EMX-780E

AMD Athlon/ Athlon X2/ Quad-Core™ AMD Phenom™ Mini ITX Motherboard with AMD RS780E + SB710 Chipset

User's Manual

1st Ed – 6 August 2011

Part No. E2047780E00R

FCC Statement

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

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

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

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

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT 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.

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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Avalue warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Contents

1. Getting Started

1.1 Safety Precautions

Warning!

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

Caution!

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

1.2 Packing List

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

- 1 x EMX-780E Mini ITX Main Board
- 2 x SATA Cable kit
- 1 x DVD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - LAN drivers and utilities
  - Audio drivers and utilities

If any of the above items is damaged or missing, contact your retailer.

1.3 Document Amendment History

Revision	Date	Comment
1st	August 2010	Initial Release

1.4 Manual Objectives

This manual describes in detail the Avalue Technology EMX-780E motherboard.

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

We strongly recommend that you study this manual carefully before attempting to interface with EMX-780E series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

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

1.5 System Specifications

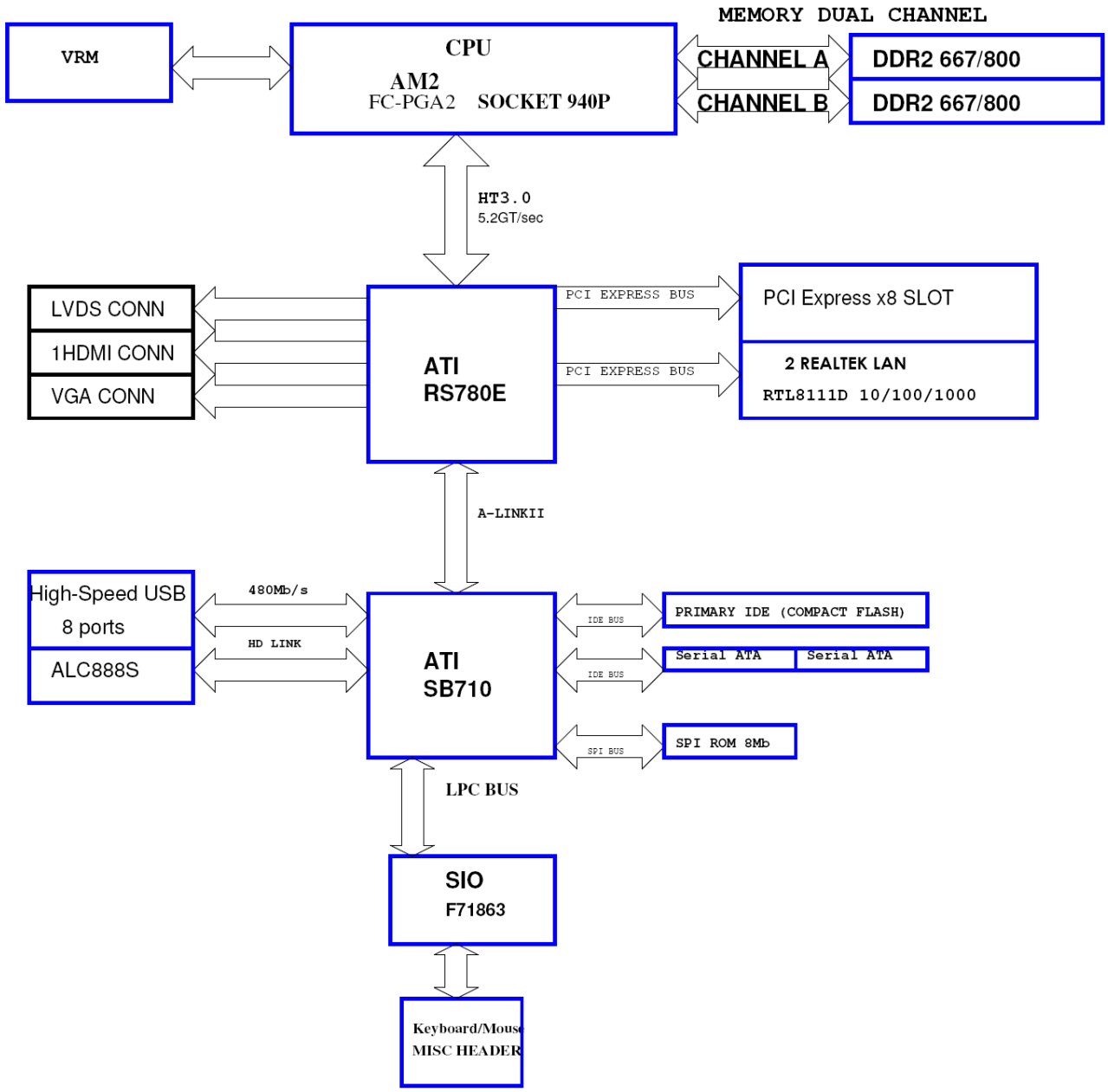
System	
CPU	AM2/ AM2+/ AM3 Socket Support 65W Athlon/ Athlon X2/Quad-Core™ AMD Phenom™ II Processors
FSB	400MHz
BIOS	AMI 2MB SPI BIOS
System Chipset	AMD RS780E/ SB710
I/O Chip	FINTEK F71863FG
System Memory	Two 200-pin SODIMMs Support Up to 4GB DDR2 800 SDRAM
SSD	1 CompactFlash Type I/II Socket
Watchdog Timer	1sec. ~ 255min. and 1sec. or 1min/step
H/W Status Monitor	Monitoring CPU Temperature and Cooling Fan Status with Auto Throttling Control
S3/ S4	Yes (S1/ S2/ S3/ S4)
SmartFan Control	Yes
Expansion	1 PCIex16, 1 Mini PCI
I/O	
MIO	2 SATA, 1 K/B, 1 Mouse, 4 RS-232 (COM1 on Edge, COM2 & 3 & 4, 10-pin 2.0 Pitch Box Header)
USB	8 x USB 2.0
DI/O	8-bit
Display	
Chipset	IGP ATI Radeon HD3200
Resolution	CRT Mode: 2560 x 1600 @ 32bpp
Dual Display	CRT + HDMI, CRT + LVDS
LVDS	2-CH 24-bit LVDS
HDMI	1 x External Port (HDMI 1.3)
Audio	
AC97 Codec	Realtek ALC888 Supports 5.1-CH Audio
Audio Interface	Mic-in, Line-in, CD Audio-in, Line-out
Audio Amplifer	TPA A3005D2 Stereo 5W Per Channel

EMX-780E

Ethernet	
LAN1	Realtek RTL8111D Gigabit Ethernet
LAN2	Realtek RTL8111D Gigabit Ethernet
Mechanical & Environmental	
Power Requirement	ATX (5V/ 12V), 5Vsb
Operation Temperature	0 ~ 60°C (32 ~ 140°F)
Operating Humidity	0 ~ 90% Relative Humidity, Non-condensing
Size (L x W)	6.69” x 6.69” (170mm x 170mm)
Weight	0.88lbs (0.4kg)

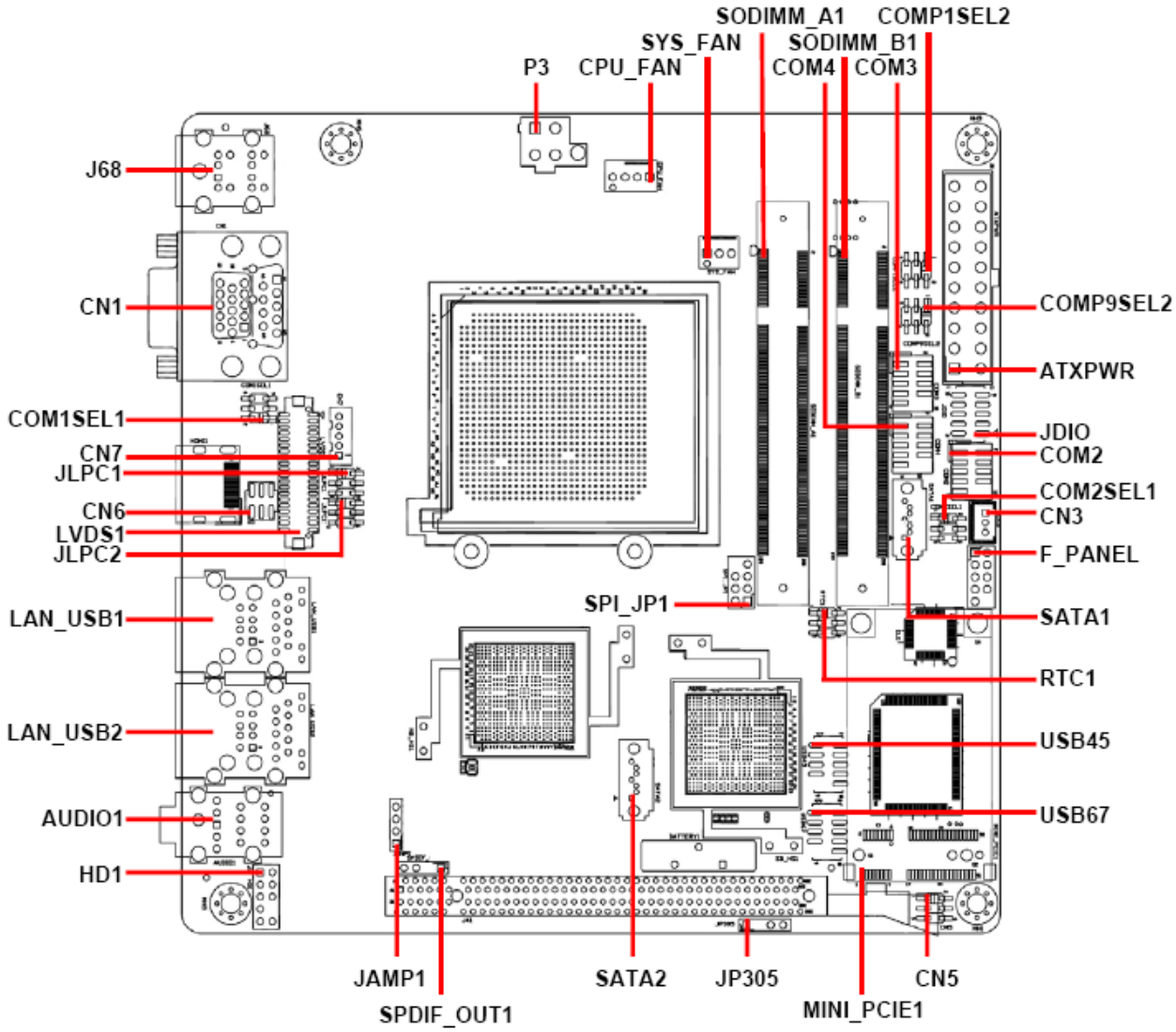
1.6 Architecture Overview – Block Diagram

The following block diagram shows the architecture and main components of EMX-780E.



2. Hardware Configuration

2.1 Product Overview



2.2 Installation Procedure

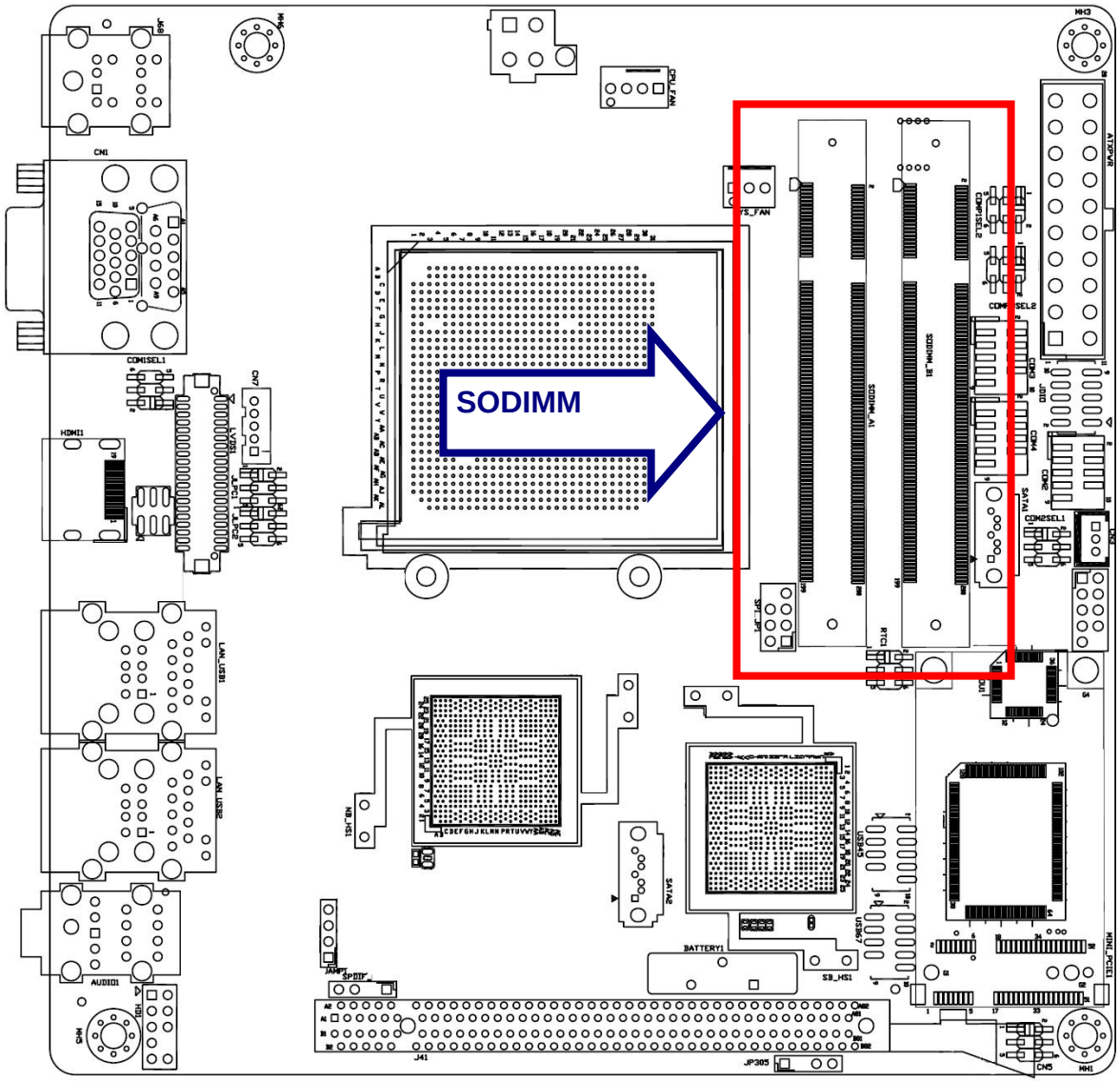
This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the SODIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change CMOS settings to support flat panel.
4. Connect power supply to the board via the ATXPWR.
5. Turn on the power.
6. nter the BIOS setup by pressing the delete key during boot up. Use the “LOAD BIOS DEFAULTS” feature. The ***Integrated Peripheral Setup*** and the ***Standard CMOS Setup*** Window must be entered and configured correctly to match the particular system configuration.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

Note: Make sure the heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause the system to hang or unstable

2.2.1 Main Memory

EMX-780E provides two 200-pin SODIMM non-ECC socket support up to DDR2 800 SDRAM. The total maximum memory size is 4GB.

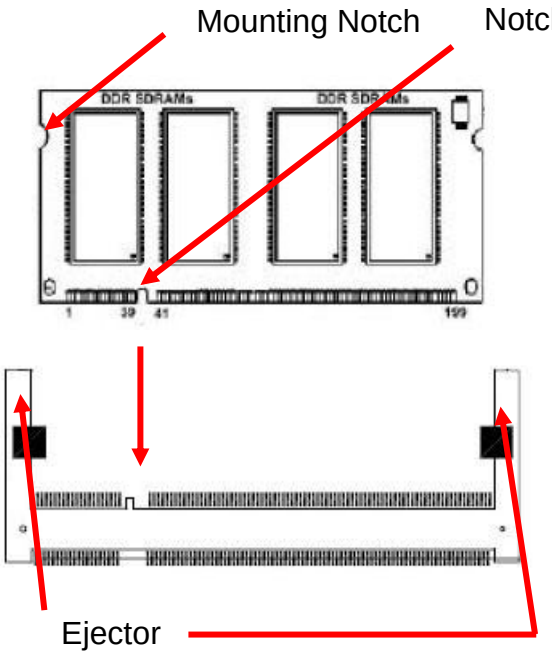


(Rear side)

Make sure to unplug the power supply before adding or removing SODIMMs or other system components. Failure to do so may cause severe damage to both the board and the components.

- Locate the SODIMM socket on the board.
- Hold two edges of the SODIMM module carefully. Keep away of touching its connectors.
- Align the notch key on the module with the rib on the slot.

- Firmly press the modules into the socket automatically snaps into the mounting notch. Do not force the SODIMM module in with extra force as the SODIMM module only fit in one direction.



200-pin DDR2 SODIMM

- To remove the SODIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the SODIMM module.

Note:

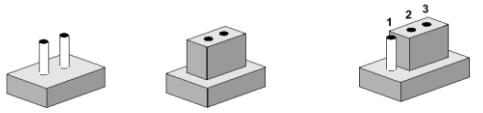
(1) Please do not change any DDR2 SDRAM parameter in BIOS setup to increase your system's performance without acquiring technical information in advance.

(2) Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

2.3 Jumper and Connector List

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

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

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

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

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

Jumpers

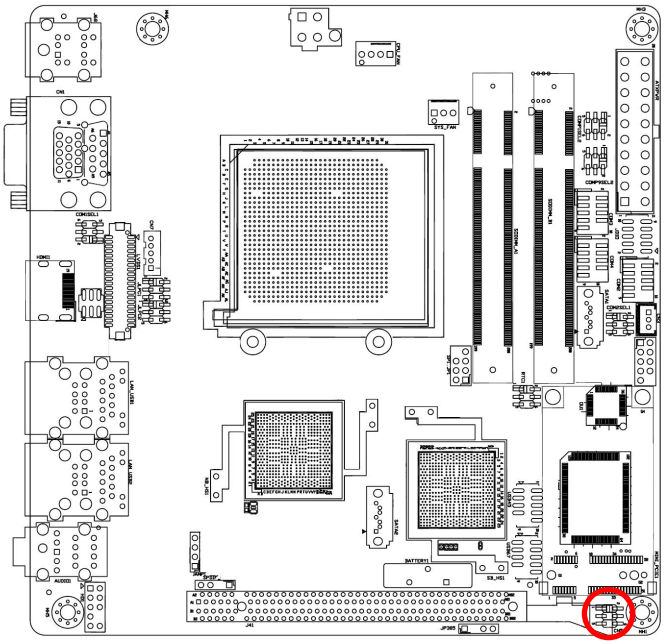
Label	Function	Note
CN5	CF mode select	3 x 2 header, pitch 2.0mm
CN6	LVDS power select	3 x 2 header, pitch 2.0mm
COM1SEL1	Serial port 1 pin-9 signal select	3 x 2 header, pitch 2.0mm
COM2SEL1	Serial port 1 pin-10 signal select	3 x 2 header, pitch 2.0mm
COMP1SEL2	Serial port 3 pin-9 signal select	3 x 2 header, pitch 2.0mm
COMP9SEL2	Serial port 4 pin-9 signal select	3 x 2 header, pitch 2.0mm
JP305	Case Open	4 x 1 header, pitch 2.54mm
RTC1	Clear password & COMS select	3 x 2 header, pitch 2.0mm

Connectors

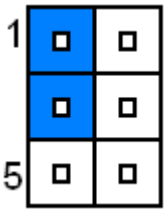
Label	Function	Note
ATXPWR	ATX power supply connector	10 x 2 header, pitch 2.54mm
AUDIO1	Audio connector	
CN1	VGA and serial port 1 connecter	
CN3	SMB CLK & SMB DATA connector	3 x 1 wafer, pitch 1.54mm
COM2	Serial port 2 connector	5 x 2 header, pitch 2.0mm
COM3	Serial port 3 connector	5 x 2 header, pitch 2.0mm
COM4	Serial port 4 connector	5 x 2 header, pitch 2.0mm
CPU_FAN	CPU fan connector	3 x 1 wafer, pitch 254mm
F_PANEL	System panel connector	5 x 2 header, pitch 2.54mm
HD1	Audio header connector	5 x 2 header, pitch 2.54mm
J68	PS/S keyboard & mouse connector	
JAMP1	Amplifier connector	4 x 1 header, pitch 2.54mm
JDIO	General purpose I/O connector	5 x 2 header, pitch 2.0mm
LVDS1	LVDS connector	Hirose DF13-40DP-1.25V
LAN_USB1	Rear USB connector 0 & 1	
LAN_USB2	Rear USB connector 2 & 3	
MINI_PCIE1	PCI express mini card	
P3	VRM power supply connector	Wafer box 4p, pitch 4.2mm
SATA1	Serial ATA connector 1	
SATA2	Serial ATA connector 2	
SODIMM_A1	200-pin DDR2 SODIMM socket	
SODIMM_B1	200-pin DDR2 SODIMM socket	
SPDIF_OUT1	SPDIF out connector	4 x 1 header, pitch 2.54mm
SPI_JP1	SPI BIOS ROM connector	4 x 2 header, pitch 2.54mm
SYS_FAN	System fan connector	3 x 1 wafer, pitch 254mm
USB45	USB connector 4 & 5	5 x 2 header, pitch 2.0mm
USB67	USB connector 6 & 7	5 x 2 header, pitch 2.0mm

2.4 Setting Jumpers & Connectors

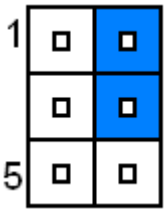
2.4.1 CF mode select (CN5)



Low: Master*

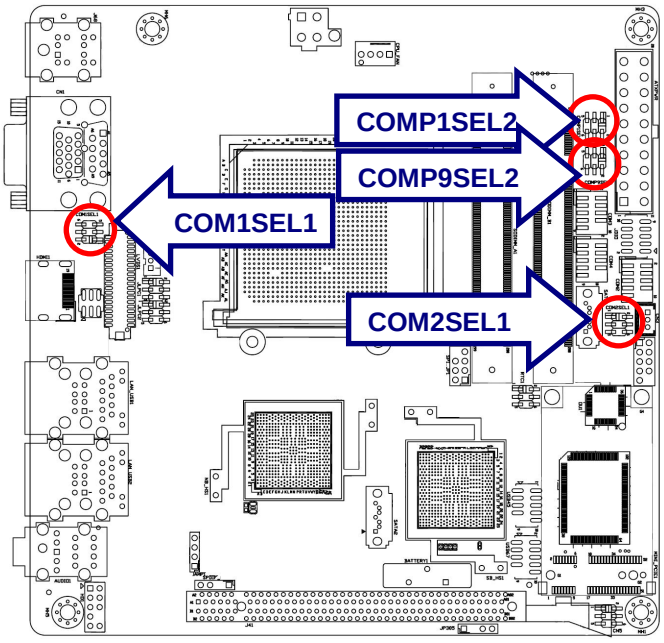


Hi: Slave

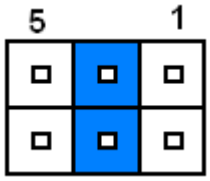


*Default

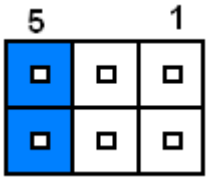
2.4.2 Serial port 1/ 2/ 3/ 4 pin-9 signal select (COM1SEL1/ COM2SEL1/ COMP1SEL2/ COMP9SEL2)



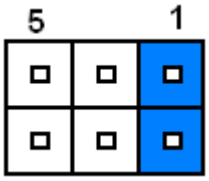
Ring*



+5V

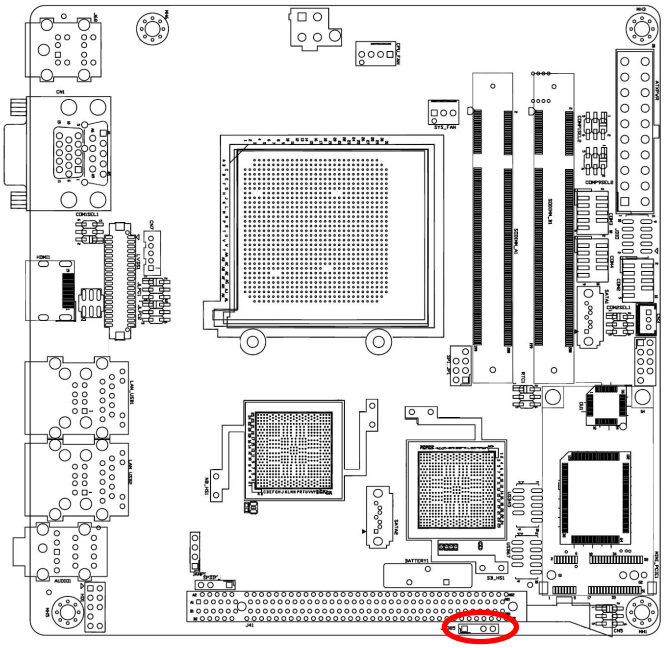


+12V+

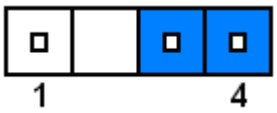


*Default

2.4.3 Case open (JP305)

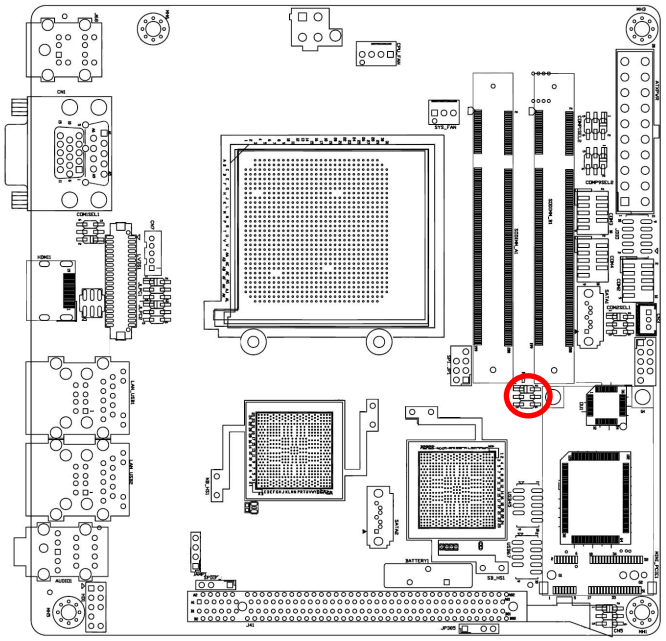


Open*

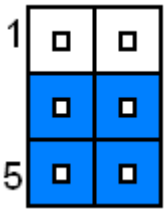


***Default**

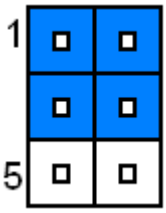
2.4.4 Clear password & CMOS select (RTC1)



Password & CMOS*



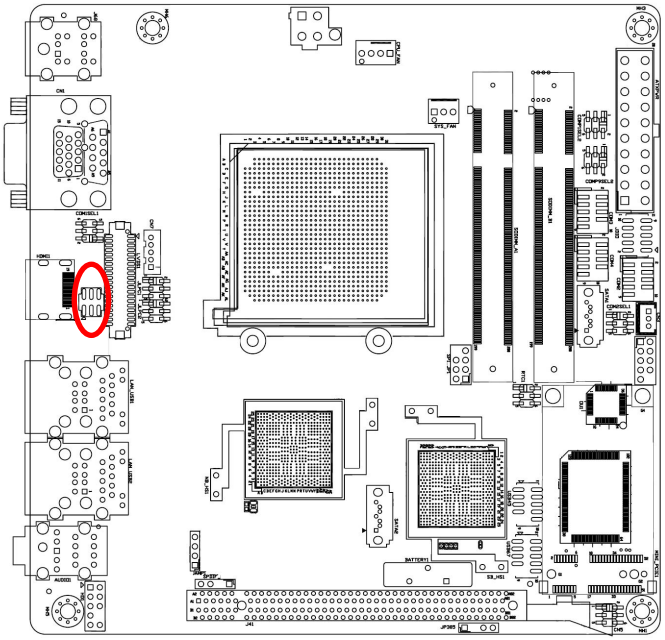
Clear

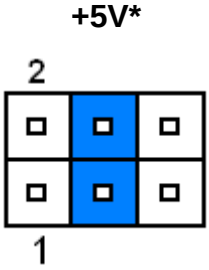


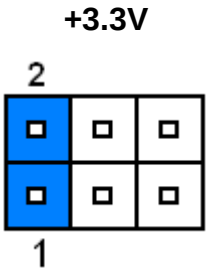
***Default**

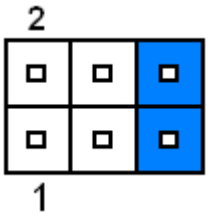
Clear password & CMOS		
	Clear PW	Clear CMOS
Default	3-5	4-6
Clear	1-3	2-4

2.4.5 LVDS power select (CN6)



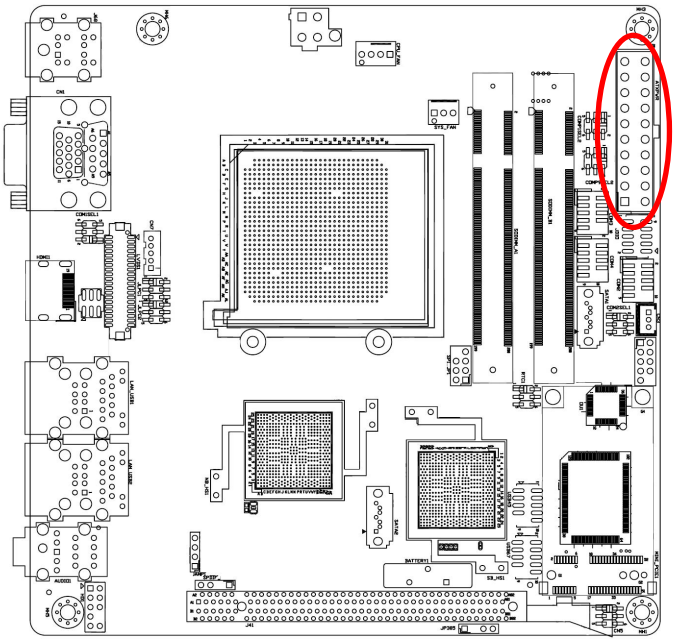


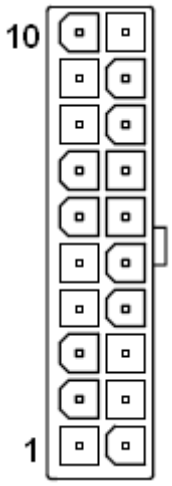




***Default**

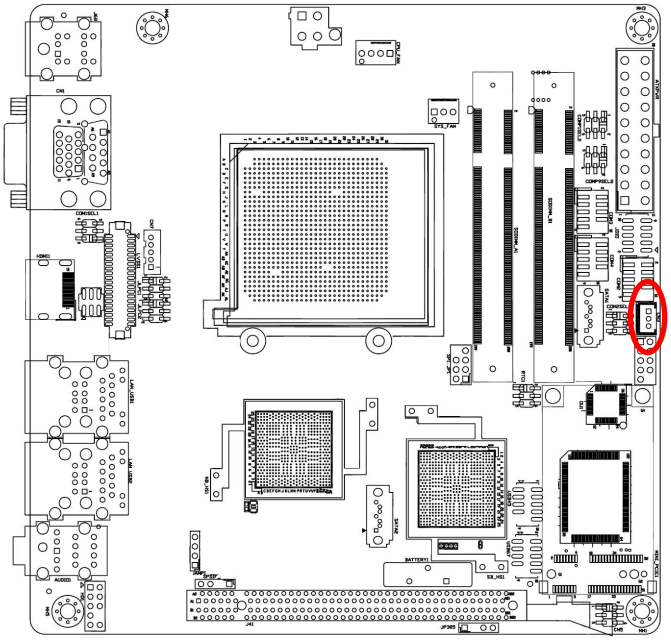
2.4.6 ATX power supply connector (ATXPWR)

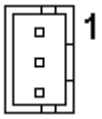




Signal	PIN	PIN	Signal
+12V	10	20	+5V
5VSB	9	19	+5V
POK	8	18	-5V
GND	7	17	GND
+5V	6	16	GND
GND	5	15	GND
+5V	4	14	PSON
GND	3	13	GND
+3.3V	2	12	-12V
+3.3V	1	11	+3.3V

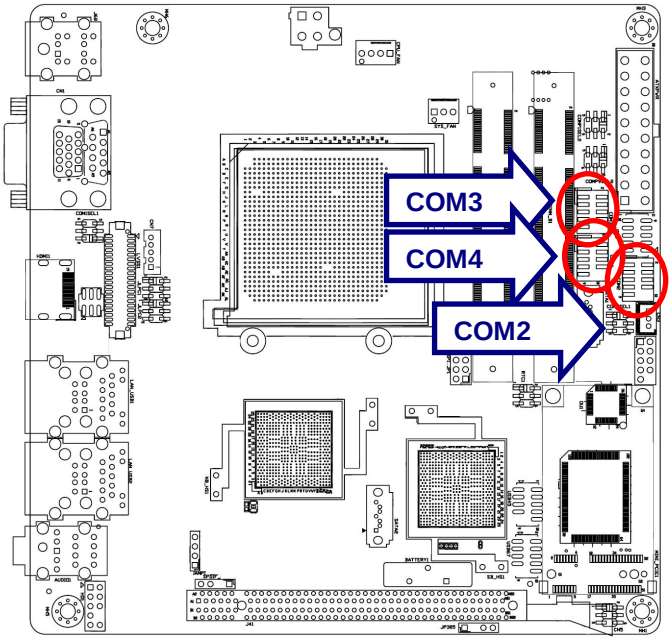
2.4.7 SMB CLK & SMB DATA connector (CN3)

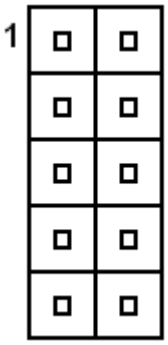




PIN	Signal
1	SMBCLK_PCI
2	SMBDATA_PCI
3	GND

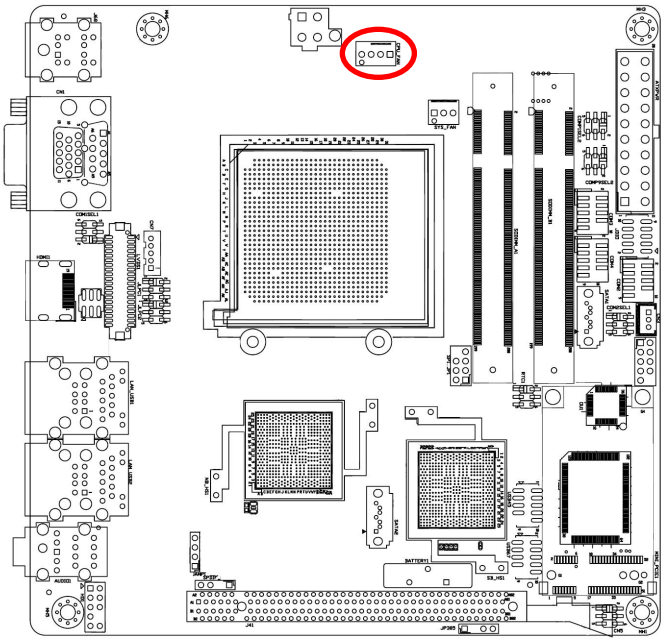
2.4.8 Serial port 2/ 3/ 4 connector (COM2/ COM3/ COM4)

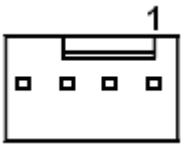




Signal	PIN	PIN	Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

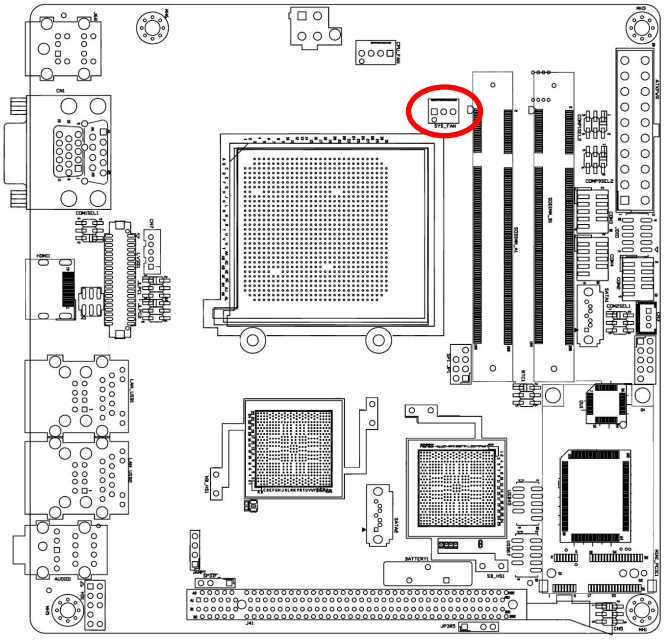
2.4.9 CPU Fan (CPU_FAN)

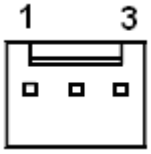




PIN	Signal
1	GND
2	+12V
3	CFAN_TACH
4	NC

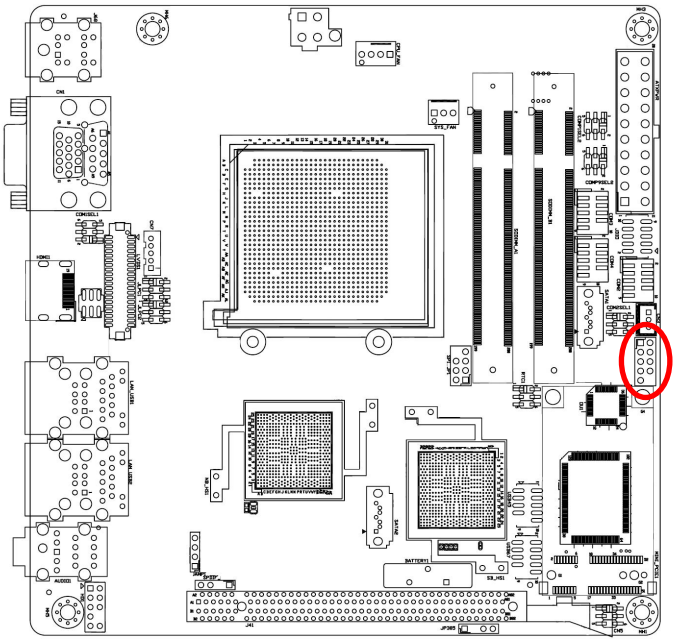
2.4.10 System Fan (SYS_FAN)

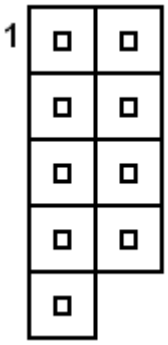




PIN	Signal
1	FFAN_TACH
2	+12V
3	GND

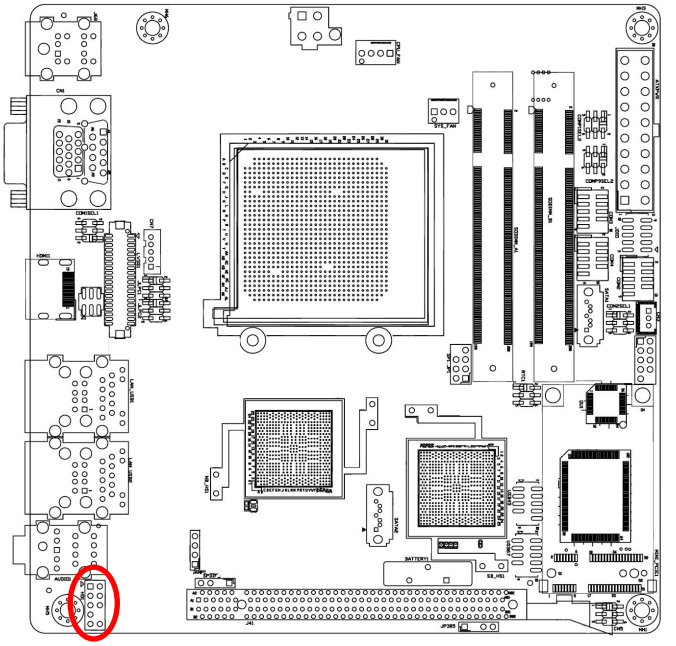
2.4.11 System panel connector (F_PANEL)

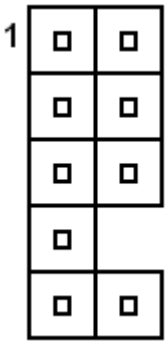




Signal	PIN	PIN	Signal
HDLED+	1	2	FP_LED+
HDLED-	3	4	FP_LED-
GND	5	6	PWRBTN
RESET	7	8	GND
NC	9		

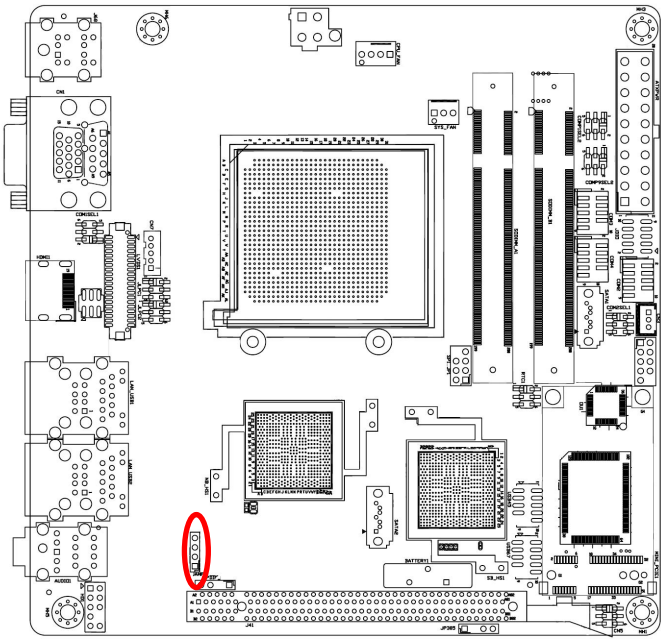
2.4.12 Audio header connector (HD1)





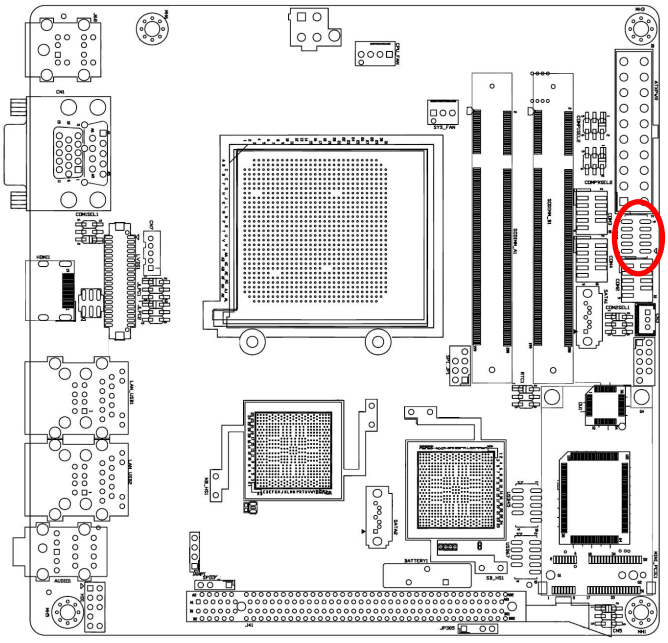
Signal	PIN	PIN	Signal
APORT_F_L	1	2	GND
APORT_F_R	3	4	+3.3V
APORT_E_R	5	6	GND
FRONT-IO-SENSE	7		
APORT_E_L	9	10	GND

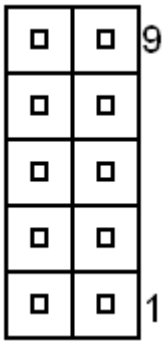
2.4.13 Amplifier connector (JAMP1)



PIN	Signal
4	AMP_R+
3	AMP_R-
2	AMP_L+
1	AMP_L-

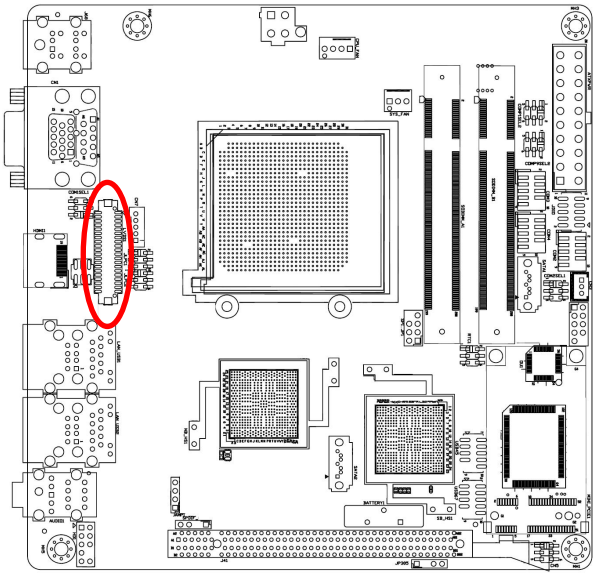
2.4.14 General purpose I/O connector (JDIO)

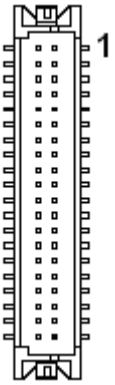




Signal	PIN	PIN	Signal
+5V	10	9	GND
DIO7	8	7	DIO3
DIO6	6	5	DIO2
DIO5	4	3	DIO1
DIO4	2	1	DIO0

2.4.15 LVDS connector (LVDS1)





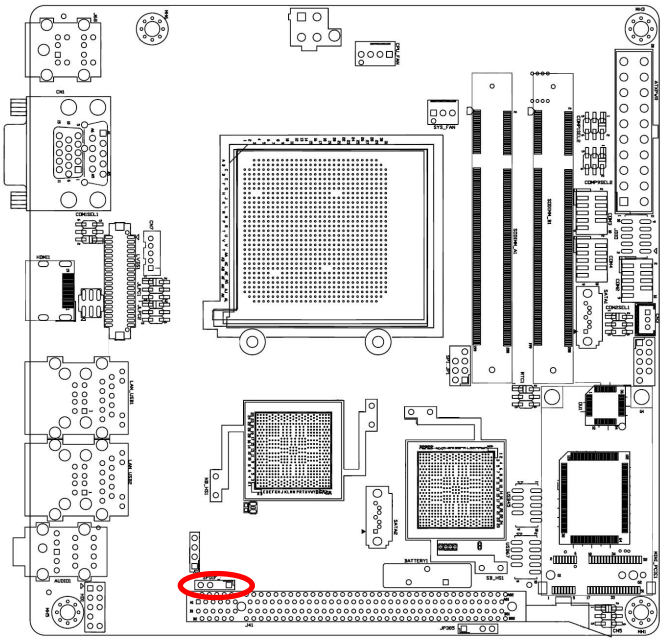
Signal	PIN	PIN	Signal
LVDS_Power	2	1	LVDS_Power
GND	4	3	GND
LVDS_Power	6	5	LVDS_Power
LVDS1_OUTD 0-	8	7	LVDS0_OUTD0-
LVDS1_OUTD0+	10	9	LVDS0_OUTD0+
GND	12	11	GND
LVDS1_OUTD1-	14	13	LVDS0_OUTD1-
LVDS1_OUTD1+	16	15	LVDS0_OUTD1+
GND	18	17	GND
LVDS1_OUTD2-	20	19	LVDS0_OUTD2-
LVDS1_OUTD2+	22	21	LVDS0_OUTD2+
GND	24	23	GND
LVDS1_OUTD CLK-	26	25	LVDS0_OUTD CLK-
LVDS1_OUTDCLK+	28	27	LVDS0_OUTDCLK+
GND	30	29	GND
I2C_DATA	32	31	I2C_CLK
GND	34	33	GND
LVDS1_OUTD3-	36	35	LVDS0_OUTD3-
LVDS1_OUTD3+	38	37	LVDS0_OUTD3+
GND	40	39	NC

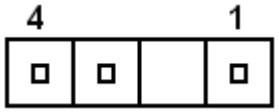
NOTE:

Pin1/ 2/ 5/ 6 are selected by CN6.

Please refer to section 2.4.5 for more information.

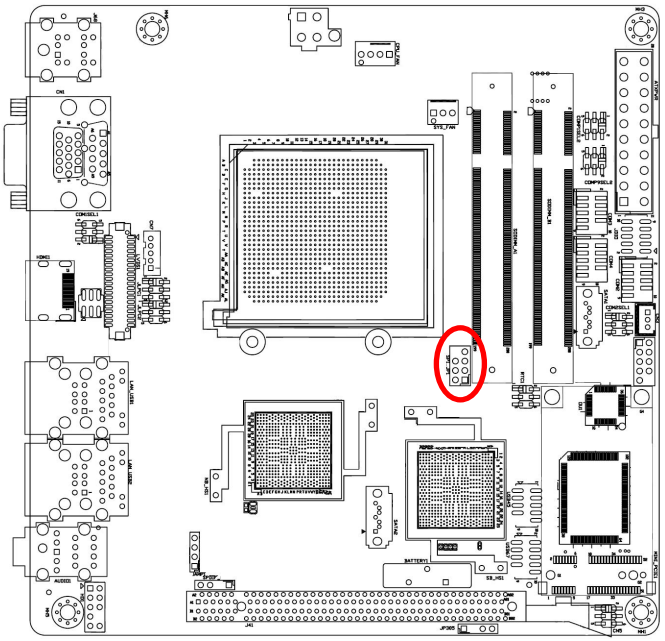
2.4.16 SPDIF out connector (SPDIF_OUT1)

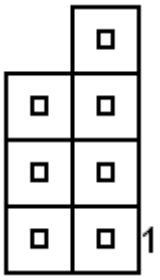




PIN	Signal
1	+5V
3	SPDIF_O
4	GND

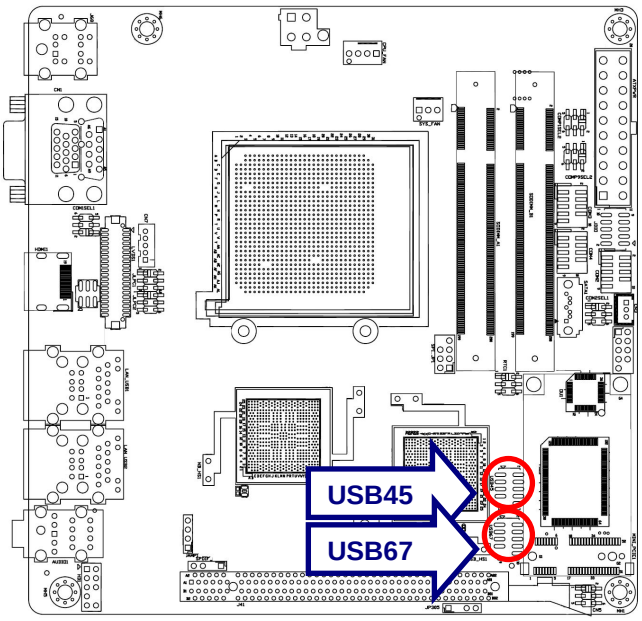
2.4.17 SPI BIOS ROM out connector (SPI_JP1)

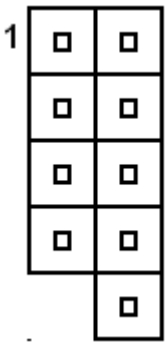




Signal	PIN	PIN	Signal
		7	SPI_HOLD#
SPI_MOSI	6	5	SPI_MISO
SPI_CLK	4	3	SPI_CS#
GND	2	1	+3.3V

2.4.18 USB connector 4&5/ 6&7 (USB45/ USB67)





Signal	PIN	PIN	Signal
+5V	1	2	+5V
P5-/ P7-	3	4	P4-/ P6-
P5+/ P7+	5	6	P4+/ P6+
GND	7	8	GND
		10	NC

3. BIOS Setup

3.1 Introduction

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

3.2 Starting Setup

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

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

Press DEL to enter SETUP

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

Press F1 to Continue, DEL to enter SETUP

3.3 Using Setup

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

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

- **Navigating Through The Menu Bar**

  Use the left and right arrow keys to choose the menu you want to be in.

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

- **To Display a Sub Menu**

  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

3.4 Getting Help

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

3.5 In Case of Problems

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

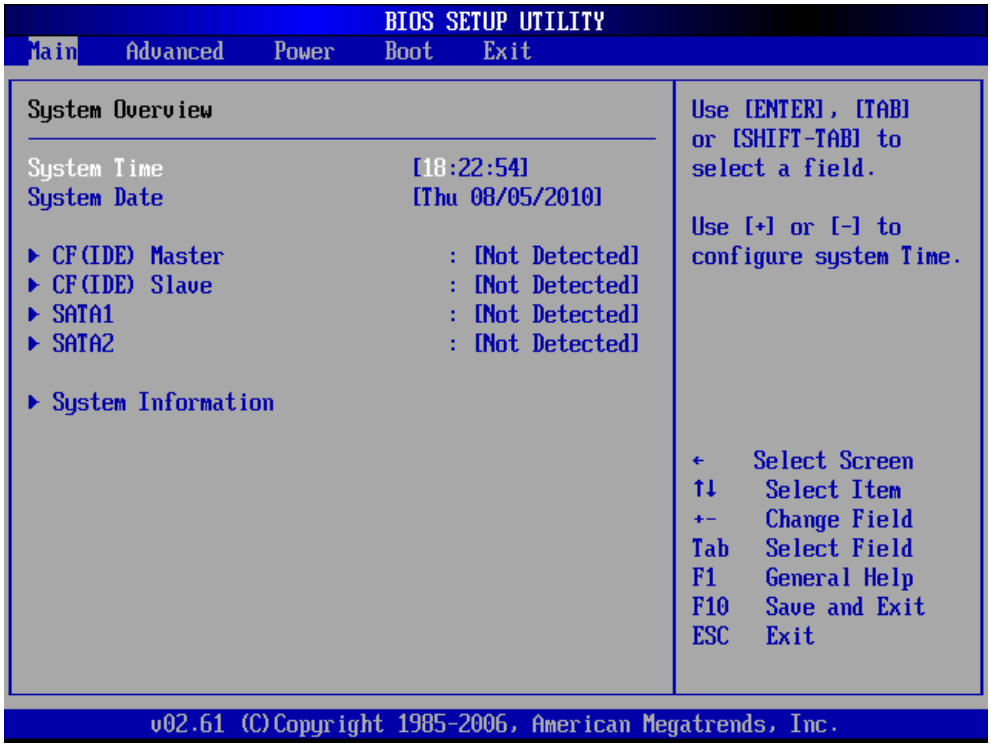
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and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

3.6 BIOS setup

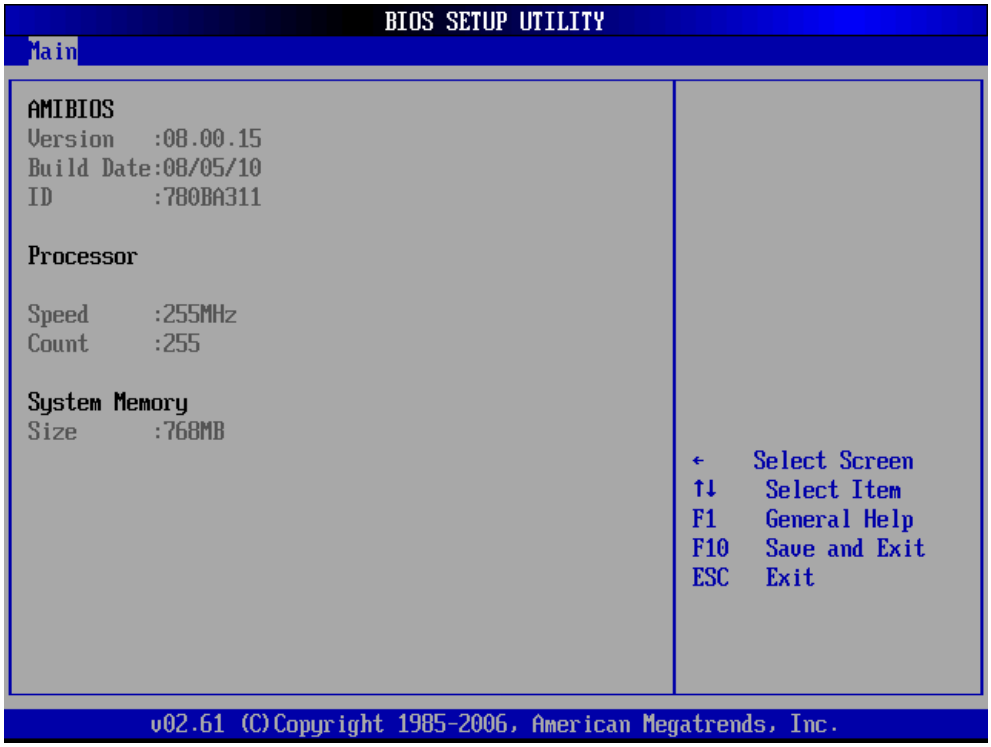
Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1 Main Menu

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



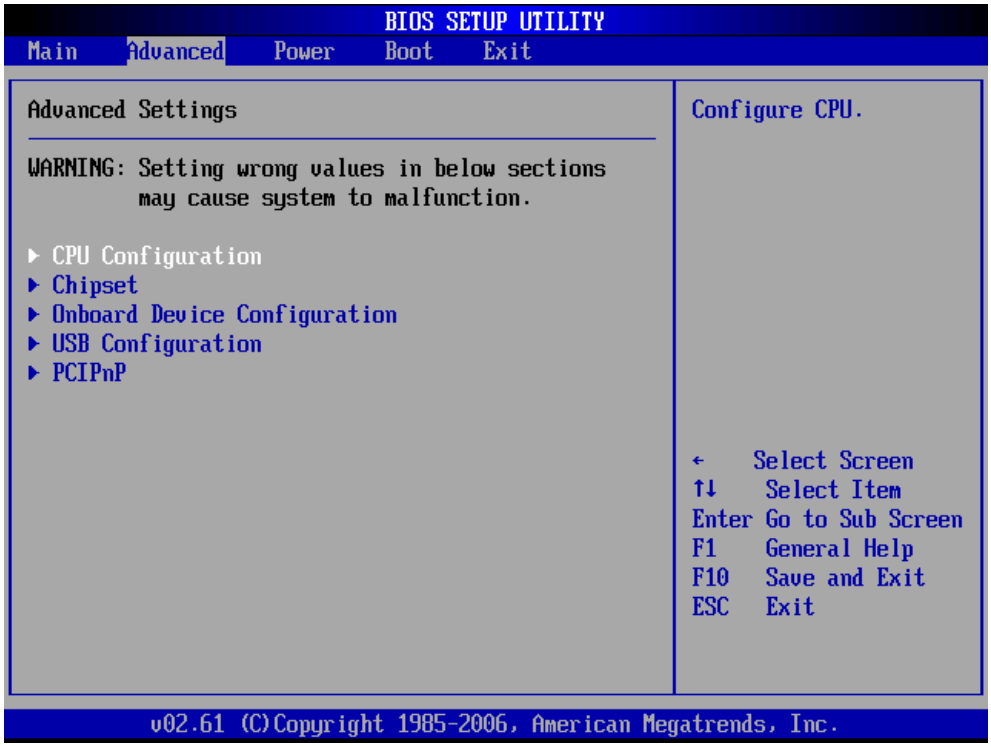
3.6.1.1 System information



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

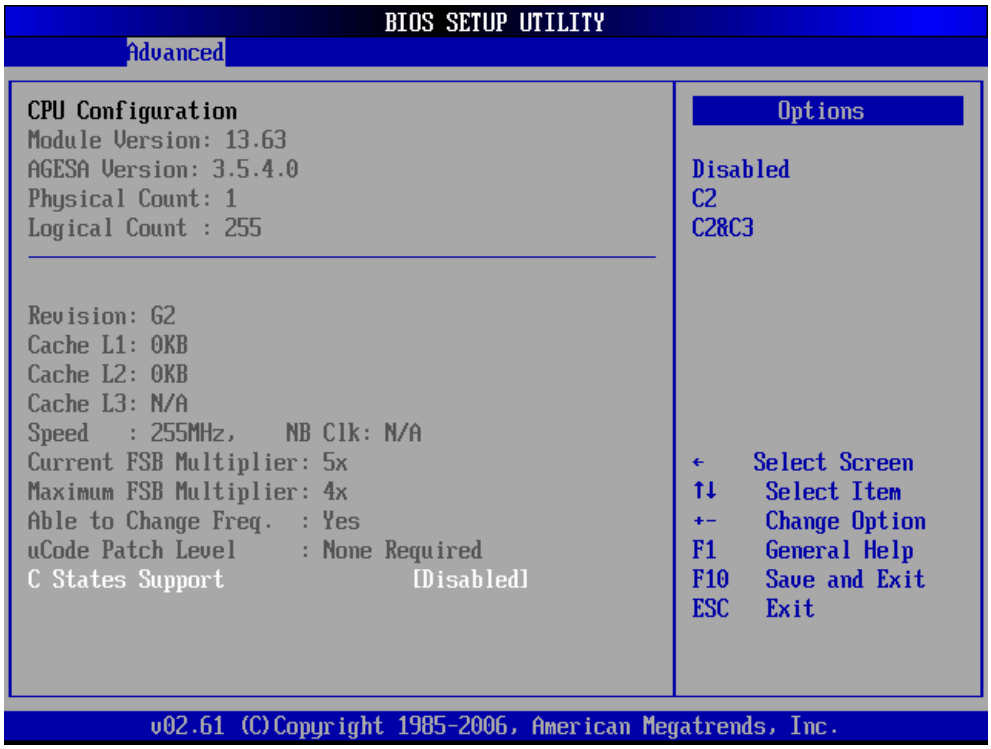
3.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.



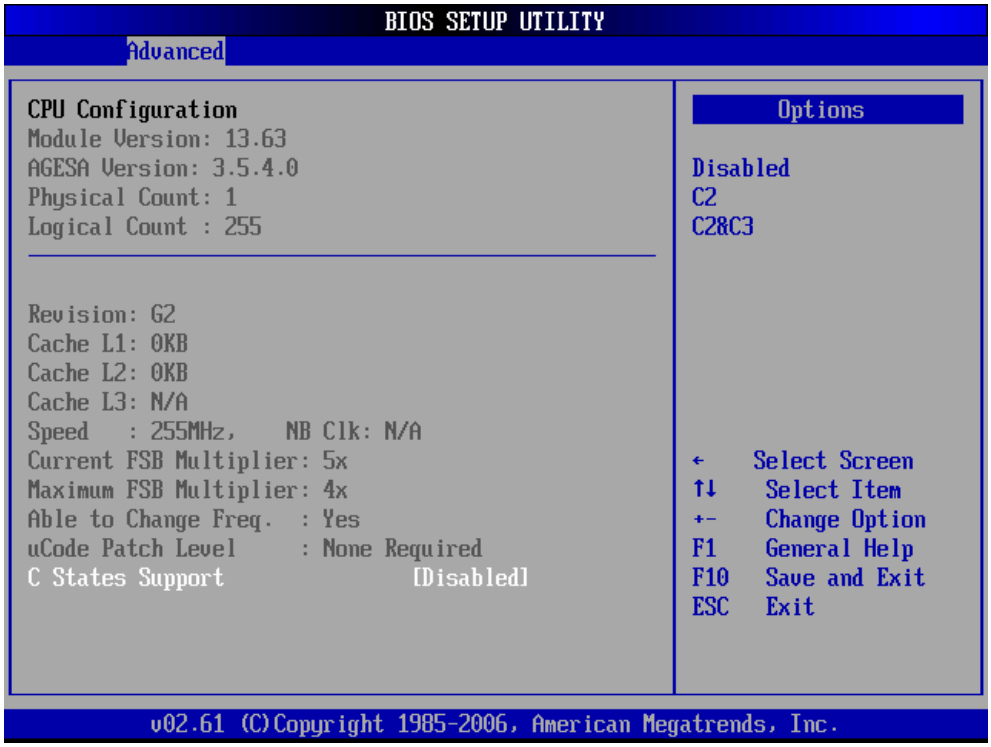
3.6.2.1 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.

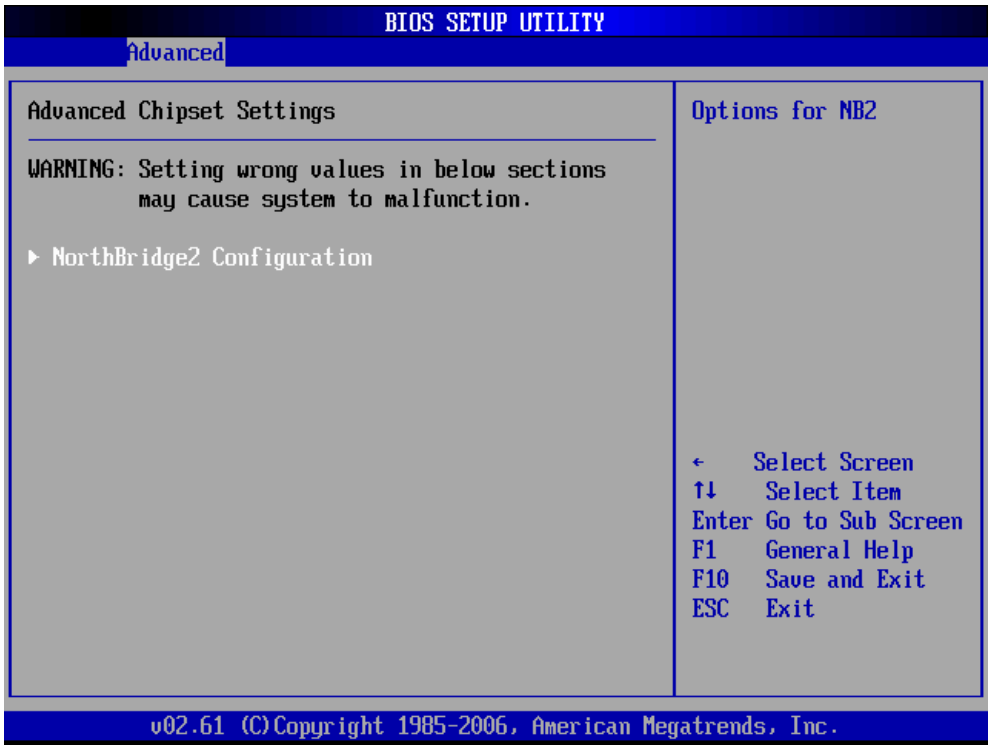


3.6.2.2 Chipset

Use this menu to change the values in the chipset registers and optimize your system's performance.

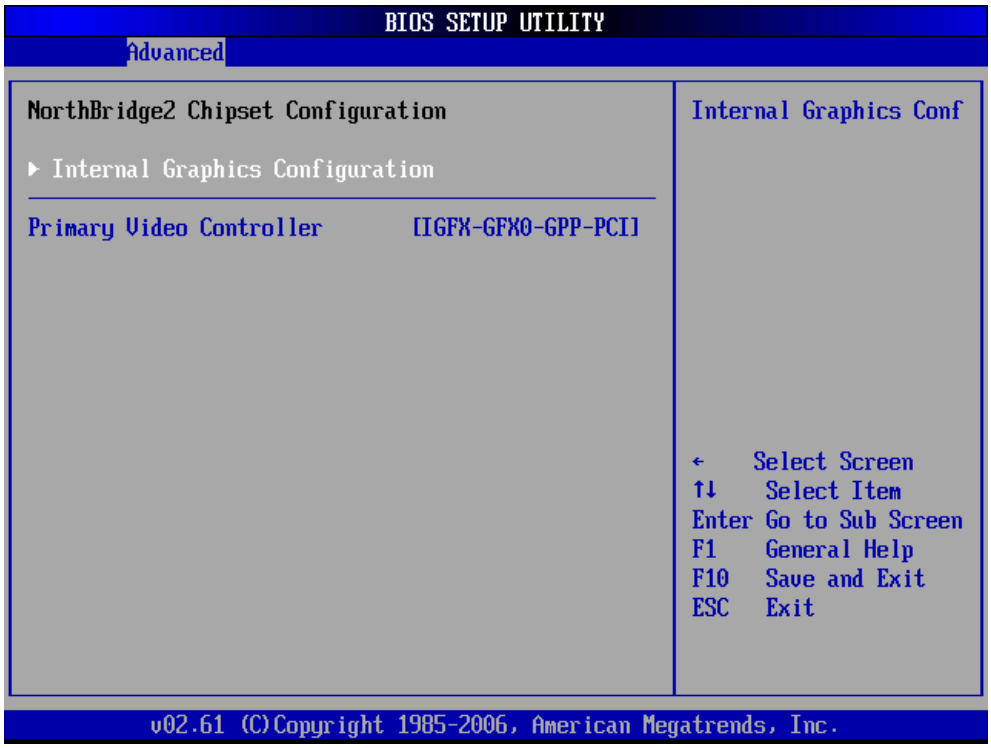


3.6.2.2.1 Advances Chipset Settings

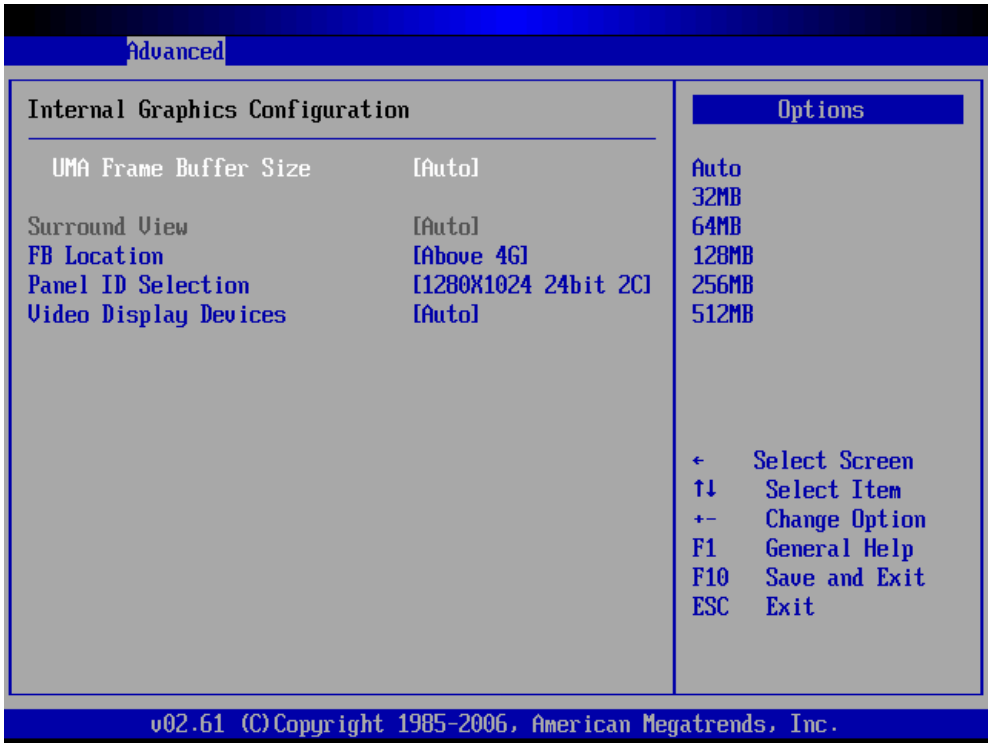


3.6.2.2.2 NorthBridge2 Configuration

Use the Northbridge chipset configuration menu to configure the Northbridge chipset.

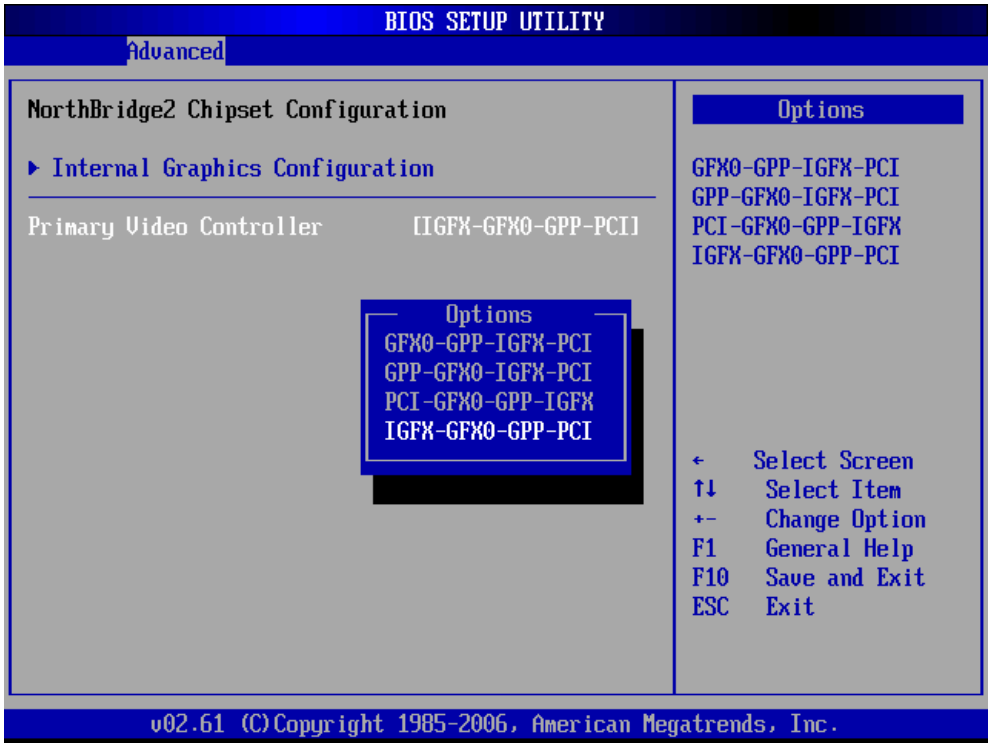


3.6.2.2.2.1 Internal Graphics Configuration



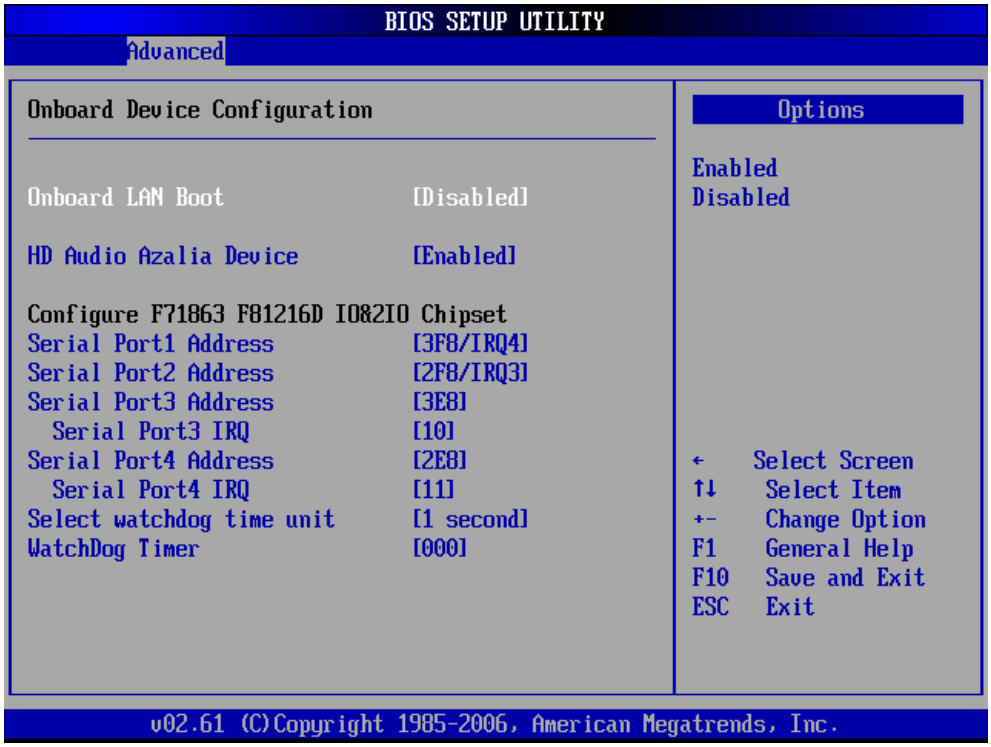
Item	Options	Description
FB Location	Below 4G, Above 4G	This option helps to select FB location mode.
Panel ID Selection	1280x768 1bit, 1280x768 2bit, 1280x1024, 1920x1080	This item allows you to select which panel resolution you want.
Video Display Devices	Auto, CRT only, LCD only. DFP only, TV only, CRT+LCD, CRT+DFP, LCD+DFP, TV+LCD, TV+DFP	Select boot display device at post stage.

3.6.2.2.2.2 Primary Video Controller



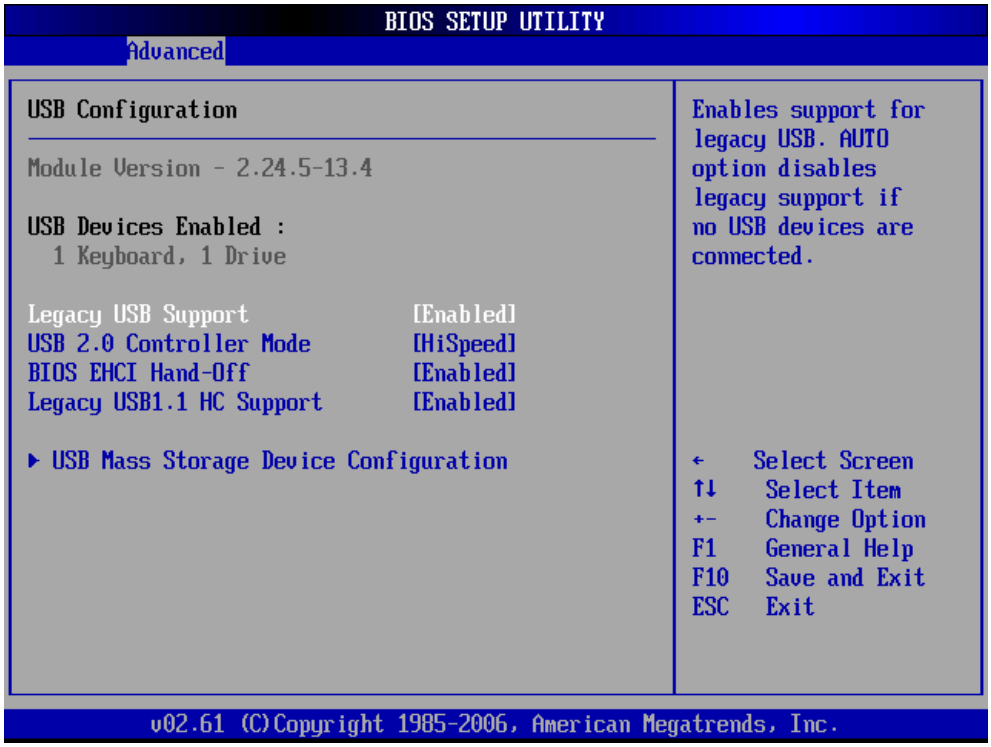
Item	Options	Description
Primary Video Controller	GFX0-GPP-IGFX-PCI, GPP-GFX0-IGFX-PCI, PCI-GFX0-GPP-IGFX, IGFX-GFX0-GPP-PCI	This option allows to select primary video controller mode.

3.6.2.3 Onboard Device Configuration



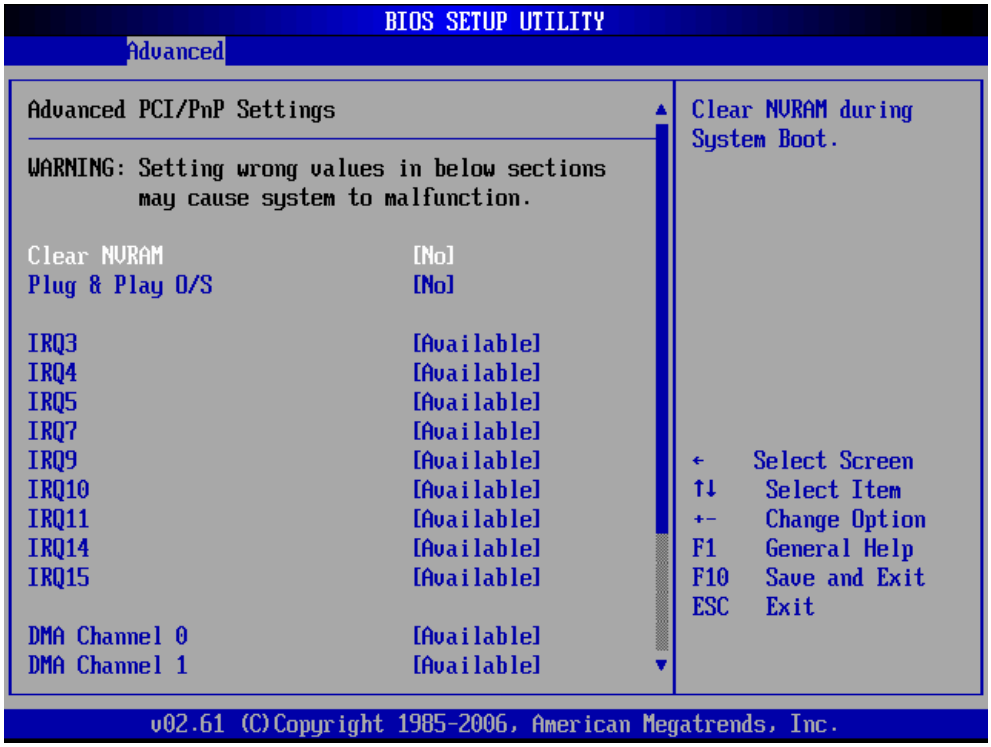
Item	Options	Description
HD Audio Azalia Device	Enabled, Disabled	This item allows you to set HD Audio Azalia device mode.
Serial Port 1/ 2/ 3/ 4 Address	Disabled, 3E8, 2E8	This item allows you to set Serial Port 1/ 2/ 3/ 4 Address.
Serial port 3/ 4 IRQ	10, 11	This item allows you to set Serial port 3/ 4 IRQ
Select watchdog time unit	1 Second, 1 Minute	This item allows you to set watchdog timer.

3.6.2.4 USB Configuration



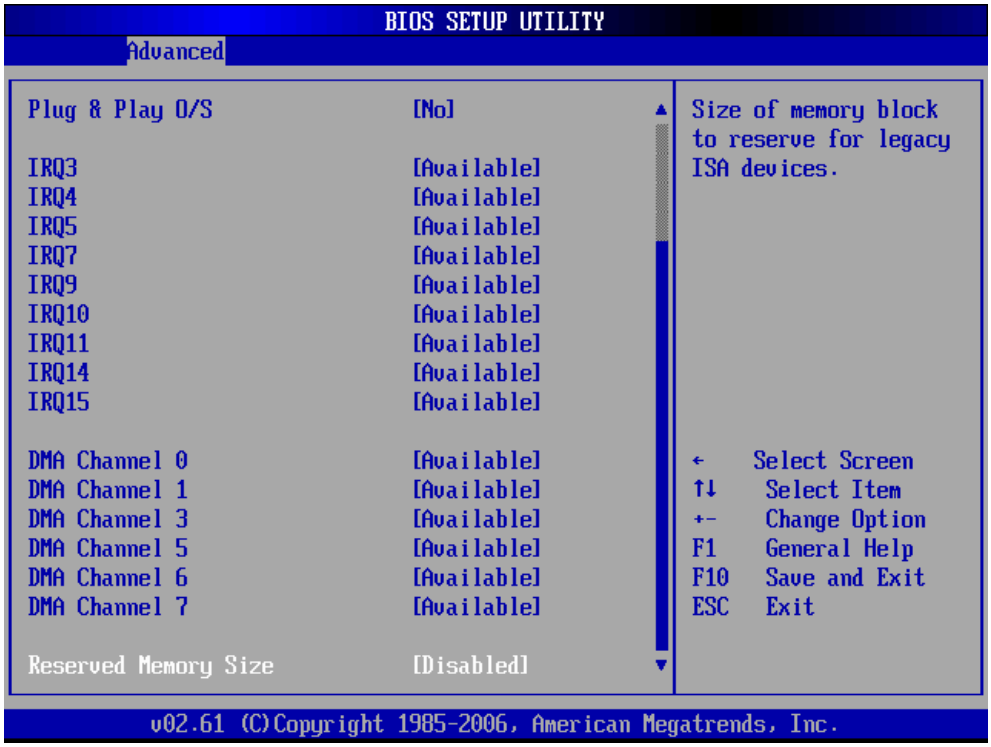
Item	Options	Description
Legacy USB Support	Enabled, Disabled, Auto	Use the Legacy USB Support BIOS option to enable USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is 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.
USB 2.0 Controller Mode	HiSpeed (480Mbps), FullSpeed (12Mpbs)	This item allows you to select HiSpeed (480Mbps) or FullSpeed (12Mpbs).
BIOS EHCI Hand-Off	Enabled, Disabled	This is a workaround for OSs without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
Legacy USB1.1 HC Support	Enabled, Disabled	This item allows you to select Legacy USB1.1 HC Support mode.

3.6.2.5 PCIPnP



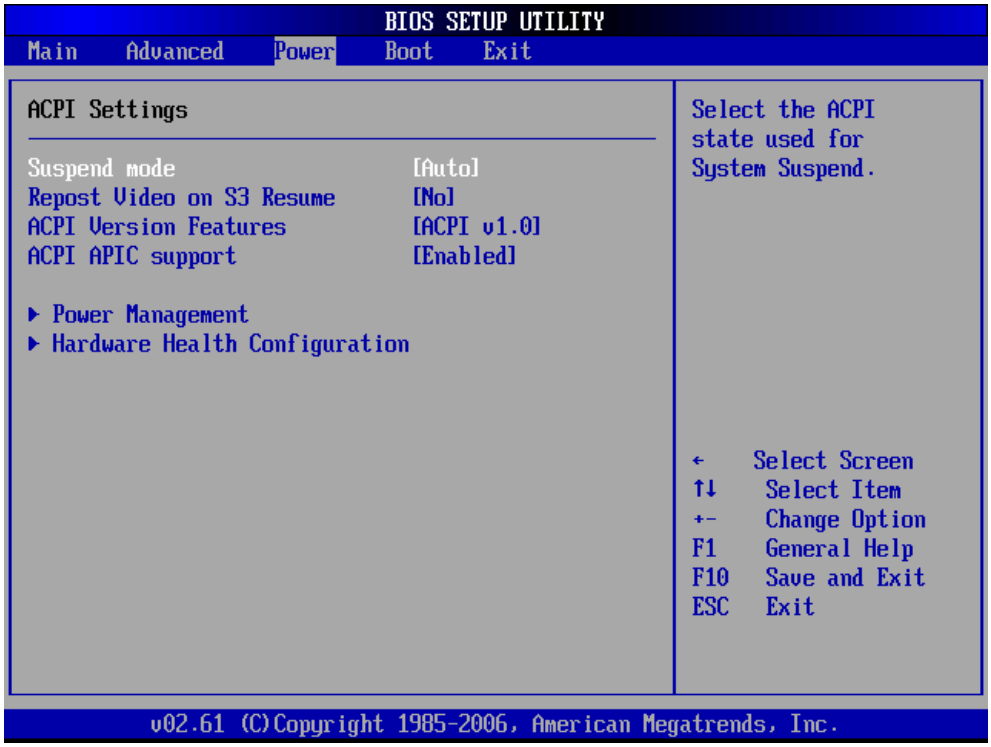
Item	Options	Description
Clear NVRAM	No, Yes	Set this value to force the BIOS to clear the Non-volatile Random Access Memory (NVRAM). The Original and Fail-Safe default setting is No.
Plug & Play O/S	Please refer to 3.5.2.5.1 for more information.	

3.6.2.5.1 Plug & play O/S



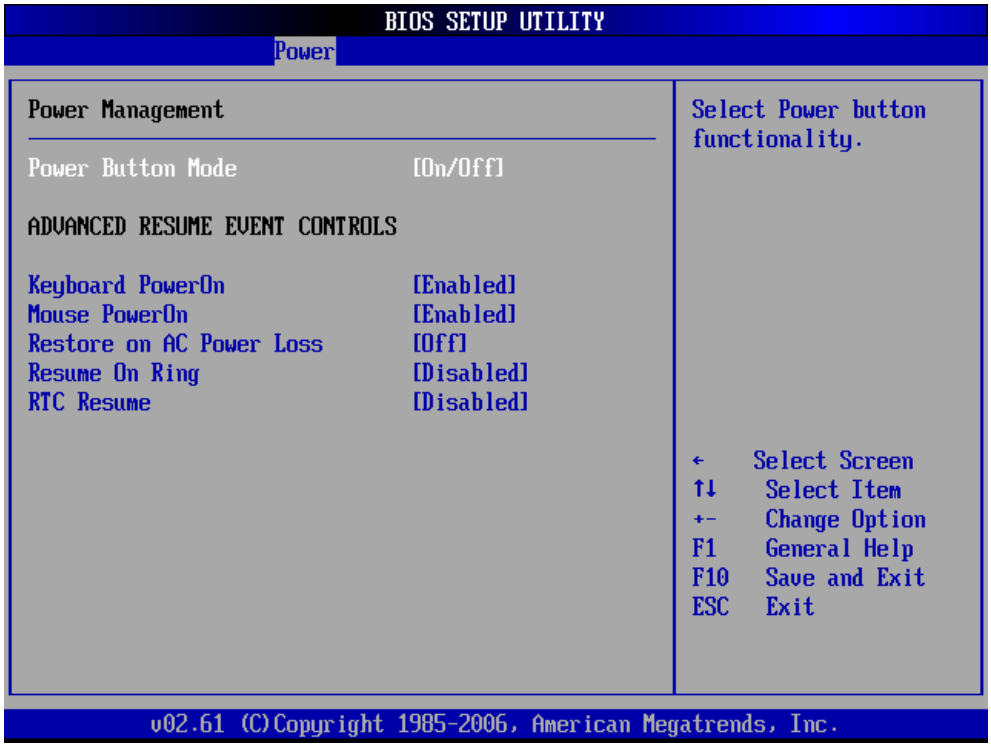
Item	Options	Description
IRQ3/ 4/ 5/ 7/ 9/ 10/ 11/ 14/ 15	Available, Reserved	Use the IRQ# address to specify what IRQs can be assigned to a particular peripheral device.
DMA Channel 0/ 1/ 3/ 5/ 6/ 7	Available, Reserved	This item allows you to set up DMA channel 0/ 1/ 3/ 5/ 6/ 7 mode.

3.6.3 Power



Item	Options	Description
Suspend mode	S1 (POS), S3 (STR), Auto	Select the ACPI states used for system suspend.
Repost Video on S3 Resume	No, Yes	This item allows you to invoke VA BIOS POST on S3/ STR resume.
ACPI Version Features	ACPI v1.0, ACPI v2.0, ACPI v3.0	This item allows you enable RSDP pointers to 64-bit fixed system description tables.
ACPI APIC support	Enabled, Disabled	Include APIC table pointer to RSDT pointer list.

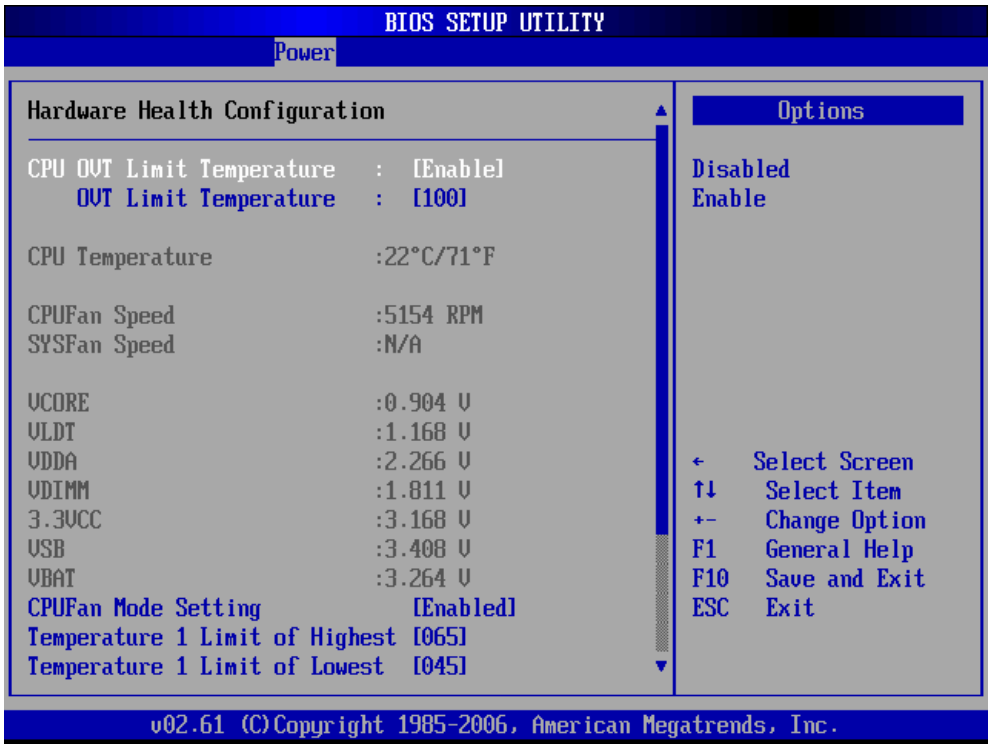
3.6.3.1 Power Management



Item	Options	Description
Power Button Mode	Disabled, Enabled	This section allows you to select power button mode.
Keyboard PowerOn	Disabled, Enabled	This section allows you to select keyboard power on mode.
Mouse PowerOn	Disabled, Enabled	This section allows you to select mouse power on mode.
Restore on AC Power Loss	Last Status, On, Off	Use this to set up the system response after a power failure.
Resume On Ring	Disabled, Enabled	Use the Resume on Ring BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system is roused by an incoming call on modem.
RTC Resume	Disabled, Enabled	Use the Resume on RTC Alarm option to specify the time the system should be roused from a suspend state.

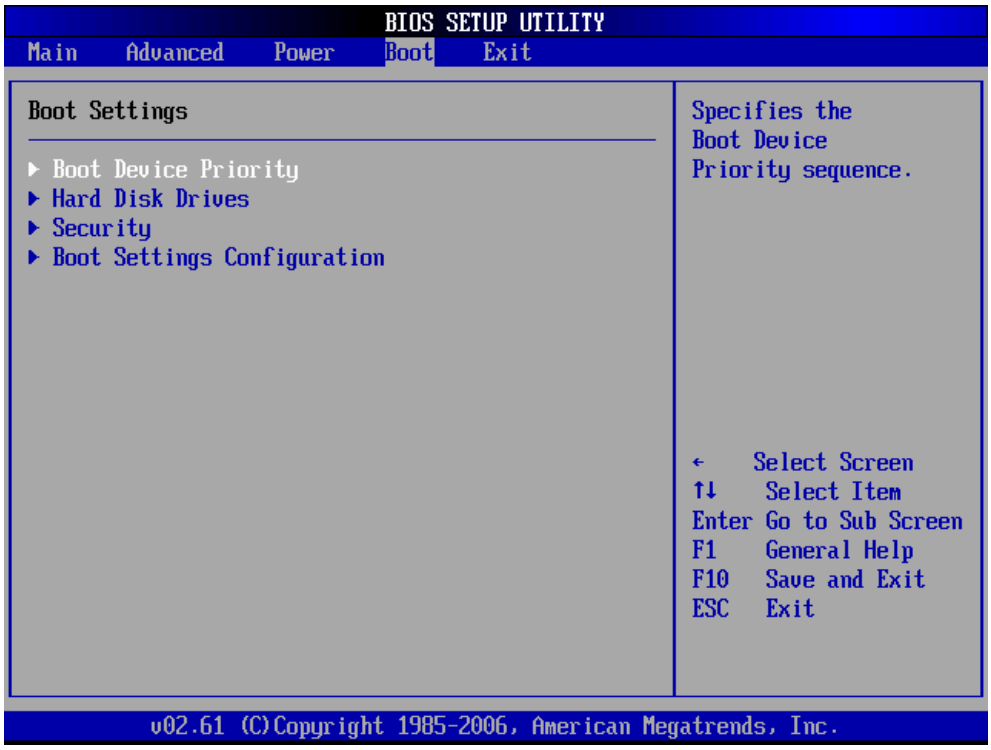
3.6.3.2 Hardware Health Configuration

This section allows you to control H/W monitoring.



3.6.4 Boot

Use the Boot menu to configure system boot options.



3.6.4.1 Boot Device Priority

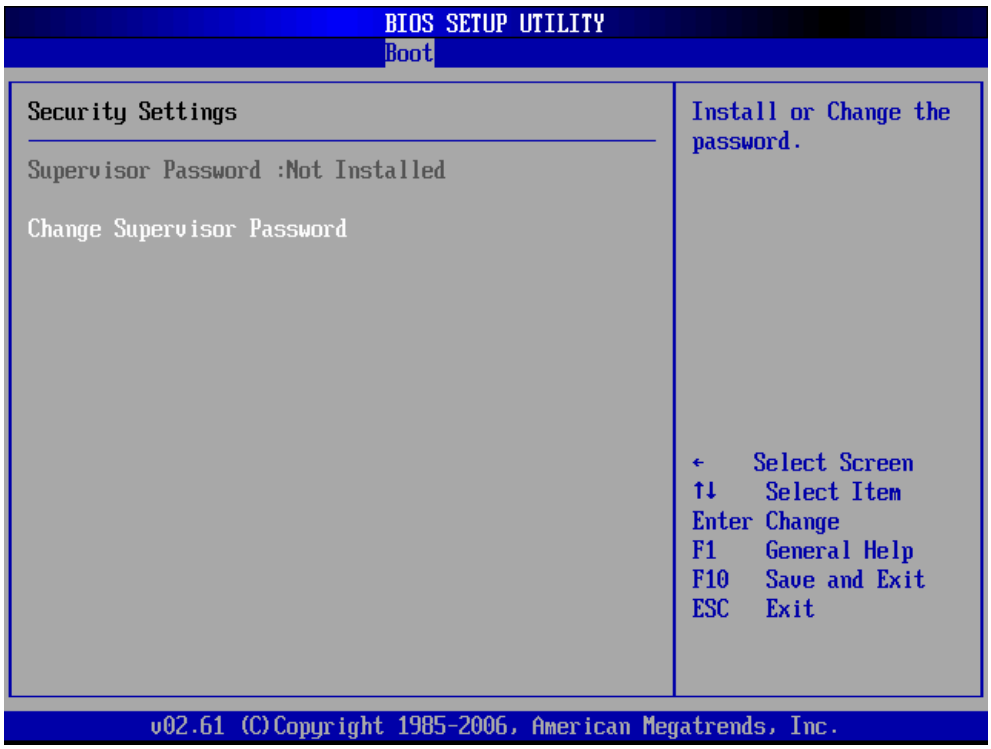
Use the Boot Device Priority menu to specify the boot sequence from the available devices.

3.6.4.2 Hard Disk Devices

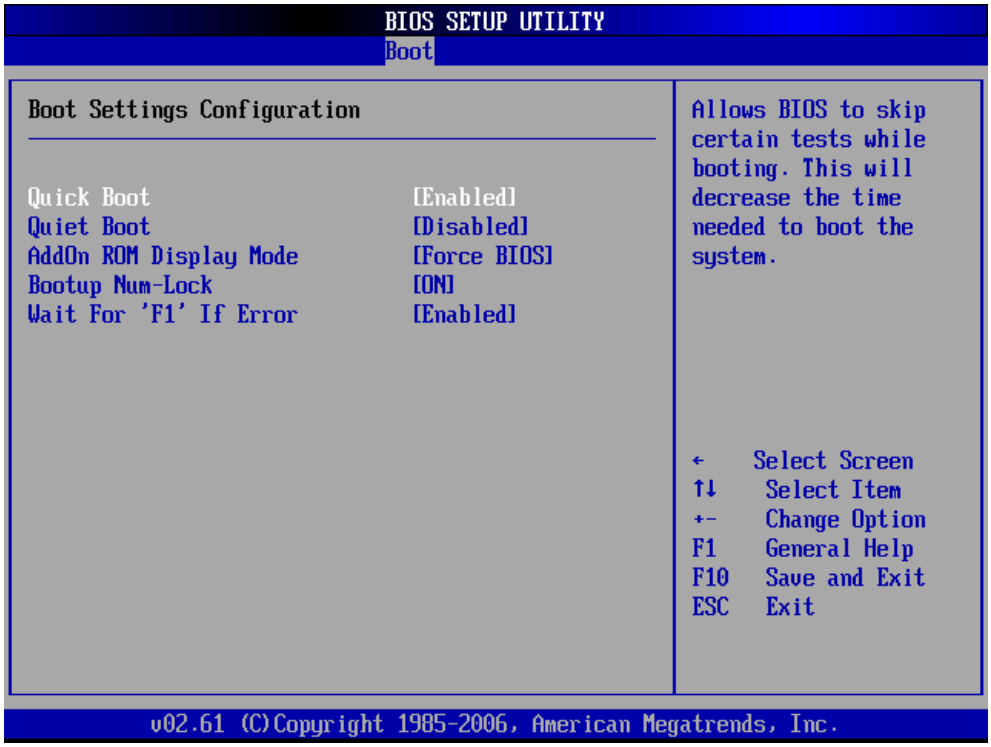
Use the Hard Disk Drives menu to specify the boot sequence of the available HDDs.

3.6.4.3 Security

Use the Security menu to set system and user password.



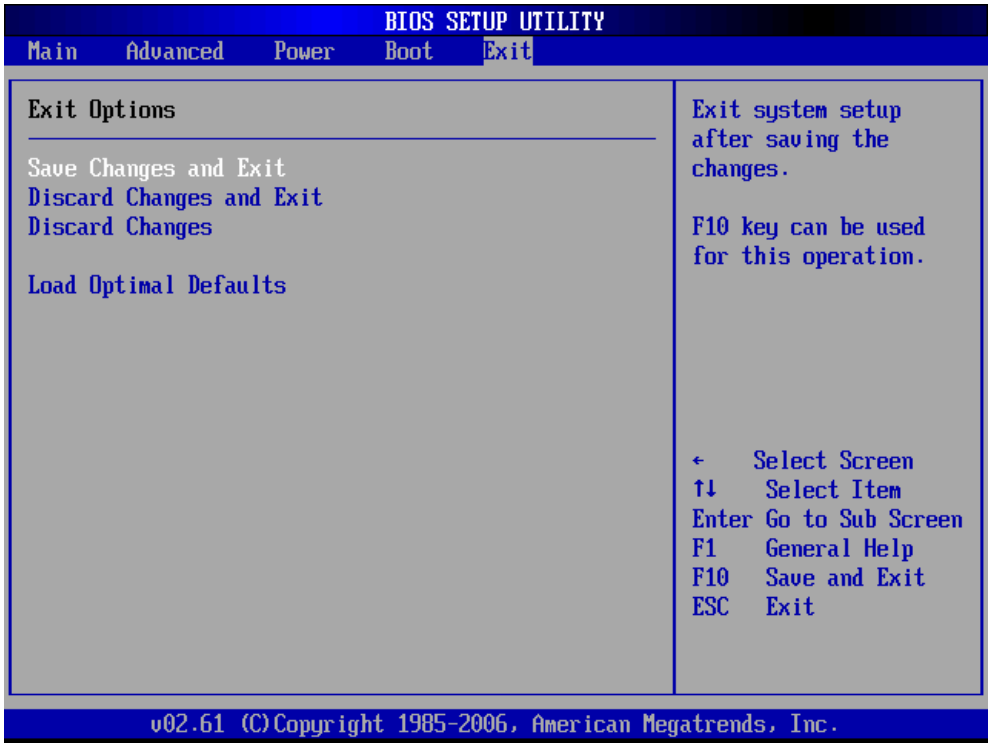
3.6.4.4 Boot Settings Configuration



Item	Options	Description
Quick Boot	Disabled, Enabled	Use the quick boot BIOS option to make the computer speed up the boot process.
Quiet Boot	Disabled, Enabled	Use the quiet boot BIOS option to select the screen display when the system boots.
AddOn ROM Display Mode	Force BIOS, Keep Current	The AddOn ROM Display Mode option allows add-on ROM (read-only memory) messages to be displayed.
Bootup Num-Lock	On, Off	The Bootup Num-Lock BIOS option allows the number Lock setting to be modified during boot up.
Wait For "F1" If Error	Disabled, Enabled	When set to enable, the system waits for the F1 key to be pressed when error occurs. This allows option ROM to trap interrupt19.

3.6.5 Exit

Use the Exit menu to load default BIOS values, optional failsafe values and to save configuration changes.



3.6.5.1 Save Changes and Exit

Use the save changes and reset option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

3.6.5.2 Discard Changes and Exit

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

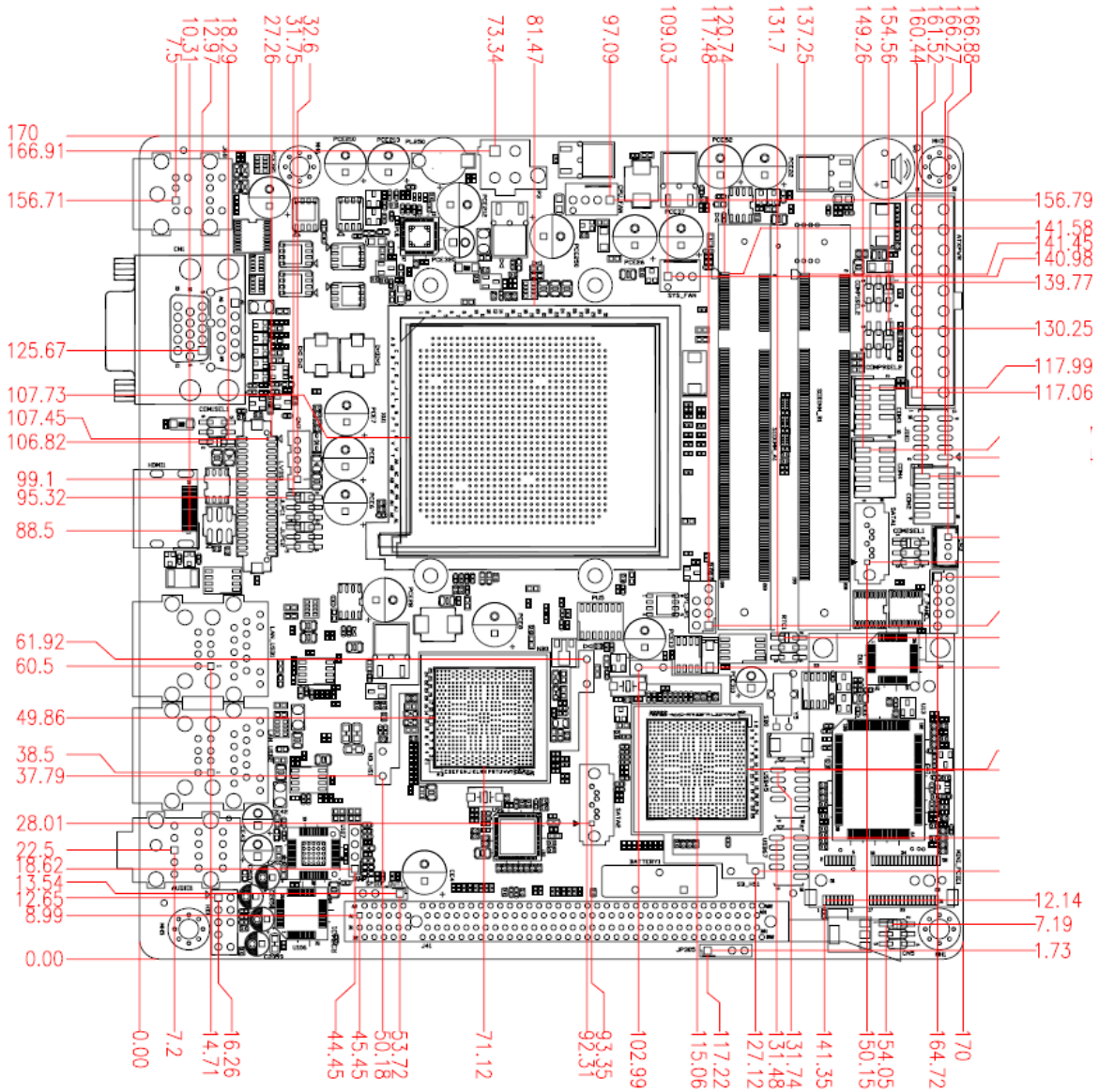
3.6.5.3 Discard Changes

Use the Discard Changes option to discard the changes and remain in the BIOS configuration setup program.

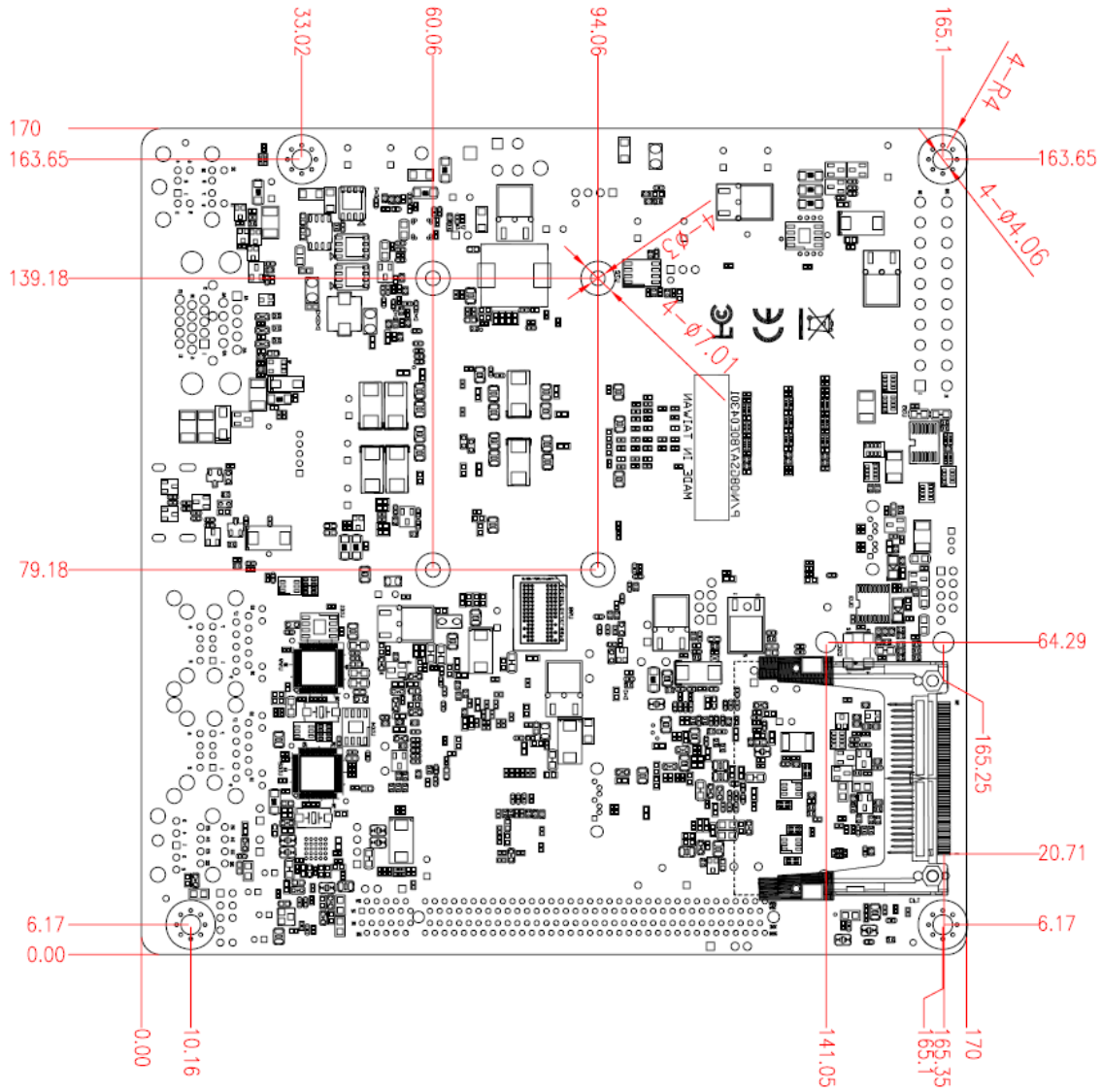
3.6.5.4 Load Optimal Defaults

Use the Load Optimal Defaults option to load the optimal default values for each of the parameters on the setup menus. F9 key can be used for this operation.

4. Mechanical Drawing


0.00
7.2
14.71
16.26
44.45
45.45
50.18
53.72
71.12
92.31
93.35
102.99
115.06
117.22
127.12
131.48
131.74
141.35
150.15
154.05
164.72
170
0.00
1.73
7.19
8.99
12.14
28.01
37.79
38.5
49.86
60.5
61.92
88.5
95.32
99.1
106.82
107.45
107.73
125.67
130.25
139.77
140.98
156.79
156.71
166.91
170

Unit: mm


33.02
60.06
94.06
165.1
4-R4
170
163.65
163.65
4-Ø4.06
4-Ø3
4-Ø1.01
139.18
79.18
64.29
165.25
20.71
6.17
0.00
6.17
0.00
10.16
141.05
165.35
165.1
170

Unit: mm