TECHNICAL MANUAL

Of

Intel Bay Trail Series CPU

Based Mini-ITX M/B

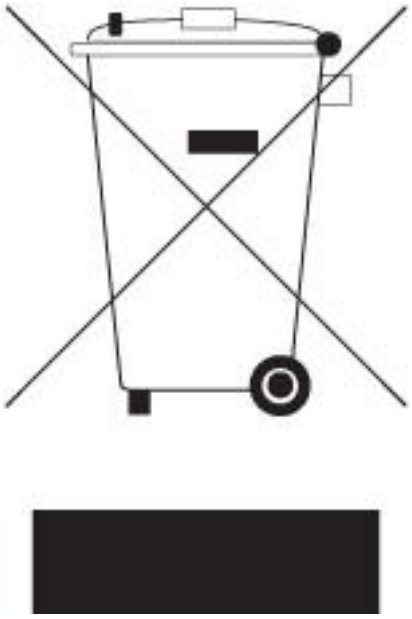
NO. G03-NLBT-IE-F

Revision: 3.0

Release date: December 13, 2022

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
3.0	Third Edition	December 13, 2022

Item Checklist

- ☑ Motherboard
- ☑ Cable(s)
- ☑ I/O Back panel shield

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 slot for SO-DIMM 1066/1333 MHz up to 8GB (Optional)
- On Board SAMSUNG 4G/1333MHz DDR3L dual-channel DRAM (Optional)
- Support 1 * SATAII (3Gb/s) Device
- Support m-SATA connector
- Support half-size Mini-PCIE connector
- Support USB 3.0 data transport demand
- Support SIM card socket
- Integrated with 24-bit dual channel LVDS header
- Support HDMI and VGA Video Outputs
- Support CPU Smart FAN
- Support Watchdog Timer Technology
- Support Windows8 OS
- Support slim fan design
- Support Thunder Protection Function
- Compliance with EuP Standard

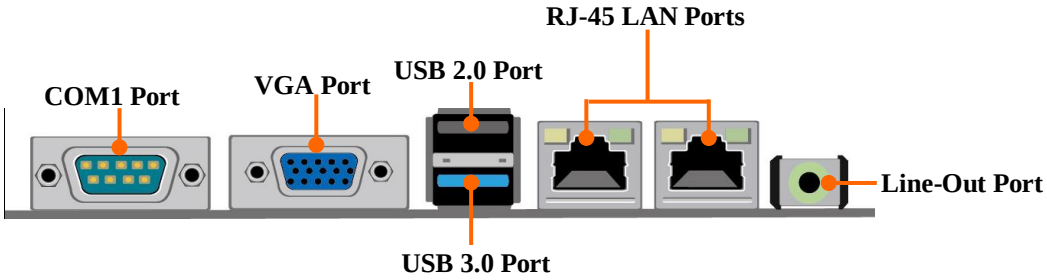
1-2 Specification

Spec	Description
Design	● PCB size: 16.5 x 11.5 cm;
Embedded CPU	● Intel® Bay Trail-D/M/I series CPU
Memory	● ***NLBT-IE1900 & NLBT-IE2930:***1* DDR3L SO-DIMM slot to support DDR3L 800/1066/1333 MHz SDRAM, expandable to 8GB ● ***NL70-IE2930-4G****:* Onboard Samsung 4G/1333MHz DDR3L DRAM, with support for dual-channel function
Expansion Slot	● 1 *halt-size Mini-PCIE slot ● 1* SIM slot
Storage	● 1* SATA II 3G/s Connector ● 1 * M-SATA Connector
LAN Chip	● Integrated with dual Intel i211AT PCI-E Gigabit LAN chips ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	● Realtek ALC887 HD Audio Codec integrated ● Audio driver and utility included
BIOS	● 64M DIP Flash ROM
Multi I/O	***Rear Panel I/O:*** ● 1* COM1 Port ● 1 * VGA port ● 1* USB 3.0 port ● 1* USB 2.0 port ● 2* RJ-45 port ● 1* Line-Out port ***Internal I/O Connectors& Headers:*** ● 1 *2-pin 9V~24V internal DC power-in connector ● 1 *4-pin SATA Power connector ● 1 * Front panel header ● 2 * 9-Pin USB 2.0/1.1 header for 4 USB 2.0/1.1 ports ● 5* COM header

	● 2* TX-RXCOM header ● 1 * Parallel header ● 1 *GPIO header ● 1 *20-pin HDMI header ● 1 *12-pin VGA header ● 1 *24-bit Dual Channel LVDS header ● 1* LVDS inverter header ● JP8: 1*LVDS panel brightness adjustment header ● 1* PS/2 Keyboard & mouse header ● 1*SPEAK_CON header ● 1*CPU fan header ● 1*System fan header

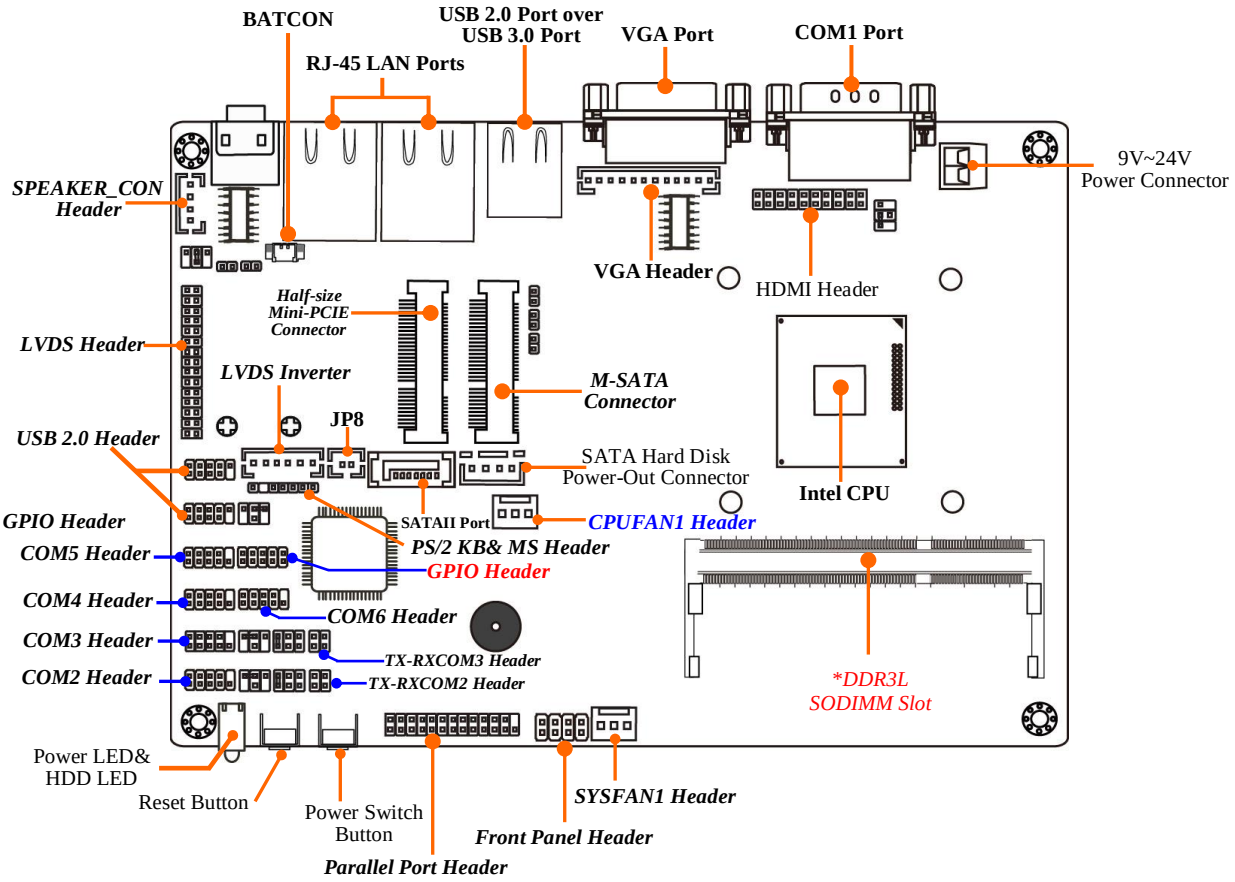
1-3 Layout Diagram

Rear IO Diagram



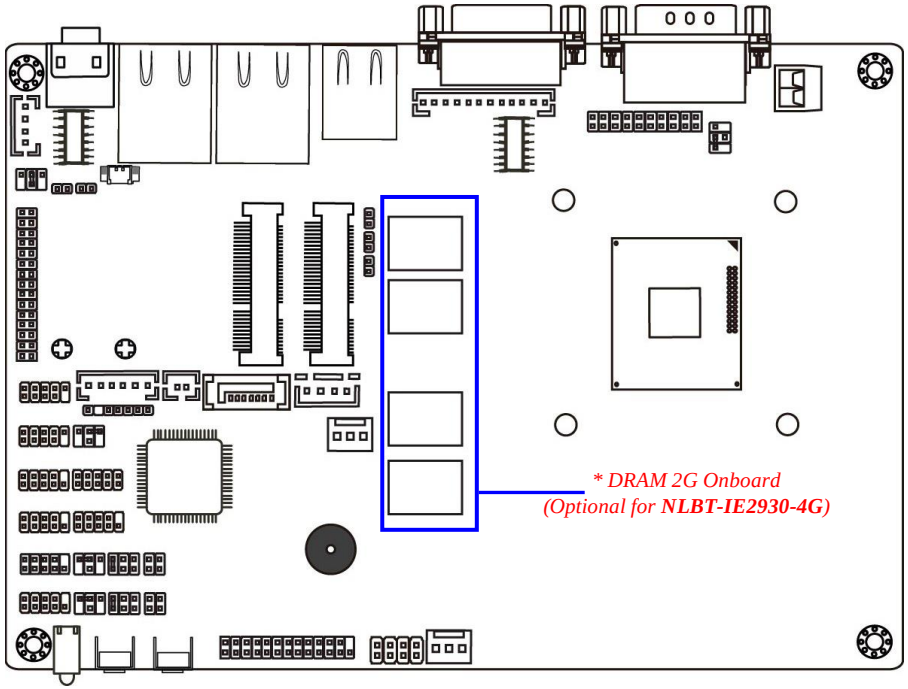
Motherboard Internal Diagram--Front

For NLBT-IE1900/NLBT-IE2930 Series:



Note:* *The pictures taken as illustration examples are mostly taken from the above layout diagram for* ***NLBT-IE190/NLBT-IE2930**, unless otherwise stated.*

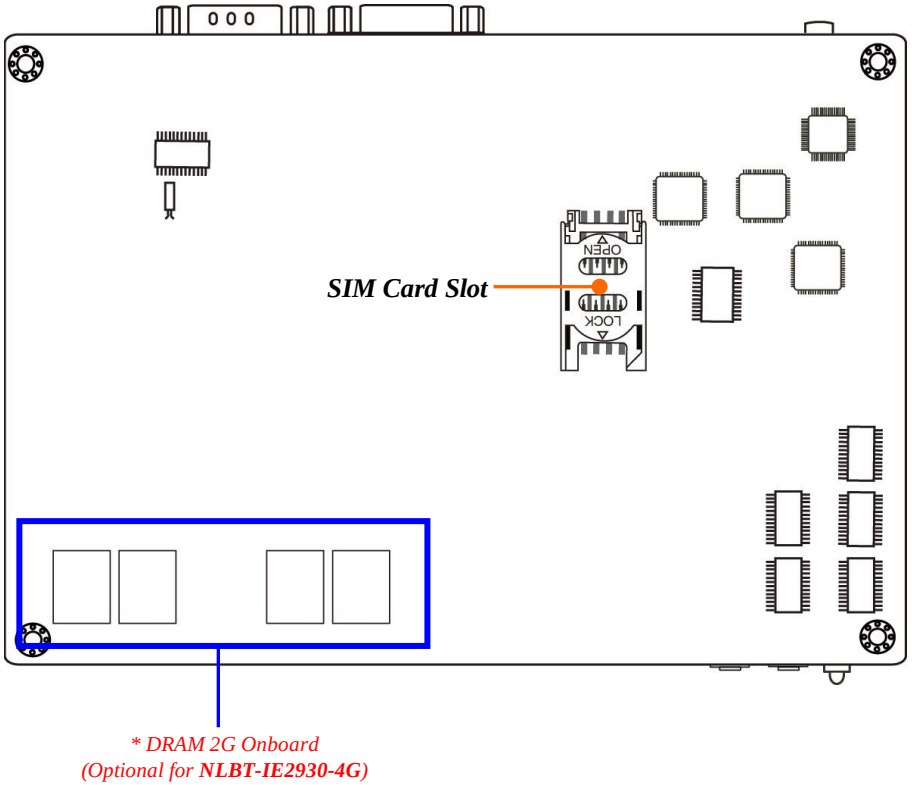
For NLBT-IE2930-4G Series:



Note: **NLBT-IE2930-4G comes without SO-DIMM slot, but is integrated with 4G dual–channel Samsung DDR3L 1333MHz DRAM instead. This manual serves as a common manual **NLBT-IE** series, which include different models. Their main differences are listed as below:*

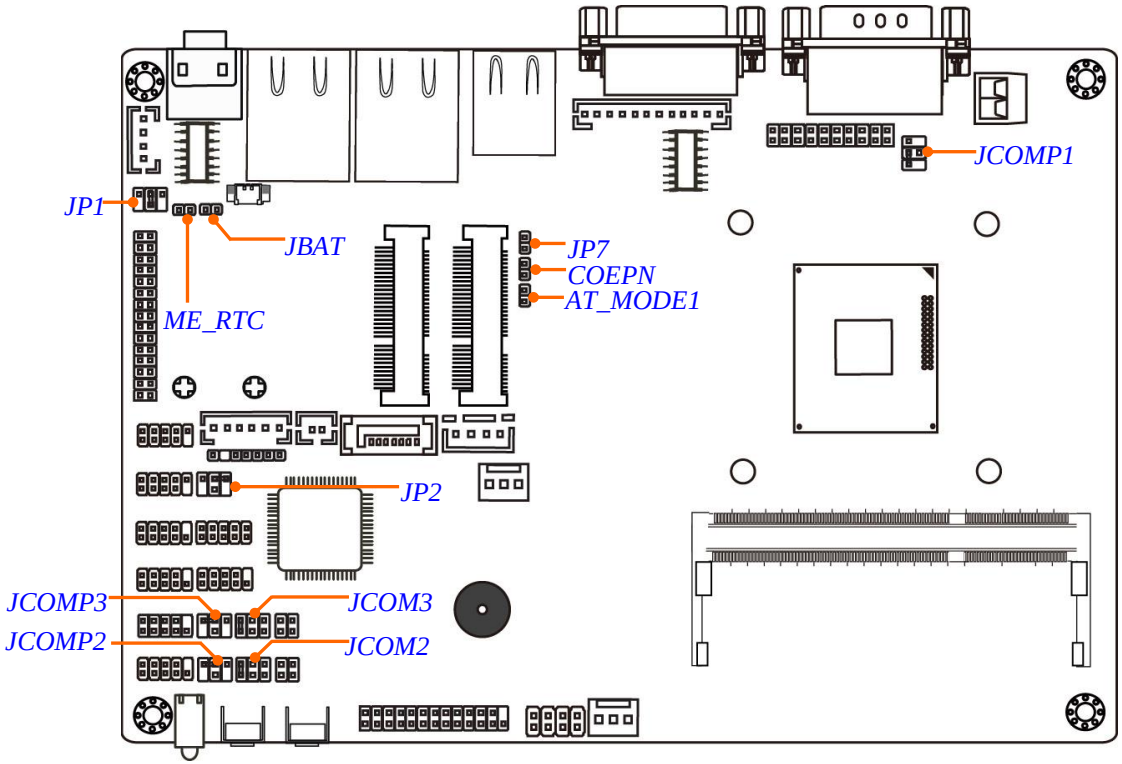
Model	CPU	Onboard DRAM	Memory Slot
NLBT-IE1900	I1900	N/A	1* DDR3L SO-DIMM slot
NLBT-IE2930	I2930	N/A	1* DDR3LSO-DIMM slot
NLBT-IE29304G	I2930	Onboard 4G DRAM (2G integrated on front side; 2G integrated on back side)	N/A

Motherboard Internal Diagram—Back



***Note:** The above common diagram is taken from **NLBT-IE2930-4G** for illustration purpose, with optional 4G DRAM integrated. Please refer to the real product you purchase for actual specification.*

Motherboard Jumper Position



Jumper

Jumper	Name	Description
JBAT	CMOS RAM Clear Function Setting	2-pin Block
ME_RTC	Clear ME RTC Function Setting	2-pin Block
COPEN1	Case Open Message Display Function	2-pin Block
AT_MODE1	AT MODE Function Select	2-pin Block
JP1	LVDS VCC 3.3V/5V/12V Select	4-pin Block
JP2	INVERTER VCC 3.3V/5V/12V Select	4-pin Block
JCOMP3	COM3 Header Pin9 Function Select	4-Pin Block
JCOM3	COM3 Header RS485/RS422 Select	6-Pin Block
JCOMP2	COM2 Header Pin9 Function Select	4-Pin Block
JCOM2	COM2 Header RS485/RS422 Select	6-Pin Block
JCOMP1	COM1 Port Pin9 Function Select	4-Pin Block

Connectors

Connector	Name
DC_CN	9V~24V DC Power-in Connector
COM1	Serial Port Connector
VGA	Video Graphic Attach Connector
USB30_20 (Top)	USB 2.0 Port Connector
USB30_20 (Bottom)	USB 3.0 Port Connector
LAN1/LAN2	RJ-45 LAN Connector x2
AUDIO	Audio Line-Out Connector
SATA1	SATAII Connector
PWOUT	SATA Power out Connector
CPUFAN1	CPU Fan Connector
SYSFAN1	System Fan Connector
MPE	Half-size Mini-PCIE Connector
MSATA	Full-size Mini-SATA Connector

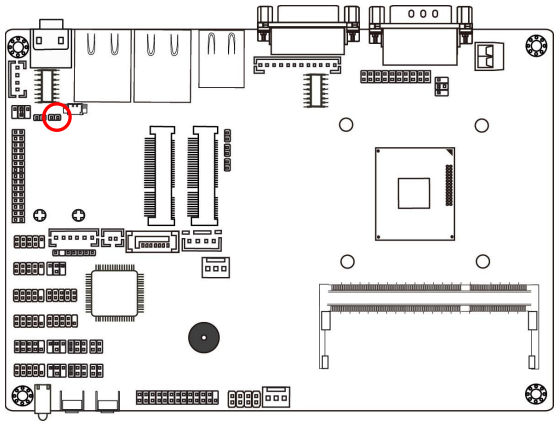
Headers

Header	Name	Description
JW_FP1	Front Panel Header(PWR LED/ HD LED/Power Button /Reset)	8-pin Block
F_USB1/F_USB2	USB 2.0 Port Header X2	9-pin Block
COM2/3/4/5/6	Serial Port Header X6	9-pin Block
TX_RXCOM2/3	TX_RXCOM Header X2	4-pin Block
PARALLEL1	Parallel Port Header	25-pin Block
GPIO1	GPIO Header	10-pin block
VGA1	VGA Header	12-pin Block
HDMI	HDMI Header	20-pin Block
LVDS	LVDS Header	30-pin Block
INVERTER	LVDS Inverter	6-pin Block
JP8	LVDS Panel Brightness Adjustment Header	2-pin Block
PS2_CON1	PS/2 Keyboard & Mouse Header	6-pin Block
SPEAKER_CON	Speaker Header	4-pin Block

Chapter 2
Hardware Installation

2-1 Jumper Setting

JBAT (3-pin): CMOS RAM Clear Function Setting

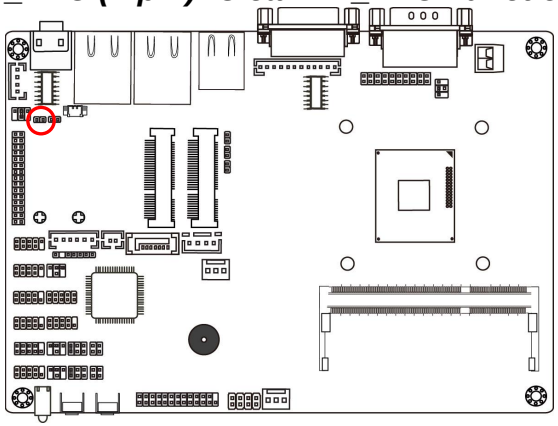


JBAT

1-2 Open: Normal； **1-2 Closed：Clear CMOS**

CMOS Clear Setting

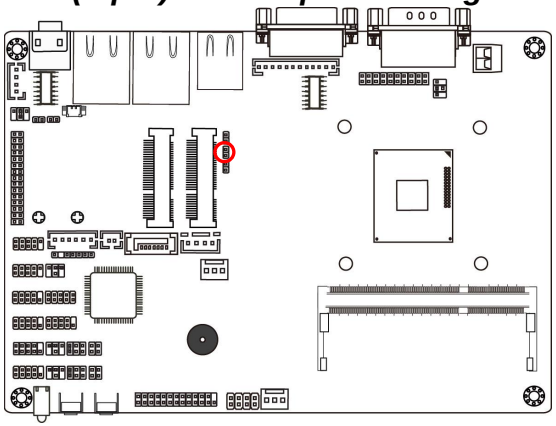
ME_RTC (2-pin): Clear ME_RTC Function Setting



ME_RTC

1-2 Open: Normal； **1-2 Closed：Clear ME_RTC.**

COPEN1 (2-pin): Case Open Message Display Function Select

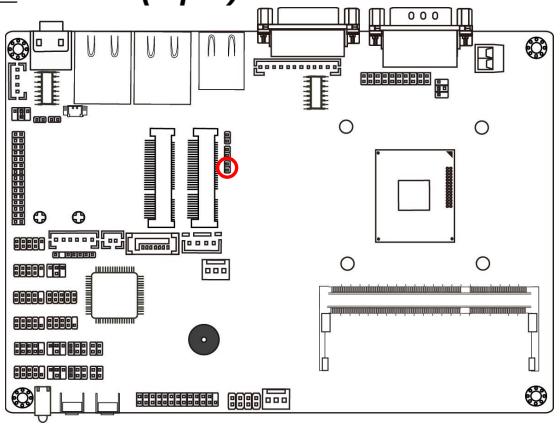


COPEN1

1 Case open function
GND

Pin 1-2 Closed: When Case open function pin short to GND, the Case open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.

AT_MODE1 (2-pin): AT Mode Function Select



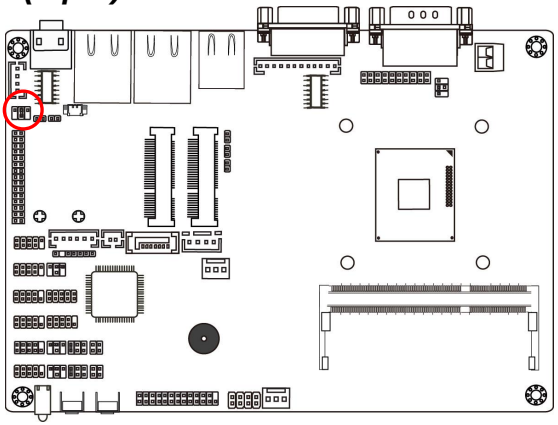
AT_MODE1

1 1

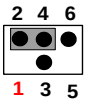
1-2 Open: Normal; 1-2 Closed: AT Mode Select.

Pin 1-2 closed: AT_MODE function is enabled. In this case your computer will automatically turns on after a sudden power failure when power supply resumes.

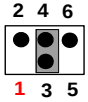
JP1 (4-pin): LVDS VCC 3.3V/5V/12V Select



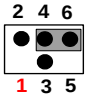
JP1



2-4 Closed: LVDS VCC= 3.3V;

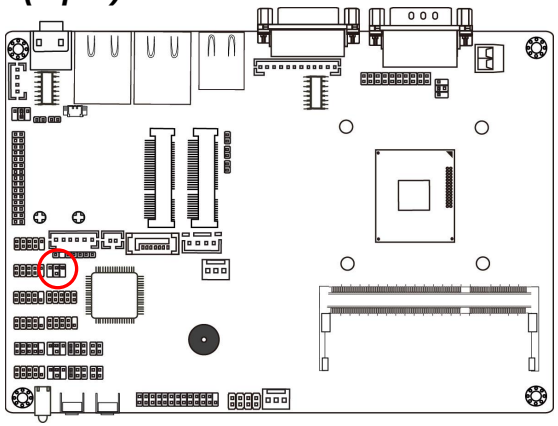


3-4 Closed: LVDS VCC= 5V;

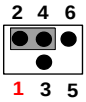


4-6 Closed: LVDS VCC= 12V.

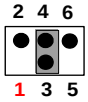
JP2 (4-pin): INVERTER VCC 3.3V/5V /12V Select



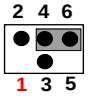
JP2



2-4 Closed: Inverter Backlight VCC= 3.3V;

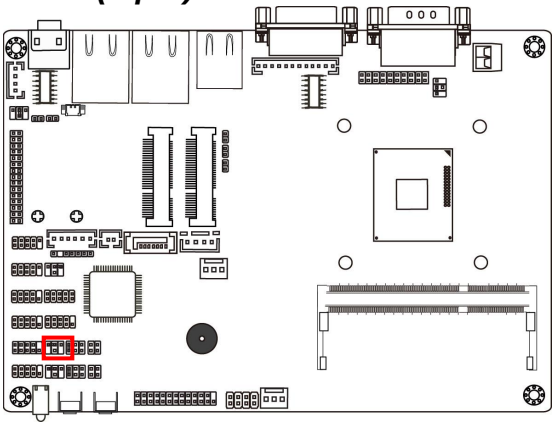


3-4 Closed: Inverter Backlight VCC= 5V;

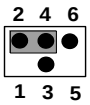


4-6 Closed: Inverter Backlight VCC= 12V.

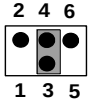
JCOMP3 (4-pin): COM3 Header Pin9 Function Select



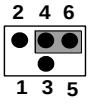
JCOMP3→COM3 Header



2-4 Closed: RI=RS232;

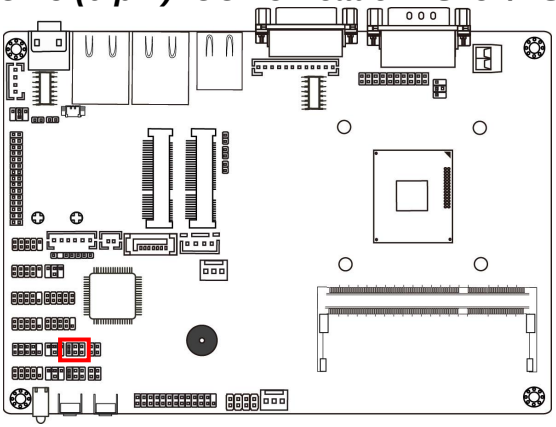


3-4 Closed: RI= 5V;

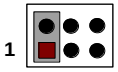


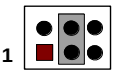
4-6 Closed: RI= 12V.

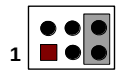
JCOM3 (6-pin): COM3 Header RS232/RS485/RS422 Function Select



JCOM3→COM3 Header

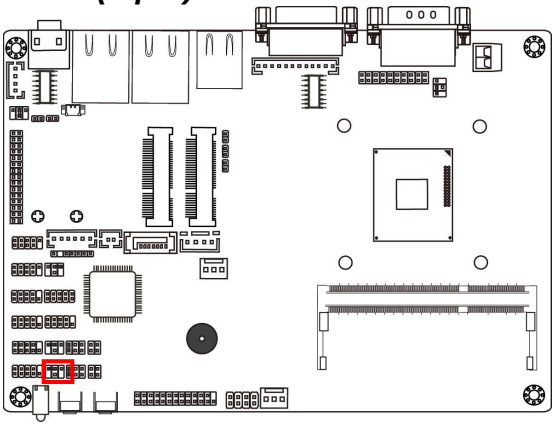




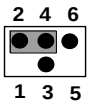


1-2 Closed: RS232; 3-4 Closed : RS485; 5-6 Closed : RS422.

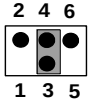
JCOMP2 (4-pin): COM2 Header Pin9 Function Select



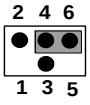
JCOMP2→COM2 Header



2-4 Closed: RI=RS232;

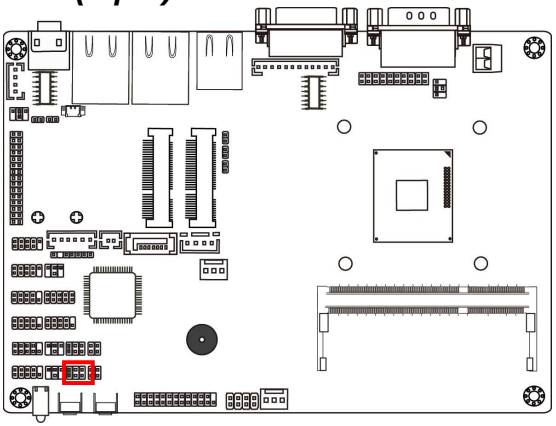


3-4 Closed: RI= 5V;

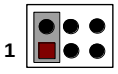


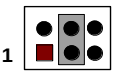
4-6 Closed: RI= 12V.

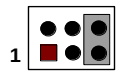
JCOM2 (6-pin): COM2 Header RS232/RS485/RS422 Function Select



JCOM2→COM2 Header

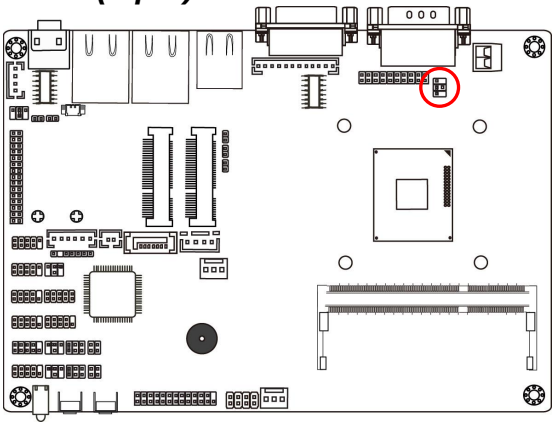




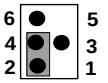


1-2 Closed: RS232; 3-4 Closed : RS485; 5-6 Closed : RS422.

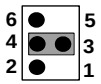
JCOMP1 (4-pin): COM1 Port Pin9 Function Select



JCOMP1→COM1 Port



2-4 Closed:
RI=RS232;



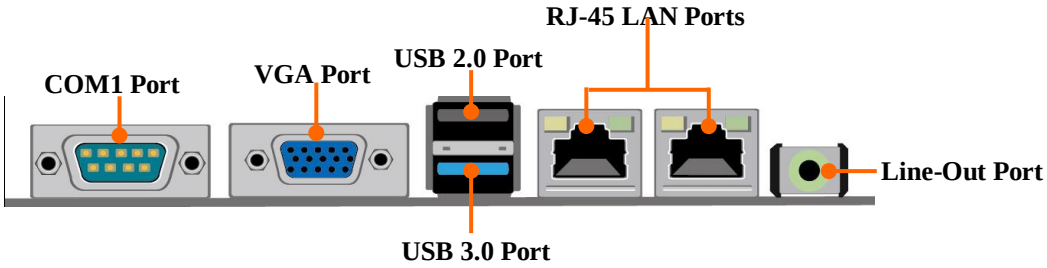
3-4 Closed:
RI= 5V;

4-6 Closed:
RI= 12V.

2-2 Connectors and Headers

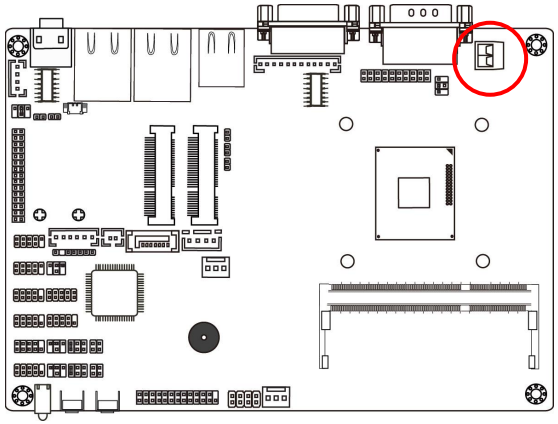
2-2-1 Connectors

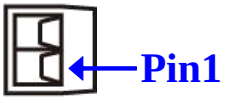
(1) Rear IO Diagram Connectors



Icon	Name	Function
	**Serial Port**	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	**VGA Port**	To connect display device that support VGA specification.
	**USB 2.0 Port**	To connect USB keyboard, mouse or other devices compatible with USB specification.
	**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.
	**RJ-45 LAN Port**	This connector is standard RJ-45 LAN jack for Network connection.
	**Line-Out Connector**	For user to connect external speaker, earphones, etc to transfer system audio output.

(2) DC_CN (2-pin block): 9V~24V Internal Power Connector

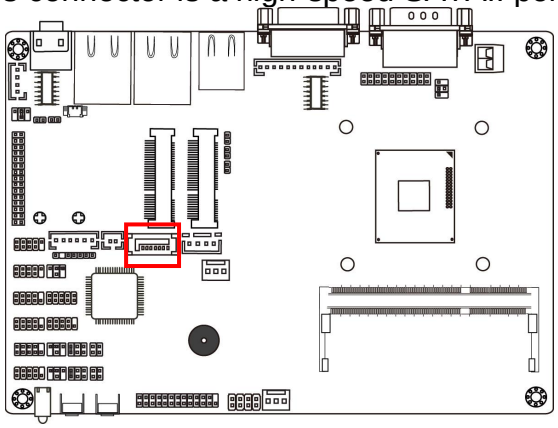




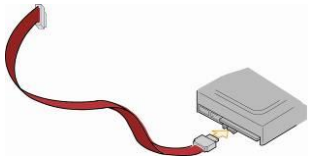
Pin No.	Definition
1	+9V~+24V
2	GND

(3) SATA1:SATAII Port connector

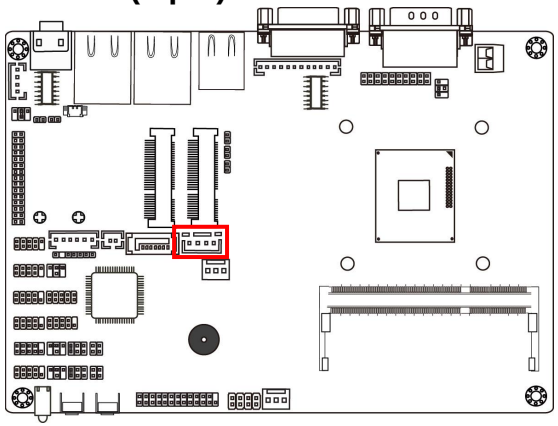
This connector is a high-speed SATAII port that supports 3 GB/s transfer rate.

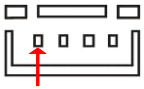


Pin No.	Defnition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



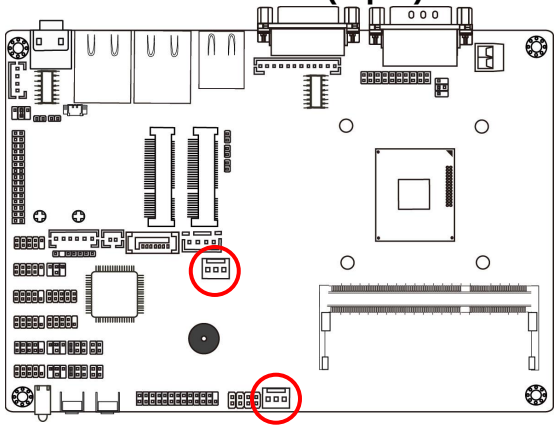
(4) PWOUT(4-pin): SATA Hard Disk Power-out Connector





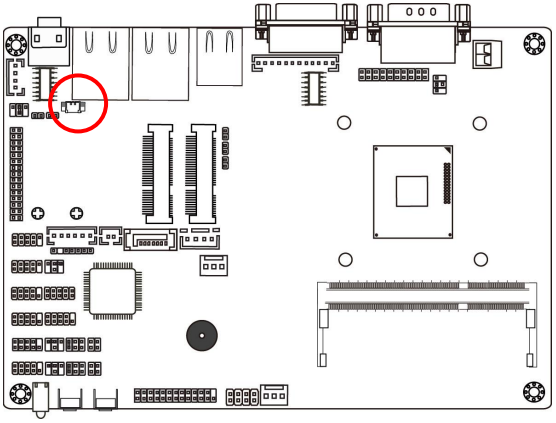
Pin No.	Definition
1	+5V
2	GND
3	GND
4	+12V

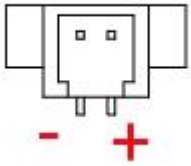
(5) CPUFAN1/SYSFAN1 (3-pin): FAN Connector



Pin No.	Definition
1	GND
2	+12V Fan Power
3	Fan Speed

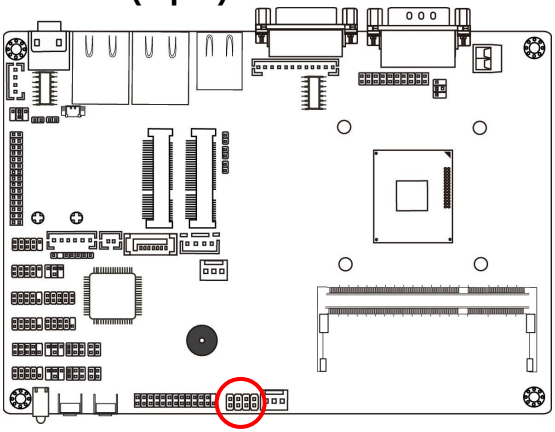
(6) BATCON (2-pin): Battery Connector

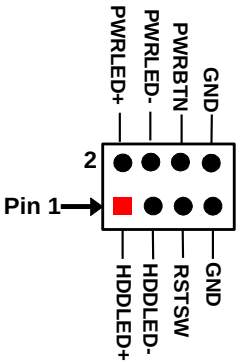




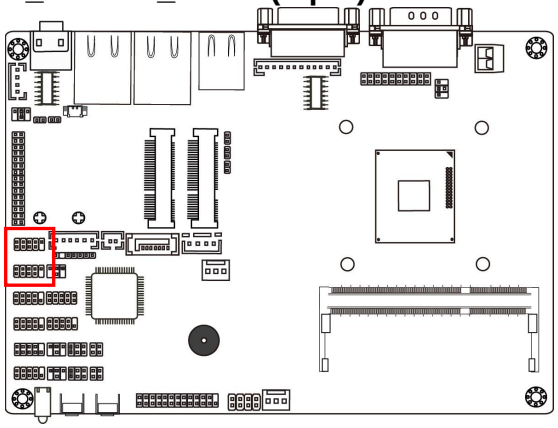
2-2-2 Headers

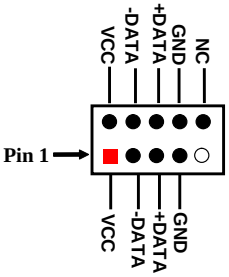
(1) JW-FP1 (8-pin): Front Panel Header



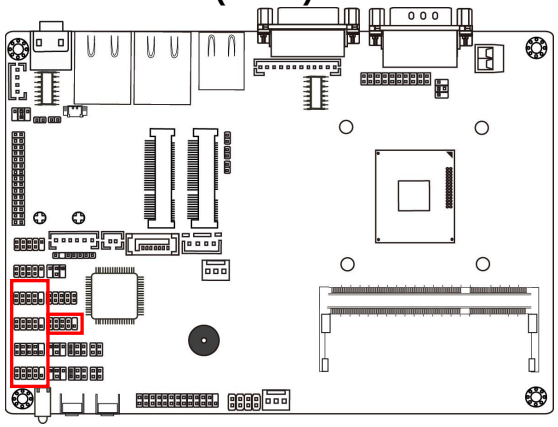


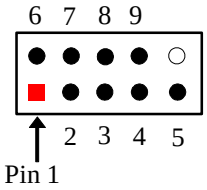
(2) F_USB1/F_USB2 (9-pin): USB 2.0 Port Header





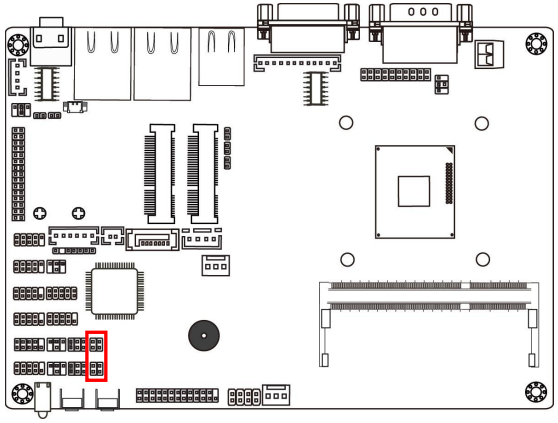
(3) COM2/3/4/5/6 (9-Pin): Serial Port Headers

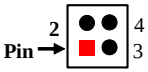




Pin NO.	Definition (RS232)	Description
Pin 1	DCD	Data Carrier Detect
Pin 2	**RXD**	Receive Data
Pin 3	**TXD**	Transmit Data
Pin 4	DTR	Data Terminal Ready
Pin 5	GND	Signal Ground
Pin 6	DSR	Data Set Ready
Pin 7	RTS	Request to Send
Pin 8	CTS	Clear to Send
Pin 9	RI	Ring Indicator

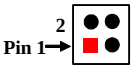
(4) TX_RXCOM2/TX_RXCOM3 (4-Pin): RS422/485 Headers





For RS422 Connection

Pin NO.	Definition (RS422)	Description
Pin 1	TXDP	Transmit Data, Positive
Pin 2	**TXDN**	Transmit Data, Negative
Pin 3	**RXDP**	Receive Data, Positive
Pin 4	RXDN	Receive Data, Negative



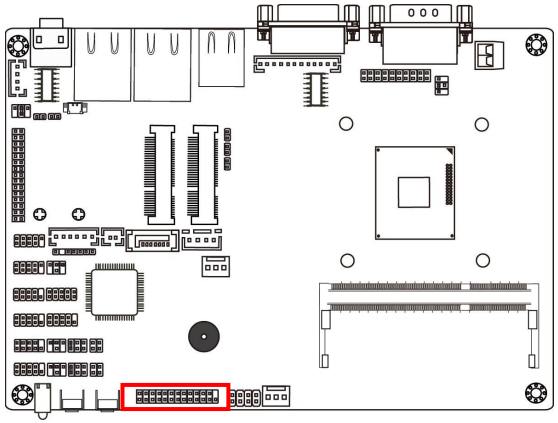
For RS485 Connection

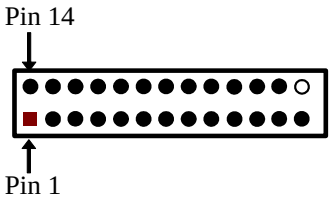
Pin NO.	Definition (RS485)	Description
Pin 1	TXDP	Transmit Data, Positive
Pin 2	**TXDN**	Transmit Data, Negative

***Note:** For **TX-RXCOM2/TX-RXCOM3** headers to work properly, the following steps should be followed:*

1. *Go to BIOS: '**Advanced→IT8786 Super I/O Configuration→ Serial Port 2 Configuration/Serial Port 2 Configuration →Transmission Mode Select**' and set '**Transmission Mode Select**' as **[RS485/RS422]** (Refer to Page 34).*
2. *Make further settings in **JCOM2** or **JCOM3** to select '**RS485**' or '**RS422**' mode for the header (refer to Page 13~14).*

(5) PARALLEL1 (25-pin): Parallel Port Header

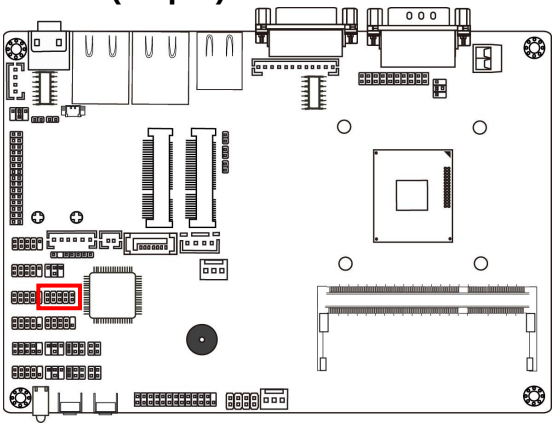


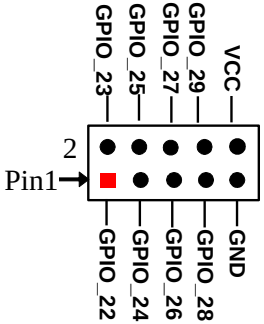


Parallel Port Header

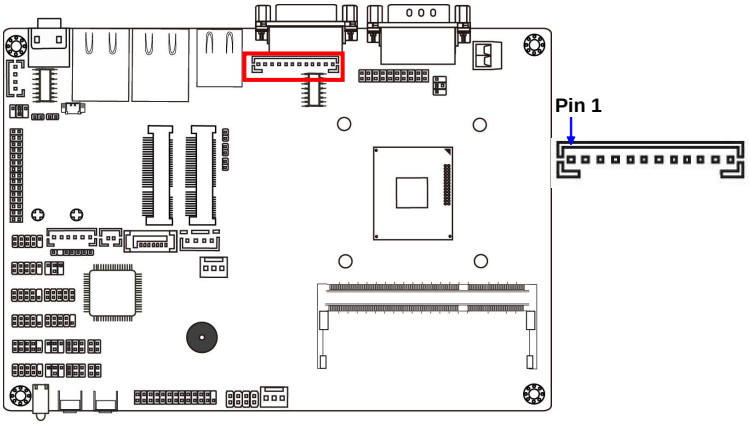
Pin NO.	Pin Definition	Pin NO.	Pin Definition
Pin 1	STB-	Pin 14	AFD-
Pin 2	PRD0	Pin 15	ERR-
Pin 3	PRD1	Pin 16	INIT-
Pin 4	PRD2	Pin 17	SLIN-
Pin 5	PRD3	Pin 18	GND
Pin 6	PRD4	Pin 19	GND
Pin 7	PRD5	Pin 20	GND
Pin 8	PRD6	Pin 21	GND
Pin 9	PRD7	Pin 22	GND
Pin 10	ACK-	Pin 23	GND
Pin 11	BUSY	Pin 24	GND
Pin 12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

(6) GPIO1 (10-pin): GPIO Header



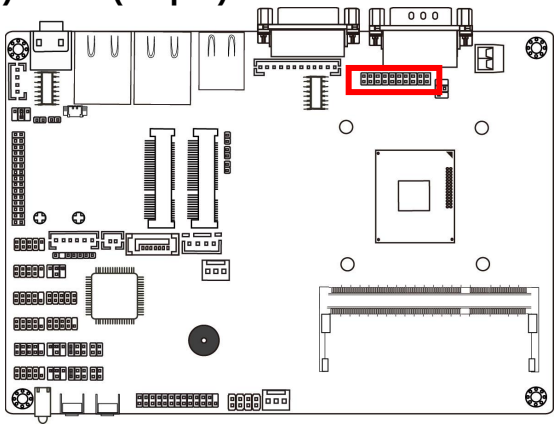


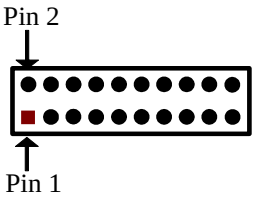
(7) VGA1 (12-pin): VGA Header



Pin No.	Definition
1	VCC5(Reserved)
2	VGA_VSYNC
3	VGA_HSYNC
4	GND_RED
5	RED_VGA
6	GND_GRN
7	GRN_VGA
8	GND_BLUE
9	BLUE_VGA
10	GND
11	DDC_DATA
12	DDC_CLK

(8) HDMI (20-pin): HDMI Header

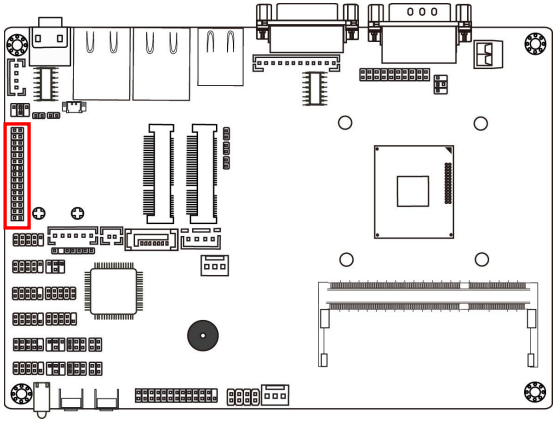


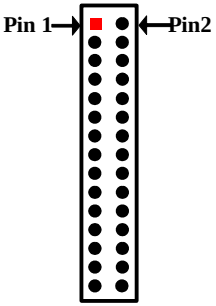


HDMI Header

Pin NO.	Pin Definition	Pin NO.	Pin Definition
Pin 1	GND	Pin 2	HDMI_TXP2
Pin 3	HDMI_TXP1	Pin 4	HDMI_TXN2
Pin 5	HDMI_TXN1	Pin 6	GND
Pin 7	GND	Pin 8	HDMI_TXP0
Pin 9	HDMI_TXCP	Pin 10	HDMI_TXN0
Pin 11	HDMI_TXCN	Pin 12	GND
Pin 13	NC	Pin 14	NC
Pin 15	HDMI_SDA	Pin 16	HDMI_SCL
Pin 17	HDMI_+5V	Pin 18	GND
Pin 19	GND	Pin 20	HDMI_HPD

(9) LVDS (30-Pin): 24-bit dual channel LVDS Header

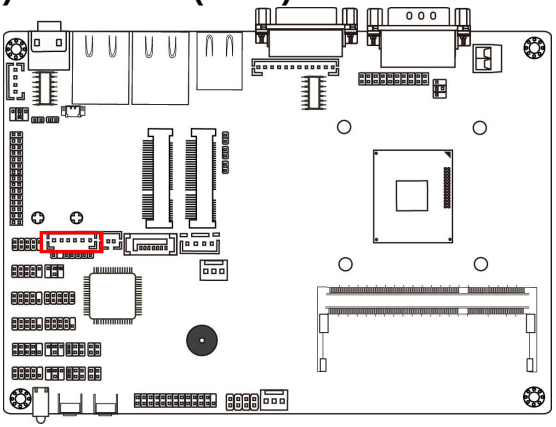


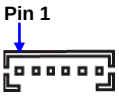


LVDS Header

Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	LVDS_VCC	Pin 2	LVDS_VCC
Pin 3	LVDS_VCC	Pin 4	GND
Pin 5	GND	Pin 6	GND
Pin 7	LVDSA_DATAN0	Pin 8	LVDSA_DATAP0
Pin 9	LVDSA_DATAN1	Pin 10	LVDSA_DATAP1
Pin 11	LVDSA_DATAN2	Pin 12	LVDSA_DATAP2
Pin 13	GND	Pin 14	GND
Pin 15	LVDSA_CLKN	Pin 16	LVDSA_CLKP
Pin 17	LVDSA_DATAN3	Pin 18	LVDSA_DATAP3
Pin 19	LVDSB_DATAN0	Pin 20	LVDSB_DATAP0
Pin 21	LVDSB_DATAN1	Pin 22	LVDSB_DATAP1
Pin 23	LVDSB_DATAN2	Pin 24	LVDSB_DATAP2
Pin 25	GND	Pin 26	GND
Pin 27	LVDSB_CLKN	Pin 28	LVDSB_CLKP
Pin 29	LVDSB_DATAN3	Pin 30	LVDSB_DATAP3

(10) INVERTER (6-Pin): LVDS Inverter Header

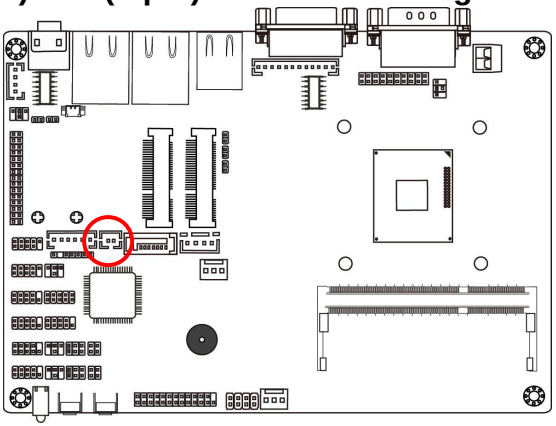


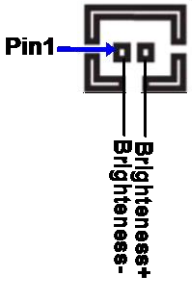


Pin No.	Definition
1	BKLT_PWR1
2	BKLT_PWR2
3	BKLT_EN
4	BKLT_PWM
5	GND1
6	GND2

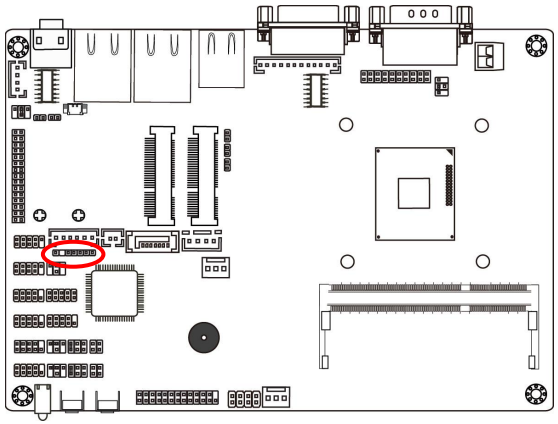
Warning! **Find Pin-1 location of the inverter and make sure that the installation direction is correct! Otherwise serious harm will occur to the board/display panel!!**

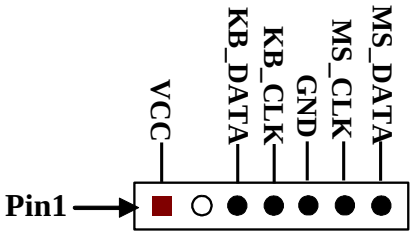
(11) JP8 (2-pin): LVDS Panel Brightness Adjustment Header



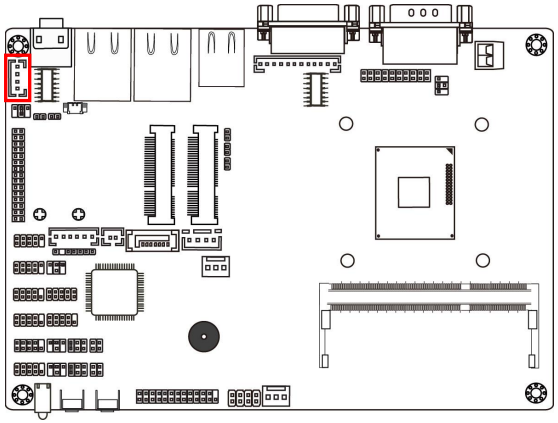


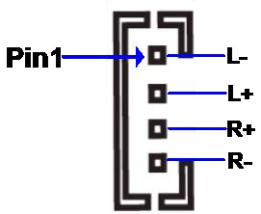
(12) PS2_CON1 (6-pin): PS/2 Keyboard & Mouse Header





(13) SPEAKER_CON (4-pin): Speaker Header





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.

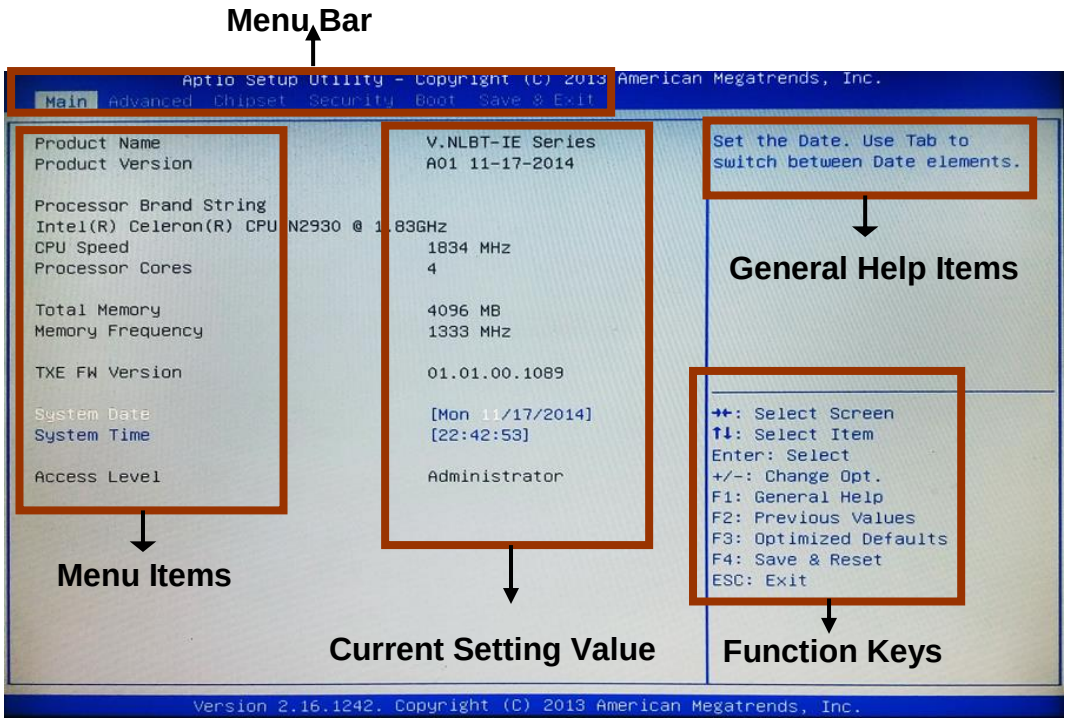
3-1 Entering Setup

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

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



BIOS Menu Screen

3-3 Function Keys

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

- Press←→ (left, right) to select screen;

- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press **<Enter>** to select.
- Press **<+>/<–>** keys when you want to modify the BIOS parameters for the active option.
- **[F1]:** General help.
- **[F2]:** Previous value.
- **[F3]:** Optimized defaults.
- **[F4]:** Save & Reset.
- Press **<Esc>** to quit the BIOS Setup.

3-4 Getting Help

Main Menu

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

Status Page Setup Menu/Option Page Setup Menu

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

3-5 Menu Bars

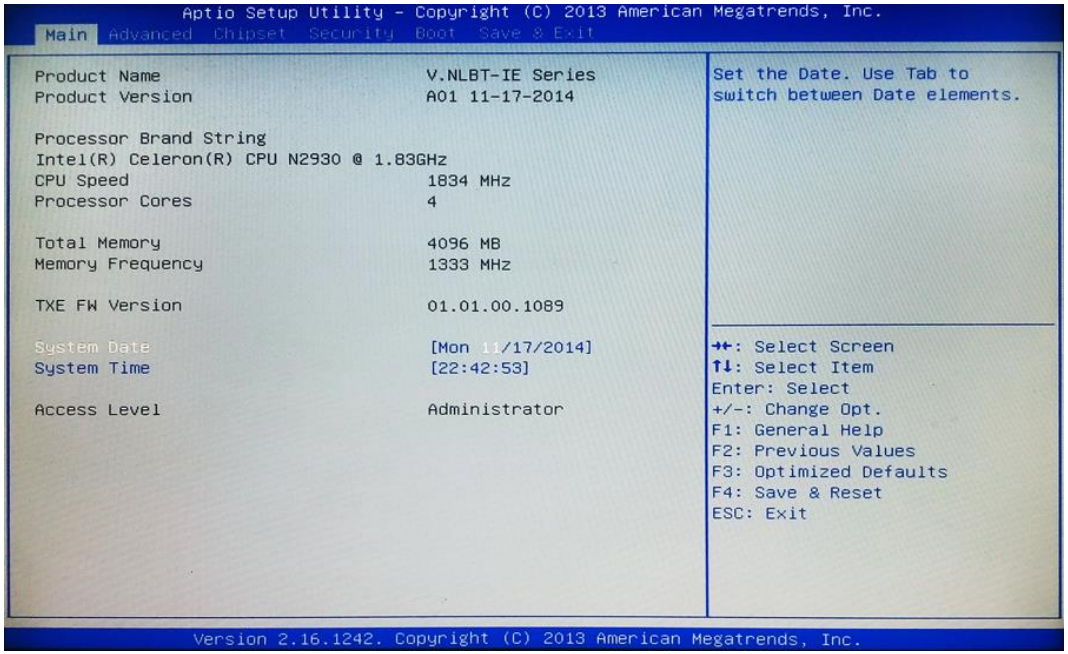
There are six menu bars on top of BIOS screen:

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

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

3-6 Main Menu

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



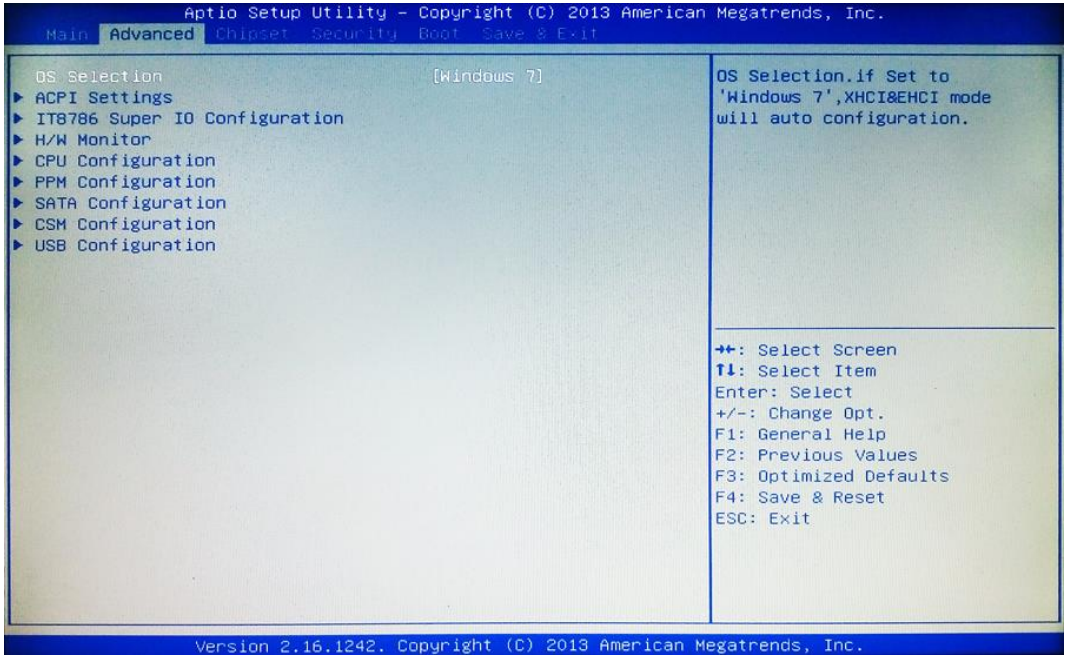
System Date

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

System Time

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

3-7 Advanced Menu



OS Selection

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

In the case that OS selection is set as [Windows 7], XHCI & EHCI mode will be auto configuration.

***Note:** User need to go to this item to select the OS mode before installing corresponding OS driver, otherwise problems will occur when installing the driver.*

- **ACPI Settings**

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

  ACPI Settings

  Enable Hibernation

  Use this item to enable or disable system ability to hibernate (OS S4 Sleep State). This option may be not effective with some OS.

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

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)].

EUP Function

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

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

Wake-Up by PCIE/LAN from S5

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

**This function is supported when EUP Function is set as [Disabled].*

Wake-Up by PS/2 Keyboard

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

Use this function to enable or disable PS/2 keyboard wake-up from S3/S4/S5.

**This function is supported when EUP Function is set as [Disabled].*

Wake-Up by PS/2 Mouse

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

Use this function to enable or disable PS/2 mouse wake-up from S3/S4/S5.

**This function is supported when EUP Function is set as [Disabled].*

PWRON After PWR-Fail

The optional settings are: [Former-Sts]; [Always on]; [Always off].

**This function is supported when EUP Function is set as [Disabled].*

RTC WakeUp

The optional settings: [Disabled]; [Fixed Time]; [Dynamic Time].

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

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

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

**This function is supported when EUP Function is set as [Disabled].*

- **IT8786 Super I/O Configuration**

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

IT8786 Super IO Configuration

- **Serial Port 1 Configuration/Serial Port 4 Configuration/ Serial Port 5**

Configuration /Serial Port 6 Configuration

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

Serial Port Configuration

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 2 Configuration /Serial Port 3 Configuration**

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

Serial Port Configuration

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.

Transmission Mode Select

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

- **Parallel Port Configuration**

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

Parallel Port Configuration

Parallel Port

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

Change Settings

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

Device Mode

Use this item to change the printer port mode.

The optional settings are: [Standard Parallel Port mode (SPP)]; [EPP Mode]; [ECP Mode]; [EPP mode & ECP Mode].

WatchDog Timer

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

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 [1] to [65535].

WatchDog Timer Unit

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

Case Open Detect

Use this item to detect case has already open or not, show message in POST.
The optional settings: [Disabled]; [Enabled].

- **H/W Monitor**

Press [Enter] to view current PC health status & system working status and make settings for the following sub-items:

CPUFAN Smart Mode

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

FAN off temperature limit

Use this item to set CPUFAN off temperature value. The fan will be off when temperature is lower than this preset limit.

FAN start temperature limit

Use this item to set CPUFAN start temperature value. The fan will start to work when temperature is higher than this preset limit.

FAN full speed temperature

Use this item to set CPUFAN full speed temperature. Fan will run at full speed when temperature is higher than this preset limit.

- **CPU Configuration**

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

Active Processor Cores

Use this item to set the number of cores to enable in each processor packages.

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 enable the Mid Level Cache (L2) streamer prefetcher.

Adjacent Cache Line Prefetch

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

Use this item to enable the Mid Level Cache (L2) 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.

Power Technology

Use this item to enable the power management features.

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

When set as [Custom**], user can make further settings in the following sub-items:*

EIST

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

Use this item to enable or disable Intel SpeedStep.

Turbo Mode

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

P-STATE Coordination

Use this item to change P-STATE coordination type.

The optional settings: [HW_ALL]; [SW_ALL]; [SW_ANY].

CPU C6 report

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

Use this item to enable or disable CPU C6 (ACPI C3) report to OS.

CPU C7 report

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

Use this item to enable or disable CPU C7 (ACPI C3) report to OS.

Package C State Limit

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

- **PPM Configuration**

Press [Enter] to make settings for PPM Configuration:

PPM Configuration:

EIST

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

CPU C Status Report

The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable CPU C status report to OS.
When set as [Enabled**], the following sub-items shall appear:*

Max CPU C-state

This option controls Max C state that the processor will support.
The optional settings: [C7]; [C6]; [C1].

- **SATA Configuration**

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

SATA Configuration

SATA Port

The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable Serial ATA port.

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 ODD Port

The optional settings are: [Port0 ODD]; [Port1 ODD]; [No ODD].

SATA Mode

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

SATA1 or HDD

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

SATA1 or HDD HotPlug

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

SATA Port2

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

SATA Port2 HotPlug

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

Use this item to enable or disable support for SATA Port2 HotPlug function.

- **CSM Configuration**

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

Compatibly Support Module Configuration

Option ROM Message

Use this item to set display mode for option ROM.

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

INT19 Trap Response

This item is for BIOS reaction on INT19 trapping by Option ROM.

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

[Immediate]: To execute the trap right away;

[Postponed]: To execute the trap during legacy boot.

Option ROM execution order

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].

Video

This item controls the execution of UEFI and Legacy Video 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].

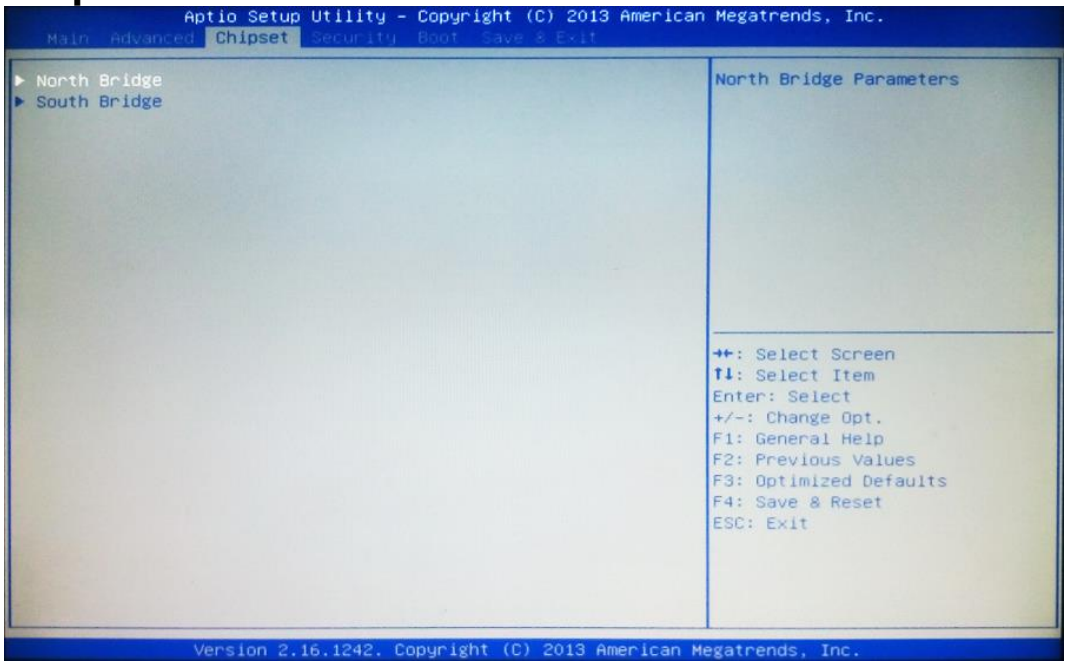
EHCI Hand-off

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].

3-8 Chipset Menu



- **North Bridge**

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

IGD Turbo Enable

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

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]; [128M]; [256M]; [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].

Spread Spectrum Clock

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

RC6(Render Standby)

Use this item to enable or disable render standby support.

Primary IGFX Boot Display

Use this item to select the video device which will be activated during POST.

The optional settings are: [VBIOS Default]; [CRT]; [HDMI]; [LVDS].

LVDS Support

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

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

LVDS Panel Type

Use this item to select LVDS panel used by Internal Graphics Device by selecting the appropriate setup item.

- **South Bridge**

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

Onboard PCIE Lan1 Device

Use this item to enable or disable the PCI Express port 1 in the chipset.

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

Speed

Use this item to configure PCIE port speed.

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

Mini PCIE

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

Onboard PCIE Lan2 Device

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

Onboard Lan BootROM

Use this item to enable or disable boot option ROM for onboard network devices.
The optional settings are: [Disabled]; [All]; [Lan1]; [Lan2].

USB 3.0 (XHCI) Support

The optional settings are: [Enabled]; [Disabled].
**** Note:** When set as [Disable], '**USB 2.0 (EHCI) Support**' is applicable, for user to make further settings.*

USB 2.0 (EHCI) Support

The optional settings are: [Enabled]; [Disabled].
This item controls the USB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.
**** Note:** When set as [Enabled], '**USB 3.0 (XHCI) Support**' is applicable, for user to make further settings.*

Audio Controller

Use this item to control the detection of the Azalia HD Audio device.
The optional settings are: [Disabled]; [Enabled].
[**Disabled**]: Azalia will be unconditionally disabled;
[**Enabled**]: Azalia will be unconditionally enabled;
When set as [**Enabled**], user can make settings in 'Azalia HDMI Codec
' that appears:

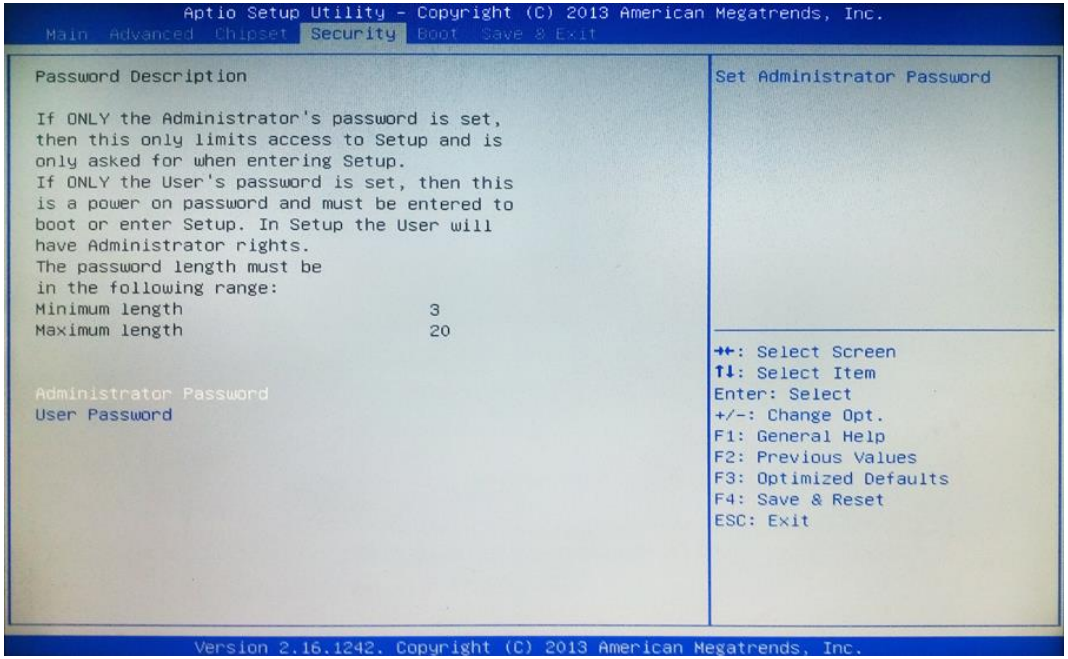
Azalia HDMI Codec

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

High Precision Timer

Use this item to enable or disable the high precision event timer.
The optional settings are: [Enabled]; [Disabled].

3-9 Security Menu



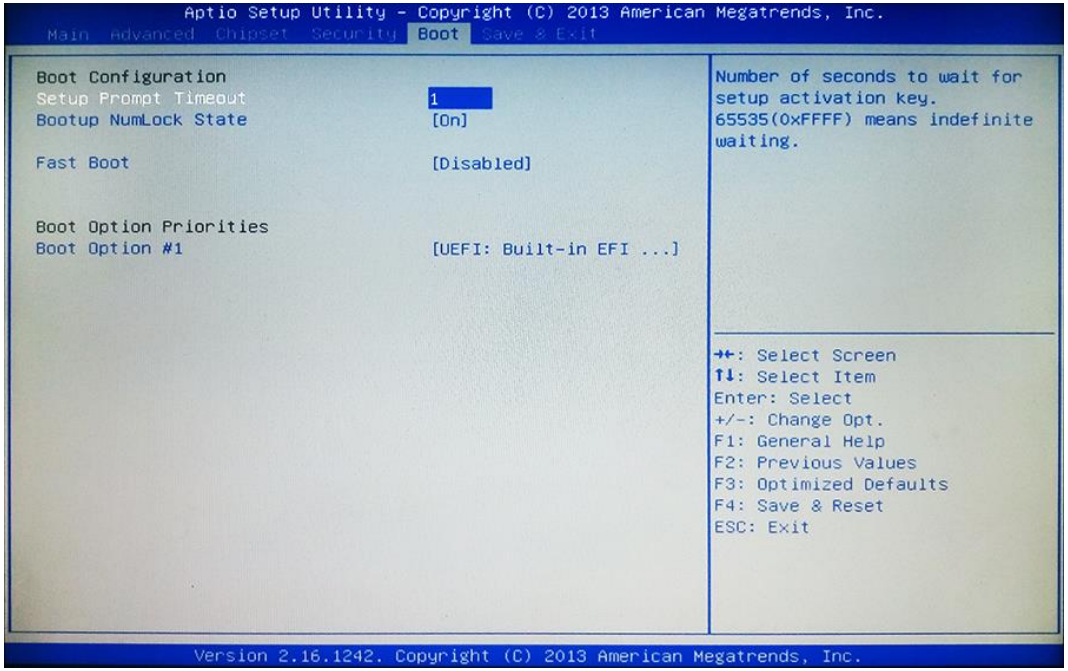
Administrator Password

This item allows user to set administrator password.

User Password

This item allows user to set user password.

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].

Fast Boot

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

When set as [Enabled], user can make settings in the following items that appear:

VGA Support

The optional settings are: [Auto]; [EFI Driver].

*When set as [Auto], it will only install Legacy OpROM with Legacy OS and logo

will not be shown during POST. EFI driver will still be installed with EFI OS.

USB Support

The optional settings are: [Disabled]; [Full Initial]; [Partial Initial].

[Disabled]: All USB devices will NOT be available until after OS boot;

[Partial Initial]: USB mass storage and specific USB port/device will NOT be available before OS boot;

[Full Initial]: All USB devices will NOT be available in OS and POST.

PS2 Devices Support

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

The PS2 devices will be skipped if this is set as [Disabled].

Network Stack Driver Support

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

Network Stack Driver will be skipped if this is set as [Disabled].

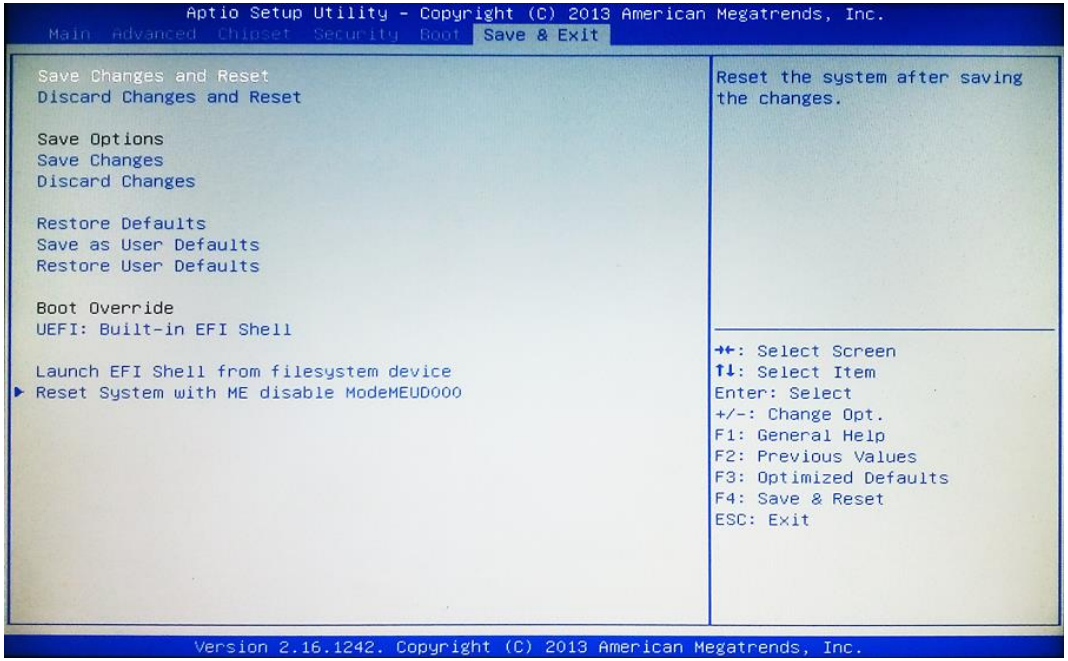
Boot Option Priorities

Boot Option # 1/#2…

Use this item to set system boot order.

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.

Save Options

Save Changes

This item allows user to save changes done so far to any of the setup options.

Discard Changes

This item allows user to discard changes done so far to any of the setup options.

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 Oerride

UEFI: Built-in EFI Shell

Press this item and a dialogue box shall appear to ask if user wish to save configuration and reset.

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 ME disable Mode MEUD000

Press [Enter] for ME to run into the temporary disable mode. Ignore if ME Ignition FWMEUD001.