

Technical Manual
Of
Intel Haswell / Broadwell Series CPU
Based SBC

NO.G03-NU92-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.....	iv
USER'S NOTICE	v
MANUAL REVISION INFORMATION.....	v
ITEM CHECKLIST	v
CHAPTER 1 INTRODUCTION OF THE MOTHERBOARD	
1-1 FEATURE OF MOTHERBOARD.....	1
1-2 SPECIFICATION.....	2
1-3 LAYOUT DIAGRAM.....	3
CHAPTER 2 HARDWARE INSTALLATION	
2-1 JUMPER SETTING	7
2-2 CONNECTORS AND HEADERS.....	9
2-2-1 CONNECTORS	9
2-2-2 HEADERS	12
CHAPTER 3 INTRODUCING BIOS	
3-1 ENTERING SETUP	16
3-2 BIOS MENU SCREEN	17
3-3 FUNCTION KEYS	18
3-4 GETTING HELP	18
3-5 MEMU BARS.....	19
3-6 MAIN MENU	20
3-7 ADVANCED MENU.....	21
3-8 CHIPSET MENU.....	32
3-9 SECURITY MENU	35
3-10 BOOT MENU.....	36
3-11 SAVE & EXIT MENU	37



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

COPYRIGHT OF THIS MANUAL BELONGS TO THE MANUFACTURER. NO PART OF THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT MAY BE REPRODUCED, TRANSMITTED OR TRANSLATED INTO ANY LANGUAGE IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION OF THE MANUFACTURER.

THIS MANUAL CONTAINS ALL INFORMATION REQUIRED TO USE THIS MOTHER-BOARD SERIES AND WE DO ASSURE THIS MANUAL MEETS USER'S REQUIREMENT BUT WILL CHANGE, CORRECT ANY TIME WITHOUT NOTICE. MANUFACTURER PROVIDES THIS MANUAL "AS IS" WITHOUT WARRANTY OF ANY KIND, AND WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF PROFIT, LOSS OF BUSINESS, LOSS OF USE OF DATA, INTERRUPTION OF BUSINESS AND THE LIKE).

PRODUCTS AND CORPORATE NAMES APPEARING IN THIS MANUAL MAY OR MAY NOT BE REGISTERED TRADEMARKS OR COPYRIGHTS OF THEIR RESPECTIVE COMPANIES, AND THEY ARE USED ONLY FOR IDENTIFICATION OR EXPLANATION AND TO THE OWNER'S BENEFIT, WITHOUT INTENT TO INFRINGE.

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® Haswell-U/Broadwell-U Series Processor, with low power consumption never denies high performance
- Support 2*DDR3L 1333/1600Mhz dual channel SO-DIMM, max. up to 16GB.
- Onboard 1* mSATA slot
- Onboard 1* half-size Mini-PCIE slot
- Onboard gigabit Ethernet LAN port
- Support dual HDMI outputs
- Support USB 3.0 data transport demand
- Support CPU Smart FAN
- Compliance with ErP standard
- Support Watchdog function
- Support DC+9V~+24V wide range power input

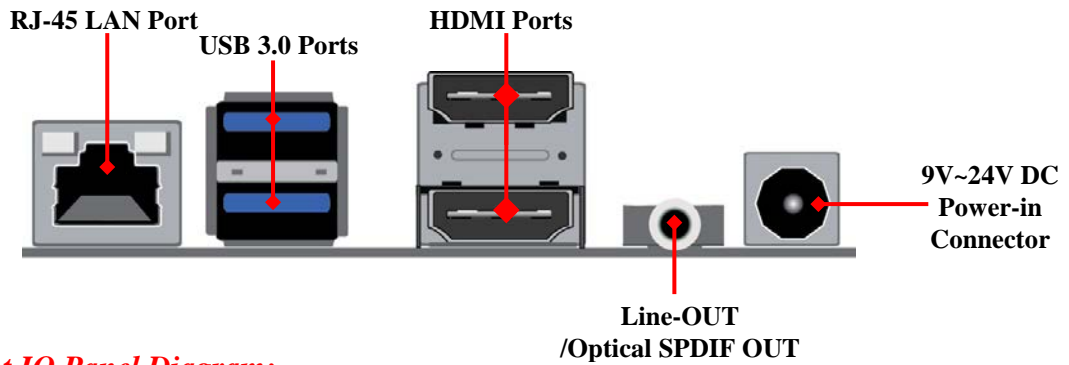
1-2 Specification

Spec	Description
Design	<ul style="list-style-type: none">● 8-layer SBC; PCB size: 10.1 cm x 10.1 cm
Embedded CPU	<ul style="list-style-type: none">● Integrated with Intel® Haswell-U/Broadwell-U series SoC CPU
Memory Slot	<ul style="list-style-type: none">● 2 * DDR3L SODIMM Slot for un-buffered Single Channel DDR3L 1333/1600 MHz SDRAM, expandable to 16GB● Support dual channel function <p><i>*Please refer to the actual product you purchase and consult your dealer for more information.</i></p>
Expansion Slot	<ul style="list-style-type: none">● 1* Half-size Mini-PCIE slot
Storage	<ul style="list-style-type: none">● 1* SATAIII 6Gb/s port● 1* MSATA slot
LAN Chip	<ul style="list-style-type: none">● Integrated with Intel i218LM Gigabit LAN chip● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	<ul style="list-style-type: none">● Realtek ALC662 2-CH HD audio chip
BIOS	<ul style="list-style-type: none">● AMI 128MB Flash ROM
Rear Panel I/O	<ul style="list-style-type: none">● 1* RJ-45 LAN port● 2* USB 3.0 port● 2* HDMI port● 1* Audio Line-Out / SPDIF-Out jack● 1* DC 9V~24V power-in connector
Front Panel I/O	<ul style="list-style-type: none">● 1* USB 3.0 port● 1* Clear CMOS button
Internal I/O	<ul style="list-style-type: none">● 1* 2-pin Internal DC 9V~24V power-in connector● 1* SATA Power connector● 1* 9-Pin USB 2.0/1.1 header for 2* USB 2.0/1.1 ports● 1* Front panel header● 1* SPEAK_CON header

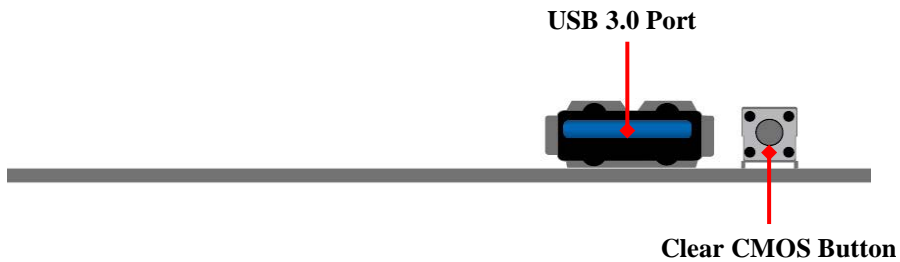
	<ul style="list-style-type: none">● 1* LAN LED activity header● 1* serial port header● 1* CPU FAN header
--	--

1-3 Layout Diagram

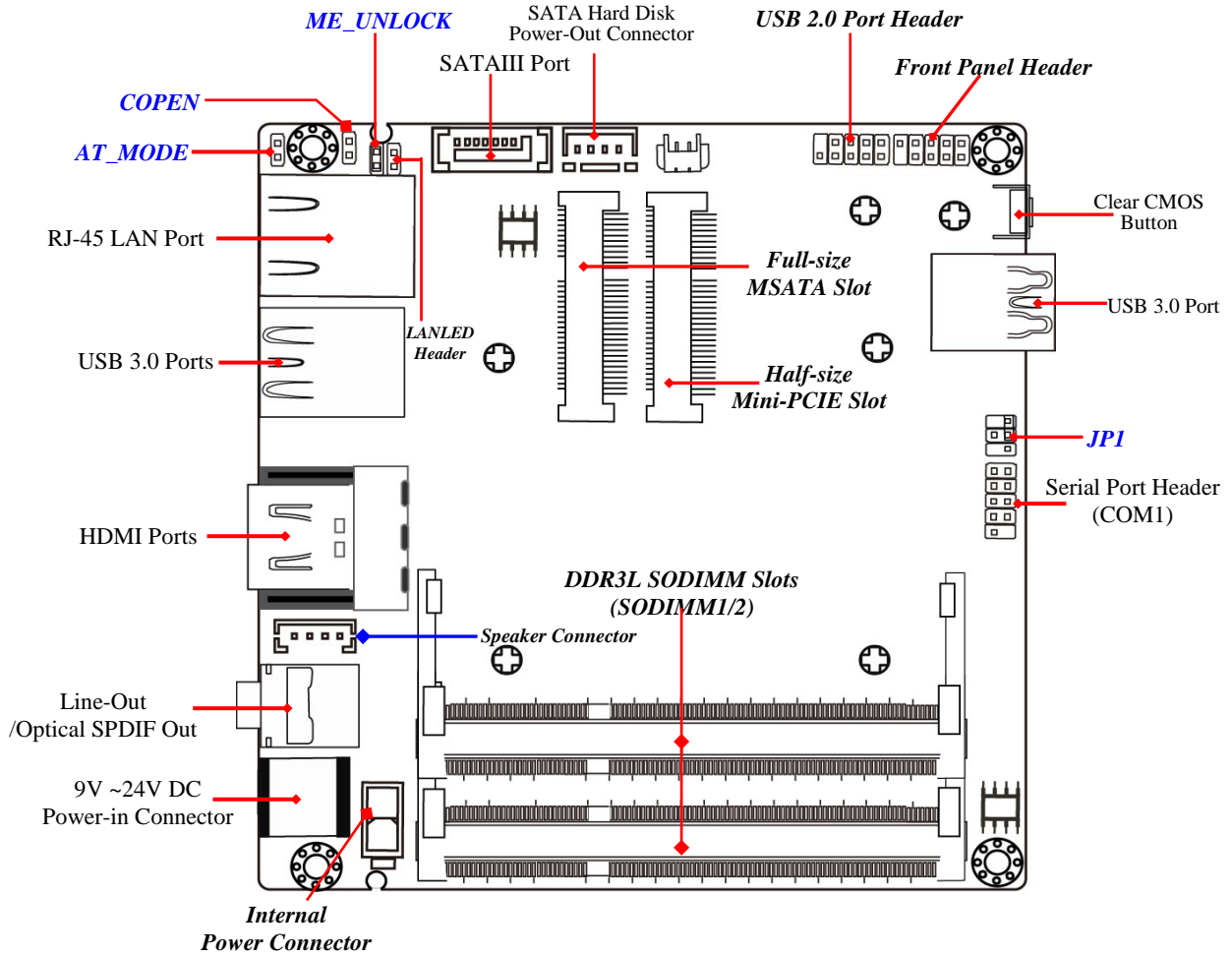
Rear IO Panel Diagram:



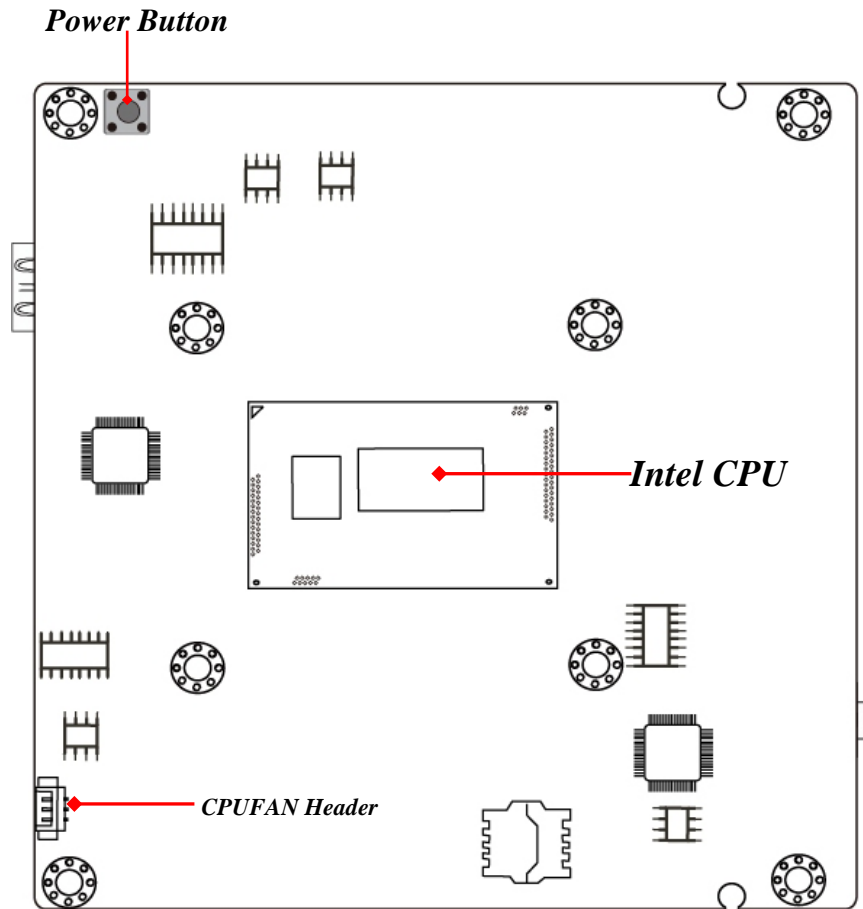
Front IO Panel Diagram:



Internal Diagram-Front Side:



Internal Diagram-Back Side:



Jumper

Jumper	Name	Description
ME_UNLOCK	Flash Descriptor Security Override Select	2-Pin Block
COPEN	Case Open Message Display Function Select	2-Pin Block
AT_MODE	ATX Mode & AT Mode Select	2-Pin Block
JP1	COM Header Pin9 Function Select	4-Pin Block

Connectors

Connector	Name
LAN	RJ-45 LAN Port Connector
USB30	USB 3.0 Port Connector x2
HDMI1	HDMI Connector x2
LINE_OUT	Line Out Connector /SPDIF Out Connector
DCIN	DC 9V~24V Power-in Connector
USB31	USB 3.0 Port Connector
ATX2P	Internal 9V~24V DC Power-in Connector
SATA	SATA Port Connector
SATAPW	SATA Power out Connector

Headers

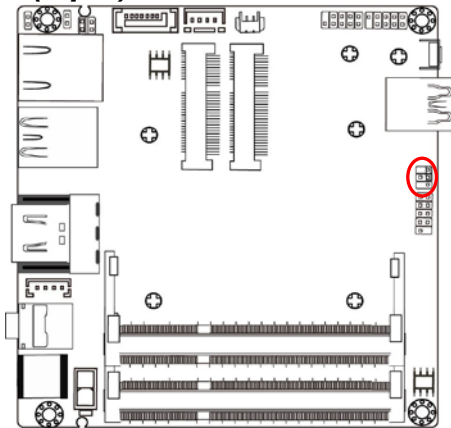
Header	Name	Description
F_USB	USB 2.0 Port Header	9-pin Block
JW_FP	Front Panel Header	9-pin Block
LAN_LED	LAN Activity LED Header	2-pin Block
SPEAK_CON	Speaker Header	4-pin Block
COM	Serial Port Header	9-pin Block
CPUFAN	CPUFAN Header	3-pin Block

Chapter 2

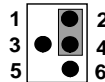
Hardware Installation

2-1 Jumper Setting

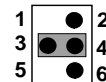
JP1 (4-pin): COM Header Pin9 Function Select



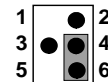
JP1 → COM1 Header Pin-9



2-4 Closed:
Pin9=RING;

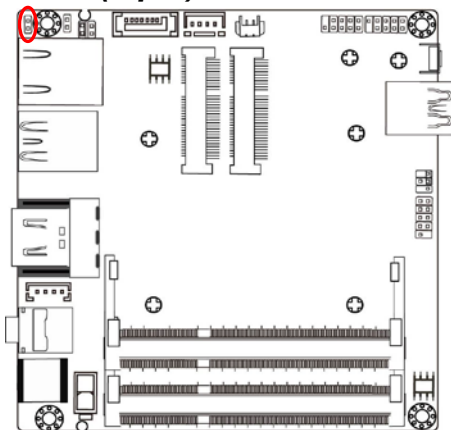


3-4 Closed:
Pin9=+5V;



4-6 Closed:
Pin9=DCIN.

AT_MODE (2-pin): ATX Mode & AT Mode Select



AT_MODE



1-2 Open: ATX Mode Selected;

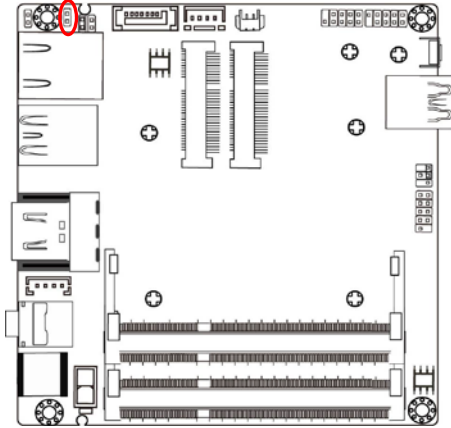


1-2 Closed: AT Mode Selected.

*ATX Mode Selected: Press power button to power on after power input ready;

AT Mode Selected: Directly power on as power input ready.
User needs to restart the system for the settings to take effect.

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



COPEN



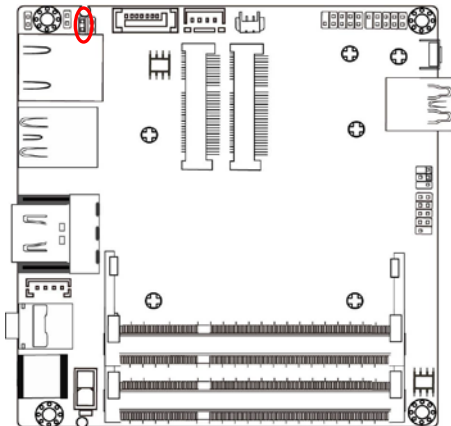
1-2 Open: Normal(Default);



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

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

ME_UNLOCK (2-pin): Flash Descriptor Security Override Select



ME_UNLOCK



1-2 Open: Enable Security Measures in the Flash Descriptor(Default);

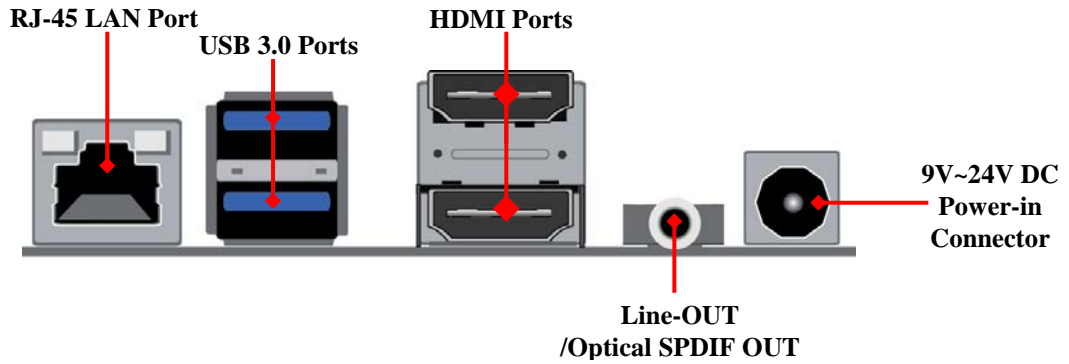


1-2 Closed: Disable Security Measures in the Flash Descriptor(Override).

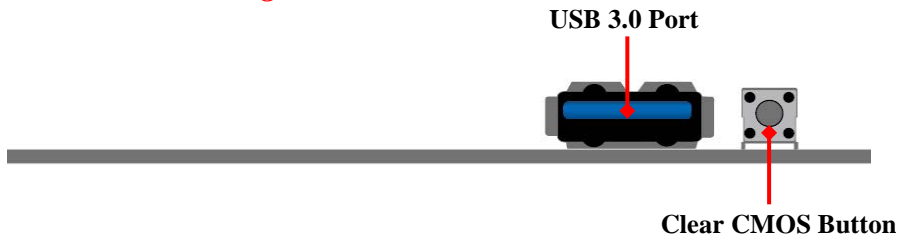
2-2 Connectors and Headers






2-2-1 Connectors

Rear IO Panel Diagram:

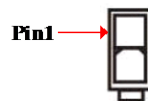
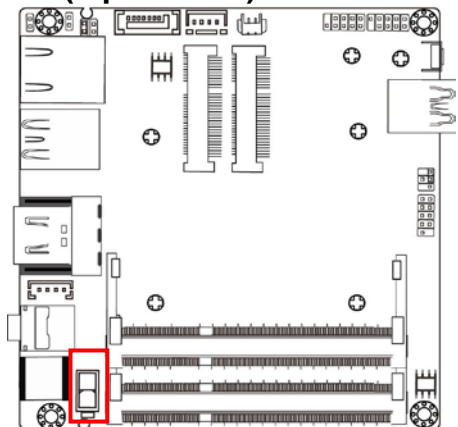


Front IO Panel Diagram:



Icon	Name	Function
	RJ-45 LAN Port	This connector is standard RJ-45 LAN jack for Network connection.
	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.
	HDMI Port	To connect display device that support HDMI specification.
	Line-Out Connector /Optical SPDIF-Out Connector	For user to connect external speaker, earphones, etc to transfer system audio output. This connector can function as optical SPDIF-Out jack with compatible cables & devices.
	DC-in Power Connector	For user to connect compatible power adapter to provide power supply for the system.

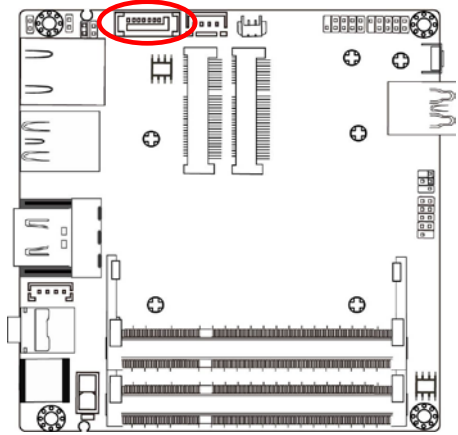
ATX2P (2-pin Block): Internal 9V~24V DC Power-in Connector



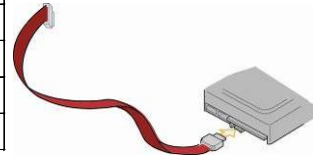
Pin.	Definition
1	GND
2	+9V~+24V DC_IN

SATA (7-pin Block): SATAIII Port connector

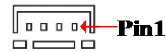
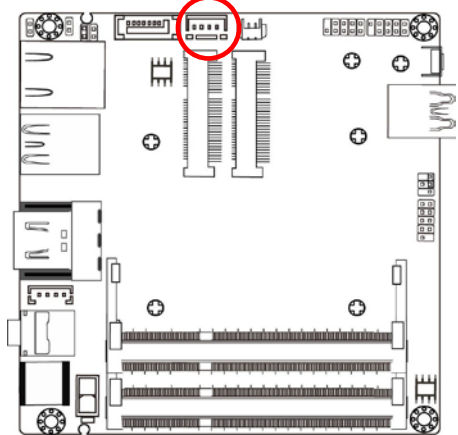
The board come with a SATAIII port that supports 6GB/s transfer rate.



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



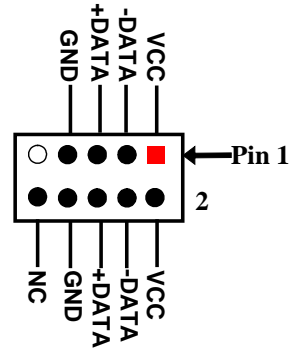
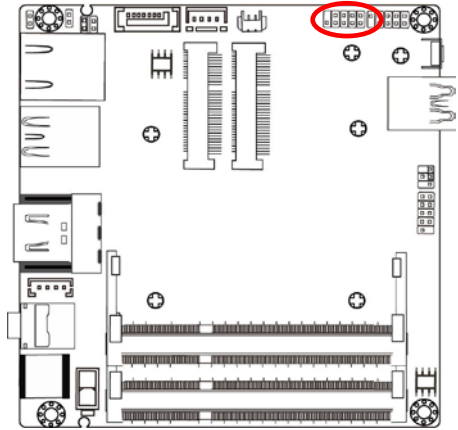
SATAPW (4-pin): SATA Power Connector



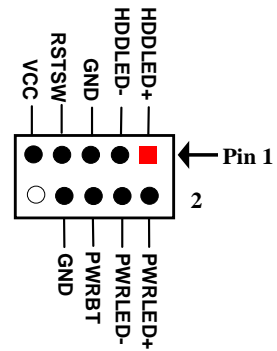
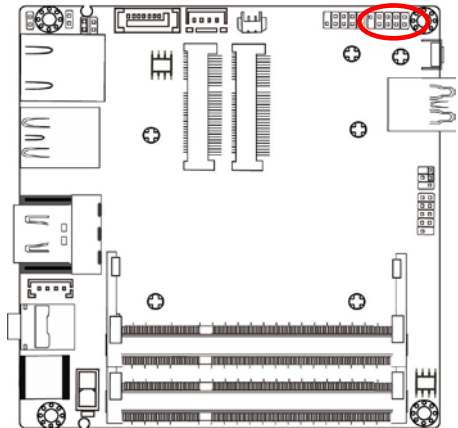
Pin No.	Definition
1	+5V
2	GND
3	GND
4	NC

2-2-2 Header

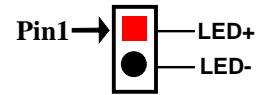
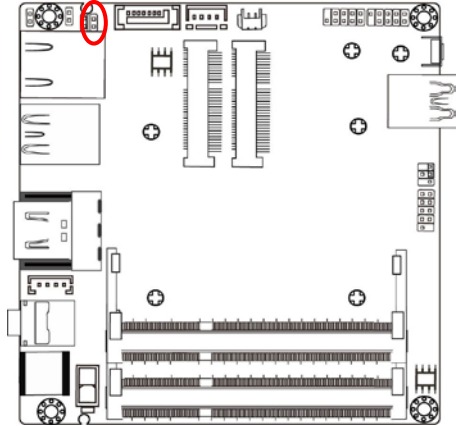
F_USB (9-pin): USB 2.0 Port Header



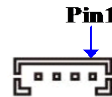
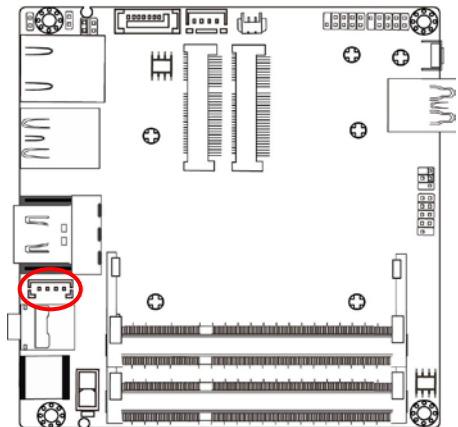
JW_FP (9-pin): Front Panel Header



LAN_LED (2-pin): LAN Activity LED Header

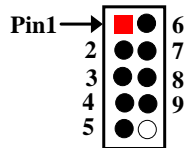
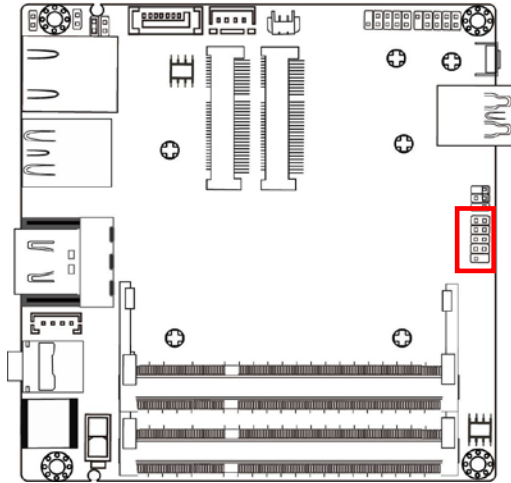


SPEAK_CON (4-pin): Speaker Header



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

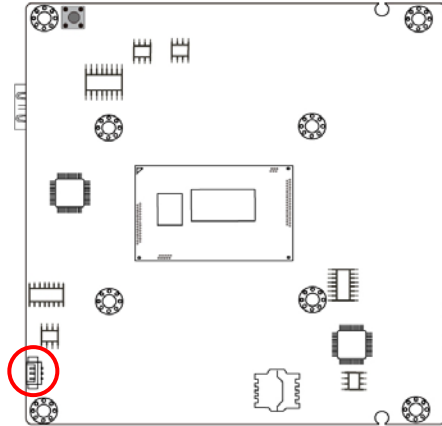
COM (9-pin): Serial Port Header



Pin NO.	RS232	*RS422	*RS485
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

***Notice:** User should go to BIOS settings at first to set '**Transmission Mode Select**' for COM as RS422 or RS485 (refer to Page 25) to support RS422, RS485 function.

CPUFAN (3-pin): CPUFAN Header



Pin No.	Definition
1	VCC
2	GND
3	Fan Detect

Chapter 3

Introducing BIOS

Notice! The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version form our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

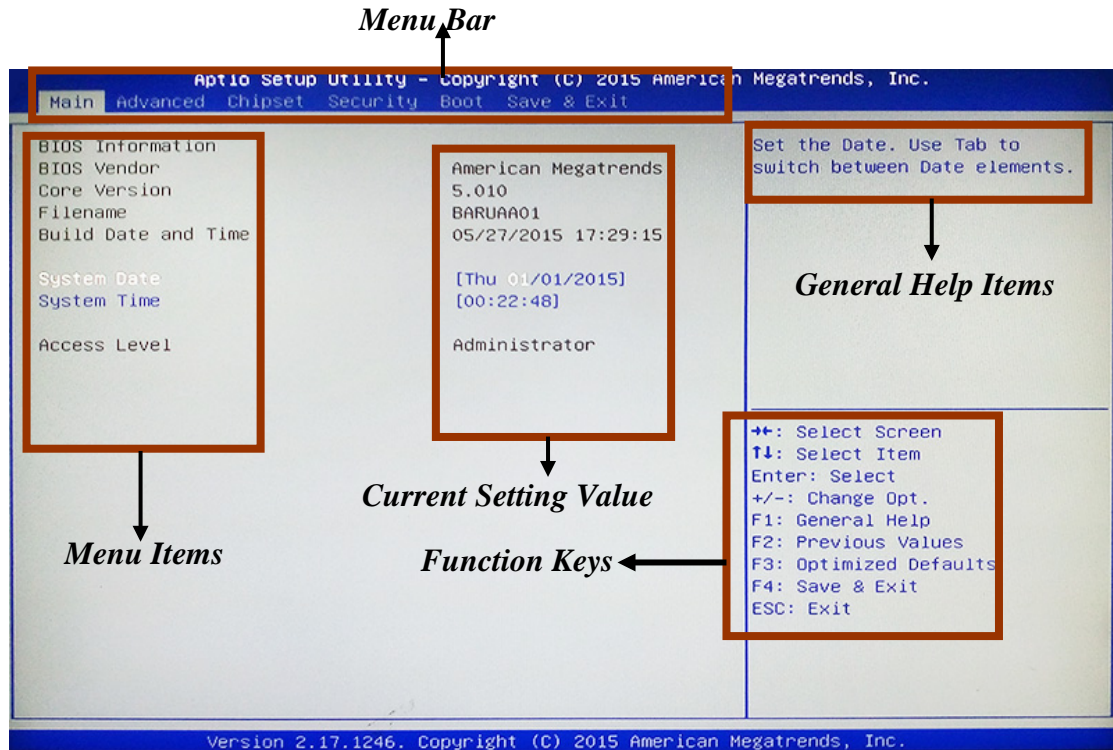
3-1 Entering Setup

Power on the computer and by pressing immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press **** to enter Setup

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 quit the BIOS Setup.
- [F7]: User can press this key to enter Boot Menu when system starts up.

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

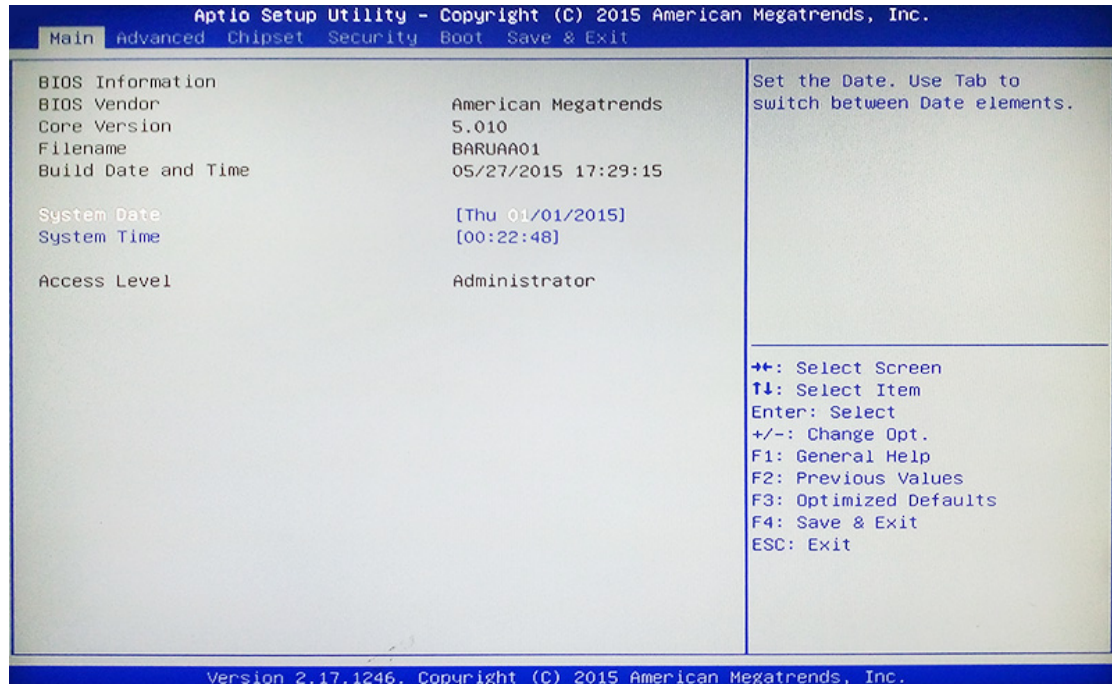
There are six menu bars on top of BIOS screen:

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.



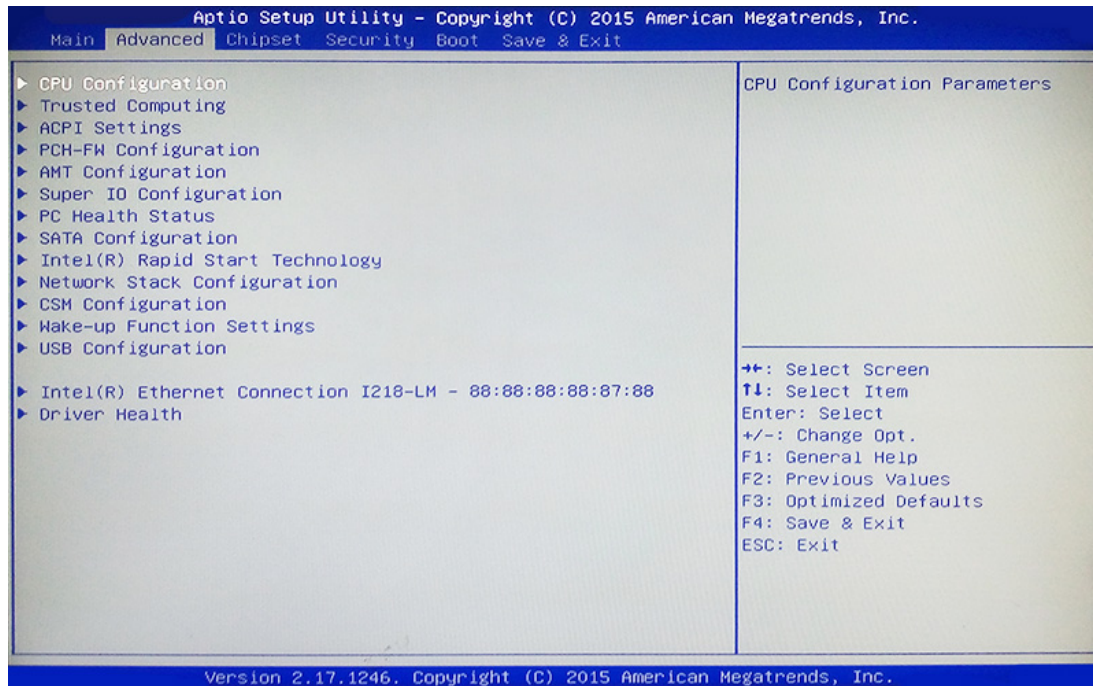
System Date

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



▶ CPU Configuration

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

Hyper-Threading

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

[Enabled]: for Windows XP and Linux (OS optimized for Hyper-Threading Technology).

[Disabled]: for other OS (OS optimized not for Hyper-Threading Technology).

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].

Intel Virtualization Technology

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

When set as [Enabled], a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Hardware Prefetcher

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

Use this item to enable or disable the Mid Level Cache (L2) streamer prefetcher.

Adjacent Cache Line Prefetch

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

Use this item to enable or disable the Mid Level Cache (L2) prefetching of adjacent cache lines.

EIST

Use this item to enable or disable Intel SpeedStep.

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

CPU C states

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

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

CPU C6 Report

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

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

CPU C7 Report

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

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

▶ **Trusted Computing**

Press [Enter] to make settings to make further settings in '**Security Device Support**'.

Configuration

Security Device Support

Use this item to enable or disable BIOS support for security device.
The optional settings are: [Disabled]; [Enabled].

▶ **ACPI Settings**

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

ACPI Settings

ACPI Sleep State

Use this item to select the highest ACPI sleep state the system will enter when the suspend button is pressed.

The optional settings are: [Suspend Disabled]; [S3 (Suspend to RAM)].

▶ **PCH-FW Configuration**

Press [Enter] to view ME information and make settings in the following sub-items:

▶ **Firmware Update Configuration**

Press [Enter] to make settings for 'ME FW Image Re-Flash'.

ME FW Image Re-Flash

Use this item to enable or disable ME FW Image Re-Flash function.

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

** In the case that user needs to update ME firmware, user should set 'ME FW Image Re-Flash' as [Enabled], save the settings and exit. The system will turn off and reboot after 4 seconds. If the user goes to BIOS screen again will find this item is set again as [Disabled], but user can still re-flash to update firmware next time.*

▶ **AMT Configuration**

Use this item to configure Active Management Technology parameters.

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

Intel AMT

Use this item to enable or disable Intel Active Management Technology BIOS extension.

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

BIOS Hotkey Pressed

Use this function to enable or disable BIOS Hotkey Press function.

MEBx Selection Screen

Use this function to enable or disable MEBx Selection Screen function.

Hide Un-Configure ME Confirmation

Use this function to enable or disable Hide Un-Configure ME without password Configuration Prompt function.

MEBx Debug Message Output

Use this function to enable or disable MEBx Debug Message Output function.

Un-Configure ME

Use this function to enable or disable Un-Configure ME without password function.

Amt Wait Timer

Use this item to set time to wait before sending ASF_GET_BOOT_OPTIONS.

Disable ME

Use this item to set ME to soft Temporary Disabled function.

ASF

Use this item to enable or disable Alert Specification Format.

Active Remote Assistance Process

Use this item to enable or disable Trigger CIRA boot function.

USB Configure

Use this item to enable or disable USB configure function.

PET Progress

Use this item to enable or disable PET events progress to receive PET event or not.

WatchDog

Use this item to enable or disable WatchDog Timer.

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

OS Timer

Use this item to set OS watch dog timer.

BIOS Timer

Use this item to set BIOS watch dog timer.

▶ 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 FIFO Mode

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

ERP Function

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

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

Case Open Detect

This item controls detect case open function.

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

WatchDog Reset Timer

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

WatchDog Reset Timer Value

User can set a value in the range of [10] to [255].

WatchDog Timer Unit

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

WatchDog Wake-up Timer

Use this item to enable or disable WatchDog Timer Wake-up function.

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

WatchDog Wake-up Timer Value in ERP

User can select a value in the range of [10] to [4095] seconds when 'WatchDog Timer Unit in ERP' set as [Sec]; or in the range of [1] to [4095] minutes when 'WatchDog Timer Unit in ERP' set as [Min].

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. User needs to select 'AT or ATX Mode' on MB jumper at first (ATX Mode & AT Mode Select).

▶ **PC Health Status**

Press [Enter] to view current hardware health status & make further settings in 'SmartFAN Configuration' & 'Shutdown Temperature'.

▶ **SmartFAN Configuration**

Press [Enter] to make settings for SmartFAN Configuration:

SmartFAN Configuration

CPUFAN Smart Mode

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

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

CPUFAN Full-Speed Temperature

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

CPUFAN Full-Speed Duty

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

CPUFAN Idle-Speed Temperature

Use this item to set CPUFAN idle speed temperature. Fan will run at idle speed when below the pre-set temperature.

CPUFAN Idle-Speed Duty

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

Shutdown Temperature Configuration

Use this item to select system shutdown temperature.

The optional settings are: [Disabled]; [70° C/156° F]; [75° C/164° F]; [80° C/172° F]; [85° C/180° F];[90° C/188° F].

▶ **SATA Configuration**

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

SATA Controller(s)

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

SATA Mode Selection

The optional settings are: [AHCI]; [RAID].

SATA Controller Speed

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

The optional settings are:[Default]; [Gen1]; [Gen2];[Gen3].

SATA Port

SATA Port

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

SATA Device Type

The optional settings are: [Hard Disk Driver]; [Solid State Drive].

Use this item to identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

m-SATA

mSATA

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

▶ **Intel(R) Rapid Start Technology**

Press [Enter] to go to ‘**Intel(R) Rapid Start Technology**’ screen to make further settings.

Intel(R) Rapid Start Technology

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

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

Entry on S3 RTC Wake

Use this item to enable or disable RapidStart invocation upon S3 RTC wake.

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

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

Entry After

Use this item to enable RTC wake timer at S3 entry. Value ranges from 0 (Immediately) to 120 minutes.

Active Page Threshold Support

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

▶ **Network Stack Configuration**

Press [Enter] to go to ‘**Network Stack**’ screen to make further settings.

Network Stack

Use this item to enable or disable UEFI 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 option 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], Ipv4 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.

Media Detect Count

Use this item to set number of times presence of media will be checked.

▶ **CSM Configuration**

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

Compatibility Support Module Configuration

Boot Option Filter

This item controls Legacy/UEFI ROMs priority.

The optional settings are: [UEFI and Legacy]; [UEFI only]; [Legacy only].

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].

Other PCI devices

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

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

▶ **Wake-up Function Settings**

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

Wake-up System with Fixed Time

Use this item to enable or disable system wake-up by RTC alarm.

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

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

Wake-up System with Dynamic Time

Use this item to enable or disable system wake-up by RTC alarm.

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

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

UAB0/1 Wake-up from S3-S4

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

**Note: USB Wake-up is affected by ERP function in S4. Please disable ERP before activating this function in S4.*

▶ **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) Ethernet Connection I218-LM-XX:XX:XX:XX:XX**

Press [Enter] to view current network information and make further settings in '**NIC Configuration**'

▶ **NIC Configuration**

Press [Enter] to configure the network device port.

Link Speed

Use this item to specify 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

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

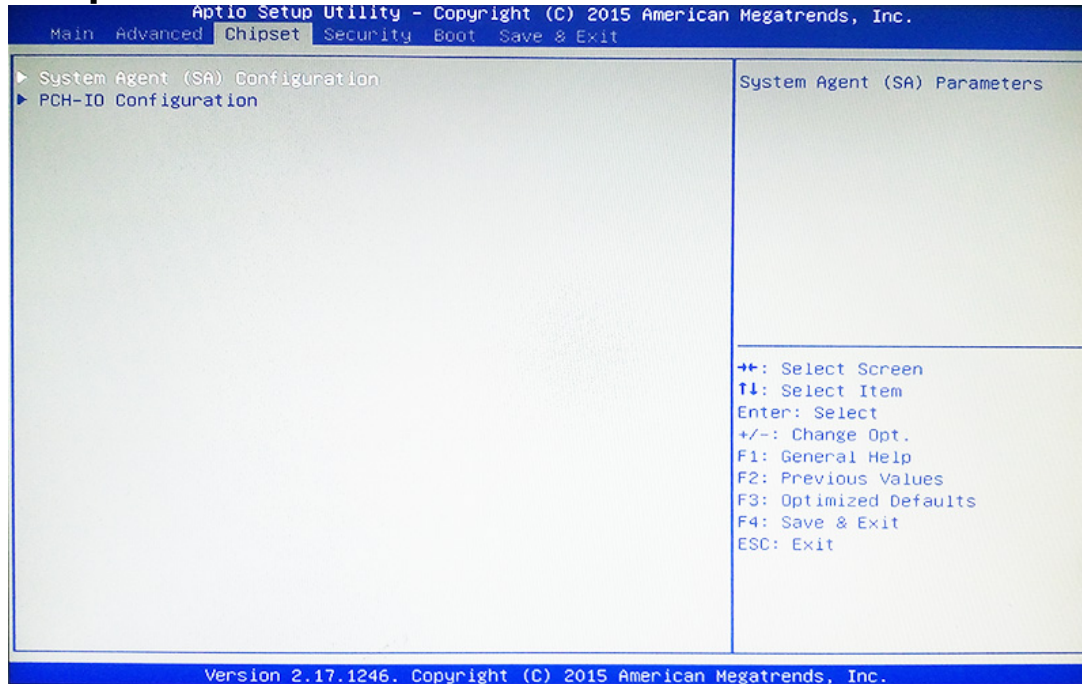
Blink LEDs

Use this item to identify the physical network port by blinking the associated LED.

▶ **Driver Health**

Press [Enter] to get driver Health Status information for the drivers/controllers.

3-8 Chipset Menu



▶ **System Agent (SA) Configuration**

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

VT-d

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

* *This item might not be available depending on configuration.*

▶ **Graphics Configuration**

Press [Enter] to make further settings for Graphics Configuration.

Graphics Configuration

Aperture Size

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

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: [32M]; [64M]; [96M]; [128M]; [160M]; [192M]; [224M]; [256M]; [288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M].

DVMT Total Gfx Mem

Use this item to select DVMT 5.0 total graphics memory size used by the internal graphics device.

The optional settings are: [128M]; [256M]; [MAX].

▶ **Memory Configuration**

Press [Enter] to view current memory configuration.

▶ **PCH-IO Configuration**

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

Mini PCIE

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

Mini PCIE Speed

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

PCH LAN Controller

For user to enable or disable onboard NIC.

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

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

Wake on LAN

Use this item to enable or disable integrated LAN to wake the system (The Wake On LAN cannot be disabled if ME is on at Sx state).

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.

▶ **USB Devices Configuration**

Press [Enter] to further setting USB device configuration.

USB Configuration

XHCI Mode

Use this item to control the USB XHCI controller.

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

* **Note:** *When set as [Disabled], user can make further settings in 'EHCI1'.*

EHCI1

Use this item to control the USB EHCI (USB 2.0) functions.

One EHCI controller must always be enabled.

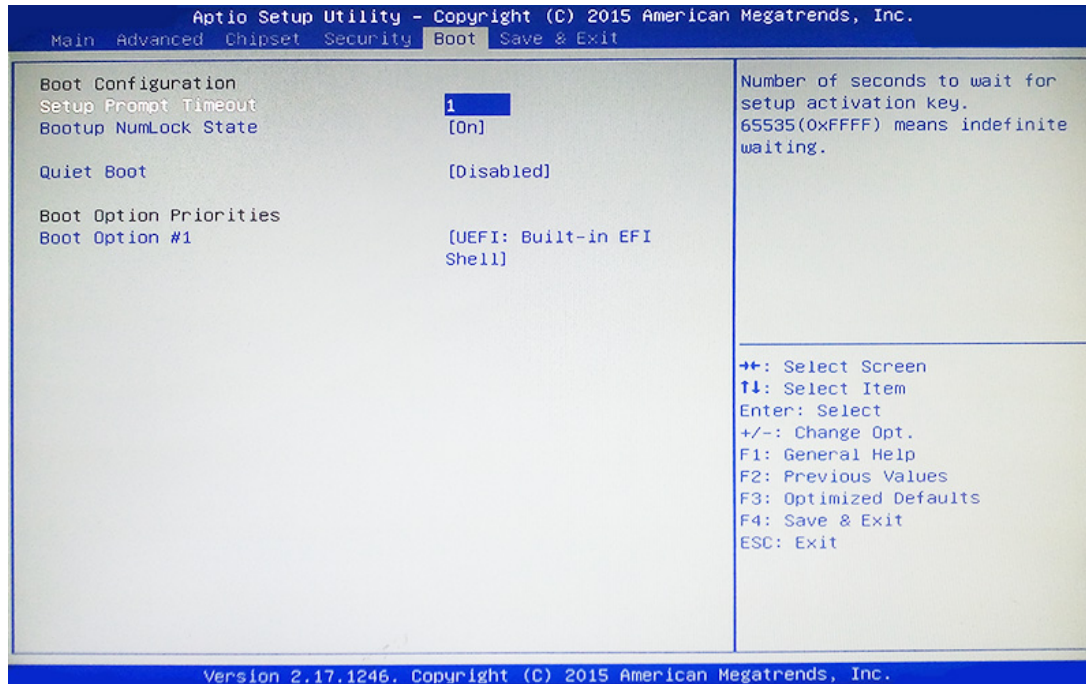
The optional settings are: [Disabled]; [Enabled].

Restore AC Power Loss

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

*[Always On] and [Former State] options are affected by ERP function. Please disable ERP to support [Always On] and [Former State].

3-10 Boot Menu



Boot Configuration

Setup Prompt Timeout

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

Bootup Numlock State

Use this item to select keyboard numlock state.

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

Quiet Boot

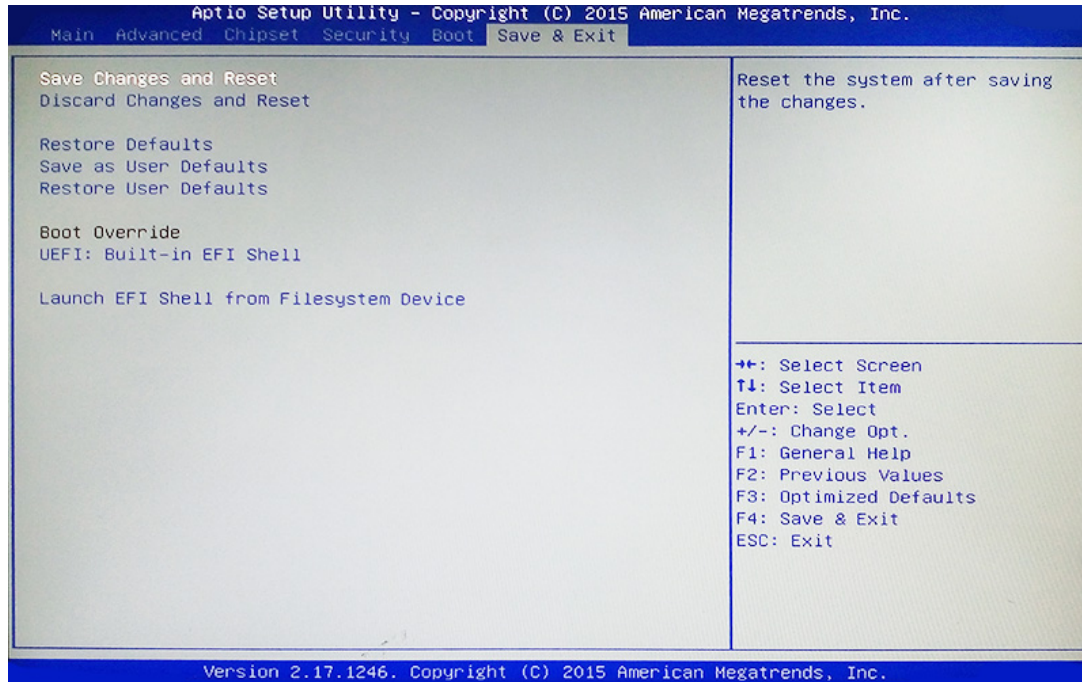
The optional settings are: [Disabled]; [Enabled].

Boot Option Priorities

Boot Option#1/2...

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

UEFI: Built-in EFI Shell/xx...

Press this item to select the device as boot disk after save configuration and reset

Launch EFI Shell from filesystem device

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