Technical Manual

Of

Intel Bay Trail Series CPU

Based Mini-ITX M/B

NO.G03-NF9N-F

Revision: 1.0

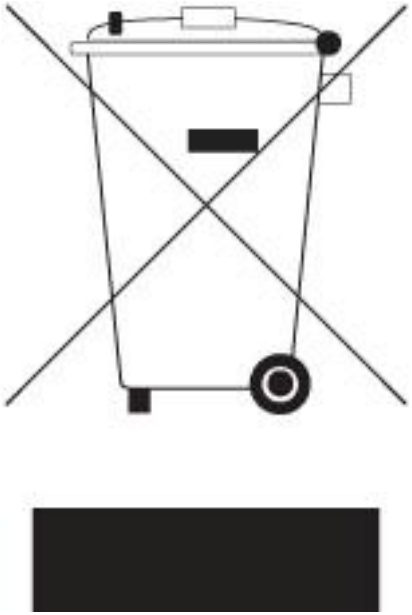
Release date: October 24, 2014

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

Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	October 24, 2014

Item Checklist

- ☑ Motherboard
- ☑ User's Manual
- ☑ CD for motherboard utilities
- ☑ Cable(s)

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 2 * DDR3L SO-DIMM 1066/1333 MHz up to 8GB
- Support Mini-PCIE connector
- Support m-SATA connector
- Support 2 * SATAII device
- Integrated with 1 * 24-bit dual channel LVDS header
- Support HDMI & VGA display output
- Support USB 3.0 data transport demand
- Support CPU Smart FAN
- Compliance with ErP standard
- Support Watchdog function

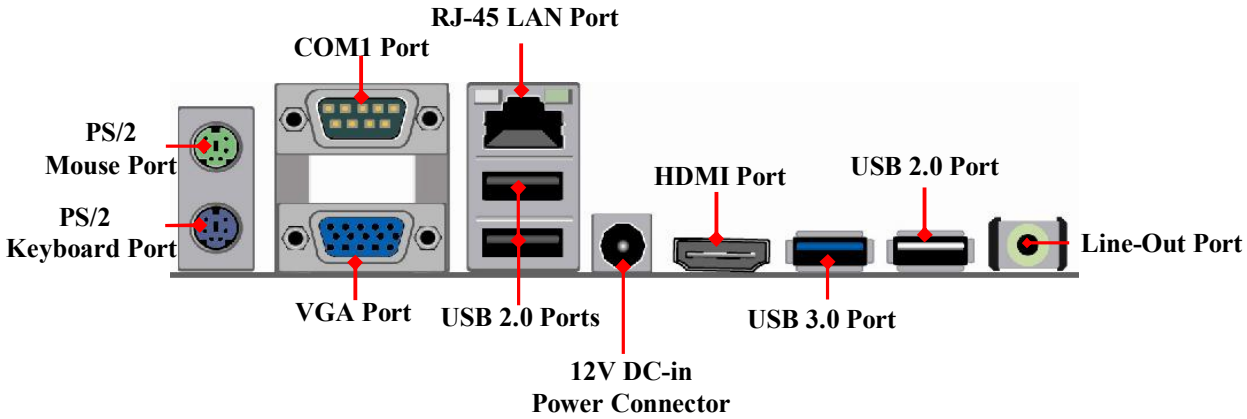
1-2 Specification

Spec	Description
Design	● 6 layers; PCB size: 17x 17 cm
Embedded CPU	● Integrated with Intel® Bay Trail-D/M/I series CPU
Memory Slot	● 2 * DDR3L SODIMM Slot for un-buffered dual channel DDR3L 1066/1333 MHz SDRAM, expandable to 8GB in total ● Dual channel function supported
Expansion Slot	● 1* Full-size Mini-PCIE slot (MPE) ● 1* PCIE x1 slot (PCI-E)
LAN Chip	● Integrated with Intel I211AT PCI-E Gigabit LAN chip ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Storage	● 2* SATAII port (SATA1/2) ● 1* Full-size mSATA slot (***MSATA:*** shares with SATA2)
BIOS	● AMI 64MB Flash ROM
Rear I/O	● 1* DC 12V power-in connector ● 1* PS/2 keyboard & 1* PS/2 mouse port ● 1* VGA port ● 1* COM1 port ● 1* HDMI port ● 1* RJ-45 LAN port ● 3* USB 2.0 port ● 1* USB 3.0 port ● Audio Line Out port x1
Internal I/O	● 1* 20-pin ATX type internal main power connector ● 1* 2-pin DC 12V internal power connector ● 1* SATA Power connector ● 1* CPU FAN connector & 2* SYSFAN connector ● 1* Front panel audio header

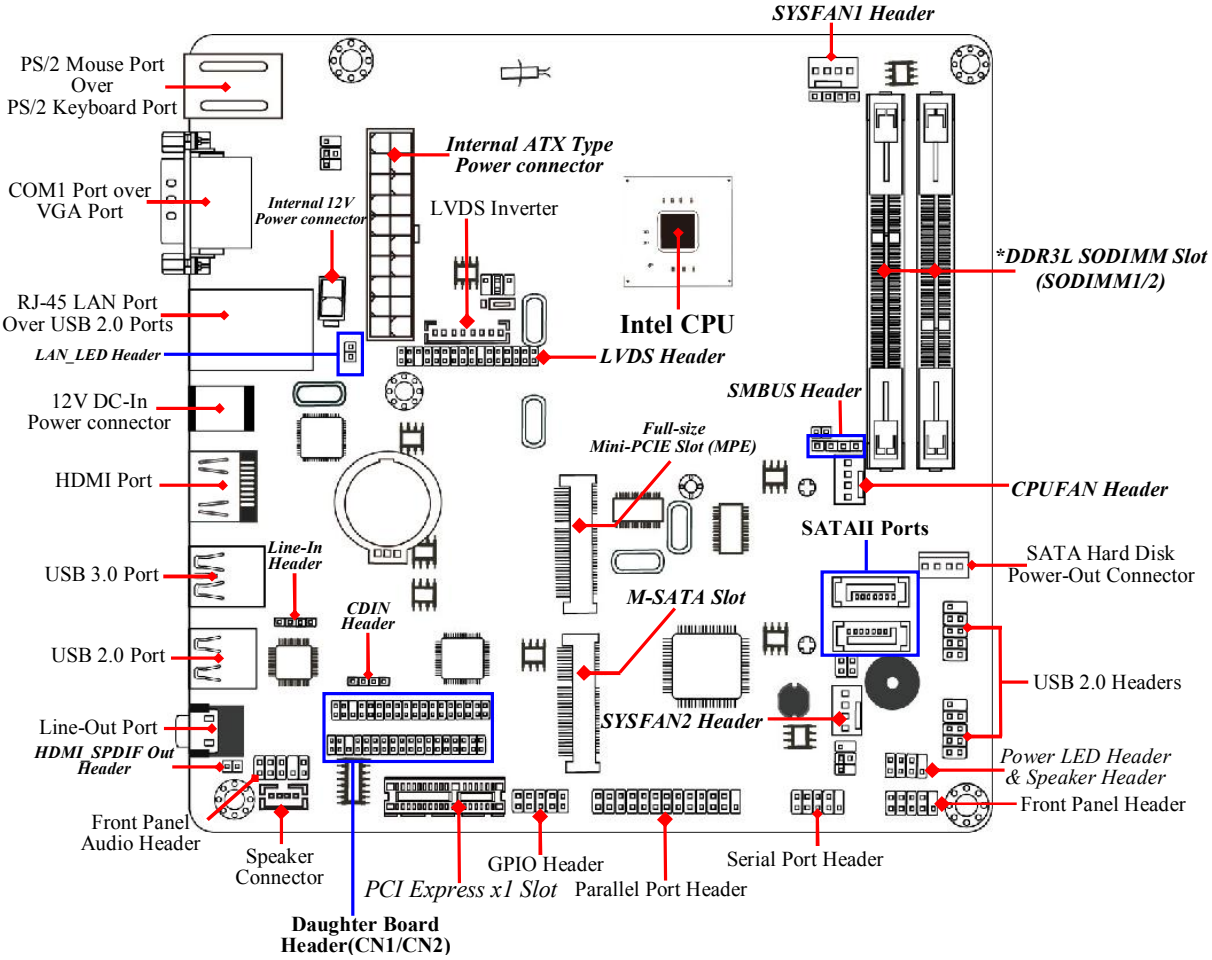
	• 1* SPDIF Out header • 1* SPEAK_CON header • 1* CDIN header & 1* Line In header • 1* Front panel header • 1* Power LED & speaker header • 2* USB 2.0 header (Expansible to 4* USB 2.0 ports) • 1* Serial port header • 1* Parallel port header • 1* GPIO_CON header • 1* SMBUS header • 1* LAN LED activity header • 1* LVDS header • 1* LVDS inverter header • 1*Jetway daughter board expansion slot header (CN1/CN2)

1-3 Layout Diagram

Rear IO Panel Diagram:

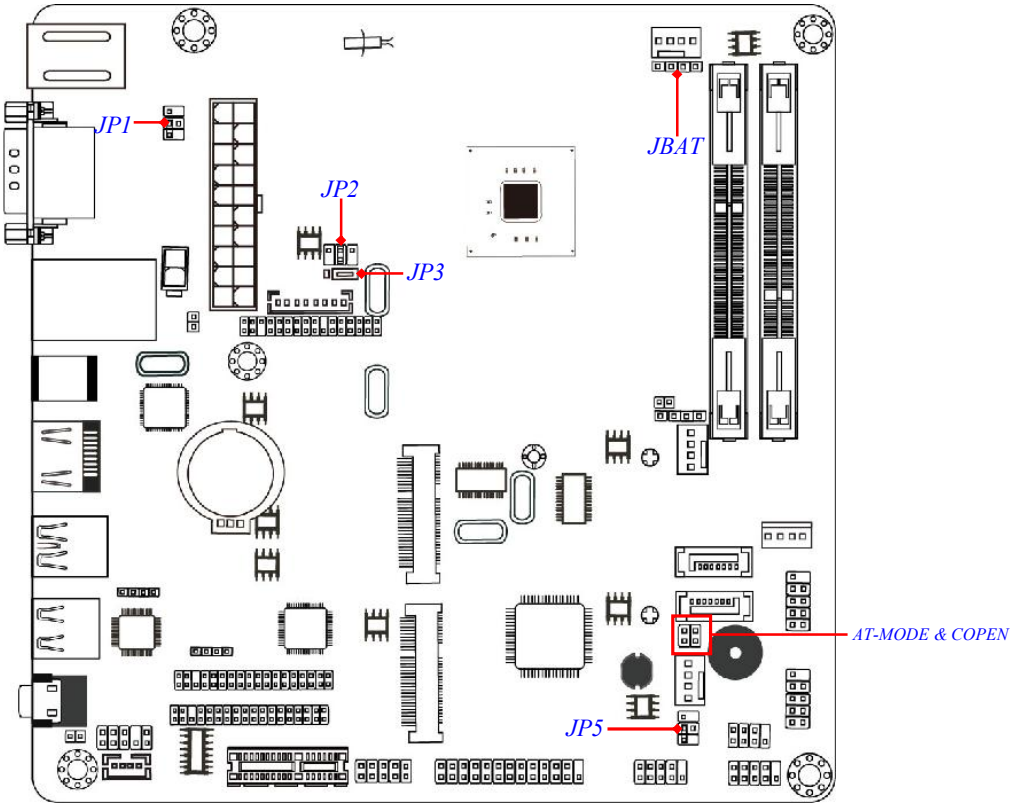


Motherboard Internal Diagram



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****.* ***3.*** ***MSATA*** *slot shares function with* ***SATA2*** *port; i.e. only one can function at a time.*

Jumper Position:



Jumper

Jumper	Name	Description
JBAT	***Pin 1-2:*** CMOS RAM Clear Function Setting ***Pin 3-4:*** Clear ME RTC Function Setting	4-Pin Block
AT_COPEN	***Pin 1-2:*** ATX Mode & AT Mode Select ***Pin 3-4:*** Case Open Message Display Function	4-Pin Block
JP2	LVDS PVCC 5V/3.3V /12V Select	4-Pin Block
JP3	INVERTER Back Light 5V/12V Select	3-Pin Block
JP1	COM1 Port Pin9 Function Select	4-Pin Block
JP5	COM2 Header Pin9 Function Select	4-Pin Block

Connectors

Connector	Name
DCIN	DC 12V Power–in Power Connector
ATXPWRIN	20-Pin Internal Main Power Connector
ATX2P	2-Pin Internal DC 12V Power–in Connector
SATAPW	SATA Power out Connector
SATA1/SATA2	SATAII Port Connector X2
CPUFAN/SYSFAN1/SYSFAN2	FAN Connector X3
KBMS (Top)	PS/2 Mouse Port Connector
KBMS (Bottom)	PS/2 Keyboard Port Connector
VGA_COM1 (Top)	Serial Port Connector
VGA_COM1 (Bottom)	VGA Port Connector
LAN2_USB20 (Top)	RJ-45 LAN Port Connector
LAN2_USB20 (Bottom)	USB 2.0 Port Connector X2
HDMI	HDMI Port Connector
USB30	USB 3.0 Port Connector
USB20	USB 2.0 Port Connector
AUDIO	Audio Line Out Port Connector

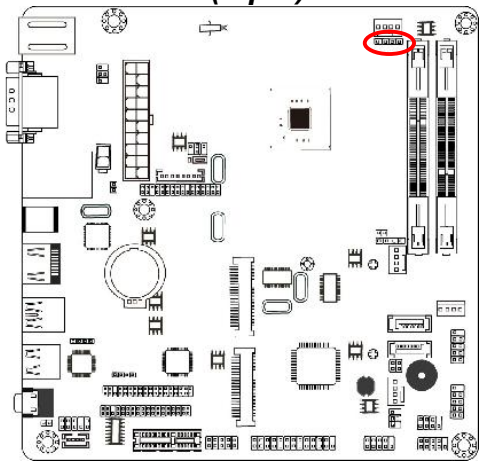
Headers

Header	Name	Description
FP_AUDIO	Front Panel Audio Header	9-pin Block
SPDIF	SPDIF Out Header	2-pin Block
SPEAK_CON	Speaker Header	4-pin Block
CD_IN	CD Audio In Header	4-pin Block
LINE_IN	Line In Header	4-pin Block
JW_FP	Front Panel Header(PWR LED/ HDD LED/Power Button /Reset)	9-pin Block
SPK-LED	Power LED & Speaker Header	7-pin Block
FP_USB1/FP_USB2	USB 2.0 Header X2	9-pin Block
LPT	Parallel Port Header	25-pin Block
COM2	Serial Port Header	9-pin Block
GPIO_CON	GPIO Header	10-pin Block
SMBUS	SMBUS Header	4-pin Block
LAN_LED	LAN Activity LED Header	2-pin Block
LVDS	LVDS Header	30-pin Block
INVERTER	LVDS Inverter Header	8-pin Block
CN1/CN2	Jetway Daughter Board Header	35-pin Block

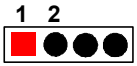
Chapter 2
Hardware Installation

2-1 Jumper Setting

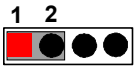
Pin 1 & 2 of JBAT (4-pin): Clear CMOS Setting



JBAT(Pin1&2)→Clear CMOS

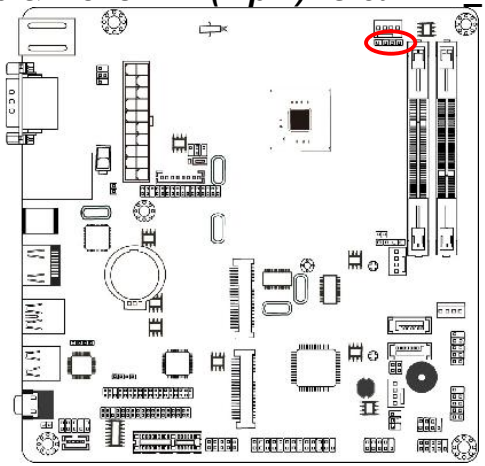


1-2 Open: Normal；



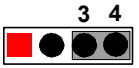
2-3 Close：Clear CMOS.

Pin 3 & 4 of JBAT (4-pin): Clear ME_RTC Function Setting



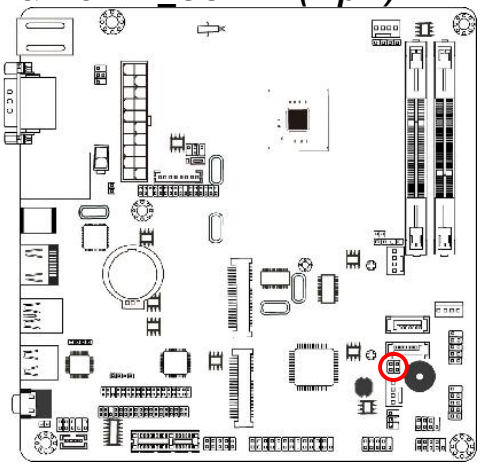
JBAT(Pin3&4)→Clear ME_RTC

3-4 Open: Normal；

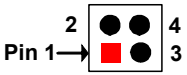


3-4Close：Clear ME_RTC.

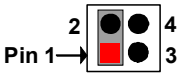
Pin 1 & 2 of AT_COPEN (4-pin): AT Mode Function Select



AT_COPEN(Pin 1&2)→AT Mode Select



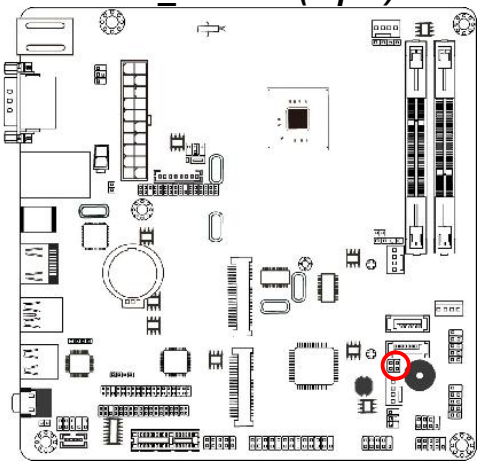
1-2 Open: ATX Mode Selected;



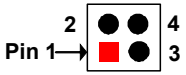
1-2 Close: AT Mode Selected.

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

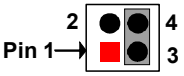
Pin 3 & 4 of AT_COPEN (4-pin): Case Open Message Display Function Select



AT_COPEN (Pin 3&4)→Case Open Function Select



3-4 Open: Normal;

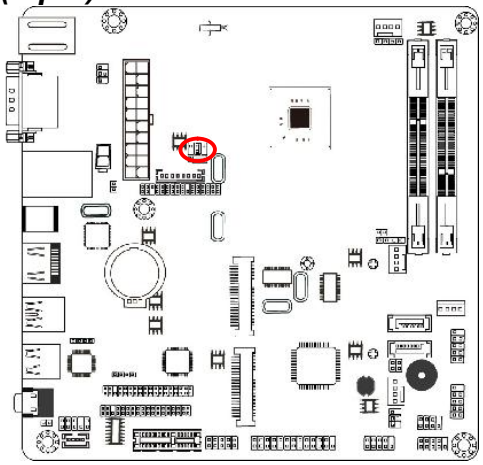


3-4 Close: Case Open Function Selected (One Touch).

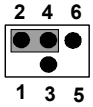
Pin 3-4 Close: *When Case open function pin short to GND, the Case open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect'*

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.

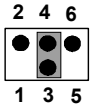
JP2 (4-pin): LVDS PVCC 3.3V/5V/12V Select



JP2→LVDS PVCC



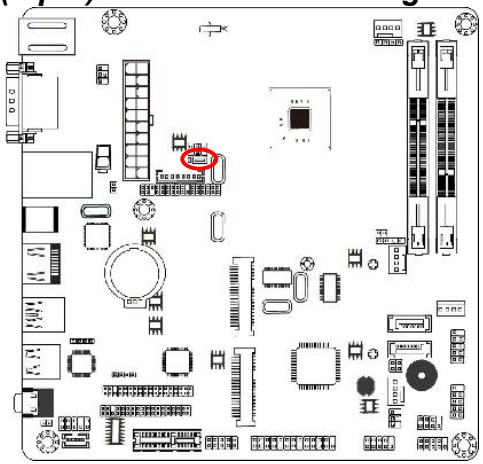
2-4 Closed: LVDS PVCC= 3.3V;



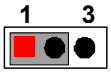
3-4 Closed: LVDS PVCC= 5V;

4-6 Closed: LVDS PVCC= 12V.

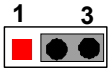
JP3 (3-pin): INVERTER Back Light VCC 5V/12V Select



JP3→INVERTER Back Light VCC

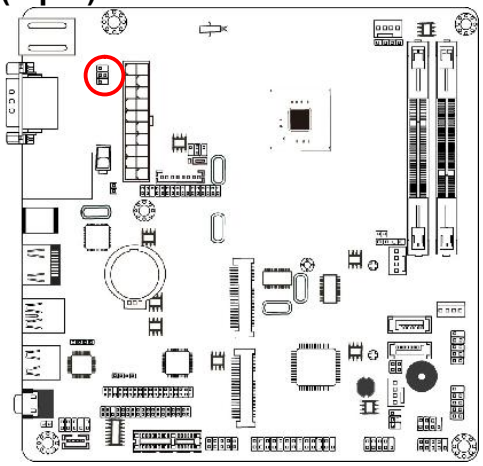


1-2 Closed: INVERTER Back Light 5V Selected;

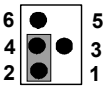


2-3 Closed: INVERTER Back Light 12V Selected.

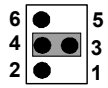
JP1 (4-pin): COM1 Port Pin9 Function Select



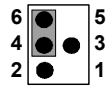
JP1→COM1 Port



2-4 Closed:
RI=RS232;

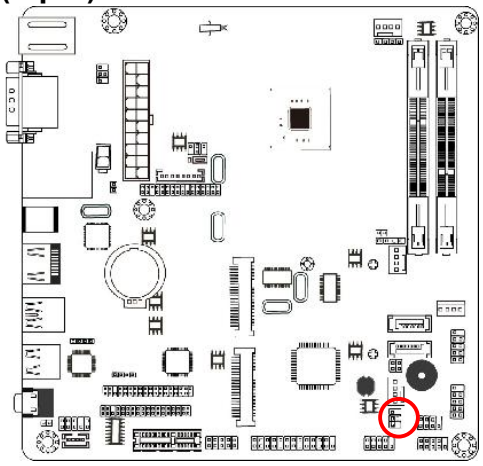


3-4 Closed:
RI= +5V;

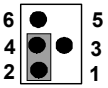


4-6 Closed:
RI= +12V.

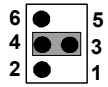
JP5 (4-pin): COM2 Header Pin9 Function Select



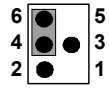
JP5→COM2 Header



2-4 Closed:
RI=RS232;



3-4 Closed:
RI= +5V;

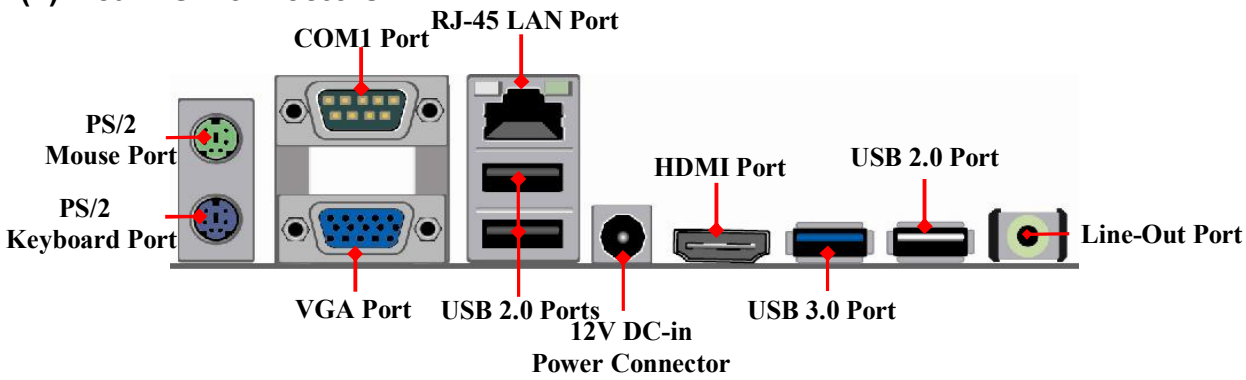


4-6 Closed:
RI= +12V.

2-2 Connectors and Headers

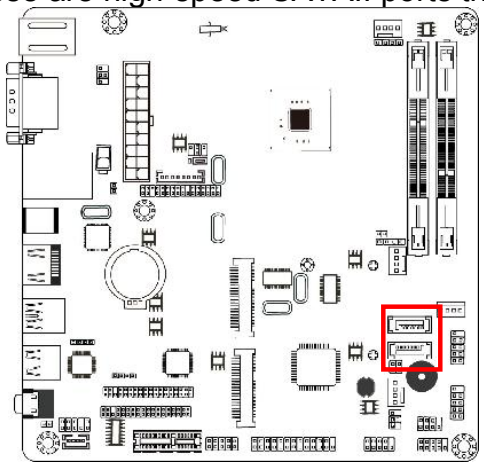
2-2-1 Connectors

(1) Rear I/O Connectors

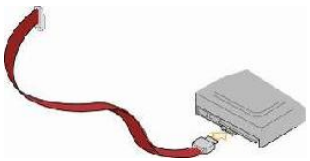


(2) SATAII Port connector: SATA1/SATA2

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

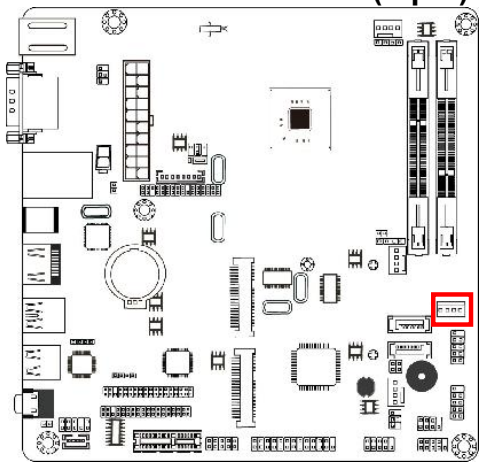


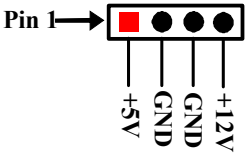
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



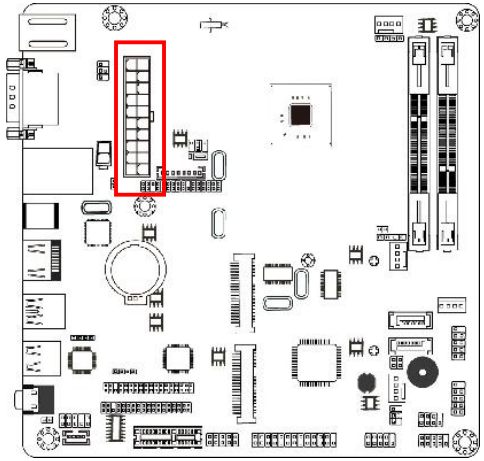
**** Note:** SATA2 shares with MSATA1(Mini-SATA slot).*

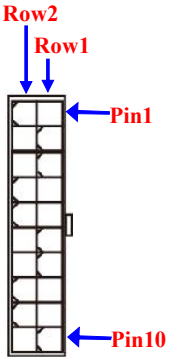
(3) SATA Power Connector (4-pin): SATAPW





(4) ATXPWRIN (20-pin block): Power Connector

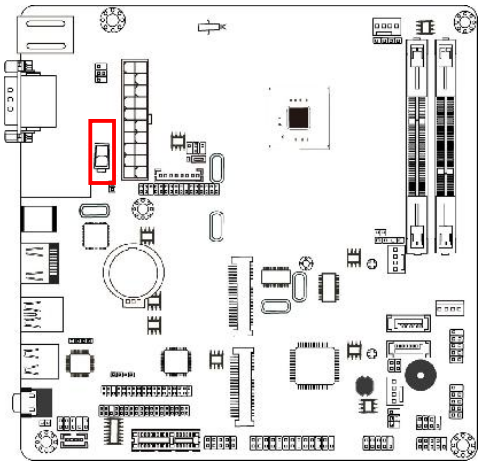


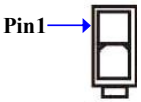


PIN	ROW1	ROW2
1	+3.3V	+3.3V
2	+3.3V	-12V
3	GND	GND
4	+5V	Soft Power on
5	GND	GND
6	+5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V Stand by	+5V
10	+12V	+5V

20-pin Main Power Connector

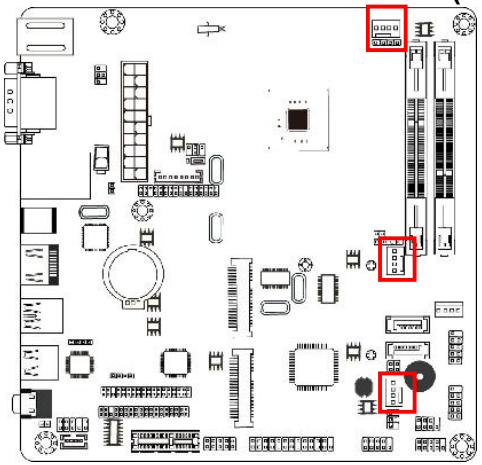
(5) ATX2P (2-pin block): Internal DC 12V Power-in Connector



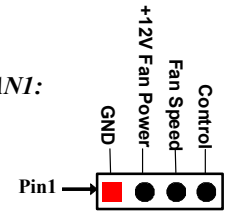


Pin.	Definition
1	GND
2	+12V DC_IN

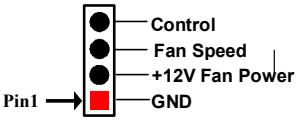
(6) CPUFAN/SYSFAN1/SYSFAN2 (4-pin): Fan Connectors



SYSFAN1:



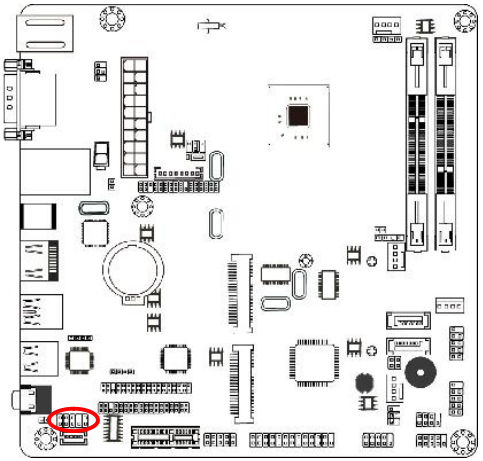
CPUFAN/SYSFAN2:

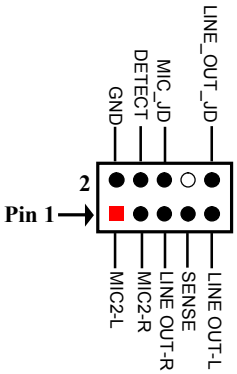


2-2-2 Headers

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

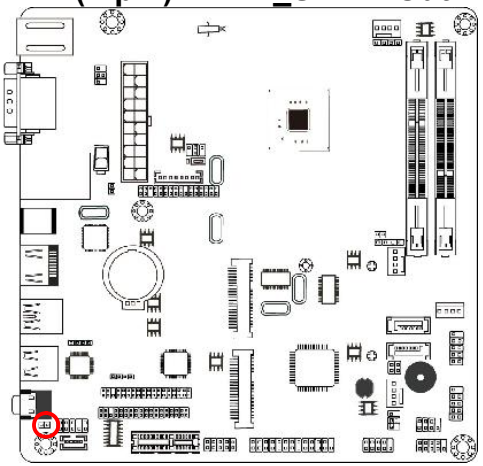
This header connects to Front Panel Line-out, MIC-In connector with cable.

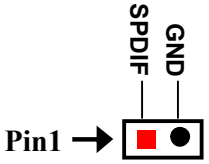




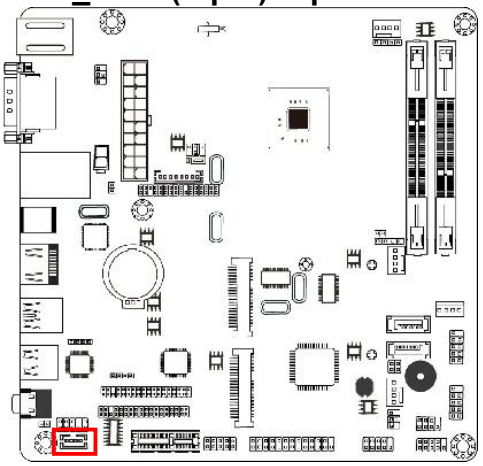
Line-Out, MIC Header

(2) SPDIF (2-pin): HDMI_SPDIF Out Header



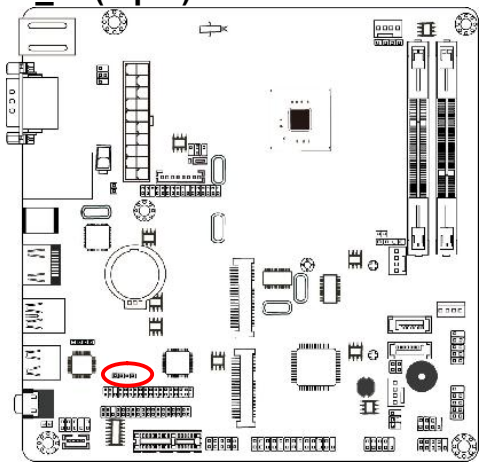


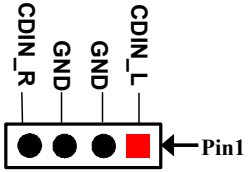
(3)SPEAK_CON (4-pin): Speaker Connector



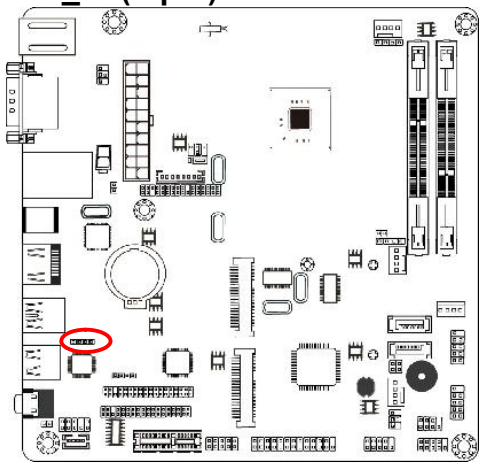
Pin No.	Definition
1	L-
2	L+
3	R+
4	R-

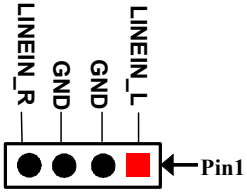
(4)CD_IN (4-pin): CD Audio In Header



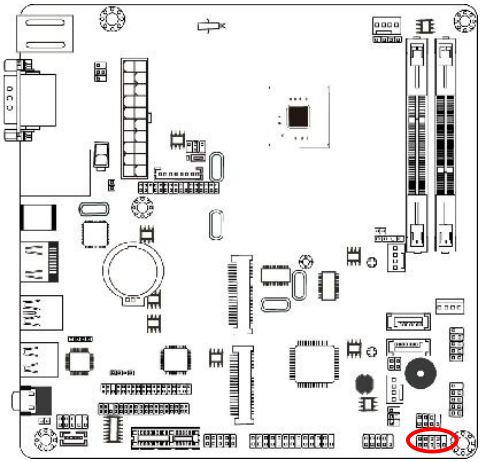


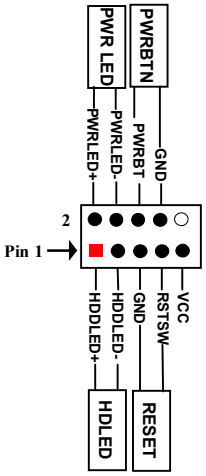
(5)LINE_IN (4-pin): Line In Header



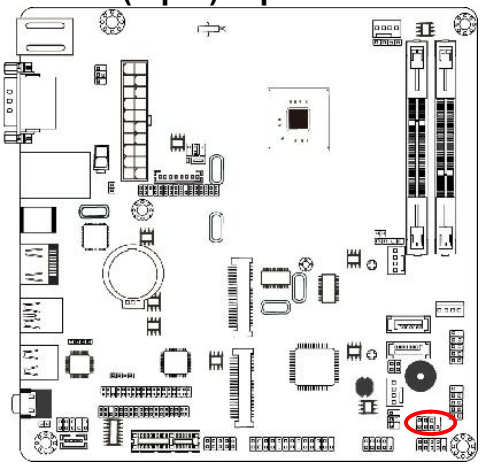


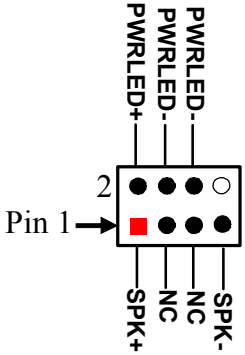
(6) JW_FP (9-pin): Front Panel Header



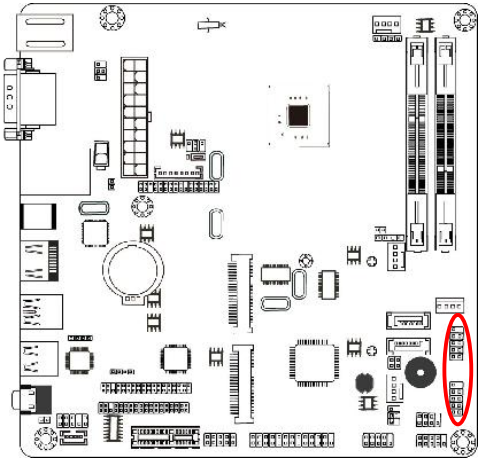


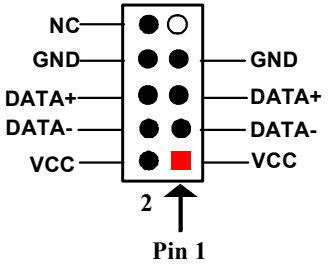
(7) SPK-LED (7-pin): Speaker Header & PWR LED Header



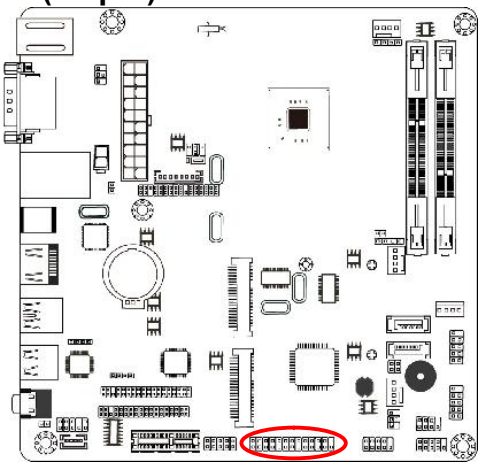


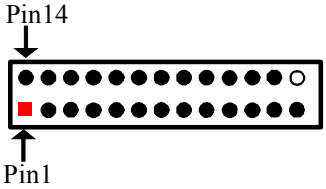
(8) FP_USB1/FP_USB2 (9-pin): USB 2.0 Port Header





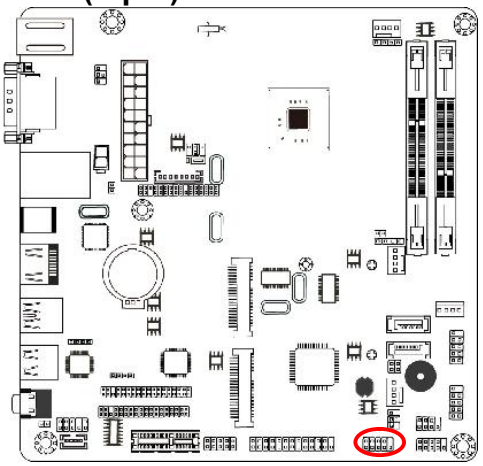
(9) LPT (25-pin): Parallel Port Header

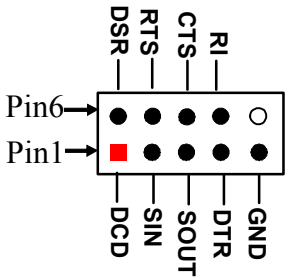




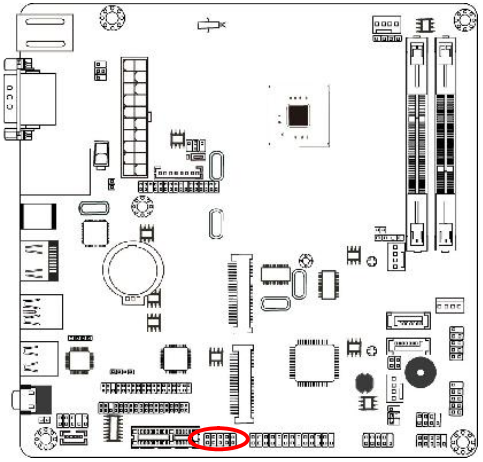
Pin NO.	Pin Definition	Pin NO.	Pin Definition
Pin 1	STB-	Pin 14	AFD-
Pin 2	PRD0	Pin 15	ERR-
Pin 3	PRD1	Pin 16	INIT-
Pin 4	PRD2	Pin 17	SLIN-
Pin 5	PRD3	Pin 18	GND
Pin 6	PRD4	Pin 19	GND
Pin 7	PRD5	Pin 20	GND
Pin 8	PRD6	Pin 21	GND
Pin 9	PRD7	Pin 22	GND
Pin 10	ACK-	Pin 23	GND
Pin 11	BUSY	Pin 24	GND
Pin 12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

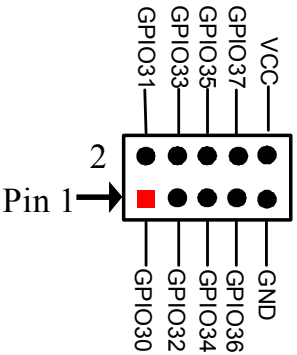
(10) COM2(9-pin): Serial Port Header



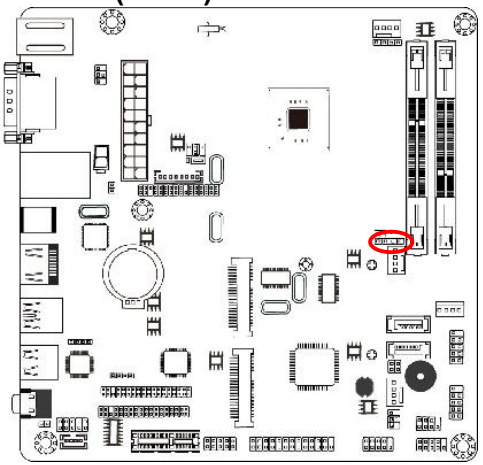


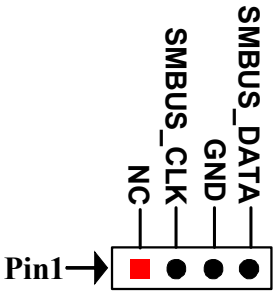
(11) GPIO_CON (10-pin): GPIO Header



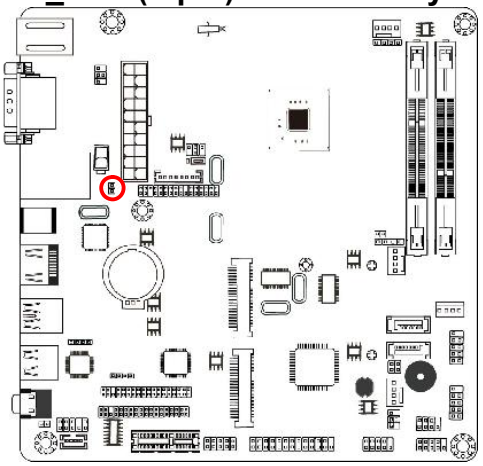


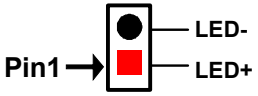
(12) SMBUS (4-Pin): SM BUS Header



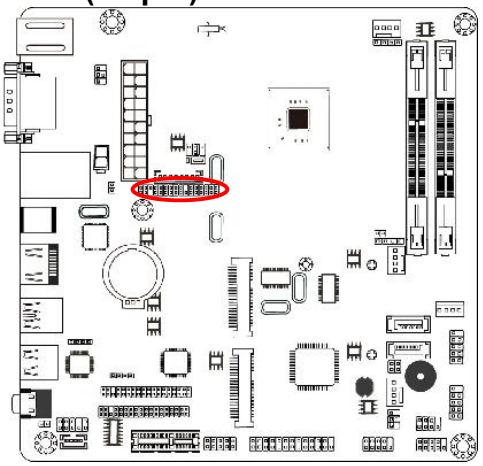


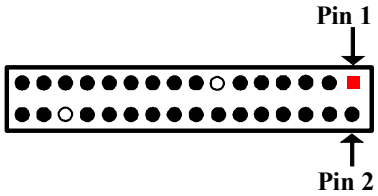
(13)LAN_LED (2-pin): LAN Activity LED Header





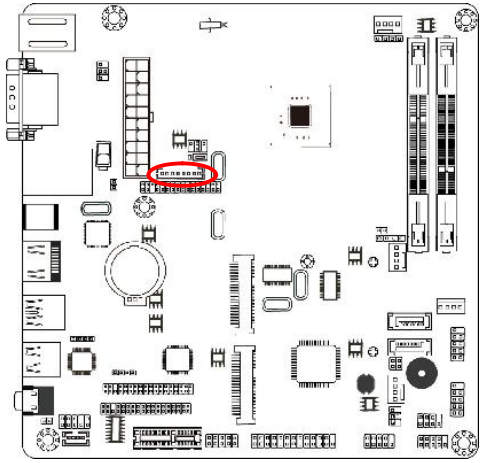
(14) LVDS (30-pin): 24-bit Dual Channel LVDS Header





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

(15) INVERTER (8-pin): LVDS Inverter



INVERTER

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

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.

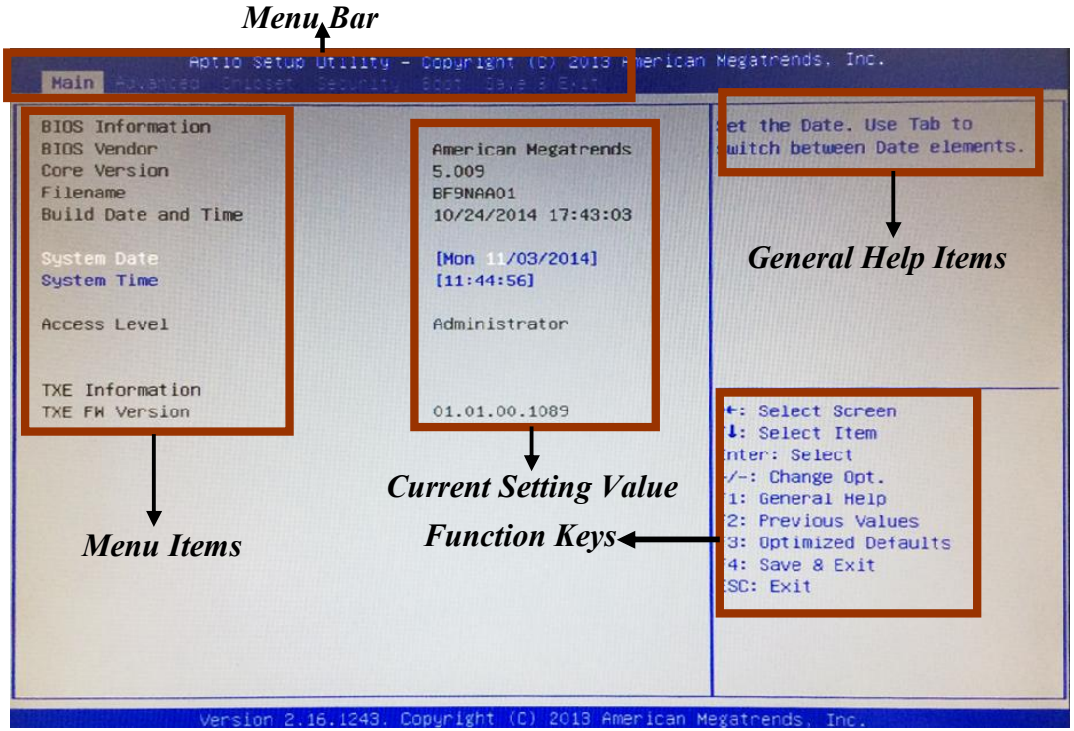
3-1 Entering Setup

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

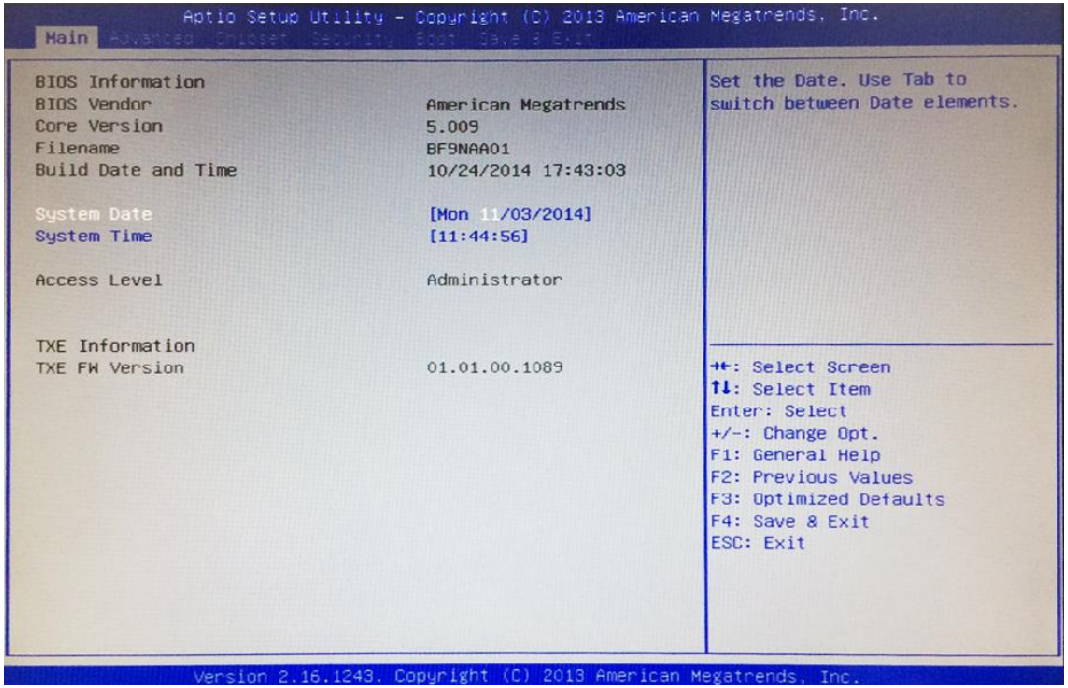
There are six menu bars on top of BIOS screen:

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.



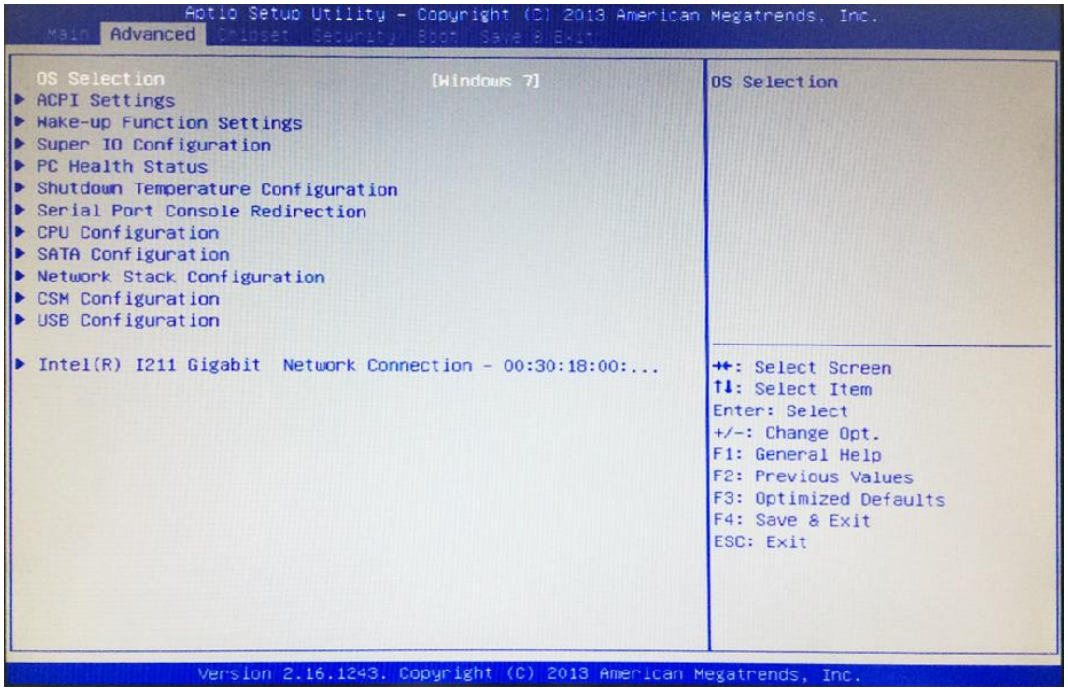
System Date

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: [Android]; [Windows 8.X]; [Windows 7].

***Note**: User needs to go to this item to select OS before installing OS.*

*If Windows Embedded standard 8, please select [Windows 8x] and set "USB 3.0 Support" as [Disabled], "USB 2.0 Support" as [Enabled] (**refer to Page 40**).*

- **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)].

- **Wakeup Function Settings**

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

Wake-up System with Fixed Time

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

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

When set as [Enabled], system will wake on the hour/min/sec specified.

Wake-up System with Dynamic Time

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

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

When set as [Enabled], system will wake on the current time + increased minute(s).

PS2 (S3-~S5) /USB (S3/S4) Wake-up

Use this item to enable or disable PS2 (S3-~S5) /USB (S3/S4) Wake-up.

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

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

- **Super I/O Configuration**

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

Super IO Configuration

ERP Function

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

This item should be set as [Disabled] if you wish to have all active wake-up functions.

- **Serial Port 1 Configuration / 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).

Change Settings

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

Serial Port FIF0 Mode

The optional settings are: [16-Byte FIF0]; [32-Byte FIF0]; [64-Byte FIF0]; [128-Byte FIF0].

- **Parallel Port Configuration**

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

Parallel Port

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

Change Settings

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

Device 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. 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 [Auto].
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] when '**WatchDog Timer Unit**' is set as [Sec.]; or in the range of [1] to [4095] when '**WatchDog Timer Unit**' is set as [Min].

WatchDog 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 jumper at first (refer to ***Page 8~9***, Jumper AT_MODE for ATX Mode & AT Mode Select).

Case Open Detect

This item controls detect case open function.

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

- **PC Health Status**

  Press [Enter] to view current hardware health status and make further settings in '**SmartFan Configuration**'.

  - **SmartFan Configuration**

  Press [Enter] to make settings for SmartFan Configuration:

  SmartFan Configuration

  CPUFAN / SYSFAN1/ SYSFAN2 Smart Mode

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

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

  CPUFAN / SYSFAN1/ SYSFAN2 Full-Speed Temperature

  Use this item to set CPUFAN/SYSFAN1/ SYSFAN2 full speed temperature. Fan will run at full speed when above this pre-set temperature.

  CPUFAN / SYSFAN1/ SYSFAN 2 Full-Speed Duty

  Use this item to set CPUFAN/SYSFAN1/ SYSFAN2 full speed duty. Fan will run at full speed when above the pre-set duty.

  CPUFAN / SYSFAN1/ SYSFAN 2 Idle-Speed Temperature

  Use this item to set CPUFAN/SYSFAN1/ SYSFAN2 idle speed temperature. Fan will run at idle speed when below this temperature.

  CPUFAN / SYSFAN1/ SYSFAN2 Idle-Speed Duty

  Use this item to set CPUFAN/SYSFAN1/ SYSFAN2 idle speed duty. Fan will run at idle speed when below the pre-set duty.

- **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 Consol Redirection**

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

COM1

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: [Enabled]; [Disabled].

Recorder Mode

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

Resolution 100x31

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

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

The default setting is: [COM1].

**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].

Hardware Prefetcher

The optional settings are: [Disabled]; [Enabled].
Use this item to turn on/off the Mid Level Cache (L2) streamer prefetcher.

Adjacent Cache Line Prefetch

The optional settings are: [Disabled]; [Enabled].
Use this item to turn on/off prefetching of adjacent cache lines.

Intel Virtualization Technology

The optional settings: [Enabled]; [Disabled].
When set as [Enabled], a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

EIST

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

CPU C6 Report

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

Package C-state Limit

The optional settings: [C0]; [C1]; [C3] [C6]; [C7]; [No Limit].

- **SATA Configuration**

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

  SATA Configuration

  SATA Port

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

  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

  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: [Enabled]; [Disabled].

  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 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: [Disabled]; [Enabled].

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: [Auto]; [Manual].
Select [Manual] you can set value for the following sub-item: '**Device Power-up delay in seconds'.**

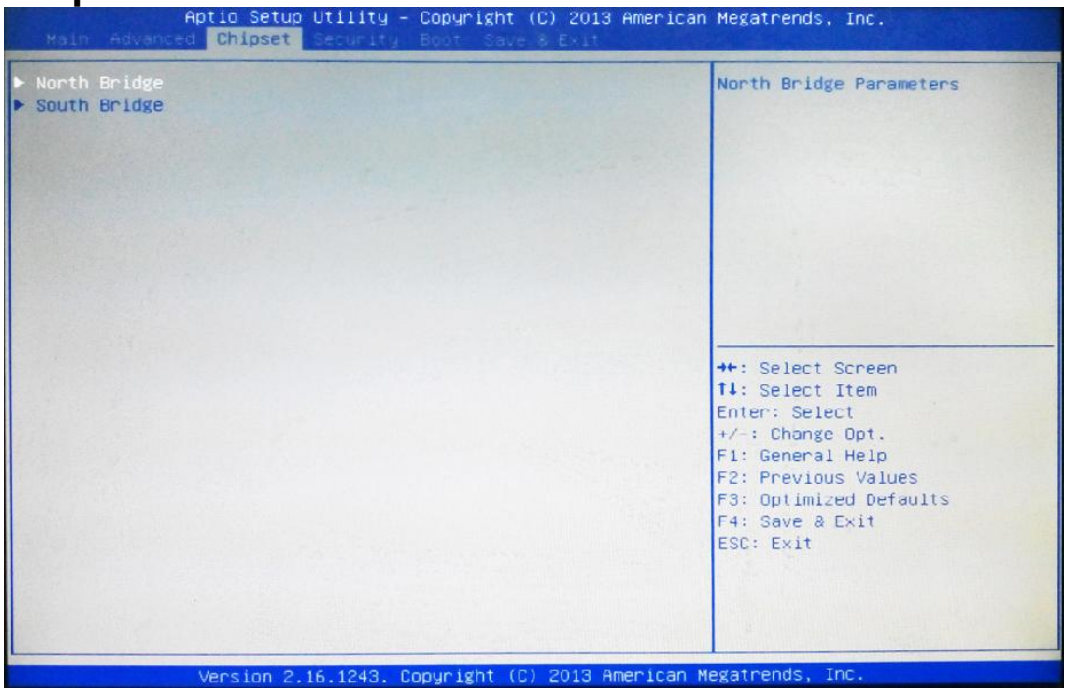
Device Power-up delay in seconds

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

- **Intel(R) I211 Gigabit Network Connection (XX:XX:XX:XX…)**

  Use this item to get driver information and configure gigabit ethernet device parameter.

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

  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: [128M]; [256M]; [MAX].

Aperture Size

The optional settings are: [128MB]; [256MB]; [512MB].

GTT Size

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

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: [Auto]; [CRT]; [HDMI]; [LVDS].

** **Note**: User needs to set 'Active LVDS' as [Enabled], otherwise the optional setting [LVDS] will not be available.*

Active LVDS

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

[Disable]: VBIOS disable LVDS.

[Enable]: VBIOS enable LVDS.

** **Note**: When set as 'Enabled', user can make further settings in 'LVDS Panel Type'.*

LVDS Panel Type

Use this item to manually select LVDS panel type.

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

[1920 x 1080 24bit Dual].

- **South Bridge**

Press [Enter] to set south bridge parameters.

- **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].

**** Note:** When set as [Disable], USB 2.0 Support is applicable, for user to make further settings.*

USB 3.0 Link Power Management

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

**** Note:** This item only show up when 'USB 3.0 Support' set as [Enabled], [Auto] or [Smart Auto].*

USB 2.0 Support

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

Audio Controller

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

Azalia HDMI Codec

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

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

PCI-E Slot Speed

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

Onboard Lan1 Controller

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

Mini PCIE

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

Speed

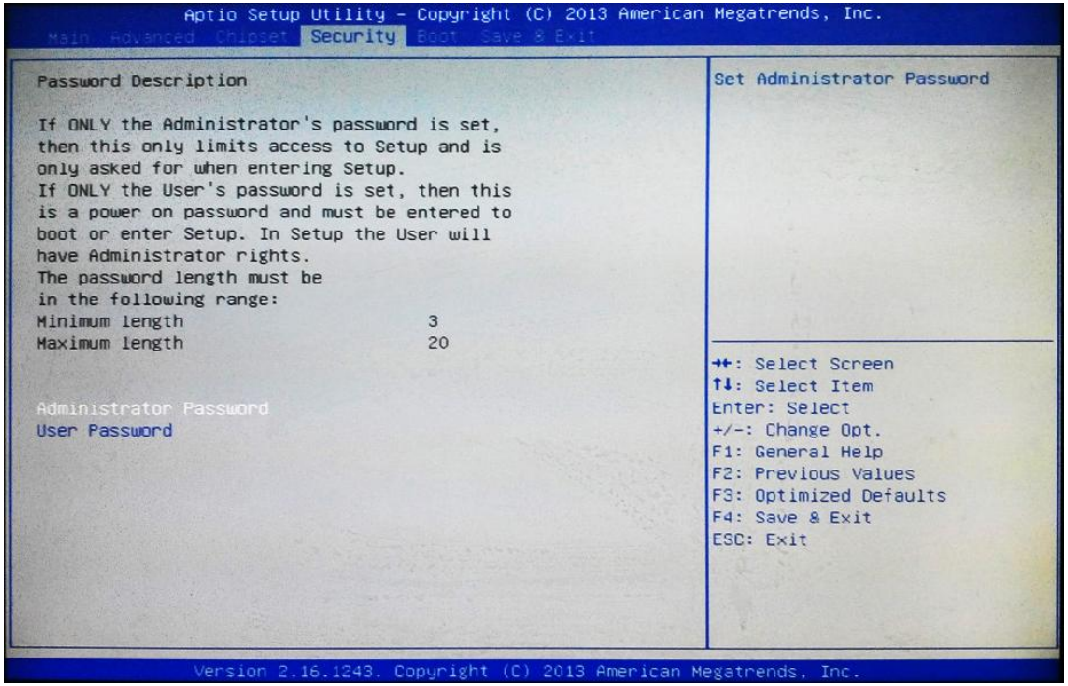
The optional settings are: [Auto]; [Gen2]; [Gen1].

System State after Power Failure

Use this item to select AC power state when power is re-applied after a power

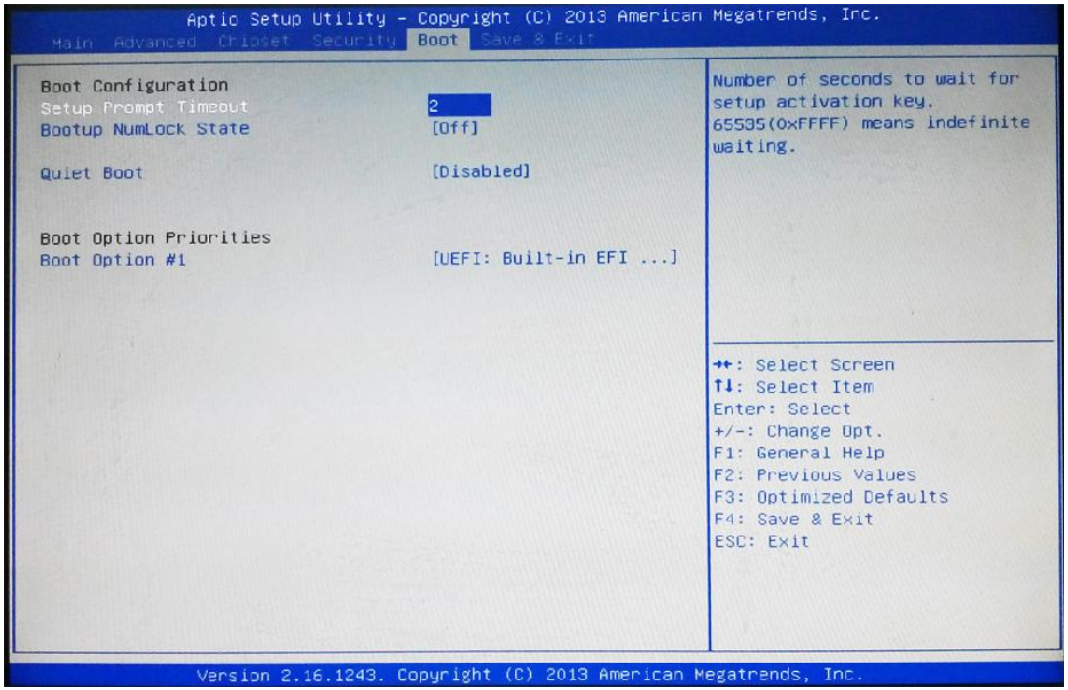
failure.
The optional settings are: [Always Off]; [Always On]; [Former State].

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

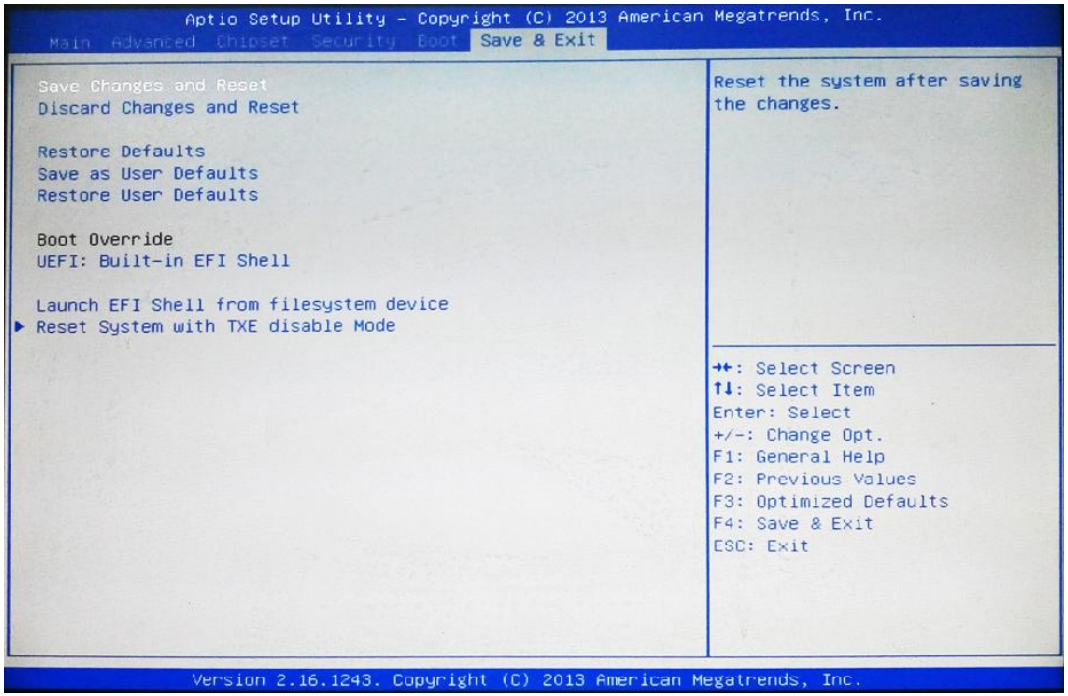
The optional settings are: [Disabled]; [Enabled].

Boot Option Priorities

Boot Option

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.

Boot Override

UEFT: Built-in EFI Shell

Launch Internal EFI shell application (shell.efi).

Lauch 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 TXT disable Mode

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