IEI Integration Corp.

MODEL:

IDS-200-A70Mi

Fanless Digital Signage Player with AMD R-260H Dual-Core CPU, AMD A70M Chipset, Four HDMI, GbE LAN, RS-232, USB 3.0, SD Slot, IPMI 2.0, RoHS Compliant

User Manual

Rev. 1.00 – 14 February, 2014

RoHS Lead Free

Revision

Date	Version	Changes
14 February, 2014	1.00	Initial release

Copyright

COPYRIGHT NOTICE

The information in this document is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

TRADEMARKS

All registered trademarks and product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective owners.

WARNING

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and(2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/ TV technician for help.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Table of Contents

List of Figures

List of Tables

List of BIOS Menus

Chapter

1

Introduction

1.1 Overview

Figure 1-1: IDS-200-A70Mi Series Digital Signage Player

The IDS-200-A70Mi series is a fanless digital signage player with AMD R-260H dual-core processor and AMD A70M APU Controller Hub. The IDS-200-A70Mi is preinstalled 4 GB of DDR3 SO-DIMMs and can accommodate up to 16 GB of DDR3 memory. Storage in the system is supported by the 2.5" SATA 6Gb/s HDD bay, the PCIe Mini card slot for mSATA module, and the SD card slot on the side panel.

The IDS-200-A70Mi includes four HDMI output interfaces supporting up to 1920 x 1200 resolutions. Other slots and connectors include half-size PCIe Mini card slot, RS-232, GbE ports, USB 3.0 ports, USB 2.0 ports, S/PDIF connector and audio out.

1.2 Model Variations

There are two models of the IDS-200-A70Mi series. The model numbers and model variations are listed below.

	CPU	Memory	Wi-Fi	iRIS-2400
IDS-200-A70Mi/4G	2.1 GHz AMD R-260H	4.0 GB	N/A	Optional
IDS-200W-A70Mi/4G	2.1 GHz AMD R-260H	4.0 GB	802.11b/g/n	Optional

Table 1-1: Model Variations

1.3 Features

The IDS-200-A70Mi has the following features

- Fanless design
- Preinstall 2.1 GHz AMD R-260H processor adopting AMD Turbo CORE 3 Technology which delivers an optimized balance between performance and power consumption
- Four HDMI connectors that supports quad independent display with up to 1920 x 1200 resolutions
- Two GbE LAN for high speed network applications
- One full-size PCIe Mini card slot for mSATA module installation
- One 2.5” SATA 6Gb/s HDD bay
- One SIM card slot
- One SD card supported
- Two USB 3.0 ports and two USB 2.0 ports
- One RS-232 RJ-45 serial port
- One audio line-out jack
- One S/PDIF connector
- RoHS compliant design

1.4 Front Panel

The front panel of the IDS-200-A70Mi contains two USB 3.0 ports, LED indicators, a power button and a reset button. An overview of the front panel is shown in **Figure 1-2**. The LED indicators are listed below.

- 1 x IPMI LED indicator
- 1 x HDD LED indicator
- 1 x Power status LED indicator

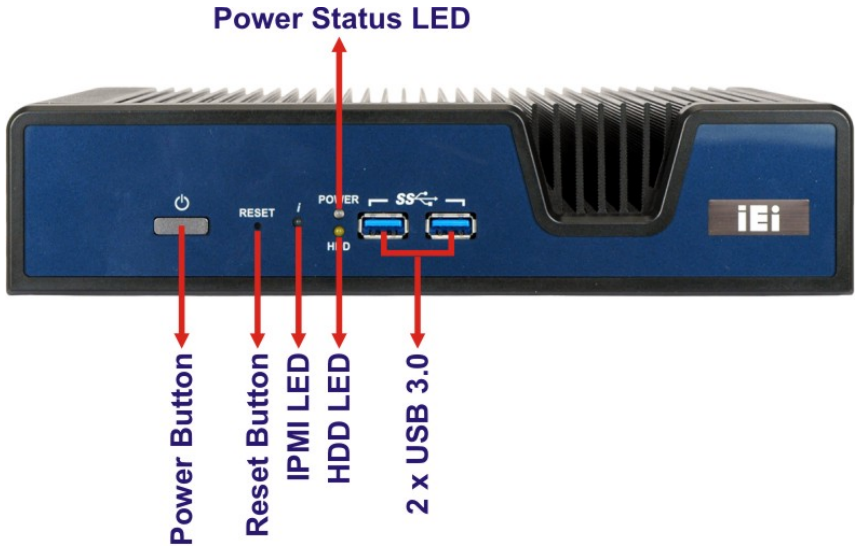


Figure 1-2: Front Panel

1.5 Rear Panel

The IDS-200-A70Mi rear panel provides access to the following external I/O connectors:

- 1 x 10 V ~ 30 V DC input jack
- 1 x Audio line-out jack
- 2 x GbE RJ-45 connectors
- 4 x HDMI connectors
- 1 x RS-232 RJ-45 serial port
- 1 x S/PDIF connector
- 2 x USB 2.0 ports
- 2 x Antenna connectors (optional)

An overview of the rear panel is shown in **Figure 1-3** below.

NOTE:

When connecting HDMI displays, the monitors connected to HDMI 2 and HDMI 4 connectors must be identical (in the same brand, model number and size).

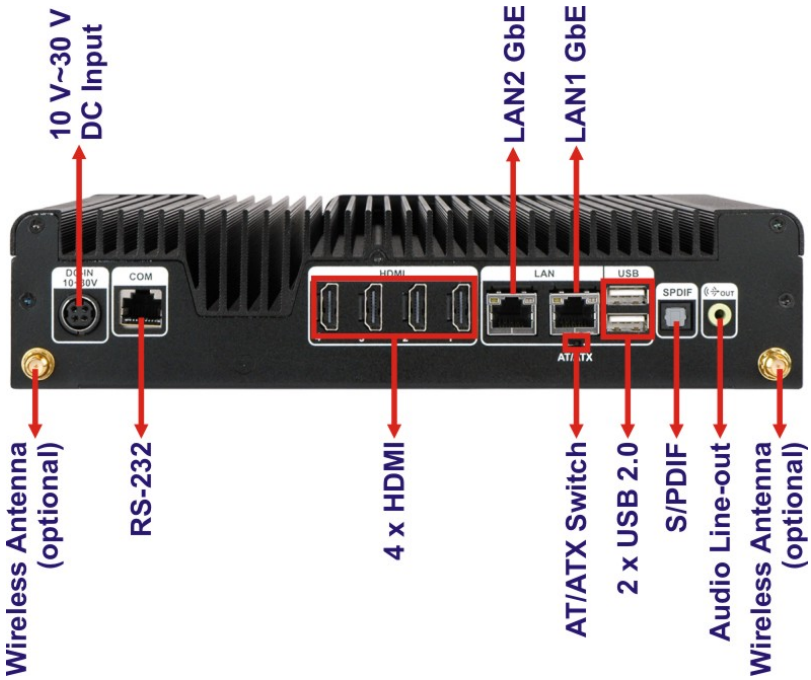


Figure 1-3: Rear Panel

1.6 Bottom Panel

The bottom panel of the IDS-200-A70Mi contains several screw holes for VESA mount and wall mounting brackets. The bottom panel also provides access to the internal components, including SO-DIMM slots, iRIS module slot and PCIe Mini card slots.

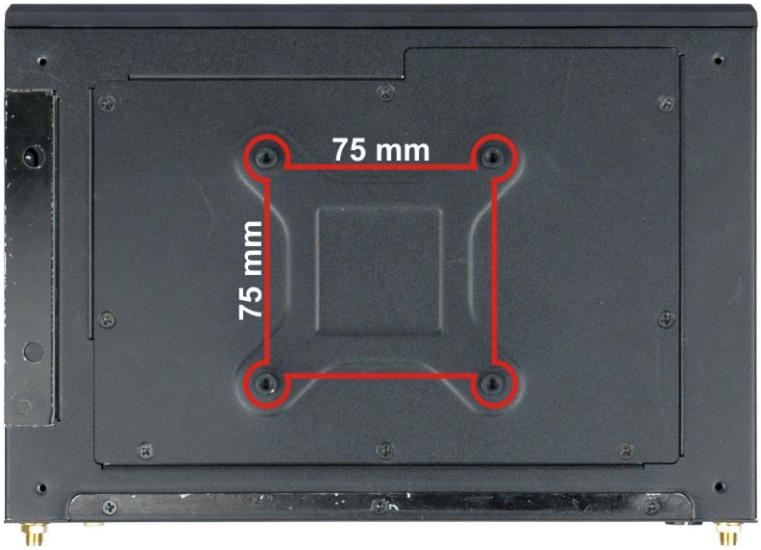


Figure 1-4: Bottom Panel

1.7 Technical Specifications

The specifications for the IDS-200-A70Mi are listed below.

	IDS-200-A70Mi
CPU	2.1GHz AMD R-260H dual-core CPU (2MB L2 cache)
System Chipset	AMD A70M APM Controller Hub
System Memory	Two 2 GB DDR3 SDRAM SO-DIMMs preinstalled (system max. 16 GB)
Graphics	DirectX® 11 Shader Model 5 OpenCL™ 1.1 and OpenGL 4.2
Max. Output Resolution	1920 x 1200 @ 60Hz
Ethernet	LAN1: Intel® I210 PCIe GbE controller with IPMI 2.0 support LAN2: Intel® I211 PCIe GbE controller
Display	Four HDMI connectors
Serial Port	One RS-232 RJ-45 serial port
USB	Two USB 2.0 ports Two USB 3.0 ports
Audio	5.1 channel Realtek ALC662 HD Audio codec - One audio out jack - One S/PDIF connector
Storage	One PCIe Mini full-size slot for mSATA module One 2.5” SATA 6Gb/s HDD bay on the side panel One SD card slot on the side panel
Expansion Slot	One PCIe Mini full-size slot (for mSATA module) One PCIe Mini half-size slot (reserved for Wi-Fi module)
3G	One SIM card slot

Wireless	Optional Wi-Fi 802.11b/g/n 2T2R
Buttons	One power button One reset button
Chassis Construction	Aluminum Alloy (top cover) with heavy duty metal
Mounting	VESA mount 75 mm Wall mount with brackets
Power Input	10 V ~ 30 V DC
Power Consumption	19 V @ 1.78 A (AMD R-260H with 4 GB memory)
Operating Temperature	0ºC ~ 50ºC with air flow
Operating Humidity	10% ~ 90%, non-condensing
Color	Black
Weight (Net/Gross)	5.24kg/6.5kg
Dimensions (W x D x H)	251.0 mm x 173.4 mm x 57.0 mm
Operation Vibration	MIL-STD-810F 514.5C-2 with SSD
Operation Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
EMC	FCC, CE
Supported OS	Microsoft Windows 8 or Microsoft Windows Embedded Standard 7

Table 1-2: Technical Specifications

1.8 Dimensions

The physical dimensions of the IDS-200-A70Mi embedded systems are shown in **Figure 1-5**.

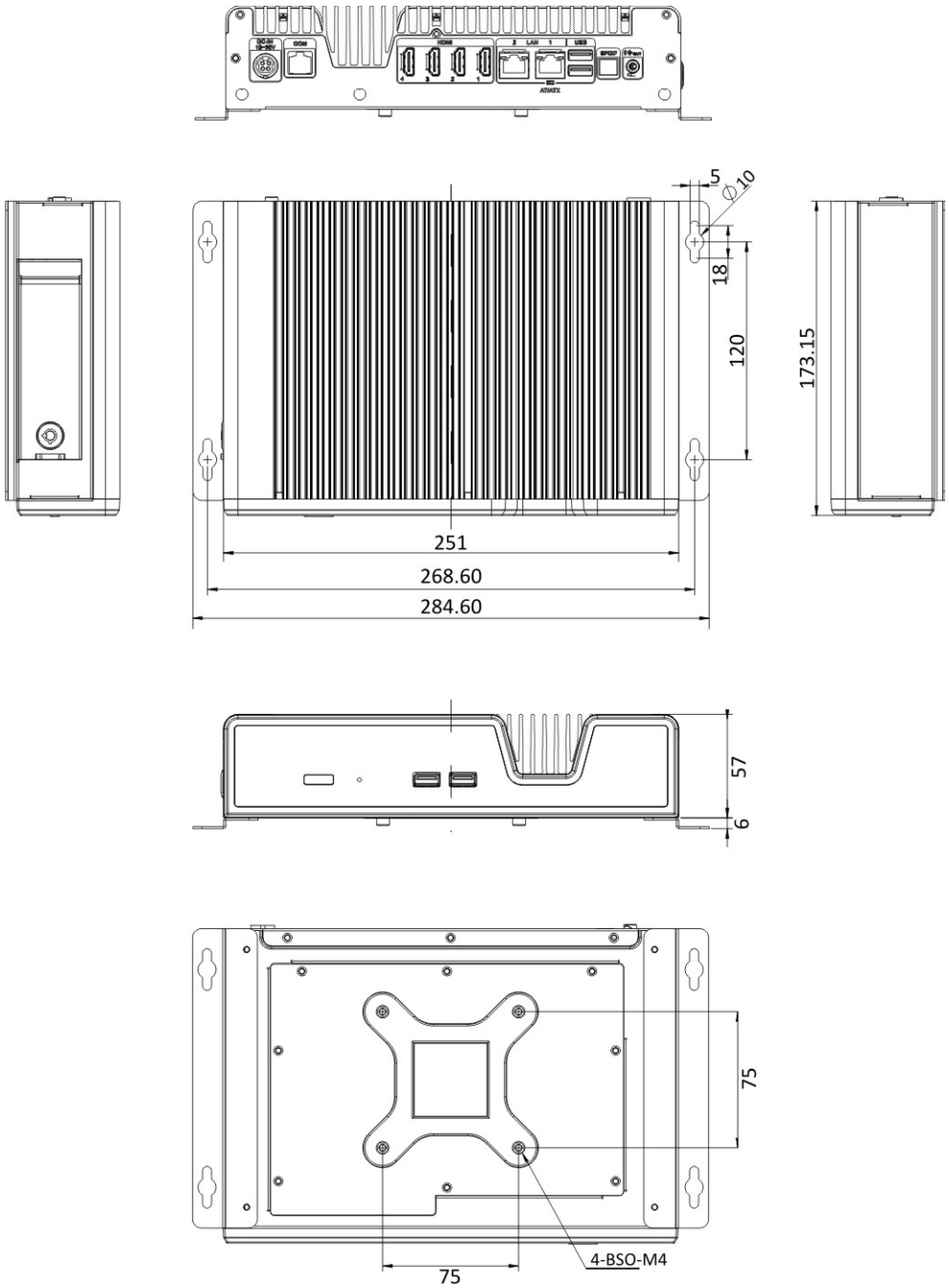


Figure 1-5: IDS-200-A70Mi Dimensions (mm)

Chapter

2

Unpacking

2.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the IDS-200-A70Mi and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IDS-200-A70Mi. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IDS-200-A70Mi or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the IDS-200-A70Mi, place it on an antic-static pad. This reduces the possibility of ESD damaging the IDS-200-A70Mi.

2.2 Unpacking Precautions

When the IDS-200-A70Mi is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1**.
- Make sure the packing box is facing upwards so the IDS-200-A70Mi does not fall out of the box.
- Make sure all the components shown in **Section 2.3** are present.

2.3 Unpacking Checklist

NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the IDS-200-A70Mi from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The IDS-200-A70Mi is shipped with the following components:

Quantity	Item	Image
1	IDS-200-A70Mi digital signage player	
1	Power adapter	
1	Power cord	
2	Wall mount brackets	
1	Driver and manual CD	

1	One Key Recovery CD	

Table 2-1: Package List Contents

Chapter

3

Installation

3.1 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual**: The user manual provides a complete description of the IDS-200-A70Mi, installation instructions and configuration options.
- **DANGER! Disconnect Power**: Power to the IDS-200-A70Mi must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the IDS-200-A70Mi is opened while the power cord is still connected to an electrical outlet.
- **Qualified Personnel**: The IDS-200-A70Mi must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- **Air Circulation**: Make sure there is sufficient air circulation when installing the IDS-200-A70Mi. The IDS-200-A70Mi's cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the IDS-200-A70Mi. Leave at least 5 cm of clearance around the IDS-200-A70Mi to prevent overheating.
- **Grounding**: The IDS-200-A70Mi should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the IDS-200-A70Mi.

3.1.1 High Surface Temperature

WARNING:

Some surfaces of the equipment may become hot during operation.

The surface temperature may be up to several tens of degrees hotter than the ambient temperature. Under these circumstances, the equipment needs to be protected against accidental contact.

The equipment is intended for installation in a RESTRICTED ACCESS LOCATION.

- Access can only be gained by SERVICE PERSONS or by USERS who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a TOOL or lock and key, or other means of security, and is controlled by the authority responsible for the location.

3.2 SD Card Installation

The IDS-200-A70Mi series has a SD card slot on the side panel. To install the SD card into the system, please follow the steps below.

Step 1: The SD card slot is protected by a lockable cover on the side panel. Locate the SD card slot by opening the cover (**Figure 3-1**). If the cover is locked, use the key to open it.

Figure 3-1: SD Card Slot Location

Step 2: Insert a SD card into the slot (**Figure 3-2**).

Figure 3-2: SD Card Installation

Step 3: Close the cover. Lock it if necessary.

3.3 SIM Card Installation

The IDS-200-A70Mi series has a SIM card slot on the side panel. To install the SIM card into the system, please follow the steps below.

Step 1: The SIM card slot is protected by a lockable cover on the side panel. Locate the SIM card slot by opening the cover (**Figure 3-3**). If the cover is locked, use the key to open it.

Figure 3-3: SIM Card Slot Location

Step 2: Insert a SIM card into the slot (**Figure 3-4**).

Figure 3-4: SIM Card Installation

Step 3: Close the cover. Lock it if necessary.

3.4 HDD Installation

The IDS-200-A70Mi has a 2.5” HDD bay on the side panel. To install an HDD, follow the steps below.

Step 1: The HDD bay is protected by a lockable cover on the side panel. Locate the HDD bay by opening the cover (**Figure 3-3**). If the cover is locked, use the key to open it.

Figure 3-5: HDD Bay Location

Step 2: Locate the HDD bracket inside the side panel. The HDD bracket is secured with a retention screw. Remove the retention screw and pull the HDD bracket out of the system.

Figure 3-6: HDD Bracket Retention Screw

Step 3: Insert an HDD into the bracket and secure the HDD to the bracket using four retention screws (two screws on each side). See **Figure 3-7**.

Figure 3-7: Securing the HDD with Retention Screws

Step 4: Install the HDD by inserting the HDD bracket into the same position it was before.

Figure 3-8: Installing the HDD

Step 5: Secure the HDD bracket with the previously removed retention screw.

Step 6: Close the cover. Lock it if necessary.

3.5 AT/ATX Power Mode Selection

AT and ATX power modes can both be used on the IDS-200-A70Mi series. The selection is made through an AT/ATX switch on the rear panel (**Figure 1-3**). To select AT mode or ATX mode, follow the steps below.

Step 1: Locate the AT/ATX switch on the bottom panel

Figure 3-9: AT/ATX Switch Location

Step 2: Adjust the AT/ATX switch.

3.5.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The IDS-200-A70Mi panel PC turns on automatically when the power is

connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk
- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

3.5.2 ATX Power Mode

With the ATX mode selected, the IDS-200-A70Mi panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes

- Security surveillance
- Point-of-Sale (POS)
- Advertising terminal

3.6 IPMI Module Installation (Optional)

WARNING:

The IPMI module slot is designed to install the IEI iRIS-2400 IPMI 2.0 module only. DO NOT install other modules into the IPMI module slot. Doing so may cause damage to the IDS-200-A70Mi.

To install the iRIS-2400 module, please follow the steps below.

Step 1: **Remove the bottom panel** retention screws (**Figure 3-10**) and lift the bottom panel.

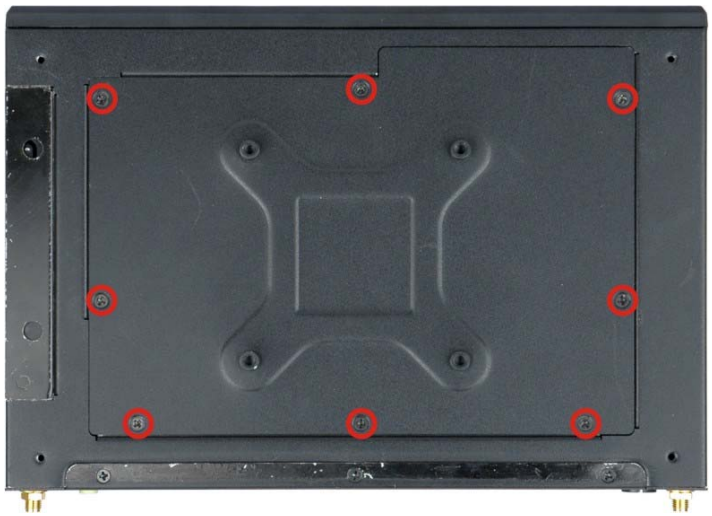


Figure 3-10: Bottom Panel Retention Screws

Step 2: **Locate the IPMI module slot** inside the bottom panel (**Figure 3-11**).

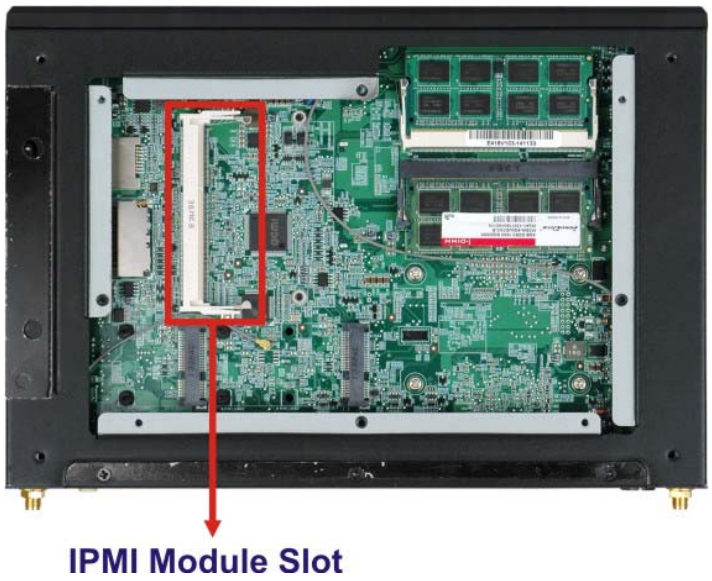


Figure 3-11: IPMI Module Slot Location

Step 3: **Align the iRIS-2400 module with the IPMI module slot**. Align the notch on the module with the notch on the IPMI module slot.

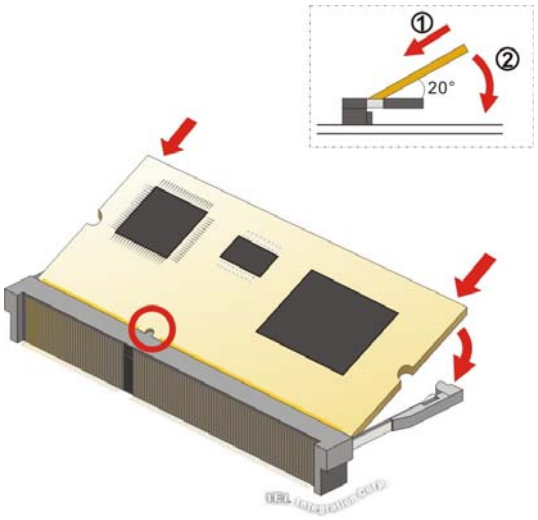


Figure 3-12: IPMI Module Installation

Step 4: Insert the iRIS-2400 module. Push the module in at a 20º angle (**Figure 3-12**).

Step 5: Seat the iRIS-2400 module. Gently push downwards and the arms clip into place (**Figure 3-12**).

Step 6: After installing the iRIS-2400 module, refer to **Section 3.9** for IPMI setup procedure.

3.7 Mounting the System

To mount the IDS-200-A70Mi onto a wall or some other surface using the two mounting brackets, please follow the steps below.

Step 1: Turn the embedded system over.

Step 2: Align the two retention screw holes in each bracket with the corresponding retention screw holes on the sides of the bottom surface.

Step 3: Secure the brackets to the system by inserting two retention screws into each bracket.

Figure 3-13: Mounting Bracket Retention Screws

Step 4: Drill holes in the intended installation surface.

Step 5: Align the mounting holes in the sides of the mounting brackets with the predrilled holes in the mounting surface.

Step 6: Insert four retention screws, two in each bracket, to secure the system to the wall.

NOTE:

The IDS-200-A70Mi can also be mounted on a VESA 75mm complaint mounting device. Follow the user manual came with the VESA mounting devices to mount the system.

3.8 External Peripheral Interface Connection

The following external peripheral devices can be connected to the external peripheral interface connectors.

- Audio devices
- RJ-45 Ethernet cable connectors
- HDMI monitors
- Serial port devices
- USB devices

To install these devices, connect the corresponding cable connector from the actual device to the corresponding IDS-200-A70Mi external peripheral interface connector making sure the pins are properly aligned.

3.8.1 Audio Line-out Connector

CN Label: **Audio out**

CN Type: Audio jack

The audio line-out jack connects to a headphone or a speaker. With multi-channel configurations, this port can also connect to front speakers.

Figure 3-14: Audio Connector

3.8.2 S/PDIF Connector

CN Label: **S/PDIF**

CN Type: TOSLINK optical connector

CN Pinouts: **Table 3-1**

Use the S/PDIF connector to connect digital audio devices to the system.

Pin	Description
1	GND
2	VCC
3	S/PDIFOUT
4	NC
5	NC

Table 3-1: S/PDIF Connector Pinouts

3.8.3 LAN Connector

CN Label: **LAN1, LAN2**

CN Type: RJ-45

CN Pinouts: See **Table 3-2**

The LAN connector allows connection to an external network.

Pin	Description	Pin	Description
1	MD0+	2	MD0-
3	MD1+	4	MD1-
5	MD2+	6	MD2-
7	MD3+	8	MD3-
9	VCC	10	GND
11	LINK_ACT+	12	LINK_ACT-
13	100-	14	1000-
15	GND		

Table 3-2: LAN Connector Pinouts

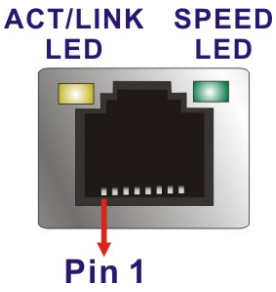


Figure 3-15: RJ-45 Ethernet Connector

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. See **Table 3-3**.

Activity/Link LED		Speed LED	
STATUS	**DESCRIPTION**	**STATUS**	**DESCRIPTION**
Off	No link	Off	10 Mbps connection
Yellow	Linked	Green	100 Mbps connection
Blinking	TX/RX activity	Orange	1 Gbps connection

Table 3-3: RJ-45 Ethernet Connector LEDs

3.8.4 HDMI Connector

CN Label: **HDMI**

CN Type: HDMI connector

CN Pinouts: See **Table 3-4** and **Figure 3-16**

The HDMI connector can connect to an HDMI device.

Pin	Description	Pin	Description
1	HDMI_DATA2	2	GND
3	HDMI_DATA2#	4	HDMI_DATA1
5	GND	6	HDMI_DATA1#
7	HDMI_DATA0	8	GND
9	HDMI_DATA0#	10	HDMI_CLK
11	GND	12	HDMI_CLK#
13	N/C	14	N/C
15	HDMI_SCL	16	HDMI_SDA
17	GND	18	+5V
19	HDMI_HPD	20	HDMI_GND
21	HDMI_GND	22	HDMI_GND
23	HDMI_GND		

Table 3-4: HDMI Connector Pinouts

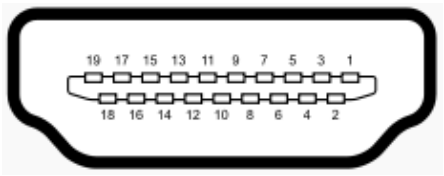


Figure 3-16: HDMI Connector

NOTE:

When connecting HDMI displays, the monitors connected to HDMI 2 and HDMI 4 connectors must be identical (in the same brand, model number and size).

3.8.5 Power Connector (10 V ~ 30 V)

CN Label: **DC-IN 10~30V**

CN Type: DC jack

The connector supports 10 V ~ 30 V power adapters.

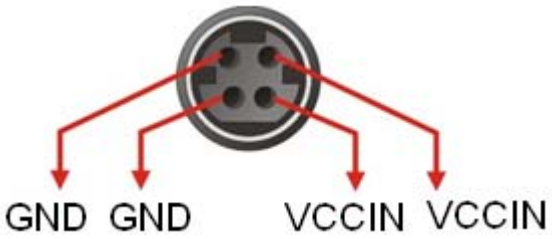


Figure 3-17: Power Jack Connector

3.8.6 RS-232 Serial Port Connector

CN Label: **RS-232**

CN Type: RJ-45

CN Pinouts: See **Table 3-5** and **Figure 3-18**

The RS-232 serial port connector allows connection to a serial device.

Pin	Description	Pin	Description
1	DCD1	5	SOUT1
2	DSR2	6	CTS1
3	SIN1	7	DTR1
4	RTS1	8	RI1

Table 3-5: Serial Port Pinouts

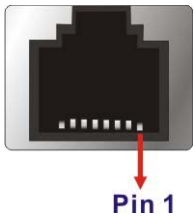


Figure 3-18: Serial Port Pinouts

3.8.7 USB 2.0 Connectors (Rear Panel)

CN Label: **USB (USB_CON3)**

CN Type: USB 2.0 port

CN Pinouts: See **Table 3-6** and **Figure 3-19**

The USB 2.0 ports are for connecting USB 2.0 peripheral devices to the system.

Pin	Description	Pin	Description
1	POWER	5	Power
2	DATA2-	6	DATA3-
3	DATA2+	7	DATA3+
4	GND	8	GND

Table 3-6: USB 2.0 Port Pinouts

Figure 3-19: USB 2.0 Port Pinout Locations

3.8.8 USB 3.0 Connectors (Front Panel)

CN Label: **USB (USB_CON1, USB_CON2)**

CN Type: USB 3.0 port

CN Pinouts: See **Table 3-7** and **Figure 3-20**

The USB 3.0 ports are for connecting USB 2.0/3.0 peripheral devices to the system.

Pin	Description
1	VBUS
2	D1-
3	D1+
4	GND1
5	STDA_SSRX1_N
6	STDA_SSRX1_P
7	GND_DRAIN
8	STDA_STX1_N
9	STDA_STX1_P

Table 3-7: USB 3.0 Port Pinouts

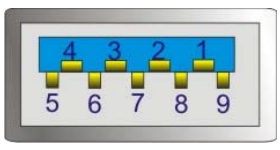


Figure 3-20: USB 3.0 Port Pinout Locations

3.9 IPMI Setup Procedure

The IDS-200-A70Mi features Intelligent Platform Management Interface (IPMI) that helps lower the overall costs of server management by enabling users to maximize IT resources, save time and manage multiple systems. The IDS-200-A70Mi supports IPMI 2.0 through the optional iRIS-2400 module. Follow the steps below to setup IPMI.

3.9.1 Managed System Hardware Setup

The hardware configuration of the managed system (IDS-200-A70Mi) is described below.

Step 1: Install an iRIS-2400 module to the IPMI module socket (refer to **Section 3.5**).

Step 2: Make sure at least one DDR3 DIMM is installed in one of the DIMM sockets. If multiple DIMMs are installed, all of the DIMMs must be same size, same speed and same brand to get the best performance.

Step 3: Connect an Ethernet cable to the RJ-45 connector labeled **LAN 1** (**Figure 1-3**).

Figure 3-21: LAN 1 Location

3.9.2 Using the IEI iMAN Web GUI

To manage a client system from a remote console using IEI iMAN Web GUI, follow the steps below.

Step 1: Obtain the IP address of the IDS-200-A70Mi. It is recommended to use the IPMI Tool on the managed system to obtain the IP address. To use IPMI Tool to obtain IP address, follow the steps below:

a. Copy the **Ipmitool.exe** file to a bootable USB flash drive.

b. Insert the USB flash drive to the IDS-200-A70Mi

c. The IDS-200-A70Mi boots from the USB flash drive

d. Enter the following command: **ipmitool 20 30 02 01 03 00 00**

(there is a space between each two-digit number)

e. A serial of number shows. The last four two-digit hexadecimal numbers are the IP address. Convert the hexadecimal numbers to decimal numbers.

NOTE:

An IP address will be assigned to the IDS-200-A70Mi after booting up for around one minute. Therefore, if the user fails to obtain the IP address, please try again later.

Step 2: On the remote management console, open a web browser. Enter the managed system IP address in the web browser (**Figure 3-22**).

Figure 3-22: IEI iMAN Web Address

Step 3: The login page appears in the web browser.

Step 4: Enter the user name and password to login the system. The default login username and password are:

-Username: **admin**

-Password: **admin**

Step 5: Press the login button to login the system.

Step 6: The IEI iMAN Web GUI appears (**Figure 3-23**).

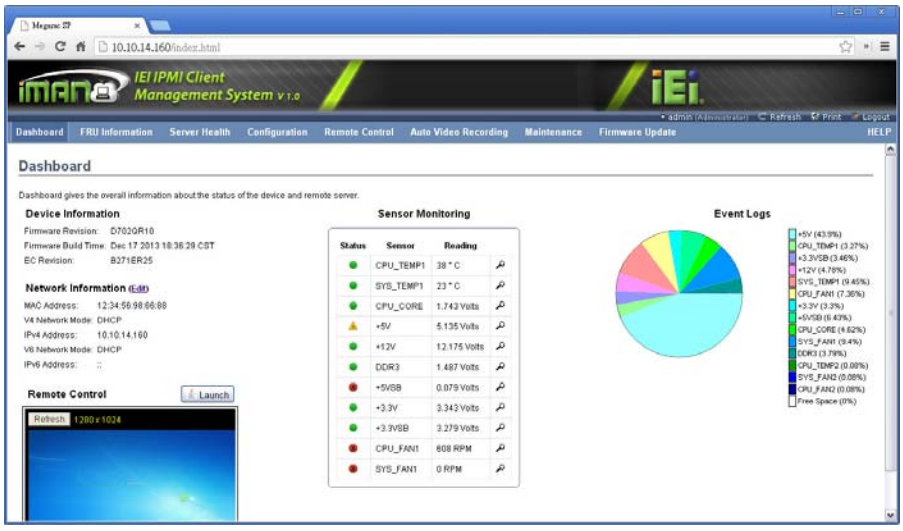


Figure 3-23: IEI iMAN Web GUI

NOTE:

To understand how to use the IEI iMAN Web GUI, please refer to the iRIS-2400 Web GUI user manual in the utility CD came with the IDS-200-A70Mi. The user manual describes each function in detail.

Chapter

4

BIOS Screens

4.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

4.1.1 Starting Setup

The UEFI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DEL** or **F2** key as soon as the system is turned on or
2. Press the **DEL** or **F2** key when the "**Press DEL or F2 to enter SETUP**" message appears on the screen.

If the message disappears before the **DEL or F2** key is pressed, restart the computer and try again.

4.1.2 Using Setup

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. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu

Key	Function
F2	Previous values
F3	Load optimized defaults
F4	Save changes and Exit BIOS

Table 4-1: BIOS Navigation Keys

4.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

4.1.4 BIOS Menu Bar

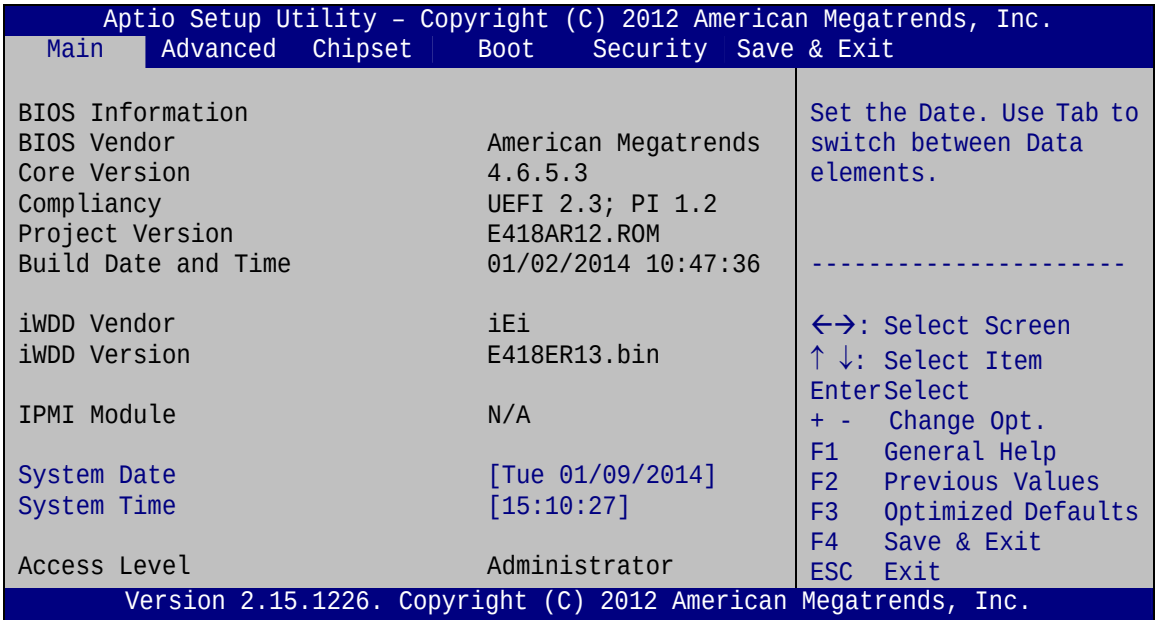
The **menu bar** on top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Boot – Changes the system boot configuration.
- Security – Sets User and Supervisor Passwords.
- Save & Exit – Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

4.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

➔ System Overview

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- **BIOS Vendor:** Installed BIOS vendor
- **Core Version:** Current BIOS version
- **Compliancy:** Current compliant version
- **Project Version:** the board version
- **Build Date and Time:** Date and time the current BIOS version was made
- **iWDD Vendor:** Installed embedded controller vendor
- **iWDD Version:** Current embedded controller version
- **IPMI Module:** Installed IPMI module

➔ **System Date [xx/xx/xx]**

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

➔ **System Time [xx:xx:xx]**

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

4.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

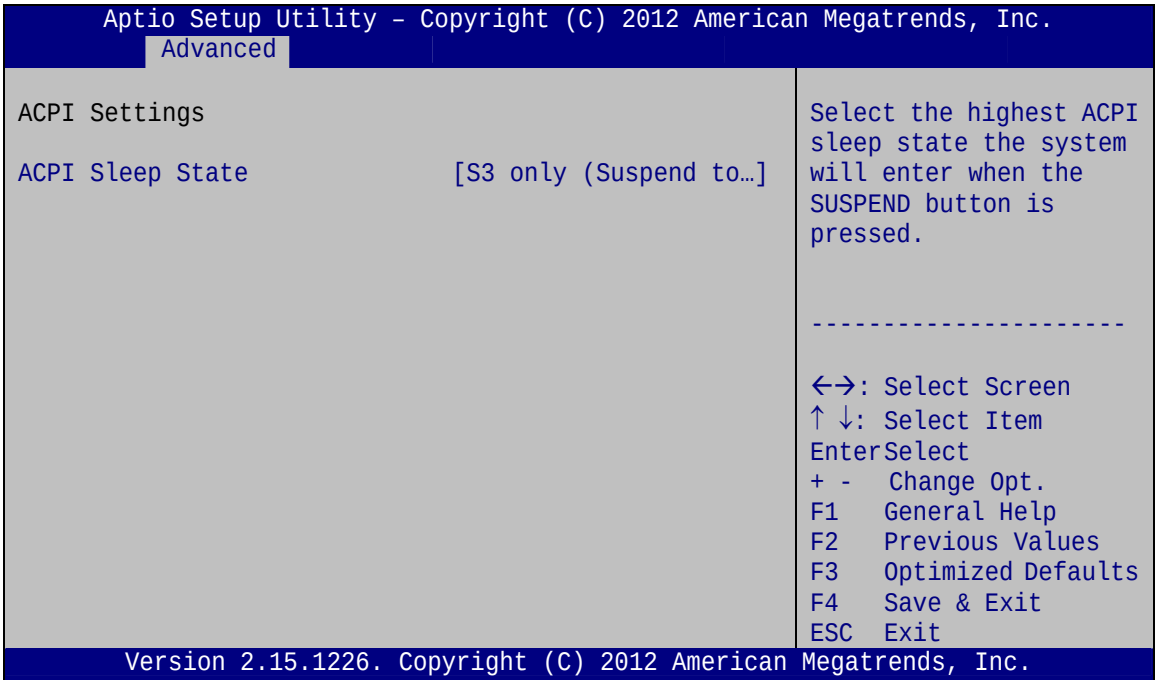
```
        Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
  Main    Advanced   Chipset    Boot    Security   Save & Exit

> ACPI Settings                                   System ACPI Parameters.
> RTC Wake Settings
> CPU Configuration
> IDE Configuration                               ----------------------
> USB Configuration
> Super IO Configuration                          ←→: Select Screen
> iWDD H/M Monitor                                ↑ ↓: Select Item
> Serial Port Console Redirection                 EnterSelect
                                                  + -   Change Opt.
                                                  F1    General Help
                                                  F2    Previous Values
                                                  F3    Optimized Defaults
                                                  F4    Save & Exit
                                                  ESC   Exit
        Version 2.15.1226. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 2: Advanced

4.3.1 ACPI Settings

The **ACPI Settings** menu (**BIOS Menu 3**) configures the Advanced Configuration and Power Interface (ACPI) options.



BIOS Menu 3: ACPI Configuration

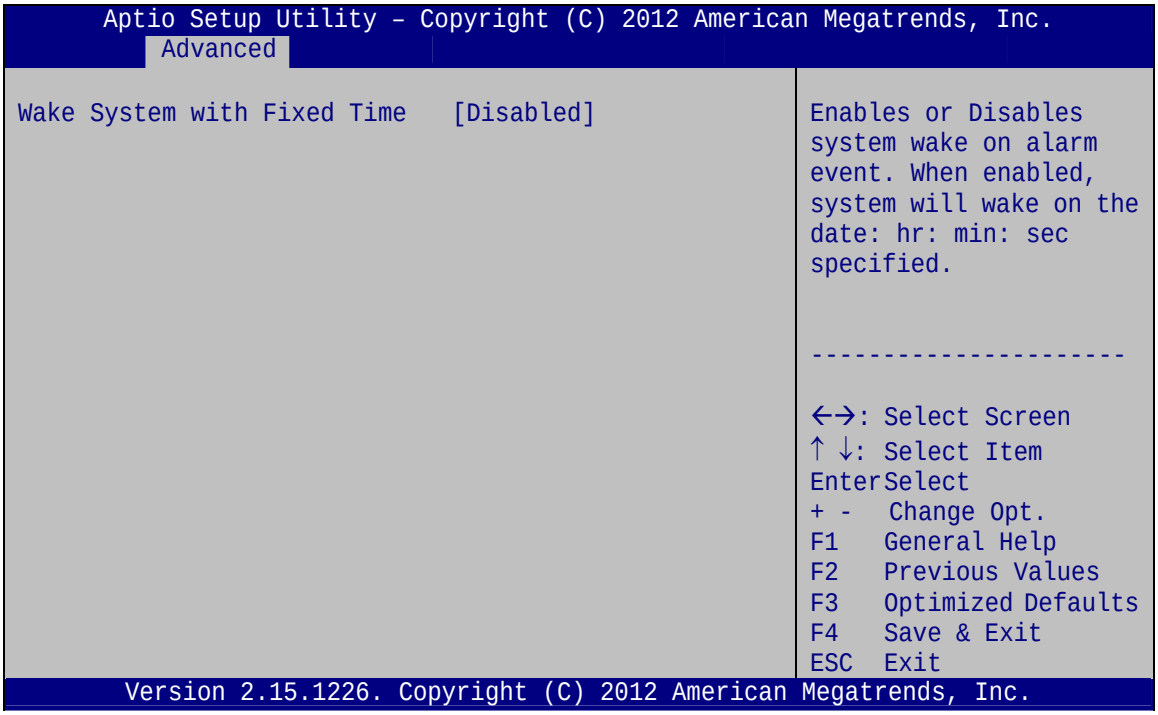
➔ **ACPI Sleep State [S1 (CPU Stop Clock)]**

Use the **ACPI Sleep State** option to specify the sleep state the system enters when it is not being used.

➔ **S3 only (Suspend to RAM)** **DEFAULT** The caches are flushed and the CPU is powered off. Power to the RAM is maintained. The computer returns slower to a working state, but more power is saved.

4.3.2 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 4**) configures RTC wake event. The RTC wake function is supported in ACPI (S3/S4/S5) and APM soft off modes.



BIOS Menu 4: RTC Wake Settings

➔ **Wake System with Fixed Time [Disabled]**

Use the **Wake System with Fixed Time** option to specify the time the system should be roused from a suspended state.

➔ **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event

➔ **Enabled** If selected, the following appears with values that can be selected:

*Wake up every day

*Wake up date

*Wake up hour

*Wake up minute

*Wake up second

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

4.3.3 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 5**) to view detailed CPU specifications and configure the CPU.

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

CPU Configuration                              Enable/disable CPU
                                               Virtualization
Module Version : 4.6.5.1 TrinityPI 016
AGESA Version : 1.0.0.6
                                               ----------------------
SVM Mode                      [Enabled]
                                               ←→: Select Screen
                                               ↑ ↓: Select Item
                                               EnterSelect
                                               + -   Change Opt.
                                               F1    General Help
                                               F2    Previous Values
                                               F3    Optimized Defaults
                                               F4    Save & Exit
                                               ESC   Exit
Version 2.15.1226. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 5: CPU Configuration

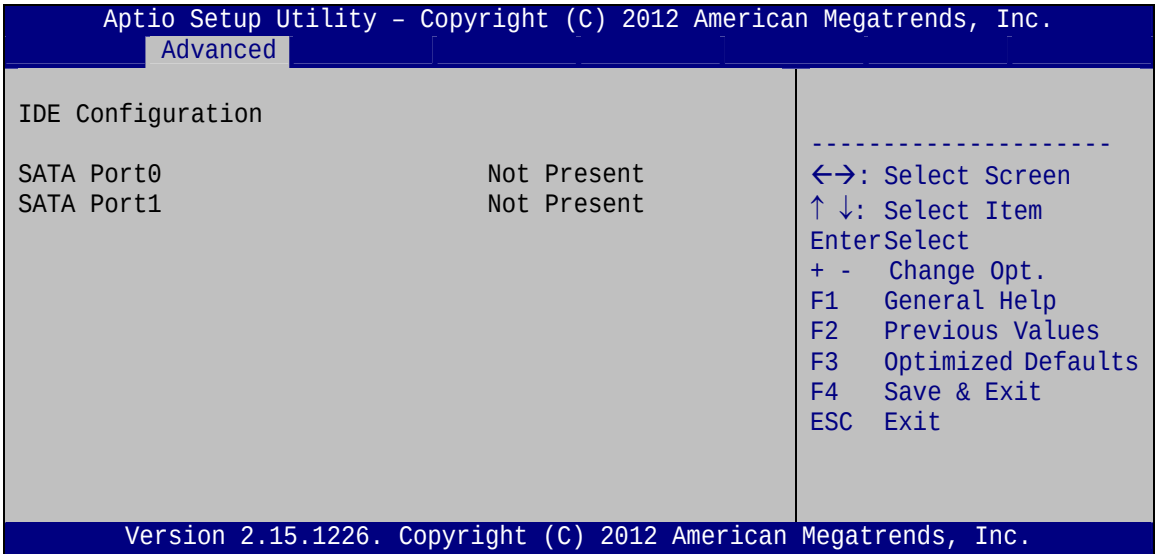
➔ **SVM Mode [Enabled]**

Use the **SVM Mode** option to enable or disable virtualization on the system.

➔ **Disabled**		Disables CPU virtualization
➔ **Enabled**	**DEFAULT**	Enables CPU virtualization

4.3.4 IDE Configuration

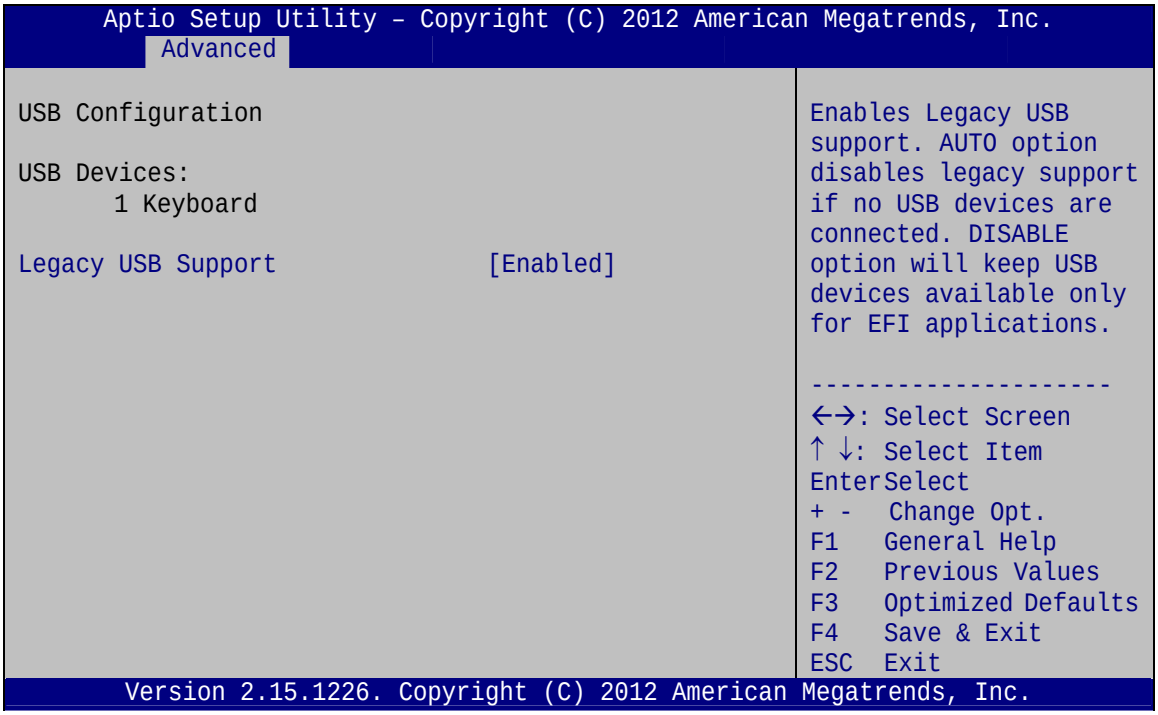
Use the **IDE Configuration** menu (**BIOS Menu 6**) to change and/or set the configuration of the SATA devices installed in the system.



BIOS Menu 6: IDE Configuration

4.3.5 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 7**) to read USB configuration information and configure the USB settings.



BIOS Menu 7: USB Configuration

➔ **USB Devices**

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Enabled** **DEFAULT** Legacy USB support enabled

➔ **Disabled** Legacy USB support disabled

➔ **Auto** Legacy USB support disabled if no USB devices are connected

4.3.6 Super IO Configuration

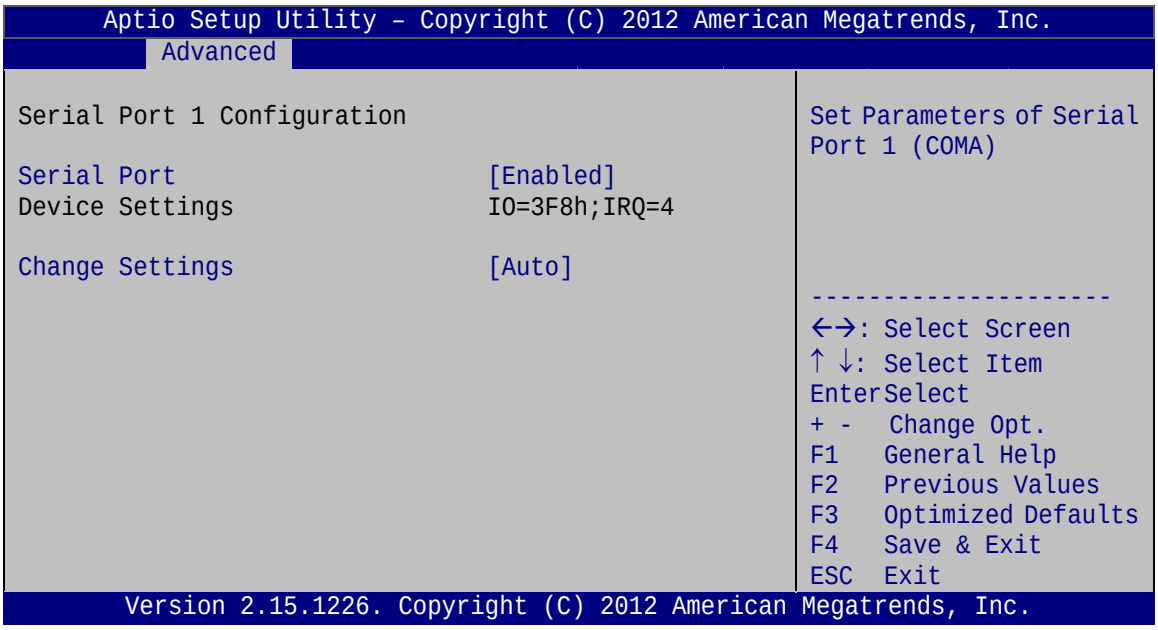
Use the **Super IO Configuration** menu (**BIOS Menu 8**) to set or change the configurations for the serial ports.

```
Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
        Advanced
Super IO Configuration                    Set Parameters of Serial
                                          Port 1 (COMA)
Super IO Chip                  IT8519
> Serial Port 1 Configuration
                                          ---------------------
                                          ←→: Select Screen
                                          ↑ ↓: Select Item
                                          EnterSelect
                                          + -   Change Opt.
                                          F1    General Help
                                          F2    Previous Values
                                          F3    Optimized Defaults
                                          F4    Save & Exit
                                          ESC   Exit
Version 2.15.1226. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 8: Super IO Configuration

4.3.6.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** menu (**BIOS Menu 9**) to configure the serial port 1.



BIOS Menu 9: Serial Port 1 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**		Disable the serial port
➔ **Enabled**	**DEFAULT**	Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

➔ **Auto**	**DEFAULT**	The serial port IO port address and interrupt address are automatically detected.
➔ **IO=3F8h; IRQ=4**		Serial Port I/O port address is 3F8h and the interrupt address is IRQ4

➔ **IO=3F8h; IRQ=3, 4**	Serial Port I/O port address is 3F8h and the interrupt address is IRQ3,4
➔ **IO=2F8h; IRQ=3, 4**	Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4
➔ **IO=3E8h; IRQ=3, 4**	Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4
➔ **IO=2E8h; IRQ=3, 4**	Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4

4.3.7 iWDD H/W Monitor

The **iWDD H/W Monitor** menu (**BIOS Menu 10**) contains the fan configuration submenus and displays operating temperature, fan speeds and system voltages.

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

PC Health Status

FAN1 Speed                      :N/A

+Vcore                          : +1.011 V
+5V                             : +5.081 V
+12V                            : +12.122 V
+DDR3                           : +5.994 V
+5VSB                           : +4.944 V
+3.3V                           : +3.376 V

                                ---------------------
                                ←→: Select Screen
                                ↑ ↓: Select Item
                                EnterSelect
                                + -   Change Opt.
                                F1    General Help
                                F2    Previous Values
                                F3    Optimized Defaults
                                F4    Save & Exit
                                ESC   Exit
Version 2.15.1226. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 10: iWDD H/W Monitor

➔ **H/W Monitor**

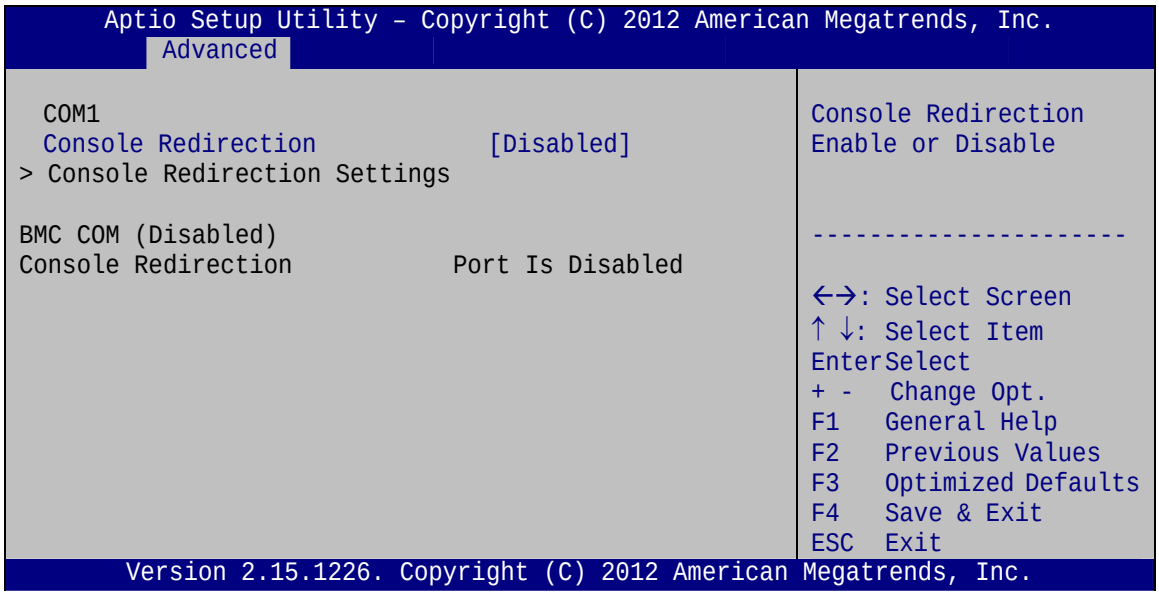
The following system parameters and values are shown. The system parameters that are monitored are:

- Voltages:
  - +Vcore

- +5V
- +12V
- +DDR3
- +5VSB
- +3.3V

4.3.8 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 11**) allows the console redirection options to be configured. Console redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.



BIOS Menu 11: Serial Port Console Redirection

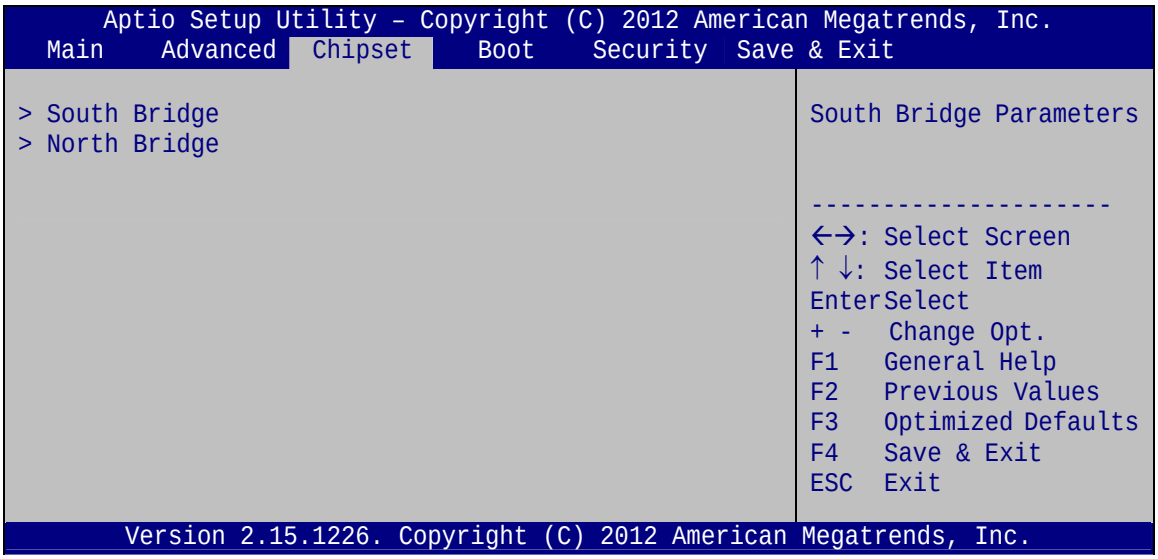
➔ **Console Redirection [Disabled]**

Use **Console Redirection** option to enable or disable the console redirection function.

➔	**Disabled**	**DEFAULT**	Disabled the console redirection function
➔	**Enabled**		Enabled the console redirection function

4.4 Chipset

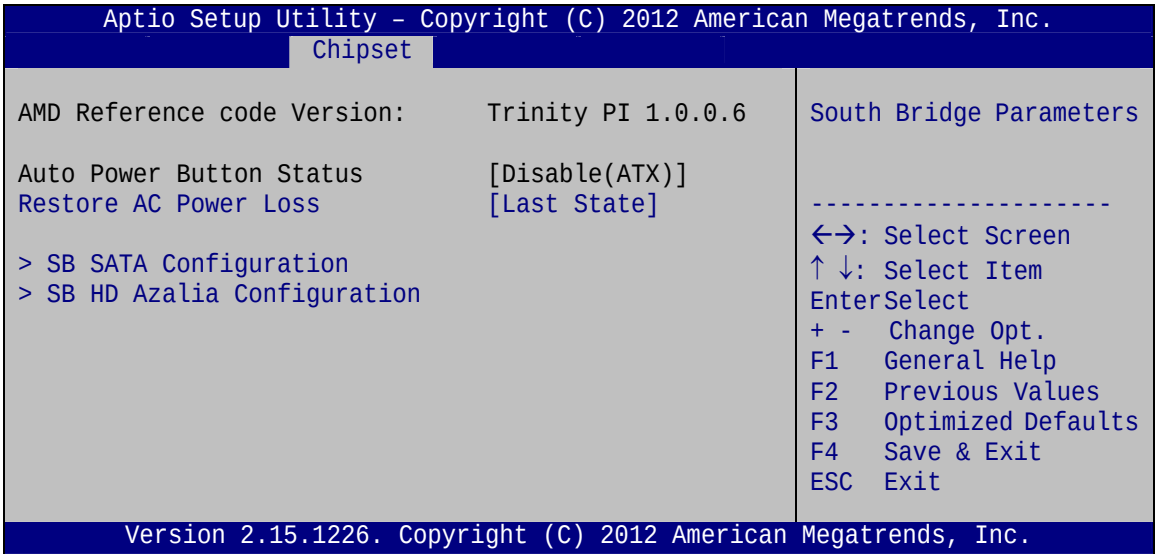
Use the Chipset menu (**BIOS Menu 12**) to configure the system chipset.



BIOS Menu 12: Chipset

4.4.1 South Bridge

Use the **South Bridge** menu (**BIOS Menu 13**) to configure the south bridge chipset.



BIOS Menu 13: South Bridge

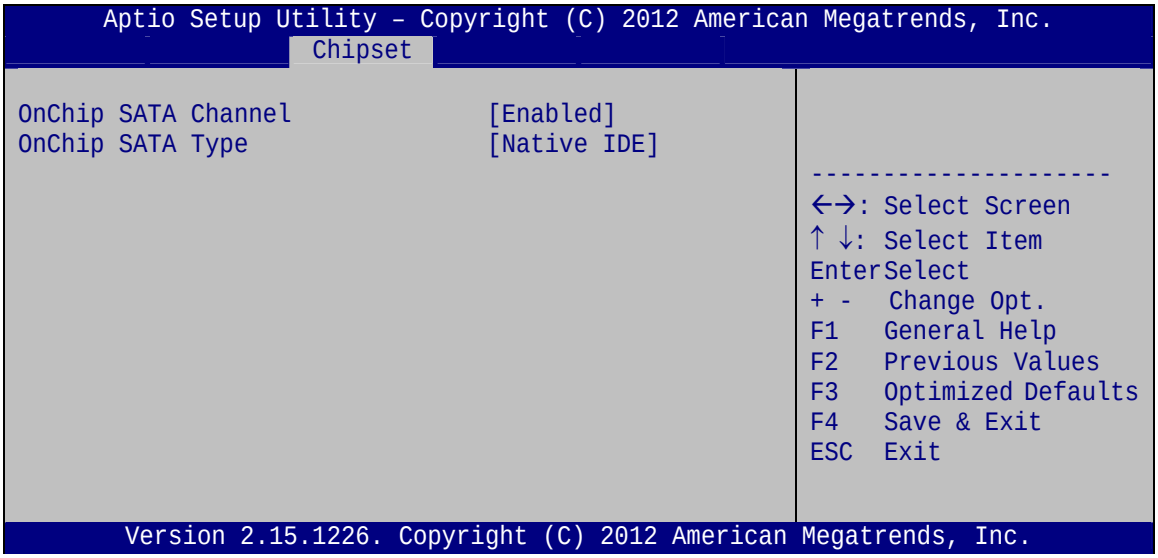
➔ **Restore on AC Power Loss [Last State]**

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

➔ **Power Off**		The system remains turned off
➔ **Power On**		The system turns on
➔ **Last State**	**DEFAULT**	The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

4.4.1.1 SB SATA Configuration

Use the **SB SATA Configuration** menu (**BIOS Menu 14**) to configure the SATA controllers.



BIOS Menu 14: SB SATA Configuration

➔ **OnChip SATA Channel [Enabled]**

Use the **OnChip SATA Channel** BIOS option to enable or disable the serial ATA controller.

➔ **Disabled**		Disables the on-board SATA controller.
➔ **Enabled**	**DEFAULT**	Enables the on-board SATA controller.

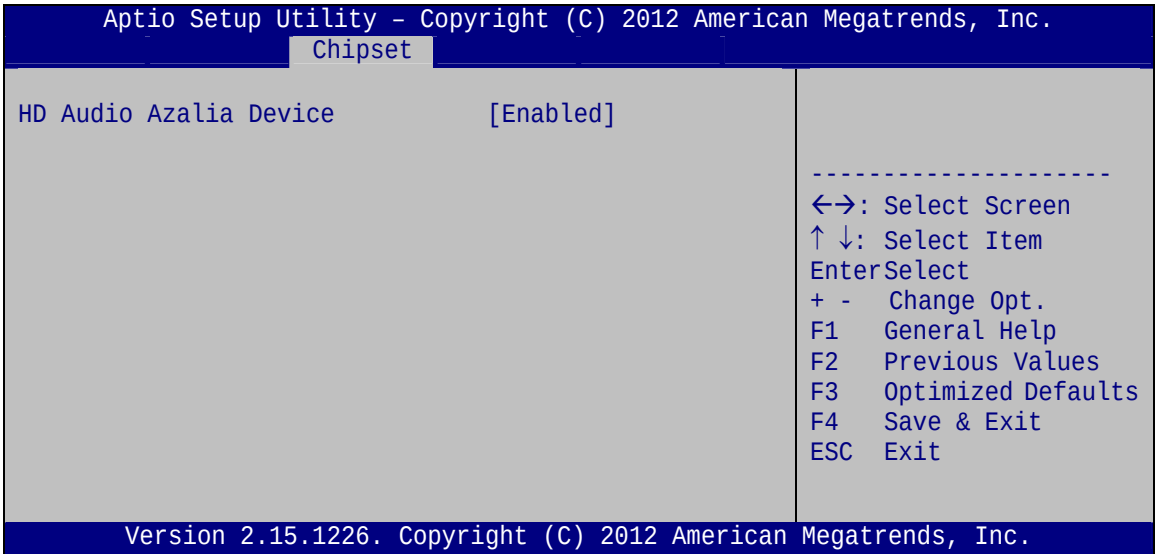
➔ **OnChip SATA Type [Native IDE]**

Use the **OnChip SATA Type** BIOS option to configure SATA devices as normal IDE devices.

➔ **Native IDE**	**DEFAULT**	Configures SATA devices as normal IDE device.
➔ **AHCI**		Configures SATA devices as AHCI device.

4.4.1.2 SB HD Azalia Configuration

Use the **SB HD Azalia Configuration** menu (**BIOS Menu 15**) to configure the HD Audio codec.



BIOS Menu 15: SB HD Azalia Configuration

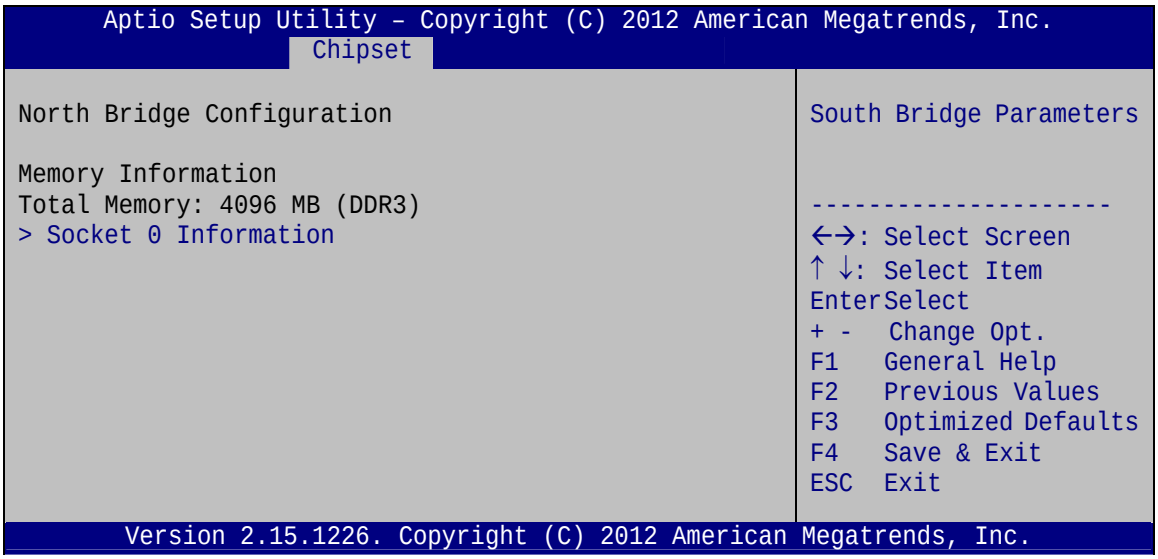
➔ **HD Audio Azalia Device [Enabled]**

Use the HD Audio Azalia Device BIOS option to enable or disable the HD Audio controller.

➔ **Auto**		The onboard High Definition Audio controller is detected automatically.
➔ **Disabled**		The onboard High Definition Audio controller is disabled
➔ **Enabled**	**DEFAULT**	The onboard High Definition Audio controller is enabled

4.4.2 North Bridge

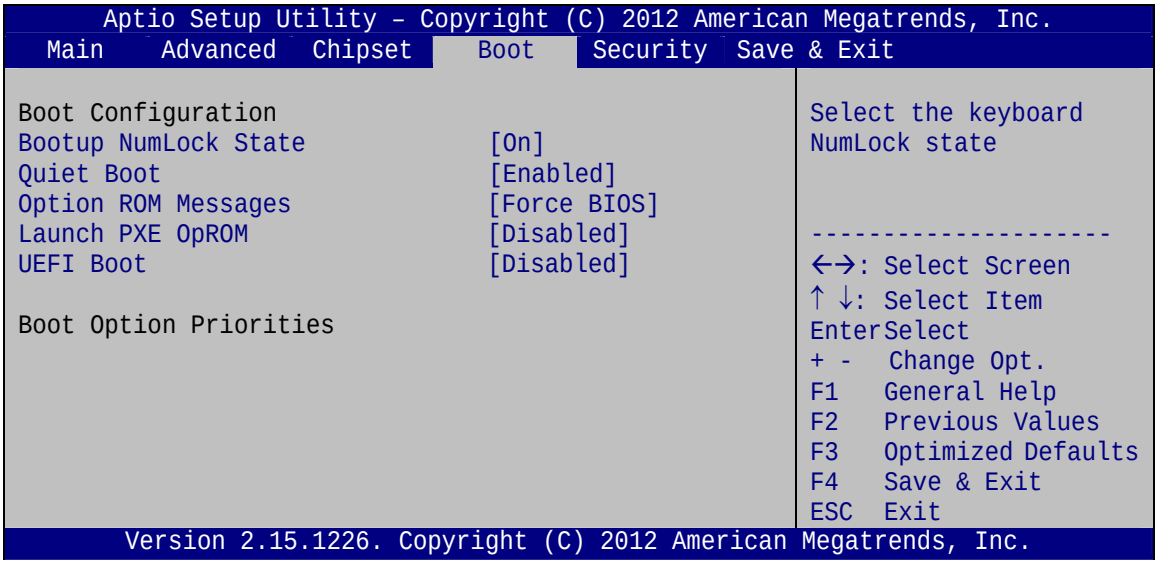
Use the **North Bridge** menu (**BIOS Menu 16**) to view the memory information.



BIOS Menu 16: North Bridge

4.5 Boot

Use the **Boot** menu (**BIOS Menu 17**) to configure system boot options.



BIOS Menu 17: Boot

➔ **Bootup NumLock State [On]**

Use the **Bootup NumLock State** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **On**	**DEFAULT**	Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.
➔ **Off**		Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled**		Normal POST messages displayed
➔ **Enabled**	**DEFAULT**	OEM Logo displayed instead of POST messages

➔ **Option ROM Messages [Force BIOS]**

Use the **Option ROM Messages** option to set the Option ROM display mode.

➔ **Force BIOS**	**DEFAULT**	Sets display mode to force BIOS.
➔ **Keep Current**		Sets display mode to current.

➔ **Launch PXE OpROM [Disabled]**

Use the **Launch PXE OpROM** option to enable or disable boot option for legacy network devices.

➔	**Disabled**	**DEFAULT**	Ignore all PXE Option ROMs
➔	**Enabled**		Load PXE Option ROMs

➔ **UEFI Boot [Disabled]**

Use the **UEFI Boot** option to enable or disable to boot from a UEFI device.

➔	**Enabled**		Enable to boot from a UEFI device.
➔	**Disabled**	**DEFAULT**	Disable to boot from a UEFI device.

4.6 Security

Use the **Security** menu (**BIOS Menu 18**) to set system and user passwords.

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

Password Description                          Set Administrator
                                              Password
If ONLY the Administrator's password is set,
then this only limits access to Setup and is  ---------------------
only asked for when entering Setup.           ←→: Select Screen
If ONLY the User's password is set, then this ↑ ↓: Select Item
is a power on password and must be entered to EnterSelect
boot or enter Setup. In Setup the User will   + -   Change Opt.
have Administrator rights.                    F1    General Help
The password must be                          F2    Previous Values
In the following range:                       F3    Optimized Defaults
Maximum length                  3             F4    Save & Exit
Minimum length                  20            ESC   Exit

Administrator Password
User Password
        Version 2.15.1226. Copyright (C) 2012 American Megatrends, Inc.
```

BIOS Menu 18: Security

➔ **Administrator Password**

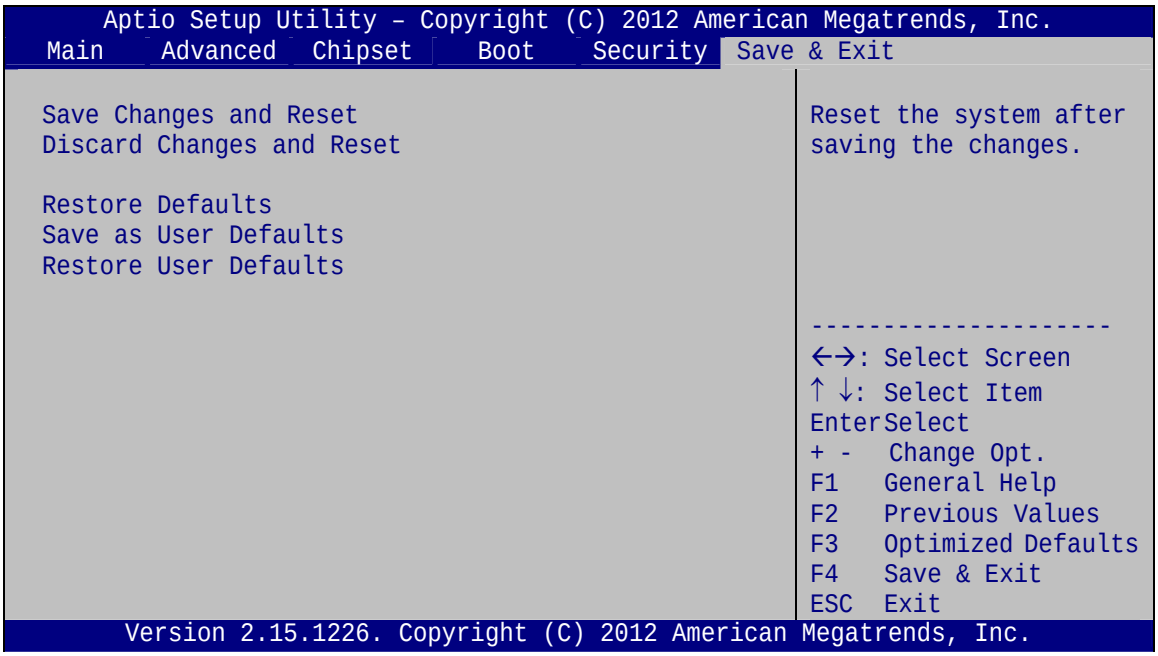
Use the **Administrator Password** to set or change a administrator password.

➔ **User Password**

Use the **User Password** to set or change a user password.

4.7 Exit

Use the **Exit** menu (**BIOS Menu 19**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 19:Exit

➔ **Save Changes and Reset**

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and reset the system.

➔ **Discard Changes and Reset**

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

➔ **Restore Defaults**

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**

➔ **Save as User Defaults**

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

➔ **Restore User Defaults**

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.

Chapter

5

Maintenance

WARNING:

Take Anti-Static precautions whenever maintenance is being carried out on the system components. Failure to take anti-static precautions can cause permanent system damage. For more details on anti-static precautions, please refer to **Section 2.1**.

5.1 System Maintenance Overview

NOTE:

When doing maintenance operations on the system, please follow the instructions in this chapter. Failure to follow these instructions may lead to personal injury and system damage.

To preserve the working integrity of the IDS-200-A70Mi, the system must be properly maintained. If internal components need replacement, the proper maintenance procedures must be followed to ensure the system can continue to operate normally.

5.2 Component Replacement Procedure

WARNING!

Users are not advised to attempt to repair or replace any internal or external components of the IDS-200-A70Mi embedded system other than those listed below. If any other components fail or need replacement, contact the IEI reseller or vendor you purchased the IDS-200-A70Mi from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The system components listed below can all be replaced if they fail:

- SO-DIMM module
- Wi-Fi module (optional)

5.2.1 SO-DIMM Replacement

WARNING:

Using incorrectly specified SO-DIMM may cause permanently damage the IDS-200-A70Mi. Please make sure the purchased SO-DIMM complies with the memory specifications of the IDS-200-A70Mi.

To replace a SO-DIMM memory module into a SO-DIMM socket, please follow the steps below.

Step 1: **Remove the bottom panel** retention screws (**Figure 3-10**) and lift the bottom panel.

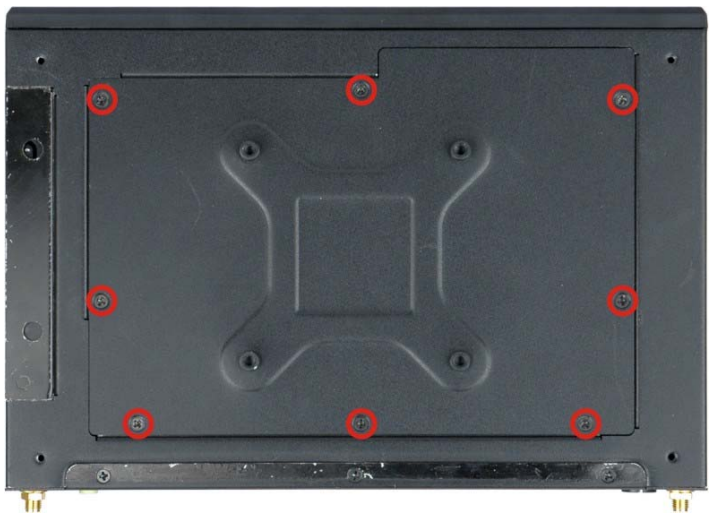


Figure 5-1: Bottom Panel Retention Screws

Step 2: **Locate the SO-DIMM** inside the bottom panel (**Figure 3-11**).

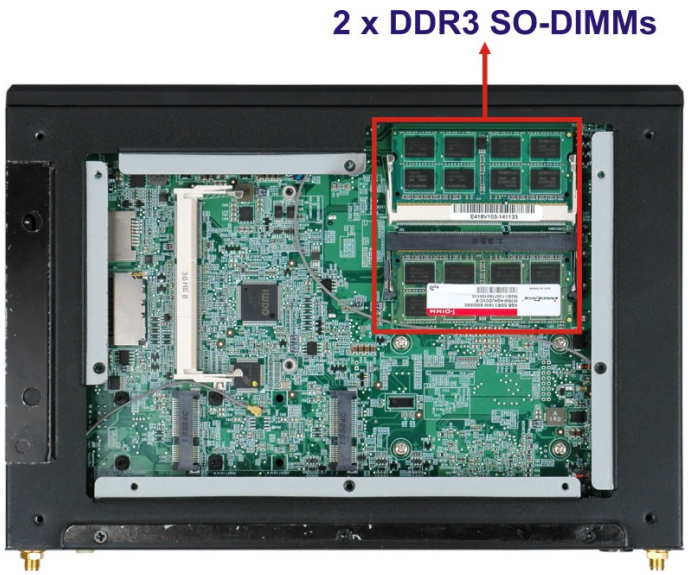


Figure 5-2: SO-DIMM Locations

Step 3: Remove the SO-DIMM by releasing the arms on the SO-DIMM socket. Align the new SO-DIMM with the socket. The SO-DIMM must be oriented in such a way that the notch in the middle of the SO-DIMM must be aligned with the plastic bridge in the socket (**Figure 5-3**).

Step 4: Insert the SO-DIMM. Push the SO-DIMM chip into the socket at an angle (**Figure 5-3**).

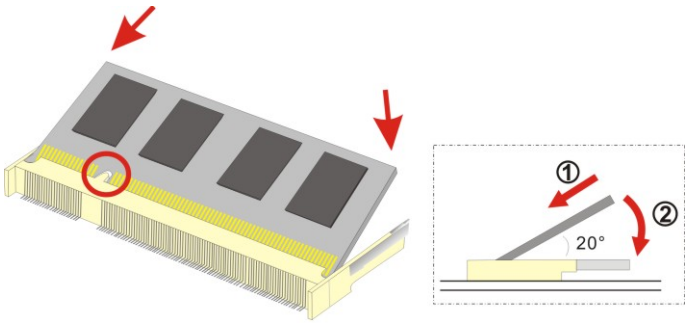


Figure 5-3: SO-DIMM Installation

Step 5: **Secure the SO-DIMM**. Press the SO-DIMM down until the arms of the SO-DIMM socket clip into place and secure the SO-DIMM in the socket.

Chapter

6

Interface Connectors

6.1 Peripheral Interface Connectors

The IDS-200-A70Mi series' motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 6-1**. The Pin 1 locations of the on-board connectors are also indicated in the diagrams below. The connector pinouts for these connectors are listed in the following sections.

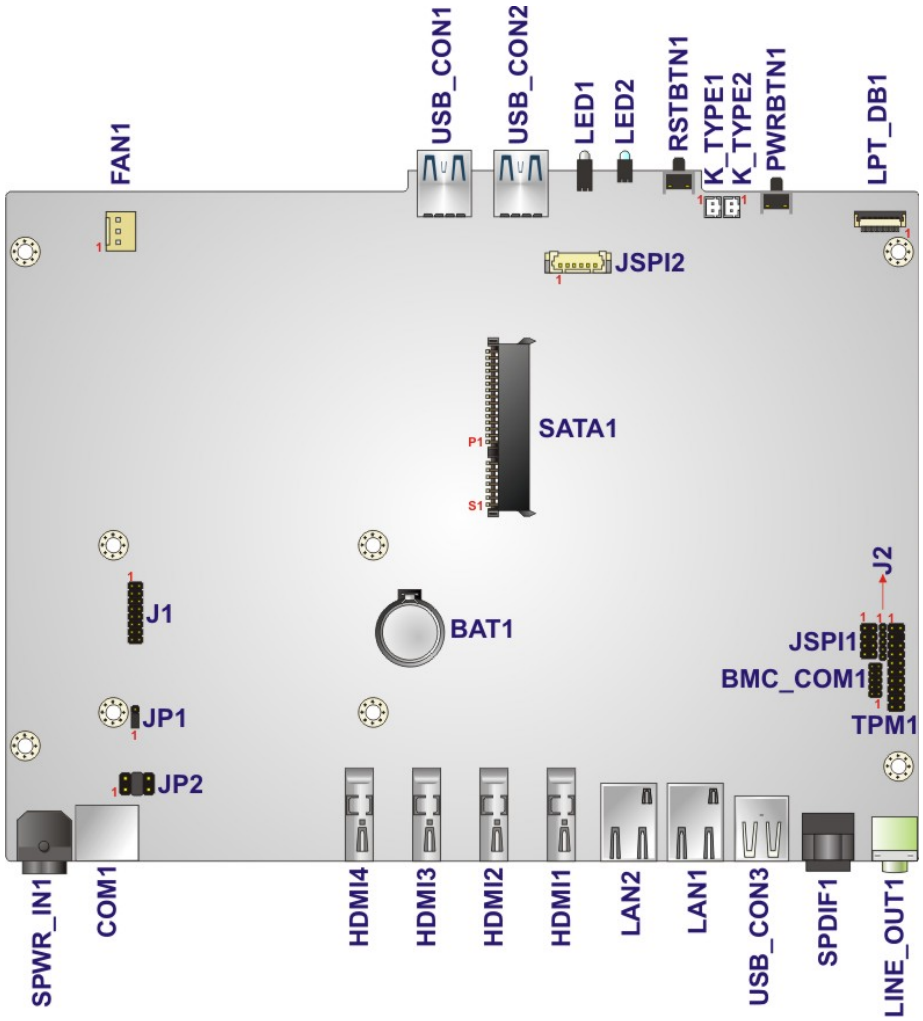


Figure 6-1: Main Board Layout Diagram (Front Side)

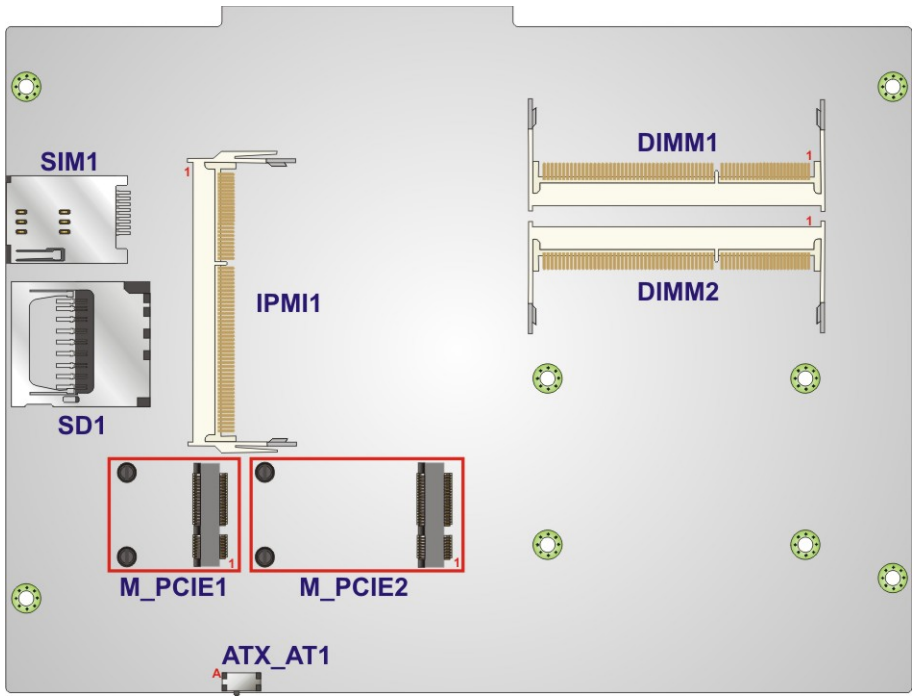


Figure 6-2: Main Board Layout Diagram (Solder Side)

6.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the peripheral interface connectors on the IDS-200-A70Mi motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
BMC COM debug connector	10-pin header	BMC_COM1
Chassis intrusion connector	2-pin header	CHASSIS1
EC debug connector	18-pin wafer	LPT_DB1
Fan connector	3-pin wafer	FAN1
iRIS module slot	204-pin DDR3 SO-DIMM slot	IPMI1
PCIe Mini card slot	Half-size PCIe Mini card slot	M_PCIE1
PCIe Mini card slot	Full-size PCIe Mini card slot	M_PCIE2
SATA connector with power	22-pin (7+15) connector	SATA1

Connector	Type	Label
SD card slot	SD card slot	SD1
SIM card slot	SIM card slot	SIM1
SO-DIMM connectors	SO-DIMM connector	DIMM1, DIMM2
SPI Flash connector	8-pin header	JSPI1
SPI Flash connector, EC	8-pin header	JSPI2
TPM connector	20-pin header	TPM1

Table 6-1: Peripheral Interface Connectors

6.2.1 BMC COM Debug Connector (BMC_COM1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	2	NC
3	RXD	4	NC
5	TXD	6	NC
7	NC	8	NC
9	GND	10	GND

Table 6-2: BMC COM Debug Connector (BMC_COM1) Pinouts

6.2.2 Chassis Intrusion Connector (CHASSIS1)

PIN NO.	DESCRIPTION
1	+V3.3EC
2	CHASSIS OPEN#

Table 6-3: Chassis Intrusion Connector (CHASSIS1) Pinouts

6.2.3 EC Debug Connector (LPT_DB1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EC_EPP_STB#	2	EC_EPP_AFD#
3	EC_EPP_PD0	4	NC

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
5	EC_EPP_PD1	6	EC_EPP_INIT#
7	EC_EPP_PD2	8	EC_EPP_SLIN#
9	EC_EPP_PD3	10	GND
11	EC_EPP_PD4	12	NC
13	EC_EPP_PD5	14	EC_EPP_BUSY
15	EC_EPP_PD6	16	EC_EPP_KSI5
17	EC_EPP_PD7	18	EC_EPP_KSI4

Table 6-4: EC Debug Connector (LPT_DB1) Pinouts

6.2.4 Fan Connector (FAN1)

PIN NO.	DESCRIPTION
1	Rotation Signal
2	+12V
3	GND

Table 6-5: Fan Connector (FAN1) Pinouts

6.2.5 PCIe Mini Slot (M_PCIE1, M_PCIE2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PCIE_WAKE#	2	VCC3
3	N/C	4	GND
5	N/C	6	1.5V
7	N/C	8	N/C
9	GND	10	N/C
11	CLK-	12	N/C
13	CLK+	14	N/C
15	GND	16	N/C
17	PCIRST#	18	GND
19	N/C	20	VCC3
21	GND	22	PCIRST#

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
23	PERN2	24	3VDual
25	PERP2	26	GND
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PETN2	32	SMBDATA
33	PETP2	34	GND
35	GND	36	USBD-
37	N/C	38	USBD+
39	N/C	40	GND
41	N/C	42	N/C
43	N/C	44	N/C
45	N/C	46	N/C
47	N/C	48	1.5V
49	N/C	50	GND
51	N/C	52	VCC3

Table 6-6: PCIe Mini Card Slot Pinouts

6.2.6 SATA Connector (SATA1)

SATA			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
S1	GND	S2	RX-
S3	TX+	S4	RX+
S5	TX-	S6	GND
S7	GND	S8	N/C
SATA Power			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
P1	3.3V	P9	5V
P2	3.3V	P10	GND
P3	3.3V	P11	GND
P4	GND	P12	GND
P5	GND	P13	12V

SATA			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
P6	GND	P14	12V
P7	5V	P15	12V
P8	5V		

Table 6-7: SATA Connector (SATA1) Pinouts

6.2.7 SPI Flash Connector (JSPI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V3.3M_SPI_CON	2	SPI_CS
3	SPI_SO_SW	4	N/C
5	GND	6	SPI_CLK_SW
7	SPI_SI_SW	8	N/C

Table 6-8: SPI Flash Connector (JSPI1) Pinouts

6.2.8 SPI Flash Connector, EC (JSPI2)

PIN NO.	DESCRIPTION
1	+V3.3M_SPI_CON_EC
2	SPI_CS#0_CN_EC
3	SPI_SO_SW_EC
4	SPI_CLK_SW_EC
5	SPI_SI_SW_EC
6	GND

Table 6-9: SPI Flash Connector (JSPI2) Pinouts

6.3 Internal Jumpers

Internal jumpers are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the internal jumpers

on the IDS-200-A70Mi motherboard. Jumper settings can be found in the following sections.

Jumper	Type	Label
Clear CMOS	3-pin header	JP1
COM1 pin 9 selection	6-pin header	JP2

Table 6-10: Internal Jumpers

6.3.1 Clear COMS Jumper (JP1)

Setting	Description
Short 1-2	Normal (Default)
Short 2-3	Clear CMOS

Table 6-11: Clear COMS Jumper (JP1) Settings

6.3.2 COM1 Pin 8 Selection Jumper (JP2)

Setting	Description
Short 1-3	5V
Short 3-4	Pin8 of COM1 as RING (Default)
Short 3-5	12V

Table 6-12: COM1 Pin 8 Selection Jumper (JP2) Settings

6.4 External Interface Panel Connectors

The table below lists the rear panel connectors on the IDS-200-A70Mi motherboard. Pinouts for these connectors can be found in **Section 3.8: External Peripheral Interface Connection**.

Connector	Type	Label
Audio line-out connector	Audio jack	LINE_OUT1
Ethernet connectors	RJ-45	LAN1, LAN2
HDMI connectors	HDMI port	HDMI1, HDMI2, HDMI3, HDMI4
Power connector	4-pin DIN connector	SPWR_IN1
RS-232 connector	RJ-45	COM1
S/PDIF connector	TOSLINK optical	SPDIF1
USB 2.0 connectors	USB 2.0 port	USB_CON3
USB 3.0 connectors	USB 3.0 port	USB_CON1, USB_CON2

Table 6-13: External Interface Panel Connectors

Appendix

A

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the IDS-200-A70Mi.

A.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

A.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the IDS-200-A70Mi is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the IDS-200-A70Mi is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the IDS-200-A70Mi chassis is opened when the IDS-200-A70Mi is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the IDS-200-A70Mi.
- ***If considerable amounts of dust, water, or fluids enter the IDS-200-A70Mi***, turn off the power supply immediately, unplug the power cord, and contact the IDS-200-A70Mi vendor.
- **DO NOT**:
  - Drop the IDS-200-A70Mi against a hard surface.
  - In a site where the ambient temperature exceeds the rated temperature

A.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the IDS-200-A70Mi may result in permanent damage to the IDS-200-A70Mi and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IDS-200-A70Mi. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IDS-200-A70Mi is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

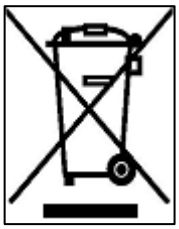
A.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by and incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the IDS-200-A70Mi, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the IDS-200-A70Mi, please read the details below.

- The interior of the IDS-200-A70Mi does not require cleaning. Keep fluids away from the IDS-200-A70Mi interior.
- Be cautious of all small removable components when vacuuming the IDS-200-A70Mi.
- Turn the IDS-200-A70Mi off before cleaning the IDS-200-A70Mi.
- Never drop any objects or liquids through the openings of the IDS-200-A70Mi.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the IDS-200-A70Mi.
- Avoid eating, drinking and smoking within vicinity of the IDS-200-A70Mi.

A.2.2 Cleaning Tools

Some components in the IDS-200-A70Mi may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the IDS-200-A70Mi.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the IDS-200-A70Mi.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the IDS-200-A70Mi.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the IDS-200-A70Mi as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the IDS-200-A70Mi. Dust and dirt can restrict the airflow in the IDS-200-A70Mi and cause its circuitry to corrode.
- **Cotton swabs** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- **Foam swabs** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

B

BIOS Menu Options

B.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 4**.

Appendix

C

Watchdog Timer

NOTE:

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table C-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1     ;is the application over?
        JNE      W_LOOP         ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0           ;
        INT      15H
;
; EXIT ;
```