PER535A

Fanless Rugged system
User's Manual

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your local distributor.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter any technical problems with the product, contact your local distributor

Statement

Revision History

Revision	Date (yyyy/mm/dd)	Changes
V1.0	2015/04/1	Initial release

Packing list

- ☐ PER535A Fanless Rugged System
- ☐ CD (Driver + User's Manual)
- ☐ 19V, 120W, AC/DC power adapter w/o power cord (0 to 40°C, FSP) ***optional***
- ☐ 24V, 160W, AC/DC power adapter w/o power cord (-30 to 70°C, Meanwell) ***optional***

Accessories Kit

- ☐ Wall mount bracket x 2pcs
- ☐ Terminal block 3 PIN x 1pcs
- ☐ Screw kit (For 2.5" device x 8pcs, For Wall mount x 6pcs)
- ☐ Thermal Pad x 1pcs (For CPU)

If any of the above items is damaged or missing, please contact your local distributor.

Ordering information

Model Number	Description
PER535A-ET	Intel® QM77 Fanless Rugged System with Intel® Ivy Bridge Core™ i7/i5/i3 Processor, with 1xPCI & 1x PCIe Expansion, 9V to 24V DC-in, Wide Temp. (-20 to 60°C)
PER535A-UT	Intel® QM77 Fanless Rugged System with Intel® Ivy Bridge Core™ i7/i5/i3 Processor, with 1xPCI & 1x PCIe Expansion, 9V to 24V DC-in, Wide Temp. (-40 to 70°C, ***optional***)
Processor	
Intel® Core™ i7-3610QE Processor (6M Cache, 2.30 GHz), 45 W Intel® Core™ i5-3610ME Processor (3M Cache, 2.70GHz), 35W Intel® Core™ i3-3120ME Processor (3M Cache, 2.40 GHz), 35W	

Table of contents

Chapter 1: Product Introduction

1.1 Key Features

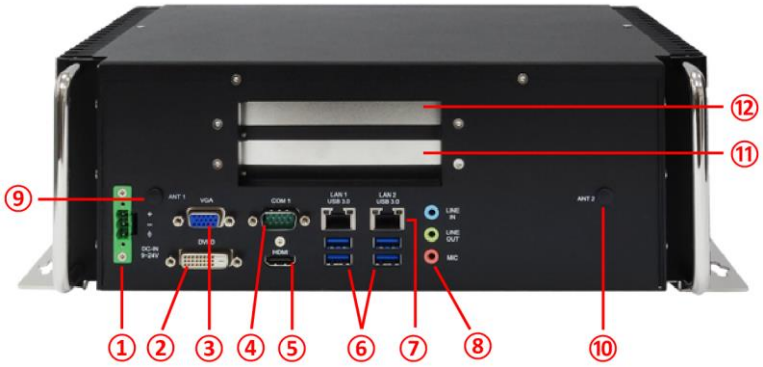
System	
CPU	Intel® 22nm Ivy Bridge Processor (Mobile) socket (rPGA988) Core™ i7-3610QE 2.3 GHz (6M Cache, 45W) Core™ i5-3610ME 2.7 GHz (3M Cache, 35W) Core™ i3-3120ME 2.4 GHz (3M Cache, 35W)
Chipset	Intel® QM77
Ethernet Chipset	Intel® 82579LM & 82574IT GbE
Memory	2 x 204-pin SO-DIMM support up to 16 GB dual channel DDR3 1333/1600, Non-ECC
Expansion Slot	1 x Mini-PCIe 1 x PCI 1 x PCIe x1
Storage Device	2 x 2.5" SATA HDD/SSD
Front I/O	
Power Button	1
Power LED	Green color
HDD LED	Red color
COM	2 x RS232/with 5V/12V selectable 1 x RS232 1 x RS232/422/485
USB	4 x USB 2.0
Rear I/O	
VGA	1
DVI-D	1
HDMI	1
Ethernet	2 x RJ45
Audio	Mic-in, Line-in, Line-out
COM	1x RS232/422/485 with 5V/12V selectable
USB	4 x USB 3.0
Antenna	Reserved two antenna holes
Power Input	9V to 24V DC-in (by terminal block)
Mechanical & Environment	
Power Requirements	9V to 24V DC-in
Dimension (W x H x D)	370 x 122 x 246 mm (14.57" x 4.8" x 9.69")
Operating Temp.	-40 to 70°C (ambient with air flow)
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing

Specifications are subject to change without notice

1.2 Front Panel Components

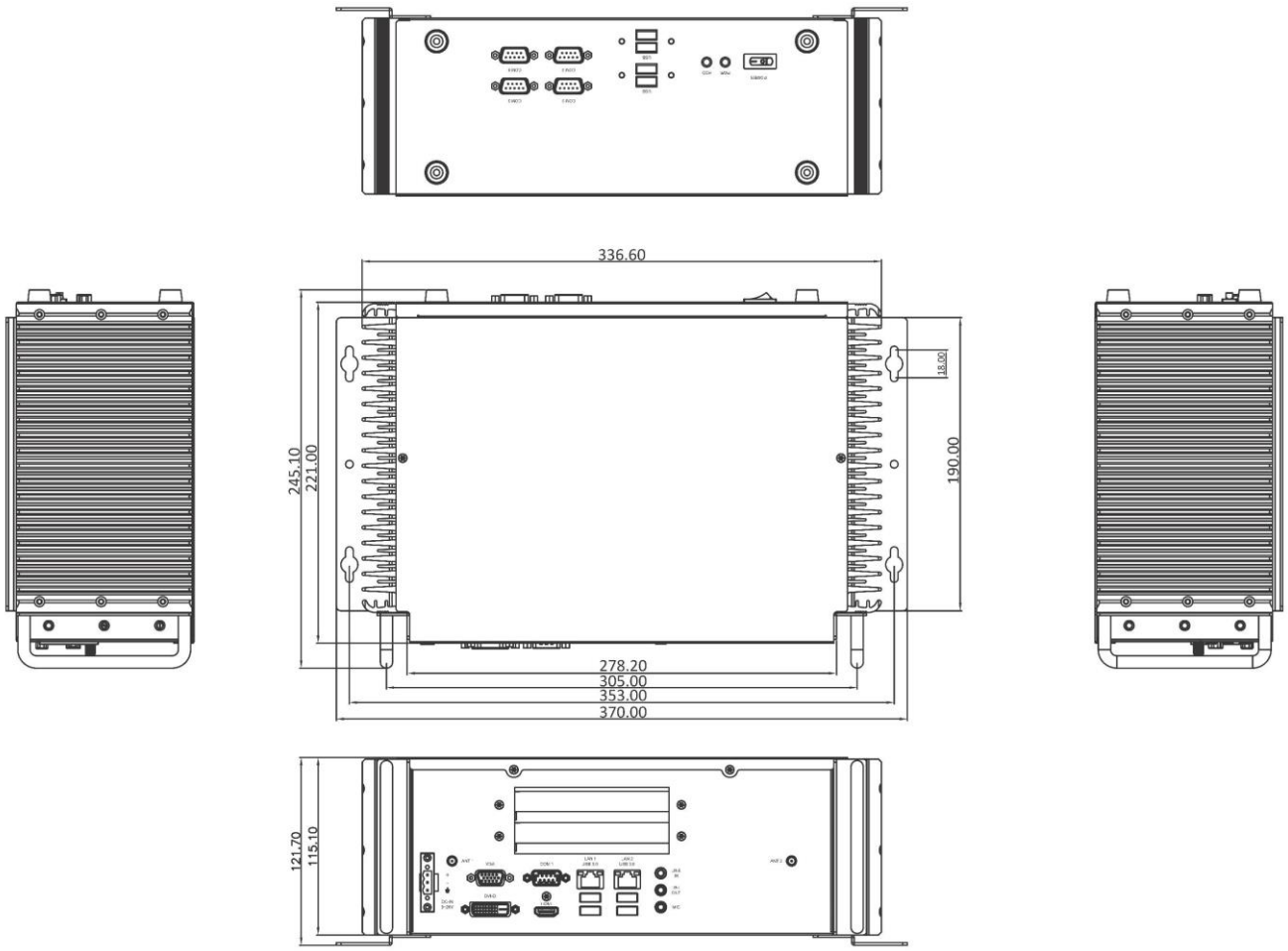
1	Power Button
2	Power LED, HDD LED
3	4 x USB 2.0
4	2 x RS232/with 5V/12V selectable 1 x RS232 1 x RS232/422/485

1.3 Back Panel Components



1	Power Input 9V to 24V DC-in (by terminal block)
2	DVI-D port
3	VGA port
4	COM port, RS232/422/485 with 5V/12V selectable
5	HDMI port
6	4 x USB 3.0
7	LAN port, 2 x RJ45
8	Audio jack (Mic-in, Line-in, Line-out)
9, 10	Antenna holes
11	Expansion slot (PCI)
12	Expansion slot (PCIe x1)

1.4 Mechanical Dimensions



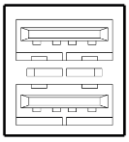
Chapter 2 **Connectors definitions**

This chapter describes the connectors on the systems

2.1 Front Panel Connector Pin Definitions

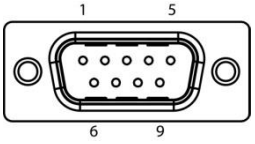
USB Port: USB2.0

PIN	DEFINITION	PIN	DEFINITION
1	+5V	5	+5V
2	USBD-	6	USBD-
3	USBD+	7	USBD+
4	GND	8	GND



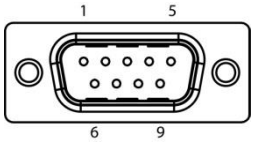
COM2~COM3: RS232 with +12V/+5V selection

PIN	DEFINITION	PIN	DEFINITION
1	DCD-	2	RXD
3	TXD	4	DTR-
5	GND	6	DSR-
7	RTS-	8	CTS-
9	COM2P9SEL/ COM3P9SEL (Define by JP6/7)		



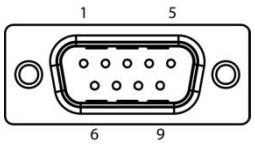
COM4: RS232

PIN	DEFINITION	PIN	DEFINITION
1	DCD-	2	RXD
3	TXD	4	DTR-
5	GND	6	DSR-
7	RTS-	8	CTS-
9	RI-		



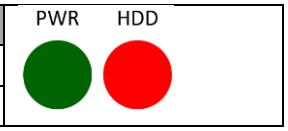
COM5: RS232/422/485

PIN	RS-232	RS-422	HALF DUPLEX RS-485
1	DCD-	TX-	DATA-
2	RXD	RX+	NA
3	TXD	TX+	DATA+
4	DTR-	RX-	NA
5	GND	GND	GND
6	DSR-	NA	NA
7	RTS-	NA	NA
8	CTS-	NA	NA
9	RI-	RI-	RI-



Status Indicators

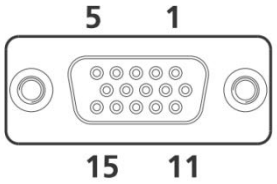
STATUS	LED COLOR
HDD	Red
PWR	Green



2.2 Rear Panel Connector Pin Definitions

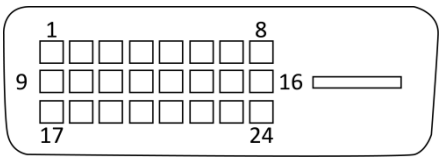
VGA: VGA

PIN	DEFINITION	PIN	DEFINITION
1	RED	9	+5V
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	DDC DATA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDC CLOCK
8	GND		



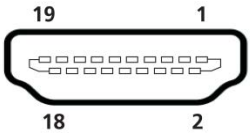
DVI-D: DVI-D

PIN	DEFINITION	PIN	DEFINITION
1	TMDS2-	13	NC
2	TMDS2+	14	+5V
3	GND	15	GND
4	NC	16	HOTPLUG_DETECT
5	NC	17	TMDS0-
6	DDC_CLK	18	TMDS0+
7	DDC_DATA	19	GND
8	NC	20	NC
9	TMDS1-	21	NC
10	TMDS1+	22	GND
11	GND	23	TMDSCLK+
12	NC	24	TMDSCLK-



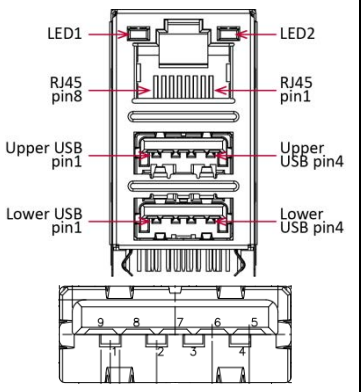
HDMI: HDMI

PIN	DEFINITION	PIN	DEFINITION
1	HDMI_2P	11	GND
2	GND	12	HDMI_CLKN
3	HDMI_2N	13	NC
4	HDMI_1P	14	NC
5	GND	15	DDC CLOCK
6	HDMI_1N	16	DDC DATA
7	HDMI_0P	17	GND
8	GND	18	+5V
9	HDMI_0N	19	HOTPLUG_DETECT
10	HDMI_CLKP		

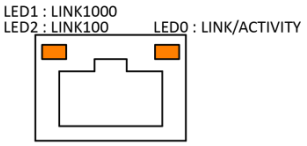


LAN1_USB12: USB3.0 port 0,1 and LAN connector 1
LAN2_USB34: USB3.0 port 3,4 and LAN connector 2

UPPER USB		LOWER USB		LAN	
PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION
1	+5VDUAL	1	+5VDUAL	1	D0+
2	D-	2	D-	2	D0-
3	D+	3	D+	3	D1+
4	GND	4	GND	4	D1-
5	StdA_SSTX-	5	StdA_SSTX-	5	D2+
6	StdA_SSTX+	6	StdA_SSTX+	6	D2-
7	GND_DRIAN	7	GND_DRIAN	7	D3+
8	StdA_SSRX-	8	StdA_SSRX-	8	D3-
9	StdA_SSRX-	9	StdA_SSRX-		

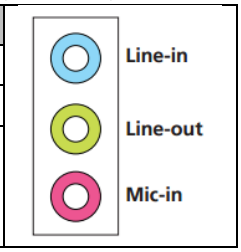


SPEED LED: (LIFT)	ACTIVE LED: (RIGHT)
GREEN: 1000Mbps	ORANGE (BLINKING): ACTIVITY
ORANGE: 100Mbps	No Light: NOT LINK
No Light: 10Mbps	ORANGE (NO BLINKING): LINK



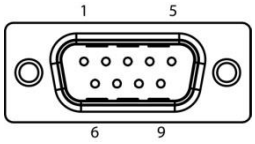
AUDIO1: LINE-OUT/LINE-IN/MIC-IN

PIN	DEFINITION
1	LINE-IN
2	LINE-OUT
3	MIC_IN



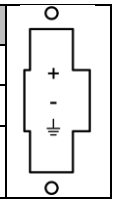
COM1: RS232/422/485 with +12V/+5V selection

PIN	RS-232	RS-422	HALF DUPLEX RS-485
1	DCD-	TX-	DATA-
2	RXD	RX+	NA
3	TXD	TX+	DATA+
4	DTR-	RX-	NA
5	GND	GND	GND
6	DSR-	NA	NA
7	RTS-	NA	NA
8	CTS-	NA	NA
9	COM1P9SEL (Define by JP5)	COM1P9SEL (Define by JP5)	COM1P9SEL (Define by JP5)



Power Input: DC-in +9V~+24V

PIN	DEFINITION
1	+9V~+24V
2	-
3	GND



Chapter 3: Getting Started

This chapter provides more detailed information and let you know how to install components into the PER535A embedded System.

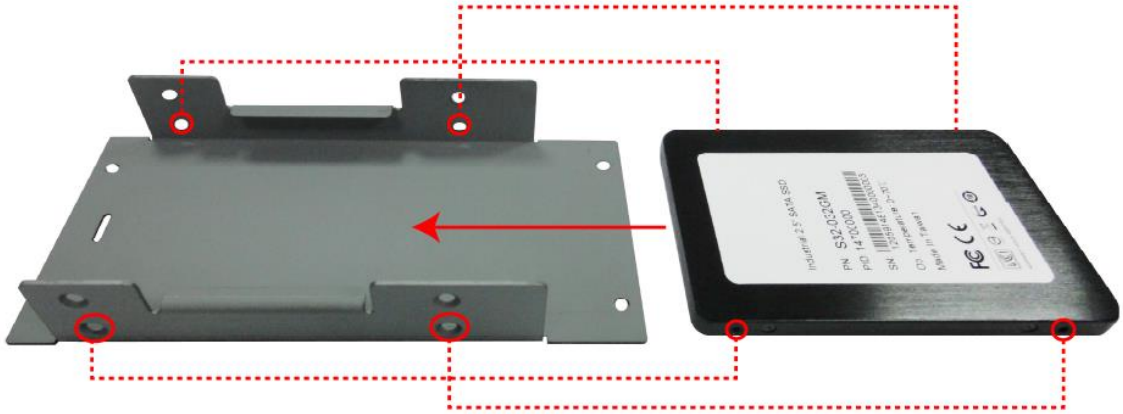
Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

3.1 Installing a 2.5" SATA HDD/SSD

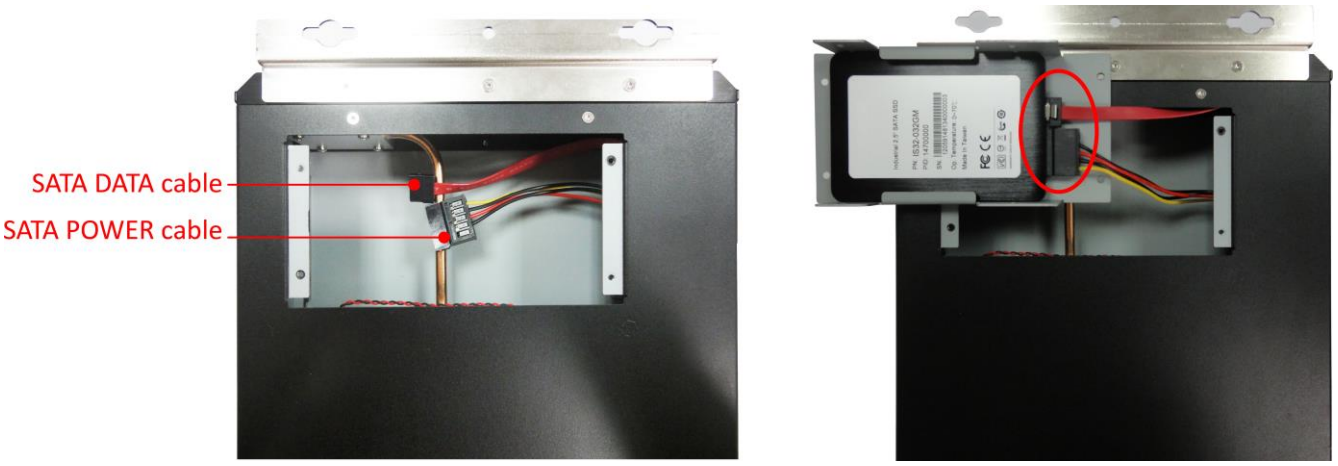
PER535A supports 2 x 2.5" SATA HDD/SSD

1. Remove four screws of SATA HDD/SSD cover on the back side of the chassis. Take off the cover, the cover is used to hold the SATA HDD/SSD.

2. There are eight screws in the accessory packet. Slide the SATA HDD/SSD into the SATA HDD/SSD cover, align with the mounting holes and fasten the screws.



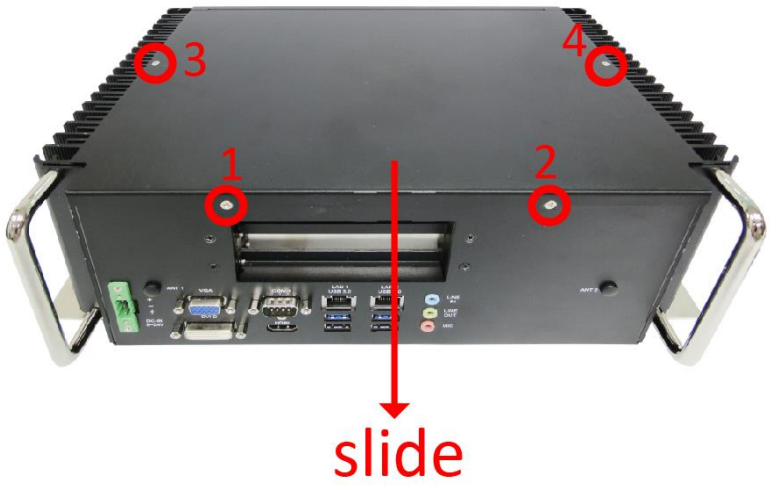
3. Plug in the SATA cable and turn the SATA HDD/SSD cover back to the chassis and fasten the four screws on the back side.



3.2 Installing PCI card and PCIe x1 card

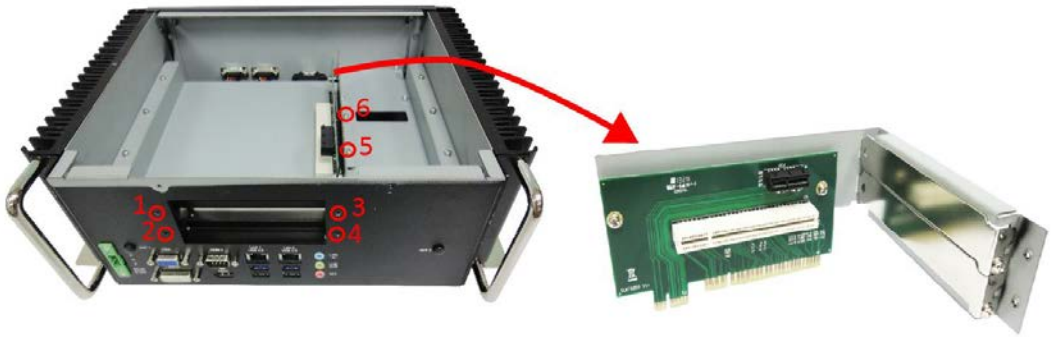
The PER535A supports 1 x PCI and 1 x PCIe x1 expansion slot

1. Remove two screws on the rear I/O (screw 1, 2) and two screws on the top of PER535A (screw 3, 4), then slide the cover to take it off.

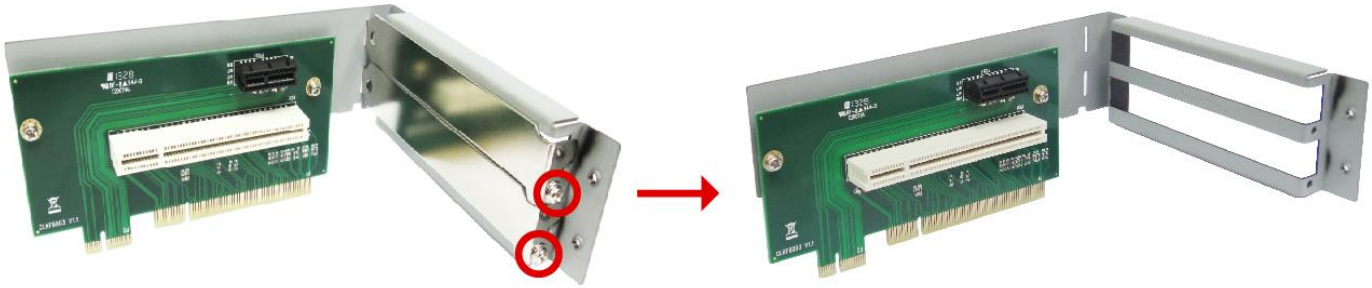


2. Locate the PCI/PCIe riser card inside of the PER535A

3. Fully loosen the six screws that secure the PCI/PCIe riser card to the chassis. Pull up on the riser card to unseat it from the motherboard.

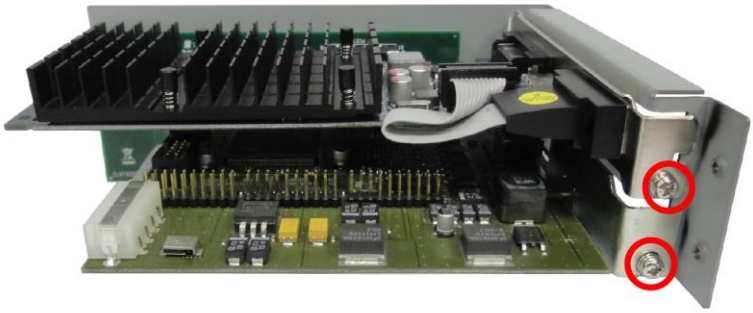


4. Remove the two screws that secure the bracket

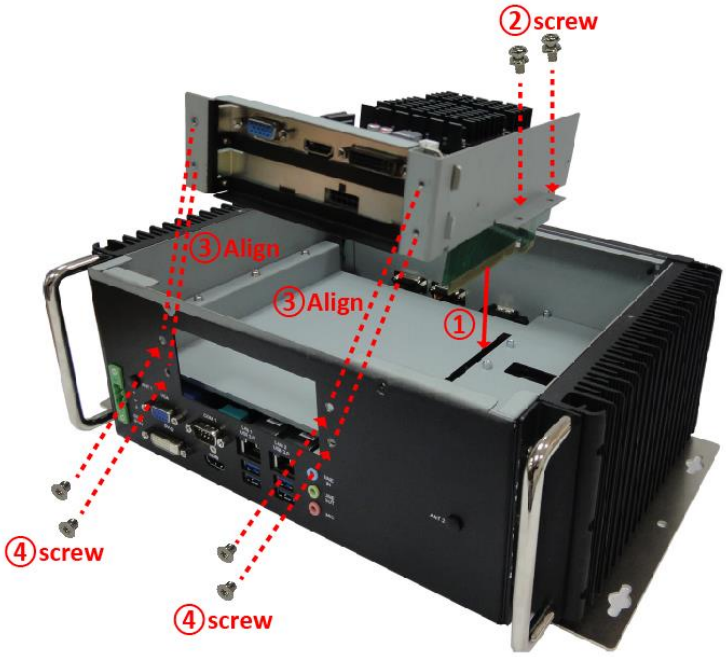


5. Align the PCIex1 and/or PCI card to the location where it installs into the riser card.
Rotate the PCIex1 and/or PCI card so that the tab of the PCIex1 and/or PCI card bracket enters the slot on the PCI/PCIe riser card and the card edge begins to enter the connector. Press the PCIex1 and/or PCI card into the card edge connector so that the card is fully seated.

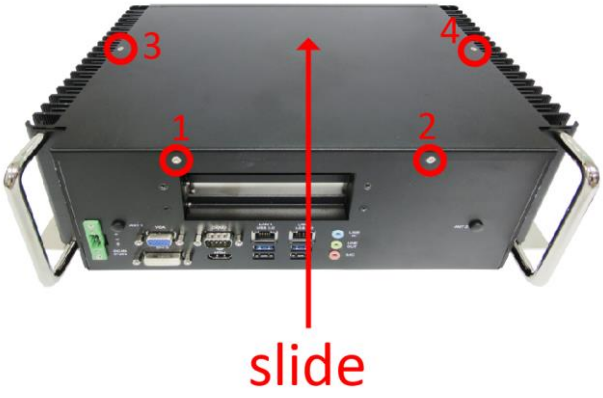
6. Fasten the screw to secure the PCIex1 and/or PCI card bracket to the PCI/PCIe riser card.



7. ①Align the PCI/PCIe riser card to the location where it installs into the chassis. Lower the PCI/PCIe riser card onto the motherboard and press the card edge connector securely into place. ②Tighten the two screws to secure PCI/PCIe riser card's metal plate. ③Align the holes and ④tighten four screws on the real I/O.



8. Put the cover back and fasten two screws on the rear I/O (screw 1, 2) and two screws on the top of PER535A (screw 3, 4)



Chapter 4: AMI BIOS UTILITY

This chapter provides users with detailed descriptions on how to set up a basic system configuration through the AMI BIOS setup utility.

4.1 Starting

To enter the setup screens, perform the following steps:

- Turn on the computer and press the <Del> key immediately.
- After the <Del> key is pressed, the main BIOS setup menu displays. Other setup screens can be accessed from the main BIOS setup menu, such as the Chipset and Power menus.

4.2 Navigation Keys

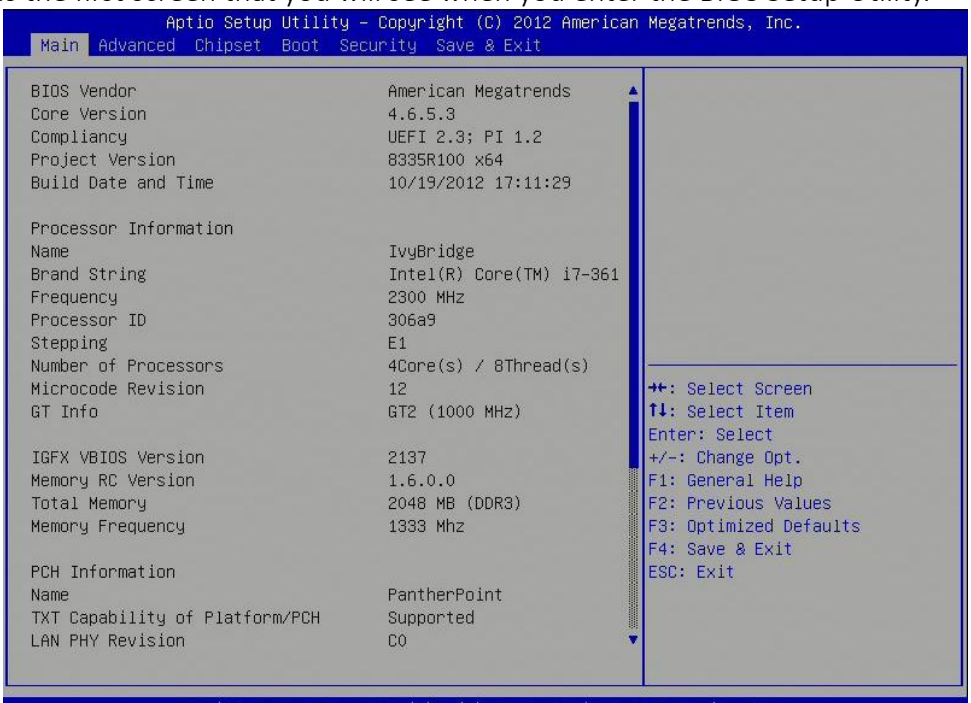
The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.
Some of the hot keys are <F1>, <F10>, <Enter>, <ESC>, and <Arrow> keys.

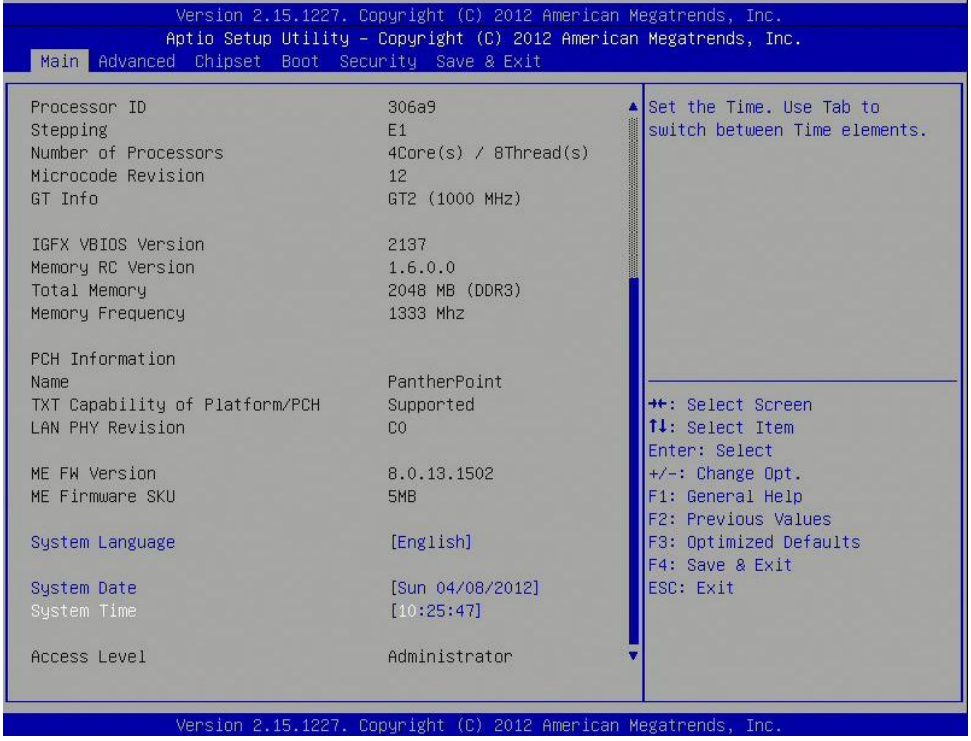
Some of the navigation keys may differ from one screen to another.

Left/Right	The Left and Right <Arrow> keys moves the cursor to select a menu.
Up/Down	The Up and Down <Arrow> keys moves the cursor to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys changes the field value of a particular setup setting.
Tab	The <Tab> key selects the setup fields.
F1	The <F1> key displays the General Help screen.
F10	The <F10> key saves any changes made and exits the BIOS setup utility.
Esc	The <Esc> key discards any changes made and exits the BIOS setup utility.
Enter	The <Enter> key displays a sub-screen or changes a selected or highlighted option in each menu.

4.3 Main Menu

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.





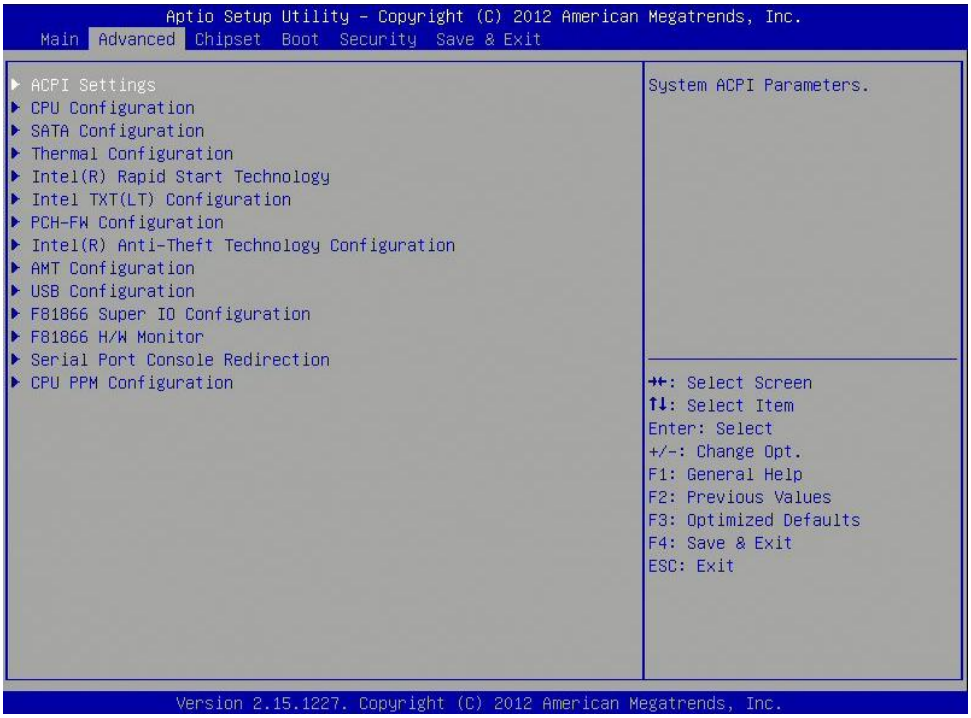
System Language
Use this function to select the system language.

System Date
Use this function to change the system date.
Select System Date using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.
The date setting must be entered in MM/DD/YY format.

System Time
Use this function to change the system time.
Select System Time using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.
The time setting is entered in HH:MM:SS format.
Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

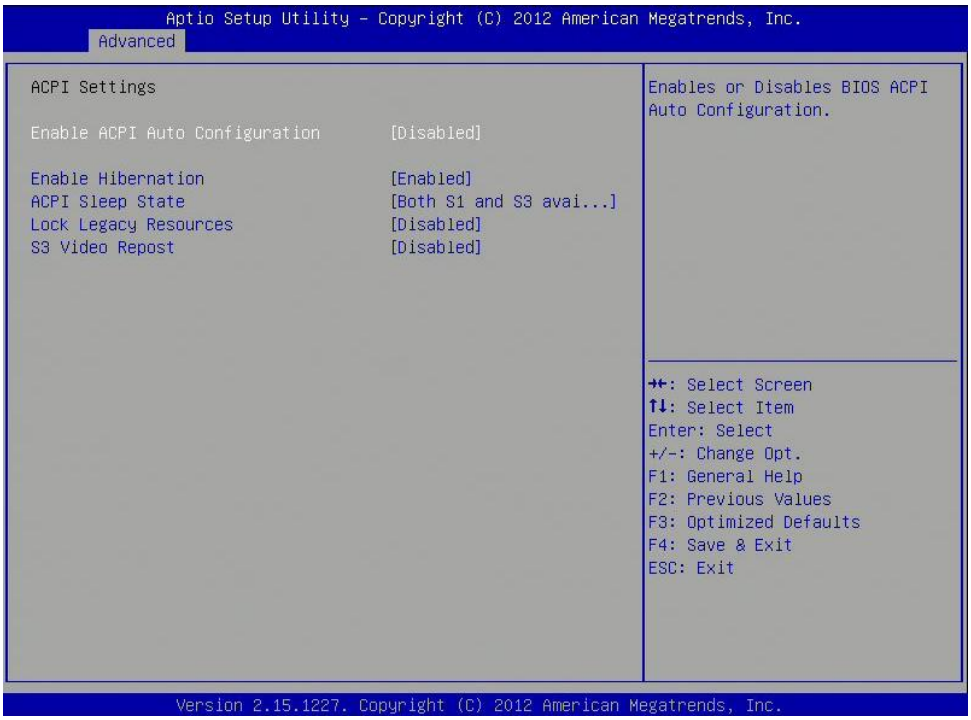
Access Level
Displays the access level of the current user in the BIOS.

4.4 Advanced Menu
The Advanced Menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference. ***Setting incorrect field values may cause the system to malfunction.***



4.4.1 ACPI Settings

System ACPI parameters



Enable ACPI Auto Configuration

Enables or disables BIOS ACPI auto configuration.

Enable Hibernation

Enables or disables system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some OS.

ACPI Sleep State

Select the ACPI sleep state the system will enter when the suspend button is pressed.

Lock Legacy Resources

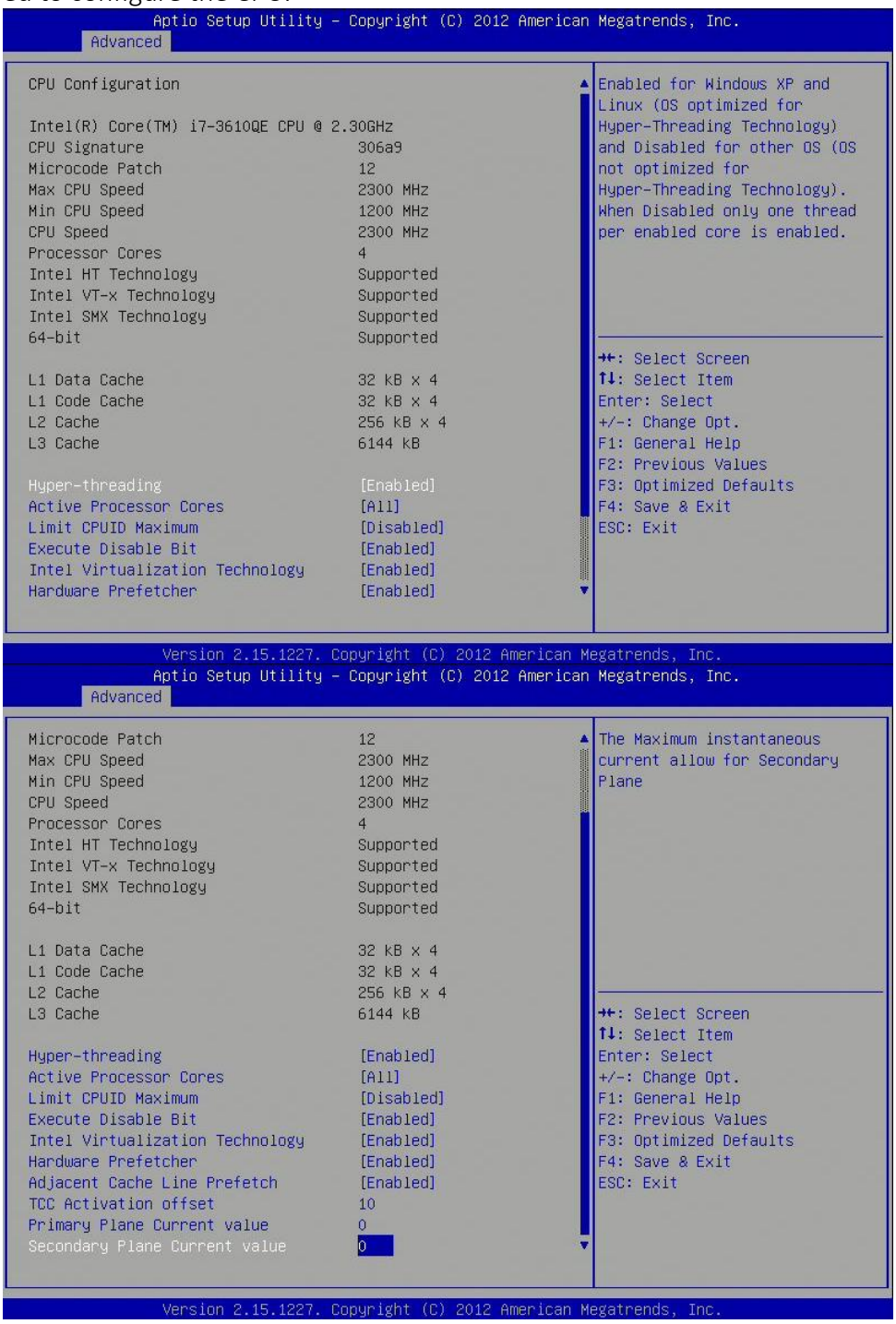
Enables or Disables System Lock of Legacy Resources.

S3 Video Repost

Enable or disable S3 Video Repost.

4.4.2 CPU Configuration

This section is used to configure the CPU.



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.

Active Processor Cores
Number of cores to enable in each processor package.

Limit CPUID Maximum
Disabled for Windows XP.

Execute Disable Bit
XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Sever 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)

Intel Virtualization Technology
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Hardware Prefetcher
To turn on/off the Mid Level Cache (L2) streamer prefectcher

Adjacent Cache Line Prefetche
To turn on/off prefectching of adjacent cache lines

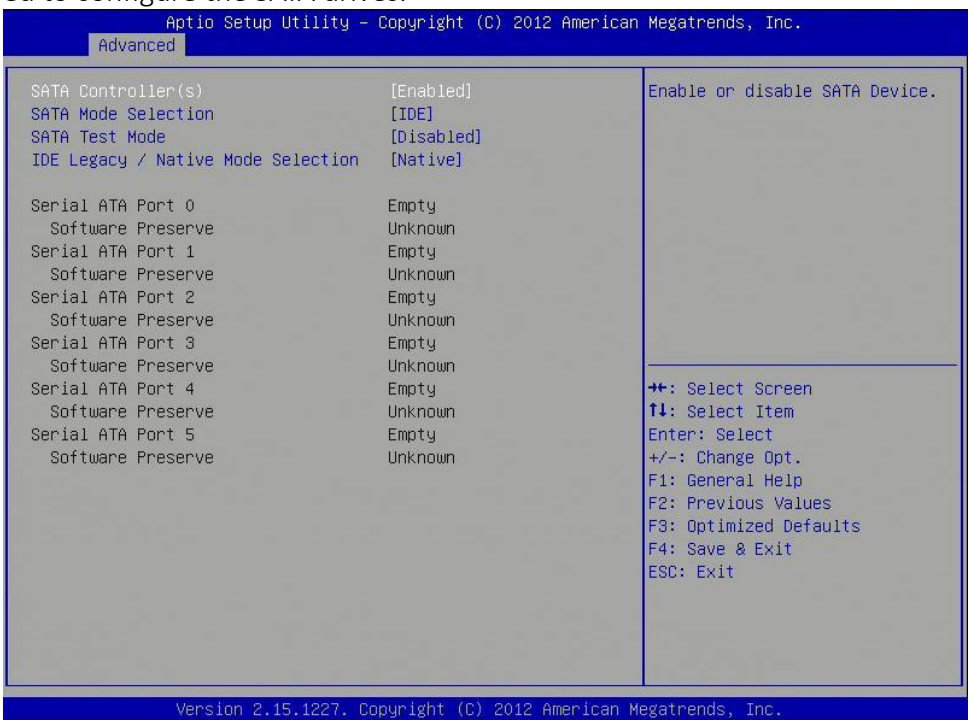
TCC Activation Offset
Offset from the factory TCC activation temperature

Primary Plane Current Value
The Maximum instantaneous current allow for primary plane

Secondary Plane Current Value
The Maximum instantaneous current allow for secondary plane

4.4.3 SATA Configuration

This section is used to configure the SATA drives.



SATA Controller(s)

Enable or disable SATA device.

SATA Mode Selection

Determines how SATA controller(s) operate.

SATA Test Selection

Enable or disable Test Mode

IDE Legacy/Native Mode Selection

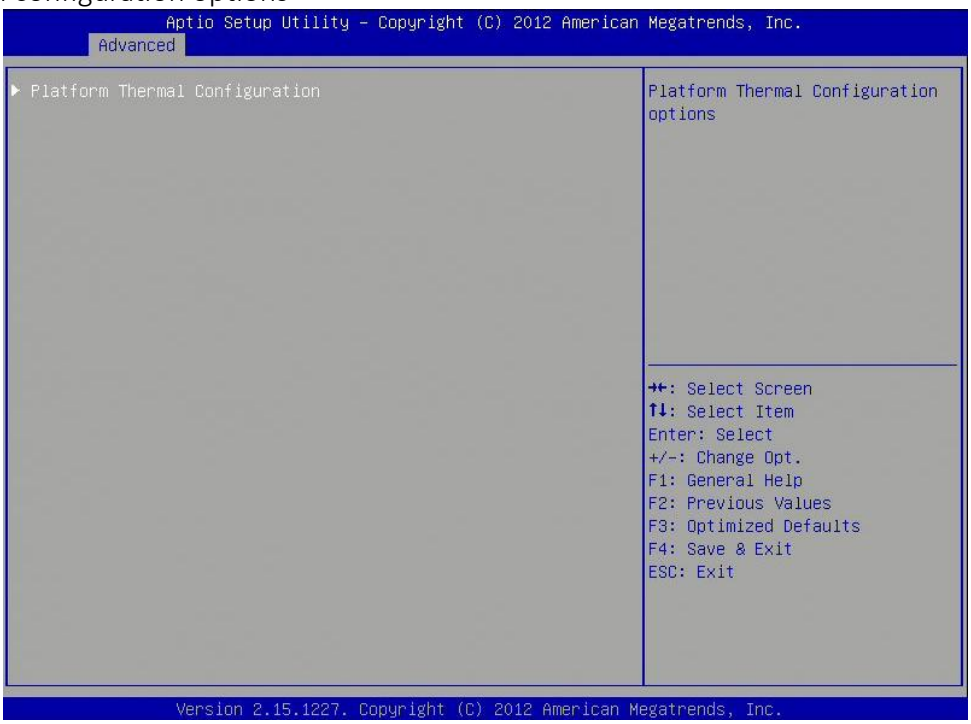
IDE Legacy/Native Mode Selection

Serial ATA Port 0 – 5

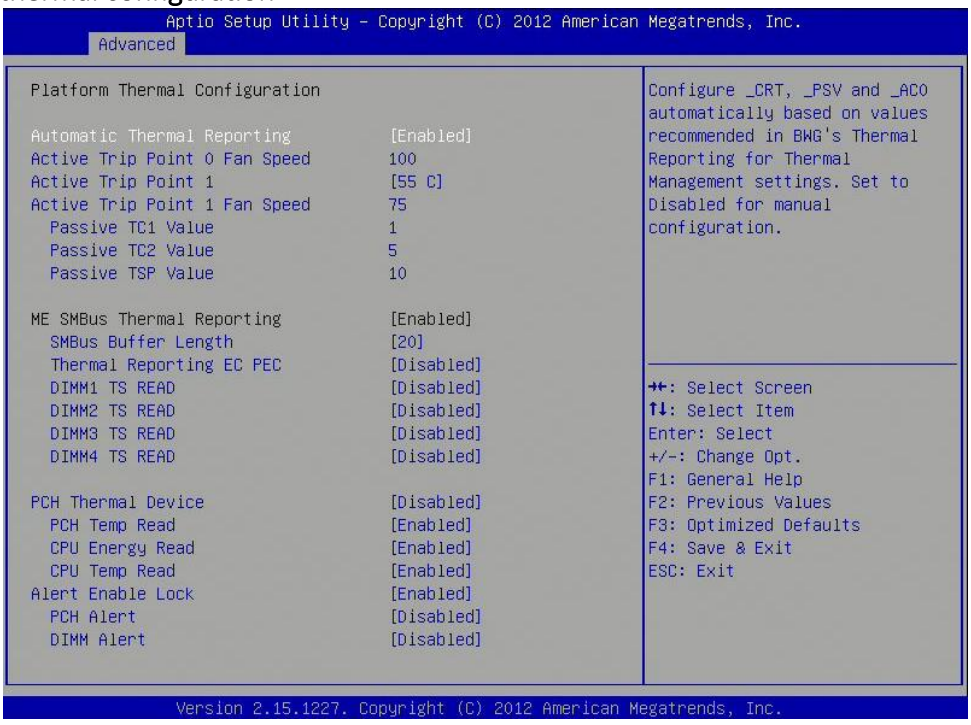
Displays information on the SATA devices detected

4.4.4 Thermal Configuration

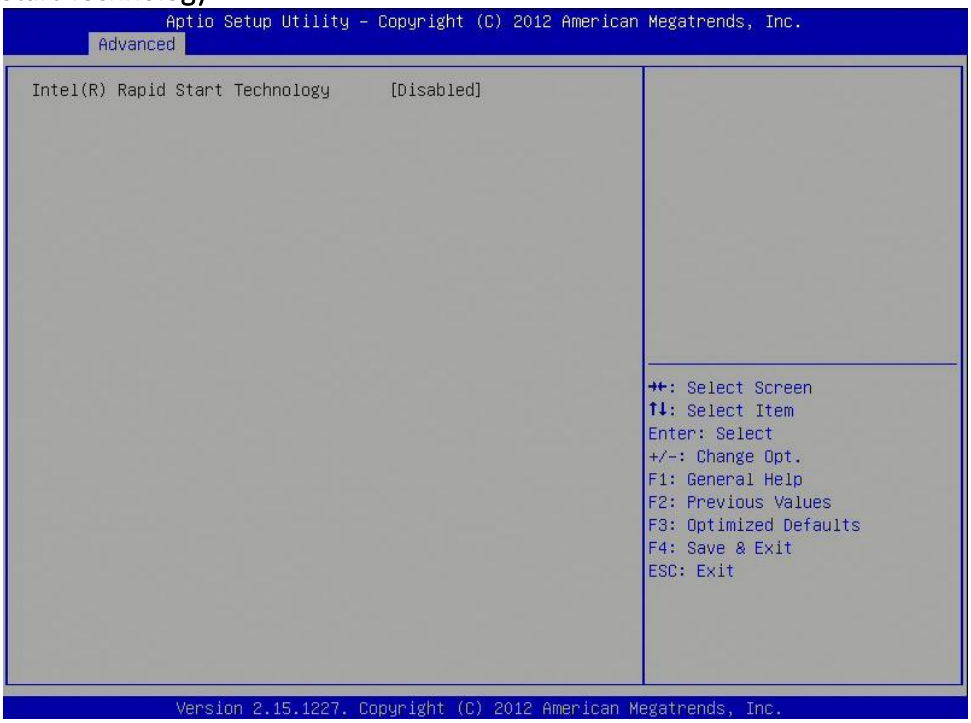
Platform thermal configuration options



4.4.4.1 Platform thermal configuration

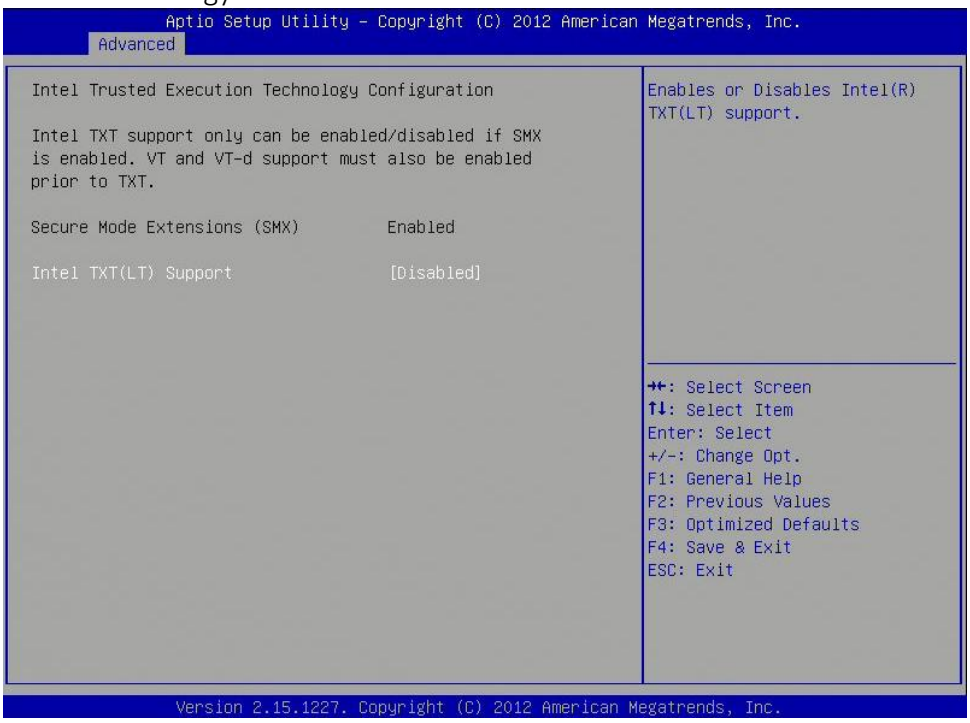


4.4.5 Intel Rapid Start Technology



4.4.6 Intel TXT(LT) Configuration

Intel Trusted Execution Technology

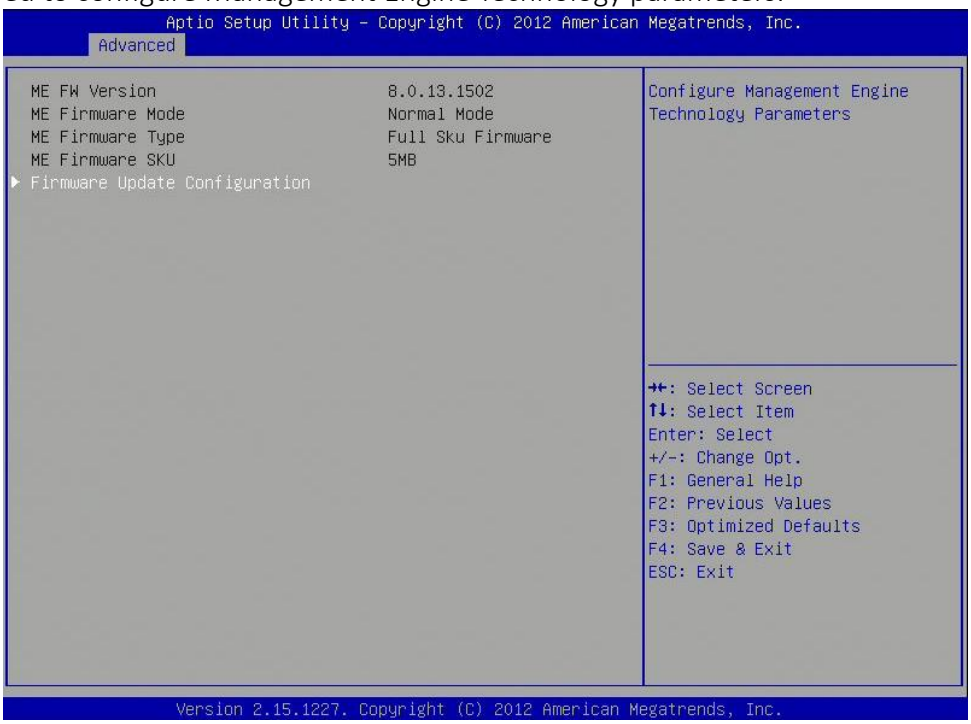


Intel TXT(LT) Support

Enables or disables Intel TXT(LT) support

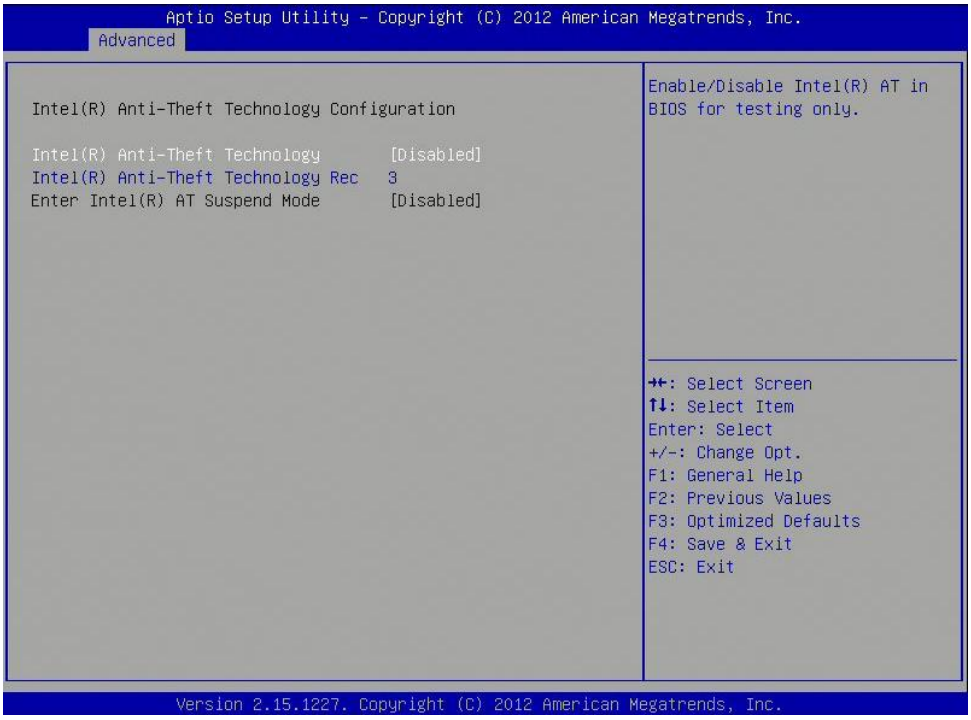
4.4.7 PCH-FW Configuration

This section is used to configure Management Engine Technology parameters.



4.4.8 Intel Anti-Theft Technology Configuration

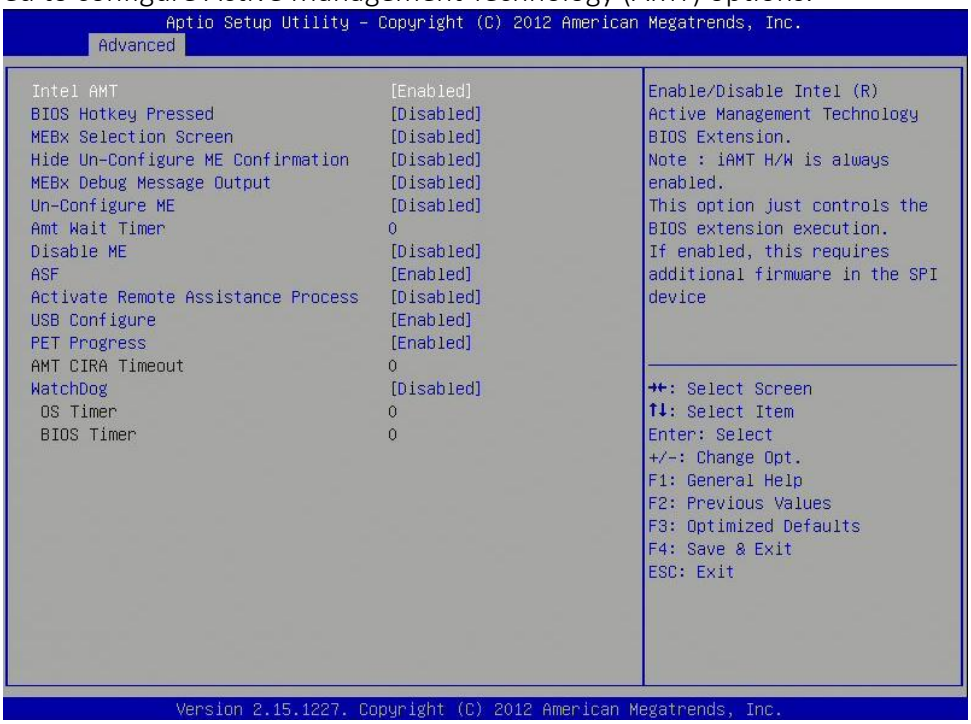
Disabling Intel AT allow user to login platform. This is strictly for testing only. This does not disable Intel AT services in ME



Intel Anti-Theft Technology
Enable or Disable Intel AT in BIOS for testing only

Intel Anti-Theft Technology Rec
Set the number of times Recovery attemped will be allowed.

4.4.9 AMT Configuration
This section is used to configure Active Management Technology (AMT) options.



Intel AMT
Enable/disables 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.

BIOS Hotkey Pressed
Enable/disable BIOS hotkey press.

MEBx Selection Screen
Enable/disable MEBx Selection Screen

Hide Un-Configure ME Confirmation
Hide Un-Configure ME without password confirmation prompt

MEBx Debug Message Screen
Enable MEBx debug message output

Un-Configure ME
Perform AMT/ME unconfigure without password operation.

Amt Wait Timer
Set timer to wait before sending ASF_GET_BOOT_OPTIONS.

Disable ME
Set ME to Soft Temporary Disabled

ASF
Enable/Disable Alert specification Format

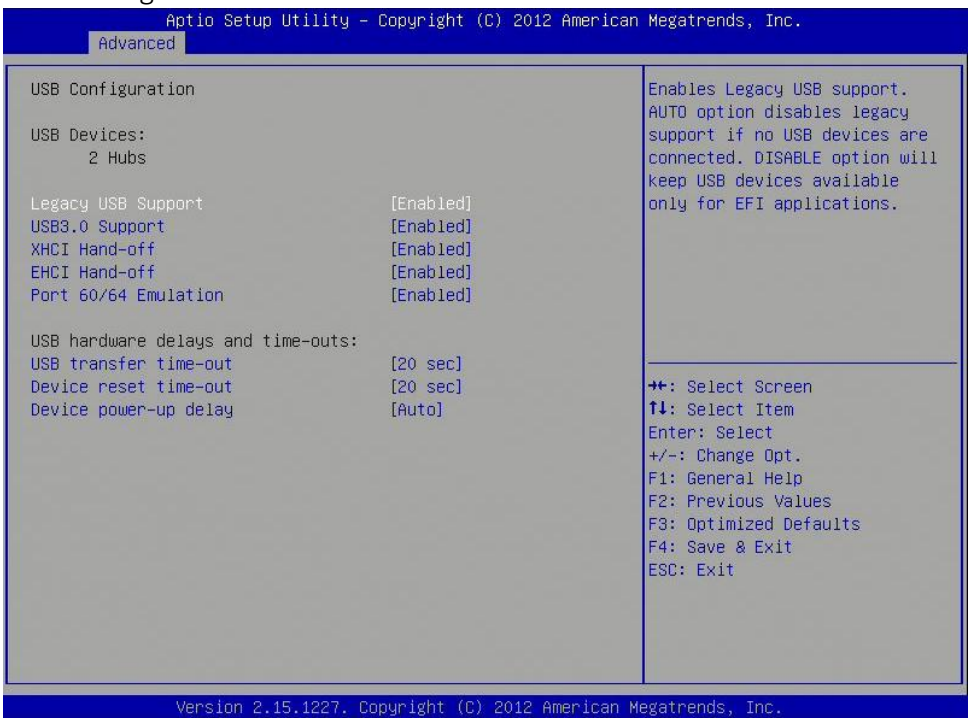
Activate Remote Assistance Process
Trigger CIRA boot.

USB Confirgure
Enable/Disable USB configure function.

PET Progress
User can Enable/Disable PET Events progress to receive PET events or not.

Watchdog Timer
Enable/Disable Watchdog Timer.

4.4.10 USB Configuration
This section is used to configure the USB



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.

USB3.0 Support
Enable/Disable USB3.0 (XHCI) Controller support.

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

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

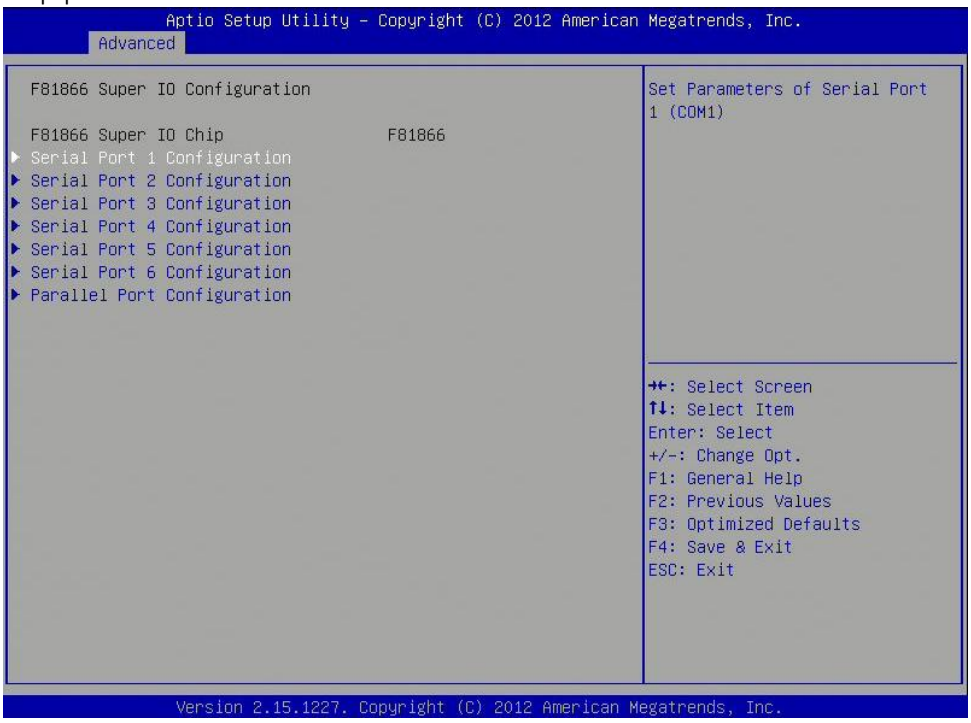
Port 64/60 Emulation
Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

USB Transfer time-out
The time-out value for Control, Bulk, and Interrupt transfers.

Device reset time-out
USB mass Storage device start Unit command time-out.

Device power-up delay
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 100ms, for a Hub port the delay is taken from Hub descriptor.

4.4.11 F81866 Super IO Configuration
System super IO chip parameters



Serial Port Configuration

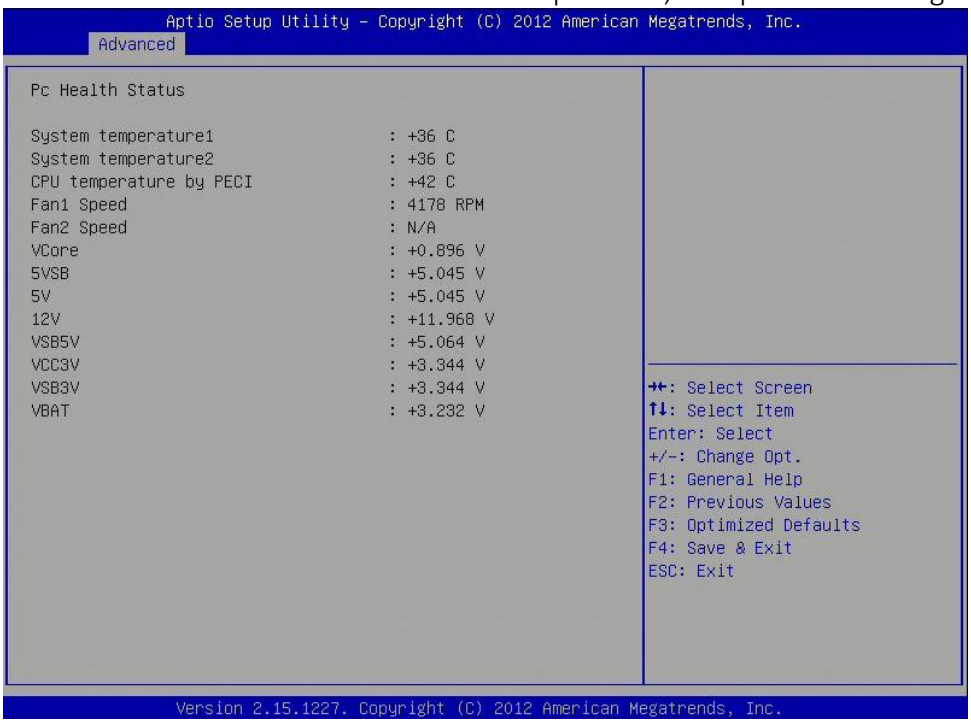
Set Parameters of Serial Ports. User can Enable/Disable the serial port and Select an optimal settings for the Super IO Device.

Parallel Port configuration

Set parameters of parallel port (LPT/LPTE)

4.4.12 F81866 H/W Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.



System Temperature

Detects and displays the current system temperature.

CPU Temperature

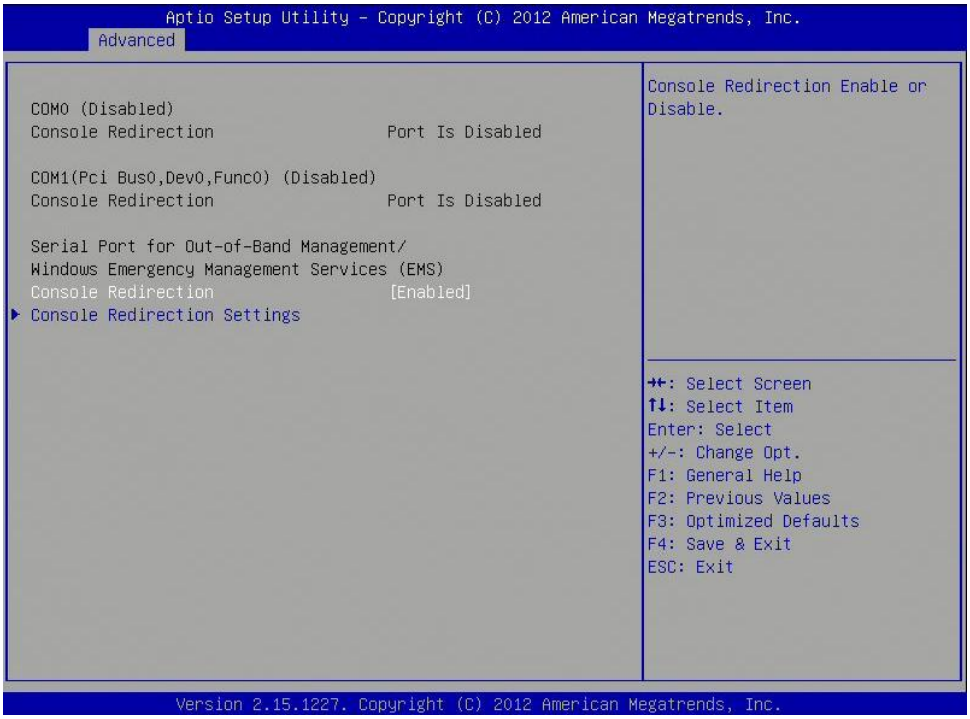
Detects and displays the current CPU temperature.

Fan1/2 Speed

Detects and displays the current CPU fan speed.

4.4.13 Serial Port Console Redirection

This screen provides information about functions for specifying the Serial Port Console Redirection configuration settings. Console redirection can be used to remotely operate system settings and the EFI console.



Console Redirection

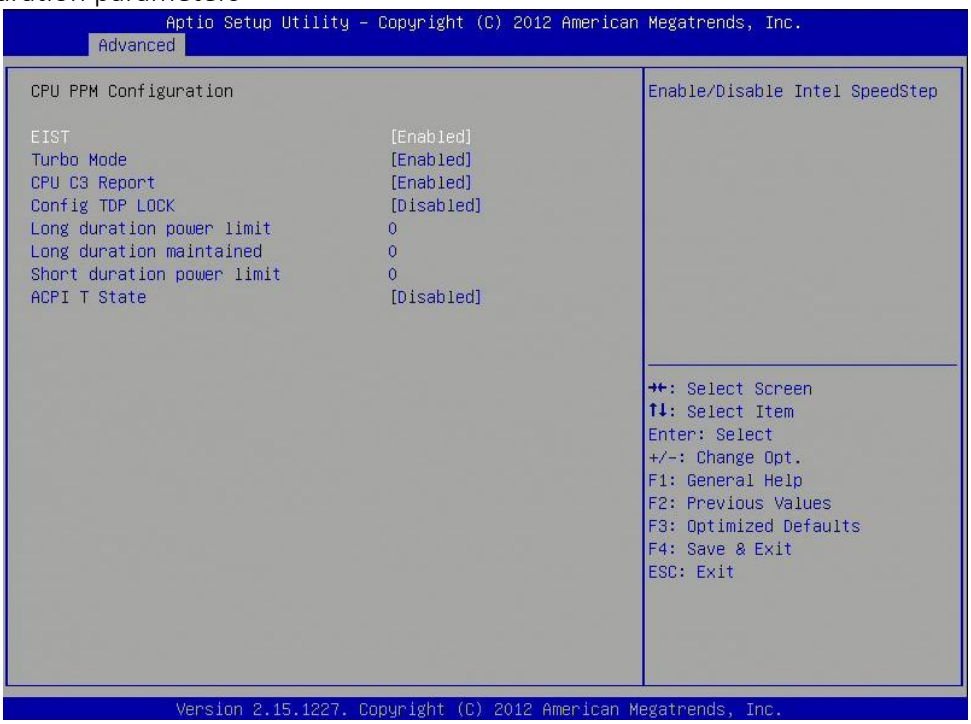
Console Redirection Enable or Disable.

Console Redirection Settings

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

4.4.14 CPU PPM Configuration

CPU PPM configuration parameters



EIST

Enables or disables Intel SpeedStep.

CPU C3 Report

Enable or disable CPU C3 (ACPI C2) report to OS.

Config TDP LOCK

Lock the Config TDP control register

Long duration power limit

Long duration power limit in Watts, 0 means use factory default.

Long duration maintained

Time window which the long duration power is maintained.

Short duration power limit

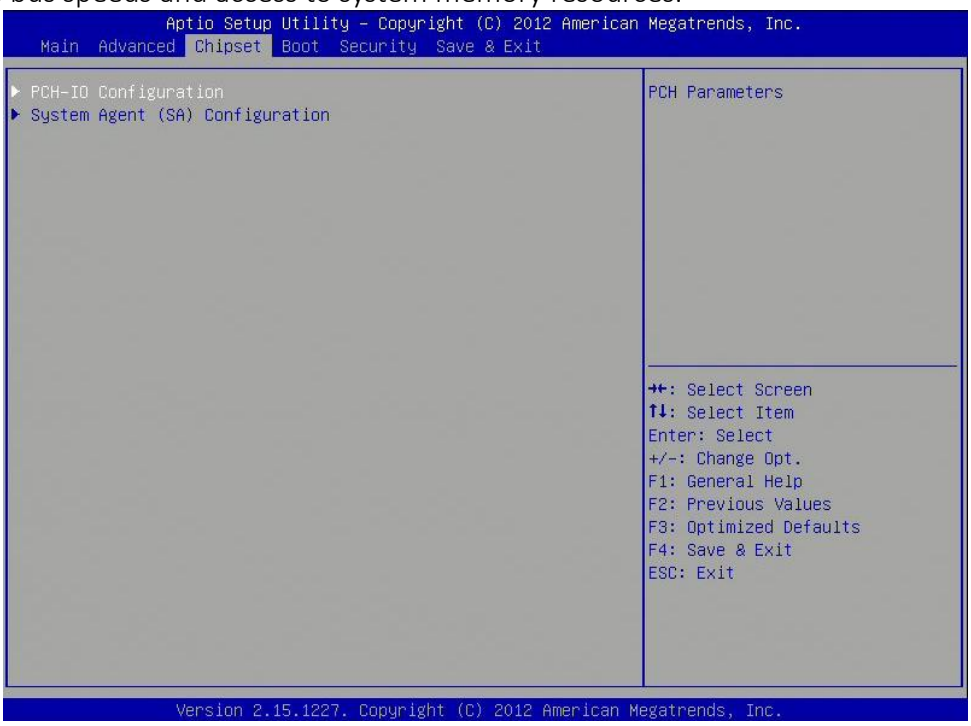
Short duration power limit in Watts, 0 means use factory default.

ACPI T State

Enable or disable ACPI state support.

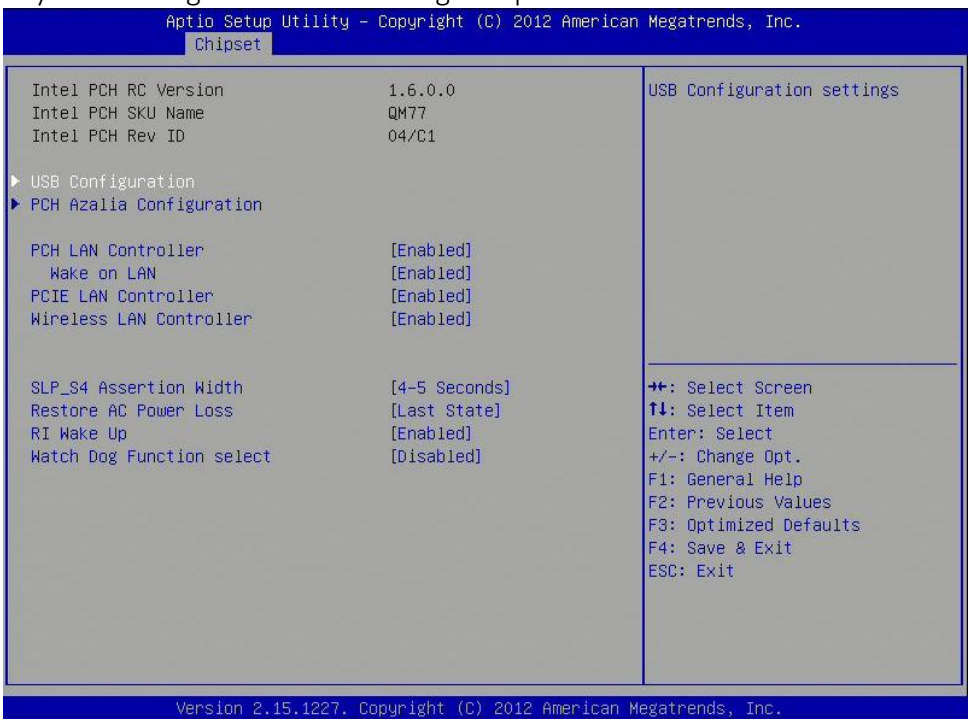
4.5 Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



4.5.1 PCH-IO Configuration

This section allows you to configure the North Bridge Chipset.



USB Configuration

USB configuration settings

PCH Azalia Configuration
PCH Azalia configuration settings

PCH LAN Controller
Enable or disable onboard NIC.

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.)

PCIE LAN Controller
Enable or disable onboard PCIE LAN

Wireless LAN Controller
Enable or disable onboard MPCIE LAN-Wireless LAN.

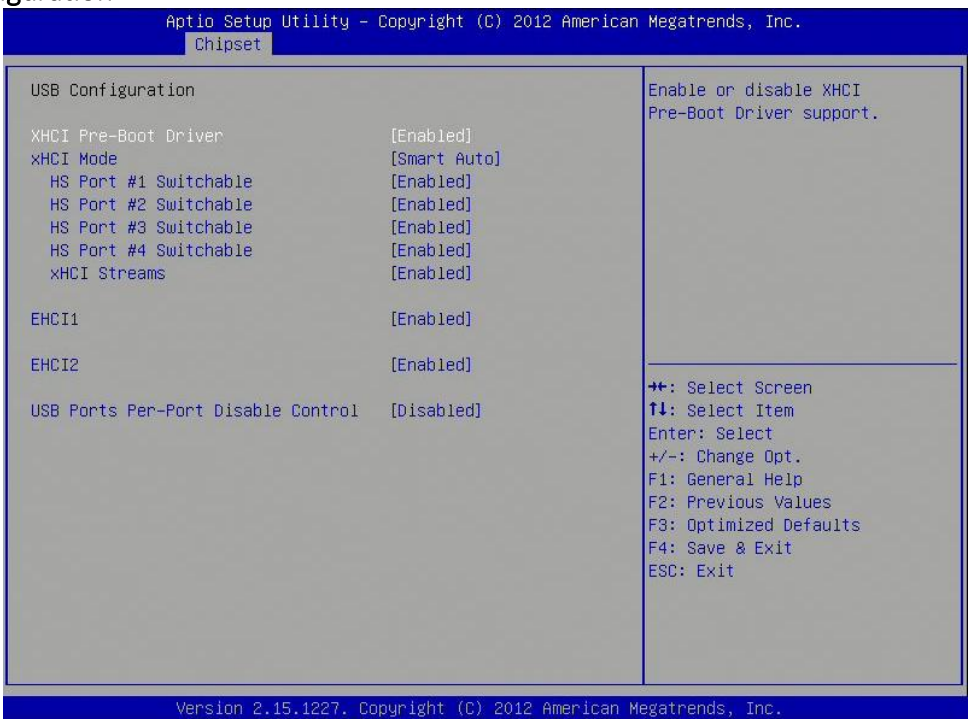
SLP_S4 Assertion Width
Select a minimum assertion width of the SLP_S4# signal.

Restore AC Power Loss
Select AC power state when power is re-applied after a power failure.

RI Wake Up
RI wake up function select.

Watch Dog Function select
Watch Dog function enabled or disabled.

4.5.1.1 USB Configuration



XHCI Pre-Boot Driver
Enable or disable XHCI Pre-Boot driver support.

XHCI Mode
Mode of operation of XHCI controller

HS Port #1/2/3/4 Switchable
Allows for HS port switching between xHCI and EHCI. If disabled, port is routed to EHCI. If HS port is routed to xHCI, the corresponding SS port is enabled.

xHCI Streams
Enable or disable xHCI Maximum Primary Stream Array Size.

EHCI1/2
Control the USAB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.

USB Ports Per-Port Disable Control
Control each of the USB ports (0~13) disabling.

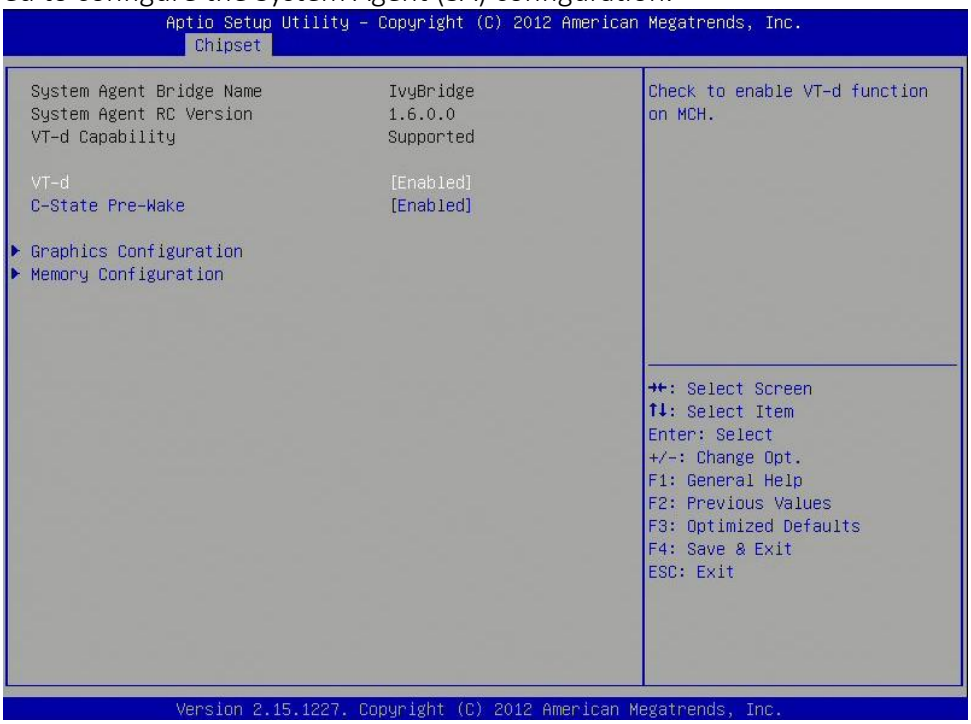
4.5.1.2 PCH Azalia Configuration

Azalia
Control Detection of the Azalia device.
Disabled=Azalia will unconditionally disabled.
Enabled=Azalia will be unconditionally enabled.
Auto=Azalia will enabled if present, disabled otherwise.

Azalia PME
Enable or disable Power Management capability of audio controller.

Azalia Internal HDMI codec
Enable or disable internal HDMI codec for Azalia.

4.5.2 System Agent (SA) Configuration
This section is used to configure the System Agent (SA) configuration.



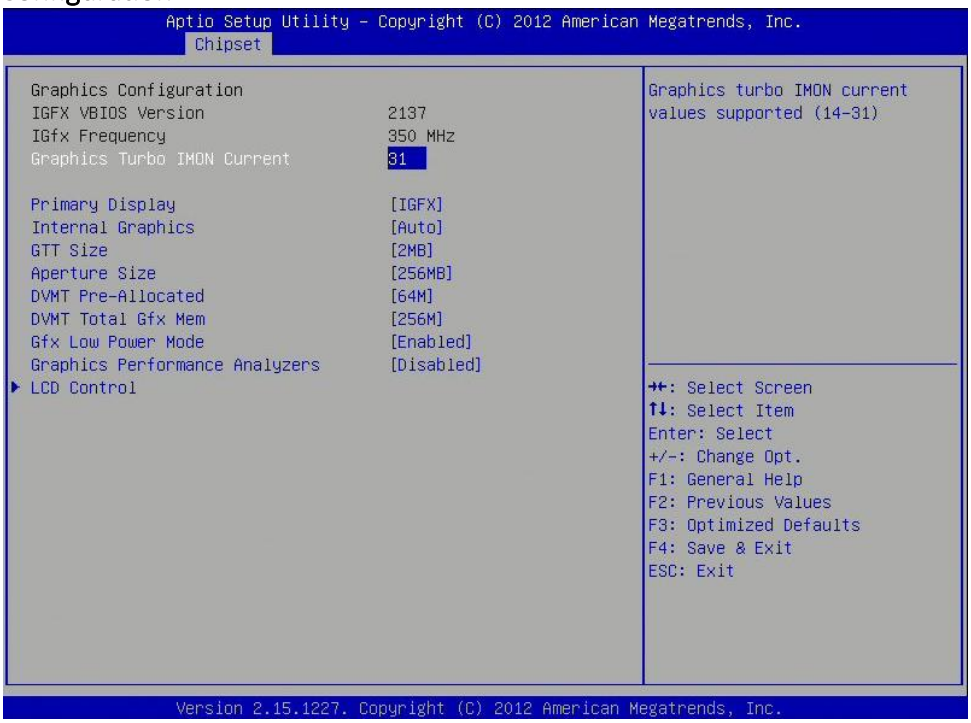
VT-d
Check to enable VT-d function on MCH.
Enable NB CRID
Enable or disable NB CRID WorkAround.

C-State Pre-Wake
Controls C-State Pre-Wake feature for ARAT, in SSKPD[57].

Graphics Configuration
Configure graphics settings

Memory Configuration
Memory configuration parameters

4.5.2.1 Graphics Configuration



Primary Display
Select which of IGFX/PEG/PCI graphics device should be primary display or select SG for switchable Gfx.

Internal Graphics
Keep IGD enabled based on the setup options.

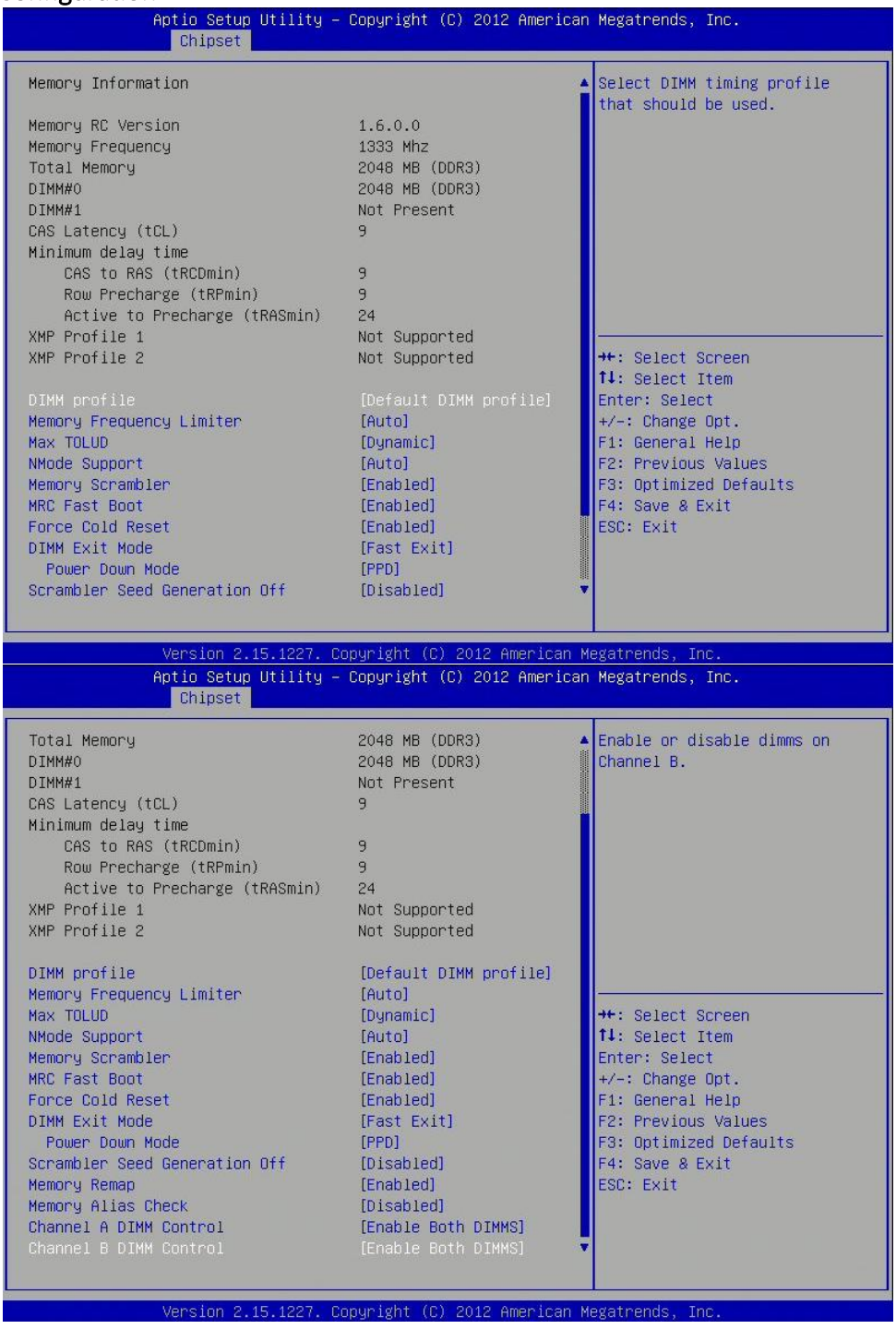
DVMT Pre-Allocated
Select DVMT 5.0 Pre-Allocated (Fixed) graphics memory size used by the internal graphics device.

DVMT Total Gfx Mem
Select DVMT 5.0 total graphics memory size used by the internal graphics device.

Gfx Low Power Mode
This option is applicable for SFF only.

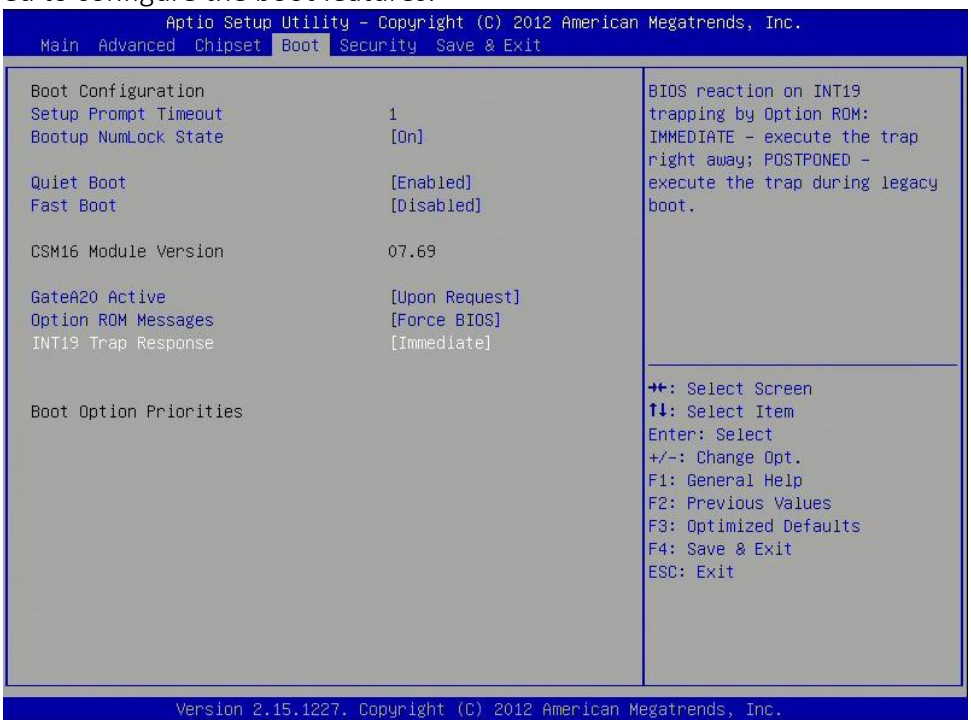
Graphics Performance Analyzers
Enable or disable Intel graphics performance analyzers counters.

4.5.2.2 Memory Configuration



4.6 Boot Setting

This section is used to configure the boot features.



Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

Bootup NumLock State

Select the keyboard NumLock state.

Quiet Boot

Enables or Disables Quiet Boot option.

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.

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 executed above 1MB.

Option ROM Messages

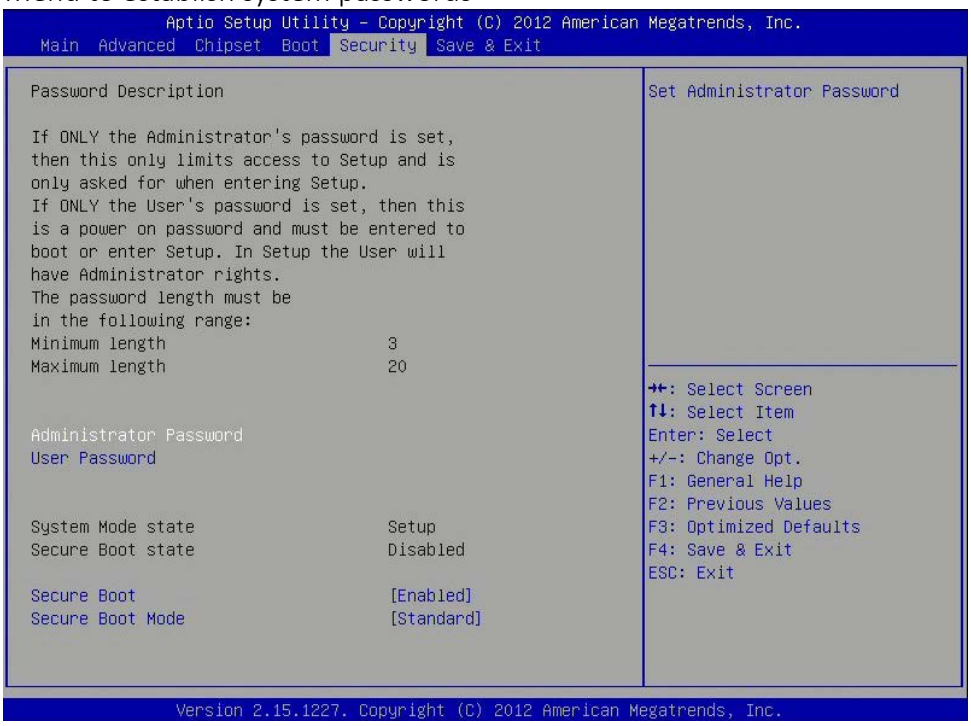
Set display mode for Option ROM.

INT19 Trap Response

BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE – execute the trap right away; POSTPONED – execute the trap during legacy boot.

Boot Option Priorities
Sets the system boot order.

4.7 Security
Use the Security Menu to establish system passwords



Administrator Password
Set administrator password.

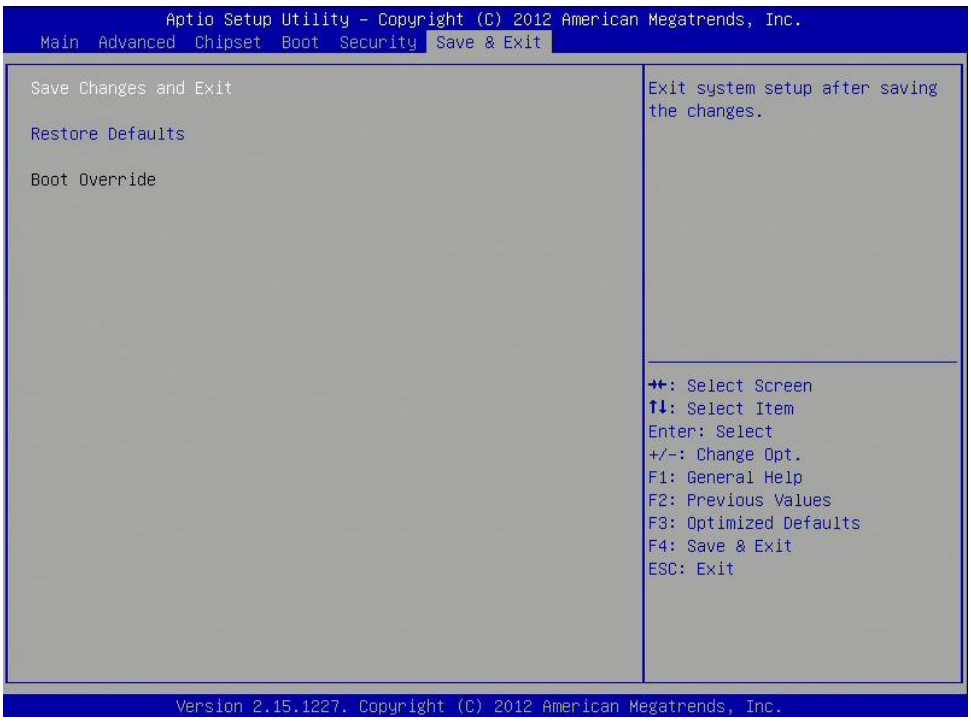
User Password
Set User Password.

Secure Boot
Secure boot flow control. Secure boot is possible only if system runs in user mode.

Secure Boot Mode
Secure boot mode selector. 'Standard' – fixed secure boot policy, 'custom' – changeable image execution policy and secure boot key databases.

4.8 Save and exit

This screen provides functions for handling changes made to the BIOS settings and the exiting of the Setup program.



Save Changes and Exit

Exit system setup after saving the changes.

Restore Defaults

Restore or Load Defaults values for all the setup options.