MT95-90 Series

User's Manual

NO.: G03-MT9500-F

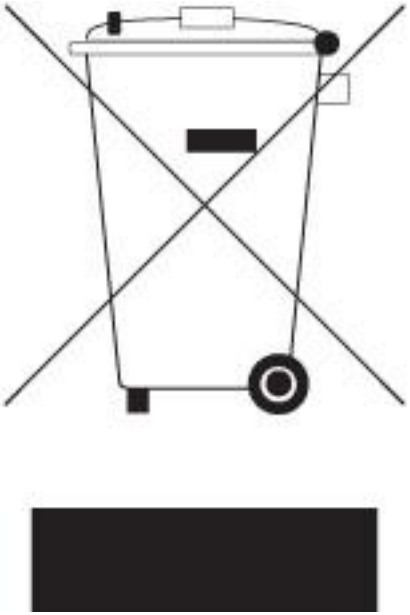
Revision: 2.0

Release date: August 17, 2020

Trademark:

Environmental Protection Announcement

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



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Environmental Safety Instruction

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

- 0 to 60 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)

- 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.

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

USER'S NOTICE

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Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	August 17, 2020

Item Checklist

☑ Motherboard
☑ Cable(s)

Chapter 1
Introduction of the Motherboard

1-1 Feature of Motherboard

- Onboard Intel® Apollo Lake-I SoC, TDP 9.5 W
- Support 1* DDR3L 1866MHz SO-DIMM, maximum capacity up to 8GB
- Onboard 2 * RJ-45 Gigabit Ethernet LAN port
- Support 2* HDMI1.4 dual display
- Onboard 1* M.2 M-key slot,type-2242 SATA interface, support SATA SSD
- Onboard 1* M.2 B-key slot,type-3042 USB 3.1 Gen1 interface, support 3G/4G card
- Onboard 1* M.2 E-key slot,type-2230 PCIex1/USB2.0 interface, support WIFI/BT
- Support 1 * SATAIII device
- Support 4* USB 3.1 Gen.1
- Support 1* RJ45 type COM
- Support 1*Audio Line-out/MIC Combo jack
- Compliance with ErP standard
- Support Watchdog function
- Support Wide temperature -20°C ~ 85°C
- Solution for Industrial PCs / Factory Automation / IoT Solution

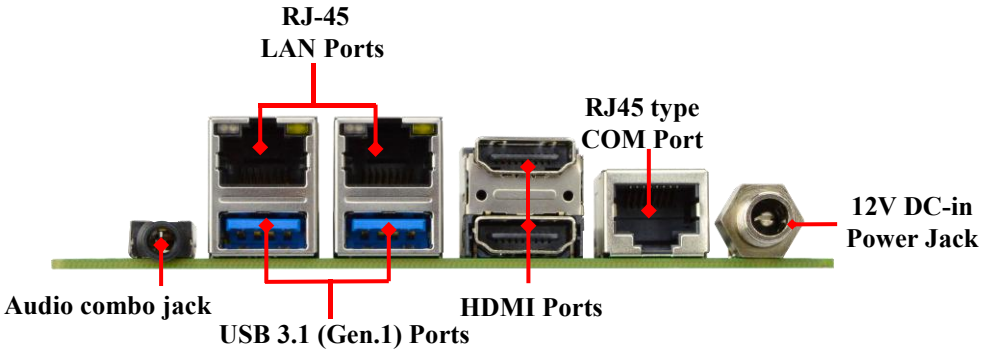
1-2 Specification

Spec	Description
Design	● UTX SBC, PCB size: 11.7x 11.2 cm
Embedded CPU	● Integrated with Intel® Apollo Lake-I CPU (TDP 9.5W) ** **Note:** CPU model varies from different IPC options. Please consult your dealer for more information of onboard CPU.*
Memory Slot	● 1*DDR3L SO-DIMM slot support 1* DDR3 1866MHz non-ECC SO-DIMM up to 8GB ** **Note:** Memory clock supporting range is decided by specific CPU of the model. For more memory compatibility information please consults your local dealer.*
Expansion Slot	● 1* M.2 B-key slot,type-3042 USB3.0 interface (***M2.B***) ● 1* M.2 E-key slot, type-2230 USB2.0 & PCIex1 interface (***M2.E***) ● 1* SIM Card slot
Storage	● 1* SATAIII 6Gb/s port ● 1* M.2 M-key slot, type-2242 SATA interface (***M2.M***) ● 1* eMMC 32GB
LAN Chip	● Integrated with 2*Intel i210IT Gigabit LAN chip ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	● Realtek ALC662-GR HD audio chip
BIOS	● AMI Flash ROM
Rear I/O	● 1* 12V DC-in power Jack ● 2* HDMI port ● 2* USB 3.1 (Gen.1) port ● 1* RJ45 type COM port ● 2* RJ45 LAN port ● 1* Audio Line Out/MIC combo port
Front I/O	● 1* Power button ● 1* LAN1/LAN2 active LED ● 1* PWR/HDD active LED ● 1* AT/ATX mode switch

	● 2* USB3.1 (Gen1) port
Internal I/O	● 1* SATA Power-out connector ● 1* SATA port ● 1* GPIO header ● 1* SMBUS header

1-3 Layout Diagram

Rear IO Diagram:



Front IO Diagram:

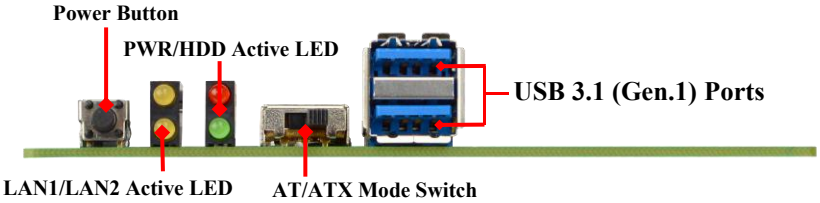


Diagram-Front Side:

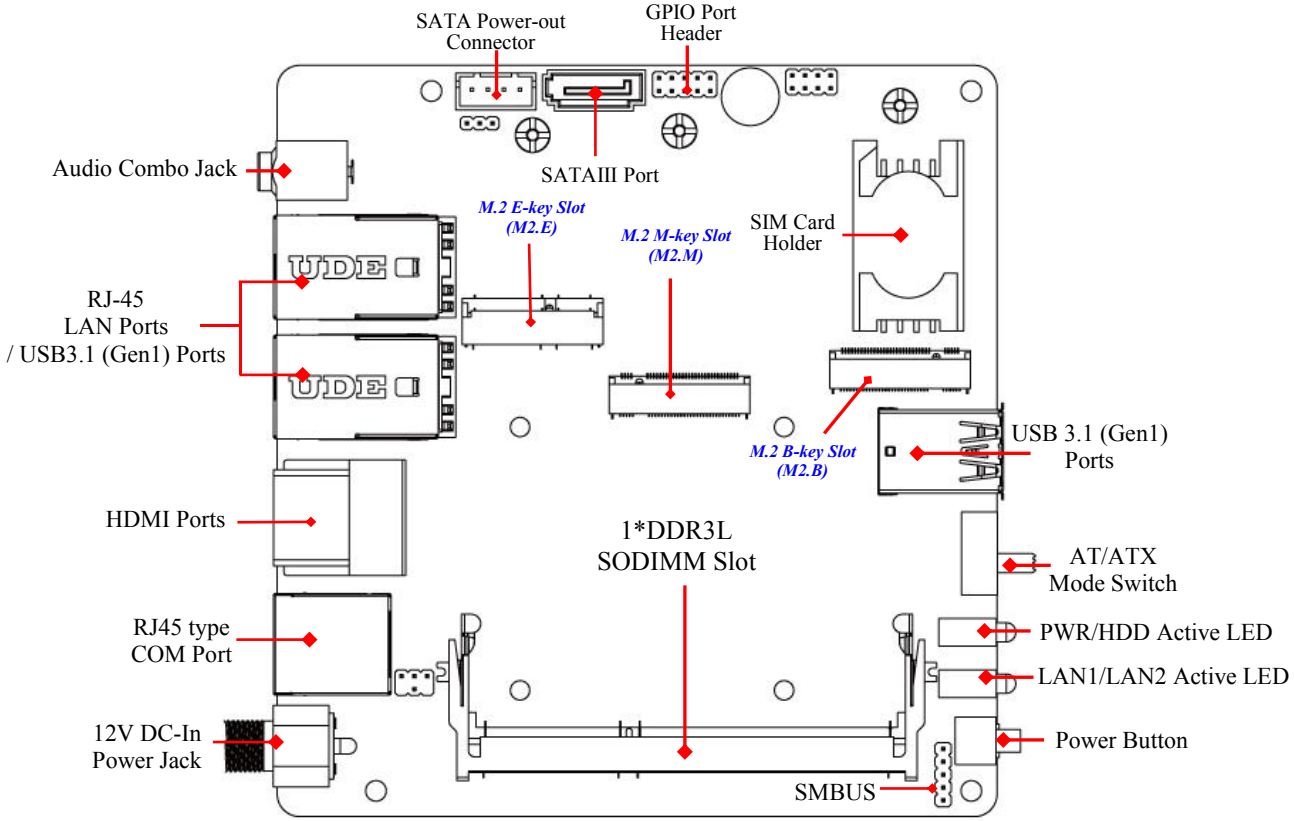
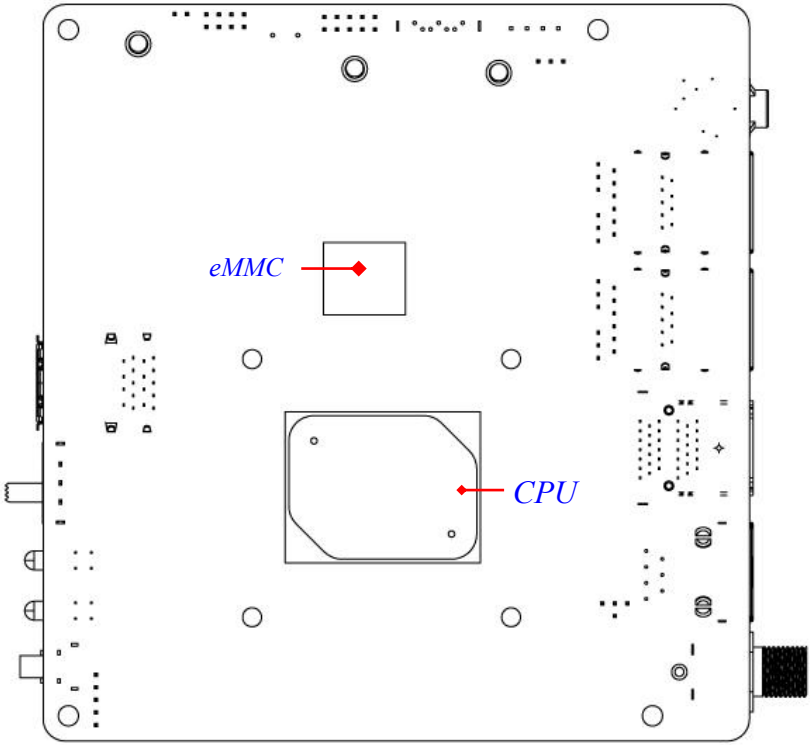
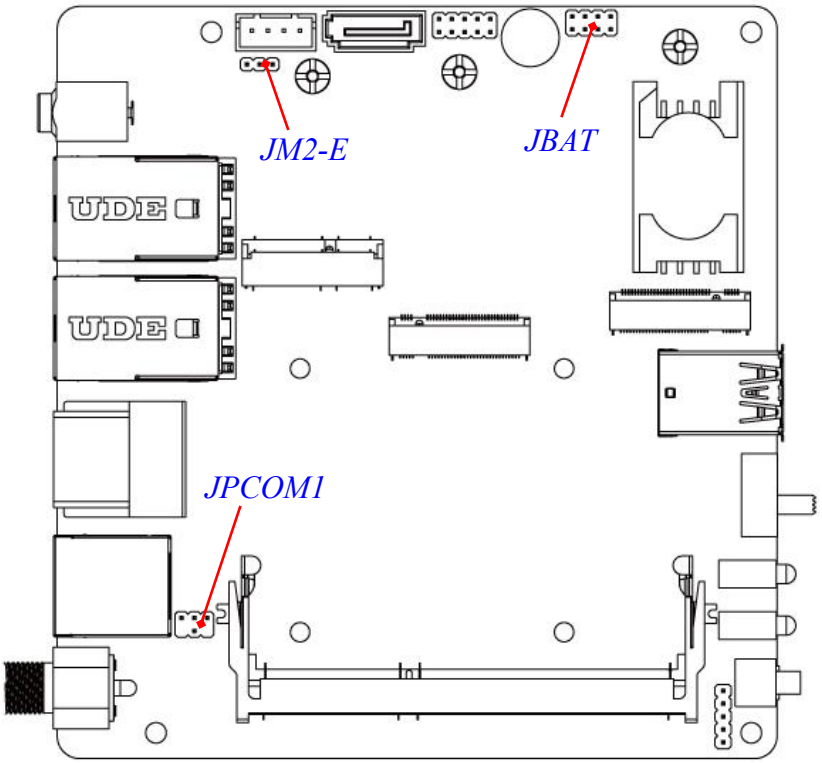


Diagram-Back Side:



Jumper Positions:



Jumpers

Jumper	Name	Description
JPCOM1	RJ45_COM1 Port Pin-5 VCC Select	4-Pin Block (2.0 mm pitch)
JM2-E	M2 E Slot Power Select	3-Pin Block (2.0 mm pitch)
JBAT	PIN (1-2) = RTC RST PIN (3-4) = Clear CMOS PIN (5-6) = TXE Override PIN (7-8) = CASE OPEN	8-Pin Block (2.0 mm pitch)

Connectors

Connector	Name
DCIN1	12V DC–in Power Jack w/ lockable
RJ45_COM1	COM Port RJ45 Type X1
UL1/UL2	USB 3.1 (Gen.1) Port Connector X2 RJ45 LAN Port Connector X2
HDMI	HDMI Port Connector X2
AUDIO	Audio Line Out / MIC Combo Connector
FP_USB	USB 3.1 (Gen.1) Port Connector X2
SIMCARD	SIM card holder
SATA	SATAIII Port Connector
SATAPWR1	SATA Power out Connector

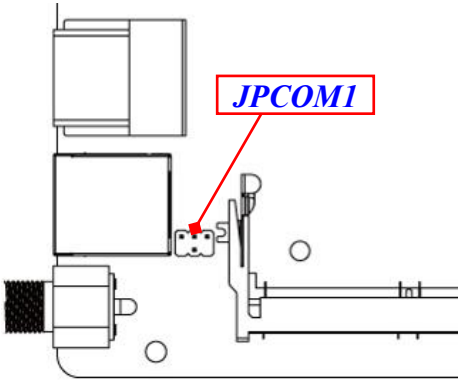
Headers

Header	Name	Description
GPIO_CON	GPIO Port Header	10-pin Block (2.0 mm pitch)
SMBUS	SMBUS Header	5-pin Block (2.0 mm pitch)

Chapter 2
Hardware Installation

2-1 Jumper Settings

JPCOM1 (4-pin): RJ45_COM1 Port Pin-5 VCC Select



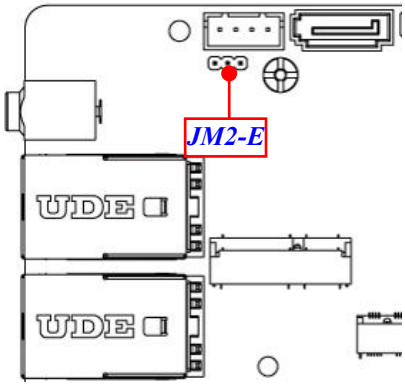
JPCOM1→RJ45_COM1 Pin-5 VCC

2-4 Closed:
Pin5=GND;

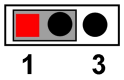
3-4 Closed:
Pin5 = +5V;

4-6 Closed:
Pin5 = +12V.

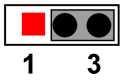
JM2-E(3-pin): M2.E PCIe Slot Power Select



JM2-E→M2.E Slot Voltage Select

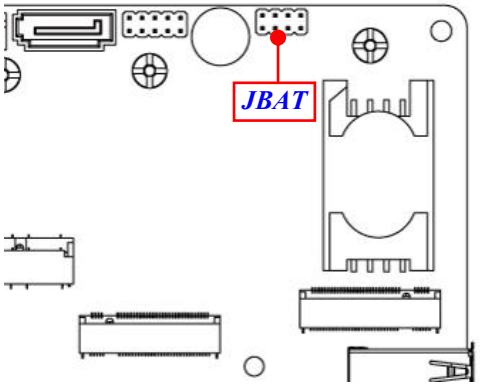


1-2 Closed: Voltage = VCC3;

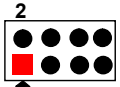


2-3 Closed: Voltage = 3VSB.

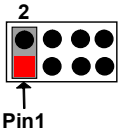
PIN(1-2) of JBAT(8-pin): RTC Reset



PIN(1-2): RTC Reset

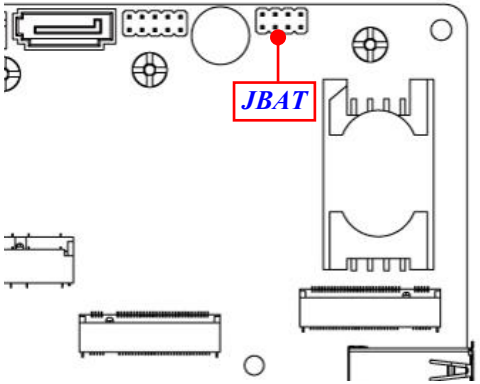


1-2 Open: Normal(Default);

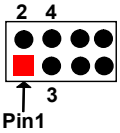


1-2 Closed: RTC Reset.

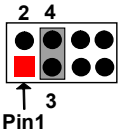
PIN(3-4) of JBAT (8-pin): Clear CMOS



PIN(3-4): Clear CMOS

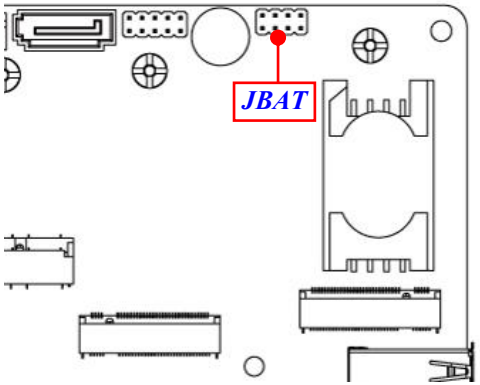


3-4 Open: Normal(Default);

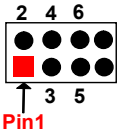


3-4 Closed: Clear CMOS.

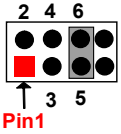
PIN(5-6) of JBAT (8-pin): TXE Override



PIN(5-6): TXE Override

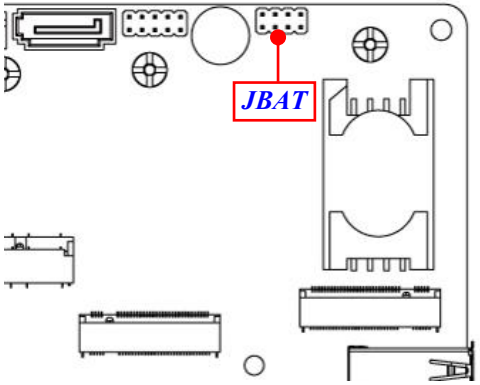


5-6 Open: Normal(Default);

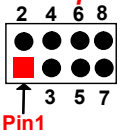


5-6 Closed: TXE Override.

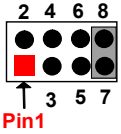
PIN(7-8) of JBAT (8-pin): Case Open Message Display Function Select



PIN(7-8): Case Open



7-8 Open: Normal(Default);



7-8 Closed: Case Open Detection.

Pin (7-8) short: *When Case open function pin short to GND, the Case open function was detected. When used, needs to enter BIOS and enable '**Case Open Detect**' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.*

2-2 Connectors and Headers

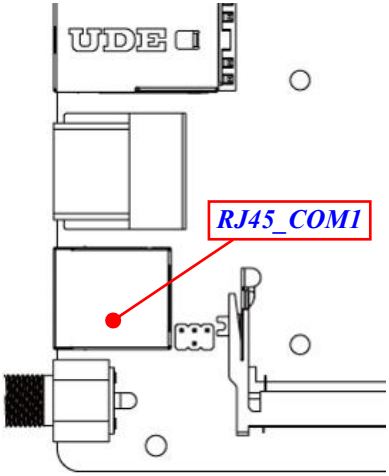
2-2-1 Connectors

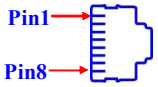
(1) External I/O Connectors

**** Refer to Page-3 Layout Diagram.***

Icon	*Name*	*Function*
	**12V DC-in Power Jack**	For user to connect compatible power adapter to provide power supply for the system.
	**RJ-45 COM Port**	This connector is a RJ-45 COM port for console function.
	**HDMI Port**	To connect display device that support HDMI specification.
	**USB 3.1 (Gen.1) Port**	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.0 ports supports up to 5Gbps data transfer rate.
	**RJ-45 LAN Port**	This connector is standard RJ-45 LAN jack for Network connection.
	**Line-Out /MIC Combo Jack**	**Line-out:** For user to connect external speaker, earphones, etc to transfer system audio output. **MIC:** this audio jack can also function as MIC jack with compatible cable connection.
	**Power Button**	For user to power on/power off the system.
	**AT/ATX Mode Switch**	AT/ATX mode Supported at front side I/O switch. – AT: Directly PWR on as Power input ready – ATX: Press Button to PWR on after Power input ready

(2) RJ45_COM1(8-pin block): RJ-45 COM Port Connector for Console





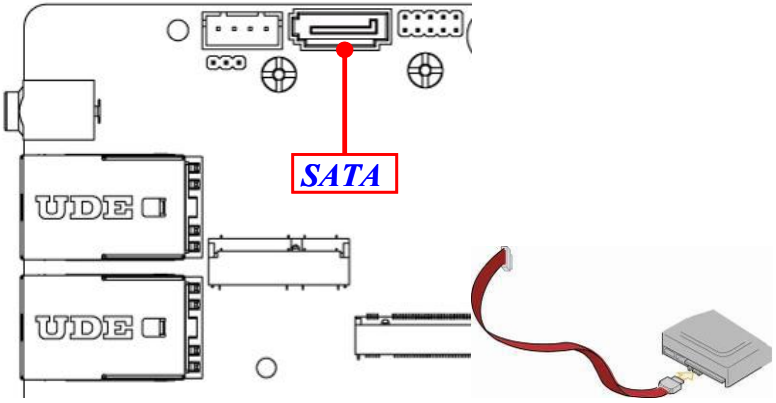
RJ45_COM1

Pin No.	Definition
1	RTS
2	DTR
3	TXD
4	GND
5	GND/VCC/+12V
6	RXD
7	DSR
8	CTS

Note: *Please set* ***Pin (2-4)*** *of Jumper* ***JPCOM1*** *as closed, when apply Console cable to RJ45-COM1 port (refer to page-8).*

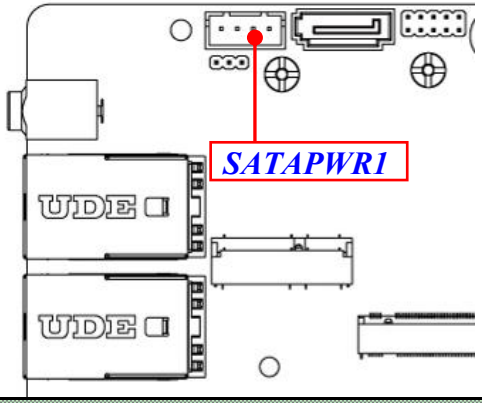
(3) SATA(7-pin): SATAIII Port connector

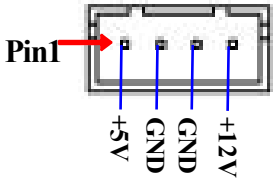
This is a high-speed SATAIII port that supports 6GB/s transfer rate.



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

(4) SATAPWR1(4-pin): SATA HDD Power-Out Connector

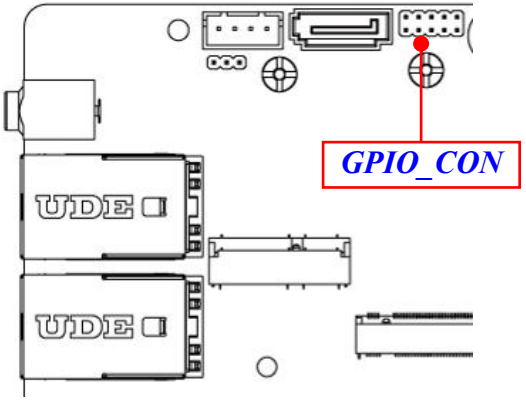


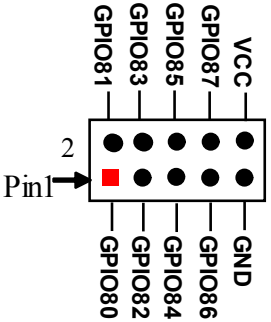


Warning: *Make sure that Pin-1 of compatible SATA Power out connector is inserted into corresponding Pin-1 of* ***SATAPWR1*** *connector to avoid possible damage to the board and hard disk driver!*

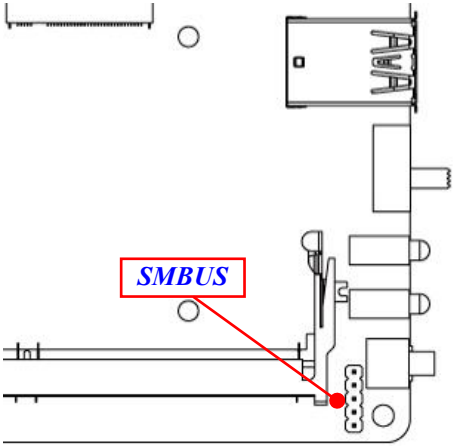
2-2-2 Headers

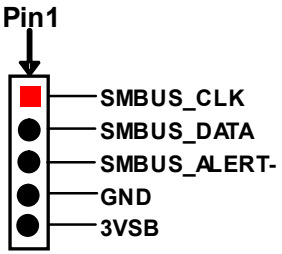
GPIO_CON (10-pin): GPIO Header (2.0 pitch)





SMBUS (5-pin): SMBUS Header (2.0 pitch)





Chapter 3
Introducing BIOS

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

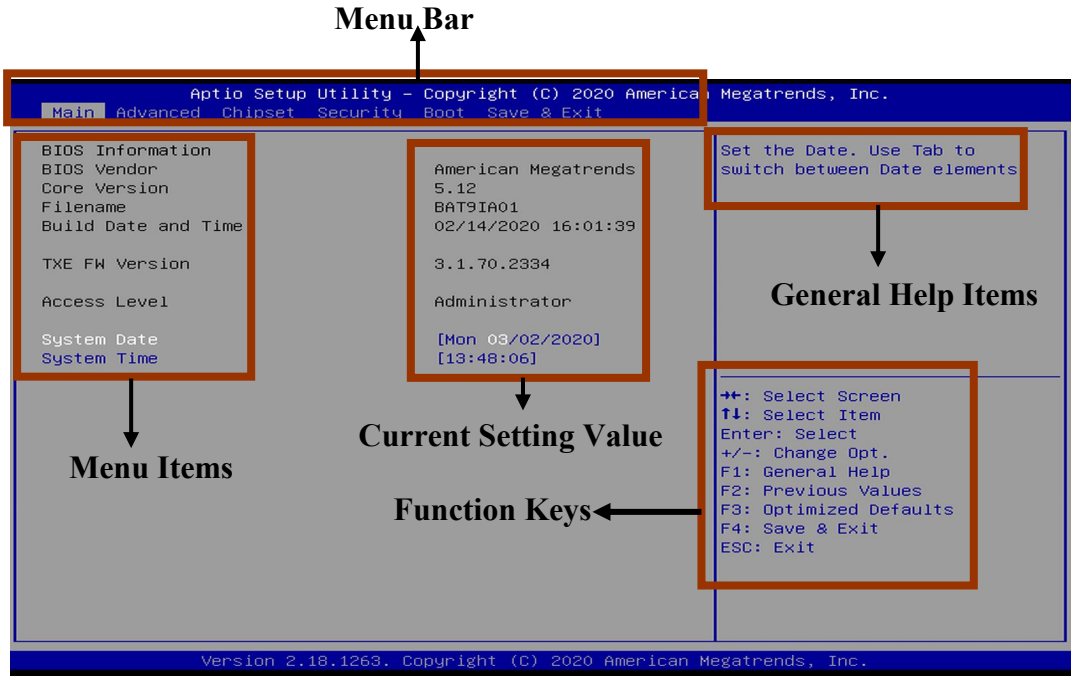
3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

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

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



3-3 Function Keys

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

- Press←→ (left, right) to select screen;
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press **<Enter>** to select.

- Press **<+>/<–>** keys when you want to modify the BIOS parameters for the active option.
- **[F1]:** General help.
- **[F2]:** Previous value.
- **[F3]:** Optimized defaults.
- **[F4]:** Save & Exit.
- Press **<Esc>** to quit the BIOS Setup.

3-4 Getting Help

Main Menu

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

Status Page Setup Menu/Option Page Setup Menu

Press **[F1]** to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <**Esc**>.

3-5 Menu Bars

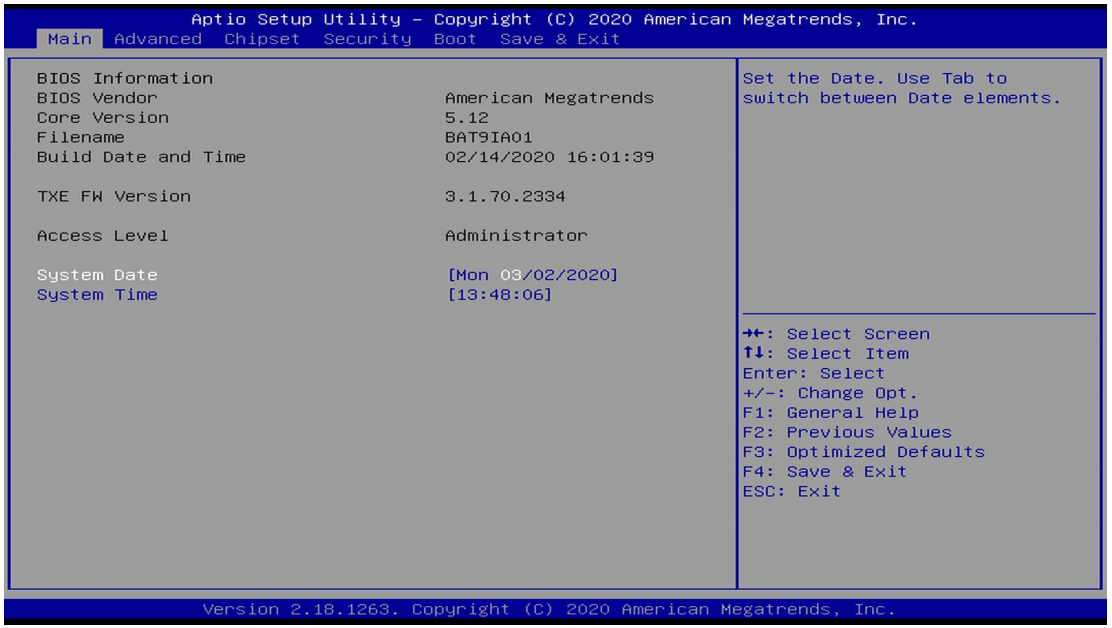
There are six menu bars on top of BIOS screen:

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

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

3-6 Main Menu

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



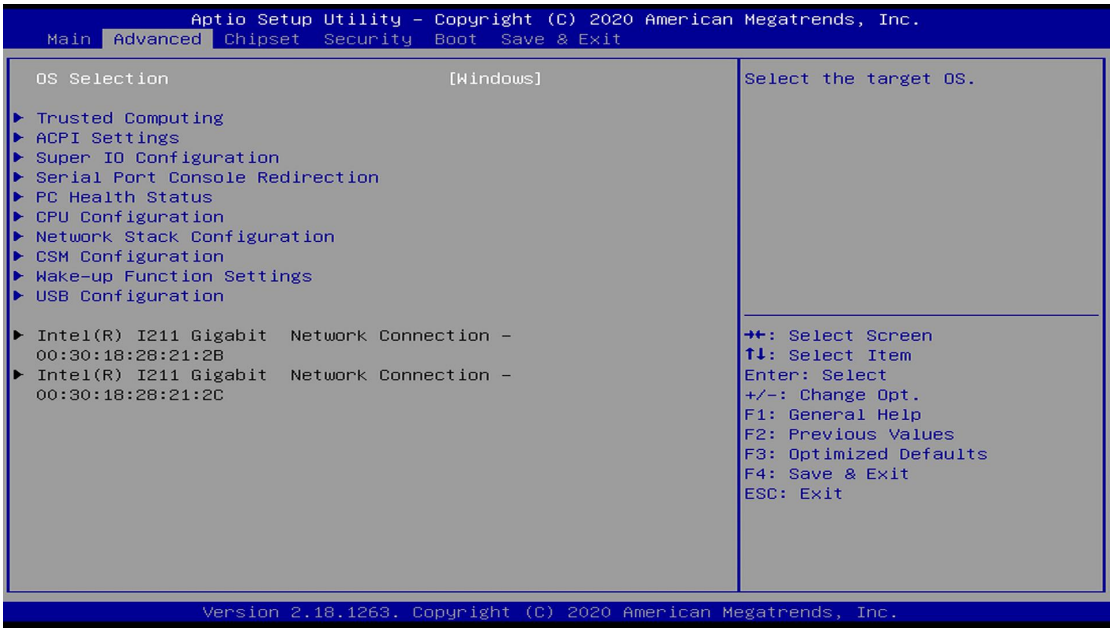
System Date

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

System Time

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

3-7 Advanced Menu



OS Selection

Use this item to select the target OS.

The optional settings are: [Windows]; [Intel Linux]; [MSDOS].

- **Trusted Computing**

Configuration

Security Device Support

Press [Enter] to enable or disable 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 are: [Disabled]; [Enabled].

NO Security Device Found

- **ACPI Settings**

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

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)].

- **Super I/O 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 are: [Disabled]; [Enabled]
When set as [Enabled], the following items shall appear:
Device Settings

Change Settings
Use this item to select an optimal settings for Super IO device. **Changing setting may conflict with system resources.**
The optional settings are: [Auto]; [IO=3F8h; IRQ=4;]; [IO=2F8h; IRQ=3;]; [IO=3E8h; IRQ=4;]; [IO=2E8h; IRQ=3;].
ERP Support
Use this item to select Energy-Related Products function. This item should be set as [Disabled] if you wish to have all active wake-up functions.
The optional settings are: [Disabled]; [Enabled].
Case Open Detect
Use this item to detect if case have ever been opened. Show message in POST.
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], system will detect if COPEN has been short or not (refer to the ***jumper setting of JBAT for CASE OPEN Select***); if COPEN is short, system will show Case Open Message during POST.

WatchDog Reset Timer
Use this item to enable or disable WatchDog Timer Control.
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:
WatchDog Reset Timer Value
User can set a value in the range of [10] ~ [255] seconds, or [1] ~ [255] minutes.
WatchDog Reset Timer Unit
The optional settings are: [Sec.]; [Min.].
WatchDog Wake-up Timer
This item support WDT wake-up while ERP function is set as [Enabled].
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:

WatchDog Wake-up Timer Value
The setting range is [10] ~ [4095] seconds, or [1] ~ [4095] minutes.

WatchDog Wake-up Timer Unit
The optional settings are: [Sec.]; [Min.].

ATX Power Emulate AT Power
This item displays current Emulate AT Power Status, motherboard power On/Off control by power supply. User needs to select 'AT or ATX Mode' on MB at first (refer to the ***switch setting of ATX Mode & AT Mode Select***).

- **Serial Port Console Redirection**

COM1
Console Redirection
The optional settings are: [Disabled]; [Enabled]. When set as [Enabled], the following sub-items shall appear for setting:

- **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 items:

Terminal Type

The optional settings are: [VT100]; [VT100+]; [VT-UTF8]; [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 are: [9600]; [19200]; [38400]; [57600]; [115200].

Data Bits

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

Parity

A parity bit can be sent with the data bits to detect some transmission errors.

The optional settings are: [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.

[Mark] and **[Space]**: Parity do not allow for error detection.

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 are: [1]; [2].

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 are: [None]; [Hardware RTS/CTS].

VT-UTF8 Combo Key Support

Use this item to enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

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

Recorder Mode

With this mode enable only text will be sent. This is to capture Terminal data.

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

Resolution 100x31

Use this item to enable or disable extended terminal resolution.

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

Legacy OS Redirection Resolution

On Legacy OS, the Number of Rows and Columns supported redirection.

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

Putty KeyPad

Use this item to select FunctionKey and KeyPad on Putty.

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

Redirect After BIOS POST

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

When [**BootLoader**] is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When [**Always Enabled**] is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to [**Always Enabled**].

Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS)

Console Redirection

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

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

- **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 items:

Out-of-Band Mgmt Port
The default setting is: [COM1].
Terminal Type
The optional settings are: [VT100]; [VT100+]; [VT-UTF8]; [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 are: [9600]; [19200]; [57600]; [115200].
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 are: [None]; [Hardware RTS/CTS]; [Software Xon/Xoff].
Data Bits
The default setting is: [8].
**This item may or may not show up, depending on different configuration.*
Parity
The default setting is: [None].
**This item may or may not show up, depending on different configuration.*
Stop Bits
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.
- **CPU Configuration**
  Press [Enter] to view current CPU configuration and make settings for the following sub-items:
  VT-d
  Use this item to enable or disable CPU VT-d.
  The optional settings are: [Disabled]; [Enabled].

EIST
Use this item to enable or disable Intel SpeedStep.
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:
Turbo Mode
Use this item to enable or disable Turbo Mode.
The optional settings are: [Disabled]; [Enabled].
C-States
Use this item to enable or disable C state to OS.
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following item shall appear for setting:
Enhanced C-states
Use this item to enable or disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.
The optional settings are: [Disabled]; [Enabled].
Max Package C State
This item controls the Max Package C state that the processor will support.
The optional settings are: [PC2]; [PC1]; [C0].
Max Core C State
This item controls the Max Core C state that cores will support.
The optional settings are: [Fused Value]; [Core C10]; [Core C9]; [Core C8]; [Core C7]; [Core C6]; [Core C1]; [Unlimited].

- **Network Stack Configuration**

Press [Enter] to go to '**Network Stack**' screen to make further settings.
Network Stack
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:
Ipv4 PXE Support
The optional settings are: [Disabled]; [Enabled].
Use this item to enable Ipv4 PXE boot support. When set as [Disabled], IPV4 PXE boot optional will not be created.

Ipv6 PXE Support
The optional settings are: [Disabled]; [Enabled].
Use this item to enable Ipv6 PXE boot support. When set as [Disabled], IPV6 PXE boot optional will not be created.
PXE Boot Wait Time
Use this item to set wait time to press [ESC] key to abort the PXE boot.
Media Detect Count
Use this item to set media detect count.

- **CSM Configuration**
  Press [Enter] to make settings for the following sub-items:
  Compatibility Support Module Configuration
  Boot Option Filter
  This item controls Legacy/UEFI ROMs priority.
  The optional settings are: [UEFI and Legacy]; [Legacy only]; [UEFI only].
  Network
  This item controls the execution of UEFI and legacy PXE OpROM.
  The optional settings are: [Do not Launch]; [UEFI]; [Legacy].
  Storage
  This item controls the execution of UEFI and Legacy Storage OpROM.
  The optional settings are: [Do not Launch]; [UEFI]; [Legacy].
  Video
  This item controls the execution of UEFI and Legacy Video OpROM.
  The optional settings are: [UEFI]; [Legacy].
  Other PCI Devices
  This item determines OpROM execution policy for devices other than Network, storage or video.
  The optional settings are: [Do not Launch]; [UEFI]; [Legacy].
- **Wake-up Function Settings**
  Press [Enter] to make settings for the following sub-items:
  Wake-up System with Fixed Time
  Use this item to enable or disable system wake-up by RTC alarm.

The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], system will wake on the Hour/Minute/Second specified.

Wake-up System with Dynamic Time

Use this item to enable or disable system wake-up by RTC alarm.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], system will wake on the current time + increased minute(s).The settings range is from [1] ~ [60] minute(s).

USB Wake-up from S4

Use this item to enable or disable USB Wake-up by ERP function in S4.
The optional settings: [Enabled]; [Disabled].
This item is only supported when **'ERP Support' is set as [Disabled]. Please disable ERP before activating this function in S4.*

- **USB Configuration**

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

USB Configuration

Legacy USB Support

The optional settings are: [Enabled]; [Disabled]; [Auto].
[Enabled]: To enable legacy USB support.
[Disabled]: To keep USB devices available only for EFI applications.
[Auto]: To disable legacy support if no USB devices are connected.

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 are: [Enabled]; [Disabled].

USB Mass Storage Driver Support

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

USB Hardware Delays and Time-outs:

USB Transfer Time-out

Use this item to set the time-out value for control, bulk, and interrupt transfers.
The optional settings are: [1 sec]; [5 sec]; [10 sec]; [20 sec].

Device Reset Time-out

Use this item to set USB mass storage device start unit command time-out.
The optional settings are: [10 sec]; [20 sec]; [30 sec]; [40 sec].

Device Power-up Delay

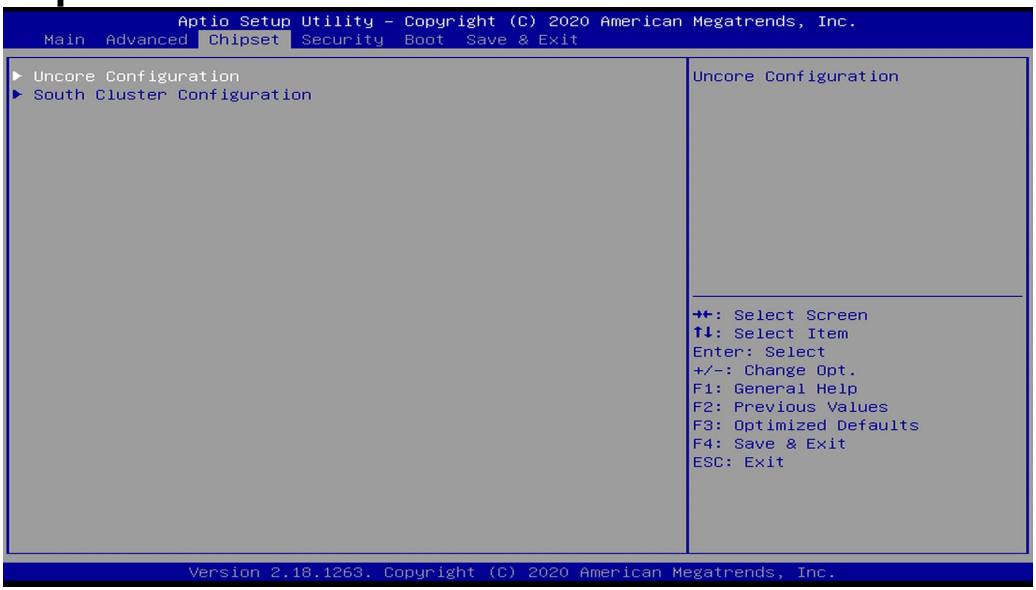
Use this item to set maximum time the device will take before it properly reports itself to the Host Controller.
The optional settings: [Auto]; [Manual].
'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.
Select [Manual] you can set value for the following sub-item: '**Device Power-up Delay in Seconds'.**

Device Power-up Delay in Seconds

The delay range is from [1] to [40] seconds, in one second increments.

- **Intel(R) I210 Gigabit Network Connection- XX:XX:XX:XX:XX:XX**
- **Intel(R) I210 Gigabit Network Connection- XX:XX:XX:XX:XX:XX**

3-8 Chipset Menu



- **Uncore Configuration**
  Press [Enter] to make settings for the following sub-items:
  GTT Size
  Use this item to select the GTT Size.
  The optional settings are: [2MB]; [4MB]; [8MB].
  DVMT Pre-Allocated
  Use this item to select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.
  The optional settings are: [64M]; [96M]; [128M]; [160M]; [192M]; [224M]; [256M]; [288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M].
  DVMT Total Gfx Memory
  Use this item to select DVMT5.0 Total Graphics Memory size used by the Internal Graphics Device.
  The optional settings are: [128M]; [256M]; [MAX].
- **South Cluster Configuration**
  Press [Enter] to further setting South Cluster Configuration.
  - **PCI Express Configuration**
    Press [Enter] to further setting.
    Peer Memory Write Enable
    The optional settings are: [Disabled]; [Enabled].
    Compliance Mode
    The optional settings are: [Disabled]; [Enabled].
    Onboard PCIE LAN1
    The optional settings are: [Disabled]; [Enabled].
    Onboard PCIE LAN2
    The optional settings are: [Disabled]; [Enabled].
  - **SATA Configuration**
    Press [Enter] to make settings for the following sub-items:
    SATA Controller
    The optional settings are: [Enabled]; [Disabled].
    When set as [Enabled], the following items shall appear for setting:

SATA Mode Selection
Use this item to determine how SATA controller operate.
The default setting is: [AHCI].

SATA Port

SATA Port
Use this item to enable or disable SATA Port.
The optional settings are: [Disabled]; [Enabled].

M.2

M.2
Use this item to enable or disable M.2 SATA port.
The optional settings: [Disabled]; [Enabled].

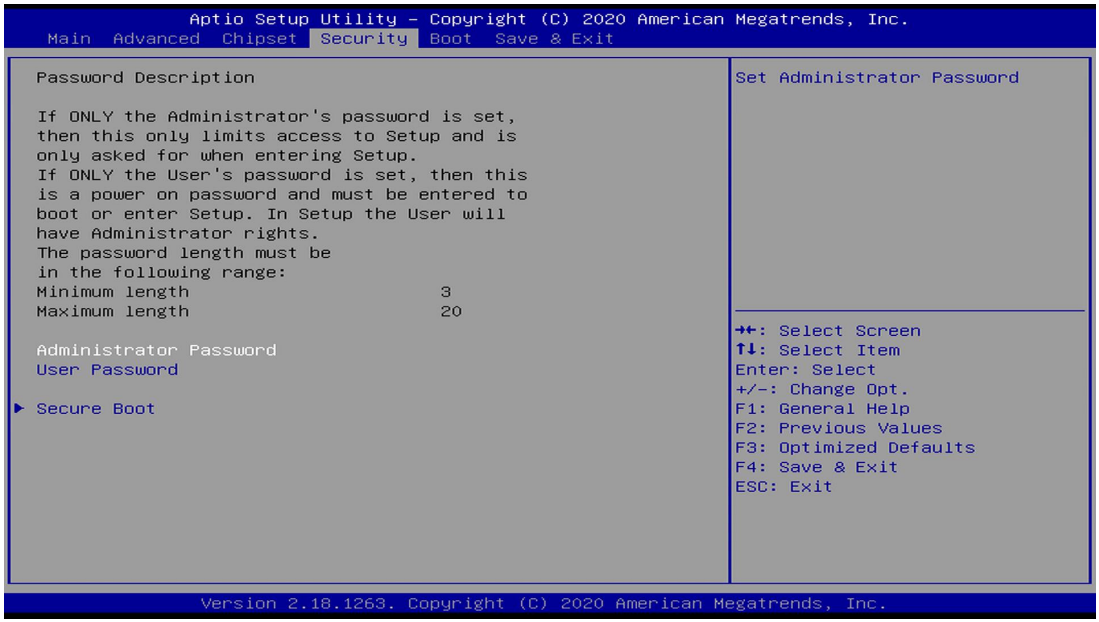
HD-Audio Support
Use this item to enable or disable HD-Audio support.
The optional settings are: [Disabled]; [Enabled].

SCC eMMC Support
Use this item to enable or disable SCC eMMC support.
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following items shall appear for setting:

eMMC Max Speed
Use this item to select the eMMC max Speed allowed.
The optional settings are: [HS400]; [HS200]; [DDR50].

System State after Power Failure
Use this item to specify what state to go to when power re-applied after a power failure.
The optional settings are: [Always On]; [Always Off]; [Former State].
**Note:* *[Always On] and [Former State] options are affected by ERP function. Please disable ERP to support [Always On] and [Former State].*

3-9 Security Menu



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

Administrator Password

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

User Password

If there is no password present on system, please press [Enter] to create new user 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 user password.

- **Secure Boot**

  Press [Enter] to make customized secure settings:

  Secure Boot Control

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

  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.

  Secure Boot Mode

  The optional settings are: [Standard]; [Custom].

  Set 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.

  When set as [Custom**], user can make further settings in the following items that show up:*

  - **Key Management**

  This item enables experienced users to modify Secure Boot variables, which includes the following items:

  Provision Factory Default Keys

  Use this item to install factory default Secure Boot Keys when System is in Setup Mode.

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

- **Enroll All Factory Default Keys**

  Use this item to force System to User Mode- install all Factory Default Keys.

- ***Save All Secure Boot Variables***

  Secure Boot Variable/Size/Key#/Key Source

- **Platform Key (PK)/Key Exchange Keys/Authorized Signature/Forbidden Signature/ Authorized TimeStamps/OsRecovery Signatures**

  Use this item to enroll Factory Defaults or load the keys from a file with:

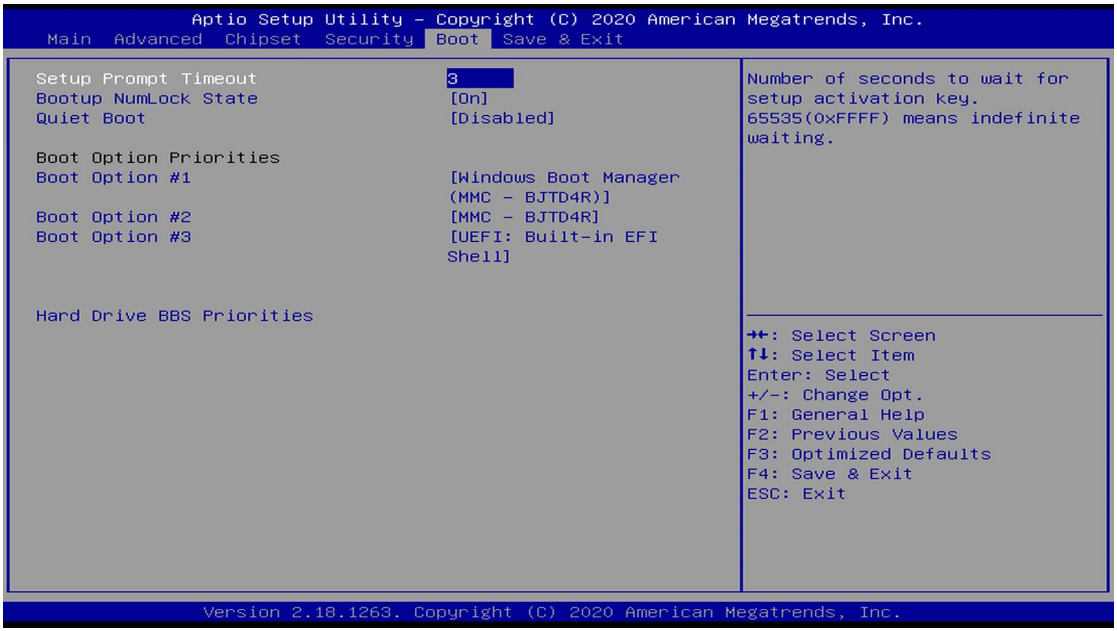
  1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST
b) EFI_ CERT_X509 (DER encoded)
c) EFI_ CERT_RSA2048 (bin)
d) EFI_ CERT_SHA256 (bin)

2. Authenticated UEFI Variable

Key: Vendor, Custom, Mixed, Test(*) modified from Setup menu.

3-10 Boot Menu



Setup Prompt Timeout

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

Bootup NumLock State

Use this item to select keyboard numlock state.

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

Quiet Boot

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

Boot Option Priorities

Boot Option #1/ Boot Option #2/ Boot Option #3

Use this item to set the system boot order from available options.

The optional settings are: [Windows Boot Manager (MMC – BJTD4R)]; [MMC – BJTD4R]; [UEFI: Built-in EFI Shell]; [Disabled].

Hard Drive BBS Priorities

Use this item to set the order of the legacy devices in this group.

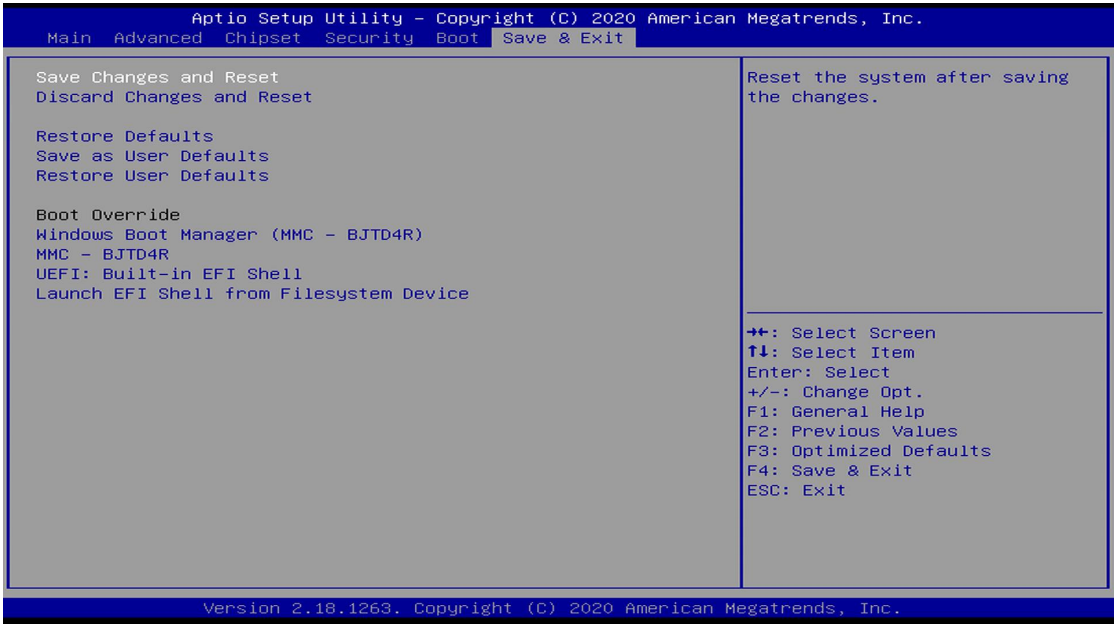
Press [Enter] to make customized secure settings:

Boot Option #1

Use this item to set the system boot order from available options.

The optional settings are: [(MMC – BJTD4R]; [Disabled].

3-11 Save & Exit Menu



Save Changes and Reset
This item allows user to reset the system after saving the changes.
Discard Changes and Reset
This item allows user to reset the system 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
Windows Boot Manager (MMC – BJTD4R)
Use this item to save configuration and reset.
MMC – BJTD4R
Use this item to save configuration and reset.
UEFI; Built-in EFI Shell
Use this item to save configuration and reset.
Launch EFI Shell from Filesystem Device
Use this item to save configuration and reset.