Technical Manual

Of

Intel Bay Trail Series CPU

Based Mini-ITX M/B

NO.G03-NF9T-F

Revision: 2.0

Release date: October 1, 2019

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.

TABLE OF CONTENT

Environmental Safety Instruction

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

- 0 to 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
2.0	Second Edition	October 1, 2019

Item Checklist

- ☑ Motherboard
- ☑ 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 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 display output
- Support USB 3.0 data transport demand
- Support CPU Smart FAN
- Compliance with ErP standard
- Support Watchdog function

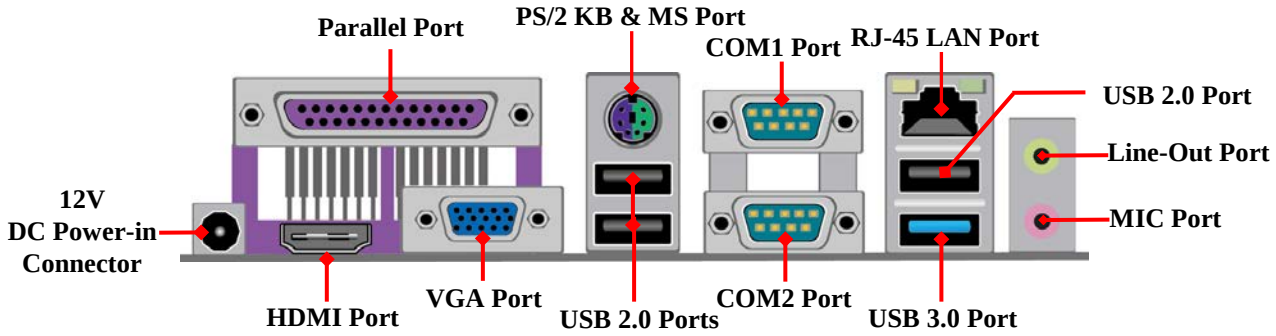
1-2 Specification

Spec	Description
Design	● 6 layers; PCB size: 17x 17 cm
Embedded CPU	● Integrated with Intel® Bay Trail-D/M/I series CPU
Memory Slot	● 1* DDR3L SODIMM Slot for un-buffered DDR3L 1066* Mhz or 1333* Mhz SDRAM, expandable to 8GB ****Memory clock supporting range is decided by specific CPU of the model.*** *For more memory compatibility information please consults your local dealer.*
Expansion Slot	● 1* Half-size Mini-PCIE slot ● 1* PCIE x1 slot
LAN Chip	● Integrated with Intel 82583V PCI-E Gigabit LAN chip ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	● Realtek ALC662 2-CH HD Audio Codec integrated ● Audio driver and utility included
Storage	● 2* SATAII 3Gb/s port ● 1* mSATA slot ***(shared with SATA2 port)***
BIOS	● AMI 64MB Flash ROM
Rear I/O	● 1* DC 12V power-in connector ● 1* Parallel port ● 1* HDMI port ● 1* VGA port ● 1* PS/2 keyboard & mouse combo port ● 2* COM port ● 3* USB 2.0 port ● 1* USB 3.0 port ● 1* RJ-45 LAN port ● 1* Line-out port ● 1* MIC port

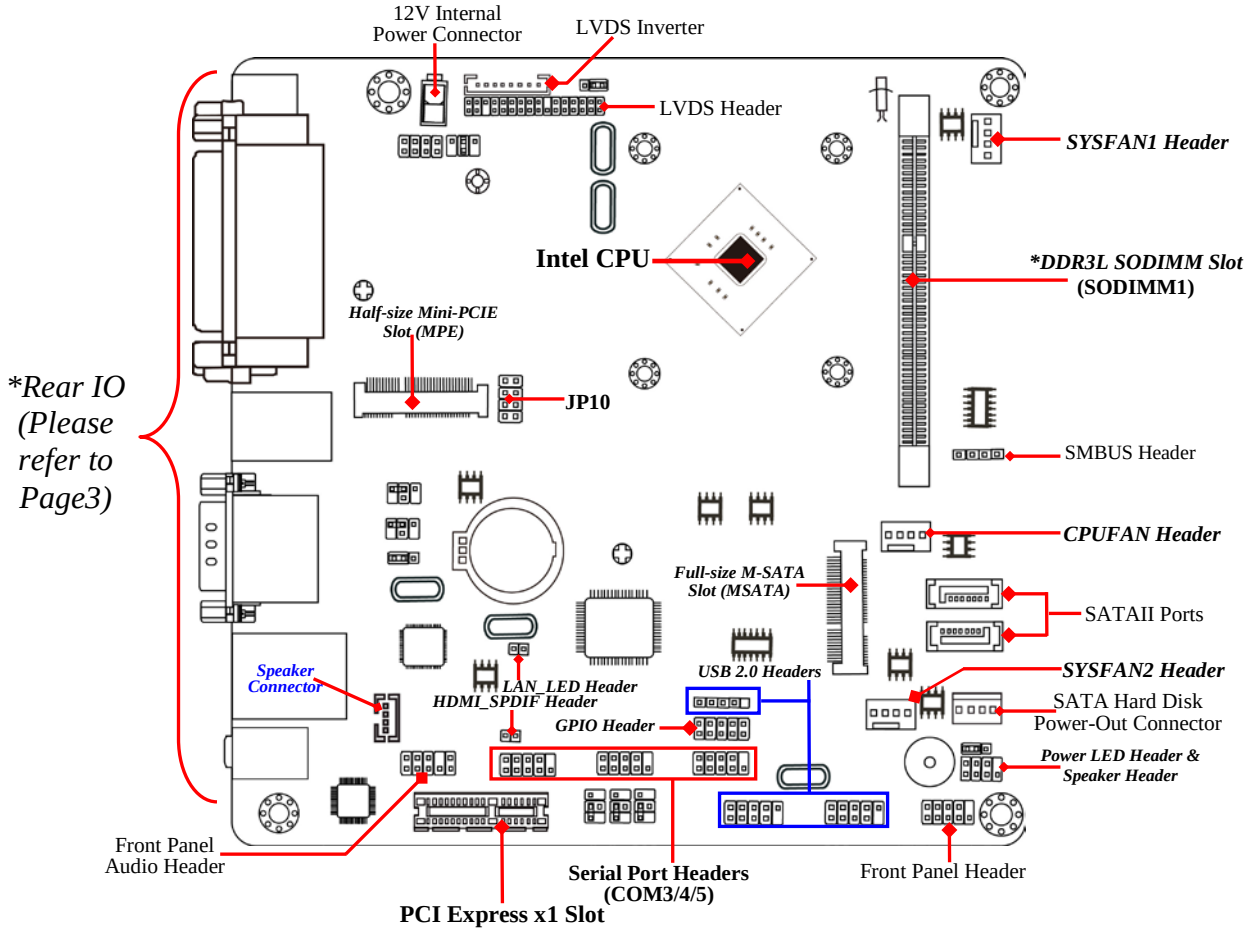
Internal I/O	● 1* DC 12V internal power connector ● 1* SATA Power connector ● 1* CPU FAN connector ● 2* SYSFAN connector ● 1* Front panel audio header ● 1* SPDIF Out header ● 1* LAN LED activity header ● 1* SPEAK_CON header ● 3* Serial port header ● 2* 9-pin USB 2.0 header (Expansible to 4* USB 2.0 ports) ● 1* 4-pin USB 2.0 header (Expansible to 1* USB 2.0 ports) ● 1* Front panel header ● 1* Power LED & speaker header ● 1* GPIO_CON header ● 1* SMBUS header ● 1* LVDS inverter ● 1* LVDS header

1-3 Layout Diagram

Rear IO Panel Diagram:

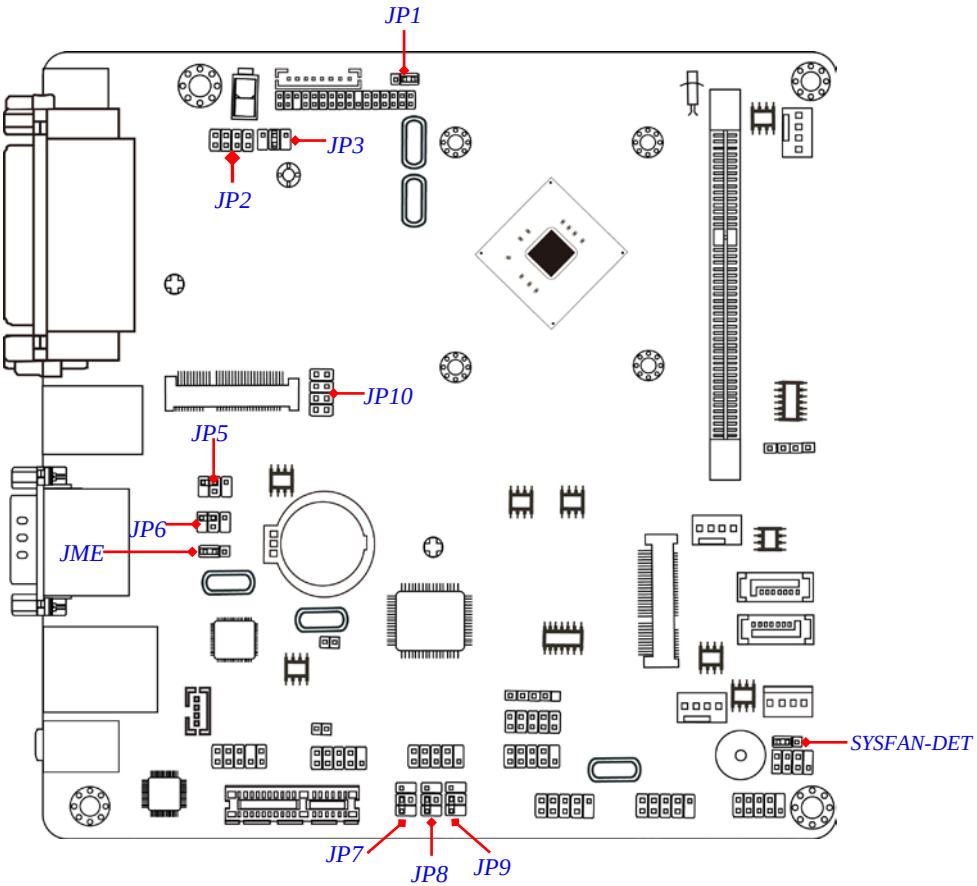


Motherboard Internal Diagram



Note: 1.*The module for* ***SODIMM1*** *should be* ***DDR3L 1.35V*** *SODIMM and* ***not exceeding 8GB total capacity****.* ***2****. The SODIMM installed should be of or above the memory clock the model supported, otherwise the board will not start.* ***3. MSATA*** *slot shares function with* ***SATA2*** *port; i.e. only one can function at a time.*

Jumper Position:



Jumper

Jumper	Name	Description
JP10(Pin 1-2)	Disable ME Function Select	2-Pin Block
JP10(Pin 3-4)	CMOS RAM Clear Function Select	2-Pin Block
JP10(Pin 5-6)	AT Mode Function Select	2-Pin Block
JP10(Pin 7-8)	Case Open Message Display Function	2-Pin Block
JME	Clear ME RTC Function Setting	3-Pin Block
SYSFAN_DET	SYSFAN1/SYSFAN2 R.P.M. Select	3-Pin Block
JP1	LCD Back Light 5V/12V Select	3-Pin Block
JP3	LVDS PVCC 5V/3.3V /12V Select	4-Pin Block
JP6	COM1 Port Pin9 Function Select	4-Pin Block
JP5	COM2 Header Pin9 Function Select	4-Pin Block
JP7	COM3 Header Pin9 Function Select	4-Pin Block
JP8	COM4 Header Pin9 Function Select	4-Pin Block
JP9	COM5 Header Pin9 Function Select	4-Pin Block
JP2	LVDS Panel Resolution Type Select	8-Pin Block

Connectors

Connector	Name
DCIN	DC 12V Power–in Connector
J2	DC 12V Internal Power Connector
SATA1/SATA2	SATAII Port Connector
SATAPW	SATA Power out Connector
HDMI	High-Definition Multimedia Interface
VGA	VGA Port Connector
LPT	Parallel Port Connector
PS2_USB1(Top)	PS2 KB & MS Combo Connector
PS2_USB1(Bottom)	USB 2.0 Port Connector X 2
COM1_COM2	Serial Port X 2

UL1(Top)	RJ-45 LAN Port Connector
UL1(Middle)	USB 2.0 Port Connector
UL1(Bottom)	USB 3.0 Port Connector
AUDIO(Top)	Audio Line Out Connector
AUDIO(Bottom)	Audio MIC In Connector
CPUFAN	CPUFAN Connector
SYSFAN1/SYSFAN2	SYSFAN Connector X2

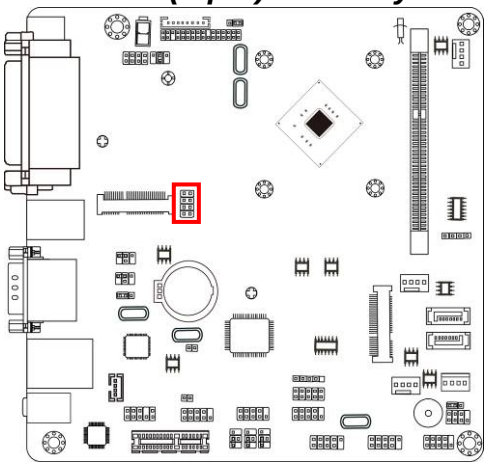
Headers

Header	Name	Description
FP_AUDIO	Front Panel Audio Header	9-pin Block
SPDIF	HDMI_SPDIF Out Header	2-pin Block
LAN_LED	LAN Activity LED Header	2-pin Block
SPEAK_CON	Speaker Header	4-pin Block
COM2/3/4	Serial Port Header X3	9-pin Block
F_USB2/ F_USB3	USB 2.0 Header X2	9-pin Block
F_USB1	USB 2.0 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
GPIO_CON	GPIO Header	10-pin Block
SMBUS	SMBUS Header	4-pin Block
INVERTER	LVDS Inverter	8-pin Block
LVDS	LVDS Header	30-pin Block

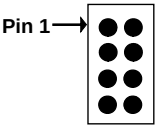
Chapter 2
Hardware Installation

2-1 Jumper Setting

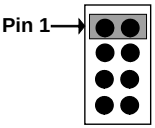
Pin 1-2 of JP10 (8-pin): Security Measure Function Select



Pin 1-2 of JP10→ Disable ME Function Select

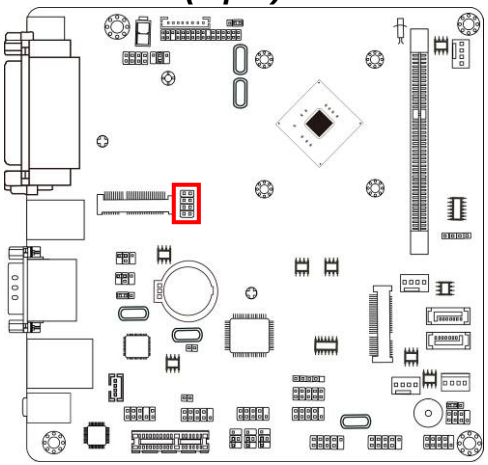


1-2 Open: Normal;

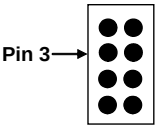


1-2 Closed:
Disable ME Function Selected.

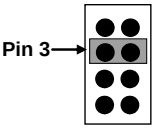
Pin 3-4 of JP10 (8-pin): Clear CMOS Setting



Pin 3-4 of JP10→ Clear CMOS Setting

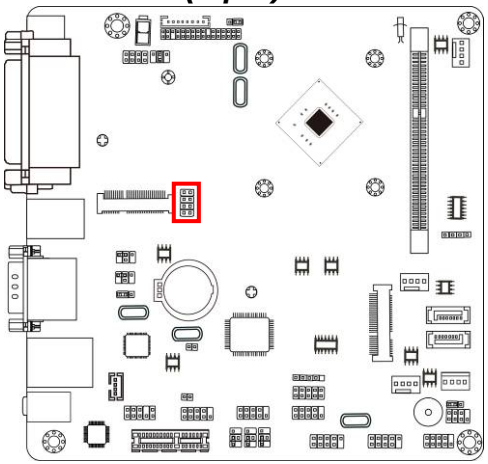


3-4 Open: Normal;

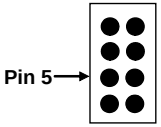


3-4 Closed: Clear CMOS.

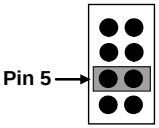
Pin 5-6 of JP10 (8-pin): AT Mode Function Select



Pin 5-6 of JP10→ AT Mode Select



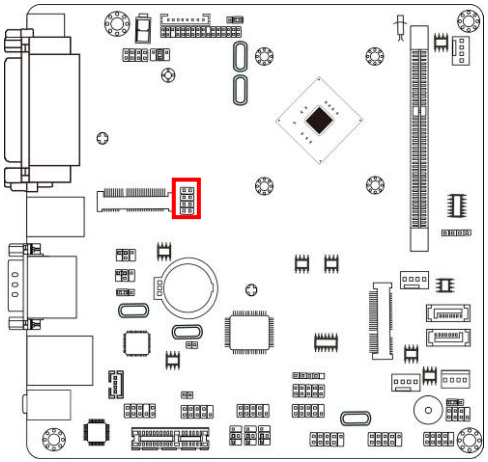
5-6 Open: ATX Mode Selected;



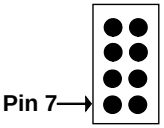
5-6 Closed: AT Mode Selected.

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

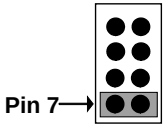
Pin 7-8 of JP10 (8-pin): Case Open Message Display Function Select



Pin 7-8 of JP10→ Case Open Function Select



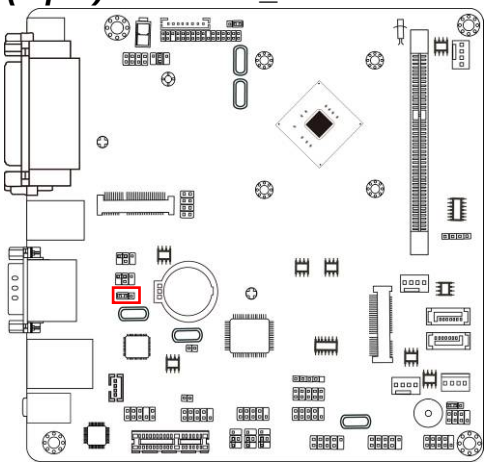
7-8 Open: Normal;



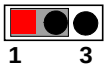
7-8 Closed: Case Open Function Selected (One Touch).

Pin 7-8 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.

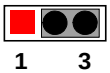
JME (3-pin): Clear ME_RTC Function Setting



JME→ Clear ME_RTC Function Setting

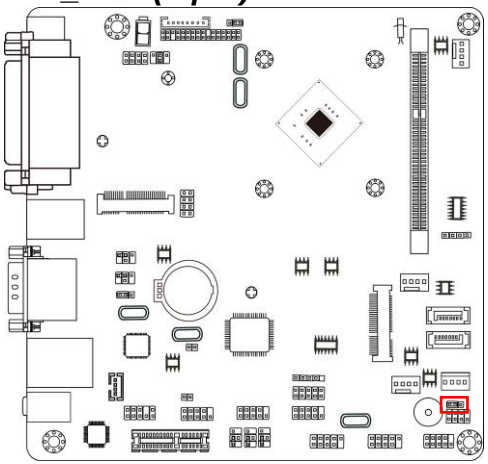


1-2 Closed Normal；

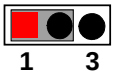


2-3 Closed：Clear ME_RTC.

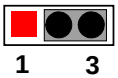
SYSFAN_DET (3-pin): SYSFAN1/SYSFAN2 R.P.M. Select



SYSFAN_DET

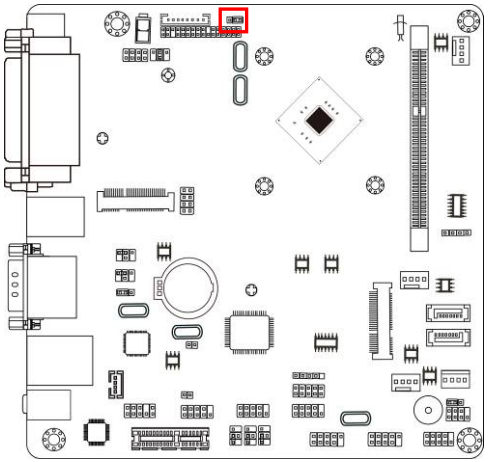


1-2 Closed：SYSFAN1 R.P.M. Selected;

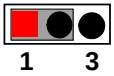


2-3 Closed：SYSFAN2 R.P.M. Selected.

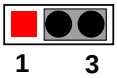
JP1 (3-pin): LCD Back Light VCC 5V/12V Select



JP1→LCD Backlinght

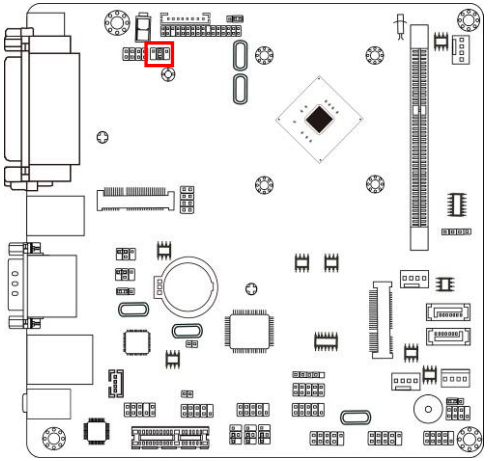


1-2 Closed：VCC=5V;

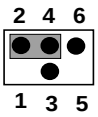


2-3 Closed：VCC=12V.

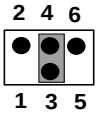
JP3 (4-pin): LVDS PVCC 3.3V/5V/12V Function Select



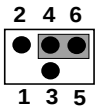
JP3→LVDS PVCC



2-4 Closed:
VCC=3.3V;

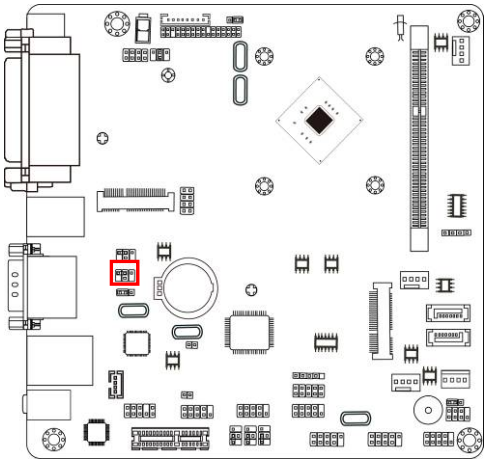


3-4 Closed:
VCC= 5V;

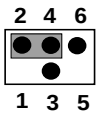


4-6 Closed:
VCC= 12V.

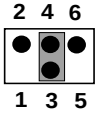
JP6 (4-pin): COM1 Port Pin9 Function Select



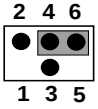
JP6→COM1



2-4 Closed:
RI=RS232;

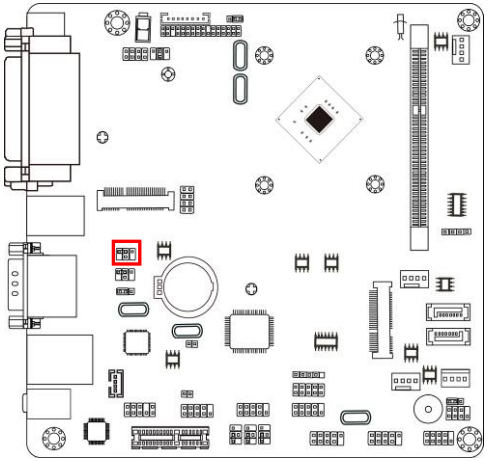


3-4 Closed:
RI= 5V;

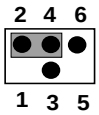


4-6 Closed:
RI= 12V.

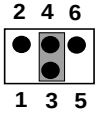
JP5 (4-pin): COM2 Header Pin9 Function Select



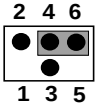
JP5→COM2



2-4 Closed:
RI=RS232;

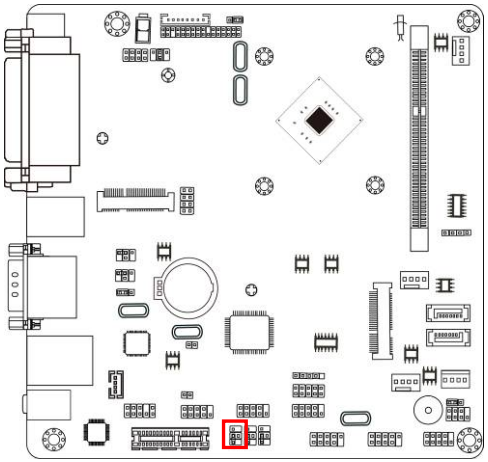


3-4 Closed:
RI= 5V;

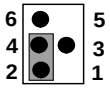


4-6 Closed:
RI= 12V.

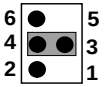
JP7 (4-pin): COM3 Header Pin9 Function Select



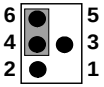
JP7→COM3 Header



2-4 Closed:
RI=RS232;

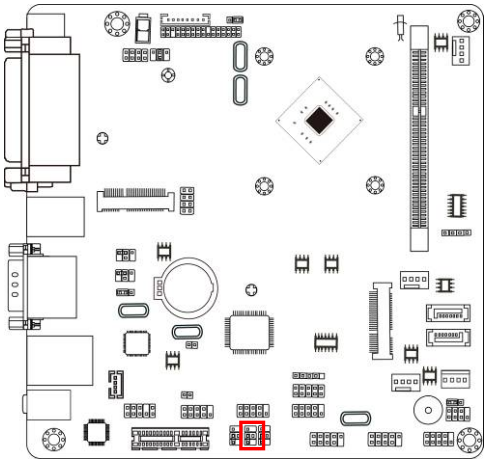


3-4 Closed:
RI= 5V;

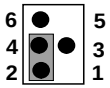


4-6 Closed:
RI= 12V.

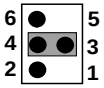
JP8 (4-pin): COM4 Header Pin9 Function Select



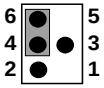
JP8→COM4 Header



2-4 Closed:
RI=RS232;

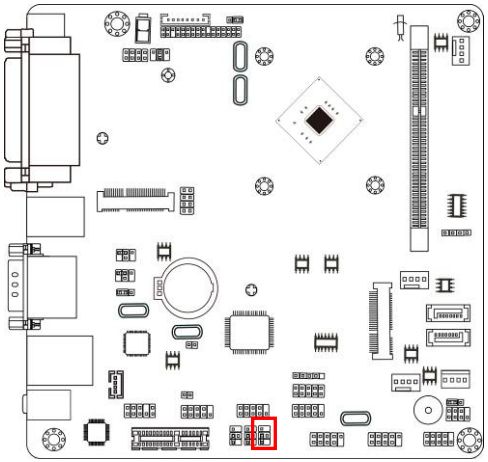


3-4 Closed:
RI= 5V;

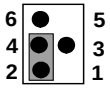


4-6 Closed:
RI= 12V.

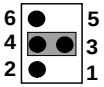
JP9 (4-pin): COM5 Header Pin9 Function Select



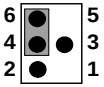
JP9→COM5 Header



2-4 Closed:
RI=RS232;

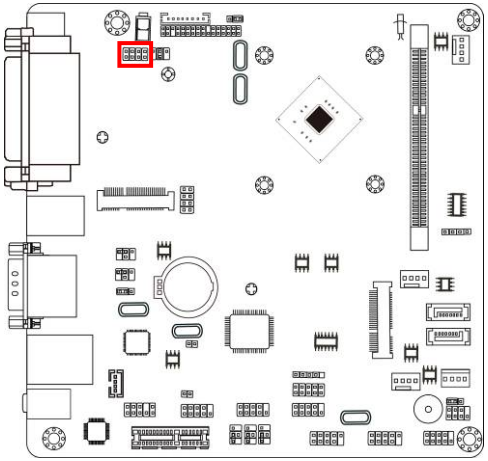


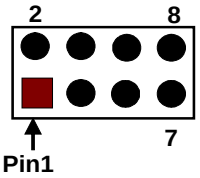
3-4 Closed:
RI= 5V;



4-6 Closed:
RI= 12V.

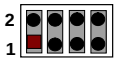
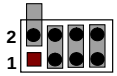
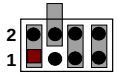
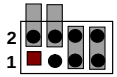
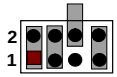
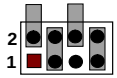
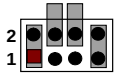
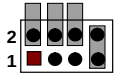
JP2 (8-pin): LVDS Panel Resolution Type Select

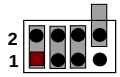
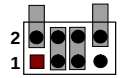
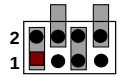
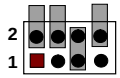
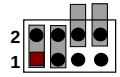
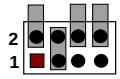
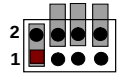
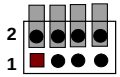




User can select **Panel** resolution by jumper settings. There are two basic setting modes:

- *Short: in which user can close pin 1-pin2, pin3-pin4, pin5-pin6, pin7-pin8 respectively;*
- *Open: in which user leave jumper hat just in pin 2, pin4, pin6 or pin8.*

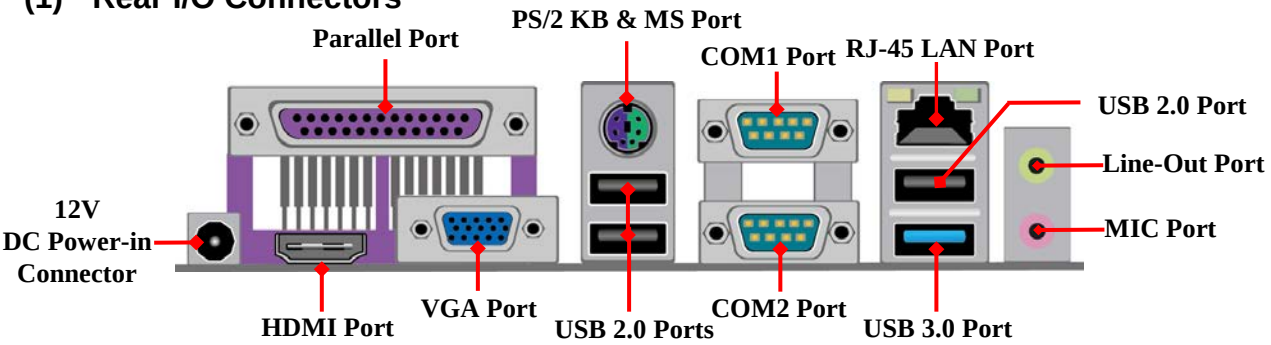
Option	Jumper Setting	Description	Panel Resolution	Color Depth
1		**Pin 1-2: Short** **Pin 3-4: Short** **Pin 5-6: Short** **Pin 7-8: Short**	640 x 480 @ 60Hz	18-bit
2		**Pin 1-2: Open** **Pin 3-4: Short** **Pin 5-6: Short** **Pin 7-8: Short**	800 x 600 @ 60Hz	18-bit
3		**Pin 1-2: Short** **Pin 3-4: Open** **Pin 5-6: Short** **Pin 7-8: Short**	1024 x 600 @ 60Hz	18-bit
4		**Pin 1-2: Open** **Pin 3-4: Open** **Pin 5-6: Short** **Pin 7-8: Short**	1024 x 768 @ 60Hz	24-bit
5		**Pin 1-2: Short** **Pin 3-4: Short** **Pin 5-6: Open** **Pin 7-8: Short**	1280 x 720 @ 60Hz	18-bit
6		**Pin 1-2: Open** **Pin 3-4: Short** **Pin 5-6: Open** **Pin 7-8: Short**	**800 x 480 @ 60Hz**	**18-bit**
7		**Pin 1-2: Short** **Pin 3-4: Open** **Pin 5-6: Open** **Pin 7-8: Short**	1366 x 768 @ 60Hz	18-bit
8		**Pin 1-2: Open** **Pin 3-4: Open** **Pin 5-6: Open** **Pin 7-8: Short**	**1440 x 900 @ 60Hz**	**18-bit**

9		**Pin 1-2: Short** **Pin 3-4: Short** **Pin 5-6: Short** **Pin 7-8: Open**	1366 x 768 @ 60Hz	24-bit
10		**Pin 1-2: Open** **Pin 3-4: Short** **Pin 5-6: Short** **Pin 7-8: Open**	1440 x 900 @ 60Hz	24-bit
11		**Pin 1-2: Short** **Pin 3-4: Open** **Pin 5-6: Short** **Pin 7-8: Open**	1280 x 1024 @ 60Hz	24-bit
12		**Pin 1-2: Open** **Pin 3-4: Open** **Pin 5-6: Short** **Pin 7-8: Open**	1440 x 1050 @ 60Hz	24-bit
13		**Pin 1-2: Short** **Pin 3-4: Short** **Pin 5-6: Open** **Pin 7-8: Open**	1600 x 900 @ 60Hz	24-bit
14		**Pin 1-2: Open** **Pin 3-4: Short** **Pin 5-6: Open** **Pin 7-8: Open**	1680 x 1050 @ 60Hz	24-bit
15		**Pin 1-2: Short** **Pin 3-4: Open** **Pin 5-6: Open** **Pin 7-8: Open**	1600 x 1200 @ 60Hz	24-bit
16		**Pin 1-2: Open** **Pin 3-4: Open** **Pin 5-6: Open** **Pin 7-8: Open**	1920 x 1080 @ 60Hz	24-bit

2-2 Connectors and Headers

2-2-1 Connectors

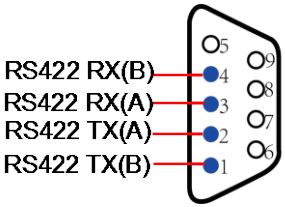
(1) Rear I/O Connectors



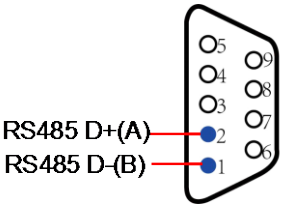
(2) COM1 (9-pin Block): RS232/422/485 Port

COM1 port can function as RS232/422/485 port. In normal settings COM1 functions as RS232 port. With compatible COM cable COM1 can function as RS422 or RS 485 port.

User also needs to go to BIOS to set '**Transmission Mode Select**' for COM1 (refer to Page 32) at first, before using specialized cable to connect different pins of this port.

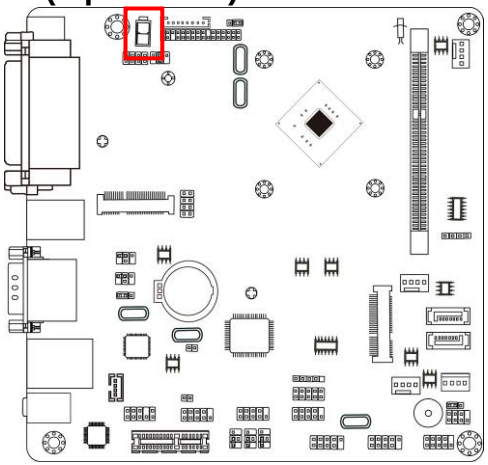


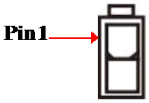
For RS422 Mode



For RS485 Mode

(3) J1 (2-pin Block): DC12V Power-in Connector

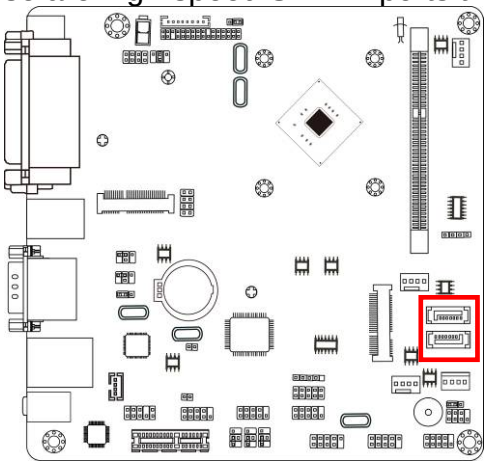




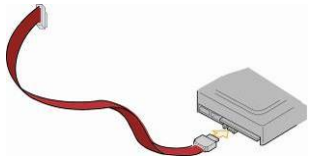
Pin No.	Definition
1	+12V DC_IN
2	GND

(4) SATA1/SATA2(7-pin Block): SATAII Port connector

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

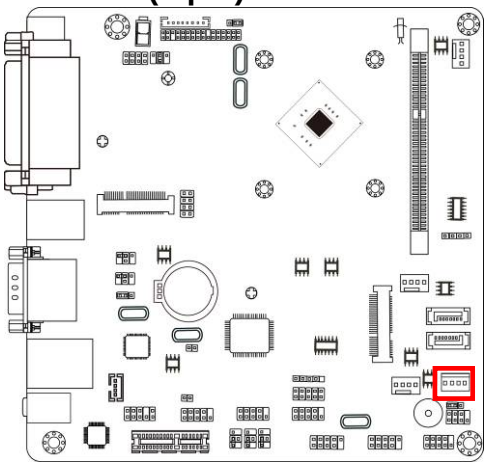


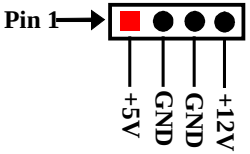
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



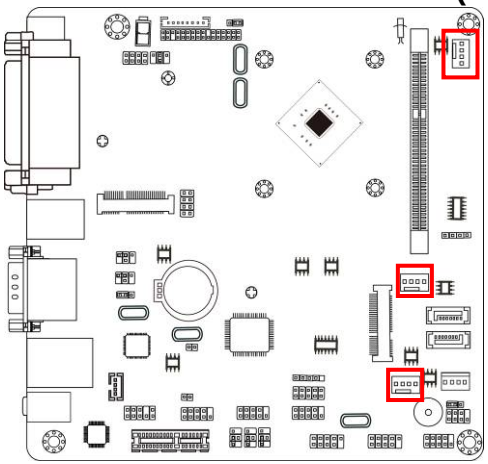
**** Note:** SATA2 shares with MSATA.*

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





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

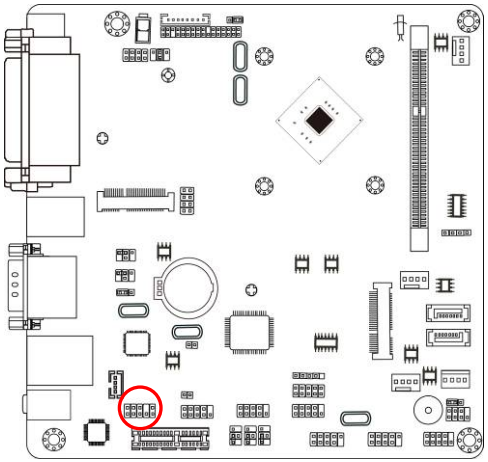


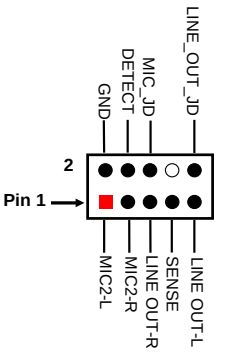
No.	Definition
1	GND
2	+12V Fan Power
3	Fan Speed
4	Control

2-2-2 Headers

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

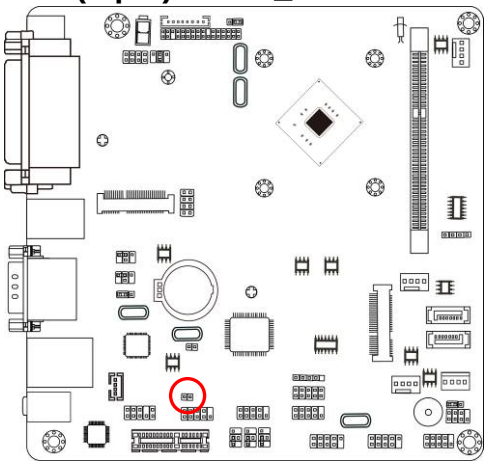
This header connects to Front Panel Line-out, MIC-In connector with cable.

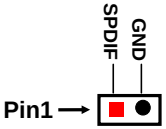




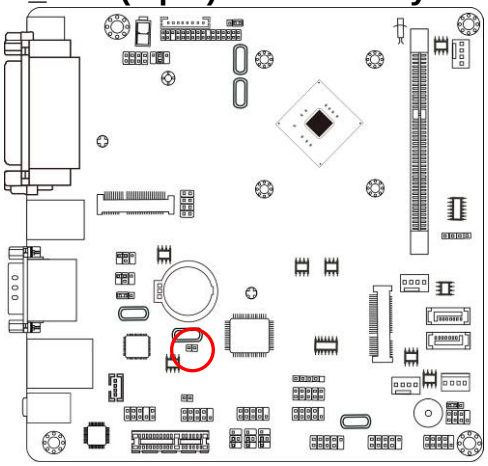
Line-Out, MIC Header

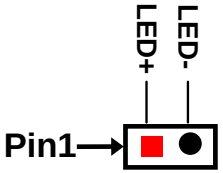
(2) SPDIF (2-pin): HDMI_SPDIF Out Header



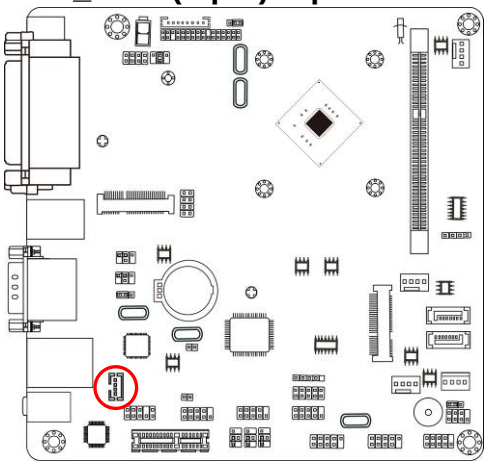


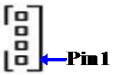
(3)LAN_LED (2-pin): LAN Activity LED Header





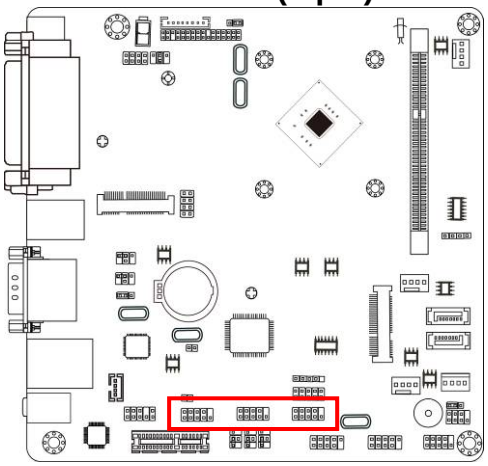
(4)SPEAK_CON (4-pin): Speaker Connector

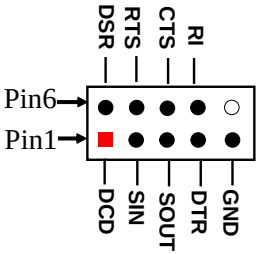




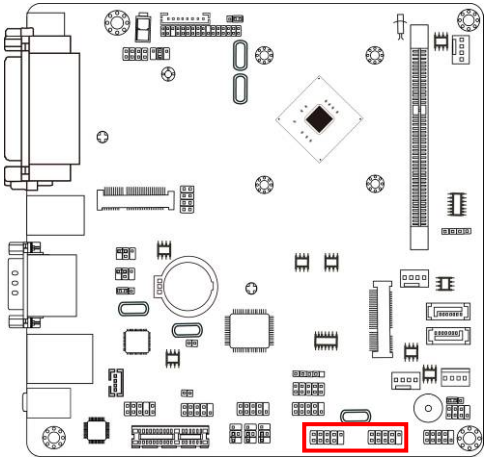
Pin No.	Definition
1	L-
2	L+
3	R+
4	R-

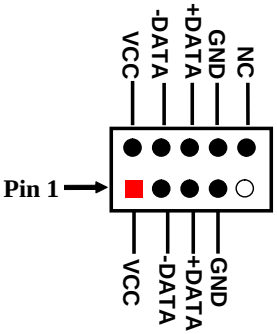
(5) COM2/COM3/COM4 (9-pin): Serial Port Headers



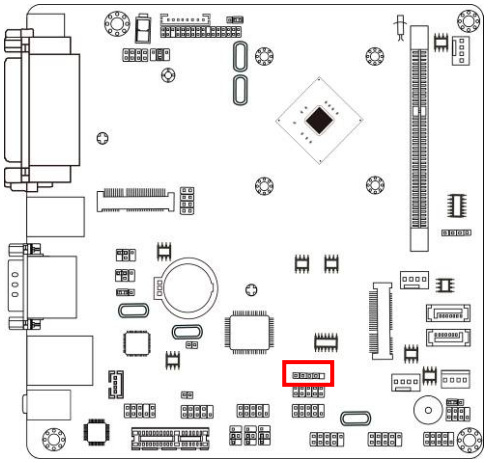


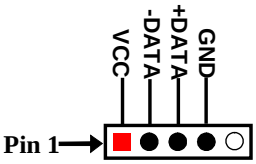
(6) F_USB2/F_USB3 (9-pin): USB 2.0 Port Headers



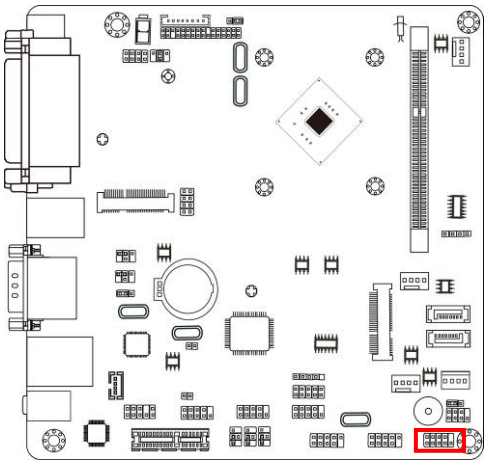


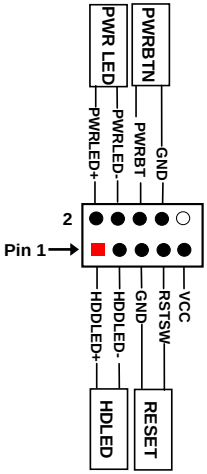
(7) F_USB1 (4-pin): USB 2.0 Port Header



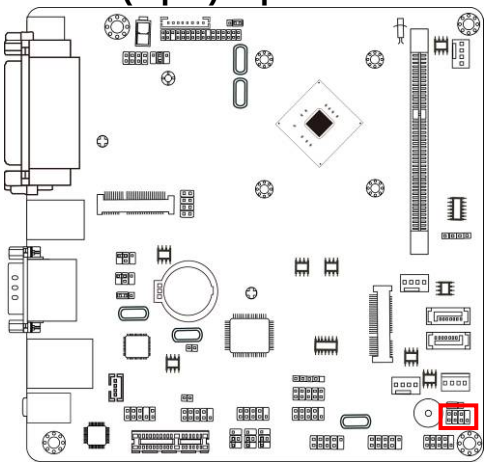


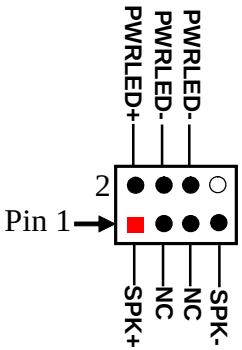
(8) JW_FP (9-pin): Front Panel Header



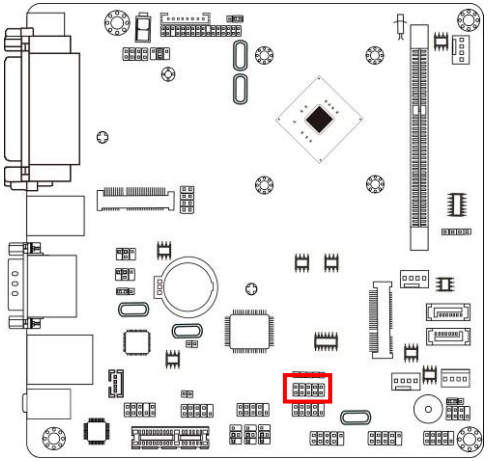


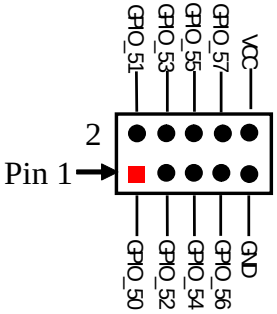
(9) SPK-LED (7-pin): Speaker Header & PWR LED Header



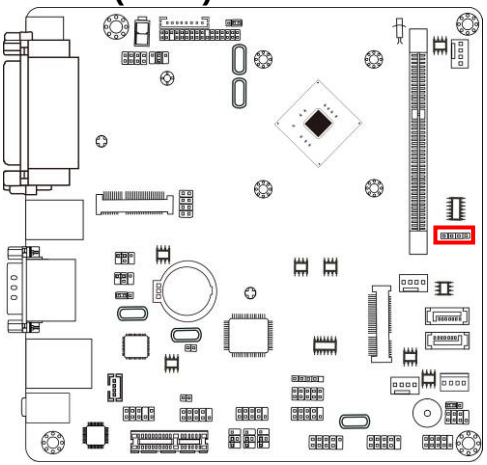


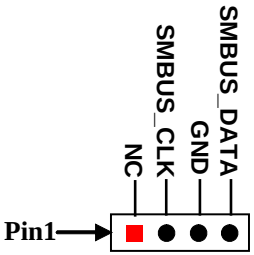
(10) GPIO_CON (10-pin): GPIO Header



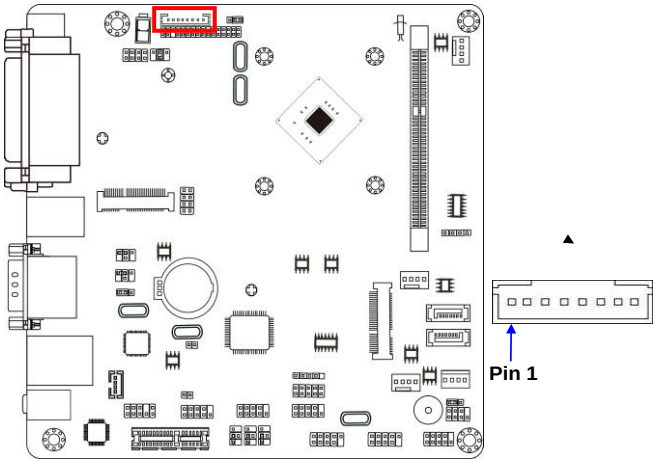


(11) SMBUS (4-Pin): SM BUS Header



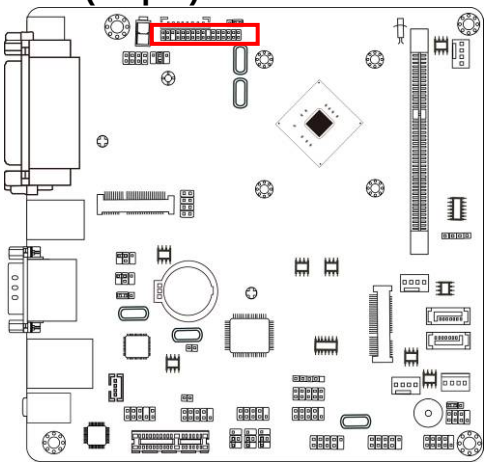


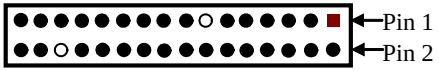
(12) INVERTER (8-pin): LVDS Inverter Connector



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

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





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

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.

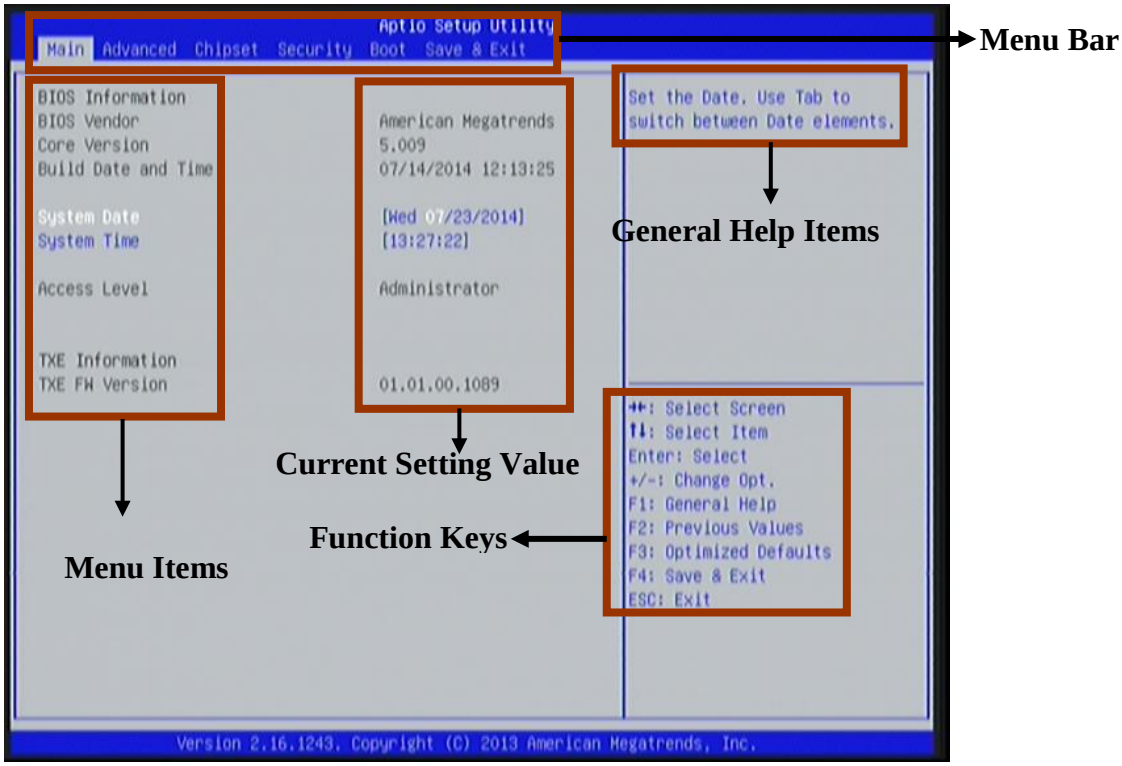
3-1 Entering Setup

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 & Exit.
- Press **<Esc>** to exit from the BIOS Setup.

3-4 Getting Help

Main Menu

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

Status Page Setup Menu/Option Page Setup Menu

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

3-5 Menu Bars

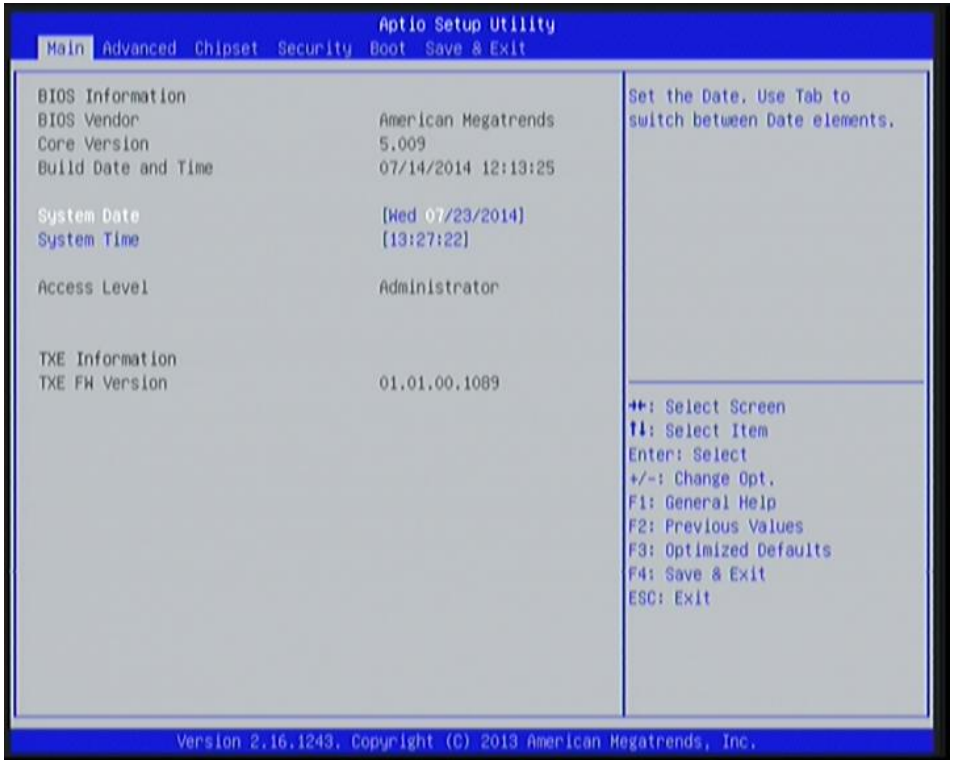
There are six menu bars on top of BIOS screen:

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

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

3-6 Main Menu

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



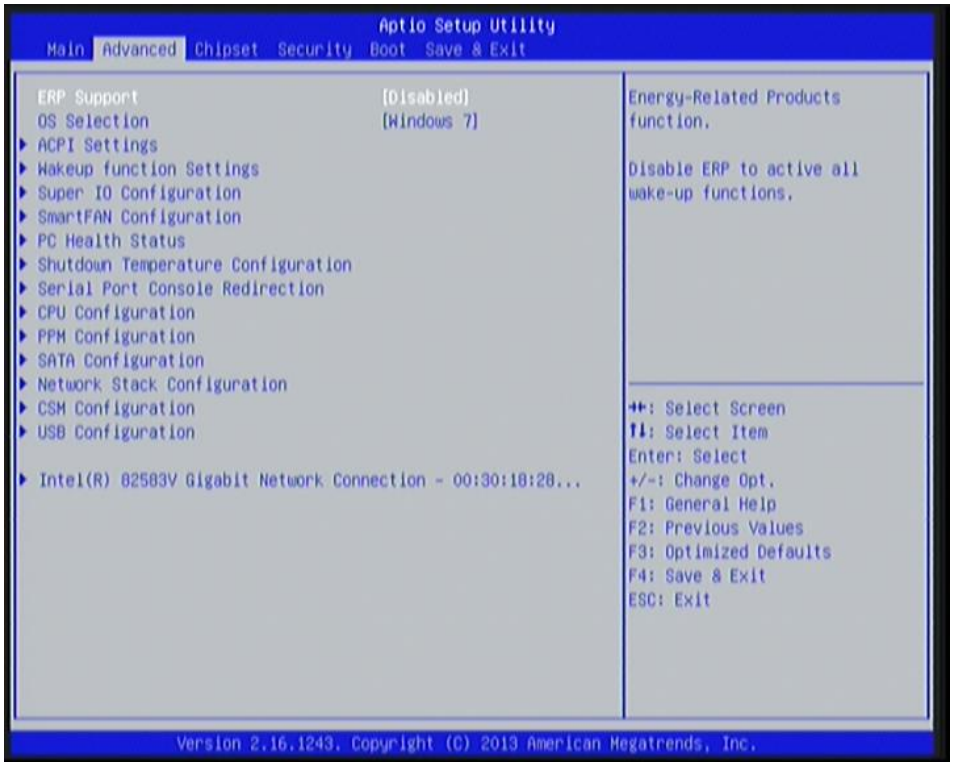
System Date

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

System Time

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

3-7 Advanced Menu



ERP Function

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

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

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 43).

- **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 System with Fixed Time

  Use this item to enable or disable system wake on alarm event. When set as [Enabled], system will wake on the hour/min/sec specified.

  PS2 KB/MS Wakeup

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

  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

  - **Serial Port 1 Configuration**

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

  Serial Port

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

  Change Settings

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

  Transmission Mode Select

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

  Mode Speed Select

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

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

- **Serial Port 2 Configuration/ Serial Port 3 Configuration/ Serial Port 4 Configuration/ Serial Port 5 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
Use this item to change the printer port mode.
The optional settings are: [STD Printer Mode]; [SPP Mode]; [EPP-1.9 and SPP Mode]; [EPP-1.7 and SPP Mode]; [ECP Mode]; [ECP and EPP 1.9 Mode]; [ECP and EPP 1.7 Mode].

WatchDog Timer
Use this item to enable or disable WatchDog Timer Control.
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.
WatchDog Timer Unit
The optional settings are: [Sec.]; [Min.].

ATX Power Emulate AT Power
This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select 'AT or ATX Mode' on MB jumper at first (ATX Mode & AT Mode Select).
Case Open Detect
This item controls detect case open function.
The optional settings are: [Enabled]; [Disabled].
PS2 KB/MS Connect
Use this item to set PS/2 connect primary device.
The optional settings are: [Keyboard First]; [Mouse First].

- **SmartFan Configuration**

Press [Enter] to make settings for SmartFan Configuration:
SmartFan Configuration

CPUFAN / SYSFAN1/2 Smart Mode
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:
CPUFAN / SYSFAN1/2 Full-Speed Temperature
Use this item to set CPUFAN/SYSFAN1/2 full speed temperature. Fan will run at full speed when above this pre-set temperature.
CPUFAN / SYSFAN1/2 Full-Speed Duty
Use this item to set CPUFAN/SYSFAN1/2 full speed duty. Fan will run at full speed when above the pre-set duty.

CPUFAN / SYSFAN1/2 Idle-Speed Temperature

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

CPUFAN / SYSFAN1/2 Idle-Speed Duty

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

- **PC Health Status**

  Press [Enter] to view current hardware health status.

- **Shutdown Temperature Configuration**

  Use this item to select system shutdown temperature.

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

- **Serial Port Consol Redirection**

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

  COM1

  Console Redirection

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

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

  - **Console Redirection Settings**

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

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

  Terminal Type

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

  Bits per second

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

  Data Bits

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

  Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty Keypad

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

Redirection After BIOS POST

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

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

Console Redirection

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

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

- **Console Redirection Settings**

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

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

Out-of-Band Mgmt Port

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 enable the Mid Level Cache (L2) streamer prefetcher.

Adjacent Cache Line Prefetch

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

Use this item to enable prefetching of adjacent cache lines.

Intel Virtualization Technology

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

Power Technology

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

- **PPM Configuration**

Press [Enter] to make settings for PPM Configuration:

PPM Configuration:

EIST

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

CPU C Status Report

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

Enhanced C state

Use this item to enable or disable Enhanced CPU C state.

Max CPU C-state

Use this item to controls Max. C state that 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 are: [Enabled]; [Disabled].

SATA Mode

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

SATA Speed Support

The item is for user to set the maximum speed the SATA controller can support.
The optional settings are: [Gen1]; [Gen2].

SATA ODD Port

The optional settings are: [Port1 ODD]; [Port2 ODD]; [No ODD].

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 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 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:

Compatibly Support Module Configuration

Option ROM Message

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

INT19 Trap Response

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

Option ROM execution order

Network

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

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

Storage

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

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

Other PCI devices

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

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

- **USB Configuration**

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

USB Configuration

Legacy USB Support

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

[Enabled]: To enable legacy USB support.

[Disabled]: To keep USB devices available only for EFI specification,

[Auto]: To disable legacy support if no USB devices are connected.

XHCI Hand-off

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

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

EHCI Hand-off

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

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

USB Mass Storage Driver Support

The optional settings are: [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) 82583V Gigabit Network Connection (XX:XX:XX:XX…)**

Use this item to get driver information and configure gigabit ethernet device parameter.
Press [Enter] to make settings for the following sub-items:

PORT CONFIGURATION MENU

- **NIC Configuration**

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

Link Speed

Use this item to specifies the port speed used for the selected boot protocol.
The optional settings are: [Auto Negotiated]; [10 Mbps Half]; [10 Mbps Full]; [100 Mbps Half]; [100 Mbps Full].

Wake On LAN

The optional settings are: [Disabled]; [Enabled].
Use this item to enable the server to be powered on using an in-band magic packet.

Blink LEDs

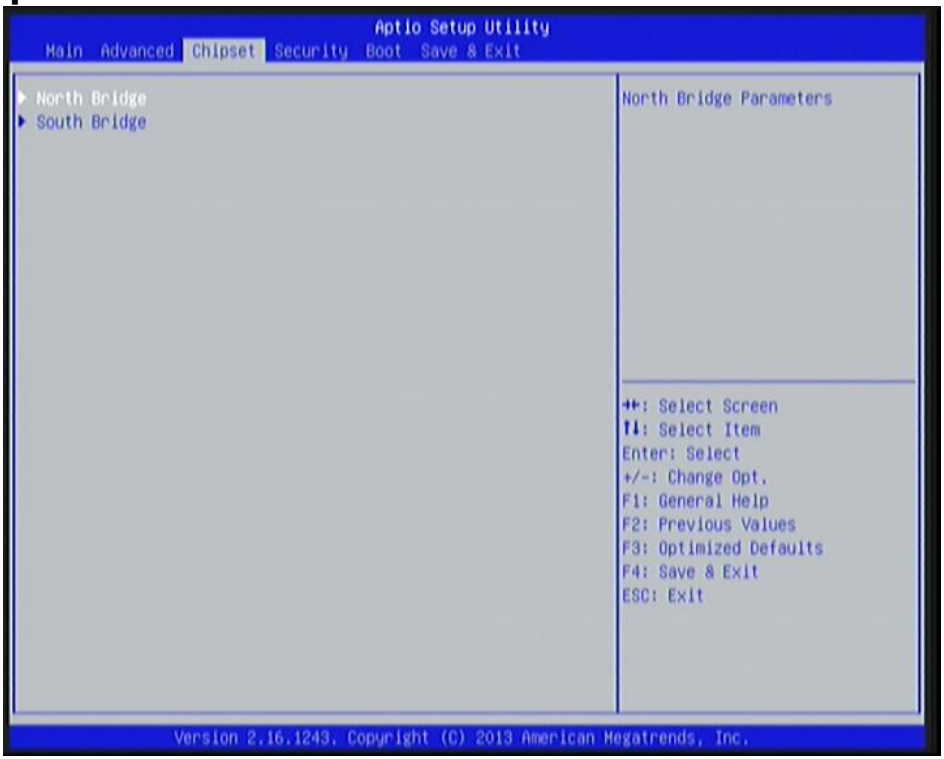
This item help to indentify the physical network port by blinking the associated LED.

Port CONFIGURATION INFORMATION

This is for user to have a view of the list of current LAN port configuration

information.

3-8 Chipset Menu



- **North Bridge**

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

  Intel IGD Configuration

  IGD Turbo Enable

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

  Spread Spectrum Clock

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

IGD Boot Type
Use this item to select preference display interface used when system boot.
The optional settings are: [Auto]; [CRT]; [HDMI]; [LVDS].
**** Note**: User needs to set 'Active LFP' as [Enabled], otherwise the optional setting [LVDS] will not be available.*
Active LFP
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 select by JP2 jumper. Check Page.14~16 for detail information.*

- **South Bridge**

Press [Enter] to set south bridge parameters.

- **Azalia HD Audio**

Press [Enter] to further Azalia HD Audio options.
Audio Configuration

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].

- **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].

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

USB RMH Mode

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

Use this item to enable or disable PCH USB Rate Matching Hubs mode.

USB EHCI Debug

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

Use this item to enable or disable PCH EHCI debug capability.

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].

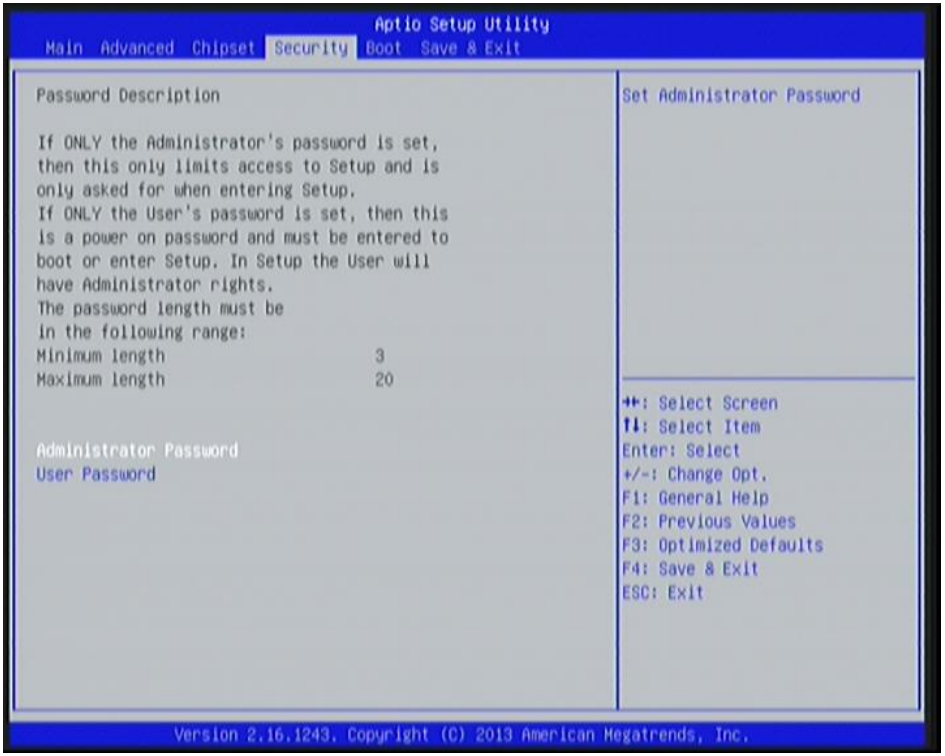
Speed

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

Restore AC Power Loss

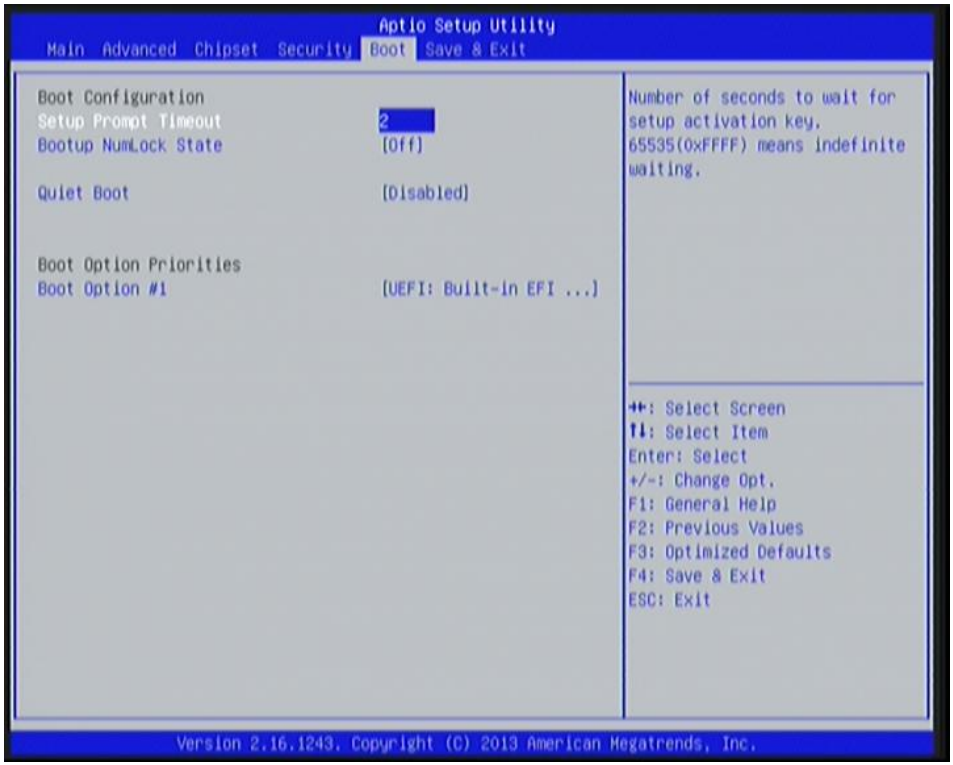
Use this item to select AC power state when power is re-applied after a power failure. The optional settings are: [Power Off]; [Power On]; [Last State].

3-9 Security Menu



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

3-10 Boot Menu



Boot Configuration

Setup Prompt Timeout

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

Bootup Numlock State

Use this item to select keyboard numlock state.

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

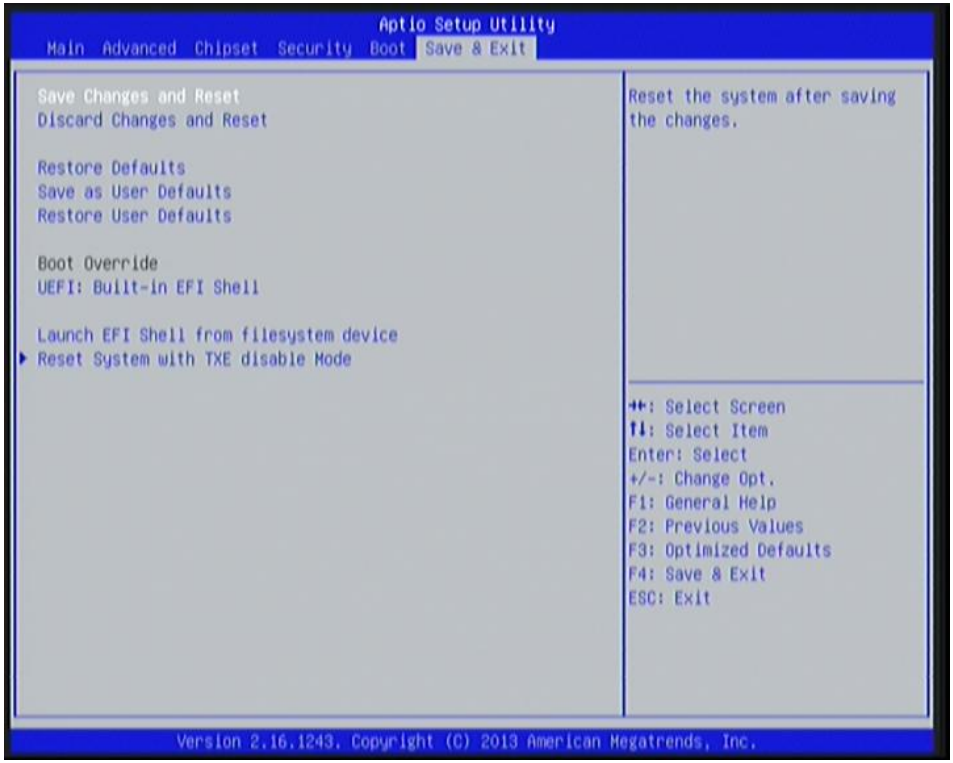
Quiet Boot

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

Boot Option Priorities

Boot Option
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 FM.