USER'S MANUAL

BH-1105

ISA Half-sized CPU Card
powered by AMD G-series

With VGA/LAN/2COM/2USB

BH-1105 M2

BH-1105
ISA Half-sided CPU Card
With AMD G-series

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DISCLAIMER

This operation manual is meant to assist both Embedded Computer manufacturers and end users in installing and setting up the system. The information contained in this document is subject to change without any notice.

CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

CAUTION! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

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CHAPTER 1 INTRODUCTION

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CHAPTER

1

INTRODUCTION

This chapter gives you the information for BH-1105. It also outlines the system specifications.

Sections included:

- About This Manual
- System Specifications
- Safety Precautions

Experienced users can jump to chapter 2 on page 2-1 for a quick start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our BH-1105 ISA half-sized CPU card with AMD® G-series processor and enhanced with VGA, LAN, 2COM & 2USB, which is fully PC/AT compatible. The BH-1105 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters:

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specifications for this system. The final page of this chapter will indicate how to avoid damaging this board.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, Sound utility, and Flash BIOS Update. It also describes the Watchdog-timer configuration.

Chapter 4 BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This appendix introduces you the expansion connector pin assignment for a CFast Card Slot.

Appendix B Technical Summary

This appendix gives you the information about the Technical maps.

1-2. SYSTEM SPECIFICATIONS

System

CPU	AMD G-series 615MHz / 1.5GHz on board
Chipset	AMD A55E
Memory	1 x DDR3 SO-DIMM (204 pins), 800 MHz, up to 4GB
OS	Microsoft Window XP, DOS
BIOS	AMI with VGA
Watchdog	1~255 seconds
Power Supply	ATX/AT Power
Speaker	Internal buzzer
Dimension	185 x 122mm (7.28" x 4.8")
Certificate	CE/FCC

I/O Ports

Serial Port	2 ports, 16550 UARTs ▪ COM1: for RS-232 ▪ COM2: for RS-232/422/485
USB Port	2 x USB 2.0 ports
SATA Interface	2 x SATA connector
Digital I/O	4 in / 4 out
IrDA	1 x internal IrDA connector, supports v1.0 SIR protocol
VGA	1 x VGA
LAN	1 x Realtek Giga LAN, supports Wake-on-LAN
Audio	High Definition Reaktek ALC888 series
Expansion Bus	▪ 1 x CFast slot ▪ 1 x PC/104 bus

Display

Graphics	Built in AMD G-series processor, share the system memory. Support VGA, LVDS (18bit, 24bit)

Environment

Operating Temp.	0 ~ 60°C (32 ~ 140°F)
Storage Temp.	-40 ~ 85°C (-40 ~ 185°F)
Humidity	10~90%

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away from static electricity on all occasions.

2. Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices.
   For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

CHAPTER

2

HARDWARE CONFIGURATION

** QUICK START **

Helpful information describes the jumper & connector settings, and component locations.

Sections included:

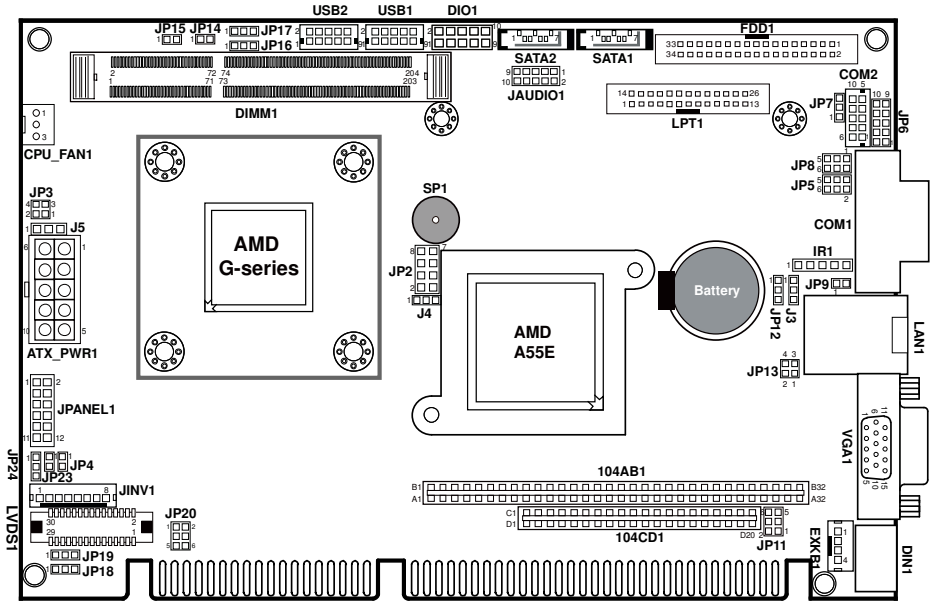
- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

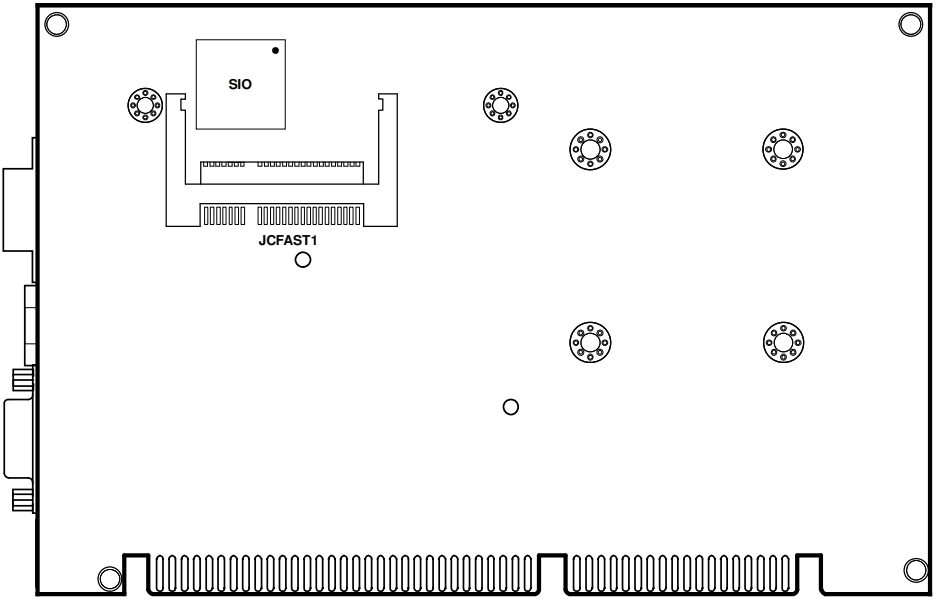
JUMPER / CONNECTOR	NAME
COM Port RI & Voltage Selection	JP5, JP8
COM2 RS-232/422/485 Selection	JP6
Keyboard/Mouse Selection	JP11
Clear CMOS Data Selectino	J3
Reset/NMI/Watchdog Selection	JP13
COM Port	COM1
COM Connector	COM2
Keyboard/Mouse Jack	DIN1
CPU Fan Connector	CPU_FAN1
VGA Port	VGA1
SATA Connector	SATA1, SATA2
Printer Port	LPT1
USB Connector	USB1, USB2
LAN Port	LAN1
ATX Power Connector	ATX_PWR1
Front Panel Connector & Selection	JPANEL1
RS-485 Auto Direction Control Selection	JP7
LVDS Connector	LVDS1
LVDS Panel Voltage Selection	JP20
LVDS Backlight Control Selection	JP23, JP24
LVDS Resolution Selection	JP16, JP17, JP18, JP19
Audio Connector	JAUDIO1
Power LED Connector	JP15
Hard Disk LED Connector	JP14
Floppy Disk Drive Connector	FDD1
CFast Voltage Selection	JP12

JUMPER / CONNECTOR	NAME
5VSB Connector	J5
ATX/AT Power Mode Selection	JP3, JP4, JP9
External Keyboard Connector	EXKB1
Inverter Connector	JINV1
IrDA Connector	IR1
Digital I/O Connector	DIO1
Boot Selection	J4

2-2. COMPONENT LOCATIONS



BH-1105 Front Connector, Jumper and Component Locations



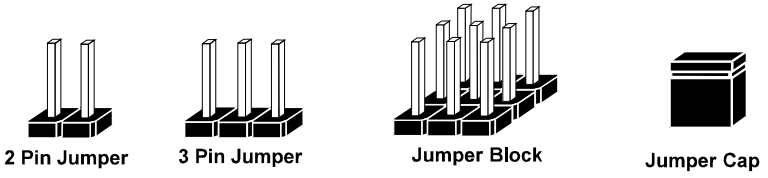
BH-1105 Rear Connector and Component Locations

2-3. HOW TO SET JUMPERS

You can configure your board by setting jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "open" or "close" pins.

The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

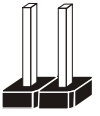
JUMPERS AND CAPS



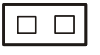
If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

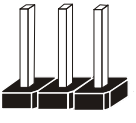
JUMPER DIAGRAMS

Jumper Cap looks like this



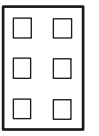
2 pin Jumper looks like this





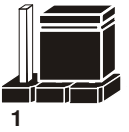
3 pin Jumper looks like this

Jumper Block looks like this

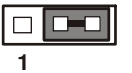


JUMPER SETTINGS

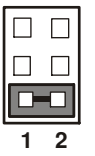
2 pin Jumper close(enabled) Looks like this



3 pin Jumper 2-3 pin close(enabled) Looks like this

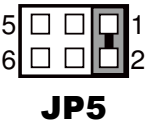
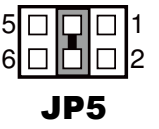
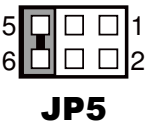


Jumper Block 1-2 pin close(enabled) Looks like this



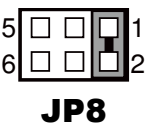
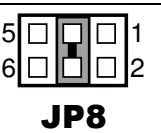
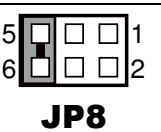
2-4. COM PORT RI & VOLTAGE SELECTION

JP5: COM1 RI & Voltage Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
RI1	1-2	 **JP5**
+12V	3-4,	 **JP5**
+5V	5-6,	 **JP5**

Note: Manufacturing default is RI1.

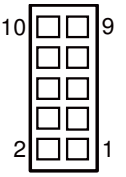
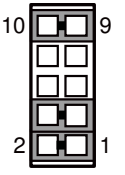
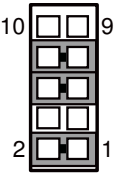
JP8: COM2 RI & Voltage Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
RI2	1-2	 **JP8**
+12V	3-4,	 **JP8**
+5V	5-6,	 **JP8**

Note: Manufacturing default is RI2.

2-5. COM2 RS-232/422/485 SELECTION

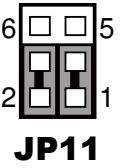
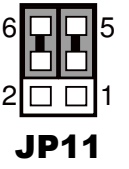
JP6: COM2 RS-232/422/485 Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
RS-232	All Open	 JP6
RS-422	1-2, 3-4, 9-10	 JP6
RS-485	1-2, 5-6, 7-8	 JP6

Note: Manufacturing default is RS-232.

2-6. KEYBOARD/MOUSE SELECTION

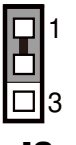
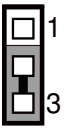
JP11: Keyboard, Mouse or Y-cable Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Mouse	1-3, 2-4	 **JP11**
Keyboard or Y-cable	3-5, 4-6	 **JP11**

Note: Manufacturing default is "Keyboard or Y-cable."

2-7. CLEAR CMOS DATA SELECTION

J3: Clear CMOS Data Selection

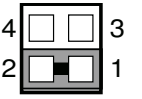
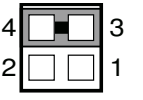
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal	1-2	 **J3**
Clear CMOS*	2-3	 **J3**

Note: Manufacturing default is Normal.

*To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

2-8. RESET/NMI/WATCHDOG SELECTION

JP13: Reset/NMI/Watchdog Selection

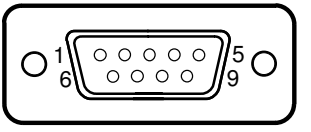
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Reset	1-2	 JP13
NMI	3-4	 JP13

Note: Manufacturing default is Reset.

2-9. COM PORT

COM1: COM Port, fixed as RS-232

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI1
5	GND		



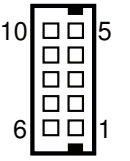
COM1

Note: Pin 9 is selectable for RI/+5V/+12V.
For more information, refer to the section *COM PORT RI & Voltage Selection*.

2-10. COM CONNECTOR

COM2: COM Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI2
5	GND		



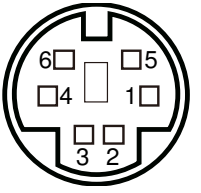
COM2

Note: Pin 9 is selectable for RI/+5V/+12V.
For more information, refer to the section *COM PORT RI & Voltage Selection*.

2-11. KEYBOARD/MOUSE JACK

DIN1: Keyboard/Mouse Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	KBDATA	4	V5_DUAL
2	MSDATA	5	KBCLK
3	GND	6	MSCLK

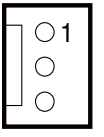


DIN1

2-12. CPU FAN CONNECTOR

CPU_FAN1: CPU fan connector

PIN	ASSIGNMENT
1	GND
2	CPU_FANOUT
3	VCC12

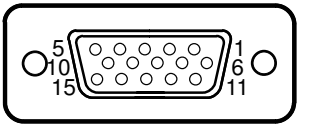


CPU_FAN1

2-13. VGA PORT

VGA1: VGA Port

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	RED	9	VGA_VCC5
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	DDC_DATA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDC_CLK
8	GND		



VGA1

2-14. SATA CONNECTOR

SATA1: SATA Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATAHDR_RXN0
2	SATAHDR_TXP0	6	SATAHDR_RXP0
3	SATAHDR_TXN0	7	GND
4	GND		

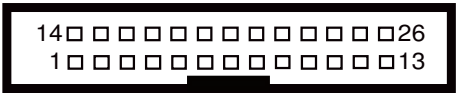
SATA1

SATA2: SATA Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATAHDR_RXN1
2	SATAHDR_TXP1	6	SATAHDR_RXP1
3	SATAHDR_TXN1	7	GND
4	GND		

SATA2

2-15. PRINTER PORT



LPT1

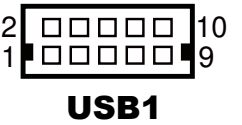
LPT1: Printer Port
Use a cable to connect this parallel port to a DB25 connector.

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT		

2-16. USB CONNECTOR

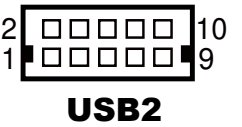
USB1: USB Connectors

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	USB_VCC5	6	USB_1P
2	USB_VCC5	7	GND
3	USB_0N	8	GND
4	USB_1N	9	GND
5	USB_0P	10	GND



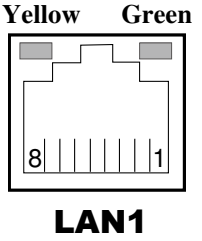
USB2: USB Connectors

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	USB_VCC5	6	USB_3P
2	USB_VCC5	7	GND
3	USB_2N	8	GND
4	USB_3N	9	GND
5	USB_2P	10	GND



2-17. LAN PORT

LAN1: RJ45 LAN Port



LAN1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	MDI_0P	5	MDI_2N
2	MDI_0N	6	MDI_1N
3	MDI_1P	7	MDI_3P
4	MDI_2P	8	MDI_3N

LAN LED Indicator:

Right Side LED

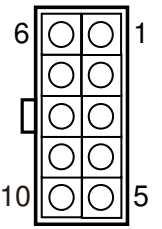
Green Color On	10/100 LAN Speed Indicator
Orange Color On	Giga LAN Speed Indicator
OFF	No LAN Switch/Hub Connected

Left Side LED

Yellow Color Blinking	LAN Message Active
OFF	No LAN Message Active

2-18. ATX POWER CONNECTOR

ATX_PWR1: ATX Power Connectors

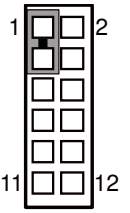
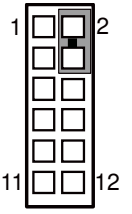
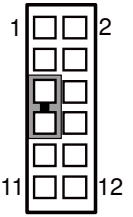


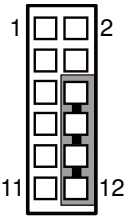
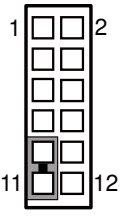
ATX_PWR1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC	6	VCC SBY
2	VCC	7	VCC
3	GROUND	8	GROUND
4	GROUND	9	PS_ON
5	+12V	10	-12V

2-19. FRONT PANEL CONNECTOR & SELECTION

JPANEL1: Front Panel Connector

SELECTION	PIN & ASSIGNMENT	JUMPER SETTINGS	JUMPER ILLUSTRATION
HDD LED	1. HDD_LED+ 3. HDD_LED-	1-3	 **JPANEL1**
Power LED	2. PWR_LED+ 4. PWR_LED-	2-4	 **JPANEL1**
Reset Button	5. GND 7. RST_BTN	5-7	 **JPANEL1**

SELECTION	PIN & ASSIGNMENT	JUMPER SETTINGS	JUMPER ILLUSTRATION
External Buzzer	6. SPK_VCC	6-8-10-12	 **JPANEL1**
	8. Speaker signal		
	10. Speaker signal		
	12. Speaker signal		
Power Button	9. GND	9-11	 **JPANEL1**
	11. PWRBTNSW		

2-20. RS-485 AUTO DIRECTION CONTROL SELECTION

JP7: RS-485 Auto Direction Control Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
None	Open	 **JP7**
Auto Direction	1-2	 **JP7**
Software Control (RTS)	2-3	 **JP7**

Note: Manufacturing default is None.

2-21. LVDS CONNECTOR

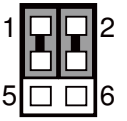
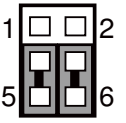
LVDS1

LVDS1: LVDS Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC	16	LVDS0_CLKP
2	GROUND	17	LVDS0_CLKN
3	LVDS1_CLKN	18	GROUND
4	LVDS1_CLKP	19	LVDS0_D2P
5	GROUND	20	LVDS0_D2N
6	LVDS1_D2N	21	GROUND
7	LVDS1_D2P	22	LVDS0_D1P
8	GROUND	23	LVDS0_D1N
9	LVDS1_D1N	24	GROUND
10	LVDS1_D1P	25	LVDS0_D0P
11	LVDS1_D3P	26	LVDS0_D0N
12	LVDS1_D3N	27	LVDS0_D3P
13	LVDS1_D0P	28	LVDS0_D3N
14	LVDS1_D0N	29	VCC
15	GROUND	30	VCC

2-22. LVDS PANEL VOLTAGE SELECTION

JP20: LVDS Panel Voltage Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
+3.3V	1-3, 2-4	 **JP20**
+5V	3-5, 4-6	 **JP20**

Note: Manufacturing default is +3.3V.

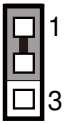
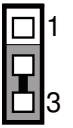
2-23. LVDS BACKLIGHT CONTROL SELECTION

JP23: LVDS Backlight Control Voltage Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
None	Open	 **JP23**
+12V	1-2	 **JP23**

Note: Manufacturing default is None.

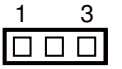
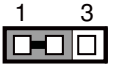
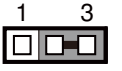
JP24: LVDS Backlight Control Voltage Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
None	Open	 **JP24**
+3.3V	1-2	 **JP24**
+5V	2-3	 **JP24**

Note: Manufacturing default is None. Refer to *LVDS adjustment table* for details.

2-24. LVDS RESOLUTION SELECTION

JP16 (GPIO0)**, JP17** (GPIO1)**, JP18** (GPIO2)**, JP19** (GPIO3)**:**

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
None	Open	 **JP16/JP17/ JP18/JP19**
High	1-2	 **JP16/JP17/ JP18/JP19**
Low	2-3	 **JP16/JP17/ JP18/JP19**

Note: Manufacturing default is None. Refer to *LVDS adjustment table* for details.

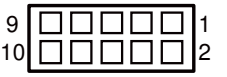
LVDS adjustment table:

GPIO [3:0]	HA (Pixel)	VA (line)	RR (Hz)	PC (MHz)	CD (bit)	Port	HB (Pixel)	HSO (Pixel)	HSPW (Pixel)	VB (line)	VSO (line)	VSPW (line)
0000	800	600	60	38.25	6	Single	224	32	80	24	3	4
0001	1024	768	60	56.00	6	Single	160	48	32	22	3	4
0010	1024	768	60	56.00	8	Single	160	48	32	22	3	4
0011	1280	768	60	68.25	6	Single	160	48	32	22	3	7
0100	1280	800	60	71.00	6	Single	160	48	32	23	3	6
0101	1280	960	60	85.25	6	Dual	160	48	32	28	3	4
0110	1280	1024	60	91.00	8	Single	160	48	32	30	3	7
0111	1366	768	60	72.75	6	Single	160	48	32	23	3	10
1000	1366	768	60	72.25	8	Single	160	48	32	23	3	10
1001	640	480	60	26.7	8	Single	464	80	152	34	3	6
1010	1400	1050	60	101.00	8	Dual	160	48	32	30	3	4
1011	1600	900	60	118.25	8	Dual	512	88	168	26	4	8
1100	1680	1050	60	119.00	8	Dual	160	48	32	30	3	6
1101	1600	1200	60	130.25	8	Dual	160	48	32	35	3	4
1110	1920	1080	60	138.50	8	Dual	160	48	32	31	3	5
1111	1920	1200	60	154.00	8	Dual	160	48	32	35	3	6

2-25. AUDIO CONNECTOR

JAUDIO1: Audio Connectors

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	MIC1-L	6	LINE-IN-R
2	MIC1-R	7	GND
3	GND	8	GND
4	GND	9	LINE-OUT-L
5	LINE-IN-L	10	LINE-OUT-R

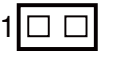


JAUDIO1

2-26. POWER LED CONNECTOR

JP15: Power LED Connector

PIN	ASSIGNMENT
1	P_LED_VCC
2	GND

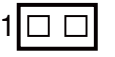


JP15

2-27. HARD DISK LED CONNECTOR

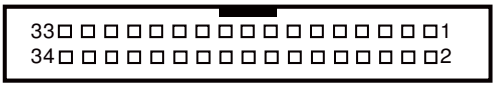
JP14: Hard Disk LED Connector

PIN	ASSIGNMENT
1	HDD_LED_VCC
2	SATA_LEDJ



JP14

2-28. FLOPPY DISK DRIVE CONNECTOR



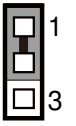
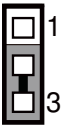
FDD1

FDD1: Floppy Disk Drive Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC	14	STEPJ
2	INDEXJ	15	NC
3	VCC	16	WDJ
4	DSAJ	17	GND
5	VCC	18	WENJ
6	DSKCHGJ	19	GND
7	NC	20	TRAK0J
8	NC	21	GND
9	NC	22	WPJ
10	MOAJ	23	GND
11	NC	24	RDATAJ
12	DIRJ	25	GND
13	RWCJ	26	HEADJ

2-29. CFAST VOLTAGE SELECTION

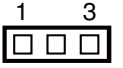
JP12: CFast Voltage Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
+3.3V	1-2	 **JP12**
+5V	2-3	 **JP12**

Note: Manufacturing default is 3.3V.

2-30. 5VSB CONNECTOR

J5: 5VSB Connector



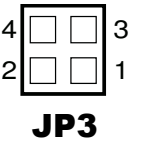
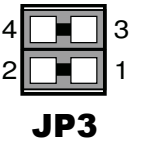
J5

PIN	ASSIGNMENT
1	PS_ON
2	GND
3	5VSB

2-31. ATX/AT POWER MODE SELECTION

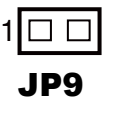
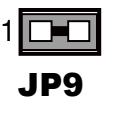
JP3, JP4 and JP9 must be set as the same mode simultaneously.

JP3:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
ATX	Open	
AT	1-2, 3-4	

Note: Manufacturing default is ATX.

JP4, JP9:

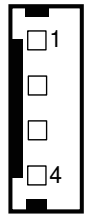
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
ATX	Open		
AT	1-2		

Note: Manufacturing default is ATX.

2-32. EXTERNAL KEYBOARD CONNECTOR

EXKB1: External Keyboard Connectors

PIN	ASSIGNMENT
1	KCLK
2	KDAT
3	GND
4	V5_DUAL



EXKB1

2-33. INVERTER CONNECTOR

JINV1: Inverter Connectors

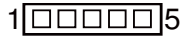
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	GND
2	VCC12	6	BRCTR(PWM)
3	VCC12	7	GND
4	VCC12	8	ENABL

JINV1

2-34. IRDA CONNECTOR

IR1: IrDA Connectors

PIN	ASSIGNMENT
1	VCC3_3
2	NC
3	IRRX
4	GND
5	IRTX

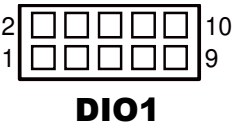


IR1

2-35. DIGITAL I/O CONNECTOR

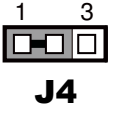
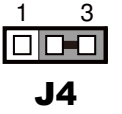
DIO1: Digital Input/Output Connectors

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC5	6	DOUT1
2	GND	7	DIN2
3	DIN0	8	DOUT2
4	DOUT0	9	DIN3
5	DIN1	10	DOUT3



2-36. BOOT SELECTION

J4: Boot Function Debug Connector

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal Operation	1-2	
Ext. Programming (debug only)	2-3	

Note: Manufacturing default is Normal Operation.

SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, and Sound driver.

Sections included:

- Introduction.
- AMD Chipset Software Installation Utility
- LAN Driver Utility
- Sound Driver Utility

3-1. INTRODUCTION

Enclosed with BH-1105 package are our driver utilities, which come in a format of CD ROM or floppy disk. Refer to the following table for driver locations:

FILENAME (Assume that CD ROM drive is D:)	**PURPOSE**
D:\Driver\UTILITY	AMD A55E chipset device software installation utility
D:\Driver\LAN	Realtek RTL8111E for LAN driver installaion
D:\Driver\SOUND	Realtek ALC888 for sound driver installation
D:\Driver\FLASH	BIOS update utility

Note: Be sure to install the Utility right after the OS fully installed.

3-2. AMD CHIPSET SOFTWARE INSTALLATION UTILITY

3-2-1. Introduction

The chipset A55E is a Fusion Controller Hub (FCH) of AMD. We use this single-chip approach to broaden the I/O connectivity for modern peripheral devices, lower the power consumption, enhance system performance, and also reduce the chipset footprint. The driver package outlines how the operating system configures the AMD chipset components in order to ensure that the following features function properly:

- DMA Support
- PCIe Support
- SATA Storage Support
- USB Support
- SMBus Support
- Interrupt Controller Support
- LPC Bus Support
- RGMII/MII Interface Support

3-2-2. Installation of Utility for Windows XP

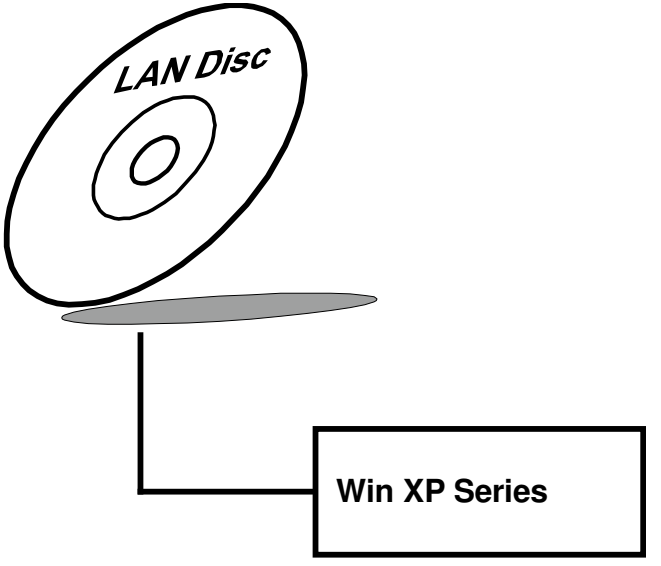
The utility pack is to be installed only for Windows XP, and it should be installed right after the OS installation. Please follow the steps below:

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the utility driver is located.
3. Run the application with administrative privileges.

3-3. LAN DRIVER UTILITY

3-3-1. Introduction

BH-1105 is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:

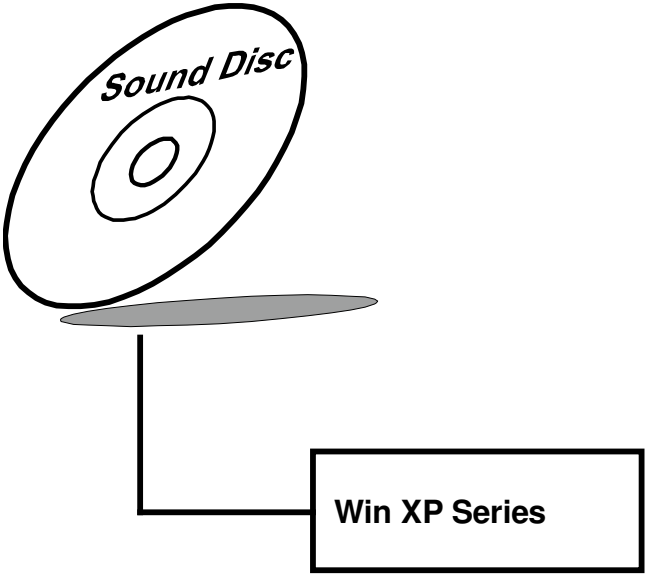


For more details on Installation procedure, please refer to Readme.txt file found on LAN Driver Utility.

3-4. SOUND DRIVER UTILITY

3-4-1. Introduction

The Realtek sound function enhanced in this system is fully compatible with Windows XP. Below, you will find the content of the Sound driver:



3-4-2. Installation of Sound Driver

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the sound driver is located.
3. Run the application with administrative privileges..
4. Follow the instructions on the screen to complete the installation.
5. Once the installation is completed, shut down the system and restart in order for the changes to take effect.

CHAPTER

4

BIOS SETUP

This chapter shows how to set up the AMI BIOS.

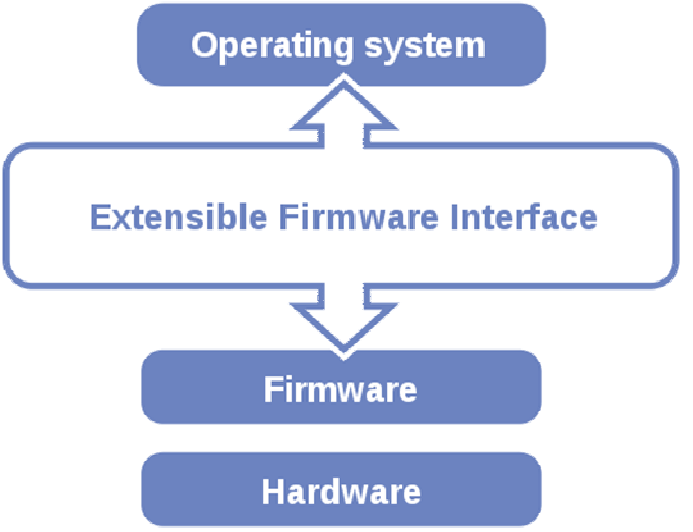
Sections included:

- Introduction
- Entering Setup
- Main
- Advanced
- Chipset
- Boot
- Security
- Save & Exit

4-1. INTRODUCTION

The board BH-1105 uses an AMI Aptio BIOS that is stored in the Serial Peripheral Interface Flash Memory (SPI Flash) and can be updated. The SPI Flash contains the BIOS Setup program, Power-on Self-Test (POST), the PCI auto-configuration utility, LAN EEPROM information, and Plug and Play support.

Aptio is AMI's BIOS firmware based on the UEFI (Unified Extensible Firmware Interface) Specifications and the Intel Platform Innovation Framework for EFI. The UEFI specification defines an interface between an operating system and platform firmware. The interface consists of data tables that contain platform-related information, boot service calls, and runtime service calls that are available to the operating system and its loader. These provide standard environment for booting an operating system and running pre-boot applications. Following illustration shows Extensible Firmware Interface's position in the software stack.



EFI BIOS provides an user interface allow users the ability to modify hardware configuration, e.g. change system date and time, enable or disable a system component, decide bootable device priorities, setup personal password, etc., which is convenient for modifications and customization of the computer system and allows technicians another method for finding solutions if hardware has any problems.

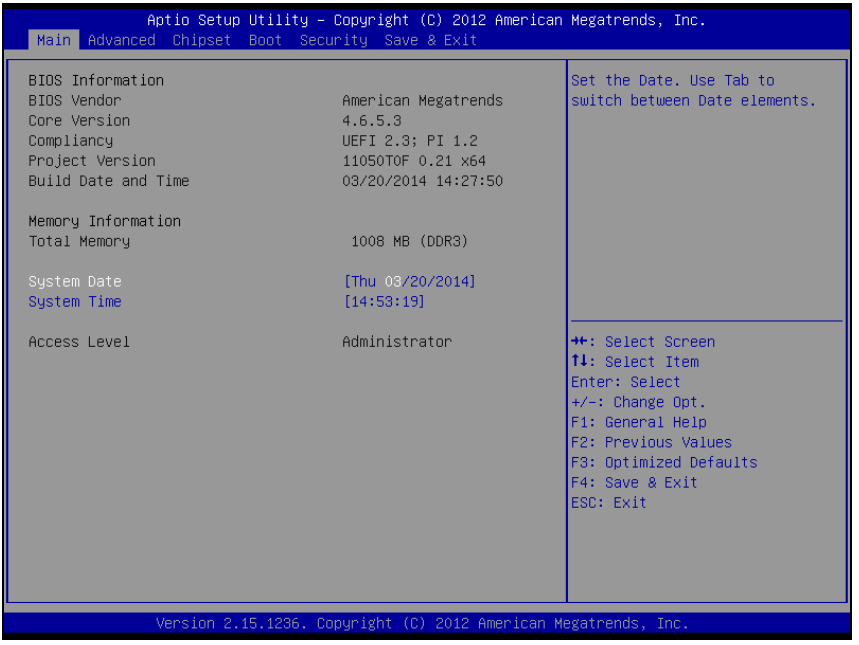
The BIOS Setup program can be used to view and change the BIOS settings for the computer. The BIOS Setup program is accessed by pressing the <Del> or <F2> key after the POST memory test begins and before the operating system boot begins. The settings are shown below.

4-2. ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

First POST screen with AMI logo

For as long as this message is present on the screen before the operating system boot begins, you may press the <F2> or <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the setup menu. In a moment, the main menu of the Aptio Setup Utility will appear on the screen:



BIOS setup program initial screen

The BIOS setup menu interface and help messages are shown in US English. You may move the cursor by up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-2-1. BIOS Setup Menu Keys

The following table provides list of keys available for BIOS setup menu.

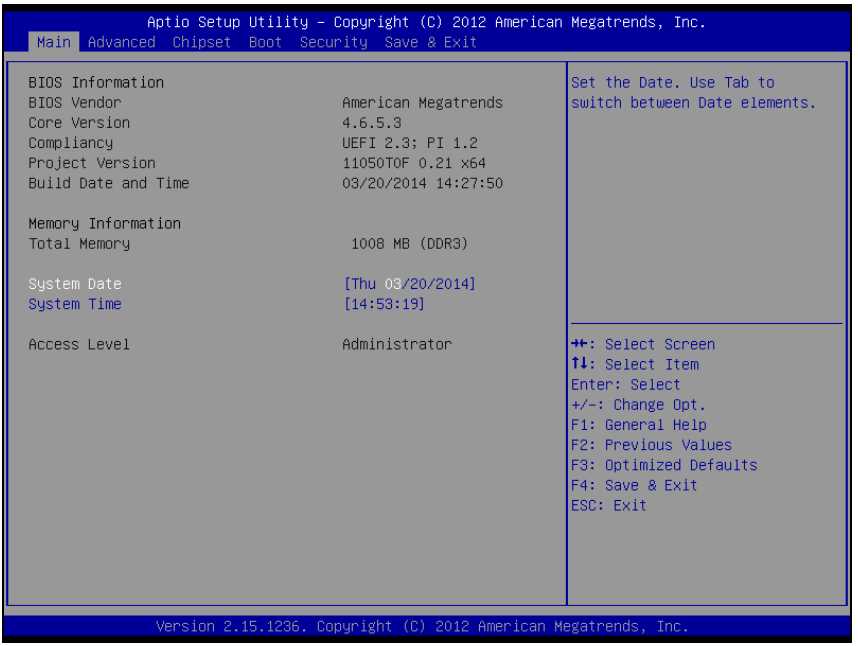
BIOS Setup menu key	Description
<←> and <→>	Selects a different menu screen (moves the selection left or right).
< ↑ > and < ↓ >	Selects an item (moves the selection up or down).
<Enter>	Executes command or selects the sub-menu.
<F2>	Load the previous configuration values.
<F3>	Load the default configuration values.
<F4>	Save the current values and exits the BIOS setup menu.
<Esc>	Leaves the sub-menu. Triggers confirmation to exit BIOS setup menu.

4-2-2. BIOS Messages

This section describes error messages generated by the board's BIOS. These messages would be displayed on the monitor when certain recoverable error/event occurs during POST stage. The table bellow gives an explanation of the BIOS messages.

BIOS Setup menu key	Explanation
A first boot or NVRAM reset condition has been detected.	BIOS has been updated or the battery was replaced.
The CMOS defaults were loaded.	Default values have been loaded after the BIOS was updated or the battery was replaced.
The CMOS battery is bad or was recently replaced.	The battery may be losing power, replace the battery soon. Also, this message is displayed once the new battery was placed.

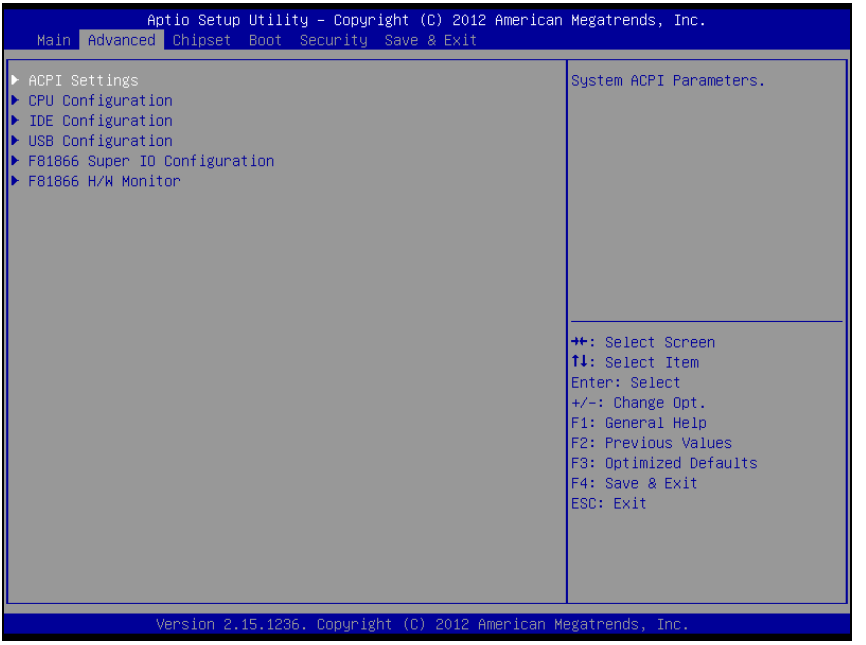
4-3. MAIN



Main screen

BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Displays the BIOS vendor.
Core Version	No changeable options	Displays the current BIOS core version.
Compliancy	No changeable options	Displays
Project Version	No changeable options	Displays the version of the BIOS currently installed on the platform.
Build Date and Time	No changeable options	Displays the date of current BIOS version.
Total Memory	No changeable options	Displays the current memory installed amount and type.
System Date	Month, day, year	Specifies the current date.
System Time	Hour, minute, second	Specifies the current time.
Access Level	Administrator	Access level status

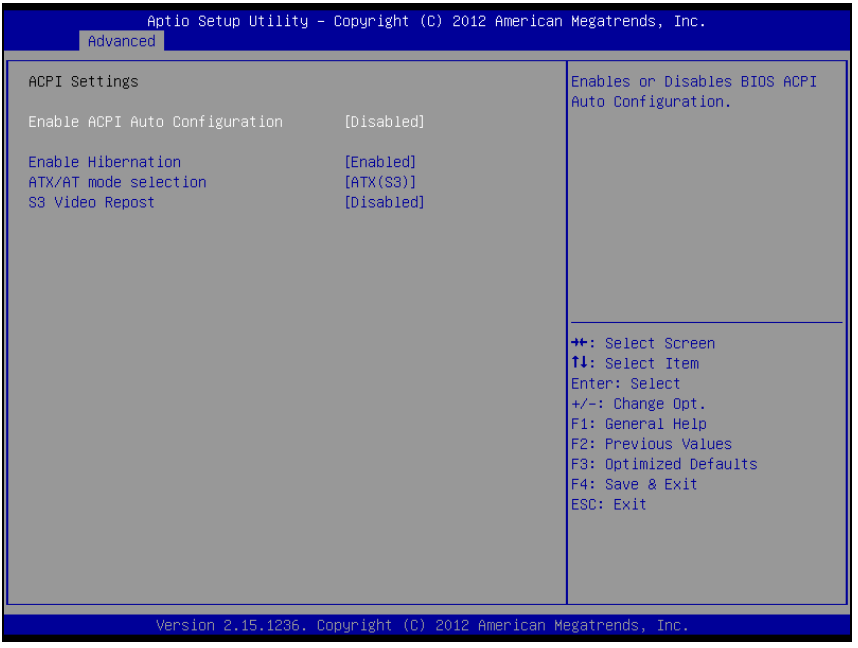
4-4. ADVANCED



Advanced screen

BIOS Setting	Options	Description/Purpose
ACPI Settings	Enter	System ACPI Parameters
CPU Configuration	Enter	CPU Configuration Parameters
IDE Configuration	Enter	IDE Device Configuration
USB Configuration	Enter	USB Configuration Parameters
F81866 Super IO Configuration	Enter	System Super IO Chip Parameters.
F81866 H/W Monitor	Enter	Monitor hardware status.

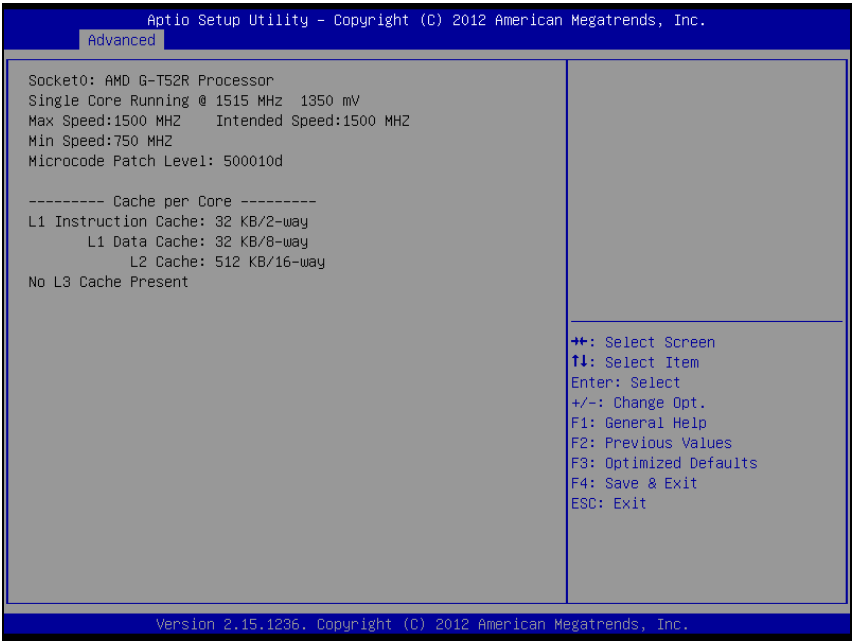
4-4-1. Advanced - ACPI Settings



ACPI Settings screen

BIOS Setting	Options	Description/Purpose
Enable ACPI Auto Configuration	-Enabled -Disabled	Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation	-Enabled -Disabled	Enables or Disables System ability to Hibernatate (OS/S4 Sleep State), This option may be not effective with some OS.
ATX/AT mode selection	-AT -ATX(S3)	ATX/AT mode select.
S3 Video Repost	-Disabled -Enabled	Enable or Disable S3 Video Repost.

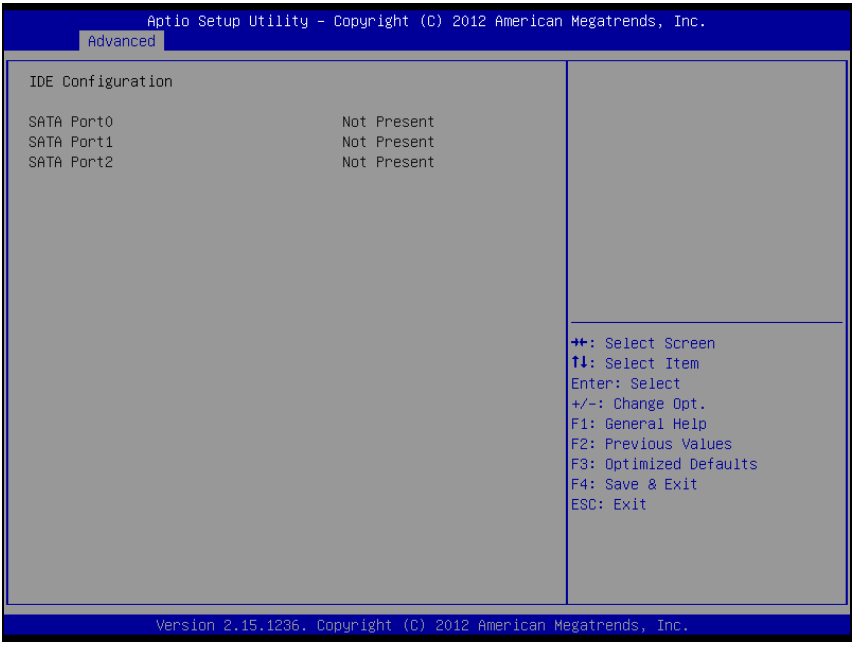
4-4-2. Advanced - CPU Configuration



CPU Configuration screen

BIOS Setting	Options	Description/Purpose
Socket0	No changeable options	Displays the current processor model Type
Max Speed	No changeable options	Displays the CPU Max speed
Intended Speed	No changeable options	Displays the Intended Speed
Min Speed	No changeable options	Displays the CPU Min speed
Microcode Patch Level	No changeable options	Displays the Microcode patch level
L1 Instruction Cache	No changeable options	Displays the current L1 Instruction Cache
L1 Data Cache	No changeable options	Displays the current L1 Data Cache
L2 Cache	No changeable options	Displays L2 Cache

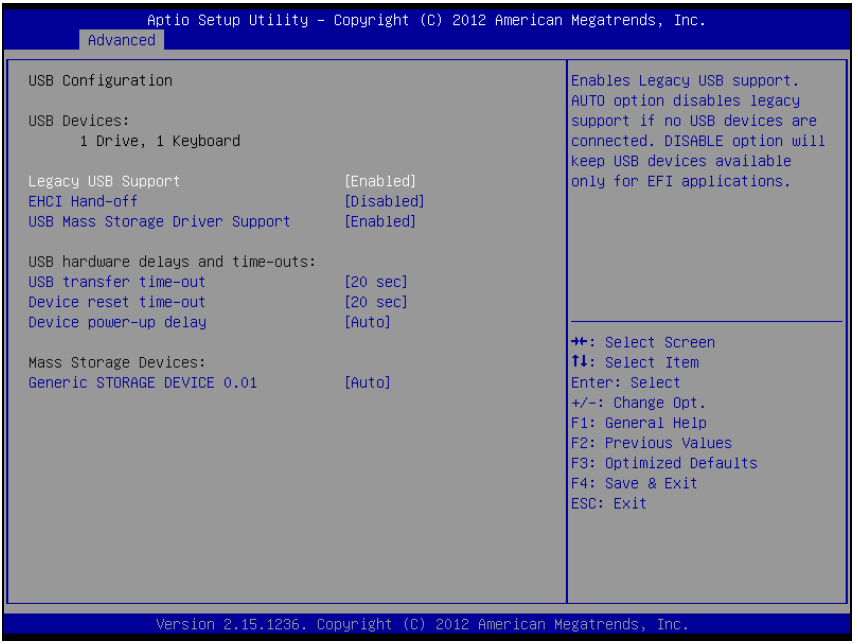
4-4-3. Advanced - IDE Configuration



IDE Configuration screen

BIOS Setting	Options	Description/Purpose
SATA Port0	No changeable options	Display SATA Port0 Status
SATA Port1	No changeable options	Display SATA Port1 Status
SATA Port2	No changeable options	Display SATA Port2 Status

4-4-4. Advanced - USB Configuration

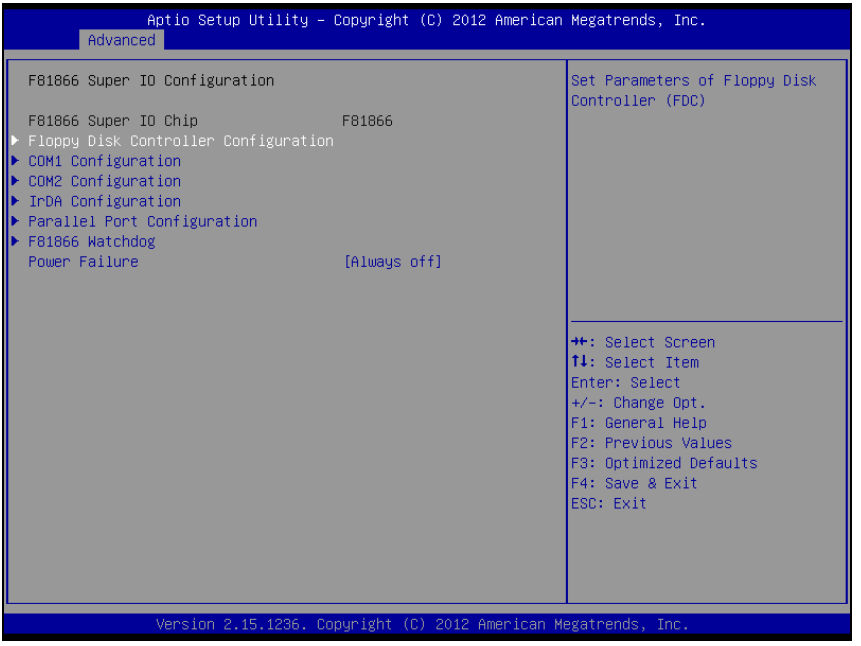


USB Configuration screen

BIOS Setting	Options	Description/Purpose
USB Devices	No changeable options	Displays number of available USB devices.
Legacy USB Support	-disabled -enabled -Auto	Enables support for legacy USB.
EHCI Hand-off	-disabled -enabled	When enabled it allows BIOS support control of the EHCI controller and the OS handoff synchronization capatability.
USB Mass Storage Driver Support	-Disabled -Enabled	Enable/Disable USB Mass Storage Driver Support

USB Transfer time-out	-1 sec -5 sec -10 sec -20 sec	The time-out value for Control, Bulk, and Interrupt transfers.
Device Reset timeout	-10 sec -20 sec -30 sec -40 sec	Specifies the value for device reset timeout.
Device power-up delay	-Auto -Manual	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.
Mass Storage Devices Type	-Auto -Floppy -Forced FDD -Hard Disk -CD-ROM	Mass storage device emulation type. 'Auto' enumerates devices less than 530MB as floppies. Forced FDD option can be used to force HDD formatted drive to boot as FDD(e.g. ZIP drive).

4-4-5. Advanced - F81866 Super IO Configuration

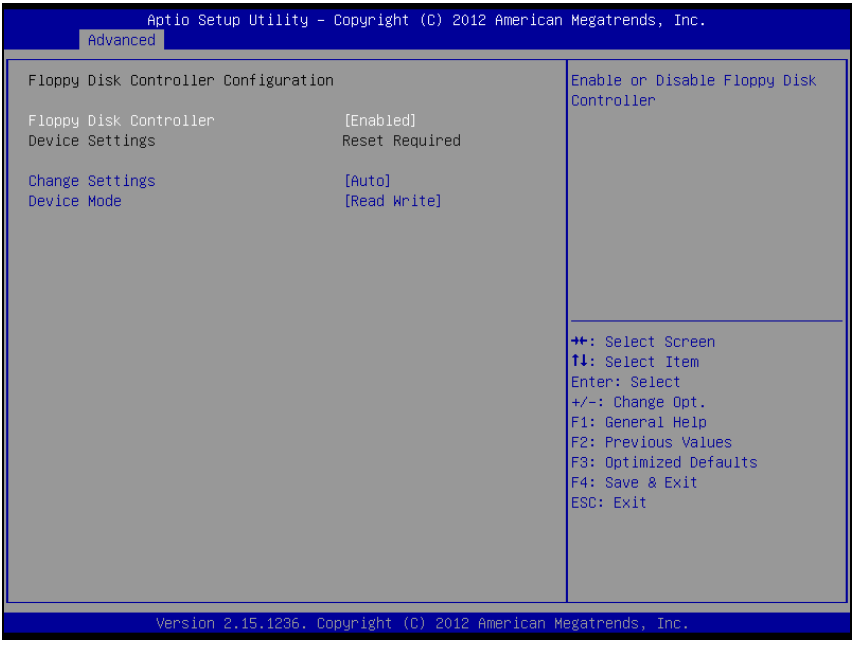


F81866 Super IO Configuration screen

BIOS Setting	Options	Description/Purpose
Super IO Chip	No changeable options	Displays the super IO chip model and its manufacturer.
Floppy Disk Controller COnfiguration	Enter	Set Parameters of Floopy Disk Controller (FDC)
COM1 Configuration	Enter	Set Parameters of COM1
COM2 Configuration	Enter	Set Parameters of COM2
IrDA Configuration	Enter	Set Parameters of IrDA
Parallel Port Configuration	Enter	Set Parameters of Parallel port

BIOS Setting	Options	Description/Purpose
F81866 WatchDog	Enter	F81866 Watchdog timer settings
Power Failure	-Always off -Always on -Keep last state	Select AC power state when power is re-applied after a power failure.

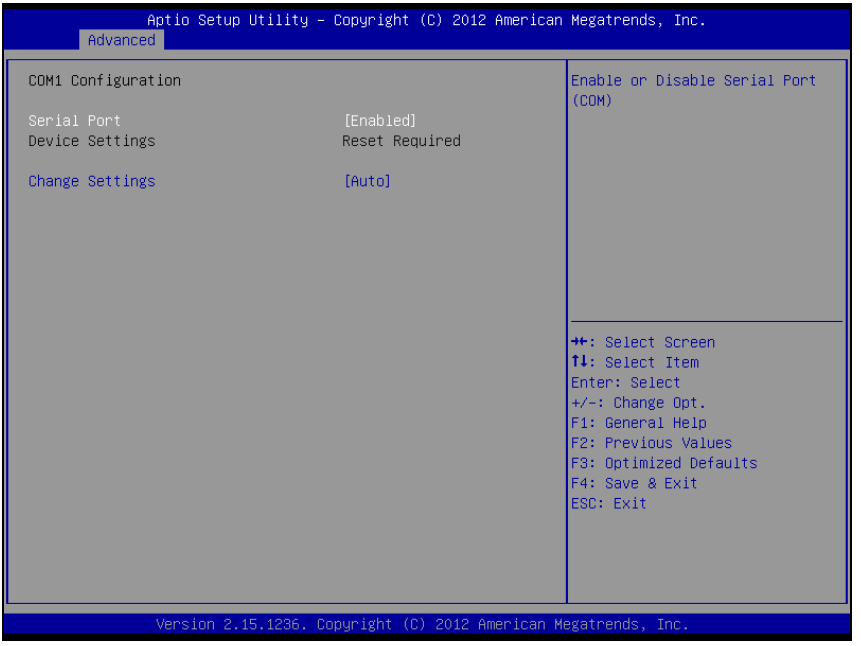
4-4-5-1. Floppy Disk Configuration



Floppy Disk Configuration screen

BIOS Setting	Options	Description/Purpose
Floppy Port	-Disabled -Enabled	Configures the Floppy port
Device Settings	No changeable options	Reports the current Floppy port setting.
Change Settings	-Auto -IO=3F0h; IRQ=6; DMA=2	Slect an optimal setting for Super IO device.
Device Mode	-Read Write -Write Protect	Change mode of Floppy Disk Controller , Select “Read Write” for normal operation. Select ‘Write Protect’ mode for read only operation.

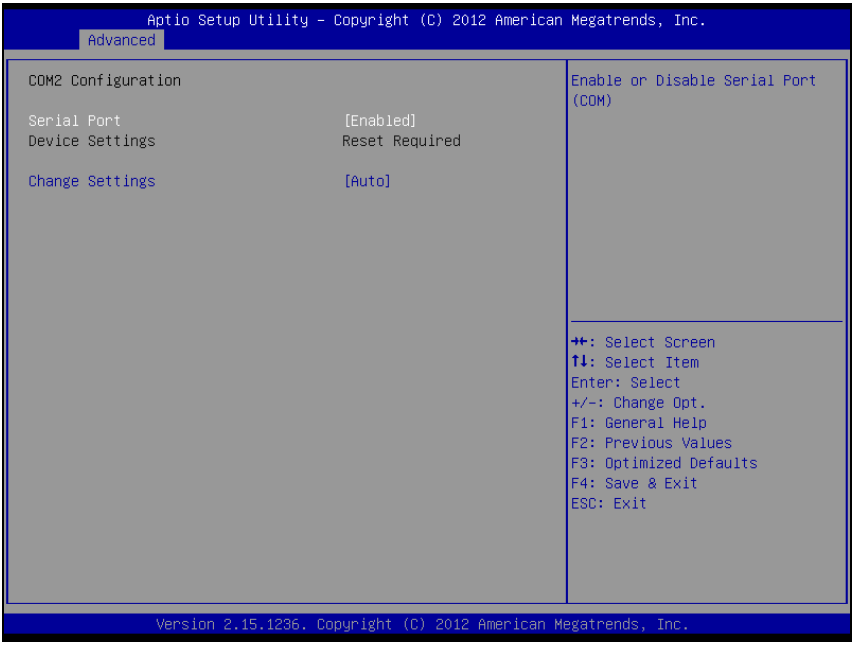
4-4-5-2. Serial Port 1 Configuration



Serial Port 0 Configuration screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Configures the serial port
Device Settings	No changeable options	Reports the current serial port setting.
Change Settings	-Auto -IO=3F8h; IRQ=4 -IO=3F8h; IRQ=3,4,5,6,7,10,11,12 -IO=2F8h; IRQ=3,4,5,6,7,10,11,12 -IO=3E8h; IRQ=3,4,5,6,7,10,11,12 -IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Specifies the base I/O address and interrupt request for the serial port if enabled.

4-4-5-2. Serial Port 2 Configuration



Serial Port 2 Configuration screen

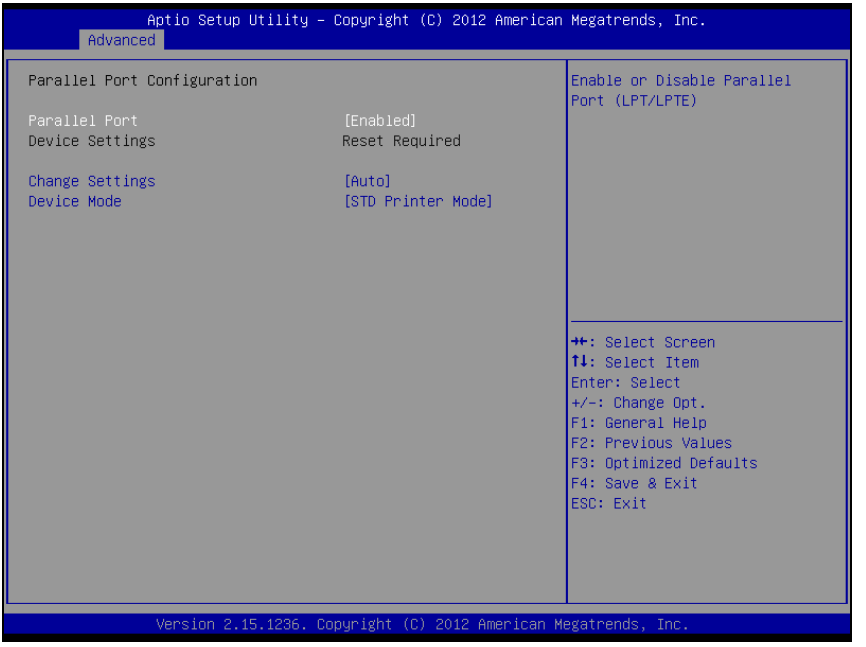
BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Configures the serial port.
Device Settings	No changeable options	Reports the current serial port setting.
Change Settings	-Auto -IO=2F8h; IRQ=3 -IO=3F8h; IRQ=3,4,5,6,7,10,11,12 -IO=2F8h; IRQ=3,4,5,6,7,10,11,12 -IO=3E8h; IRQ=3,4,5,6,7,10,11,12 -IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Specifies the base I/O address and interrupt request for the serial port if enabled.

4-4-5-3. IrDA Configuration

IrDA Configuration screen

BIOS Setting	Options	Description/Purpose
IR device mode	-Enable IR1 function ,active pulse 1.6us -Enable IR1 function ,active pulse 3/16 bit time	Change the Serial Port mode. Select <High Speed> or <Normal mode> mode.

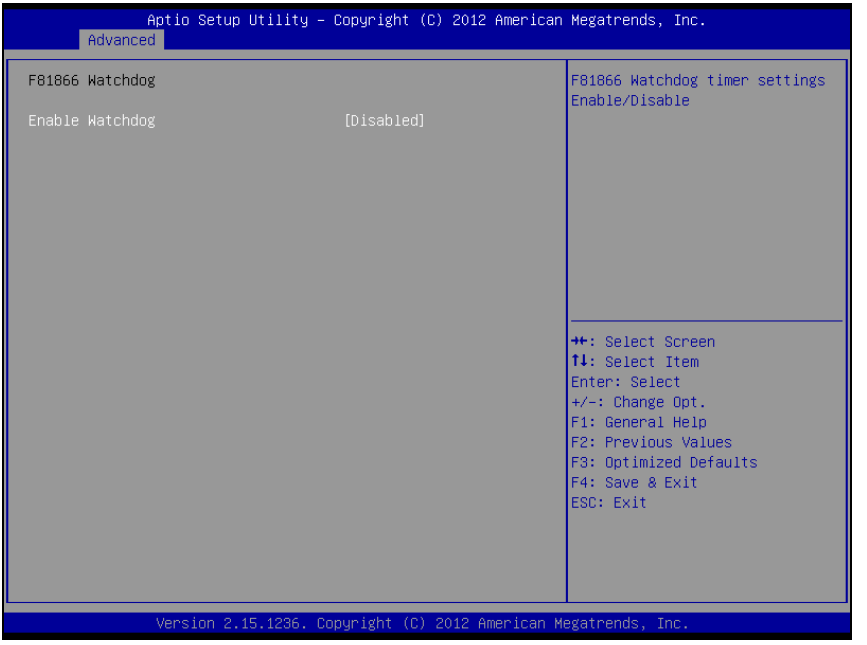
4-4-5-4. Parallel Port Configuration



Parallel Port Configuration screen

BIOS Setting	Options	Description/Purpose
Parallel Port	-Disabled -Enabled	Configures the parallel port.
Device Settings	No changeable options	Reports the current parallel port setting.
Change Settings	-Auto -IO=378h; IRQ=5 -IO=378h; IRQ=5,6,7,10,11,12 -IO=278h; IRQ=5,6,7,10,11,12 -IO=3BCh; IRQ=5,6,7,10,11,12	Specifies the base I/O address and interrupt request for the parallel port if enabled.

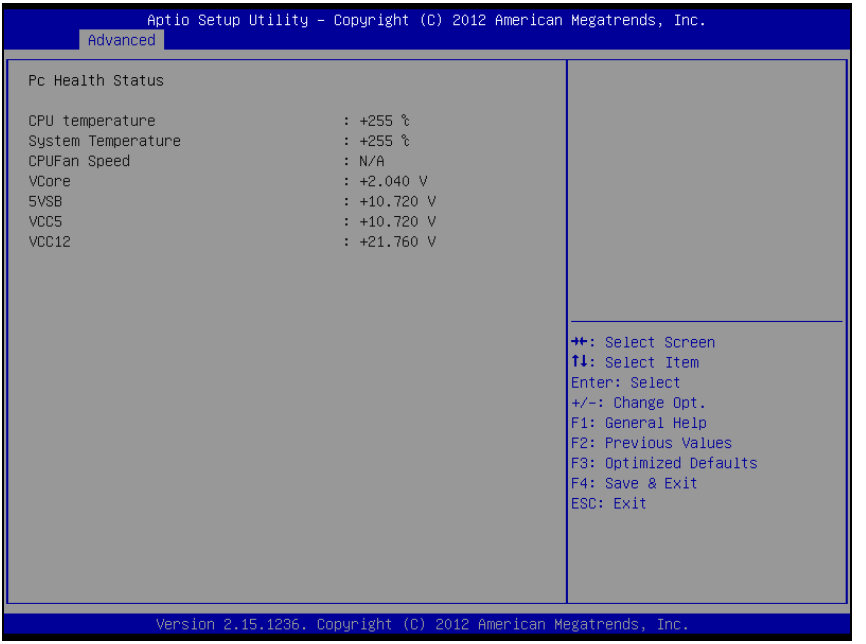
4-4-5-5. F81866 Watchdog



F81866 Watchdog screen

BIOS Setting	Options	Description/Purpose
Enable Watchdog	-Disabled -Enabled	F81866 Watchdog timer settings Enable/Disable

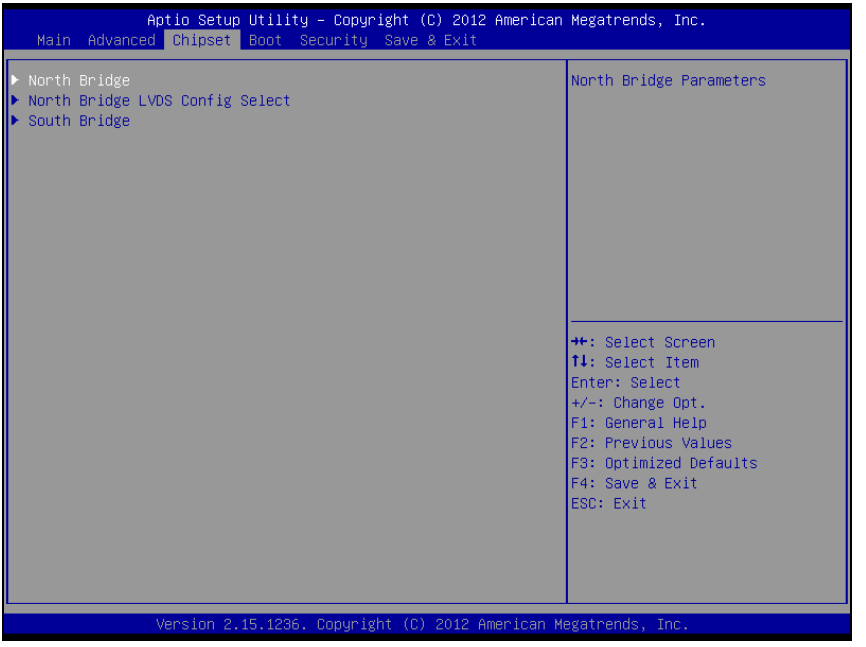
4-4-6. Advanced - HW Monitor



HW Monitor Configuration screen

BIOS Setting	Options	Description/Purpose
CPU Temperature	No changeable options	Displays temperature in the CPU thermal sensor zone.
System Temperature	No changeable options	Displays system temperature.
CPU Fan Speed	No changeable options	Displays fan speed of the CPU fan.
VCore	No changeable options	Displays voltage level of the +VCORE in supply.
5VSB	No changeable options	Displays voltage level of the +5VSB in supply.
VCC5	No changeable options	Displays voltage level of the +5V in supply.
VCC1.2	No changeable options	Displays voltage level of the VCC1.2 in supply.

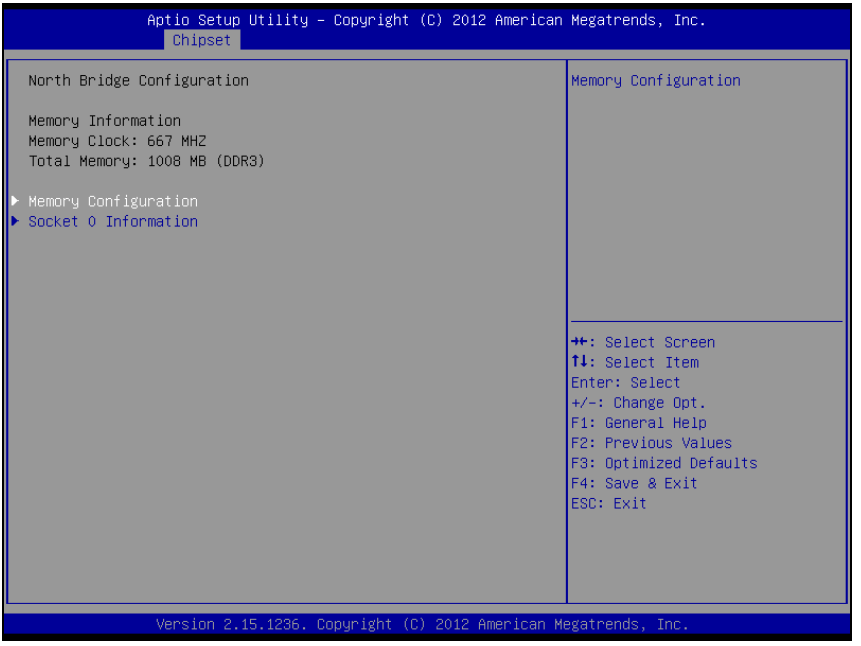
4-5. CHIPSET



Chipset screen

BIOS Setting	Options	Description/Purpose
North Bridge	Enter	North Bridge Parameters
North Bridge LVDS Config Select	Enter	Specify INT15 options for LVDS
South Bridge	Enter	South Bridge Parameters

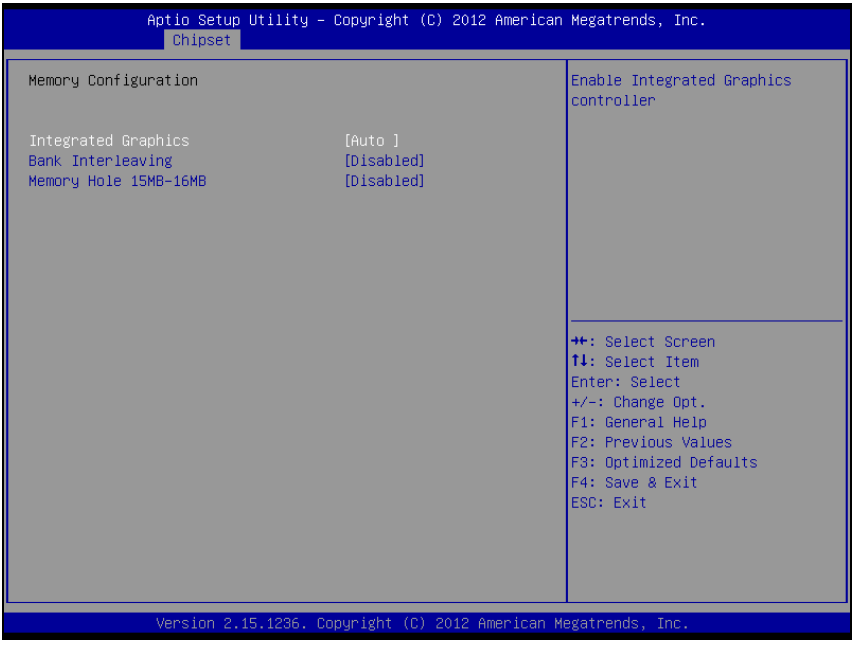
4-5-1. Chipset – North Bridge



North Bridge screen

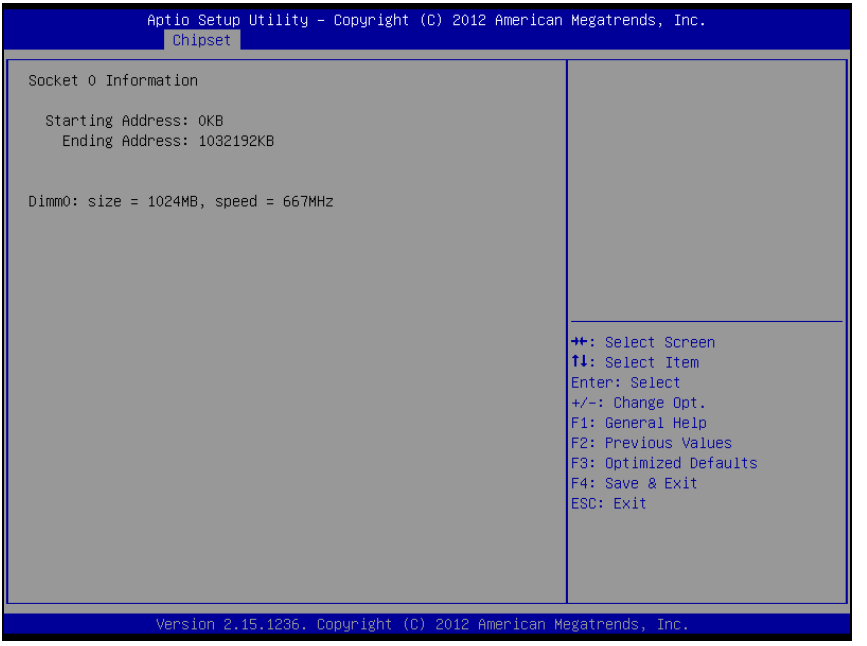
BIOS Setting	Options	Description/Purpose
Memory CLock	-	Display memory clock
Total Memory	-	Display total memory size
Memory Configuration	-	Display Memory Configuration
Socket 0 Information	-	View Information related to Socket 0

4-5-1-1. Memory Configuration



Memory Configuration screen

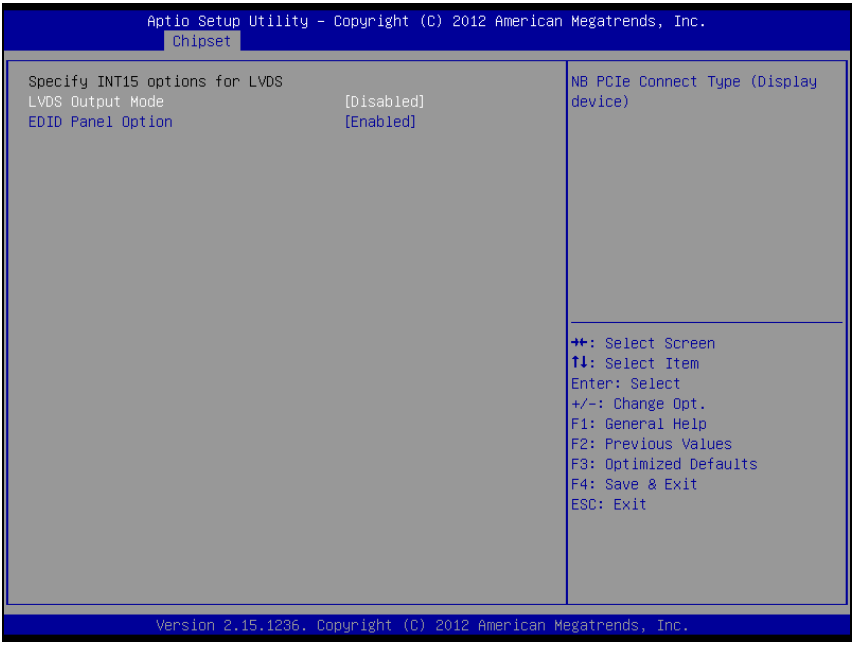
BIOS Setting	Options	Description/Purpose
Integrated Graphics	-Auto -Disabled -Force	Enable Integrated Graphics controller.
Bank Inter leaving	-Disabled -Enabled	Bank Interleaving.
Memory Hole 15MB-16MB	-Disabled -Enabled	Memory Hole 15MB-16MB for some ISA expansion cards.



Memory Configuration -Socket 0 screen

BIOS Setting	Options	Description/Purpose
Starting Address	Display only	-
Ending Address	Display only	-
Dimm0:size	Display only	DRAM size
Speed	Display only	DRAM speed

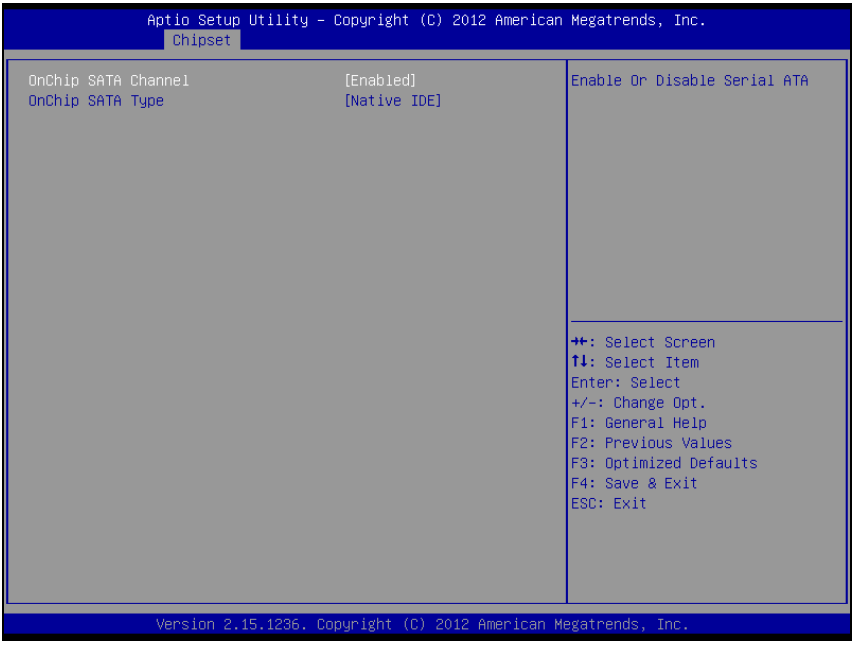
4-5-2. Chipset - North Bridge LVDS Config Selection



North Bridge LVDS Config Selection screen

BIOS Setting	Options	Description/Purpose
LVDS Output Mode	-Disabled -LVDS	NB PCIe Connect Type (Display device)
EDID Panel Option	-Enabled -Disabled	EDID Panel Option

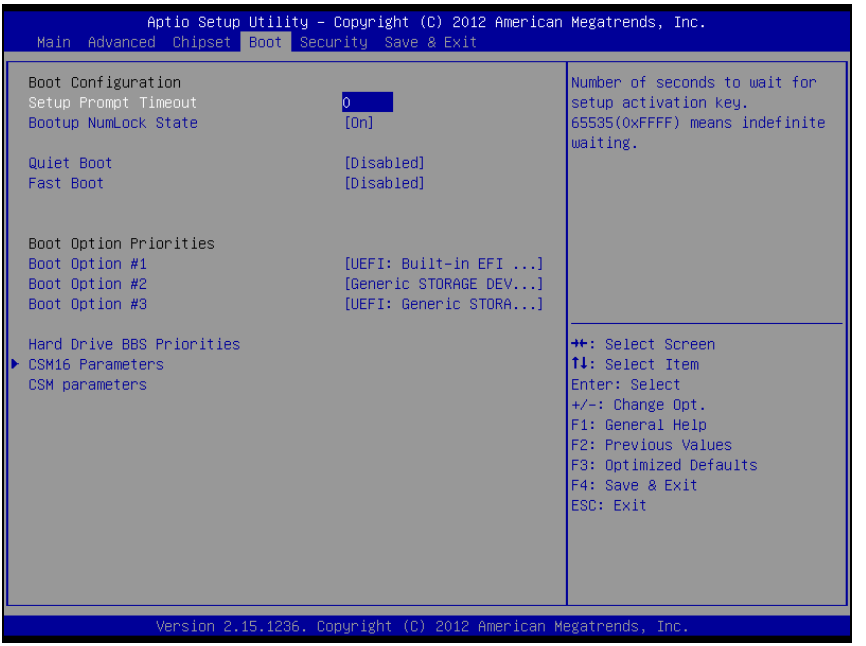
4-5-3. Chipset – South Bridge



South Bridge screen

BIOS Setting	Options	Description/Purpose
Onchip STAT Channel	-Enabled -Disabled	Enabled or Disabled Serial ATA
OnChip SATA Type	-Native IDE -AHCI -Legacy IDE	Native IDE /AHCI / Legacy IDE

4-6. BOOT

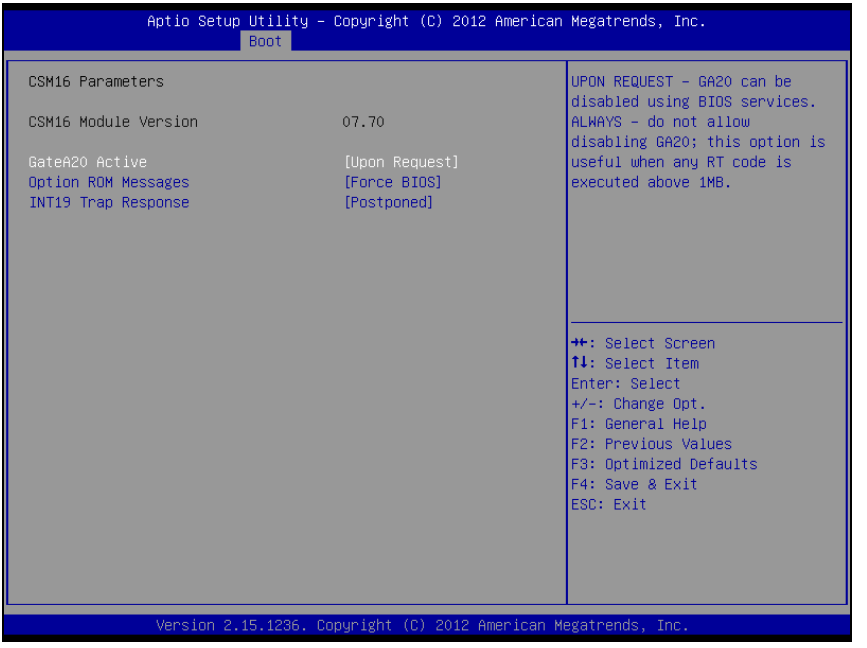


Boot screen

BIOS Setting	Options	Description/Purpose
Setup Prompt Timeout	0~65535	Number of seconds to wait for setup activation key.
Bootup Numlock State	-On -Off	Select the keyboard NumLock state
Quiet Boot	-Disabled -Enabled	When quiet boot is enabled, it displays OEM logo instead of POST messages during boot.
Fast Boot	-Disabled -Enabled	When fast boot is enabled, it boots with minimal set of devices required to launch active boot option.
Boot Option #N	Device Type	Set the system boot order
Hard Drive BBS Priorities	Device Type	Set the order of the legacy devices in this group.

BIOS Setting	Options	Description/Purpose
CSM16 Parameters	Enter	CMS16 configuration: Enable/Disable, Option ROM execution settings, etc.
CSM parameters	Enter	OpROM execution , boot options filter, etc.

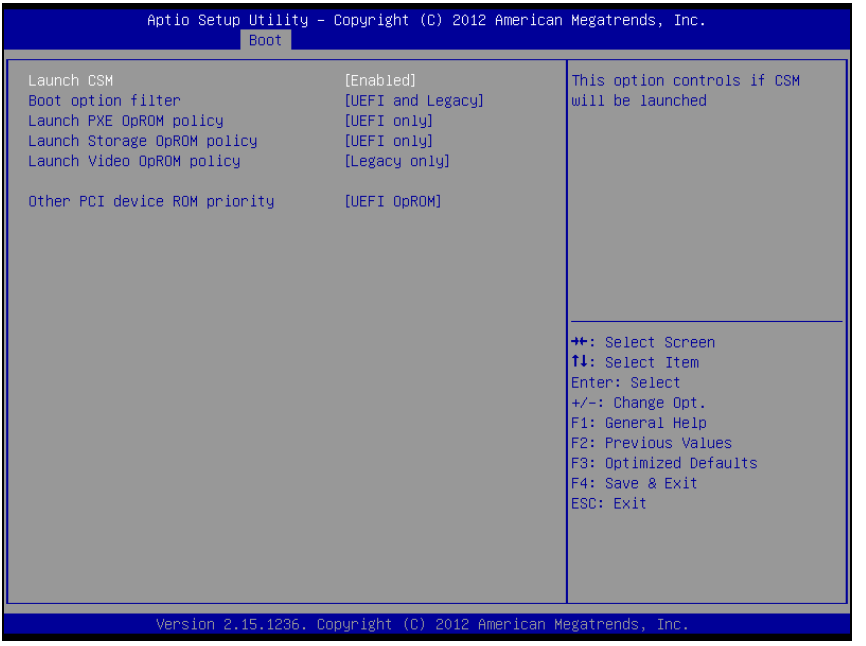
4-6-1. CSM16 Parameters



CSM16 Parameter screen

BIOS Setting	Options	Description/Purpose
GateA20 Active	-Upon Request -Always	UPON RQUEST-GA20 can be disabled using BIOS services, Always – Donot allow disabling GA20; this option is useful when any RT code is executed above 1MB.
Option ROM messages	-Force BIOS -Keep Current	Set display mode for Option ROM
INT19 Trap Response	-Immediate -Postponed	BIOS reaction on int19 trapping by option rom; Immediate – execute the trap right away; postponed- excute the trap during legacy boot.

4-6-2. Launch CSM

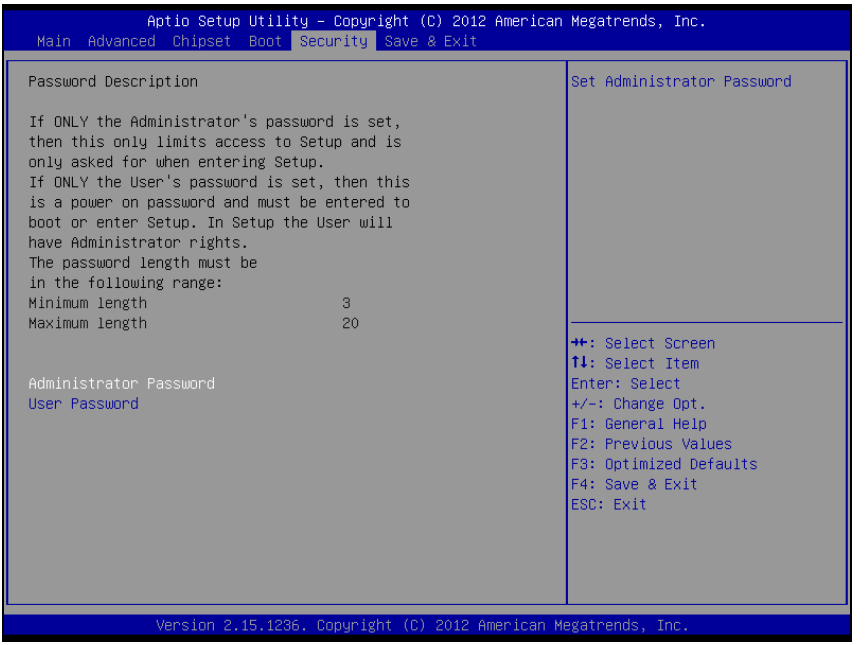


Launch CSM screen

BIOS Setting	Options	Description/Purpose
Launch CSM	-Enabled -Disable	This option controls if CSM will be launched.
Boot option filter	-UEFI and Legacy -Legacy only -UEFI only	This option controls what devices system can boot to.
Launch PXE OpROM policy	-Do not launch -UEFI only -Legacy only -Legacy first -UEFI first	Controls the execution of UEFI and Legacy PXE OpROM.

BIOS Setting	Options	Description/Purpose
Launch Storage OpROM policy	-Do not launch -UEFI only -Legacy only -Legacy first -UEFI first	Controls the execution of UEFI and legcy storage oprom.
Launch Video OpROM policy	-Do not launch -UEFI only -Legacy only -Legacy first -UEFI first	Controls the execution of UEFI and legacy video oprom.
Other PCI device ROM priority	-UEFI oprom -legacy oprom	Offer PCI devices other than Network, Mass storage or video defines which oprom to launch.

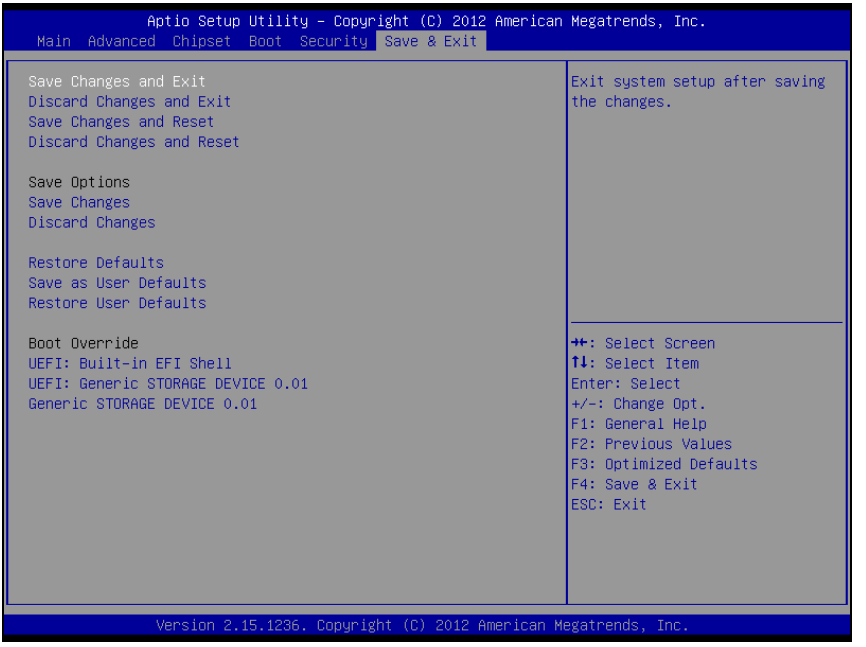
4-7. SECURITY



Security screen

BIOS Setting	Options	Description/Purpose
Administrator Password	Password can be up to 20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be up to 20 alphanumeric characters.	Specifies the user password.

4-8. SAVE & EXIT



Save & Exit screen

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No changeable options	Exits and saves the changes in CMOS SRAM.
Discard Changes and Exit	No changeable options	Exits without saving any changes made in BIOS settings.
Save Changes and Reset	No changeable options	Saves the changes in CMOS SRAM and resets.
Discard Changes and Reset	No changeable options	Resets without saving any changes made in BIOS settings.
Save Changes	No changeable options	Saves the changes done in BIOS settings so far.
Discard Changes	No changeable options	Discards the changes done in BIOS settings so far.

BIOS Setting	Options	Description/Purpose
Restore Defaults	No changeable options	Loads the optimized defaults for BIOS settings.
Save as User Defaults	No changeable options	Saves the current values as user defaults.
Restore User Defaults	No changeable options	Loads the user defaults for BIOS settings.
Boot Override	-[drive(s)]	Forces to boot from selected [drive(s)].

EXPANSION BUS

APPENDIX

A

This appendix indicates pin assignments of expansion slot.

Sections included:

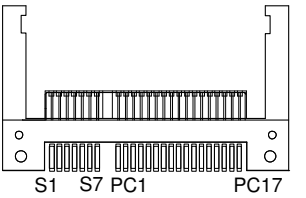
- CFAST Card Slot Pin Assignment

CFAST CARD SLOT PIN ASSIGNMENT

You will find a **JCFAST1** card slot on BH-1105.
The pin assignments are as follows:

JCFAST1: CFAST Card Slot

PIN	ASSIGNMENT	PIN	ASSIGNMENT
S1	GND	PC6	NC
S2	SATA_TXP0	PC7	GND
S3	SATA_TXN0	PC8	NC
S4	GND	PC9	NC
S5	SATA_RXN0	PC10	NC
S6	SATA_RXP0	PC11	NC
S7	GND	PC12	NC
PC1	NC	PC13	3.3V/5V
PC2	GND	PC14	3.3V/5V
PC3	NC	PC15	GND
PC4	NC	PC16	GND
PC5	NC	PC17	NC



JCFAST1

TECHNICAL SUMMARY

APPENDIX

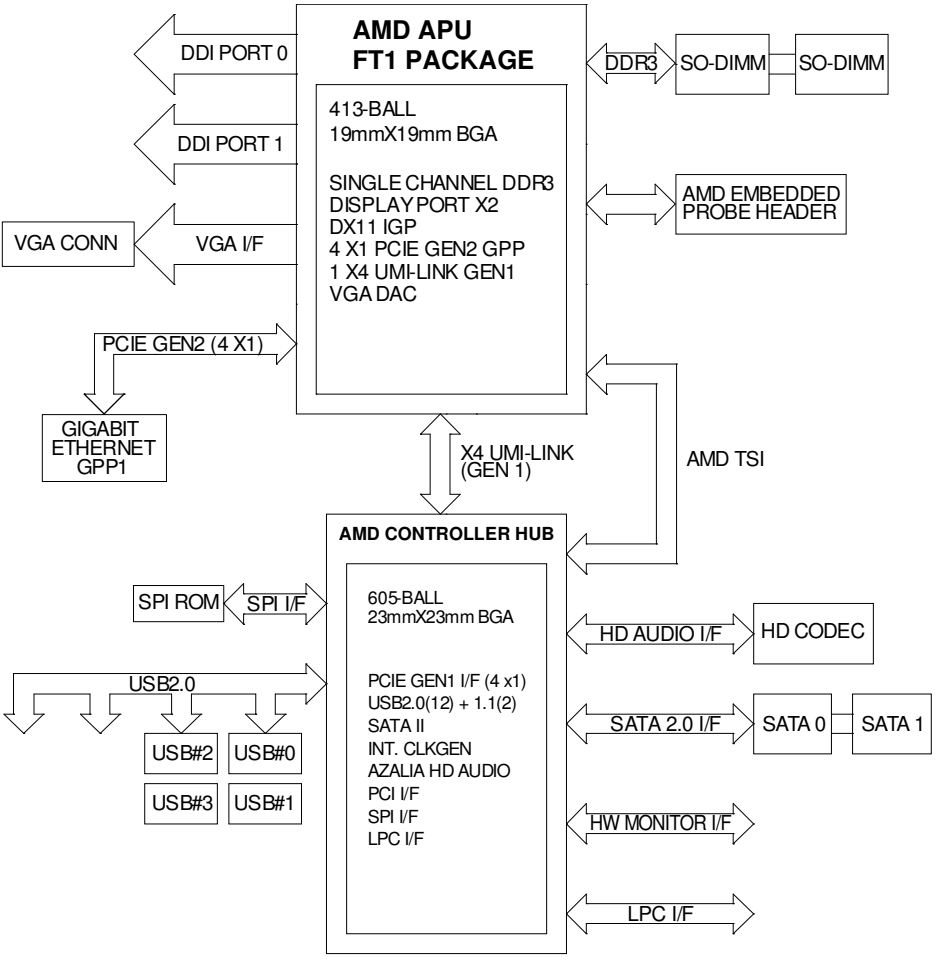
B

This section introduce you the maps concisely.

Sections included:

- Block Diagram
- Interrupt Map
- DMA Channel Map
- I/O Map
- Memory Map
- Watchdog Timer Configuration
- Flash BIOS Update

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
9	Microsoft ACPI-Compliant System
18	AMD Radeon HD 6310 Graphics
18	Standard OpenHCD USB Host Controller
18	Standard OpenHCD USB Host Controller
18	Standard OpenHCD USB Host Controller
18	Standard OpenHCD USB Host Controller
19	Microsoft UAA Bus Driver for High Definition Audio
19	Standard Dual Channel PCI IDE Controller
16	PCI standard PCI-to-PCI bridge
16	Realtek PCIe GBE Family Controller
16	Microsoft UAA Bus Driver for High Definition Audio
17	Standard Enhanced PCI to USB Host Controller
17	Standard Enhanced PCI to USB Host Controller
17	Standard Enhanced PCI to USB Host Controller
1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
6	Standard floppy disk controller
4	Communications Port (COM1)
7	Communications Port (COM2)
3	Built-in Infrared Device
0	System timer
8	System CMOS/real time clock
13	Numeric data processor

DMA CHANNELS MAP

TIMER CHANNEL	ASSIGNMENT
Channel 2	Standard floppy disk controller
Channel 3	Printer Port (LPT1)
Channel 4	Direct memory access controller

I/O MAP

I/O MAP	ASSIGNMENT
0x00000000-0x000003AF	PCI bus
0x00000000-0x000003AF	Motherboard resources
0x00000000-0x000003AF	Direct memory access controller
0x000003B0-0x000003DF	PCI bus
0x000003B0-0x000003DF	AMD Radeon HD 6310 Graphics
0x000003E0-0x00000CF7	PCI bus
0x00000D00-0x0000FFFF	PCI bus
0x0000F000-0x0000F0FF	AMD Radeon HD 6310 Graphics
0x000003C0-0x000003DF	AMD Radeon HD 6310 Graphics
0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge
0x0000E000-0x0000EFFF	Realtek PCIe GBE Family Controller
0x0000F140-0x0000F147	Standard Dual Channel PCI IDE Controller
0x0000F130-0x0000F133	Standard Dual Channel PCI IDE Controller
0x0000F120-0x0000F127	Standard Dual Channel PCI IDE Controller
0x0000F110-0x0000F113	Standard Dual Channel PCI IDE Controller
0x0000F100-0x0000F10F	Standard Dual Channel PCI IDE Controller
0x00000A79-0x00000A79	ISAPNP Read Data Port
0x00000279-0x00000279	ISAPNP Read Data Port
0x00000274-0x00000277	ISAPNP Read Data Port
0x0000040B-0x0000040B	Motherboard resources
0x000004D6-0x000004D6	Motherboard resources
0x00000C00-0x00000C01	Motherboard resources
0x00000C14-0x00000C14	Motherboard resources
0x00000C50-0x00000C51	Motherboard resources
0x00000C52-0x00000C52	Motherboard resources
0x00000C6C-0x00000C6C	Motherboard resources
0x00000C6F-0x00000C6F	Motherboard resources
0x00000CD0-0x00000CD1	Motherboard resources
0x00000CD2-0x00000CD3	Motherboard resources
0x00000CD4-0x00000CD5	Motherboard resources

I/O MAP	ASSIGNMENT
0x00000CD6-0x00000CD7	Motherboard resources
0x00000CD8-0x00000CDF	Motherboard resources
0x00000800-0x0000089F	Motherboard resources
0x00000B20-0x00000B3F	Motherboard resources
0x00000900-0x0000090F	Motherboard resources
0x00000910-0x0000091F	Motherboard resources
0x0000FE00-0x0000FEFE	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000A10-0x00000A1F	Motherboard resources
0x00000220-0x0000022F	Motherboard resources
0x00000060-0x00000060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x00000064-0x00000064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x000003F0-0x000003F5	Standard floppy disk controller
0x000003F7-0x000003F7	Standard floppy disk controller
0x000003F8-0x000003FF	Communications Port (COM1)
0x000002F8-0x000002FF	Communications Port (COM2)
0x000003E8-0x000003EF	Built-in Infrared Device
0x00000378-0x0000037F	Printer Port (LPT1)
0x00000020-0x00000021	Programmable interrupt controller
0x000000A0-0x000000A1	Programmable interrupt controller
0x00000081-0x00000083	Direct memory access controller
0x00000087-0x00000087	Direct memory access controller
0x00000089-0x0000008B	Direct memory access controller
0x0000008F-0x0000008F	Direct memory access controller
0x000000C0-0x000000DF	Direct memory access controller
0x00000040-0x00000043	System timer
0x00000070-0x00000071	System CMOS/real time clock
0x00000061-0x00000061	System speaker
0x00000010-0x0000001F	Motherboard resources
0x00000022-0x0000003F	Motherboard resources

I/O MAP	ASSIGNMENT
0x00000044-0x0000005F	Motherboard resources
0x00000062-0x00000063	Motherboard resources
0x00000065-0x0000006F	Motherboard resources
0x00000072-0x0000007F	Motherboard resources
0x00000080-0x00000080	Motherboard resources
0x00000084-0x00000086	Motherboard resources
0x00000088-0x00000088	Motherboard resources
0x0000008C-0x0000008E	Motherboard resources
0x00000090-0x0000009F	Motherboard resources
0x000000A2-0x000000BF	Motherboard resources
0x000000E0-0x000000EF	Motherboard resources
0x000004D0-0x000004D1	Motherboard resources
0x000000F0-0x000000FF	Numeric data processor

MEMORY MAP

I/O MAP	ASSIGNMENT
0xA0000-0xBFFFF	PCI bus
0xA0000-0xBFFFF	AMD Radeon HD 6310 Graphics
0xC0000-0xDFFFF	PCI bus
0xC0000000-0xFFFFFFFF	PCI bus
0xC0000000-0xFFFFFFFF	AMD Radeon HD 6310 Graphics
0xA8000000-0xBFFFFFFF	Motherboard resources
0xFEB00000-0xFEB3FFFF	AMD Radeon HD 6310 Graphics
0xFEB44000-0xFEB47FFF	Microsoft UAA Bus Driver for High Definition Audio
0xD0000000-0xD00FFFFF	PCI standard PCI-to-PCI bridge
0xD0000000-0xD00FFFFF	Realtek PCIe GBE Family Controller
0xD0004000-0xD0004FFF	Realtek PCIe GBE Family Controller
0xFFBFFC00-0xFFBFFFFF	Standard Dual Channel PCI IDE Controller
0xFEB4E000-0xFEB4EFFF	Standard OpenHCD USB Host Controller
0xFEB4D000-0xFEB4D0FF	Standard Enhanced PCI to USB Host Controller
0xFEB4C000-0xFEB4CFFF	Standard OpenHCD USB Host Controller
0xFEB4B000-0xFEB4B0FF	Standard Enhanced PCI to USB Host Controller
0xFEB40000-0xFEB43FFF	Microsoft UAA Bus Driver for high definition audio
0xFEC00000-0xFEC00FFF	Motherboard resources
0xFEE00000-0xFEE00FFF	Motherboard resources
0xFED80000-0xFED8FFFF	Motherboard resources
0xFED61000-0xFED70FFF	Motherboard resources
0xFEC10000-0xFEC10FFF	Motherboard resources
0xFED00000-0xFED00FFF	Motherboard resources
0xFED00000-0xFED00FFF	High precision event timer
0xFFC00000-0xFFFFFFFF	Motherboard resources
0xFEB4A000-0xFEB4AFFF	Standard OpenHCD USB Host Controller
0xFEB49000-0xFEB49FFF	Standard OpenHCD USB Host Controller
0xFEB48000-0xFEB480FF	Standard Enhanced PCI to USB Host Controller
0xE0000000-0xEFFFFFFF	System board

WATCHDOG TIMER CONFIGURATION

The I/O port address of the watchdog timer is 2Eh (in hex) and 2Fh (in hex). 2E is the address port. 2F is the data port. User must first assign the address of register by writing address value into address port 2Eh, then write/read data to/from the assigned register through data port 2Fh.

Configuration Sequence

To program F81866 configuration registers, the following configuration sequence must be followed:

1. Enter the extended function mode

To place the chip into the Extended Function Mode, two successive writes of 0x87 must be applied to *Extended Function Enable Registers* (EFERs, i.e. 2Eh or 4Eh).

2. Configure the configuration registers

The chip selects the Logical Device and activates the desired Logical Devices through *Extended Function Index Register* (EFIR) and *Extended Function Data Register* (EFDR). The EFIR is located at the same address as the EFER, and the EFDR is located at address (EFIR+1). First, write the Logical Device Number (i.e. 0x07) to the EFIR and then write the number of the desired Logical Device to the EFDR. If accessing the Chip (Global) Control Registers, this step is not required. Secondly, write the address of the desired configuration register within the Logical Device to the EFIR and then write (or read) the desired configuration register through the EFDR.

3. Exit the extended function mode

To exit the Extended Function Mode, writing 0xAA to the EFER is required. Once the chip exits the Extended Function Mode, it is in the normal running mode and is ready to enter the configuration mode.

Code example for watch dog timer

Enable watchdog timer and set 30 seconds as the timeout interval:

```
;------ Enter to extended function mode ------------------------------------------------------
Mov     dx,     4eh
Mov     al,     87h
Out     dx,     al
Out     dx,     al
;------ Select Logical Device 7 of watchdog timer ---------------------------------------------
Mov     al,     07h
Out     dx,     al
Inc     dx
Mov     al,     07h
Out     dx,     al
;------ Set second as counting unit ----------------------------------------------------------
Dec     dx
Mov     al,     0f5h
Out     dx,     al
Inc     dx
In      al,     dx
And     al,     not 08h
Out     dx,     al
;------ Set timeout interval as 30seconds and start counting ---------------------------------
Dec     dx
Mov     al,     0f6h
Out     dx,     al
Inc     dx
Mov     al,     30
Out     dx,     al
;------ Set WatchDog enable ------------------------------------------------------------------
Dec     dx
Mov     al,     0f5h
Out     dx,     al
```

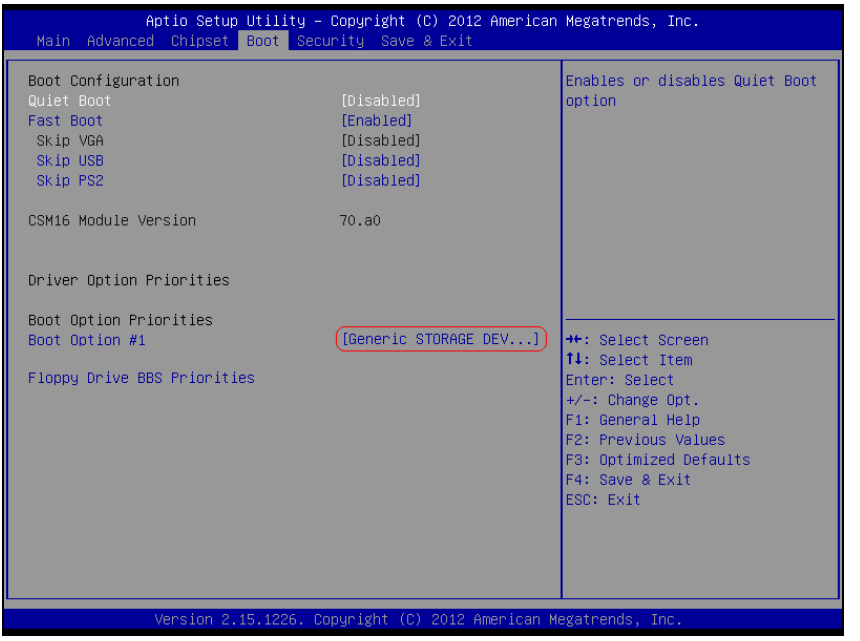
```
Inc     dx
In      al, dx
Or      al, 20h
Out     dx,     al
;------ Exit the extended function mode ------------------------------------------------------
Dec     dx
Mov     al,     0aah
Out     dx,     al
```

Flash BIOS Update

I. Before System BIOS update

1. Prepare a bootable media (ex. USB storage device) which can boot system to DOS prompt.
2. Download and save the BIOS file (ex. 1105T1F.ROM) to the bootable device.
3. Copy AMI flash utility – AFUDOS.exe into bootable device.

4. Make sure the target system can first boot to the bootable device.
   a. Connect the bootable USB device.
   b. Turn on the computer and press <F2> or <Del> key during boot to enter BIOS Setup.
   c. System will go into the BIOS setup menu.
   d. Select [Boot] menu.
   e. Select [Hard Drive BBS Priorities], set the USB bootable device to be the 1st boot device.
   f. Press <F4> key to save configuration and exit the BIOS setup menu.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Boot Configuration
Quiet Boot [Disabled]
Fast Boot [Enabled]
Skip VGA [Disabled]
Skip USB [Disabled]
Skip PS2 [Disabled]
CSM16 Module Version 70.a0
Driver Option Priorities
Boot Option Priorities
Boot Option #1 [Generic STORAGE DEV...]
Floppy Drive BBS Priorities
Enables or disables Quiet Boot option
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: 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.

II. AFUDOS Command for System BIOS Update

AFUDOS.exe is the AMI firmware update utility; the command line is shown as below:

AFUDOS <ROM File Name> [option1] [option2]…

You can type AFUDOS /? to see all the definition of each control options. The recommended options for BIOS ROM update consist of following parameters:

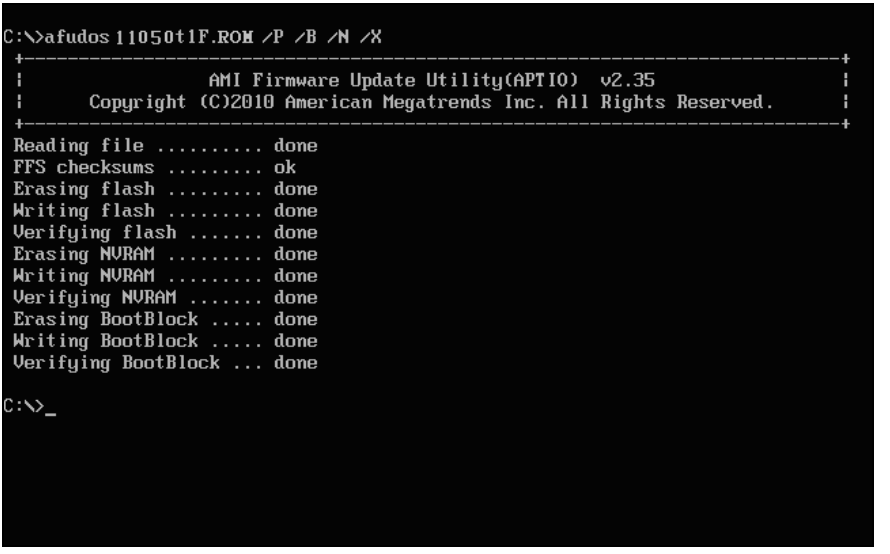
/P: program main BIOS image
/B: program Boot Block
/N: program NVRAM
/X: don't check ROM ID

III. BIOS update procedure

1. Use the bootable USB device to boot up system into the MS-DOS command prompt.
2. Type in AFUDOS 1105xxxx.ROM /p /b /n /x and press enter to start the flash procedure.

   Note: xxxx means the BIOS revision part, ex. 0P01…

3. During the update procedure, you will see the BIOS update process status and its percentage. Beware! Do not turn off system power or reset your computer if the whole procedure are not complete yet, or it may crash the BIOS ROM and make system unable to boot up next time.
4. After BIOS update procedures is complete, the messages should be like the figure shown below:



5. You can restart the system and boot up with new BIOS now.
6. Update is complete after restart.

7. Verify during following boot that the BIOS version displayed at initialization screen has changed.