AIoT7-H510
User's Manual

Version 1.0

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Contents

Chapter 1   General

1.1 Packing list

Thank you for choosing our products.

Please kindly confirm the integrity of the packaging of the motherboard you purchased. If there is any packaging damage or any shortage of accessories, please contact your dealer as soon as possible.

- ★ **1 * motherboard**
- ★ **1 * driver disc (industrial packaging: 1PCS/box)**
- ★ **1 * SATA HDD adapter cable**
- ★ **1 * special I/O buffer**

 The specifications of the accompanying accessories above are provided for reference only, the actual specifications are subject to the actual product, and the Company reserves the right to modify.

1.2 Motherboard specifications

Processor	- Supports all series of IntelLGA1200 packaged Gen10&11i9/i7/i5/i3/G CPU, TDP up to 65W
Chipset	- Intel®H510 chipset
Memory	- 2 * 260PINDDR4SO-DIMM memory slot, supports up to 128GB (a single memory slot of 32GB). Supports the memory size DDR4-2133/2400/2666/2933/3200 based on the installed CPU
Display controller	- Intel CPU integrated display controller (different based on the installed CPU)
Display interface	- Three display ports: VGA, DP and HDMI, supports dual-display mode
Storage	- 2×SATA3.0 - 1 * M.22280Key-MSSD, supports SATA/NVME adaptive function
Audio	- Back-end IO, supports MIC-In, Speaker-Out and Line-In audio interfaces, and digital audio output with power amplifier (4Pinwafer)
Network	- 2 * Intel Fast Ethernet ports: LAN1i219V, and i226-V
USB	- 4 * USB3.0TypeA (back-end I/O), 4 * USB2.0 (back-end I/O) - 2 * USB2.0 (internal pin, one Port and USB signal for onboard M.22230 are alternative)
I²C/SMbus	- 1 * 4PinI²CBus interface
Serial port	- 6 * serial port, COM1 supports RS232/485, COM2-COM6 support RS232, COM2&COM3 support Pin9+5/12V power source, and TTL low level optional for COM3
Keyboard & mouse interface	- 1 * PS 2 interface - 2 * USB interface, uses 3-in-1 connector with PS/2
Digital I/O	- 1 * 8-bit digital I/O, provides power source and ground circuit, +5V level
eSPI bus interface	- 1 * eSPI bus interface (2x6Pinwafer, which can be expanded with up to 4 RS232 or RS422/485 serial ports)
TPM/TCM interface	- Onboard encryption chip SLB9670 (SLB9672), supports TPM2.0 (default)/BOM optional TCM chip
Power source	- ATX power source, supports ATX/AT On/Off mode
Expansion bus	- 1 * PCIex16 slot (Gen 10 CPU supports PCIe3.0, while Gen 11 CPU supports PCIe4.0) - 1 * M.22230Key-E, supports WIFI/BT
Atmospheric conditions of working environment	- Temperature -0°C-60°C; RH 10%-85% (with no condensation); BP 85-105kPa
Atmospheric conditions of storage environment	- Temperature -40°C-85°C; RH 5%-95% (40°C); BP 85-105kPa
WatchDog	- 255-level programmable in the mode of seconds/minutes, supports timeout interrupt or system reset
BIOS	- AMIUEFIBIOS
Operating System	- Win10x64，Win11x64，LinuxUbuntu18.04
PCB size	- 170mmX170mm

1.3 Structure drawing of motherboard
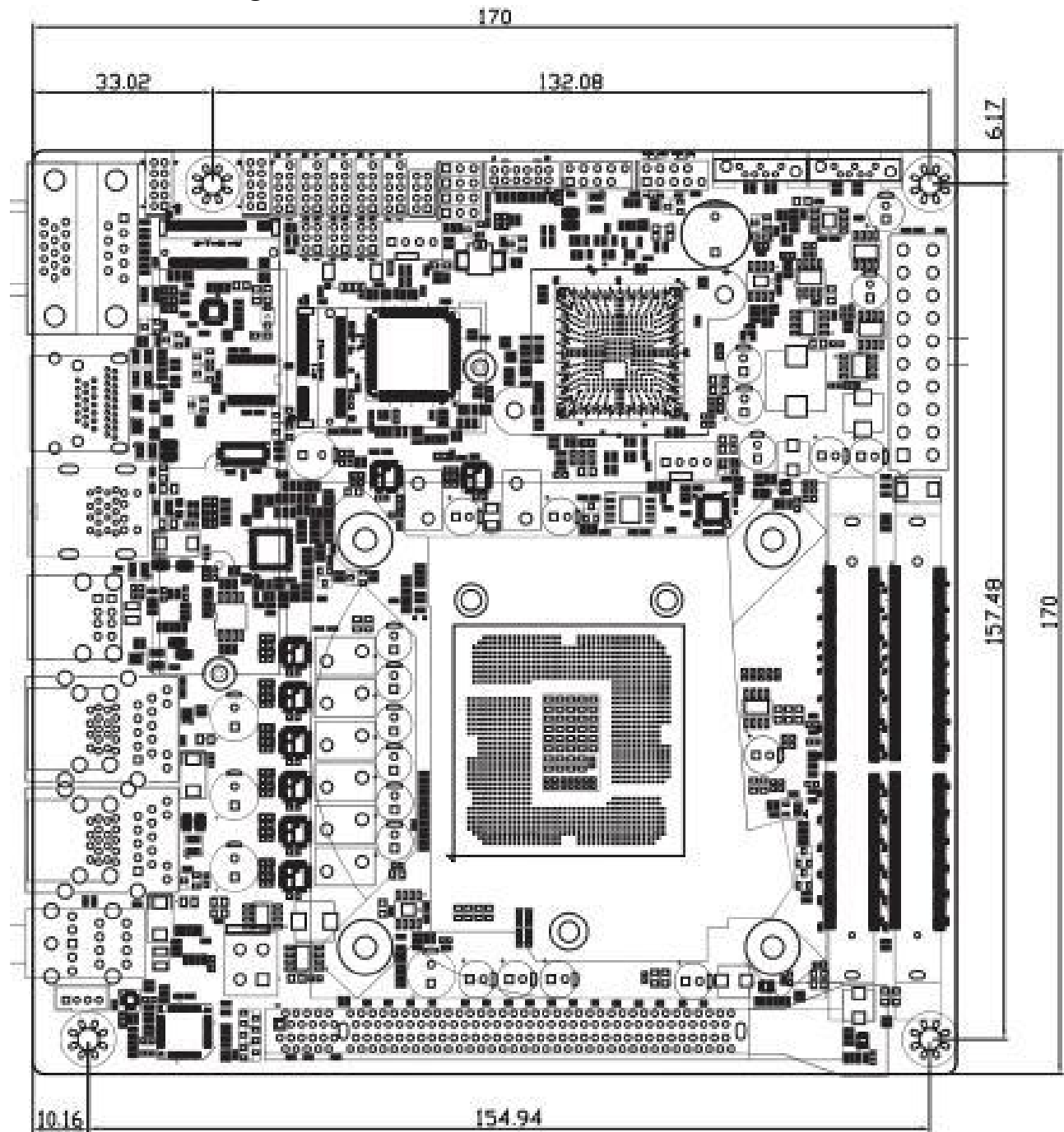
1.4 IO interface structure drawing of motherboard
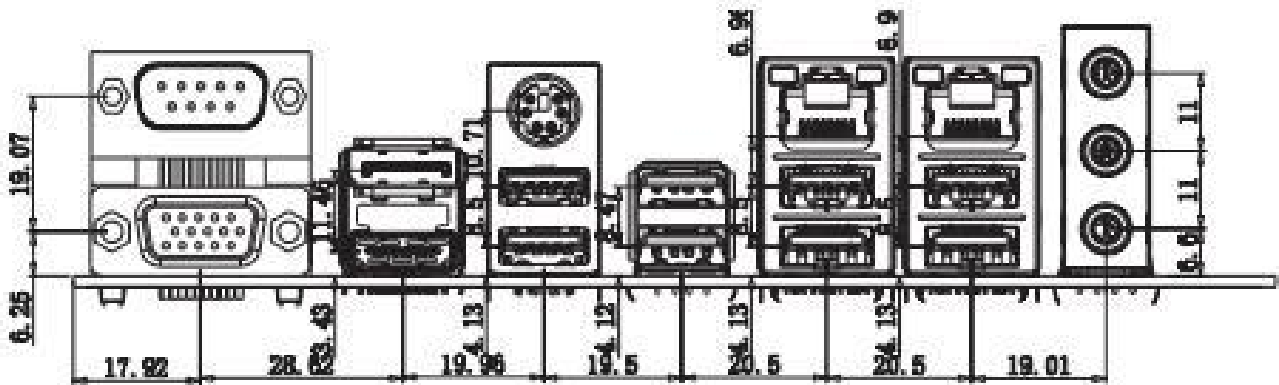
1.5 Motherboard layout
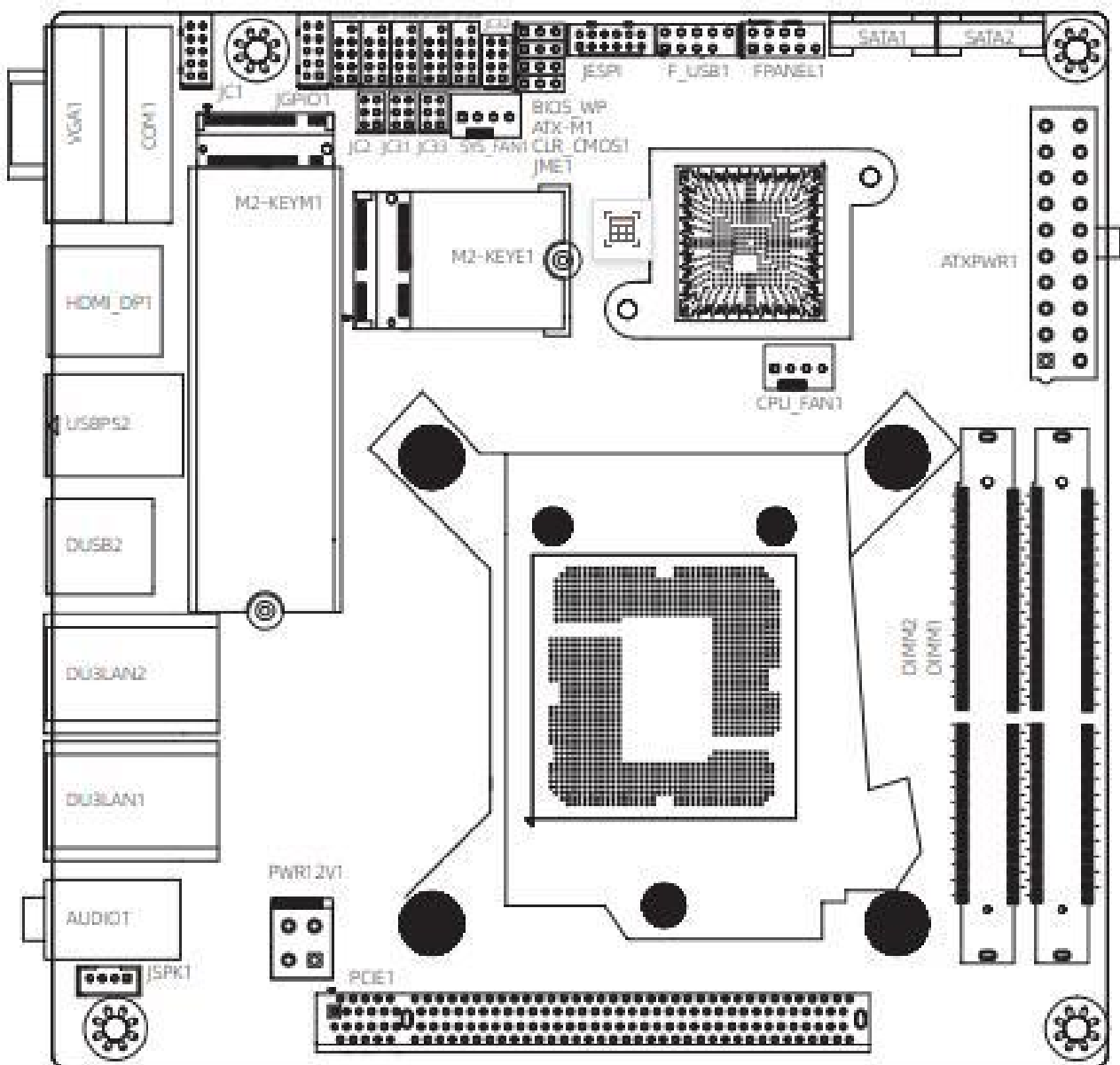
(This image is for reference only, please prevail in kind)

1.6 IO panel interface
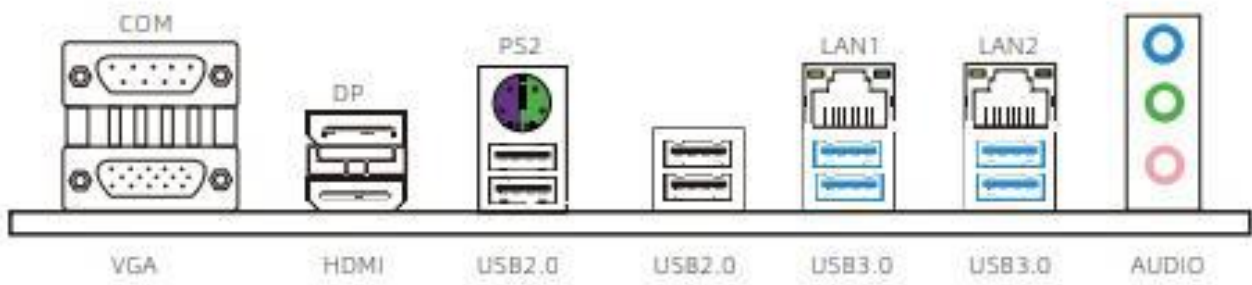
(This image is for reference only, please prevail in kind)

- COM: COM interface
- VGA: VGA display interface
- DP: DP display interface
- HDMI: HDMI display interface
- PS: Keyboard & mouse interface
- USB2.0: USB2.0 interface
- USB3.0: USB3.0 interface
- LAN: RJ45 Ethernet interface
- AUDIO: Audio port

Chapter 2　Hardware installation

2.1　Install memory

Before installing memory, please observe the following warning information:

1.　Please make sure that the memory you purchased is compatible with the specifications supported by this motherboard.

2.　Before installing or removing memory, please make sure that the computer power is turned off to prevent damage.

3.　The memory is designed with fool-proof mechanism. If you insert the memory in the wrong direction, the memory cannot be inserted. In such case, please change the insertion direction immediately.

Install memory:

1.　Before installing or removing memory, please turn off the power and unplug the AC power cord.

2.　Be careful to hold both edges of the memory module, and do not touch its metal contacts.

3.　Align the gold fingers of the memory module with the memory module slot, and pay attention to the convex point of the gold finger socket to the upper slot in the direction.

4.　Insert the memory module into the memory slot at an angle of 30°, and then press down the memory module to the sound of "Click", indicating that the memory has been successfully installed and can be used. (Note: Do not use excessive force when you pressing down the memory module, so as not to damage the memory)

5.　To remove the memory module, push the retaining clips on both ends of the DIMM slot outward at the same time, and then remove the memory module.

Memory installation drawing (for reference only):
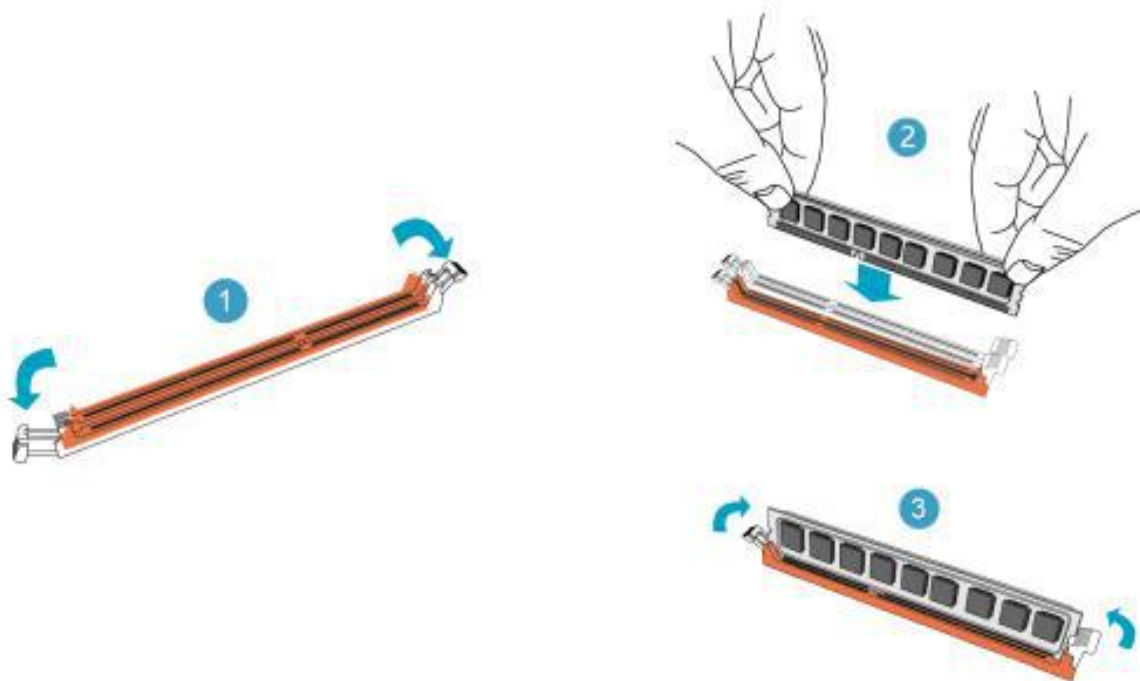
Note: Static electricity can damage the electronic components of the computer or memory, so before performing the above steps, be sure to briefly touch the grounded metal objects to remove static electricity from your body.

2.2 Connect peripherals
2.2.1   Serial ATA interface
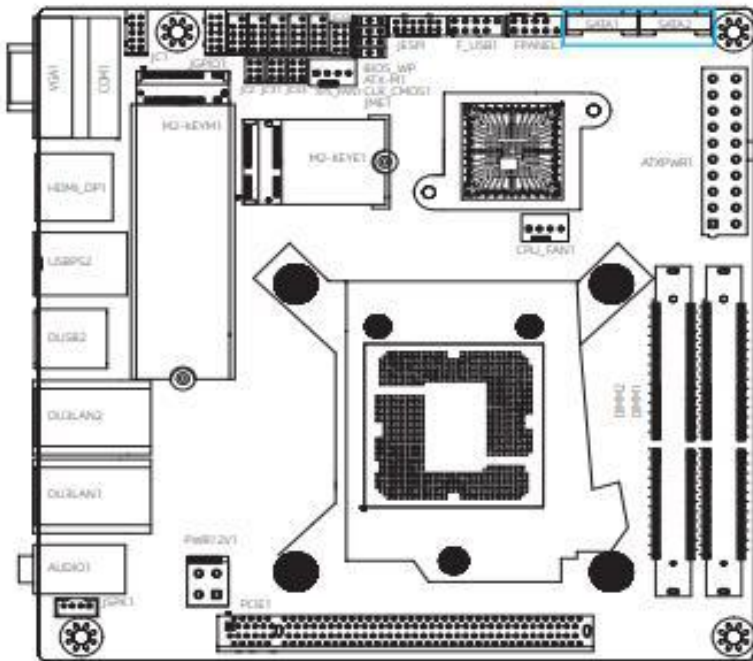
The interface supports the connection to Serial ATA hard disk or other devices that comply with the Serial ATA specification with Serial ATA flat cable.

2.2.2   PCIE slot
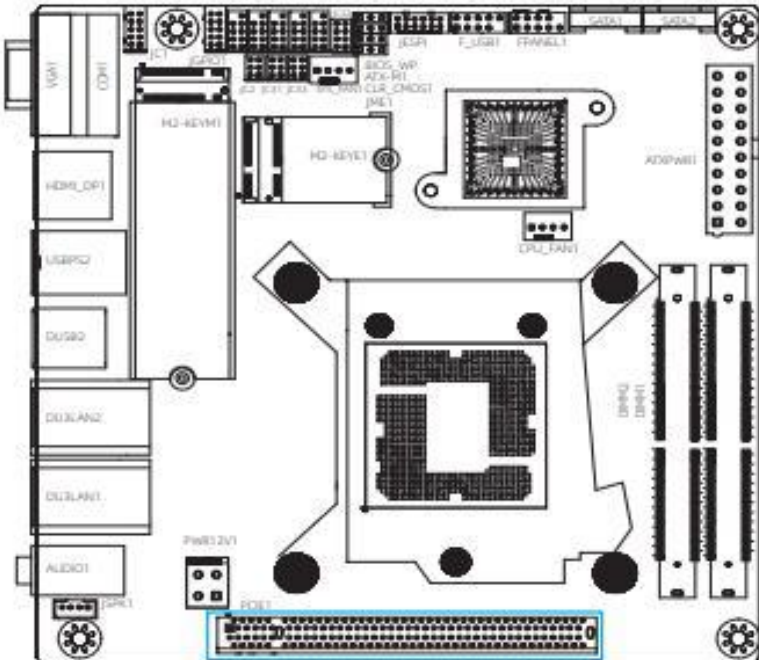
1 * PCIE X16

2.2.3 M2-KEYM1/M2-KEYE1 slot
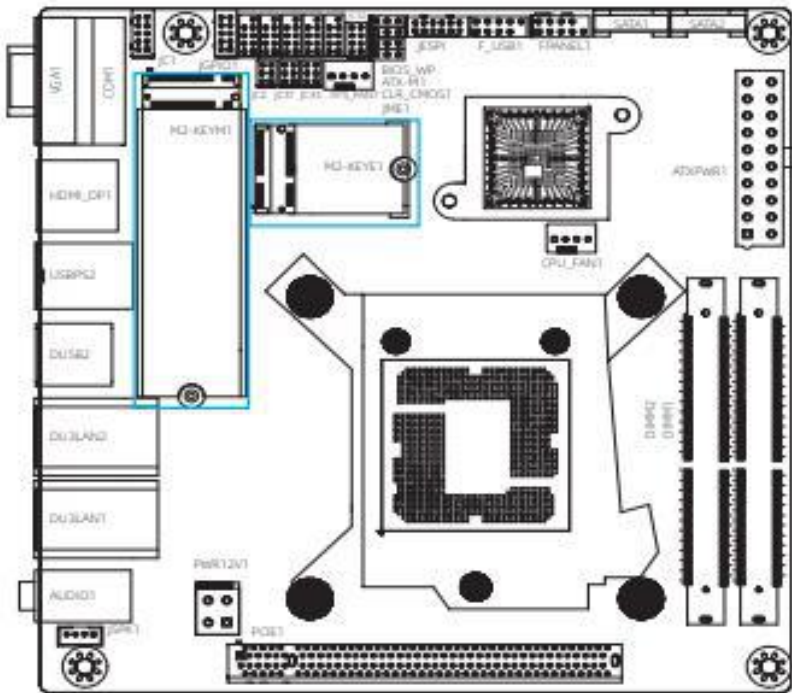
M.2 SATA slot, supports SSD; When installing this card, please insert the card at an angle of 30°, press down to the stud, and then fix it with screws.

Chapter 3　Installation and setup of jumpers & connectors

3.1　Setup description of each jumper

2-pin connector: Inserting the jumper cap into two pins will close (short) the connection. Removing the jumper cap or inserting it into other pins (reserved for future expansion) will open the connection.

3-pin connector: The jumper cap can be inserted into pins 1-2 or 2-3 to close (short) the connection.

SHORT　　OPEN　　OPEN　　Pin1~2 SHORT　　Pin2~3 SHORT

How to identify the first pin position of a jumper?

1.　Please carefully examine the motherboard. Any pin marked with "1" or with white bold line is the first pin position.

2.　Examine the solder pads on the back panel. Usually, the square-shaped pad is the first pin.

3.2　Jumper setup

JME1 jumper setup (disabled ME, if ME needs to be updated, short circuit 1-2)

Pin	Definition
1-2	Disable ME
2-3	NORMAL

CLR_COMS1 jumper setup (short circuit 2-3, clear BIOS settings, and restore the default factory settings)

Pin	Definition
1-2	NORMAL
2-3	CLEAR_COMS

BIOS_WP jumper setup (short circuit 2-3, and BIOS write protection)

| Pin	Definition
1-2	NORMAL
2-3	BIOS_WP

ATX-M1 jumper setup (1-2: normal mode, press the power button to boot after being electrified; 2-3: automatically boot after being electrified)

Pin	Definition
1-2	ATX Mode
2-3	AT Mode

COM1 setup
JC1 jumper setup

RS232	RS485
JC1(1-2)	JC1(3-4)
JC1(5-7)	JC1(7-9)
JC1(6-8)	JC1(8-10)
JC3(1-3)	
JC3(2-4)	

JCOM3 setup
JC32/JC33 jumper setup

RS232	TLL
JC32(1-2)	JC32(3-4)
JC32(1-3)	JC32(3-5)
JC32(2-4)	JC5(4-6)
JC32(1-3)	
JC33(2-4)	JC33(4-6)
JC33(2-4)	JC33(4-6)

JC31 FOR COM3	
JC2 FOR COM2	
3-4	NORMAL
1-2	PIN9=5V
5-6	PIN9=12V

COM1 supports RS-232/485, JCOM2/JCOM3 supports PIN9 5V/12V, and JCOM3 supports RS232/TLL. Three modes can be switched by selecting the above jumper caps.

3.3 ATXPWR1/PWR12V1 pin interface (ATX 20pin+ 4pin power interface)
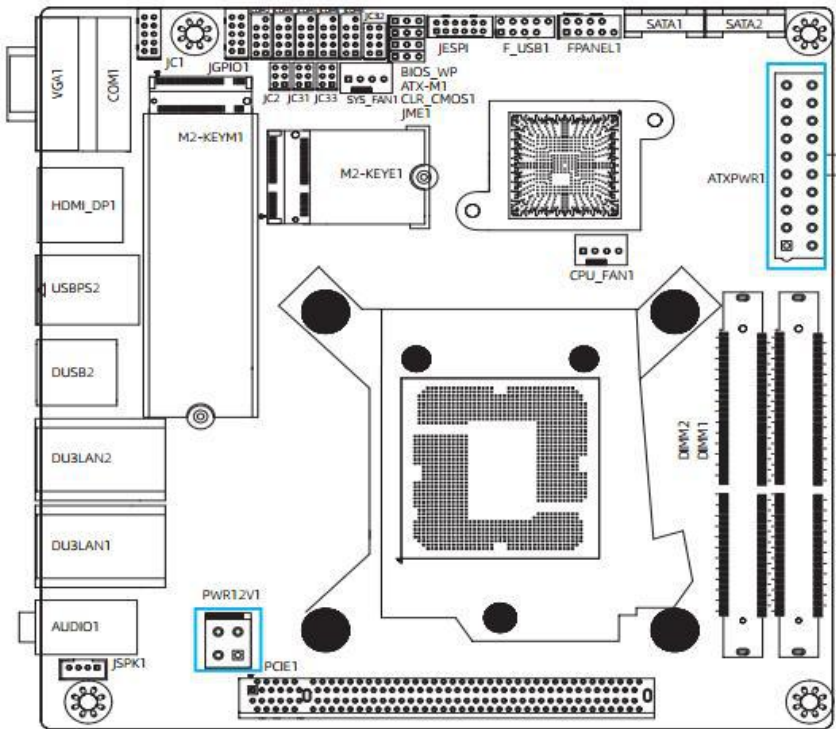
Definition of ATXPWR1 power pin

Pin	Definition of pin	Pin	Definition of pin
1	+3.3V	11	+12V
2	+3.3V	12	+3.3V
3	GND	13	+3.3V
4	+5V	14	-12V
5	GND	15	GND
6	+5V	16	PSON#
7	GND	17	GND
8	POK	18	GND
9	5VSB	19	GND
10	+12V	20	NC

Definition of PWR12V1 power pin

Pin	Definition of pin	Pin	Definition of pin
1	GND	3	12V
2	GND	4	12V

3.4 CPU_FAN1/SYS_FAN1 pin interface (CPU and system fan interface)
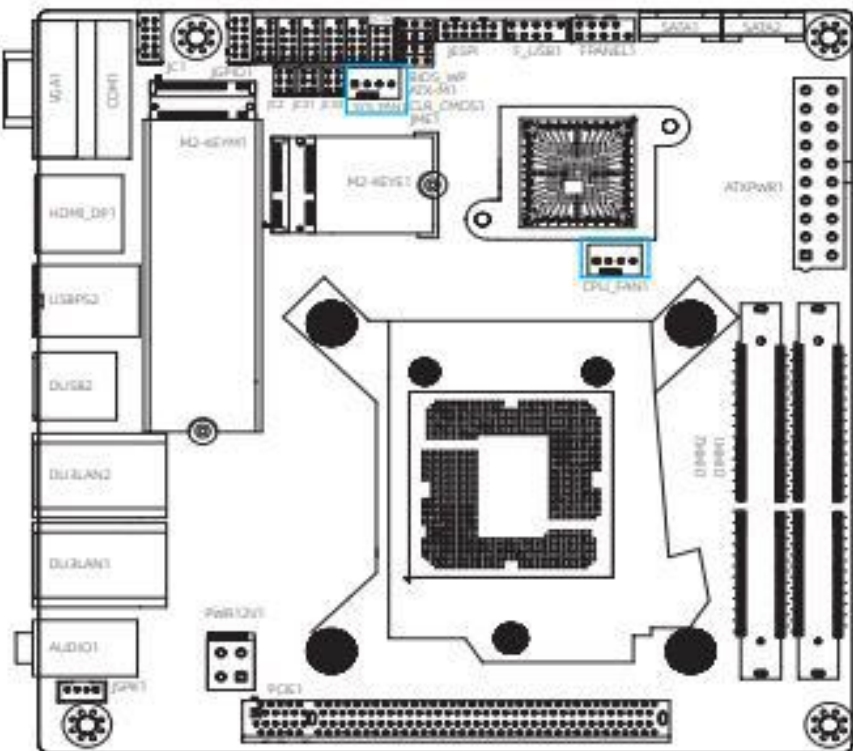
Pin	Definition of pin
1	GND
2	+12V
3	FAN_IN
4	FAN_OUT

3.5 JCOM2/3/4/5/6 2.54mm pin interface (serial port pin)
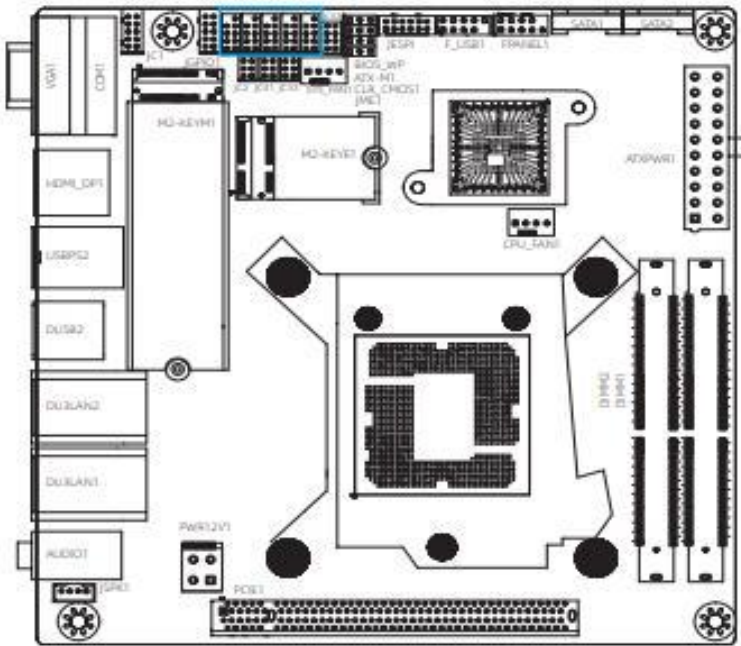
Pin	Definition of pin	Pin	Definition of pin
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

3.6 JESPI pin interface (expansion board interface pin)
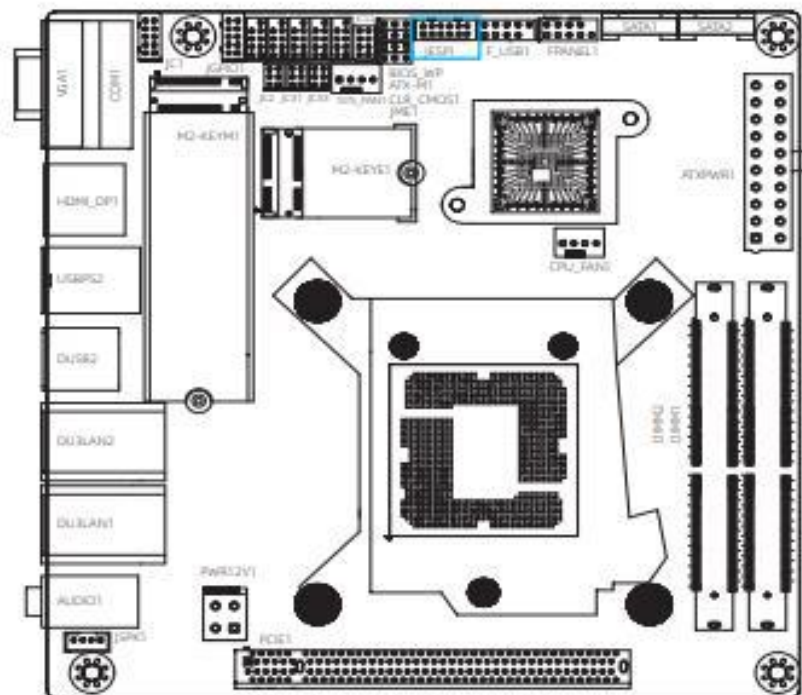
Pin	Definition of pin	Pin	Definition of pin
1	VCC3	2	GND
3	eSPI_lO0	4	eSPI_CS#
5	eSPI_lO1	6	eSPI_CLK
7	eSPI_IO2	8	eSPI_RST#
9	eSPI_IO3	10	GPP B13 PLTRST_N
11	eSPI_ALERT1#	12	VCC

3.7 JGPIO1 pin interface (pitch: 2.54mm)
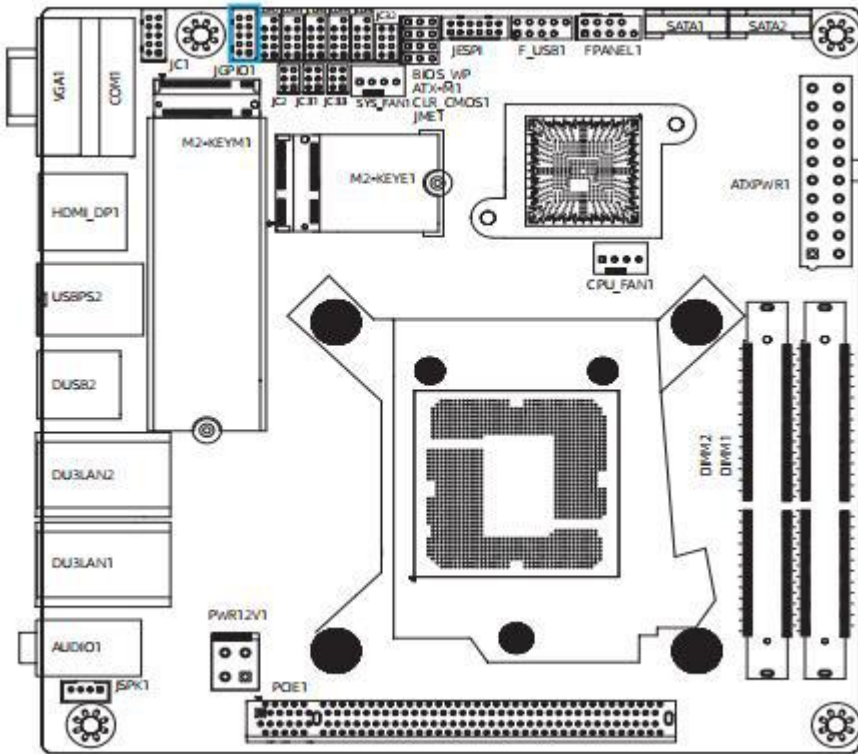
Pin	Definition of pin	Pin	Definition of pin
1	GPIO1	2	GPIO2
3	GPIO3	4	GPIO4
5	GPIO5	6	GPIO6
7	GPIO7	8	GPIO8
9	5V	10	GND

3.8 F_USB1 pin interface
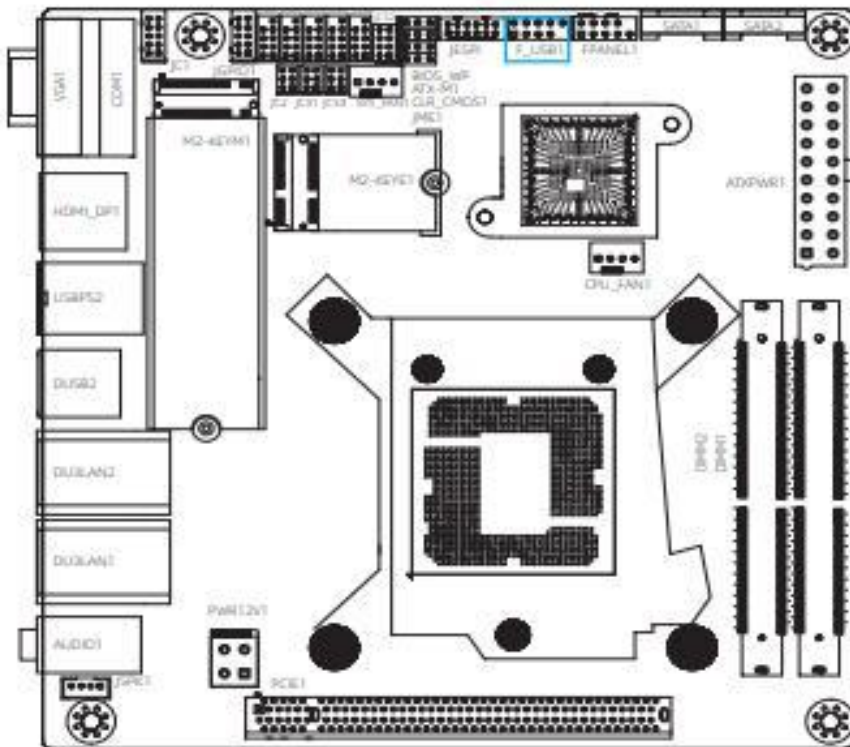
F_USB12.54mm pin interface

Pin	Definition of pin	Pin	Definition of pin
1	5V	2	5V
3	D1-	4	D2-
5	D1 +	6	D2+
7	GND	8	GND
		10	NC

Note: The 2,4,6,8PIN of the USB cannot be used simultaneously with the WiFi module (the WiFi module will take priority). When using the WiFi module, the corresponding pin of USB will be null.

3.9 JSPK1 pin interface (power amplifier interface)
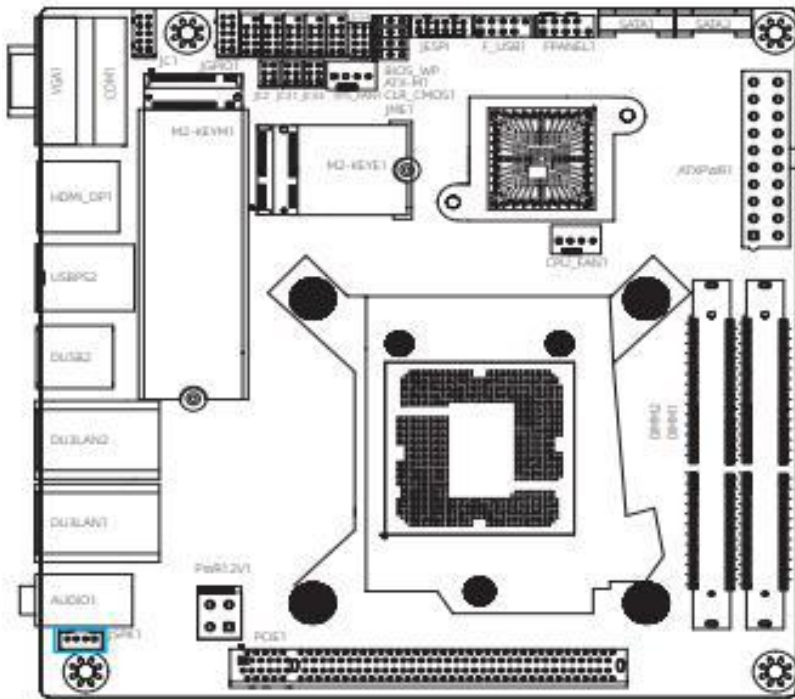
Pin	Definition of pin
1	SPK—R-
2	SPKR+
3	SPK_L-
4	SPK_L+

3.10   FPANEL1 2.54mm pin interface (power button / power / HDD indicator / reset key)
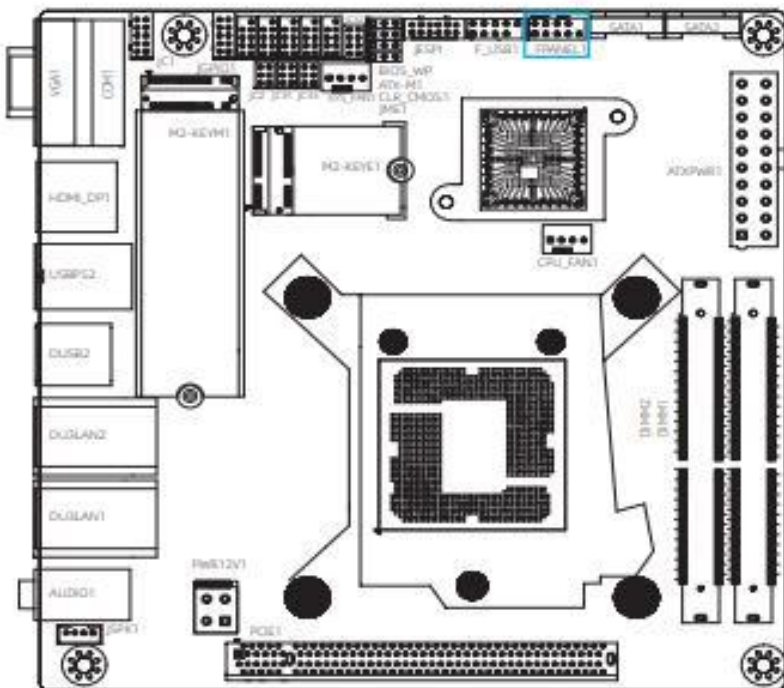
Pin	Definition of pin	Pin	Definition of pin
1	HDD_LED+	2	PWRLED+
3	HDD LED-	4	PWRLED-
5	GND	6	PWR_SW
7	SYS_RST	8	GND
9	NC		

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Chapter 4   BIOS settings

4.1 BIOS explanation

This motherboard uses AMI BIOS. The full name of BIOS used by the motherboard is Basic Input Output System. It is stored in a ROM (Read-Only Memory) chip on the computer motherboard. When you turn on your computer, BIOS is the first program to run. It mainly has the following functions:

a.   Initialize your computer and detect hardware, this process is called POST (Power On Self Test).
b.   Load and run the operating system.
c.   Provide the lowest and most basic control over your computer hardware.
d.   Manage your computer through SETUP.

The modified BIOS data will be stored in a battery-maintained CMOS RAM, and the stored data area will not be lost when the power is cut off. Generally, there is no need to modify the BIOS when the system is running normally. If the CMOS data is lost due to other reasons, the BIOS value must be reset.

4.2 BIOS setting

This chapter provides information about the BIOS Setup program, allowing users to configure and optimize system settings by themselves. Some items in the BIOS that have not been explained too much are not commonly used items. It is recommended to keep the default settings and not change them arbitrarily before fully understanding their functions. You need to run the SETUP program under the following cases:

a.   An error message appears on the screen during the system self-test, and it is required to enter the SETUP program;
b.   You want to change the factory default settings according to customer characteristics.

Note: Since the BIOS version of the motherboard is constantly being upgraded, the description of the BIOS in this manual is for reference only. We do not guarantee that the relevant content in this manual is consistent with the information you have obtained.

4.2.1   Enter the BIOS setup program

Turn on the power or restart the system, you can see the following information on the self-test screen, press <DEL> key to enter the BIOS setup program.

Press <Delete> to enter SETUP

Press <F11> to enter Boot Menu

4.2.2   Control the keys

You can use the arrow key to move the highlighted option, and press <Enter> key to select, <F1> key for help, and <Esc> key to exit. The following table will detail how to use the keyboard to boot the program settings of system.

Control key	Functional description
←/→	Move the left and right arrows to select the screen
↑/↓	Move the up and down arrows to select the items up and down.
+ / -	Increase/decrease value or change option
<Enter>	Select this option to enter the sub-menu
<ESC>	Return to the main screen, or end the CMOS SETUP program from the main screen
<F1>	Show the related help
<F7>	Previous settings
<F9>	Load the optimized settings

<F10>	Save the modified CMOS settings and reboot

4.3 Main

- **BIOS Information (BIOS related information)**
- **System Language (system language setting)**
  Set the system language of the computer in the format of <Chinese> <English>.
- **System Date(system date setting)**
  Set the date of the computer in the format of "month/day/year".
- **System Time(system time setting)**
  Time format is <hour><minute><second>.

4.4 Advanced

▶ **CPU Configuration**   **Press <Enter> key to enter the sub-menu**

- **CPU Configuration**
  Set the central processing unit.

- Press <Esc> key to return to "Advanced" main menu

▶ **Onboard Devices Configuration**   **Press <Enter> key to enter the sub-menu**

- **Onboard Audio**
  Enable or disable audio interface of motherboard.
  Options: Enabled,Disabled.
- **PCH LAN Controller (1219)**
  Set the PCH LAN controller.
  Options: Enabled,Disabled.
- **Onboard LAN (1226)**
  Enable or disable onboard network board.
  Options: Enabled.Disabled.
- **PS/2 Port Setting**
  Set the keyboard & mouse.
  Options: Auto,KeyfQard,Mouse.
- **BIOS Write Protect**
  BIOS write protection.
  Options: Enabled,Disabled.
- **Me Lock**
  Lock the ME access permission.
  Options: Enabled,Disabled.

- Press <Esc> key to return to "Advanced" main menu

► **NCT6126D Super IO Configuration　Press <Enter> key to enter the sub-menu**

- **Serial Port 1/2/3/4/5/6 Configuration**
  Set the serial ports.

- Press <Esc> key to return to "Advanced" main menu

► **NCT5114DSEC Super IO Configuration**

- **Serial Port 1/2/3/4 Configuration**
  Set the serial ports.
- Press <Esc> key to return to "Advanced" main menu

▶ **CSM Configuration**

- **CSM Support**
  Enable or disable CSM support.
  Options: Enabled,Disabled.

- Press <ESC> key to return to "Advanced" main menu

▶ **SATA Configuration   Press <Enter> key to enter the sub-menu**

- **SATA Controller**
  Enable or disable SATA controller.
  Options: Enabled,Disabled.
- **SATA Mode Selection**
  Select SATA mode.
  Options: AHCI.Raid.

- Press <Esc> key to return to "Advanced" main menu

▶ **NVMe Configuration   Press <Enter> key to enter the sub-menu**

- **No NVME Device Found**
  There is no NVME device found.

- Press <Esc> key to return to "Advanced" main menu

▶ **Trusted Computing   Press <Enter> key to enter the sub-menu**

- **Security Device Support**
  Set the BIOS support of security device.
  Options: Enabled,Disabled.
- **SHA-1 PCR Bank**
  Enable or disable SHA-1 PCR Bank
  Options: Enabled,Disabled.
- **SHA256 PCR Bank**
  Enable or disable SHA256 PCR Bank
  Options: Enabled,Disabled.
- **Pending operation**
  Set the pending operation.
  Options: None,TPM Clear.
- **Platform Hierarchy**
  Enable or disable the platform hierarchy.
  Options: Enabled,Disabled.
- **Storage Hierarchy**
  Enable or disable the storage hierarchy.
  Options: Enabled,Disabled.
- **Endorsement Hierarchy**
  Enable or disable the endorsement hierarchy.
  Options: Enabled,Disabled.
- **TPM 2.0 UEFI Spec Version**
  Enable the specification version of TPM2.0 in UEFI.
  Options: TCG_1_2,TCG_2.

- **Physical Presence Spec Version**
  Set the physical presence specification version.
  Options: 1.2,1.3.
- **Device Select**
  Set the device selection.
  Options: TPM1.2, TPM2.0, Auto.

- Press \<Esc\> key to return to "Advanced" main menu

▶ **PTT Configuration**

- **TPM Device Selection**
  Select the TPM device.
  Options: Auto, dTPM, PTT.

- Press \<Esc\> key to return to "Advanced" main menu

▶ **Power Management Configuration   Press <Enter> key to enter the sub-menu**

- **Restore AC Power Loss**
  Set the status of AC power.
  Options: Power Off, Power On, Last State.
- ▶ **Wake on LAN**
  Enable or disable LAN.
  Options: Enabled, Disabled.
- **RTC Wake system from S5**
  Set the RTC wake-up.
  Options: Disabled, Fixed Time, Dynamic Time.

- Press <Esc> key to return to "Advanced" main menu

▶ **WatchDog Configuration   Press <Enter> key to enter the sub-menu**

- **WatchDog Support**
  Enable or disable watch dog.
  Options: Enabled, Disabled.

- Press <Esc> key to return to "Advanced" main menu

▶ **Network Stack Configuration   Press <Enter> key to enter the sub-menu**

- **Network Stack**
  Enable or disable network protocol.
  Options: Enabled, Disabled.

▶ **Hardware Monitor   Press <Enter> key to enter the sub-menu**

- **Smart Fan Function**
  Smart fan speed control.

- Press <Esc> key to return to "Advanced" main menu

4.5 Chipset

- **Primary Display**
  Display the default settings of onboard integrated and independent graphics.
  Options: Auto, Enabled, Disabled.
- **Above 4GB MMID BIOS assignment**
  Enable or disable 4GB MMID BIOS.
  Options: Enabled, Disabled.
- **DVMT Total Gfx Mem**
  Set the memory size of DVMT.
  Options: 256M,128M，MAX

- Press <Esc> key to return to "Chipset" main menu

▶ **Memory Configuration**

- **Memory Configuration**
  Set the memory.

- Press <Esc> key to return to "Chipset" main menu

4.6 Security

- **Administrator Password**

    If this option is used to set the system administrator password, there are the following steps:

    1.   Select the Administrator Password setting item, and press <Enter> key.

    2.Enter 3 to 20 character or numeric passwords to be set in the "Create New Password" dialog box. After the input is completed, press <Enter> key, and then enter the password again to confirm that the password is correct in the "Confirm Password" dialog box. If the screen shows "Invalid Password!", it indicates that the passwords entered twice are different, please enter them again. To delete the system administrator password, please select "Administrator Password", and complete deletion when the "Create New Password" dialog box appears after entering the old password in the "Enter Current Password" dialog box and pressing <Enter>.

- **User Password**

    Set the user password, the setting steps are the same as that of "Administrator Password".

- **Password check**

    Set the password check.

    Options: Setup, Setup & Post.

4.7 Boot
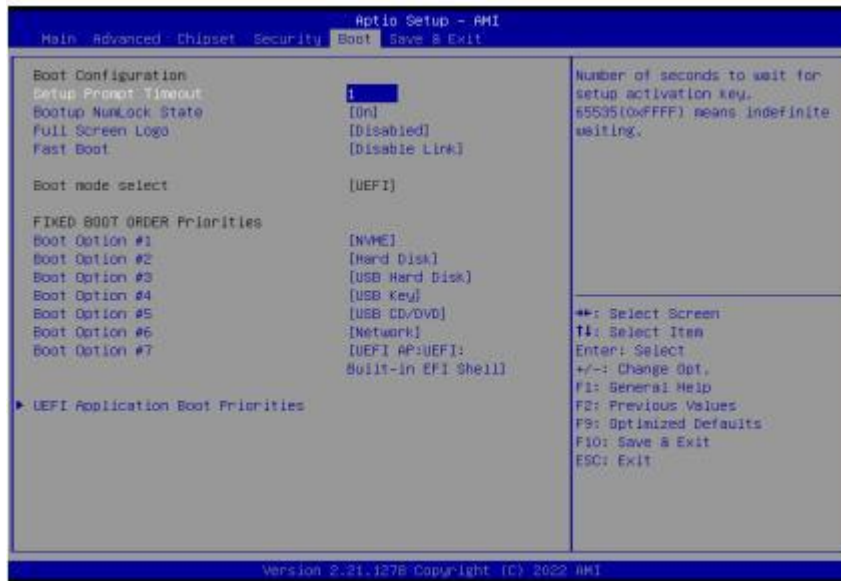
- **Setup Prompt Timeout**

  Set the time of stay on the power-on screen.

- **Bootup NumLock State**

  Set the NumLock state after the system is started. When set to On, NumLock will be enabled and the number keys on the small keyboard will be valid after the system is started. When set to Off, NumLock will be disabled and the direction keys on the small keyboard will be valid after the system is started.

  Options: On, Off.

- **Full Screen Logo**

  Full screen logo display switch.

  Options: Enabled, Disabled.

- **Fast Boot**

  Set the fast boot function.

  Options: Enabled, Disabled Link.

- **Boot Option #1-7**

  Set the boot sequence of system.

  Options: NVME, Hard Disk, USB Hard Disk, USB key, USB CD/DVD, Network, UEFI AP: Built-in EFI Shell.

4.8 Save & Exit

- **Save Changes and Reset**
  Save the changes and reboot the system.
- **Discard Changes and Reset**
  Discard the changes and reboot the system.
- **Restore Defaults**
  Restore and load all option defaults.

Chapter 5 Install driver

Please insert the motherboard driver disk into the CD-ROM drive, the driver disk will run automatically and then a pop-up interface will appear as shown below. If this interface does not appear, please double click to run X: \AUTORUN.EXE (assuming the symbol of driver disk is X:).

Motherboard driver installation

Main chip driver	PCI simple controller driver
Integrated network card driver	Graphics driver
Integrated audio driver	USB3.0 (for Win7 only)

Browse the disk
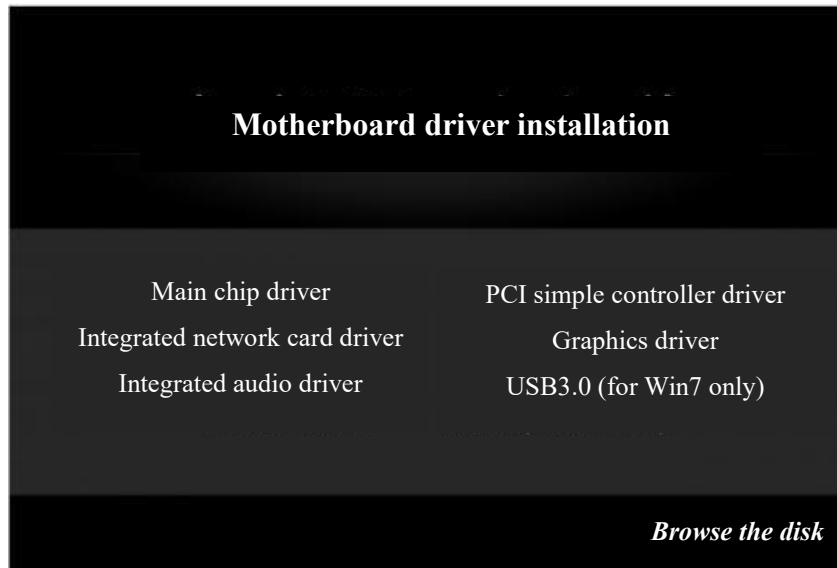
(This image is for reference only, please prevail in kind)

Please click the drivers you need to install in the above interface in turn, and follow the prompts to install them.

Chapter 6   WDT programming guide

6.1   WDT control

WDT control registers are located in LDN DEV8 of the SIO chip, where 0XF0 BIT3 refers to the control by second and minute, 0 represents second and 1 represents minute, 0XF1 is filled with the time. For example, 0XF0 BIT3 is 0, and 0XF1 is filled with 0X20, representing the overflow time of 32 seconds.

6.1.1   The pseudo-code of Watch Dog is set as follows:

```
// Enter SIO control
IoWrite8(0x2E,0x87);
IoWrite8(0x2E,0x87);

IoWrite8(0x2E,0x07);
IoWrite8(0x2F,0x08);//Select LogicDevice8

IoWrite8(0x2E,0x30);
Data8=IoRead8(0x2F);
Data8|=0x1;
IoWrite8(0x2F,Data8);

IoWrite8(0x2E,0xf1);
IoWrite8(0x2F,0x00);

IoWrite8(0x2E,0xf2);
IoWrite8(0x2F,0x00);

IoWrite8(0x2E,0xF0);
Data8=IoRead8(0x2F);
//WdtCountMode=1 Select the unit of minutes
if(SetupData.WdtCountMode==1){
Data8=Data8|0x08;
}
else{
Data8=Data8&(~0x08);
}

IoWrite8(0x2F,Data8);
IoWrite8(0x2E,0xF1);
//WDT Overflow time
IoWrite8(0x2F,SetupData.WdtTimeOut);
// Exit SIO control
IoWrite8(0x2E,0xaa);
```

6.1.2   Clear watch dog

```
// Enter SIO control
IoWrite8(0x2E,0x87);
IoWrite8(0x2E,0x87);

IoWrite8(0x2E,0x07);
IoWrite8(0x2F,0x08); // Select LogicDevice8
```

```
IoWrite8(0x2E,0x30);
Data8=IoRead8(0x2F);
Data8&=(~0x1);
IoWrite8(0x2F,Data8);

IoWrite8(0x2E,0xf1);
IoWrite8(0x2F,0x00);
// Exit SIO control
IoWrite8(0x2E,0xaa);
```

CR F0h. Watchdog Timer I(WDT1) and KBC P20 Control Mode Register

Location: Address F0h

Attribute: Read/Write

Power Well: VSB

Reset by: LRESET# or PWROK

Default : 00h

Size: 8 bits

BIT	READ / WRITE	DESCRIPTION
7-4	Reserved	
3	R / W	Select Watchdog Timer I count mode. 0: Second Mode. 1: Minute Mode.
2	R / W	Enable the rising edge of a KBC reset (P20) to issue a time-out event. 0: Disable. 1: Enable.
1	R / W	Disable / Enable the Watchdog Timer I output low pulse to the KBRST# pin (PIN15) 0: Disable. 1: Enable.
0	R / W	Watchdog Timer I Pulse or Level mode select 0: Pulse mode 1: Level mode

CR F1h. Watchdog Timer I(WDT1) Counter Register

Location: Address F1h

Attribute: Read/Write

Power Well: VSB

Reset by: LRESET# or PWROK

Default : 00h

Size: 8 bits

BIT	READ / WRITE	DESCRIPTION
7-0	R / W	Watch Dog Timer I Time-out value. Writing a non-zero value to the register causes the counter to load the value into the Watch Dog Counter and start counting down. The accuracy of watchdog timer I about one cycle deviation. If CR F2h, bits 7 and 6 are set, any Interrupt event comes from Mouse or Keyboard both cause the previously-loaded. Non-zero value will be reloaded to the Watch Dog Counter and the countdown resumes. Reading the register returns the current value in the Watch Dog Counter but not the Watch Dog Timer Time-out value. 00h: Time-out Disable 01h: Time-out occurs after one cycle time, the cycle time is based on LD8 CRF0, bit[3], by analogy.

Chapter 7 GPIO programming guide

7.1 GPIO control

This document describes the configurations of GPIO of NCT6126D: GP30-GP37, and GP40-GP47 registers
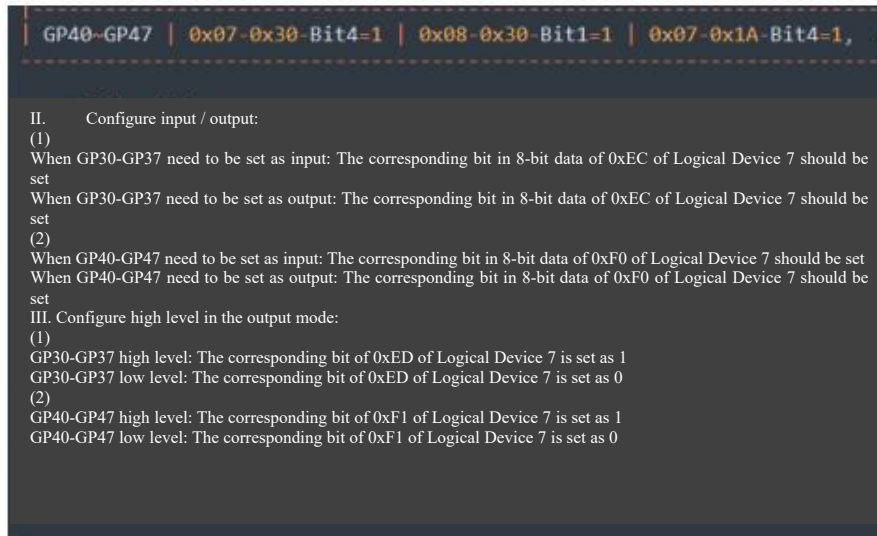
7.1.1 Programming instance function

```
// The function receives three entry parameters GpioGroup, GpioBit, and Level
// If GP35 needs to be set, i.e. GpioGroup=0×3, GpioBit=0×5
//Level=0, i.e. GP35 is set as output low level mode, the function returns the null value of 0
//Level=1, i.e. GP35 is set as output high level mode, the function returns the null value of 0
//Level=2, i.e. GP35 is set as input mode, the function return value is the current level status of GP35
//
UINT8 GpioSet(UINT8 GpioGroup, UINT8 GpioBit, UINT8 Level)
{
// If you want to set a certain register, it should be realized by configuring the port pair, i.e. Index/Data pair
// The port pair configured for GPIO of NCT6126D is 0×2E/0×2F
// i.e. write 0x66 to 0x2E, representing that the register 0x66 is selected
// Write a value to 0x2F at this time, representing that a value is wrote to 0x66

UINT8 Temp8 = 0;
UINT8 BIT0 = 0x1;
UINT8 BIT1 = 0x2;
UINT8 BIT2 = 0x4;
UINT8 BIT3= 0x8;
UINT8 BIT4=0x10;
UINT8 BIT5= 0×20;
UINT8 BIT6= 0×40;
UINT8 BIT7=0×80;
UINT8 NBit[B]={~BIT0, ~BIT1, ~BIT2, ~BIT3, ~BIT4, ~BIT5, ~BIT6, ~BIT7};
UINT8 Bit[8]= {BIT0, BIT1, BIT2, BIT3, BIT4, BIT5, BIT6, BIT7}:
// Enter the configuration mode of NCT6126D
IoWrite(0x2E, 0x87);
IoWrite(0x2E, 0x87);
```

```
//
//Enable GPIO
//
// Select the logical device
IoWrite8(0x2E, 0x07); // 0x07 refers to the register selected for the logical device of NCT6126D. Writing a value to this register allows you to select the logical device.
IoWrite8(0x2F, 0x07); / 0x07 represents Logical Device 7
// Select the register
IoWrite8(0x2E, 0x30):
//Because one bit of 8-bit data only needs to be modified, first read
Temp8 = toRead8(0×2F);


if(Gpio Group == 0×3)
// GP30-GP37, only need to change BIT3 of 0×30 to 1
Temp8 |= BIT3;
}elif(GpioGroup == 0×4){
// GP40-GP47, only need to change BIT4 of 0×30 to 1
Temp8 |= BIT4;
}
IoWrite8(0x2F, Temp8);


//
//Active GPIO
//
// Select the logical device
IoWrite8(0x2E,0x07): // 0x07 refers to the register selected for the logical device of NCT6126D. Writing a value to this register allows you to select the logical device
IoWrite8(0x2F, 0x08); // 0x08 represents Logical Device 8
// Select the register
IoWrite8(0x2E, 0x30);
// Because one bit of 8-bit data only needs to be modified, first read
Temp8 = loRead8(0x2F);
// GP30-GP37, GP40-GP47, only need to change BIT1 of 0×30 to 1
Temp8 |= BIT1;
IoWrite8(0x2F, Temp8);


//
// Set the multiplex function of GPIO as GPIO mode
//
IoWrite8 (0x2E,0x07); // 0x07 refers to the register selected for the logical device of NCT6126D. Writing a value to this register allows you to select the logical device.
IoWrite8(0x2F, 0x07); // 0x07 represents Logical Device 7
// Select the register
IoWrite8(0x2E, 0x1A);
Temp8 = loRead8(0x2F);
Temp8 |= BIT4| BIT5;
```

```
IoWrite8(0×2F, Temp8);




IoWrite8/0x2E,0x07); // 0x07 refers to the register selected for the logical device of NCT6126D. Writing a
value to this register allows you to select the logical device.
IoWrite8(0x2F, 0x0B); // 0x08 represents Logical Device 8
// Select the register
if(GpioGroup == 0x3){
IoWrite8(0x2E, 0xE3);
}elif(GpioGroup == 0x4){
IoWrite8(0x2E, 0xE4);
}


Temp8 = loRead8(0x2F);
Temp8 &= NBit[GpioBit];
IoWrite8(0x2F, Temp8);



//
Set the input and output mode of GPIO
//
IoWrite8(0x2E,0x07); // 0x07 refers to the register selected for the logical device of NCT6126D. Writing a
value to this register allows you to select the logical device
IoWrite8(0x2F, 0x07); // 0x07 represents Logical Device 7
if(GpioGroup ==0x3){


IoWrite8(0x2E, 0xEC);
Jelif(GpioGroup == 0x4){
IoWriteB(0x2E, 0xF0):
}


Temp8 = IoRead8(0x2F);


if(Level == 2){
Temp8 = Bit[GpioBit]:
}else{
Temp8 &= NBit[GpioBit]:
}


IoWrite8(0x2F, Temp8);

//
// If in the output mode, high / low levels of GPIO will be set, and the function returns the null value of 0
// If in the input mode, the current level status of GPIO will be read
```

```
//
IoWrite8(0x2E, 0x07); // 0x07 refers to the register selected for the logical device of NCT6126D. Writing a
value to this register allows you to select the logical device.
IoWrite8(0x2F, 0x07); // 0x07 represents Logical Device 7
if(GpioGroup == 0x3){
IoWrite8(0x2E, 0xED);
}elif(GpioGroup ==0x4)
IoWrite8(0x2E, 0xF1);
}

Temp8 = IoRead8(0x2F);

if(Level == 2){
Temp8 &= Bit[GpioBit];
Temp8 = Temp8 >> GpioBit;

// Exit the configuration mode of NCT6126D
IoWrite(0x2E, 0xAA);
return Temp8;
}else{
if(Level == 1){
Temp8 = Bit[GpioBit];
IoWrite8(0x2F, Temp8);
// Exit the configuration mode of NCT6126D
IoWrite(0x2E, 0xAA);
return 0;
}else{
Temp8 &= NBit[GpioBit]:
IoWrite8(0x2F, Temp8);
// Exit the configuration mode of NCT6126D
IoWrite(0x2E, 0xAA);
return 0;
}
}
```

Order information

Product model	Chipset	Memory	Display	Storage	USB3	USB2	COM	LAN	M.2	PCle
AIoT7-H510	H510	2DDR4	3(2)	2SATA	4	6	6	2	1	1PCle

According to the requirements of SJ/T11364-2014 *Measures for the Control of Pollution from Electronic Information Products* **issued by the Ministry of Information Industry of the People's Republic of China, the marking for the pollution control of this product and the marking for toxic and harmful substances or elements in this product are as follows:**

Marking for toxic and harmful substances or elements in this product:

Name and content of toxic and harmful substances or elements in this product

Part Name	Toxic and harmful substances or elements					
	Pb	Hg	Cd	Cr (VI)	PBB	PBDE
PCB board	X	O	O	O	O	O
Structural part	O	O	O	O	O	O
Chip	O	O	O	O	O	O
Connector	O	O	O	O	O	O
Passive electronic parts and components	X	O	O	O	O	O
Welded metal	X	O	O	O	O	O
Wire rod	O	O	O	O	O	O
Other consumables	O	O	O	O	O	O
O: It means that the content of this toxic and harmful substance in all homogeneous materials of this part is below the limit requirement specified in GB/T 26572. X: It means that the content of this toxic and harmful substance in all homogeneous materials of this part exceeds the limit requirement specified in GB/T 26572. Note: The lead content at position X exceeds the limit specified by GB/T 26572, but complies with the exemption clause of the EU RoHS directive.						