PCM8010

10.4" Military-Grade Panel PC
Intel Celeron N2930 1.83GHz CPU
Full IP67 Rated Rugged Enclosure

Embedded Computers

User Manual

14628 Central Ave. Chino, CA 91710 Tel: 909.597.7588 Fax: 909.597.1939

CHAPTER 1

Declaration

Please read this chapter with some important notice before operations.

FCC Regulation Statement

This device complies with part 15 FCC rules.
Operation is subject to the following two conditions:
• This device may not cause harmful interference.
• This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class “a” digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

Copyright Notice

Disclaimer

We reserves the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s), conveys no license or title under any patent, copyright, or masks work rights to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or warranty that such application will be suitable for the specified use without further testing or modification.

Warranty

Warranty

Our warranty that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in it's original packaging to obtain warranty service.

Customer Service

The user guide includes simple debug and trouble shooting. For system crack or serious damage, please contact with your distributor, sales representative, or the customer service center for technical support if you need additional assistance. You may have the following information ready before you call:

Product serial number

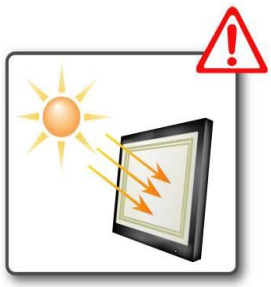
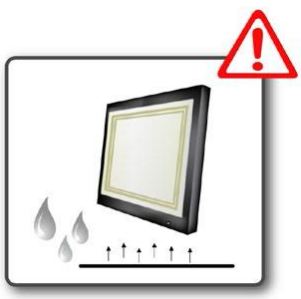
Peripheral attachments

Description of complete problem

The exact wording of any error messages

Safety Instructions

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

CAUTION		
Read manual prior to installing the product. The operation of products depends on your reading and following the information in this manual. Re-check your work prior to operating the product.		
EVENT	EFFECT	PREVENTION
	Although the brightness is good under sunlight, it shines directly all day would cause the panel damage.	You should avoid exposing the computer under the sunlight for whole working hours.
	If the product is close to explosive environment or such as on fire, the overheat will cause the product malfunction.	You should avoid placing the product near explosive or firing environment.
	If the product is close to the wet ground such as grassplot, the moisture between panel and glass will make the product malfunction.	You should avoid placing the product on the ground.

Safety Instructions

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Please read these safety instructions carefully.
• Please keep this user's manual for later reference.
• Please disconnect this equipment from any AC outlet before cleaning. Do not use acid or caustic liquid or spray detergents for cleaning. The good option is to use a damp cloth.
• Do not touch the LCD panel surface with sharp or hard objects.
• For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
• Place this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage..
• Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
• Position the power cord so that people cannot step on it. Do not place anything over the power cord.
• All cautions and warnings on the equipment should be noted.
• If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
• Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

CHAPTER 2

Getting Started

The design allows you to use it in radical industrial environments – places you would not take with normal commercial grade LCDs / Panel PCs. The mechanical is designed to be embedded in various kind of equipment.
This chapter tells you will find instructions for the following procedures:

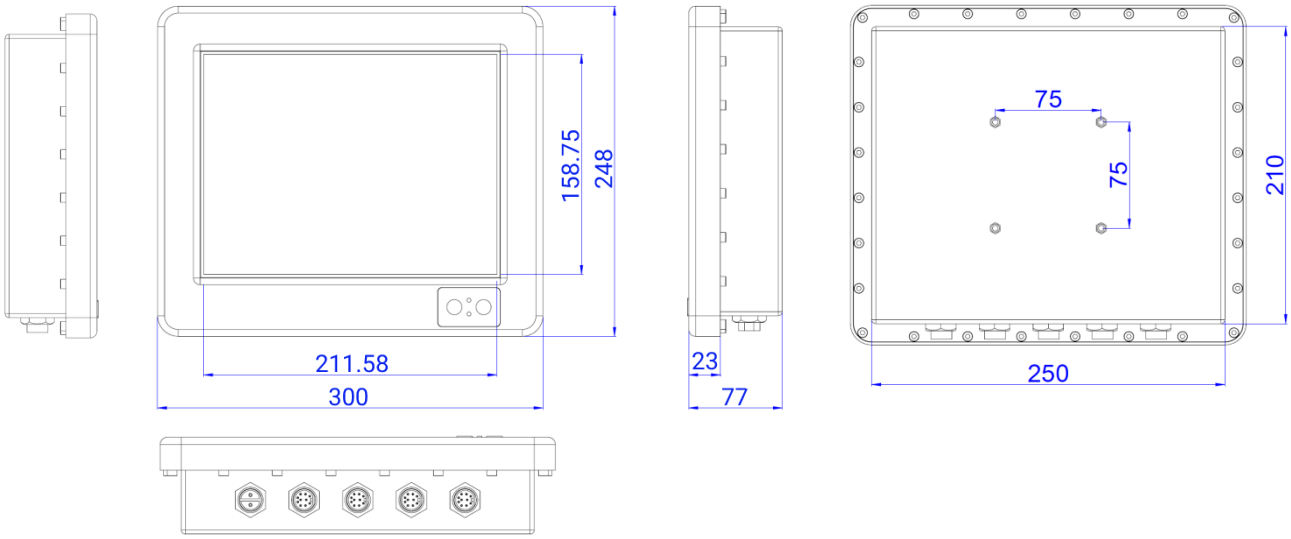
- Introduction
- Unpacking
- Installing the monitor

2-1 Specification

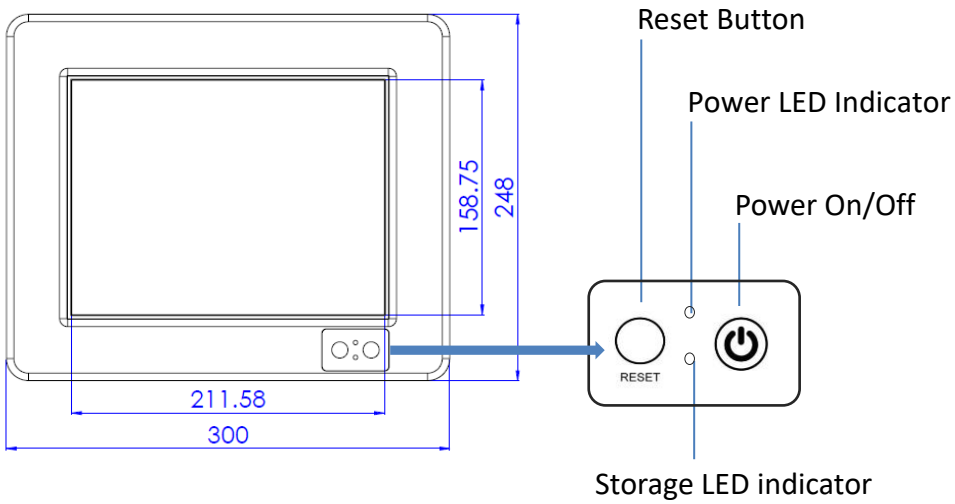
PCM8010	
Display	
Size	10.4”
Active Display Area	211.2(H) x 158.4(V)
Pixel Pitch (mm)	0.264(H) x 0.264(V)
Display Colors	16.2M
Resolution	1024 x 768
Brightness	350 nits (Default, 1,000nits for optional)
Contrast Ratio	1,000:1 (typ.)
Viewing Angle	88/88/88/88 (L/R/U/D)
System	
Processor	Intel® Celeron® Bay Trail-M N2930 1.83GHz
System Memory	4GB DDR3L 1066/1333 SODIMM
System Chipset	Intel® ATOM® SoC integrated
Storage	Built-in 64GB mSATA SSD
Ethernet	Dual Intel WG82574L GbE LAN
Touch	5-wire resistive touch screen (Default)
EMI Shield	EMI Mesh filter applied
Power	DC 9~36V with power isolation & surge protection
Operating System	
Optional OS	Windows 7, Windows 10 IoT Enterprise, Linux Support
Input/ Output (IP Grade connector)	
Serial Ports	1 x RS232 (IP grade circular connector)
USB Ports	2 x USB 2.0 (IP grade circular connector)) 1 x USB 2.0 (USB Type A receptacle)(optional)
Ethernet	1 x Gigabit LAN(IP grade circular connector) , (1 more LAN for optional)
Physical Buttons	1 x Power Button 1 x Reset Button
Mechanical Specification	
Cooling System	Fanless design
Mounting	Wall mount/ VESA mount
Dimensions (mm)	280.0 (W) x 240.0 (H) x 68.0 (D)

Environmental Considerations	
Operating Temperature	-10 to +60°C
Operating Humidity	5%~95% at 40°C (non-condensing, RH)
IP Rating	Full-IP67
Power Specifications	
Power Input	9~36V DC Input
Power Cord	N/A

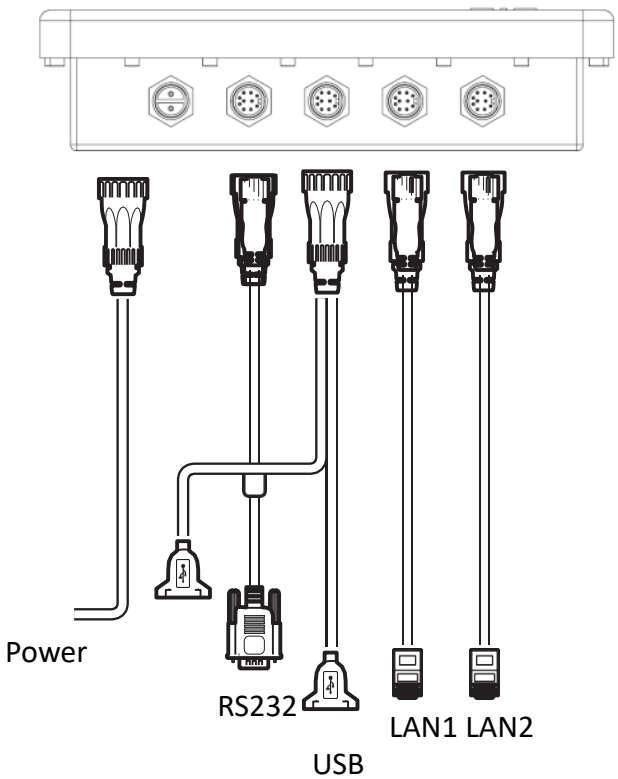
2-2 Dimension



2-3 OSD Keypad



2-4 Connection



CHAPTER 3

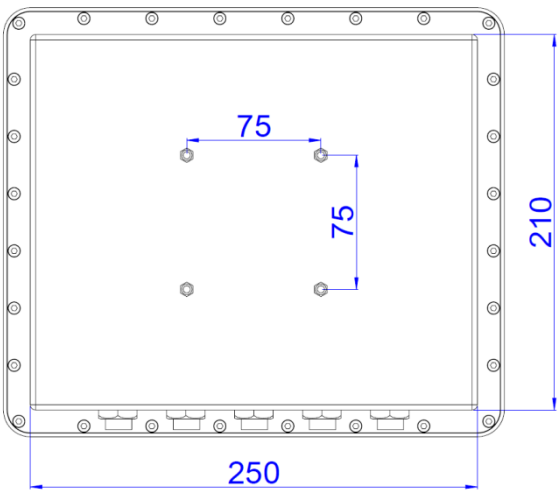
Operation

When using a device, be sure to read the instructions accompanying the device together with the relevant section in this chapter. This chapter gives guidelines on using the device

3-1 Mounting

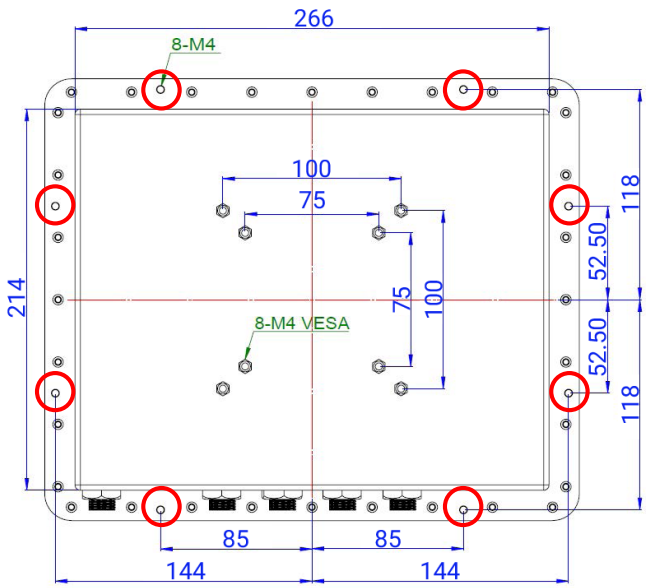
3-1-1 VESA Mount

There are 75x75, 100x100 VESA threads at back for wall mount or VESA pole mount.



3-1-2 Panel Mount (By request)

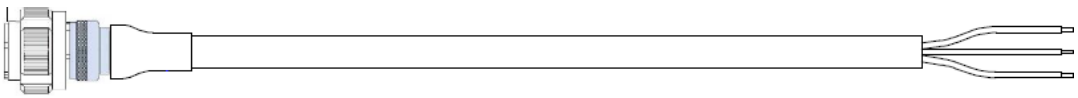
There are 8 x M4 threads on the right /left side of terminal if panel mount is needed.



3-2 Connection

3-2-1 Cable connection

First of all, please make the power cable according to the Pin table (on Chapter 2-4). One end to the device, another end to the DC power source. DC Input could be 9~36V @40wattage*.
**Wattage will be subject to change with different spec., please double check with your sales representative for correct electric current.*



3-2-2 Power-On the system

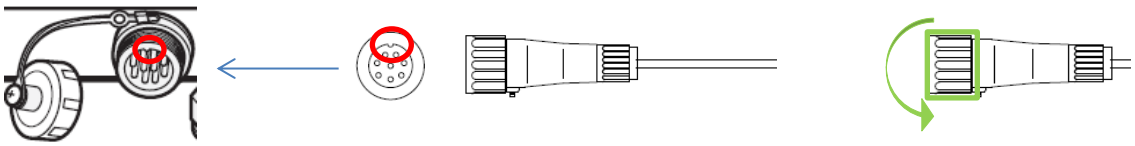
LED Type	Status	Description
Power (⏻)	On	Power is on.
	Off	Power is off.
Storage (🛢)	Blinking	Storage activity (data is being read or written).
	Off	System is idle.

After power has been correctly connected, try to power on the unit by pressing the power button in front. Without pre-installed OS, power indicator will be light with green color, and system will ask for a booting device. For the booting device, please check chapter 4 in BIOS settings.
With pre-installed OS, system will automatically run with OS initialized procedure.

3-2-3 Cable connection

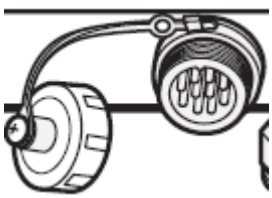
1. At 1st time to use the Full IP grade machine, the cables needs to be connected. All operation of cable connection has to be on the dry and clean place. There are basically 2 cables necessarily, 1 is power cable, another is signal cable.

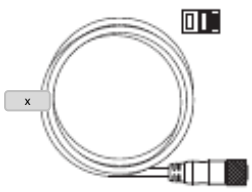
The connectors and cables have a positioning pin (as the red circle below), please align the pin then plug into the connectors. After plug in the cable, please rotate the front part (as the green part below) to tight, do not rotate whole connector as there is wire inside.



2. All connectors comes with a cap and a label showing the signal for this connector.
On the cable side there is a tab also showing the functionality.

LAN





3-3 Open The Box

This Equipment is suitable for use in IP65 / IP66 with dust and water protection, and its robust and fanless design for reliable operation. For the seamless products we adopt the stainless steel housing is all made of aluminum material with deactivated coating for outside chassis, this is to prevent the oxidization.
For inside electronic parts are adopted with passive cooling , fanless design, certain models with highly powerful MCUs are with aluminum heatsink conducting heat to the back cover of housing. The whole sealing of chassis is with gasket surrounded underneath the opening doors, all screws are operated with screw glue to secure the IP proof.
Connectors are all special IP level instead of normal connectors, please check the accessory box before to operate the machine.

LCD Touch Screen Options
We also provide 2 different type of touch options, one is Projected capacitive multi-touch, the other is 5-wire resistive single touch.

In the accessory BOX, please check all IP proof cables / connectors
1.Power Cord:
Connect the power cord to the AC outlet, and connect the IP66 power connector to the machine.

Power cord

*If the unit is DC Input, the power cable will be attached with an AC/DC power adapter as below,

2.USB Signal cable connection (For monitors with touch option):
One USB cable for touch controller. One side is normal USB Type A male plug, the other side is IP66 connector to the machine.

USB cable

3. Signal cable:
D-Sub 15 pin for a VGA signal. (DVI-D IP65 cable if there is with DVI input)

RS232 cable

Ethernet cable x2

CHAPTER 4

BIOS Setup

BIOS Setup Utility is a program for configuration basic Input / Output system settings of the HMI for optimum use. This chapter provides information on how to use BIOS setup, its functions and menu

4-1 BIOS Setup

BIOS Setup
This chapter provides information on how to use BIOS setup, its functions and menu.

When and How to Use BIOS Setup
To enter the BIOS setup, need to connect an external USB keyboard, press **<Del>** key when the prompt appears on the screen during start up. The prompt screen shows only few seconds, press **<Del>** key quickly. If the message disappears before your respond, restart the system by turning it OFF and ON, and enter the BIOS again.

Run BIOS setup utility for:
1. Error message on screen indicates to check BIOS setup
2. Restoring the factory default settings.
3. Modifying the specific hardware specifications
4. Necessity to optimize specifications

4-2 BIOS Functions

BIOS Navigation Keys
BIOS navigation keys for keyboard control are listed below. The following keys are enabled during POST:

Key	Function
Del	**Enters the BIOS setup menu.**
F7	**Display the boot menu. Lists all bootable devices that are connected to the system. With cursor ↑and cursor ↓and by pressing <ENTER>, select the device used for the boot.**
Pause	**Pressing the [Pause] key stops the POST. Press any other key to resume the POST.**

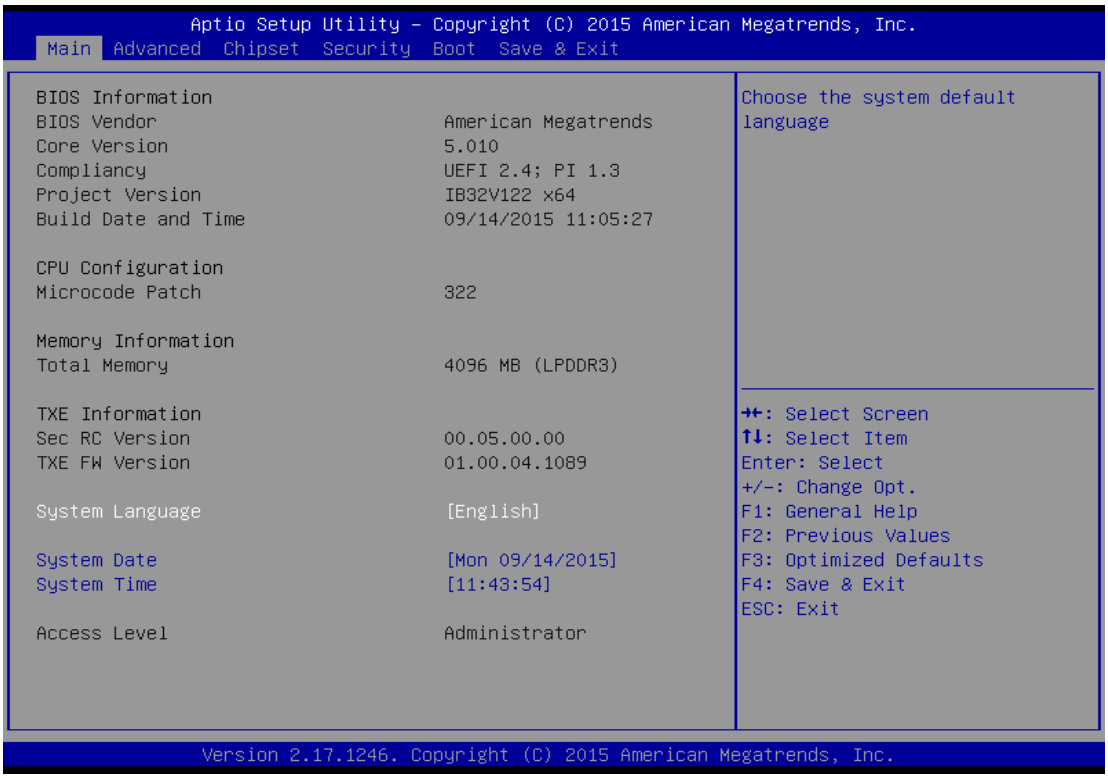
The following Keys can be used after entering the BIOS Setup.

Key	Function
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit
Esc	Exit
+/-	Change Opt.
Enter	Select or execute command
Cursor ↑	Moves to the previous item
Cursor ↓	Goes to the next item
Cursor ←	Moves to the previous item
Cursor →	Goes to the next item

BIOS Main Menu

When you enter BIOS setup, the first menu that appears on the screen is the main menu. It contains the system information including BIOS version, processor RC version, system language, time, and date.

Immediately after the **[DEL]** key is pressed during startup, the main BIOS setup menu appears:



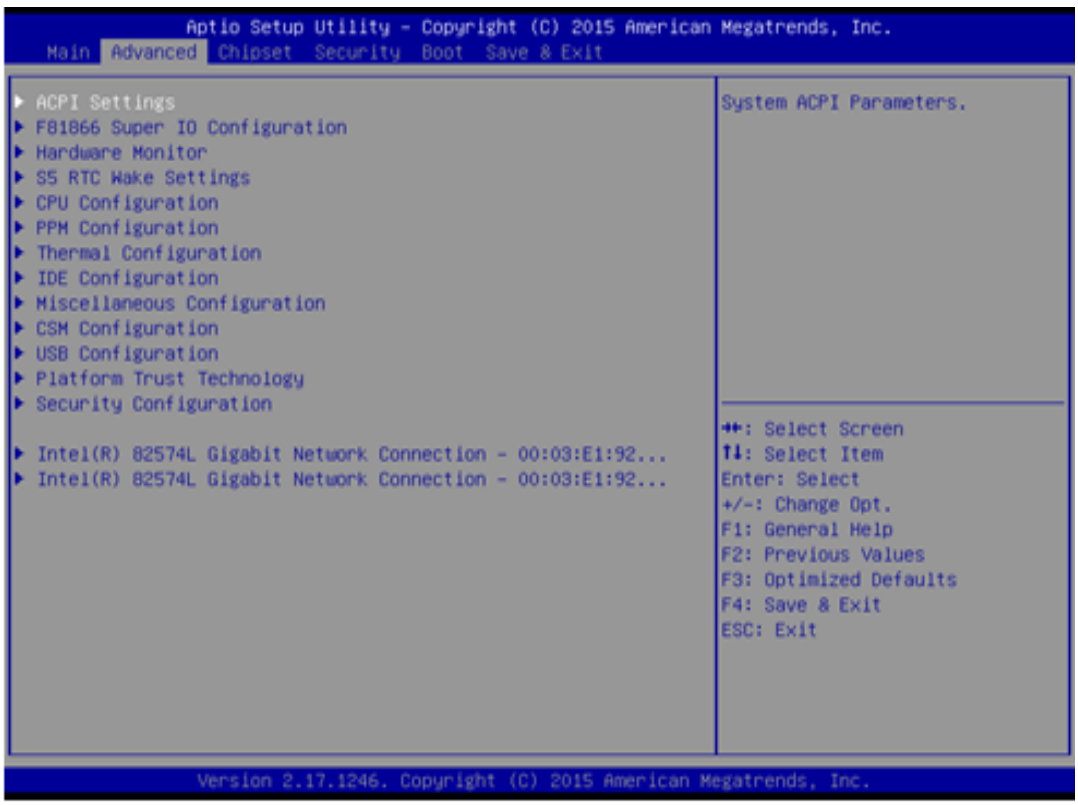
BIOS Setting	Description	Setting Option	Effect
System Language	Displays the system language. [English] is set up by default.	Adjustment of the language	Set the language in other language. The language in this device is English.
System Date/Time	This is current date setting. The time is maintained by the battery when the device is turned off.	Date and time changes.	Set the date in the format [mm/dd/yyyy]; The time in the format: [hh/mm/ss]
Access Level	The current user access settings	Changes to the level of access	Administrator is set up by the default

Advanced Menu

The advanced menu also uses to set configuration of the CPU and other system devices. There are sub menus on the left frame of the screen.

For items marked ▸ press **<Enter>** for more options.

Advanced Configuration and Power Interface (ACPI) settings allow to control how the power switch operates. The power supply can be adjusted for power requirements. You can use the screen to select options of ACPI configuration. A description of the selected items will appear on the right side of the screen.

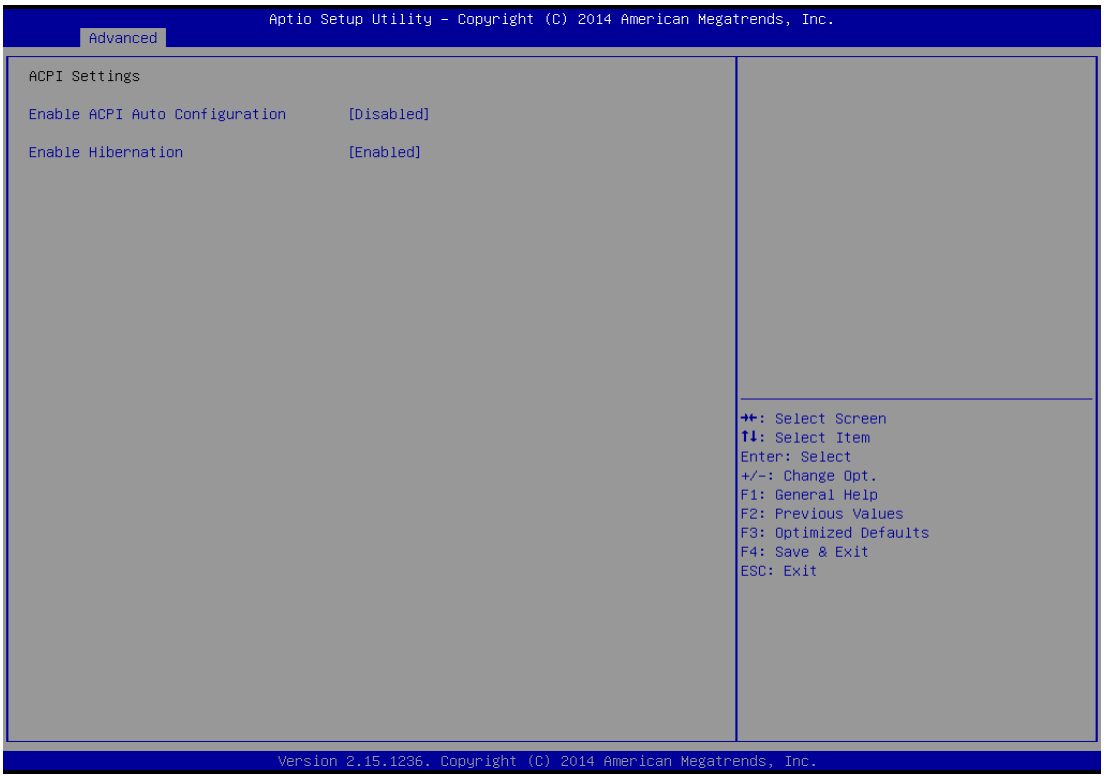


BIOS Setting	Description	Setting Option	Effect
ACPI Settings	Configures ACPI settings	Enter	Opens submenu
F81866 Super IO Configuration	Configures IO settings	Enter	Opens submenu
Hardware Monitor	Configures Hardware Monitor settings	Enter	Opens submenu
S5 RTC Wake Settings	Configures RTC Wake parameters	Enter	Opens submenu
CPU Configuration	Configures CPU settings	Enter	Opens submenu
PPM Configuration	Configures PPM settings	Enter	Opens submenu
Thermal Configuration	Configures Thermal Parameters	Enter	Opens submenu
IDE Configuration	Configures IDE Parameters	Enter	Opens submenu
Miscellaneous Configuration	Configures Miscellaneous Parameters	Enter	Opens submenu
CSM Configuration	Configures CSM Parameters	Enter	Opens submenu
USB Configuration	Configures USB Settings	Enter	Opens submenu
Platform Trust Technology	Configures Platform Trust Technology parameters	Enter	Opens submenu
Security Configuration	**Configures Security parameters**	**Enter**	Opens submenu

For items marked ▸ press **<Enter>** for more options.

Advance Menu -> ACPI Settings

Advanced Configuration and Power Interface (ACPI) settings allow to control how the power switch operates. The power supply can be adjusted for power requirements. You can use the screen to select options of ACPI configuration. A description of the selected items will appear on the right side of the screen.



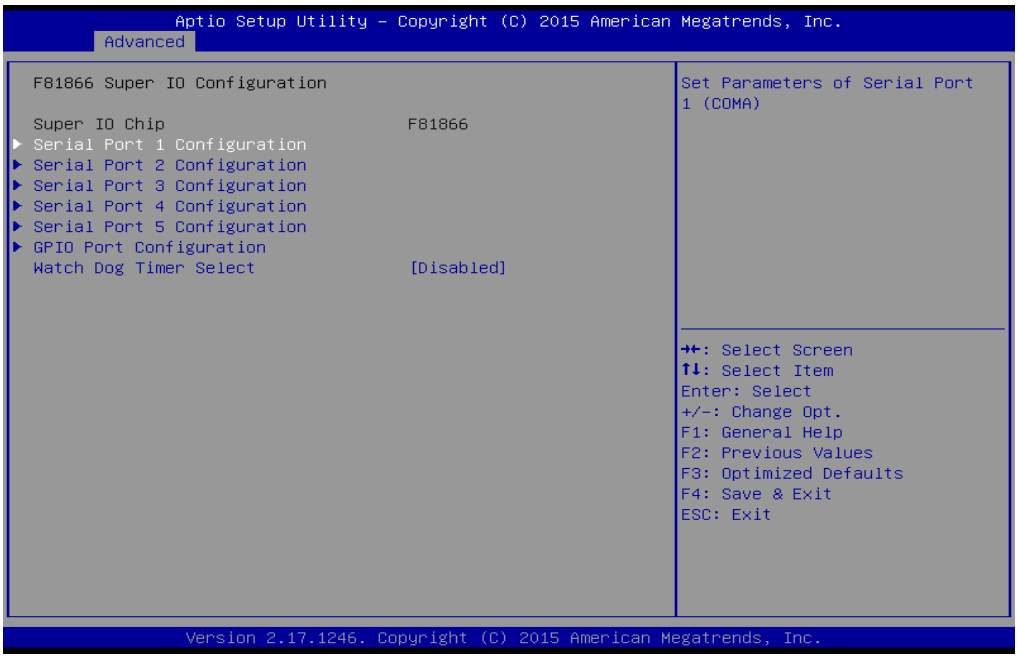
BIOS Setting	Description	Setting Option	Effect
Enable ACPI Auto Configuration	BIOS ACPI Auto Configuration	Enable/ Disable	Enables or Disables this function
Enable Hibernation	Control hibernation	Enable/ Disable	Enables or Disables this function

Advance Menu -> F81866 Super IO Configuration

You can use the screen to select options for Super IO Configuration, and change the value of the option selected. A description of the selected item appears on the right side of the screen. For items marked with ▸, please press **<Enter>** for more options.

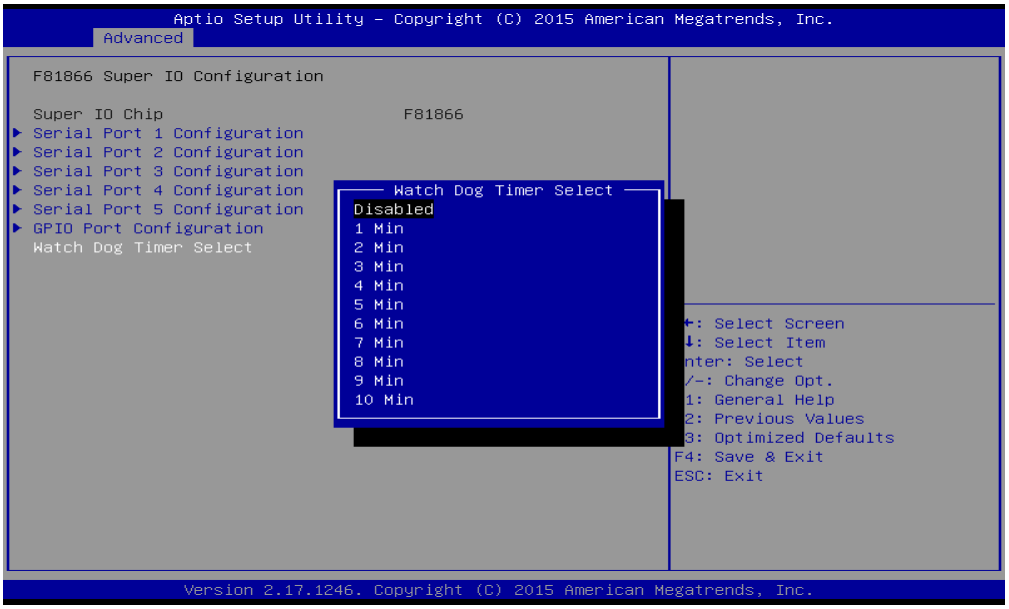
Serial Port 1~5

Use these items to set parameters related to serial port 1~5.



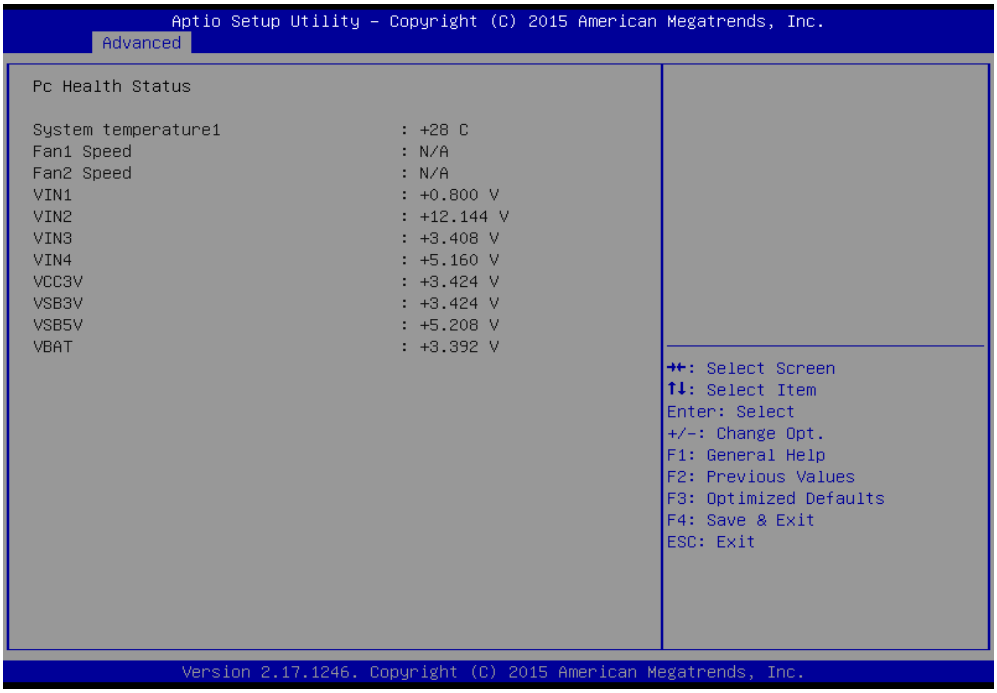
Watch Dog Time Select

You can either disable Watch Dog Time Select, or set up the time.Use <Arrow> keys to navigate and please press <Enter> to select the item



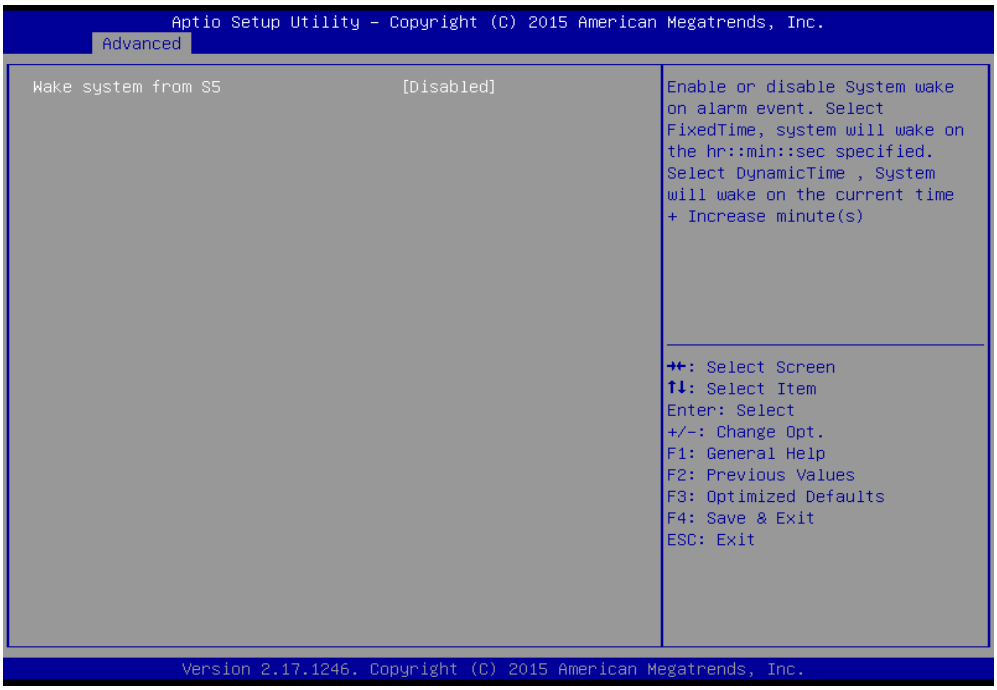
Advance Menu -> Hardware Monitor

You can check PC Health Status parameters such as system temperature, fan speed etc.



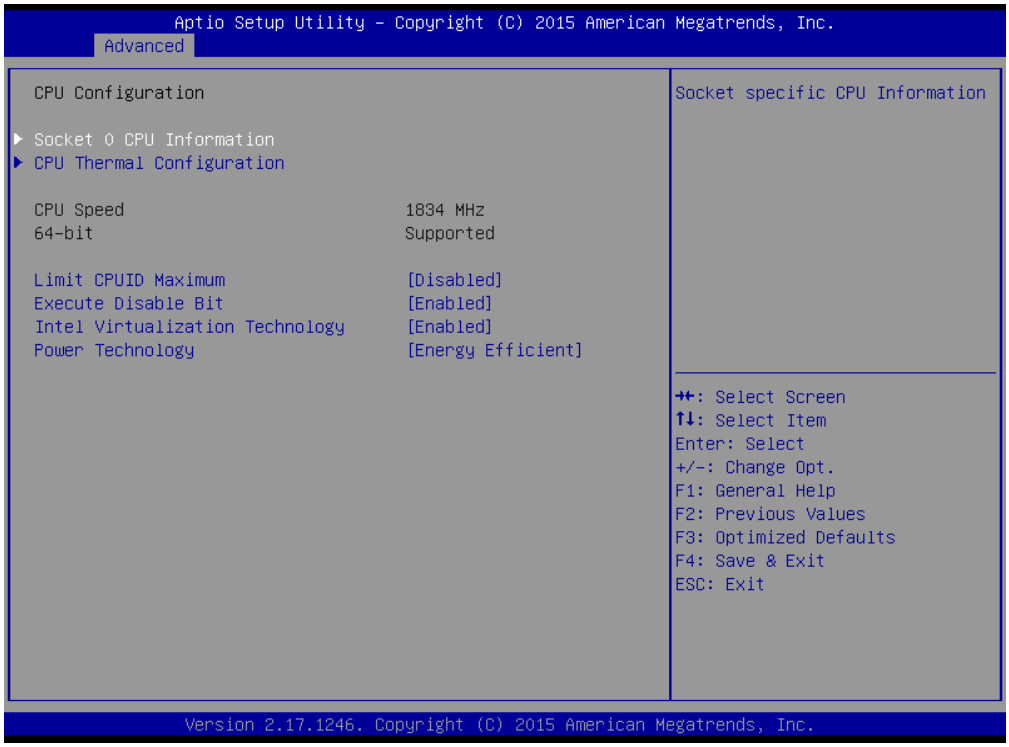
Advanced Menu ->S5 RTC Wake Settings

Wake system from S5 enables or disables system wake on alarm event. It allows you to wake up the system in a certain time.



Advance Menu -> CPU Configuration

You can check PC Health Status parameters such as system temperature, fan speed etc.



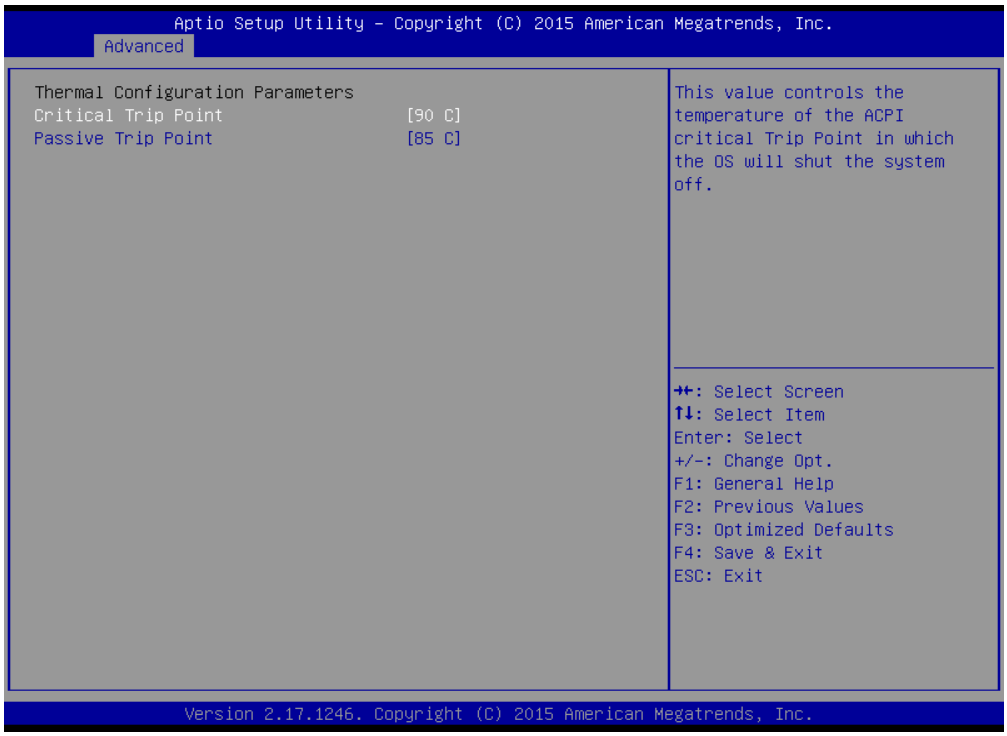
BIOS Setting	Description	Setting Option	Effect
Socket CPU Information	This item contains socket specific CPU information.	Enter	Open sub-menu
CPU Thermal Configuration	Thermal control	Enter	Open sub-menu
Limit CPUID Maximum	Limits CPIID Maximum	Disabled/Enabled	Enable/Disable this function
Execute Disable Bit	Execute Disable Bit	Disabled/Enabled	Enable/Disable this function
Intel Virtualization Technology	Allows to run recent OS and applications	Enabled/Disabled	Enable/Disable this function
Power Technology	Control the performance and power management functions of the processors	Disabled	Disable this function
		Energy Efficient	Enable energy efficient mode

Advance Menu -> PPM Configuration

BIOS Setting	Description	Setting Option	Effect
CPU C State Report	Shows CPU C State Report	Enabled/ Disabled	Enable or Disable CPU C state report to OS
Max CPU C-State	Allows to enter power-saving mode in order to save energy	C1E, C3, C6, C7, Auto	Enable or Disable CPU C Max CPU S-Sate

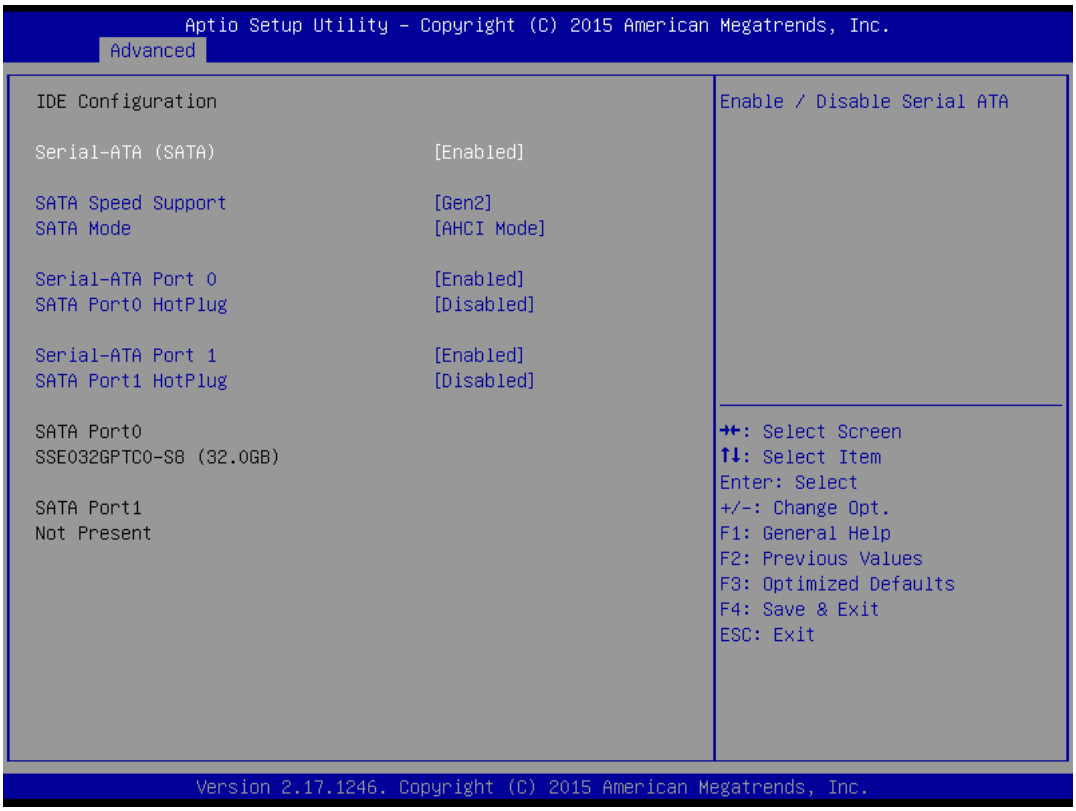
Advance Menu -> Thermal Configuration

This menu allows controlling thermal settings of the computer. Refer to the descriptions on the top right side of the screen for detailed information about each setting.



BIOS Setting	Description	Setting Option	Effect
Critical Trip Point	Specifies the temperature at which the OS will shut down the system	90C, 87C, 85C, 79C, 71C, 63C,55C,47C, 39C, 31C, 23C, 15C	Select the disable temperature for the system to shut down
Passive Trip Point	Specifies the temperature at which the OS will begin adjusting the processor	90C, 87C, 85C, 79C, 71C, 63C,55C,47C, 39C, 31C, 23C, 15C	Select the disable temperature for the system to start adjusting the processor

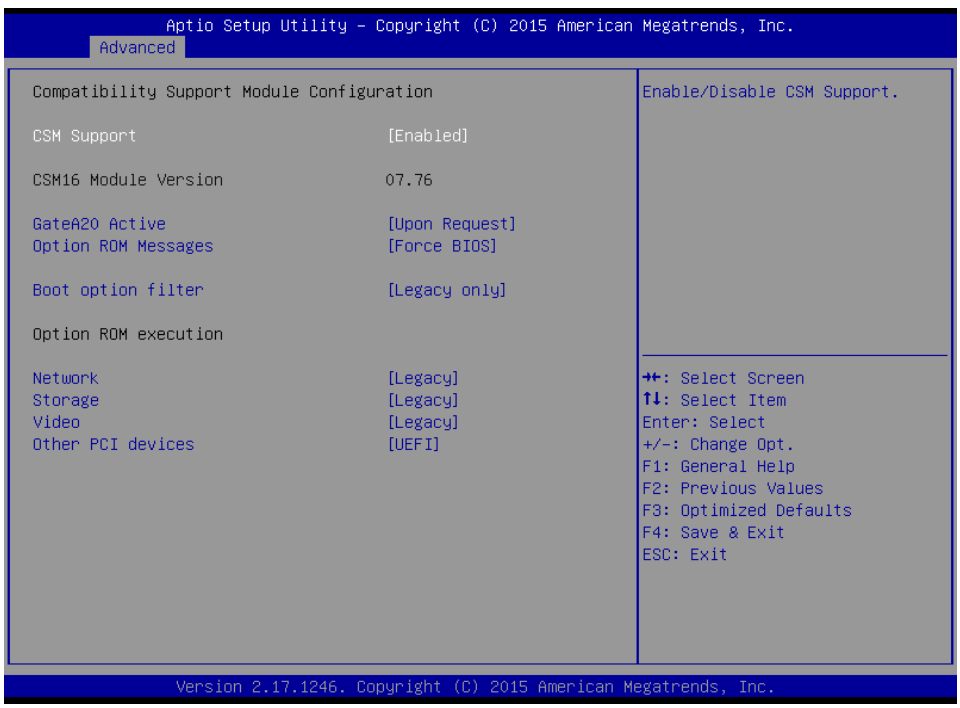
Advance Menu -> IDE Configuration



BIOS Setting	Description	Setting Option	Effect
Serial- ATA (SATA)	Responsible for supporting chipset drives with SATA interface.	Enabled/ Disabled	Enable or disable this function
SATA Speed Support	Allows forcing the speed limit SATA II ports standard IDE / SATA- controller chipset.	Gen1	The maximum speed will be limited to 150 MB/s
		Gen2	The maximum speed will be limited to 300 MB/s
		Disabled	Disables manual configuration of SATA II ports (mode will be selected based on the specifications of connected drives)
SATA Mode	This option specifies the operation mode of modern IDE / SATA- controller chipset	[AHCI]	Selecting this option allows you to take full advantage of the extended host controller SATA II
		[IDE]	SATA controller will operate in a mechanism similar to a conventional IDE-controller

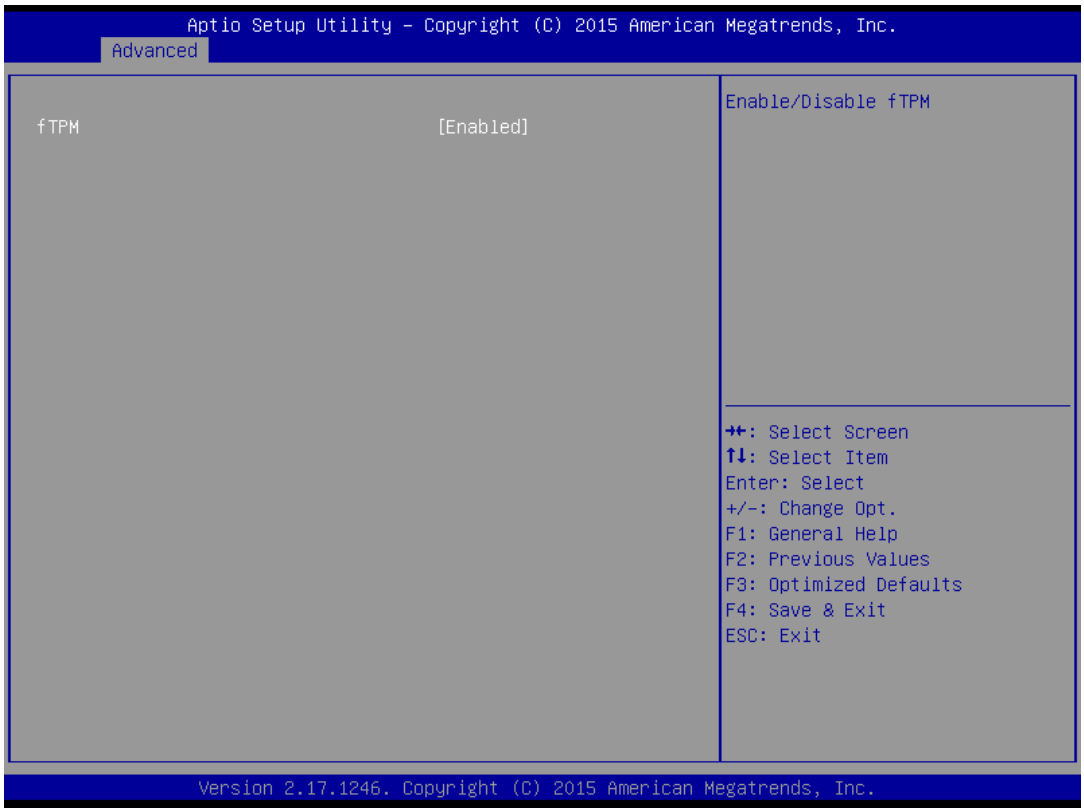
		[RAID]	Allows combining hard drives in RAID-arrays in order to improve the reliability of data storage, or to increase the speed.
Serial- ATA Port 0	The option turns on or off Port 0 of SATA channels of standard IDE / SATA-controller chipset.	Enabled/ Disabled	Turn on (Enabled) or turn off (Disabled) Port 0
SATA Port0 HotPlug	This feature that allows you to attach and remove a SATA Port0	Enabled/ Disabled	Enable or disable this function
Serial- ATA Port 1	The option turns on or off Port 1 of SATA channels of standard IDE / SATA-controller chipset.	Enabled/ Disabled	Turn on (Enabled) or turn off (Disabled) Port 1
SATA Port1 HotPlug	This feature that allows you to attach and remove a SATA Port1	Enabled/ Disabled	Enable or disable this function

Advance Menu -> CSM Configuration



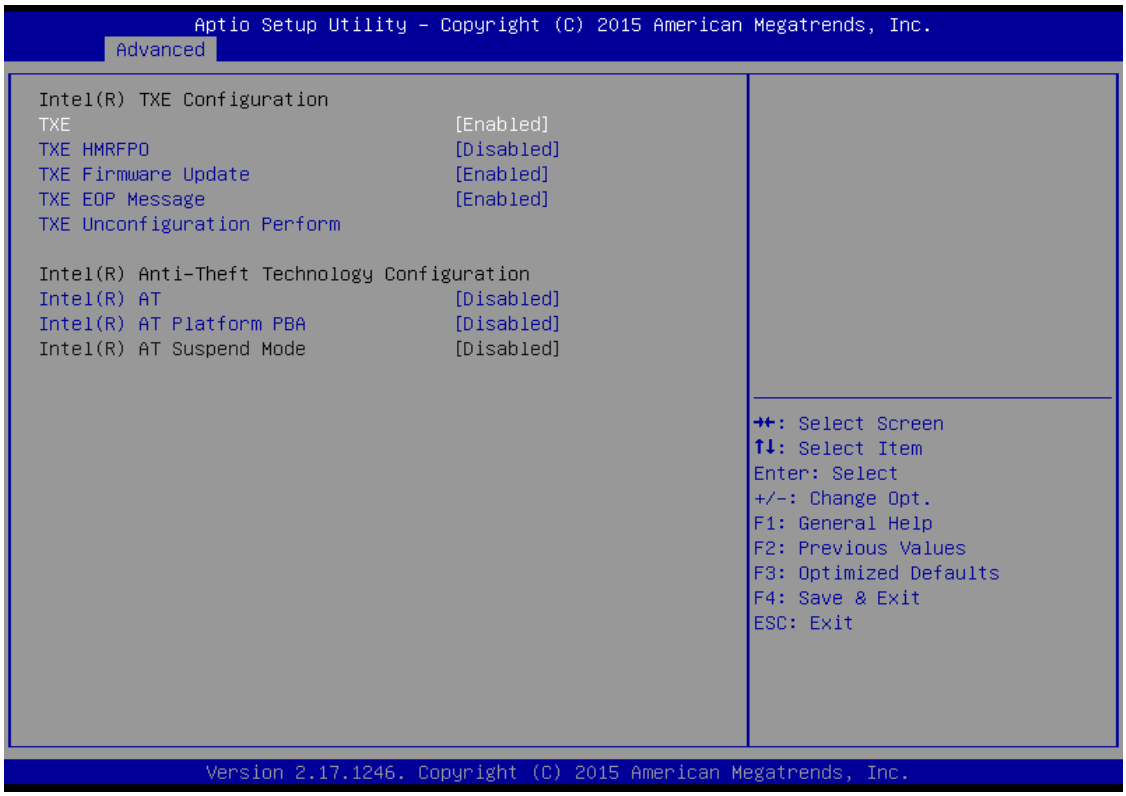
BIOS Setting	Description	Setting Option	Effect
CSM Support	The Compatibility Support Module (CSM) is a component of the UEFI firmware that provides legacy BIOS compatibility by emulating a BIOS environment, allowing legacy operating systems and some option ROMs that do not support UEFI to still be used.	Enabled/ Disabled	Enable or disable the Compatibility Support Module
GetaA20 Active	Activate GetaA20	Upon Request	Enable or disable this function
Option ROM Messages	Receiving ROM Messages Settings	Force BIOS	Set ROM messages parameters
Network	Specifies which Network option ROM is booted	UEFI	Only UEFI option ROMs are booted
		Legacy	
Storage	Specifies which Storage option ROM is booted	UEFI	Only UEFI option ROMs are booted
		Legacy	Only Legacy option ROMs are booted
Video	Specifies which Video option ROM is booted	UEFI	Only UEFI option ROMs are booted
		Legacy	Only Legacy option ROMs are booted
Other PCI Devices	Specifies which option ROM is booted for devices other than the network, storage or video	UEFI	Only UEFI option ROMs are booted
		Legacy	Only Legacy option ROMs are booted

Advance Menu -> Platform Trust Technology



BIOS Setting	Description	Setting Option	Effect
fTPM	Trusted Platform Module parameters	Enabled/Disabled	Enables or disables this function

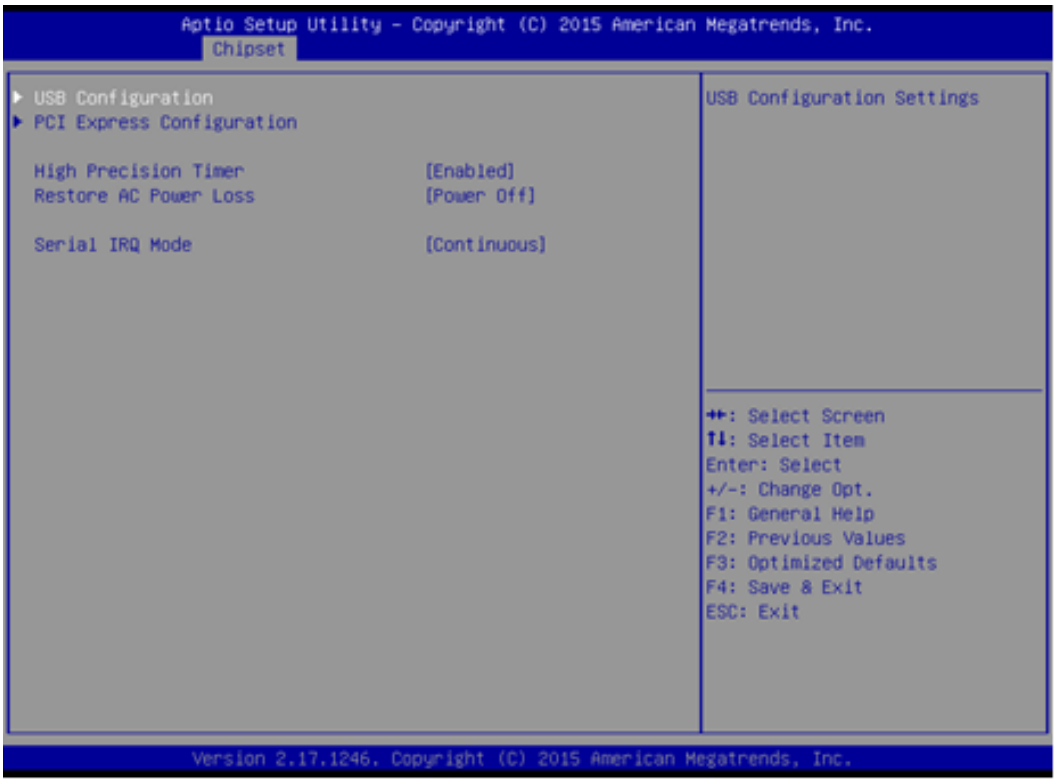
Advance Menu -> Security Configuration



BIOS Setting	Description	Setting Option	Effect
TXE	Trusted Execution Technology parameters	Enabled/Disabled	Enables or disables this function
TXE HMRFPO	TXE HMRFPO parameters	Enabled/Disabled	Enables or disables this function
TXE Firmware Update	TXE Firmware Update parameters	Enabled/Disabled	Enables or disables this function
TXE EOP Message	TXE EOP Message parameters	Enabled/Disabled	Enables or disables this function
Intel ® AT	Intel ® AT parameters	Enabled/Disabled	Enables or disables this function
Intel ® AT Platform PBA	Intel ® AT Platform PBA parameters	Enabled/Disabled	Enables or disables this function

Chipset Menu

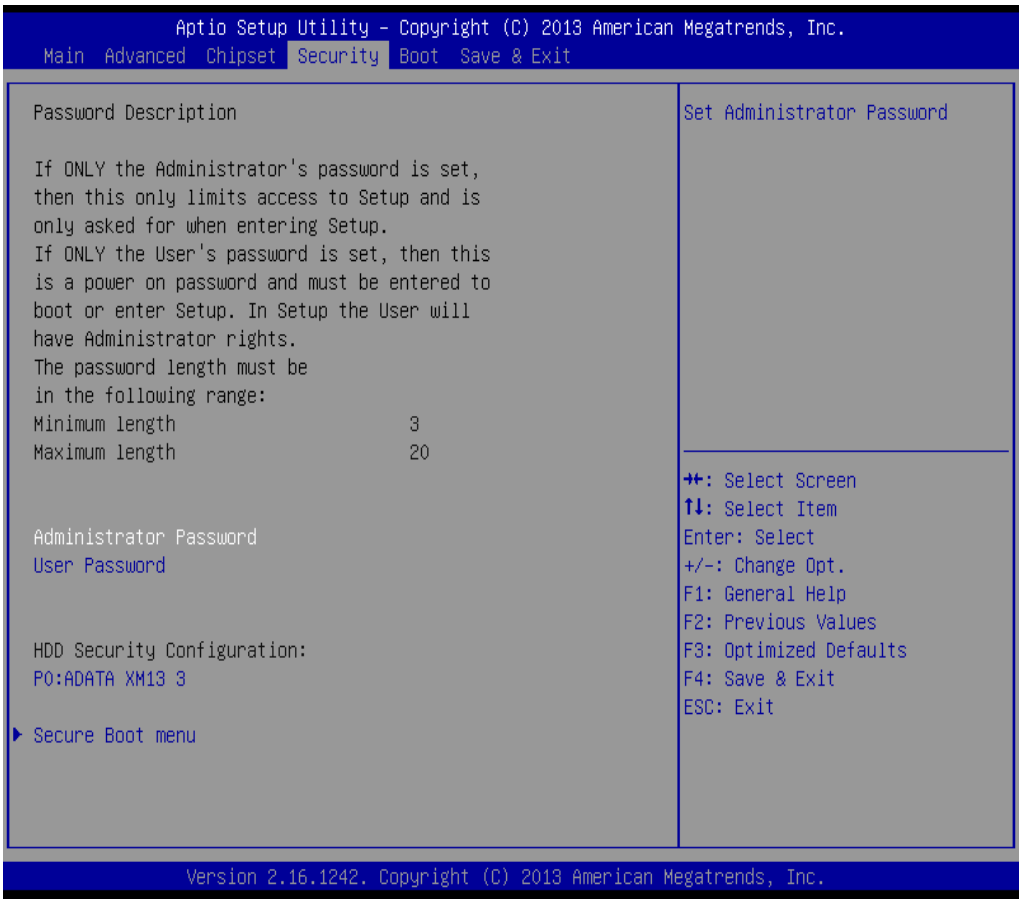
For items marked with ▸, please press **<Enter>** for more options.



BIOS Setting	Description	Setting Option	Effect
High Precious Timer	Allow to set up High Precious Timer settings	Enabled/ Disabled	Enables/Disables this function
Restore AC Power Loss	This function allows to set up booting options after a power failure	Power on/ Power off	Boot automatically after a power failure
Serial IRQ Mode	When working with personal computer hardware, installing and removing devices, the system relies on interrupt requests. Interrupt request	Continuous	Allow user to set up desired IRQ Mode

Security Menu

In the Security menu, users can set administrator password, user password, and HDD security configuration.



BIOS Setting	Description	Setting Option	Effect
Administrator Password	Displays whether or not an administrator password has been set.	Enter	Enter password
User Password	Display whether or not a user Password has been set.	Enter	Enter password

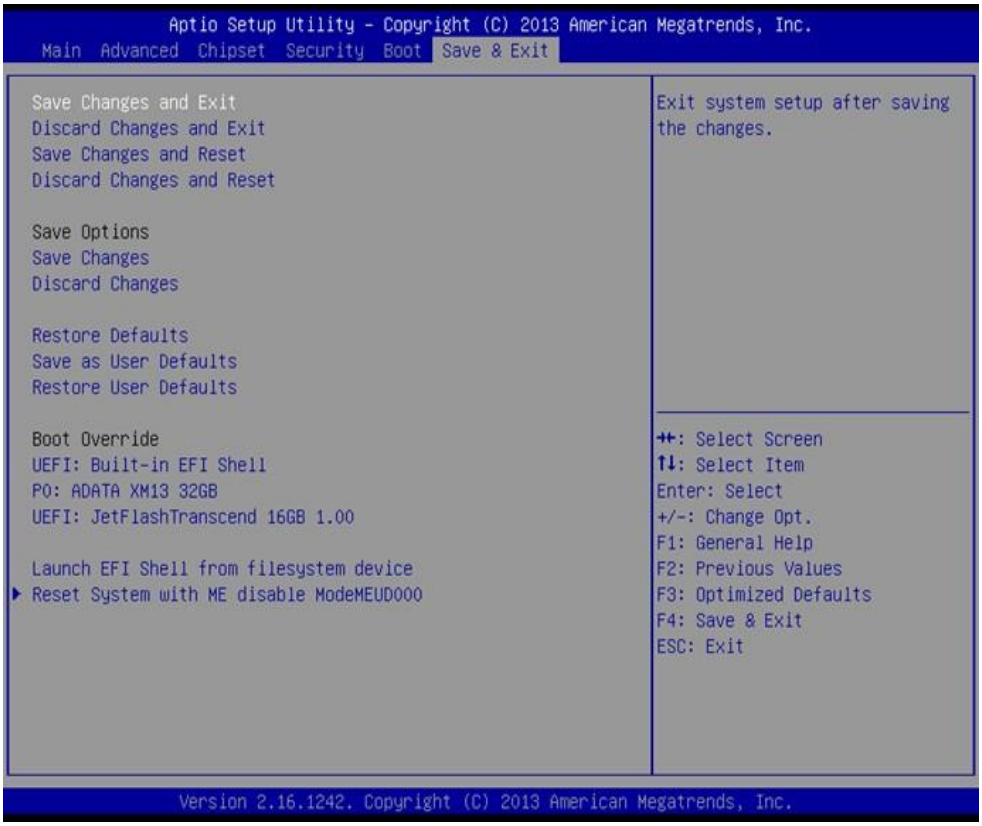
Boot Configuration

The Boot menu sets the sequence of the devices to be searched for the operating system. The bootable devices will be automatically detected during POST and shown here, allowing you to set the sequence that the BIOS uses to look for a boot device from which to load the operating system.

BIOS Setting	Description	Setting Option	Effect
Setup Prompt Timeout	Allows user to configure the number of seconds to stay in BIOS setup prompt screen.	Enter	Set the prompt timeout
Boot NumLock State	Enables or disables NumLock feature on the numeric keypad of the keyboard after the POST (Default: On).	On	Remains On
		Off	Remains OFF
Quite Boot	Determines if POST message or OEM logo (default = Black background) is displayed.	Disabled	Disables this function
		Enabled	Enables this function
Fast Boot	Enables or disables Fast Boot to shorten the OS boot process. (Default: Disabled).	Disabled	Disables this function
		Enabled	Enables this function
Boot Mode Select	Specifies which mode will be used for booting	Legacy	Only Legacy option is booted
		UEFI	Only UEFI option is booted
Boot Option #1~#6	Specifies the overall boot order from the available devices	Ex: Boot Option#1 (hard drive)	Hard drive as the first priority
USB Key Drive BBS Priorities	USB Key Drive BBS Priorities	Enter	Open sub-menu
Hard Disk Drive BBS Priorities	Hard Disk Drive BBS Priorities	Enter	Open sub-menu
Network Drive BBS Priorities	Network Drive BBS Priorities	Enter	Open sub-menu

Save & Exit

The Exit menu displays a way how to exit BIOS Setup utility. After finishing your settings, you must save and exit for changes to be applied.



BIOS Setting	Description	Setting Option	Effect
Save Changes and Exit	This saves the changes to the CMOS and exits the BIOS Setup program.	Enter <YES>	Save changes
Discard Changes and Exit	This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS.	Enter <YES>	Saves the changes
		Enter <NO>	Return to the BIOS Setup Main Menu
Save Changes and Reset	Reset the system after saving the changes.	Enter <YES>	Saves the changes
		Enter <NO>	Return to the BIOS Setup Main Menu
Discard Changes and Reset	Reset system setup without saving any changes	Enter <YES>	Saves the changes
		Enter <NO>	Return to the BIOS Setup Main Menu

Save Changes	Save changes done so far to any of the setup options.	Enter <YES> Enter <NO>	Saves the changes Return to the BIOS Setup Main Menu
Discard Changes	Discard changes done so far to any of the setup options.	Enter <YES>	Saves the changes
		Enter <NO>	Return to the BIOS Setup Main Menu
Restore Default	Restore/load default values for all the setup options.	Enter <YES>	Saves the changes
		Enter <NO>	Return to the BIOS Setup Main Menu
Save as User Defaults	Save the changes done so far as User defaults.	Enter <YES>	Saves the changes
		Enter <NO>	Return to the BIOS Setup Main Menu
Restore User Defaults	Restore the User Defaults to all the setup options.	Enter <YES>	Saves the changes
		Enter <NO>	Return to the BIOS Setup Main Menu

CHAPTER 5

Trouble Shooting

This chapter covers the following topics:

- Storage Notice
- Troubleshoot your LCD Monitor

If your monitor fails to operate correctly, consult the following chart for possible solution before calling for repairs.

5-1 Trouble Shooting

If your terminal fails to operate correctly, consult the following chart for possible solution before calling for repairs:

Condition	Check Point
Nothing showed up on the screen	Check if the all external cable is firmly connected in the socket. • Check if the Power indicator is lit-up after power button pressed • Check if the DC power generator provides adequate power to the terminal
The screen suddenly turns blank and the power indicator goes off	• Make sure that LED indicator is not turned off. • Make sure the power cable and power generator are working
LAN, USB, RS232 connection poor	• Please check the signal cable, make sure each pin has correctly connected. • If Ethernet didn't run on Gigabit LAN speed, please check all 10-pin has been well-connected. • If USB power is not enough, please take advantage of 2nd USB port to supply adequate power. • Default RS232 has no +5V, +12V provided. If extra power is needed, please contact local sales representative.
The screen is too bright (too dark).	Check if the brightness or contrast was adjusted too low by Intel Graphic controlling management.
The screen is shaking or blinking	• Make the space clear around the terminal, exclude the EMI interference first, normally it has EMI filter and power filter to isolate the interference. • Check the grounding Pin has been well grounded to prevent from noise from same source.