Technical Manual

Of

Intel Bay Trail Series CPU

Based IPC M/B

NO. G03-MZ9300-F

Revision: 1.0

Release date: April 14, 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.

TABLE OF CONTENT

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 40 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

Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	April 14, 2020

Item Checklist

☑ Motherboard

Chapter 1
Introduction of the Motherboard

1-1 Feature of Motherboard

- Onboard Intel® Bay Trail Series Processor, with low power consumption never denies high performance
- Support 1* DDR3L 1333MHz SO-DIMM, maximum capacity up to 8GB
- Onboard 1* M.2 M-key 2242/2280 slot (SATA interface for SSD device)
- Onboard 1* M.2 E-key 2230 slot (USB2.0/PCIex1)
- Onboard 1* M.2 B key 3042 slot (USB3.0)
- Support HDMI & DVI-I
- Support Dual Display
- Support 2* Intel GbE; 2* USB3.0+ 4* USB2.0
- Support 4* Serial Port(**COM1**: RS232/422/485; **COM2/3/4**: default RS232, RS232/422/485 by option)
- Onboard 9V~24V DC-in
- Compliance with ErP standard
- Support Watchdog function

1-2 Specification

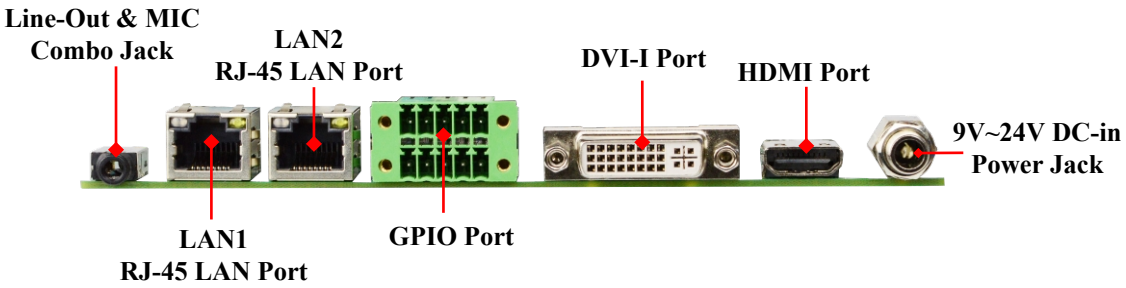
Spec	Description
Design	● 6-Layer; PCB size: 138mm*167mm
Embedded CPU	● Integrated with Intel® Bay Trail series SoC Processor **(Default:J1900)** **CPU model varies from different IPC options. Please consult your dealer for more information of onboard CPU.*
Memory Slot	● 1*DDR3L SO-DIMM slot ● Support 1* DDR3L 1333MHz SO-DIMM up to 8GB
Expansion Slot	● 1* M.2 E-key 2230 slot (**M2E**, support USB 2.0/PCIex1 interface) ● 1* M.2 B-key 3042 slot (**M2B**, support USB 3.0 interface) ● 1* SIM card slot (**SIMCARD**)
Storage	● 1* M.2 M Key *2242/2280* slot *(**M2M,** support SATA interface)*
LAN Chip	● Integrated with 2*Intel I210IT Gigabit PCI-E LAN chip ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	● Realtek ALC662-VD HD Audio Codec integrated ● Audio driver and utility included
BIOS	● AMI 64MB Flash ROM
Rear I/O	● 1* 9V~24V DC-in power jack (Lockable type) ● 1* HDMI port ● 1* DVI-I port ● 1 * 8-bit GPIO port ● 2* RJ-45 LAN port ● 1* Audio Line-out & MIC combo port
Front I/O	● 4* Serial port ● 2* USB 3.0 port+ 4* USB 2.0 port ● 1* SIM Card slot ● 2*LAN LED + 1* HDD LED ● 1 * Power Button Switch with Power LED

Internal I/O	● 1* 2-Pin internal 9V~24V DC-in system power connector

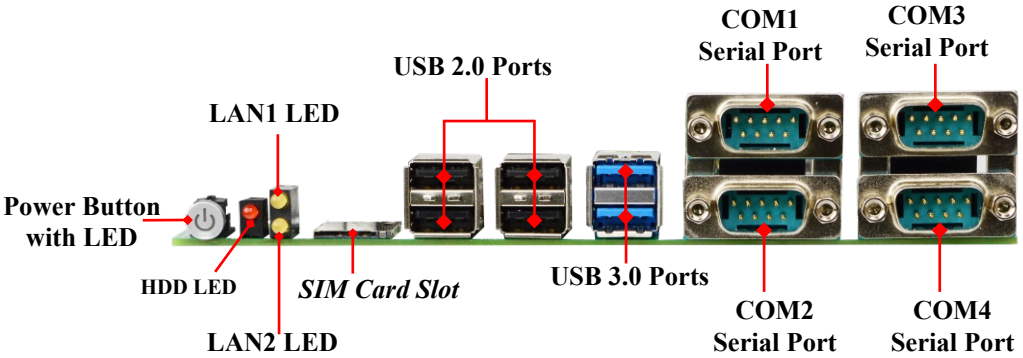
Note: *Many PCs now include XHCI USB controllers which allow for the support of USB 3.0 and higher USB speeds. This inclusion of XHCI controllers has lessened the need for EHCI USB controllers within platforms. However, legacy operating systems (OS) may not natively recognize XHCI controllers. You might need to pre-install XHCI driver while desiring to install a non-XHCI OS (ex.Windows 7) on Intel platforms which do not include EHCI controllers. Please contact your representative for more details.*

1-3 Layout Diagram

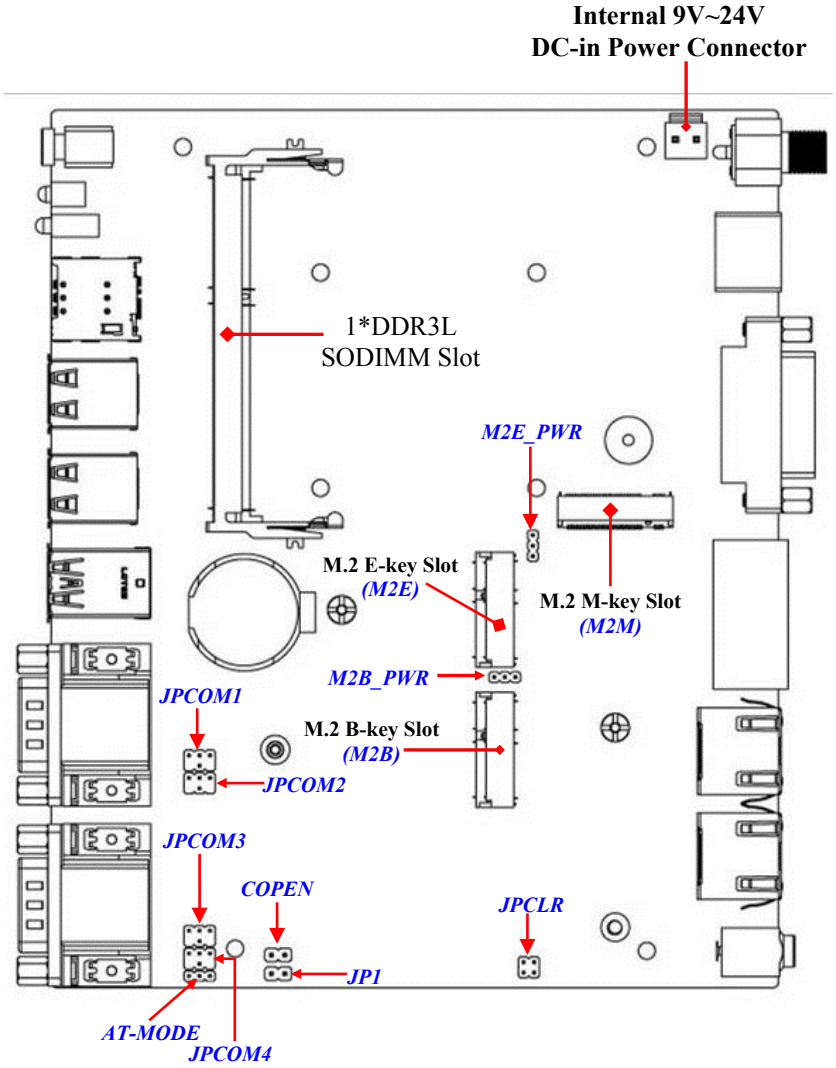
Rear IO Panel Diagram:



Front IO Panel Diagram:



Motherboard Internal Diagram:



Jumper:

Jumper	Name	Description
JPCOM1	COM1 Port Pin9 Function Select	4-Pin Block
JPCOM2	COM2 Port Pin9 Function Select	4-Pin Block
JPCOM3	COM3 Port Pin9 Function Select	4-Pin Block
JPCOM4	COM4 Port Pin9 Function Select	4-Pin Block
AT-MODE	ATX Mode / AT Mode Select	3-Pin Block
COPEN	Case Open Message Display Function	2-Pin Block
JP1	Flash Descriptor Override	2-Pin Block
JPCLR	***Pin (1-2):*** Clear CMOS RAM Settings ***Pin (3-4):*** Clear ME	4-Pin Block
M2E_PWR	**M2E Slot** Power VCC Select	3-Pin Block
M2B_PWR	**M2B Slot** Power VCC Select	3-Pin Block

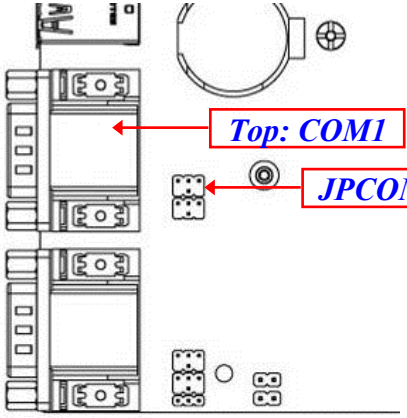
Motherboard I/O:

P/N	Name
DCIN1	9V~24V DC-IN Power Jack w/ Lockable
HDMI	HDMI Port
DVI-CRT	DVI-I Port
GPIO	8-Bit GPIO Port
LAN2/LAN1	RJ-45 Gigabit LAN Port
AUDIO	Audio Line Out / MIC Combo Jack
COM1_2/COM3_4	Serial Port x4
USB3	USB 3.0 Port x2
USB1/USB2	USB 2.0 Port x4
SIMCARD	SIM Card Slot
LAN_LED	LAN Activity LED
HDD_LED	HDD Activity LED
FP_PWRSW	Front Panel Power Button with LED
DCIN2	Internal 9V~24V System DC–in Power Connector

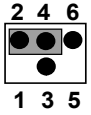
Chapter 2
Hardware Installation

2-1 Jumper Setting

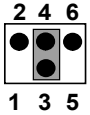
JPCOM1 (4-pin): COM1 Port Pin-9 Function Select



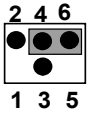
JPCOM1→COM1 Pin-9



2-4 Closed: Pin9=RING;

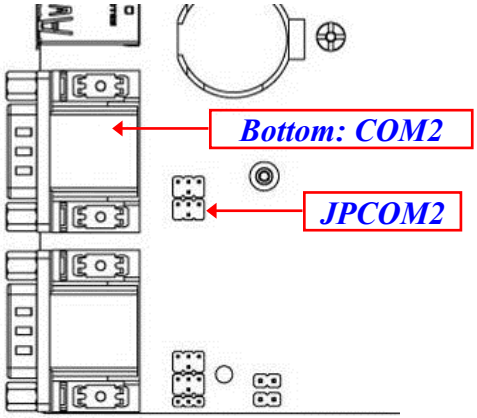


3-4 Closed: Pin9 = +5V;

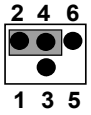


4-6 Closed: Pin9 = +12V.

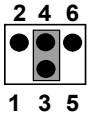
JPCOM2 (4-pin): COM2 Port Pin-9 Function Select



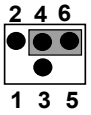
JPCOM2→COM2 Pin-9



2-4 Closed: Pin9=RING;

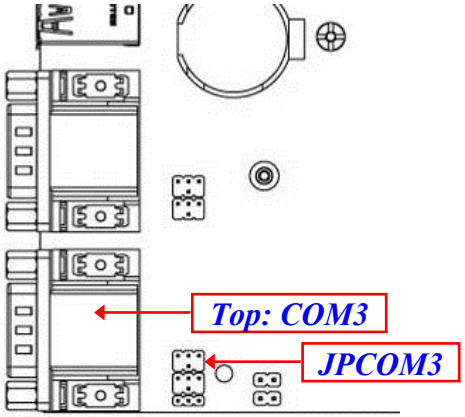


3-4 Closed: Pin9 = +5V;

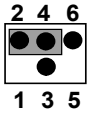


4-6 Closed: Pin9 = +12V.

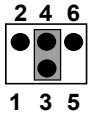
JPCOM3 (4-pin): COM3 Port Pin-9 Function Select



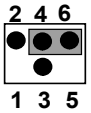
JPCOM3→COM3 Pin-9



2-4 Closed:
Pin9=RING;

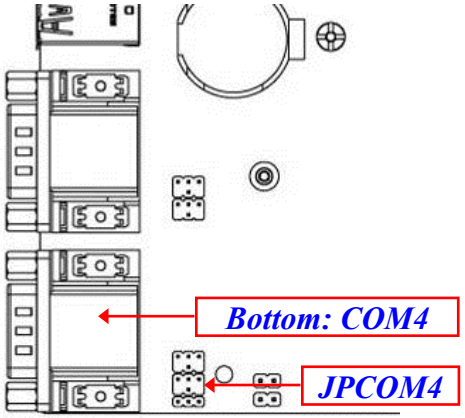


3-4 Closed:
Pin9 = +5V;

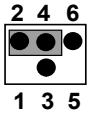


4-6 Closed:
Pin9 = +12V.

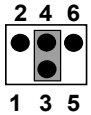
JPCOM4 (4-pin): COM4 Port Pin-9 Function Select



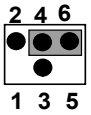
JPCOM4→COM4 Pin-9



2-4 Closed:
Pin9=RING;

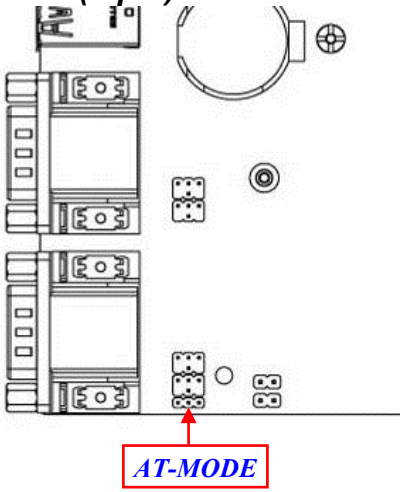


3-4 Closed:
Pin9 = +5V;

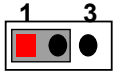


4-6 Closed:
Pin9 = +12V.

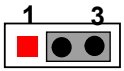
AT-MODE (3-pin): ATX/AT Mode Select



AT-MODE→ATX/AT Mode Select



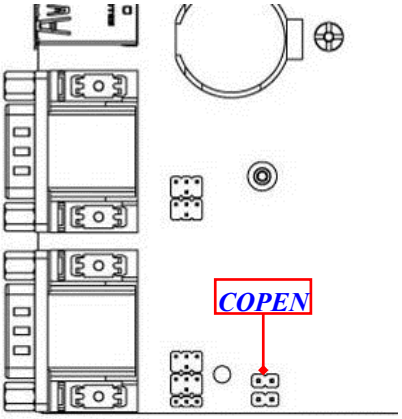
1-2 Closed: ATX Mode;



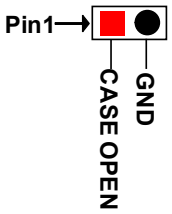
2-3 Closed: AT Mode.

***ATX Mode Selected**: Press power button to power on after power input ready;*
***AT Mode Selected:** Directly power on as power input ready.*

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

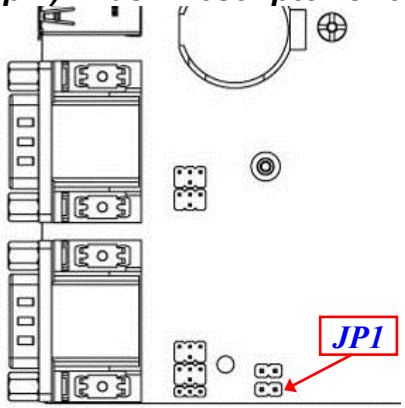


COPEN→ Case Open Detection



Pin (1&2) 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.*

JP1 (2-pin): Flash Descriptor Override Select

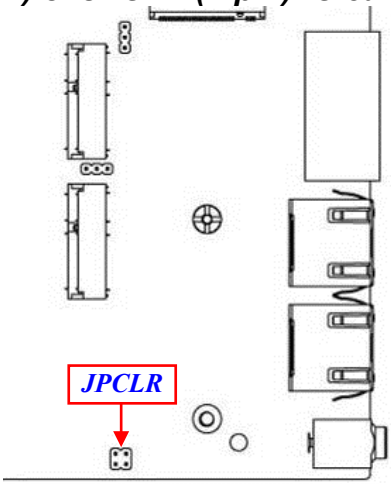


JP1→Flash Descriptor Override

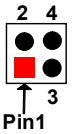
1-2 Open: Normal;

1-2 Closed: Flash Descriptor Override.

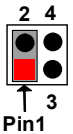
Pin (1-2) of JPCLR (4-pin): Clear CMOS RAM Settings



Pin(1-2) of JPCLR: Clear CMOS

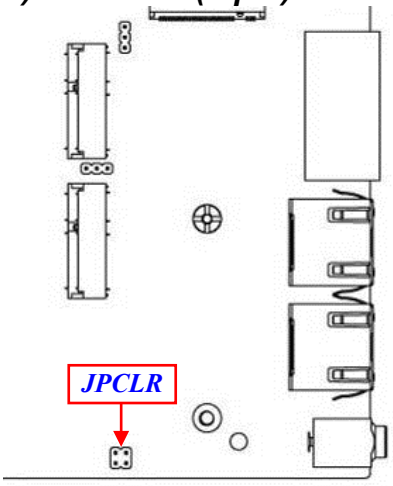


1-2 Open: Normal(Default);



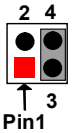
1-2 Closed: Clear CMOS.

Pin (3-4) of JPCLR (4-pin): Clear ME



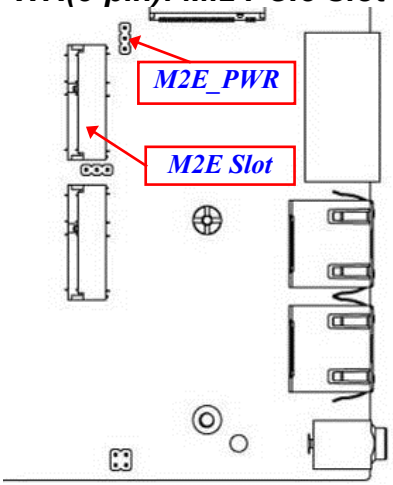
Pin(3-4) of JPCLR: Clear ME

3-4 Open: Normal(Default);

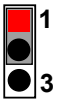


3-4 Closed: Clear ME.

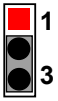
M2E_PWR(3-pin): M.2 PCIe Slot Power Select



M2E_PWR→M2E Slot VCC Select

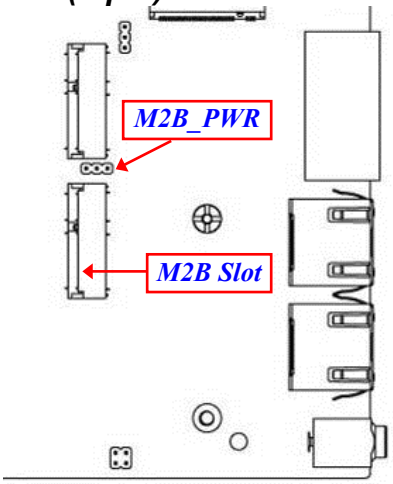


1-2 Closed: M2E Slot Power = 3VSB;



2-3 Closed: M2E Slot Power= VCC3.

M2B_PWR(3-pin): M.2 USB Slot Power Select



M2B_PWR→M.2 USB Slot VCC Select

1-2 Closed: M2B Slot Power = VCC3;

2-3 Closed: M2B Slot Power = 3VSB.

2-2 Motherboard Input & Output

For Rear /Front panel I/O diagram please refer to Page-3.

I/O Function:

Icon	*Name*	*Function*
	**9V~24V DC-in Power Connector**	For user to connect compatible power adapter to provide power supply for the system.
	**HDMI Port**	To connect display device that support HDMI specification. (Max. Resolution: 1920 * 1200@60Hz)
	**DVI-I Port**	To connect display device that support DVI-I specification. (Max. Resolution: 1920 * 1200@60Hz)
	**8-bit GPIO Port**	8-bit General-purpose input/output port.

	**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.
	**Serial Port**	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	**USB 3.0 Port**	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.0 ports supports up to 5Gbps data transfer rate.
	**USB 2.0 Port**	To connect USB keyboard, mouse or other devices compatible with USB specification.
	***SIM Card Slot**	For user to install compatible SIM card.
	**LANLED**	**Top:** LAN1 working status LED. **Bottom:** LAN2 working status LED.
	**HDD LED**	Hard disk driver working status LED.
	**Power Switch Button & LED**	Press to turn on/off the system.

***Note:** SIM card is supported when **M2B (M.2 B-Key 3042)** slot is installed with 3G/4G/LTE card.*

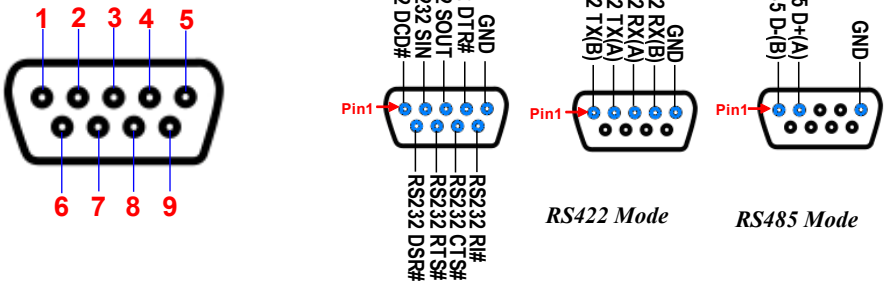
Pin Definition:

COM1_COM2/COM3_COM4 (9-pin Block):Serial Port

COM1: RS232/422/485 serial port

***COM2/3/4**: Default **RS232** serial port (RS232/422/485 serial port by customized option).*

The pin assignment for RS-232/ 422/ 485 is listed as follows:

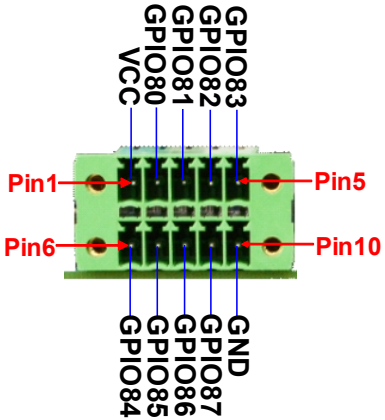


COM1 port can function as RS232/422/485 port. In normal settings

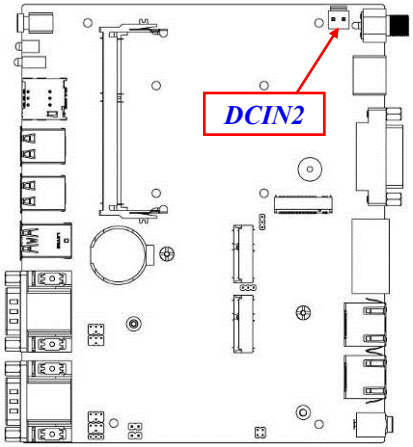
COM1 functions as RS232 port. With compatible COM cable they can function as RS422 or RS 485 port. User also needs to go to BIOS to set '**Transmission Mode Select**' at first, before using specialized cable to connect different pins of this port.

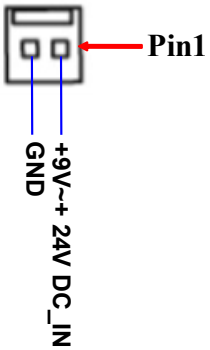
***Note**: the above description for **COM1** is also valid with **COM2/3/4**, if the board you purchased supports RS422/485 by customized option.*

GPIO (10-pin Block): 8-bit General-Purpose Input/Output port.



DCIN2 (2-pin Block): Internal 9V~24V DC-in Power Connector





Warning: *Power connection to Rear* ***DCIN1*** *and Internal* ***DCIN2*** *can not be made simultaneously. Apply compatible power cable to only one of them to power on the system.*

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.

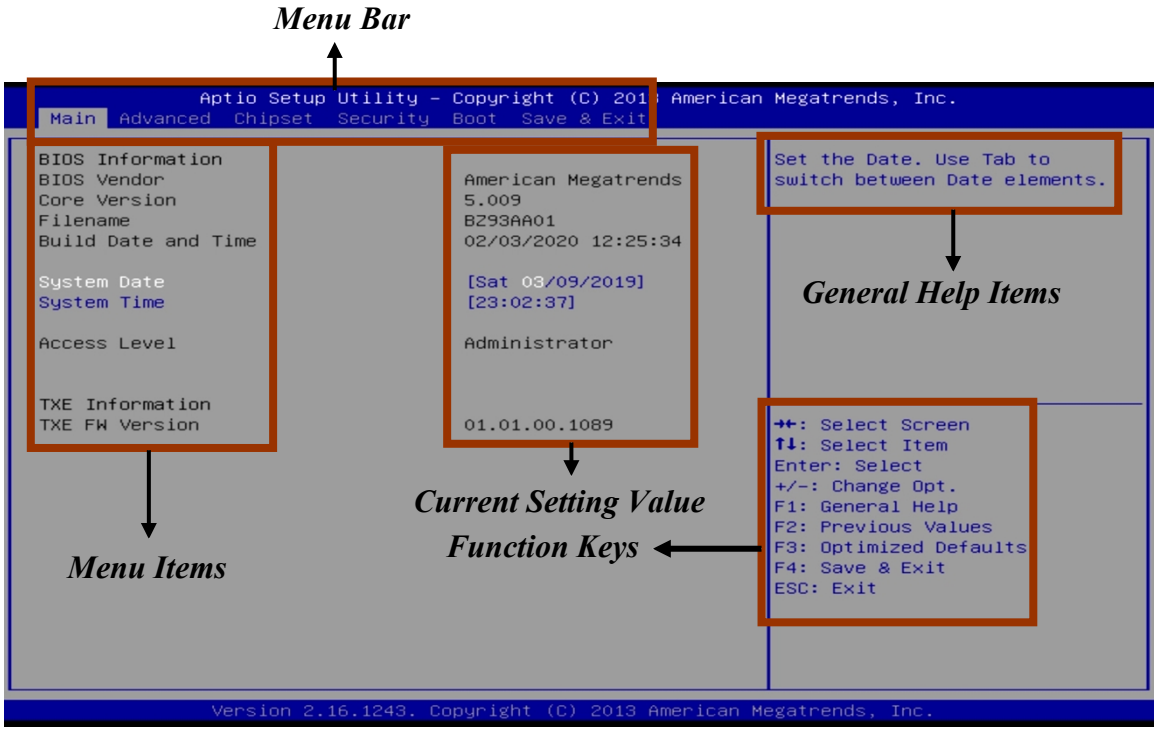
3-1 Entering Setup

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**> for Pop 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

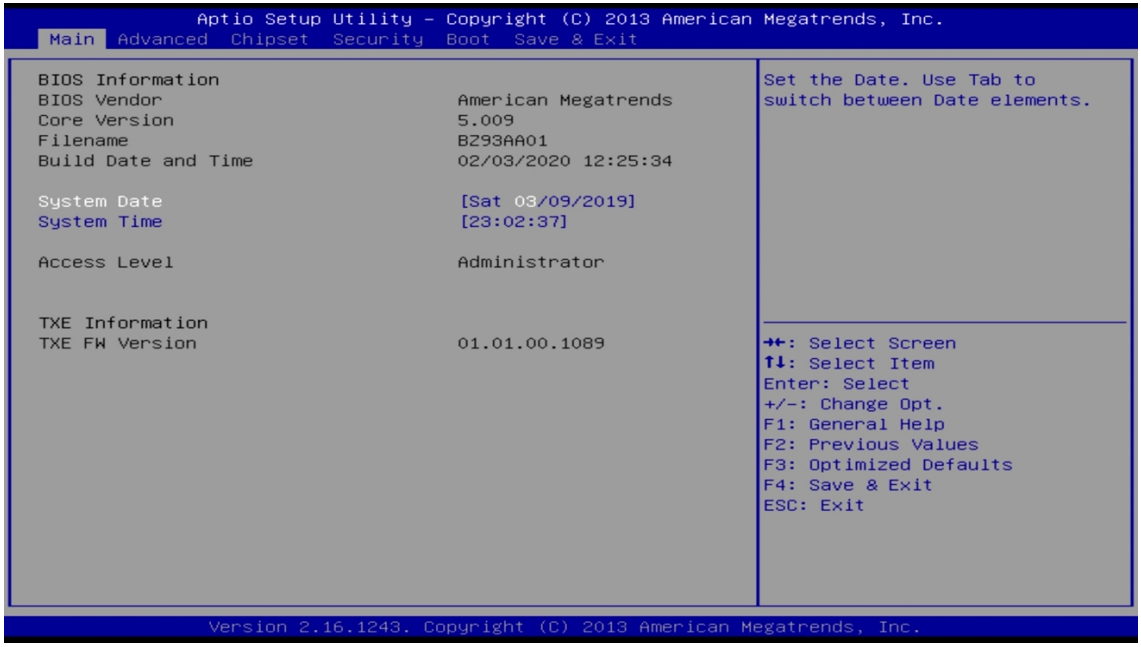
There are six menu bars on top of BIOS screen:

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.

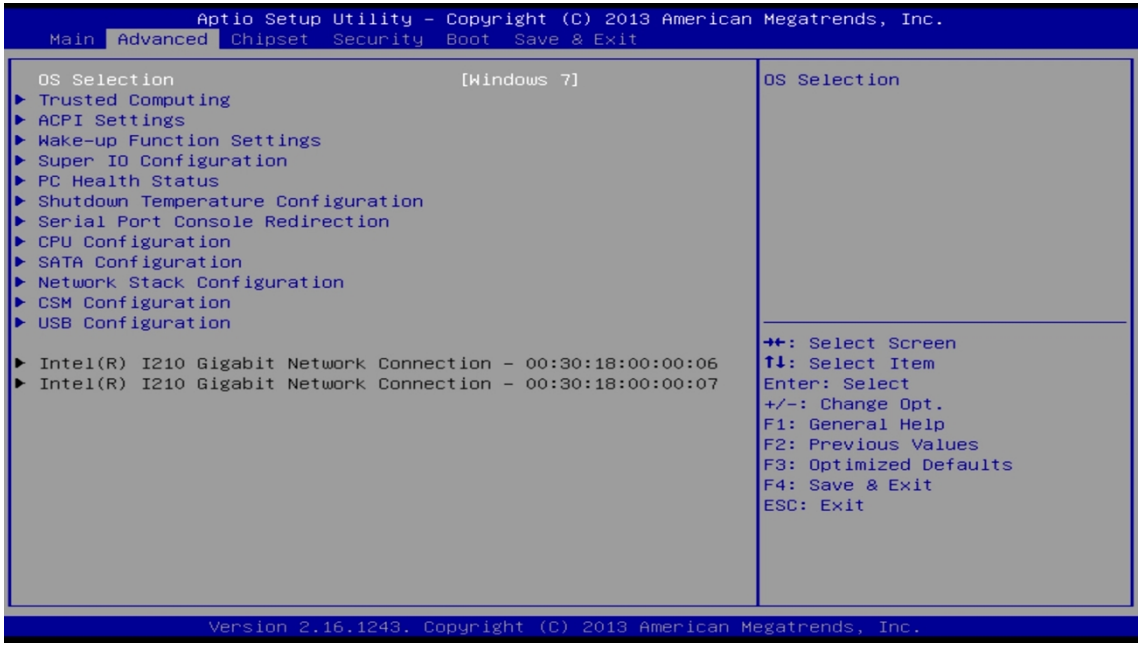
3-6 Main Menu

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

3-7 Advanced Menu



OS Selection
The optional settings: [Linux/Android]; [Windows 8.X]; [Windows 7].
***Note**: User needs to go to this item to select OS before installing OS.*

- **Trusted Computing**
  Press [Enter] to make settings for the following sub-item:
  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].

- **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-up System with Fixed Time
  Use this item to enable or disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified.
  The optional settings: [Disabled]; [Enabled].
  When set as [Enabled], 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
  The optional settings are 0-59.
  Wake-up Second
  The optional settings are 0-59.
  USB S3/S4 Wake-up
  Use this item to enable or disable USB S3/S4 Wake-up by ERP function in S3/S4.
  The optional settings: [Disabled]; [Enabled].
  This item is only supported when **'ERP Support' is set as [Disabled]. Please disable ERP before activating this function in USB S3/S4.*
  USB S5 Power
  Use this item to enable or disable USB Power after System Shutdown.
  The optional settings: [Disabled]; [Enabled].
  This item is only supported when **'ERP Support' is set as [Disabled]. Please disable ERP before activating this function in USB S5.*

- **Super I/O Configuration**

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

Super IO Configuration

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]; [Auto].

- **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]; [Enabled].

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

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings are: [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

Use this item to select RS232/RS422/RS485 speed.

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

- **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]; [Enabled].

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings are: [Auto]; [IO=3F8h; 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 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]; [Enabled].

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings are: [Auto]; [IO=2E8h; IRQ=10;]; [IO=2F8h; 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].

OS Select For Serial Port

Use this item to select an optimal setting for Serial port.

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

WatchDog Reset Timer

Use this item to enable or disable WatchDog Timer Control. When set as [Enabled], the following sub-items shall appear:

WatchDog Reset Timer Value

User can set a value in the range of [4] ~ [255].

WatchDog Reset 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.

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 ***header setting of COPEN for Case Open Selection***); if COPEN is short, system will show Case Open Message during POST.

- **PC Health Status**

Press [Enter] to view current hardware health status.

- **Shutdown Temperature Configuration**

Press [Enter] to view current hardware health status.

Shutdown Temperature

Use this item to select 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 the following sub-items:

COM1

Console Redirection

Use this item to enable or disable COM1 Console Redirection.

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

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

- **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

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

Even: Parity bit is 0 if the num of 1's in the data bits is even.

Odd: Parity bit is 0 if the 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.

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

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 enabled 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 are: [VT100]; [LINUX]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

Redirection After BIOS POST

When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirections is enabled for legacy OS. Default setting for this option is set to Always Enable.
The optional settings are: [Always Enable]; [BootLoader].

Legacy Console Redirection

- **Legacy Console Redirection Settings**
  Press [Enter] to make settings for the following sub-items.
  Legacy Serial Redirection Port
  Use this item to select a COMP port to display redirection of Legacy OS and Legacy OPROM Messages.
  The optional setting is: [COM1].

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.*

- **CPU Configuration**

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

Limit CPUID Maximum

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

Execute Disable Bit

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.).
The optional settings are: [Disabled]; [Enabled].

Hardware Prefetcher

Use this item to enable or disable the Mid Level Cache (L2) streamer prefetcher.
The optional settings are: [Disabled]; [Enabled].

Adjacent Cache Line Prefetch

Use this item to enable or disable the Mid Level Cache (L2) prefetching of adjacent cache lines.
The optional settings are: [Disabled]; [Enabled].

Intel Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by

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

EIST

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

CPU C State Report

Use this item to enable or disable CPU C report to OS.
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following item shall appear for setting:

CPU C6 report

Use this item to enable or disable CPU C6 (ACPI C3) report to OS.
The optional settings are: [Disabled]; [Enabled].

CPU C7 report

Use this item to enable or disable CPU C7 (ACPI C3) report to OS.
The optional settings are: [Disabled]; [Enabled].

Package C State limit

Use this item to select Package C State limit.
The optional settings are: [C0]; [C1]; [C3]; [C6]; [C7]; [No Limit].

- **SATA Configuration**

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

SATA Configuration

M2M Slot

Use this item to enable or disable Serial ATA Port.
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

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.

- **CSM Configuration**

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

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 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].

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: [Enabled]; [Disabled].

USB Mass Storage Driver Support

Use this item to enable or disable 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

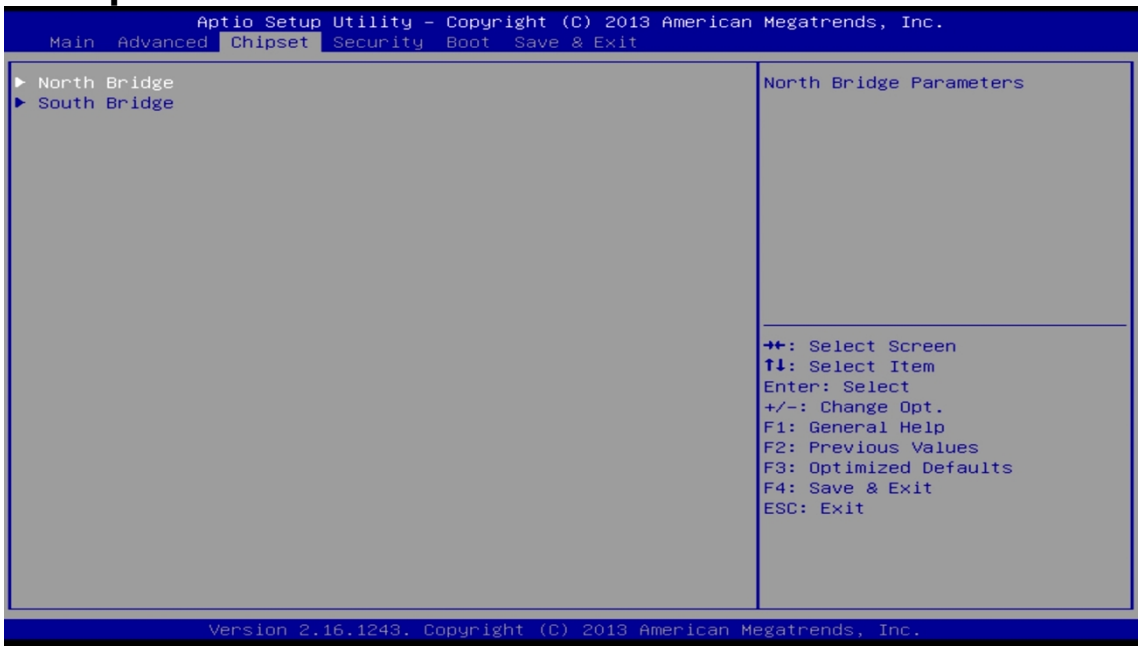
Use this item to set maximum time the device will take before it properly reports itself to the host controller.
The optional settings: [Auto]; [Manual].
'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor.
Select [Manual] you can set value for 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



- **North Bridge**

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

  PAVC

  Use this item to enable or disable Protected Audio Video Control.

  The optional settings are: [Disabled]; [LITE Mode]; [SERPENT Mode].

  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 Mem

  Use this item to select DVMT 5.0 Total Graphics Memory size used by the Internal

Graphics Device.
The optional settings are: [128MB]; [256MB]; [Max].

Aperture Size
Use this item to select the Aperture Size.
The optional settings are: [128MB]; [256MB]; [512MB].

GTT Size
Use this item to select the GTT Size.
The optional settings are: [1MB]; [2MB].

IGD Turbo Enable
Use this item to enable or disable IGD Turbo.
The optional settings are: [Enabled]; [Disabled].

Spread spectrum clock
Use this item to enable or disable Spread Spectrum clock.
The optional settings are: [Enabled]; [Disabled].

IGD Boot Type
Use this item to select preference display interface used when system boots.
The optional settings are: [Auto]; [CRT(Dongle)]; [DVI]; [HDMI].

- **South Bridge**

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

USB Configuration

USB 3.0 Support
Use this item to control the USB 3.0 functions.
The optional settings are: [Enabled]; [Disabled]; [Auto]; [Smart Auto].

USB 3.0 Link Power Management
Use this item to enable or disable USB 3.0 Link Power Management.
The optional settings are: [Enabled]; [Disabled].

USB 2.0 Support

Audio Controller
Use this item to control Detection of the Azalia device.

[Disabled]: Azalia will be unconditionally disabled.
[Enabled]: Azalia will be unconditionally enabled.
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following items shall appear:

Azalia HDMI Codec

Use this item to enable or disable internal HDMI codec for Azalia.
The optional settings are: [Disabled]; [Enabled].

M2E Slot

Use this item to enable or disable the PCI Express Port 1 in the Chipset.
The optional settings are: [Enabled]; [Disabled].
When set as [Enabled], the following items shall appear:

Speed

Use this item to configure PCIe Port Speed.
The optional settings are: [Auto]; [Gen 2]; [Gen 1].

Onboard LAN1 Controller

Use this item to enable or disable the PCI Express Port 2 in the Chipset.
The optional settings are: [Enabled]; [Disabled].

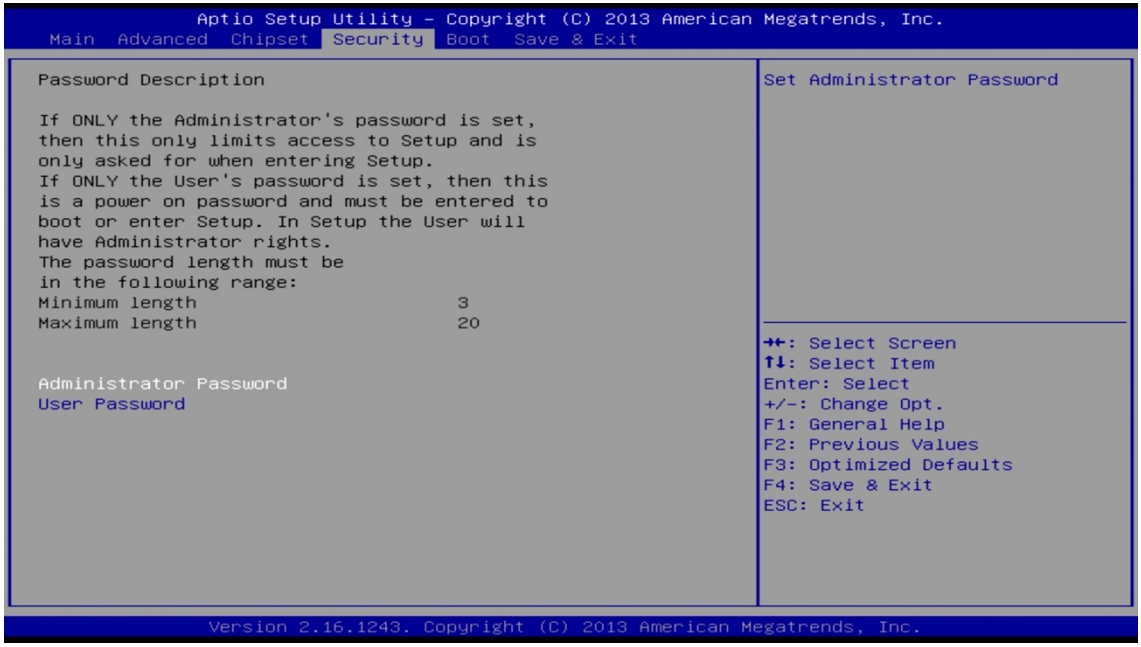
Onboard LAN2 Controller

Use this item to enable or disable the PCI Express Port 3 in the Chipset.
The optional settings are: [Enabled]; [Disabled].

System State after Power Failure

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

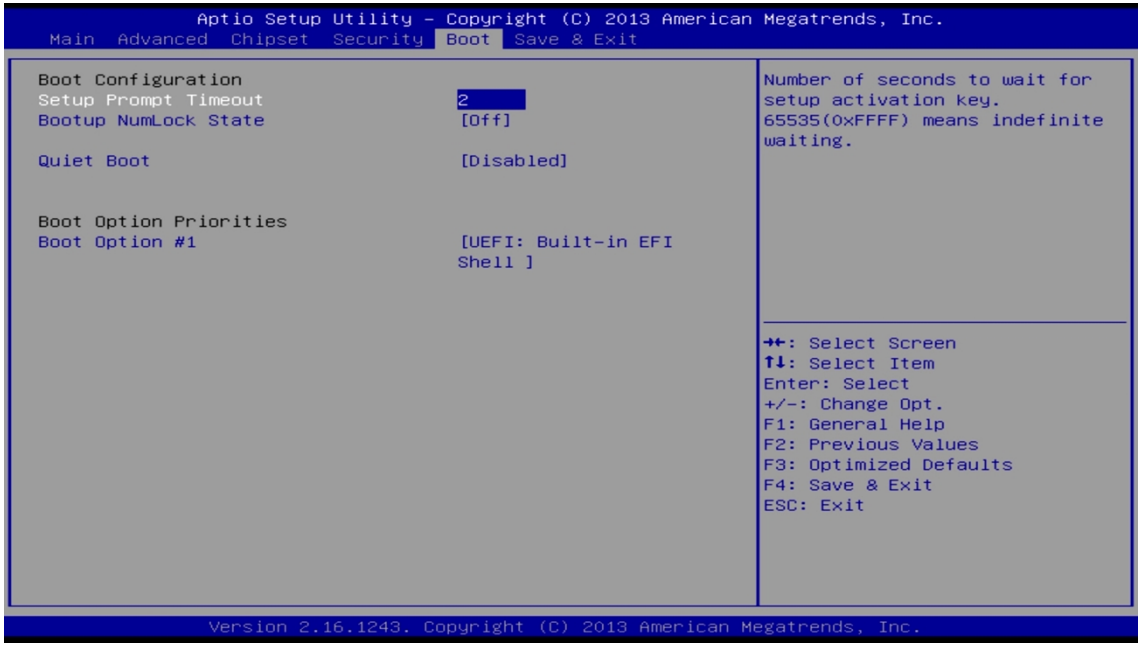
Administrator Password

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 administrator password.

3-10 Boot Menu



Boot Configuration

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].

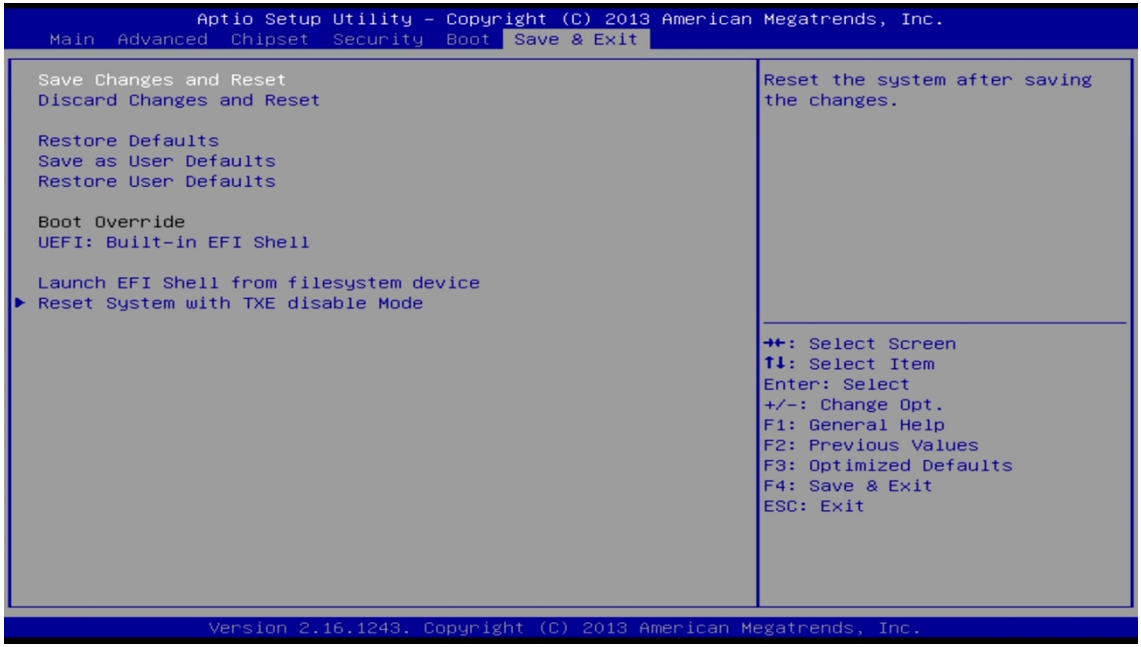
Boot Option Priorities

Boot Option #1

Use this item to decide system boot order from available options.

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 the user defaults to all the setup options.

Boot Override

Boot Override
UEFI: Built-in EFI Shell
Press this item to select the device as boot disk after save configuration and reset.

Launch EFI Shell from filesystem device
Press this item to attempt to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices.

- **Reset System with TXE disable Mode**
  Use this item to reset the system after saving the changes.