

MINIX IPC User's Manual

RIC MW58A

COPYRIGHT

The documentation and the software included with this product are copyrighted 2021 by MINIX Technology Ltd. All rights are reserved. MINIX Technology Ltd. reserves the right to make improvements to the products described in this manual at any time without notice. No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of MINIX Technology Ltd. The information provided in this manual is intended to be accurate and reliable. However, MINIX Technology Ltd. assumes no responsibility for its use nor for any infringements of the rights of third parties which may result from its use.

FCC Statement :

FCC Declaration of Conformity

Minix Technology Ltd hereby declares that this motherboard is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

For further information, please consult www.minix.com.hk.

This device complies with the requirements in part 15 of the FCC rules: Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device under Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used by the instruction manual, may cause harmful interference to radio communications. The operation of this device in a residential area is likely to cause harmful interference. In this case, the user will be required to correct the interference at their own expense. The user is advised that any equipment changes or modifications not expressly approved by the party responsible for compliance would void the compliance to FCC regulations and therefore, the user's authority to operate the equipment.

Caution! There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Chapter 1 Introduction

1.1 Initial Inspection	1
1.2 Product Specification	2
1.3 Board Layout: Jumper and Connector Locations	3
1.4 IO View	3
1.5 Board Layout	4
1.6 IO Connectors	4

Chapter 2 Hardware Setup

2.1 Installation of the CPU and CPU Cooler	6-7
2.2 Installation of Memory Modules	8
2.3 Connect with External Devices	9

Chapter 3 Jumpers & Headers Setup

3.1 Checking Jumper Settings	11
3.2 Jumper Settings	11
3.3 PWR12V1/ATXPWR1 Connector	12
3.4 CFAN1/SFAN1 pins	12
3.5 FPANEL1 2.54mm port	13
3.6 FPANEL2 2.0mm port	13
3.7 F_USB2/F_USB1 port	14
3.8 JCOM2/3/4/5/6 2.54mm port	14
3.9 LPT1 2.54mm port	15
3.10 J_GPIO port	15
3.11 JDEBUG1 port	16
3.12 JDVI1 2.0mm port	16

Chapter 4 BIOS Setup Utility

4.1 About BIOS	18
4.2 About BIOS Setup	18-19
4.3 Main menu	19
4.4 Advanced	20-26
4.5 Chipset	27
4.6 Security	28
4.7 Boot	29
4.8 Save & Exit	29

Chapter 5 WDT Programming

5.1 WDT control	31-32
-----------------	-------

Chapter 6 GPIO programming guidance

6.1 GPIO control	34
------------------	----

Ordering Information

CHAPTER 1

Introduction

1.1 Initial Inspection

Before you begin installing your motherboard, please make sure that the following materials have been shipped:

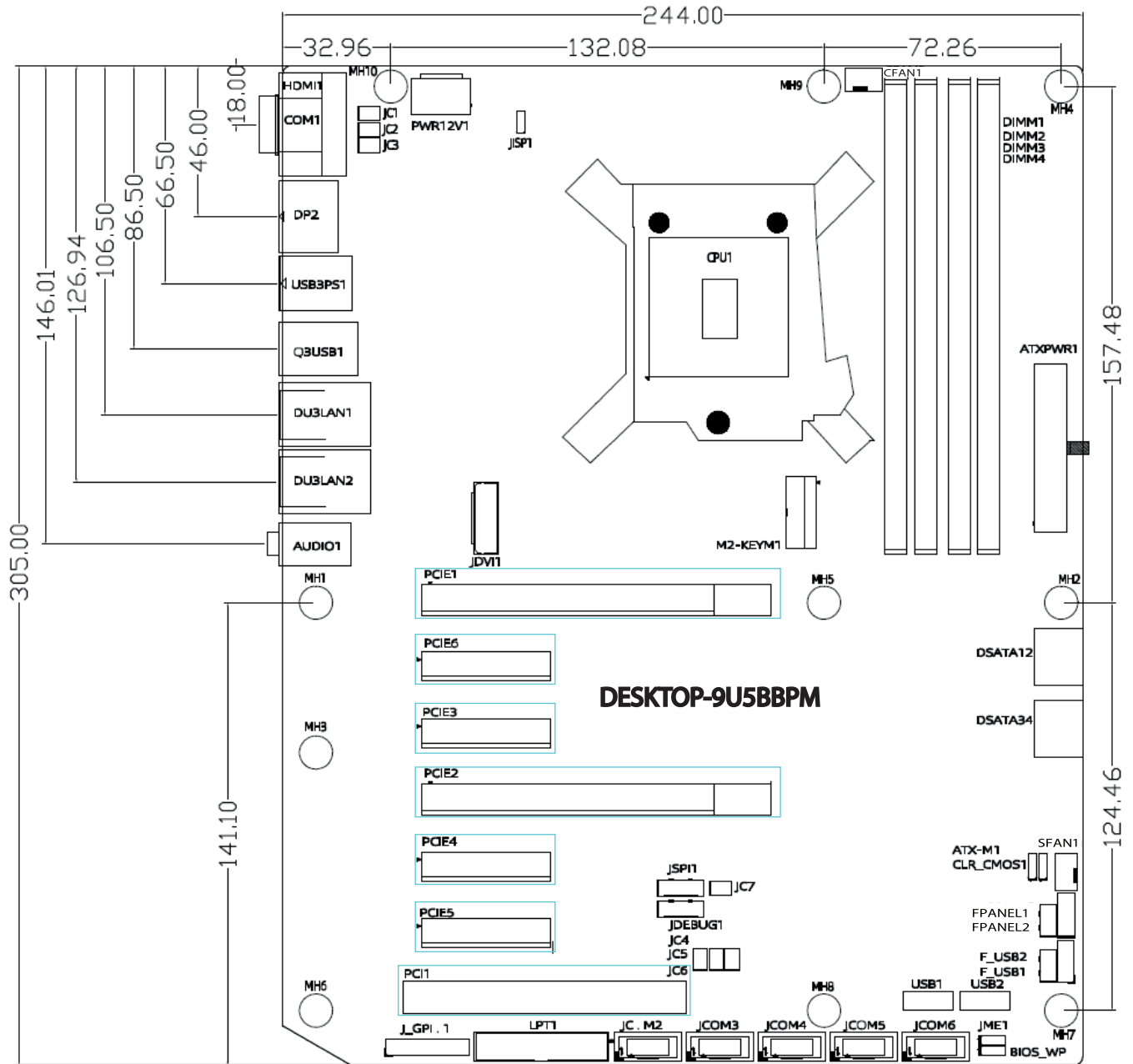
1. 1 x User Manual
2. 2 x Serial ATA HDD data cables
3. 1 x I/O port bracket

Contact your distributor or sales representative immediately if any of these items are missing or damaged. We have carefully inspected them mechanically and electrically before shipment. It should be free of marks and scratches and in perfect working order upon receipt. As you unpack the motherboard, check it for signs of shipping damage. (For example, damaged box, scratches, dents, etc.) If it is damaged or fails to meet the specifications, notify our service department or your local sales representative immediately. Also notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection, we will make arrangements to repair or replace the unit.

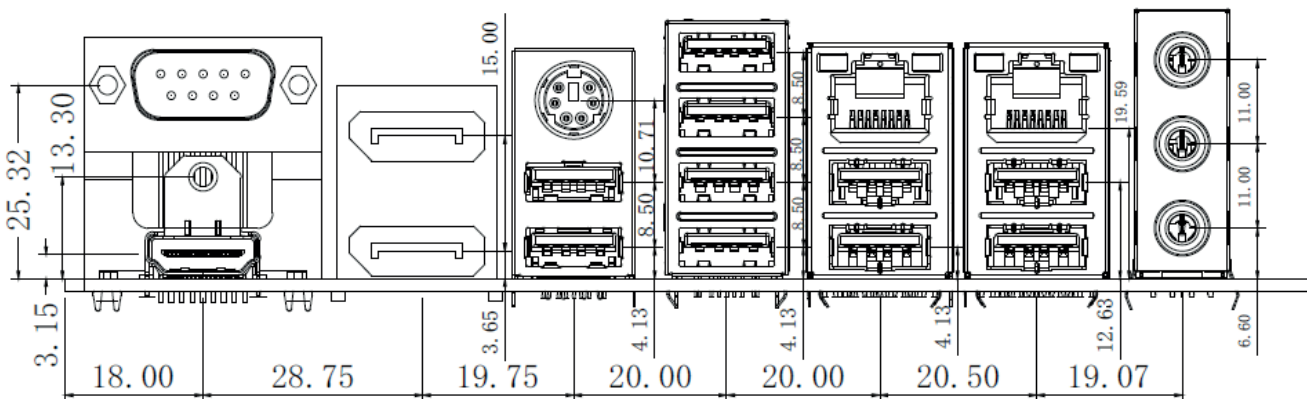
1.2 Product Specification

Product Type	ATX motherboard
CPU	Intel® 10th&11th Xeon W/i9/i7/i5/i3/G LGA1200 Series Processor, Max TDP at 125W
Chipset	Intel® W580 Chipset
Memory	4 × 288-PIN DDR4 U-DIMM socket, support up to 128GB (ECC memory support by CPU), DDR4 2400MHz, DDR4 2666MHz, DDR4 2933MHz, DDR4 3200MHz
Graphics	Intel® HD Graphics (support by CPU)
Display port	DP + DP + HDMI + DVI-D (pin header), Support Triple Display
Storage	4 × SATA 3.0, support SATA RAID 0/1/5/10 (When the M.2 port is used, SATA1 no signal out) 1 × M.2 2242/2280 Key-M slot, this slot support SATA or NVMe PCIe Gen3 x4 (only Gen11 CPU support)
Audio	IO support MIC-In, Speaker-Out, Line-In 3-in-1 audio jack
Ethernet	LAN1: 1 × Intel® I225LM 2.5Gigabit Ethernet, LAN2: 1 × Intel® I219V Gigabit Ethernet
USB	8 × USB3.2 GEN1, 2 × USB3.2 GEN2, 2 × USB2.0 Type-A vertical ports, 2 × USB2.0 by pin header
LPT port	1 × LPT port
COM port	6 × COM ports (COM1&2 to support RS-232/422/485, COM3-6 to support RS-232)
KB/MS port	1 × PS/2 KB/MS + 2 × USB3.2 Gen1 Type A
GPIO	1 × 16bit GPIO
eSPI Port	1 × eSPI port
TPM/TCM Port	On board TPM SLB9670 (SLB9672), to support TPM2.0 (by default)
Power Mode	ATX power, support ATX/AT
Expansion	2 × [PCI-e x16] slots for 1 × [PCI-e x16] or 2 × [PCI-e x8], 4 × PCI-e x4 slots (3 × [PCI-e x4], 1 × [PCI-e x1]) 1 × PCI (32bit)
Operating Temperature	0°C~60°C, 10%~85% RH Non-condensing, 85~105kPa
Storage Temperature	-40°C~75°C, 5%~95%(40°C) RH Non-condensing, 85~105kPa
Watchdog Timer	Programmable 1~255 sec, support system reset
BIOS	AMI UEFI BIOS
OS	Windows10 x64, Linux Ubuntu 21.04
Dimensions (L x W)	305mm X 244mm(12"x 9.6")

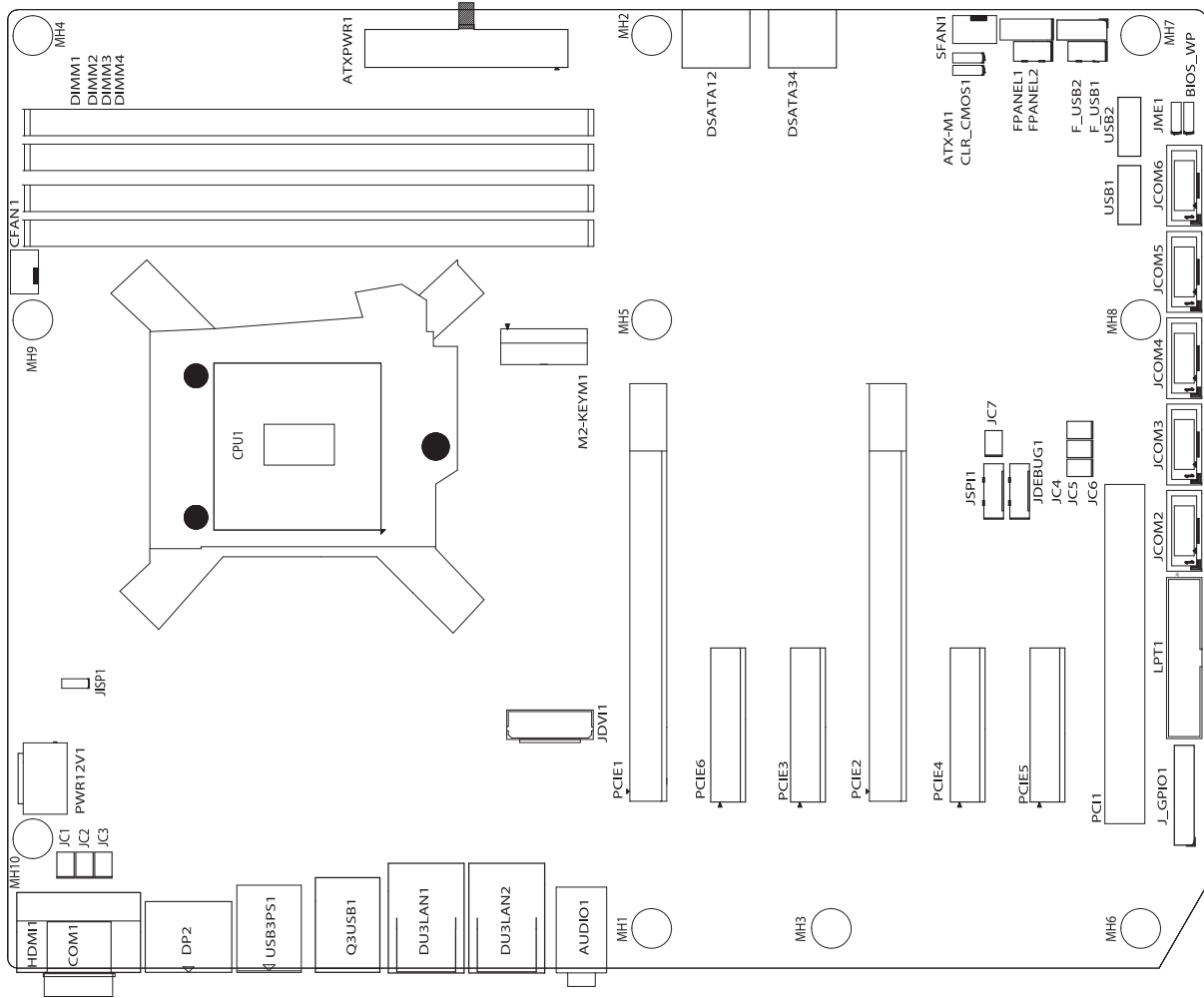
1.3 Board Layout: Jumper and Connector Locations



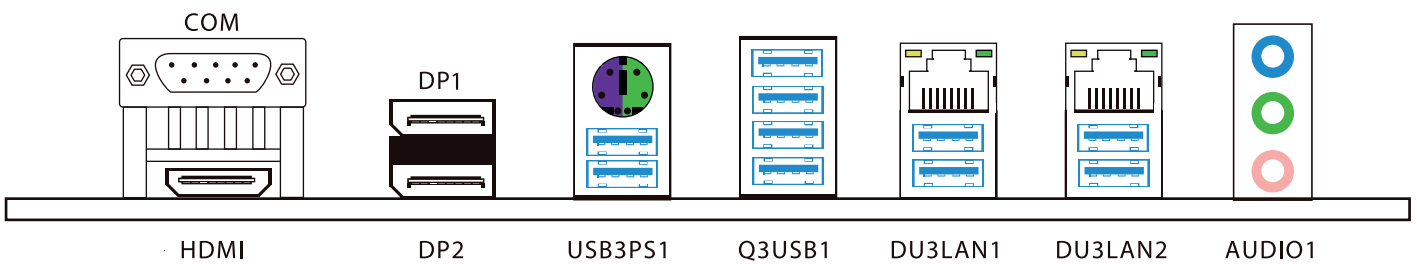
1.4 IO View



1.5 Board Layout



1.6 IO Connectors



- COM: COM port
- HDMI: HDMI display port
- DP: DP display port
- PS2: PS/2 KB/MS port
- USB3.2: 8 x USB 3.2 Gen1, 2 x USB 3.2 Gen2
- LAN: RJ45 Ethernet port
- AUDIO1: MIC-In, Speaker-Out, Line-In

CHAPTER 2

Hardware Setup

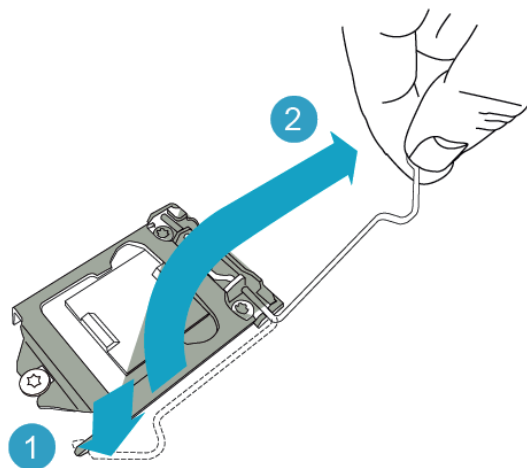
2.1 Installation of the CPU and CPU Cooler

Before installing the CPU, please comply with the following conditions:

1. Please make sure that the mainboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
3. Please add an even layer of heat sink paste between the CPU and CPU cooler.
4. Please make sure the CPU cooler is installed on the CPU prior to system use; otherwise overheating and permanent damage to the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

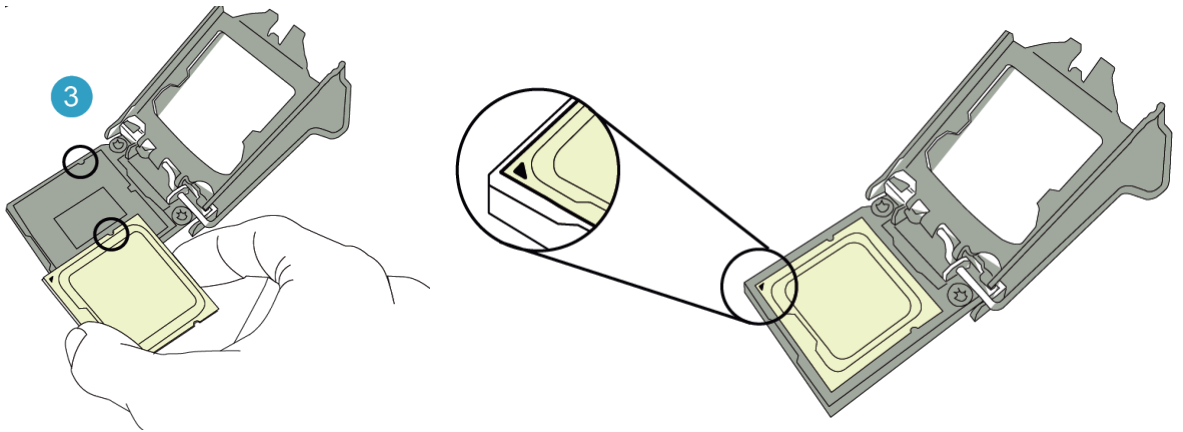
Installation CPU :

1. Open the socket lever by pushing the lever down and away from the socket.

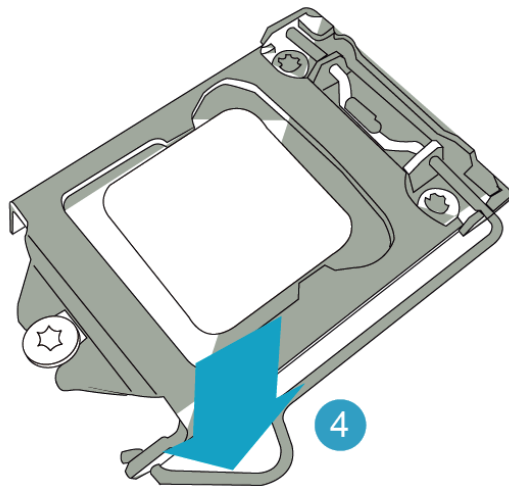


2. Position the CPU over the socket, ensuring that the gold triangle is on the bottom-left corner of the the socket, and then fit the socket alignment keys into the CPU notch s.(marked with the circle)

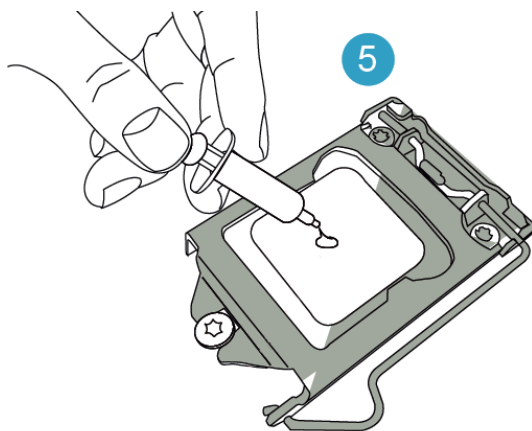
2.1 Installation of the CPU and CPU Cooler



3. Pull back the load lever, then push the load lever until it snaps into the retention tab.



4. Apply an even and thin layer of thermal grease on the surface of the CPU.



2.2 Installation of Memory Modules

This mainboard provides four 240-pin DDR4 (Double Data Rate) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two identical (the same brand, speed, size and chip-type) memory modules in the DDR4 DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate in single channel mode.

One DIMM:

Install one memory module into DIMM 1 or DIMM 2 first as a single-channel operation.

Two DIMMs (dual-channel operation):

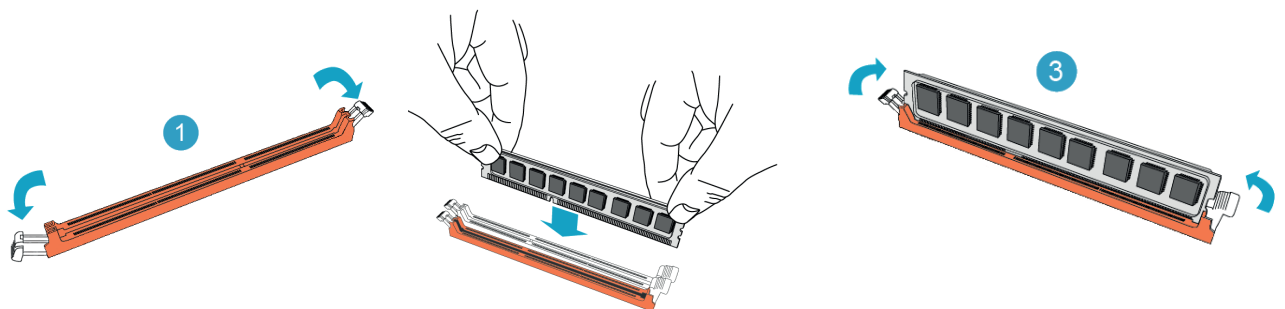
Install two memory modules into DIMM 1 and DIMM 3 or DIMM 2 and DIMM 4 first as a dual-channel operation.


Four DIMMs (dual-channel operation):

Install four memory modules into DIMM 1 and DIMM 2 and DIMM 3 and DIMM 4 first as a dual-channel operation.

Install system memory:

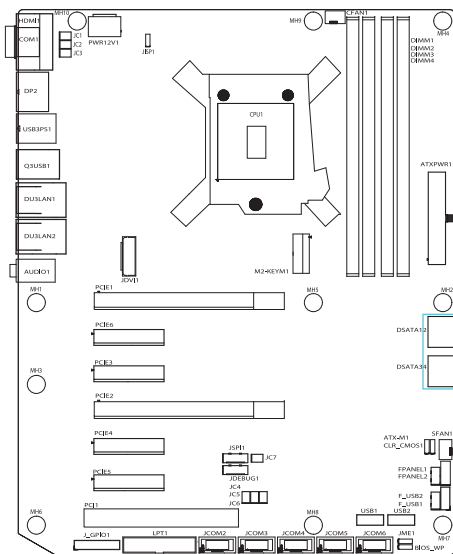
1. Power off the computer and unplug the AC power cord before installing or removing memory modules.
2. Locate the DIMM slot on the board.
3. Hold two edges of the DIMM module carefully; keep away from touching its connectors.
4. Align the notch key on the module with the rib on the slot.
5. Firmly press the module into the slots until the ejector tabs at both sides of the slot automatically snap into the mounting notch. Do not force the DIMM module in with extra force as the DIMM module only fits in one direction.
6. To remove the DIMM modules, push the two ejector tabs on the slot outward Simultaneously, then pull out the DIMM module.



 *Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures ensure that you are discharged of static electricity by touching a grounded metal object briefly.*

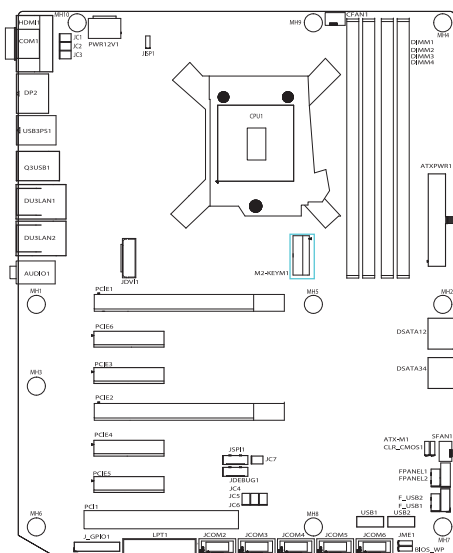
2.3 Connect with External Devices

2.3.1 Serial ATA Interface



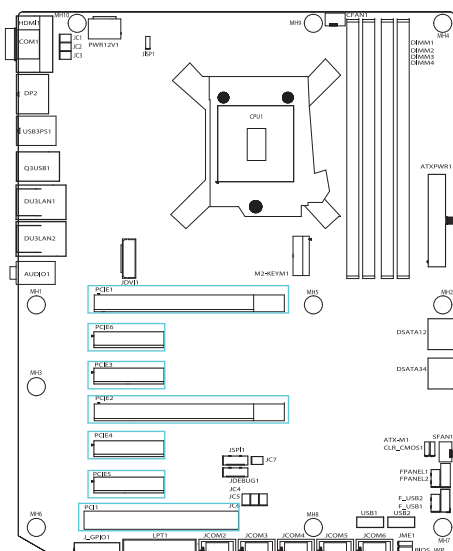
It features four high-performance serial ATA 3.0 interfaces (up to 600 MB/s) with long, thin, easy-to-run SATA cables.

2.3.2 M2-KEYM1 Slot



It is equipped with one M.2 socket to support up to PCIe x4 M-key 2280 type storage devices. A screw to fasten the device is already installed on the nut.

2.3.3 PCI-E/PCISlot



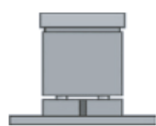
It provides 2 x PCI-e x16 slots for 1 x PCI-e x16 or 2 x PCI-e x8, 4 x PCI-e x4 slots (3 * x4, 1 * x1), 1 x PCI (32bit) slot for users to install an add-on peripheral card for extension requirements.

CHAPTER 3

Jumpers & Headers Setup

3.1 Checking Jumper Settings

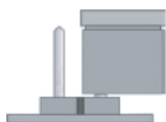
- 2-pin jumper: Plug the jumper cap onto both pins will make it CLOSE (SHORT). Remove the cap or plug it into another (keep for future use) that will activate the jumper.
- 3-pin jumper: Plug the jumper cap onto pin 1~2 or pin 2~3 will make it CLOSE (SHORT).shorted by plugging the jumper cap in.



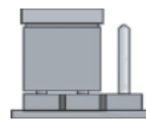
SHORT



OPEN



OPEN



Pin1~2 SHORT



Pin2~3 SHORT

How to identify the PIN1?

Please check the Motherboard carefully; the PIN1 is marked by "1", a white thicker pin line or white triangle.

3.2 Jumper Settings

JME1 Jumper Settings

(Disable ME, Update ME, 1-2 Closed)

PIN	Signal
1-2	Disable ME
2-3	Normal (Default)

CLR-CMOS1 Jumper Settings

(Plug the Jumper cap to 2-3, clear the CMOS setup, and set to default values)

PIN	Signal
1-2	NORMAL (Default)
2-3	CLEAR_CMOS

ATX-M1 Jumper Settings

(1-2 Closed: normal mode,
2-3 Closed: Auto Power On)

PIN	Signal
1-2	ATX Mode (Default)
2-3	AT Mode

BIOS_WP Jumper Settings

(2-3 Closed, BIOS write-protect)

PIN	Signal
1-2	Normal (Default)
2-3	BIOS_WP

JC1-3 Jumper Settings

(JC1-3 combination is to control COM1 mode)

Jumper	RS232 (Default)	RS485	RS422
JC1	[1-2]	[3-4]	[5-6]
JC2	[1-3] & [2-4]	[3-5] & [4-6]	[3-5] & [4-6]
JC3	[1-3] & [2-4]		[3-5] & [4-6]

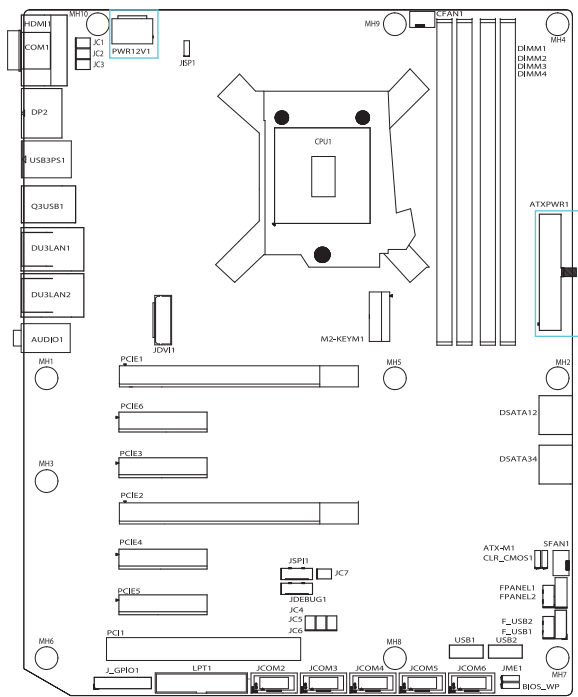
JC4-6 Jumper Settings

(JC4-6 combination is to control COM2 mode)

Jumper	RS232 (Default)	RS485	RS422
JC3	[1-2]	[3-4]	[5-6]
JC5	[1-3] & [2-4]	[3-5] & [4-6]	[3-5] & [4-6]
JC6	[1-3] & [2-4]		[3-5] & [4-6]

NOTE: [1-2] means using a jumper to connect Pin1 and Pin2, and so forth.

3.3 PWR12V1/ATXPWR1 Connector (ATX 8pin+24pin Power Connector)



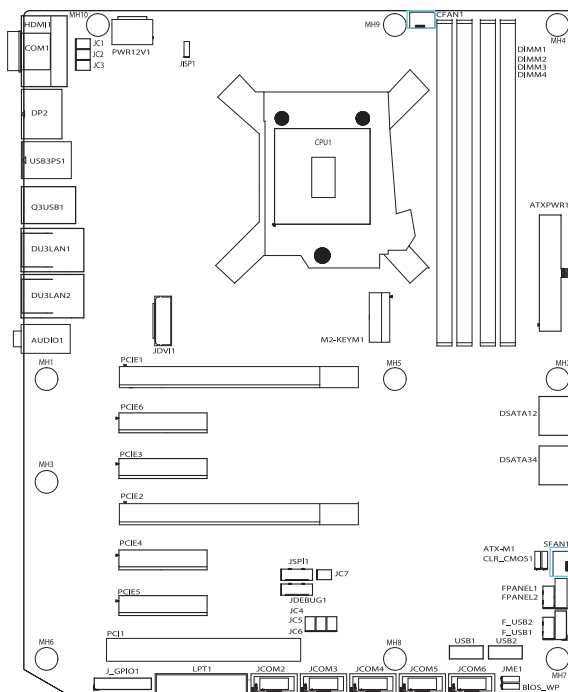
PWR12V1 :

PIN	Signal	PIN	Signal
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

ATXPWR1 :

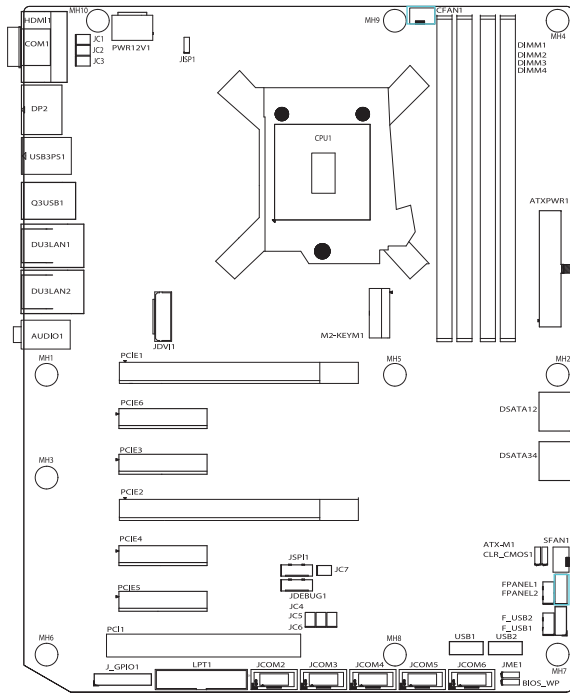
PIN	Signal	PIN	Signal
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PSON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	POK	20	NC
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

3.4 CFAN1/SFAN1 pins (CPU and System FAN port)



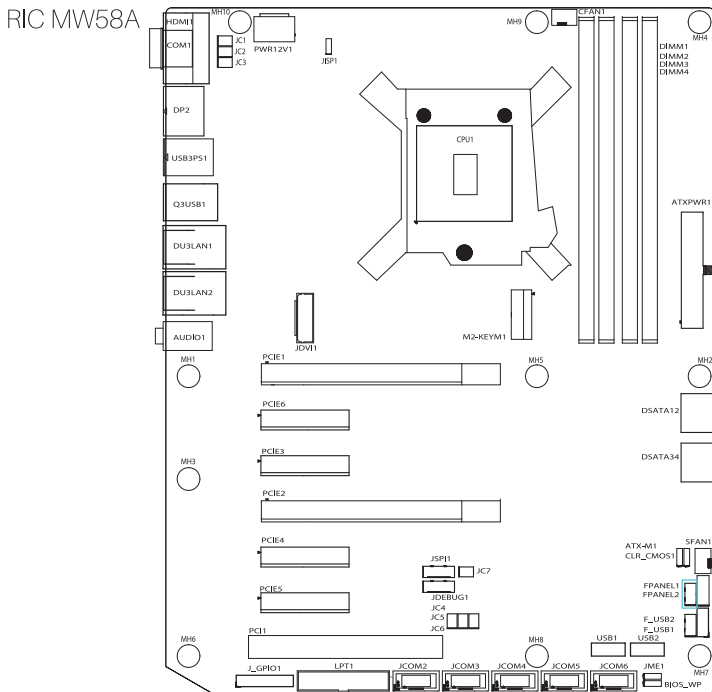
PIN	Signal
1	GND
2	+12V
3	FAN_TAC
4	FAN_CTL

3.6 FPANEL1 2.54mm port



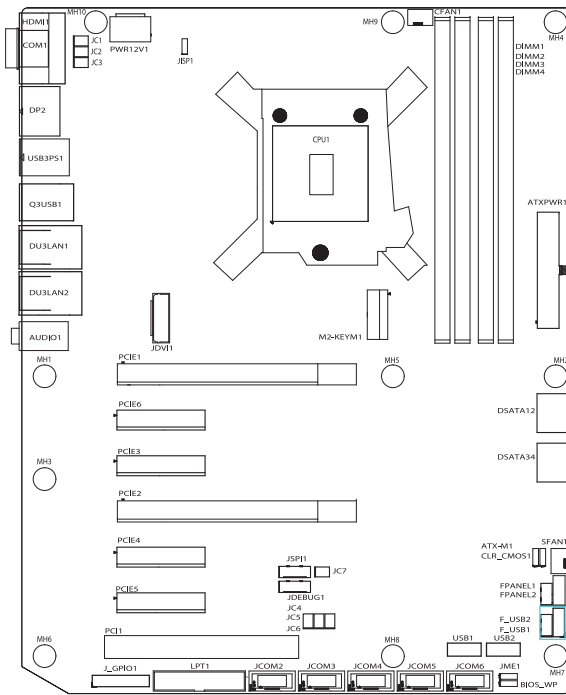
PIN	Signal	PIN	Signal
1	HDD_LED+	2	PWRLED+
3	HDD_LED-	4	PWRLED-
5	GND	6	PWR_SW
7	SYSY_RST	8	GND
9	NC		

3.5 FPANEL2 2.0mm port



PIN	Signal	PIN	Signal
1	PWR_SW	2	GND
3	GND	4	SYSY_RST
5	HDD_LED-	6	HDD_LED+
7	PWRLED-	8	PWRLED+

3.7F_USB2/F_USB1 port



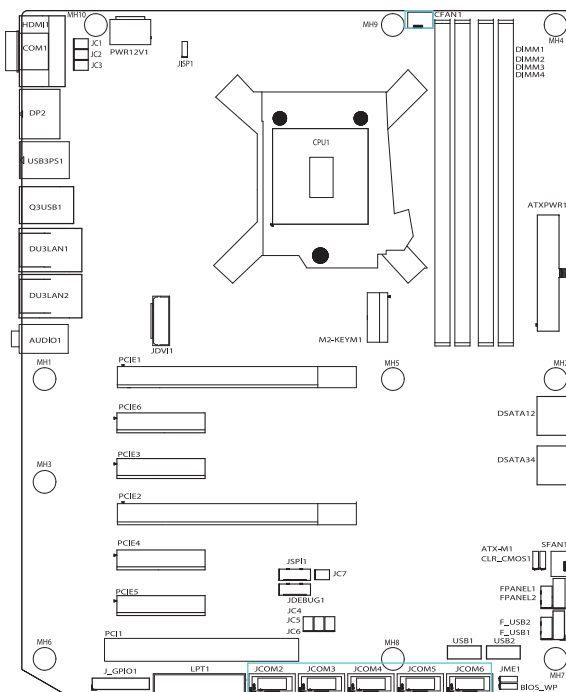
F_USB2 2.0mm port

PIN	Signal	PIN	Signal
1	5V	2	5V
3	D-	4	D-
5	D+	6	D+
7	GND	8	GND

F_USB1 2.54mm port

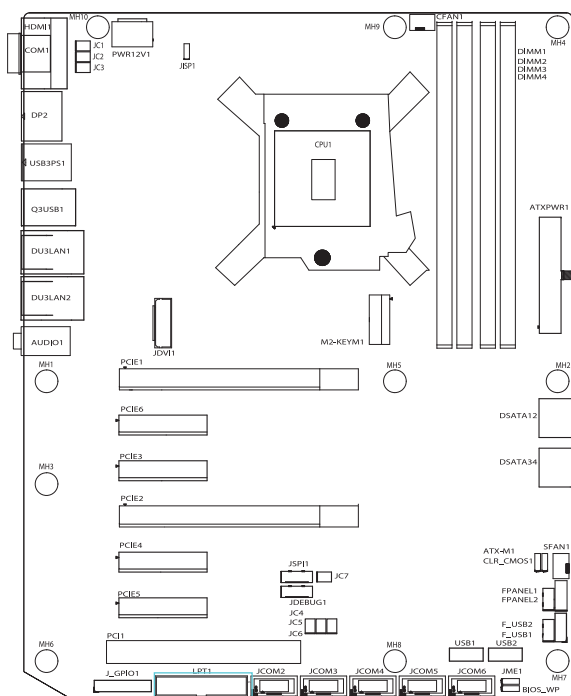
PIN	Signal	PIN	Signal
1	5V	2	5V
3	D-	4	D-
5	D+	6	D+
7	GND	8	GND
		10	GND

3.8 JCOM 2/3/4/5/6 2.54mm port (RS-232 COM port)



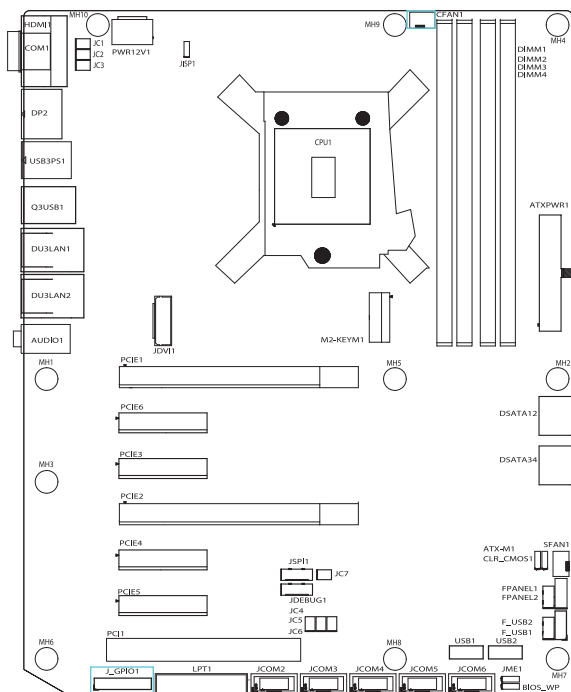
PIN	Signal	PIN	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

3.9 LPT1 2.54mm port



PIN	Signal	PIN	Signal
1	LPT_STB	2	LPT_AFD
3	LPT_PD0	4	LPT_ERR
5	LPT_PD1	6	LPT_INIT
7	LPT_PD2	8	LPT_SLIN
9	LPT_PD3	10	GND
11	LPT_PD4	12	GND
13	LPT_PD5	14	GND
15	LPT_PD6	16	GND
17	LPT_PD7	18	GND
19	LPT_ACK	20	GND
21	LPT_BUSY	22	GND
23	LPT_PE	24	GND
25	LPT_SLCT	26	NC

3.10 J_GPIO1 port (Size:2.54mm)

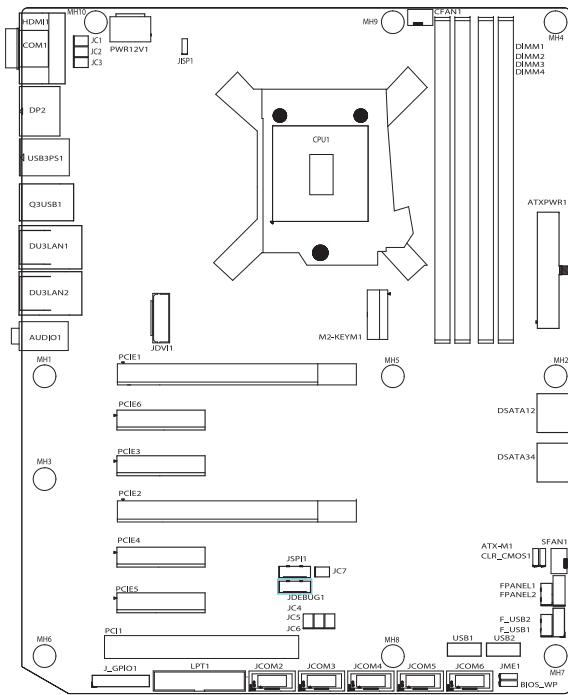


PIN	Signal	PIN	Signal
1	5V	2	GND
3	GPIO1	4	GPIO2
5	GPIO3	6	GPIO4
7	GPIO5	8	GPIO6
9	GPIO7	10	GPIO8
11	GPIO9	12	GPIO10
13	GPIO11	14	GPIO12
15	GPIO13	16	GPIO14
17	GPIO15	18	GPIO16
19	GND	20	5V

Note:

The voltage range of input and output signals is 0/5V

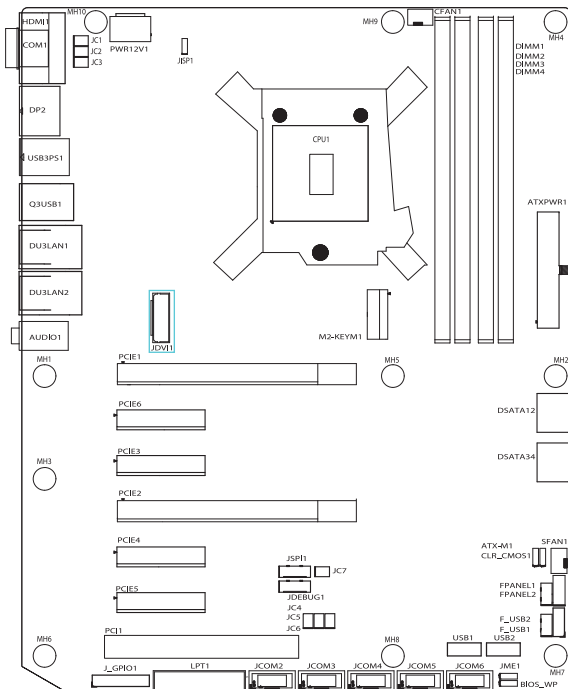
3.11 JDEBUG1 port (pin distance:2.0mm)



PIN	Signal	PIN	Signal
1	+3.3V	2	GND
3	ESPI_IO0	4	ESPI_CS
5	ESPI_IO1	6	ESPI_CLK
7	ESPI_IO2	8	ESPI_RST
9	ESPI_IO3	10	PLTRST
11	ESPI_ALERT	12	+5V

ESPI Signal

3.12 JDVI1 2.0mm port (one DVI Port)



PIN	Signal	PIN	Signal
1	GND5	2	GND1
3	DDDCCLK	4	DDCDATA
5	HPDET	6	+5V
7	CLK-	8	CLK+
9	GND6	10	GND2
11	DATA0+	12	DATA0-
13	GND7	14	GND3
15	DATA1+	16	DATA1-
17	GND8	18	GND4
19	DATA2+	20	DATA2-

CHAPTER 4

BIOS Setup Utility

4.1 About BIOS

BIOS stands for Basic Input and Output System. It was once called ROM BIOS when it was stored in a Read-Only Memory (ROM) chip. Now manufacturers would like to store BIOS in EEPROM, which means Electrically Erasable Programmable Memory. BIOS used in this series of the mainboard is stored in EPROM and is the first program to run when you turn on your computer.

BIOS performs the following functions:

1. Initializing and testing hardware in your computer (a process called "POST," for Power On Self Test).
2. Loading and running your operating system.
3. Helping your operating system and application programs manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

4.2 About BIOS Setup

BIOS Setup is an interactive BIOS program that you need to run when:

1. Changing the hardware of your system.
(For example: installing a new Hard Disk etc.)
2. Modifying the behavior of your computer.
(For example: changing the system time or date, turning special features on or off, etc.)
3. Enhancing your computer's behavior.
(For example: speeding up performance by turning on shadowing or cache).

4.2.1 To Run BIOS Setup

After the first BIOS be set upped(or loaded default values) and saved, the key will be pressed if you will enter the BIOS setup menu.

Press <Delete> to enter SETUP

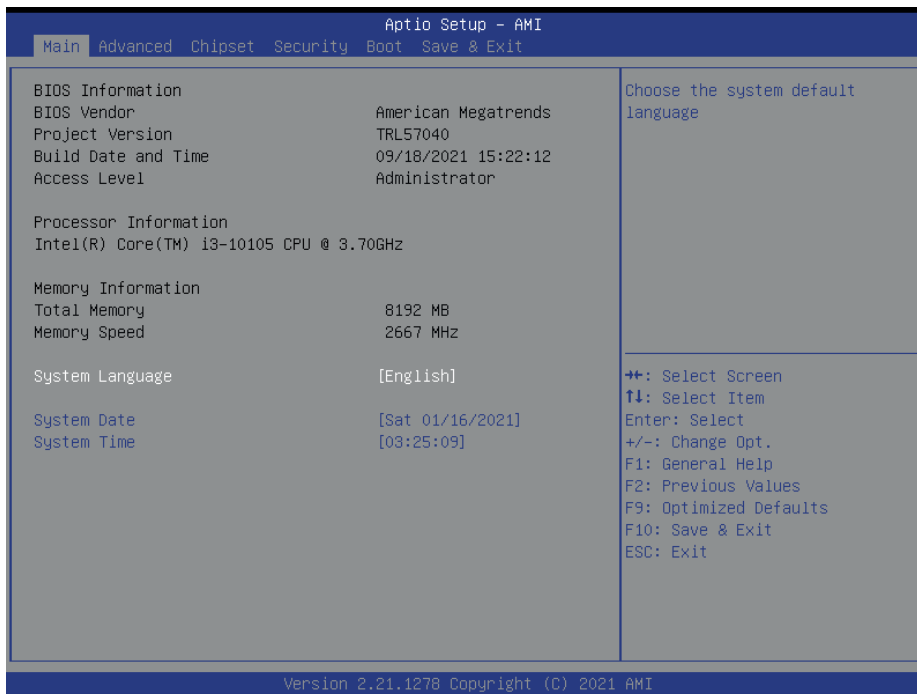
Press <F11> to enter Boot Menu

4.2.2 Control Keys

Press F1 to pop up a small help window describing the appropriate keys and possible selections for the highlighted item.

Button	Description
← / →	Move the cursor left or right to select Screen
↑ / ↓	Move the cursor up or down to select items
+ / -	To Change option for the selected items
<Enter>	To bring up the selected screen
<ESC>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit the current page and return to Main Menu.
<F1>	General help
<F7>	Discard Changes
<F9>	Load Optimal Defaults
<F10>	Save configuration changes and exit setup

4.3 Main menu



- BIOS Information
- System Date
The date format is
<Date>,<Month>,<Day>,<Year>
- System Time
The time format is
<Hour>,<Minute>,<Second>.

4.4 Advanced

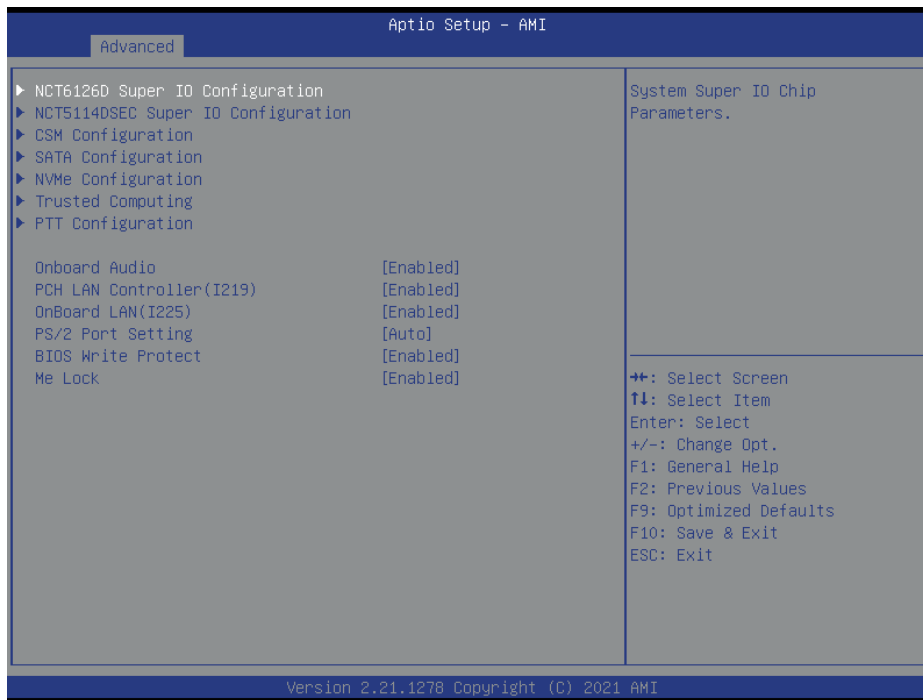


CPU Configuration



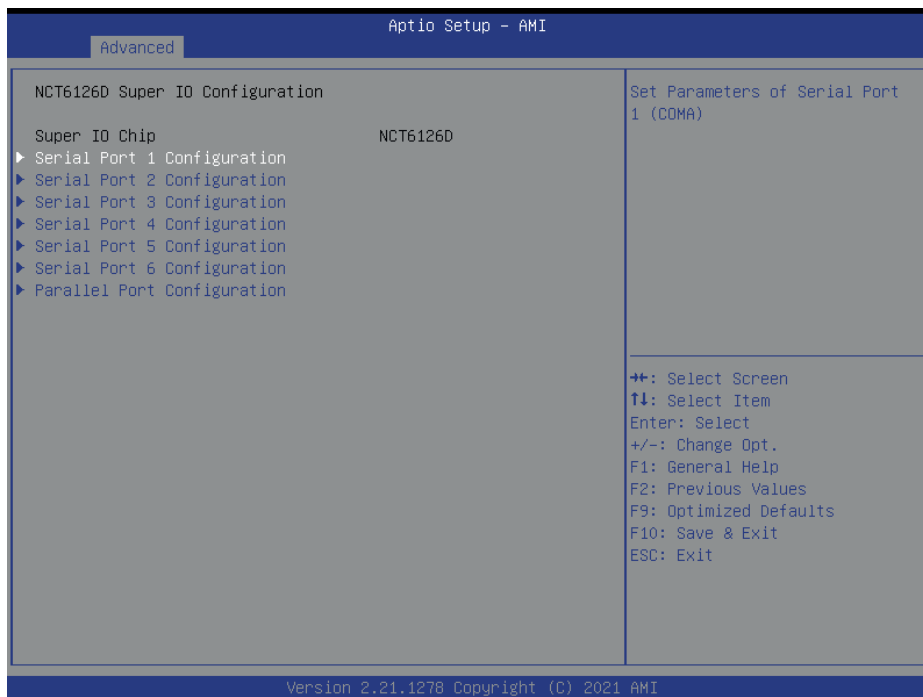
- C states
Enabled/Disabled CPU Power Manage.
Options: Enabled, Disabled.
- Press the < ESC > key to return to the Advanced menu

Onboard Devices Configuration



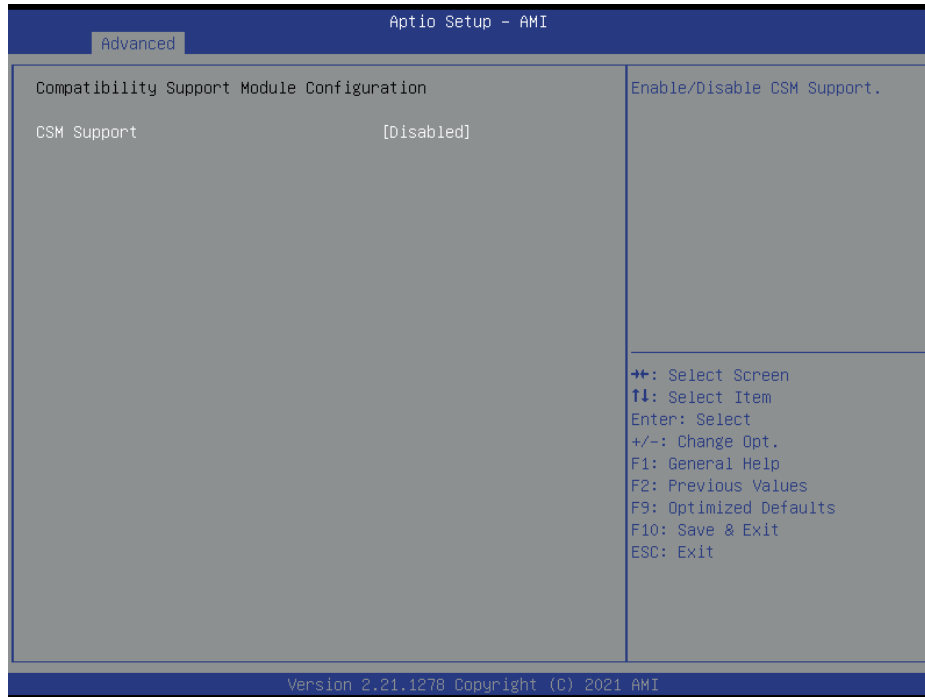
- Onboard Audio, Options: Enabled, Disabled.
- PCH LAN Controller (I219), Options: Enabled, Disabled.
- Onboard LAN (I225), Options: Enabled, Disabled.
- PS/2 Port Setting, Options:Auto,KeyBoard,Mouse.
- BIOS Write Protect, Options: Enabled, Disabled.
- Me Lock, Options: Enabled, Disabled.
- Press the < ESC> key to return to the Advanced menu

► NCT61260 Super IO Configuration



- Super IO Configuration
- Press the < ESC> key to return to the Advanced menu

► CSM Configuration



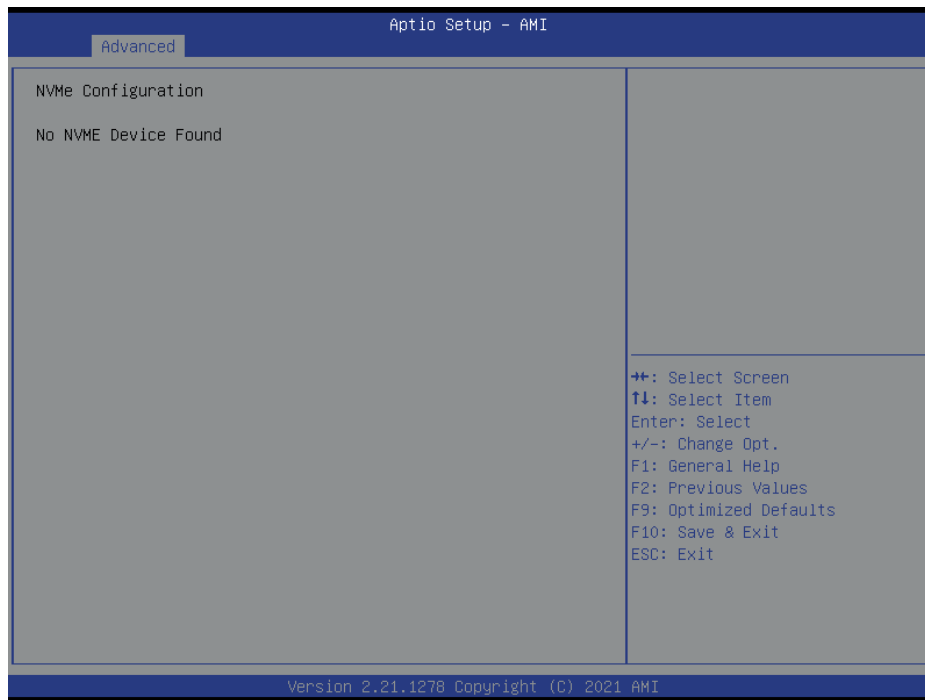
- CSM Support, Options: Enabled, Disabled.
- Press the < ESC > key to return to the Advanced menu

► SATA Configuration



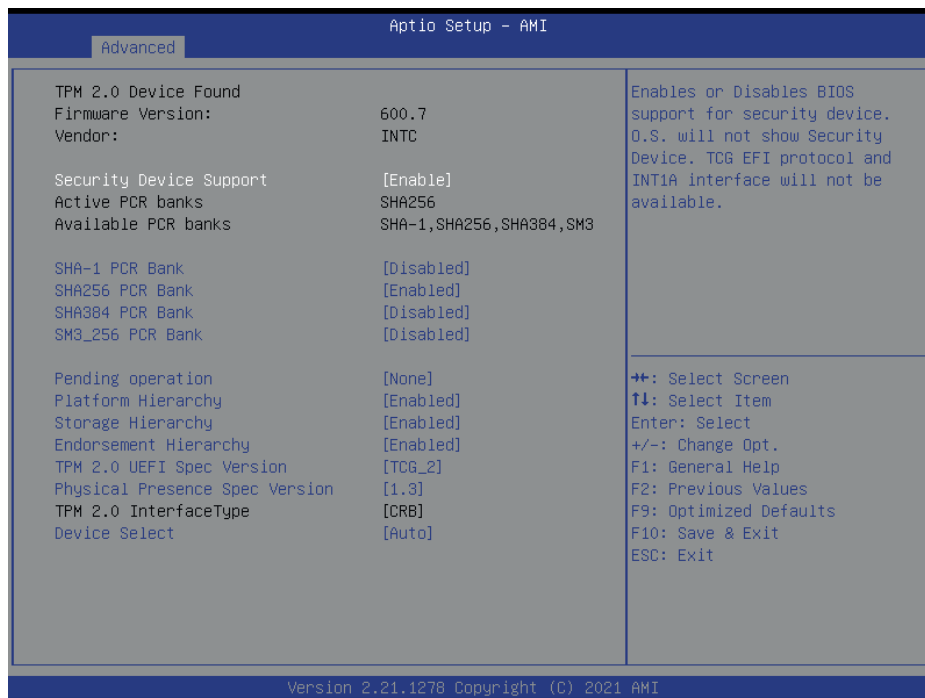
- SATAController, Options: Enabled, Disabled.
- SATA Mode Selection, Options: AHCI, Raid.
- Press the < ESC > key to return to the Advanced menu

► NVMe Configuration



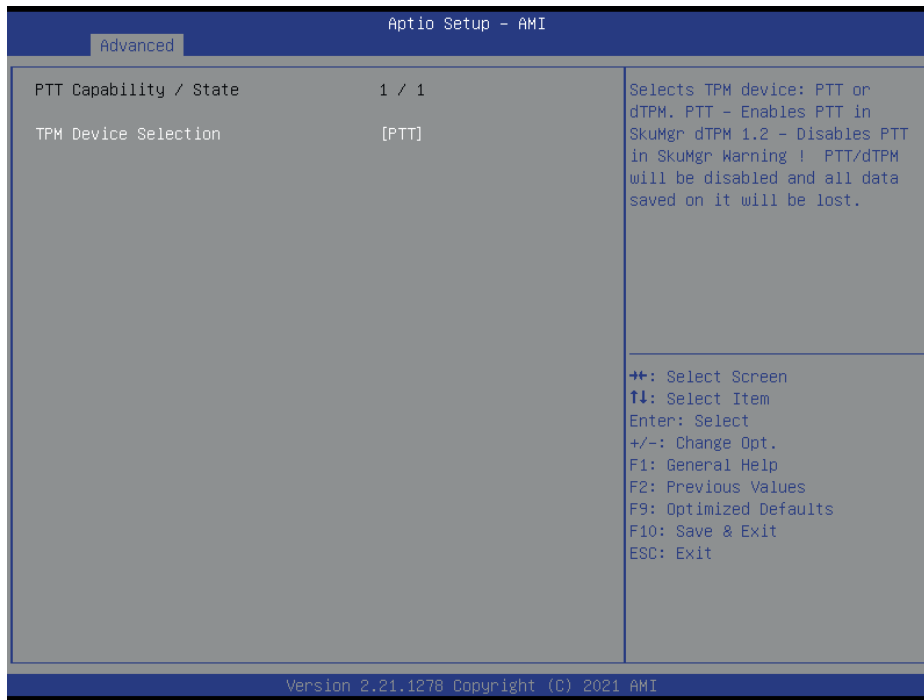
- Press the < ESC > key to return to the Advanced menu

► Trusted Computing



- Security Device Support, Options: Enabled, Disabled.
- SHA-1 PCRBank, Options: Enabled, Disabled.
- SHA256 PCR Bank, Options: Enabled, Disabled.
- SHA384 PCR Bank, Options: Enabled, Disabled.
- SM3_256 PCR Bank, Options: Enabled, Disabled.
- Pending operation, Options:None,TPM Clear.
- Storage Hierarchy, Options:Enabled,Disabled.
- Endorsement Hierarchy, Options:Enabled,Disabled.
- TPM 2.0 UEFI Spec Vesion, Options:TCG_1_2,TCG_2.
- Physical Presence Spec Version, Options:1.2,1.3.
- Device Select, Options:TPM 1.2,TPM2.0,Auto.
- Press the < ESC > key to return to the Advanced menu

► PTT Configuration



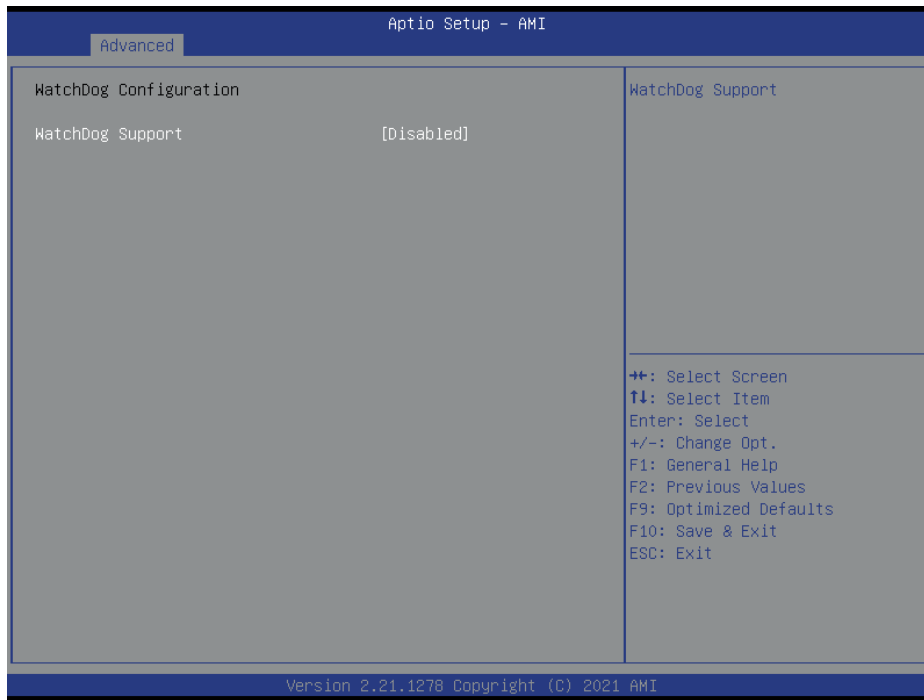
- TPM Device Selection, Options:TPM,PTT.
- Press the < ESC> key to return to the Advanced menu

► Power Management Configuration



- Parallel Port, Options: Enabled, Disabled.
- Device Mode, Options: STD Printer Mode,SPP Mode,EPP-1.9 and SPP Mode,EPP-1.7 and SPP Mode, ECP Mode, ECP and EPP 1.9 Mode, ECP and EPP 1.7 Mode.
- Press the < ESC> key to return to the Advanced menu

► WatchDog Configuration

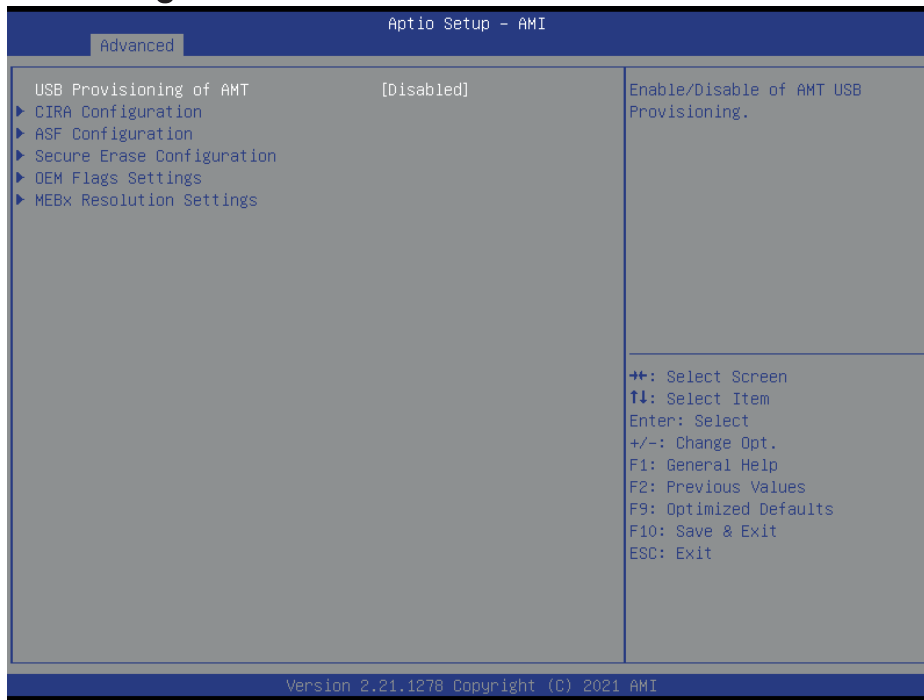


- WatchDog Support Options: Enabled, Disabled.
- Press the < ESC > key to return to the Advanced menu

► Network Stack Configuration

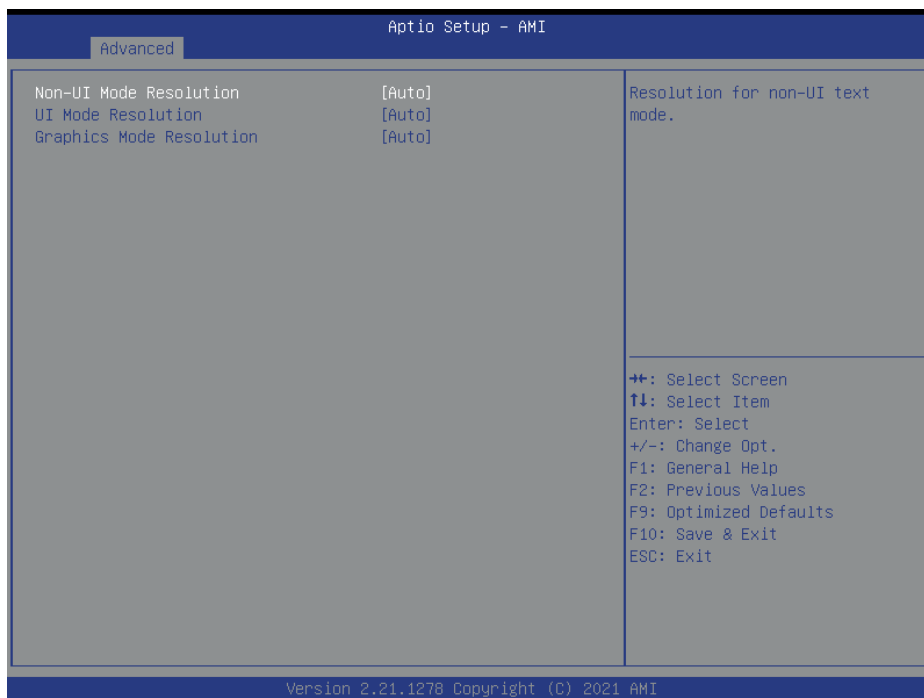


▶ AMT Configuration



- USB Provisioning of AMT Options: Enabled, Disabled.
- Press the < ESC > key to return to the Advanced menu

▶ Hardware Monitor



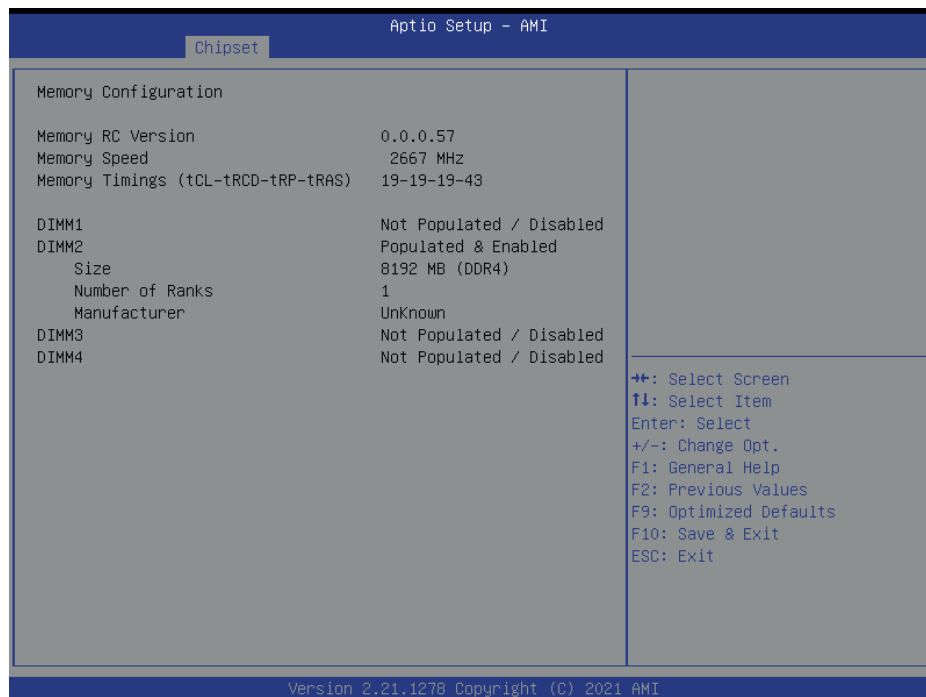
- Non-UI Mode Resolution
Options: Auto, 80x25, 100x31
- UI Mode Resolution
Options: Auto, 80x25, 100x31
- Graphics Mode Resolution
Options: Auto, 600x480, 800x600, 1024x768.
- Press the < ESC > key to return to the Advanced menu

4.5 Chipset



- Above 4GB MMID BIOS assignment, Options: Enabled, Disabled.
- DVNT Total Gfx Mem, Options:256M,128M,MAX.
- Press < ESC> key to return to the Advanced menu

▶ Memory Configuration



- Memory Configuration
- Press < ESC> key to return to the Advanced menu

4.6 Security



- Administrator Password

This option is used to set an administrator password, as the following steps:

1. Move the cursor to the Administrator Password, and press <Enter>.
2. In the "Create New Password" dialog box, enter 3 to 20 characters or numbers to be set, and press <Enter>, and enter again in the "Confirm Password" dialog box to confirm the Password is correct. If the Password is correct, the system will prompt "Password installed", and the Password is set successfully.

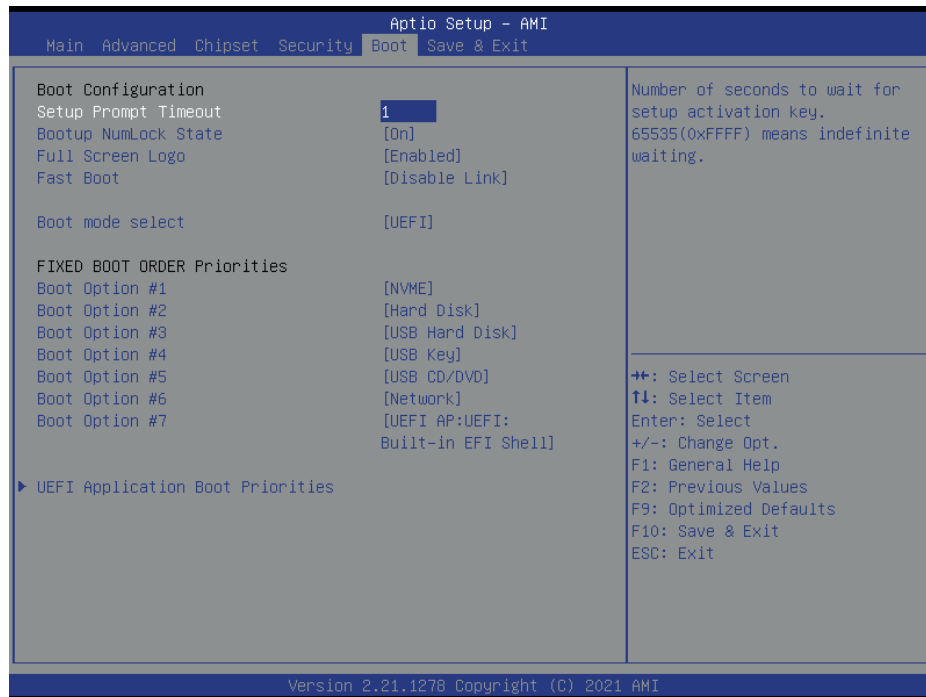
If the prompt "Invalid Password!" entering the Password does not match, please enter it again. To clear the system administrator password, select "Administrator Password", in "Enter Current Password" dialog box, enter the old Password, and in the "Create New Password" <Enter>, password is cleared.

- User Password

The option is used to set the user password, setting steps is the same as the "Administrator Password" Setting way.

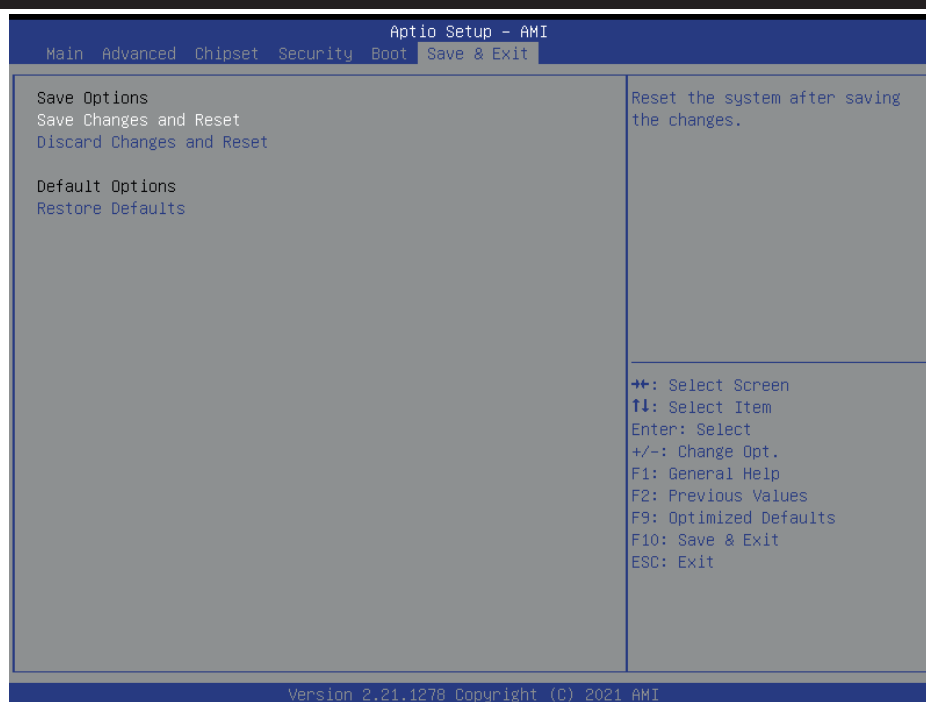
- Password check, Options: Setup, Srtup&Post.

4.7 Boot



- Setup Prompt Timeout
- Bootup NumLock State Select the keyboard NumLock state, Options: [On] [Off]
- Full Screen Logo, Options: Enabled, Disabled.
- Fast Boot, Options: Enabled, Disabled
- Boot mode select, Options: LEGACY, UEFI
- Boot Option #1-7 Setting the system boot sequence optional for the booted equipments and Disabled. 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 • Discard Changes and Reset • Restore Default

CHAPTER 5

WDT Programming

5.1 WDT control

The WDT control register is located in LDN DEV8 of the SIO chip, where 0XF0 BIT3 is second and minute, control 0 is dual, 1 is minute, and 0XF1 is the filling time; for example, 0XF0 BIT3 is 0, 0XF1 is 0X20 is overflow time 32 seconds.

5.1.1 Programming the Watchdog Timer:

```
// Enter SIO control IoWrite8(0x2E,0x87);
IoWrite8(0x2E,0x87);
IoWrite8(0x2E,0x07);
IoWrite8(0x2F,0x08); //choose Logic Device8

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 minute unit
if(SetupData.WdtCountMode == 1){
Data8 = Data8 | 0x08; }
else{
Data8 = Data8 & (~0x08); }
IoWrite8(0x2F,Data8);
IoWrite8(0x2E,0xF1);
//WDT time IoWrite8(0x2F,SetupData.WdtTimeOut); // Exit SIO control
IoWrite8(0x2E,0xaa);
```

5.1.2 Remove guard dogs

```
// Enter SIO control
```

```
IoWrite8(0x2E,0x87);
```

```
IoWrite8(0x2E,0x87);
```

```
IoWrite8(0x2E,0x07);
```

```
IoWrite8(0x2F,0x08); //choose Logic Device8
```

```
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.

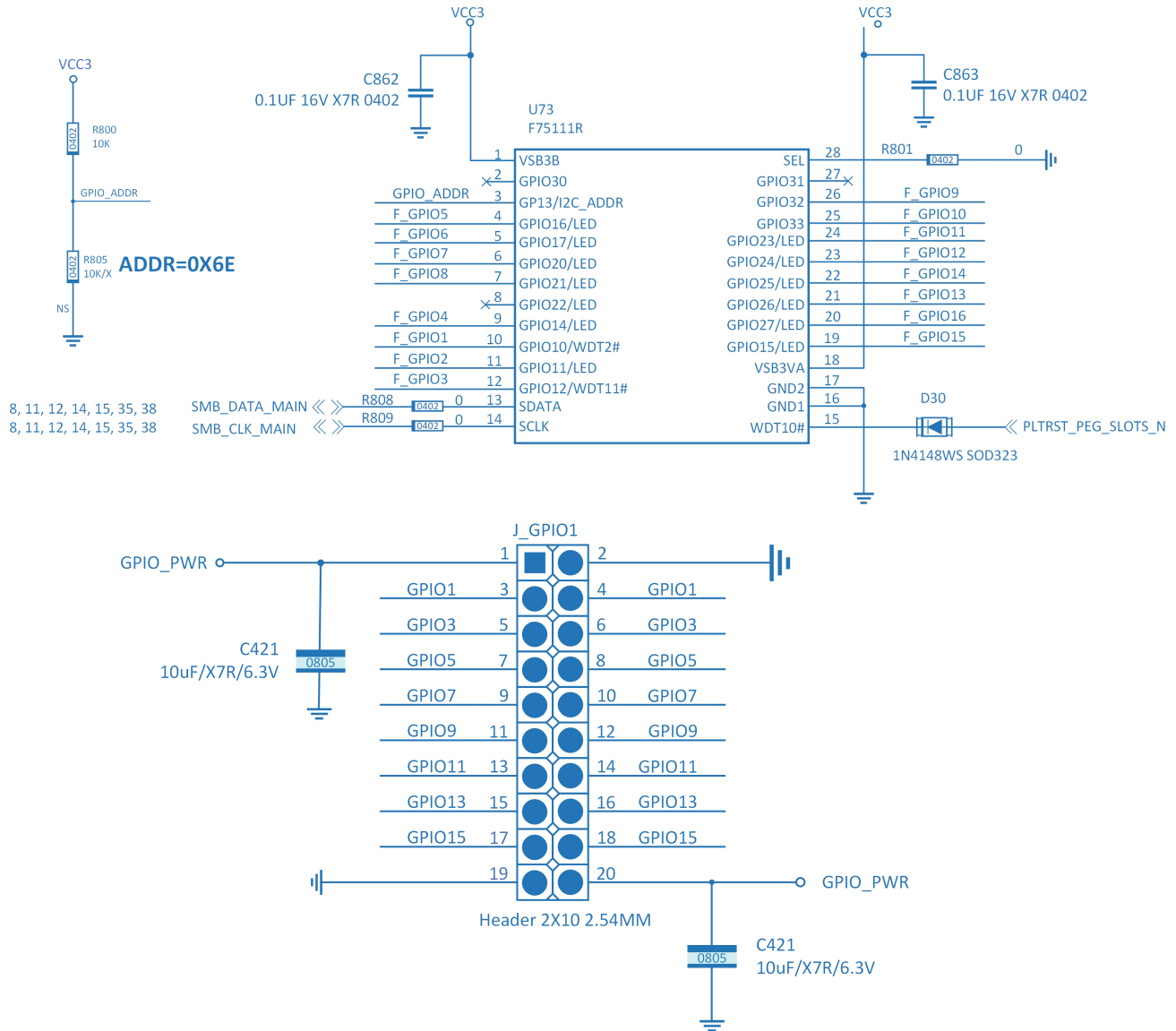
CHAPTER 6

GPIO Programming Guidance

6.1 GPIO control

The hardware uses FINTEK 7511 to expand the GPIO pin. The pins of 7511 are shown in the following figure. The communication control mode is FINTEK 7511, controlled by PCH SMBUS.

6.1.1 FINTEK 7511 SPEC



Ordering Information

Part Number	Chipset	Memory	Display	Storage	USB3	USB2	COM	LAN	PCI	PCIe
RIC MW58A	W580	4 DDR4	4(3)	4SATA	10	4	6	2	1	6