DSB310-110
Fanless Digital Signage Player
User's Manual

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Safety Precautions

Before getting started, please read the following important safety precautions.

1. The DSB310-110 does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.

2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.

3. Disconnect the power cord from the DSB310-110 before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the DSB310-110 is properly grounded.

4. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

5. Turn OFF the system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen.

6. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20℃ or above 80℃. It may damage the equipment.

7. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

    ●   Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.

    ●   When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

Classification

1. Degree of production against electric shock : not classified

2. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

3. Mode of operation : Continuous

General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

When you need to clean the device, please rub it with a piece of dry cloth.

1. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.
2. Turn the system off before you start to clean up the component or computer.
3. Never drop the components inside the computer or get circuit board damp or wet.
4. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.
5. Try not to put any food, drink or cigarette around the computer.

Cleaning Tools:

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning.

- Cloth: A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.

- Water or rubbing alcohol: You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.

- Vacuum cleaner: Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.

- Cotton swabs: Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.

- Foam swabs: Whenever possible it is better to use lint free swabs such as foam swabs.

Note: We strongly recommended that you should shut down the system before you start to clean any single components.

Please follow the steps below:

1. Close all application programs

2. Close operating software

3. Turn off power switch

4. Remove all device

5. Pull out power cable

Scrap Computer Recycling

If the computer equipments need the maintenance or are beyond repair, we strongly recommended that you should inform your Axiomtek distributor as soon as possible for the suitable solution. For the computers that are no longer useful or no longer working well, please contact your Axiomtek distributor for recycling and we will make the proper arrangement.

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CHAPTER 1
INTRODUCTION

This chapter contains general information and detailed specifications of the DSB310-110. The Chapter 1 includes the following sections:

- General Description
- System Specification
- Dimensions
- I/O Outlets
- Package List

1.1 General Description

The DSB310-110 is an embedded system that supports onboard AMD G-Series APU dual core T40E (1.0 GHz) to provide Windows® XPE, Windows 7® Embedded, Windows® XP, Windows® WinCE embedded and Linux, suitable for the most endurable operation.

It features fan less design with full feature I/O, one 204-pin DDR3 SODIMM, and enhanced system dependability by built-in Watchdog Timer.

➢ Features

   1. AMD Fusion Controller Hub A50M chipset

   2. Support AMD G-Series APU dual core T40E (1.0 GHz) processor

   3. One 204-pin unbuffered SO-DIMM socket for single channel DDR3-1066 MHz memory, maximum memory capacity up to 4GB

   4. One VGA port (independent dual display support)

   5. One Display Port (support DP++)

   6. Supports 2 USB 2.0 ports and 1 COM port

   7. Supports dual 10/100/1000Mbps Ethernet port

   8. One 2.5" SATA HDD/SSD drive bay(9.5mm height)

   9. One front access CompactFlash™

   10. Watchdog timer

   11. 60W adapter

   12. Power cord

   13. Wall mount (optional)

   14. VESA mount (optional)

   15. PCI-Express Mini Card Module (optional)

   16. Antenna (optional)

➢ Reliable and Stable Design

The DSB310-110 adopts the advanced cooling system and supporting the CompactFlash™, which makes it especially suitable for vibration environments, best for industrial automation, digital signage and gaming application.

➢ Embedded O.S. Supported

The DSB310-110 not only supports Windows 7, Windows Vista, Windows XP, but also supports embedded OS, such as Windows XP embedded, WinCE and Linux.

➢ Various Storage devices supported

For storage device, the DSB310-110 supports one 2.5" SATA HDD drive bay, and one front accessible CompactFlash™ type II slot.

1.2 System Specifications

1.2.1 CPU

● **CPU**

Onboard AMD G-series APU dual core T40E 1.0GHz processor

● **System Chipset**

AMD Fusion Controller Hub A50M chipset

● **BIOS**

■ American Megatrends Inc. UEFI (Unified Extensible Firmware Interface) BIOS

■ 16Mbit SPI Flash, DMI, Plug and Play

■ RPL/PXE Ethernet Boot ROM

● **System Memory**

■ One 204-pin unbuffered DDR3 SO-DIMM socket

■ Maximum to 4GB DDR3 1066 MHz memory for T40E

1.2.2 I/O System

■ One 9-pin D-Sub male connectors, COM1 for RS-232

■ One 15-pin D-Sub female connector for VGA

■ One Display Port

■ One Audio phone jack (MIC-IN, Line-OUT)

■ Two RJ-45 connector for 10/100/1000Base-T Ethernet

■ Two USB 2.0 connectors

■ One 12V DC Jack for power input connector

1.2.3　System Specification

● 　Watchdog Timer

Reset supported; 255 levels, 1~255 sec.

● 　Power Supply

External 12V@5A, 60W AC/DC power adapter

● 　Operation Temperature

0℃ ~ 45℃ (32 ºF ~ 114ºF), T40E with W.T. HDD

● 　Storage Temperature

-20℃ ~ 80℃ (-4 ºF ~ 176ºF)

● 　Humidity

10% ~ 90% (non-condensation)

● 　Vibration Endurance

3Grm w/ CF(5-500Hz, X, Y, Z directions)

● 　Weight

1.3 kg without package

2.3 kg with package

● 　Dimensions

186mm(7.32") (W) x 116mm(4.56") (D) x 49mm(1.92") (H)

Note: All specifications and images are subject to change without notice.

1.3   Dimensions

The following diagrams show you dimensions and outlines of the DSB310-110.

1.3.1   System Dimension
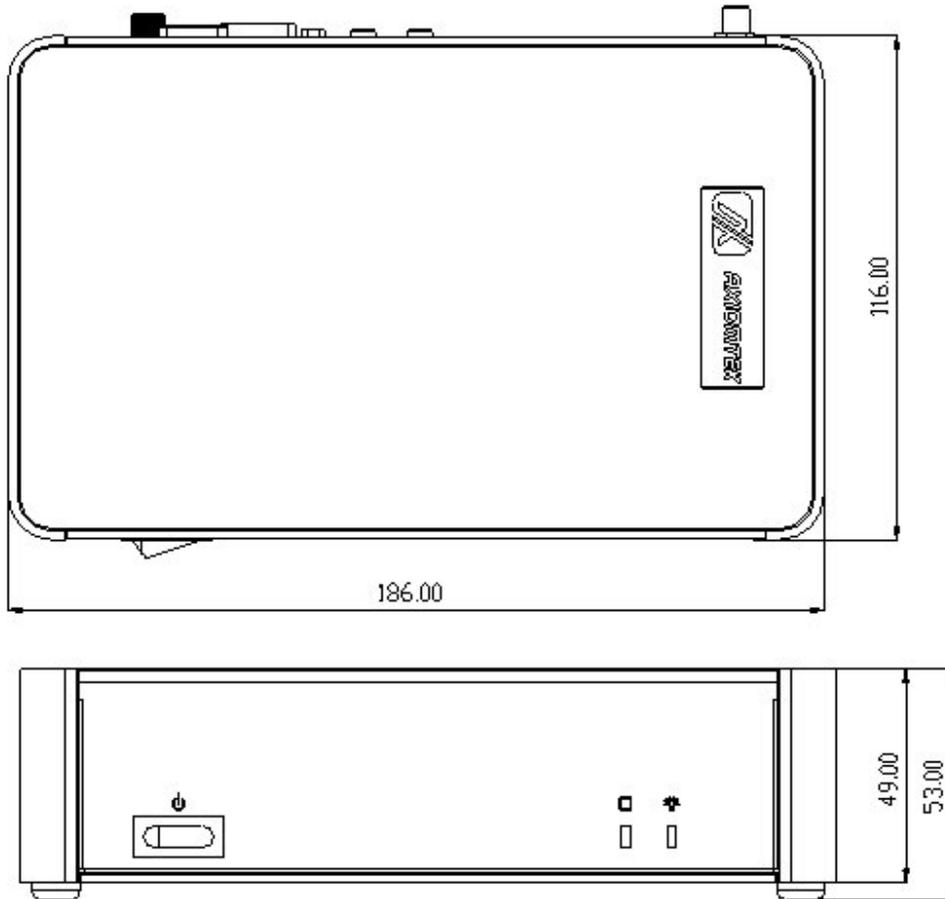
1.3.2　Wall mount Bracket Dimension

1.4 I/O Outlets

The following figures show you I/O outlets on front view of the DSB310-110.

● **Front View**

● **Front View drawing**

Power·Switch

Power·&·HDD
Active·Indicators
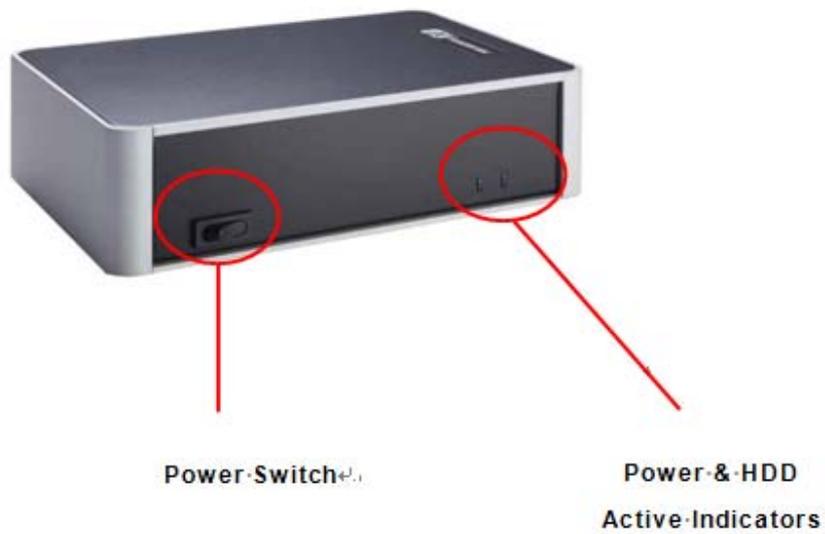
● **Rear View**

● **Rear View drawing**

1.5   Packing List

The package bundled with your DSB310-110 should contain the following items:

●   DSB310-110 System Unit x 1
●   DVD x 1 (For Driver and User's Manual)
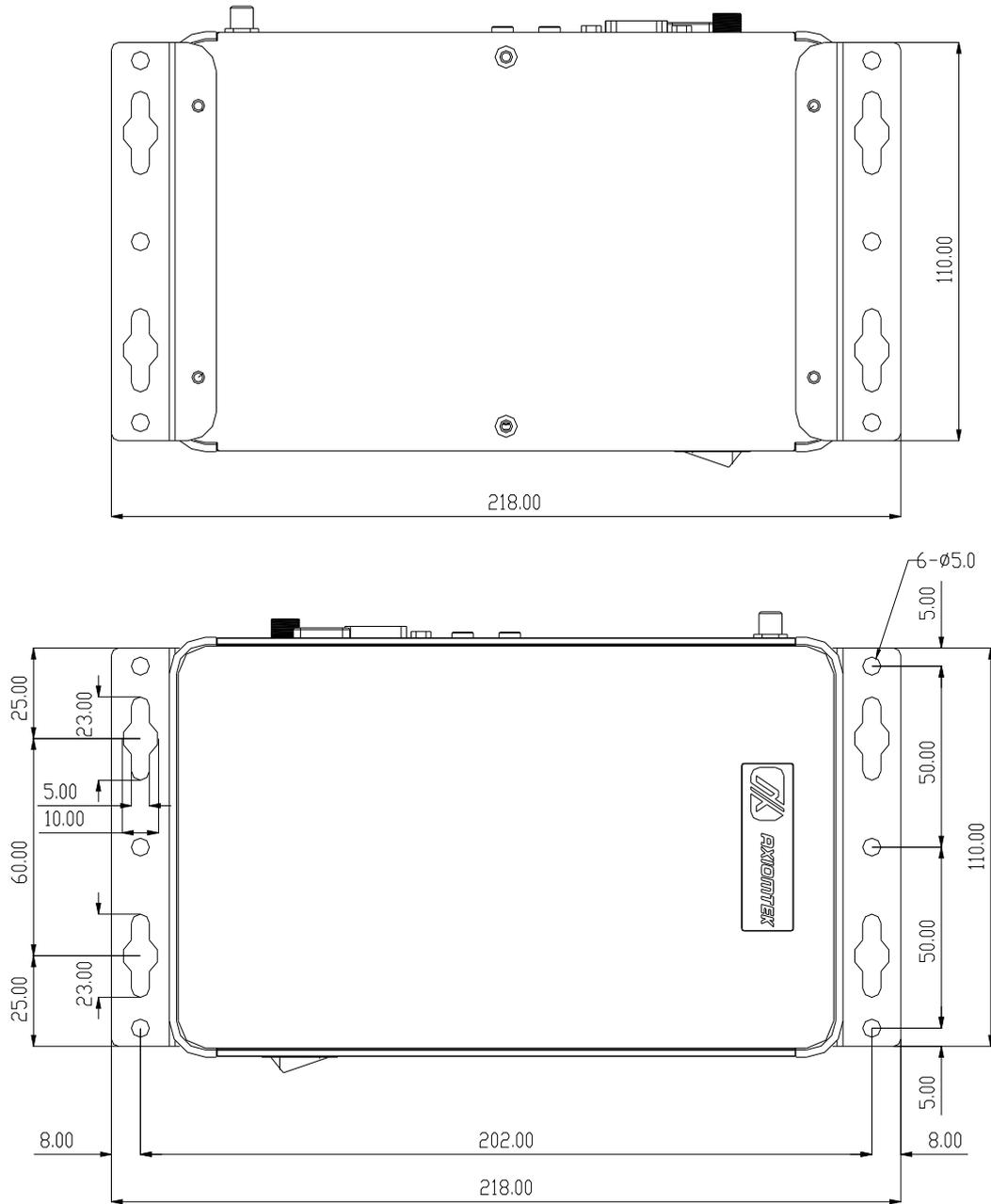●   Screws pack x1
●   60W AC/DC Power Adapter
●   Wall-mount Brackets (optional)
●   VESA-mount Bracket (optional)

If you cannot find this package or any items are missing, please contact Axiomtek distributors immediately.

CHAPTER 2
HARDWARE INSTALLATION

The DSB310-110 is convenient for your various hardware configurations, such as Memory Module, HDD (Hard Disk Drive), SSD (Solid State Drive) and CompactFlash card. The chapter 2 will show you how to install the hardware.

2.1 Installing the Memory Module

Step 1 Turn off the system, and unplug the power cord.

Step 2 Turn the system upside down to locate screws at the

Bottom, loosen screws.
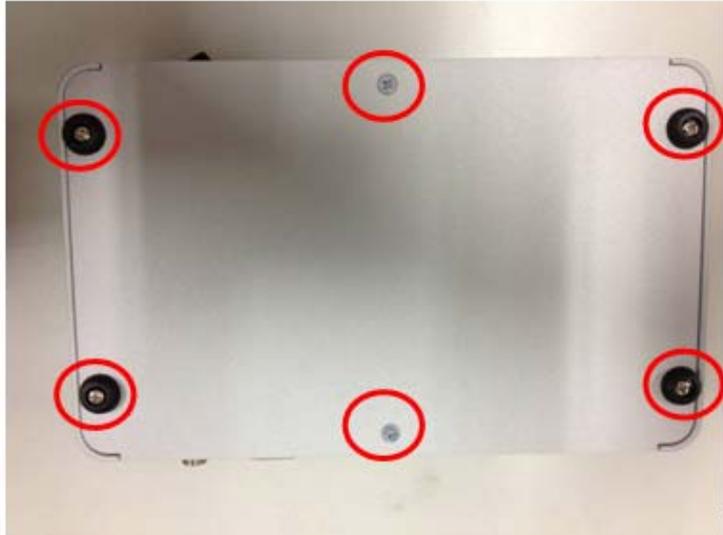
Step 3 Remove the bottom cover.

Step 4   Loosen screws of HDD bracket
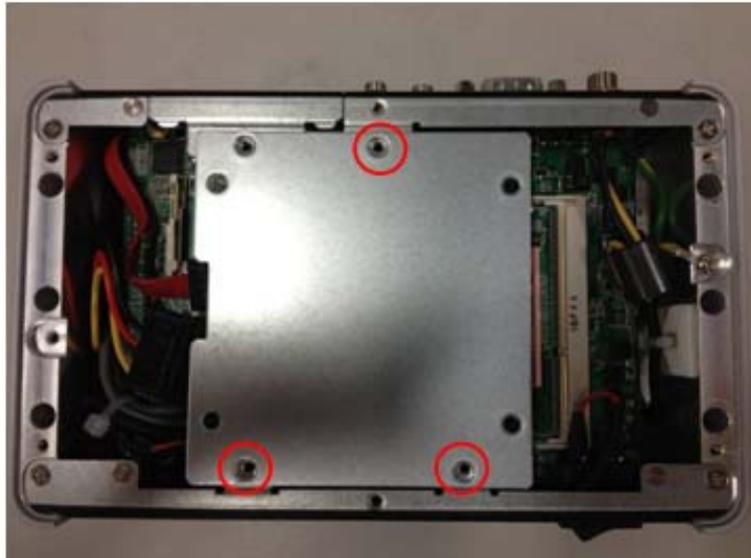
Step 5   Remove the HDD bracket

Step 6   Locate the memory module, insert the gold colored
Contact into the socket.

Step 7   Push the module down, until it is firmly seated by locking two latches on the
sides.

Step 8   Close the cover to the chassis, and fasten all screws.

2.2   Installing the SATA HDD

Step 1   Turn off the system, and unplug the power cord.

Step 2   Turn the system upside down to locate screws at the
Bottom, loosen screws.
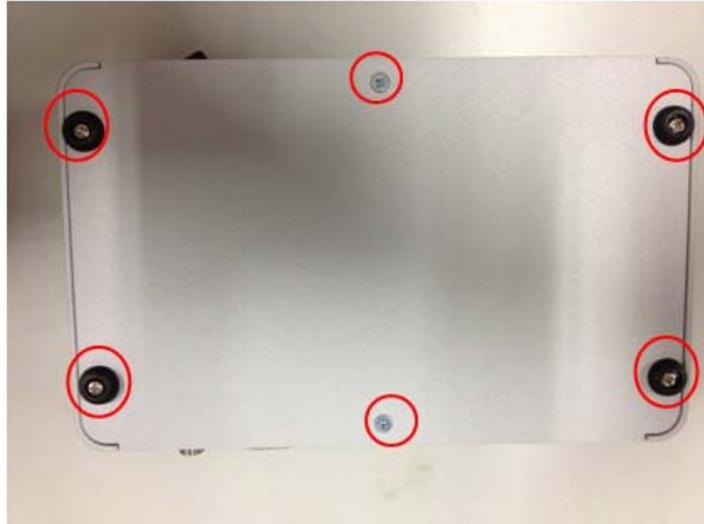
Step 3   Remove the bottom cover.

Step 4 Loosen screws of HDD bracket
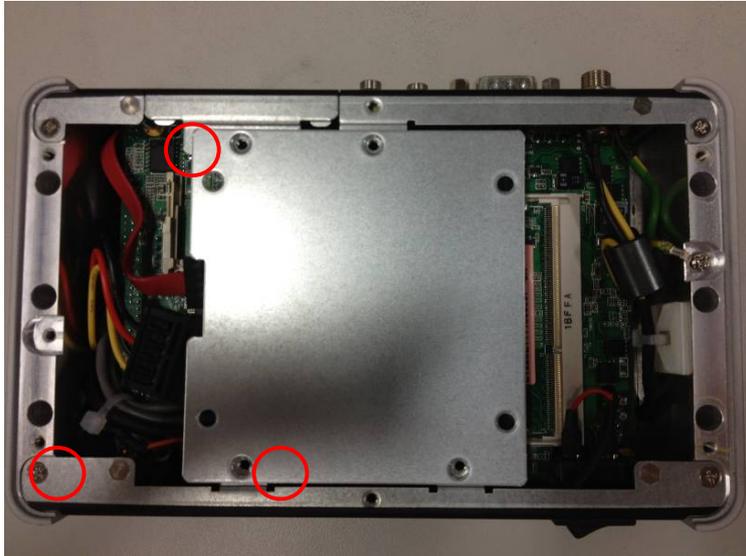
Step 5 Remove the HDD bracket

Step 6 Assembly the HDD bracket together with the SATA HDD
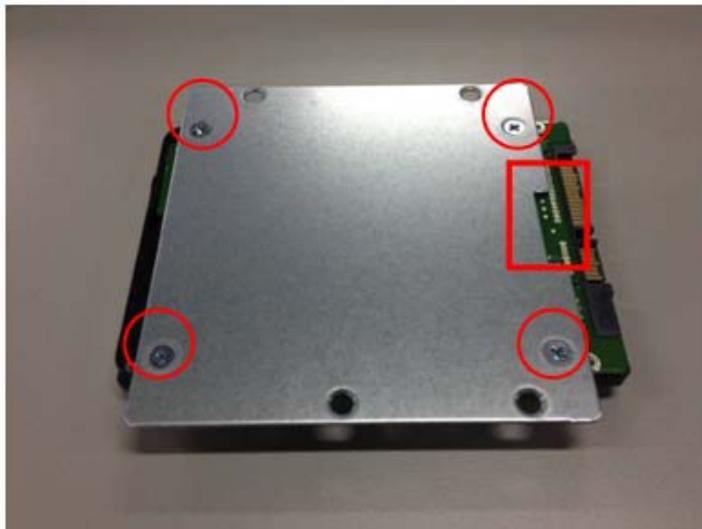
Step 7   Connect SATA cable and power cable to SATA HDD.

Step 8   Close the HDD bracket to the chassis, and fasten all of screws.
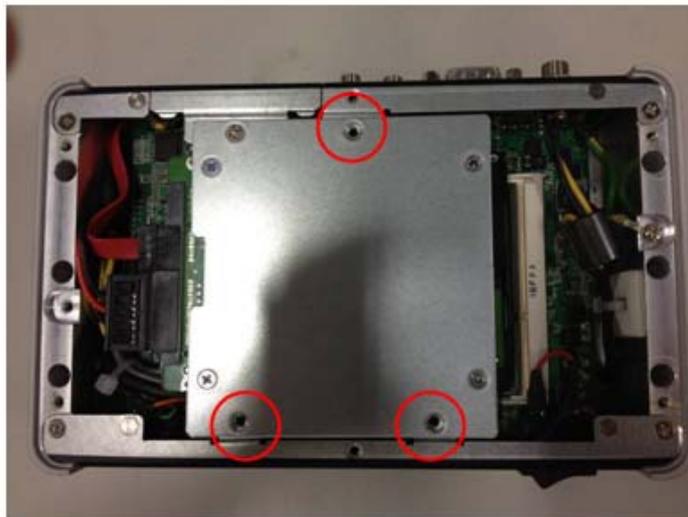
Step 9   Close the bottom cover to the chassis, and fasten all of screws.

2.3   Installing the CompactFlash

Step 1 Turn off the system, and unplug the power cord.

Step 2 Turn the system upside down to locate screws at the
Bottom, loosen screws.

Step 3 Loosen screws to remove the CF cover.

Step 4 Stick the Mylar onto the Compact Flash card

Step 5 Slide CF card into CF slot with caution.

Step 6 Bend the CF Mylar with caution.

Step 7 Close the cover to the chassis, and fasten all screws.

PS: security screw for CF cover

2.4   Installing the PCI-Express Mini Card

Step 1   Turn off the system, and unplug the power cord.

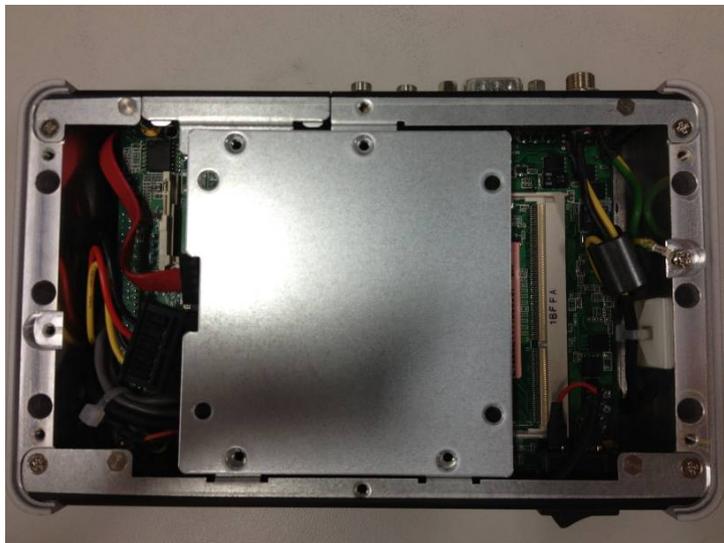**Step 2**   Turn the system upside down to locate screws at the
Bottom, loosen screws.
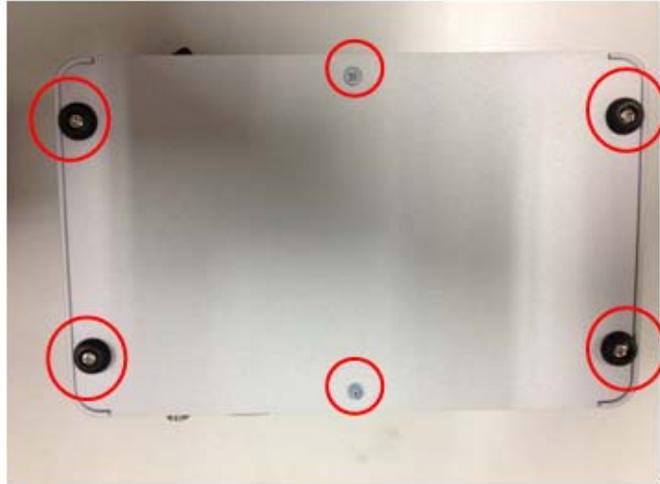
Step 3 Loosen screws at left side and right side. There are total 6 screws.

Step 4 Remove the top heat sink to locate the PCI-Express Mini
Card slot.

Step 5 Slide Mini cards into Mini Card slot with caution and
Fasten screw of Express Mini Card.

Step 6 Assembly the Top Cover back and fasten all screws.

Note: In likely conditions, user may have to replace new thermal pads when existing thermal pad are damaged, dirty or missed. There are two thermal pads in the accessory kit for the need.

2.5   Installing the Wall Mount (Optional)

The DSB310-110 provides wall Mount that customers can install as below:

Step 1 Prepare Wall Mount assembling components (screws and bracket) ready.

Step 2 Loose the screw of four footpads at the bottom of DSB310-110 and remove footpad.
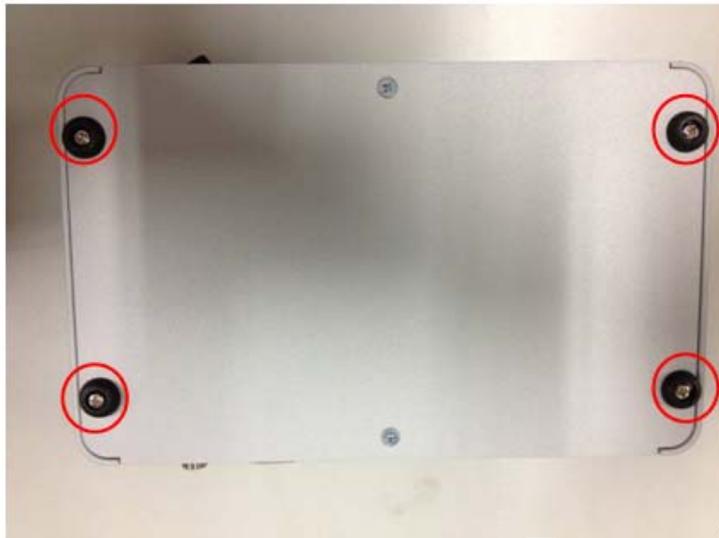
Step 3   Fix the wall mount to the correct location, and fasten all screws.
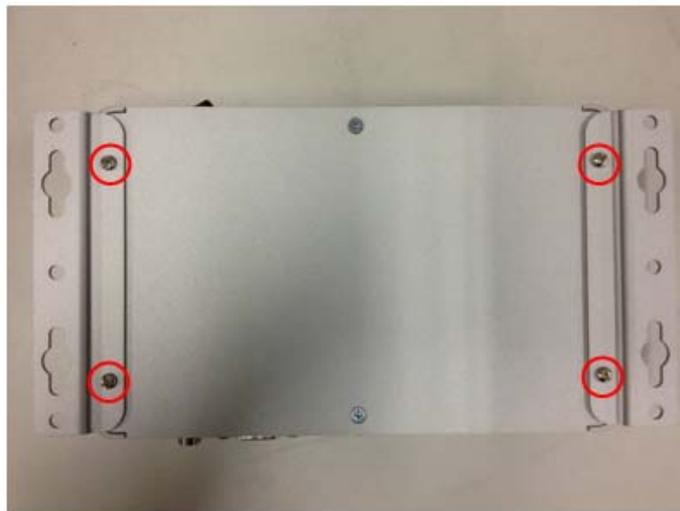
2.6   Installing the VESA Mount (optional)

The DSB310-110 provides VESA Mount that customers can install as below:

Step 1   Prepare VESA Mount assembling components (screws and

VESA mount bracket) ready.
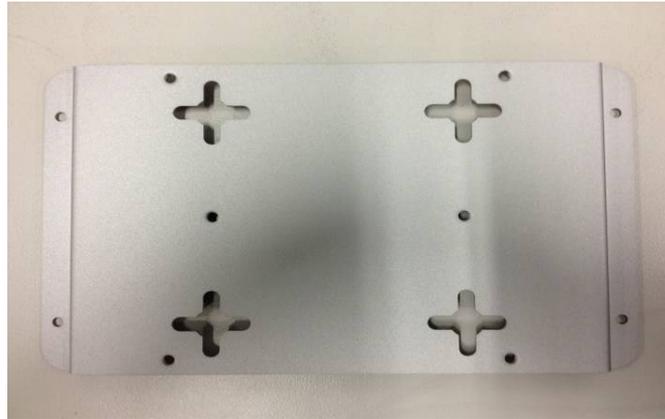
Step 2   Loose the screw of four footpads at the bottom of DSB310-110, and remove footpad.
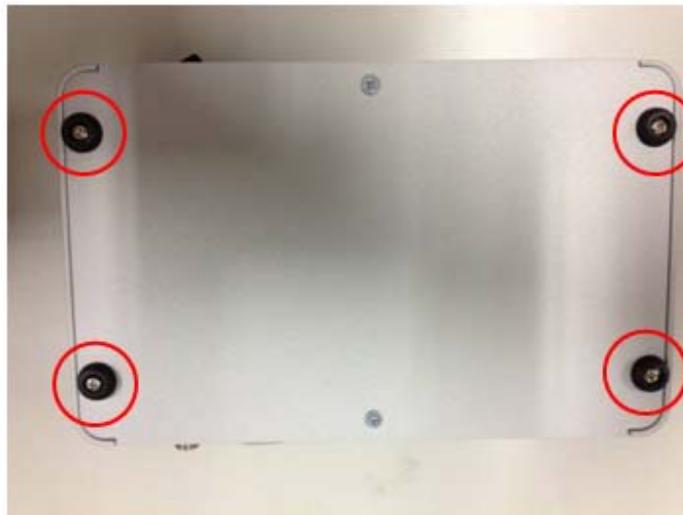
Step 3 Decide correct mounting direction.DSB310-110 supports both 100x100mm and 75x75mm VESA mount. The 100x100mm type has special direction.
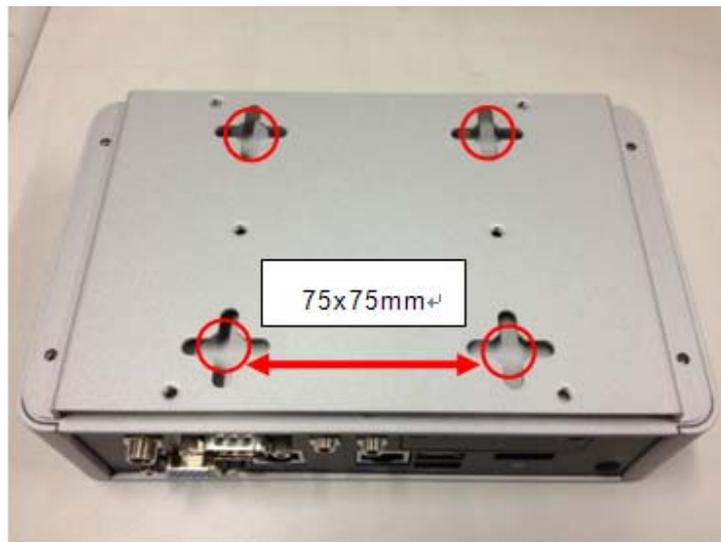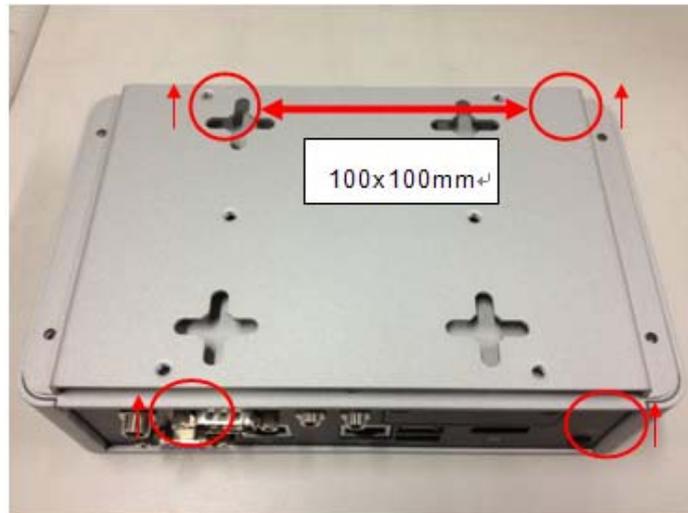
Step 4 Fix the VESA mount to the correct location, and fasten all screws.

MEMO:

CHAPTER 3
Jumper Setting & Connector

Proper jumper settings configure the DSB310-110 to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

3.1   SBC layout
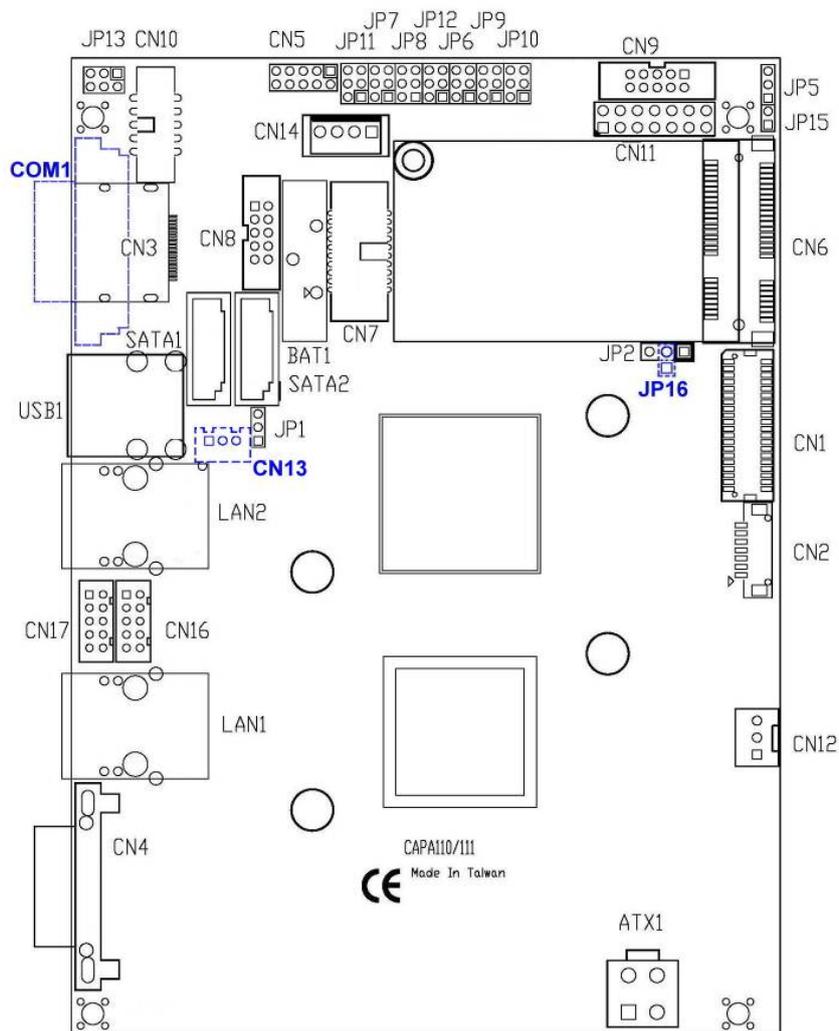
TOP Side
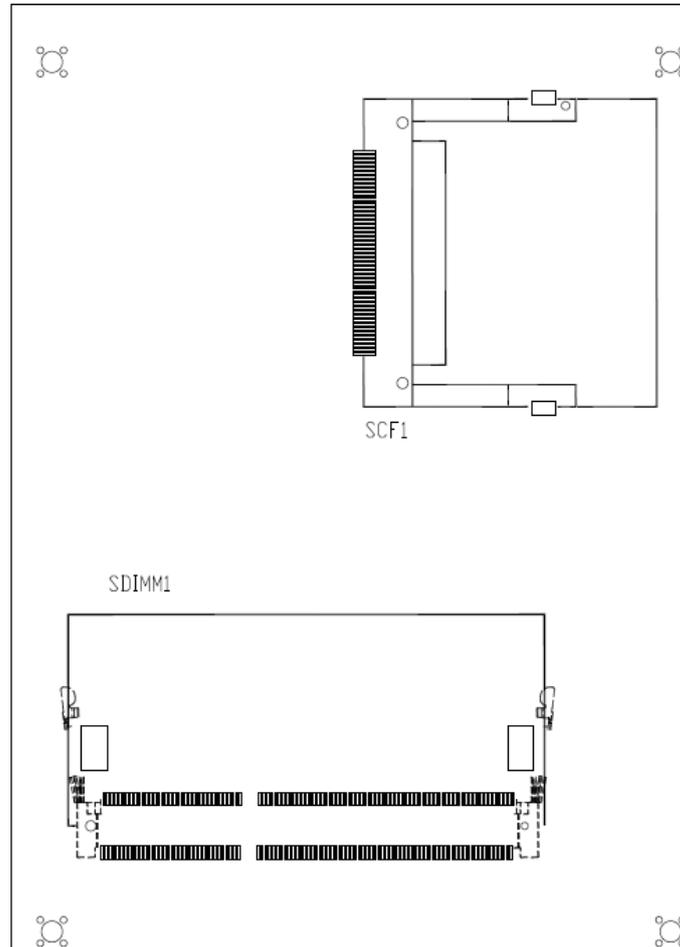
Bottom Side

Note: We strongly recommended that you should not modify any unmentioned jumper setting without Axiomtek FAE's instruction. Any modification without instruction might cause system to become damage.

3.2   Jumper Setting Summary

Proper jumper settings configure the DSB310-110 to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

Jumper	Description	Jumper Setting
JP1	Restore BIOS Optimal Defaults Default: Normal Operation	1-2 close
JP5	CompactFlash™ Voltage Selection Default: +3.3V	1-2 close
JP6	COM1 RS-232/422/485 Mode Setting Default: RS-232	1-2 close
JP9		3-5, 4-6 close
JP10		3-5, 4-6 close
JP13	Audio Output Selection Default: Line Out	1-3, 2-4 close
JP15	Auto Power On Default: Disable	1-2 close

3.2.1 Restore BIOS Optimal Defaults (JP1)

Put jumper clip to pin 2-3 for a few seconds then move it back to pin 1-2. Doing this procedure can restore BIOS optimal defaults

Function	Jumper Setting
1-2 close Normal (Default)	
2-3 close Restore BIOS optimal defaults	
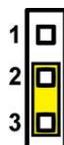
3.2.2 CompactFlash™ Voltage Jumper (JP5)

This jumper is for CompactFlash™ voltage level selection. Use it to set CompactFlash™ connector (SCF1) pin 13 (VCC) and pin 38 (VCC) to +3.3.V or +5V.

Function	Jumper Setting
1-2 close +3.3V level (Default)	
2-3 close +5V level	

3.2.3 COM1 RS-232/422/485 Mode Setting (JP6, JP9, JP10)

Use these jumpers to set COM1 port to operate as RS-232, RS-422 or RS-485 communication mode. When these jumpers are set to operate as RS-422 or RS485, please make sure COM1 is on data mode

Function	Setting
RS-232 mode setting (Default)	JP6 1-2 close JP9 3-5, 4-6 close JP10 3-5, 4-6 close
RS-422 mode	JP6 3-4 close JP9 1-3, 2-4 close JP10 1-3, 2-4 close
RS-485 mode	JP6 5-6 close JP9 1-3, 2-4 close JP10 1-3, 2-4 close
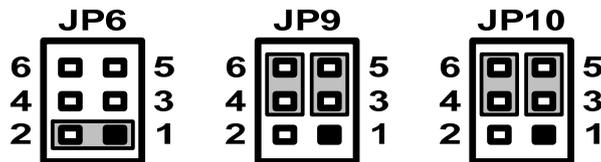
3.2.4 Audio Output Jumper (JP13)

JP13 is to select line out or speaker out as source of audio output on audio connector CN10. When speaker out is used, it delivers 2W/channel continuous into 8 Ohm loads

Function	Jumper Setting
1-3, 2-4 close Line Out (Default)	5 3 1 6 4 2
3-5, 4-6 close Speaker Out	5 3 1 6 4 2

3.2.5 Auto Power On (JP15)

If JP15 is enabled for AC power input, the system will be automatically power on without pressing soft power button. If JP15 is disabled for AC power input, it is necessary to manually press soft power button to power on the system.

Function	Setting
Disable auto power on (Default)	1-2 close
Enable auto power on	1-2 open

3.3   Connectors

Connectors connect the board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors on the DSB310-110.

External Connectors	Section
DC-in Jack Power Connector	3.3.1
Serial Port Connector	3.3.2
VGA Connector	3.3.3
LAN Connector(LAN1,LAN2)	3.3.4
USB Connector	3.3.5
ATX Power On/Off Button	3.3.6
Audio Connector	3.3.7
Display Port Connector	3.3.8
Internal Connectors	**Section**
SATA Connector	3.3.9
CompactFlash™ Socket	3.3.10
DDR3 SODIMM Socket	3.3.11
Express Mini Card Slot	3.3.12

3.3.1 DC-in Jack Power Connector

Connect it to the power AC-DC 60W Adapter

Pin	Signal
1	+12V
2	GND

3.3.2 Serial Port Connector

The system has three serial ports. COM1 is RS-232/422/485 port.

Pin	Description
1	DCD, Data Carrier Detect
2	RXD, Receive Data
3	TXD, Transmit Data
4	DTR, Data Terminal Ready
5	GND, Ground
6	DSR, Data Set Ready
7	RTS, Request To Send
8	CTS, Clear To Send
9	RI, Ring Indicator

COM1
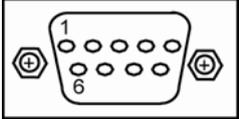
3.3.3 VGA Connector

The VGA connector is a slim type 15-pin D-Sub connector which is common for the CRT VGA display. The VGA interface configuration can be configured via the software utility.

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	2	Green	3	Blue
4	N.C.	5	GND	6	DETECT
7	GND	8	GND	9	VCC
10	GND	11	N.C.	12	DDC DATA
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK
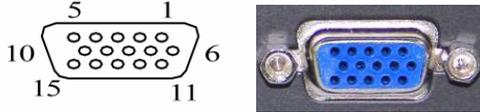
3.3.4 LAN Connector (LAN1, LAN2)

The RJ-45 connector is for Ethernet. To connect the board to a 1000/100/10 Base-T hub, just plug one end of the cable into connector and connect the other end (phone jack) to a 1000/100/10-Base-T hub

Pin	Signal	Pin	Signal		
L1	MDI0+	L5	MDI2-		
L2	MDI0-	L6	MDI1-		
L3	MDI1+	L7	MDI3+		
L4	MDI2+	L8	MDI3-		
A	Active LED (Yellow)				
B	100 LAN LED (Green)/ 1000 LAN LED (Orange)				
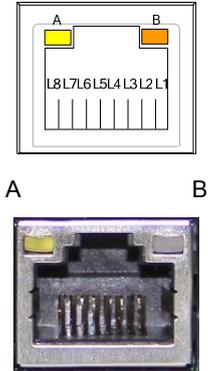
3.3.5 USB Connector

These ports can be routed to UHCI controller #1 or EHCI controller #1.

Pin	Signal	Pin	Signal	
1	USB VCC (+5V level)	5	USB VCC (+5V level)	
2	USB #0_D-	6	USB #1_D-	
3	USB #0_D+	7	USB #1_D+	
4	Ground (GND)	8	Ground (GND)	
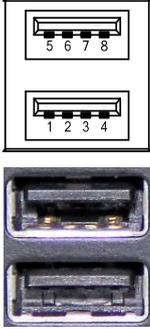
3.3.6 ATX Power On/OFF Button

The ATX power button is on the I/O side. It can allow users to control DSB310-110 power on/off.

Pin	Signal	
1	GND	
2	PSIN	
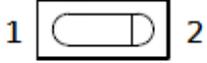
3.3.7 Audio Connector

These two audio jacks ideal are for Audio Mic-In and Audio Line-out.

Pin	Signal	
1	Microphone In	
2	Line Out	
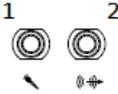
3.3.8 Display Port Connector

Display Port is a standard designed to replace digital (DVI) and analog component video (VGA) connectors in computer monitors and video cards, as well as replace internal digital LVDS links in computer monitor panels and TV panels.

Pin	Signal
1	DPB_LANE0
2	GND
3	DPB_LANE0#
4	DPB_LANE1
5	GND
6	DPB_LANE1#
7	DPB_LANE2
8	GND
9	DPB_LANE2#
10	DPB_LANE3
11	GND
12	DPB_LANE3#
13	Detect Pin
14	GND
15	DPB_AUX
16	GND
17	DPB_AUX#
18	DPB_HPDE
19	GND
20	+3.3V
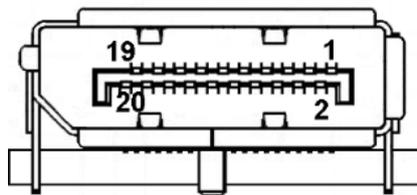
3.3.9 SATA Connector

The SATA connector is for high-speed SATA interface ports and they can be connected to hard disk devices.

Pin	Signal
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND

3.3.10 CompactFlash™ Socket

The system is equipped with a CompactFlash™ type-II socket with DMA mode to support an IDE interface CompactFlash™ disk. The socket is designed to avoid incorrect installation of the CompactFlash™ disk card. When installing or removing the CompactFlash™ disk card, please make sure the system power is off.

The CompactFlash™ disk card is defaulted as the C: or D: disk drive in your PC system. Pin13 and Pin 38 power voltage can be referred to JP3 Jumper Setting (See Section 3.2.1).

Pin	Signal	Pin	Signal
1	GND	26	CD1-
2	Data 3	27	Data 11
3	Data 4	28	Data 12
4	Data 5	29	Data 13
5	Data 6	30	Data 14
6	Data 7	31	Data 15
7	CS0#	32	CS1#
8	Address 10	33	VS1#

Pin	Signal	Pin	Signal
9	ATASEL	34	IORD#
10	Address 9	35	IOWR#
11	Address 8	36	WE#
12	Address 7	37	INTR
13	VCC	38	VCC
14	Address 6	39	CSEL#
15	Address 5	40	VS2#
16	Address 4	41	RESET#
17	Address 3	42	IORDY#
18	Address 2	43	DMAREQ
19	Address 1	44	DMAACK-
20	Address 0	45	DASP#
21	Data 0	46	PDIAG#
22	Data 1	47	Data 8
23	Data 2	48	Data 9
24	IOCS16#	49	Data 10
25	CD2#	50	GND
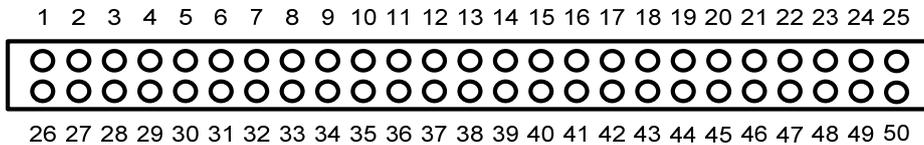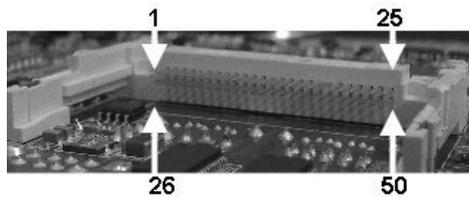
3.3.11 DDR3 SODIMM Socket

DSB310-110 supports standard DDR3 204-pin 1066/1333 MHz SO-DIMM pin define
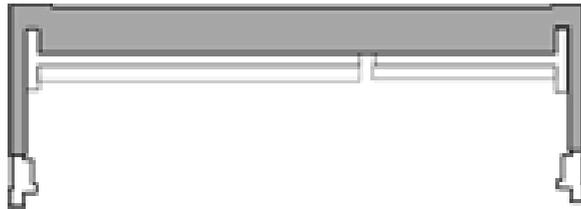
3.3.12 Express Mini Card Slot

PCI Express Mini Card connector supports a PCI Express x1 link and a USB 2.0 link. A PCI Express Mini Card can be applied to either PCI Express or USB 2.0. The USB 2.0 support will be helpful during the transition to PCI Express, because peripheral vendors will need time to design their chipsets to have the PCI Express function. During the transition, PCI Express Mini Cards can be quickly implemented by using USB 2.0

Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	No use
9	GND	10	No use
11	REFCLK-	12	No use
13	REFCLK+	14	No use
15	GND	16	No use
17	No use	18	GND

Pin	Signal	Pin	Signal
19	No use	20	No use
21	GND	22	PERST#
23	PE_RXN3	24	+3.3VSB
25	PE_RXP3	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PE_TXN3	32	SMB_DATA
33	PE_TXP3	34	GND
35	GND	36	USB_D8-
37	GND	38	USB_D8+
39	+3.3VSB	40	GND
41	+3.3VSB	42	No use
43	GND	44	No use
45	No use	46	No use
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB
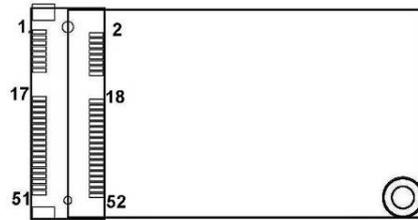
CHAPTER 4
AMI BIOS SETUP UTILITY

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

4.1   Starting

To enter the setup screens, follow the steps below:

1.   Turn on the computer and press the <Del> key immediately.

2.   After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens 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.

These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.

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

← **Left/Right**	The Left and Right <Arrow> keys allow you to select a setup screen.
↑↓ **Up/Down**	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– **Plus/Minus**	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F10	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

4.3   Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

```
         Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Main  Advanced  Chipset  Boot  Security  Save & Exit

  BIOS Information                                    Set the Date. Use Tab to
  Project Name                 CAPA110 XC004          switch between Data elements.

  Memory Information
  Total Memory                  4080 MB (DDR3)

  System Date                  [Fri 12/23/2011]
  System Time                  [02:50:58]

  Access Level                 Administrator

                                                      ++: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit


         Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

●➢ **System Time/Date**

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

4.4   Advanced Menu

The Advanced menu allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

► ACPI Settings

► CPU Configuration

► IDE Configuration

► USB Configuration

► W83627UHG Super IO Configuration

► H/W Monitor

For items marked with "►", please press <Enter> for more options.
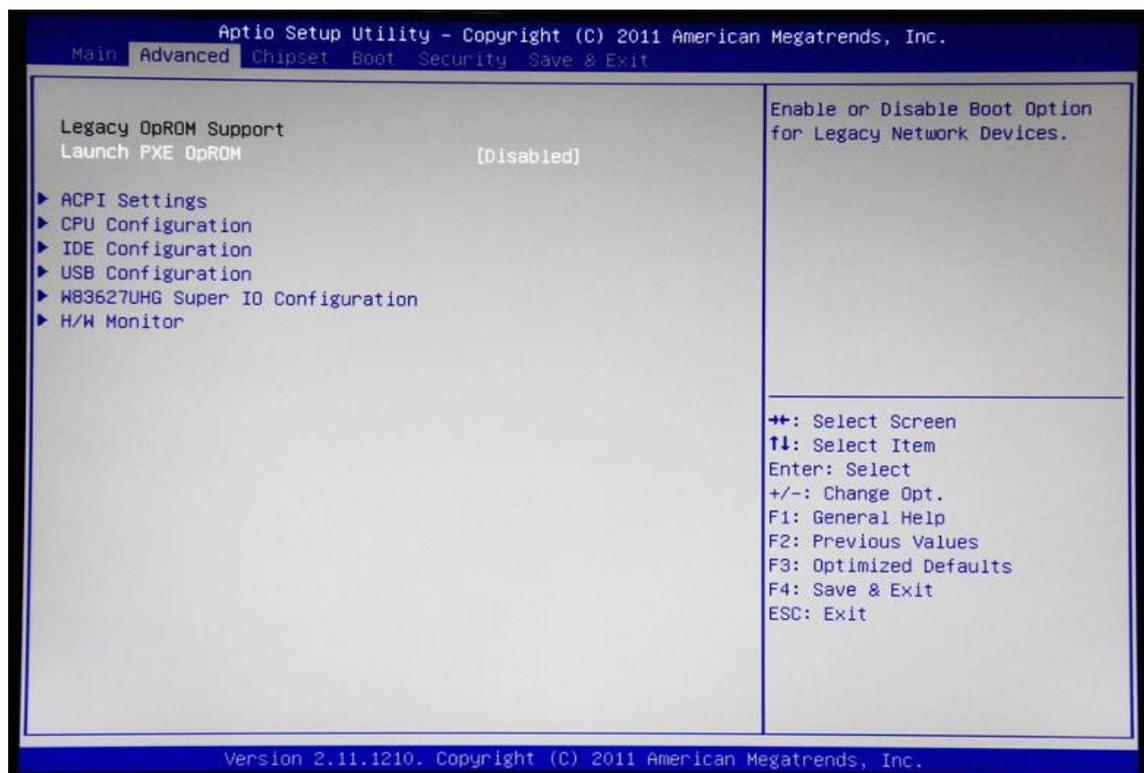
● **CPU Configuration**

This screen shows the CPU Configuration, and you can change the value of the selected option.
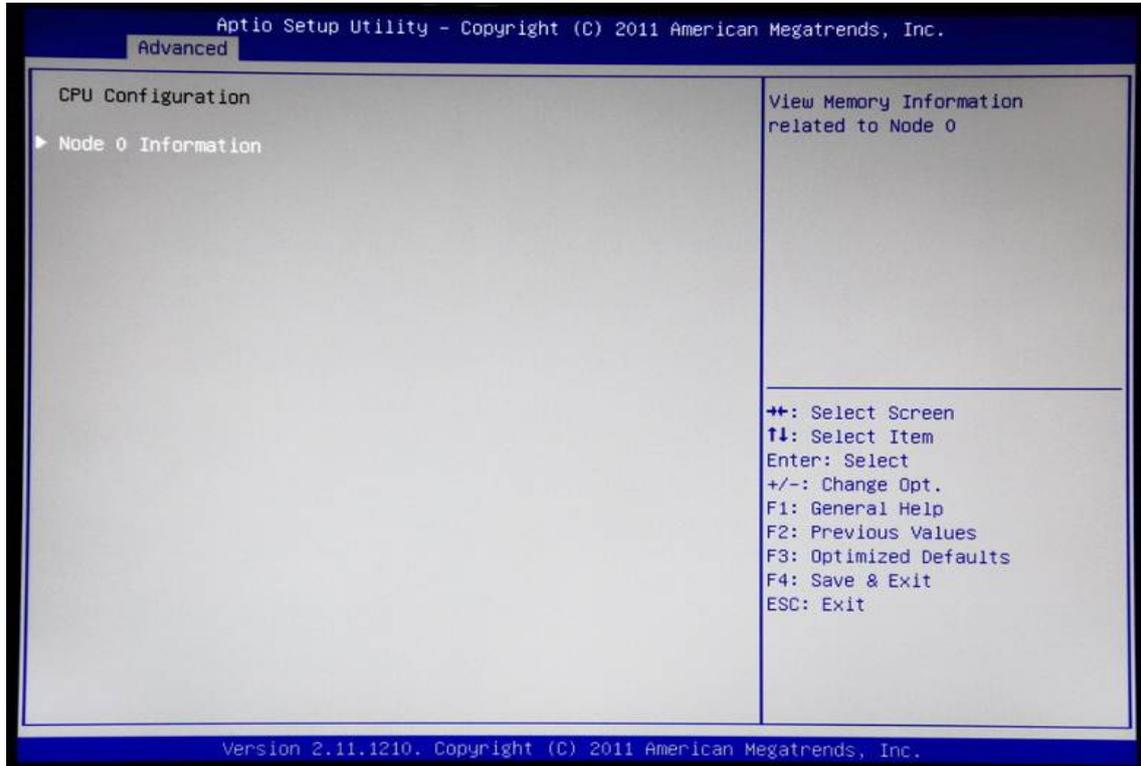
●➢ **Node 0 Information**

View information related to Node 0.

● **IDE Configuration**

In the IDE Configuration menu, you can see the currently installed hardware in the SATA ports. During system boot up, the BIOS automatically detects the presence of SATA devices.

- **USB Configuration**

You can use this screen to select options for the USB Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.
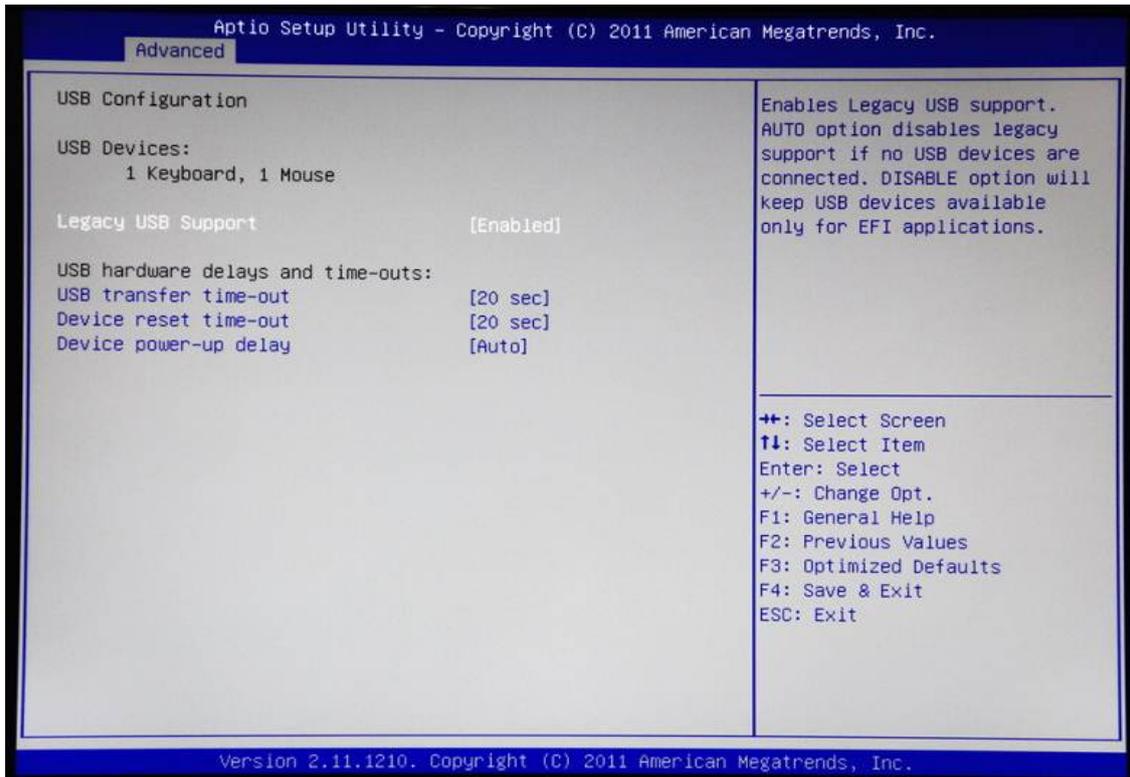
> **Legacy USB Support**

Use this item to enable or disable support for USB device on legacy operating system. The default setting is Enabled. Auto option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications.
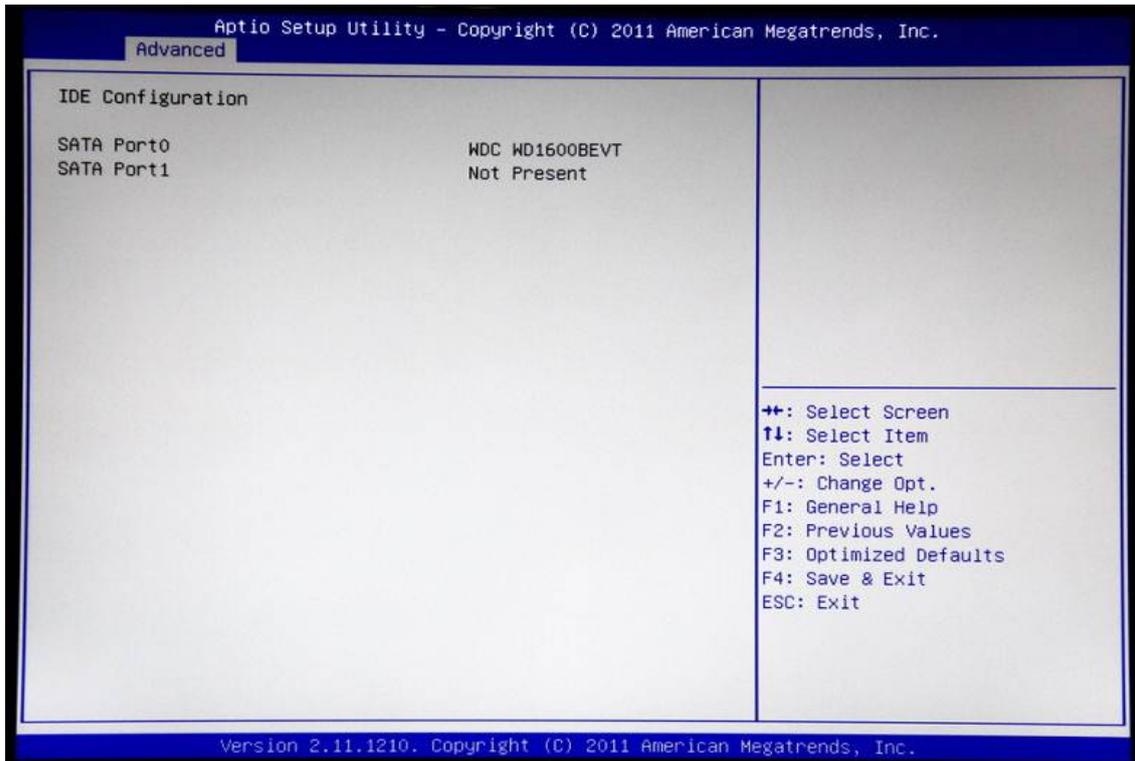
> **USB transfer time-out**

The time-out value for control, bulk and interrupt transfers.

> **Device reset time-out**

USB mass storage device start unit command time-out.

> **Device power-up delay**

Maximum time the device will take before it properly reports itself to the host controller. "Auto" uses default value: for a root port it is 100ms, for a hub port the delay is taken from hub descriptor

● **W83627UHG Super IO Configuration**

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced

W83627UHG Super IO Configuration

Super IO Chip   Nuvoton W83627UHG
► W83627UHG Serial Port 1 Configuration
► W83627UHG Serial Port 2 Configuration

Set Parameters of Serial Port 1 (COMA)

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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➢ **W83627UHG Serial Port Configuration**

The configuration of serial port 1~2 are set <Enabled> as default.

AMI BIOS Setup Utility

● **H/W Monitor**

This screen displays the system and CPU temperature, and system voltages (VCORE, +12V, +5V and +3.3V).
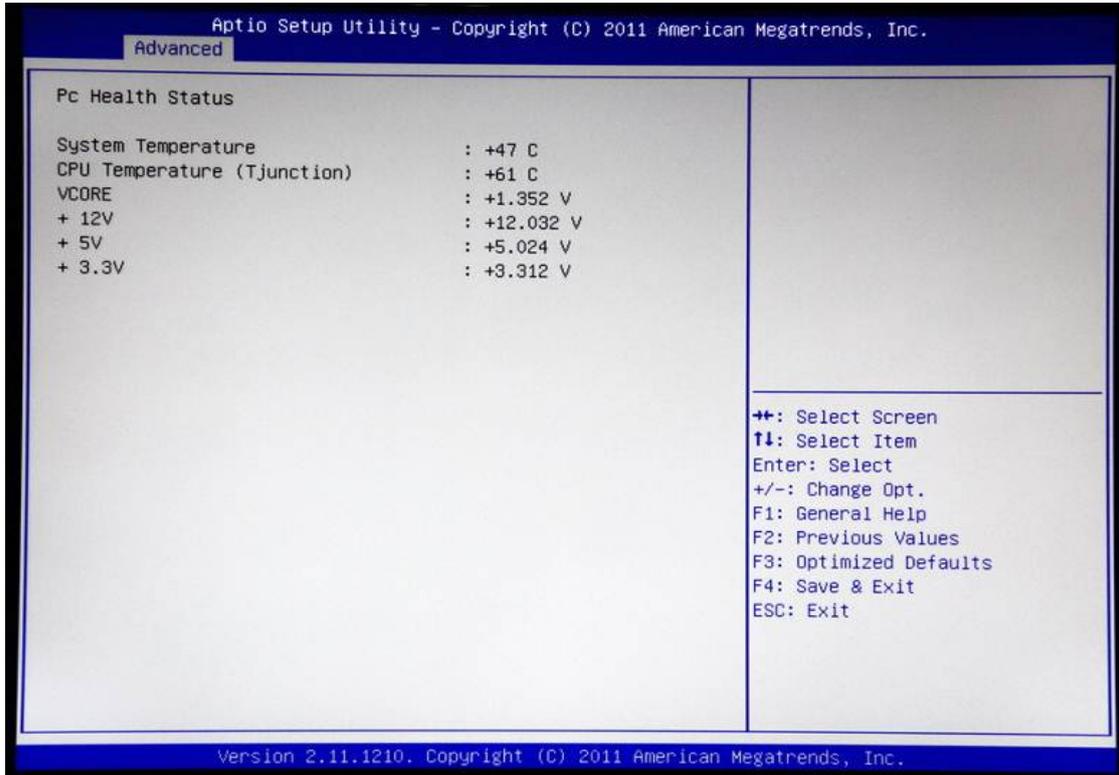
4.5   Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

► North Bridge

► South Bridge

For items marked with "►", please press <Enter> for more options.
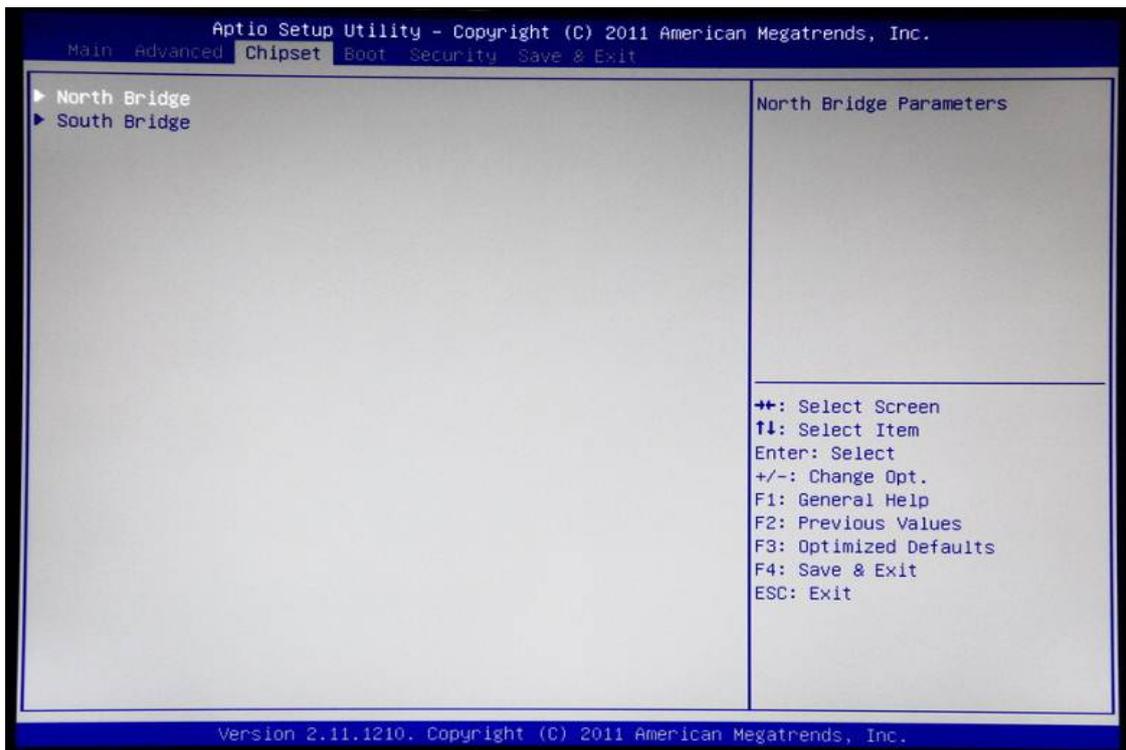
● **North Bridge Configuration**

This screen allows users to configure parameters of North Bridge chipset.
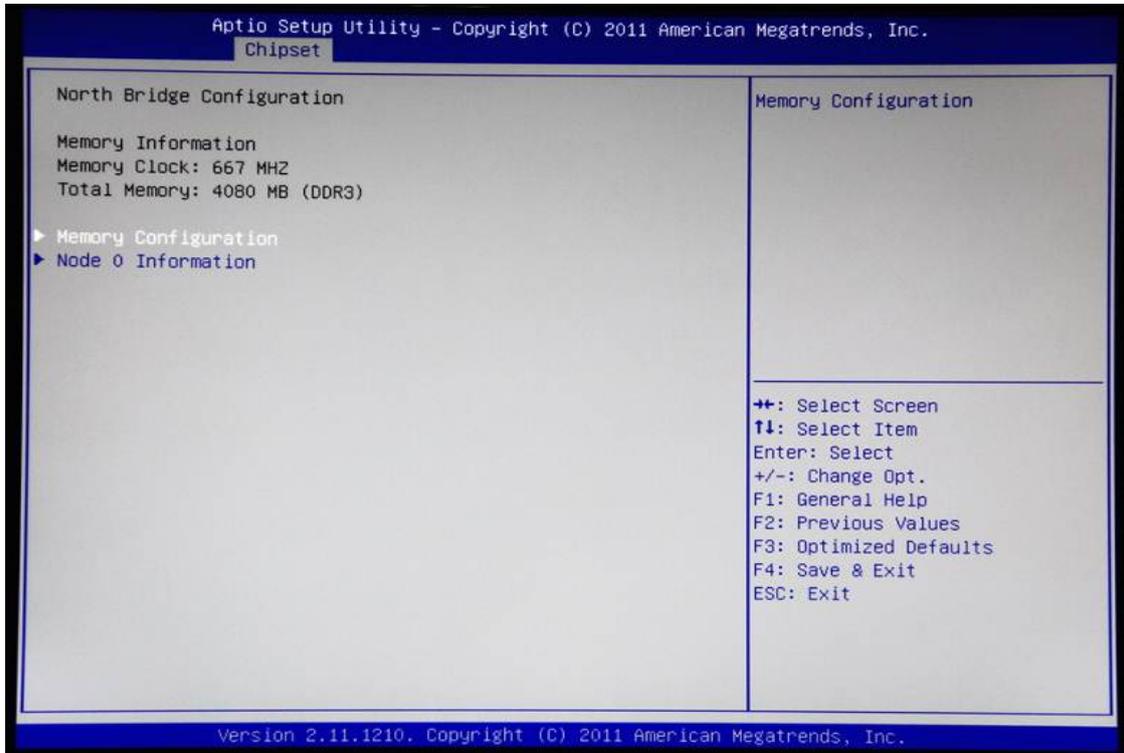
> **Memory Configuration**

—All of options are set Auto as default

> **Node 0 Information**

This item is to provide user with the information of current using DDRIII SDRAMs.

● **South Bridge**

This screen allows users to configure South Bridge chipset. For items marked with "►", please press <Enter> for more options.

► SB SATA Configuration

► SB USB Configuration

► SB HD Aralia Configuration
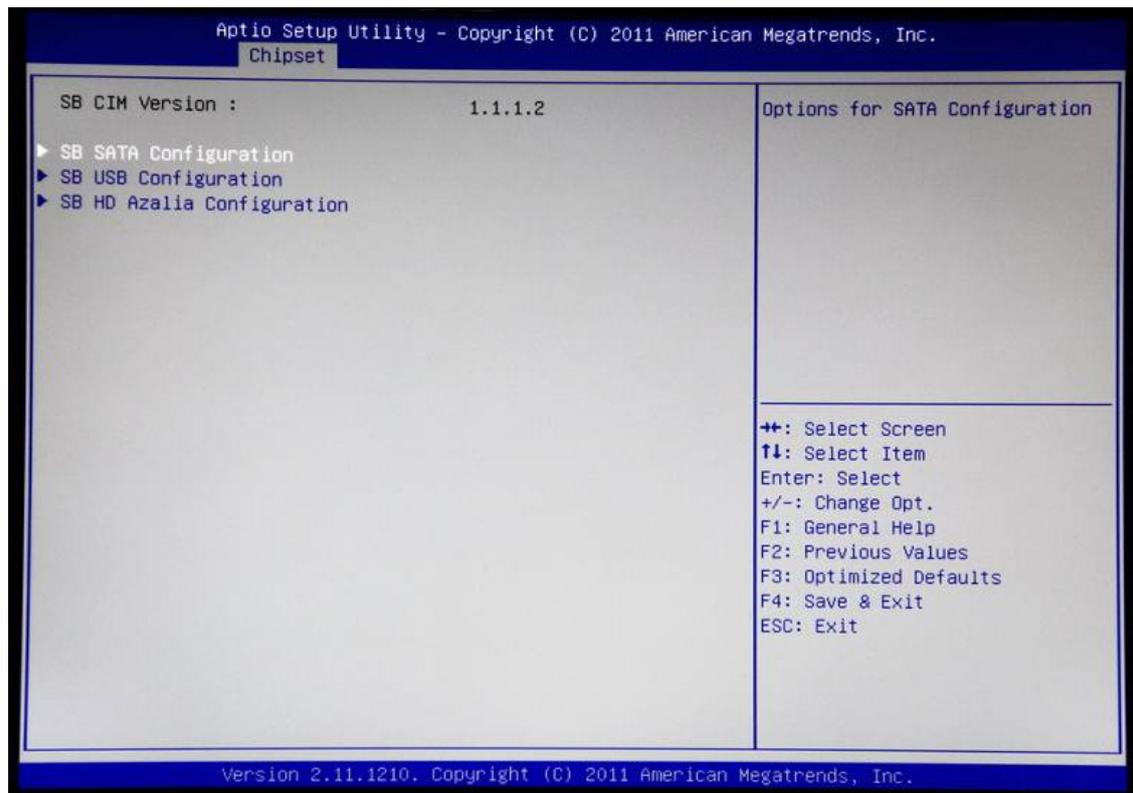
> **SB SATA Configuration**

Use this item to select option for SATA configuration.

> **SB USB Configuration**

Use this item for further setting USB port configuration.

> **SB HD Azalea Configuration**

This item allows you to further control the HD audio device.

4.6 Boot Menu

The Boot menu allows users to change boot options of the system.
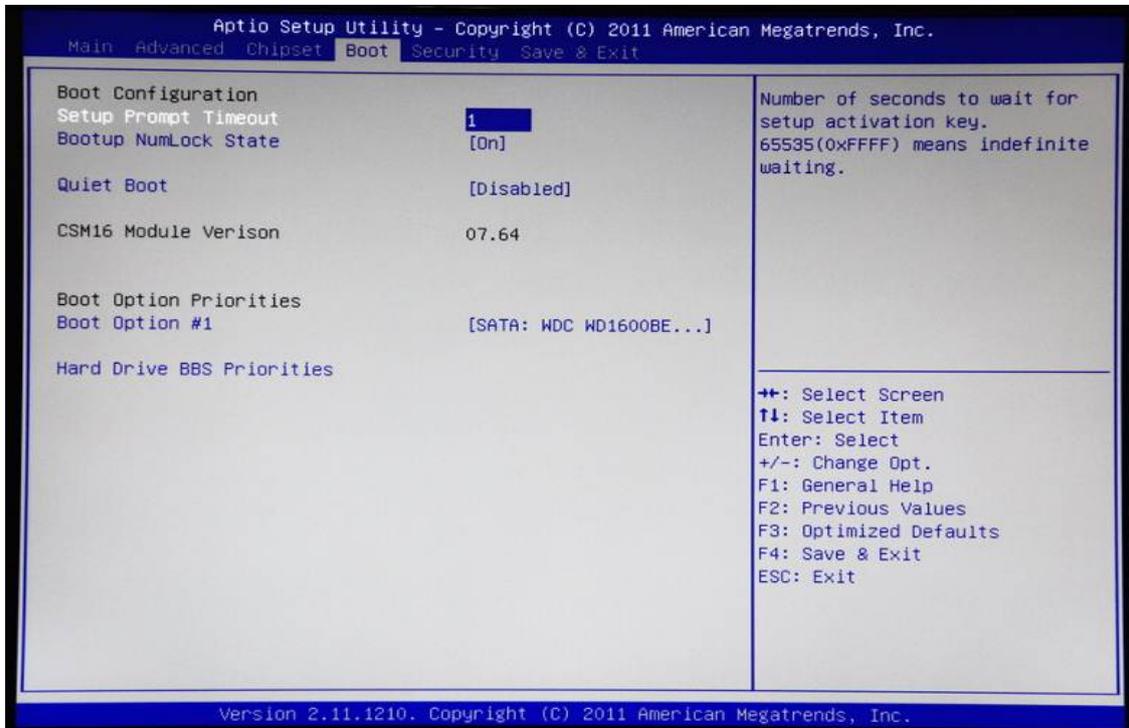
> ➢ **Supervisor Password**

This item indicates whether a supervisor password has been set. If the password has been installed, 『Installed』 displays. If not, 『Not Installed』 displays.

> ➢ **User Password**

This item indicates whether a user password has been set. If the password has been installed, 『Installed』 displays. If not, 『Not Installed』 displays.

> ➢ **Change Supervisor Password**

Select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

> ➢ **Change User Password**

Select this option and press <Enter> to access the sub menu. You can use the sub menu to change the user password.

4.7   Security Menu

The Security menu allows users to change the security settings for the system.
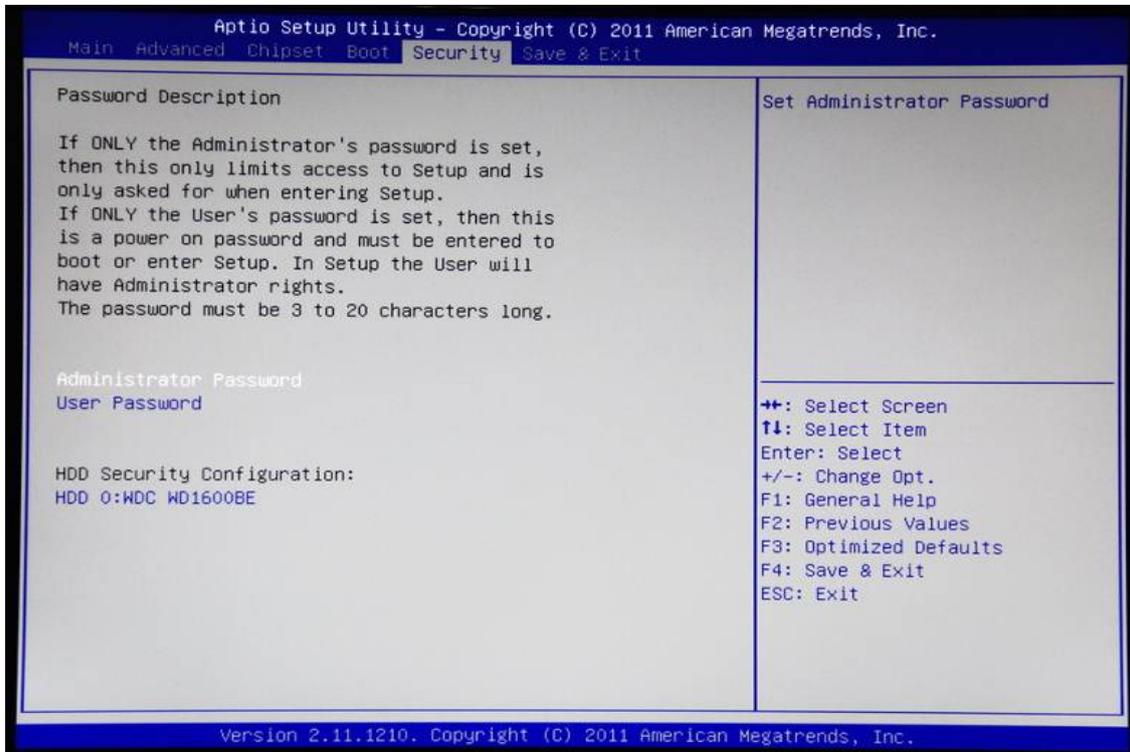
> **Administrator Password**

This item indicates whether an administrator password has been set (installed or uninstalled).

> **User Password**

This item indicates whether an user password has been set (installed or uninstalled).

4.8   Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or fail-safe default values.
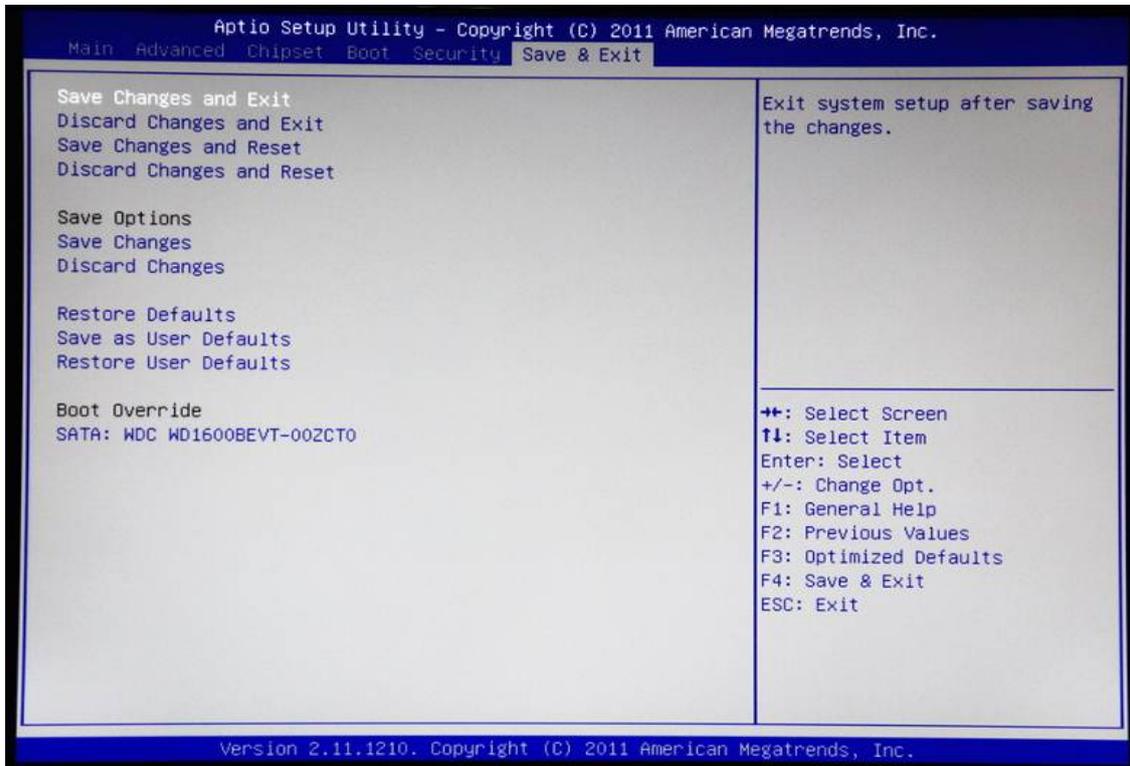
> ➢ **Save Changes and Exit**

  When you have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.

> ➢ **Discard Changes and Exit**

  Select this option to quit Setup without making any permanent changes to the system configuration and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.

> ➢ **Save Changes and Reset**

  When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

> **Discard Changes and Reset**

Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

> **Save Changes**

When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

> **Discard Changes**

Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

> **Restore Defaults**

It automatically sets all Setup options to a complete set of default settings when you select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.

> **Save as User Defaults**

Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

> **Restore User Defaults**

It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

APPENDIX A
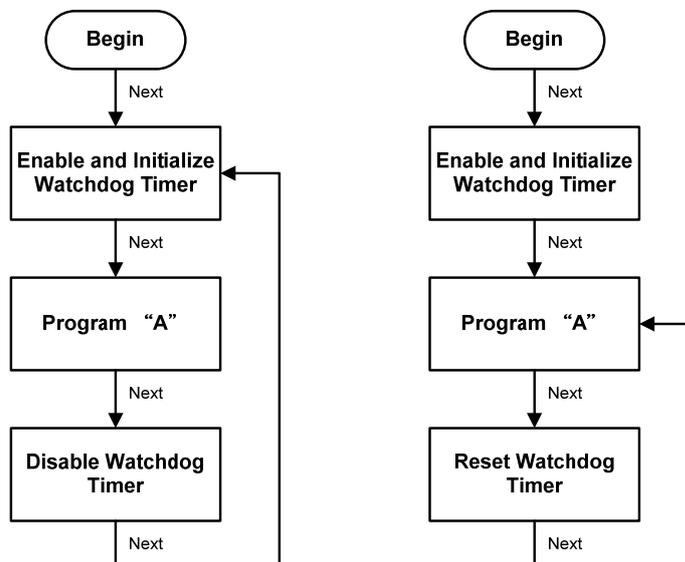# WATCHDOG TIMER

About Watchdog Timer

Software stability is major issue in most application. Some embedded systems are not watched by human for 24 hours. It is usually too slow to wait for someone to reboot when computer hangs. The systems need to be able to reset automatically when things go wrong. The watchdog timer gives us solution.

The watchdog timer is a counter that triggers a system reset when it counts down to zero from a preset value. The software starts counter with an initial value and must reset it periodically. If the counter ever reaches zero which means the software has crashed, the system will reboot.

How to Use Watchdog Timer

The I/O port base addresses of watchdog timer are 2E (hex) and 2F (hex). The 2E (hex) and 2F (hex) are address and data port respectively.

Assume that program A is put in a loop that must execute at least once every 10ms. Initialize watchdog timer with a value bigger than 10ms. If the software has no problems; watchdog timer will never expire because software will always restart the counter before it reaches zero.

```
        Begin                              Begin

         │ Next                             │ Next
         ▼                                  ▼
  ┌──────────────┐                   ┌──────────────┐
  │Enable and    │◄──┐               │Enable and    │
  │Initialize    │   │               │Initialize    │
  │Watchdog Timer│   │               │Watchdog Timer│
  └──────────────┘   │               └──────────────┘
         │ Next      │                      │ Next
         ▼           │                      ▼
  ┌──────────────┐   │               ┌──────────────┐
  │              │   │               │              │◄──┐
  │ Program "A"  │   │               │ Program "A"  │   │
  │              │   │               │              │   │
  └──────────────┘   │               └──────────────┘   │
         │ Next      │                      │ Next      │
         ▼           │                      ▼           │
  ┌──────────────┐   │               ┌──────────────┐   │
  │Disable       │   │               │Reset         │   │
  │Watchdog      │   │               │Watchdog      │   │
  │Timer         │   │               │Timer         │   │
  └──────────────┘   │               └──────────────┘   │
         │ Next      │                      │ Next      │
         └───────────┘                      └───────────┘
```

Sample Program

Assembly sample code :

;Enable WDT:

```
mov     dx,2Eh
mov     al,87                    ;Un-lock super I/O
out     dx,al
out     dx,al
```

;Select Logic device:

```
mov     dx,2Eh
mov     al,07h
out     dx,al
mov     dx,2Fh
mov     al,08h
out     dx,al
```

;Activate WDT:

```
mov     dx,2Eh
mov     al,30h
out     dx,al
mov     dx,2Fh
mov     al,01h
out     dx,al
```

;Set Second or Minute :

```
mov     dx,2Eh
mov     al,0F5h
out     dx,al
mov     dx,2Fh
mov     al,Nh                    ;N=00h or 08h(see below     Note)
out     dx,al
```

```
;Set base timer :
mov     dx,2Eh
mov     al,0F6h
out     dx,al
mov     dx,2Fh
mov     al,Mh              ;M=00h,01h,...FFh (hex),Value=0 to 255
out     dx,al             ;(see below 🖎 Note)


;Disable WDT:
mov     dx,2Eh
mov     al,30h
out     dx,al
mov     dx,2Fh
mov     al,00h            ;Can be disabled at any time
out     dx,al
```

🖎 *Note*:

If N=00h, the time base is set to second.

M = time value

   00: Time-out Disable

   01: Time-out occurs after 1 second

   02: Time-out occurs after 2 seconds

   03: Time-out occurs after 3 seconds

   .

   .

   FFh: Time-out occurs after 255 seconds

*If **N**=08h, the time base is set to minute.*

M = *time value*

00: Time-out Disable

01: Time-out occurs after 1 minute

02: Time-out occurs after 2 minutes

03: Time-out occurs after 3 minutes

.

.

FFh: Time-out occurs after 255 minutes