

Technical Manual
Of
Intel Bay Trail Series CPU
Based Mini-ITX M/B

NO.G03-NF9MI-F

Revision: 1.0

Release date: August 31, 2021

Trademark:

* Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.

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
1.0	Fifth Edition	August 31, 2021

Item Checklist

- Motherboard
- Cable(s)

Chapter 1

Introduction of the Motherboard

1-1 Feature of Motherboard

- Onboard Intel® Bay Trail N2930 SoC Processor
- Support 2 * DDRIII 1333/1066MHz Dual CH up to 8GB
- Support 2 * SATAII device
- Support 1*Intel i211AT GbE
- Support full-size Mini-PCIe connector, 1*PCIe slot
- Onboard 4*COM, 3*USB3.0, 4*USB2.0
- Onboard 1* SIM card slot
- Integrated with 1 * 24-bit dual channel LVDS header
- Support DVI-I output
- Support CPU Smart FAN
- Compliance with ErP standard
- Support Watchdog function
- Slim Mini-ITX Form Factor

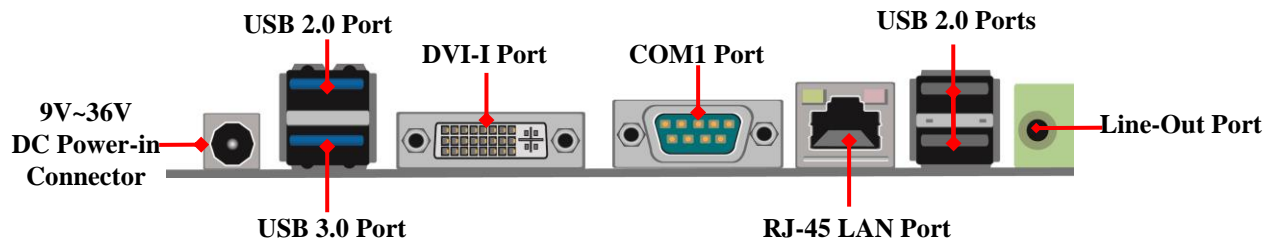
1-2 Specification

Spec	Description
Design	<ul style="list-style-type: none">● 6 layers; PCB size: 17x 17 cm
Embedded CPU	<ul style="list-style-type: none">● Integrated with Intel® Bay Trail-D/M/I series CPU
Memory Slot	<ul style="list-style-type: none">● 2 * DDRIII L SODIMM Slot for un-buffered dual channel DDRIII L 1333 MHz SDRAM, expandable to 8GB in total/1066
Expansion Slot	<ul style="list-style-type: none">● 1* full-size Mini-PCIE slot● 1* PCIE x1 slot● 1*SIM card slot function with Mini-PCle slot (SIMCARD)
LAN Chip	<ul style="list-style-type: none">● Integrated with 1*Intel i211AT Gigabit LAN chips● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Storage	<ul style="list-style-type: none">● 2* SATAII port (3.0Gb/s,one share w/M.2 M-key)● 1* M.2 M-key, type-2242, SATA interface slot
Audio Chip	<ul style="list-style-type: none">● C-Media HS-100B USB Audio Chip
BIOS	<ul style="list-style-type: none">● AMI 64MB Flash ROM
Rear I/O	<ul style="list-style-type: none">● 1* DC 9V~36V power-in connector● 1* USB 3.0 port● 3* USB 2.0 port● 1* DVI-I port● 1* COM port (RS232/422/485)● 1* RJ-45 LAN port● Audio Line Out port x1
Internal I/O	<ul style="list-style-type: none">● 2* SATAII 3Gb/s port● 1* SATA Power connector● 1*SIM Card Holder● 1* CPU FAN header● 2* SYSFAN header

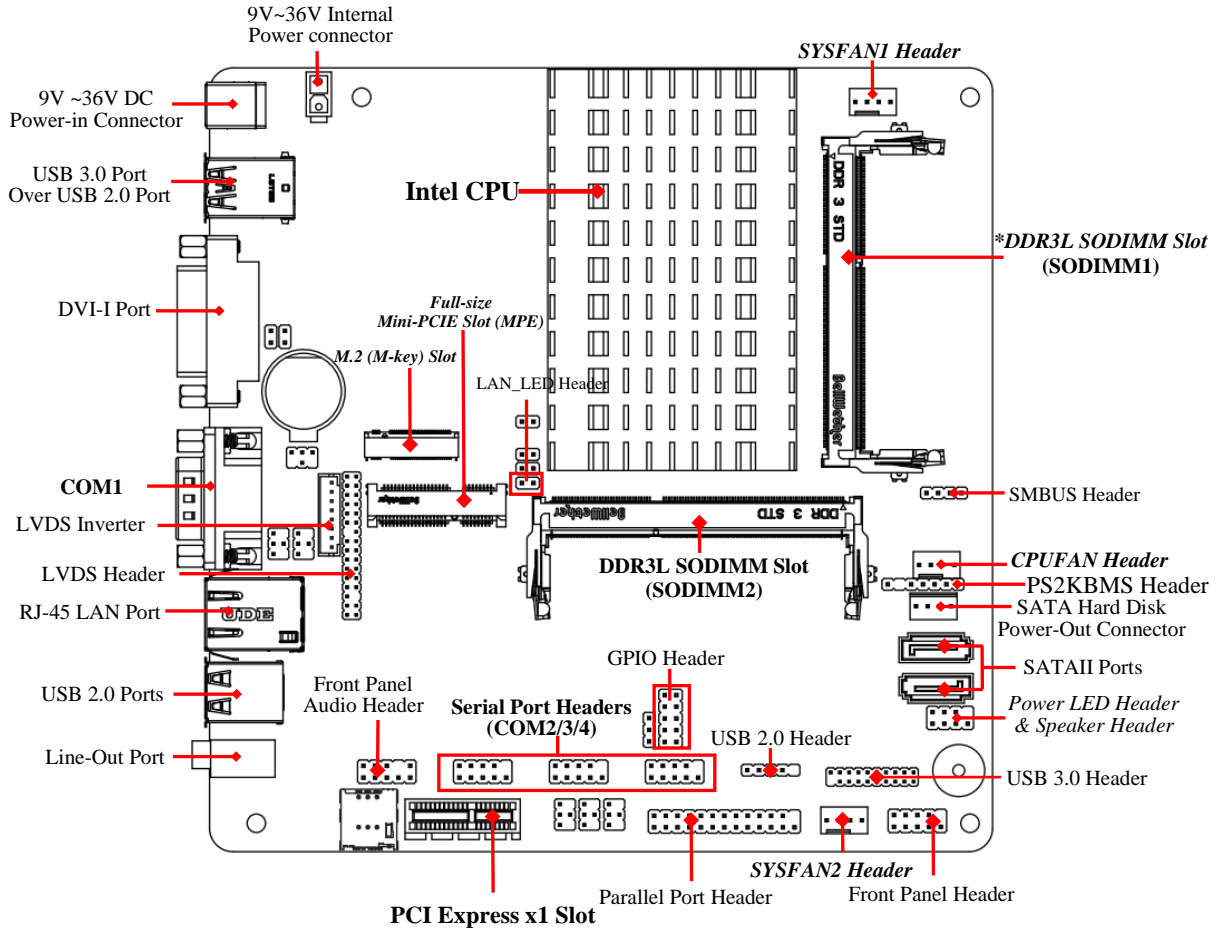
	<ul style="list-style-type: none"> ● 1* Front panel audio header ● 1* SPDIF Out header ● 1* SPEAK_CON header ● 1* Parallel port header ● 3* Serial port header ● 1* USB 2.0 header (Expansible to 1* USB 2.0 ports) ● 1* USB 3.0 header (Expansible to 2* USB 3.0 ports) ● 1* Power LED & speaker header ● 1* Front panel header ● 1* GPIO_CON header ● 1* PS2KBMS header ● 1* SMBUS header ● 1* LAN LED activity header ● 1* LVDS header ● 1* LVDS inverter
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1-3 Layout Diagram

Rear IO Panel Diagram:

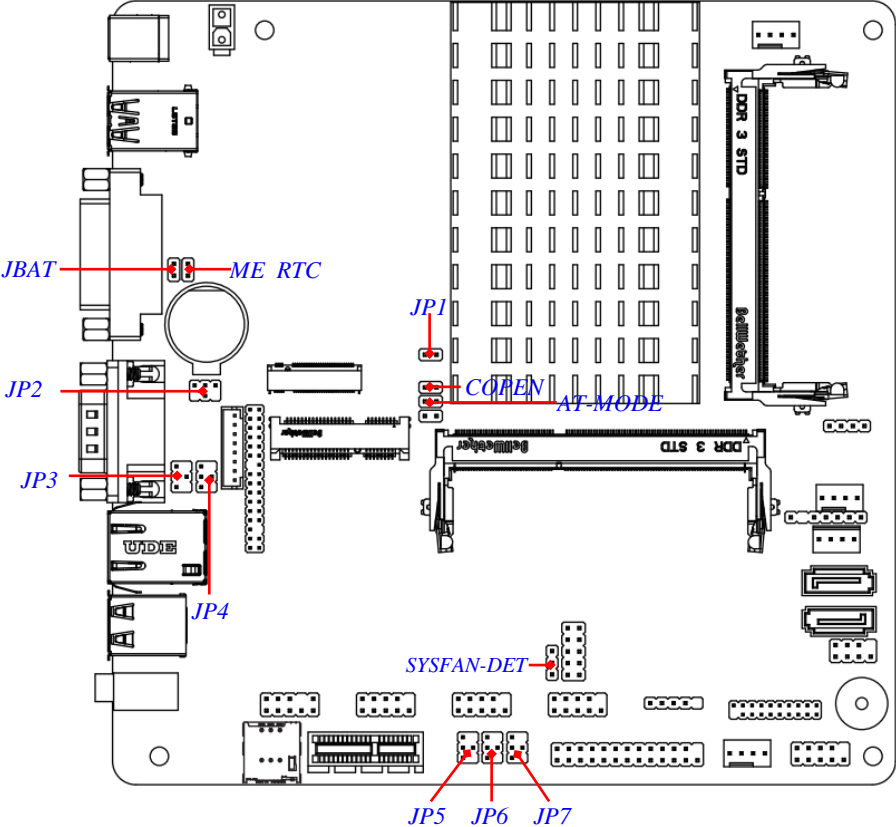


Motherboard Internal Diagram



Note: 1. Priority should be given to SODIMM1 slot when installing only one compatible memory modules. 2. The module should be **DDR3L 1.35V SODIMM** and **not exceeding 8GB total capacity**.

Jumper Position:



Jumper

Jumper	Name	Description
JBAT	CMOS RAM Clear Function Setting	2-Pin Block
ME_RTC	Clear ME RTC Function Setting	2-Pin Block
COPEN	Case Open Message Display Function	2-Pin Block
AT_MODE	AT Mode Function Select	2-Pin Block
SYSFAN_DET	SYSFAN1/SYSFAN2 R.P.M. Select	3-Pin Block
JP1	Security Measure Function Select	2-Pin Block
JP2	COM1 Port Pin9 Function Select	4-Pin Block
JP3	LVDS PVCC 5V/3.3V /12V Select	4-Pin Block
JP4	LCD Back Light 5V/12V/DCIN Select	4-Pin Block
JP5	COM2 Header Pin9 Function Select	4-Pin Block
JP6	COM3 Header Pin9 Function Select	4-Pin Block
JP7	COM4 Header Pin9 Function Select	4-Pin Block

Connectors

Connector	Name
DCIN	DC 9V~36V Power-in Connector
SATA1/SATA2	SATAII Port Connector
SATAPW	SATA Power out Connector
CPUFAN	CPUFAN Connector
SYSFAN1/SYSFAN2	SYSFAN Connector X2
USB20/USB30(Top)	USB 2.0 Port Connector X3
USB30(Bottom)	USB 3.0 Port Connector
LAN	RJ-45 LAN Port Connector
DVI-I	DVI-I Port Connector
COM1	Serial port
LINE_OUT / MIC	Audio Line Out Connector

Headers

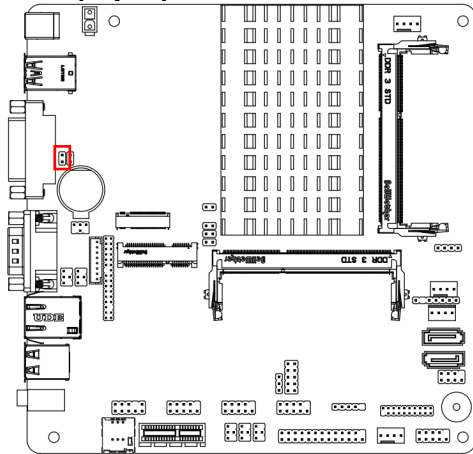
Header	Name	Description
FP_AUDIO	Front Panel Audio Header	9-pin Block
LPT	Parallel Port Header	25-pin Block
COM2/3/4	Serial Port Header X3	9-pin Block
GPIO_CON	GPIO Header	10-pin Block
FP_USB20	USB 2.0 Header	9-pin Block
FP_USB30	USB 3.0 Header	19-pin Block
SPK-LED	Power LED & Speaker Header	7-pin Block
JW_FP	Front Panel Header(PWR LED/ HDD LED/Power Button /Reset)	9-pin Block
PS2KBMS	PS/2 Keyboard & Mouse Header	6-pin Block
SMBUS	SMBUS Header	4-pin Block
LAN_LED	LAN Activity LED Header	2-pin Block
INVERTER	LVDS Inverter	8-pin Block
LVDS	LVDS Header	30-pin Block

Chapter 2

Hardware Installation

2-1 Jumper Setting

(1) JBAT (2-pin): Clear CMOS Setting (2.54 pitch)



JBAT

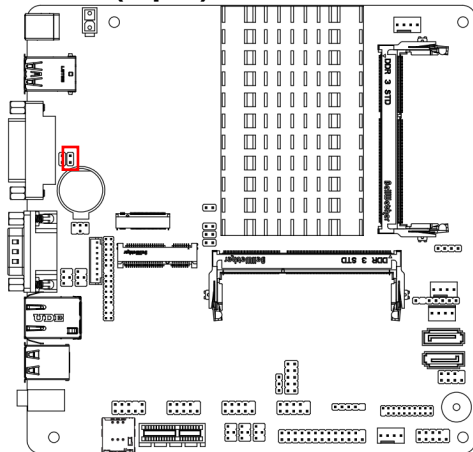


1-2 Open: Normal;

1-2 Closed: Clear CMOS

CMOS Clear Setting

(2) ME_RTC (2-pin): Clear ME_RTC Function Setting (2.54 pitch)



ME_RTC

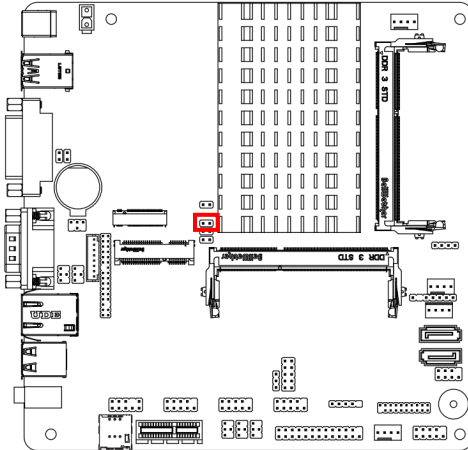


1-2 Open: Normal;

1-2 Closed: Clear ME_RTC.

CMOS ME_RTC Setting

(3)COPEN (2-pin): Case Open Message Display Function Select (2.54 pitch)



COPEN



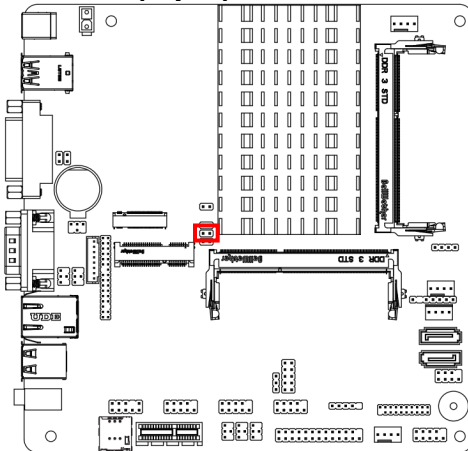
1-2 Open: Normal;



1-2 Closed: Case Open
Function Selected (One Touch).

Pin 1-2 Closed: 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.

(4)AT_MODE (2-pin): AT Mode Function Select (2.54 pitch)



AT_MODE



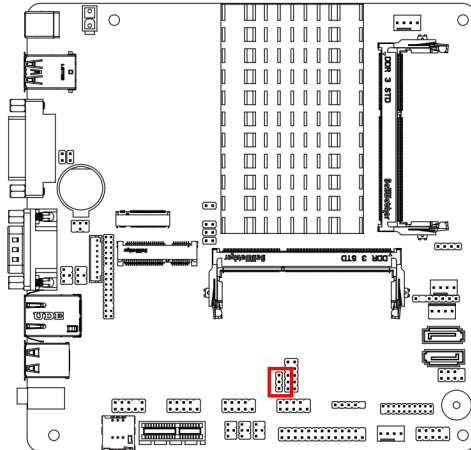
1-2 Open: ATX Mode Selected;



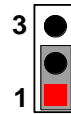
1-2 Closed: AT Mode Selected.

Pin 1-2 closed: AT_MODE function is enabled. User needs to restart the system for the settings to take effect. In this case your computer will automatically turns on when power supply resumes.

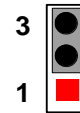
(5) SYSFAN_DET (3-pin): SYSFAN1/SYSFAN2 R.P.M. Select (2.54 pitch)



SYSFAN_DET

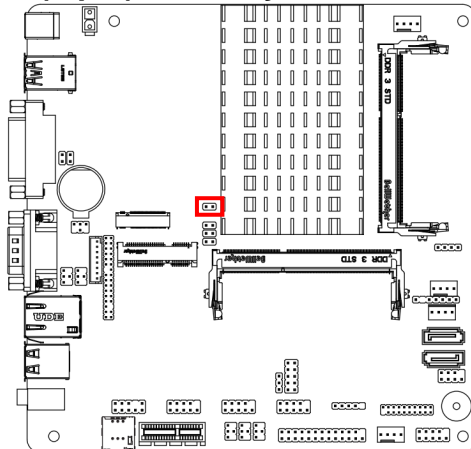


1-2 Closed:
SYSFAN1 R.P.M. Selected;



2-3 Closed:
SYSFAN2 R.P.M. Selected.

(6) JP1 (2-pin): Security Flash Descriptor Select (2.54 pitch)



JP1

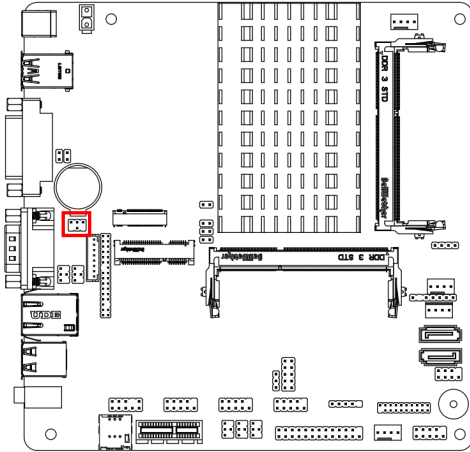


1-2 Open: Normal(Default);

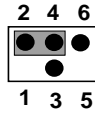


1-2 Closed: FLASH OVERRIDE.

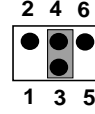
(7) JP2 (4-pin): COM1 Port Pin9 Function Select (2.54 pitch)



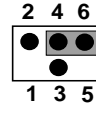
JP2→COM1



2-4 Closed:
PIN9=RI;

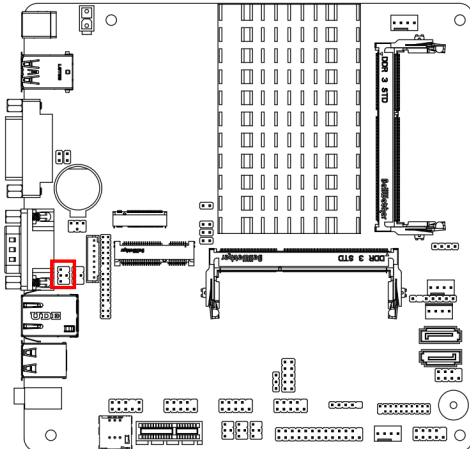


3-4 Closed:
PIN9= 5V;

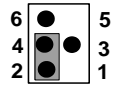


4-6 Closed:
PIN9= 12V.

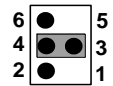
(8) JP3 (4-pin): LVDS Panel Power Select (2.54 pitch)



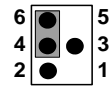
JP3→LVDS Panel Power



2-4 Closed:
VCC=3.3V;

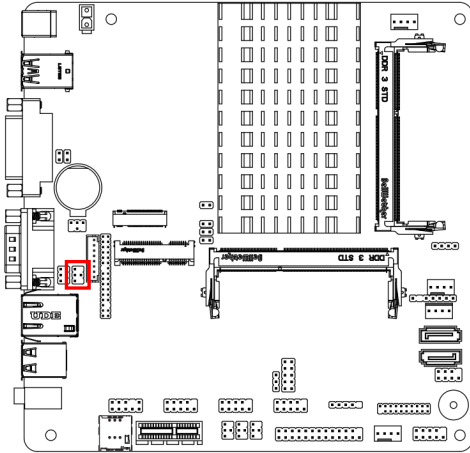


3-4 Closed:
VCC= 5V;

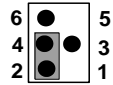


4-6 Closed:
VCC= 12V.

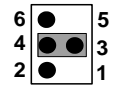
(9) JP4 (4-pin): LVDS BackLight Power Select (2.54 pitch)



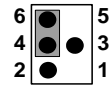
JP4→LVDS Backlight Power



2-4 Closed:
VCC=5V;

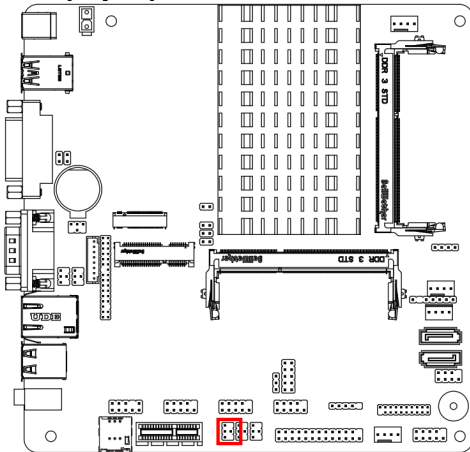


3-4 Closed:
VCC= 12V;

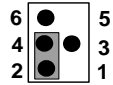


4-6 Closed:
VCC= DCIN.

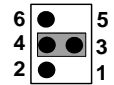
(10) JP5 (4-pin): COM2 Header Pin9 Function Select (2.54 pitch)



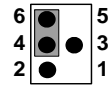
JP5→COM2 Header



2-4 Closed:
Pin9=RI;

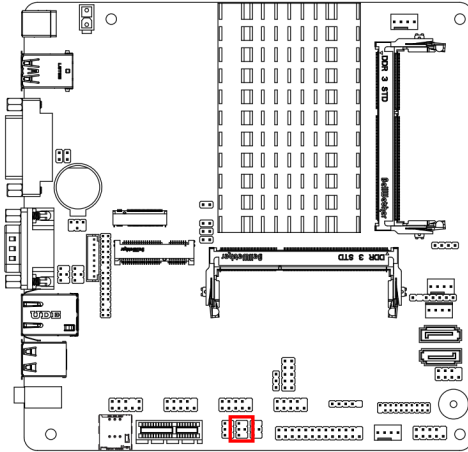


3-4 Closed:
Pin9= 5V;



4-6 Closed:
Pin9= 12V.

(11) JP6 (4-pin): COM3 Header Pin9 Function Select (2.54 pitch)



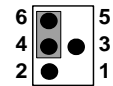
JP6→COM3 Header



2-4 Closed:
Pin9=RI;

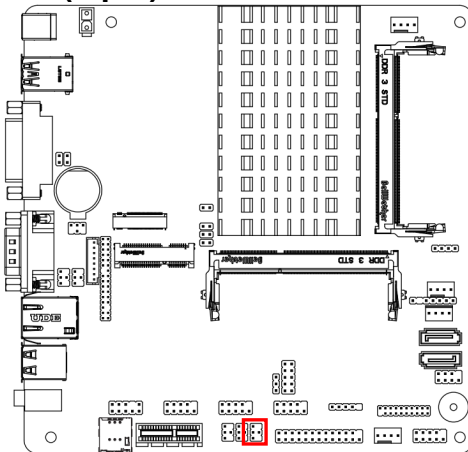


3-4 Closed:
Pin9= 5V;



4-6 Closed:
Pin9= 12V.

(12) JP7 (4-pin): COM4 Header Pin9 Function Select (2.54 pitch)



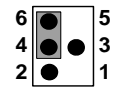
JP7→COM4 Header



2-4 Closed:
Pin9=RI



3-4 Closed:
Pin9= 5V;











4-6 Closed:
Pin9= 12V.

2-2 Connectors and Headers

2-2-1 Connectors

(1) Rear I/O Connectors

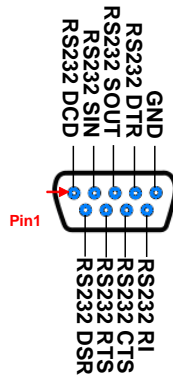
** Refer to Page-3 Rear IO Diagram.*

Icon	Name	Function
	9~36V DC-in Power Jack	For user to connect compatible power adapter to provide power supply for the system.
	USB 30 Port (Bottom)	To connect USB keyboard, mouse or other devices compatible with USB 3.0 specification. Ports support up to 5Gbps data transfer rate.
	USB 20 Port USB 30 Port (Top)	To connect USB keyboard, mouse or other devices compatible with USB 2.0 specification.
	*SIM Card Slot	For user to install compatible SIM card.
	COM Port	COM Port: to connect display device that support COM (RS232/422/485) specification.
	DVI-I Port	DVI-I Port: to connect display device that support DVI-I specification.
	RJ-45 LAN Port	This connector is standard RJ-45 LAN jack for Network connection.
	Line-Out / MIC Connector	For user to connect external speaker, earphones, etc to transfer system audio output.

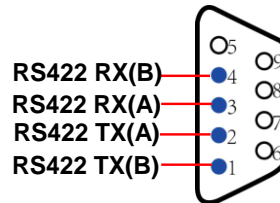
Note:* SIM card is supported when **Mini-PCle slot is installed with 3G/4G/LTE card.

(2) COM1 (9-pin Block): RS232/422/485 Port

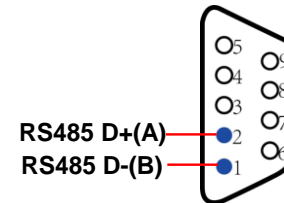
COM1 port can function as RS232/422/485 port. In normal settings COM1 functions as RS232 port. With compatible COM cable COM1 can function as RS422 or RS 485 port. User also needs to go to BIOS to set '**Transmission Mode Select**' for COM1 at first, before using specialized cable to connect different pins of this port.



RS232 Mode

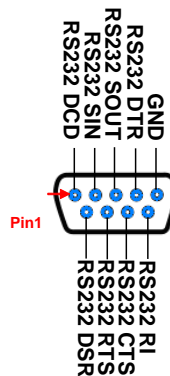


For RS422 Mode



For RS485 Mode

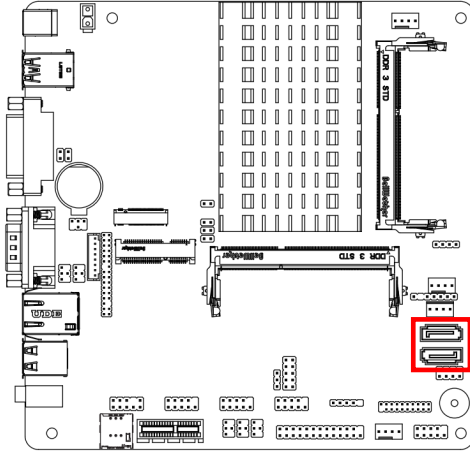
(3) COM2/COM3/COM4 (9-pin Block): only support RS232.



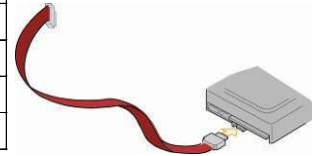
RS232 Mode

(4) SATAII Port connector: SATA1/SATA2

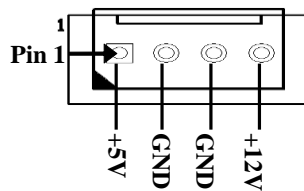
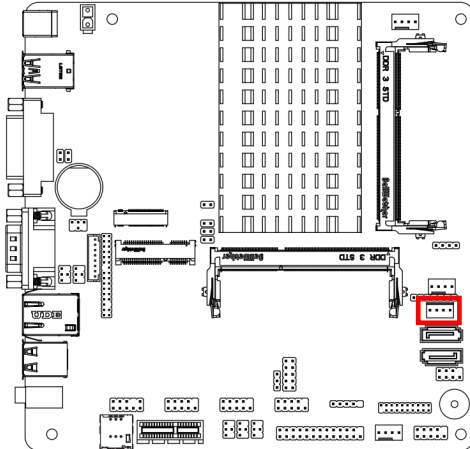
These are high-speed SATAII ports that support 3GB/s transfer rate.



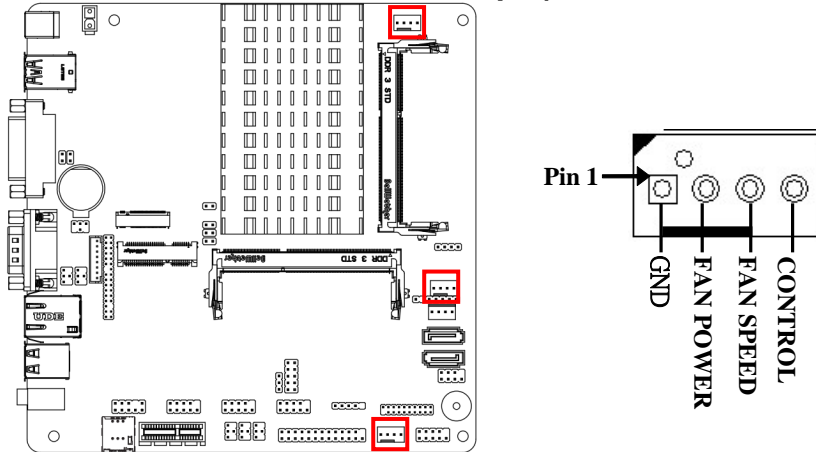
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



(5) SATA Power Connector (4-pin): SATAPW (2.54 pitch)



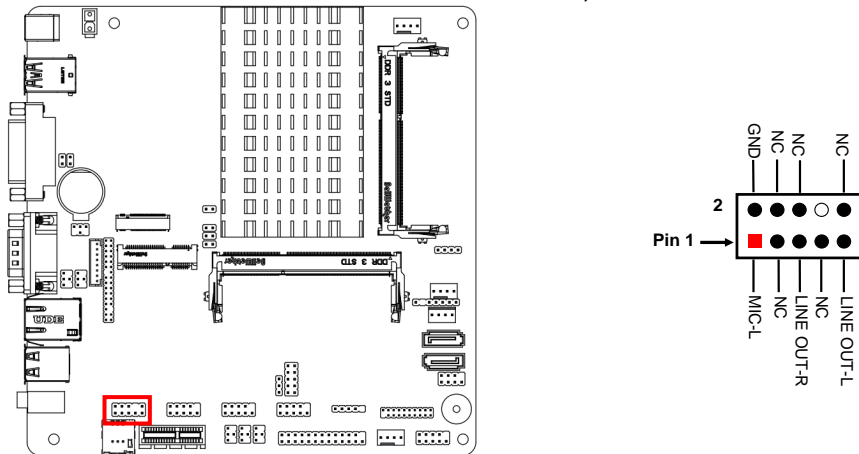
(6) CPUFAN/SYSFAN1/SYSFAN2 (4-pin): Fan Connectors (2.54 pitch)



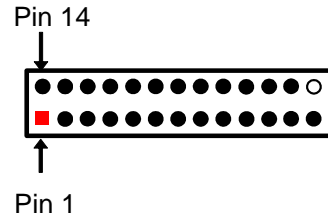
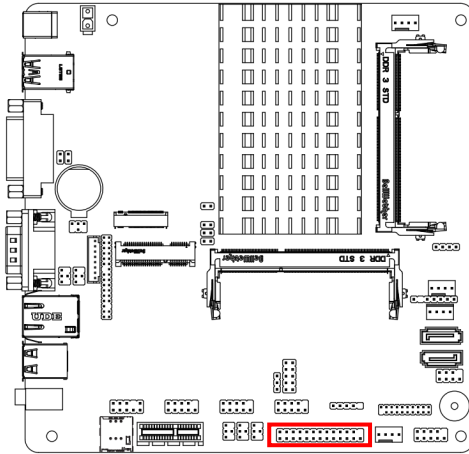
2-2-2 Headers

(1) FP_AUDIO (9-pin): Line-Out, MIC-In Header (2.54 pitch)

This header connects to Front Panel Line-out, MIC-In connector with cable.

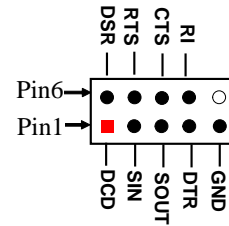
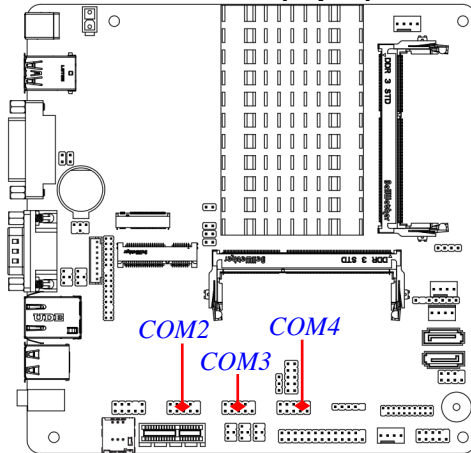


(2) LPT (25-pin): Parallel Port Header (2.54 pitch)

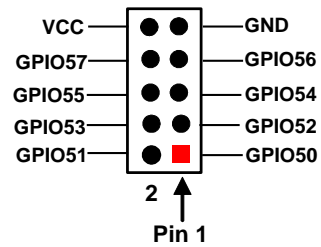
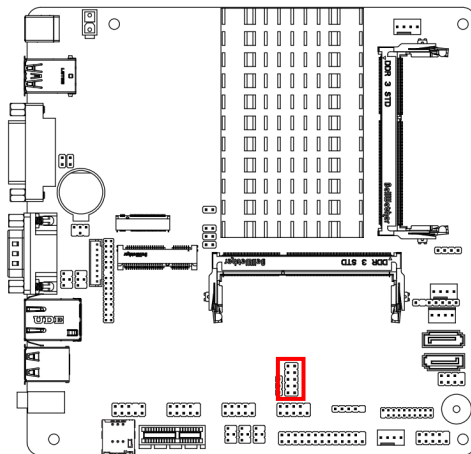


Pin Definition	Pin NO.	Pin NO.	Pin Definition
		Pin 13	SLCT
GND	Pin 25	Pin 12	PE
GND	Pin 24	Pin 11	BUSY
GND	Pin 23	Pin 10	ACK-
GND	Pin 22	Pin 9	PRD7
GND	Pin 21	Pin 8	PRD6
GND	Pin 20	Pin 7	PRD5
GND	Pin 19	Pin 6	PRD4
GND	Pin 18	Pin 5	PRD3
SLIN-	Pin 17	Pin 4	PRD2
INIT-	Pin 16	Pin 3	PRD1
ERR-	Pin 15	Pin 2	PRD0
AFD-	Pin 14	Pin 1	STB-

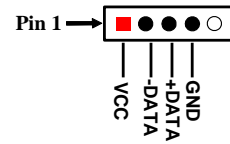
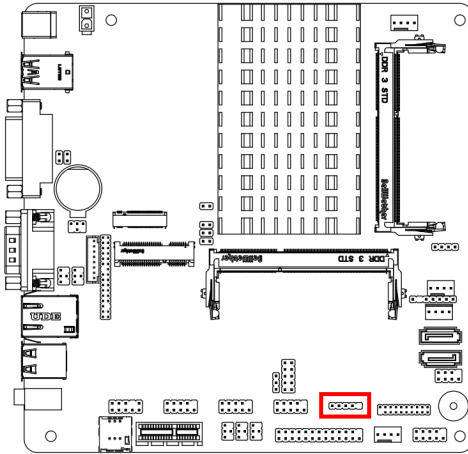
(3) COM2/COM3/COM4 (9-pin): Serial Port Headers (2.54 pitch)



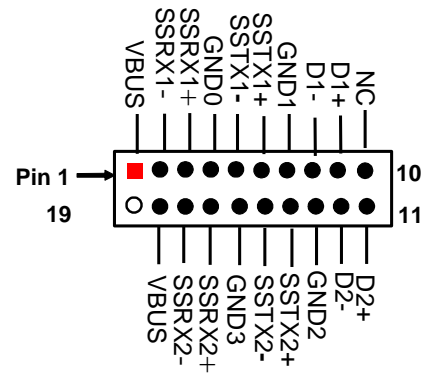
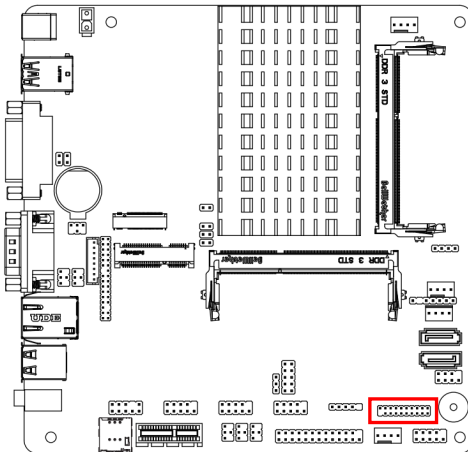
(4) GPIO_CON (10-pin): GPIO Header (2.54 pitch)



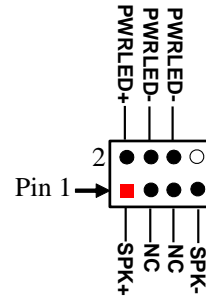
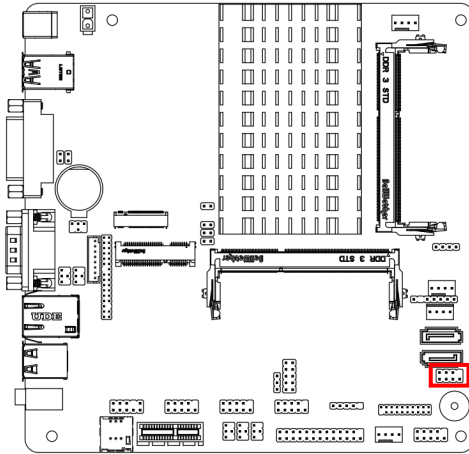
(5) FP_USB20 (4-pin): USB 2.0 Port Header (2.54 pitch)



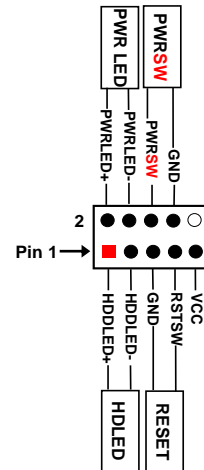
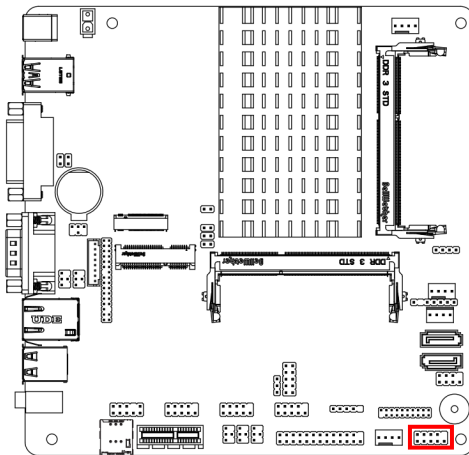
(6) FP_USB30 (19-pin): USB 3.0 Port Header (2.0pitch)



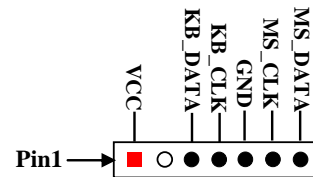
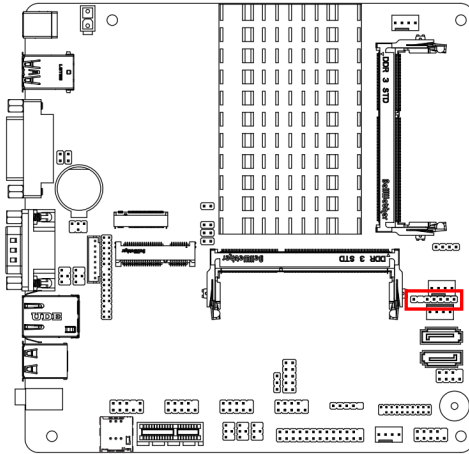
(7) SPK-LED (7-pin): Speaker Header & PWR LED Header (2.54 pitch)



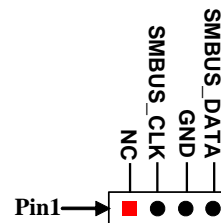
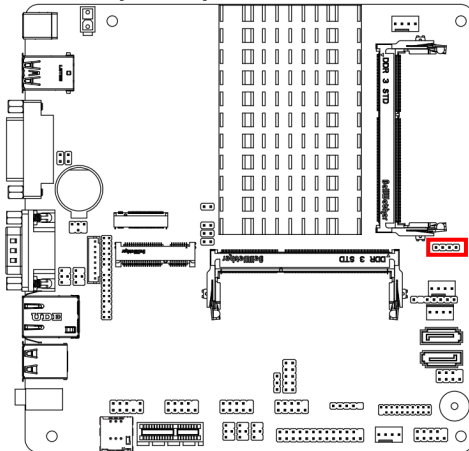
(8) JW_FP (9-pin): Front Panel Header (2.54 pitch)



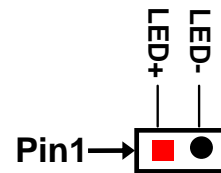
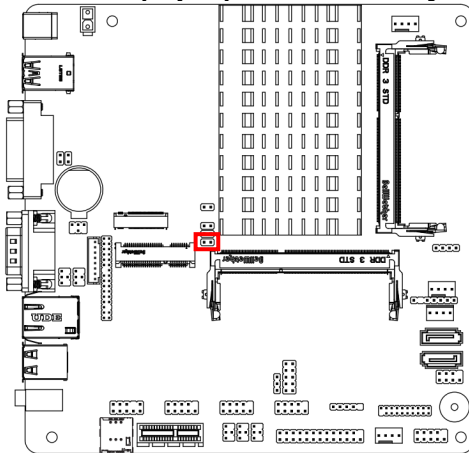
(9) PS2KBMS (6-pin): PS/2 Keyboard & Mouse Header (2.54 pitch)



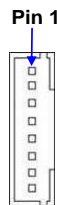
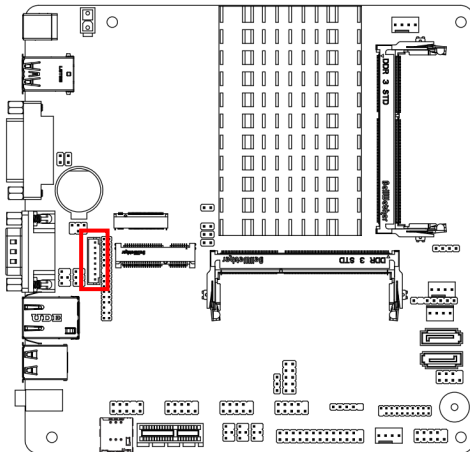
(10) SMBUS (4-Pin): SMBUS Header (2.54 pitch)



(11) LAN_LED (2-pin): LAN Activity LED Header (2.54 pitch)

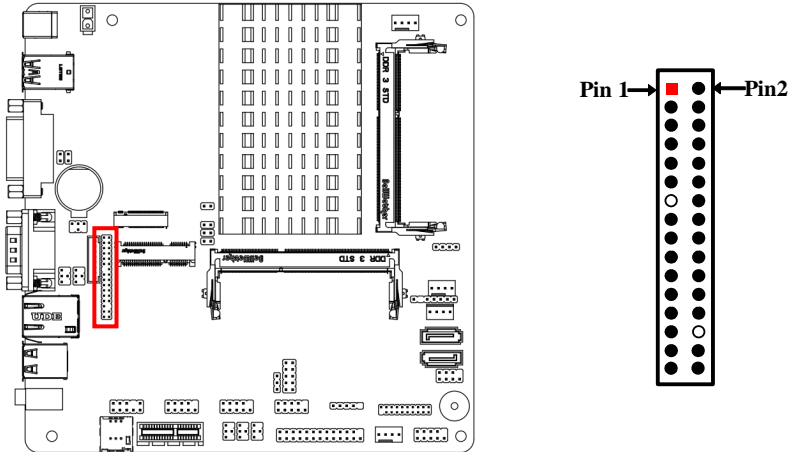


(12) INVERTER (8-pin): LVDS Inverter Connector (2.0pitch)



Pin No.	Definition
1	Backlight Enable
2	Backlight PWM
3	Backlight VCC
4	Backlight VCC
5	GND
6	GND
7	Backlight Up SW
8	Backlight Down SW

(13) LVDS (30-pin): 24-bit Dual Channel LVDS Header (2.0pitch)



Pin Define	Pin NO.	Pin NO.	Pin Define
LVDSB_DATAN3	Pin 1	Pin 2	LVDSB_DATAP3
LVDS_CLKBN	Pin 3	Pin 4	LVDS_CLKBP
LVDSB_DATAN2	Pin 5	Pin 6	LVDSB_DATAP2
LVDSB_DATAN1	Pin 7	Pin 8	LVDSB_DATAP1
LVDSB_DATAN0	Pin 9	Pin 10	LVDSB_DATAP0
NC	Pin 11	Pin 12	NC
N/A	Pin 13	Pin 14	GND
GND	Pin 15	Pin 16	GND
LVDSA_DATAP3	Pin 17	Pin 18	LVDSA_DATAN3
LVDS_CLKAP	Pin 19	Pin 20	LVDS_CLKAN
LVDSA_DATAP2	Pin 21	Pin 22	LVDSA_DATAN2
LVDSA_DATAP1	Pin 23	Pin 24	LVDSA_DATAN1
LVDSA_DATAP0	Pin 25	Pin 26	LVDSA_DATAN0
PVDD	Pin 27	Pin 28	N/A
PVDD	Pin 29	Pin 30	PVDD
GND	Pin 31	Pin 32	GND

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

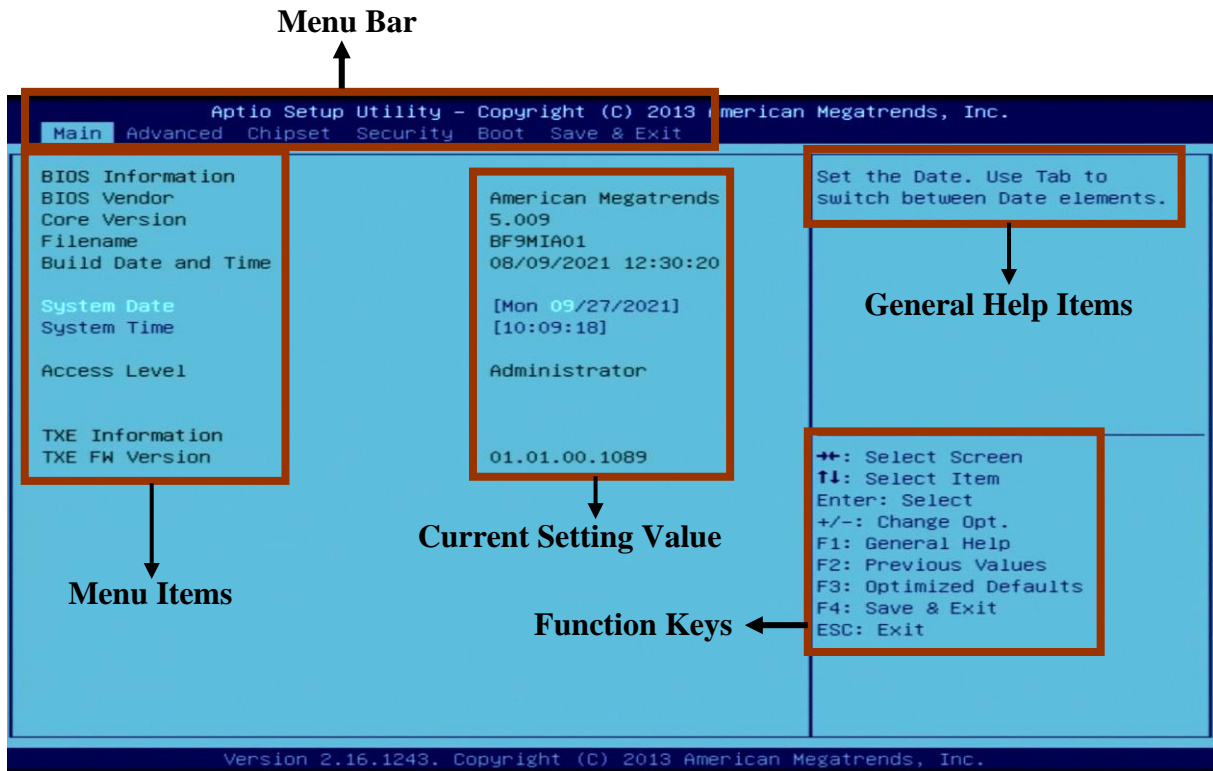
Power on the computer and by pressing immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously 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 **** to enter Setup

* When system POST boots, you may press “H” or “C” key to change display device.
 Press <H> key to switch HDMI/DVI display first.
 Press <C> key to switch CRT/DVI display first.

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



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 & Reset.
- 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

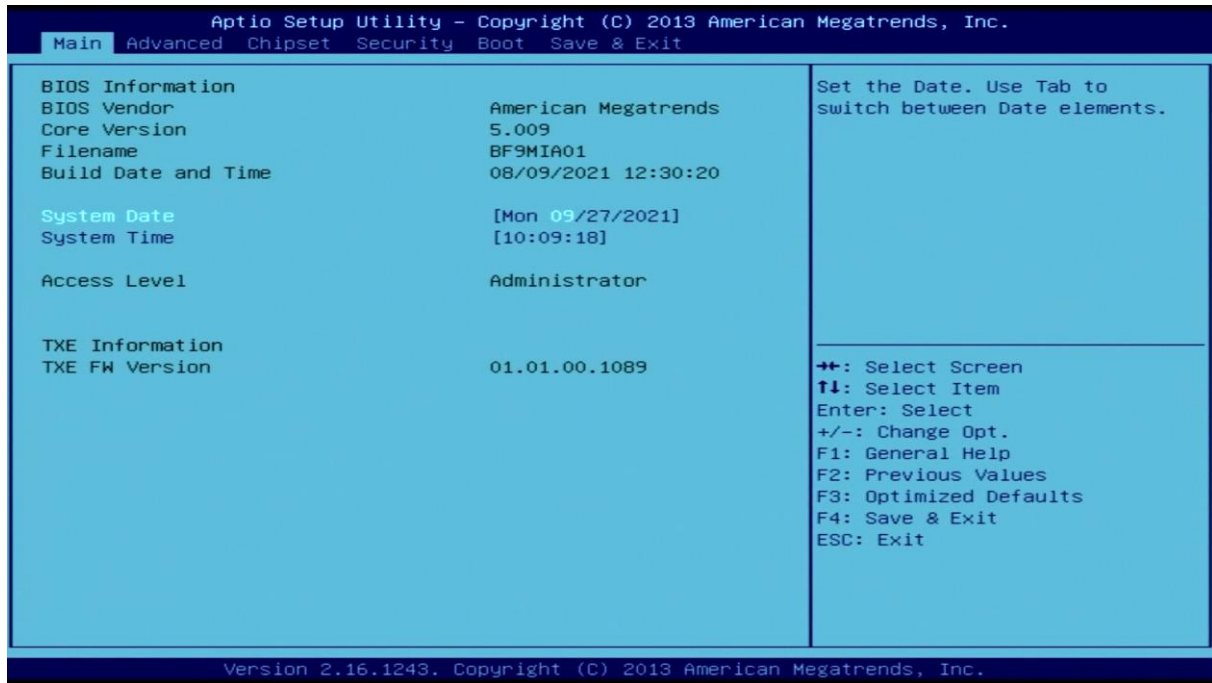
To change system basic configuration

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.



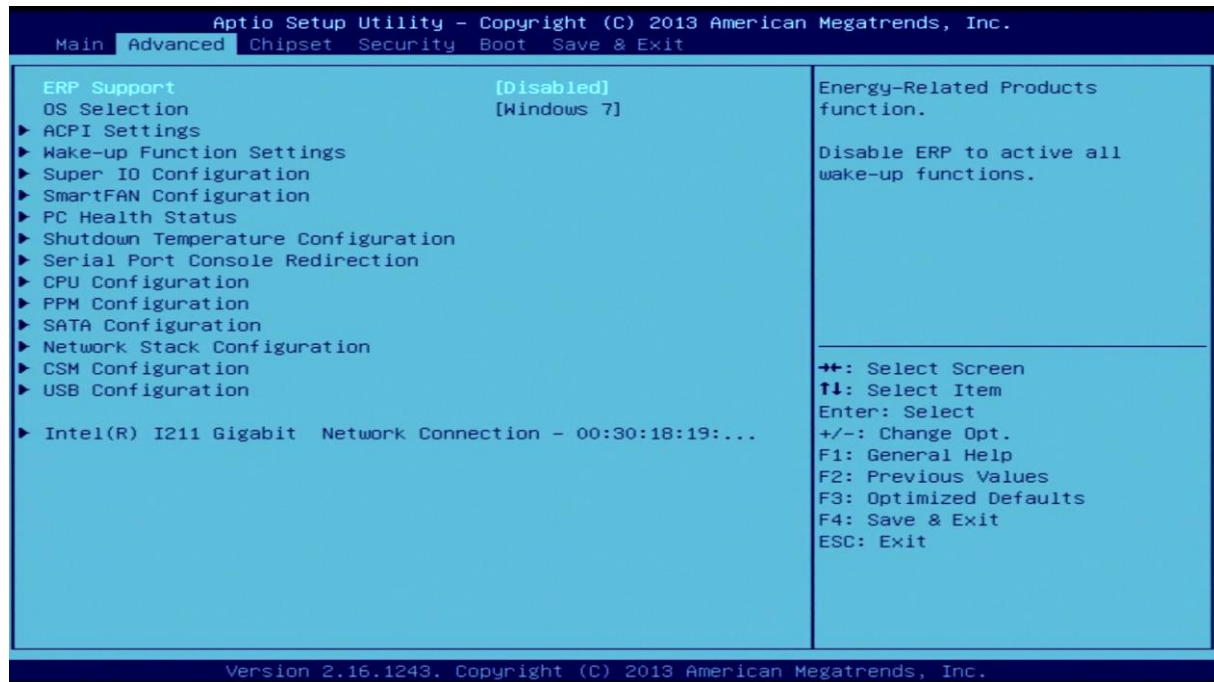
System Date

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

System Time

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

3-7 Advanced Menu



ERP Function

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

OS Selection

The optional settings: [Android]; [Windows 8.X]; [Windows 7].

▶ 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)].

▶ **Wake-up Function Settings**

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

Wake System with Fixed Time

Use this item to enable or disable system wake on alarm event.

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

When set as [Enable], the following items shall appear:

Wake-up Hour

Use this item to select 0-23. For example enter 3 for 3am and 15 for 3pm.

Wake-up Minute

Use this item to select 0-59.

Wake-up Second

Use this item to select 0-59.

PS2 KB/MS Wake-up

Use this item to enable or disable PS2 KB/MS wake-up from S3/S4/S5 state. This function is only supported when ERP function is disabled.

**This item will only show when 'ERP Support' is set as [Disabled].*

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

▶ **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: [Disabled]; [Enable].

Change Settings

Use this item to select an optimal setting for super IO device.

The optional settings: [Auto]: [IO=3F8h; IRQ=4]; [IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11].

Transmission Mode Select

The optional settings are: [RS422]; [RS232]; [RS485].

Mode Speed Select

The optional settings are: [RS232/RS422/RS485=250kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

Serial Port FIFO Mode

The optional settings are: [16-Byte FIFO]; [32-Byte FIFO]; [64-Byte FIFO]; [128-Byte FIFO].

▶ Serial Port 2 Configuration

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

Serial Port

Use this item to enable or disable serial port (COM).

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

Change Settings

Use this item to select an optimal setting for super IO device.

The optional settings: [Auto]: [IO=2F8h; IRQ=3]; [IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11].

Serial Port FIFO Mode

The optional settings are: [16-Byte FIFO]; [32-Byte FIFO]; [64-Byte FIFO]; [128-Byte FIFO].

▶ Serial Port 3 Configuration

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

Serial Port

Use this item to enable or disable serial port (COM).

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

Change Settings

Use this item to select an optimal setting for super IO device.

The optional settings: [Auto]: [IO=3E8h; IRQ=10]; [IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=3E0h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2E0h; IRQ=3, 4, 5, 6, 7, 9, 10, 11].

Serial Port FIFO Mode

The optional settings are: [16-Byte FIFO]; [32-Byte FIFO]; [64-Byte FIFO]; [128-Byte FIFO].

▶ **Serial Port 4 Configuration**

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

Serial Port

Use this item to enable or disable serial port (COM).

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

Change Settings

Use this item to select an optimal setting for super IO device.

The optional settings: [Auto]: [IO=2E8h; IRQ=10]; [IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]]; [IO=3E0h; IRQ=3, 4, 5, 6, 7, 9, 10, 11]; [IO=2E0h; IRQ=3, 4, 5, 6, 7, 9, 10, 11].

Serial Port FIFO Mode

The optional settings are: [16-Byte FIFO]; [32-Byte FIFO]; [64-Byte FIFO]; [128-Byte FIFO].

OS Select For Serial Port

Use this item to select serial port support.

The optional settings are: [Windows]; [LINUX].

▶ **Parallel Port Configuration**

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

Parallel Port Configuration

Parallel Port

Use this item to enable or disable parallel port (LPT/LPTE).

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

Change Settings

Use this item to select an optimal setting for super IO device.

The optional settings are: [Auto]; [IO=378h; IRQ=7]; [IO=378h; IRQ=5, 6, 7, 9, 10, 11, 12]; [IO=278h; IRQ=5, 6, 7, 9, 10, 11, 12]; [IO=3BCh; IRQ=5, 6, 7, 9, 10, 11, 12];

Device Mode

Use this item to change the Printer Port mode.

The optional settings are: [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].

WatchDog Timer

Use this item to enable or disable WatchDog Timer Control.

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

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

WatchDog Timer Value

User can set a value in the range of 4 to 255.

WatchDog Timer Unit

The optional settings are: [Sec.]; [Min.].

WatchDog Wake-up Timer in ERP

This item support WDT wake-up while ERP function is set as [Enabled].

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

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

WatchDog Timer Value in ERP

User can set a value in the range of 10 to 4095.

WatchDog Timer Unit

The optional settings are: [Sec.]; [Min.].

ATX Power Emulate AT Power

This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select 'AT or ATX Mode' on MB jumper at first (refer to AT MODE jumper setting for ATX Mode & AT Mode Select).

Case Open Detect

Use this item to detect case has already open or not. Show message in POST.

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

When set as [Enable], system will detect if COPEN has been short or not (*refer to **COPEN** jumper setting for Case Open Detdetection*); if **COPEN** are short, system will show Case Open Message during POST.

▶ **SmartFan Configuration**

Press [Enter] to make settings for SmartFan Configuration:

CPUFAN / SYSFAN1/2 Smart Mode

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

CPUFAN / SYSFAN1/2 Full-Speed Temperature

Use this item to set CPUFAN/SYSFAN1/2 full speed temperature. Fan will run at full speed when above this temperature.

CPUFAN / SYSFAN1/2 Full-Speed Duty

Use this item to set CPUFAN/SYSFAN1/2 full speed duty. Fan will run at full speed when above the pre-set duty.

CPUFAN / SYSFAN1/2 Idle-Speed Temperature

Use this item to set CPUFAN/SYSFAN1/2 idle speed temperature. Fan will run at idle speed when below this temperature.

CPUFAN / SYSFAN1/2 Idle-Speed Duty

Use this item to set CPUFAN/SYSFAN1/2 idle speed duty.. Fan will run at idle speed when below the pre-set duty.

▶ **PC Health Status**

Press [Enter] to view current hardware health status.

▶ **Shutdown Temperature Configuration**

Use this item to select system shutdown temperature.

The optional settings are: [Disabled]; [70°C/158°F]; [75°C/167°F]; [80°C/176°F]; [85°C/185°F].

▶ **Serial Port Console Redirection**

Press [Enter] to make settings for serial port redirection settings:

COM1

Console Redirection

Use this item to enable or disable console redirection.

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

When set as [Enabled], user can make further settings in:

▶ **Console Redirection Settings**

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

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

Terminal Type

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

Bits per second

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

Data Bits

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

Parity

The optional settings are: [None]; [Even]; [Odd]; [Mark]; [Space].

Stop Bits

The optional settings are: [1]; [2].

Flow Control

The optional settings are: [None]; [Hardware RTS/CTS].

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty Keypad

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

Redirection After BIOS POST

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

Serial Port for Out-of-Band Management

/Windows Emergency Management Services (EMS)

Console Redirection

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

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

▶ Console Redirection Settings

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

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

Out-of-Band Mgmt Port

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

Terminal Type

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

Bits per second

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

Flow Control

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.*

▶ **CPU Configuration**

Press [Enter] to view current CPU configuration and make settings for the following sub-items:

Limit CPUID Maximum

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

This item should be set as [Disabled] for Windows XP.

Execute Disable Bit

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

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux9.2 RedHat Enterprise 3 Update 3.)

Hardware Prefetcher

Use this item to turn on/off the Mid Level Cache (L2) streamer prefetcher.

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

Adjacent Cache Line Prefetch

Use this item to turn on/off the Mid Level Cache (L2) prefetching of adjacent cache lines.

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

Intel Virtualization Technology

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

When set as [Enabled], a VMM can utilize the additional hardware capabilities

provided by Vanderpool Technology.

Power Technology

Use this item to enable or disable the power management features.

The optional settings: [Disabled]; [Energy Efficient].

▶ **PPM Configuration**

Press [Enter] to make settings for PPM Configuration:

PPM Configuration:

EIST

Use this item to enable or disable Intel SpeedStep.

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

CPU C Status Report

Use this item to enable or disable CPU C status report to OS.

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

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

Enhanced C state

Use this item to enable or disable CPU C state.

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

Max CPU C-state

This item controls Max C state that the processor will support.

The optional settings: [C7]; [C6]; [C1].

▶ **SATA Configuration**

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

SATA Configuration

SATA Port

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

SATA Mode

The optional settings are: [IDE Mode]; [AHCI Mode].

SATA Speed Support

The item is for user to set the maximum speed the SATA controller can support.

The optional settings are: [Gen1]; [Gen2].

SATA Port1

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

SATA Port2/M.2

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

▶ **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

Use this item to enable Ipv4 PXE Boot Support. When set as [Disabled], Ipv4 boot optional will not be created.

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

Ipv6 PXE Support

Use this item to enable Ipv6 PXE Boot Support. When set as [Disabled], Ipv4 boot optional will not be created.

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

PXE boot wait time

Use this item to set wait time to press [ESC] key to abort the PXE boot.

Use either [+] / [-] or numeric keys to set the value.

▶ **CSM Configuration**

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

Compatibly Support Module Configuration

Option ROM Message

The optional settings are: [Force BIOS]; [Keep Current].

INT19 Trap Response

The optional settings are: [Immediate]; [Postponed].

Option ROM execution order

Network

This item controls the execution of UEFI and legacy PXE OpROM.

The optional settings are: [Do not launch]; [UEFI only]; [Legacy only].

Storage

This item controls the execution of UEFI and Legacy Storage OpROM.

The optional settings are: [Do not launch]; [UEFI only]; [Legacy only]; [Legacy first]; [UEFI first].

Other PCI devices

This item determines OpROM execution policy for devices other than Network, storage or video.

The optional settings are: [UEFI first]; [Legacy Only].

▶ **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 specification,

[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].

EHCI Hand-off

This is a workaround for OSeS without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

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

USB Mass Storage Driver Support

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

USB hardware delay 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. 'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor.

The optional settings are: [Auto]; [Manual].

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.

Use either [+] / [-] or numeric keys to set the value.

▶ **Intel® I211 Gigabit Network Connection (MAC:XX:XX:XX:XX:XX:XX)**

Use this item to get driver information and configure Realtek ethernet controller parameter.

▶ **NIC Configuration**

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

Link Speed

This item specifies the port speed used for the selected boot protocol.

The optional settings are: [Auto Negotiated]; [10Mbps Half]; [10Mbps Full]; [100Mbps Half]; [100Mbps Full];

Wake in LAN

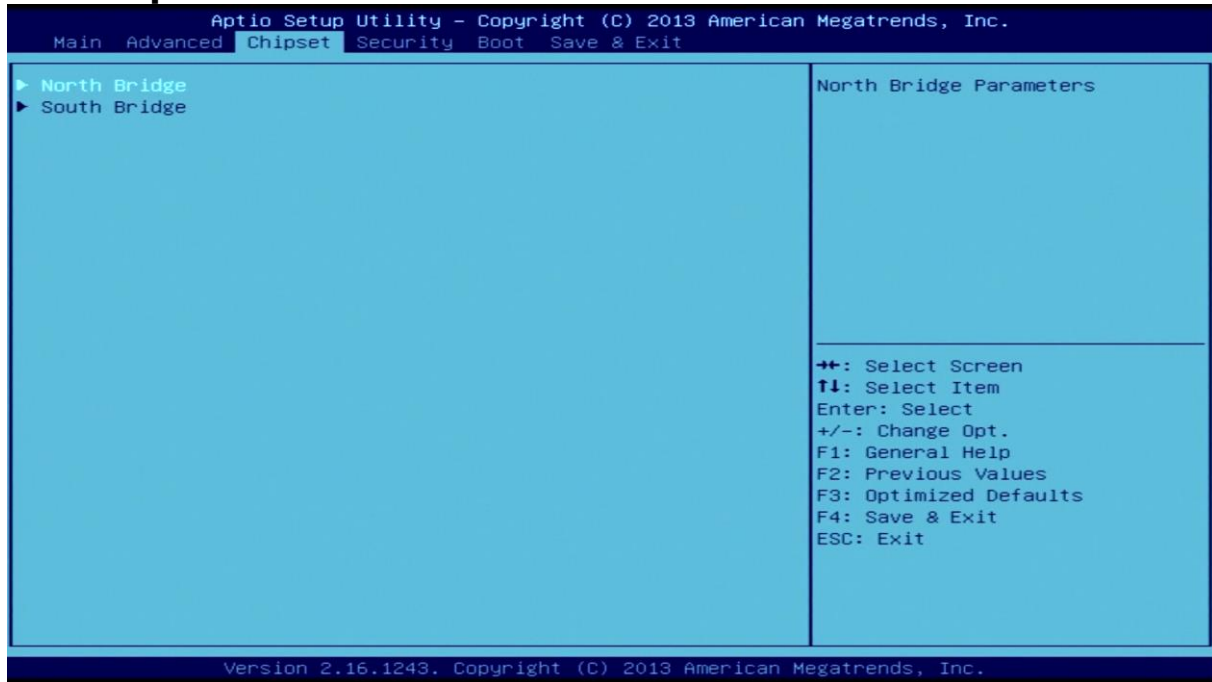
Use this item to enable or disable the server to be powered on using an in-band magic packet.

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

Blink LEDs

Use this item to identify the physical network port by blinking the associated LED.
Use this item to select 0-15.

3-8 Chipset Menu



▶ North Bridge

Press [Enter] to view current using memory information and make settings for the following sub-items:

Intel IGD Configuration

IGD Turbo Enable

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

Spread Spectrum Clock

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

IGD Boot Type

Use this item to select preference display interface used when system boot.

The optional settings are: [DVI/CRT]; [CRT]; [HDMI/DVI].

****Attention:** LVDS item appear at IGD Boot Type after enable Active LVDS item.

Active LVDS

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

[Disable]: VBIOS disable LVDS.

[Enable]: VBIOS enable LVDS.

**When set as [Enabled], user can make further settings in 'LVDS Panel Type'*

LVDS Panel1 Type

Use this item to select LVDS panel resolution.

The optional setting are: [800 x 480 18bit Single]; [800x 600 18bit Single]; [800x 600 24bit Single]; [1024 x 600 18bit Single]; [1024 x 768 18bit Single]; [1024 x 768 24bit Single]; [1280 x 768 24bit Single]; [1280 x 800 18bit Single]; [1280 x 800 24bit Single]; [1366 x 768 18bit Single]; [1366 x 768 24bit Single]; [1440 x 900 18bit Dual]; [1440 x 900 24bit Dual]; [1280 x 1024 24bit Dual]; [1680 x 1050 24bit Dual]; [1680 x 1050 24bit Dual]; [1920 x 1080 24bit Dual].

▶ **South Bridge**

Press [Enter] to further setting USB device configuration.

▶ **Azalia HD Audio**

Press [Enter] to further setting Azalia HD Audio Options.

Audio Configuration

Audio Controller

This item controls detection of the Azalia device.

The default value is that Azalia will be enable if present disable otherwise.

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

.Azalia Internal HDMI Codec

Use this item to enable or disable internal HDMI codec for Azalia.

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

▶ **USB Configuration**

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

USB Configuration

USB 3.0 Support

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

USB 3.0 Link Power Management

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

USB 2.0 Support

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

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

PCI-E Slot Speed

The optional settings are: [Auto]; [Gen2]; [Gen1].

Onboard Lan1 Controller

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

Asmedia USB 3.0 Controller

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

Mini PCIE

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

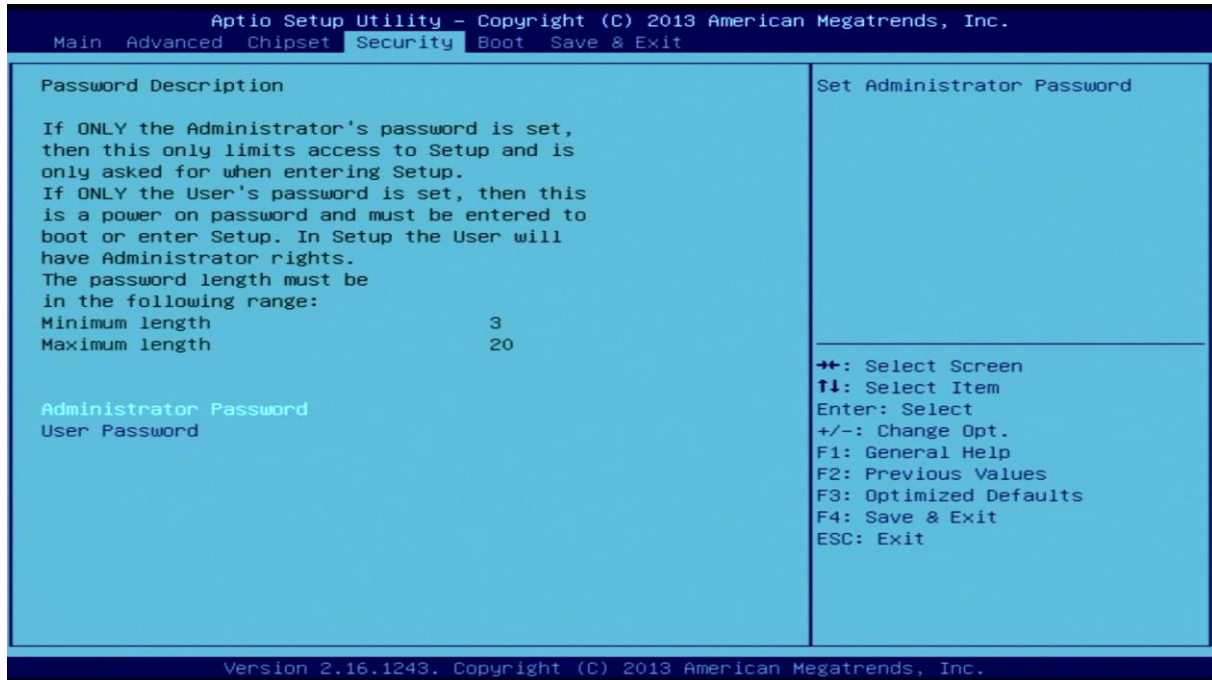
Speed

The optional settings are: [Auto]; [Gen2]; [Gen1].

Restore AC Power Loss

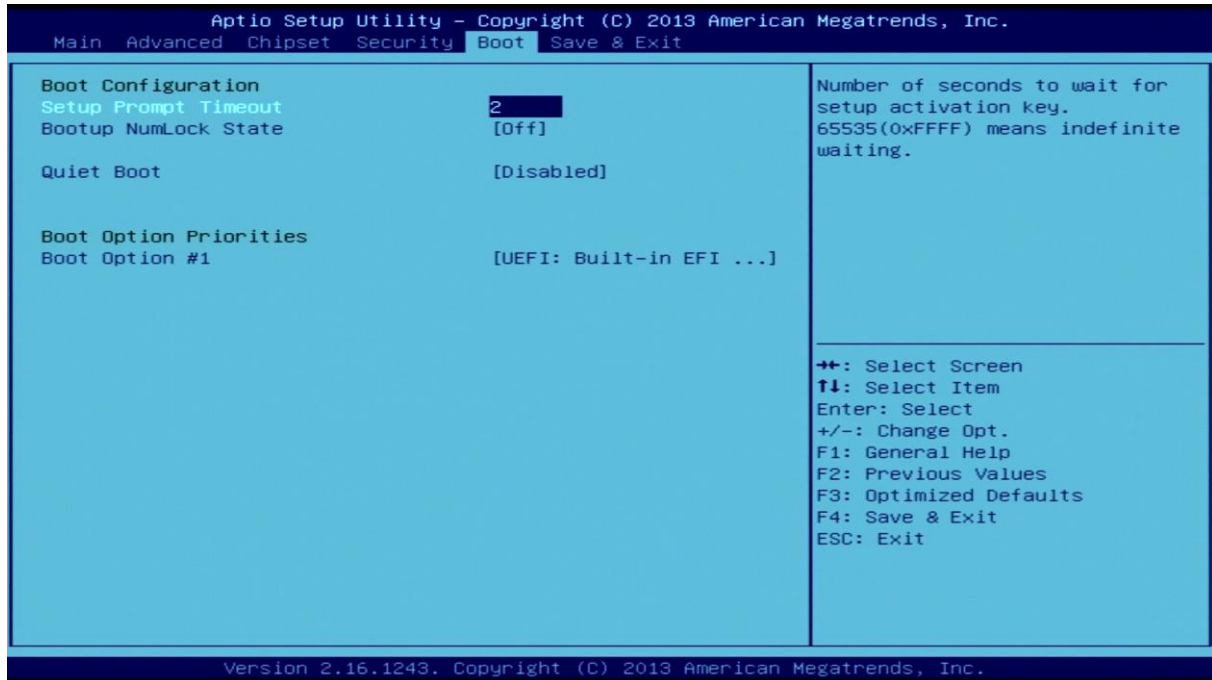
Use this item to select AC power state when power is re-applied after a power failure. The optional settings are: [Power Off]; [Power On]; [Last State].

3-9 Security Menu



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

3-10 Boot Menu



Boot Configuration

Setup Prompt Timeout

Use this item to set number of seconds to wait for setup activation key.

Bootup Numlock State

Use this item to select keyboard numlock state.

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

Quiet Boot

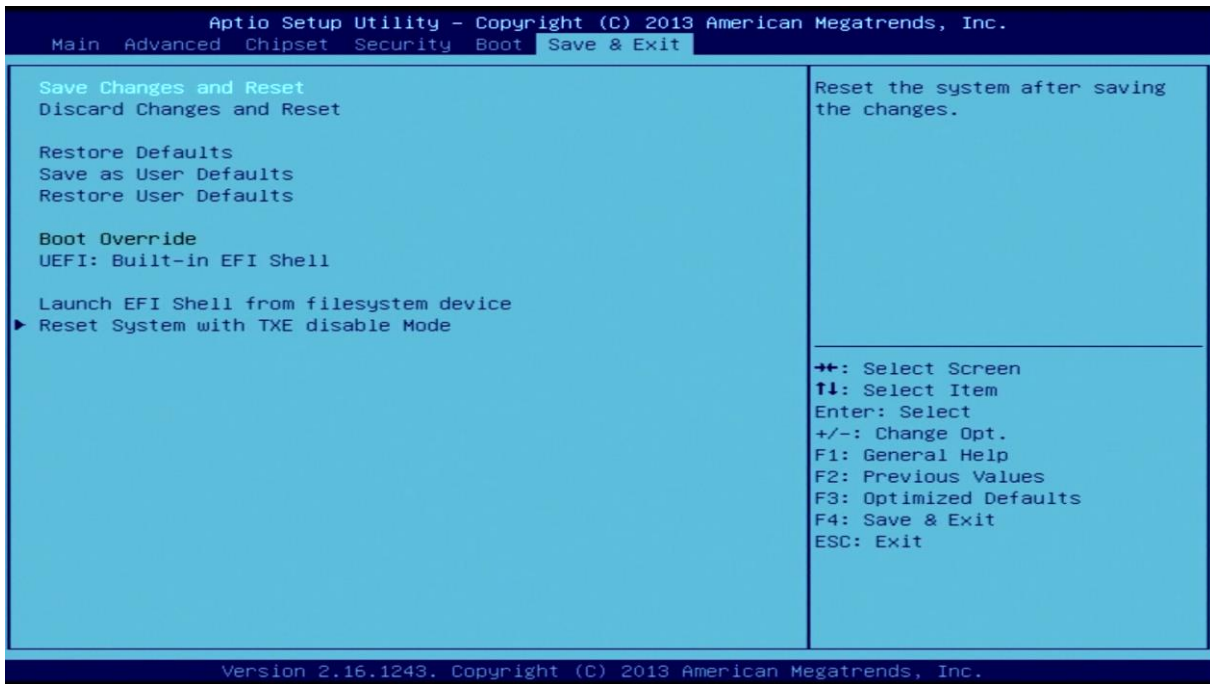
The optional settings are: [Disabled]; [Enabled].

Boot Option Priorities

Boot Option #1

The optional settings are: [UEFI: Built-in EFI Shell]; [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 defaults to all the setup options.

Launch EFI Shell from filesystem device

Use this item to launch EFI shell application (shell.efi) from one of the available filesystem device.

Reset System with ME disable Mode

Press [Enter] for ME to run into the temporary disable mode. Ignore if ME Ignition FM.