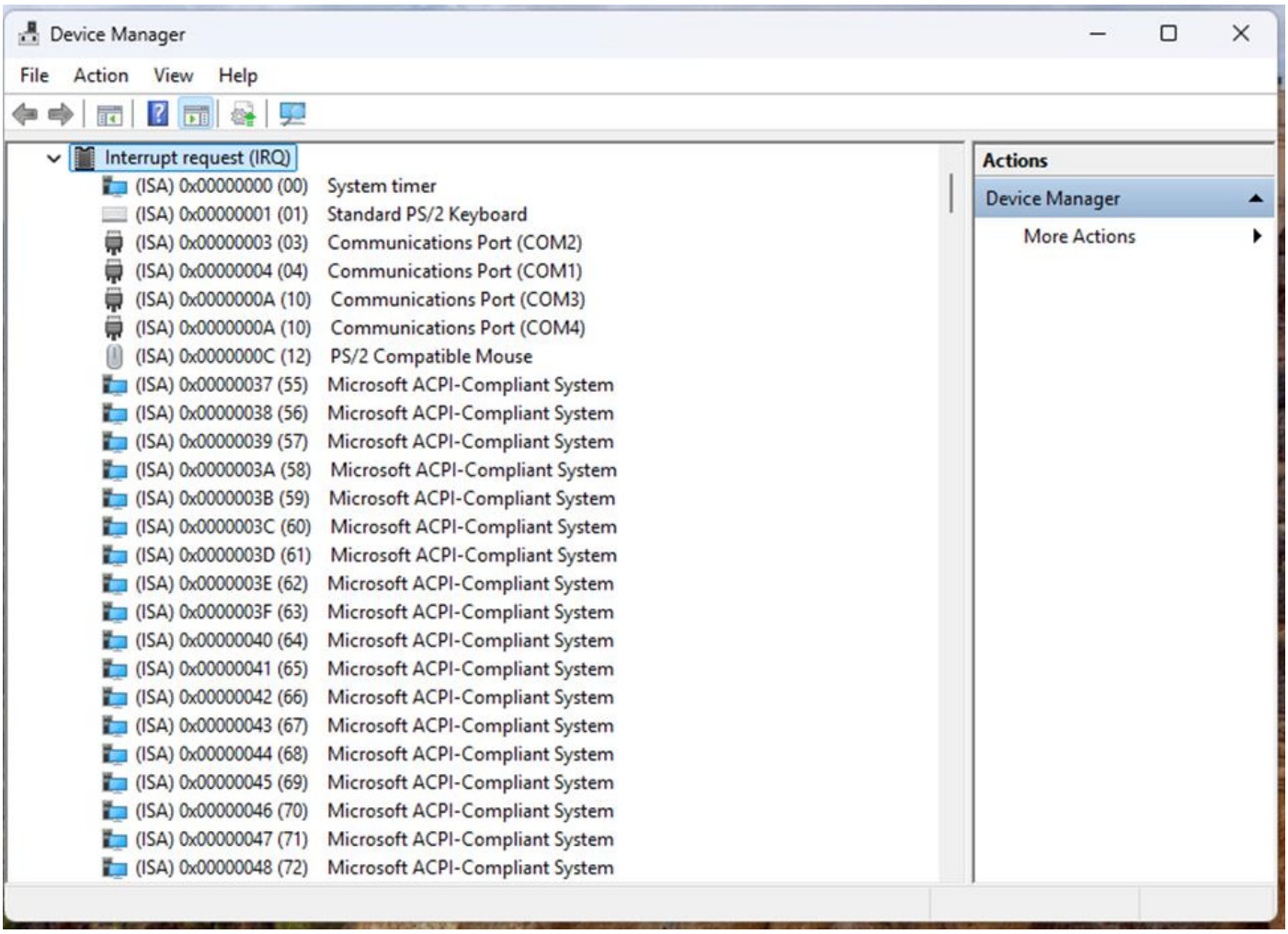

Device Manager
File Action View Help
[00000000000003F8 - 00000000000003FF] Communications Port (COM1)
[00000000000004D0 - 00000000000004D1] Programmable interrupt controller
[0000000000000680 - 000000000000069F] Motherboard resources
[0000000000000A00 - 0000000000000A0F] Motherboard resources
[0000000000000A10 - 0000000000000A1F] Motherboard resources
[0000000000000A20 - 0000000000000A2F] Motherboard resources
[0000000000000D00 - 000000000000FFFF] PCI Express Root Complex
[000000000000164E - 000000000000164F] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[0000000000002000 - 00000000000020FE] Motherboard resources
[0000000000003000 - 0000000000003FFF] Intel(R) PCI Express Root Port #10 - 51B1
[0000000000004000 - 0000000000004FFF] Intel(R) PCI Express Root Port #9 - 51B0
[0000000000005000 - 0000000000005FFF] Intel(R) PCI Express Root Port #8 - 51BF
[0000000000006000 - 0000000000006FFF] Intel(R) PCI Express Root Port #7 - 51BE
[0000000000007000 - 0000000000007FFF] Intel(R) PCI Express Root Port #6 - 51BD
[0000000000008000 - 0000000000008FFF] Intel(R) PCI Express Root Port #5 - 51BC
[0000000000009000 - 0000000000009FFF] Intel(R) PCI Express Root Port #1 - 51B8
[000000000000A000 - 000000000000A03F] Intel(R) UHD Graphics
[000000000000A060 - 000000000000A07F] Standard SATA AHCI Controller
[000000000000A080 - 000000000000A083] Standard SATA AHCI Controller
[000000000000A090 - 000000000000A097] Standard SATA AHCI Controller
[000000000000EFA0 - 000000000000EFBF] Intel(R) SMBus - 51A3
[000000000000FFF8 - 000000000000FFFF] Intel(R) Active Management Technology - SOL (COM5)
Interrupt request (IRQ)
Large Memory
Memory
Actions
Device Manager
More Actions

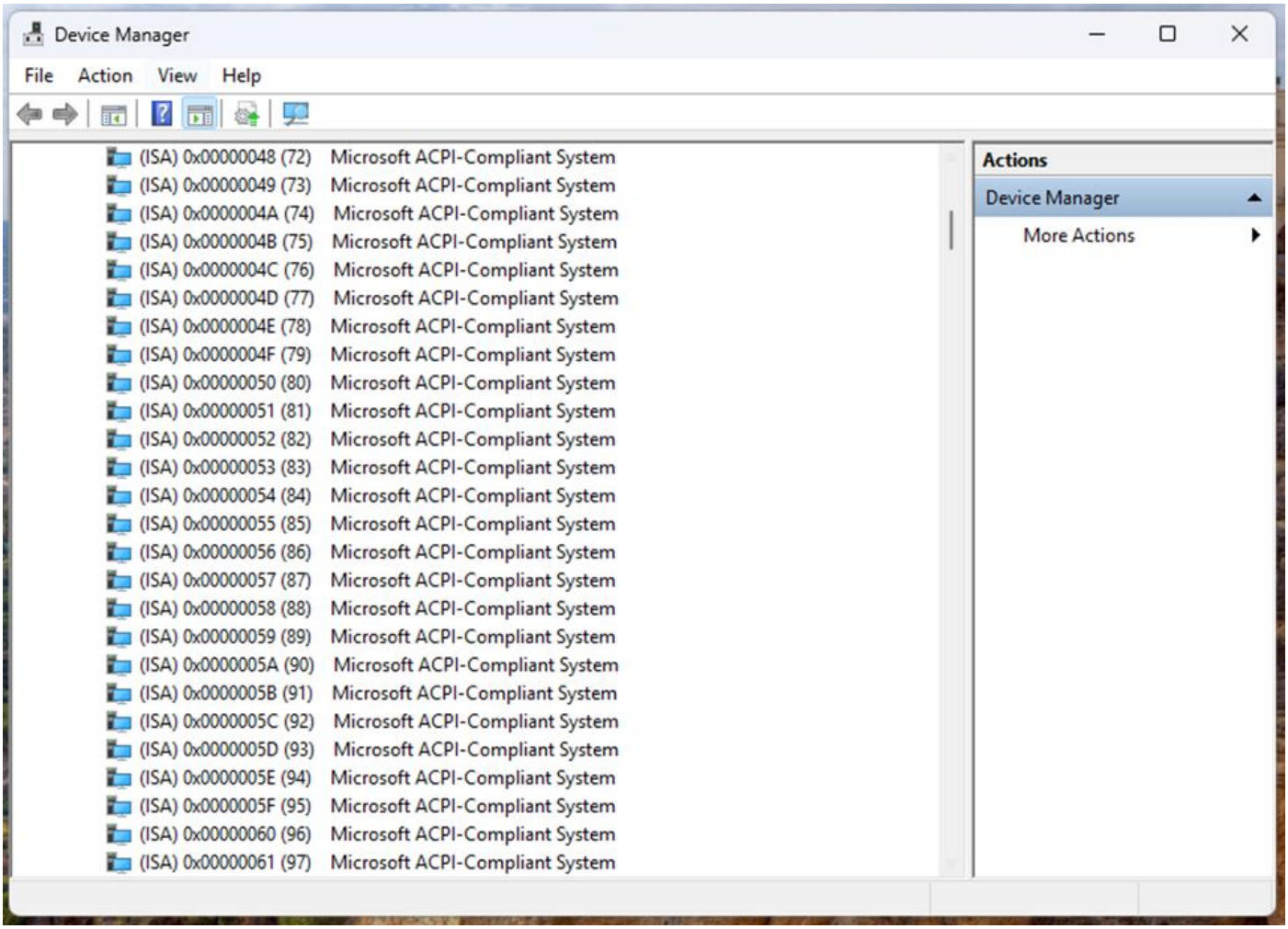
Memory Address Map




Device Manager
File Action View Help
[0000000084E00000 - 0000000084E03FFF] Standard NVM Express Controller
[0000000084E00000 - 0000000084EFFFFF] PCI-to-PCI Bridge
[0000000084F00000 - 0000000084F01FFF] Standard SATA AHCI Controller
[0000000084F02000 - 0000000084F027FF] Standard SATA AHCI Controller
[0000000084F03000 - 0000000084F030FF] Standard SATA AHCI Controller
[00000000BFFFF000 - 00000000BFFFFFFF] Intel(R) Active Management Technology - SOL (COM5)
[00000000C0000000 - 00000000CFFFFFFF] Motherboard resources
[00000000FE010000 - 00000000FE010FFF] Intel(R) SPI (flash) Controller - 51A4
[00000000FED00000 - 00000000FED003FF] High precision event timer
[00000000FED20000 - 00000000FED7FFFF] Motherboard resources
[00000000FED40000 - 00000000FED44FFF] Trusted Platform Module 2.0
[00000000FED45000 - 00000000FED8FFFF] Motherboard resources
[00000000FED90000 - 00000000FED93FFF] Motherboard resources
[00000000FEDA0000 - 00000000FEDA0FFF] Motherboard resources
[00000000FEDA1000 - 00000000FEDA1FFF] Motherboard resources
[00000000FEDC0000 - 00000000FEDC7FFF] Motherboard resources
[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics
[0000006000000000 - 0000006000FFFFFF] Intel(R) UHD Graphics
[0000006001100000 - 000000600110FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Micr
[0000006001110000 - 000000600111FFFF] Intel(R) USB 3.20 eXtensible Host Controller - 1.20 (Micr
[0000006001128000 - 00000060011280FF] Intel(R) SMBus - 51A3
[0000006AAA8FB000 - 0000006AAA8FBFFF] Intel(R) Management Engine Interface #1
[0000006AAA8FC000 - 0000006AAA8FFFFF] High Definition Audio Controller
[0000006AAA900000 - 0000006AAA9FFFFF] High Definition Audio Controller
Actions
Device Manager
More Actions

IRQ Mapping Chart




Device Manager
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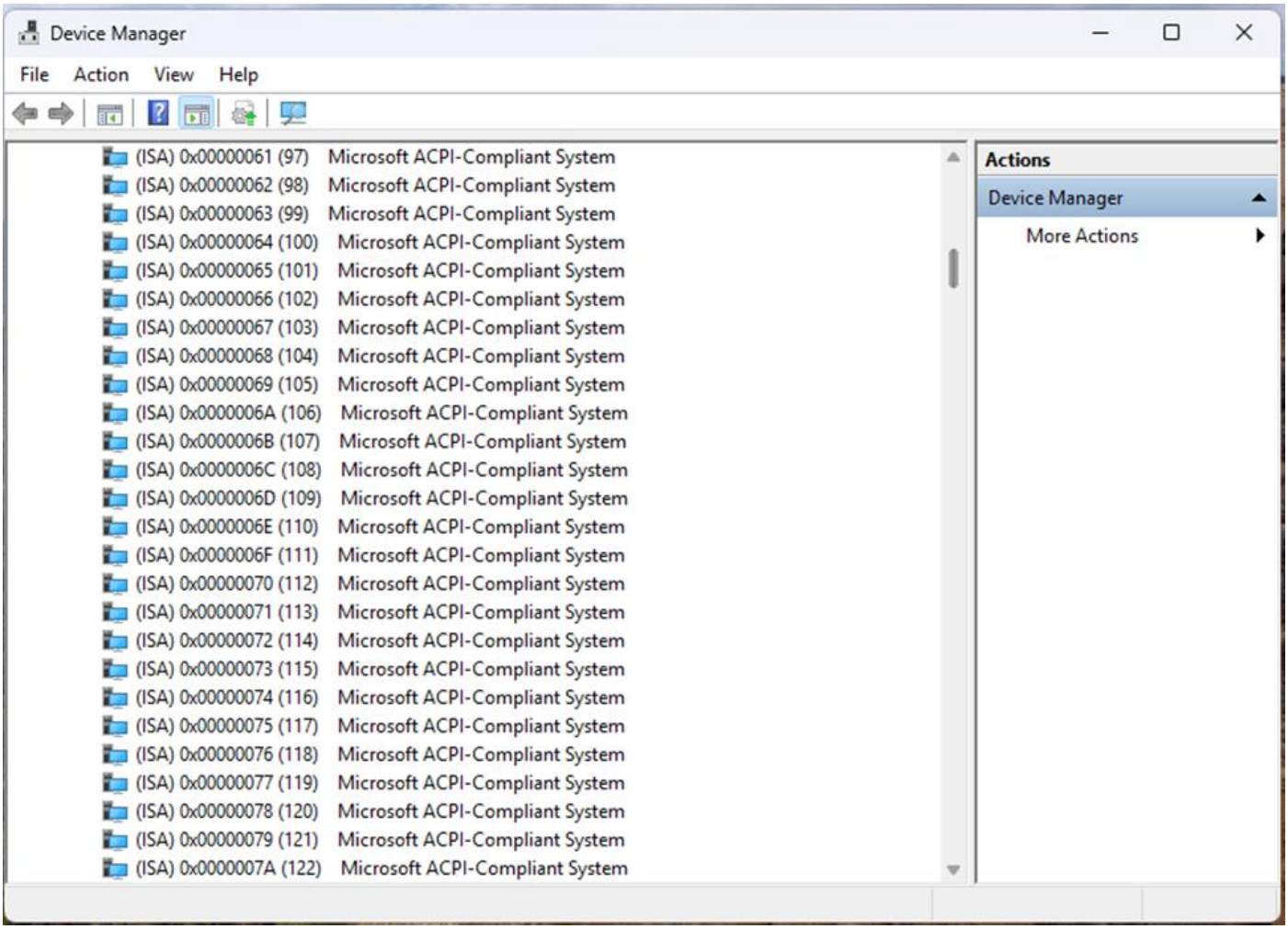
(ISA) 0x0000004A (74) Microsoft ACPI-Compliant System
(ISA) 0x0000004B (75) Microsoft ACPI-Compliant System
(ISA) 0x0000004C (76) Microsoft ACPI-Compliant System
(ISA) 0x0000004D (77) Microsoft ACPI-Compliant System
(ISA) 0x0000004E (78) Microsoft ACPI-Compliant System
(ISA) 0x0000004F (79) Microsoft ACPI-Compliant System
(ISA) 0x00000050 (80) Microsoft ACPI-Compliant System
(ISA) 0x00000051 (81) Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82) Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83) Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84) Microsoft ACPI-Compliant System
(ISA) 0x00000055 (85) Microsoft ACPI-Compliant System
(ISA) 0x00000056 (86) Microsoft ACPI-Compliant System
(ISA) 0x00000057 (87) Microsoft ACPI-Compliant System
(ISA) 0x00000058 (88) Microsoft ACPI-Compliant System
(ISA) 0x00000059 (89) Microsoft ACPI-Compliant System
(ISA) 0x0000005A (90) Microsoft ACPI-Compliant System
(ISA) 0x0000005B (91) Microsoft ACPI-Compliant System
(ISA) 0x0000005C (92) Microsoft ACPI-Compliant System
(ISA) 0x0000005D (93) Microsoft ACPI-Compliant System
(ISA) 0x0000005E (94) Microsoft ACPI-Compliant System
(ISA) 0x0000005F (95) Microsoft ACPI-Compliant System
(ISA) 0x00000060 (96) Microsoft ACPI-Compliant System
(ISA) 0x00000061 (97) Microsoft ACPI-Compliant System
Actions
Device Manager
More Actions


Device Manager
File Action View Help
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(ISA) 0x00000074 (116) Microsoft ACPI-Compliant System
(ISA) 0x00000075 (117) Microsoft ACPI-Compliant System
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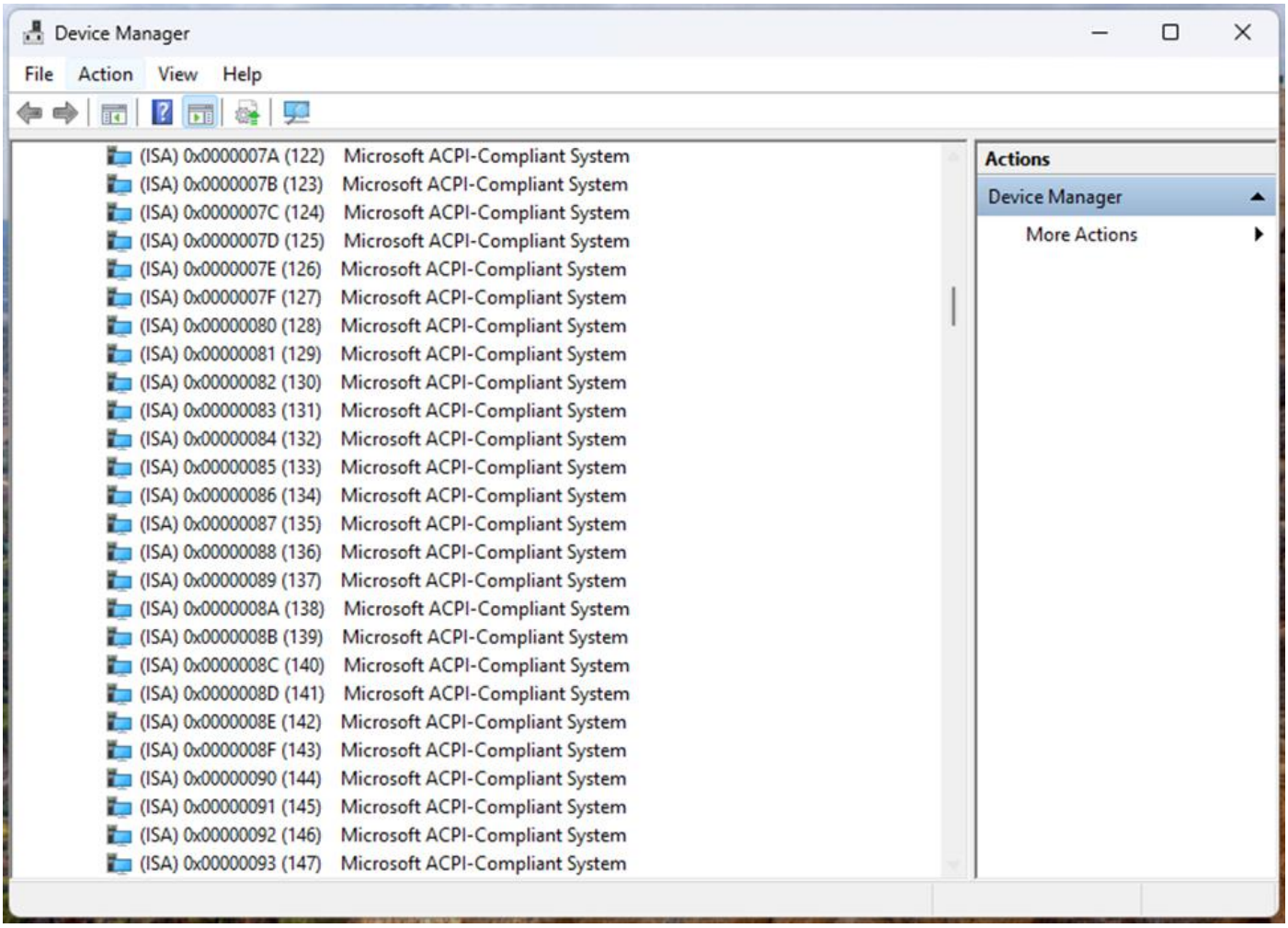
(ISA) 0x00000077 (119) Microsoft ACPI-Compliant System
(ISA) 0x00000078 (120) Microsoft ACPI-Compliant System
(ISA) 0x00000079 (121) Microsoft ACPI-Compliant System
(ISA) 0x0000007A (122) Microsoft ACPI-Compliant System
Actions
Device Manager
More Actions


Device Manager
File
Action
View
Help
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(ISA) 0x0000007D (125) Microsoft ACPI-Compliant System
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(ISA) 0x00000087 (135) Microsoft ACPI-Compliant System
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(ISA) 0x0000008A (138) Microsoft ACPI-Compliant System
(ISA) 0x0000008B (139) Microsoft ACPI-Compliant System
(ISA) 0x0000008C (140) Microsoft ACPI-Compliant System
(ISA) 0x0000008D (141) Microsoft ACPI-Compliant System
(ISA) 0x0000008E (142) Microsoft ACPI-Compliant System
(ISA) 0x0000008F (143) Microsoft ACPI-Compliant System
(ISA) 0x00000090 (144) Microsoft ACPI-Compliant System
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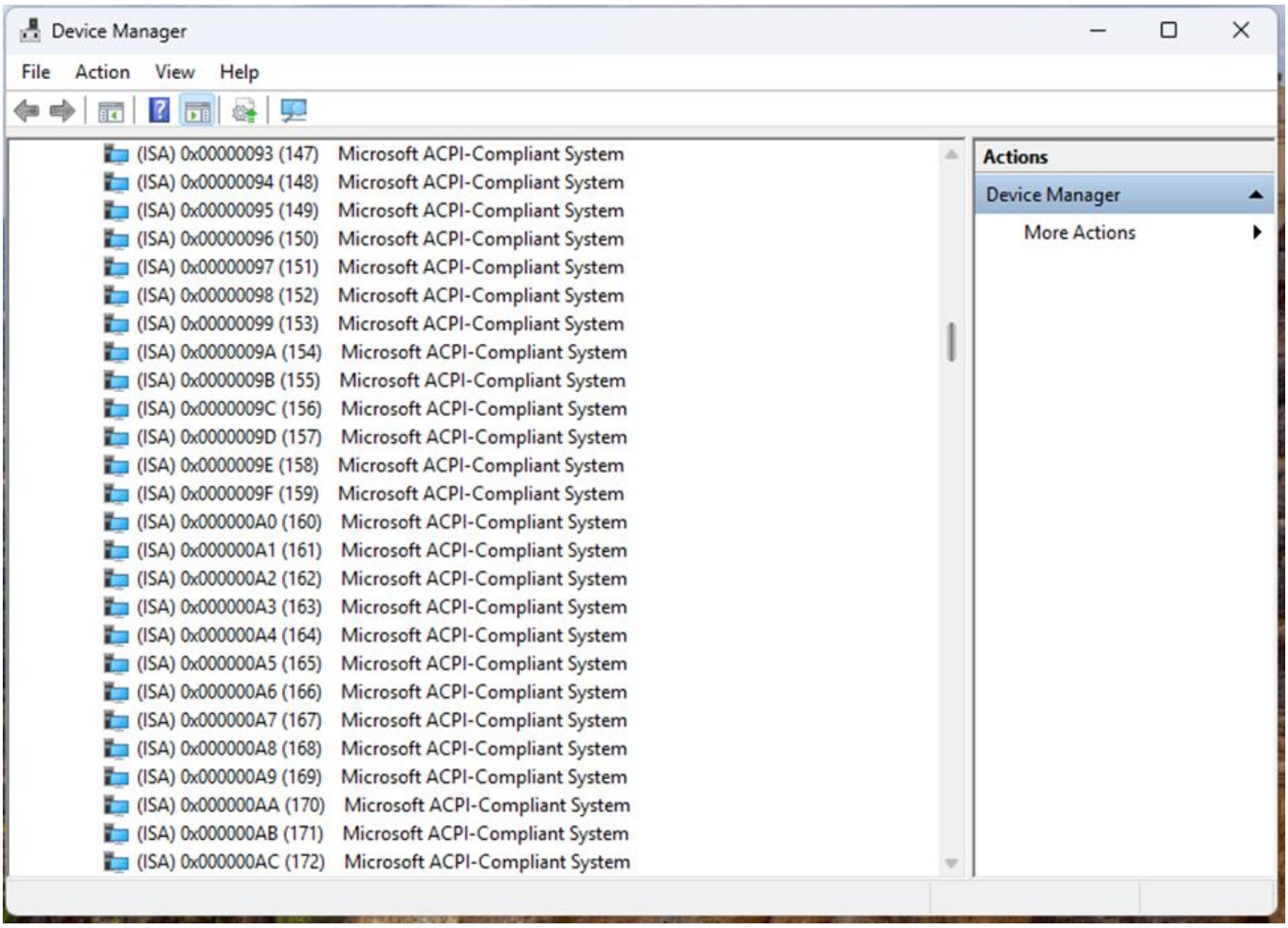
Actions
Device Manager
More Actions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(ISA) 0x00000094 (148) Microsoft ACPI-Compliant System
(ISA) 0x00000095 (149) Microsoft ACPI-Compliant System
(ISA) 0x00000096 (150) Microsoft ACPI-Compliant System
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(ISA) 0x00000098 (152) Microsoft ACPI-Compliant System
(ISA) 0x00000099 (153) Microsoft ACPI-Compliant System
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(ISA) 0x0000009B (155) Microsoft ACPI-Compliant System
(ISA) 0x0000009C (156) Microsoft ACPI-Compliant System
(ISA) 0x0000009D (157) Microsoft ACPI-Compliant System
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(ISA) 0x000000A0 (160) Microsoft ACPI-Compliant System
(ISA) 0x000000A1 (161) Microsoft ACPI-Compliant System
(ISA) 0x000000A2 (162) Microsoft ACPI-Compliant System
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(ISA) 0x000000AA (170) Microsoft ACPI-Compliant System
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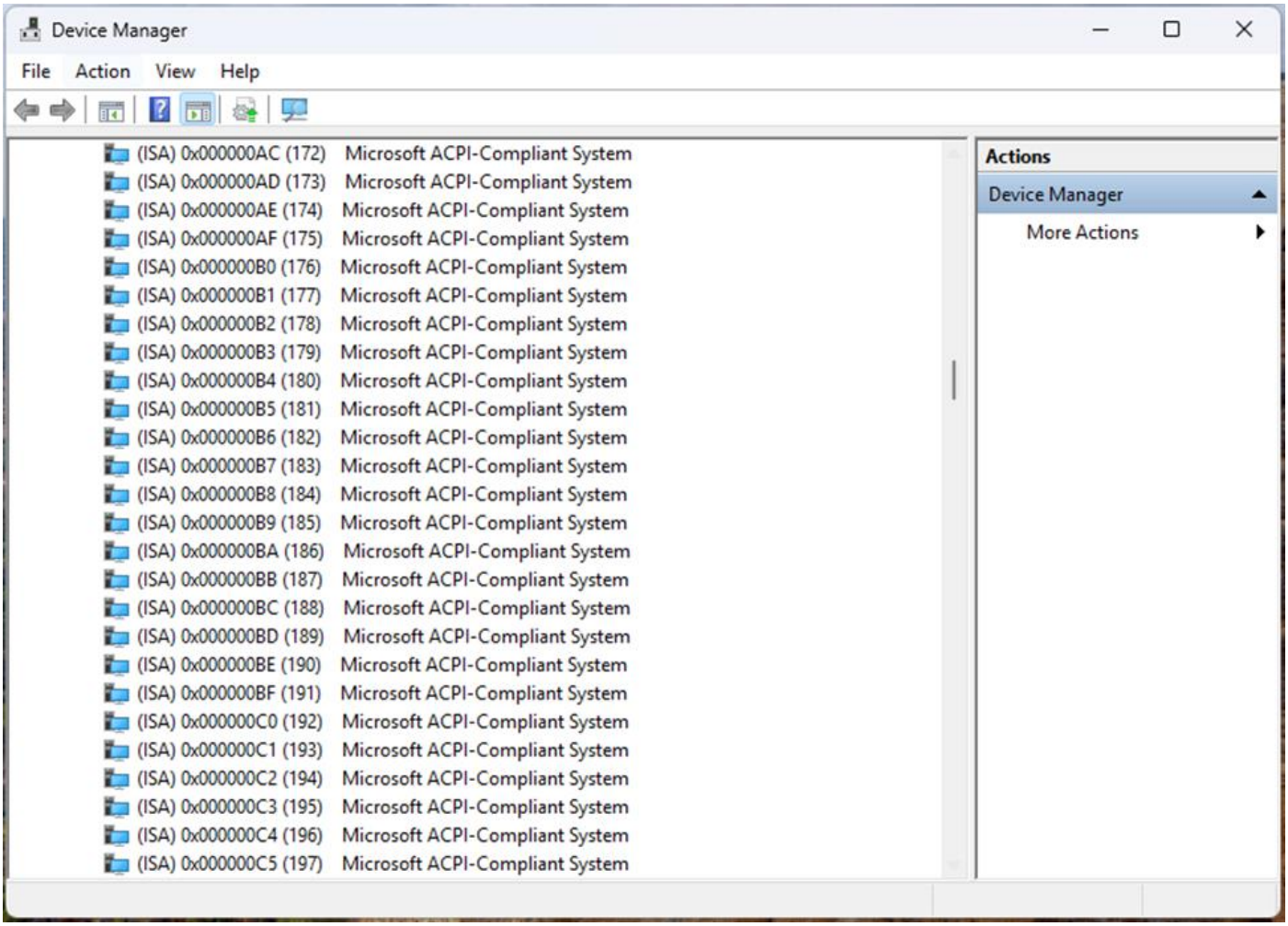
Actions
Device Manager
More Actions


Device Manager
File Action View Help
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(ISA) 0x000000AF (175) Microsoft ACPI-Compliant System
(ISA) 0x000000B0 (176) Microsoft ACPI-Compliant System
(ISA) 0x000000B1 (177) Microsoft ACPI-Compliant System
(ISA) 0x000000B2 (178) Microsoft ACPI-Compliant System
(ISA) 0x000000B3 (179) Microsoft ACPI-Compliant System
(ISA) 0x000000B4 (180) Microsoft ACPI-Compliant System
(ISA) 0x000000B5 (181) Microsoft ACPI-Compliant System
(ISA) 0x000000B6 (182) Microsoft ACPI-Compliant System
(ISA) 0x000000B7 (183) Microsoft ACPI-Compliant System
(ISA) 0x000000B8 (184) Microsoft ACPI-Compliant System
(ISA) 0x000000B9 (185) Microsoft ACPI-Compliant System
(ISA) 0x000000BA (186) Microsoft ACPI-Compliant System
(ISA) 0x000000BB (187) Microsoft ACPI-Compliant System
(ISA) 0x000000BC (188) Microsoft ACPI-Compliant System
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(ISA) 0x000000C1 (193) Microsoft ACPI-Compliant System
(ISA) 0x000000C2 (194) Microsoft ACPI-Compliant System
(ISA) 0x000000C3 (195) Microsoft ACPI-Compliant System
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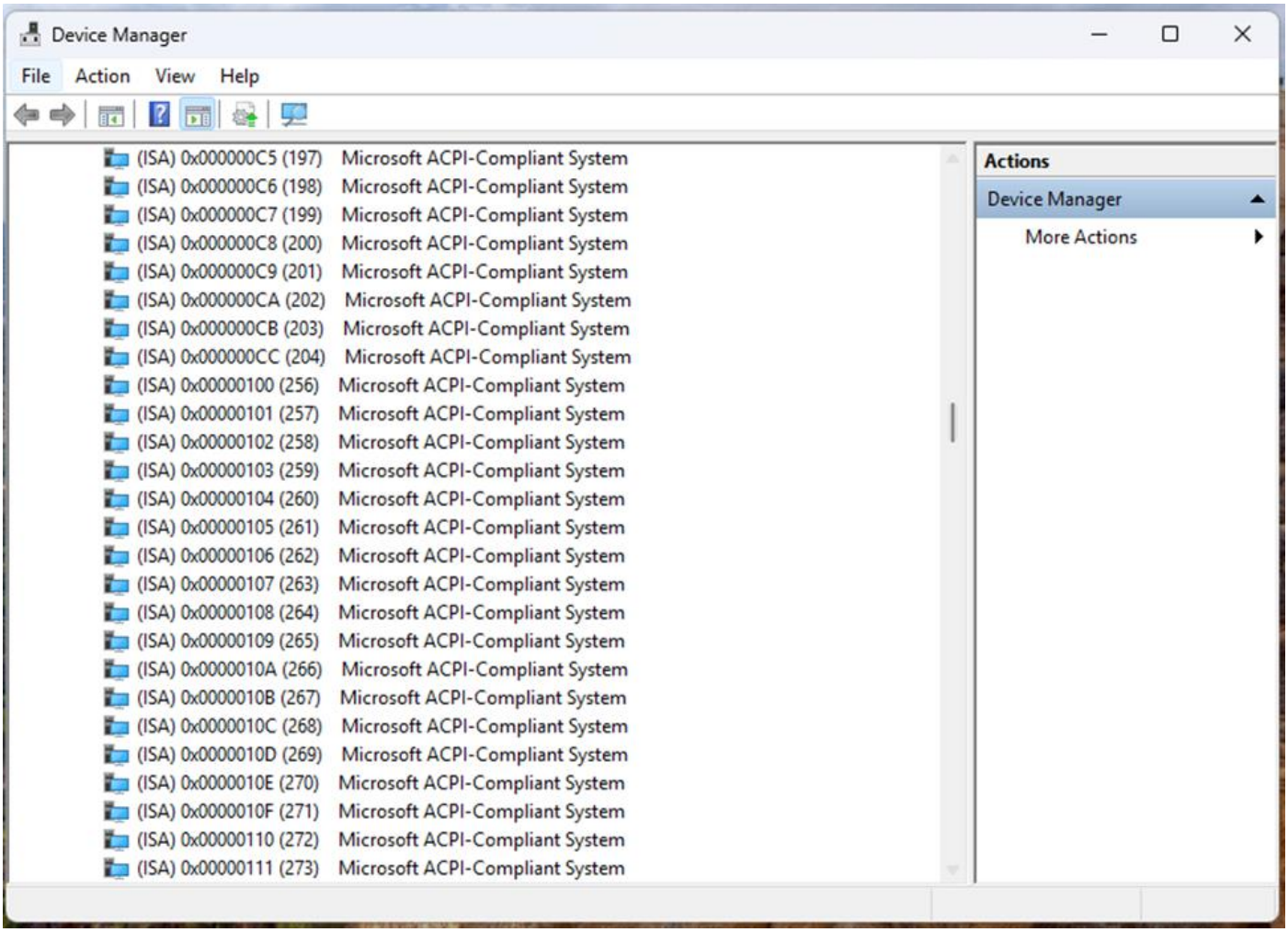
(ISA) 0x000000C5 (197) Microsoft ACPI-Compliant System
Actions
Device Manager
More Actions


Device Manager
File
Action
View
Help
(ISA) 0x000000C5 (197) Microsoft ACPI-Compliant System
(ISA) 0x000000C6 (198) Microsoft ACPI-Compliant System
(ISA) 0x000000C7 (199) Microsoft ACPI-Compliant System
(ISA) 0x000000C8 (200) Microsoft ACPI-Compliant System
(ISA) 0x000000C9 (201) Microsoft ACPI-Compliant System
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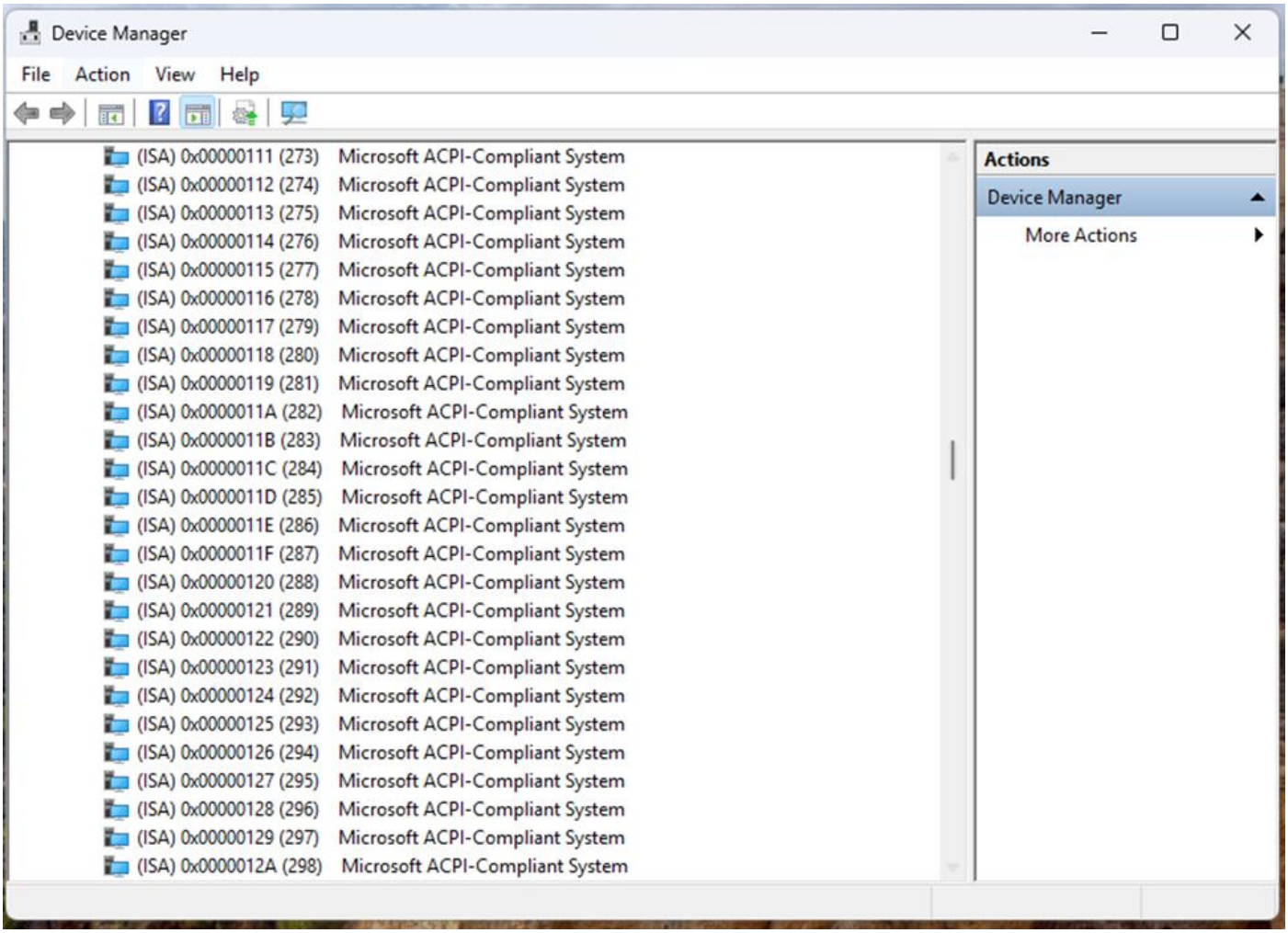
Device Manager
More Actions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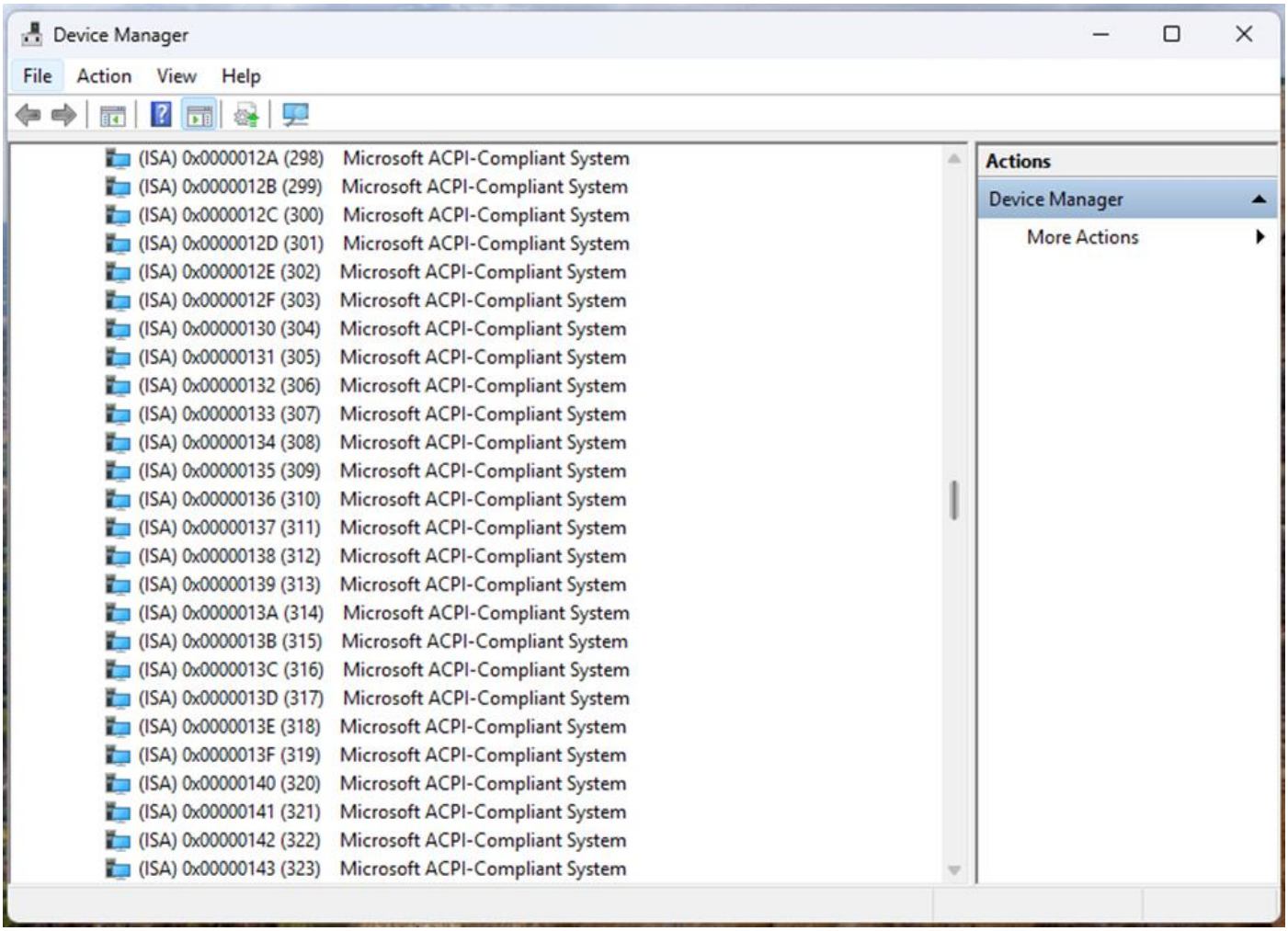
More Actions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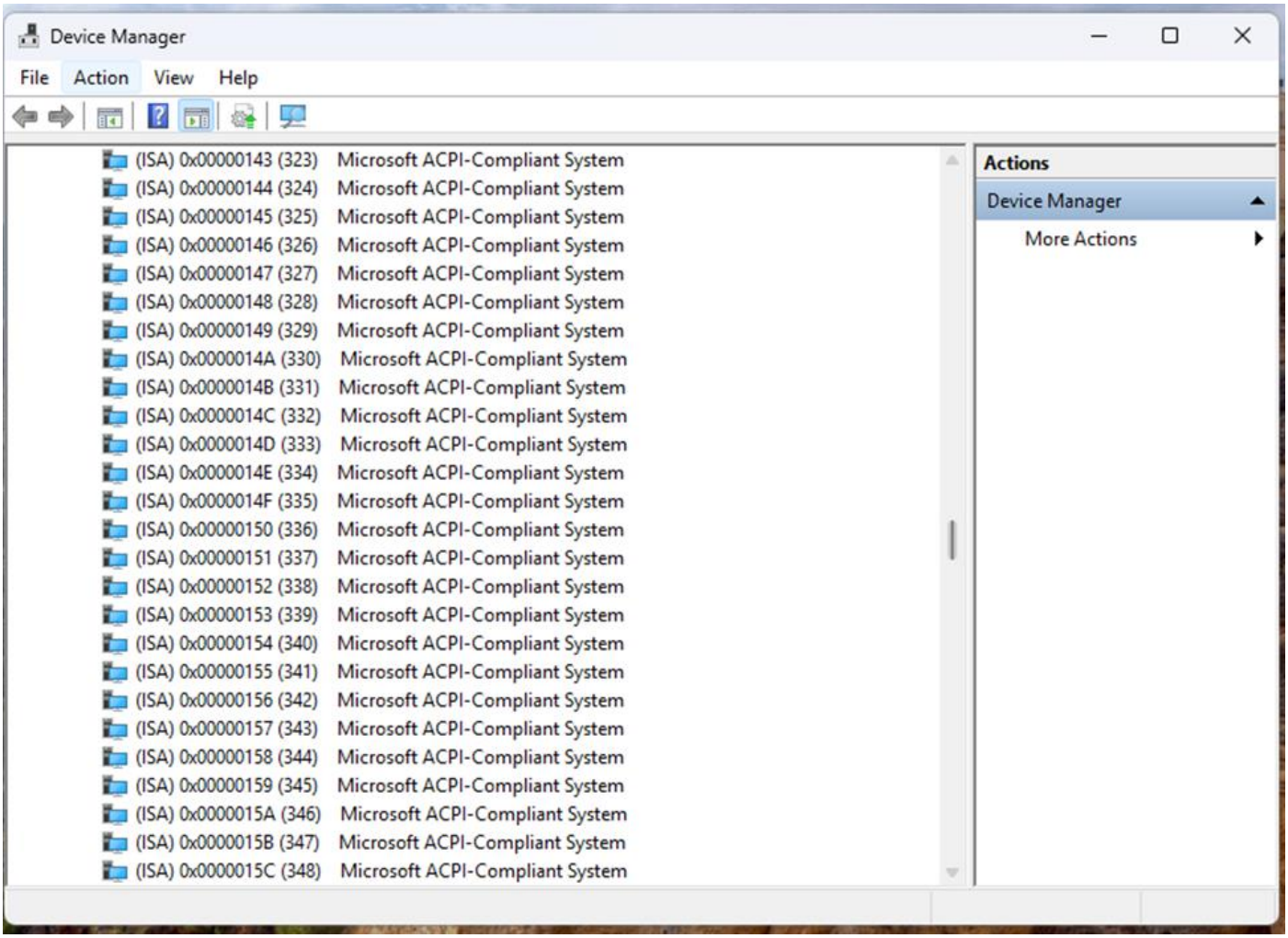
More Actions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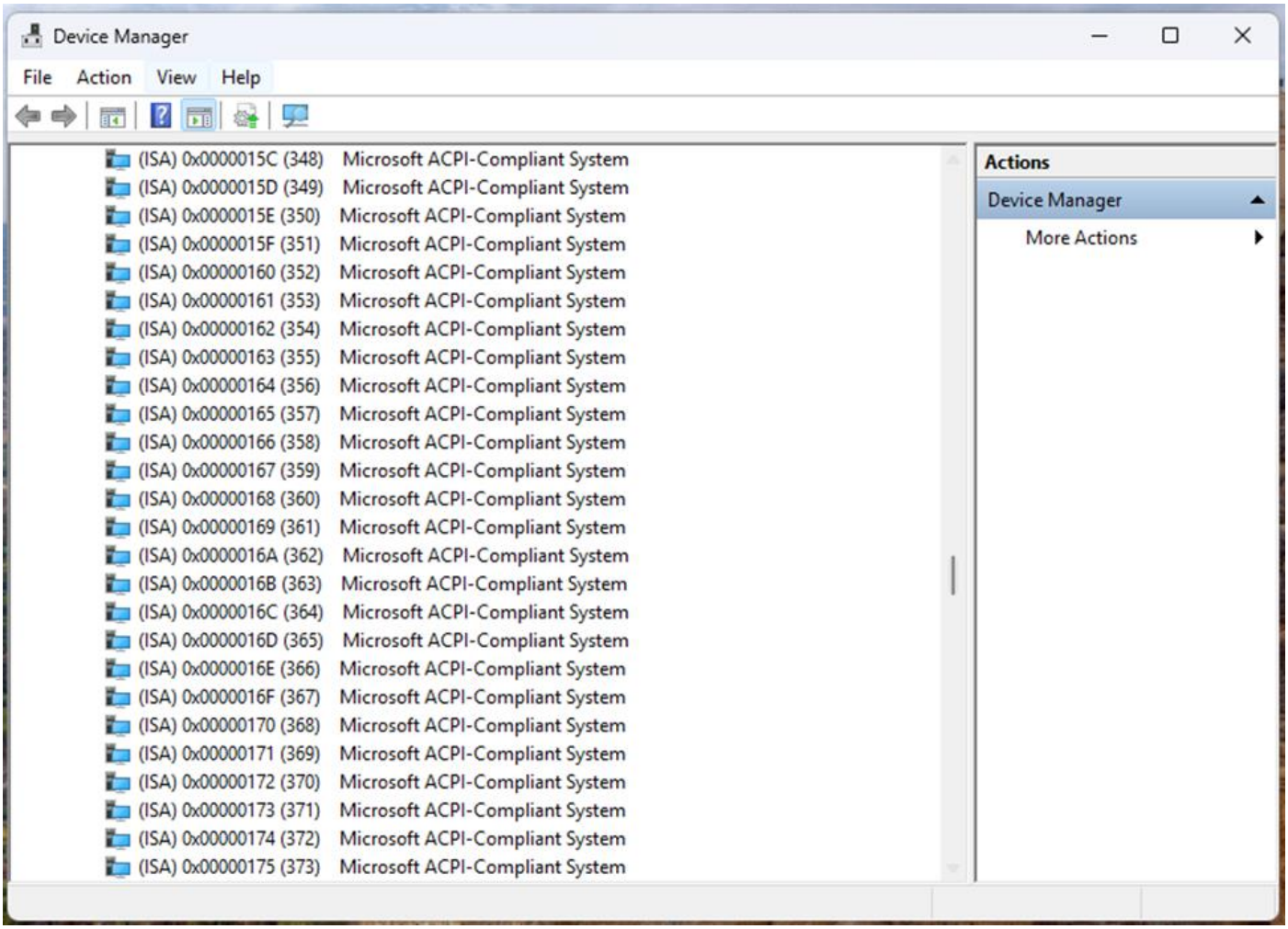
Device Manager
More Actions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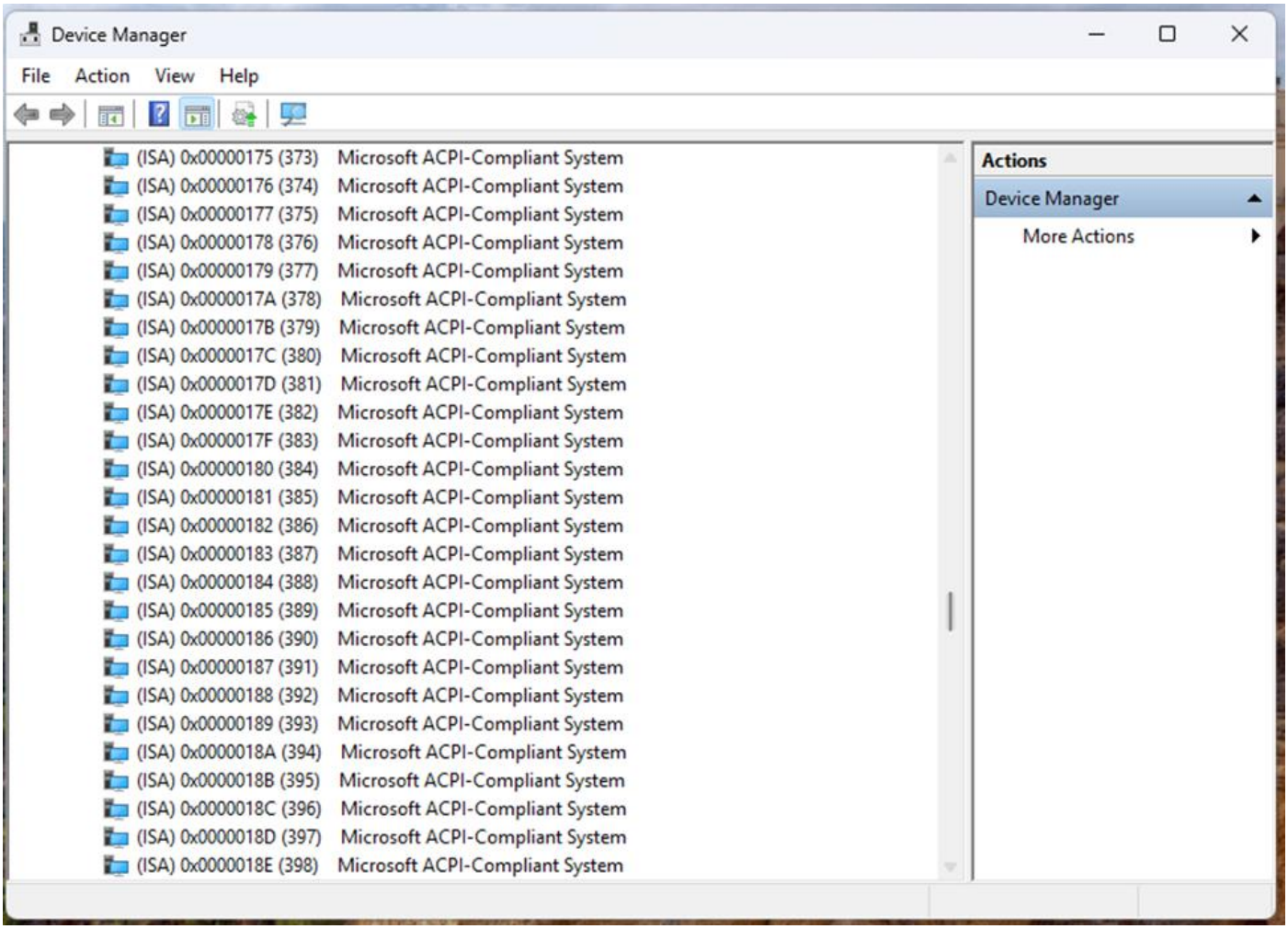
Device Manager
More Actions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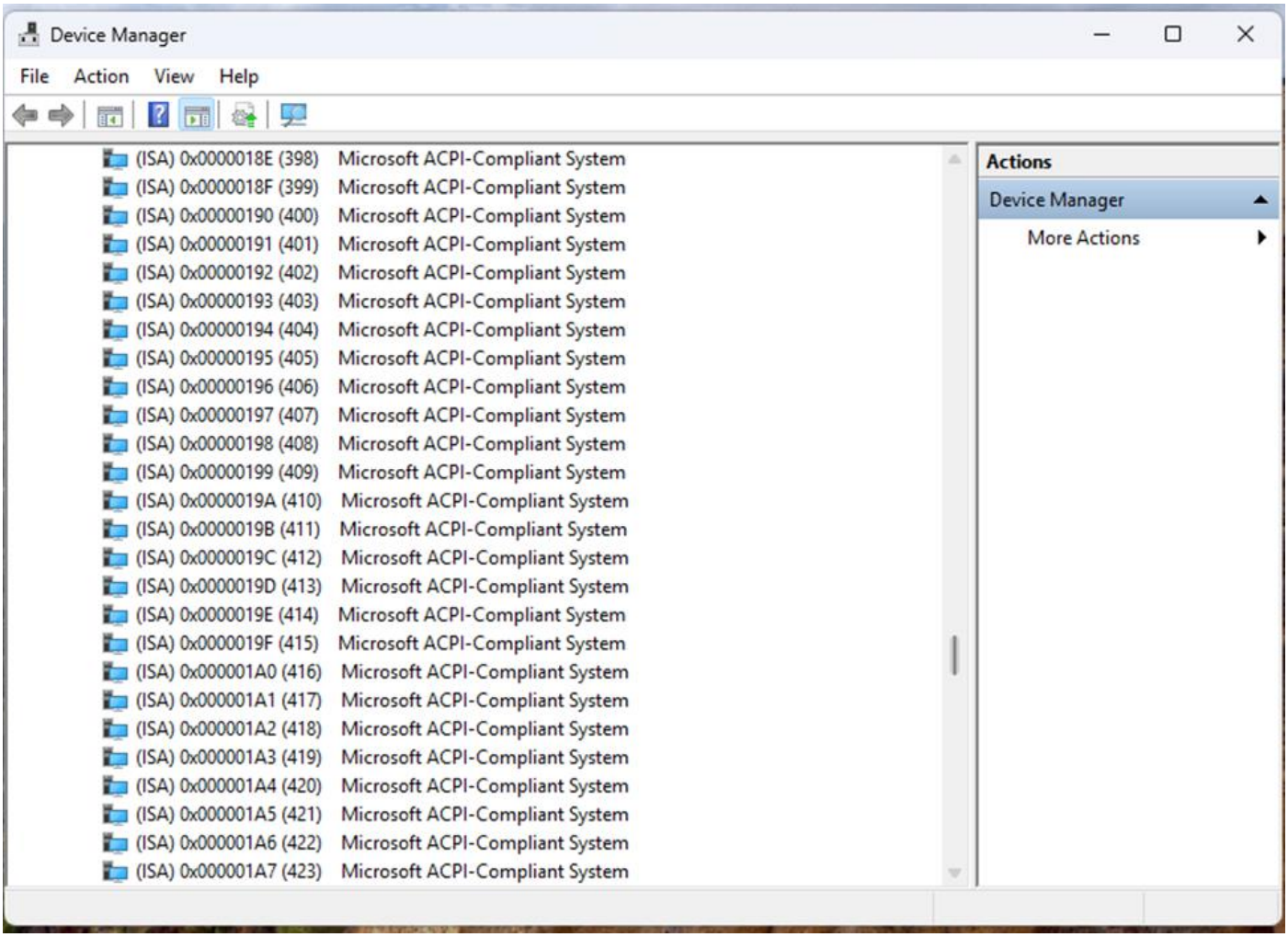
Actions
Device Manager
More Actions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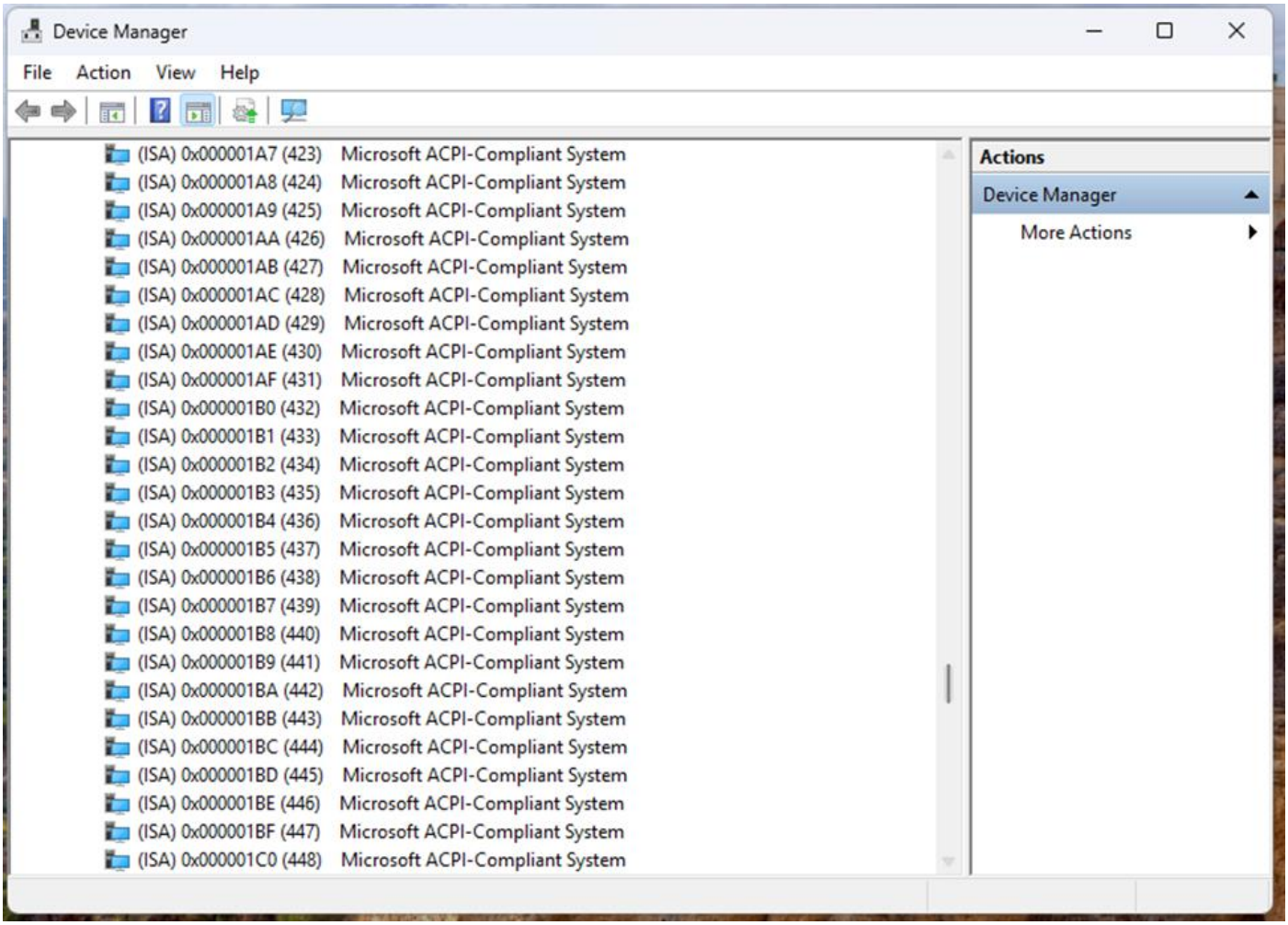
Actions
Device Manager
More Actions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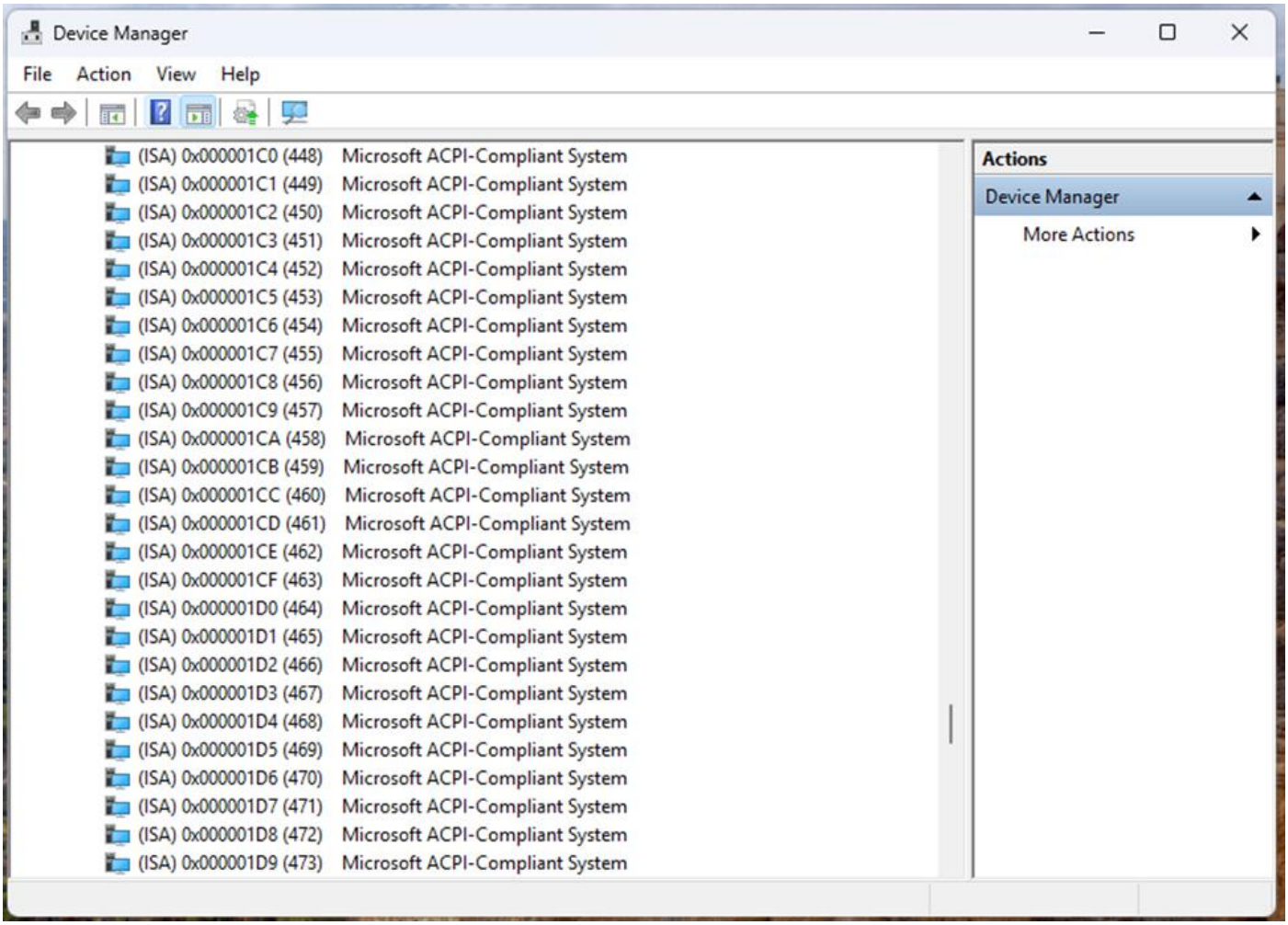
Device Manager
More Actions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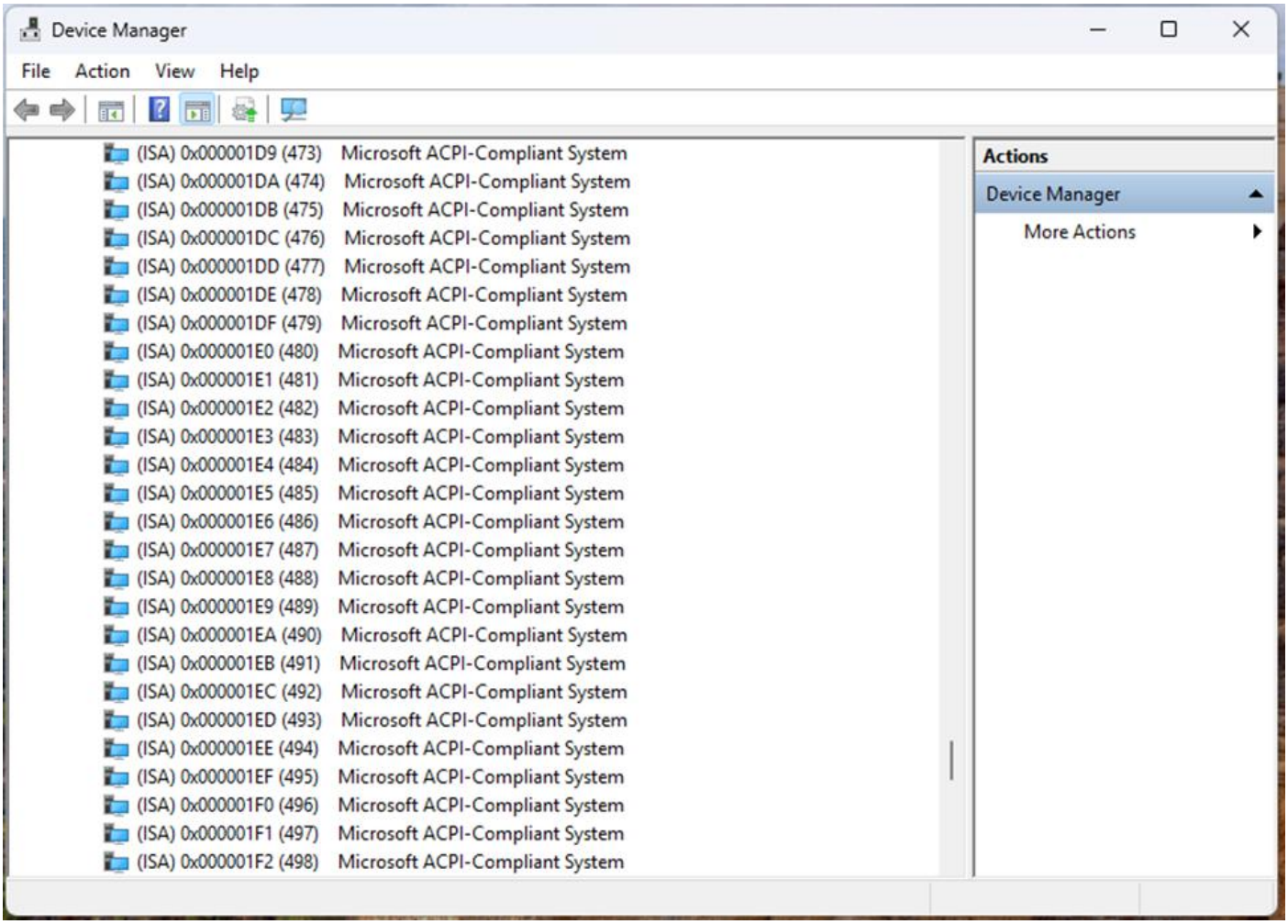
Actions
Device Manager
More Actions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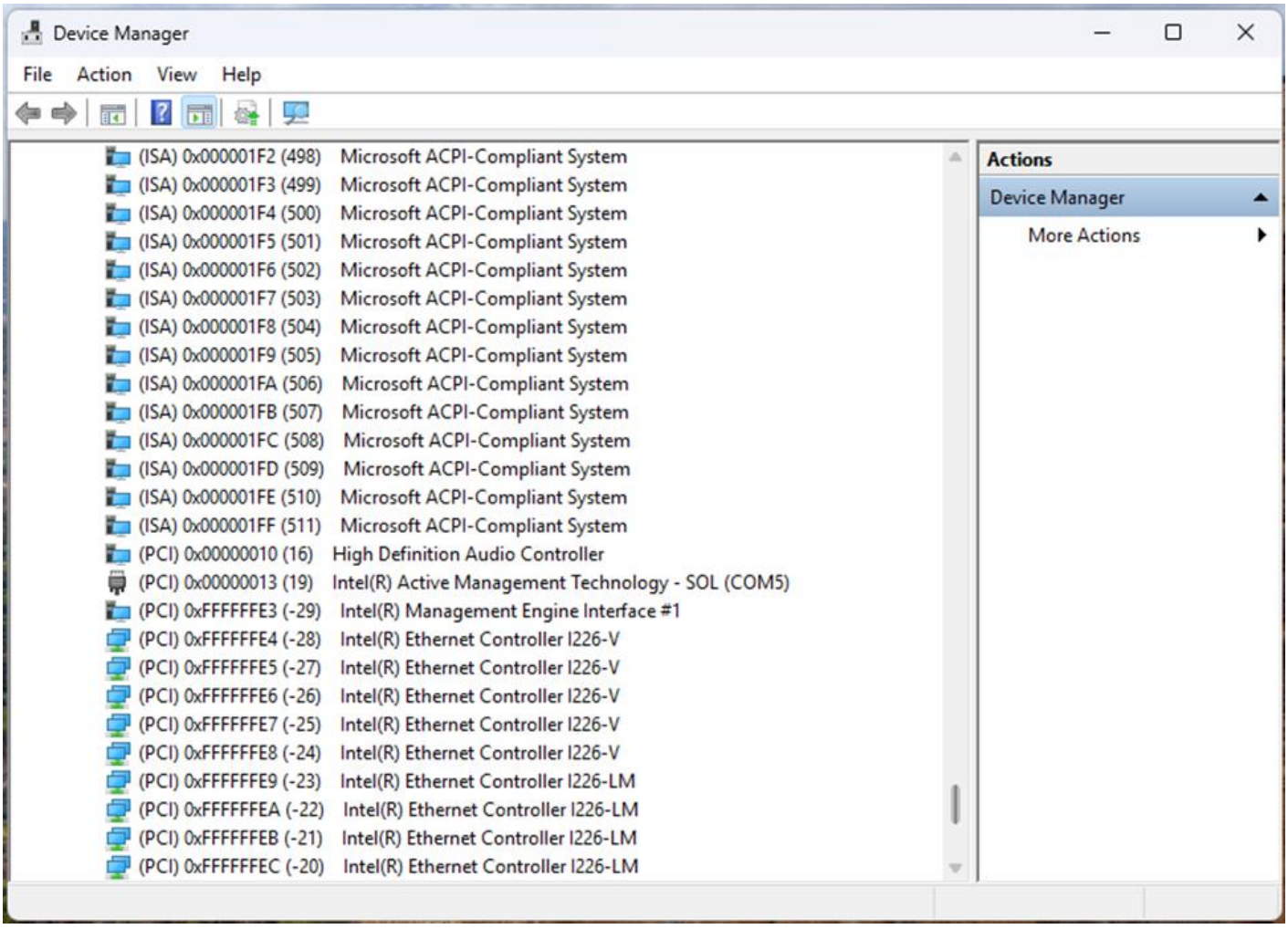
Device Manager
More Actions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(PCI) 0x00000013 (19) Intel(R) Active Management Technology - SOL (COM5)
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(PCI) 0xFFFFFFE4 (-28) Intel(R) Ethernet Controller I226-V
(PCI) 0xFFFFFFE5 (-27) Intel(R) Ethernet Controller I226-V
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(PCI) 0xFFFFFFE8 (-24) Intel(R) Ethernet Controller I226-V
(PCI) 0xFFFFFFE9 (-23) Intel(R) Ethernet Controller I226-LM
(PCI) 0xFFFFFFEA (-22) Intel(R) Ethernet Controller I226-LM
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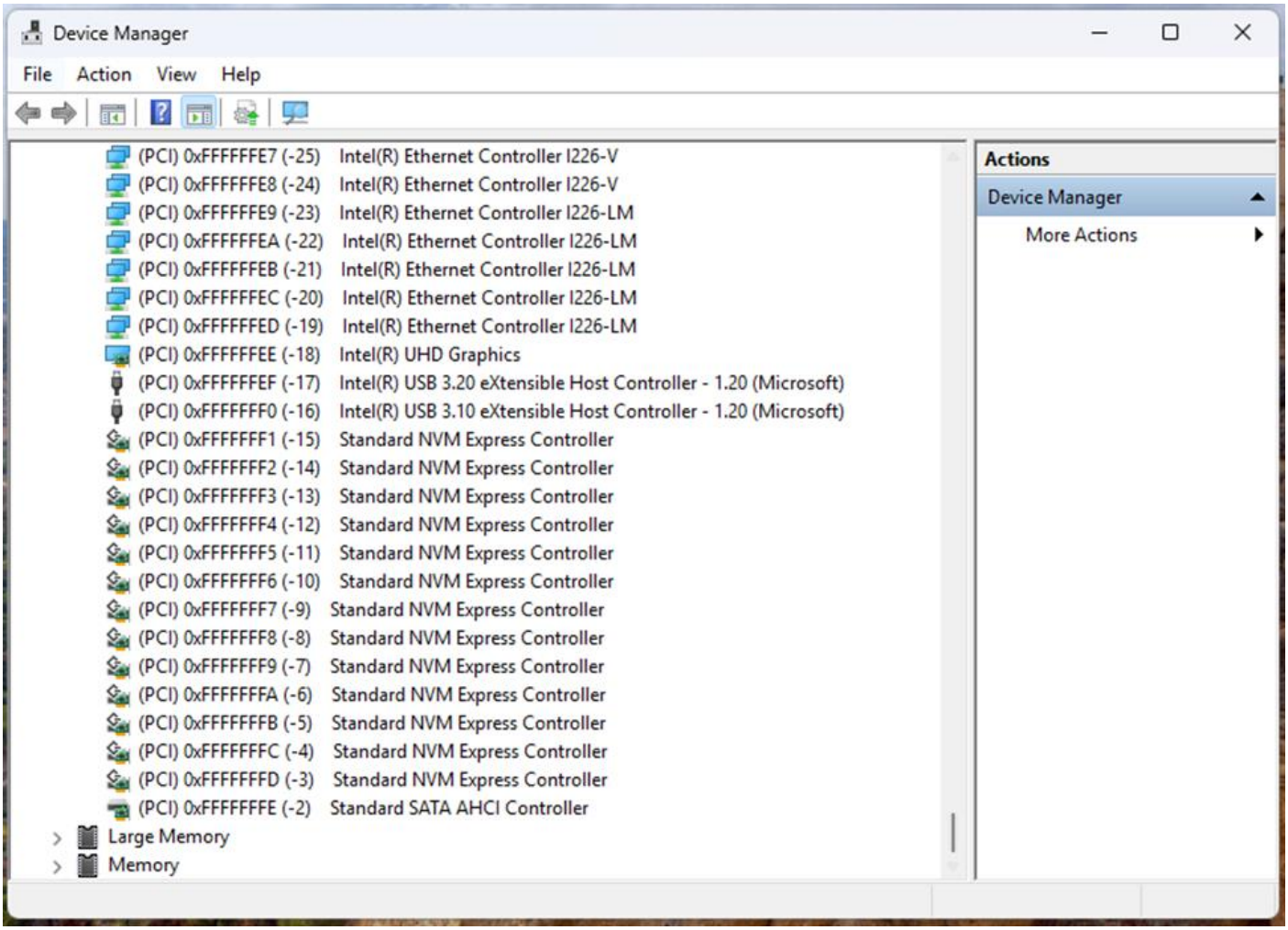
Actions
Device Manager
More Actions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Large Memory
Memory
Actions
Device Manager
More Actions