PCOM-BA00VG

COM Express Type 10 Module

User's Manual

Version 1.3

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Preface

Revision History

Table 1. Revision history

No.	Date	Author	Description
0.0	Mar.26. 2013	Portwell	Document started.
0.1	Sep. 11 2014	Portwell	Update BIOS menu
1.0	Oct. 28 2014	Portwell	1. Correct memory description 2. Update mechanical drawing
1.1	Aug.3 2016	Portwell	Add optional VGA display rework SOP.
1.2	Aug.17 2016	Portwell	PCB revision update.
1.3	Nov.10 2016	Portwell	Pin out correction - USB3.0

Notational Conventions

This document lists and rates the required features of the product and provides some informative text to help the reader understand the primary positioning and target of the platform and product.

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How to Use This Manual

The manual describes how to configure your PCOM-BA00VG to meet various operating requirements. It is divided into five chapters, with each chapter addressing a basic concept and operation of this COM Express Module.

Chapter 1: System Overview.
Presents what you have in the box and give you an overview of the product specifications and basic system architecture for this model of single board computer.

Chapter 2: **Hardware Configuration.**
Show the definition and location of Jumpers and Connectors that you can easily configure your system.

Chapter 3: **System Installation.**
Describes how to properly mount the CPU, main memory to get a safe installation and provides a programming guide of Watch Dog Timer function.

Chapter 4: **BIOS Setup Information.**
Specifies 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 5: **Trouble shooting.**

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

Updates to this manual, technical clarification, and answers to frequently asked questions will be shown on the following web site: http://www.portwell.com.tw

Chapter 1
System Overview

1.1 Introduction

COM Express Type 10, holds by PICMG (PCI Industrial Computer Manufacturer Group) defines new industrial computer platform in “Module board” and “Carrier board” architecture. The “Module board” equipped processor, chipset, memory and single Ethernet controller on it. The On-The-Shelf Module board allows users to create their own Carrier board easily and quickly since most critical parts are ready on Module board. COM Express Module board offers expansion interfaces such as PCI Express, PCI, SATA, LPC, LVDS, HDMI, DP, DVI, and Audio etc. that support variety functions depending on Carrier board design.

The Carrier board was customized design to fit in different mechanical requirements. In the meanwhile, its variety functions were also customized to meet the application. Compare to the platform that designed from nothing, COM Express architecture platform only needs to develop Carrier board. Users could keep their know-how which related to their core competence in the Carrier board.

PCOM-BA00VG is Type 10 Mini COM Express Module board equipped with Intel BayTrail BGA processor (1.91GHz Quad Core、1.75GHz / 1.46GHz / 1.33GHz Dual Core and 1.46GHz single core processor on-board), on-board memory, one Gigabit Ethernet controller on it to provide expansion interfaces – PCI Express (x4 / x1), eDP port (supports HDMI/DP/DVI), SATA and so on.

1.2 Check List

The PCOM-BA00VG series package should cover the following basic items

- ✓ One PCOM-BA00VG module board

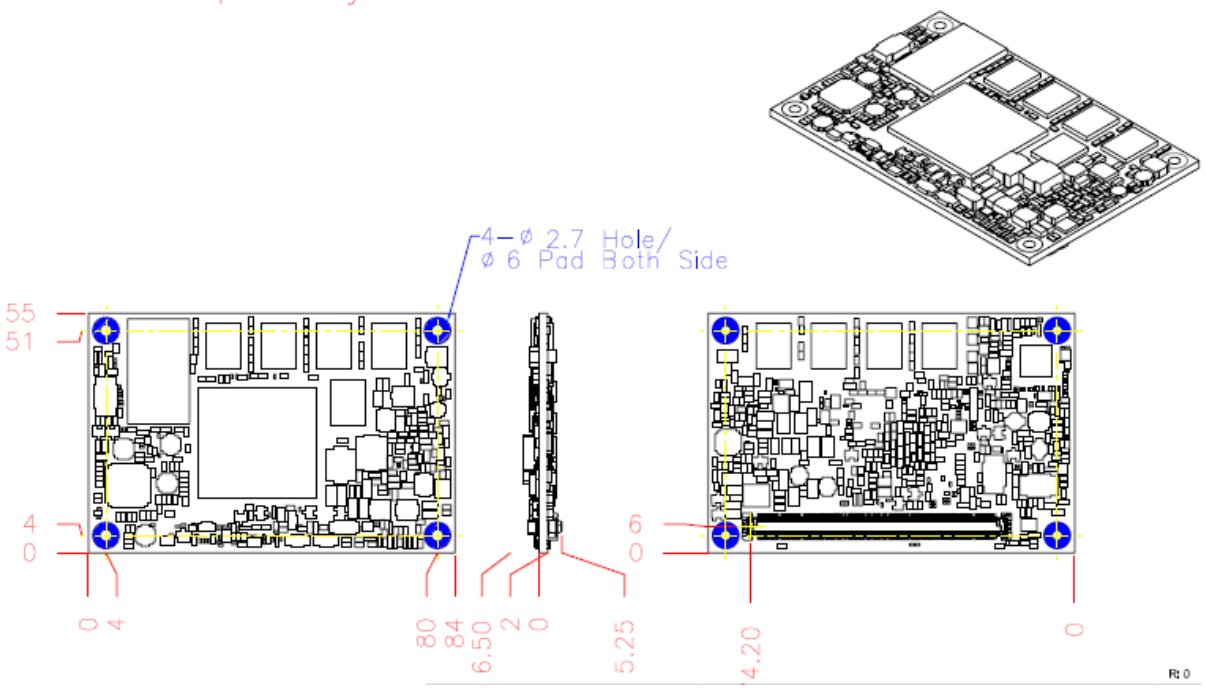
If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

1.3 Product Specification

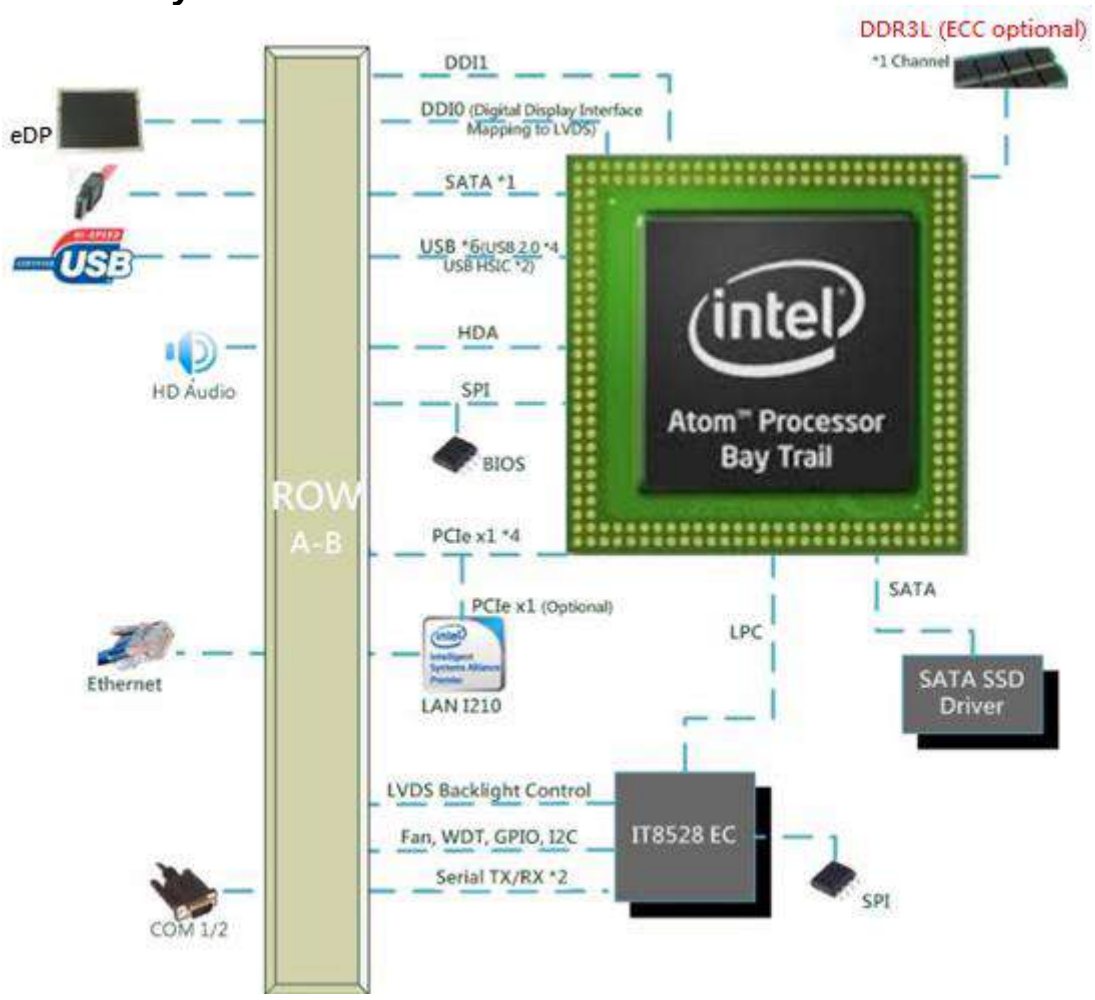
#	Requirement	Detailed Description
1	Form Factor	Type 10, Mini Form Factor COM Express
2	SoC	- Intel BayTrail-E3845, 1.91GHz 2MB Cache 4 Core (10W) - Intel BayTrail-E3827, 1.75GHz 1MB Cache 2 Core (8W) - Intel BayTrail-E3826, 1.46GHz 1MB Cache 2 Core (7W) - Intel BayTrail-E3825, 1.33GHz 1MB Cache 2 Core (6W) - Intel BayTrail-E3815, 1.46GHz 512KB Cache 1 Core (5W)
4	Memory	-Supports On-board DDR3L (ECC optional) 1067/1333 MT/s SDRAM, up to 4GB
5	Storage	On-Board SATA storage, up to 64GB
6	BIOS	- AMI UEFI
7	Ethernet	Intel® Ethernet Controller I210IT (NC Sideband Interface, Jumbo frames , 1000Base-T)
8	Graphics	Intel® Gen7 Graphics supports DX11.1, OpenGL 3.0 / ES2.0
9	Display	eDP: Resolution up to 2560x1600 DP: Resolution up to 2560x1600
10	PCI Express	PCI Express Gen2 (5.0GT/s) x 4(Disable LAN I210), x 2, x 1
11	SATA	2* x SATA 3.0Gb/s (*One for on-board SSD)
12	USB Port	4 x Universal Serial Bus (HS/FS), 1 x USB3.0 (SS).
13	Watchdog Timer	15 sec / 30 sec / 1 min / 2 min / 3 min
14	LPC	LPC Interface (4-bit-wide bus operating at 4 times the clock speed, 33.3MHz)
15	Hardware Monitoring	-ITE 8528 EC; Core Voltage , Temperature
16	Connector	COM Express Connector x1
17	Audio	Intel® High Definition Audio
18	Board Size	84x55mm
19	Environment	-Operation Temperature: -40° C ~ +85° C (-40° F~+185° F) -Relative Humidity: 5~95%

1.4 Mechanical Drawing

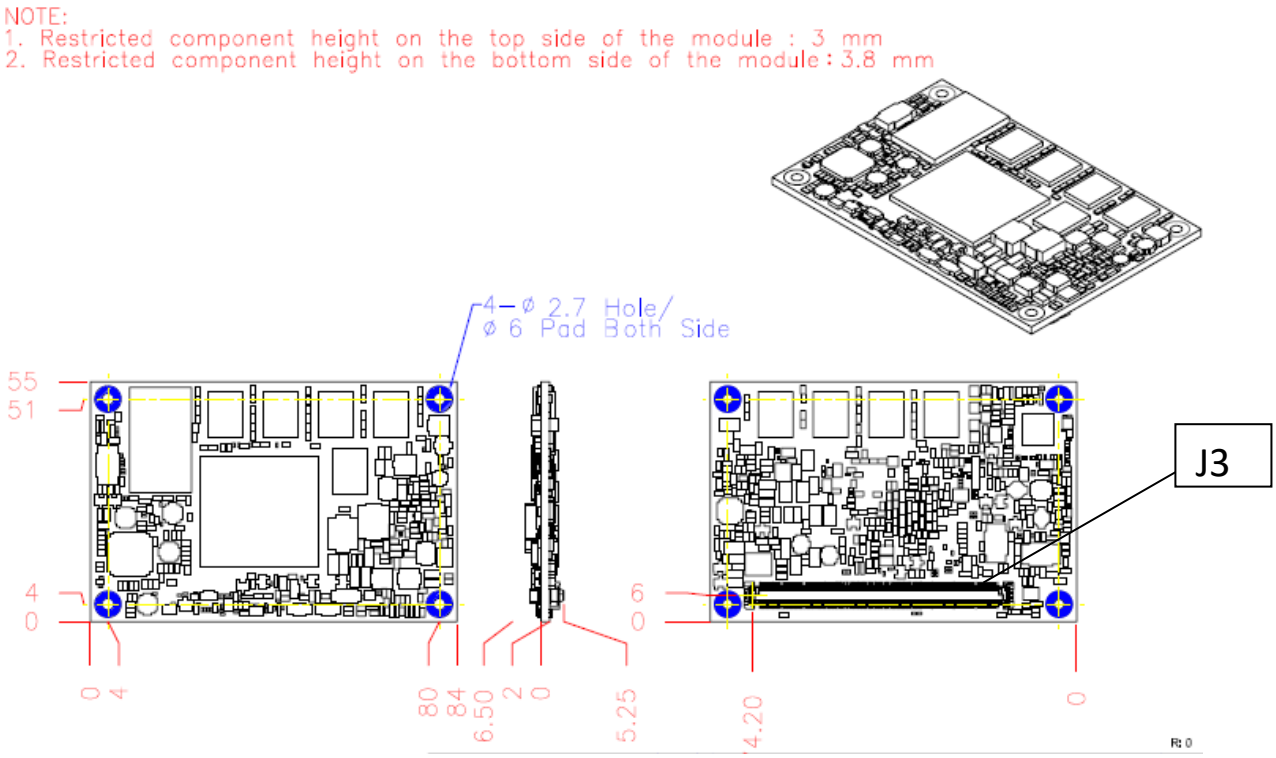
NOTE:
1. Restricted component height on the top side of the module : 3 mm
2. Restricted component height on the bottom side of the module : 3.8 mm



1.5 System Architecture



Chapter 2
Hardware Configuration



This chapter indicates connectors' Pin Assignment.

2.1 Connector Allocation

Connector Function List

Connector	Function	Remark
J3	COM Express Row connector A-B	

Pin Assignment of Connectors

J3			
Row A		Row B	
Pin No	Signal Description	Pin No	Signal Description
A1	GND (FIXED)	B1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2

A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK#	B8	NC
A9	GBE0_MDI1-	B9	NC
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND (FIXED)	B11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CLK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND (FIXED)	B21	GND (FIXED)
A22	USB3_P1_SS_RX_DN	B22	USB3_P1_SS_TX_DN
A23	USB3_P1_SS_RX_DP	B23	USB3_P1_SS_TX_DP
A24	SUS_S5#	B24	PWROK
A25	USB3_DEV_SS_RX_DN	B25	USB3_DEV_SS_TX_DN
A26	USB3_DEV_SS_RX_DP	B26	USB3_DEV_SS_TX_DP
A27	BATLOW#	B27	WDT
A28	(S)ATA_ACT#	B28	HDA_SDIN2
A29	HDA_SYNC	B29	HDA_SDIN1
A30	HDA_RST#	B30	HDA_SDIN0
A31	GND (FIXED)	B31	GND (FIXED)
A32	HDA_BITCLK	B32	SPKR
A33	HDA_SDOUT	B33	I2C_CLK
A34	BIOS_DIS0#	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	NC	B36	NC
A37	NC	B37	NC
A38	NC	B38	NC
A39	USB_HSIC_0_STROBE	B39	USB_HSIC_1_STROBE
A40	USB_HSIC_0_DATA	B40	USB_HSIC_1_DATA
A41	GND (FIXED)	B41	GND (FIXED)
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+

A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-
A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	EXCD1_PERST#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#
A49	EXCD0_CPPE#	B49	SYS_RST#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND (FIXED)	B51	GND (FIXED)
A52	RSVD	B52	RSVD
A53	RSVD	B53	RSVD
A54	GPI0	B54	GPO1
A55	RSVD	B55	RSVD
A56	RSVD	B56	RSVD
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND (FIXED)	B60	GND (FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND (FIXED)	B70	GND (FIXED)
A71	DDI1_TXP2	B71	DDI0_TXP0
A72	DDI1_TXN2	B72	DDI0_TXN0
A73	DDI1_TXP1	B73	DDI0_TXP1
A74	DDI1_TXN1	B74	DDI0_TXN1
A75	DDI1_TXP0	B75	DDI0_TXP2
A76	DDI1_TXN0	B76	DDI0_TXN2
A77	DDI1_VDD_EN_3P3	B77	NC
A78	NC	B78	NC
A79	NC	B79	DDI1_BKLT_EN_3P3
A80	GND (FIXED)	B80	GND (FIXED)

A81	DDI1_TXP3	B81	DDI0_TXP3
A82	DDI1_TXN3	B82	DDI0_TXN3-
A83	DDI1_Q_AUXP	B83	EC_BKLT_CTRL
A84	DDI1_Q_AUXN	B84	VCC_5V_SBY
A85	GPI3	B85	VCC_5V_SBY
A86	RSVD	B86	VCC_5V_SBY
A87	DDI1_HPD	B87	VCC_5V_SBY
A88	PCIE0_CK_REF+	B88	BIOS_DIS1#
A89	PCIE0_CK_REF-	B89	DD0_HPD
A90	GND (FIXED)	B90	GND (FIXED)
A91	SPI_POWER	B91	VGA_G_R
A92	SPI_MISO	B92	VGA_B_R
A93	GPO0	B93	VGA_HSY_R
A94	SPI_CLK	B94	VGA_VSY_R
A95	SPI_MOSI	B95	DP0_AUX_SEL_R
A96	NC	B96	V_DDC_SMB_DAT_R
A97	TYPE10#	B97	SPI_CS#
A98	SER0_TX	B98	DDI0_CTRLCLK_AUX+
A99	SER0_RX	B99	DDI0_CTRLDATA_AUX-
A100	GND (FIXED)	B100	GND (FIXED)
A101	SER1_TX	B101	FAN_PWMOUT
A102	SER1_RX	B102	FAN_TACHIN
A103	LID#	B103	SLEEP#
A104	VCC_12V	B104	VCC_12V
A105	VCC_12V	B105	VCC_12V
A106	VCC_12V	B106	VCC_12V
A107	VCC_12V	B107	VCC_12V
A108	VCC_12V	B108	VCC_12V
A109	VCC_12V	B109	VCC_12V
A110	GND (FIXED)	B110	GND (FIXED)

Chapter 3
System Installation

This chapter provides you with instructions to set up your system. The additional information is enclosed to help you set up onboard PCI device and handle Watch Dog Timer (WDT) and operation of GPIO in software programming.

3.1 Intel® Valleyview CPU

Intel® E3845 (4 core, 10W, 1.91GHz, 1333MT)
Intel® E3827 (2 core, 8W, 1.75GHz, 1333MT)
Intel® E3826 (2 core, 7W, 1.46GHz, 1067MT)
Intel® E3825 (2 core, 6W, 1.33GHz, 1067MT)
Intel® E3815 (1 core, 5W, 1.46GHz, 1067MT)

3.2 Main Memory

PCOM-BA00VG supports 1333 MT/s DDR3L-SDRAM (1.35V) On-Board memory, optional ECC (Error Checking and Correcting) support. Memory clock and related settings can be detected by BIOS via Embedded SPD interface.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedures to install memory module into memory socket. Before locking, make sure that all modules have been fully inserted into the card slots.

3.3 Installing the Single Board Computer

To install your PCOM-BA00VG into standard chassis or proprietary environment, please perform the following:

Step 1: Check all jumpers setting on proper position
Step 2: Install and configure CPU and memory module on right position
Step 3: Place PCOM-BA00VG into the dedicated position in the system
Step 4: Attach cables to existing peripheral devices and secure it

WARNING
Please ensure that SBC is properly inserted and fixed by mechanism.

Note:
Please refer to section 3.3.1 to 3.3.6 to install INF/VGA/LAN/Audio/Sideband Fabric Device/Trusted Execution Engine drivers.

3.3.1 Chipset Component Driver

PCOM-BA00VG uses state-of-art Intel® BayTrail-I chipset. It's a new chipset that some old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows 8, please install its INF before any of other Drivers are installed. You can find very easily this chipset component driver in PCOM-BA00VG CD-title

3.3.2 Intel® Gen7 Graphic Controller

PCOM-BA00VG has integrated Intel® Gen7 Graphic which supports DX11, OpenGL3.2. It is the most advanced design to gain an outstanding graphic performance. PCOM-BA00VG supports VGA(optional), eDP, DP (1.1a), HDMI and dual display. This combination makes PCOM-BA00VG an excellent piece of multimedia hardware.

Drivers Support

Please find the Graphic driver in the download center of Portwell's website. The driver supports Windows 8.

3.3.3 Intel I210LM Gigabit Ethernet Controller

Drivers Support

Please find Intel I210LM LAN driver in download center of Portwell's website. The driver supports Windows 8.

3.3.4 Intel HD Audio Controller

Please find Intel® High Definition Audio driver download center of Portwell's website. The driver supports Windows 8.

3.3.5 Intel Sideband Fabric Device

Please find Intel® Sideband Fabric Device driver download center of Portwell's website. The driver supports Windows 8.

3.3.6 Intel Trusted Execution Engine

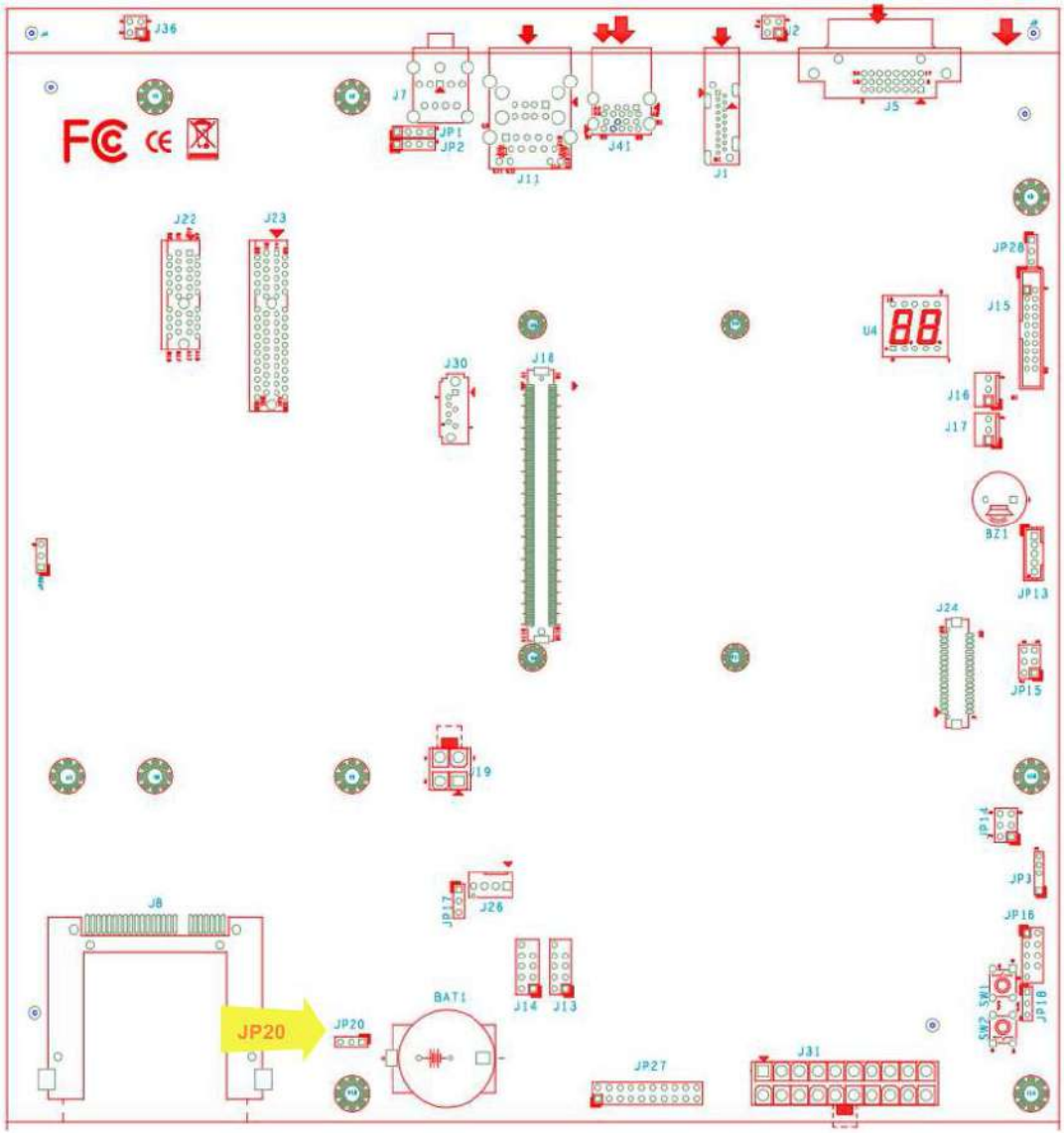
Please find Intel® Trusted Execution Engine driver download center of Portwell's website. The driver supports Windows 8.

3.4 Clear CMOS Operation

The following table indicates how to enable/disable Clear CMOS Function hardware circuit by putting jumper of the PCOM-CA00 carrier board.

JP20：CMOS Setting

	Jumper Setting Describe
*1-2	Default
2-3	Clean CMOS



3.5 Optional function rework SOP - VGA

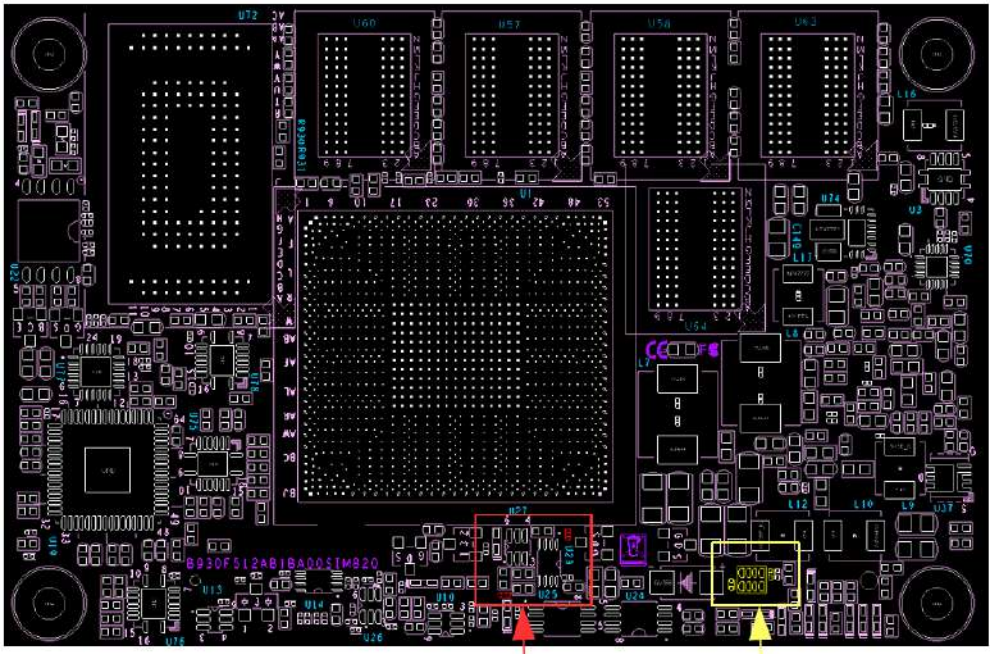
PCOM-BA00VG default display is DDI0 (DP/HDMI/DVI), VGA is optional display, customer can choose either using DDI0 or VGA interface as their default display. Please follow below rework steps for using VGA interface.

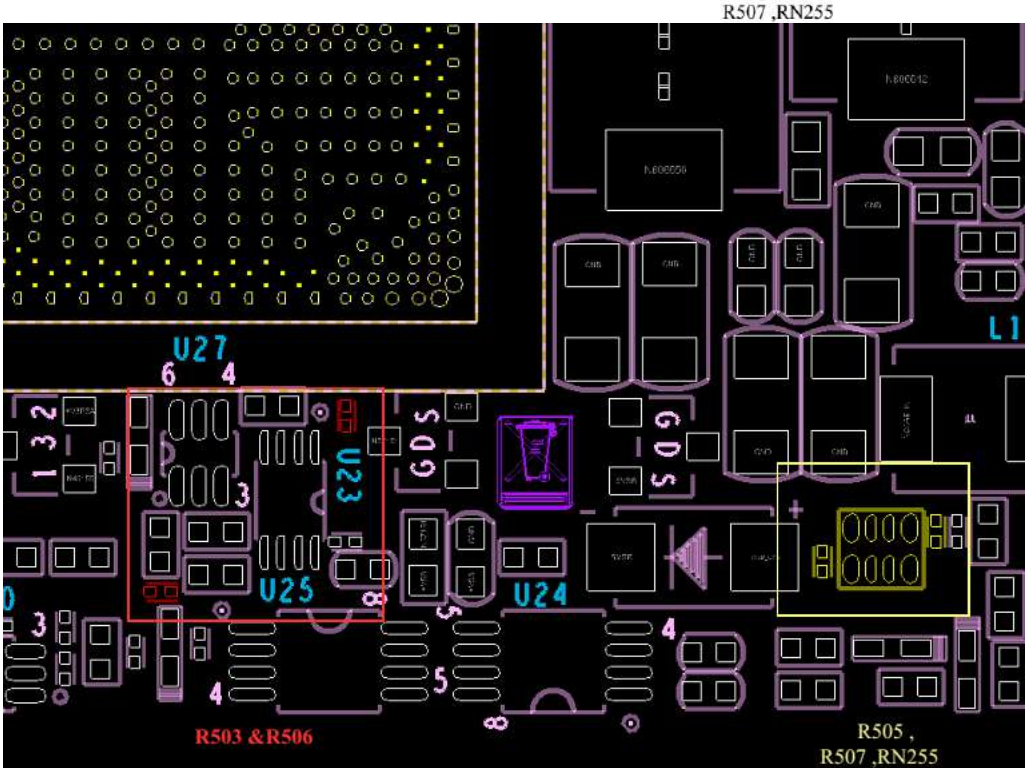
- Step 1

Remove R503 (0 ohm) and R506 (0 ohm). See Figures below for detail.

- Step 2

Add R505 (0 ohm), R507 (0 ohm) and RN255 (0 ohm). See Figures below for detail.





Chapter 4
BIOS Setup Information

PCOM-BA00 is equipped with the AMI BIOS stored in Flash ROM. These BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it is retained during power-off periods. When system is turned on, PCOM-BA00 communicates with peripheral devices and checks its hardware resources against the configuration information stored in the CMOS memory. If any error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start up.

Entering Setup -- Launch System Setup

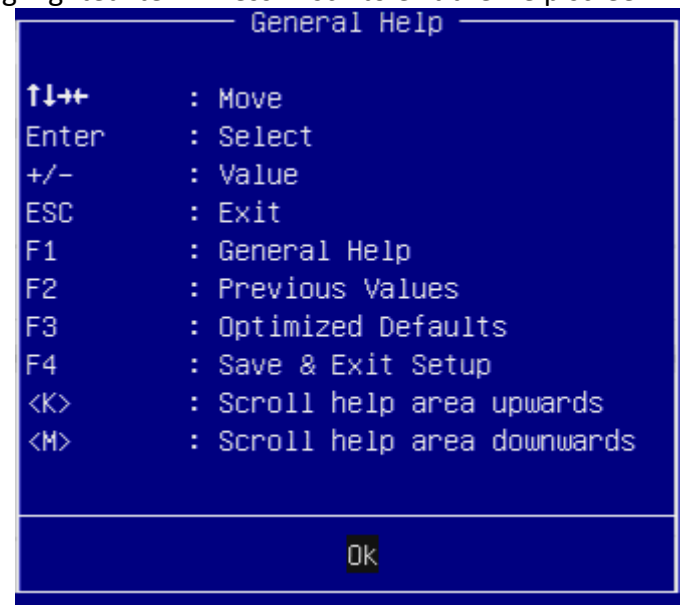
Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <Del> key will enter BIOS setup screen.

Press <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.

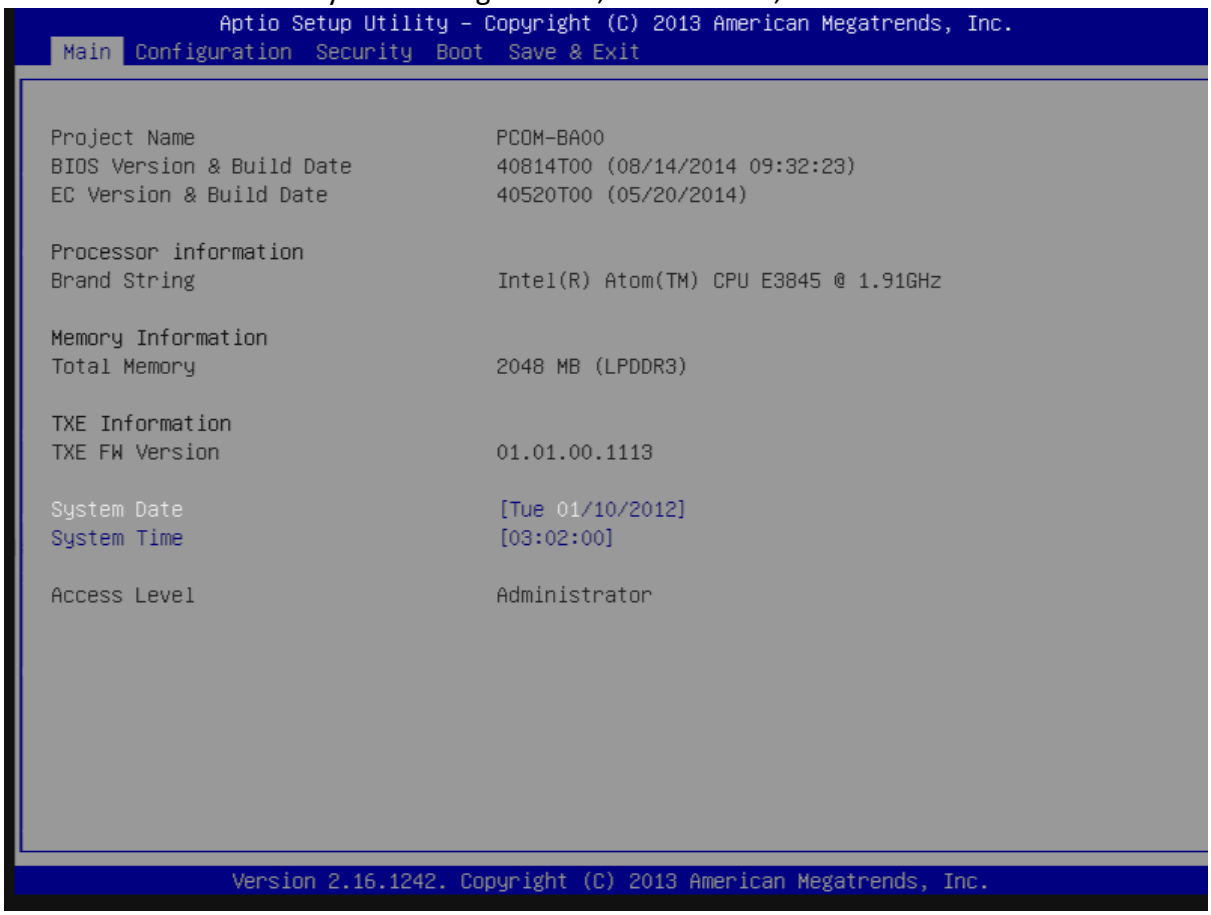
Press <F1> to Run General Help or Resume

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.



Main

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



System Date

View or set system date.

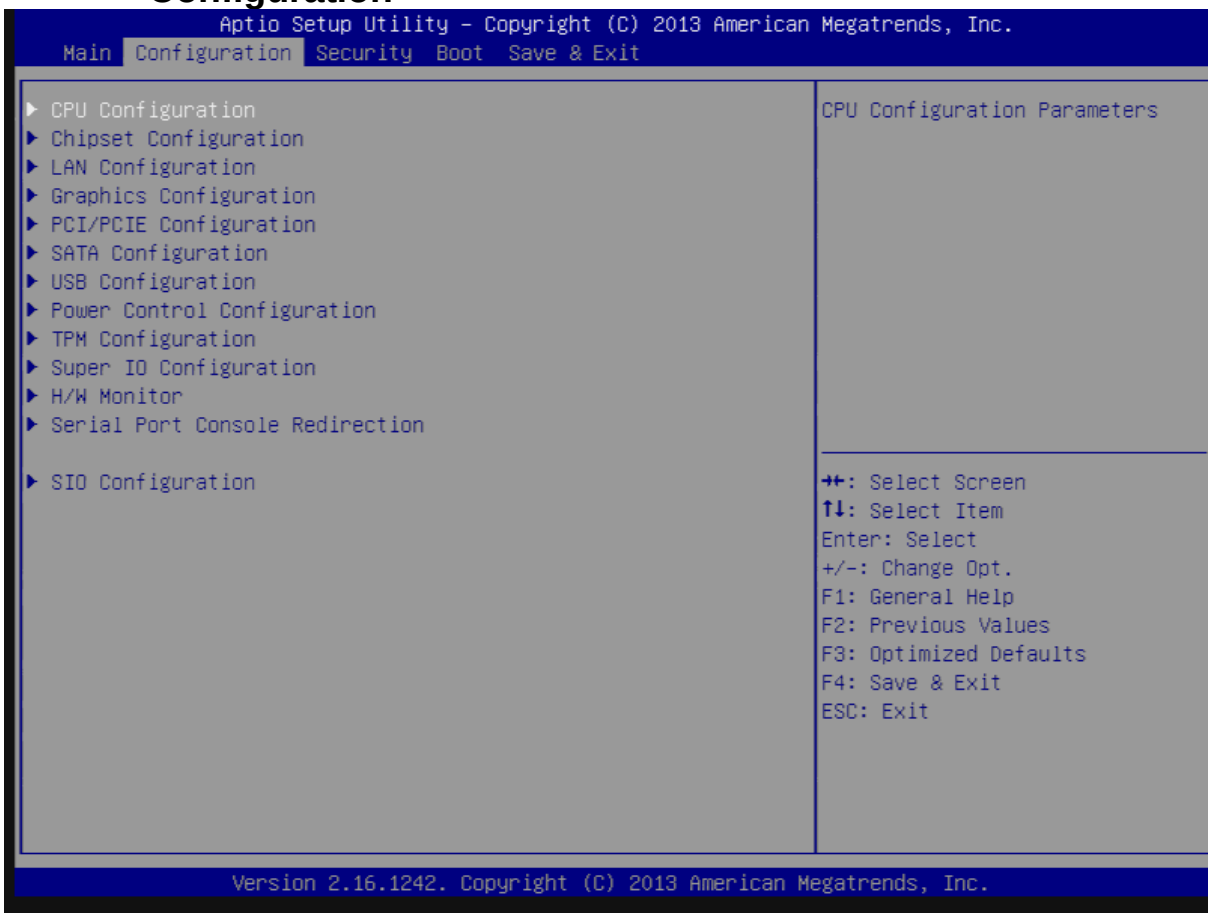
The date format is <Day>, <Month> <Date> <Year>. Use [＋] or [－] to configure system Date.

System Time

View or set system time.

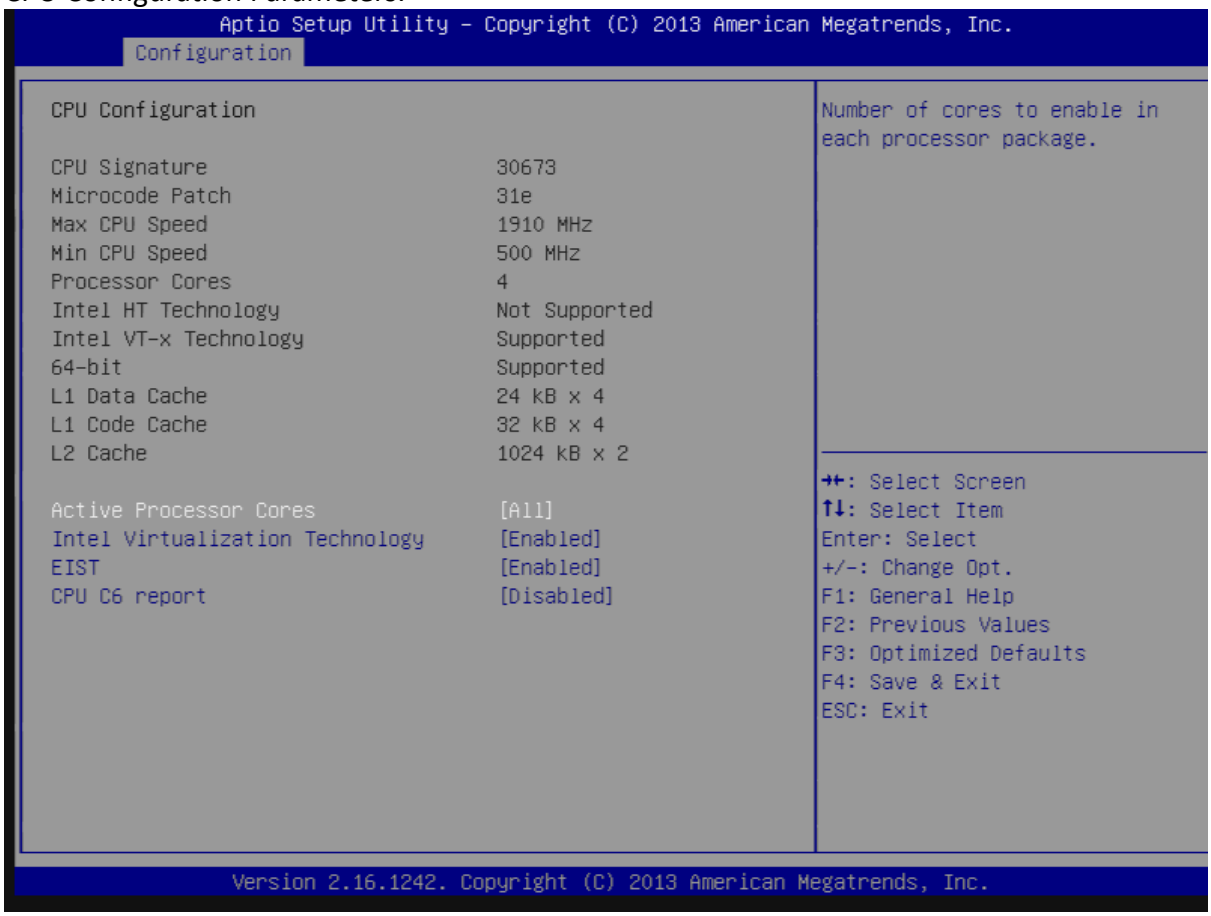
The time format is <Hour> <Minute> <Second>. Use [＋] or [－] to configure system Time.

Configuration



CPU Configuration

CPU Configuration Parameters.



Active Processor Cores

Number of cores to enable in each processor package.
Choices: All, 1.

Intel Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Choices: Disable, Enable.

EIST

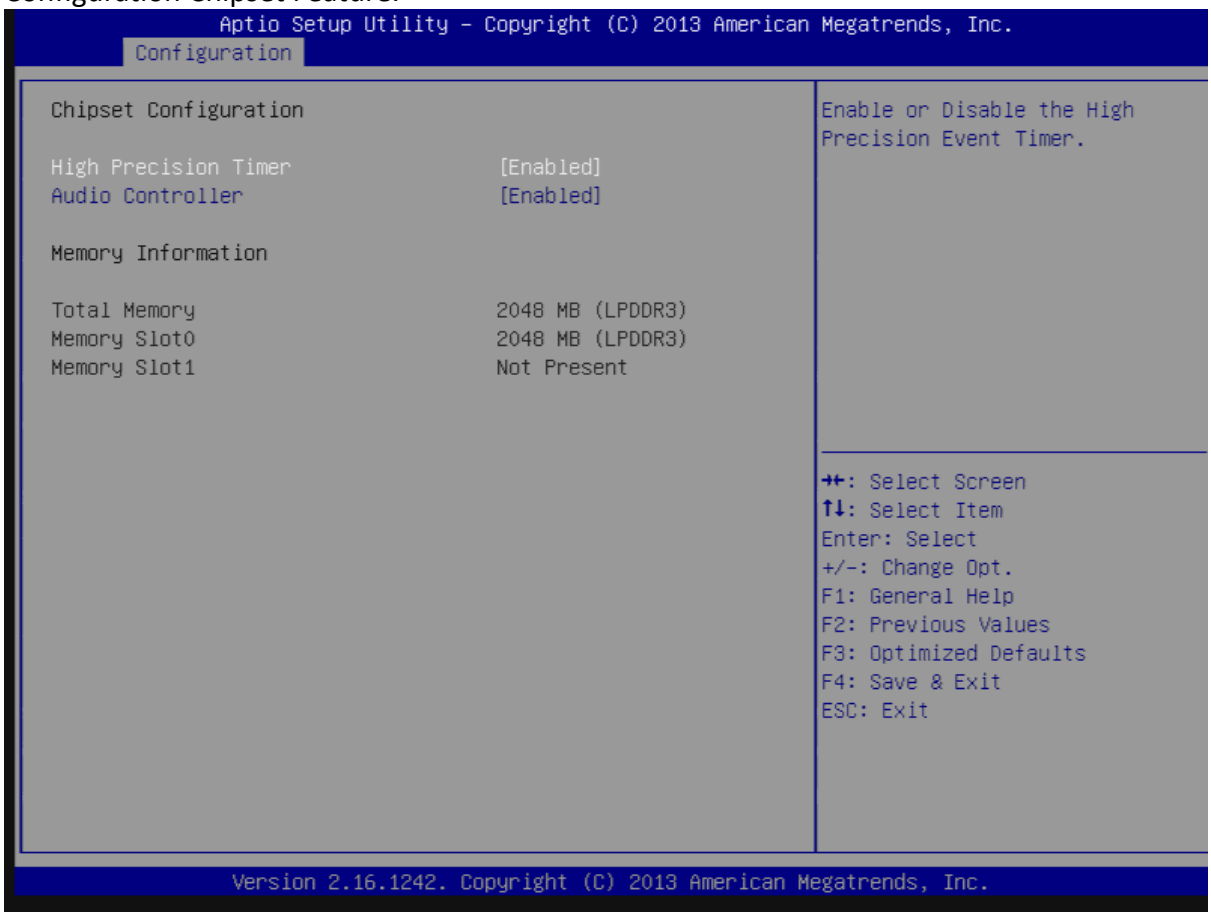
Enable/Disable Intel SpeedStep.
Choices: Disable, Enable.

CPU C6 report

Enable/Disable CPU C6 (ACPI C3) report to OS.
Choices: Disable, Enable.

Chipset Configuration

Configuration Chipset Feature.



High Precision Timer

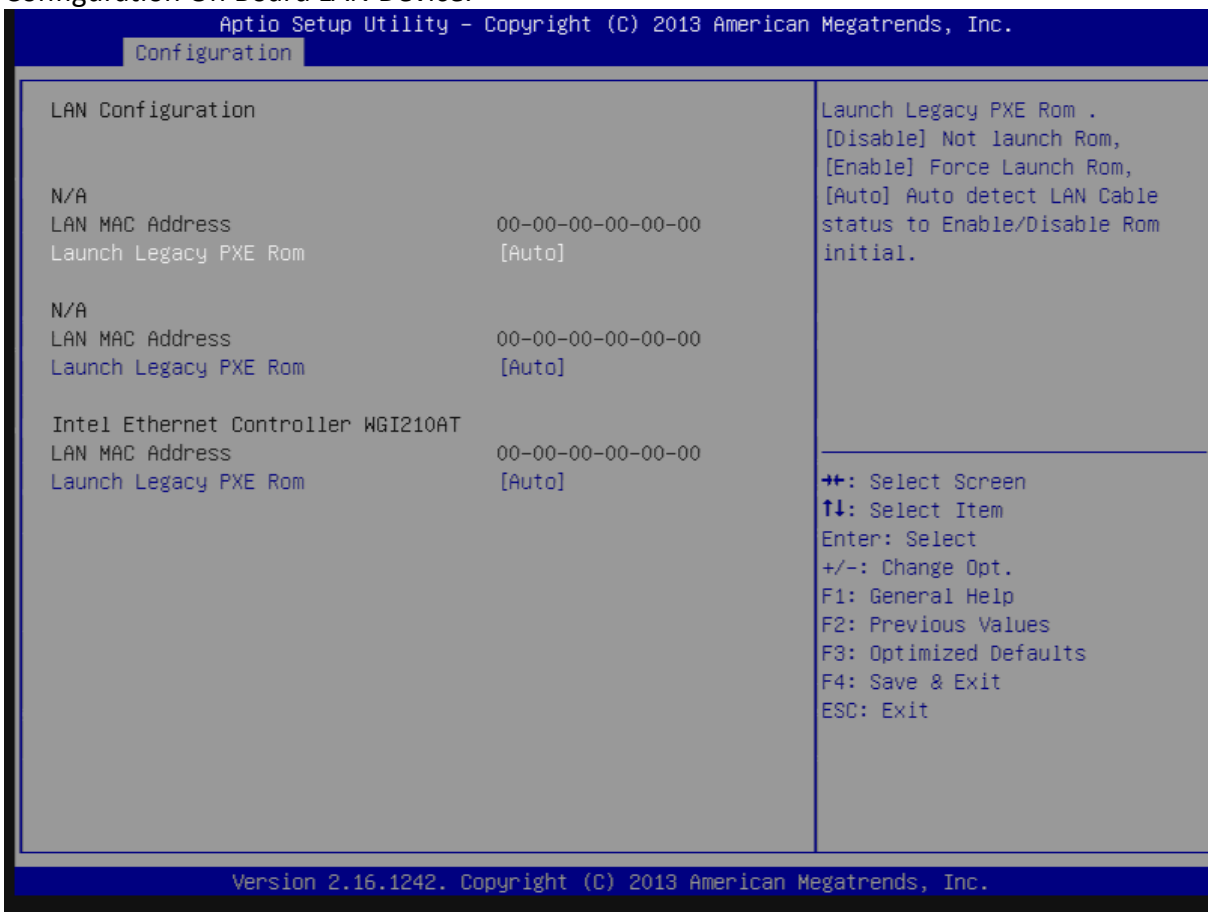
Enable or Disable the High Precision Event Timer.
Choices: Disable, Enable.

Audio Controller

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

LAN Configuration

Configuration On Board LAN Device.

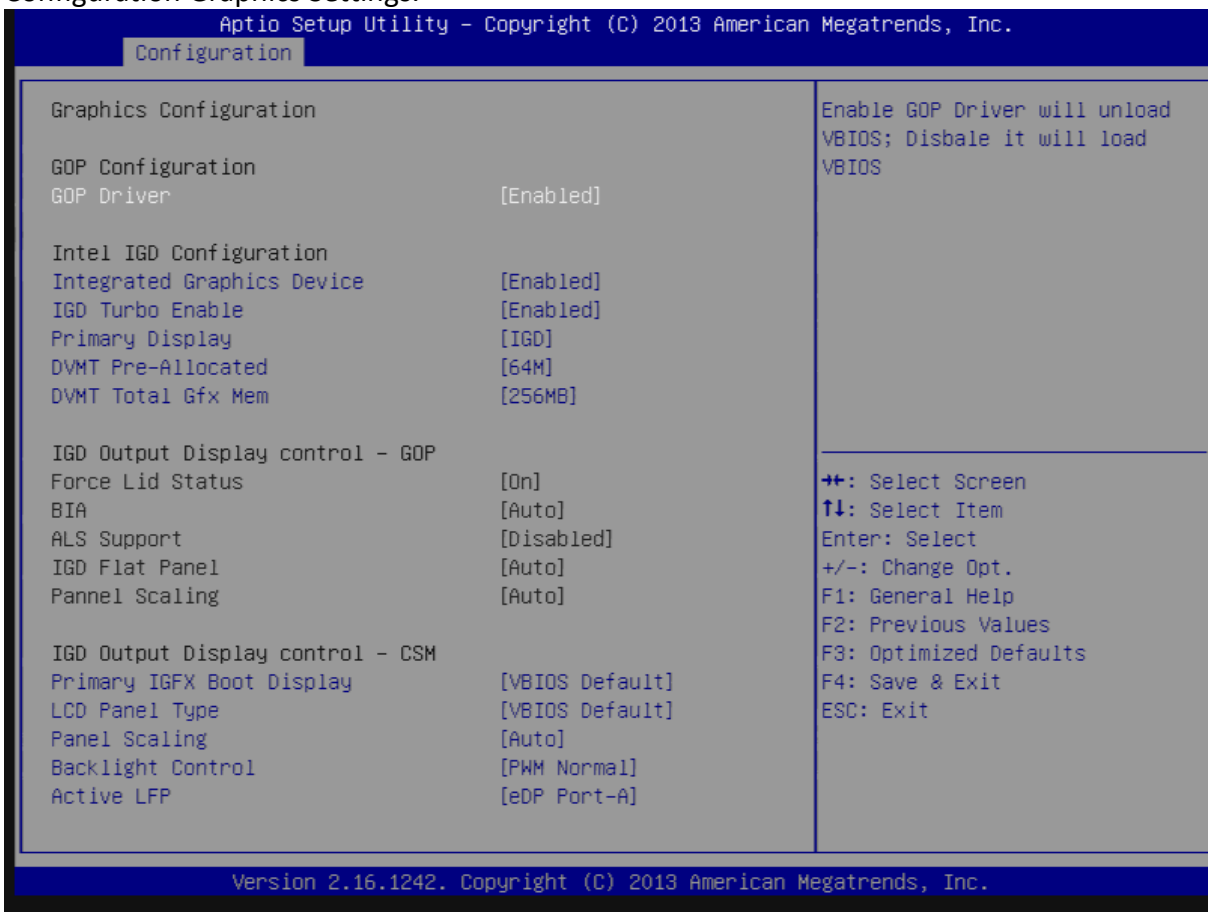


Launch Legacy PXE Rom

Launch Legacy PXE Rom. [Disable] Not launch Rom, [Enable] Force Launch Rom, [Auto] Auto detect LAN Cable status to Enable/Disable Rom initial.
Choices: Disable, Enable, Auto.

Graphics Configuration

Configuration Graphics Settings.



GOP Configuration

GOP Driver

Enable GOP Driver will unload VBIOS; Disable it will load VBIOS.
Choices: Enable, Disable.

Intel IGD Configuration

Integrated Graphics Device

Enable: Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adapter.
Disable: Always disable IGD.
Choices: Enable, Disable.

IGD Turbo Enable

Enable: Enable IGD Turbo Enable. Disable: IGD Turbo Disable.
Choices: Enable, Disable.

Primary Display

Select which of IGD/PCI Graphics device should be Primary Display.
Choices: Auto, IGD, PCI, SG.

DVMT Pre-Allocated
Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory sized used by the Internal Graphic Device.
Choices: 64M, 96M, 128M, 160M, 192M, 224M, 256M, 288M, 320M, 352M, 384M, 416M, 448M, 480M, 512M.

DVMT Total Gfx Mem
Select DVMT 5.0 Total Graphic Memory size used by the Internal Graphics Device.
Choices: 128MB, 256MN, Max.

IGD Output Display Control - CSM

Primary UGFX 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 election. VGA modes will be supported only on primary display.
Choices: VBIOS Default, CRT, EFP, LFP, EEP3, EEP2, LFP2.

LCD Panel Type
Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.
Choices: VBIOS Default, 640x480 LVDS, 800x600 LVDS, 1024x768 LVDS, 1280x1024 LVDS, 1400x1050 (RB) LVDS, 1400x1050 LVDS, 1600x1200 LVDS, 1366x768 LVDS, 1680x1050 LVDS, 1920x1200 LVDS, 1440x900 LVDS, 1600x900 LVDS, etc.

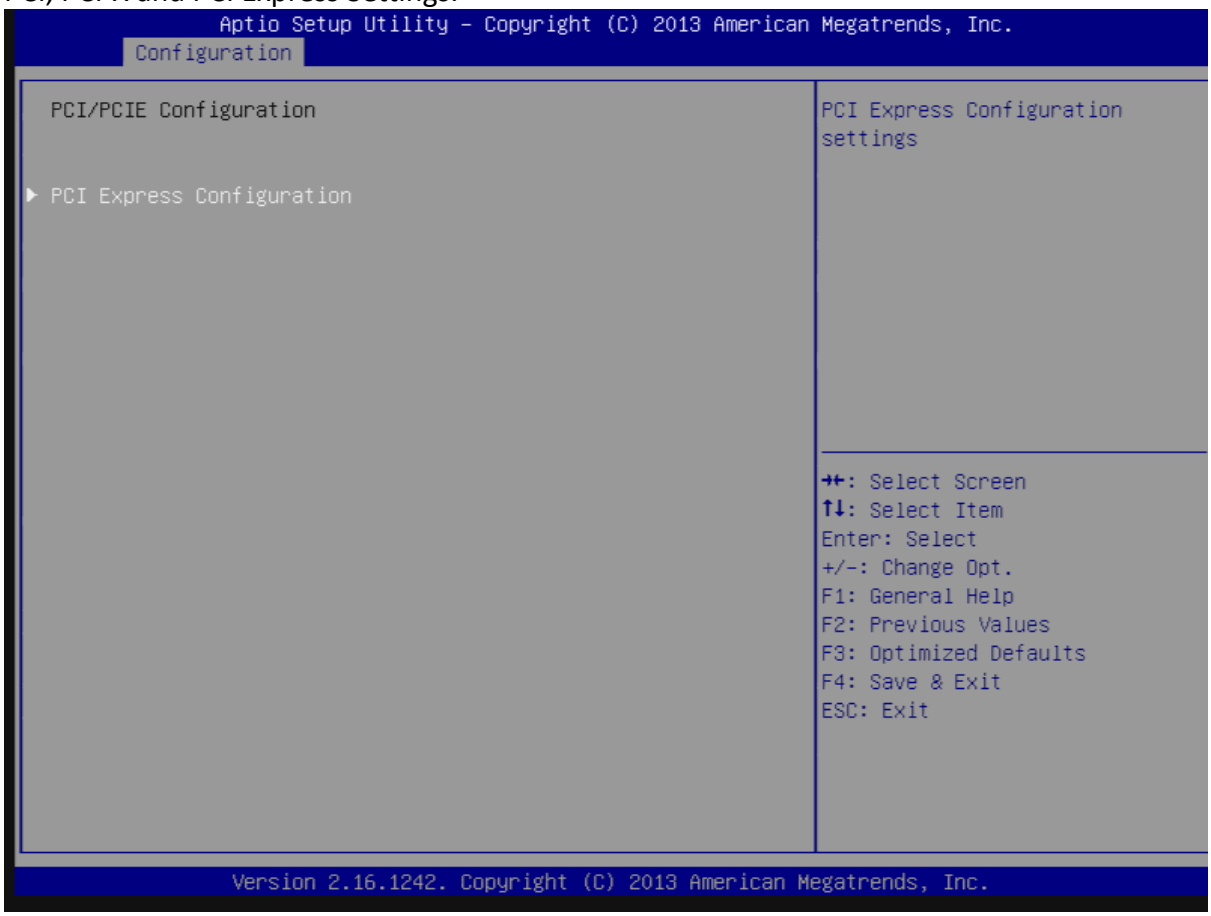
Panel Scaling
Select the LCD Panel scaling option used by Internal Graphic device
Choices: Auto, Off, Force Scaling.

Backlight Control
Back Light Control Setting
Choices: PWM Inverted, PWM Normal, GMBus Inverted, GMBus Normal.

Active LFP
Select the Active LFP configuration.
Choices: No LVDS, Int-LVDS, SDVD LVDS, eDP Port-A, eDP Port-D.

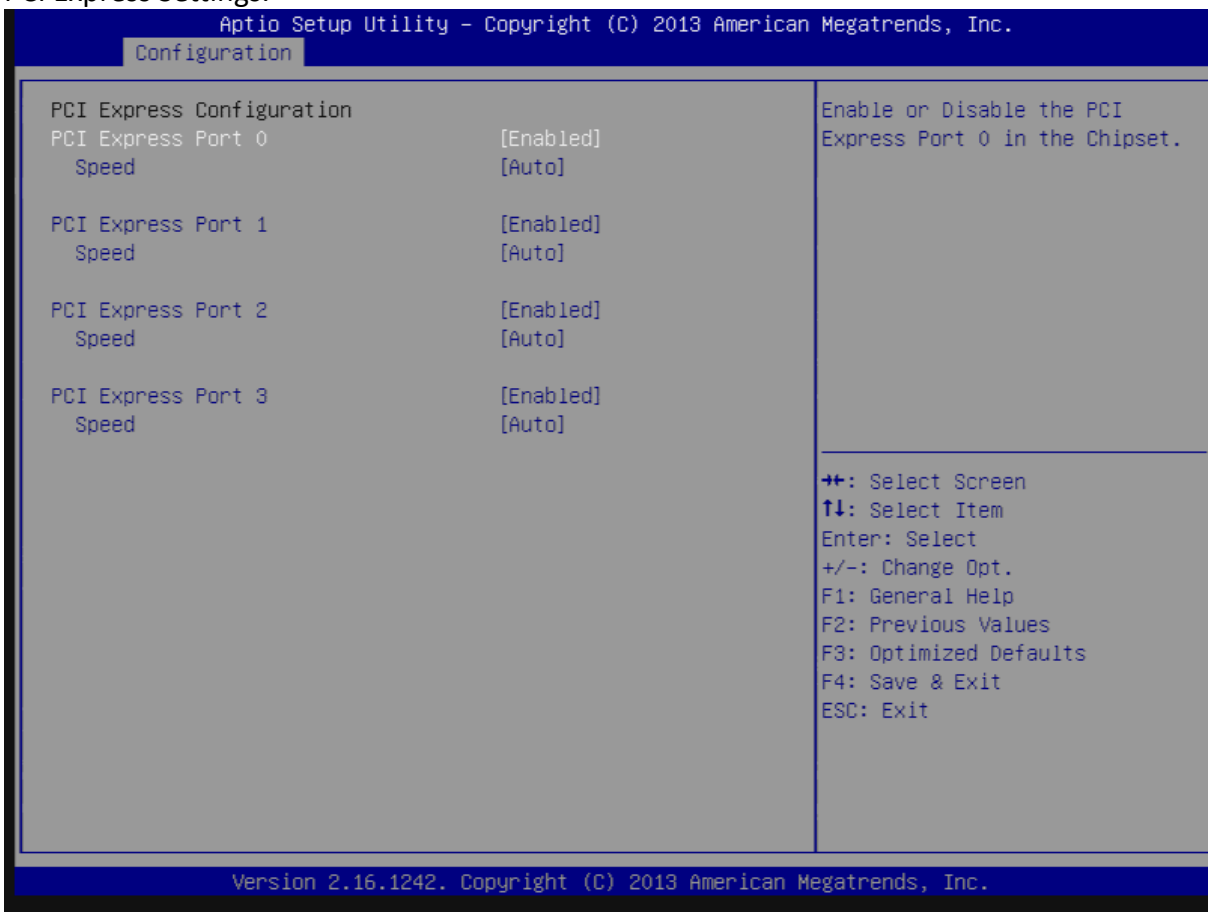
PCI/PCIE Configuration

PCI, PCI-X and PCI Express Settings.



PCI Express Configuration

PCI Express Settings.



PCI Express Root Port 0-3

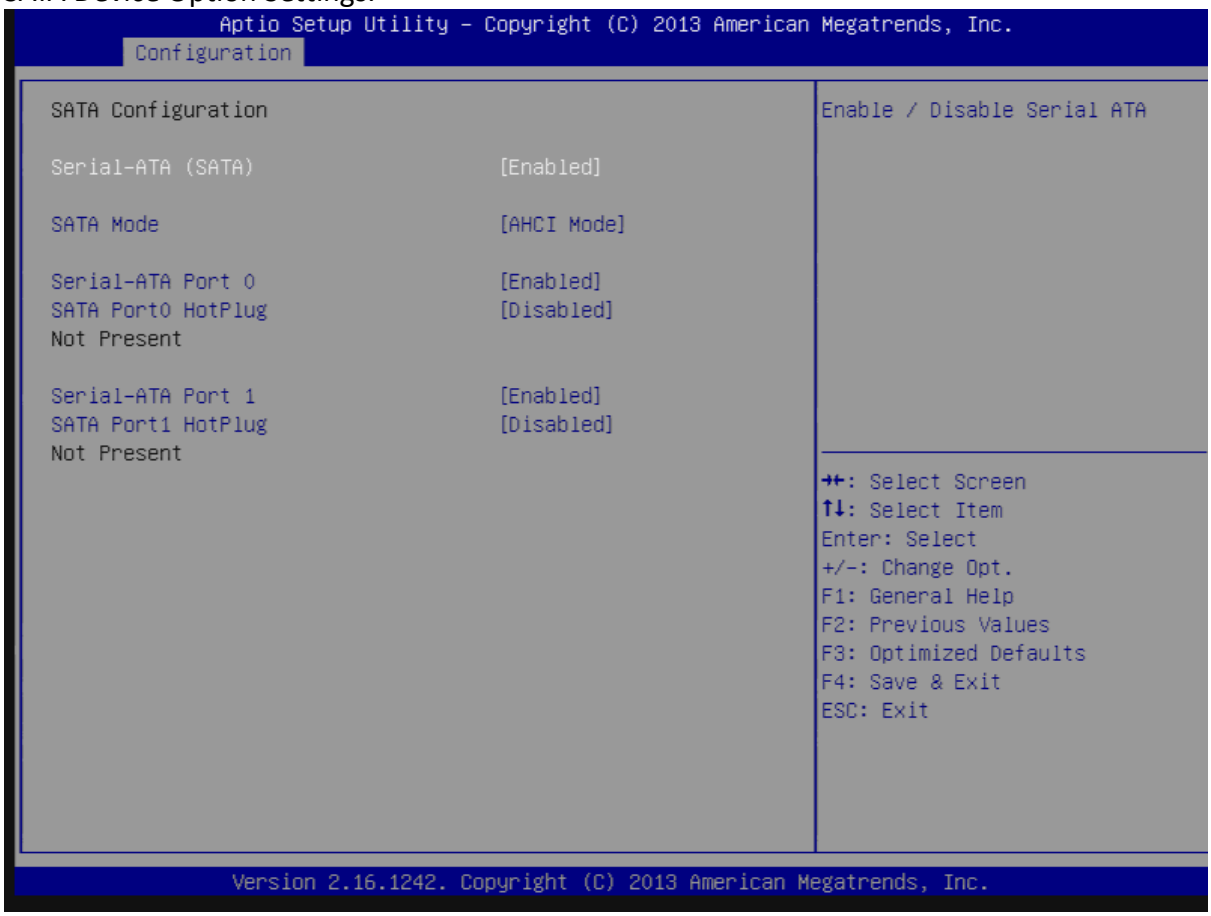
Enable or Disable the PCI Express Port 0 in the Chipset.
Choices: Enable, Disable.

Speed

Configuration PCIe Port Speed.
Choices: Auto, Gen2, Gen1.

SATA configuration

SATA Device Option Settings.



Serial-ATA (SATA)

Enable/Disable Serial ATA.
Choices: Enable, Disable.

SATA Mode

Select IDE/AHCI.
Choices: IDE Mode, AHCI Mode.

SATA-ATA Port 0-1

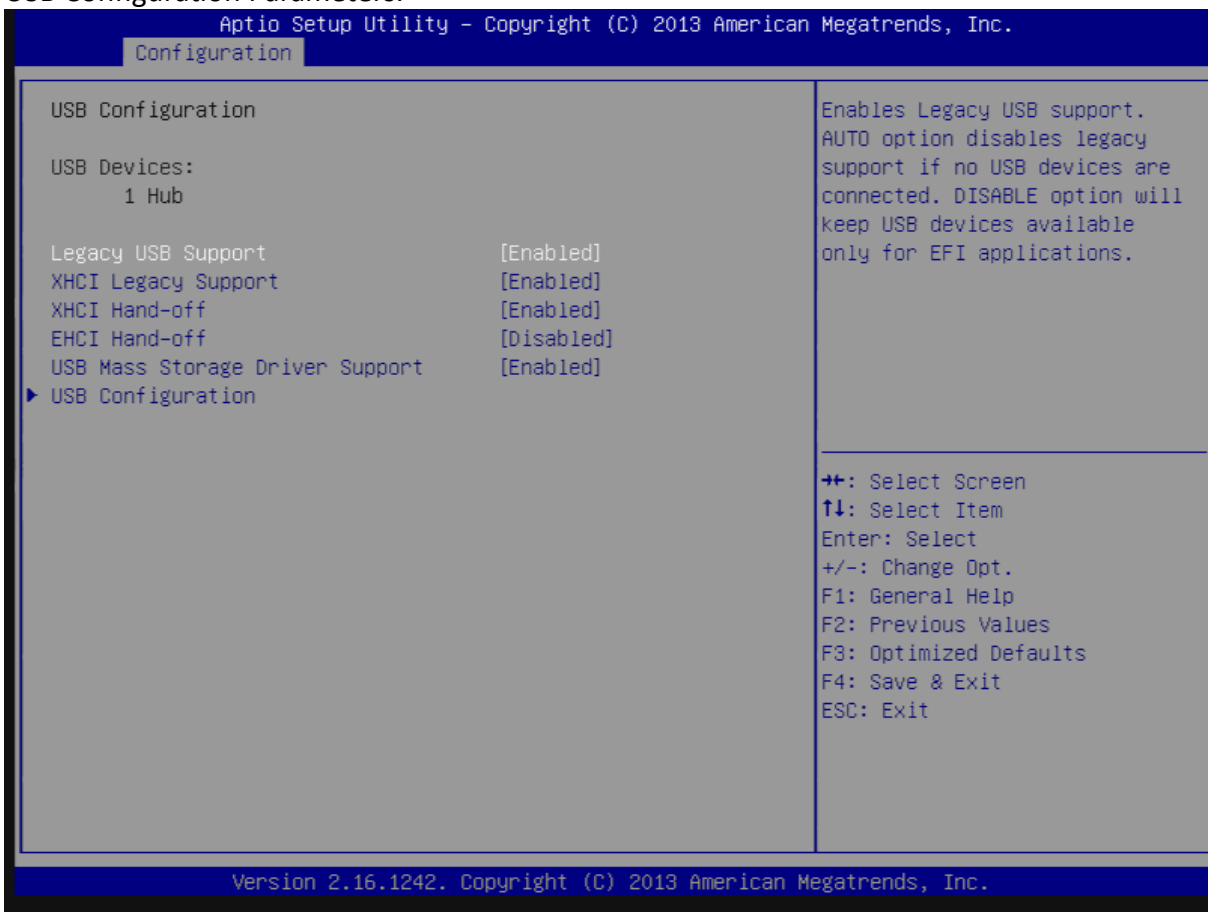
Enable/Disable Serial ATA Port 0-1.
Choices: Enable, Disable.

SATA Port 0-1 Hot Plug

Enable/Disable Serial ATA Port 0-1 HotPlug.
Choices: Enable, Disable.

USB Configuration

USB Configuration Parameters.



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 application.
Choices: Enable, Disable, Auto.

xHCI Legacy Support

Enable/Disable XHCI Controller Legacy support.
Choices: Enable, Disable.

xHCI Hand-off

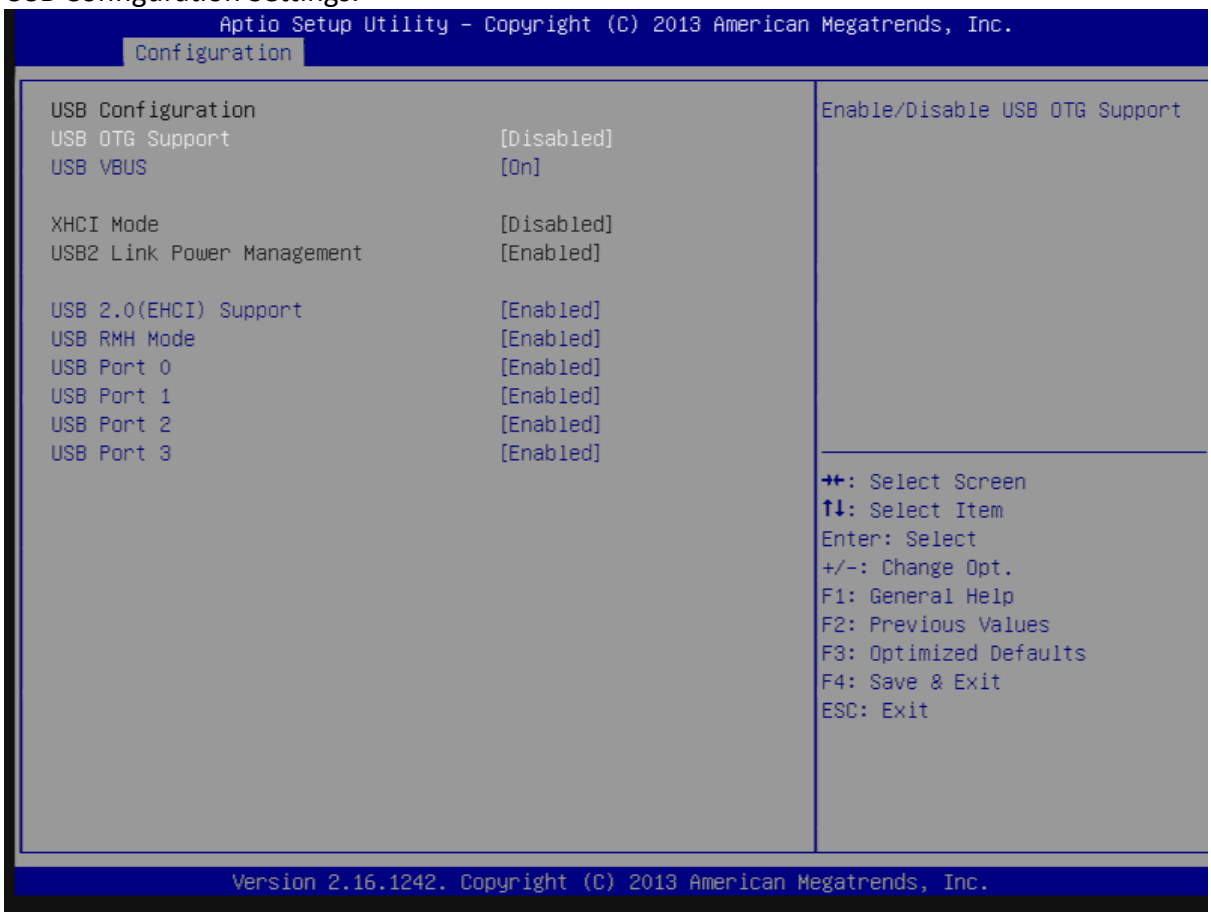
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
Choices: Enable, Disable.

EHCI Hand-off

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
Choices: Enable, Disable.

USB Mass Storage Driver Support
Enable/Disable USB Mass Storage Driver Support.
Choices: Enable, Disable.

USB Configuration
USB Configuration Settings.



USB OTG Support
Enable/Disable USB OTG Support.
Choices: Disable, PCI Mode.

USB VBUS
VBUS Should be ON in HOST mode. It should be OFF in OTG device mode.
Choices: On, off.

XHCI Mode
Mode of operation of xHCI controller.
Choices: Enable, Disable, Auto, Smart Auto.

USB Link Power Management
Enable/Disable USB2 Link Power Management.
Choices: Enable, Disable.

USB 2.0 (EHCI) Support

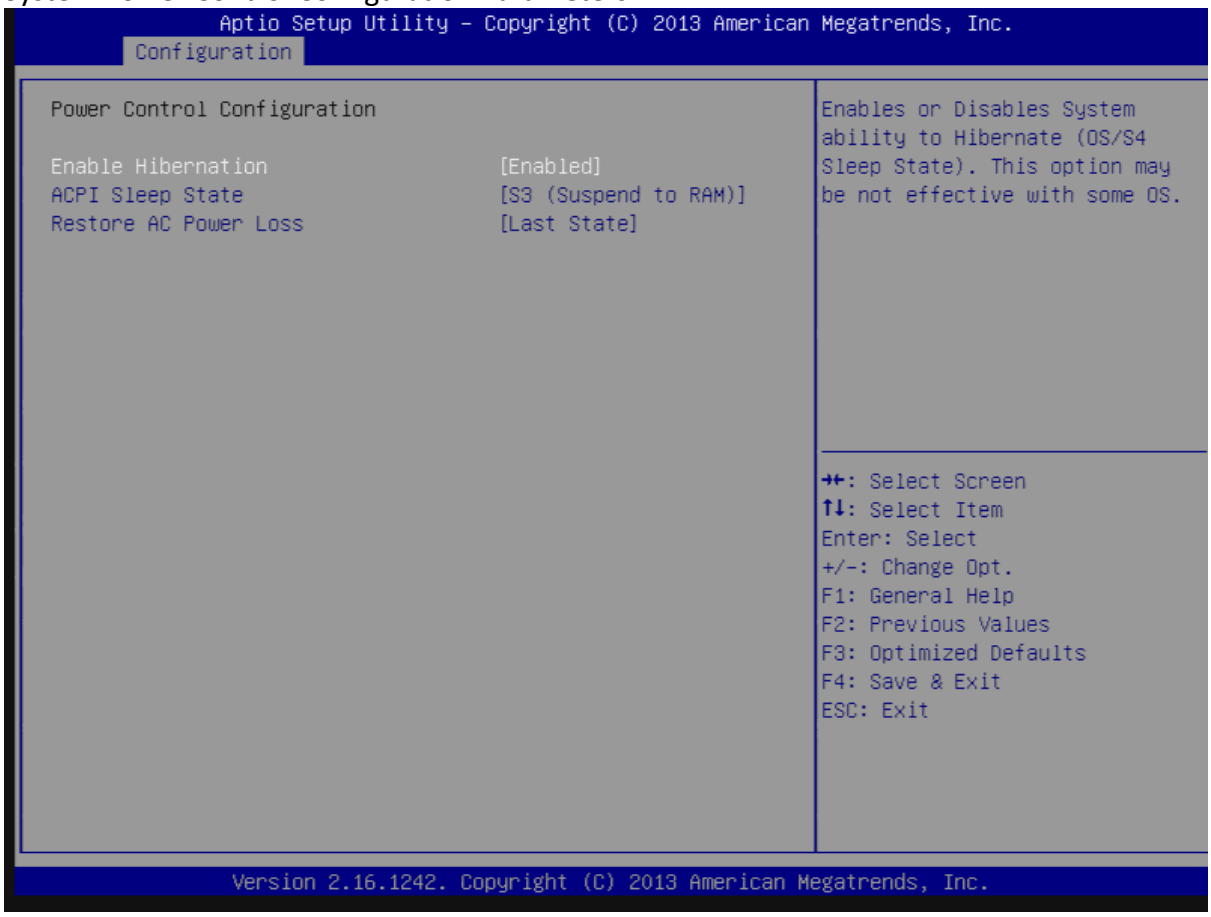
Control the USB EHCI (USB 2.0) function. One EHCI controller must always be enabled.
Choices: Disable, Enable.

USB Port #0~#3

Enable/Disable USB port #0~#3
Choices: Disable, Enable.

Power Control Configuration

System Power Control Configuration Parameters.



Enable Hibernation

Enable or Disable system ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
Choices: Disable, Enable.

ACPI Sleep state

Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
Choices: Suspend Disable, S3 (Suspend to RAM).

Restore AC Power Loss

Select AC power state when power is re-applied after a power failure.
Choices: Power off, Power On, Last State.

TPM Configuration

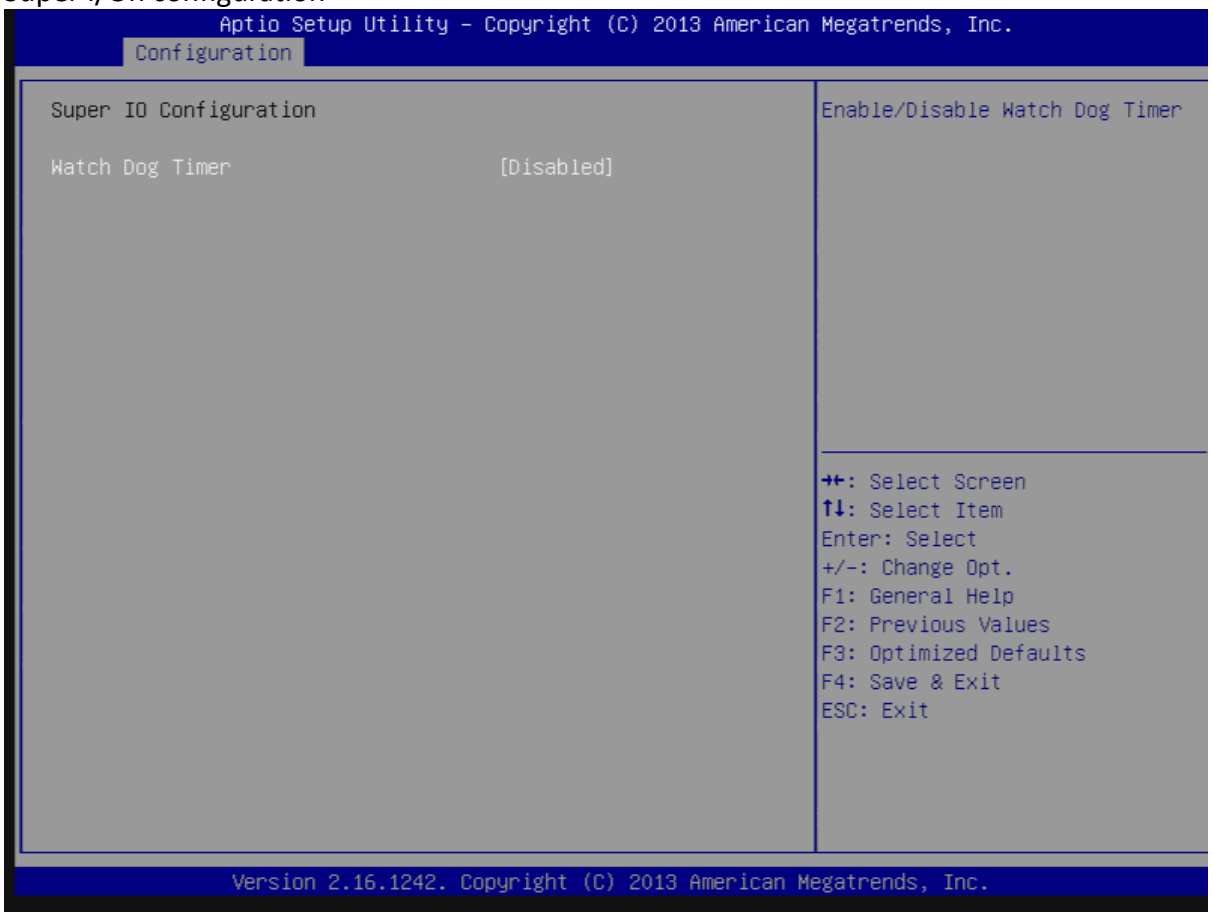
Trusted Computing Settings.

Security Device Support

Enable or disable BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available.
Choices: Disable, Enable.

Super IO Configuration

Super I/On configuration



Watch Dog Timer

Enable/Disable Watch Dog Timer.

Choices: Disable, Enable.

Timer Unit

Select Timer count unit of WDT.

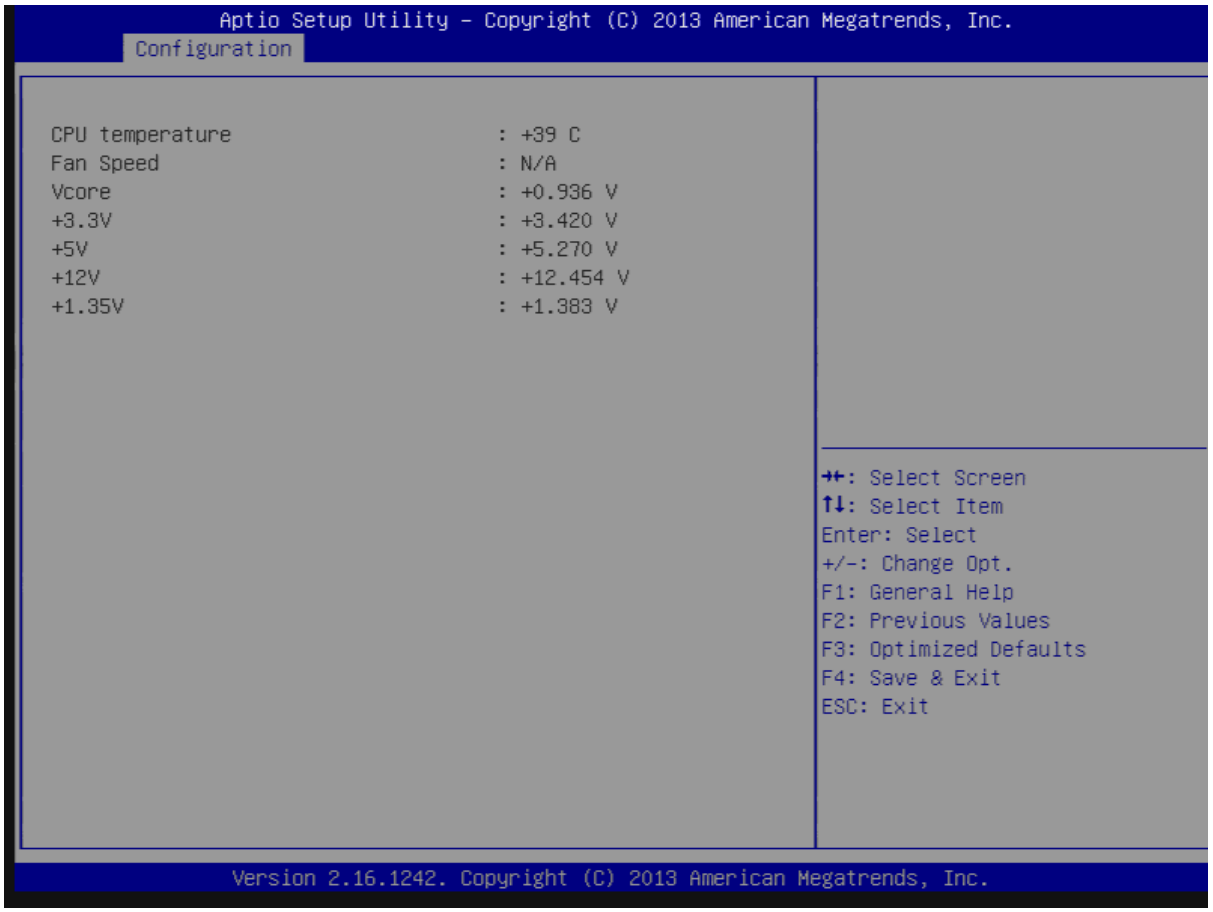
Choices: Second, Minute.

Timer Value

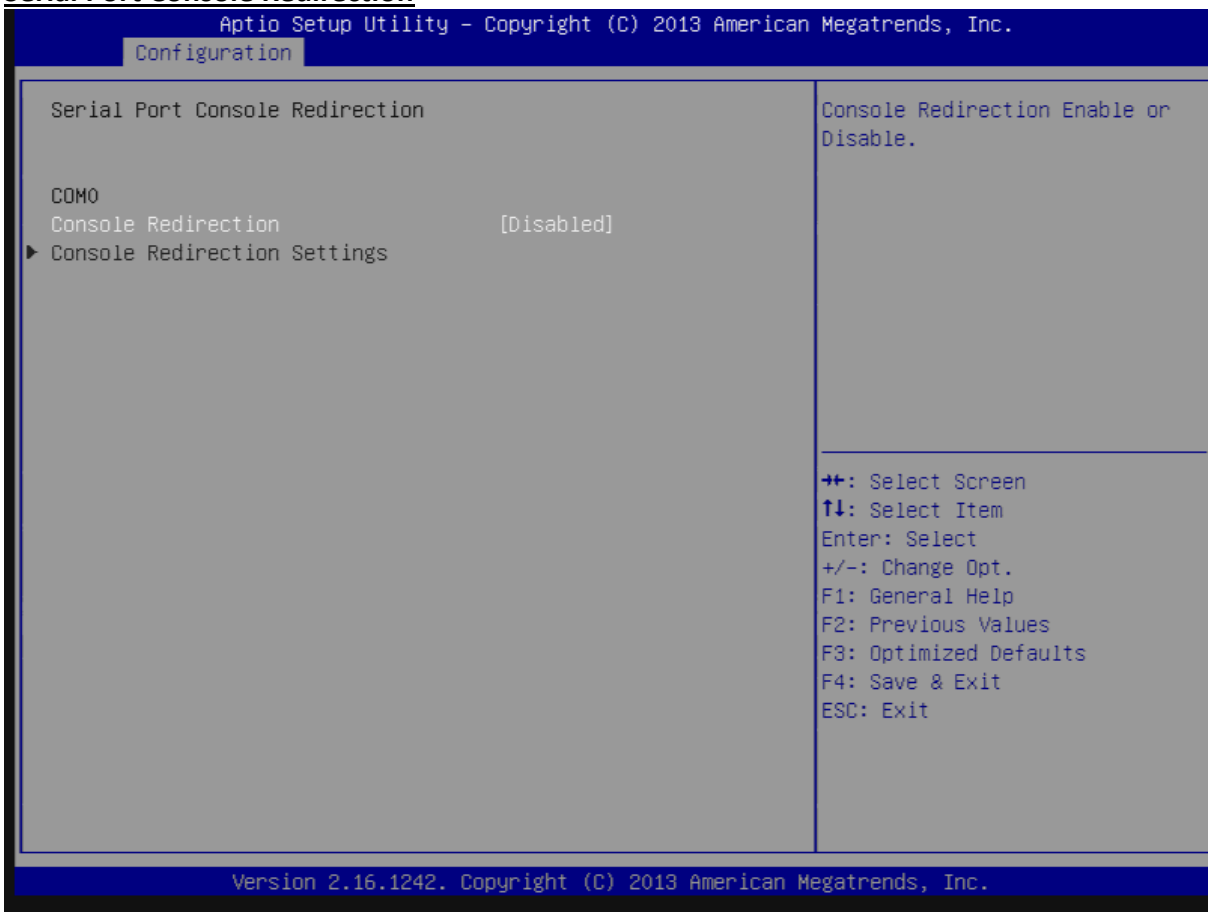
Set WDT Timer value Seconds/ Second.

H/W Monitor

Monitor Hardware Status.



Serial Port Console Redirection



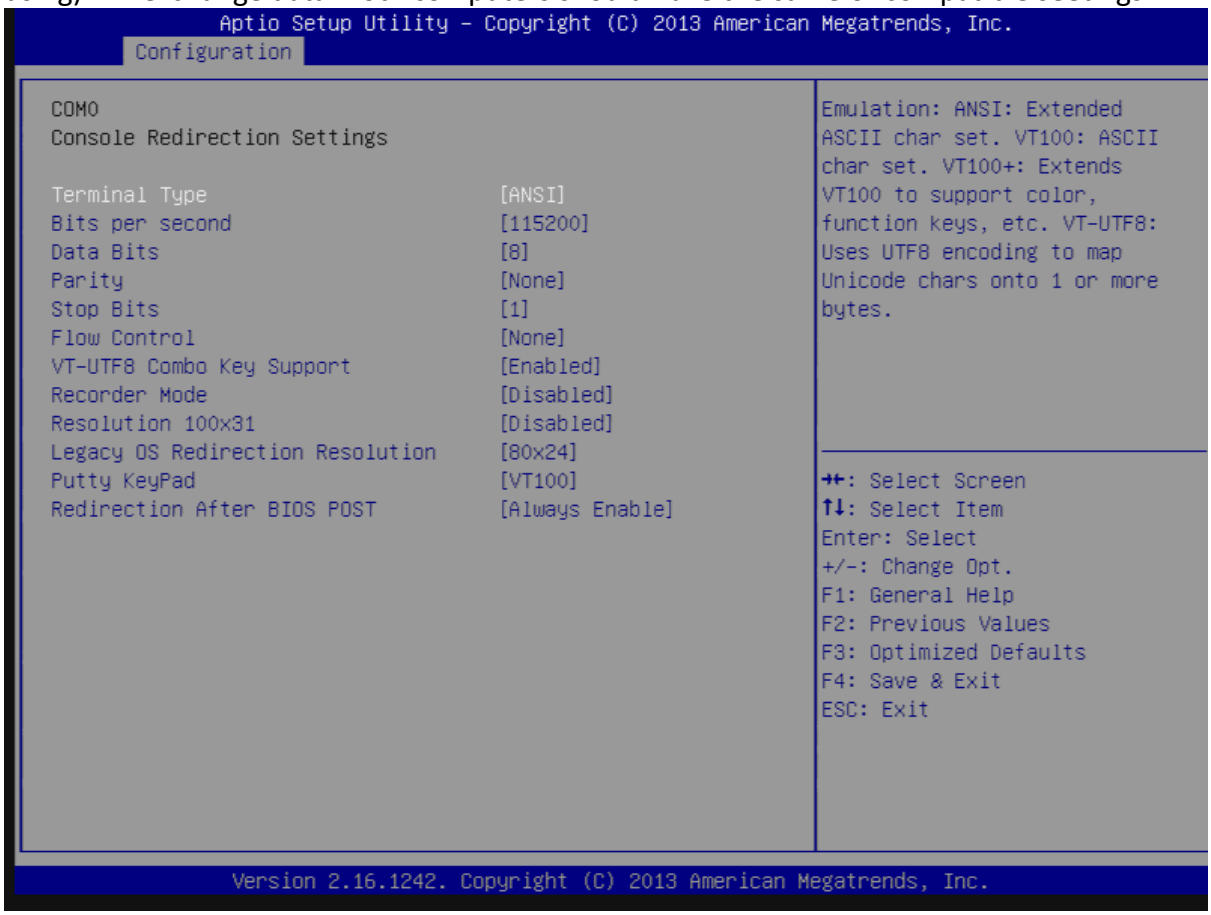
COM 0

Console Redirection

Console Redirection Enable or Disable.
Choices: Disable, Enable.

Console Redirection Settings

The settings 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 seetings.



Terminal Type

Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT00 to support color, function key, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Choices: 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.
Choices: 9600, 19200, 38400, 57600, 115200.

Data Bits

Data Bits
Choices: 7, 8.

Parity
A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if 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.
Choices: None, Even, Odd, Mark, Space.

Stop Bits
Stop bits indicate the end if 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.
Choices: 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 used two wires to send start/stop signals.
Choices: None, Hardware RTS/CTS.

VT-UTF8 Combo Key Support
Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.
Choices: Disable, Enable.

Recorder Mode
On this mode enabled only text will be sent. This is to capture Terminal data.
Choices: Disable, Enable.

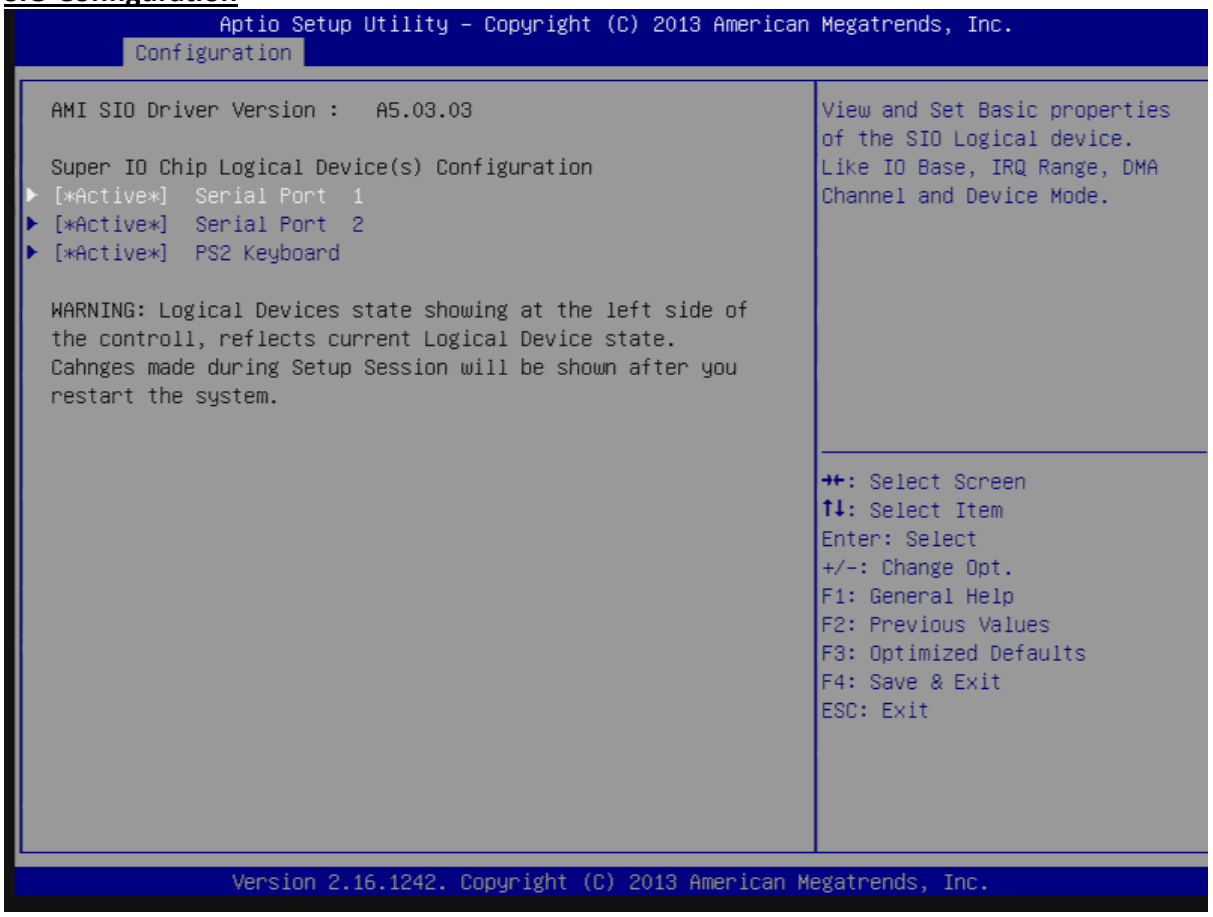
Resolution 100 x 31
Enables or disables extended terminal resolution.
Choices: Disable, Enable.

Legacy OS Redirection Resolution
On Legacy OS, the Number of Rows and Columns supported redirection..
Choices: 80 x 24, 80 x 25.

Putty KeyPad
Select FunctionKey and KeyPad on Putty.
Choices: VT100, LINUX, XTERMR6, SCO, ESCN, VT400.

Redirection After BIOS POST
The Settings specify if BootLoader is selected then Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable which means Legacy console Redirection is enabled for Legacy OS..
Choices: Always Enable, BootLoader.

SIO Configuration



Use This Device

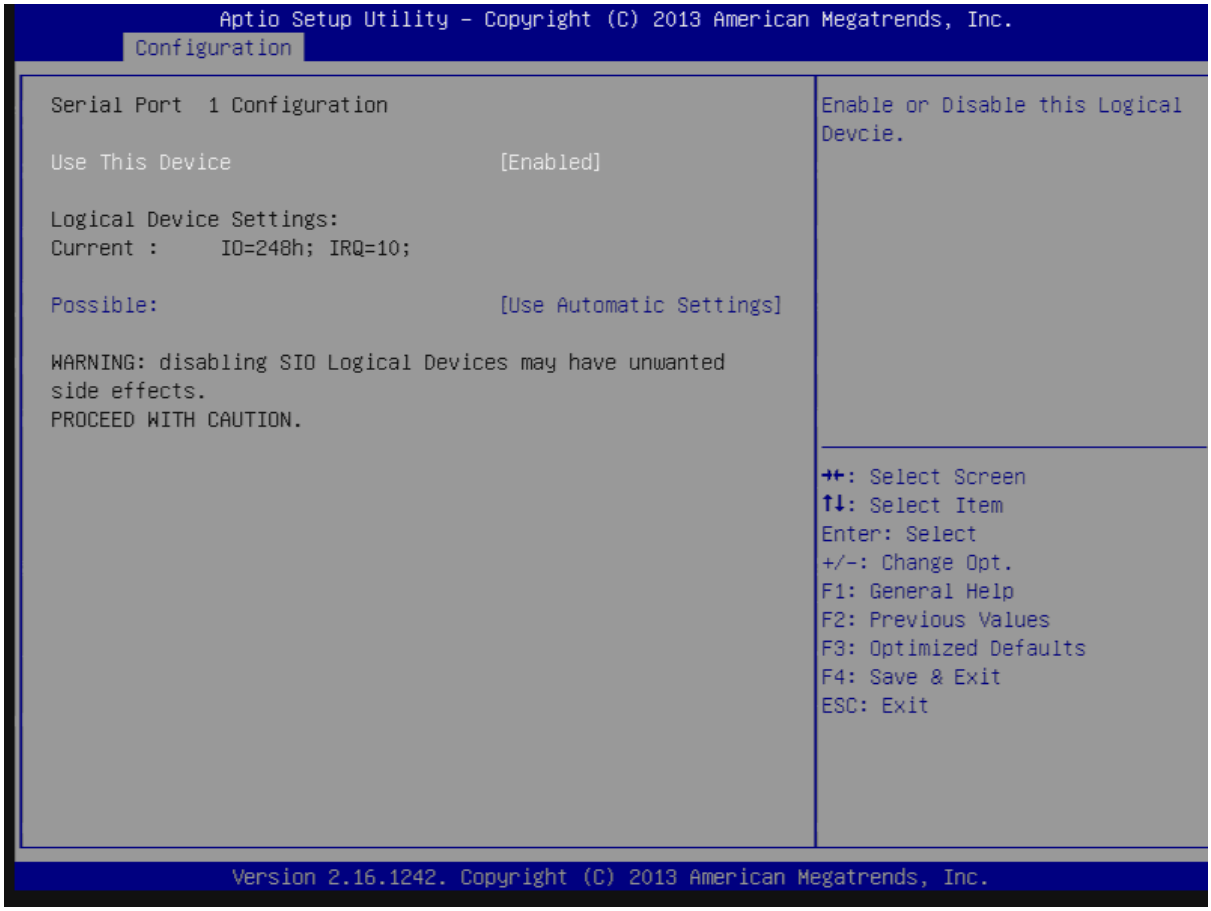
Enable or Disable this Logical Device.
Choices: Disable, Enable.

Possible:

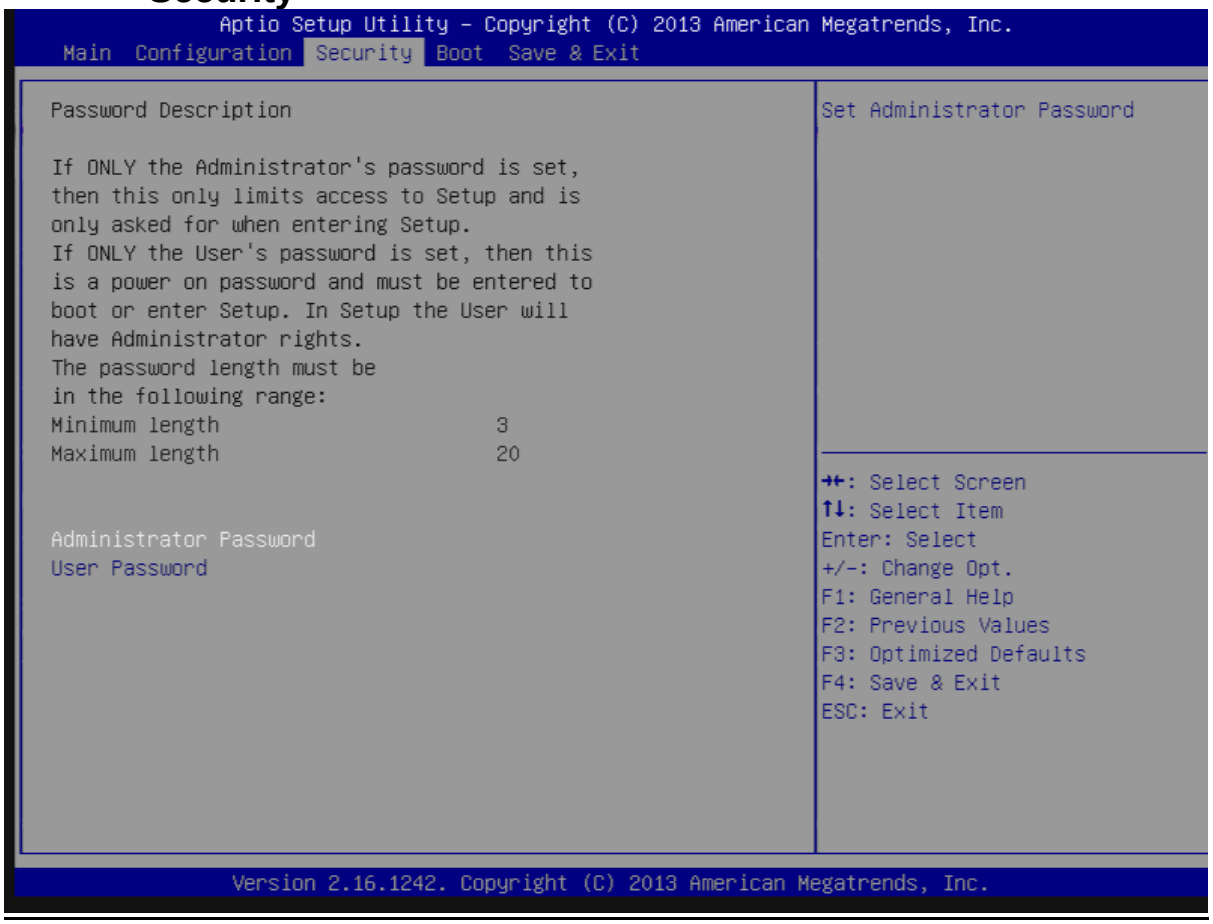
Allows user to change Device's Resource settings. New settings will be reflected on This Setup Page after System restarts.
Choices: Use Automatic Settings.

Serial Port 1-2 Configuration

View and Set Basic properties of the SIO Logical device. Like IO Base, IRQ Range, DMA Channel and Device Mode.



Security



Administrator Password

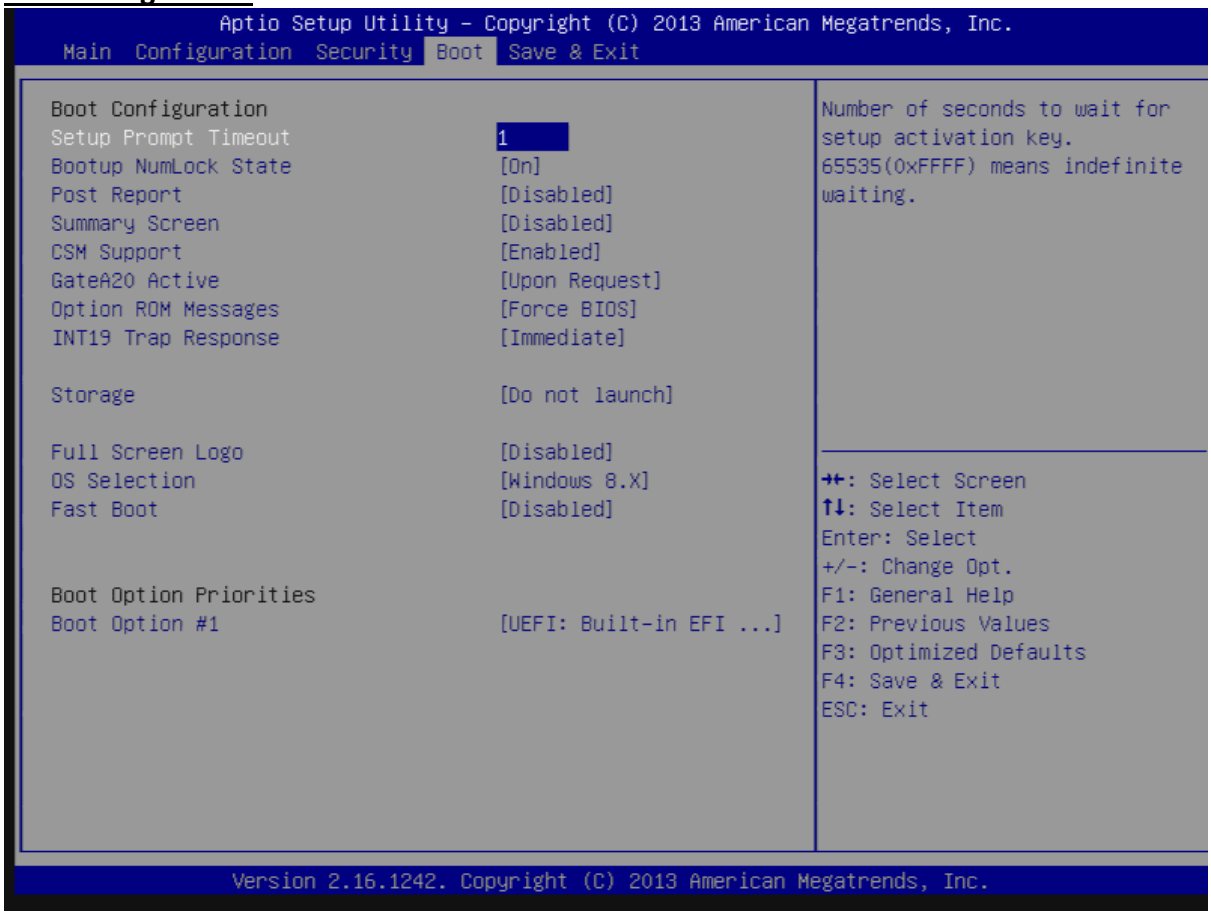
Set Administrator Password.

User Password

Set User Password.

Boot

Boot configuration



Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.
Choices: 0, 1, etc.

Bootup NumLock State

Select the keyboard Numlock state.
Choices: On, off.

Post Report

Post report support enable/disable.
Choices: Disable, Enable.

Summary Screen

Summary Screen support Enable/Disable.
Choices: Disable, Enable.

CSM Support
Enable/Disable CSM support.
Choices: Disable, Enable.

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 excused above 1MB.
Choices: Upon Request, Always.

Option ROM Messages
Set display mode for option ROM
Choices: Force BIOS, Keep Current.

INI19 Trap Response
BIOS reaction on INT19 trapping by option ROM: IMMEDIATE – execute the trap right away; POSTPONED – execute the trap during legacy boot.
Choices: Immediate, Postponed.

Storage
Controls the execution of UEFI and Legacy Storage OpROM.
Choices: Do not launch, UEFI only, Legacy only.

Fill Screen Logo
Enable or Disable quiet boot option and full screen logo.
Choices: Disable, Enable.

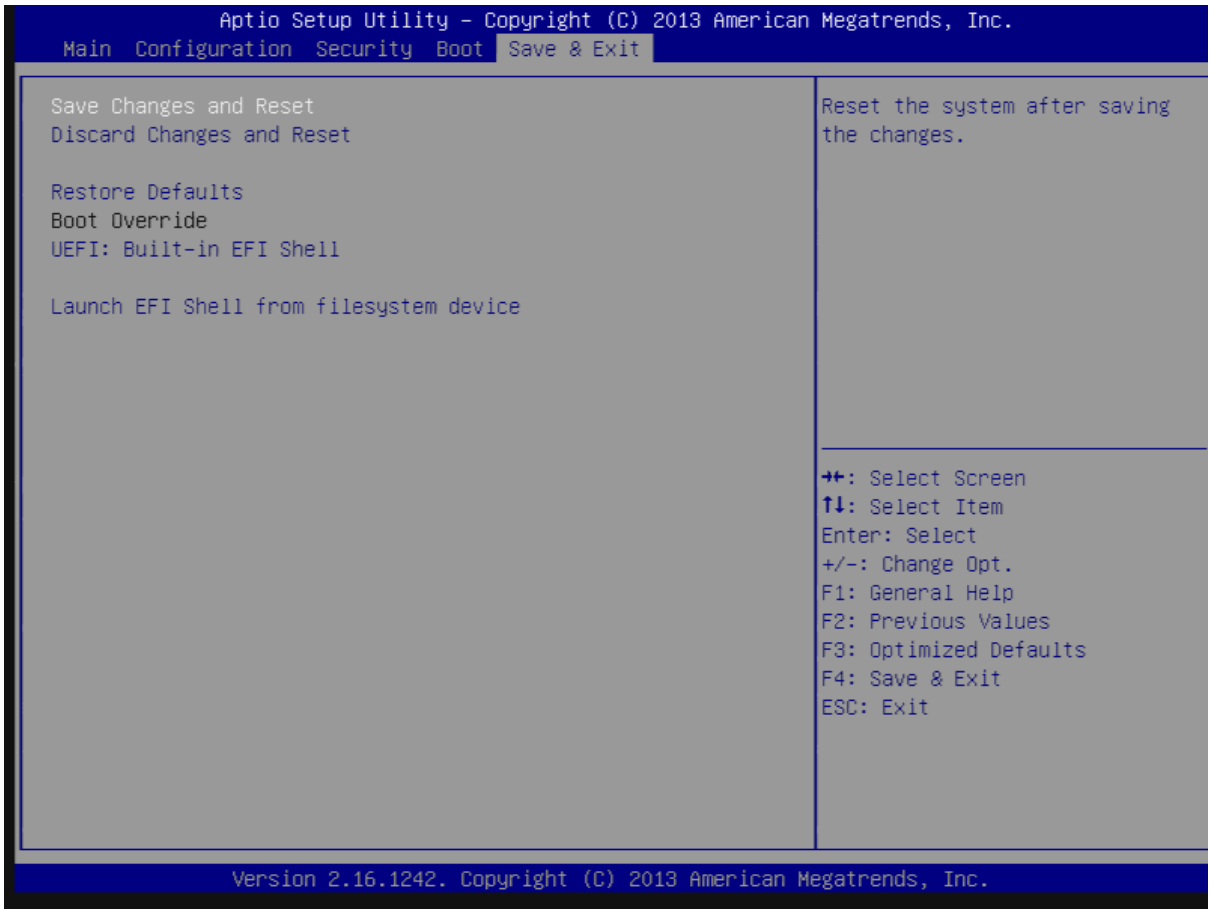
OS Selection
Choices: Windows 8.X, windows 7.

Fast Boot
Enable or disable boot with initialization of a minimal set of devices required to launch active for BBS boot options.
Choices: Disable, Enable.

Boot option priorities

Boot Option #1
Sets the system boot order.
Choices: UEFI: Built-in EFI Shell, Disable.

Save & Exit



Save Changes and Reset
Reset the system after saving the changes.

Disable Changes and Reset
Reset system setup without saving any changes.

Restore Defaults
Restore/Load Default values for all the setup options.

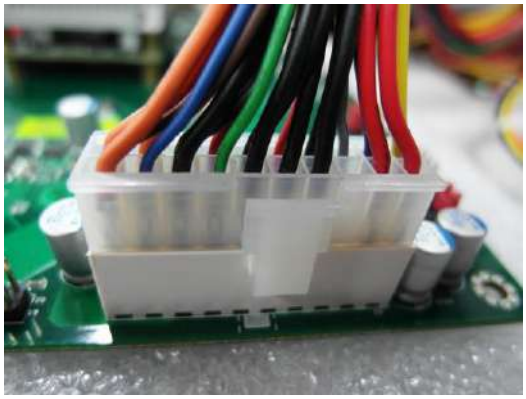
Chapter 5
Troubleshooting

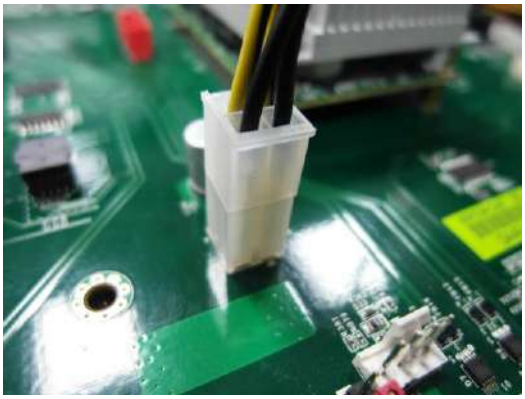
This chapter provides a few useful tips to quickly get PCOM-BA00VG running. As basic hardware installation has been addressed in Chapter 2, this chapter will primarily focus on system integration issues, in terms of BIOS setting, and OS diagnostics.

5.1 Hardware Quick Installation

ATX Power Setting

Unlike other Single board computer, PCOM-BA00VG supports ATX only. Therefore, there is no other setting that really needs to be set up. However, there are only two connectors that must be connected—J31 (20 pins ATX Power Connector) & J19 (4 pins ATX power connector) on the PCOM-CA00 carrier board.

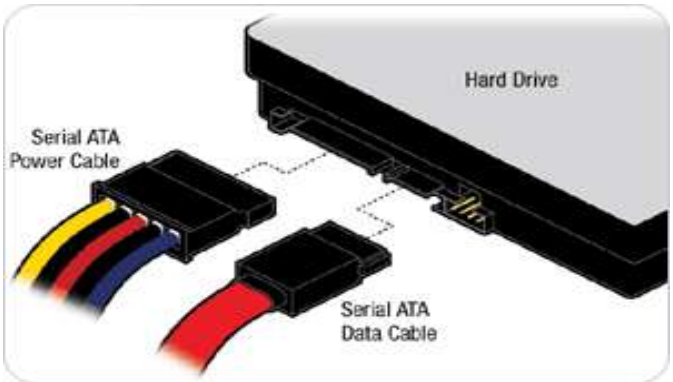




J31 & J19

Serial ATA

Unlike IDE bus, each Serial ATA channel can only connect to one SATA hard disk at a time; The installation of Serial ATA is simpler and easier than IDE, because SATA hard disk doesn't require setting up Master and Slave, which can reduce mistake of hardware installation.



The PCOM-BA00VG supports two SATA interface (SATAII, 3.0Gb/s) of which one is used for On-Board SSD, the other one to the PCOM-CA00 carrier board with AHCI or IDE mode. There is one SATA port J30 on PCOM-CA00 carrier board.

5.2 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the devices cables required before turning on ATX power. USB Keyboard and mouse, SATA hard disk, VGA connector, power cables of the devices, ATX accessories are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any devices.

To make sure that you have a successful start with PCOM-BA00VG, it is recommended, when proceeding the boot-up sequence, press and hold "F2" key and enter the BIOS setup menu to tune up a stable BIOS configuration so that the system works well.

Loading the default optimal setting

When prompted with the main setup menu, select **Exit** items and choose "**Load Setup Defaults**", then press "**Enter**" and select "**Yes**" to load in default optimal BIOS setup. This will restore the BIOS setting to the initial factory configuration. It is recommended to do this to be sure that the system is running with the BIOS settings that Portwell highly endorsed. Also, users can load the default BIOS settings at any time when system appears to be unstable in boot up sequence.

5.3 FAQ

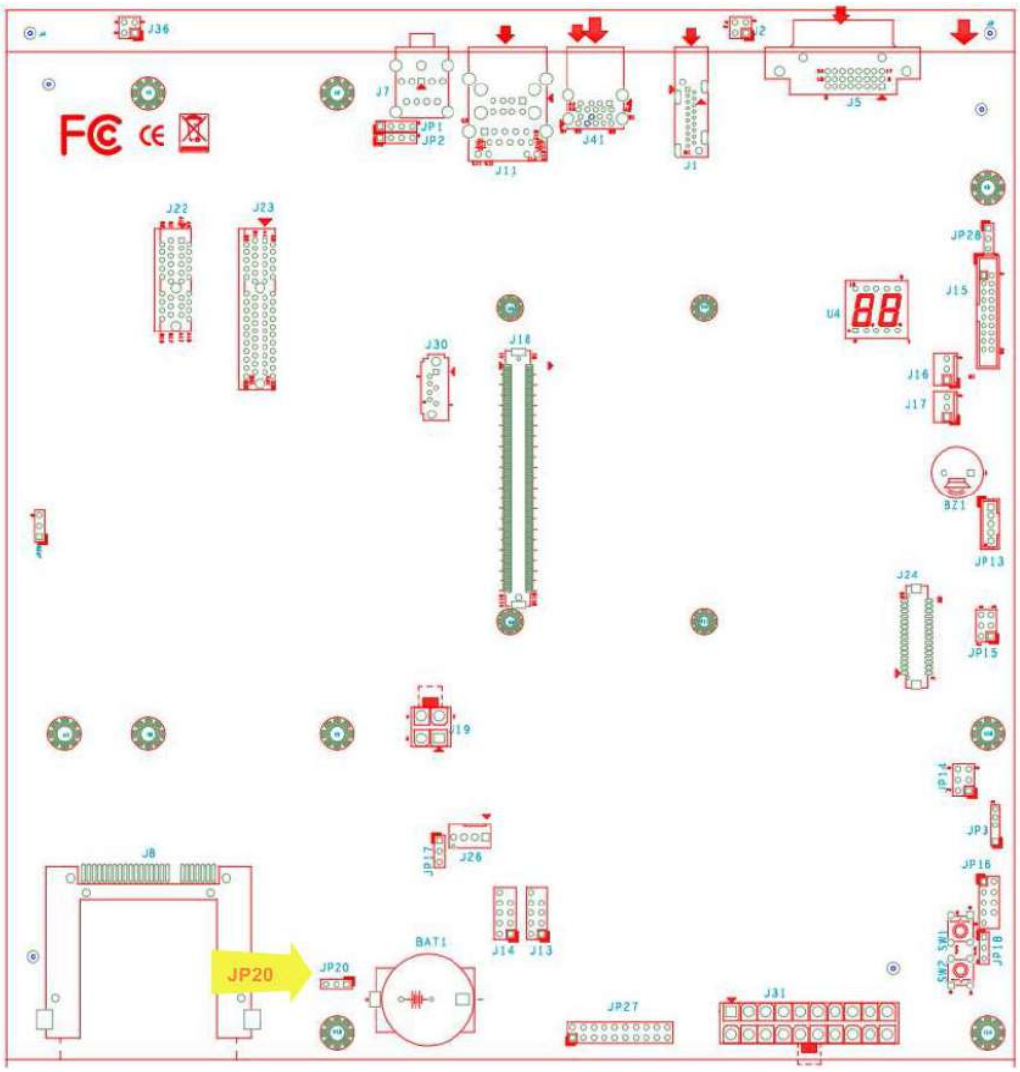
Information & Support

Question: I forget my password of system BIOS, what am I supposed to do?

Answer: Please switch off the power supply and find the JP20 of the PCOM-CA00 carrier board, and set the jumper from 1-2 short to 2-3 short and wait 5 seconds to restore the BIOS default setting. Then make sure setting it back to 1-2 short before switching on the power supply.

JP20：CMOS Setting

	Jumper Setting Describe
*1-2	Default
2-3	Clean CMOS



Question: How to update the BIOS file of the PCOM-BA00VG?

Answer: 1. Please visit web site of the **Portwell download center** as below hyperlink
http://www.portwell.com.tw/support/download_center.php
But you must register an account first. **(The E-Mail box should be an existing Company email address that you check regularly.)**
http://www.portwell.com.tw/member/newmember.php

2. Input your User name and password to log in the download center.

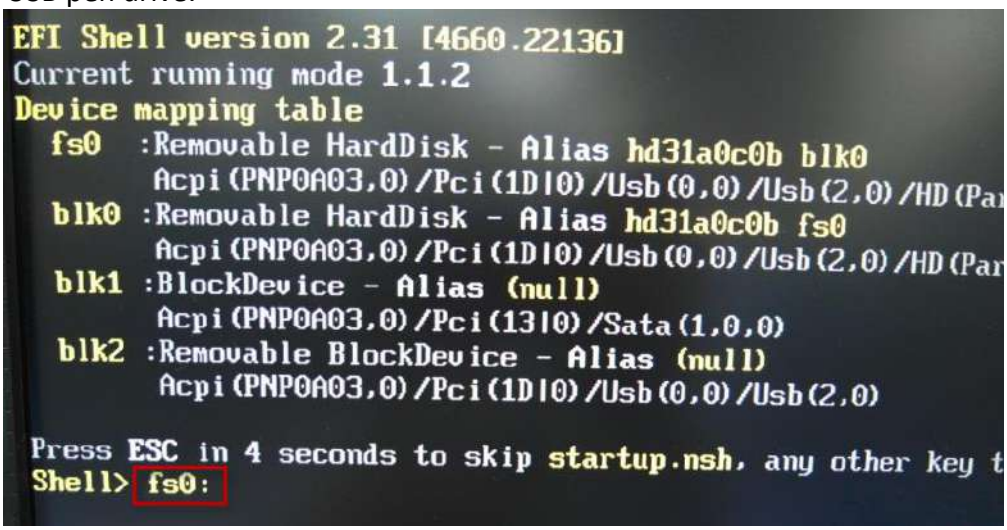
3. Select the **"Search download"** to input the keyword **"PCOM-BA00VG"**.

4. Find the **"BIOS "**page to download the ROM file and flash utility.

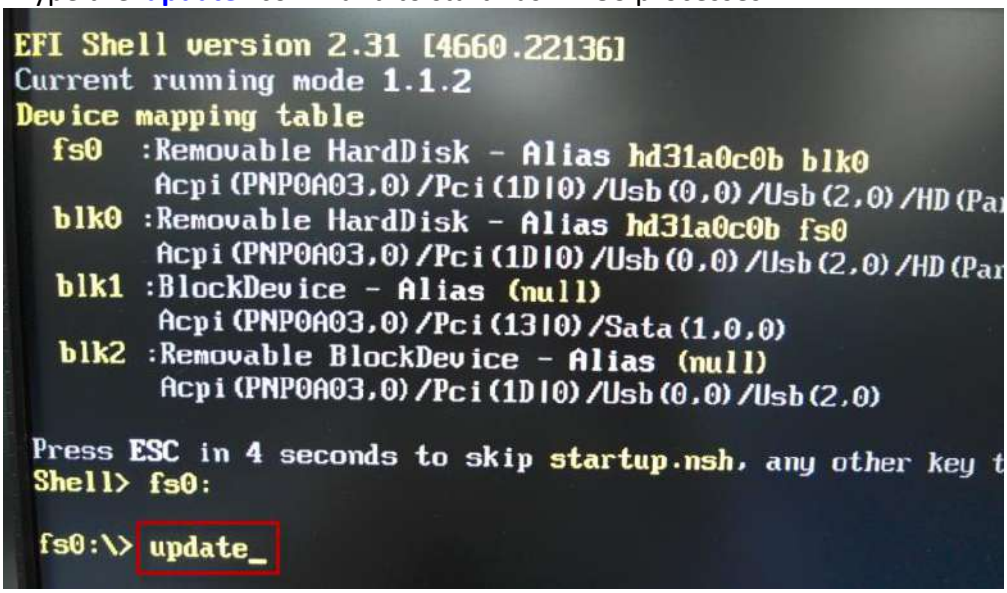
5. Execute the zip file to root of the bootable USB pen drive. You can get the**"fpt64.efi"**,**"temp.bin"**,**"Update.nsh",fparts.txt** four files.

6. Insert your USB pen drive in USB port of the PCOM-CA00 carrier board and power-on.

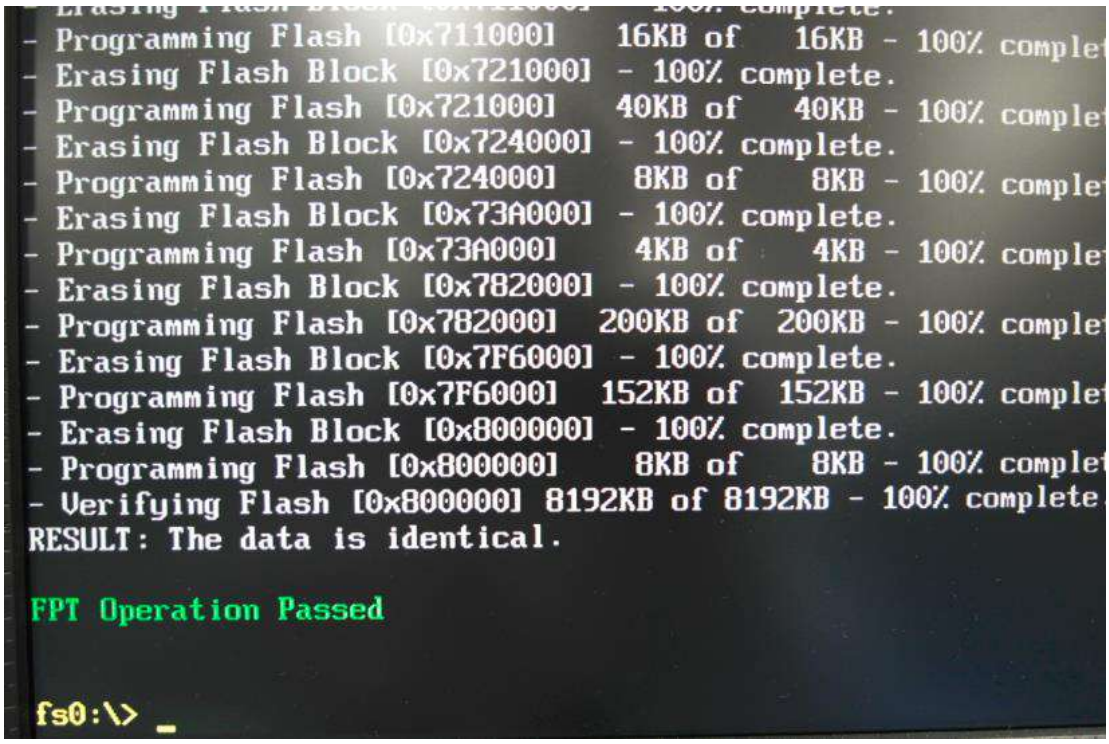
7. Boot to EFI-Shell mode then input the "**fs0:**" command to switch to the root of the USB pen drive.



8. Type the"**update**" command to start flash BIOS processes.



9. After the BIOS update finished, it will show screen like below photo.



10. Please press the **"F2"** key to BIOS setup menu to select **"Load Setup Defaults"** and then select **"Exit Saving Changes"** option to finish all BIOS flash processes.

Question: What are the attention options when insert PCOM-BA00VG on PCOM-CA00 carrier board?

Answer: 1. The PCOM-CA00 carrier board doesn't support the DP display function. It must use a Type 6 to Type 10 adapter card on **PCOM-C605** carrier board which can support the DP display function.

2. It you want to use the **eDP** display function, it needs to use a **PA-M1V display adapter (optional)** and need to modify a customized version BIOS to enable the DP option of the BIOS. If you need to use this adapter, please ask your PCOM-BA00VG provider or distributor.

Note:

Please visit our Download Center to get the Catalog, User manual, BIOS, and driver files.

http://www.portwell.com.tw/support/download_center.php

If you have other additional technical information or request which is not covered in this manual, please fill in the technical request form as below hyperlink.

http://www.portwell.com.tw/support/problem_report.php

We will do our best to provide a suggestion or solution for you.

Thank you!