



ROC236A

19" 1U Rack-mount Intel® Ivy Bridge Fanless Rugged System with Core i7 processors, 9V to 36V DC-in, Extended Temperature. -40 to 70°C



User's Manual

Revision Date: Nov.11.2019

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

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- All product specifications are subject to change without prior notice

ROC236A User's Manual

Revision Date: Nov.11.2019

Specifications

SYSTEM

High Performance	Intel® Ivy Bridge 22nm BGA Type Core™ i7/i5/i3
Processor	Core™ i7-3517UE (2C x 1.7 GHz), 4M L2 cache (17W)
	Core™ i5-3610ME (2C x 2.7 GHz), 3M L2 cache (35W)
	Core™ i3-3217UE (2C x 1.66 GHz), 3M L2 cache (17W)
Memory type	1 x 204-pin SO-DIMM DDR3 1333/1600 MHz up to 8GB
Chipset	Intel® HM76 (QM77 by request)
Expansion Slot	1 x Mini PCIe
Storage Device	1 x 2.5" SATA HDD/SSD

REAR I/O

DVI-D	1 (for DVI-D & VGA)
VGA	1
Ethernet	2 x RJ45
COM	1 x RS232/422/485
USB	2 x USB 3.0, 4 x USB 2.0

FRONT I/O

Power Button	1
Power LED	1
HDD LED	1
USB	2 x USB 2.0

MECHANICAL & ENVIRONMENTAL

Power Requirement	9V to 36V DC-in
Dimension	440 x 44.6 x 287.2 mm
Weight	5.65Kg(12.45lbs)
Operating Temp	-20 to 70°C (ambient with air flow)
Storage Temp.	-20 to 80°C
Relative Humidity	0% to 95%, non-condensing
Certification	CE compliant

ROC236A User's Manual

Revision Date: Nov.11.2019

Revision History

Revision	Date (yyyy/mm/dd)	Changes
V1.0	2014/11/18	Initial release
V1.1	2019/11/11	Modify Front I/O

Packing list

☐ 19" 1U Rack-mount Intel® HM76 Fanless Rugged System

☐ Accessories:

Item	P/N	Description	Q'ty
1	OP0600000002100L	Driver CD	1
2	OF0132500600000L	Screw Flat Plating Ni White M4 L:6mm	10
3	ON0600000000010L	BRACKET EAR-S 90x43.4x21.3mm	2
4	OF0100500600100L	Screw cross circle Plating Ni white w/two washer M3x6 M3 L:6mm	4



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

Table of Contents

Safety Information	1
Specifications	2
Revision History.....	3
Packing list.....	3
Table of Contents	4
Chapter 1: Product Introduction	6
1.1 Key Features.....	6
1.2 Front Panel Components.....	7
Chapter 2: Jumpers and Connectors	9
2.1 Front Panel Connector Pin Definitions	9
2.2 Rear Panel Connector Pin Definitions.....	10
2.3 Internal Connectors.....	12
Chapter 3: Installation	13
3.1 Remove the top case.....	13
3.2 Replace the top case	13
3.4 Memory module installation	16
3.5 Rack mount bracket installation	17
Chapter 4: AMI BIOS UTILITY.....	18
4.1 Starting.....	18
4.2 Navigation Keys.....	18
4.3 Main	19
4.4.1 ACPI Settings.....	21
4.4.2 Trusted Computing.....	21

4.4.3 CPU Configuration	21
4.4.4 SATA Configuration.....	22
4.4.5 F81866 Super IO Configuration	22
4.4.7 Intel 82579LM Gigabit Network Connection/ Intel 82574L Gigabit Network Connection	26
4.5 Chipset	27
4.5.1 System Agent (SA) Configuration.....	27
4.6 Boot.....	30
4.6.1 CSM Parametes	30
4.7 Security.....	31
4.8 Save & Exit.....	32
4.4.11 F81866 Super IO Configuration	33
4.4.12 F81866 H/W Monitor	34
4.4.13 Serial Port Console Redirection	35
4.4.14 CPU PPM Configuration.....	36
4.5 Chipset.....	37
4.5.1 PCH-IO Configuration	37
4.5.2 System Agent (SA) Configuration.....	41
4.6 Boot Setting.....	44
4.7 Security.....	45

ROC236A User's Manual

Revision Date: Nov.11.2019

Chapter 1: Product Introduction

1.1 Key Features

System	
CPU Type	Intel® Ivy Bridge 22nm BGA Type Core™ i7/i5/i3 Core™ i7-3517UE (2C x 1.7 GHz), 4M L2 cache (17W) Core™ i5-3610ME (2C x 2.7 GHz), 3M L2 cache (35W) Core™ i3-3217UE (2C x 1.66 GHz), 3M L2 cache (17W)
Chipset	Intel® HM76
Memory Type	1 x 204-pin SO-DIMM DDR3 1333/1600 MHz up to 8GB
Expansion Slot	1 x Mini PCIe
Storage Device	1 x 2.5" SATA HDD/SSD
Front I/O	
Power Button	Yes
Power LED	Yes
HDD LED	Yes
USB	2 x USB 2.0
Reset Button	Yes
Rear I/O	
DVI-I	1 (for DVI-D & VGA)
VGA	1
Ethernet	2 x RJ45
COM	1x RS232
USB	2 x USB 3.0, 4 x USB 2.0
DC-in	1 x DC Power Jack 2.5mm
Mechanical & Environment	
Power Requirements	9V to 36V DC-in
Dimension (W x H x D)	440 x 44.6 x 287.2 mm (17.32" x 1.73" x 11.30")
Operating Temp.	-20 to 70°C (ambient with air flow)
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certification	CE compliant

Specifications are subject to change without notice

ROC236A User's Manual

Revision Date: Nov.11.2019

1.2 Front Panel Components



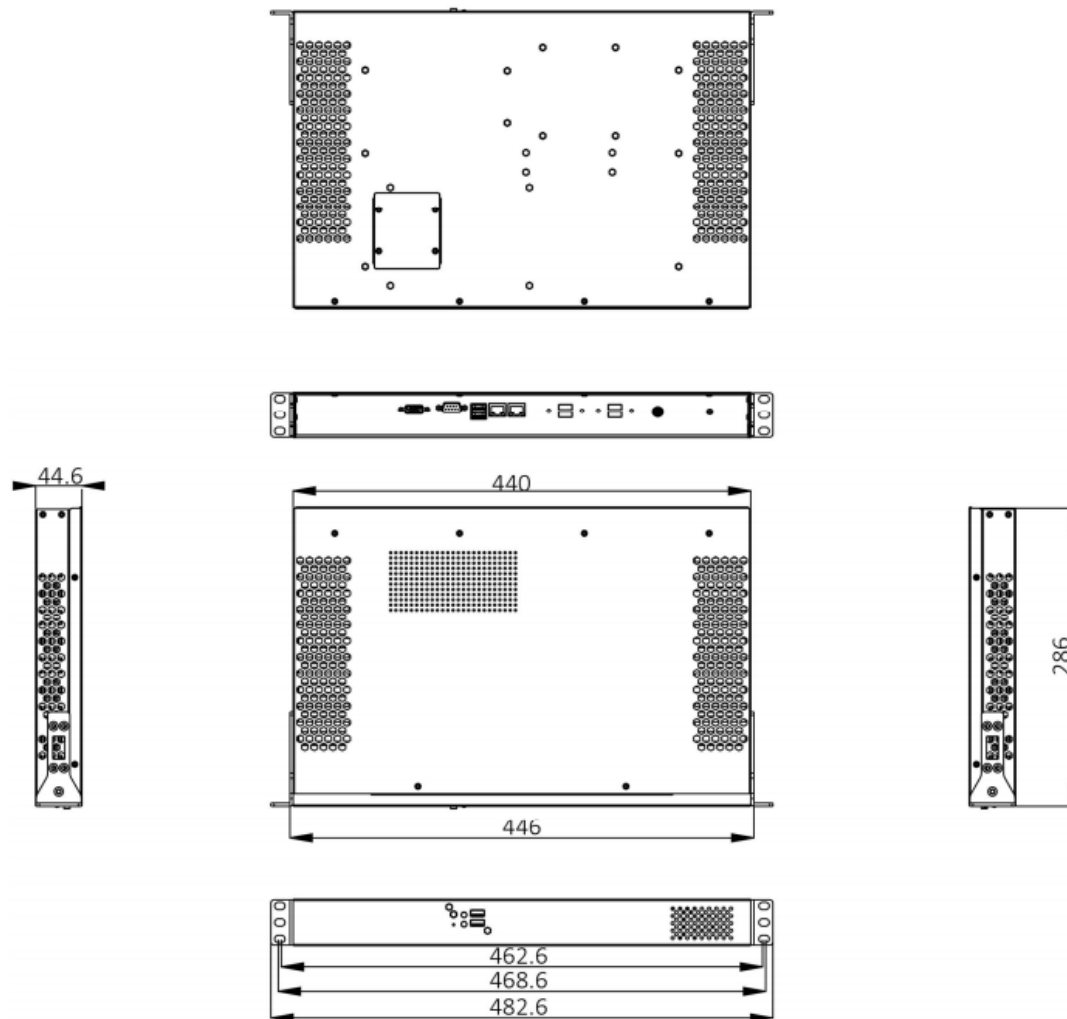
1	HDD LED
2	Power LED
3	Power Button
4	2 x USB 2.0

1.3 Rear Panel Components



1	GND
2	Power Input 9V to 24V DC-in
3	2 x USB 2.0
4	2 x USB 2.0
5	LAN port, 2 x RJ45
6	2 x USB 3.0
7	COM port, RS232
8	VGA port

1.4 Mechanical Dimensions



Chapter 2: Jumpers and Connectors

2.1 Front Panel Connector Pin Definitions

2 x USB 2.0

Pin	Definition	Pin	Definition
1	+5V	5	+5V
2	USBD-	6	USBD-
3	USBD+	7	USBD+
4	GND	8	GND



Status Indicators

Status	LED Color	
PWR	RED	
HDD	GREEN	

ROC236A User's Manual

Revision Date: Nov.11.2019

2.2 Rear 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

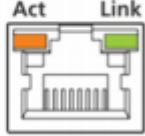


LAN port, 2 x RJ45

Pin	Definition
R1	LAN_MDI0P
R2	LAN_MDI0N
R3	LAN_MDI1P
R4	LAN_MDI1N
R7	LAN_MDI2P
R8	LAN_MDI2N
R9	LAN_MDI3P
R10	LAN_MDI3N



SPEED LED	ACTIVE LED
Green: 1000Mbps	Orange (blinking): activity
Orange: 100Mbps	No Light: not link
No Light: 10Mbps	Orange (no blinking): link

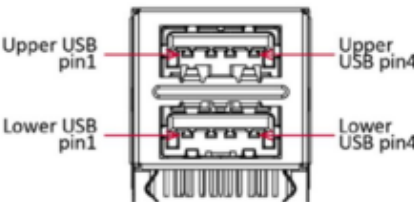


ROC236A User's Manual

Revision Date: Nov.11.2019

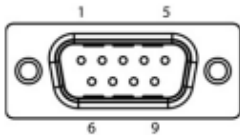
2 x USB 3.0

Upper USB		Lower USB	
Pin	Definition	Pin	Definition
1	+5VDUAL	1	+5VDUAL
2	D-	2	D-
3	D+	3	D+
4	GND	4	GND
5	StdA_SSTX-	5	StdA_SSTX-
6	StdA_SSTX+	6	StdA_SSTX+
7	GND_DRIAN	7	GND_DRIAN
8	StdA_SSRX-	8	StdA_SSRX-
9	StdA_SSRX-	9	StdA_SSRX-



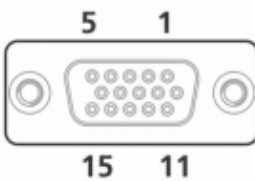
COM port, RS232

Pin	Definition
1	DCD#
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#



VGA port

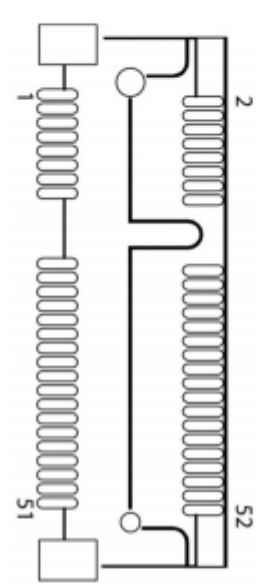
Pin	Definition	Pin	Definition
1	RED	9	+5V
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	DDC DATA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDC LOCK
8	GND		



2.3 Internal Connectors

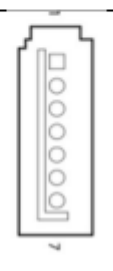
Mini PCIe connector

Pin	Definition	Pin	Definition
1	WAKE#	2	3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	PCIE_MINI1_100M_N	12	UIM_CLK
13	PCIE_MINI1_100M_P	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	CARD_EN
21	GND	22	MINI_RST#
23	RXN	24	+3.3VAUX
25	RXP	26	GND
27	GND	28	+1.5V
29	GND	30	SCLK0
31	TXN	32	SDATA0
33	TXP	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	3.3V	40	GND
41	3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	+3.3V



SATA connector

Pin	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



Chapter 3: Installation

This chapter provides more detailed information and let you know how to install components into the ROC236A 1U Rack-mount Fanless Rugged System

3.1 Remove the top case

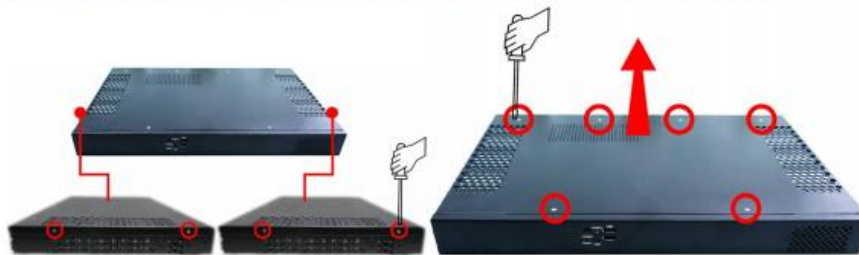


Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.



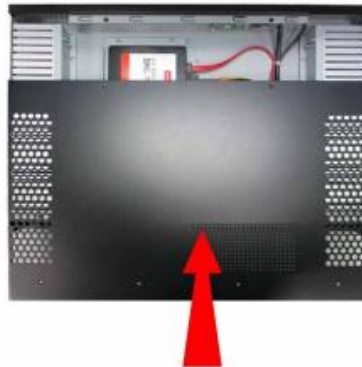
Please verify all screws (or bolts) have been properly fastened to avoid damages which may be caused by loosened parts.

1. Remove the mounting screws and put them in a safe place for later use. Take the top case off by slide it.

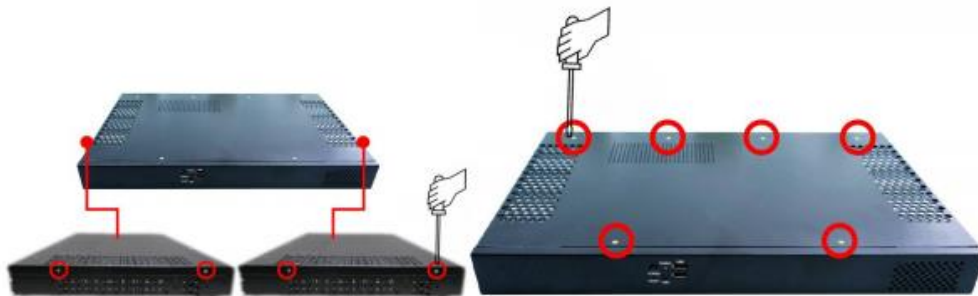


3.2 Replace the top case

1. Slide the top case and align the mounting on the top side and lateral side of the bottom case.



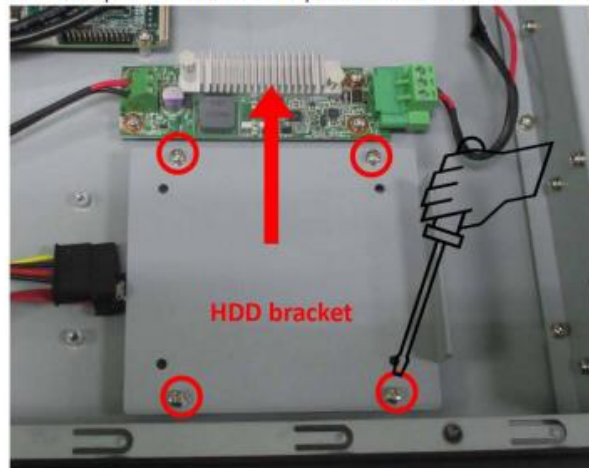
2. Insert one screw in each mounting holes and secure the top case. Use original screws.



3.3 2.5" SATA HDD/SSD installation

ROC236A supports 1 x 2.5" SATA HDD/SSD

1. Remove the mounting screws and put them in a safe place for later use. Remove the HDD bracket.



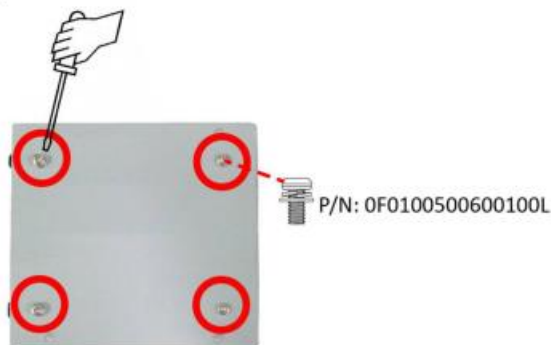
ROC236A User's Manual

Revision Date: Nov.11.2019

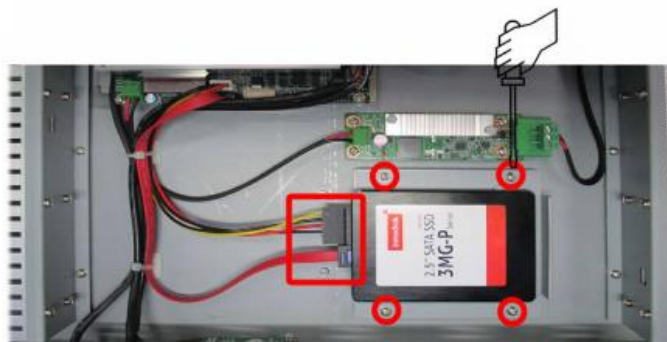
2. Align the mounting holes of SSD/HDD and HDD bracket. With the SSD/HDD right side up, place the SSD/HDD on the bracket. Make sure the connectors of SSD/HDD are toward front side



3. Turn the SSD/HDD and bracket over and insert one screw in each mounting hole on the bottom of the bracket. Using accessory item P/N: 0F0100500600100L



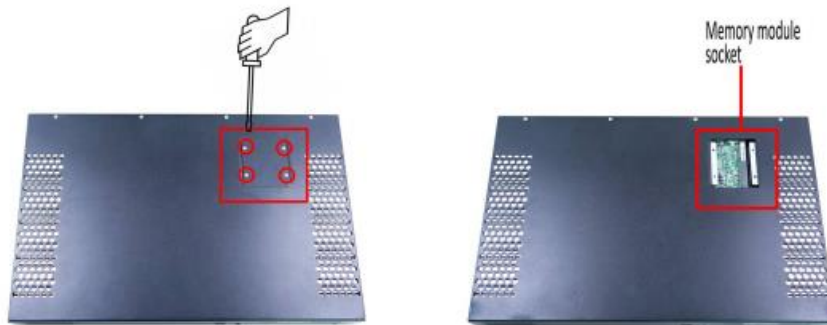
4. Replace the bracket to its original place and insert one screw in each mounting hole (using the original screws). Connect SATA-to-SATA interface cable and SATA power cable. Finally replace the top case to its original place and insert one screw in each mounting hole (using the original screws)



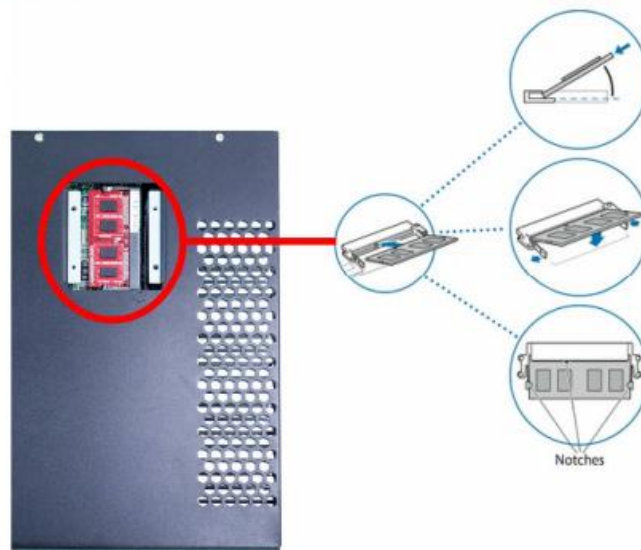
3.4 Memory module installation

ROC236A supports 1 x 204-pin SO-DIMM DDR3 1333/1600 MHz up to 8GB

1. On the bottom side, remove the mounting screws and then put them in a safe place for later use. Remove the service window then find the memory module socket.



2. Insert the notched end of the memory module into the memory slot. Press the memory module in firmly, and pivot it downward until it snaps into place. Ensure that the memory module is firmly installed in the slot and does not move easily.



3. Finally replace the service window and secure it by insert one screw to the mounting hole. Use original screws

3.5 Rack mount bracket installation

1. Put each ear bracket next to the right side and left side of the bottom case, align the mounting holes.
2. Insert one screw in each mounting hole. Using accessory item P/N: 0F013250600000L



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 key immediately.
- After the 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.

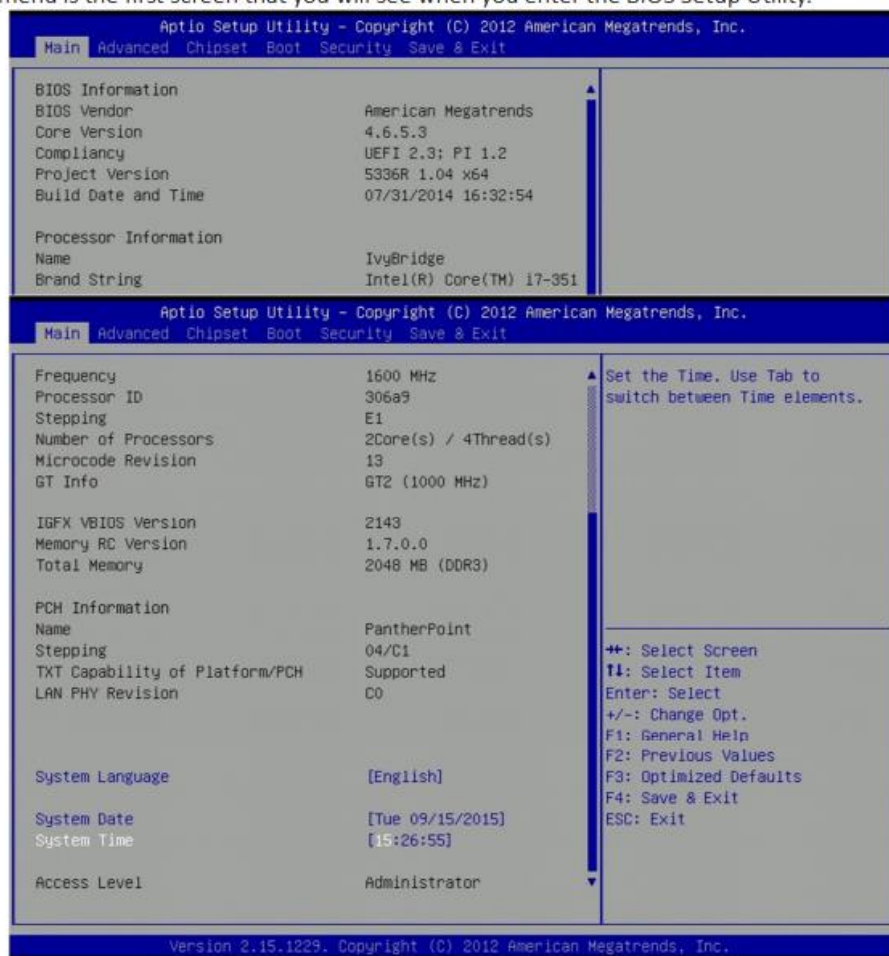
Left/Right	The Left and Right <Arrow> keys moves the cursor to select a menu.
Up/Down	The Up and Down <Arrow> keys moves the cursor to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys changes the field value of a particular setup setting.
Tab	The <Tab> key selects the 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.

ROC236A User's Manual

Revision Date: Nov.11.2019

4.3 Main

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.

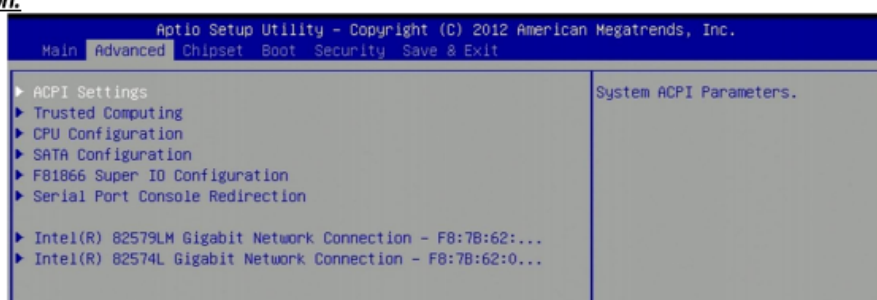
Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

Access Level

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

4.4 Advanced

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.**



ACPI Settings System ACPI parameters

Trusted Computing Trusted Computing settings

CPU Configuration CPU Configuration parameters

SATA Configuration SATA device options settings

F81866 Super IO Configuration System Super IO chip parameters

Serial Port Console Redirection serial port console redirection

Intel 82579LM Gigabit Network Connection Configure Gigabit Ethernet device parameters

Intel 82574L Gigabit Network Connection Configure Gigabit Ethernet device parameters

4.4.1 ACPI Settings

System ACPI parameters



ACPI Sleep State Select ACPI sleep state the system will enter when the SUSPEN button is pressed.

4.4.2 Trusted Computing

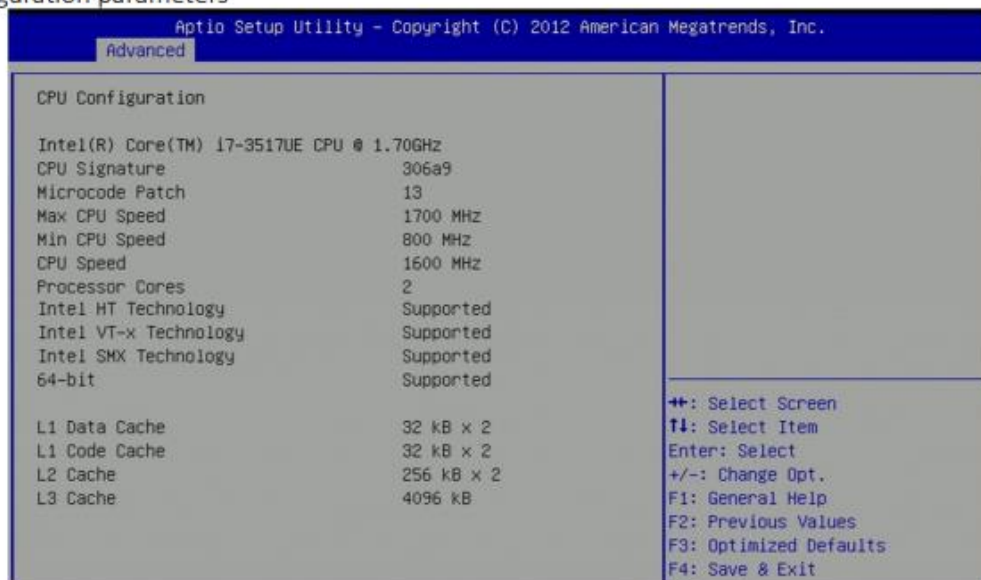
Trusted Computing settings



Security Device Support Enables or disables BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available.

4.4.3 CPU Configuration

CPU Configuration parameters



4.4.4 SATA Configuration

SATA device options settings

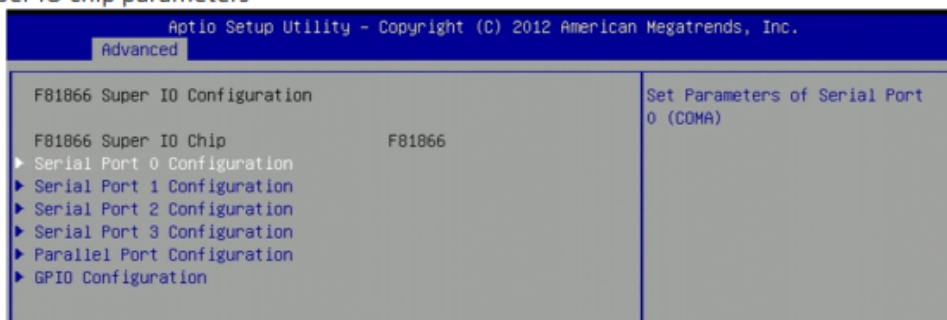


SATA Mode Selection

Determination how SATA controllers operate

4.4.5 F81866 Super IO Configuration

System Super IO chip parameters



Serial Port 0/1/2/3 Configuration Set parameters of serial port 0/1/2/3 (COMA/B/C/D)

Parallel Port Configuration Set parameters of parallel port (LPT/LPTE)

GPIO Configuration GPIO configuration settings

4.4.5.1 Serial Port 0/1/2/3 Configuration

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.		
Advanced		
Serial Port 0 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=3F8h; IRQ=4;	
Change Settings	[Auto]	

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.		
Advanced		
Serial Port 1 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2F8h; IRQ=3;	
Change Settings	[Auto]	
Mode	[RS-232]	

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.		
Advanced		
Serial Port 2 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=3E8h; IRQ=7;	
Change Settings	[Auto]	

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.		
Advanced		
Serial Port 3 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2E8h; IRQ=7;	
Change Settings	[Auto]	

Serial Port Enable or disable serial port (COM)

Change settings Select an optimal setting for Super IO device.

Mode RS232, RS422, RS485 selection

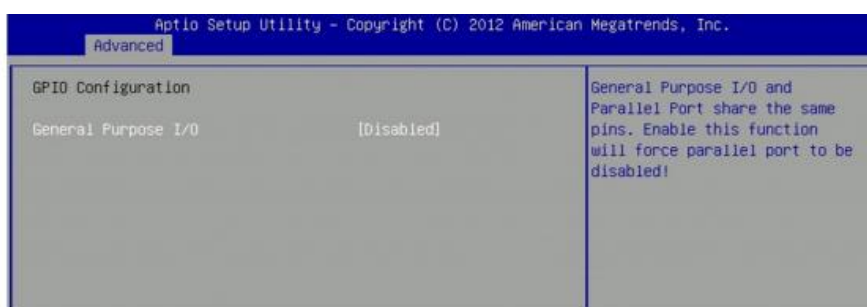
4.4.5.2 Parallel Port Configuration



Parallel Port Enable or disable parallel port (LPT/LPTE)

Device Mode Change the printer port mode

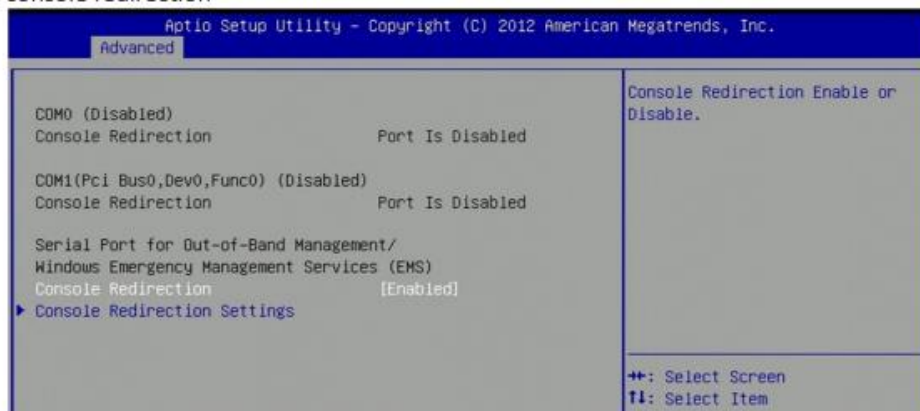
4.4.5.3 GPIO Configuration



General Purpose I/O General Purpose I/O and parallel port share the same pins. Enable this function will force parallel port to be disabled.

4.4.6 Serial Port Console Redirection

Serial port console redirection



Console redirection Console redirection enable or disable.

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

4.4.6.1 Console redirection settings



Out-of-Band Mgmt Port VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection settings page, for more help with terminal type/emulation.

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.

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.

4.4.7 Intel 82579LM Gigabit Network Connection/ Intel 82574L Gigabit Network Connection

Configure Gigabit Ethernet device parameters

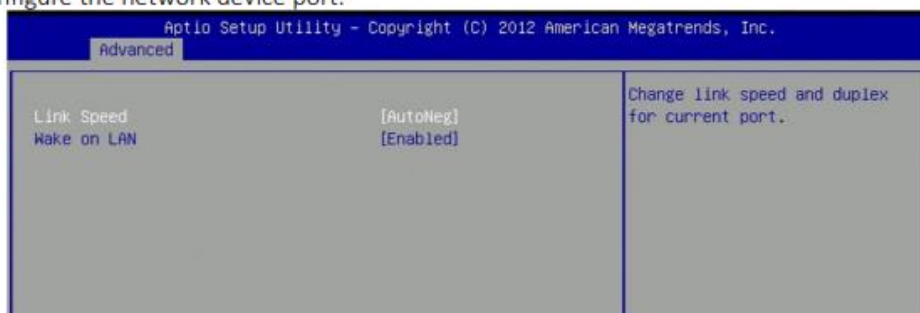


NIC Configuration Click to configure the network device port.

Blink LEDs (range 0-15 seconds) Blink LEDs for the specified duration (up to 15 seconds)

4.4.7.1 NIC Configuration

Click to configure the network device port.

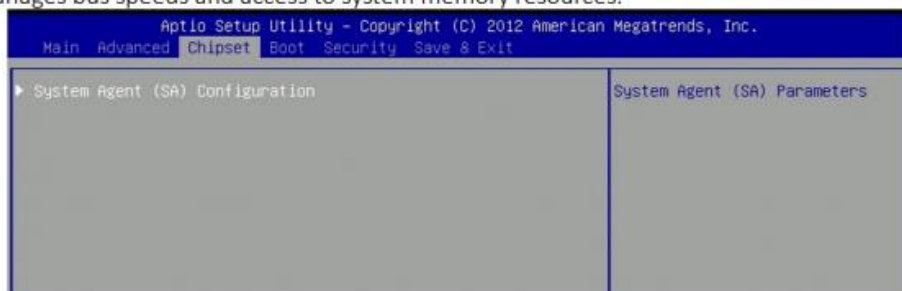


Link Speed Change link speed and duplex for current port.

Wake on LAN Enable this option to wake the system with a magic packet.

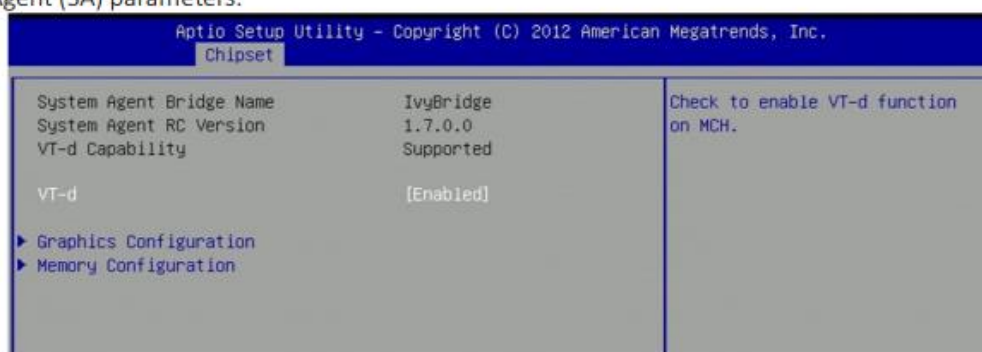
4.5 Chipset

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 System Agent (SA) Configuration

System Agent (SA) parameters.



VT-d Check to enable VT-d function on MCH.

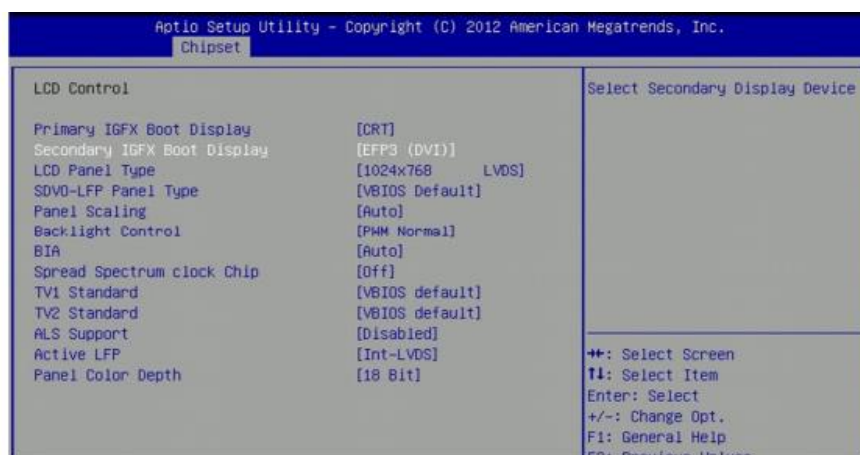
Graphics Configuration Config graphic settings

Memory Configuration Memory configuration parameters

4.5.1.1 Graphics Configuration



4.5.1.1.1 LCD Control



Primary IGFX Boot Display Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.

Secondary IGFX Boot Display Select secondary display device.

LCD Panel Type Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

SDVO-LFP Panel Type Select the SDVO panel used by Internal Graphics Device by selecting the appropriate setup item.

Panel Scaling Select the LCD panel scaling option used by the Internal Graphic Device.

Backlight Control Backlight control setting

BIA

>>Auto: GMCH Use VBT Default;

>>Level1 n: Enabled with the selected aggressiveness level1.

Spread Spectrum clock chip

>>Hardware: Spread is controlled by chip;

>>Software: Spread is controlled by BIOS

TV1 Standard Select the ability to configure a TV format.

TV2 Standard Select the ability to configure a TV Minor Format

ALS Support

Valid only for ACPI.

Legacy=ALS support through the IGD INT10 function.

ACPI=ALS support through an ACPI ALS driver

Active LFP

Select the Active LFP configuration.

NO LVDS: VBIOS does not enable LVDS.

Int-LVDS: VBIOS enables LVDS driver by integrated encoder.

SDVO LVDS: VBIOS enables LVDS driver by SDVO encoder.

eDP port-A: LFP driven by Int-DisplayPort encoder from Port-A.

Panel color Depth Select the LFP panel color depth.

4.5.1.2 Memory Configuration

Memory configuration parameters

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.		
Chipset		
Memory Information		
Memory RC Version	1.7.0.0	
Total Memory	2048 MB (DDR3)	
DIMM#0	2048 MB (DDR3)	
DIMM#1	Not Present	
DIMM#2	Not Present	
DIMM#3	Not Present	
CAS Latency (tCL)	9	
Minimum delay time		
CAS to RAS (tRCdmin)	9	
Row Precharge (tRPmin)	9	
Active to Precharge (tRASmin)	24	
XMP Profile 1	Not Supported	++: Select Screen
XMP Profile 2	Not Supported	↑↓: Select Item
		Enter: Select
		+/-: Change Opt.

4.6 Boot

This section is used to configure the boot features.



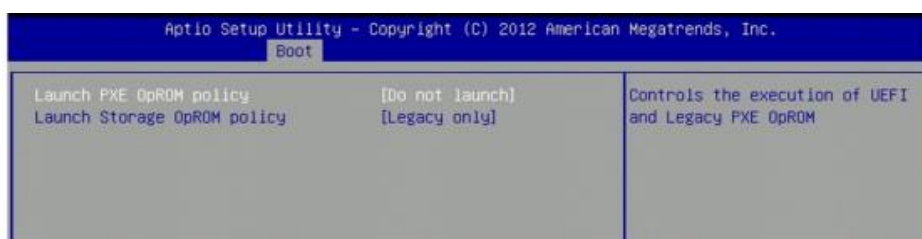
Setup Prompt Timeout Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

Bootup NumLock State Select the keyboard NumLock state.

Quiet Boot Enables or disables quiet boot option.

CSM Parametes OpROM execution, boot options filter, etc.

4.6.1 CSM Parametes

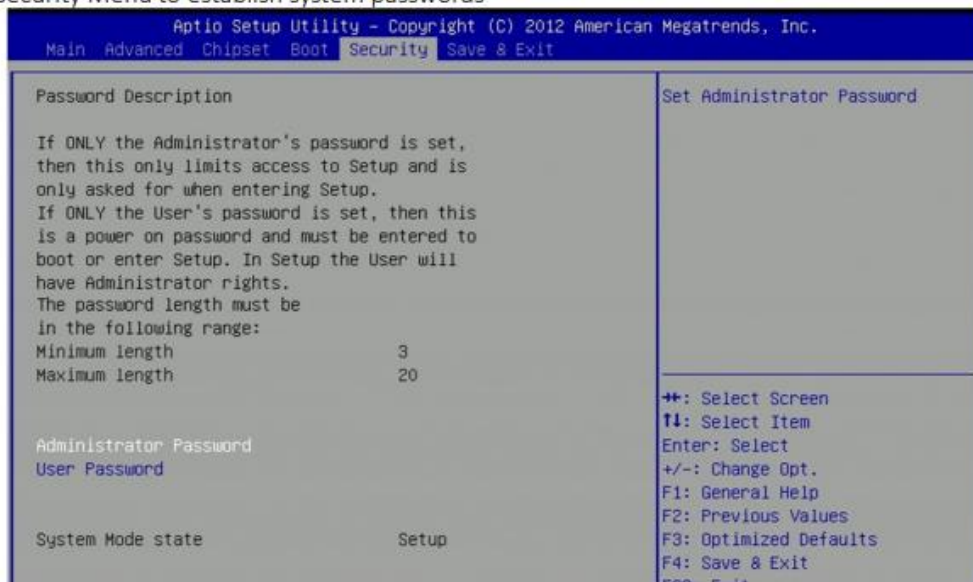


Launch PXE OpROM policy Controls the execution of UEFI and Legacy PXE OpROM.

Launch Storage OpROM policy Controls the execution of UEFI and Legacy Storage OpROM.

4.7 Security

Use the Security Menu to establish system passwords

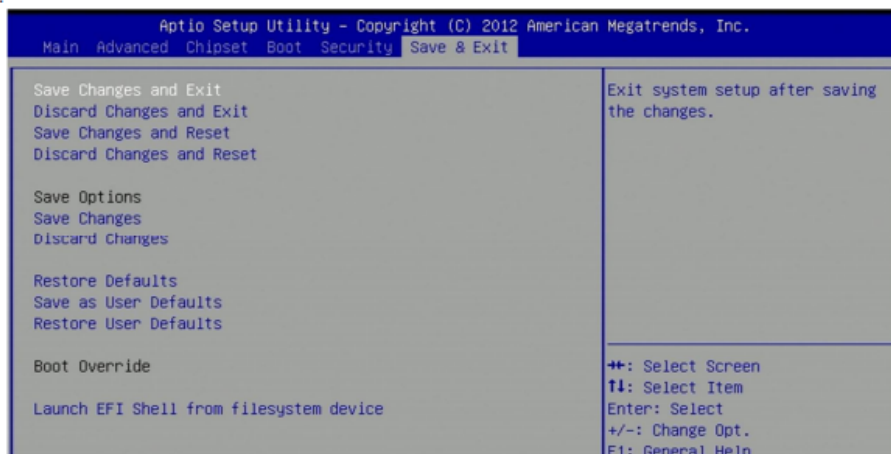


Administrator Password Set administrator password

User Password Set user password

4.8 Save & 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

Discard Changes and Exit Exit system setup without saving any changes

Save Changes and Reset Reset the system after saving the changes

Discard Changes and Reset Reset the system setup without saving any changes

Save Changes Save changes done so far to any of the setup options

Discard Changes Discard changes done so far to any of the setup options

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

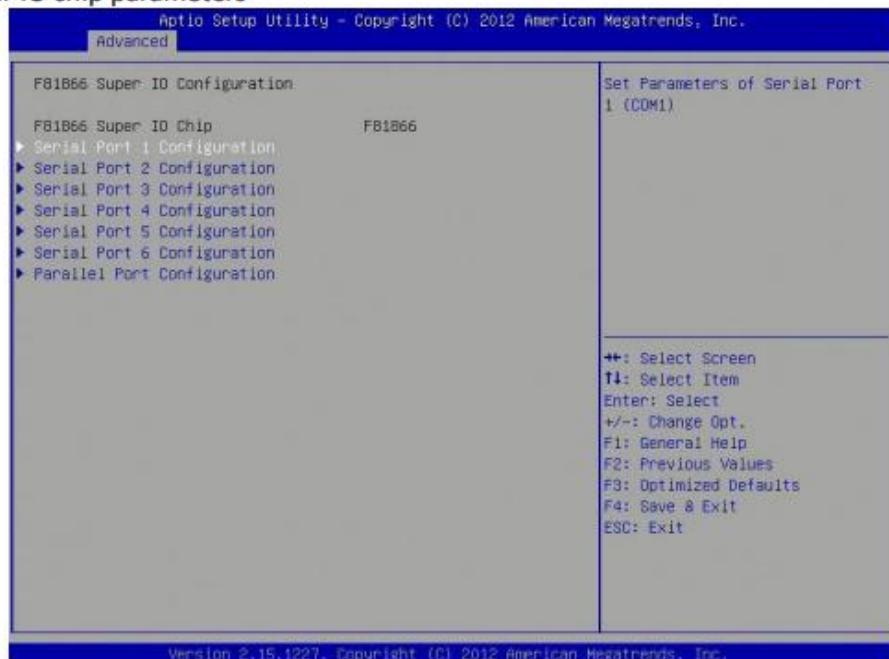
Save as User Defaults Save the changes done so far as user defaults.

Restore User Defaults Restore the user defaults to all the setup options.

Launch EFI Shell from filesystem device Attempts to Launch EFI Shell application (Shellx64.efi) from one

4.4.11 F81866 Super IO Configuration

System super IO chip parameters



Serial Port Configuration

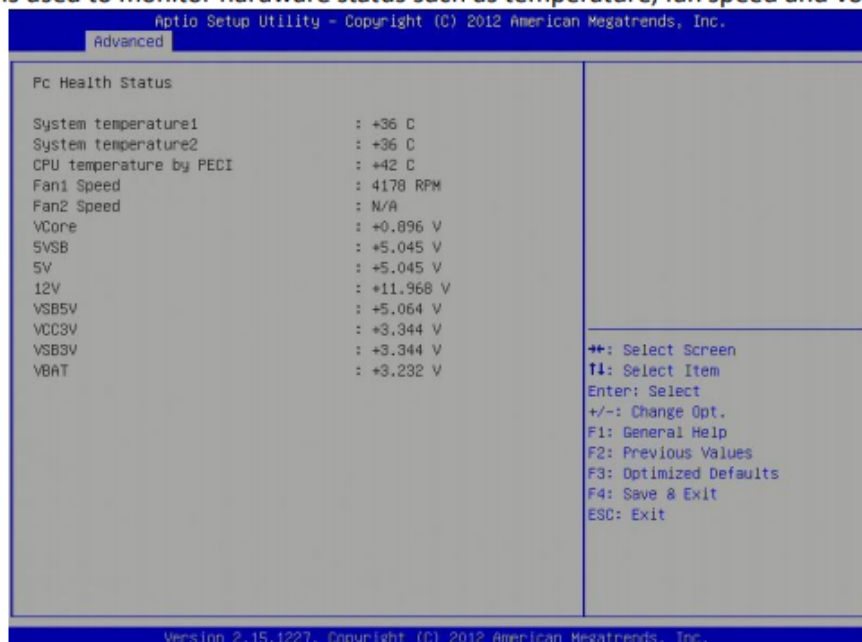
Set Parameters of Serial Ports. User can Enable/Disable the serial port and Select an optimal settings for the Super IO Device.

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

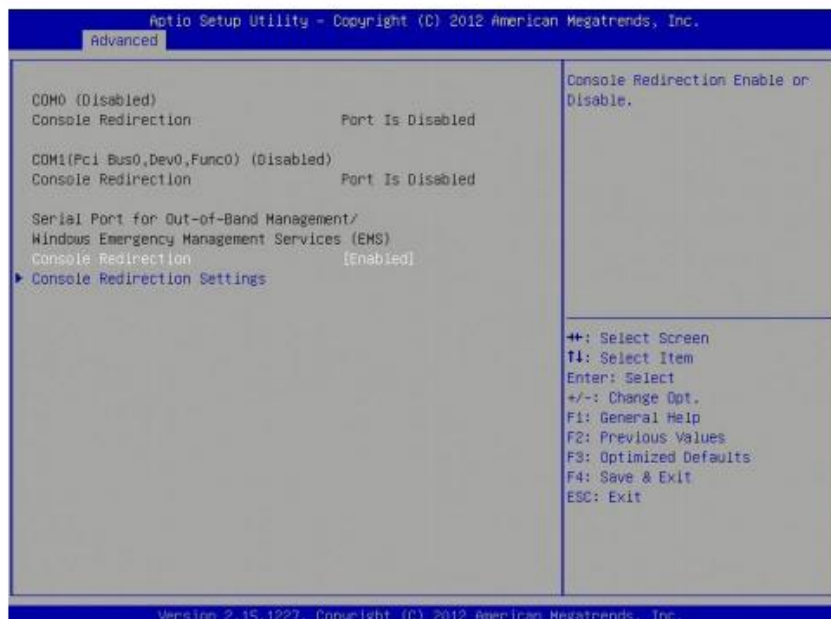
Detects and displays the current CPU temperature.

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.

ROC236A User's Manual

Revision Date: Nov.11.2019

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

ROC236A User's Manual

Revision Date: Nov.11.2019

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.

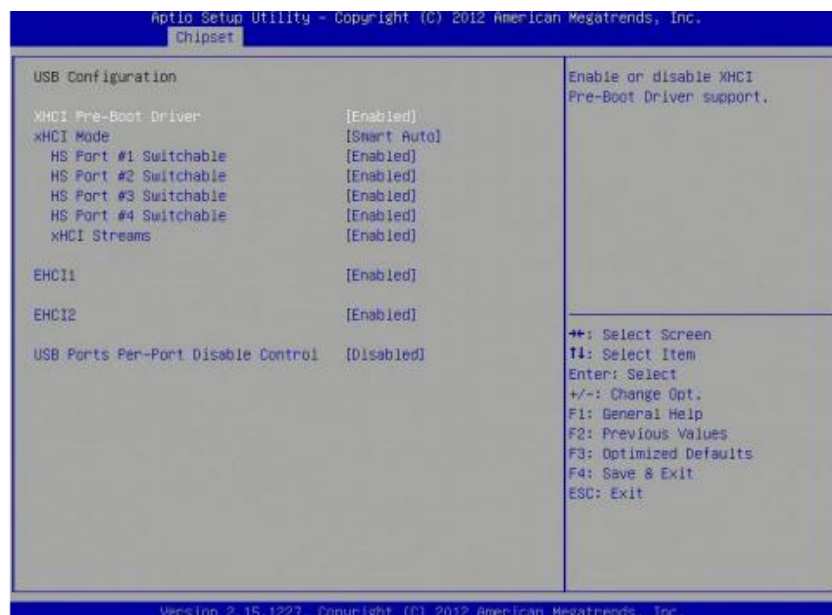
Watch Dog Function select

Watch Dog function enabled or disabled.

ROC236A User's Manual

Revision Date: Nov.11.2019

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 USB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.

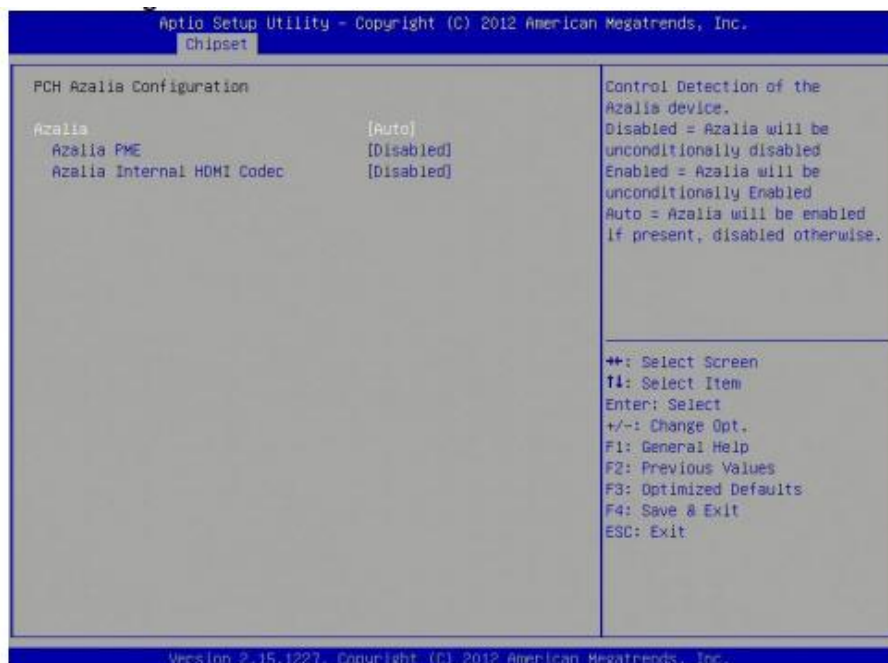
USB Ports Per-Port Disable Control

Control each of the USB ports (0~13) disabling.

ROC236A User's Manual

Revision Date: Nov.11.2019

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

ROC236A User's Manual

Revision Date: Nov.11.2019

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.

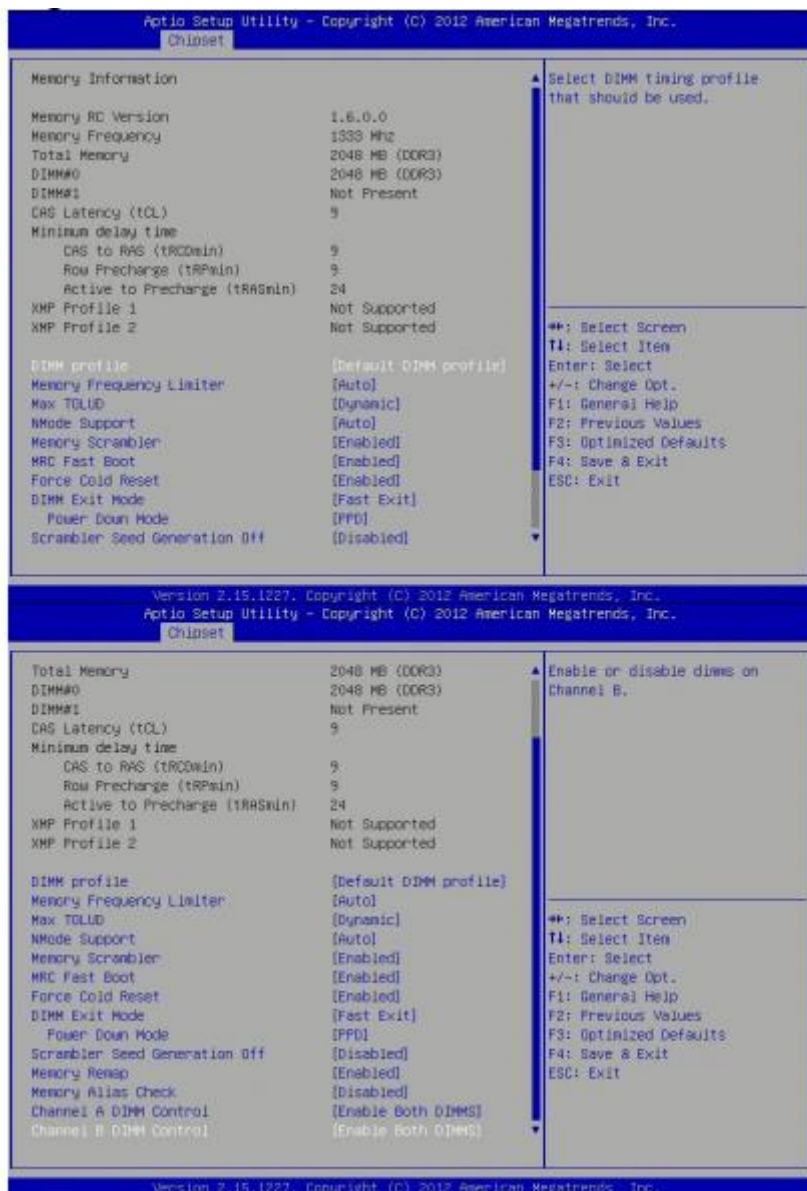
Graphics Performance Analyzers

Enable or disable Intel graphics performance analyzers counters.

ROC236A User's Manual

Revision Date: Nov.11.2019

4.5.2.2 Memory Configuration



ROC236A User's Manual

Revision Date: Nov.11.2019

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.

ROC236A User's Manual

Revision Date: Nov.11.2019

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

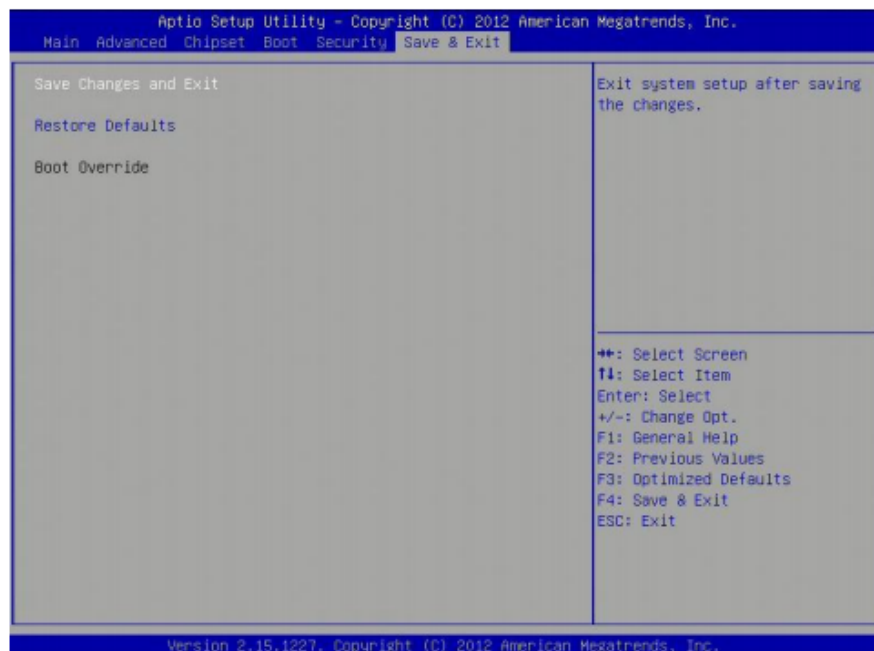
Secure boot mode selector. 'Standard' – fixed secure boot policy, 'custom' – changeable image execution policy and secure boot key databases.

4.8 Save and exit

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

ROC236A User's Manual

Revision Date: Nov.11.2019



Save Changes and Exit

Exit system setup after saving the changes.

Restore Defaults

Restore or Load Defaults values for all the setup options.