

JWIPC AIoT0-W680 ATX Embedded Motherboard User Manual

Contents

- [1 JWIPC AIoT0-W680 ATX Embedded Motherboard](#)
- [2 Documents / Resources](#)
- [3 Related Posts](#)

JWIPC AIoT0-W680 ATX Embedded Motherboard

Product Information

Product Name: AIOT0-W680 AIOT0-W680D

Version: 1.0

Copyright Statement: The trademarks mentioned in this manual belong to their legally registered companies. The product names involved in this manual are for identification purposes only, and Their ownership belongs to their manufacturers or brand owners.

Product Usage Instructions

Chapter 2: Hardware Installation

To install the hardware, follow the steps below

1. Connect the Serial ATA connector (refer to section 2.3.1)
2. Insert the M2-KEYM1/2 card into the slot (refer to section 2.3.2)
3. Install PCIE1/2/3/4/5/PCI1/2 cards into the respective slots (refer to section 2.3.3)

Chapter 3: Installation and setup of jumpers & connectors

To install and set up jumpers and connectors, refer to Section 3 in the user manual.

Chapter 4: BIOS settings

To configure BIOS settings, follow the steps below:

1. Read the BIOS explanation in section 4.1
2. Adjust the BIOS settings as needed using the instructions provided in section 4.2

Chapter 5: Install the driver

To install the necessary drivers, refer to section 5 in the user manual.

Chapter 6: WDT programming guide

To program the Watch Dog, follow the steps below:

1. Read the description of the programming guide document in section 6.1

2. Set the pseudo-code of Watch Dog as described in section 6.1.1
3. Clear the Watch Dog as instructed in section 6.1.2

Chapter 7: GPIO programming guide

To control GPIO, refer to section 7.1 in the user manual. For specific information about FINTEK 7511, see the specifications provided in section 7.1.1 For more information and details about the product, please refer to the user manual.

Disclaimer

The content of this manual is the intellectual property of the Company, and the copyright belongs to the Company. The ownership of all parts of this product, including accessories and software, is vested in the Company. Without the written permission of the Company, this manual and its any content shall not be imitated, copied, extracted or translated into other languages in any form.

We have carefully prepared this manual with an attitude of being responsible for users, but we do not guarantee that

the contents of this manual are completely accurate. This manual is a purely technical document, without any hint or innuendo of third-party content, and does not bear any ambiguity in user understanding caused by typographical

errors. In case of any direct or indirect information loss or business termination caused by this manual or all the information about the product mentioned in this manual, the Company and its employees shall not shoulder any responsibility.

Since our products are continuously being improved and updated, the Company reserves the right to amend the contents of this manual without prior notice.

Copyright statement

The trademarks mentioned in this manual belong to their legally registered companies.

The product names involved in this manual are for identification purposes only, and their ownership belongs to their manufacturers or brand owners.

Chapter 1 Summary

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 baffle

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.

Motherboard specifications

Structure drawing of motherboard

IO interface structure drawing of motherboard

Motherboard layout

IO panel interface

- COM: Serial port
- HDMI: HDMI display interface
- DP: DP display interface

PS2: Keyboard & mouse interface

USB3.0: USB3.0 interface

LAN: RJ45 Ethernet interface

AUDIO1: Audio interface

Chapter 2 Hardware installation

2.1 Install CPU

Before installing memory, please observe the following warning information:

1. Please make sure that the CPU you purchased is compatible with the specifications supported by this motherboard.
2. Before installing or removing the CPU, please make sure that the computer power is turned off to prevent damage.
3. CPU is designed with fool-proof mechanism. If you insert it in the wrong direction, CPU cannot be inserted. In such case, do not forcibly install to prevent pin breakage or deformation.

Install CPU:

1. When installing CPU, firstly pull up the lever on the edge of CPU socket at the angle of 90°.
1. In the lower left corner of the front side of the CPU, there will be an arrow that corresponds to the position of the missing pin on the CPU socket.
3. Confirm that the CPU has been fully inserted into the CPU socket, and then lower the lever to the sound of "Click".
4. Apply an appropriate amount of thermally conductive silicone grease to the surface of the CPU core to prevent the silicone grease from overflowing onto the socket.

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 diagram (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.

Connect peripherals

2.3.1 Serial ATA connector

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.

M2-KEYM1/2 slot

M.2 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

PCIe1/2/3/4/5/PCI1/2 slots

1 * PCIe x16 slot , supports PCIe 5.0

1 * PCIe x16 slot, (x4 signals), supports PCIe 4.0

1 * PCIe x4 slot , supports PCIe 4.0

COM1 and JCOM2 support RS-232/422/485 mode. Three modes can be switched by selecting the above jumper caps.

2 * PCIe x4 slot , supports PCIe 3.0

2 * standard PCI slot (32bit)

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.

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)

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

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

ATXPWR1 power interface (standard 24Pin power interface)

PWR12V1 power interface (standard 8Pin power interface)

CPU_FAN1 interface (CPU fan interface)

JDV1 pin interface

SYS_FAN1/2 pin interface (system fan interface)

F_AUDIO1 pin interface (audio interface)

J_GPIO1 pin interface (GPIO interface)

LPT1 pin interface (printer interface)

COM1 pin interface (serial port)

Note: COM1, and JCOM2 serial ports need to be switched among RS232, RS422 or RS485 through the jumper setup. Users can refer to “3.2 Jumper setup” for its jumper setup

JCOM3/4/5/6 pin interface (RS232 serial port)

JESPI1 pin interface

F_USB1/2 pin interface (USB interface)

FPANEL1/2 pin interface

Chapter 4 BIOS settings

4.1 BIOS explanation

This motherboard uses AMI BIOS. The full name of BIOS 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:

- Initialize your computer and detect hardware, this process is called POST (Power On Self Test).
- Load and run the operating system.
- Provide the lowest and most basic control over your computer hardware.
- 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:

- An error message appears on the screen during the system self-test, and it is required to enter the SETUP program;
- 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

key to enter the BIOS setup program.

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.

Main

BIOS Information (BIOS related information)

System Date (system date setting)

Set the date of the computer in the format of "day of the week, 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

Intel(R) SpeedStep(tm)

Allow or not allow to support more than two frequency ranges.

Options: Enabled, Disabled.

Turbo Mode

Set Turbo mode of processor.

Options: Enabled, Disabled.

Intel (VMX) Virtualization Technology

Enable or disable Intel VMX technology.

Options: Enabled, Disabled.

VT-d

VT performance.

Options: Enabled, Disabled.

C states

Enable or disable CPU power source management.

Options: Enabled, Disabled.

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

SATA Controller

Enable or disable Intel VMX technology.

Options: Enabled, Disabled.

VMD setup menu

Setup menu for VMD.

Hybrid Storage Detection and Configuration Mode

Set the hybrid storage detection and configuration mode

Options: Dynamic Configuration for Hybrid storage Enable, Disabled.

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

VMD setup menu Press <Enter> key to enter the sub-menu.

Enable VMD controller

Enable or disable VMD controller.

Options: Enabled, Disabled.

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

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

IT8786 Super IO Configuration

Configure IT8786 super IO.

Trusted Computing

Configure the trusted computing.

PPT Configuration

Configure the PPT.

Onboard Audio

Enable or disable audio interface of motherboard.

Options: Enabled, Disabled.

PCH LAN Controller(I219)

Set the PCH LAN controller.

Options: Enabled, Disabled.

I226

Enable or disable onboard network board.

Options: Enabled,Disabled.

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

IT8786 Super IO Configuration Press <Enter> key to enter the sub-menu

Serial Port 1/2/3/4/5/6 Configuration

Configure the serial port.

Parallel Port Configuration

Configure the parallel port.

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

Security Device Support

Set the BIOS support of security device.

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.

Physical Presence Spec Version

Set the physical presence specification version.

Options: 1.2, 1.3.

Device Select

Set the device selection.

Options: TPM 1.2, TPM 2.0,Auto.

PTT Configuration Press <Enter> key to enter the sub-menu

TPM Device Selection

Select the TPM device.

Options: dTPM,PTT,Auto.

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.

WakeonLAN

Enable or disable LAN.

Options: Enabled,Disabled.

PS/2KeyboardWakeUp

Enable or disable PS/ 2 keyboard.

Options: Enabled,Disabled.

PS/2MouseWakeUp

Enable or disable PS/ 2 mouse.

Options: Enabled,Disabled.

RTCWakesystemfromS5

Set the RTC wake-up.

Options: Disabled, Fixed Time, Dynamic Time.

EUP Function

Enable or disable the wake events of system alarm.

Options: Enabled,Disabled.

Press <Esc> key to return to “Advanced” main menu

Watch Dog 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

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

SYS Smart Fan2/1

Smart fan speed control of the system.

Options: Full on Mode,Automatic Mode,Manual Mode.

Temperature source select

Select the tempering source.

Options: CPU Temp,SYS Temperature.

CPU Smart Fan

CPU smart fan speed control.

Options: Full on Mode,Automatic Mode,Manual Mode.

Press <Esc> key to return to “Advanced” main menu

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

Note: When the motherboard is connected to NVMe, there is device displayed on the configuration interface of NVMe.

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 UEFI network stack.

Options: Enabled,Disabled.

4.5 Chipset

Internal Graphics

Set the internal graphics.

Options: Auto,Disable,Enable.

Primary Display

Display the default settings of onboard integrated and independent graphics.

Options: Auto,IGFX,PEG Slot.

Memory Configuration

Set the memory.

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>.

Administrator Password

Password check.

Options: Setup,Setup&Post

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

Set the full screen logo display.

Options: Enabled, Disabled.

Boot Option #1/2

It allows to select the boot device with priority, and the devices displayed on the screen depend on that installed on the system.

Options: NVMe, Hard Disk, CD/DVD, USB Hard Disk, USB Key, USB CD/DVD, Net work, UEFI AP.

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:).

(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 Description about programming guide document

WDT control registers are located in LDN DEV7 of the SIO chip, where 0X72 BIT7 refers to the control by second and minute, 1 represents second and 0 represents minute, 0XF3 is filled with the time. For example, 0X72 BIT7 is 1, and 0XF3 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 ite config

```
IoWrite8(SioIndexPort, 0x87);
```

```
IoWrite8(SioIndexPort, 0x01);
```

```
IoWrite8(SioIndexPort, 0x55);
```

```
IoWrite8(SioIndexPort, 0x55);
```

//select watchdog device

```
IoWrite8(SioIndexPort, 0x07);
```

```
IoWrite8(SioDataPort, 0x07);
```

```
IoWrite8(SioIndexPort, 0xF1);
```

```
temp_data = IoRead8(SioDataPort);
```

```
temp_data &= 0xBB;
```

```
temp_data |= 0x44;
```

```
IoWrite8(SioIndexPort, 0xF1);
```

```
IoWrite8(SioDataPort, temp_data);
```

//MAP to GP40

```
IoWrite8(SioIndexPort, 0xF4);
```

```
temp_data = IoRead8(SioDataPort);
```

```
temp_data &= 0xC0;
```

```
temp_data |= 0x20;
```

```
IoWrite8(SioIndexPort, 0xF4);
```

```
IoWrite8(SioDataPort, temp_data);
```

```

//wdt start
if(ite_watch_dog_element->wdt_operator==START_WDT){
//clear status
IoWrite8(SioIndexPort, 0x71);
temp_data = IoRead8(SioDataPort);
temp_data &= 0xfe;
IoWrite8(SioIndexPort, 0x71);
IoWrite8(SioDataPort, temp_data);
IoWrite8(SioIndexPort, 0x72);
temp_data = IoRead8(SioDataPort);
temp_data &= 0x1f;
temp_data |= 0xC0;
//minute or second BIT7 1->second 0->minute
if(ite_watch_dog_element->wdt_unit == 1){
temp_data &= 0x7f;
}

```

```

IoWrite8(SioIndexPort, 0x72);
IoWrite8(SioDataPort, temp_data);
//Clear Status
IoWrite8(SioIndexPort, 0x71);
temp_data = IoRead8(SioDataPort);
temp_data &= 0xfe;
IoWrite8(SioIndexPort, 0x71);
IoWrite8(SioDataPort, temp_data);
//Count
IoWrite8(SioIndexPort, 0x74);
IoWrite8(SioDataPort, 0x0);
IoWrite8(SioIndexPort, 0x73);
IoWrite8(SioDataPort, ite_watch_dog_element->wdt_time);
//printf("wdt start:%x\n",IoRead8(data));

```

```

Clear watch dog
//wdt stop
if(ite_watch_dog_element->wdt_operator==STOP_WDT){
IoWrite8(SioIndexPort, 0x74);
IoWrite8(SioDataPort, 0x0);
IoWrite8(SioIndexPort, 0x73);
IoWrite8(SioDataPort, 0x0)

```

Chapter 7 GPIO programming guide

7.1 GPIO control

The hardware uses the GPIO pins with FINTEK 7511 expansion, the pins corresponding to 7511 are shown in the blow figure, and the communication is subject to PCHSMBUS control based on FINTEK 7511.

7.1.1 FINTEK 7511 SPEC

Order information

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

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.

Documents / Resources

| | |
|---|---|
|  | <p>JWIPC AIoT0-W680 ATX Embedded Motherboard [pdf] User Manual</p> <p>AIOT0-W680, AIOT0-W680D, AIoT0-W680 ATX Embedded Motherboard, ATX Embedded Motherboard, Embedded Motherboard, Motherboard</p> |
|---|---|