WEBS-21B0

Fan-less Embedded System

User's Manual

Version 1.0

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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	2017/6/14	Initial Release

Chapter 1
System Overview

1.1 Introduction

Portwell Inc., a world-leading innovator in the Industrial PC (IPC) market, announced WEBS-21B0, a fan-less intelligent embedded system featuring Intel® Pentium® / Celeron® Quad/ Dual-core Processor N3000 Series (codename Braswell). Its rugged, compact design plus low power consumption make WEBS-21B0 the perfect solution for applications in kiosk, digital signage, in-vehicle mobile video surveillance, medical, and the harsh environments of factory automation.

The new rugged WEBS-21B0 is equipped with the Portwell NANO-6061, a NANO-ITX embedded board based on the dual/quad-core Intel® Celeron®/Pentium® Processor N3000 Series (4W~6W TDP), which integrates the low power the 8th generation Intel® HD Graphics architecture that supports up to 3 displays with a maximum resolution of 4K and doubles performance compared to the previous generation. The compact WEBS-21B0 embedded system also features DDR3L SO-DIMM up to 8GB supporting 1333/1600 MT/s; one DisplayPort (DP) on the rear I/O with resolution up to 3840 x 2160; one legacy VGA interface support; one smart COM port for RS-232/422/485 selected by BIOS; and multiple storage with 2.5" HDD/SSD, mSATA as well as SD card. In addition, WEBS-21B0 is designed especially for IoT applications. The compact 150mm x 150mm x 50mm box integrates the latest M.2 type E interface, which targets wireless connectivity like WIFI, Bluetooth and near field communication (NFC) functionalities, making it an ideal solution as an IoT gateway.

The rugged, fan-less design makes the WEBS-21B0 durable in harsh environment applications, such as factory automation and industrial automation. The rugged and compact WEBS-21B0 supports a temperature range from 0°C to 50°C 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, up to quad-core processing power, high capability and excellent 3D graphics via the 8th generation Intel® HD Graphics, Portwell's WEBS-21B0 is indeed an ideal solution for high computing power and/or high 3D video/image applications.

1.2 Check List

The WEBS-21B0 package should cover the following basic items:

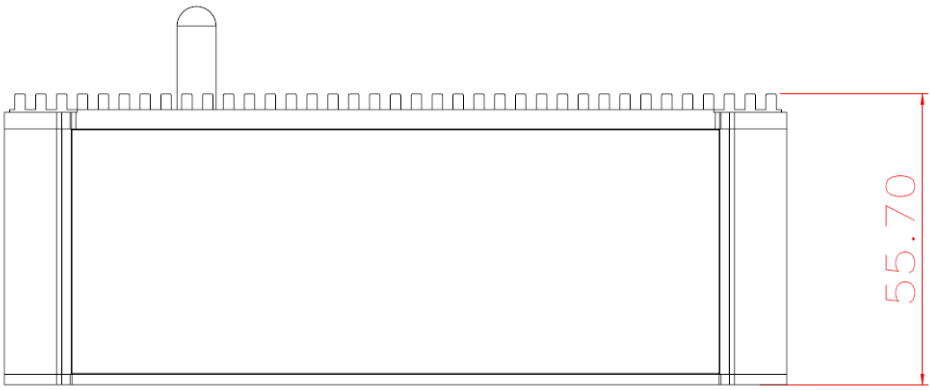
- ✓ One WEBS-21B0 Fan-less Embedded System
- ✓ One 60W AC/DC Power Adapter DC-plug with screw
- ✓ Other Accessories

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

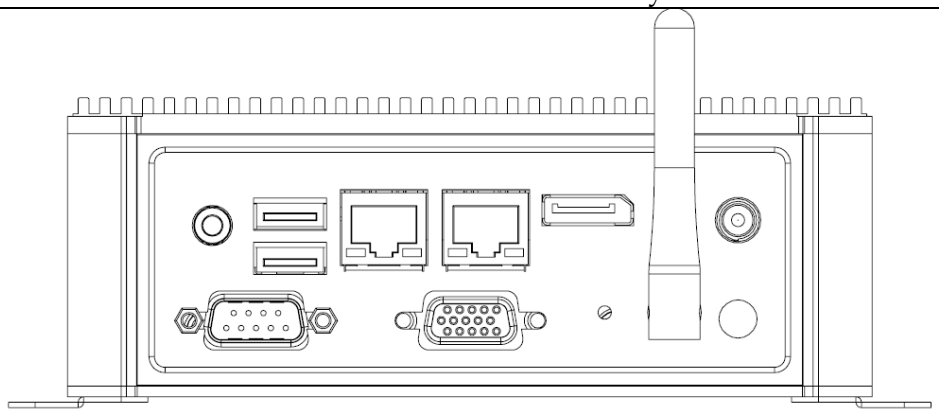
1.3 Product Specification

System	
M/B	NANO-6061
System Chipset	Intel® Brasswell SoC
CPU	Intel® Pentium® Quad Core Processor N3710 1.6 GHz up to 2.56 GHz /4C/4T. 2M Cache. Intel® Celeron® Quad Core Processor N3160 1.6 GHz up to 2.24 GHz /4C/4T. 2M 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, 1x SD card
Watchdog Timer	Programmable by embedded controller
H/W Status Monitor	-Temperature (CPU & System) -Voltage (CPU Vcore, 12V, 5V, 3.3V, 1.35V)
Expansion	1x M.2 socket (type E) with PCIe x 1, USB 2.0, SDIO, UART or I2C signal
External I/O	
Series Ports	1x RS-232/422/485 COM Port (selected by BIOS)
Display	1x VGA, 1x DP
USB	2x USB 3.0
Audio	Lin-out (Realtek ALC892)
LAN	2x Gigabit Ethernet (Intel® I211AT)
Other	1x Antenna hole for WIFI module
Power Supply Unit	
Power Supply	DC 12V
Environment	
Operating Temperature	0℃ to 55℃
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 56 mm; 5.9" x 5.9" x 2.1"
Weight	1.8kg
Mounting	Wall, Panel/Desk, and DIN Rail mounting

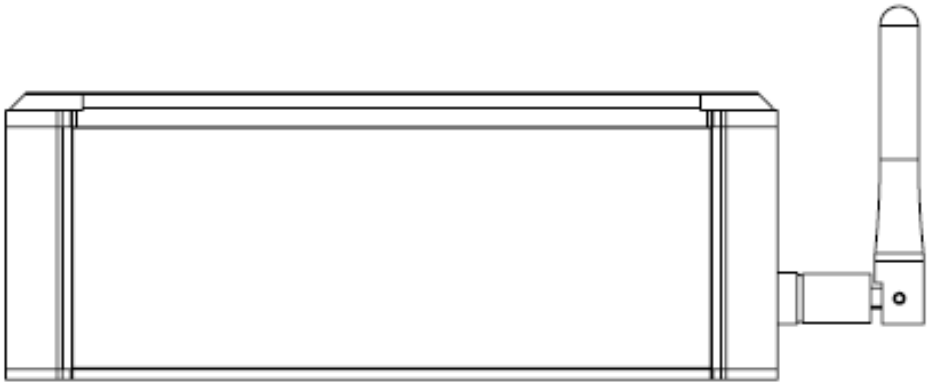
1.4 Mechanical Dimension



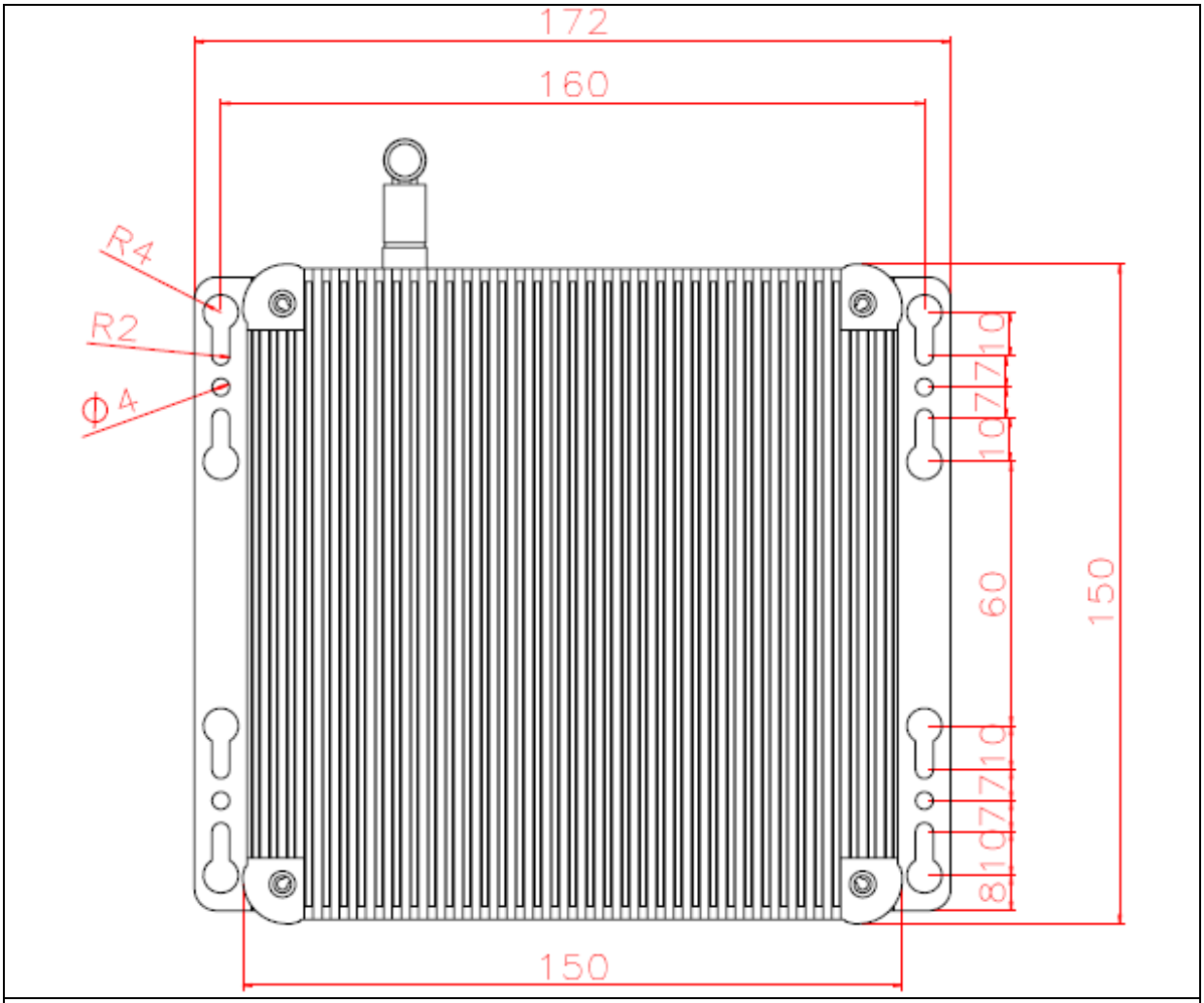
Front view of the WEBS-21B0 system



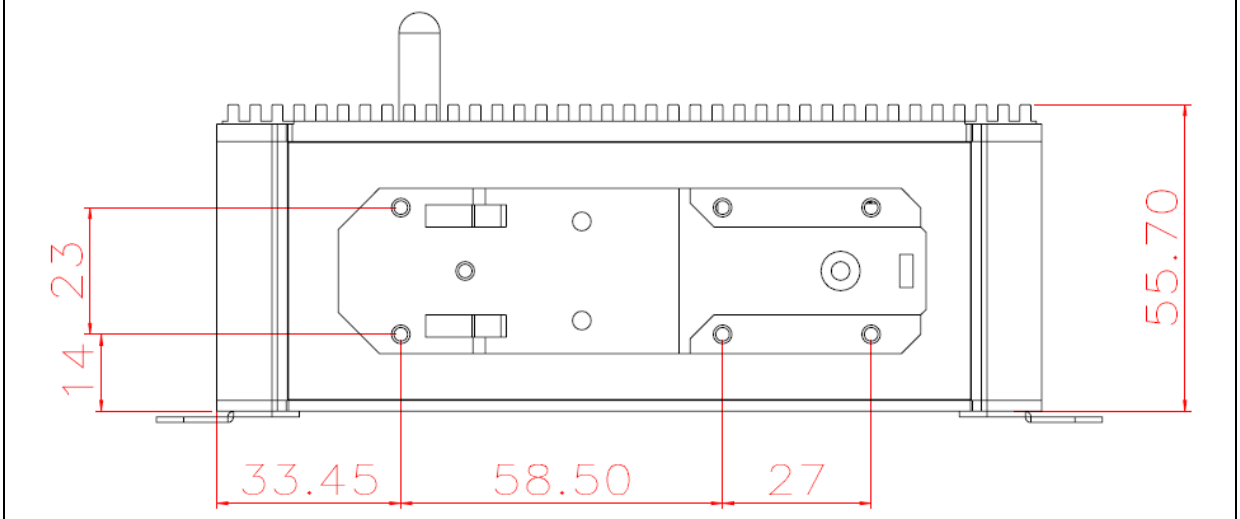
Rear view of the WEBS-21B0 system



Side view of the WEBS-21B0 system



Top view of the WEBS-21B0 system



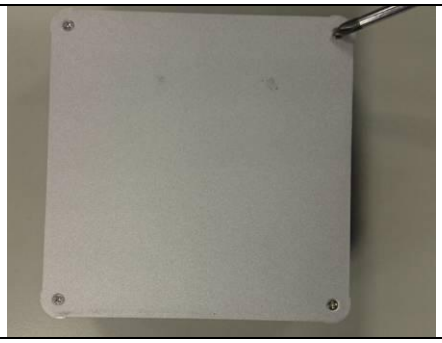
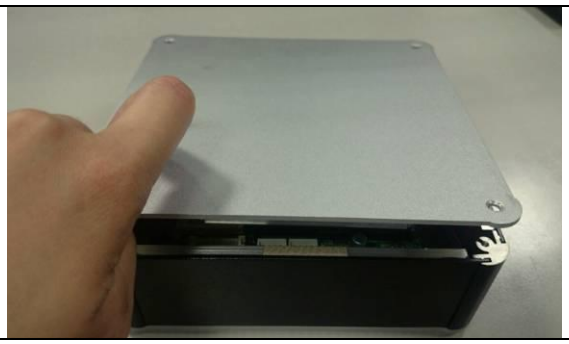
Din Rail mounting view of the WEBS-21B0 system

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-6061.

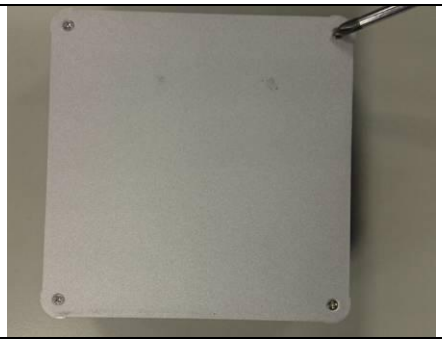
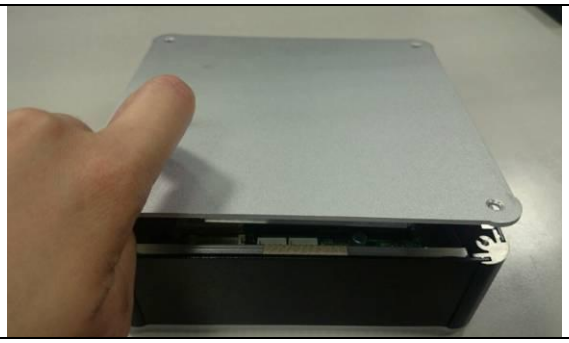
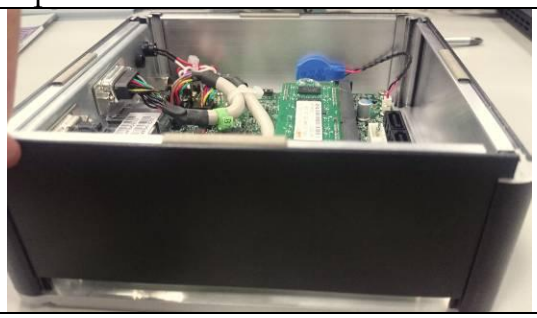
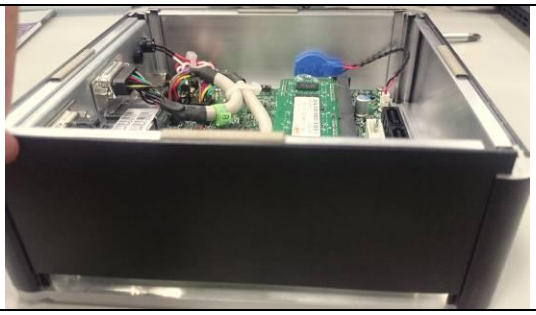
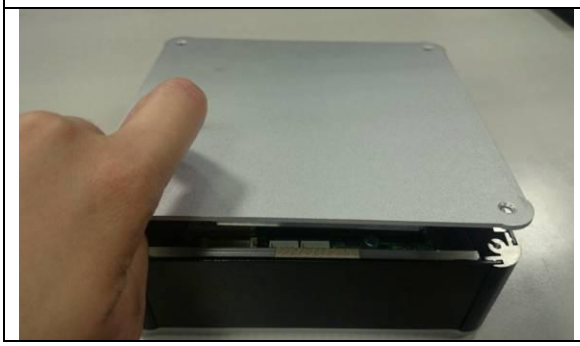
2.1 HDD Installation

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)

Step 1. Loosen the 4 screws of the back cover	Step 2. Take out the back cover
	
Step 3. Loosen the 4pcs screws and take out the HDD bracket	Step 4. Install 2.5" HDD/SSD on the bracket with screws
	  M3x10L*4
Step 5. Attach HDD bracket back to back cover and connect to SATA cable	Step 6. Tighten the 4 screws of the back cover
	

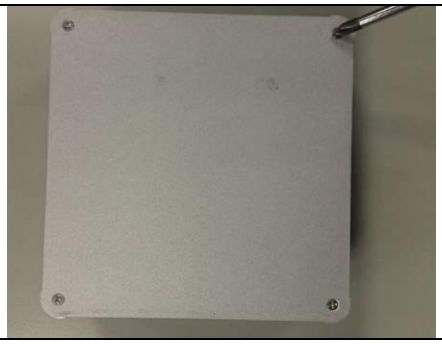
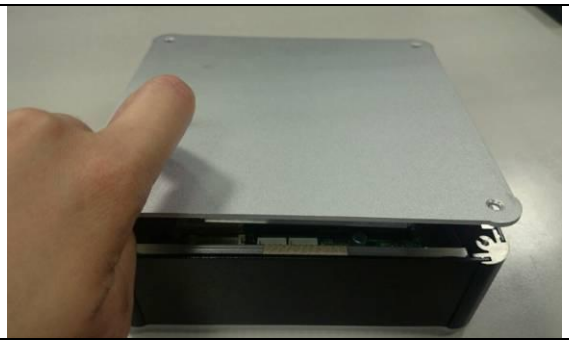
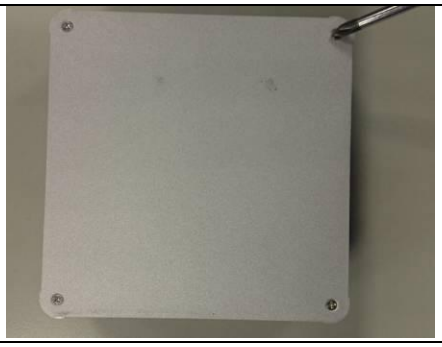
2.2 SD card Installation

It's easy to install and maintenance the SD card 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 side cover	Step 4. Prepare the full size SD card
	
Step 5. Push the full size SD card into the socket until feel a click	Step 6. Assemble the side cover
	
Step 7. Position the back cover	Step 8. Tighten the 4 screws of the back cover
	

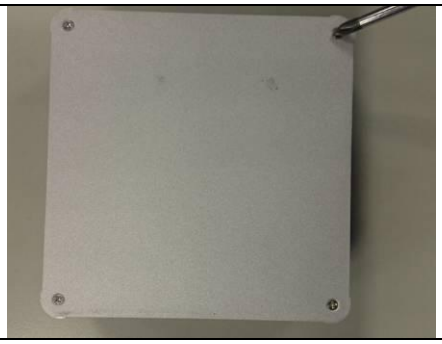
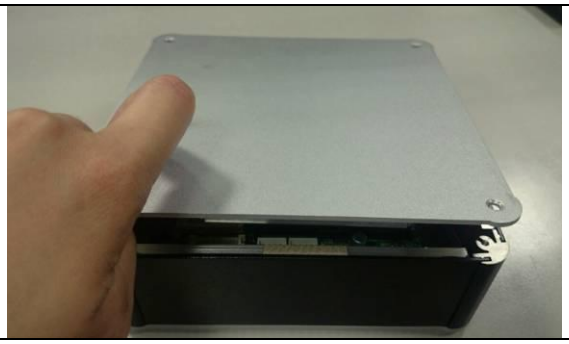
2.3 mSATA Device Installation

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 M.2 Device Installation

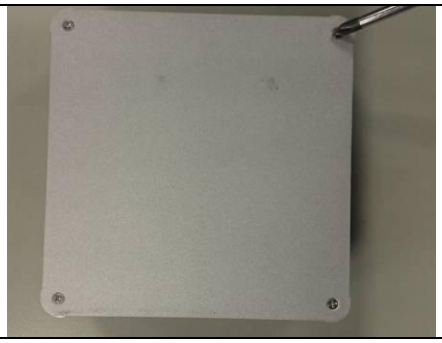
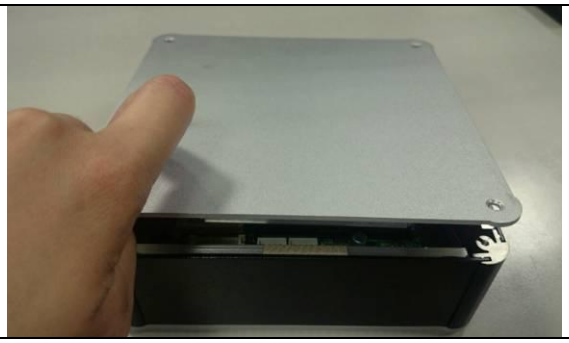
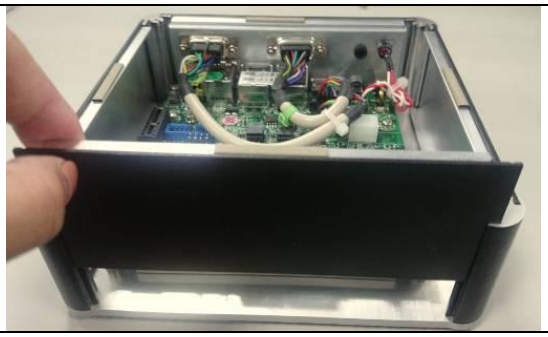
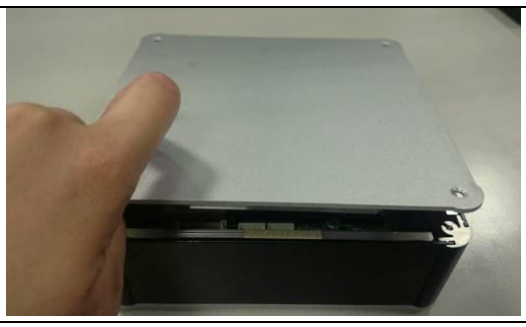
It's easy to install and maintenance the 1x M.2 device by just open the back cover.

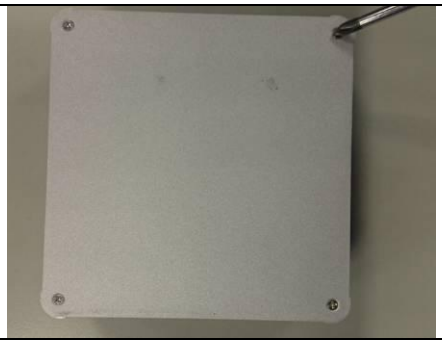
Step 1. Loosen the 4 screws of the back cover	Step 2. Take out the back cover
	
Step 3. Assemble the M.2 WiFi card and make sure it has been screwed	Step 4. Put the Antenna cable through the antenna hole
  M3x6L	

Step 5. Install the Antenna	Step 6. Tighten the 4 screws of the back cover
	

2.5 DIN Rail Mounting Device Installation

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

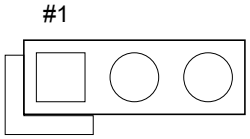
Step 1. Loosen the 4 screws of the back cover	Step 2. Take out the back cover
	
Step 3. Take out the front side cover	Step 4. Prepare the Din Rail mounting side cover
	
Step 5. Assemble the new side cover with DIN Rail mounting device	Step 6. Position the back cover
	

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
	

2.6 AT mode setting

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

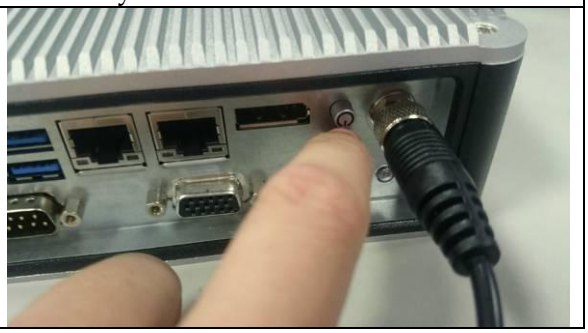
JP3 : Power On Mode Selection



JP3	Function
1-2 Short	AT
2-3 Short	ATX (default)

2.7 Getting Started

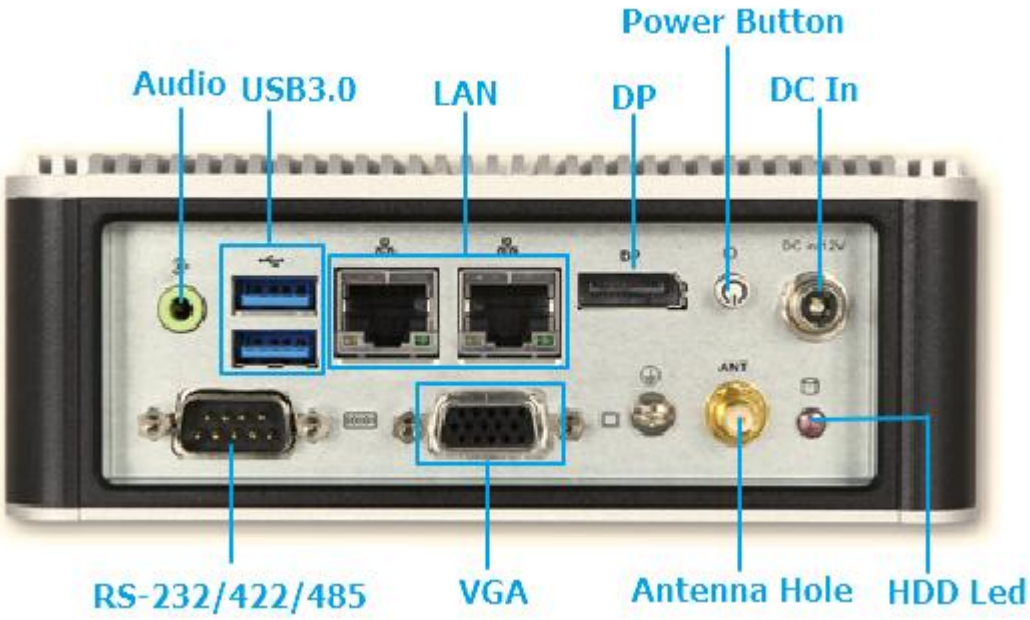
It is easy to get the system started.

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

2.8 I/O Interfaces

2.8.1 Front View

2.8.2 Rear View



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

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

Antenna Hole:
Antenna holes for M.2 WiFi card

Audio:
Connectors for Line-Out

LAN:
Two Gigabit Ethernet (10/100/1000 Mbits/sec) LAN ports by using Intel 211AT Ethernet Controller

USB3.0
Two USB 3.0 (Universal Serial Bus) ports

VGA:
VGA – CRT display output

PIN No.	Signal Description	PIN No.	Signal Description
1	RED	2	SCL
3	GREEN	4	GND
5	BLUE	6	SDA
7	VSYNC	8	GND
9	HSYNC	10	+5V

DP:
DP (Display Port) display output

PIN No.	Signal Description	PIN No.	Signal Description
1	D0+	2	GND
3	D0-	4	D1+
5	GND	6	D1-
7	D2+	8	GND
9	D2-	10	D3+
11	GND	12	D3-
13	AUX_EN#	14	GND
15	AUX+	16	GND
17	AUX-	18	Hot plug
19	GND	20	VCC3

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

Chapter 3
BIOS Setup Information

WEBS-21B0 system adopts NANO-6061 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

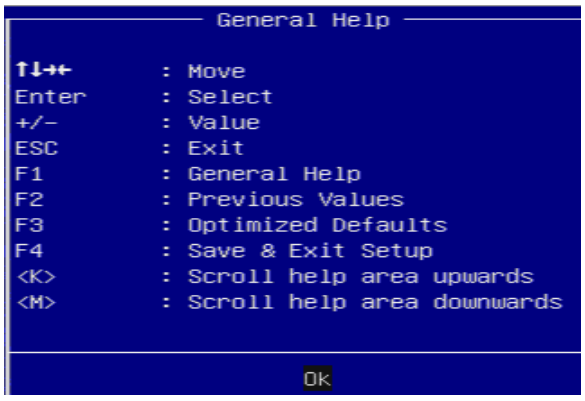
Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <ESC> or <DEL> key will enter BIOS setup screen.

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.

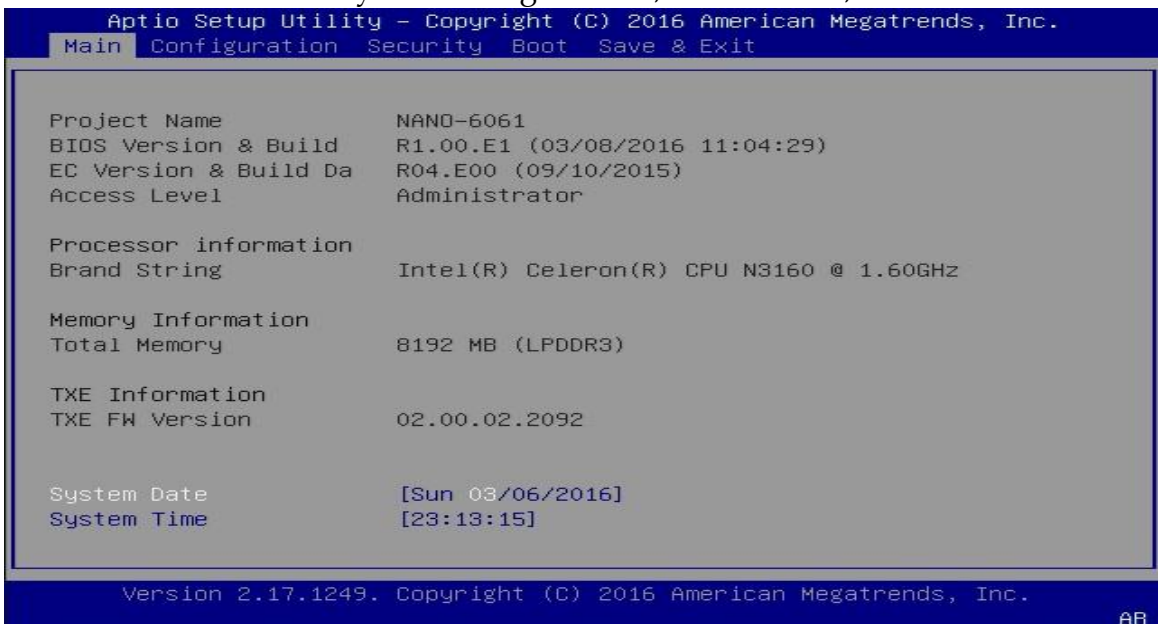
Press <F1> to Run General Help or Resume

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

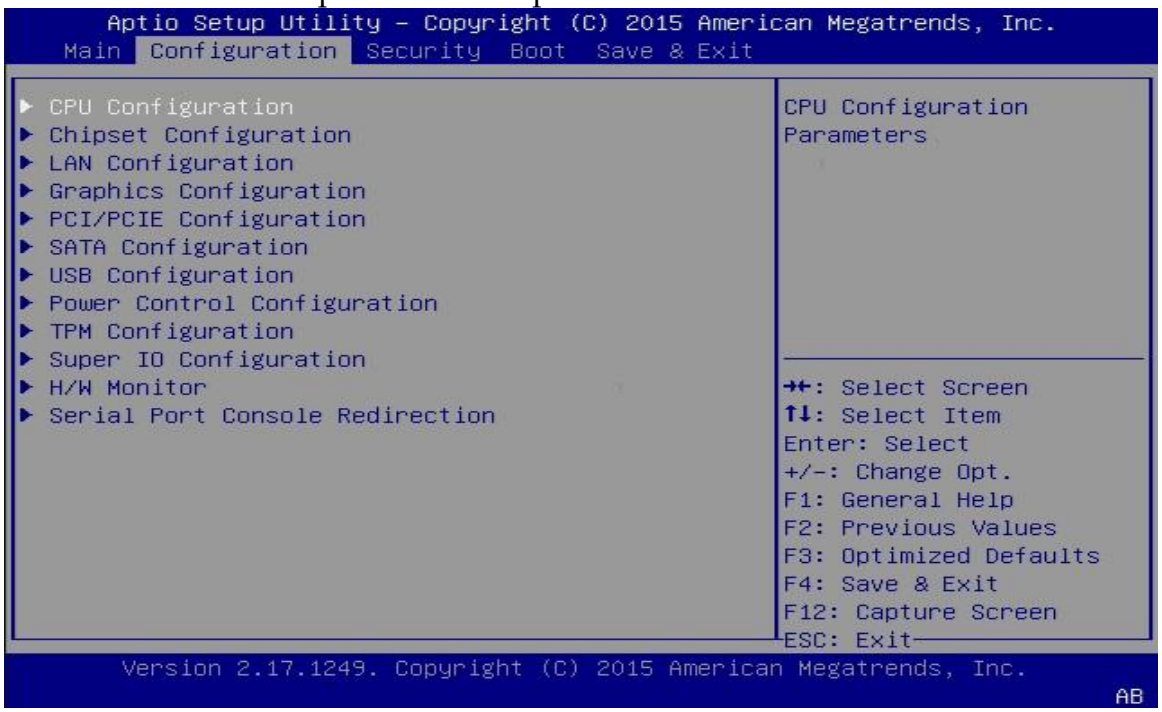
Use this menu for basic system configurations, such as time, date etc.



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.	

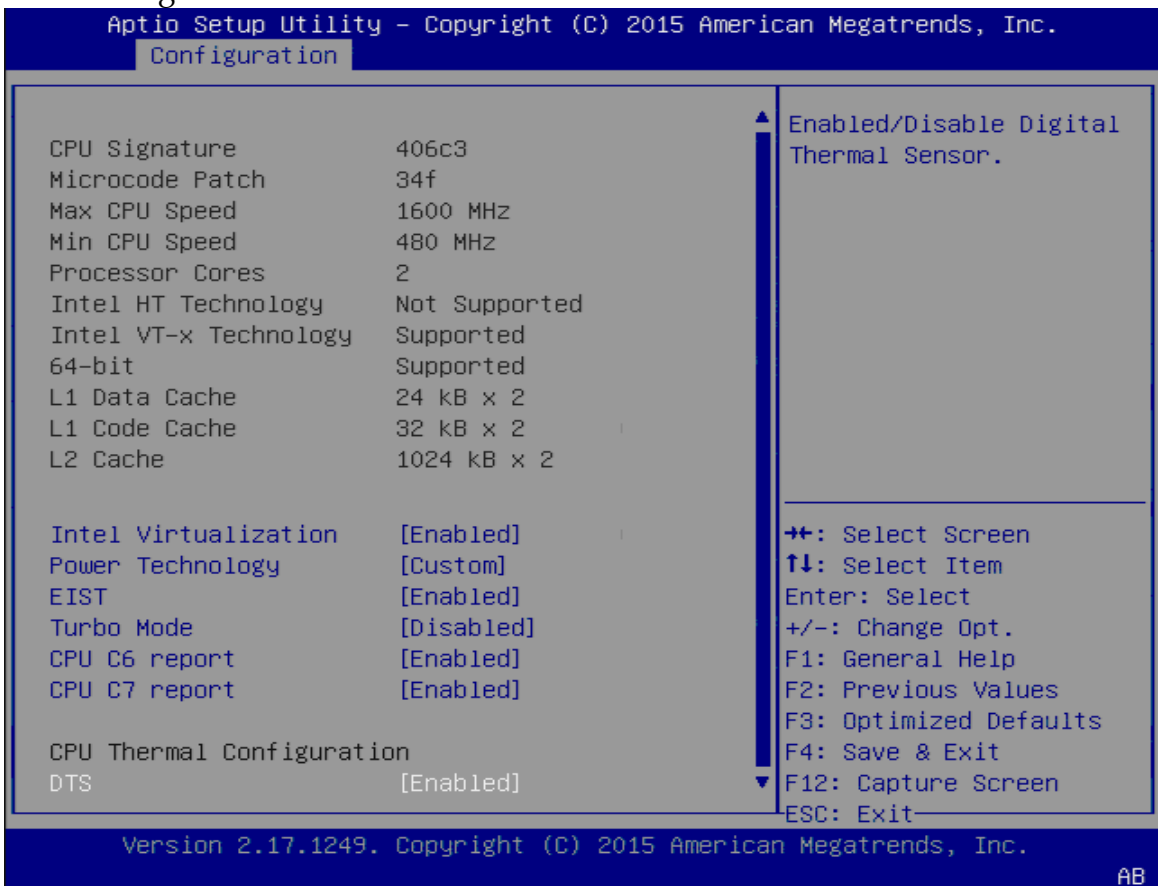
3.3 Configuration

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



CPU Configuration

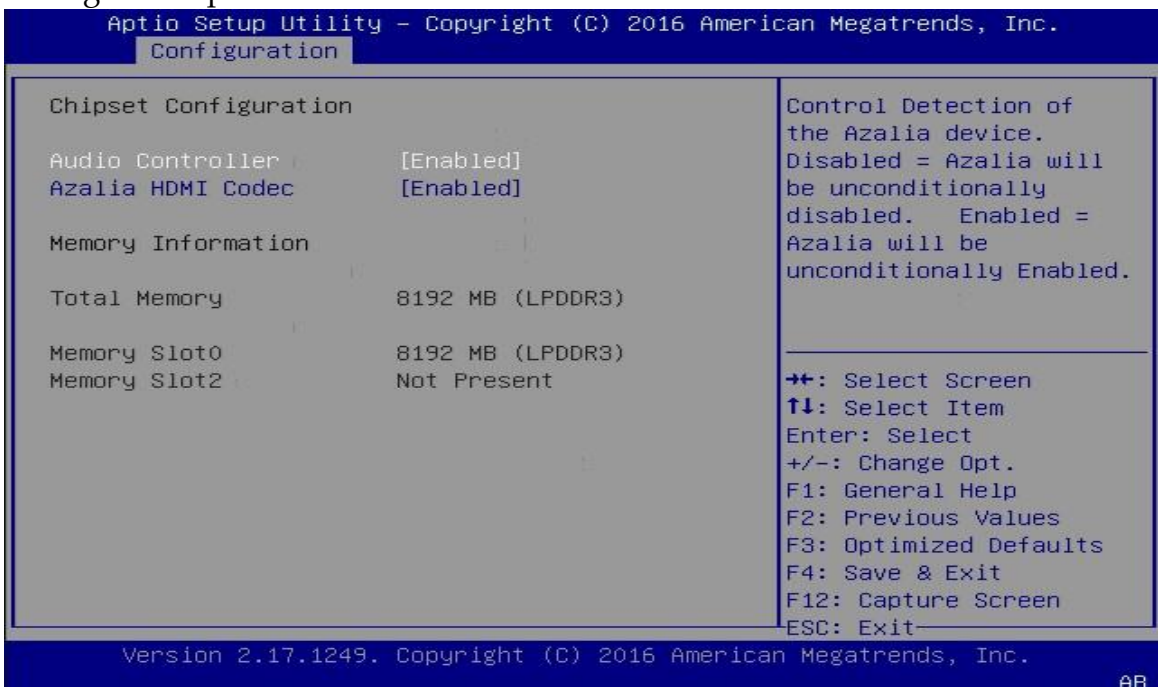
CPU Configuration Parameters



Feature	Description	Options
Intel Virtualization Technology	When enable, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology	Disabled, ★ Enabled
Power Technology (custom)	Enable the power management features	Disable, ★ Energy Efficient, Custom
EIST	Enable/Disable Intel SpeedStep	★ Enabled, Disabled
Turbo Mode	Turbo Mode.	★ Disabled, Enabled
CPU C6 report	Enable/ Disable CPU C6(ACPI C3) report to OS	★ Enabled, Disabled
CPU C7 report	Enable/ Disable CPU C7(ACPI C3) report to OS	★ Enabled, Disabled
DTS	Enable/Disable Digital Thermal Sensor	Enabled, ★ Disabled

Chipset Configuration

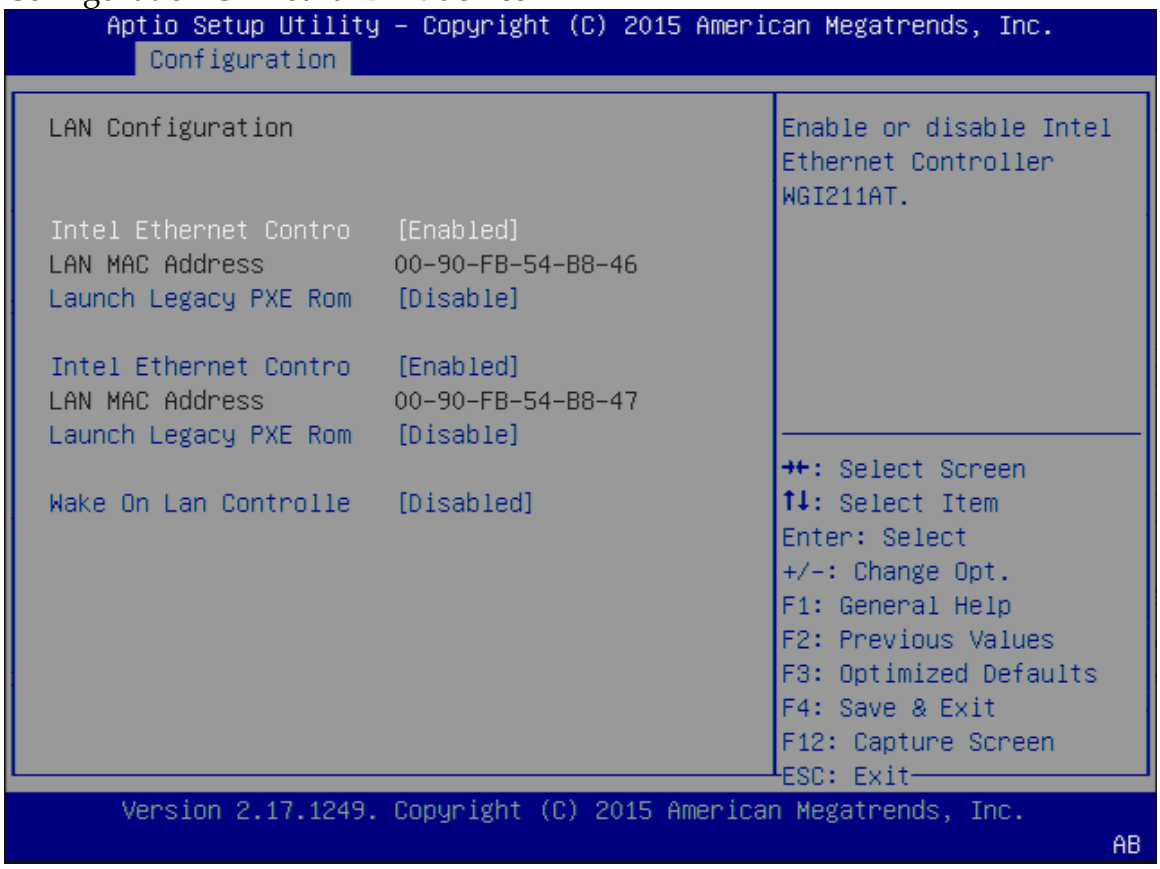
Configure Chipset feature



Feature	Description	Options
Audio Controller	Control Detection of the Azalia device. Disable = Azalia will be unconditionally disabled. Enable = Azaliawill be unconditionally Enable.	Disabled, ★ Enabled
Azalia HDMI Codec	Enable/Disable internal HDMI codec for Azalia	Disabled, ★ Enabled

LAN Configuration

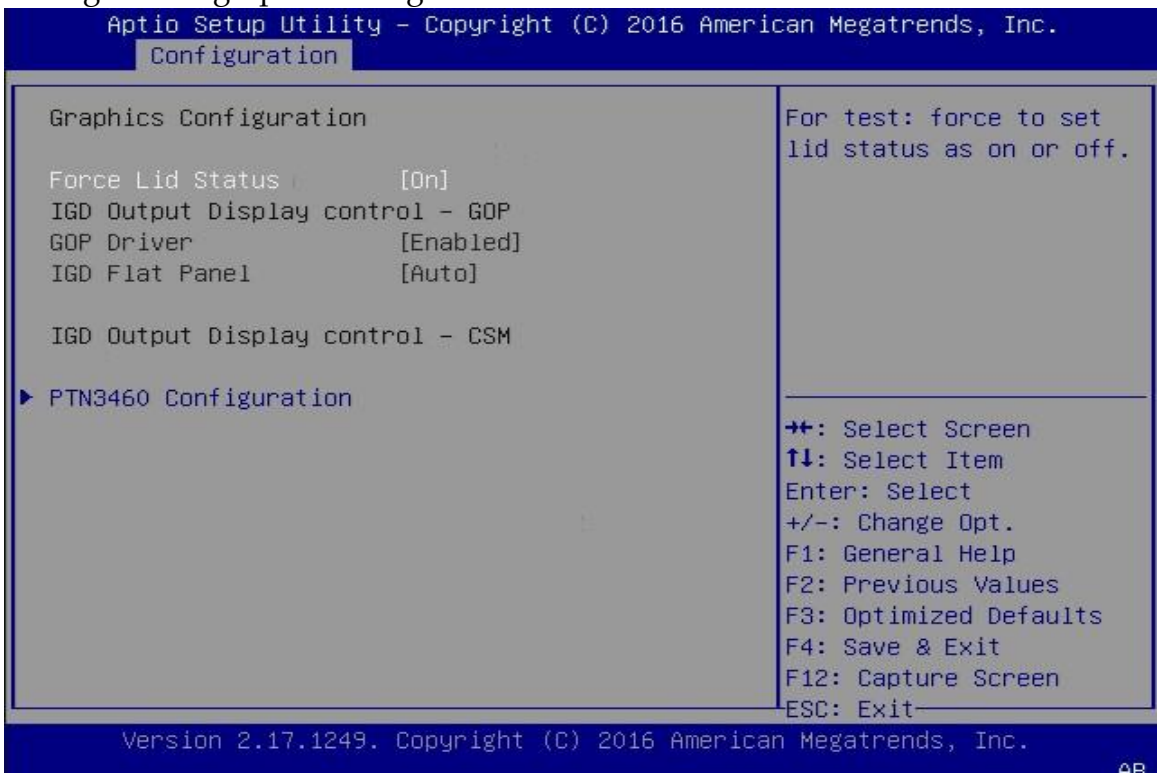
Configuration On Board LAN device



Feature	Description	Options
Intel Ethernet Controller WGI211AT	Enable or disable Intel Ethernet Controller WGI211AT.	Disabled, ★Enabled
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 Ethernet Controller WGI211AT	Enable or disable Intel Ethernet Controller WGI211AT.	Disabled, ★Enabled
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	★Disabled, Enabled, Auto
Wake on Lan Controller	Enable/Disable Intel Lan WGI211AT wakeup function.	Enabled, ★Disabled

Graphics Configuration

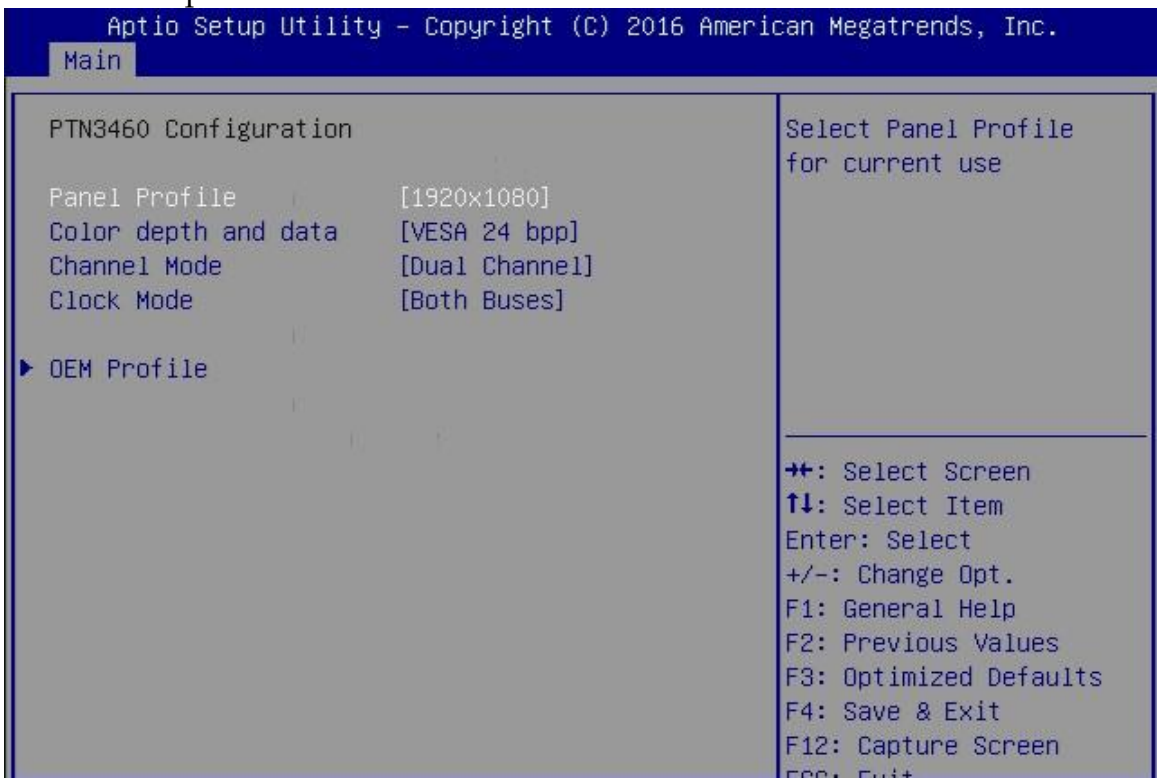
Configuration graphic settings



Feature	Description	Options
Force Lid Status	For test: force to set lid status as on or off.	★On, Off

PTN3460 Configuration

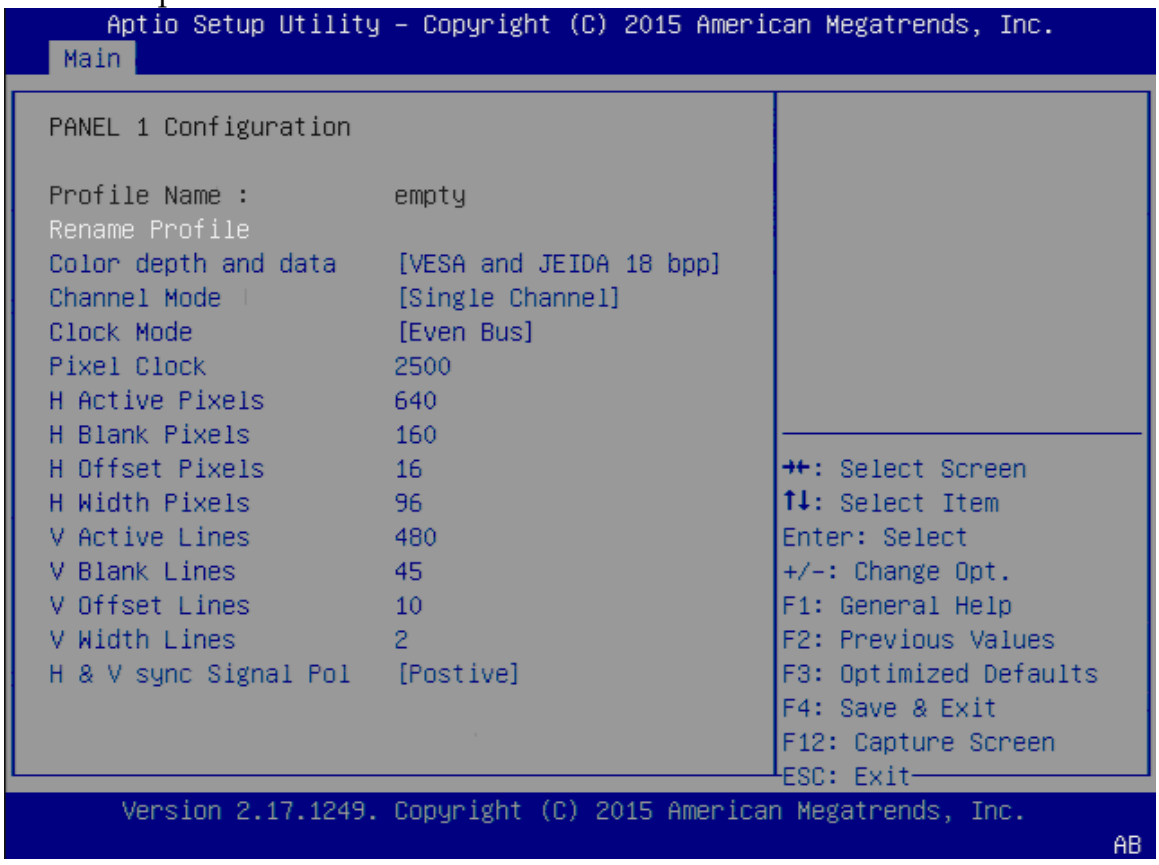
PTN3460 help



Feature	Description	Options
Panel Profile	Select Panel Profile for current use.	640x480 800x480 800x600 1024x768 1280x800 1280x1024 1366x768 1440x900 ★1920x1080 OEM Profile
Color depth and data	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 Bus

OEM Profile

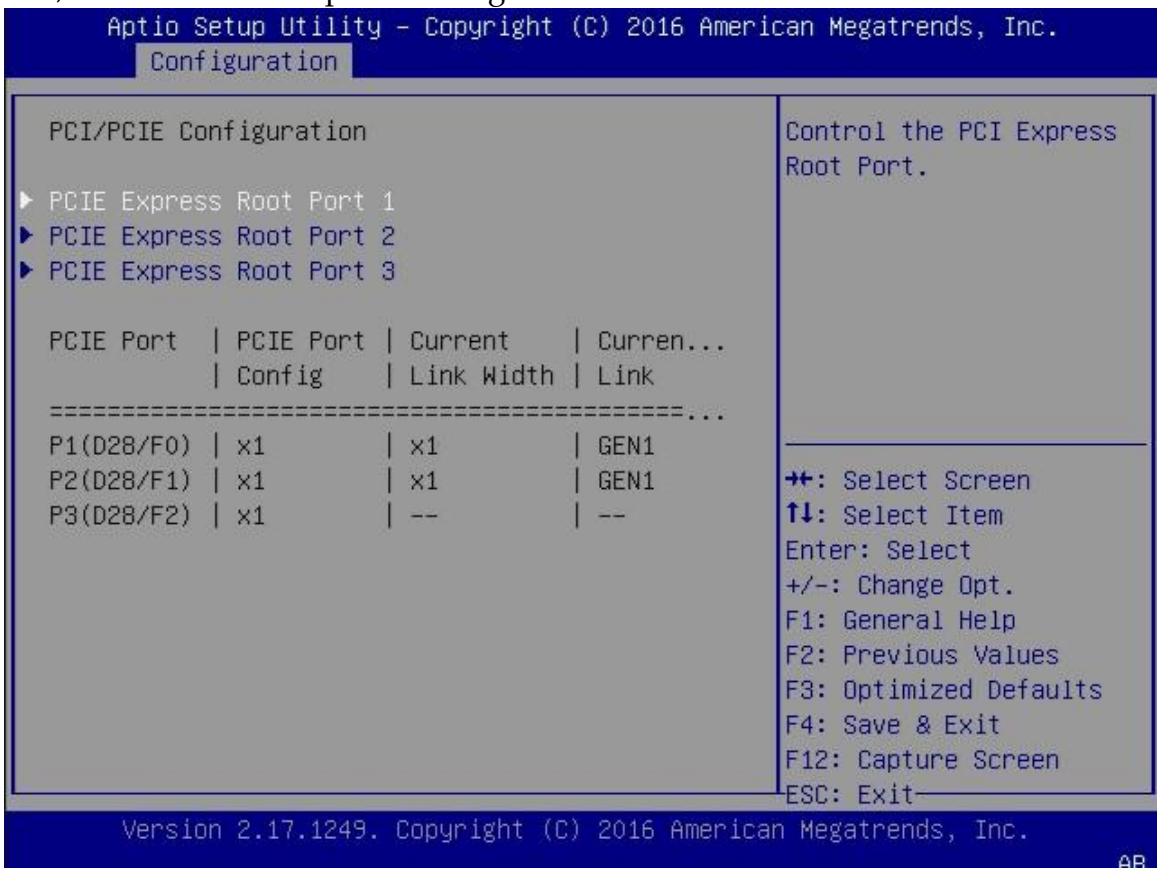
Panel 1 help



Feature	Description	Options
Rename Profile		
Color depth and data	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 Bus
Pixel Clock	Pixel Clock (10Khz)	
H Active Pixels	H Active Pixels (Pixel)	
H Blank Pixels	H Blank Pixels (Pixel)	
H Offset Pixels	H Offset Pixels (Pixel)	
H Width Pixels	H Width Pixels (Pixel)	
V Active Lines	V Active Lines (Line)	
V Blank Lines	V Blank Lines (Line)	
V Offset Lines	V Offset Lines (Line)	
V Width Lines	V Width Lines (Line)	
H & V sync Signal Pol	Flag: 0x1E Signal Polarity is Postive 0x18 Signal Polarity is Non-Postive	★Postive, Non-Postive

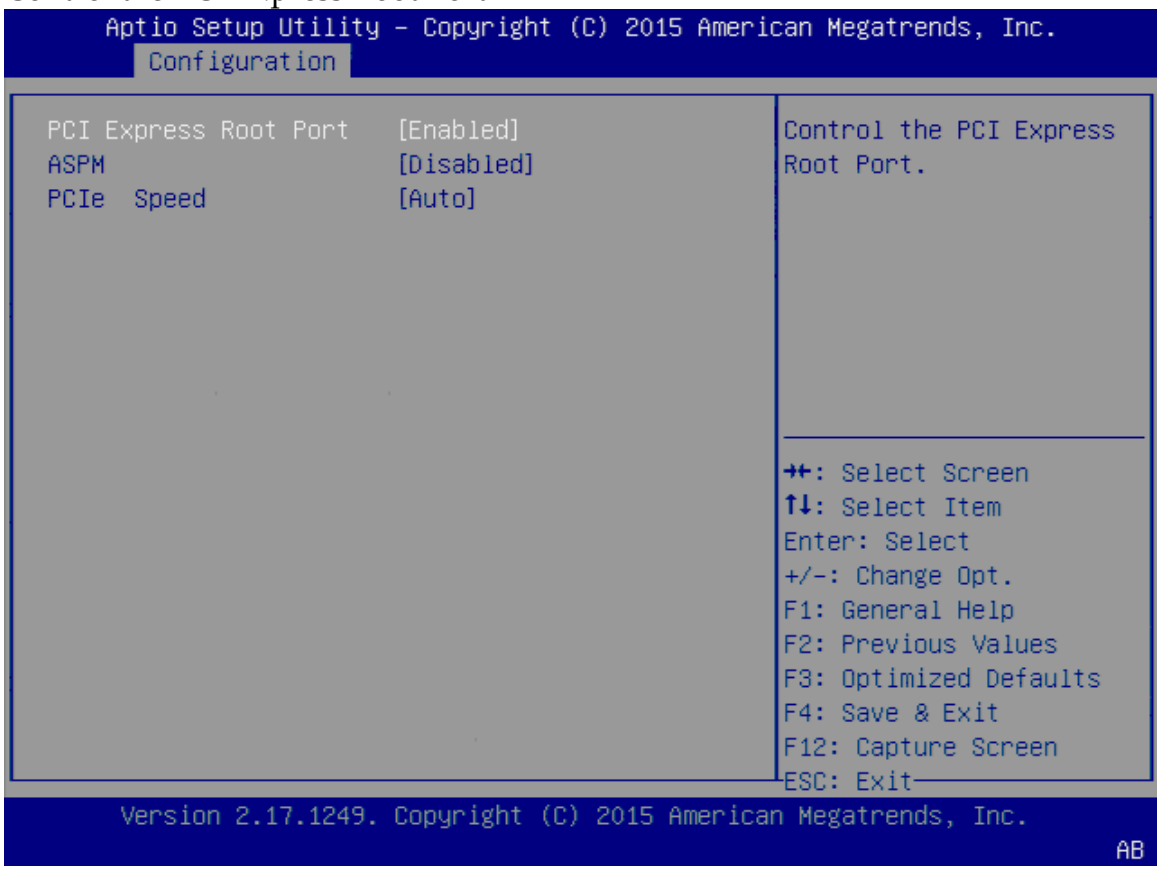
PCI/PCIE Configuration

PCI, PCI-X and PCI Express Settings.



PCIE Express Root Port 1

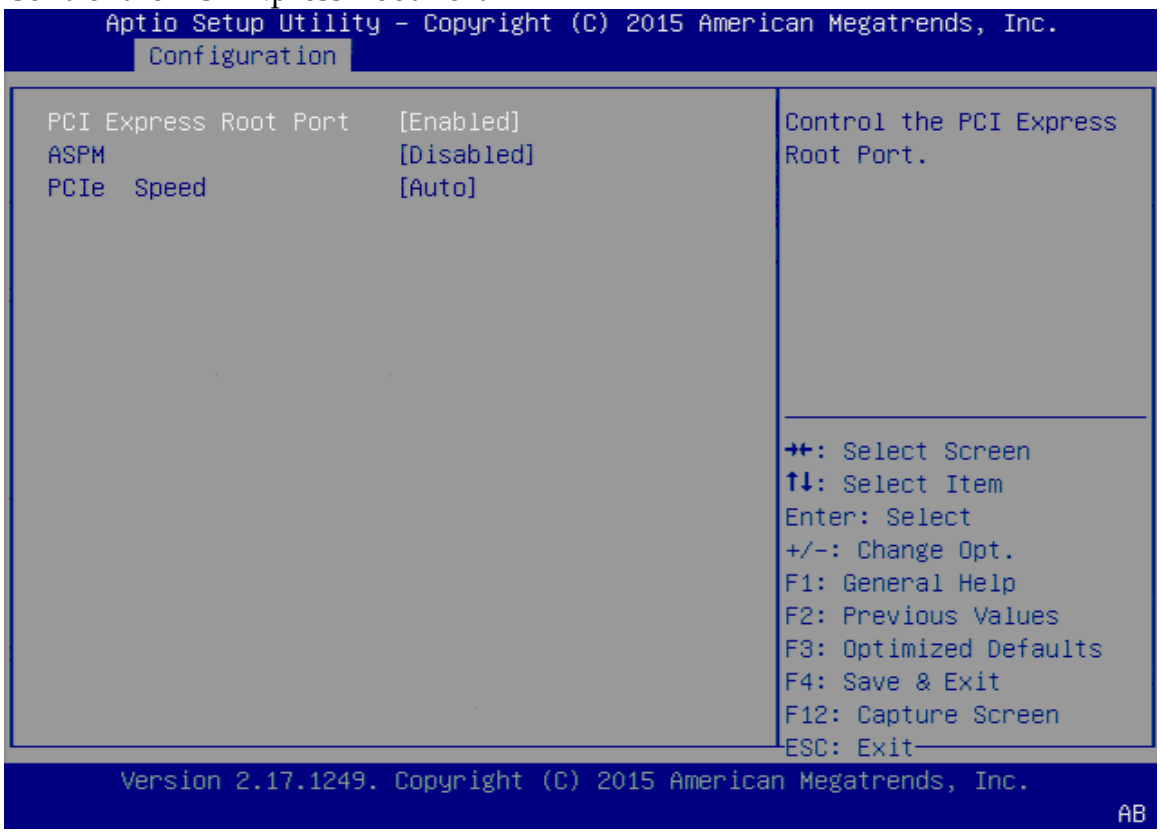
Control the PCI Express Root Port



Feature	Description	Options
PCI Express Root Port	Control the PCI Express Root Port.	★Enabled, Disabled
ASPM	PCI Express Active State Power Management settings.	★Disabled L0s L1 L0sL1 Auto
PCIe Speed	Configure PCIe Speed. CHV A1 always with Gen1 Speed.	★Auto Gen 2 Gen1

PCIE Express Root Port 2

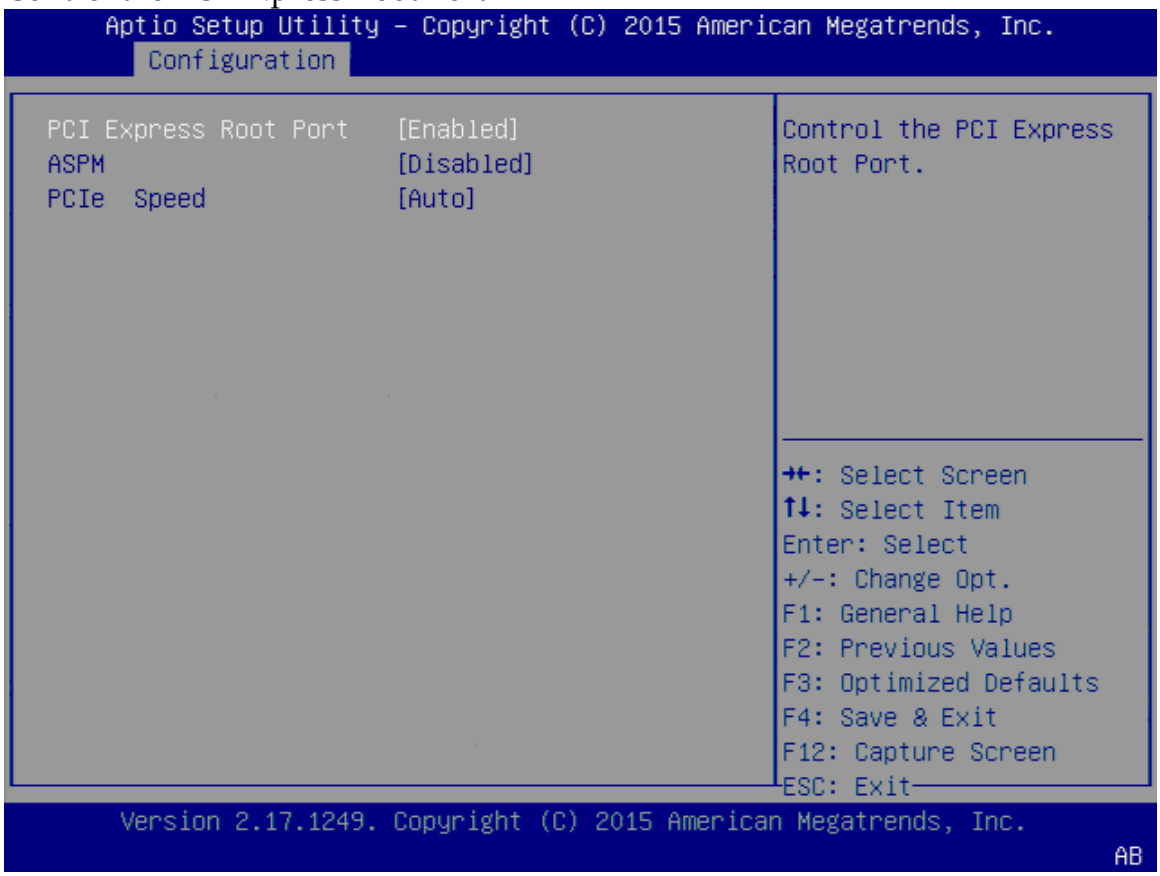
Control the PCI Express Root Port



Feature	Description	Options
PCI Express Root Port	Control the PCI Express Root Port.	★Enabled, Disabled
ASPM	PCI Express Active State Power Management settings.	★Disabled, L0s, L1, L0sL1, Auto
PCIe Speed	Configure PCIe Speed. CHV A1 always with Gen1 Speed.	★Auto, Gen 2, Gen1

PCIE Express Root Port 3

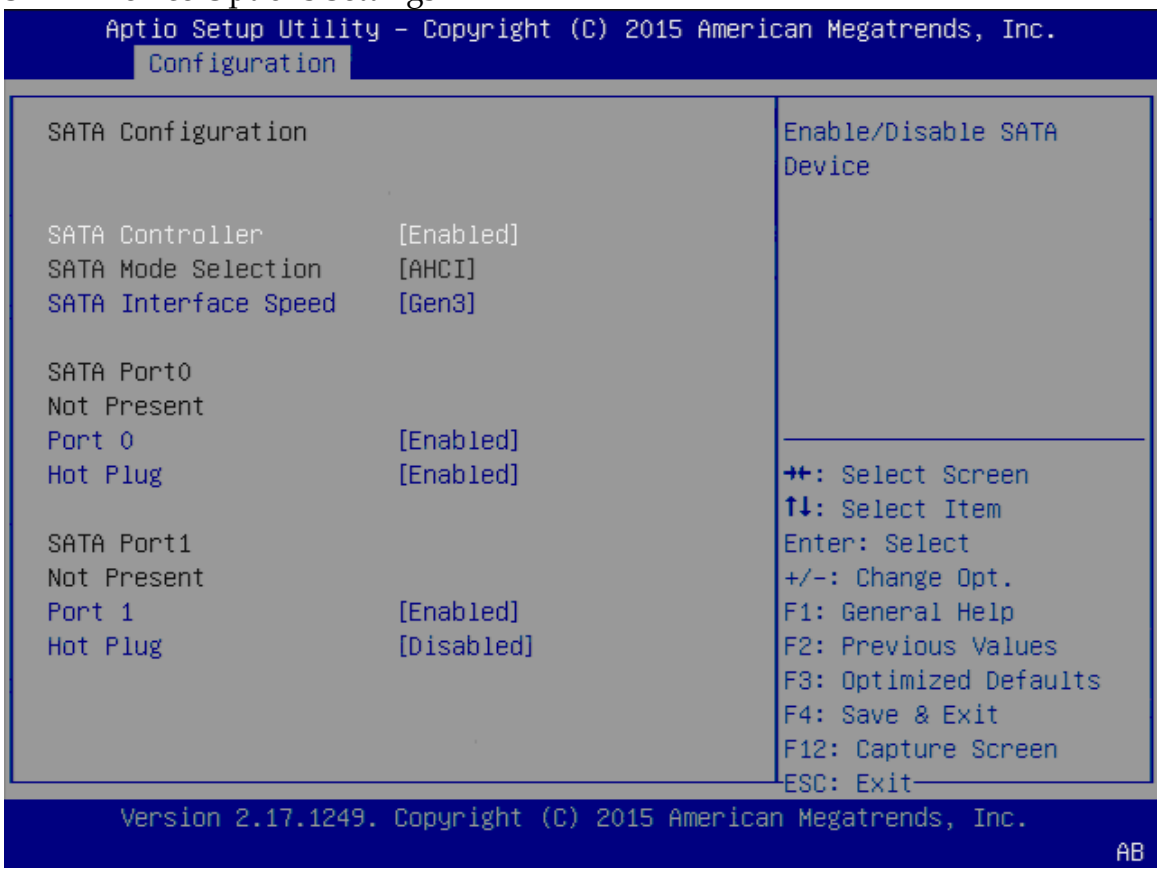
Control the PCI Express Root Port



Feature	Description	Options
PCI Express Root Port	Control the PCI Express Root Port.	★Enabled, Disabled
ASPM	PCI Express Active State Power Management settings.	★Disabled L0s L1 L0sL1 Auto
PCIe Speed	Configure PCIe Speed. CHV A1 always with Gen1 Speed.	★Auto Gen 2 Gen1

SATA Configuration

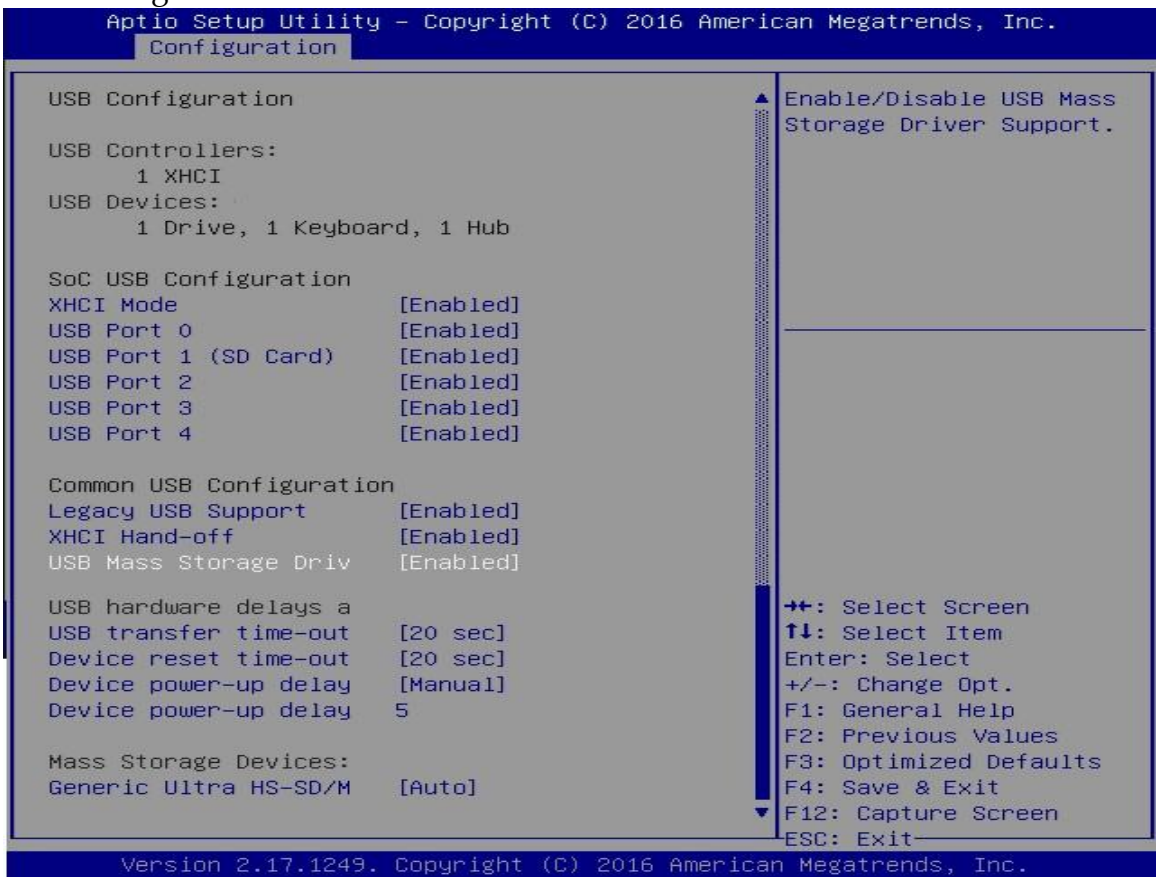
SATA Device Options Settings



Feature	Description	Options
SATA Controller	Enable/Disable SATA Device	★Enabled, Disabled
SATA Interface Speed	Select SATA Interface Speed, CHV A1 always with Gen1 Speed.	Gen1 Gen2 ★Gen3
Port 0	Enable/Disable SATA Port.	★Enabled, Disabled
Hot Plug	Designates this port as Hot Pluggable.	Enabled, ★Disabled
Port 1	Enable/Disable SATA Port.	★Enabled, Disabled
Hot Plug	Designates this port as Hot Pluggable.	Enabled, ★Disabled

USB configuration

USB Configuration Parameters.

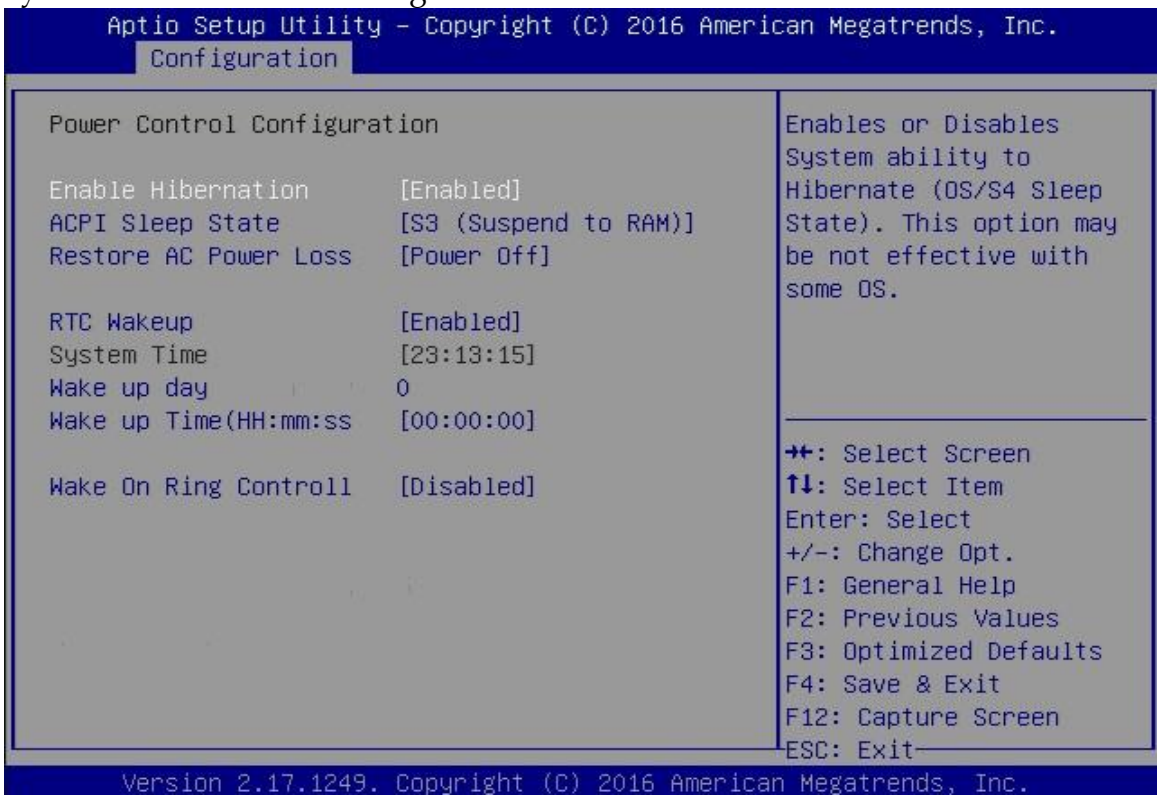


Feature	Description	Options
XHCI Mode	Made of operation of xHCI controller	★Enabled Disabled
USB Port 0	Enable / Disable USB Port 0	★Enabled Disabled
USB Port 1 (SD Card)	Enable / Disable USB Port 1. This port is connected to 2.0 SD/MMC Memory Card Reader.	★Enabled Disabled
USB Port 2	Enable / Disable USB Port 2	★Enabled Disabled
USB Port 3	Enable / Disable USB Port 3	★Enabled Disabled
USB Port 4	Enable / Disable USB Port 4	★Enabled Disabled
Legacy USB Support	Enables Legacy USB support. AUTO option disable legacy support if no USB device are connected. DISABLE option will keep USB devices available only for EFI applications.	★Enabled Disabled AUTO
XHCI Hand-off	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.	★Enabled Disabled
USB Mass Storage Driv	Enable/ Disable USB Mass Storage Driver Support.	Disabled ★Enabled

USB transfer time-out	The time-out value for Control, Bulk, and Interrupt transfers.	1 sec 5 sec 10 sec ★20 sec
Device reset time-out	USB mass storage device Start Unit command time-out.	10 sec ★20 sec 30 sec 40 sec
Device power-up delay (Manual)	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.	★Auto Manual
Device power-up delay	Delay range is 1..40 seconds, in one second increments	
Generic Ultra HS-SD/M	Mass storage device emulation type. 'Auto" enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.	★Auto Floppy Forced FDD Hard Disk CD-ROM

Power Control Configuration

System Power Control Configuration Parameters.

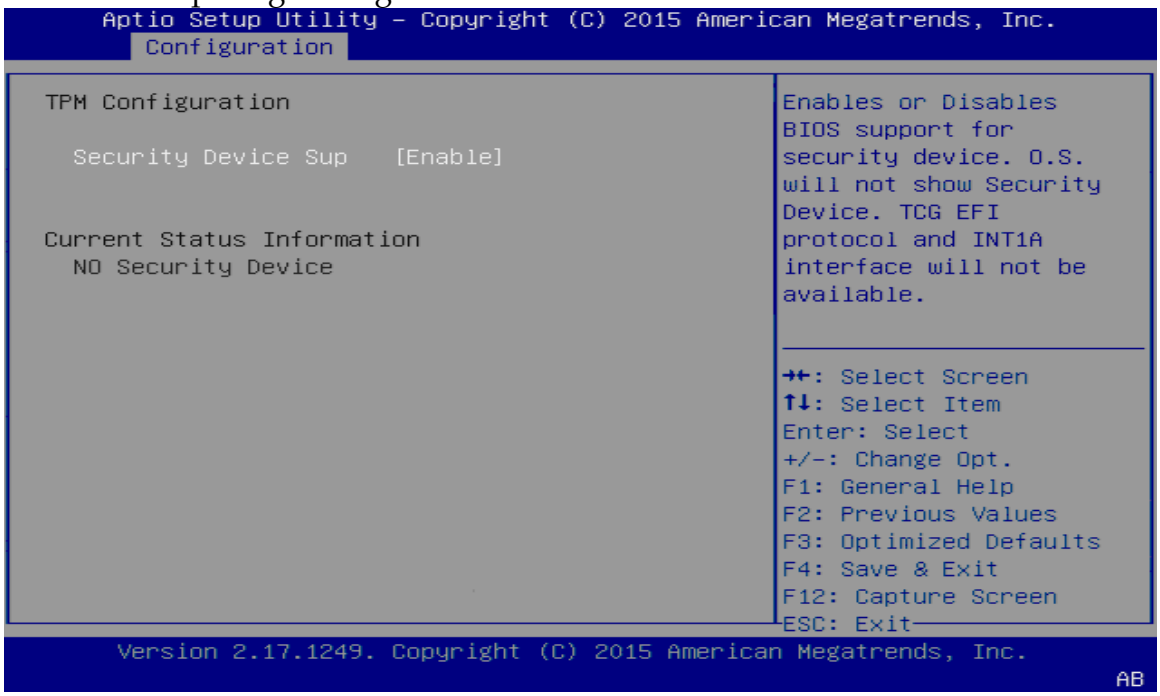


Feature	Description	Options
Enable Hibernation	Enables or Disable System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.	Disabled ★Enabled

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)
Restore AC Power Loss	Select AC power state when power is re-applied after a power failure.	★Power Off Power On Last State
RTC Wakeup	Enable/Disable system wake on alarm event.. [Enabled], system will wake on the Hour: 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	
Wake up Time (HH: mm: ss)	Use [Enter], [TAB] to select field, HH: 0-23, mm: 0-59, ss: 0-59	
Wake On Ring Controll	Enable/Disable GPIO Wake On Ring function.	Enabled ★Disabled

TPM Configuration

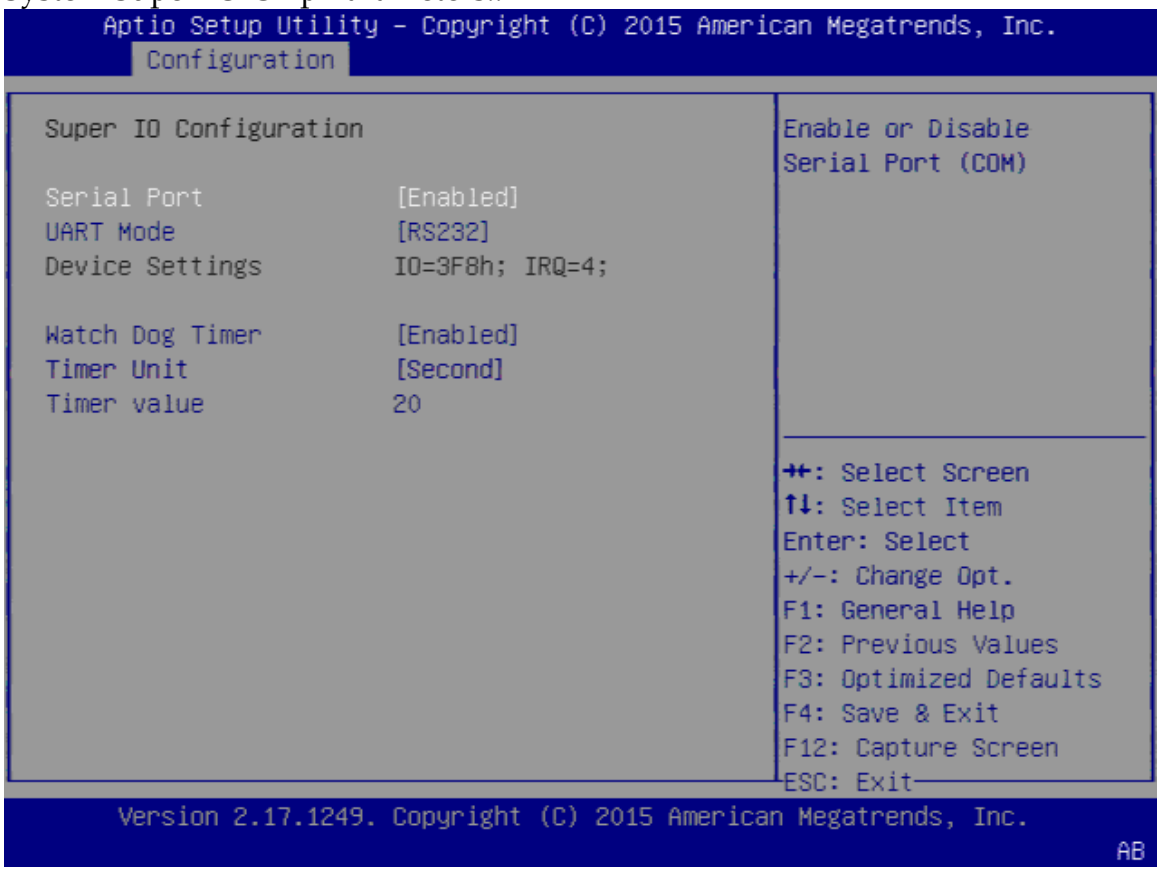
Trusted Computing Settings



Feature	Description	Options
Security Device Sup	Enable or Disables BIOS support fir security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.	Disable ★Enable

Super IO Configuration

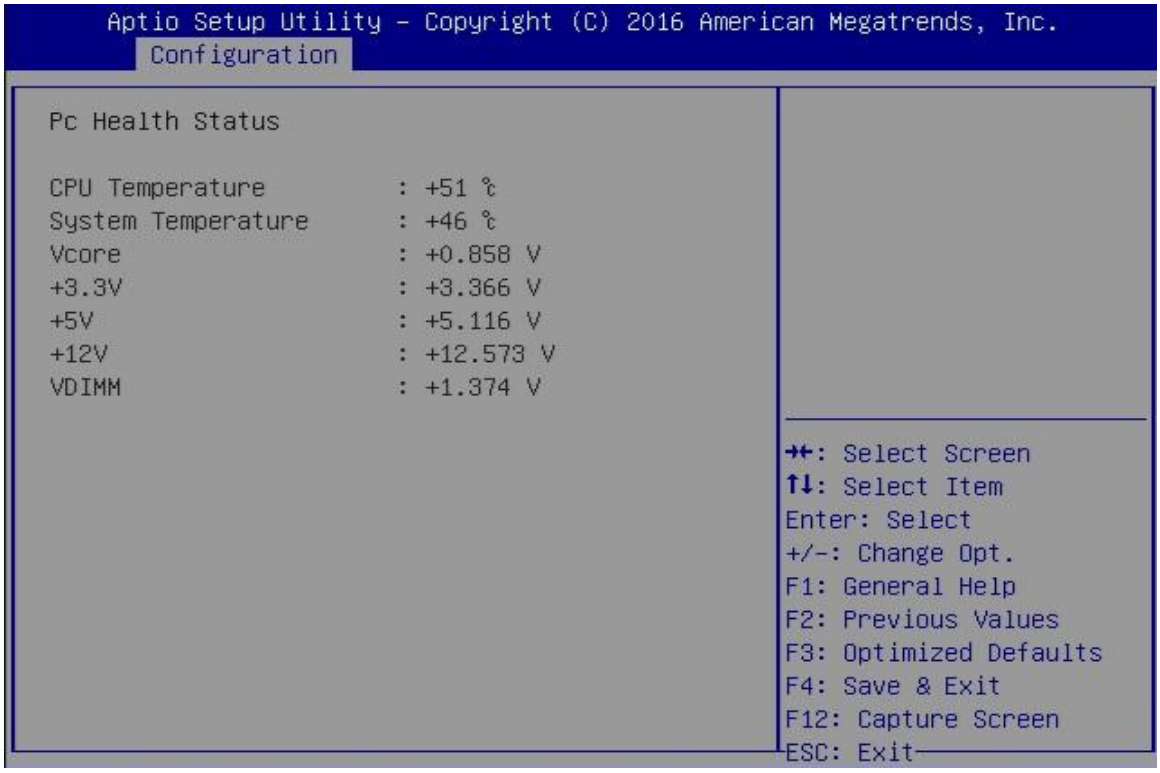
System Super IO Chip Parameters..



Feature	Description	Options
Serial Port	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 (Enable)	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	

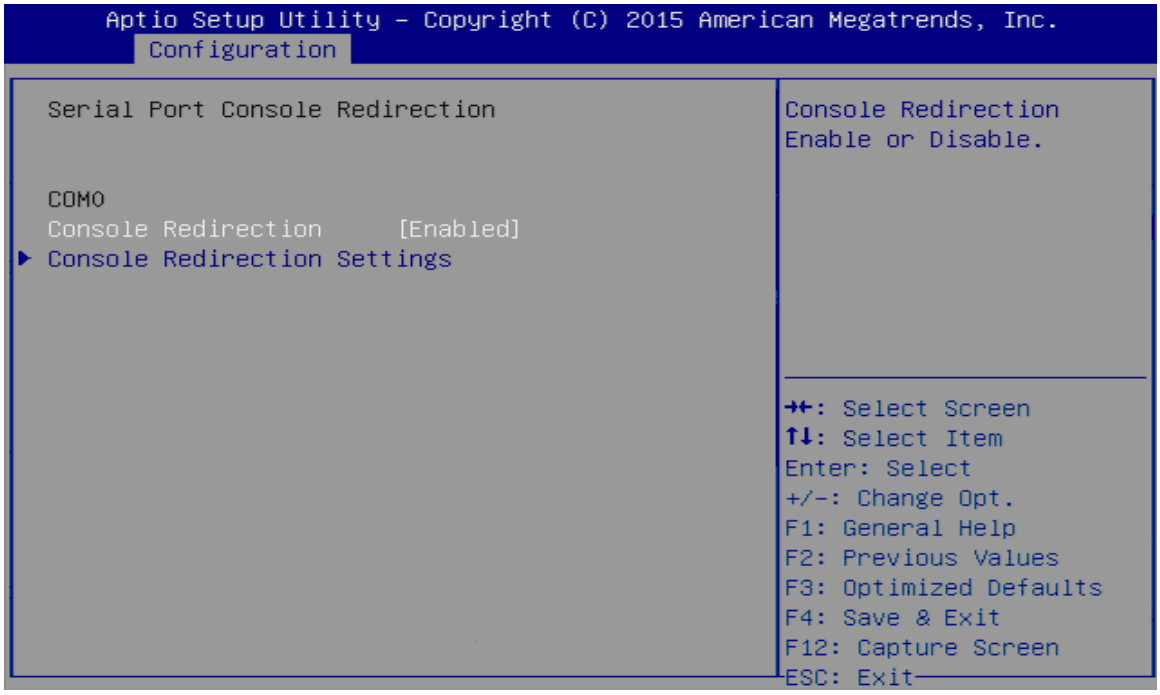
H/W Monitor

Monitor hardware status



Serial Port Console Redirection

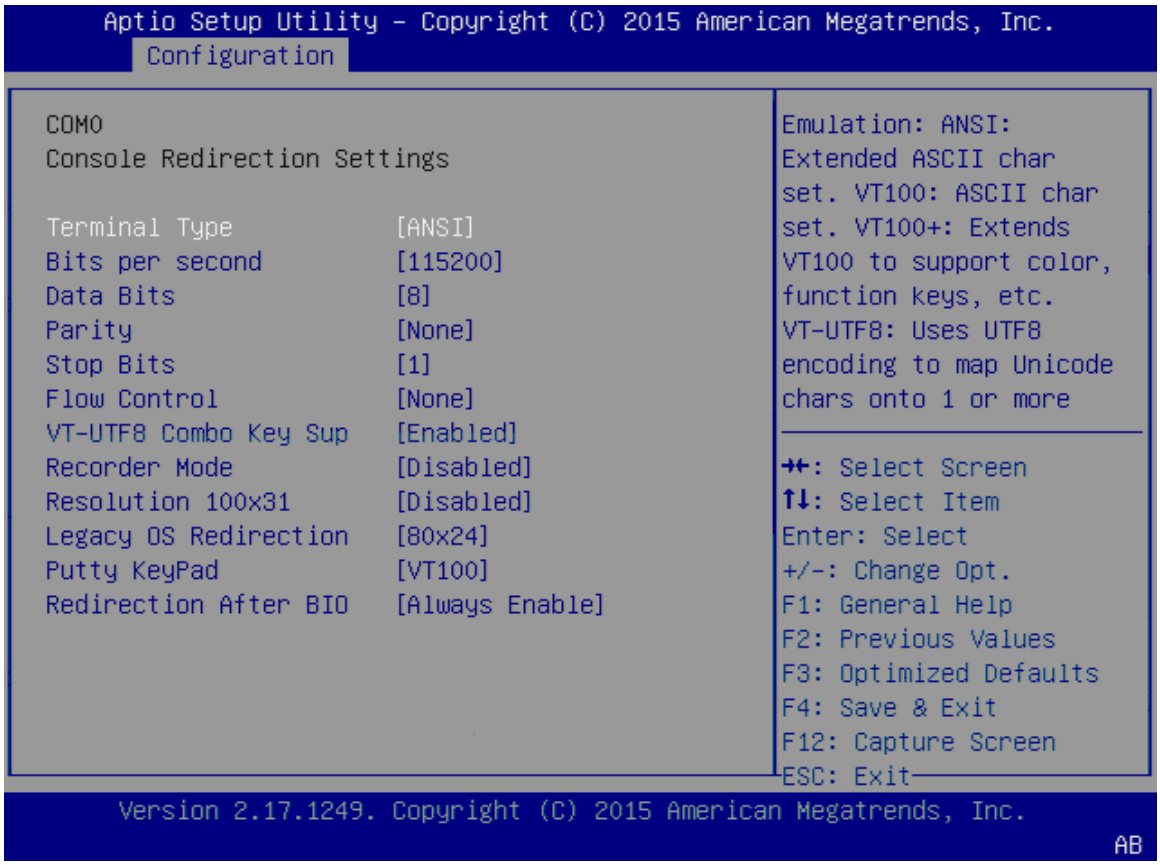
Serial Port Console Redirection.



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

Console Redirection Settings

Console Redirection Enable or Disable.

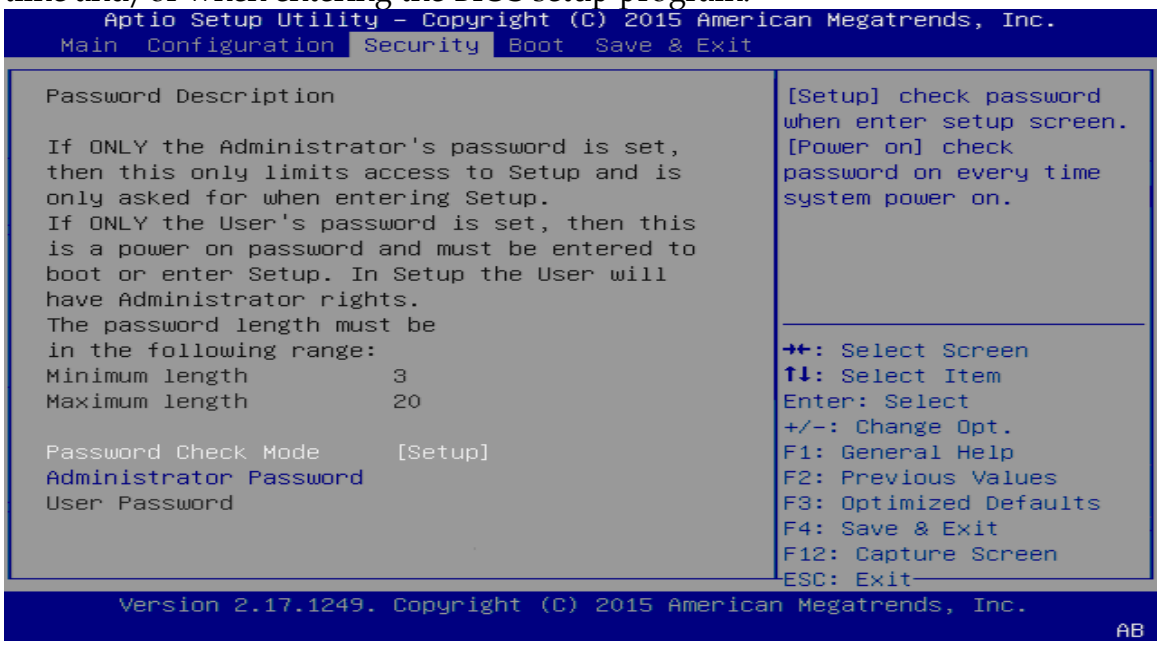


Feature	Description	Options
Terminal Type	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes	VT100 VT100+ VT-UTF8 ★ANSI
Bits per second	Selects serial port transmission 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-UTFB Combo Key Support	Enable VT-UTFB 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 BootLoader

3.4 Security

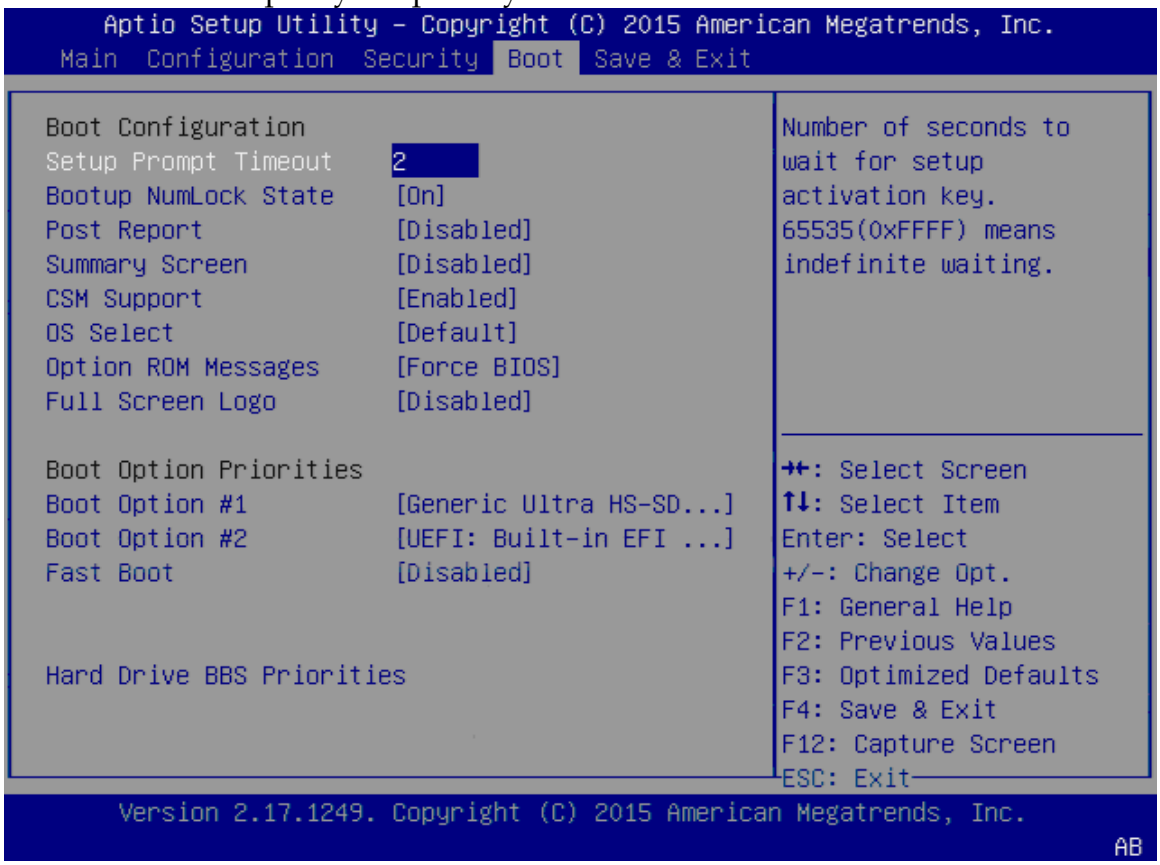
This section lets you set security passwords to control access to the system at boot time and/or when entering the BIOS setup program.



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.

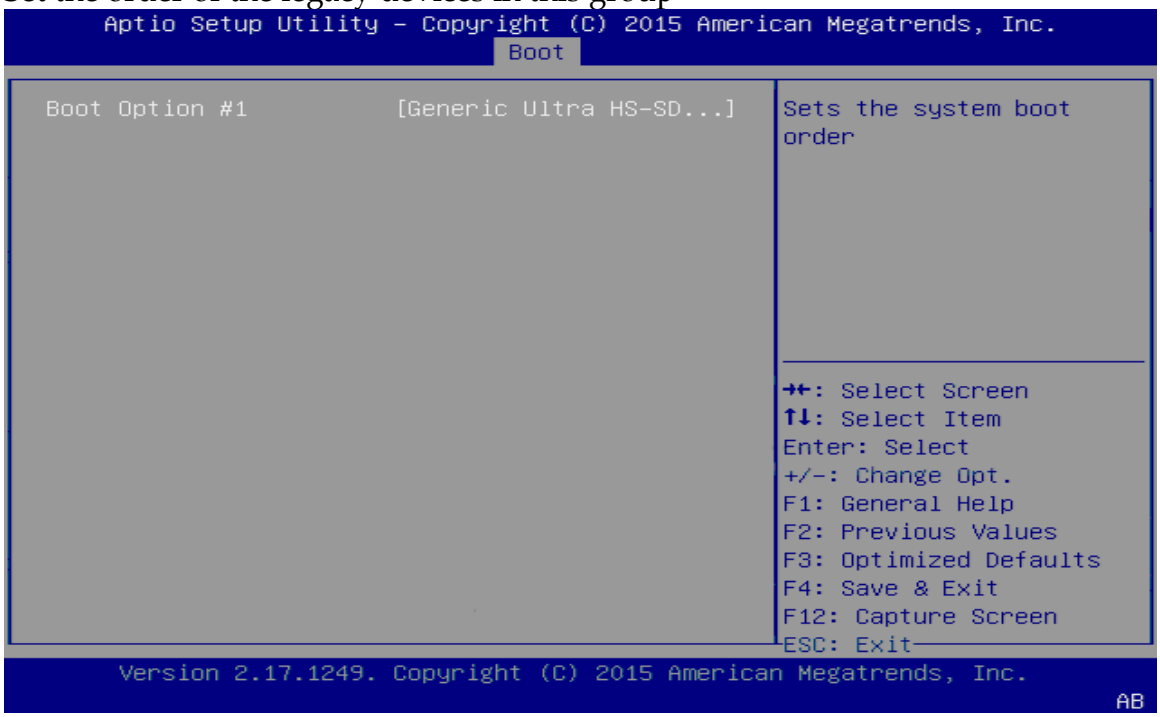


Feature	Description	Options
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.	2
Bootup NumLock State	Select the keyboard NumLock state	★On Off
Post Report	Post Report Support Enabled/Disabled	★Disabled Enabled
Summary Screen	Summary Screen Support Enabled/Disabled	★Disabled Enabled
CSM support	Enable/Disable CSM support.	Disabled ★Enabled
OS Select	[Default] To Win8.x / Android [Legacy System] Win7 /DOS [LINUX] Yocto Linux This item setting will effect LPSS & XHCI Hand-off items setting.	★Default Legacy System Linux
Option ROM Messages	Set display mode for Option ROM	★Force BIOS Keep Current
Full Screen Logo	Enables or disables Quiet Boot option and Full screen Logo.	★Disabled Enabled

Boot Option #1	Sets the system boot order	UEFI: Built-in EFI Shell ★ Generic Ultra HS-SD/MMC Disabled
Boot Option #2	Sets the system boot order	★UEFI: Built-in EFI Shell Generic Ultra HS-SD/MMC Disabled
Fast Boot	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.	★Disabled Enabled

Hard Drive BBS Priorities

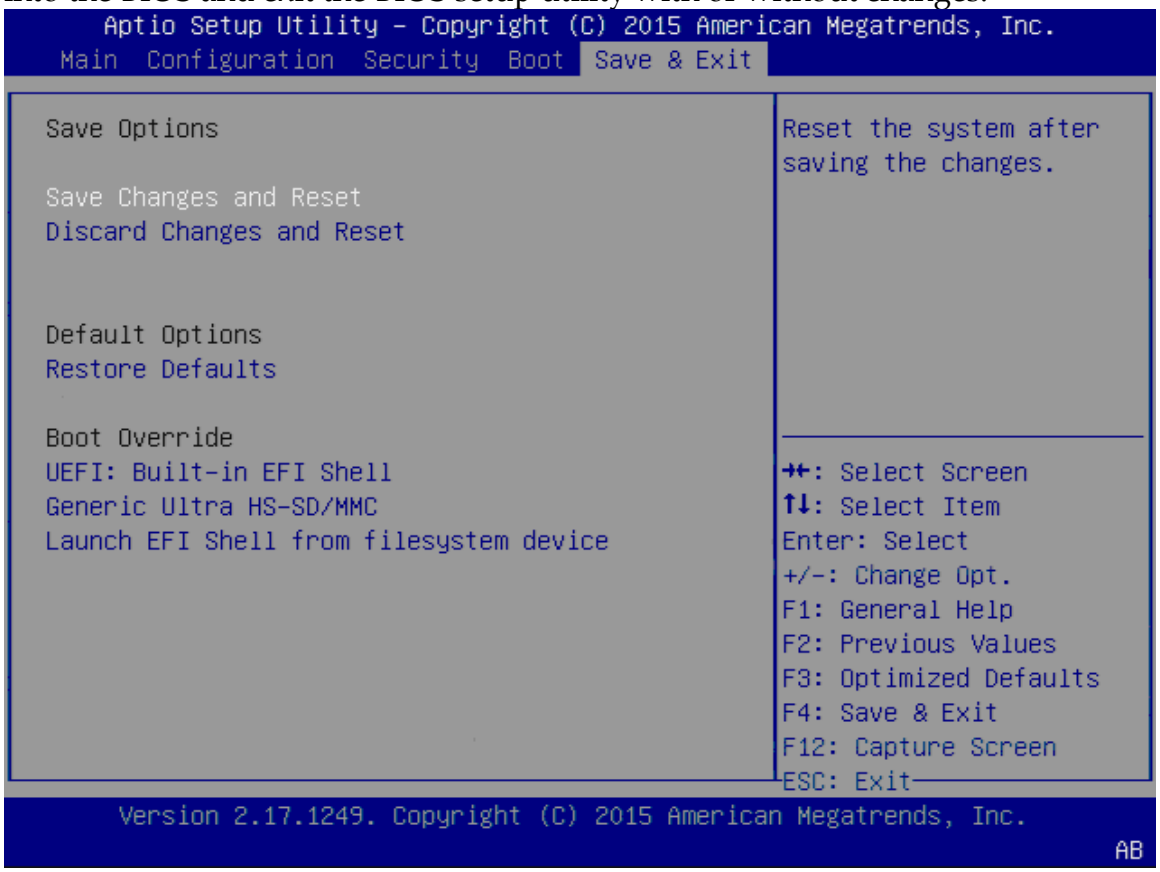
Set the order of the legacy devices in this group



Feature	Description	Options
Boot Option #1	Sets the system boot order	★ Generic Ultra HS-SD/MMC Disabled

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.	
Generic Ultra HS-SD/MMC	Save configuration and reset?	Yes, No
UEFI: Built-in EFI Shell	Save configuration and reset?	Yes, No
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

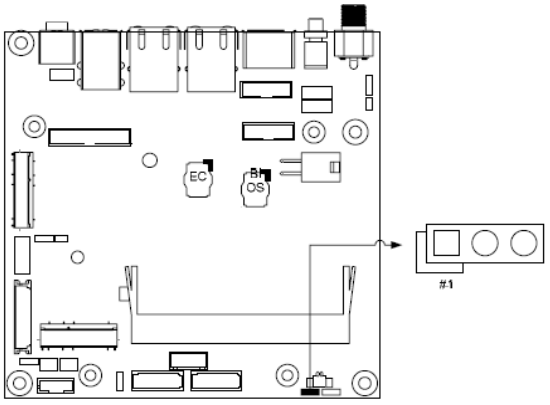
Chapter 5
Frequent Asked Questions

Q1: How to Clear CMOS?

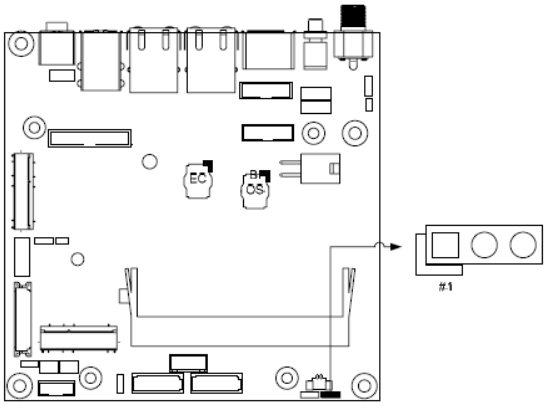
Answer:
You can switch off your power supply then find the JP9/10 to set it from 1-2 short to 2-3 short and wait 10 seconds to clean your password then set it back to 1-2 short to switch on your power supply.
JP9/JP10：CMOS Setting

JP9/JP10 : CMOS Setting

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



JP9

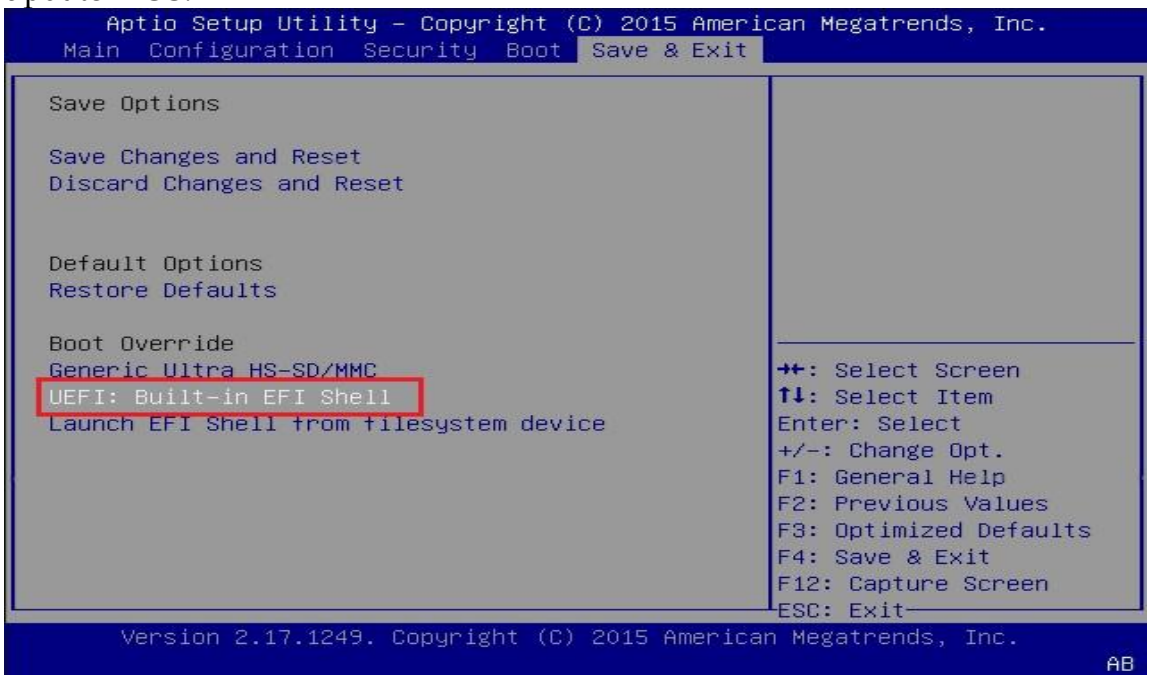


JP10

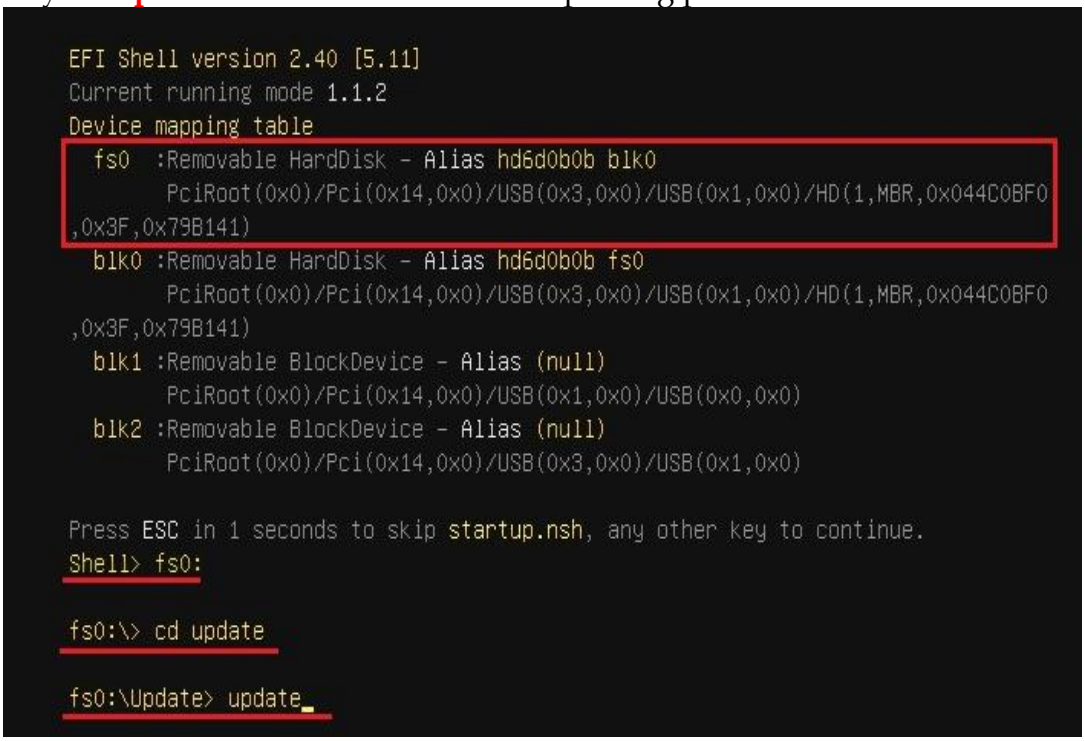
Q2: How to update BIOS?

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 **"NANO-6061"**.
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.efi"**. It will start to update BIOS.

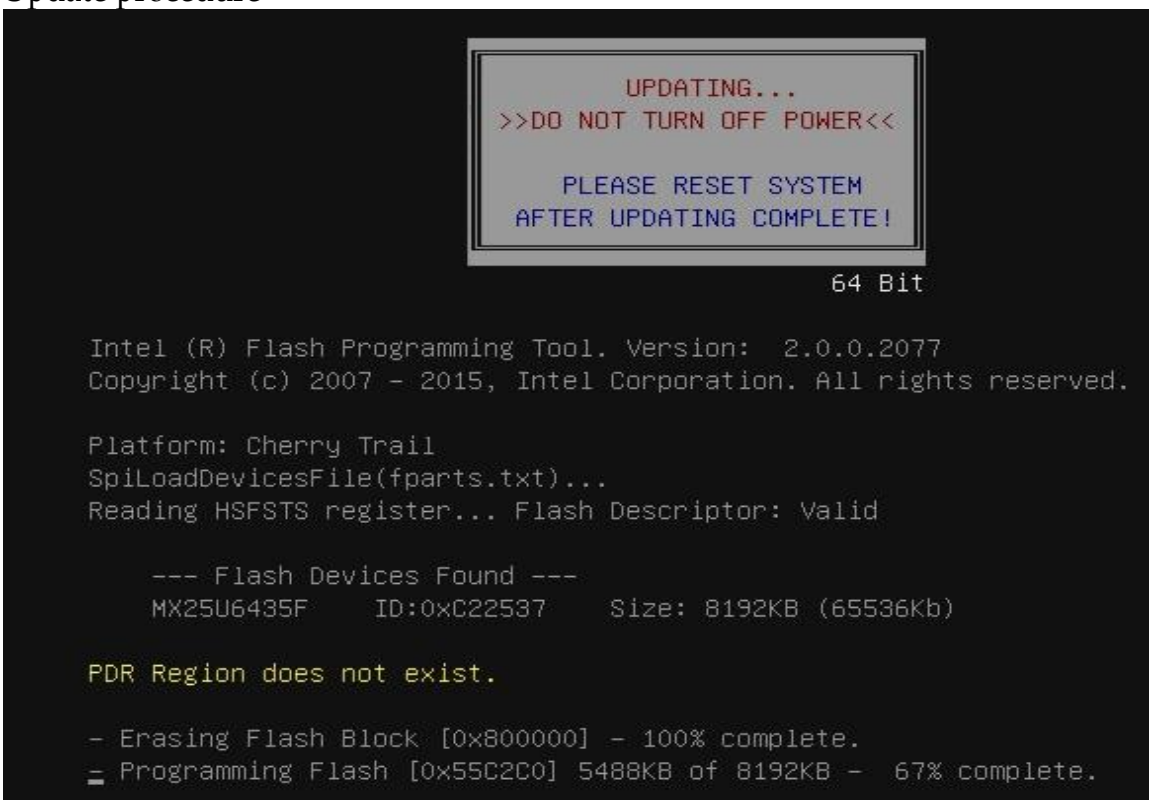
6. Reboot the system and getting into [Shell]. Please follow the below instruction to update BIOS.



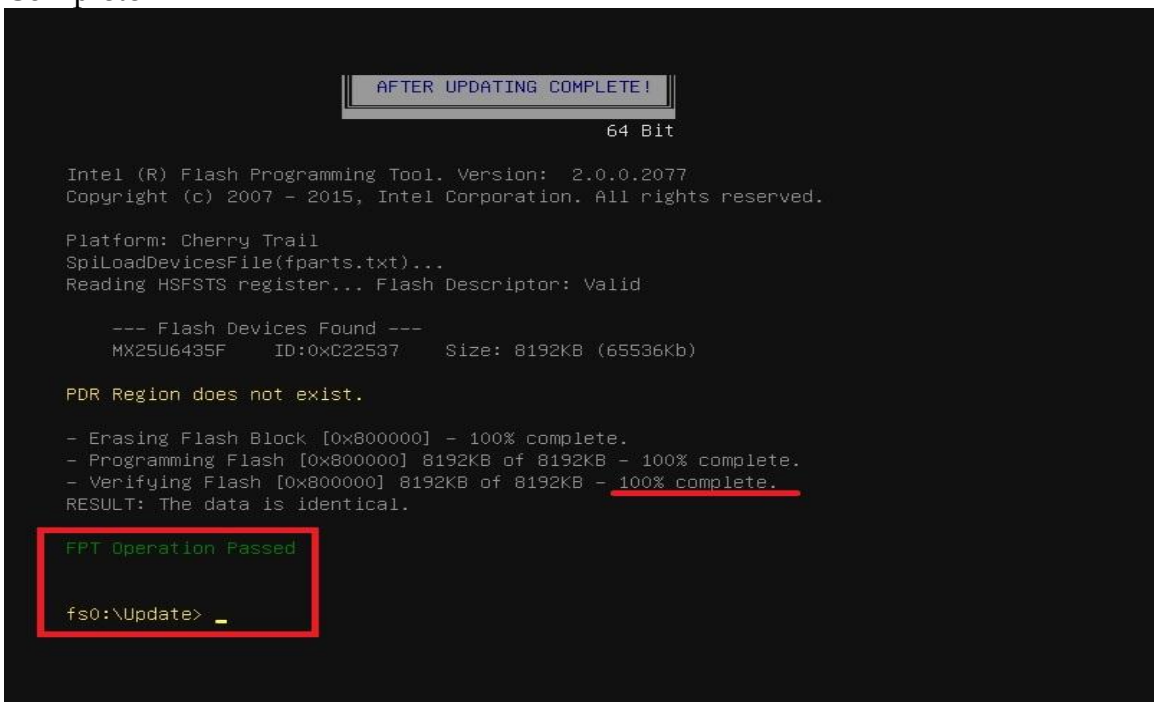
A. Key-in "fs0" to access your pen driver.
B. "cd update" to access the root folder.
C. Key-in"**update**" this command to run updating procedure.



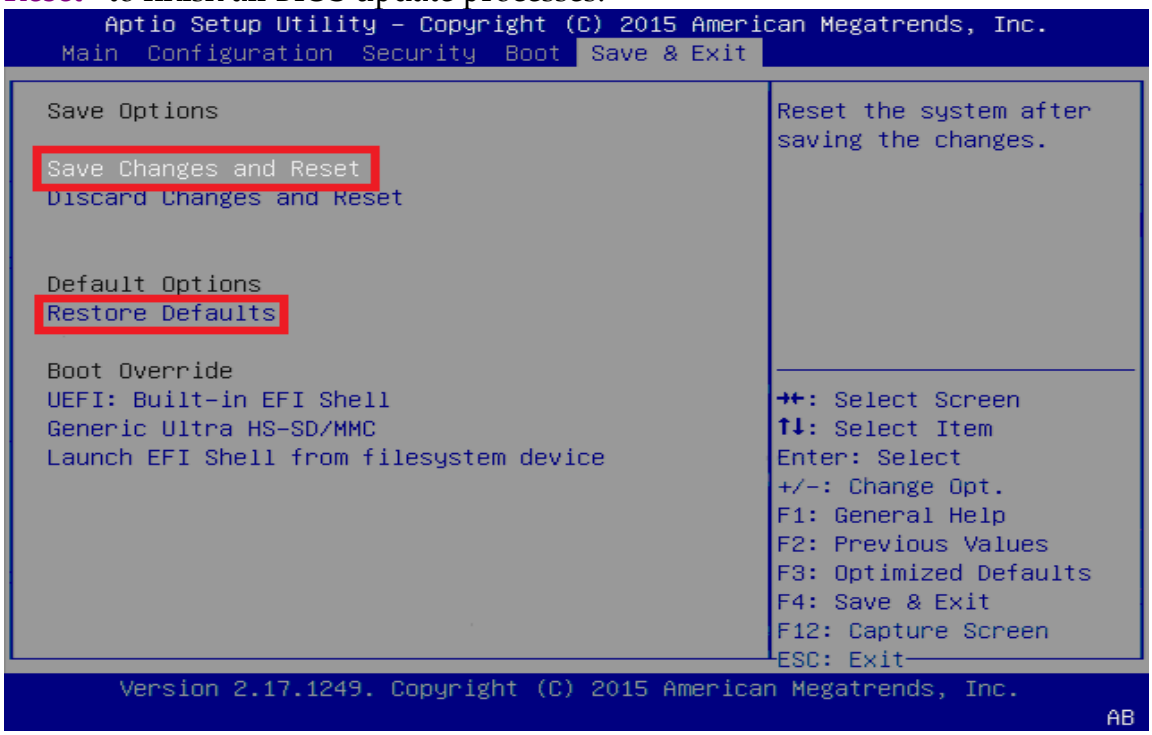
7. Update procedure



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: OS limitation

Answer:
In DVT test, we install popular OS as below and all of Braswell products pass Compatibility Test in Win8.1 Ultimate and Windows 7. Regarding Linux operation system, Braswell has not supported Ubuntu 15.04, Fedora 22, SUSE 13.2 until now.

Software Compatibility Test				
Win 8.1 Ultimate (64 bit)	Ubuntu 15.04	Fedora22	SUSE13.2	Yocto
O	TBA	TBA	TBA	TBA

Q4: Function limitation

Answer:
1. USB 3.0: In PssMark Software, the speed of USB3.0 should higher than 2400 Mb/S, but Brasewll products only can reach 2000.8 Mb/S.
2. UART (M.2 socket for NANO-6061): In Win7, the UART from SoC can be extended to M.2, so we can apply UART signal. However, UART cannot be extended to M.2 in Win8.
3. For memory support, the different between 32bit and 64bit type of operating system as following:

	32bit OS	64bit OS
Memory sizing	Up to 4GB	UP to 8GB

*Note: Braswell supports memory sizing up to 8GB/per channel

Q5: How to install Windows 7 in NANO-6061?

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