WEBS-21A0

Fan-less Embedded System

User's Manual

Version 1.0

Table of Contents

How to Use This Manual

How to Use This Manual

The manual describes how to configure WEBS-2190 system to meet various operating requirements. It is divided into five chapters, with each chapter addressing a basic concept and operation of Fan-less Embedded System.

Chapter 1: System Overview. Present what may have in the box and give an overview of the product specifications and basic system architecture for this fan-less embedded system.

Chapter 2: System Installation. Show the definitions and locations of all the interfaces and describe a proper installation guide so that can easily configure the system.

Chapter 3: BIOS Setup Information. Specify the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of trouble-shooting.

Chapter 4: Important Instructions. Indicate some instructions which must be carefully followed when the fan-less embedded system is used.

Chapter 5: Frequent Asked Questions. Provide the answers for the most frequently asked questions.

The content of this manual is subject to change without prior notice. These changes will be incorporated in new editions of the document. The vendor may make supplement or change in the products described in this document at any time.

Revision History

Revision	Date	Details of Change(s)
V1.0	2017/9/25	Initial Release

Chapter 1
System Overview

1.1 Introduction

Portwell Inc., a world-leading innovator in the Industrial PC (IPC) market, announced WEBS-21A0, a fan-less intelligent embedded system featuring 15W SKUs of the 5th generation Intel® Core® processor product family (codename Broadwell). Its rugged, compact design and high performance make the WEBS-21A0, a perfect solution for applications in kiosk, digital signage, in-vehicle mobile video surveillance, medical, defense and the harsh environments of factory automation.

The new rugged WEBS-21A0 is equipped with the Portwell NANO-6050, a NANO-ITX embedded board based on the 5th generation Intel® Core® processor product family. Processors available in this product family combine low power consumption with high processing power and improved performance compared to previous generation processor. The compact WEBS-21A0 embedded system also features DDR3L SO-DIMM up to 8GB supporting 1333/1600 MT/s; two Mini DisplayPort (DP) on the rear I/O with resolution up to 4096 x 2160; one smart COM port for RS-232/422/485 selected by BIOS; one audio combo jack to support Line-out and Mic-in; and multiple storage with 2.5" HDD/SSD, mSATA device. In addition, the compact 150mm x 150mm x 63mm box, WEBS-21A0, integrates a half-size mini PCIe socket interface to support WIFI, Bluetooth, 3G functions, etc, making it an ideal solution as an IoT gateway.

The rugged, fan-less design makes the WEBS-21A0 durable in harsh environment applications, such as factory automation and industrial automation. The rugged and compact WEBS-21A0 supports a temperature range from 0ºC to 50ºC for harsh environment operations, while at the same time, its fan-less design ensures silent operation, reliability and low maintenance rate and costs. In addition, it has already passed a vibration test of 5Grms/ 10~500Hz and a shock test of 50G, assuring its solidity and reliability. In addition, the system accepts 12V input voltage.

With its superior processing power, high capability and support for 4K resolution (4096 x 2160), Portwell's WEBS-21A0 is indeed an ideal solution for high computing power and/or high 3D video/image applications.

1.2 Check List

The WEBS-21A0 package should cover the following basic items:

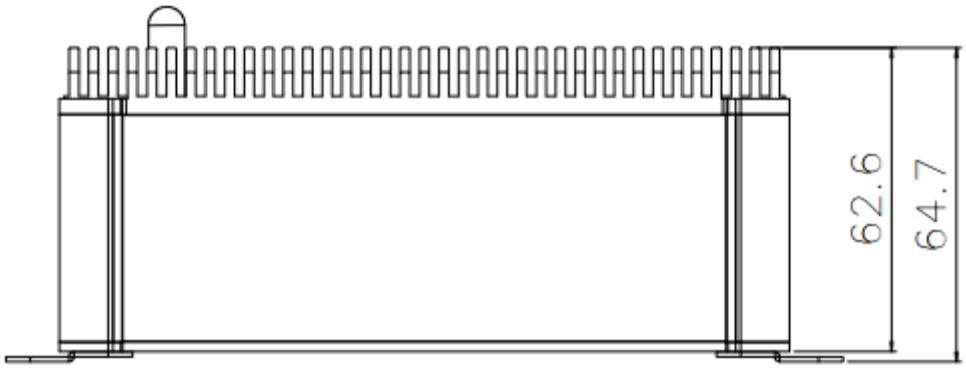
- ✓ One WEBS-21A0 Fan-less Embedded System
- ✓ One 60W AC/DC Power Adapter DC-plug with screw
- ✓ Other Accessories

If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

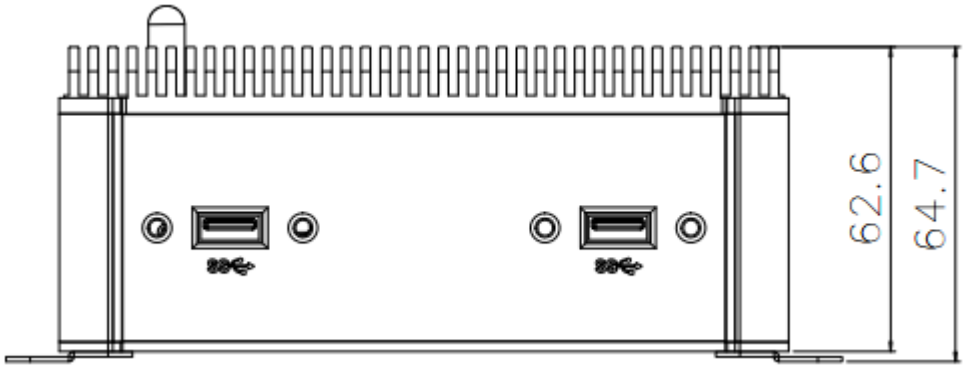
1.3 Product Specification

System	
M/B	NANO-6050
System Chipset	Intel® Broadwell-U SoC
CPU	Intel® Core® i5-5350U (15W) in FCBGA1168 package 1.8 GHz up to 2.9 GHz /2C/4T. 3M Cache. Intel® Core® i3-5010U (15W) in FCBGA1168 package 2.1 GHz /2C/4T. 3M Cache..
BIOS	AMI uEFI BIOS (SPI ROM)
System Memory	One 204-pin SO-DIMM socket supports DDR3L 1333/1600 MT/s SDRAM up to 8GB
Storage	1x 2.5" SATA HDD/SSD, 1x Msata
Watchdog Timer	Programmable by embedded controller
H/W Status Monitor	-Temperature (CPU & System) -Voltage (CPU Vcore, 12V, 5V, 3.3V, 1.35V)
Expansion	1x Half-size Mini PCIe socket
External I/O	
Series Ports	1x RS-232/422/485 COM Port (selected by BIOS)
Display	2x mini DP
USB	1x USB 3.0, 2x USB 2.0 (Optional kit: additional 2x USB 3.0)
Audio	Audio Combo Jack Lin-out/Mic-in (Realtek ALC892)
LAN	2x Gigabit Ethernet (Intel® I218AT)
Other	1x Antenna hole for WIFI/Bluetooth/3G module
Power Supply Unit	
Power Supply	DC 12V
Environment	
Operating Temperature	0℃ to 50℃
Storage Temperature	-20℃ to 85℃
Relative Humidity	95% @ 40℃, non-condensing
Operating Vibration	5Grms/10~500Hz, IEC 60068-2-6
Operating Shock	50G, 11 msec, IEC 60068-2-27
Mechanical	
Dimension (WxDxH)	150x 150 x 63 mm; 5.9" x 5.9" x 2.5"
Weight	2kg
Mounting	Wall, Panel/VESA, and DIN Rail mounting

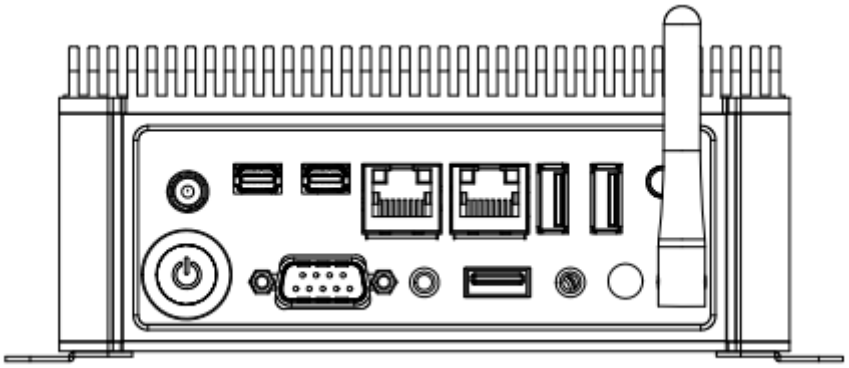
1.4 Mechanical Dimension



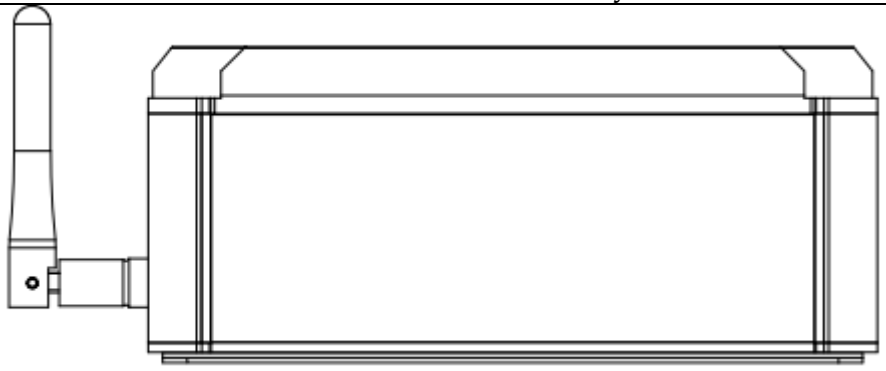
Front view of the WEBS-21A0 system (standard)



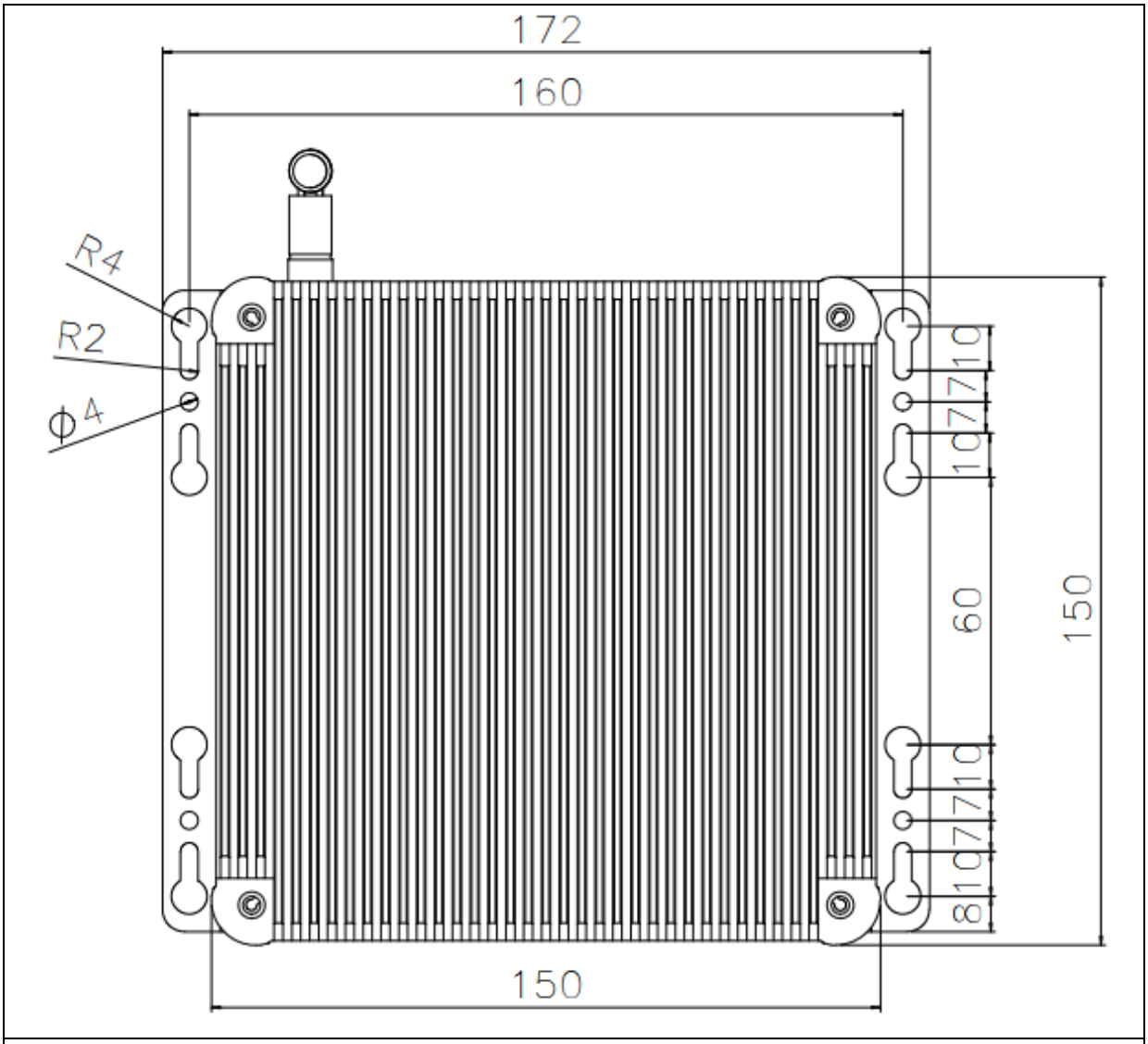
Front view of the WEBS-21A0 system (with optional kit: addition 2x USB 3.0)



Rear view of the WEBS-21A0 system



Side view of the WEBS-21A0 system



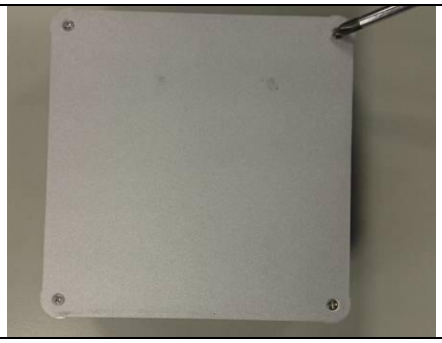
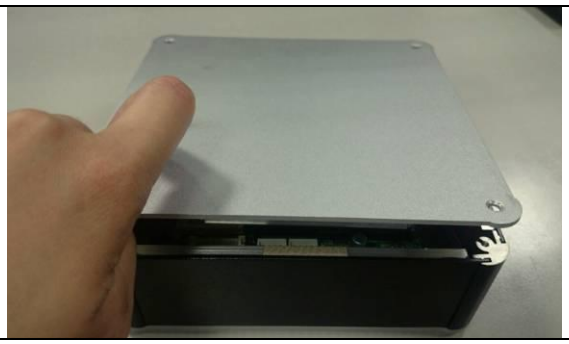
Top view of the WEBS-21A0 system

Chapter 2
System Installation

This chapter provides you with instructions to set up your system. Definitions and locations of all the interfaces are described so that you can easily configure your system. For more detailed PIN assignment and jumper setting, please refer to user's manual of NANO-6050.

2.1 HDD Installation

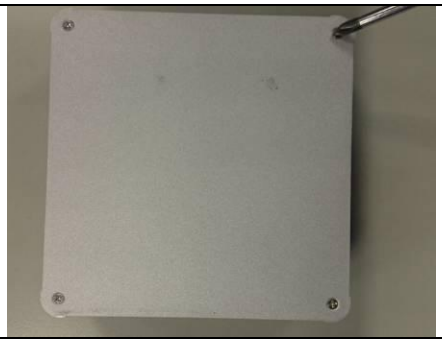
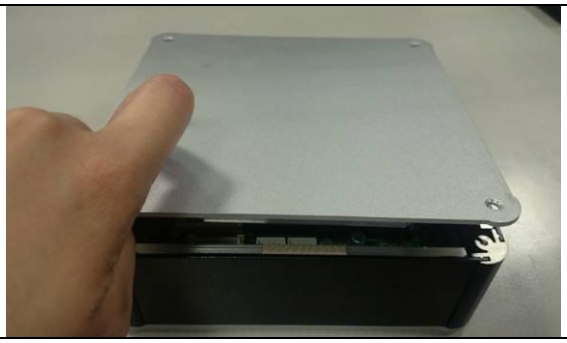
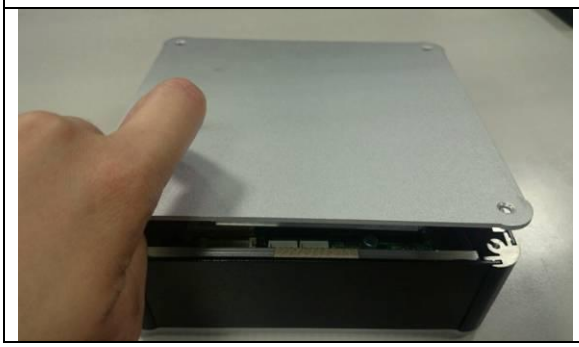
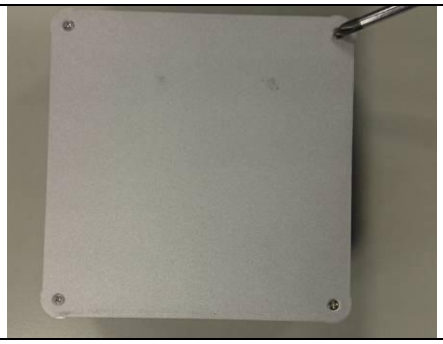
It's easy to install and maintenance the 2.5" HDD/SSD by just open the back cover. (The height must be less than 10mm)

<table>
<tr><td>Step 1. Loosen the 4 screws of the back cover</td><td>Step 2. Take out the back cover</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Step 3. Loosen the 4pcs screws and take out the HDD bracket</td><td>Step 4. Install 2.5" HDD/SSD on the bracket with screws</td></tr>
<tr><td> 
</td><td> 

M3x10L*4</td></tr>
<tr><td>Step 5. Attach HDD bracket back to back cover and connect to SATA cable</td><td>Step 6. Tighten the 4 screws of the back cover</td></tr>
<tr><td>  </td><td>  </td></tr>
</table>

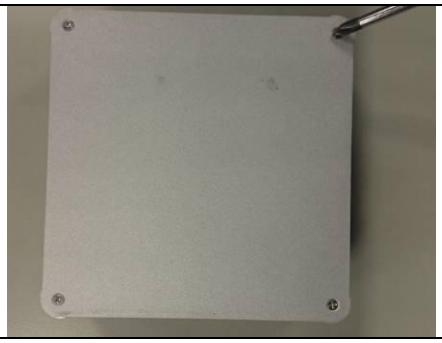
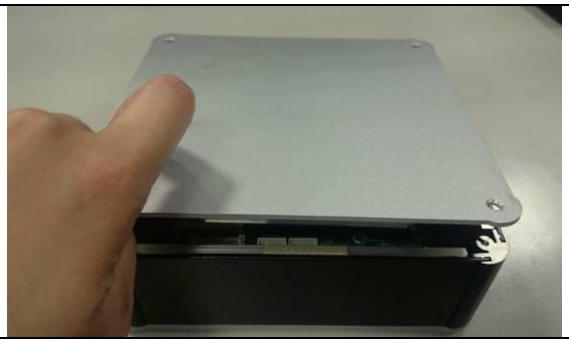
2.2 Half-size Mini-PCIe Device Installation

It's easy to install and maintenance the 1x Half-size Mini-PCIe device by just open the back cover.

Step 1. Loosen the 4 screws of the back cover	Step 2. Take out the back cover
	
Step 3. Assemble the Half-size Mini-PCIe card and make sure it has been screwed	Step 4. Install the SMA cable onto main connector of module
  M2.5x4L	
Step 4. Put the Antenna cable through the antenna hole	Step 5. Install the Antenna
	
Step 6. Position the back cover	Step 7. Tighten the 4 screws of the back cover
	

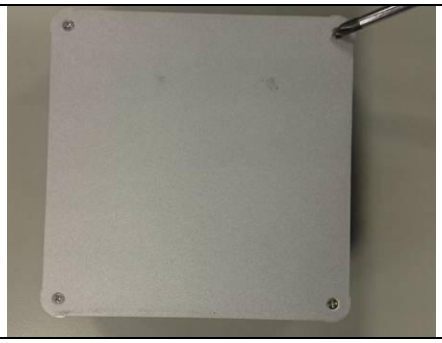
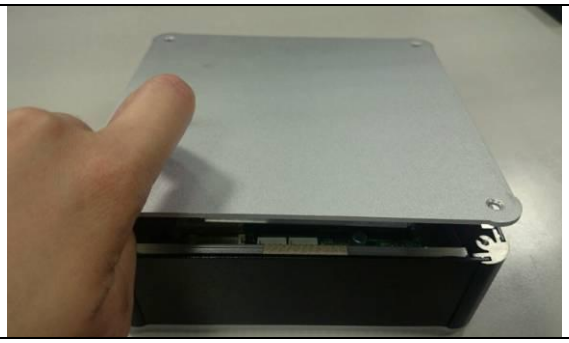
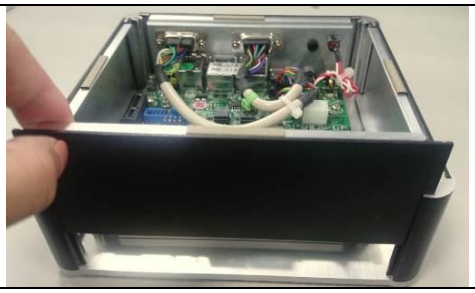
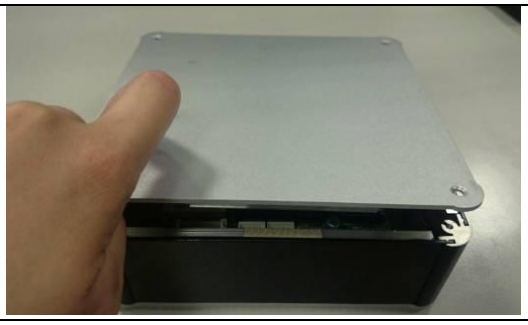
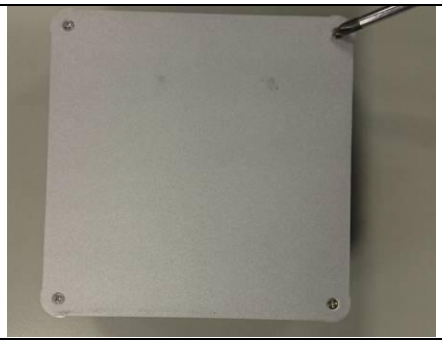
2.3 mSATA Device Installation

It's easy to install and maintenance the 1x mSATA by just open the back cover.

Step 1. Loosen the 4 screws of the back cover	Step 2. Take out the back cover
	
Step 3. Assemble the mSATA card and make sure it has been screwed	Step 4. Tighten the 4 screws of the back cover
  M2.5x6L	

2.4 DIN Rail Mounting Device Installation

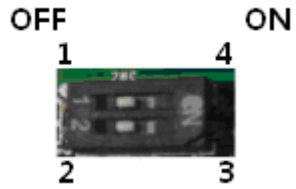
It's easy to install and maintenance the Din Rail mounting device by just open the back cover.

Step 1. Loosen the 4 screws of the back cover	Step 2. Take out the back cover
	
Step 3. Take out the front side cover	Step 4. Prepare the Din Rail mounting side cover
	
Step 5. Assemble the new side cover with DIN Rail mounting device	Step 6. Position the back cover
	
Step 7. Tighten the 4 screws of the back cover	Step 8. Clip the DIN Rail onto the device and make sure it has been locked tightly
	

2.5 AT mode setting

AT mode: Once the power supply plug in, the system starts automatically, don't need press the power button.

SW1: AT Mode or ATX Mode Selection



SW1	Function
1-4 ON; 2-3 ON	ATX Mode (default)
1-4 ON; 2-3 OFF	ATX Mode
1-4 OFF; 2-3 ON	ATX Mode
1-4 OFF; 2-3 OFF	AT Mode

2.6 Getting Started

It is easy to get the system started.

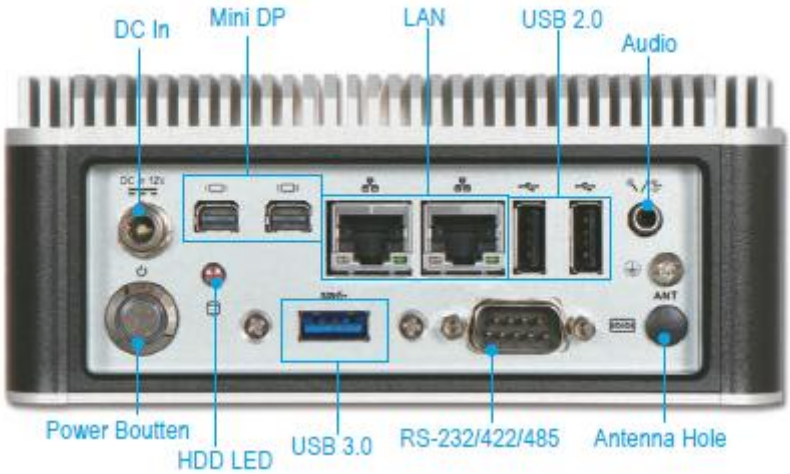
Step 1. Make sure the power supply (12V) is connected properly	Step 2. Press the power button to turn on the system
	

2.7 I/O Interfaces

2.7.1 Front View (Standard)

2.7.2 Front View (Optional Kit: Additional 2x USB 3.0)

2.7.3 Rear View



DC in: (12V)
Using the provided DC source to connect to the system

Power Button:
Press the power button to turn ON/OFF the system

HDD LED:
Shows real-time read and write activity of your HDD/SSD as a small blinking indicator

Mini DP:
Mini DP (Display Port) display output

LAN:
Two Gigabit Ethernet (10/100/1000 Mbits/sec) LAN ports by using Intel I218AT Ethernet Controller

USB 2.0:
Two USB 2.0 (Universal Serial Bus) ports

USB 3.0:
One USB 3.0 (Universal Serial Bus) port

RS-232/422/485:
*Note: RS-232/422/485 configuration is determined by BIOS setting. Check BIOS setting for details.

PIN No.	Signal Description	PIN No.	Signal Description
1	DCD#/485D-/422T-	2	RXD#/485D+/422T+
3	TXD#/422R+	4	DTR#/422R-
5	Ground	6	DSR#
7	RTS#	8	CTS#
9	RI#	10	N/C

Audio:
Combo connector for Line-Out and Min-In

Antenna Hole:
Antenna holes for Mini PCIe wireless card

Chapter 3
BIOS Setup Information

WEBS-21A0 system adopts NANO-6050 mother board. The following section describes the BIOS setup program. The BIOS setup program can be used to view and change the BIOS settings for the module. Only experienced users should change the default BIOS settings.

3.1 Entering Setup – Launch System Setup

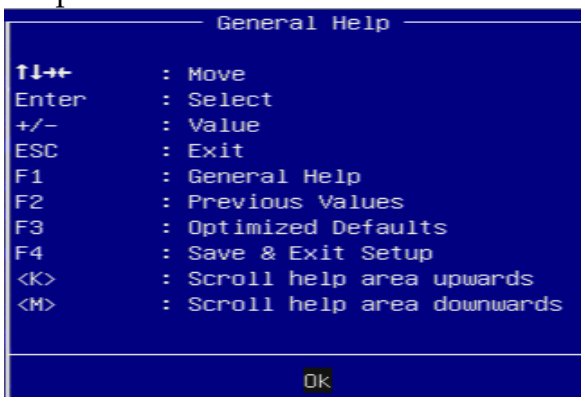
Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <ESC> or <DELETE> key will enter BIOS setup screen.

Press <ESC> or <DEL> to enter SETUP

If the message disappears before responding and still wish to enter Setup, please restart the system by turning it OFF and On or pressing the RESET button. It can be also restarted by pressing <Ctrl>, <Alt>, and <Delete> keys on keyboard simultaneously.

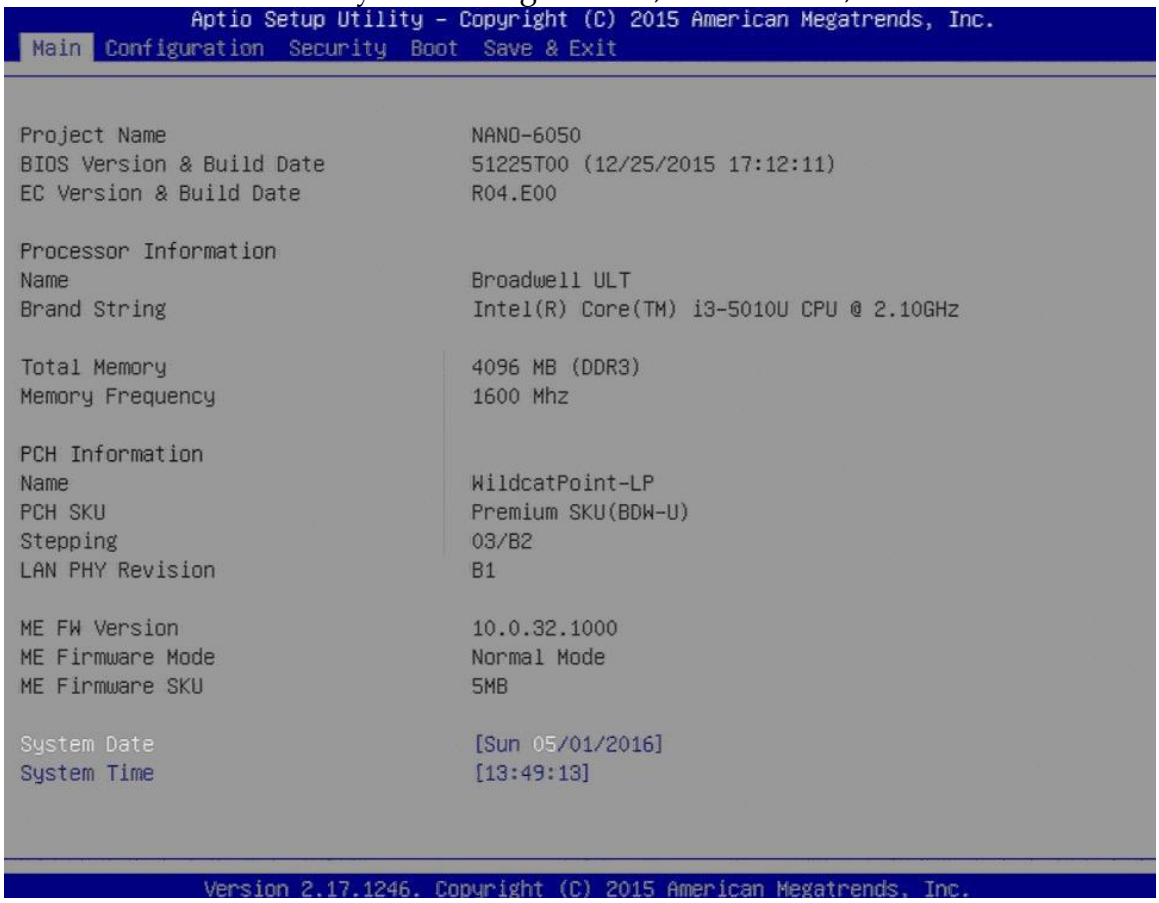
Press <F1> to Run General Help or Resume

The BIOS setup program provides a General Help screen. The menu can be easily called up from any menu by pressing <F1>. The Help screen lists all the possible keys to use and the selections for the highlighted item. Press <Esc> to exit the Help Screen.



3.2 Main

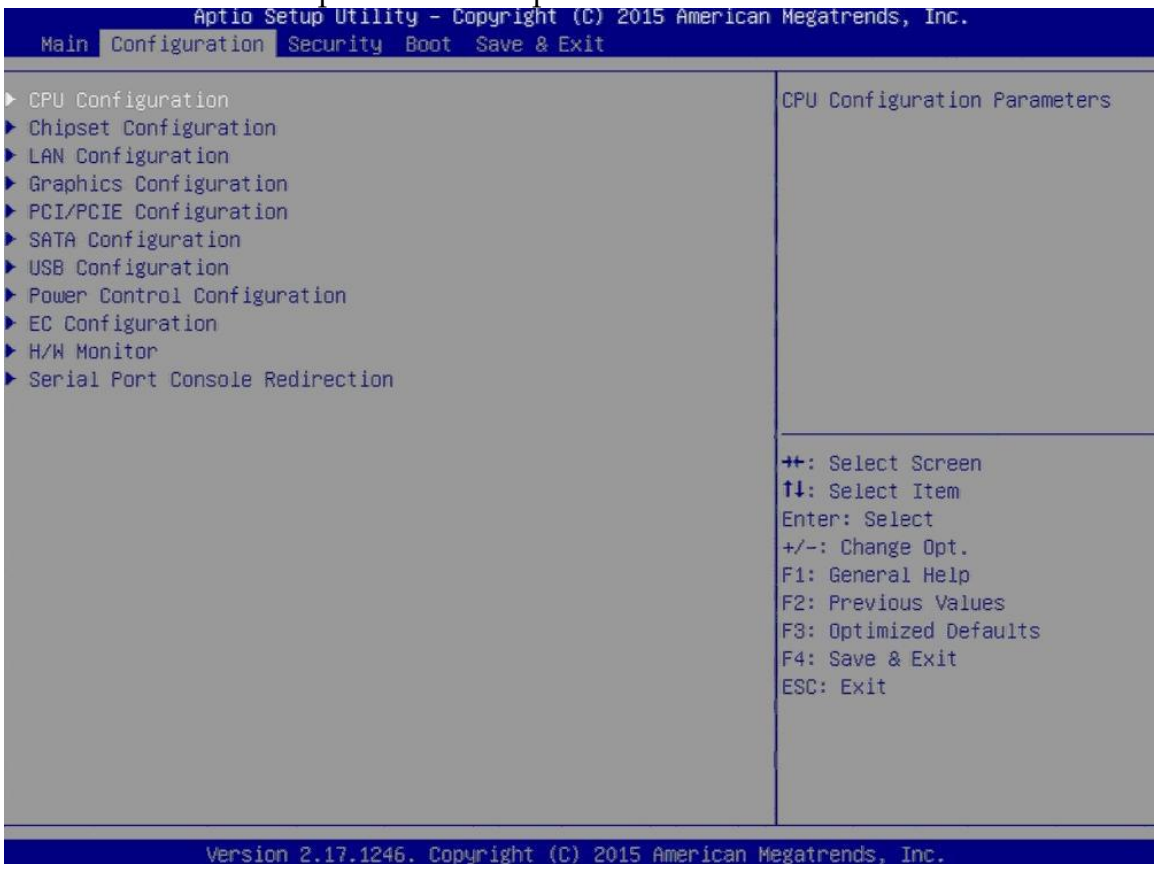
Use this menu for basic system configurations, such as time, date etc.



Feature	Description	Options
System Date	The date format is <Day>, <Month><Date><Year>. Use [+] or [—] to configure system Date.	
System Time	The time format is <Hour><Minute><Second>. Use [+] or [—] to configure system Time.	

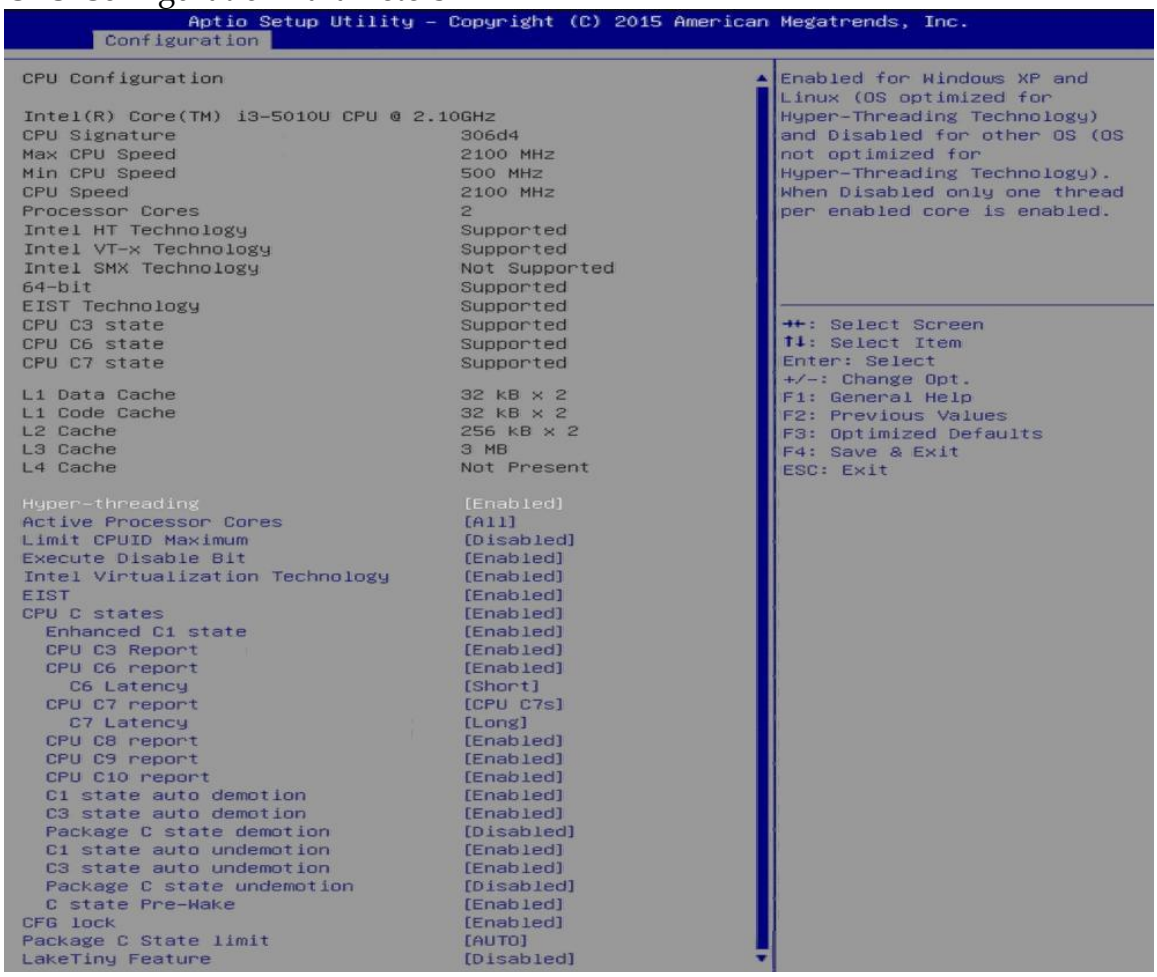
3.3 Configuration

Use this menu to set up the items of special enhanced features.



CPU Configuration

CPU Configuration Parameters

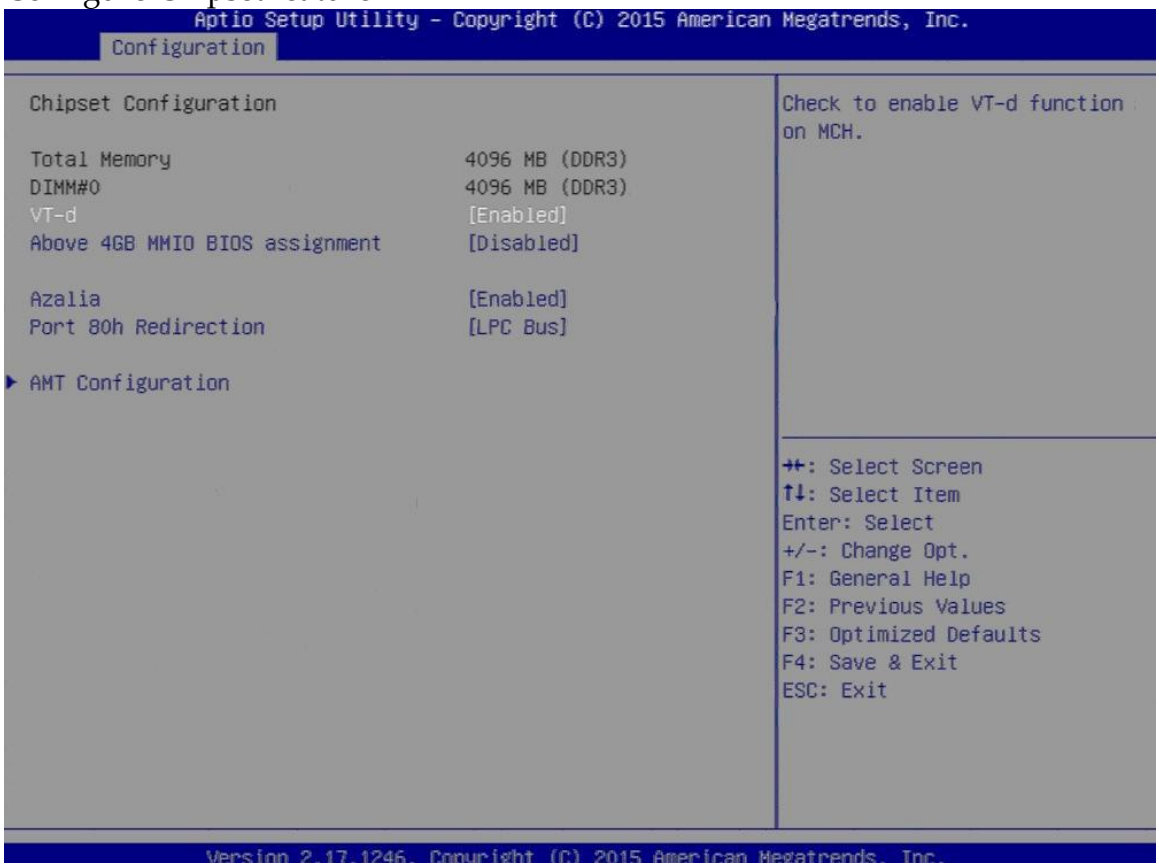


Feature	Description	Options
Hyper-Threading	Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled.	Disabled, ★Enabled
Active Processor Cores	Number of cores to enable in each processor package.	★All, 1
Limit CPUID Maximum	Disabled for Windows XP	★Disabled, Enabled
Execute Disable Bit	XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)	Disabled, ★Enabled
Intel Virtualization Technology	When enabled, a VMM can utilize the additional hardware capabilities provided by Vander pool Technology	Disabled, ★Enabled
EIST	Enabled/ Disabled Intel Speedstep	Disabled, ★Enabled

CPU C states (Enabled)	Enable or disable CPU C state	★Disabled, Enabled
Enhanced C1 state	Enhanced C1 state	Disabled, ★Enabled
CPU C3 Report	Enable/ Disable CPU C3 report to OS	Disabled, ★Enabled
CPU C6 Report	Enable/ Disable CPU C6 report to OS	Disabled, ★Enabled
C6 Latency	Configure Short/Long latency for C6	★Short, Long
CPU C7 report	Enable/Disable CPU C7 report to OS	Disabled, CPU C7, ★CPU C7s
C7 Latency	Configure Short/Long latency for C7	Short, ★Long
CPU C8 report	Enable/Disable CPU C8 report to OS	Disabled, ★Enabled
CPU C9 report	Enable/Disable CPU C9 report to OS	Disabled, ★Enabled
CPU C10 report	Enable/Disable CPU C10 report to OS	Disabled, ★Enabled
C1 state auto demotion	Processor will conditionally demote C3/C6/C7 requests to C1 based on uncore auto-demote information	Disabled, ★Enabled
C3 state auto demotion	Processor will conditionally demote C6/C7 requests to C3 based on uncore auto-demote information	Disabled, ★Enabled
Package C state demotion	Enable Package C state demotion.	★Disabled, Enabled
C1 state auto un-demotion	Un-demotion from Demoted C1.	Disabled, ★Enabled
C3 state auto un-demotion	Un-demotion from Demoted C3.	Disabled, ★Enabled
Package C state un-demotion	Enable Package C state un-demotion.	★Disabled, Enabled
C state Pre-Wake	Enable or disable C state Pre-Wake feature.	Disabled, ★Enabled
CFG lock	Configure MSR 0xE2[15], CFG lock bit.	Disabled, ★Enabled
Package C State limit	Package C State limit	C0, C2, C3, C6, C7, C7s, C8, C9, C10, ★AUTO
LakeTiny Feature	Enable/Disable LakeTiny for C state configuration	★Disabled, Enabled

Chipset Configuration

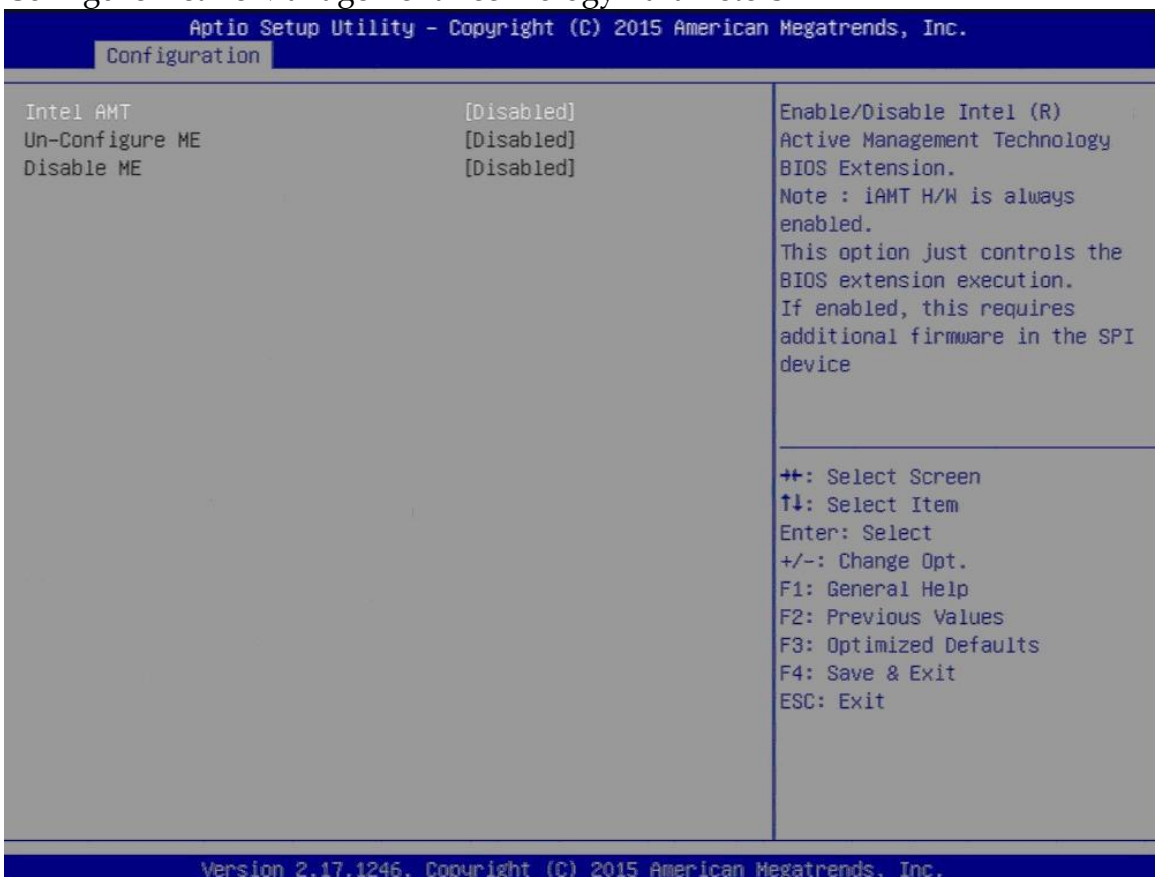
Configure Chipset feature



Feature	Description	Options
VT-d	Check to enable VT-d function on MCH	Disabled, ★Enabled
Above 4GB MMIO BIOS assignment	Enabled/Disabled above 4GB Memory MappedIO BIOS assignment.	Enabled, ★Disabled
Azalia	Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled Enabled = Azalia will be unconditionally enabled	★Enabled, Disabled
Port 80h Redirection	Control where the Port 80h cycles are sent.	★LPC Bus, PCIE Bus

AMT Configuration

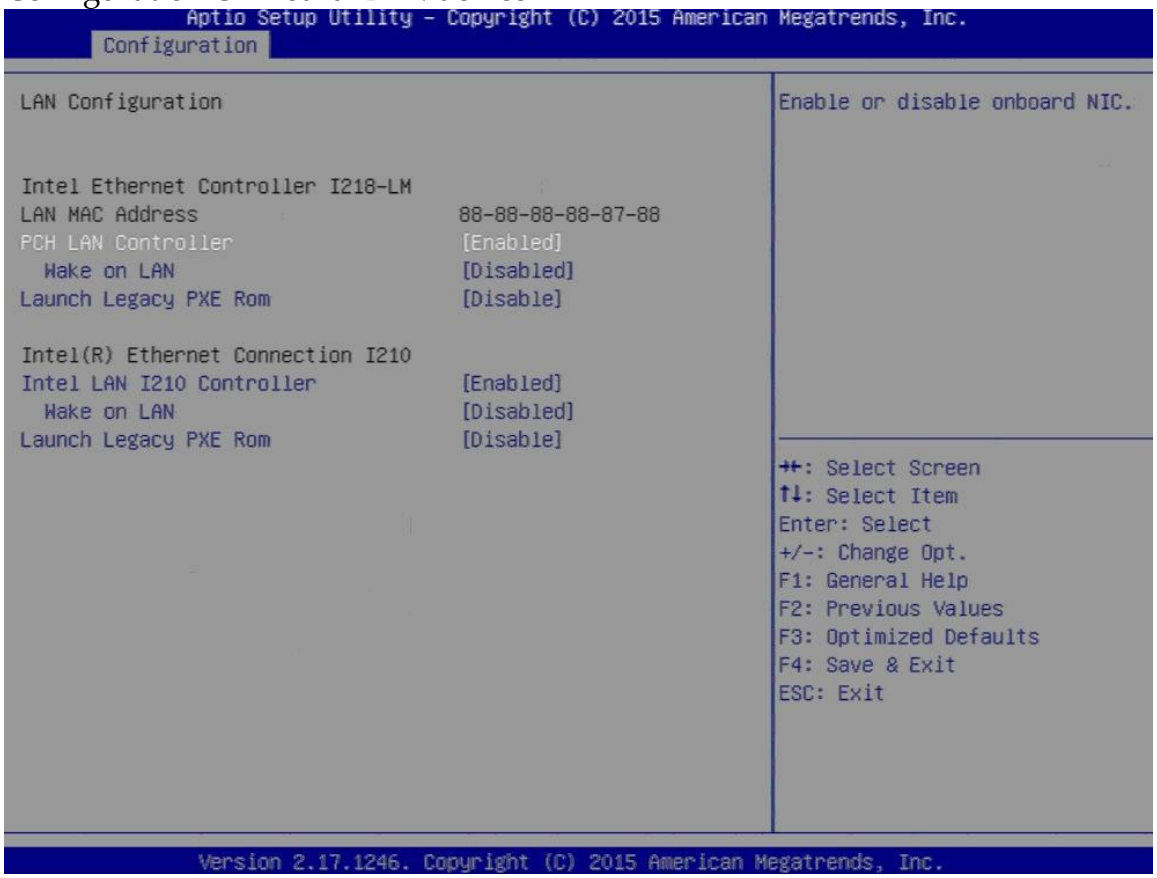
Configure Active Management Technology Parameters



Feature	Description	Options
Intel AMT (Enable)	Enable/Disable Intel® Active Management Technology BIOS Extension. Note: iAMT H/W is always enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device	★Disabled, Enabled
Un-Configure ME	OEMFlag Bit 15:Un-Confugure ME without password	★Disabled, Enabled
Disable ME	Set ME to Soft Temporary Disabled.	★Disabled, Enabled

LAN Configuration

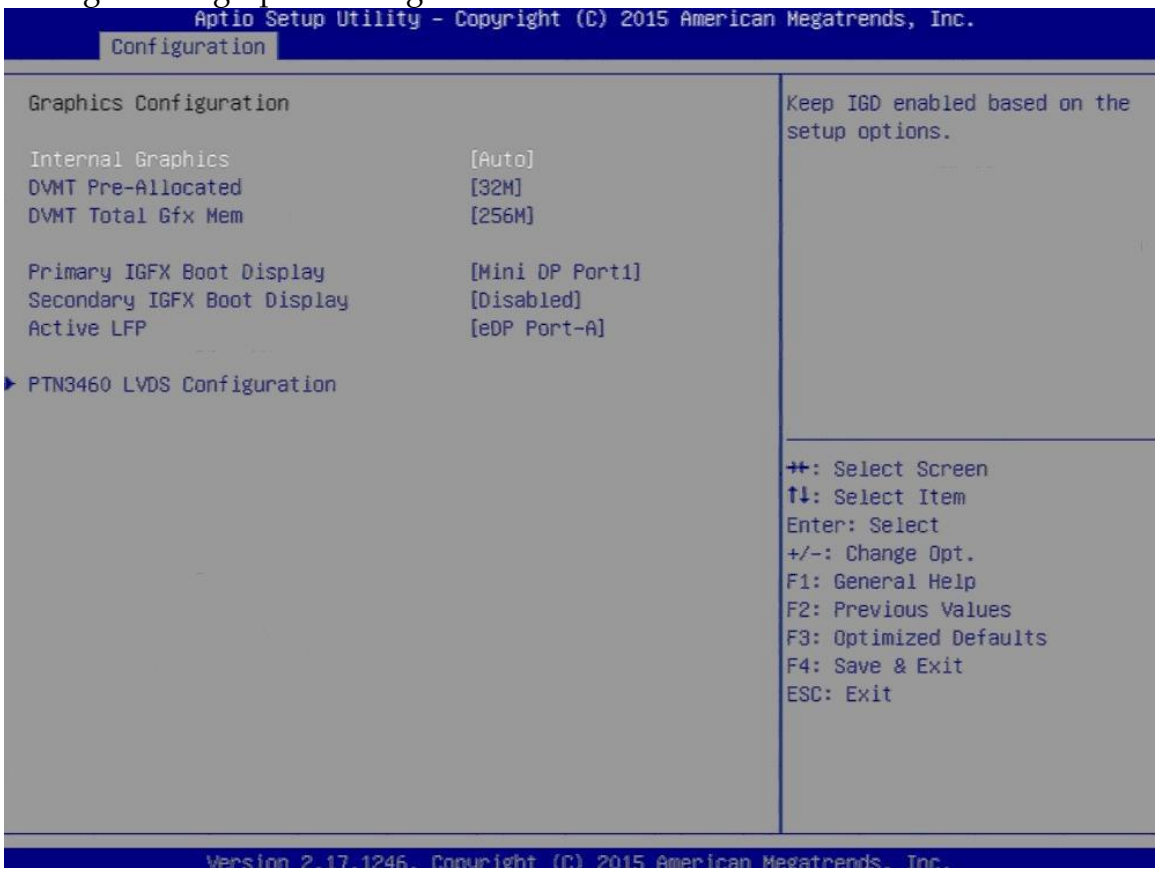
Configuration On Board LAN device



Feature	Description	Options
PCH LAN Controller	Enable or disable onboard NIC.	★Enabled, Disabled
Wake on LAN	Enable or disable integrated LAN to wake the system. (The Wake On LAN cannot be disabled if ME is on at Sx state.)	Enabled, ★Disabled
Launch Legacy PXE Rom	Launch Legacy PXE Rom. [Disable] Not launch Rom, [Enable] Force launch Rom, [Auto] Auto detect LAN cable status to Enable/Disable Rom initial	★Disable, Enable, Auto
Intel LAN I210 Controller	Enable or disable Intel LAN I210	Disabled, ★Enabled
Wake on LAN	Enable or disable integrated LAN to wake the system. (The Wale On LAN cannot be disabled if ME is on at Sx state.)	Enabled, ★Disabled
Launch Legacy PXE Rom	Launch Legacy PXE Rom. [Disable] Not launch Rom, [Enable] Force launch Rom, [Auto] Auto detect LAN cable status to Enable/Disable Rom initial	★Disable, Enable, Auto

Graphics Configuration

Configuration graphic settings



Feature	Description	Options
Internal Graphics	Keep IGD enabled based on the setup options.	★Auto, Disabled, Enabled
DVMT Pre-Allocated	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.	★32M, 64M, 96M, 128M,160M, 192M, 224M, 256M, 288M, 320M, 352M, 384M, 416M, 448M, 480M, 512M, 1024M, 2016M
DVMT Total Gfx Mem	Select DVMT5.0 Total Graphic Memory size used by the Internal Graphic Device.	128M, ★256M, MAX
Primary IGFX Boot Display	Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection.	★VBIOS Default, Mini DP Port1, Mini DP Port2, LVDS
Active LFP	Select the Active LFP Configuration. No LVDS: VBIOS does not enable LVDS. eDP Port-A:LFP Driven by Int-DisplayPort encoder from Port-A (eDP to PTN3460 LVDS)	No LVDS, ★eDP Port-A

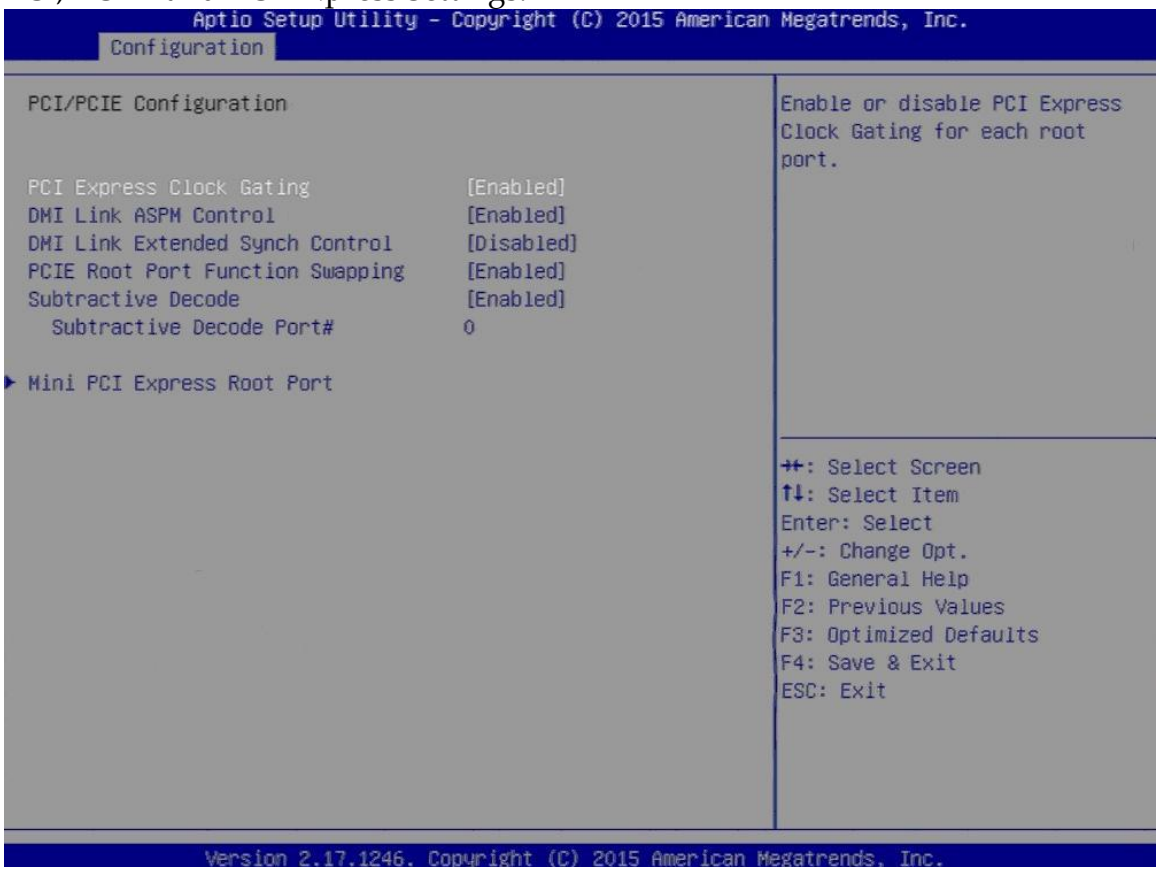
PTN3460 Configuration

PTN3460 LVDS help

Feature	Description	Options
Panel Profile	Select Panel Profile for current use	640x480, 800x480, 800x600, 1024x768, 1280x800, ★1280x1024, 1366x768, 1440x900, 1920x1080
Color depth and data format	Select color depth and data format.	★VESA 24 bpp, JEIDA 24 bpp, VESA and JEIDA 18 bpp
Channel Mode	Select LVDS Channel Mode	Single Channel, ★Dual Channel
Clock Mode	Select clock output for LVDS	★Even Bus, Odd Bus, Both Buses

PCI/PCIE Configuration

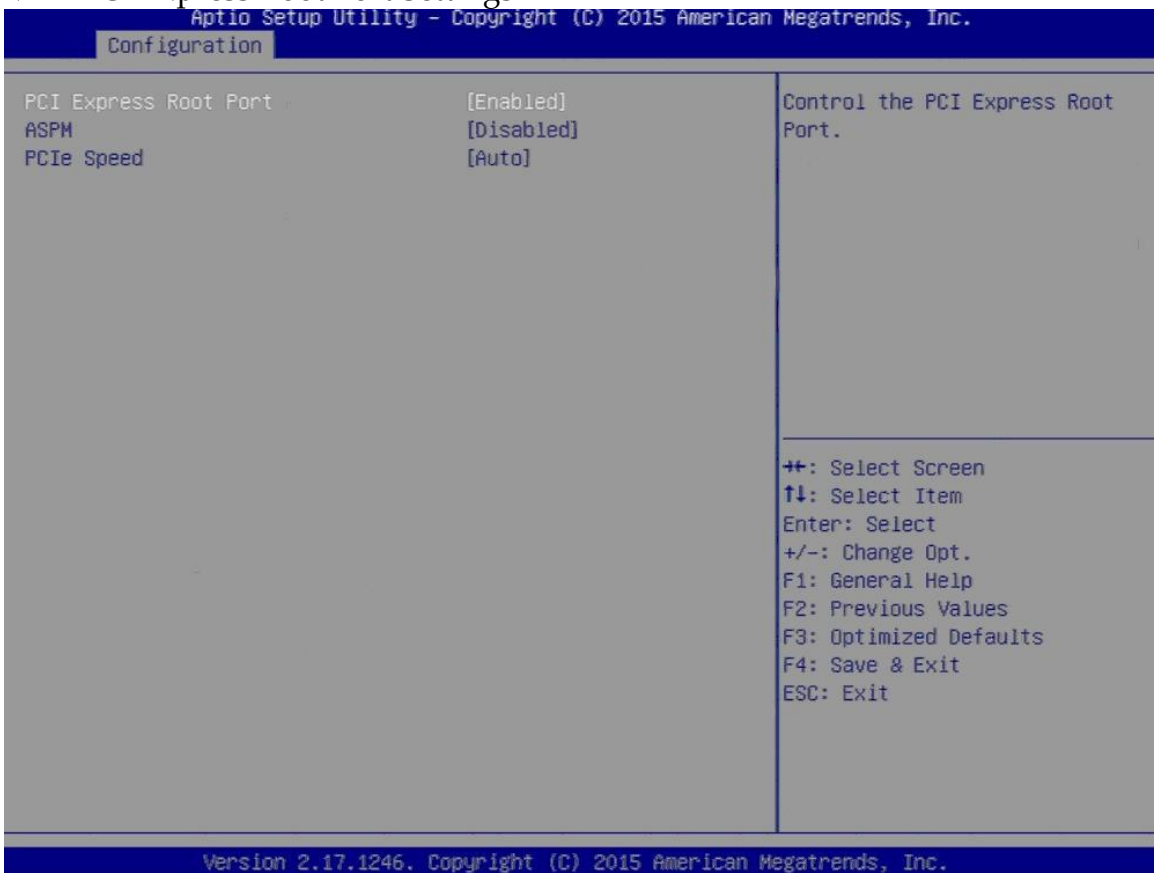
PCI, PCI-X and PCI Express Settings.



Feature	Description	Options
PCI Express Clock Gating	Enable or disable PCI Express Clock Gating for each root port.	Disabled, ★Enabled
DMI Link ASPM Control	The control of Active State Power Management on both NB side and SB side of the DMI Link.	Disabled, ★Enabled
DMI Link Extended Synch Control	The control of Extended Synch on SB side of the DMI Link.	★Disabled, Enabled
PCIE Root Port Function Swapping	Enable or Disable PCI Express PCI Express Root Port Function Swapping.	Disabled, ★Enabled
Subtractive Decode (Enabled)	Enable or disable PCI Express Subtractive Decode.	★Disabled, Enabled
Subtractive Decode Port#	Select PCI Express Subtractive Decode Root Port. User to ensure port availability	

Mini PCI Express Root Port

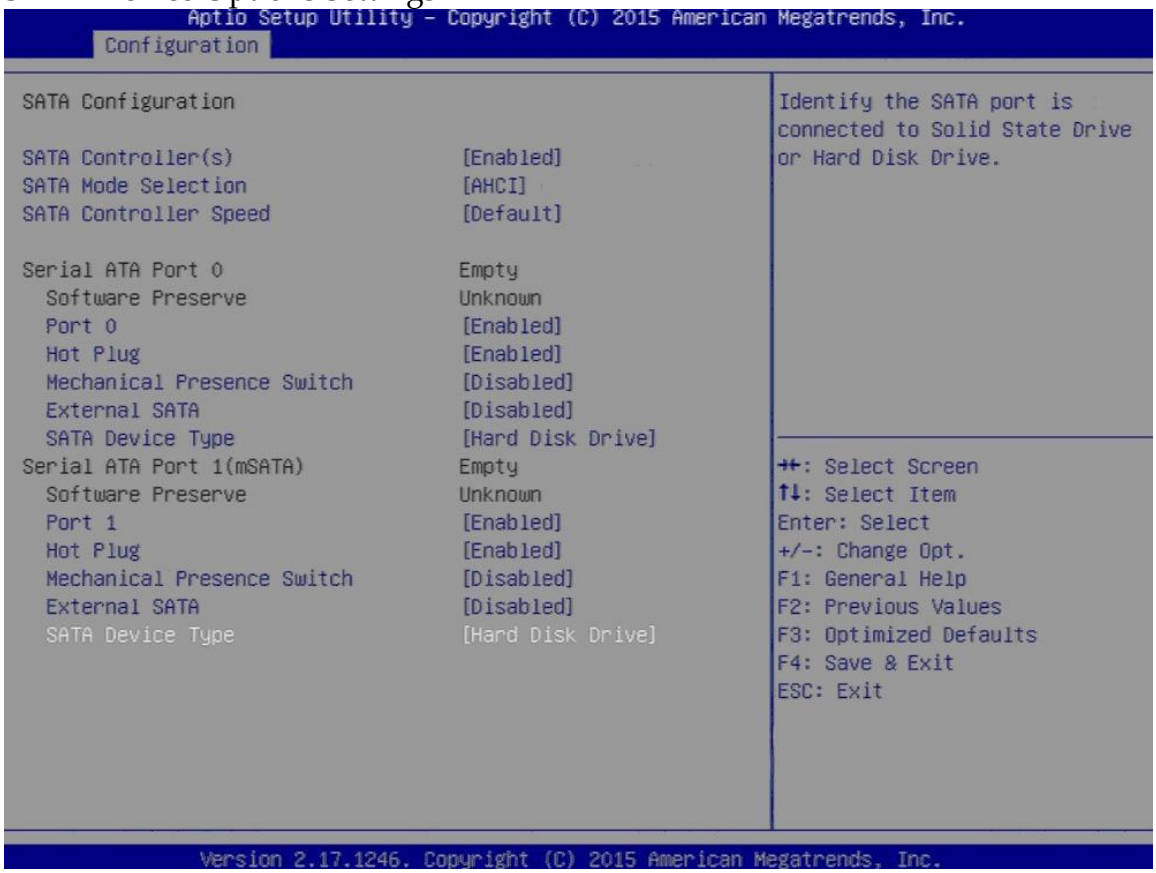
Mini PCI Express Root Port Settings



Feature	Description	Options
PCI Express Root Port	Control the PCI Express Root Port.	Disabled, ★Enabled
ASPM	PCI Express Active State Power Management settings.	★Disabled, L0s, L1, L0sL1, Auto
PCIe Speed	Select PCI Express port speed.	★Auto, Gen 1, Gen 2

SATA Configuration

SATA Device Options Settings

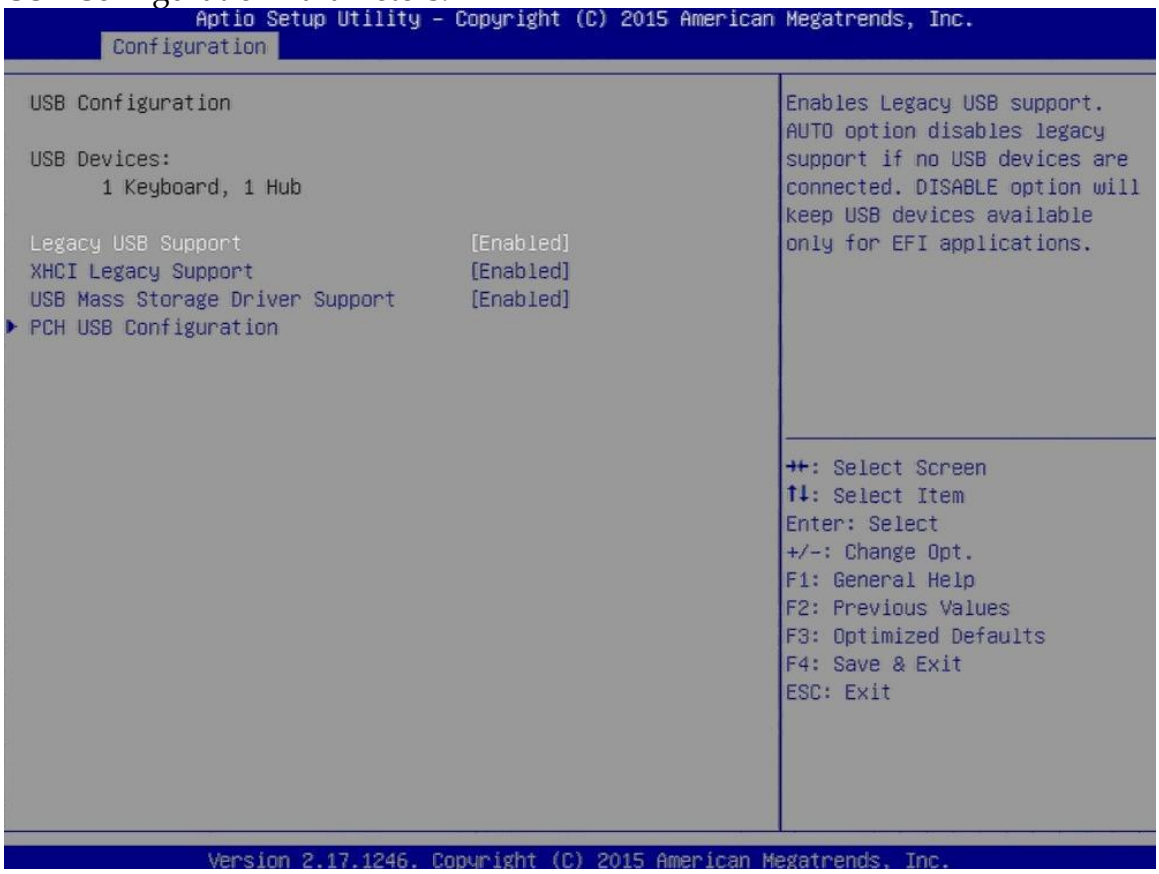


Feature	Description	Options
SATA Controller(s)	Enable or Disable SATA Device.	★Enabled, Disabled
SATA Mode Selection	Determines how SATA controller(s) operate.	★AHCI
SATA Controller Speed	Indicates the maximum speed the SATA controller can support.	★Default, Gen1, Gen2, Gen3
Port 0	Enable or Disable SATA Port	Disabled, ★Enabled
Hot plug (Enabled)	Designates this port as Hot Pluggable.	★Disabled, Enabled
Mechanical Presence Switch	Controls reporting if this port has a Mechanical Presence Switch. Note: Requires hardware support.	★Disabled, Enabled
External SATA	External SATA Support.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive
Port 1	Enable or Disable SATA Port	Disabled, ★Enabled
Hot Plug (Enabled)	Designates this port as Hot luggable.	★Disabled, Enabled
Mechanical presence Switch	Controls reporting if this port has a Mechanical Presence Switch. Note: Requires hardware support.	★Disabled, Enabled
External SATA	External SATA Support.	★Disabled, Enabled

SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive

USB configuration

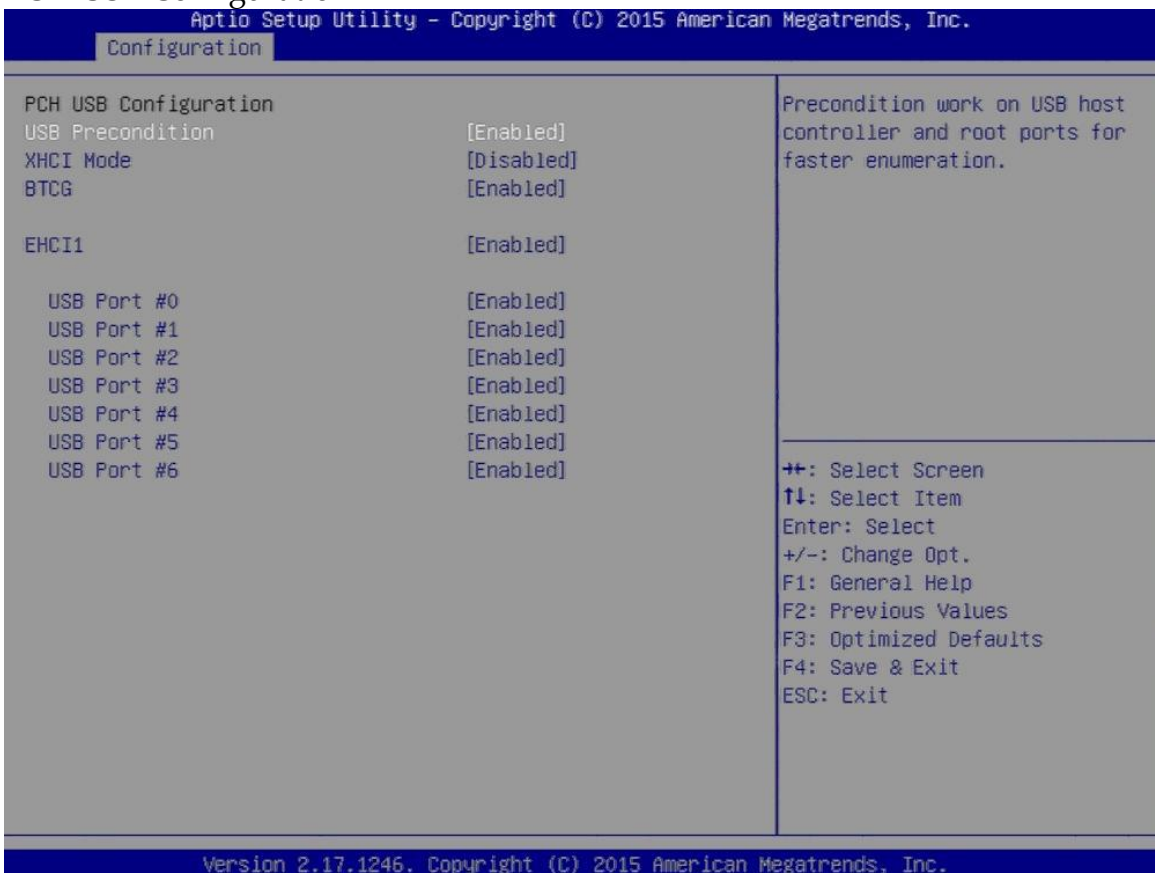
USB Configuration Parameters.



Feature	Description	Options
Legacy USB Support	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.	★Enabled, Disabled, Auto
XHCI Legacy Support	Enable/Disable XHCI Controller Legacy support.	★Enabled, Disabled
USB Mass Storage Driver Support	Enable/Disable USB Mass Storage Driver Support.	Disabled, ★Enabled

PCH USB Configuration

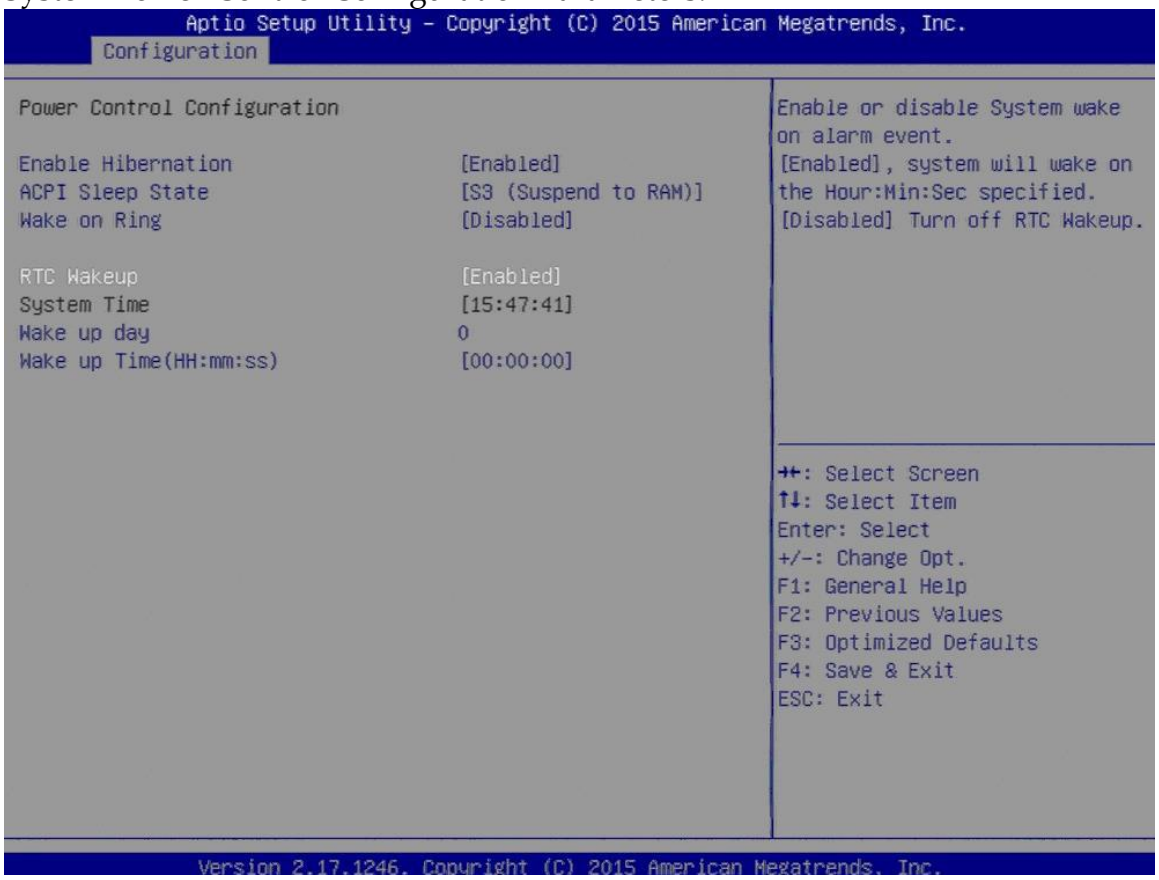
PCH USB Configuration



Feature	Description	Options
USB Precondition	Precondition work on USB host controller and root ports for faster enumeration.	Disabled, ★Enabled
XHCI Mode	Mode of operation of xHCI controller.	★Smart Auto, Auto, Enabled, Disabled
BTCG	Enabling/disabling trunk clock gating.	★Enabled, Disabled
USB Port #0	Enable / Disable USB port.	Disabled, ★Enabled
USB Port #1	Enable / Disable USB port.	Disabled, ★Enabled
USB Port #2	Enable / Disable USB port.	Disabled, ★Enabled
USB Port #3	Enable / Disable USB port.	Disabled, ★Enabled
USB Port #4	Enable / Disable USB port.	Disabled, ★Enabled
USB Port #5	Enable / Disable USB port.	Disabled, ★Enabled
USB Port #6	Enable / Disable USB port.	Disabled, ★Enabled

Power Control Configuration

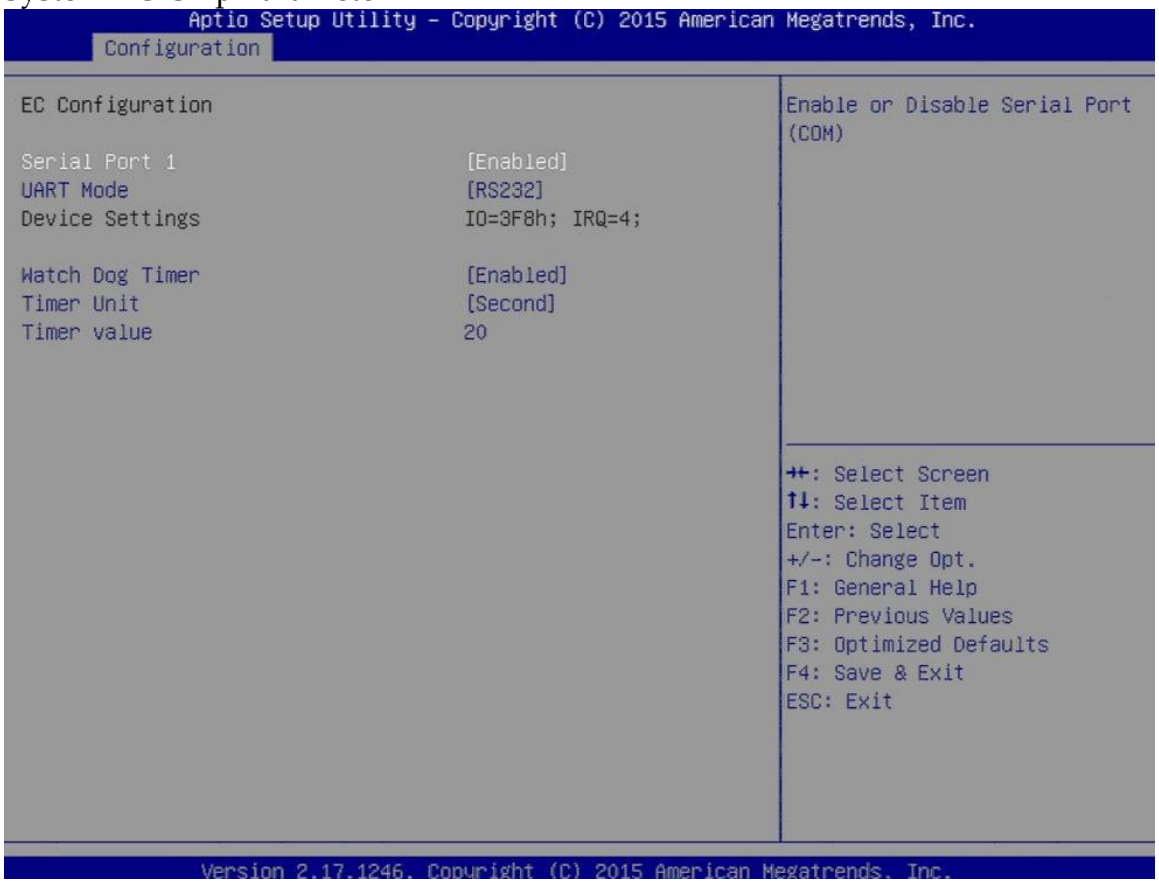
System Power Control Configuration Parameters.



Feature	Description	Options
Enable Hibernation	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.	Disabled, ★Enabled
ACPI Sleep State	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.	Suspend Disabled, ★S3(Suspend to RAM)
Wake on Ring	Enable/Disable GPIO Wake On Ring function.	★Disabled, Enabled
RTC Wakeup (Enabled)	Enable or disable System wake on alarm event. [Enabled], system will wake on the hr::min::sec specified. [Disabled] Turn off RTC Wakeup.	★Disabled, Enabled
Wake up day	Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up	0-31
Wake up Time (HH:mm:ss)	Use [Enter], [TAB] to select field, HH: 0-23 mm: 0-59 ss: 0-59	HH: 0-23 mm: 0-59 ss: 0-59

EC Configuration

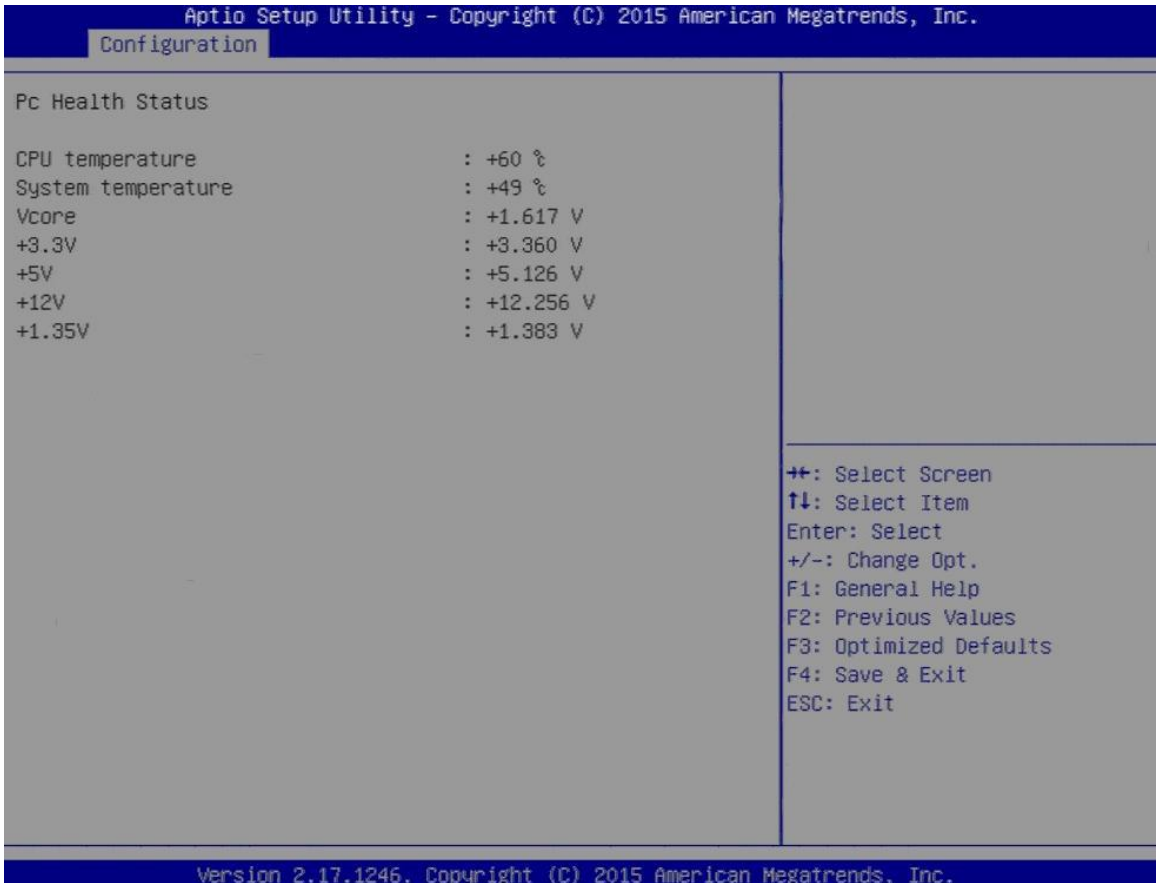
System EC Chip Parameter



Feature	Description	Options
Serial Port 1	Enable or Disable Serial Port (COM)	Disabled, ★Enabled
UART Mode	Set Current UART MODE RS232, RS485, RS485/RS422	★RS232, RS485 HALF DUFLEX, RS485/422 FULL DUFLEX
Watch Dog Timer (Enabled)	Enable/Disable Watch Dog Timer	★Disabled, Enabled
Timer Unit	Select Timer count unit of WDT	★Second, Minute
Timer value	Set WDT Timer value seconds/minutes	★20

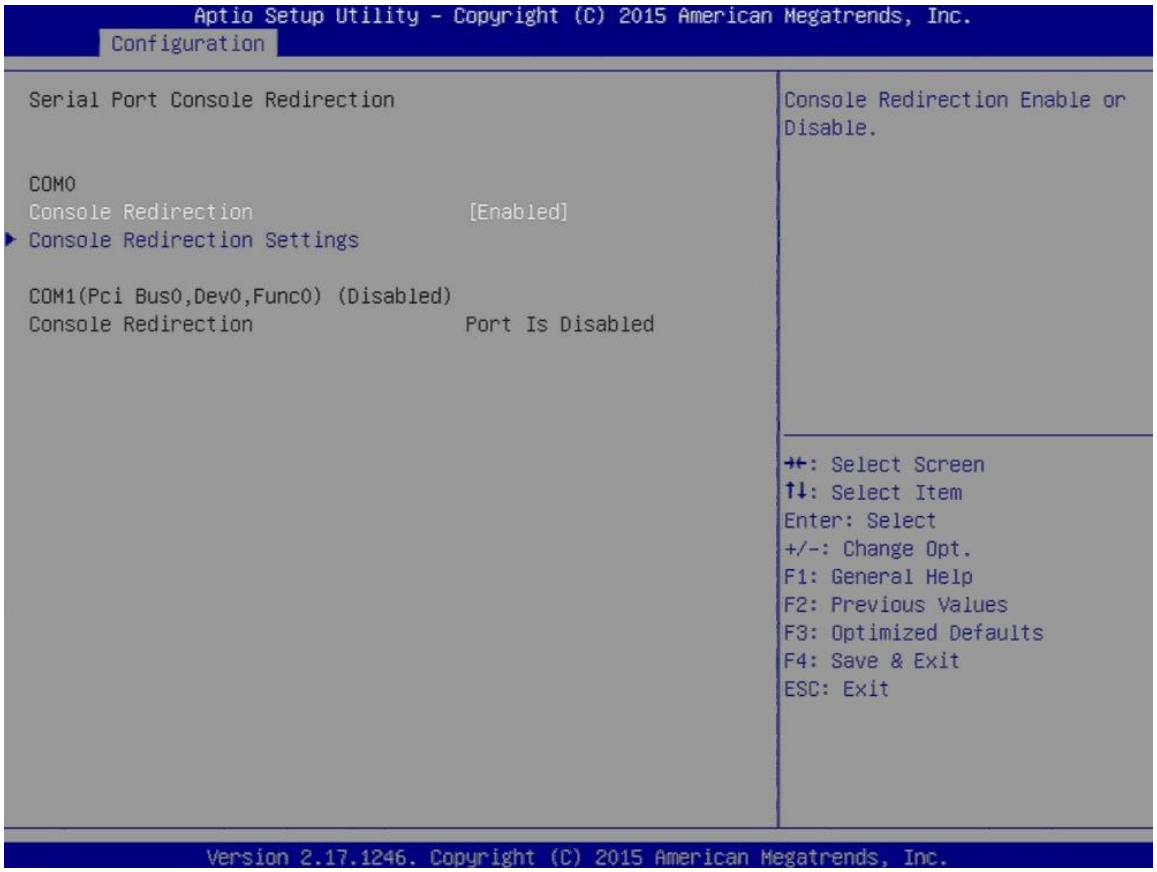
H/W Monitor

Monitor hardware status



Serial Port Console Redirection

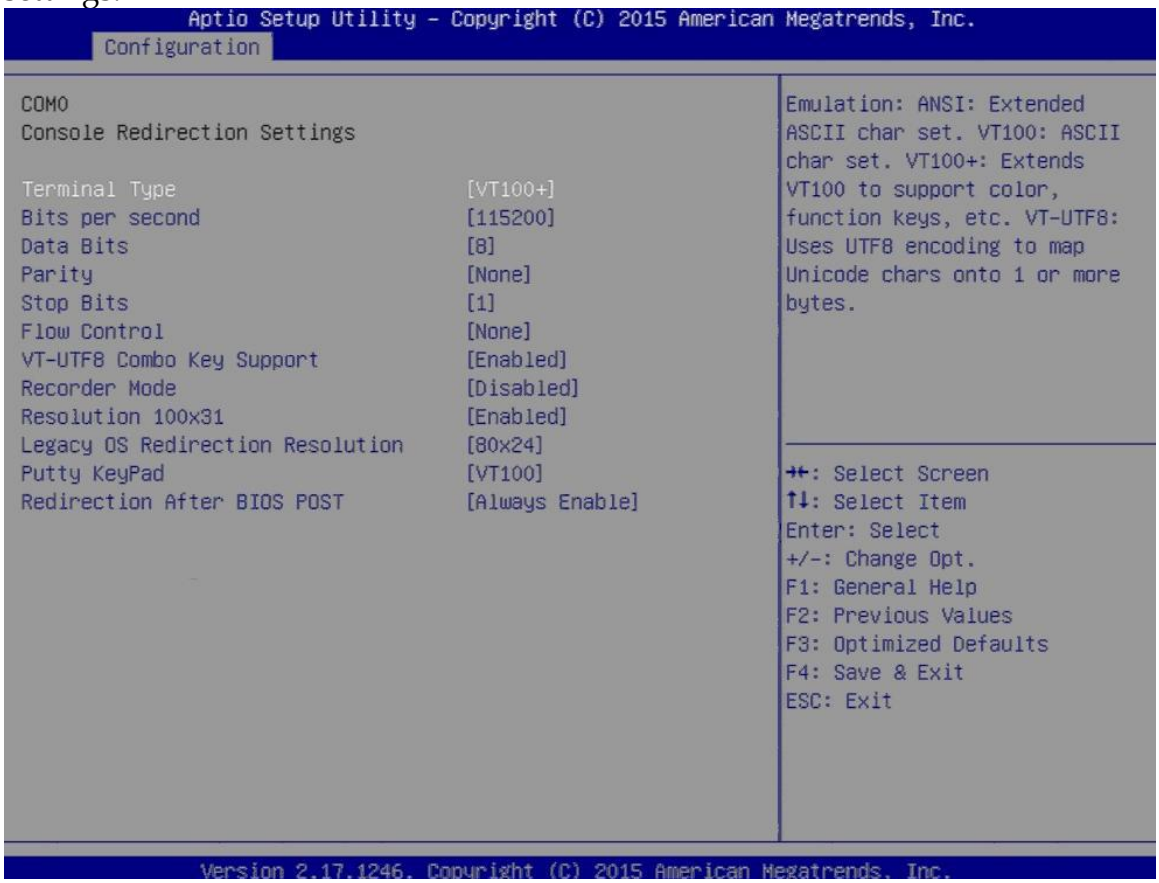
Serial Port Console Redirection



Feature	Description	Options
Console Redirection (Enable)	Console Redirection Enable or Disable.	★Disabled, Enabled

Console Redirection Settings

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

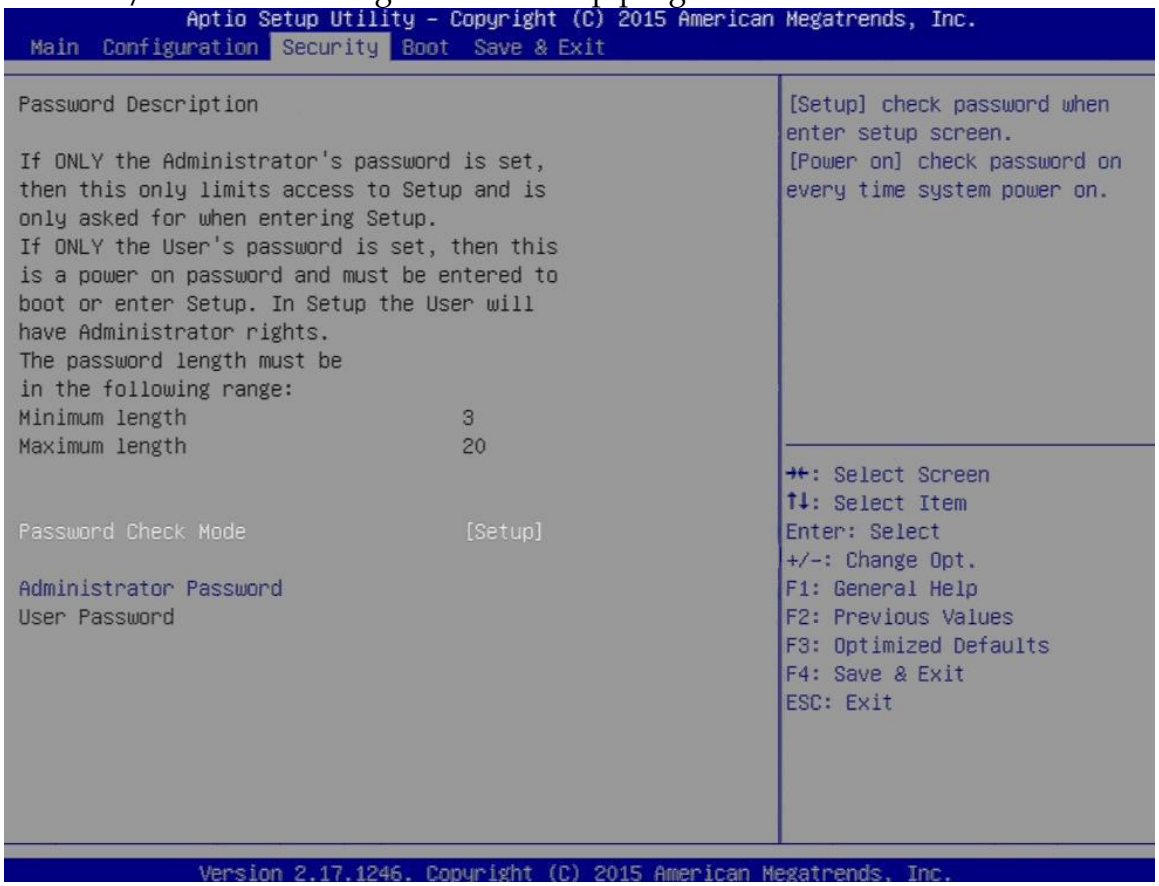


Feature	Description	Options
Terminal Type	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes	VT100, ★VT100+, VT-UTF8, ANSI
Bits per second	Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.	9600, 19200, 38400, 57600, ★115200
Data Bits	Data Bits	7, ★8
Parity	A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 is the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection. They can be used as an additional data bit.	★None, Even, Odd, Mark, Space

Stop Bits	Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.	★1,2
Flow Control	Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.	★None, Hardware RTS/CTS
VT-UTF8 Combo Key Support	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals	Disabled, ★Enabled
Recorder Mode	With this mode enable only text will be sent. This is to capture Terminal data.	★Disabled, Enabled
Resolution 100x31	Enables or disables extended terminal resolution	Disabled, ★Enabled
Legacy OS Redirection Resolution	On Legacy OS, the Number of Rows and Columns supported redirection	★80x24, 80x25
Putty keypad	Select Function Key and Key Pad on Putty.	★VT100, LINUX, XTERM6, SCO, ESCN, VT400
Redirection After BIOS POST	The Setting specify if Boot Loader is selected then Legacy console redirection is disable before booting to Legacy OS. Default value always enable which means Legacy console Redirection is enable for Legacy OS.	★Always Enable, Boot Loader

3.4 Security

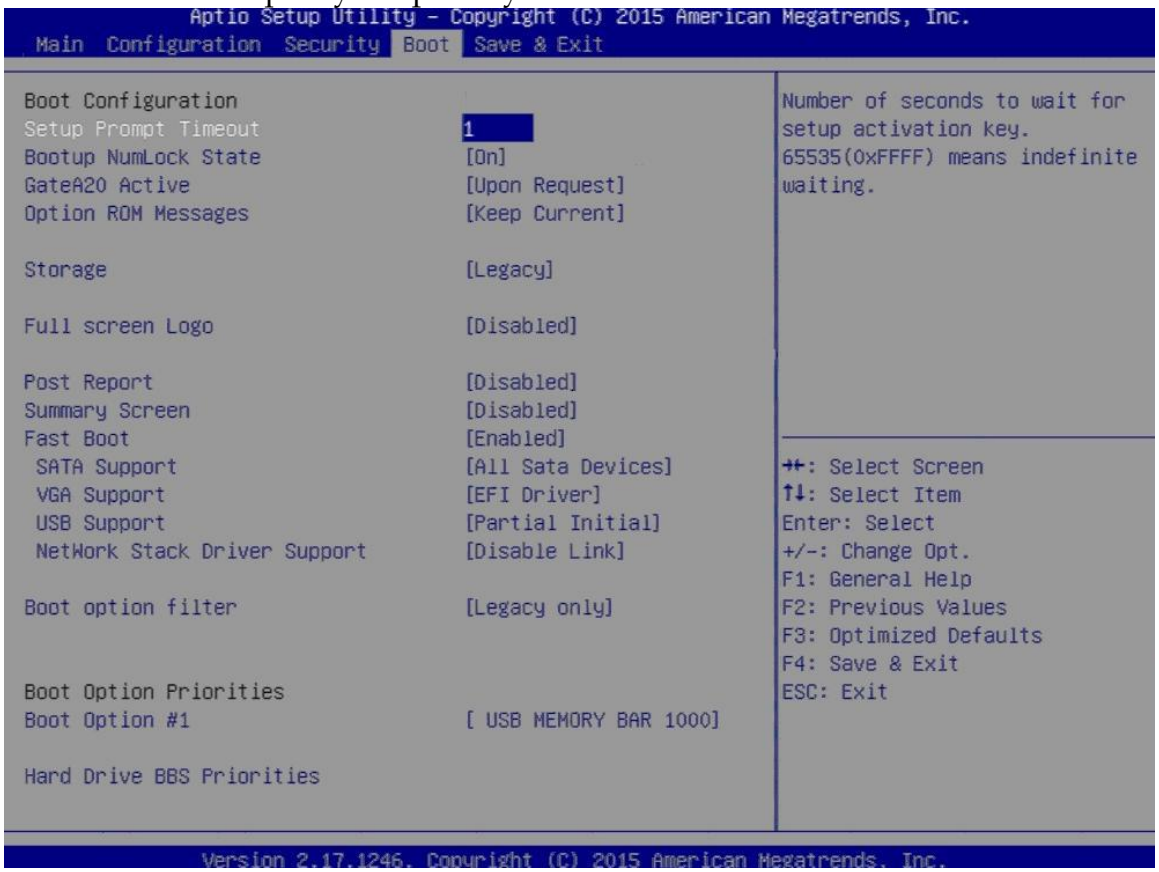
This section lets you set security passwords to control access to the system at boot time and/or when entering the BIOS setup program.



Feature	Description	Options
Password Check Mode	[Setup] check password when enter setup screen. [Power on] check password on every time system power on.	★Setup Power On
Administrator Password	Set Administrator Password	Create New Password

3.5 Boot

Use this menu to specify the priority of boot devices.

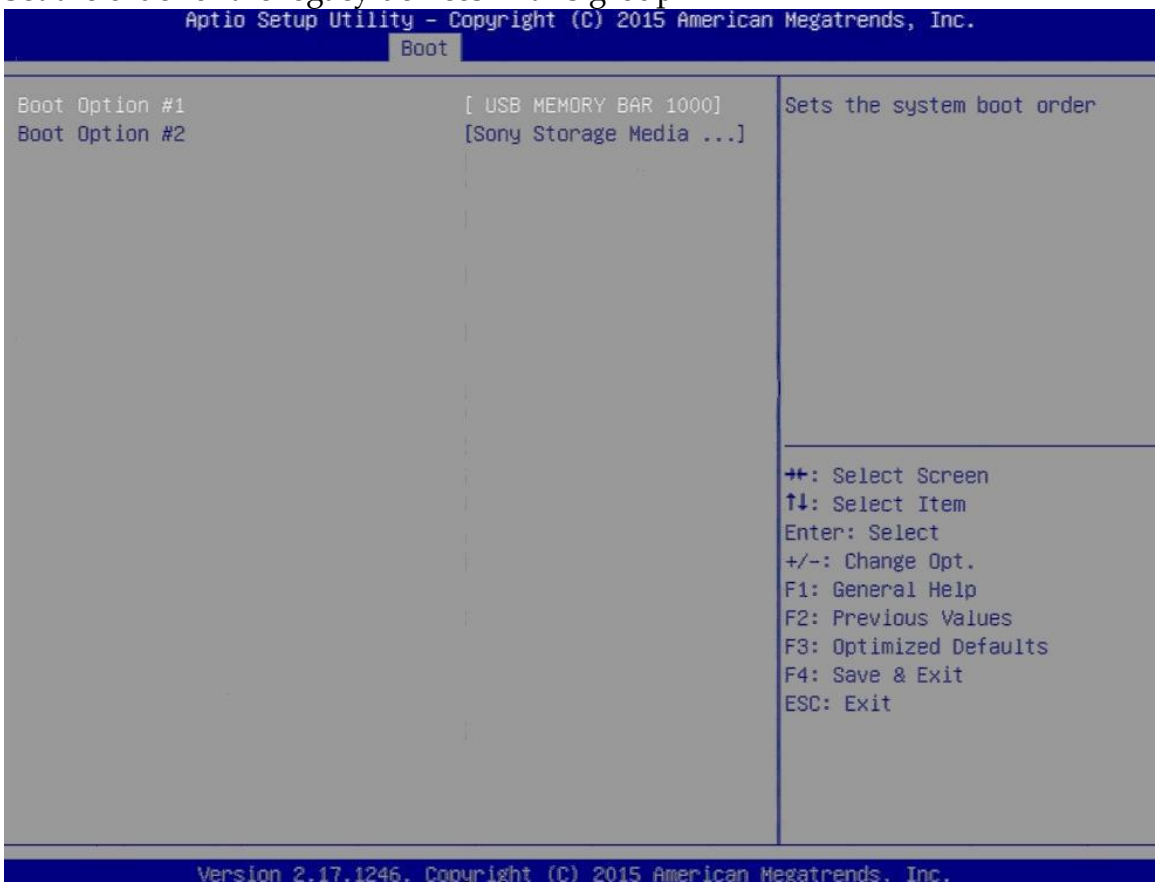


Feature	Description	Options
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.	★1
BootupNumLock State	Select the Keyboard NumLock state	★On, off
GateA20 Active	UPON REQUEST – GA20 can be disabled using BIOS services. ALWAYS- do not allow disabling GA20; this option is useful when any RT code is execute above 1MB	★Upon Request, Always
Option ROM Messages	Set display mode for Option ROM	Force BIOS, ★Keep Current
Storage	Control the execution of UEFI and Legacy Storage OpROM	Do not launch, UEFI, ★Legacy
Full screen Logo	Enables or disables Quiet Boot option and Full screen Logo.	★Disabled, Enabled
Post Report	Post Report Support Enabled/Disabled	★Disabled, Enabled
Summary Screen	Summary Screen Support Enabled/Disabled	★Disabled, Enabled

Fast Boot (Enabled)	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.	★Disable Link, Enabled
SATA Support		Last Boot HDD Only, ★All State Devices
VGA Support	If Auto, only install Legacy OpRom with Legacy OS and logo would NOT be shown during post. Efi driver will still be installed with EFI OS.	Auto, ★EFI Driver
USB Support	If Disabled, all USB devices will NOT be available until after OS boot. If partial Initial, USB Mass Storage and specific USB port/device will NOT be available before OS boot. If Enabled, al USB devices will be available in OS and post.	Disable Link, Full Initial , ★Partial Initial
Network Stack Driver Support	If Disabled, Network Stack Driver will be skipped.	★Disable Link, Enabled
Boot option filter	This option controls Legacy/UEFI ROMs priority	★Legacy only, UEFI only
Boot Option #1	Sets the system boot order	Disabled

Hard Drive BBS Priorities

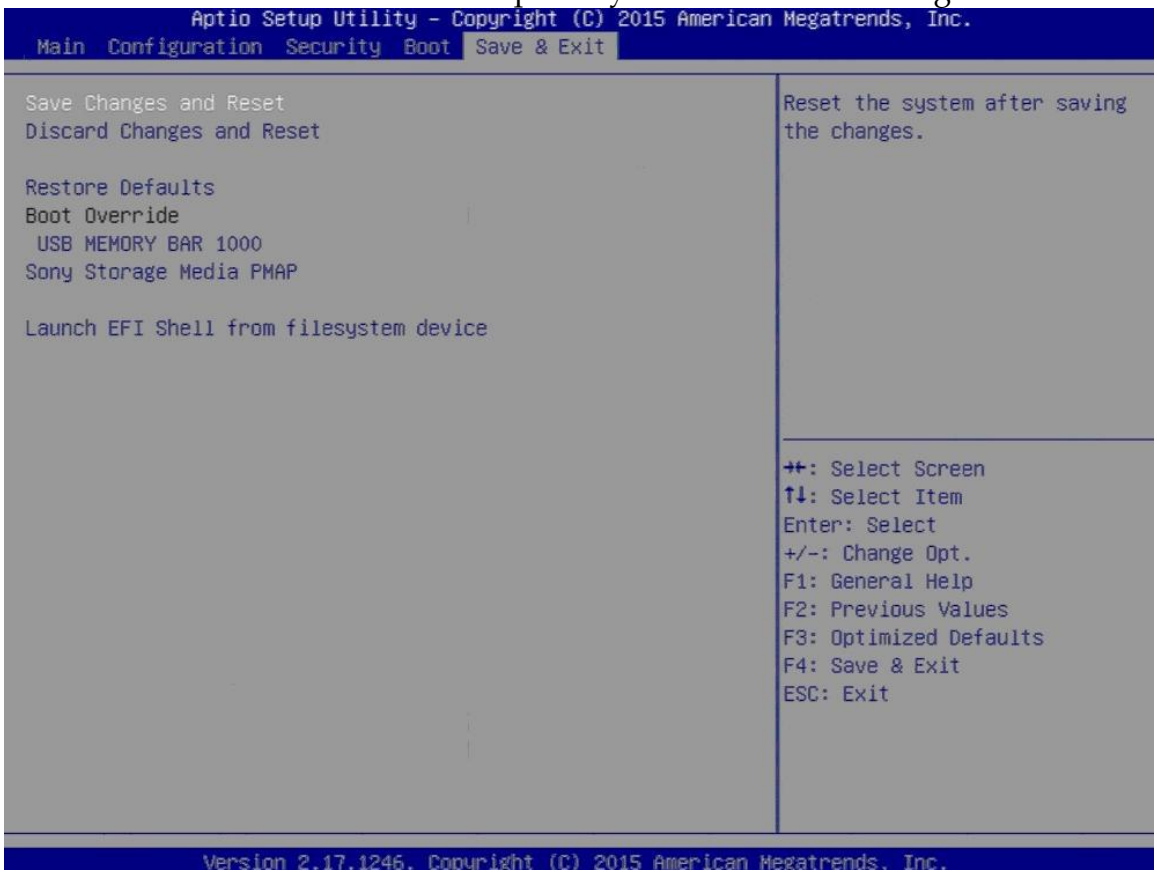
Set the order of the legacy devices in this group



Feature	Description	Options
Boot Option #1	Sets the system boot order	
Boot Option #2	Sets the system boot order	

3.6 Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.



Feature	Description	Options
Save Changes and Reset	Reset the system after saving the changes	
Discard Changes and Reset	Reset system without saving any changes.	
Restore Defaults	Restore/Load Default values for all the setup options.	
Launch EFI Shell from filesystem device	Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices	Save configuration and reset? Yes, No

Chapter 4 Important Instructions

This chapter includes instructions which must be carefully followed when the fan-less embedded system is used.

4.1 Note on the Warranty

Due to their limited service life, parts which, by their nature, are especially subject to wear are not included in the guarantee beyond the legal stipulations.

4.2 Exclusion of Accident Liability Obligation

Portwell, Inc. shall be exempt from the statutory accident liability obligation if users fail to abide by the safety instructions.

4.3 Liability Limitations / Exemption from the Warranty Obligation

In the event of damage to the system unit caused by failure to abide by the hints in this manual and on the unit (especially the safety instructions), Portwell, Inc. shall not be required to respect the warranty even during the warranty period and shall be free from the statutory accident liability obligation.

4.4 Declaration of Conformity

EMC
CE/FCC Class A
This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This equipment may not cause harmful interference.
2. This equipment must accept any interference that may cause undesired operation.
Applicable Standards:
EN 55022: 2006 + A1: 2007, Class A
EN 61000-3-2: 2006
EN 61000-3-3: 1995 + A1: 2001 + A2: 2005
EN 55024: 1998 + A1: 2001 + A2: 2003
IEC 61000-4-2: 2008
IEC 61000-4-3: 2006 + A1: 2007
IEC 61000-4-4: 2004
IEC 61000-4-5: 2005
IEC 61000-4-6: 2007
IEC 61000-4-8: 1993 + A1: 2000
IEC 61000-4-11: 2004
FCC 47 CFR Part 15 Subpart

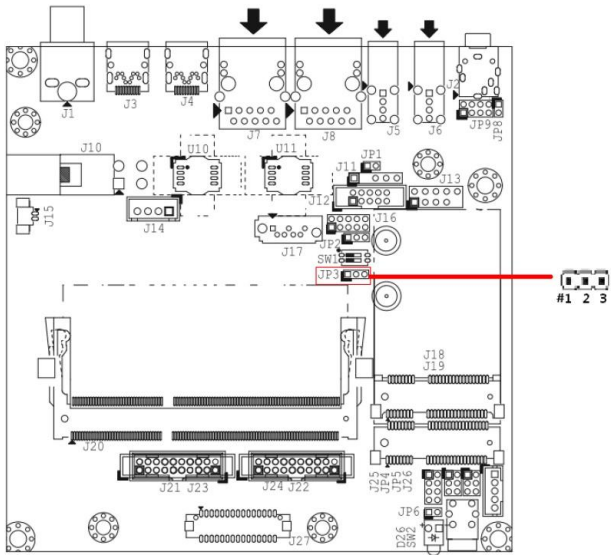
Chapter 5
Frequent Asked Questions

Q1: How to Clear CMOS?

Answer:
You can switch off your power supply then find the JP3 to set it from 1-2 short to 2-3 short and wait 10 seconds to clean your password then set it back to 1-2 short to switch on your power supply.

JP3 : CMOS Setting

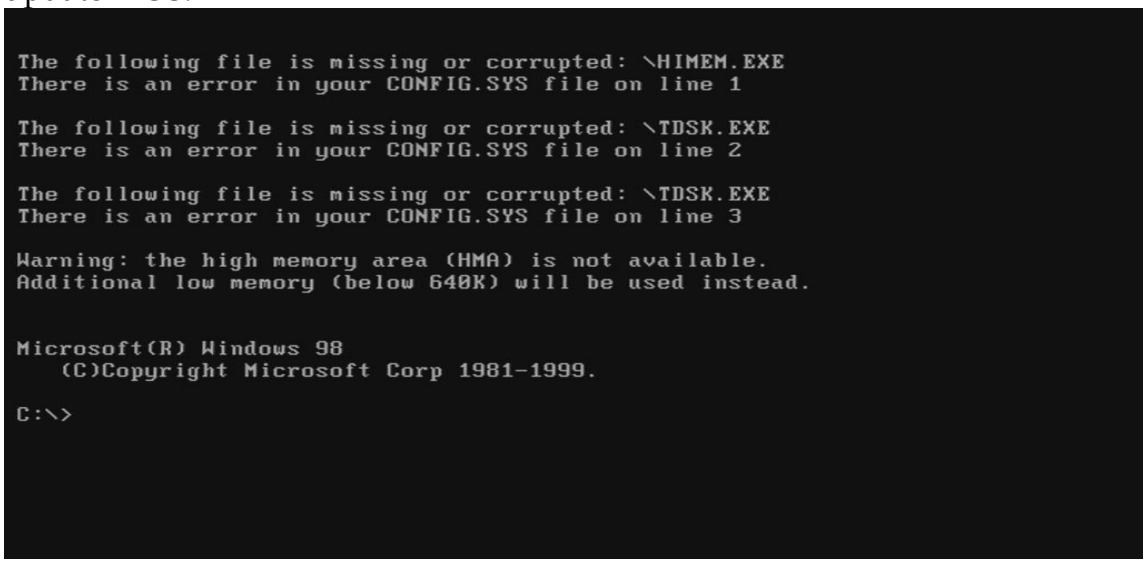
JP7/8	Function
1-2 Short	Normal Operation (default)
2-3 Short	Clear CMOS Contents



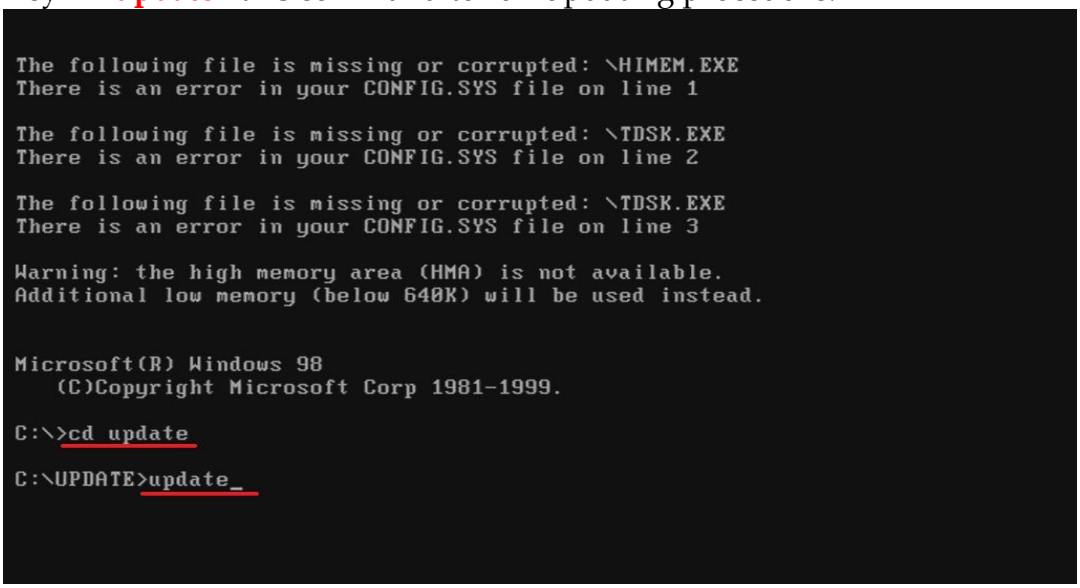
Q2: How to update BIOS?

Answer:
1. Please visit web site of **Portwell download center** as below hyperlink
   http://www.portwell.com.tw/support/download_center.php
   Registering an account in advance is a must. **(The E-Mail box should be an existing Company email address that you check regularly.)**
   http://www.portwell.com.tw/member/newmember.php
2. Type in your User name and password and log in the download center.
3. Select **"Search download"** and type the keyword **"WEBS-21A0"**.
4. Find the **"BIOS "**page and download the ROM file and flash utility.
5. Unzip file to bootable USB flash drive which can boot to dos mode. Then execute the **"update.bat"**.

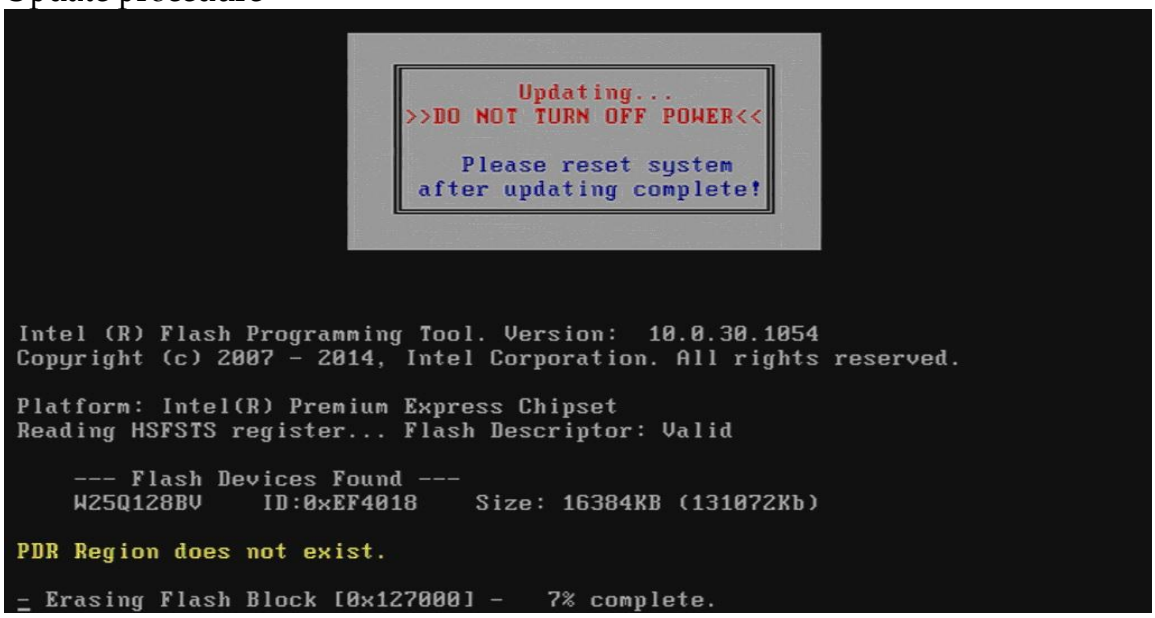
6. Reboot the system and getting into [DOS]. Please follow the below instruction to update BIOS.



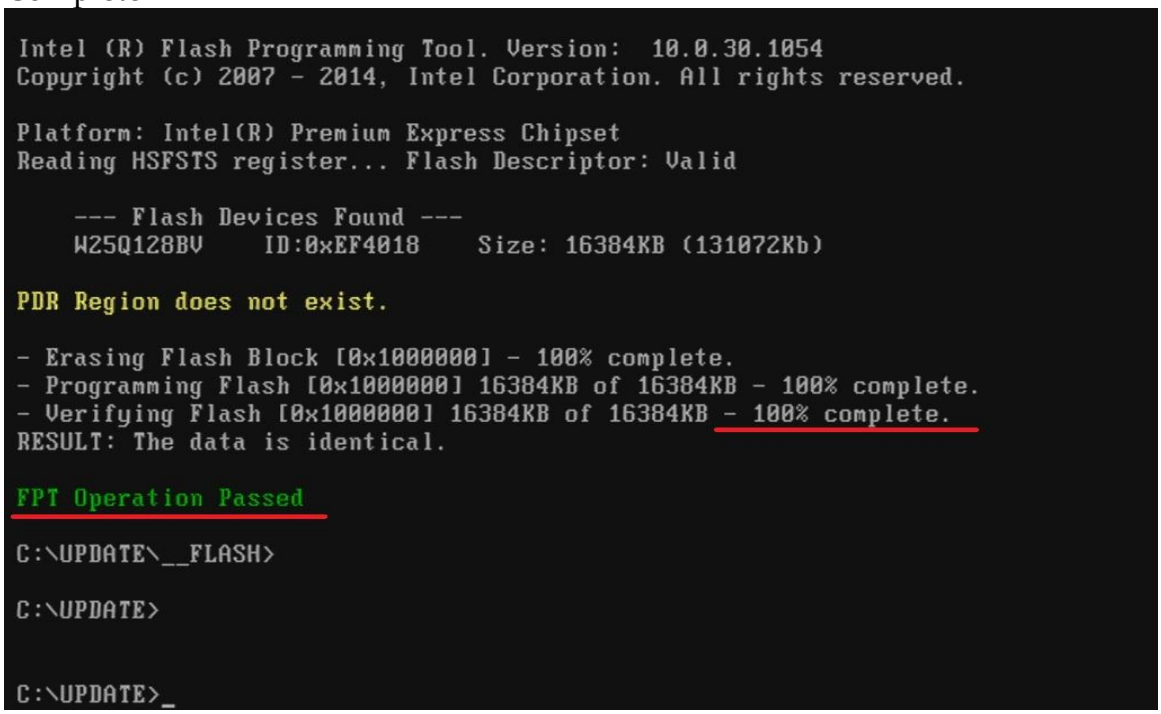
A. "**cd update**" to access the root folder
B. Key-in"**update**" this command to run updating procedure.



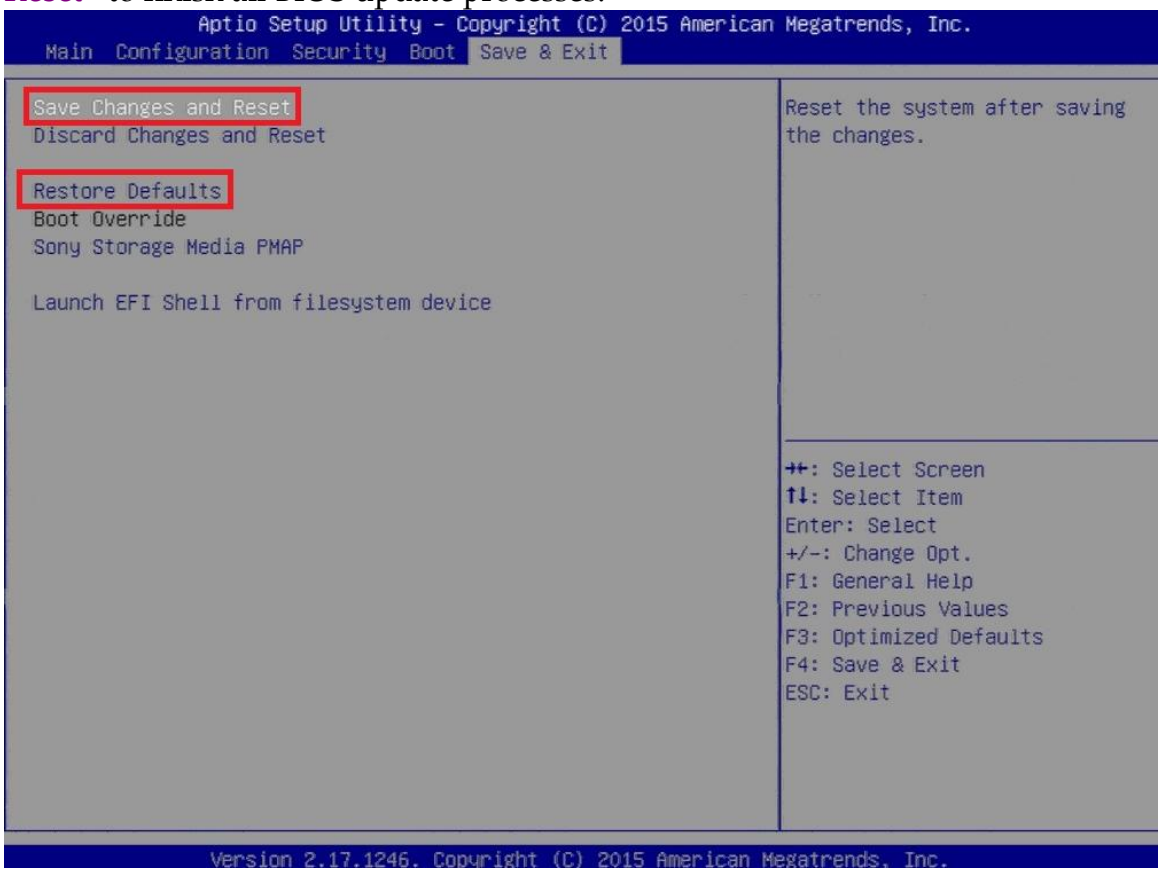
7. Update procedure



8. Complete



9. Power off the system (wait 10 sec) and power on again to initial the BIOS
10. Press **"del"** key into the BIOS setup menu and switch to **"Save & Exit"** page then select **"Restore Defaults"** option and press **"Yes"** then select **"Save Changes and Reset"** to finish all BIOS update processes.



Q3: How to install Windows 7 in WEBS-21A0?

Answer:
Windows 7 installation media does not include native driver support for USB 3.0, so during installation, when you get to the screen to select your preferred language, a keyboard or mouse connected to a USB 3.0 port does not respond. If you need the solution for this issue, please fill in the technical request form as below hyperlink and we will contact you as soon as possible.
http://www.portwell.com.tw/support/problem_report.php