SENX-KA

AMD Embedded G-Series SOC Quad core / Dual core processor Nano ITX Motherboard

User's Manual

1st Ed – 21 April 2014

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at:

http://www.avalue.com.tw/

CONTENT

1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- Driver/Utility CD X 1
- COM Cable X 1
- Motherboard X 1
- HDD bracket X 1
- 2.5" HDD Mylar X 1
- Screws

1.3 Document Amendment History

Revision	Date	By	Comment
1st	April 2014	Avalue	Initial Release

1.4 Manual Objectives

This manual describes in details Avalue Technology SENX-KA Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up SENX-KA series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 Specifications

System	
CPU	• Onboard AMD Embedded G-Series SOC Quad core/Dual core Processor
BIOS	• AMI uEFI BIOS 32Mbit SPI Flash ROM
I/O Chip	• nuvoTon NCT5532D
System Memory	• 1 x 204-pin DDR3/DDR3L 1333/1600 SODIMMs, Up to 16 GB
Watchdog Timer	• H/W Reset, 1sec. – 65535sec./min. • 1sec. or 1min. step
H/W Status Monitor	• CPU & system temperature monitoring • Voltages monitoring
Buzzer	• Buzzer onboard
Expansion	• 1 x half size Mini PCI-e supported mSATA • 1 x half size Mini PCI-e supported WiFi
I/O	
Rear Side External I/O Connector	• 1 x RJ-45 • 1 x HDMI • 1 x Display Port • 2 x USB 2.0, 2 x USB 3.0 • 1 x SD card slot support SD/ SDHC Card • 1 x CIR for remote control • 1 x S/PDIF • 1 x Line-out, 1 x Mic-in • 1 x Power button • 1 x SMA connector
Internal I/O Connector	• Storage: • - 1 x half size Mini PCI-e supported mSATA • - 1 x SATAIII 7+15 pins combo connector • COM: - 1 x 1 x 12 pin, pitch 1.25mm connector for COM port , without power • 1 x half size Mini PCI-e supported WiFi • 1 x 2 x 5 pin, pitch 2.54mm connector for USB 2.0 • 1 x 1 x 4 pin, pitch 1.25mm connector for CPU Fan connector • 1 x 1 x 2 pin, pitch 1.25mm connector battery connector • 1 x 2 x 5 pin, pitch 2.54mm connector for front panel • 1 x 2 x 5 pin, pitch 2.54mm connector for front audio • 1 Pitch 2.5mm DC Jack
Display	

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Chipset	• AMD Embedded G-Series integrated
Resolution	• Dual display HDMI + Display Port • HDMI 1920 x 1080 @ 60Hz • Display Port 2560 x 1600 @ 60 Hz
Audio	
Chipset	• Realtek ALC892 HD Audio Decoding Controller
Audio Interface	• Mic-In, Line-out
Ethernet	
Chipset	• 1 x Realtek RTL8111E PCI-Express Gigabit Ethernet
Ethernet Interface	• 10/100/1000 Gigabit Ethernet
Mechanical & Environmental	
Power Requirement	• DC in + 12V
Power Type	• ATX mode
ACPI	• Support S0, S3, S4, S5
Operating Temp.	• 0°C ~ 60°C
Storage Temp.	• -40°C ~ 75°C
Operating Humidity	• 0% ~ 90% relative humidity, non-condensing
Size (L x W)	• 4.72" x 4.72" (120mm x 120mm)
Weight	• 0.40 kg

1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of SENX-KA.

Ext HDMI	Ext DisplayPort	DDR3 SDRAM SO-DIMM Socket Up to 16 GB	Int RS-232 x 1 1 x 1 x 12 Pin header

Memory Bus

Ext Mic in x1

Ext CIR x1

nuvoTon NCT5532D

WDT

Ext Line out x1

Realtek ALC892 Audio Codec

Codec

LPC Bus

Ext USB 3.0 x2 Type A

USB 3.0

Onboard AMD Embedded G-Series SOC Quad core / Dual core Processor

Ext S/PDIF x 1

Ext US B 2.0/1.1 x 2 Type A

USB 2.0

USB 2.0

Int. Front audio 1 x 2 x 5 pin header

Int. US B 2.0/1.1 x 2 1 x 2 x 5 Pin header

1 x Realtek RT8111E Gigabit Ethernet

PCI-e

PCI-e & mSATA III

Mini PCI-e Slot #1 Support mSATA III only

Int Mini PCI-e Half size Slot x 1

PCI-e

SATA III

1 x SATAIII 7+15 pins combo connector

SD

AMI uEFI BIOS, 32Mbit SPI Flash ROM

SPI

Ext. SD/SDHC card socket x1

2. Hardware Configuration

2.1 Product Overview

SATAⅢ 7+15 pins

mSATA

DIMM

JBAT
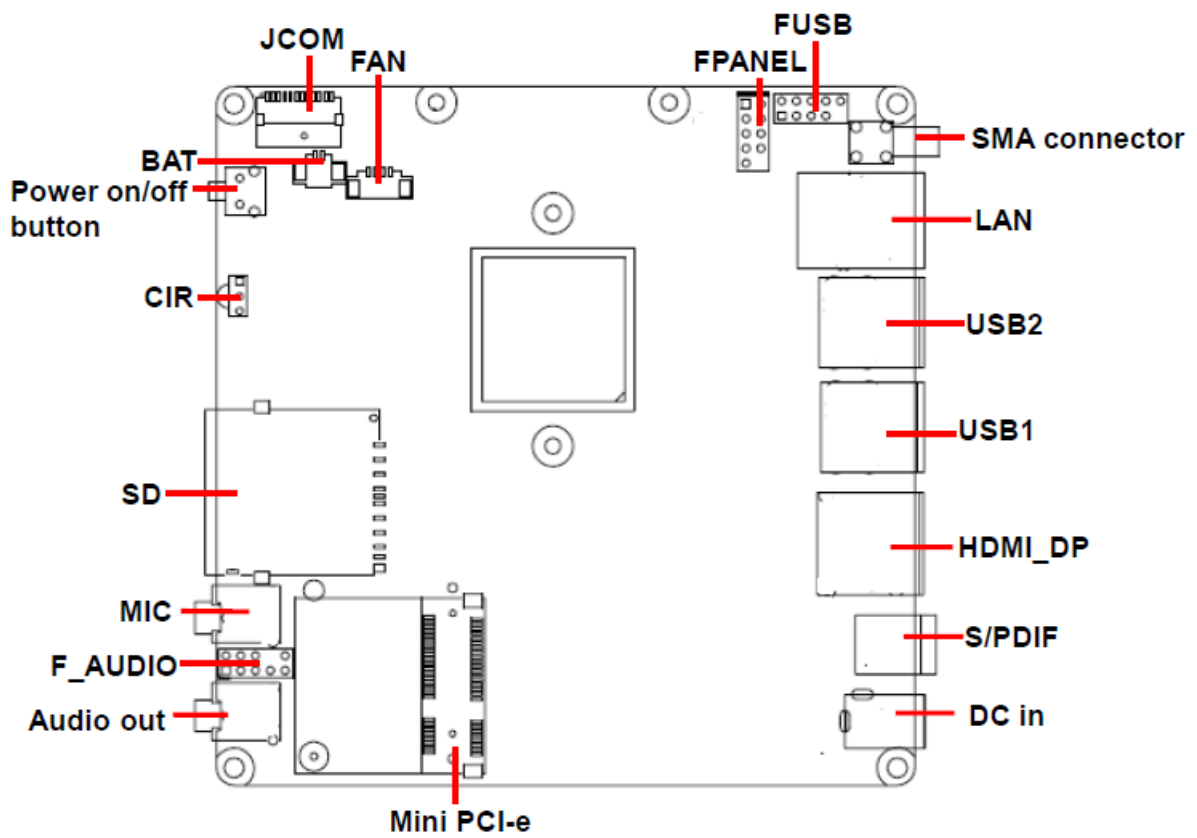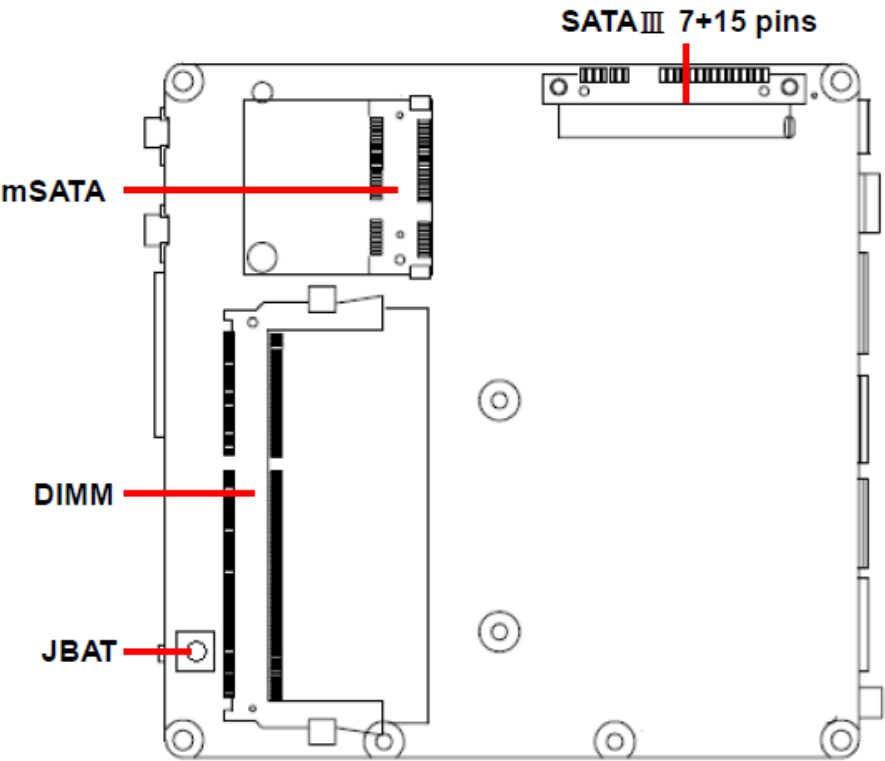
2.2 Installation Procedure

This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the DIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change BIOS settings to support flat panel.
4. Connect power supply to the board via the ATX Power.
5. Turn on the power.
6. Enter the BIOS setup by pressing the delete key during boot up. Use the "Save & Exit \ Restore Defaults" feature.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

2.3 Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.
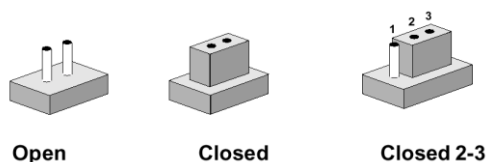
The jumper settings are schematically depicted in this manual as follows:
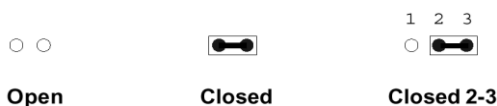
A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Connectors

Label	Function	Note
FPANEL	Front Panel connector	2 x 5 header, pitch 2.54 mm
Mini PCI-e	PCI-e signal selector	Half size Mini PCI-e slot
HDMI_DP	1 HDMI + 1DP Port	
BAT	Battery connector	1 x 2 wafer, pitch 1.25 mm
JBAT1	Clear CMOS	Clear CMOS button
JCOM	Serial port connector	1 x 12 wafer, pitch 1.25 mm
SD	SD card slot support SD/SDHC card	
MIC	Mic-in audio jack	
Audio out	Line-out audio jack	
F_AUDIO	Front Panel Audio Connection Header	2 x 5 header, pitch 2.54 mm
FUSB	USB connector	2 x 5 header, pitch 2.54 mm

USB1	USB 3.0 Type A connector x 2	
USB2	USB 2.0 Type A connector x 2	
FAN	CPU Fan connector	1 x 4 wafer, pitch 1.25 mm
SMA connector	Onboard SMA connector	
POWER	Power on/off	Power on/off button
DIMM	DDR3/DDR3L SODIMM socket	
LAN	RJ-45 Ethernet connector	
DC in	DC power-in connector	1 DC Jack, pitch 2.50 mm
mSATA	Support mSATA only	Half size Mini PCI-e slot
SATAⅢ 7+15 pins	Serial ATA connector	7+15 pins combo connector
S/PIDF	Sony/Philips Digital Interface	
CIR	Consumer IR	

2.4 Setting Jumpers & Connectors

2.4.1 Serial port connector (JCOM)
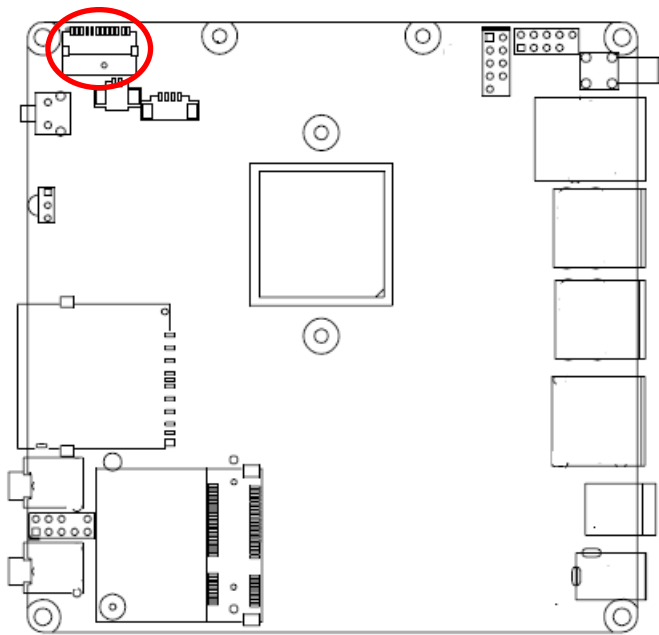
Note:

COM port without power.

1 x 1 x 12 pin, pitch 1.0mm connector for COM port.

PIN	Signal
1	GND
2	NDCDA
3	NSINA
4	NSOUTA
5	NDTRA
6	GND
7	NDSRA
8	NRTSA
9	NCTSA
10	NRIA
11	GND
12	GND

2.4.2 Front Panel connector (FPANEL1)
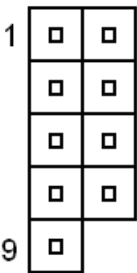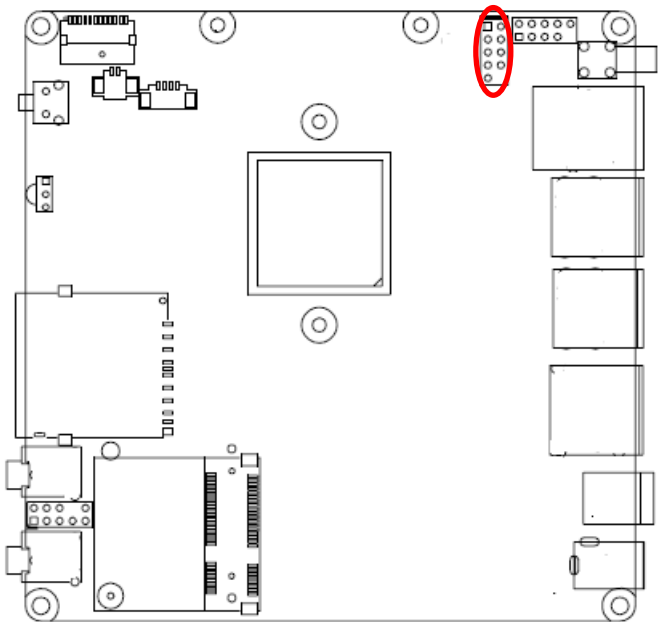
Signal	PIN	PIN	Signal
+5V	1	2	+5V
HDD_LED	3	4	GND
GND	5	6	PWR_BTN_L
RESET_BTN_R	7	8	GND
GND	9		

2.4.3　USB connector (FUSB)
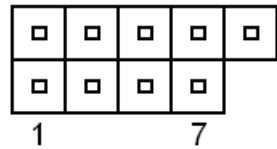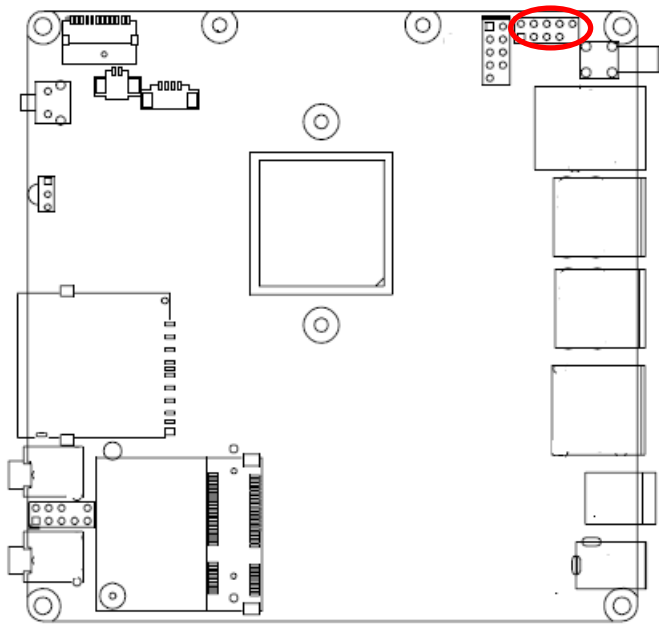
Signal	PIN	PIN	Signal
+5V	1	2	+5V
Data 1 -	3	4	Data 0 -
Data 1+	5	6	Data 0+
GND	7	8	GND
		10	GND

Note: USB port doesn't support S1 mode.

2.4.4　CPU FAN connector (FAN)
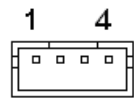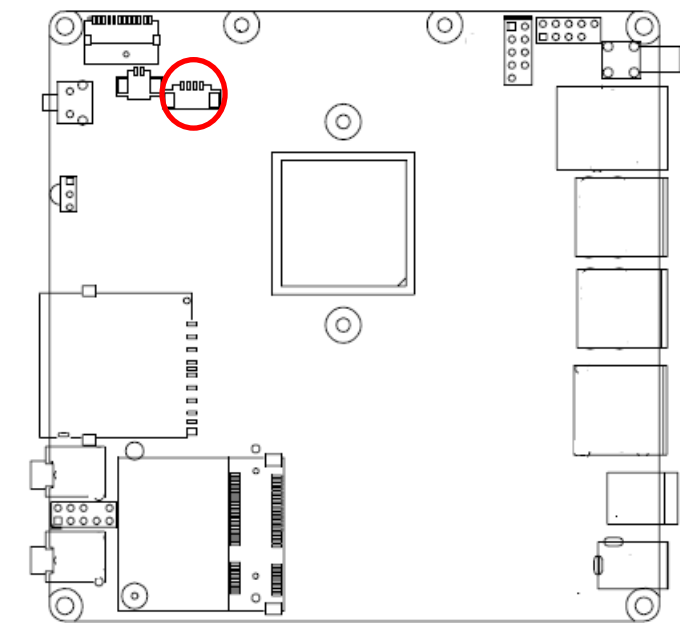
PIN	Signal
1	GND
2	VCC
3	SENSE
4	PWM

2.4.5   Battery connector (BAT)
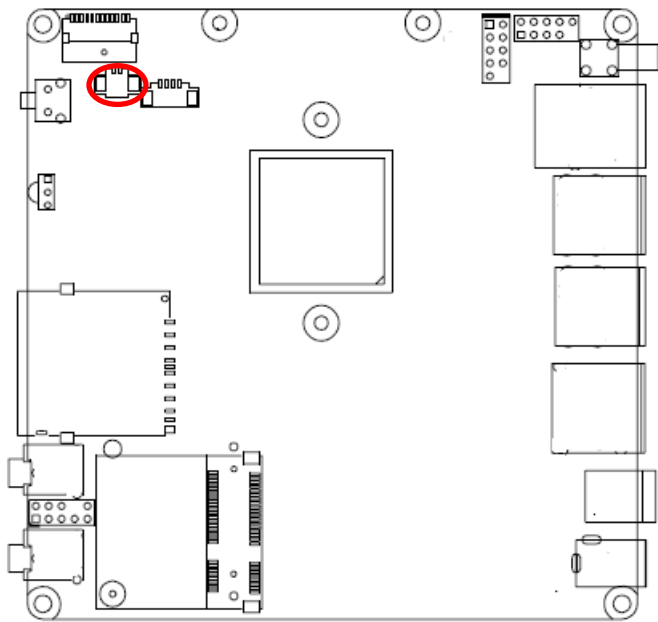
PIN	Signal
1	BAT
2	GND

2.4.6   Front Panel Audio Connection Header (F_AUDIO)
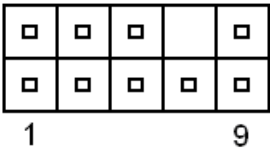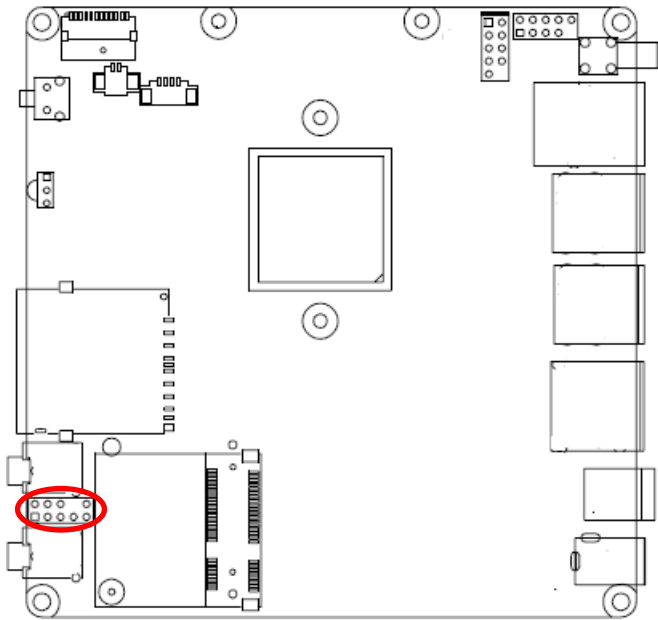
Signal	PIN	PIN	Signal
MIC2-L	1	2	GND
MIC2-R	3	4	NC
LINE2-R	5	6	MIC2-JD
GND	7		
LINE2-L	9	10	LINE2 JD

3.BIOS Setup

3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

The BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:
By pressing <Del> immediately after switching the system on, or
By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter setup, F11 to popup menu

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press DEL to enter setup, F11 to popup menu

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to the pervious page or Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F7 key	Previous Values
F8 key	Fail-Safe Values
F9 key	Optimized Defaults
F10 key	Save and Exit

- **Navigating Through The Menu Bar**
  Use the left and right arrow keys to choose the menu you want to be in.

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

- **To Display a Sub Menu**
  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

3.4   Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

3.5   In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the BIOS supports an override to the NVRAM settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.6   BIOS setup

Once you enter the BIOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1   Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.

```
                 Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Main  Advanced  Chipset  Boot  Security  Save & Exit

      BIOS Information                                         Choose the system default
      BIOS Vendor                   American Megatrends        language
      Core Version                  4.6.5.4
      Compliancy                    UEFI 2.3.1; PI 1.2
      Project Version               KBN02 0.21 x64
      Build Date and Time           03/26/2014 09:47:16

      Memory Information
      Total Memory                  4096 MB (DDR3)

      System Language               [English]

      System Date                   [Thu 03/27/2014]
      System Time                   [15:39:37]                →←: Select Screen
                                                              ↑↓: Select Item
      Access Level                  Administrator             Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F7: Previous Values
                                                              F9: Optimized Defaults
                                                              F10: Save & Exit
                                                              ESC: Exit

                 Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

3.6.1.1   System Language

This option allows choosing the system default language.

3.6.1.2   System Date

Use the system date option to set the system date. Manually enter the day, month and year.

3.6.1.3   System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

Note: BIOS setup screens shown in this chapter are for reference only, and may not exactly match what you see on your screen. Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

3.6.2 Advanced BIOS settings

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.
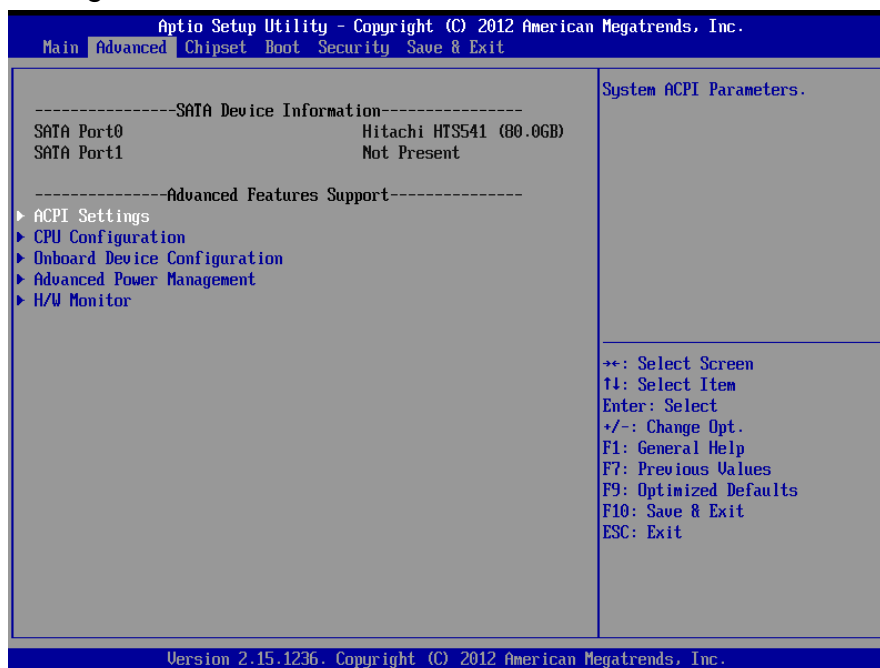
3.6.2.1 ACPI Settings
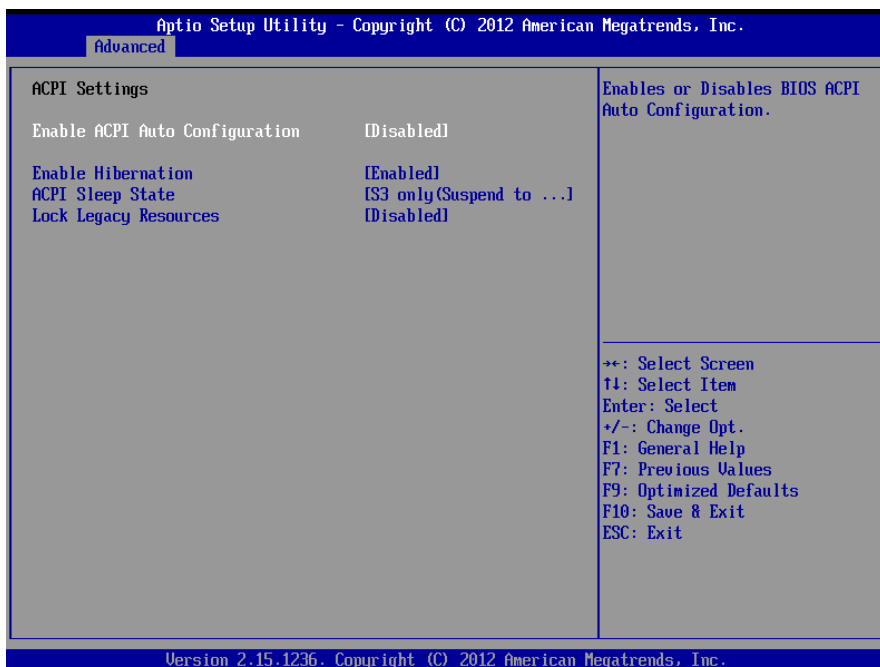
Item	Options	Description
Enable ACPI Auto Configuration	Disabled Enabled**[Default]**	Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation	Disabled Enabled**[Default]**	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option

		may be not effective with some OS.
ACPI Sleep State	Suspend Disabled S3 only(Suspend to RAM) **[Default]**	Select ACPI sleep state the system will enter when the SUSPEND button is pressed.
Lock Legacy Resources	Disabled Enabled**[Default]**	Enables or Disables Lock of Legacy Resources.

3.6.2.2   CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.
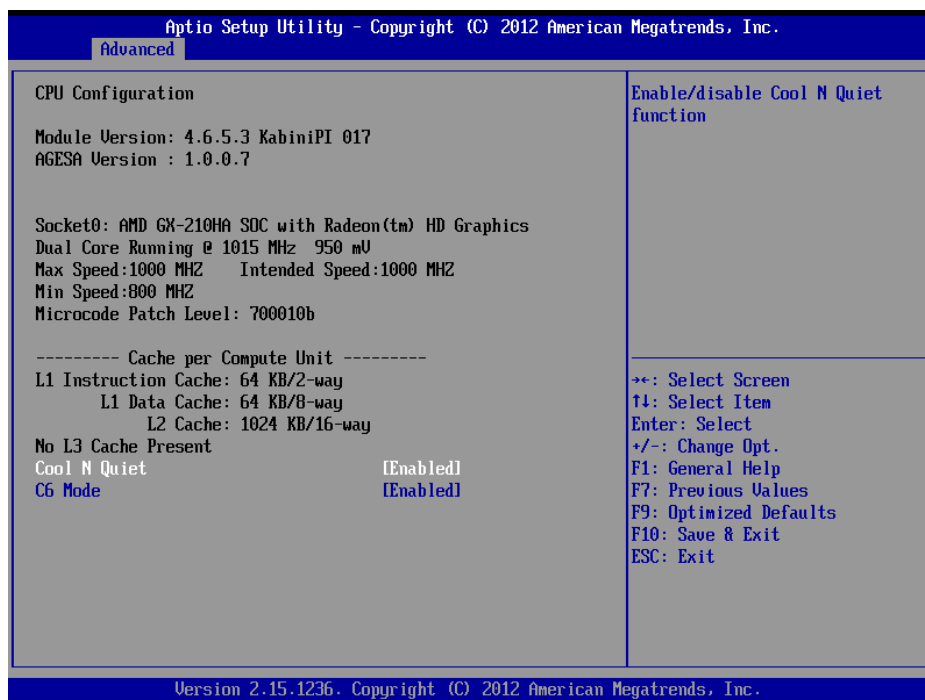
Item	Options	Description
Cool N Quiet	Disabled Enabled**[Default]**	Enable/disable Cool N Quiet function.
C6 Mode	Disabled Enabled**[Default]**	Enable/disable C6.

3.6.2.3 Onboard Device Configuration

```
                    Aptio Setup Utility - Copyright (C) 2012 American Megatrends,Inc.
          Advanced

     Onboard Device Configuration                              Onboard Audio Controller
     ------------------------------------------------------
     HD Audio Azalia Device            [Enabled]
     Onboard Lan Controller            [Enabled]
     Launch PXE OpROM policy           [Disabled]
     Enabled All Of USB Devices        [Enabled]
     USB 3.0 Port Enable               [Enabled]
     Serial Port                       [Enabled]
     WatchDog Function                 [Disabled]



                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F7: Previous Values
                                                              F9: Optimized Defaults
                                                              F10: Save & Exit
                                                              ESC: Exit



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```

Item	Options	Description
HD Audio Azalia Device	Disabled Enabled**[Default]**	Onboard Audio Controller.
Onboard Lan Controller	Disabled Enabled**[Default]**	Onboard Lan Controller.
Launch PXE OpROM policy	Disabled Enabled**[Default]**	Controls the execution of UEFI and Legacy PXE OpROM.
Enabled ALL Of USB Devices	Disabled Enabled**[Default]**	Enable/Disable all USB device.
USB 3.0 Port Enable	Disabled Enabled**[Default]**	Disabled → USB 2.0 Enable → USB 3.0.
Serial Port	Disabled**[Default]** Enabled	Enable or Disable Serial Port (COM).
WatchDog Function	Disabled**[Default]** Enabled	Disable/Enable WatchDog Function.

3.6.2.4 Advanced Power Management

```
           Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
   Advanced

  APM Configuration                                    Enabled/Disabled Wakeup From
                                                       S3 By USB KB/MS
  USB Keyboard/Mouse S3 Wake        [Enabled]
  Wakeup By PME                     [Disabled]
  Poweron By RTC                    [Disabled]
  PWROn After PWR-Fail              [Alway Off]




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F7: Previous Values
                                                       F9: Optimized Defaults
                                                       F10: Save & Exit
                                                       ESC: Exit




           Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

Item	Options	Description
USB Keyboard/Mouse S3 Wake	Disabled Enabled**[Default]**	Enabled/Disabled Wakeup From S3 By USB KB/MS.
Wakeup By PME	Disabled Enabled**[Default]**	Wakeup By PME.
Power on By RTC	Disabled**[Default]** Enabled	Enable or disable System wake on alarm event. When enabled, System will wake on the hr"::min::sec specified.
PWROn After PWR-Fail	Always Off Always On Keep Last State	PWROn After PWR-Fail.

3.6.2.5 HW Monitor

The H/W Monitor shows the operating temperature, fan speeds and system voltages.

```
           Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
           Advanced

   PC Health Status                                     1.Full Mode
                                                        2.Manual Mode
   CPU Temperature                 : +44°C              3.Smart Mode
   SYS Temperature                 : +32°C

   CPU Fan Speed                   : N/A

   CPU Vcore                       : +0.960 V
   VDDP Vcore                      : +0.976 V
   DIMM Vcore                      : +1.384 V
   AVCC                            : +3.280 V
   3VCC                            : +3.280 V
   3VSB                            : +3.360 V
   VBAT                            : +3.296 V

   PC Smart Monitor                                     ++: Select Screen
                                                        ↑↓: Select Item
   CPU Fan Mode Setting            [Full Mode]          Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F7: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save & Exit
                                                        ESC: Exit



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```
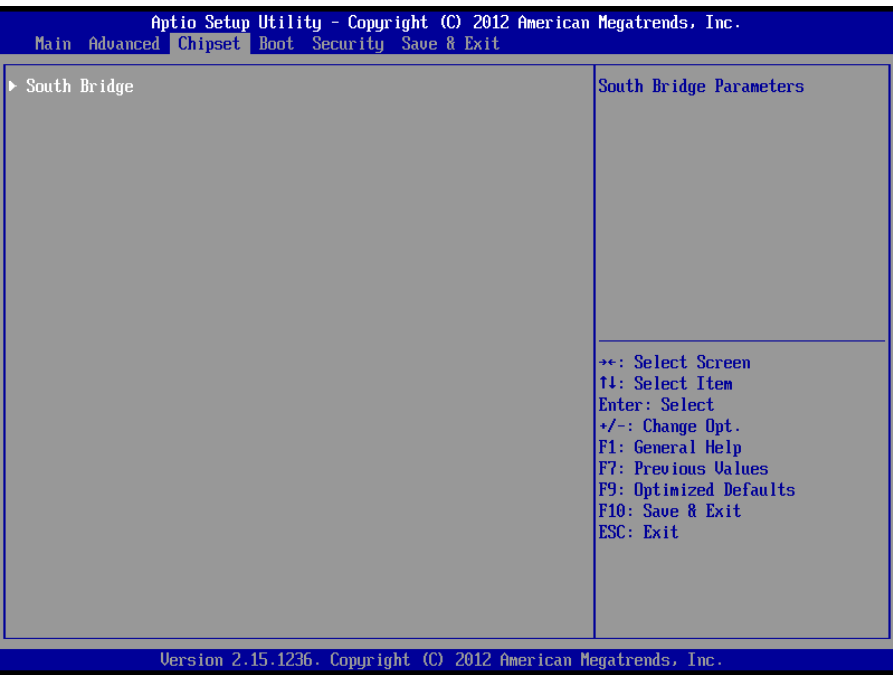
Item	Options	Description
CPU Fan Mode Setting	Manual Mode Smart Mode Full Mode**[Default]**	1.Full Mode 2.Manual Mode 3.Smart Mode.

3.6.3 Chipset

```
           Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Main  Advanced  Chipset  Boot  Security  Save & Exit

   ▶ South Bridge                                       South Bridge Parameters















                                                        ++: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F7: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save & Exit
                                                        ESC: Exit



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```

Item	Description
South Bridge	South Bridge parameters.

3.6.3.1 South Bridge
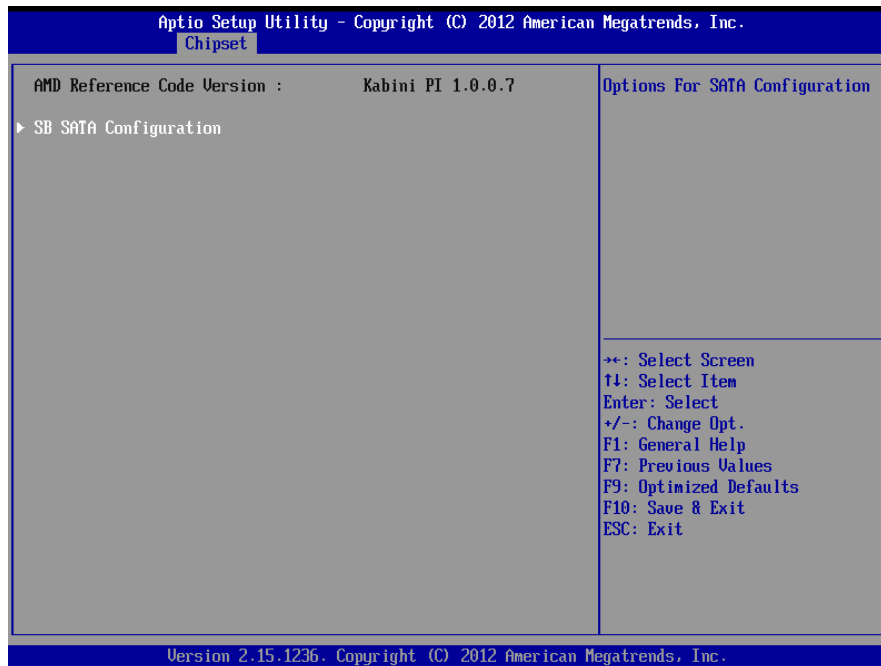
Item	Description
SB SATA Configuration	Options For SATA Configuration.

3.6.3.1.1 SB SATA Configuration
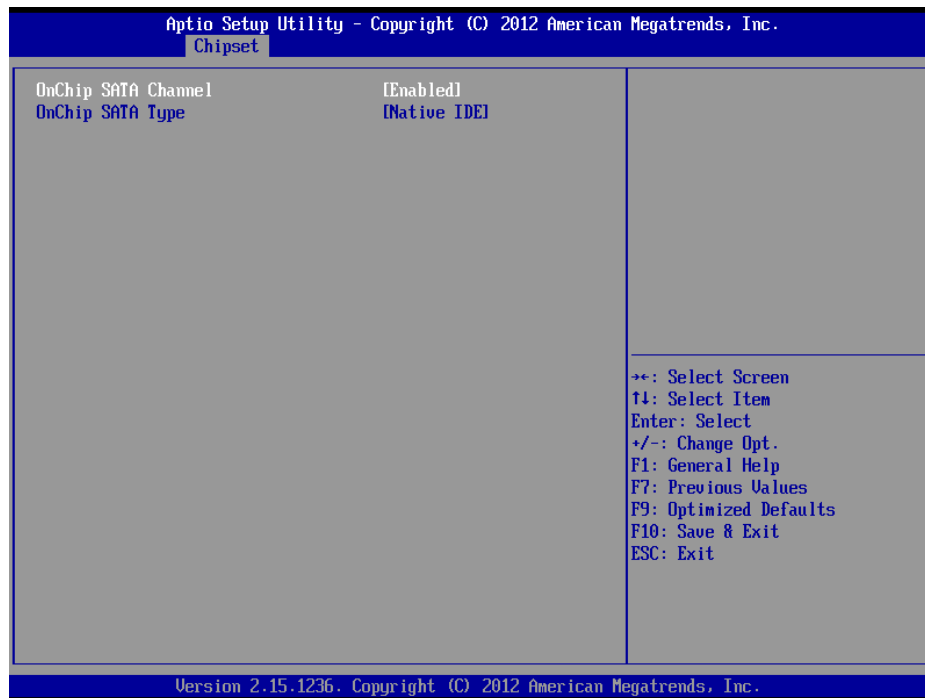
Item	Options	Description
OnChip SATA Channel	Disabled Enabled**[Default]**	
OnChip SATA Type	Native IDE**[Default]** AHCI	Native IDE AHCI.

3.6.4   Boot settings
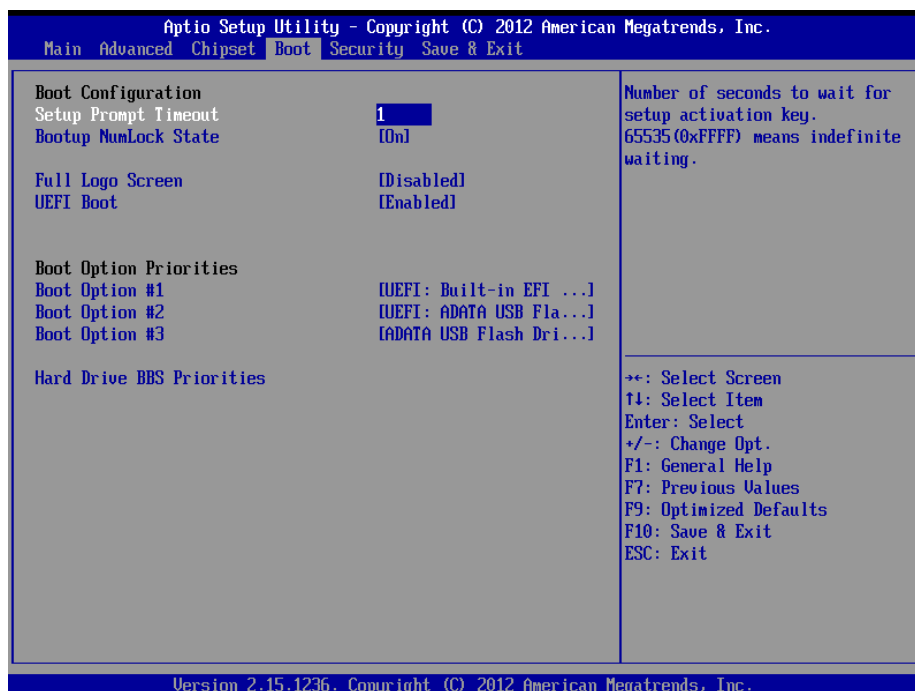
Item	Option	Description
Setup Prompt Timeout	1-65535	Number of seconds to wait for setup activation key, 65535(0xFFFF) means indefinite waiting.
Bootup Numlock State	On **[Default]** Off	Select the keyboard NumLock state.
Full Logo Screen	Disabled**[Default]** Enabled	Enables or disables Quiet Boot option.
UEFI Boot	Auto**[Default]** Enabled Disabled	Auto: If the 1st boot HDD is GPT then enable UEFI boot options, otherwise disable. Enabled: Enable all UEFI boot options. Disabled: Disabled all UEFI boot options.
Boot Option #1	Sets the system driver order.	

3.6.5 Security

Use the Security menu to set system and user password.
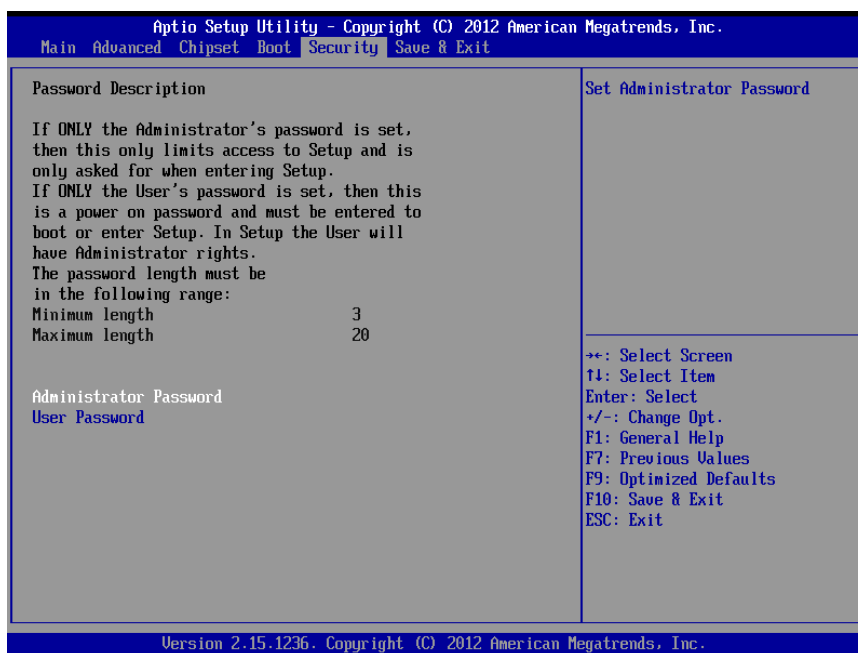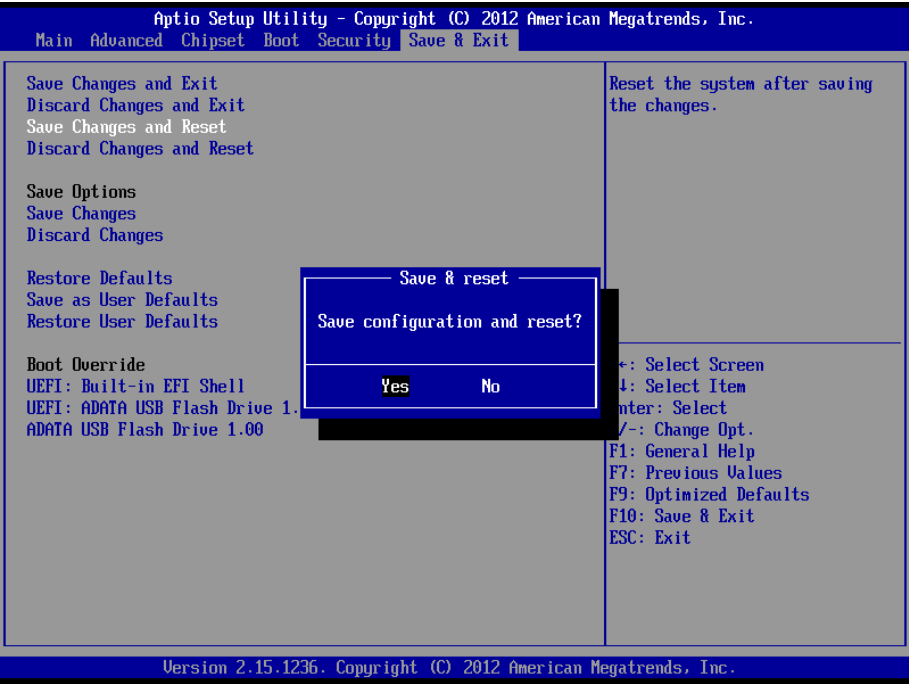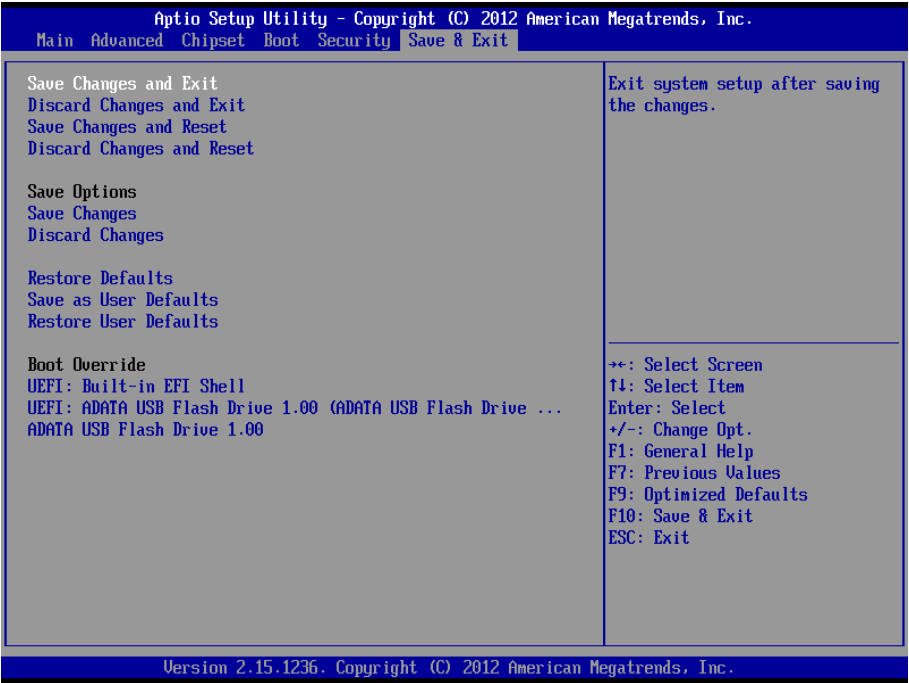

3.6.5.1 Administrator Password

Set Administrator Password.

3.6.5.2 User Password

Set User Password.

3.6.6 Save & Exit

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
 Main  Advanced  Chipset  Boot  Security  Save & Exit

 Save Changes and Exit                        Exit system setup after saving
 Discard Changes and Exit                     the changes.
 Save Changes and Reset
 Discard Changes and Reset

 Save Options
 Save Changes
 Discard Changes

 Restore Defaults
 Save as User Defaults
 Restore User Defaults

 Boot Override                                →←: Select Screen
 UEFI: Built-in EFI Shell                     ↑↓: Select Item
 UEFI: ADATA USB Flash Drive 1.00 (ADATA USB Flash Drive ...  Enter: Select
 ADATA USB Flash Drive 1.00                   +/-: Change Opt.
                                              F1: General Help
                                              F7: Previous Values
                                              F9: Optimized Defaults
                                              F10: Save & Exit
                                              ESC: Exit

        Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
 Main  Advanced  Chipset  Boot  Security  Save & Exit

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

 Save Options
 Save Changes
 Discard Changes
                     ┌───── Save & reset ──────┐
 Restore Defaults    │                          │
 Save as User Defaults │ Save configuration and reset? │
 Restore User Defaults │                          │
                     │                          │
 Boot Override       │    Yes        No         │  ←: Select Screen
 UEFI: Built-in EFI Shell └──────────────────────────┘ ↓: Select Item
 UEFI: ADATA USB Flash Drive 1.                nter: Select
 ADATA USB Flash Drive 1.00                    /-: Change Opt.
                                              F1: General Help
                                              F7: Previous Values
                                              F9: Optimized Defaults
                                              F10: Save & Exit
                                              ESC: Exit

        Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

3.6.6.1 Save Changes and Exit

Exit system setup after saving the changes.

F10 key can be used for this operation.

3.6.6.2   Discard Changes and Exit

Exit system setup without saving any changes.

ESC key can be used for this operation.

3.6.6.3   Save Changes and Reset

Reset the system after saving the changes.

3.6.6.4   Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.6.5   Save Changes

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

3.6.6.6   Discard Changes

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

3.6.6.7   Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

3.6.6.8   Save as User Defaults

Save the changes done so far as User Defaults.

3.6.6.9   Restore User Defaults

Restore the User Defaults to all the setup options.

4. Drivers Installation

Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.
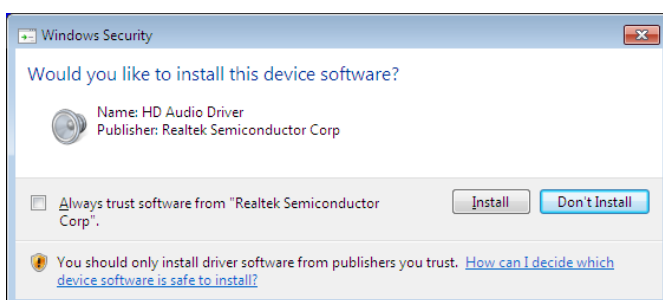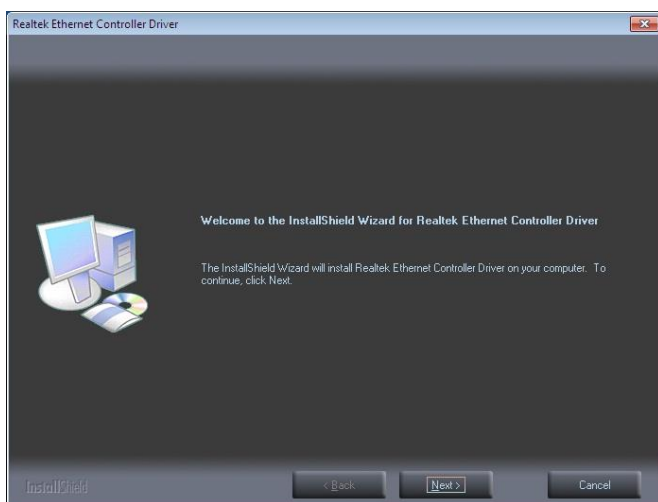
4.1 Install VGA Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left.
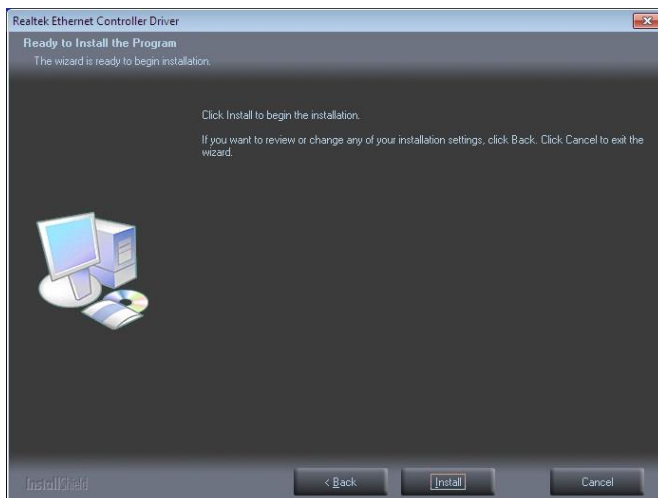
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system.

Step 1. Click **Next** to continue installation.

Step 2. Click **Next** to continue installation.

Step 3. Click **Yes** to complete setup.
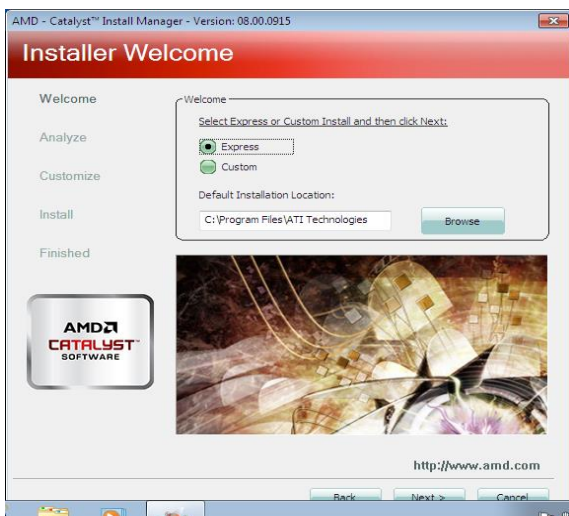
4.2 Install Audio Driver (For Realtek ALC892)

Insert the Supporting CD-ROM to CD-ROM
drive, and it should show the index page of
Avalue's products automatically. If not, locate
Index.htm and choose the product from the
menu left.

Note: The installation procedures and screen
shots in this section are based on
Windows 7 operation system.
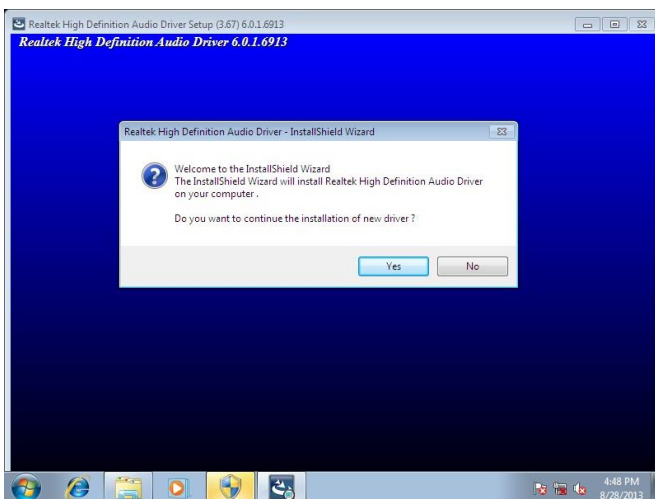
**Step 1.** Click **Yes** to continue setup.

Step 2. Click **Install** to complete the setup.

4.3 Install Ethernet Driver (For Realtek 8111E)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left.

> **Note:** The installation procedures and screen shots in this section are based on Windows 7 operation system.
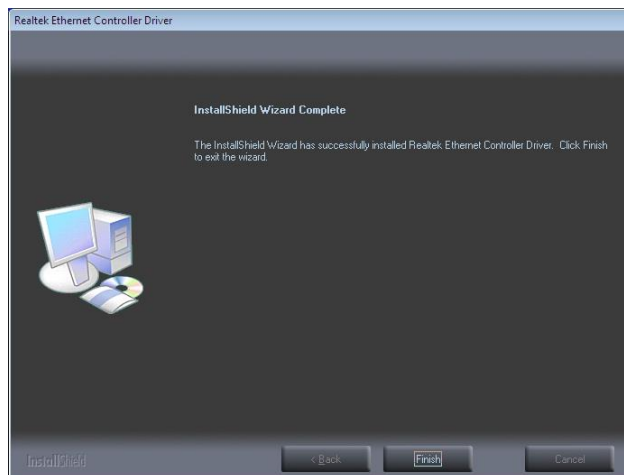
Step 3. Click **Finish** to complete the setup.

Step 1. Click **Next**.

Step 2. Click **Install** to proceed.

4.4 Install CIR Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left.

> **Note:** The installation procedures and screen shots in this section are based on Windows 7 operation system.
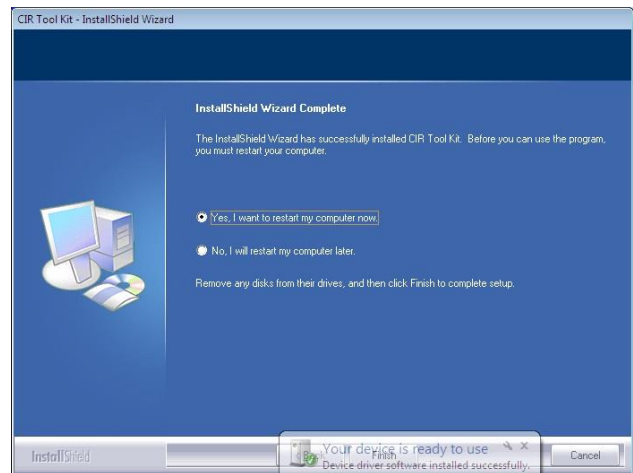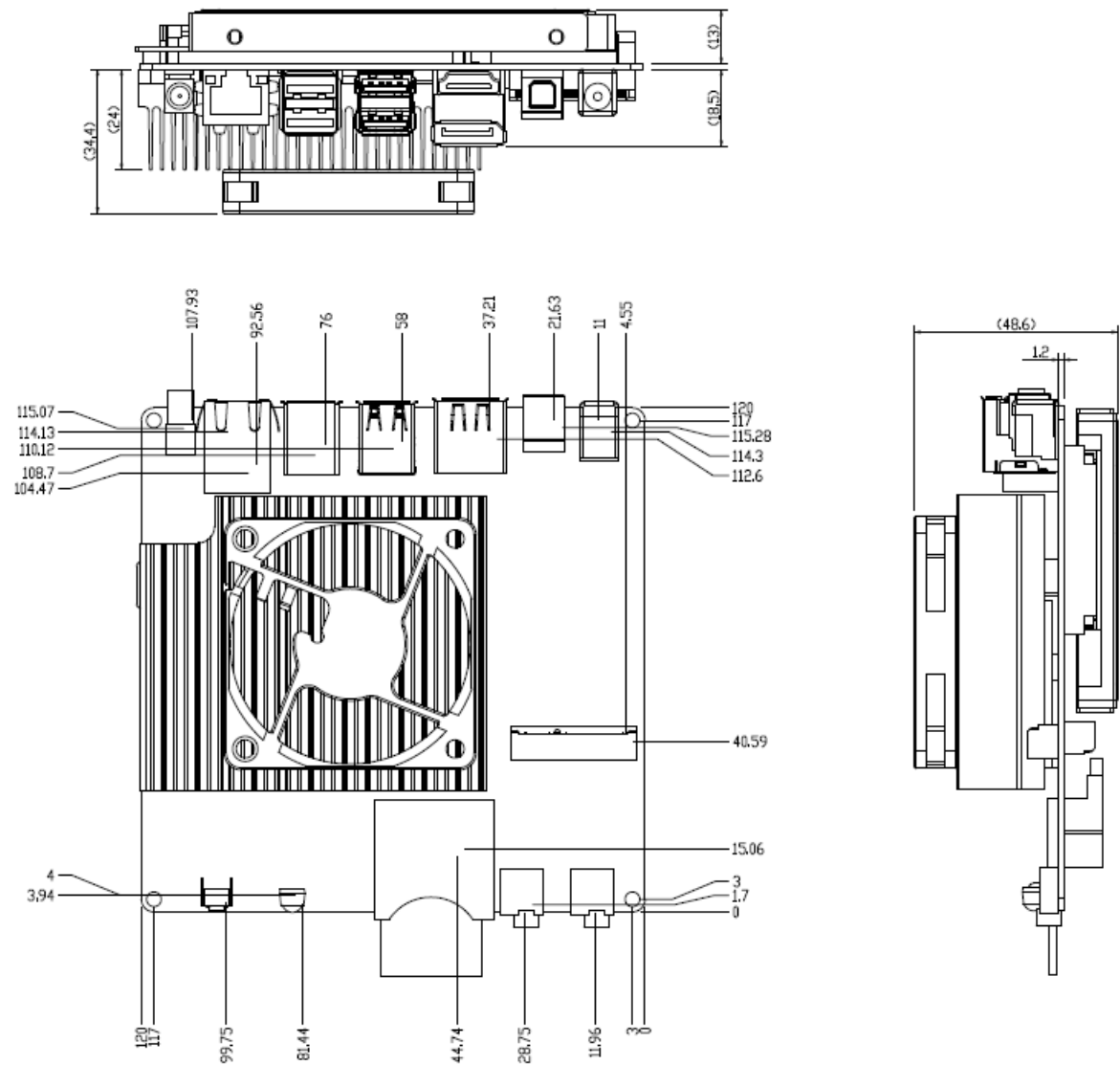

Step 3. Click **Finish** to complete the setup.
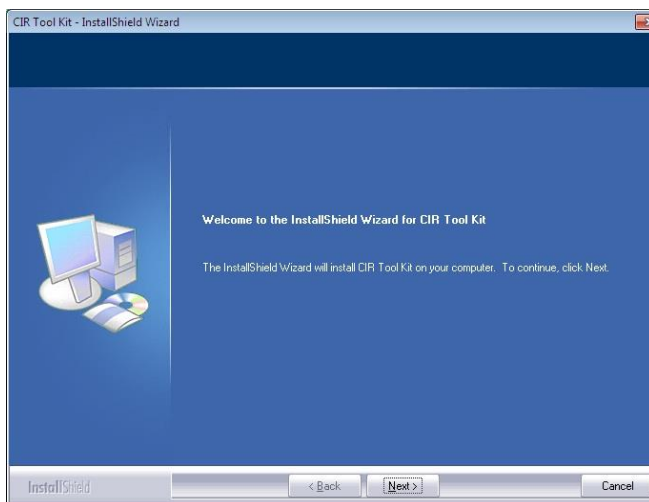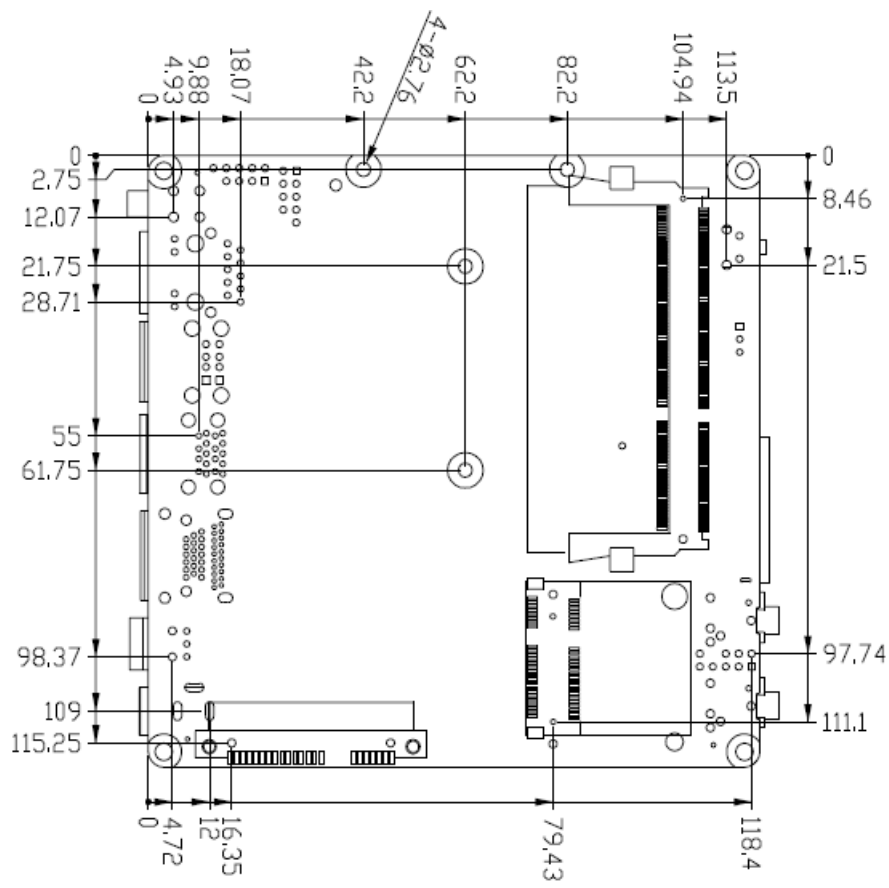

Step 1. Click **Next**.
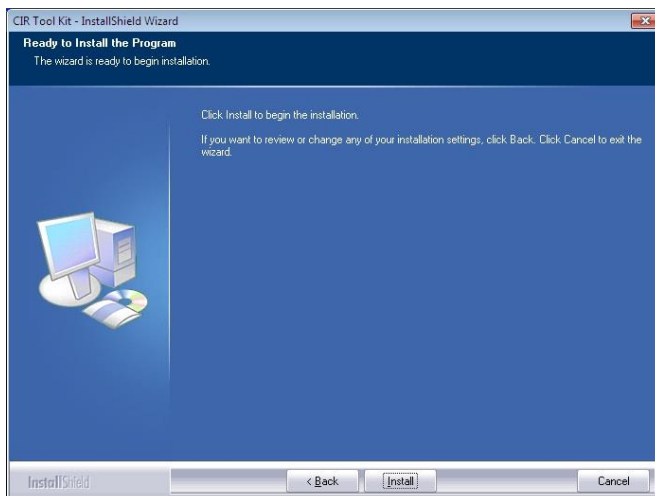
Step 2. Click **Install** to proceed.

5. Mechanical Drawing

Unit: mm

Unit: mm