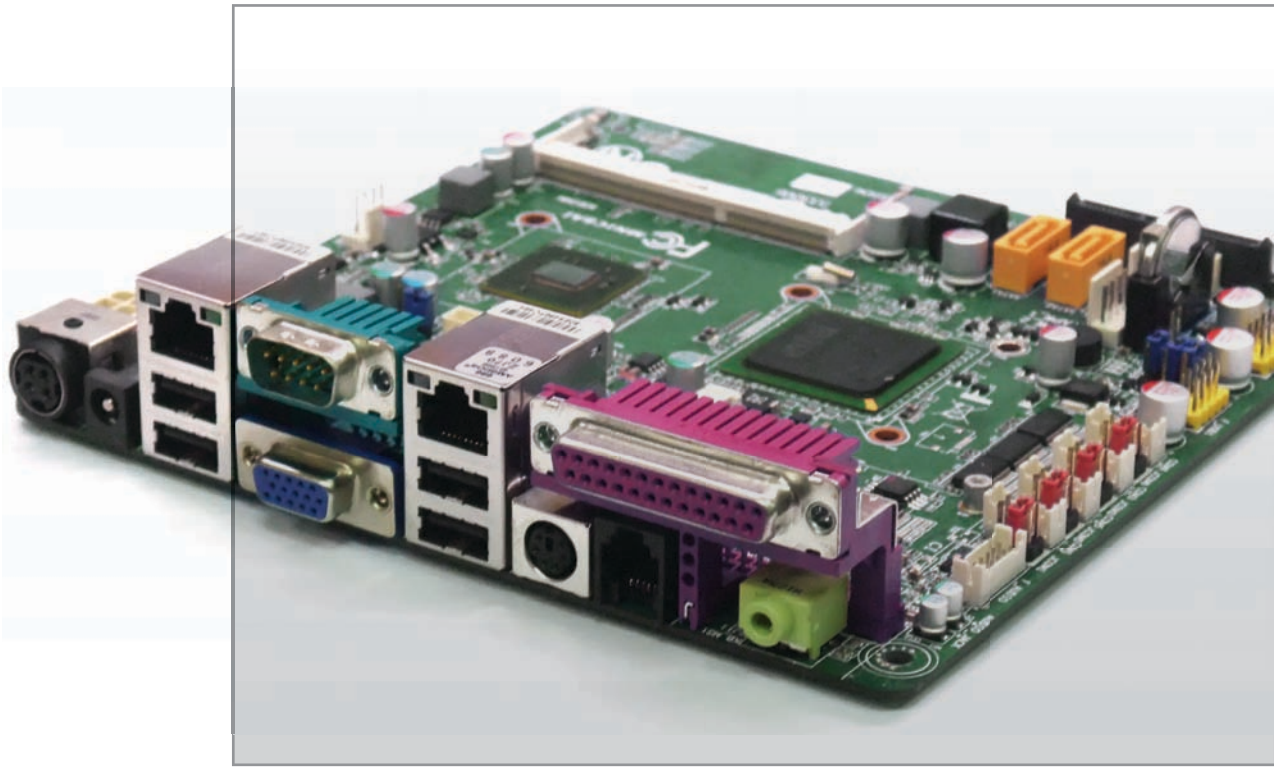
INS8313A

Mini ITX Industrial Motherboard
User's Manual



Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your local distributor.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encountered any technical problems with the product, please tried to contact your local distributor

Statement

Revision History

Revision	Date (yyyy/mm/dd)	Changes
Version 1.0	2011/09/25	Initial release
Version 1.1	2012/03/30	LVDS connector pin define

Packing list

- INS8313A Mini-ITX Motherboard (170x170mm)
- I/O Shield
- 1 x SATA cable (1x7pin/length is 200 mm)
- 2 x COM port cable with bracket (2x5 pin,2.54mm pitch/length is 260mm)
- 1 x USB port cable (2x5 pin/2.54mm pitch/length is 300mm)
- Driver CD
- DC+12V 60W Power Adapter (Optional)

If any of the above items is damaged or missing, please contact your local distributor.

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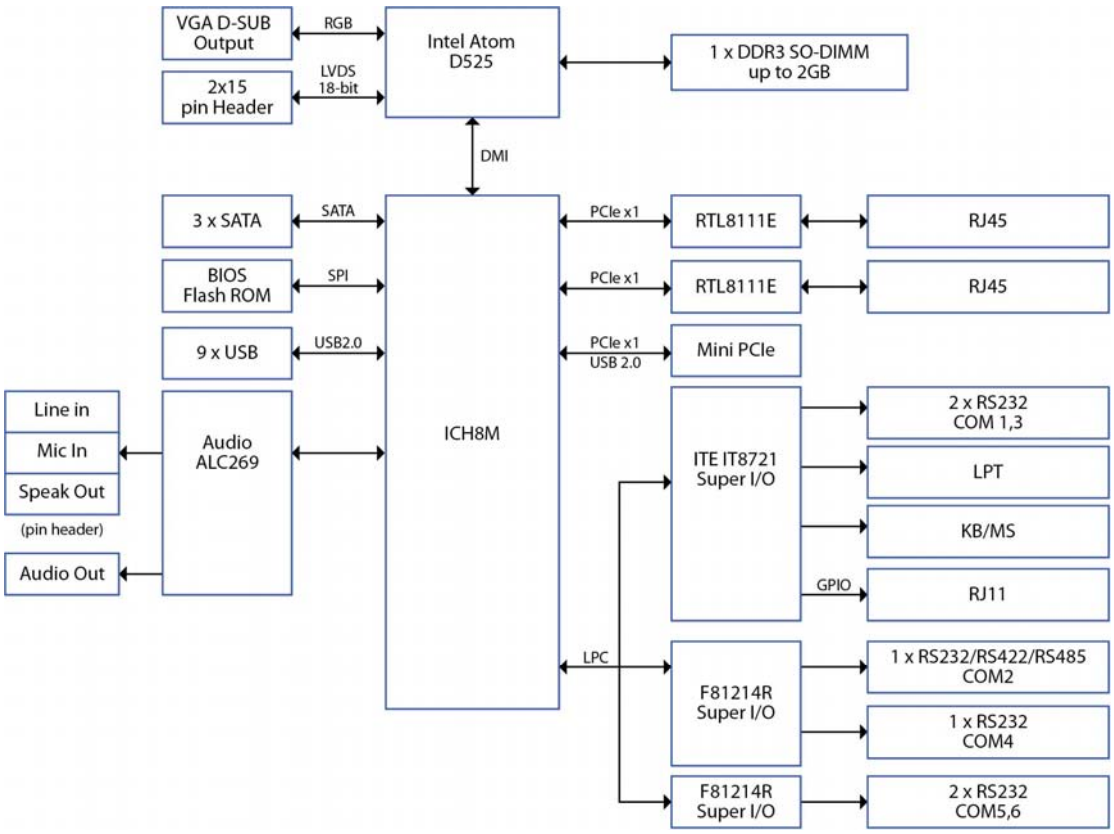
Chapter 1: Product Introduction

1.1 Block Diagram



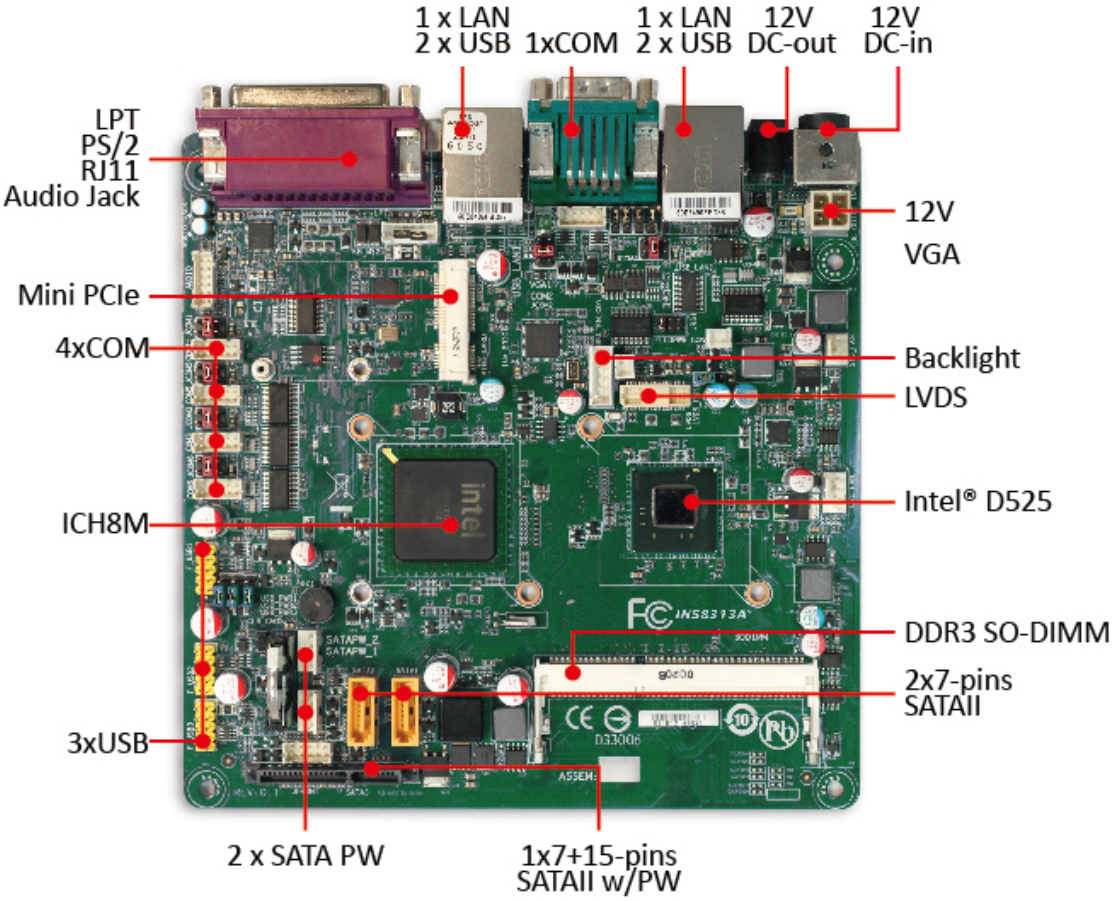
1.2 Key Features

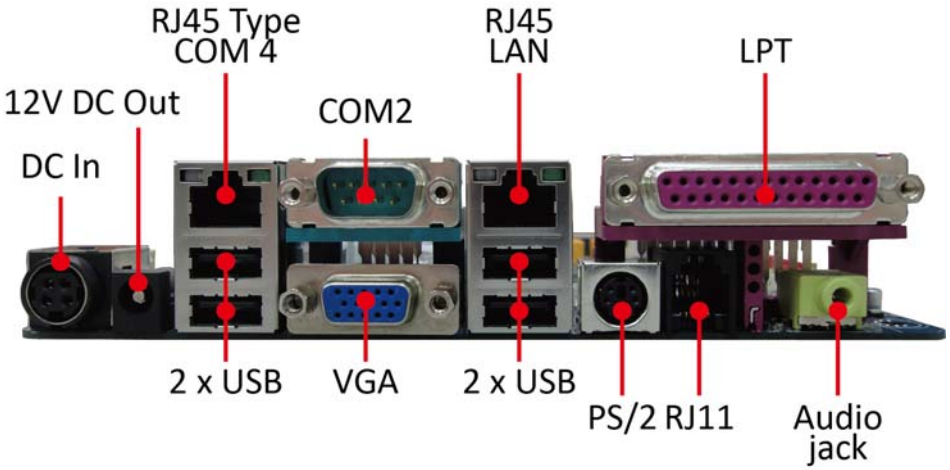
Processor & System	
CPU Type	Intel® Atom™ D525 1.8GHz onboard
Chipset	Intel® ICH8M
Memory Type	1 x 204-pin SO-DIMM DDR3 800/1066 up to 2GB
BIOS	AMI® BIOS
Super I/O	ITE ITE87821
2nd Super I/O	Fintek F81214R
Watchdog	1-255 sec. or 1-255 min. software programmable and can be generate system reset
Expansion Slot	1 x Mini PCIe Slot
Display	
Chipset	Integrated Intel® GMA3150 GFX Render Core
Onboard VGA	Yes (Max resolution 2048x1536)
LVDS	Support Single Channel 18-bit LVDS (Max. resolution 1366 x 768)
Dual Displays Capability	VGA + LVDS
Audio	
Codec	Realtek ALC269 Integrated High Definition audio
Ethernet	
Chipset	2 x RTL 8111E GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE
Rear I/O	
VGA	1 x DB15 female
Ethernet	2 x RJ45
Audio	1 x Speaker out
USB 1.1/2.0	4 Ports
COM	1 x RS232/422/485 with 5V/12V auto selection (COM2)
PS/2 Port	1 x PS/2
RJ11 connector	Yes for Cash Drawer
LPT Port	1 x DB25 female
DC-Out connector	Yes (DC+12V out)
DC-Jack connector	Yes (DC+12V in)
Internal I/O	
SATA Port	3 x SATAII • 2 x 7 pin SATA II • 1 x 7 pin+15 pin SATAII)
COM	6 x COM • COM1 port supports RS232 (0/5/12V) • COM2 port supports RS232/422/485 (0/5/12V) • COM3~COM6 ports supports (0/5/12V) • COM4 port supports support VFD mode
USB	9 x USB • 5 ports by 2x5 pin header-2.54 mm pitch • 4 ports on rear I/O output

Front Audio	2x6 Pin header (Line in/Line out/Mic in)
CPU FAN	1x4 pin connector
System FAN	1x3 pin connector
2x2 Pin 12V Power connector	Yes
DC+12V output	Yes
LVDS connector	2x15 pin Hirose connector
LCD Power connector	Yes
Backlight connector	1x5 pin connector
SATA power connector	Dual 1x4 pin connector
Mechanical and Environment	
Form Factor	Mini-ITX
Power Type	DC-Jack connector
Voltage	+12V single voltage in
Dimension	170 mm x 170m
Operating Temperature	0°C-60°C
Storage Temperature	-20°C-80°C
Relative humidity	10% to 90%, non-condensing

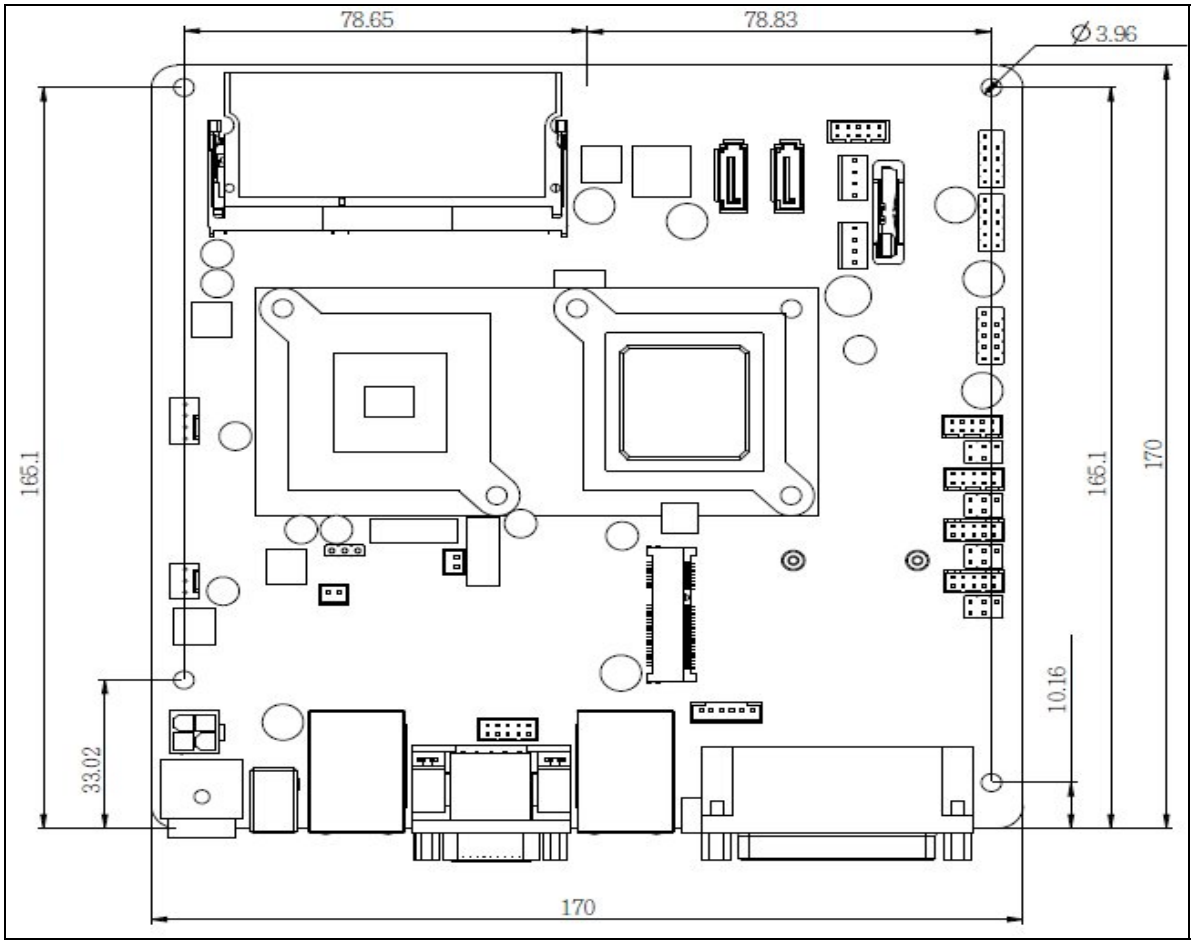
* All specifications and photos are subject to change without notice*

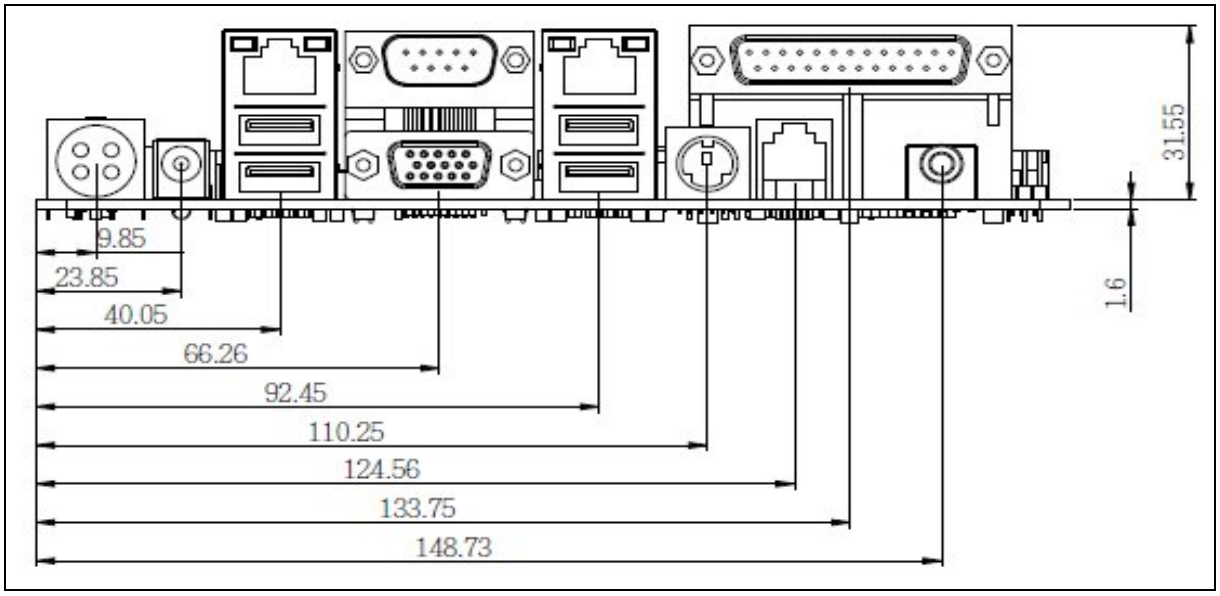
1.3 Board Placement





1.4 Mechanical Drawing





1.5 Onboard Connector List

Label	Function
MINI_CARD	Mini PCIe connector
DC_IN	DC+12V IN connector
DC_OUT	DC+12V Out connector
COM1	2x5 Pin connector
COM3	2x5 Pin connector
COM4	2x5 Pin connector
COM5	2x5 Pin connector
COM6	2x5 Pin connector
F_AUDIO	Front_Audio connector
F_USB 1	USB connector
F_USB2	USB connector
F_USB3	USB connector
SATA 1	7 pin SATA connector
SATA 2	7 pin SATA connector
SATA 3	7+15 pin SATA connector
SATAPW_1	SATA Power connector
SATAPW_2	SATA Power connector
SODIMM	DDR3 Memory SO-DIMM Socket
CPU_FAN	CPU FAN connector
SYS_FAN	System FAN connector
BKLTEN_CON	1x5 pin Backlight connector
LCDPWR_CON	2 pin connector
LVDS	2x15pin Hirose connector
VGA2	2x4 pin connector

Chapter 2 Jumpers and Connectors

This chapter describes the jumpers and connectors on the Mini-ITX M/B.

Before You Begin

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A set of jewelers Screwdrivers
- A grounding strap
- An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environment tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on the computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

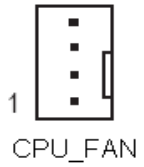
2.1 Jumper Settings

2.1.1 DC_OUT
(12V for external/internal use, this connector is reserved for future use)

Pin	Definition
1	GND
2	GND
3	12V
4	12V

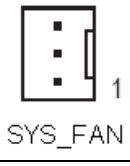
2.1.2 CPU_FAN connector

Pin	Definition
1	GND
2	+12V/RPM control
3	RPM detect
4	RPM control



2.1.3 System FAN connector

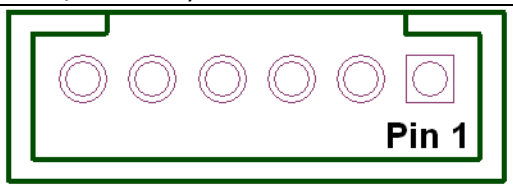
Pin	Definition
1	GND
2	+12V/RPM control
3	RPM detect



2.1.4 KB_MS2

(PS/2 Keyboard and PS/2 Mouse)

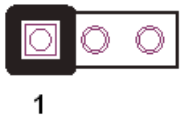
Pin	Definition
1	GND
2	KDAT
3	F_KDAT
4	KCLK
5	F_KCLK
6	5V



2.1.5 LVDS_PWR1

(LVDS 3V/5V selection)

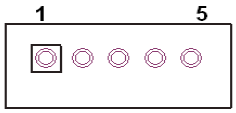
Pin	Definition
1	3.3V
2	DC input
3	5V
LVDS_PWR1: Default: 1-2	



2.1.6 INV_BRIG1

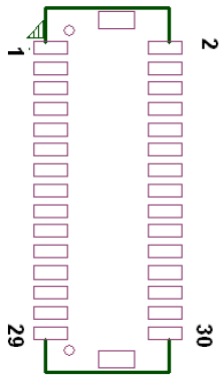
(Inverter with Box-header)

Pin	Definition
1	12V DC out
2	12V DC out
3	GND
4	Backlight Controller
5	Backlight Enable



2.1.7 LVDS 18 bit Connector

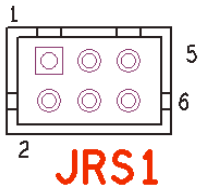
Pin	Definition	Pin	Definition	Pin	Definition
1	GND	12	Backlight Enable	23	LVDS Clock+
2	NC	13	GND	24	Backlight 5V/12V option
3	EDID Data	14	Backlight Controller	25	GND
4	GND	15	Data1+	26	GND
5	EDID Clock	16	GND	27	Data2-
6	NC	17	Data1-	28	LVDS Power 3.3V
7	GND	18	GND	29	Data2+
8	NC	19	GND	30	LVDS Power 3.3V
9	Data0+	20	Backlight 5V/12V option		
10	NC	21	LVDS Clock-		
11	Data0-	22	Backlight 5V/12V option		



2.1.8 JRS1, JRS2, JRS3, JRS4, JRS5

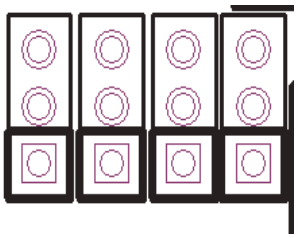
(Jumper for RS232, RS422 and RS485 connectors)

Pin	Definition
1	RS232
2	UART RXD
3	RS422
4	UART RXD
5	RS485
6	UART RXD
Default 1-2	



JRS2, JRS3, JRS4, JRS5

Connectors are illustrated in the following image



JRS2: Default 2-3 short

Pin	Definition
1	RS485 D-
2	COM2 Pin 1
3	RS232 DCD

JRS3: Default 2-3short

Pin	Definition
1	RS485 D+
2	COM2 Pin 2
3	RS232 RXD

JRS4: Default 2-3short

Pin	Definition
1	RS422 D-
2	COM2 Pin 4
3	RS232 DTR

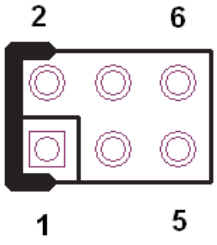
JRS5: Default 2-3short

Pin	Definition
1	RS422 D+
2	COM2 Pin 3
3	RS232 TXD

2.1.9 JCOM1, JCOM2, JCOM3, JCOM4, JCOM5, JCOM6

(For Pin 9 output 5V, 12V or RI)

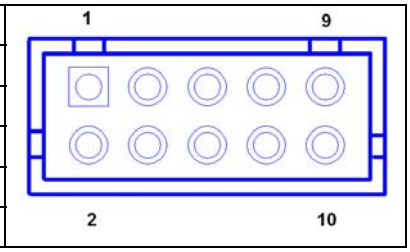
Pin	Definition
1-2 Short	5V
3-4 Short	RI
5-6 Short	12V
Default 3-4 Short	



2.1.10 COM1, COM3, COM5, COM6

(Serial Port with Box-header)

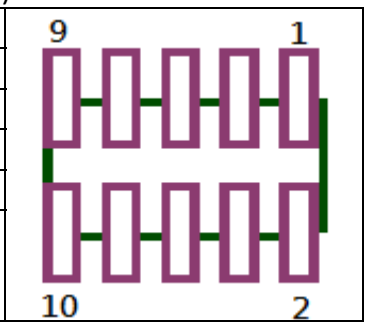
Pin	Definition	Pin	Definition
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI/+5V/+12V
9	GND	10	RI/+5V/+12V



2.1.11 COM4

(Serial Port with 1.27mm pin-header)

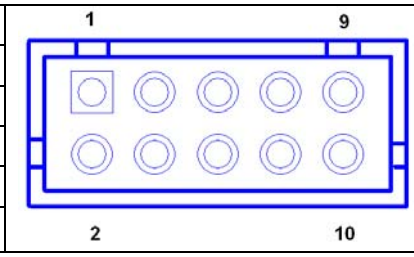
Pin	Definition	Pin	Definition
1	DSR	2	DCD
3	RTS	4	RXD
5	CTS	6	TXD
7	RI/+5V/+12V	8	DTR
9	RI/+5V/+12V	10	GND



2.1.12 JFRONT

(Front Panel Connector with Box-header)

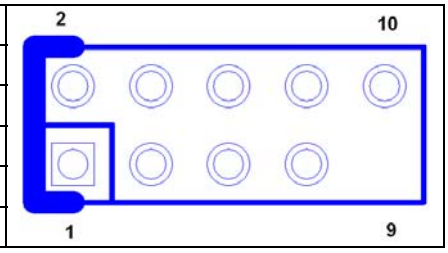
Pin	Definition	Pin	Definition
1	Stand-by LED	2	Power LED
3	Power Switch#	4	GND
5	LAN Action LED	6	Stand-by 5V
7	HDD LED#	8	VCC 5V
9	System Reset#	10	GND



2.1.13 F_USB1, F_USB2, F_USB3

(USB Pin-header)

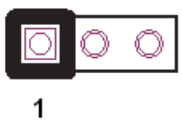
Pin	Definition	Pin	Definition
1	USB Power 5V	2	USB Power 5V
3	USB Dx-	4	USB Dy-
5	USB Dx+	6	USB Dy+
7	GND	8	GND
9	NC	10	NC



2.1.14 USB_PWR1, USB_PWR2, USB_PWR3

(Jumper for Stand-by, 5V or VCC 5V selections)

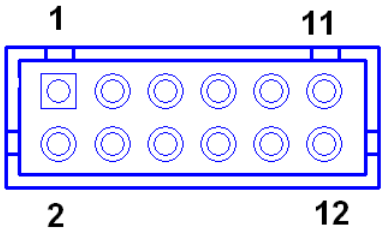
Pin	Definition
1	VCC 5V
2	USB DC IN
3	Stand-by 5V
Default 1-2 short	



2.1.15 F_AUDIO

(Front Audio Box-header)

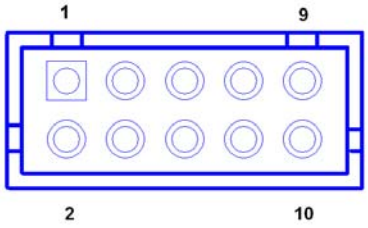
Pin	Definition	Pin	Definition
1	Amplifier Out_R+	2	MIC_L
3	Amplifier Out_R-	4	MIC_R
5	GND	6	Line In_R
7	Amplifier Out_L+	8	Line In_L
9	Amplifier Out_L-	10	Line In_JD
11	GND	12	MIC_JD



2.1.16 VGA2

(VGA Connector with Box-header)

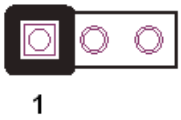
Pin	Definition	Pin	Definition
1	V-SYNC	2	H-SYNC
3	GND	4	GND
5	RED	6	GND
7	GREEN	8	DDC Clock
9	BULE	10	DDC Data



2.1.17 CLR_COMS1

(Clear CMOS Pin-header)

Pin	Definition
1	GND
2	Battery 3V
3	Battery 3V
Default 2-3 short	



2.1.18 SATAPW_1, SATAPW_2

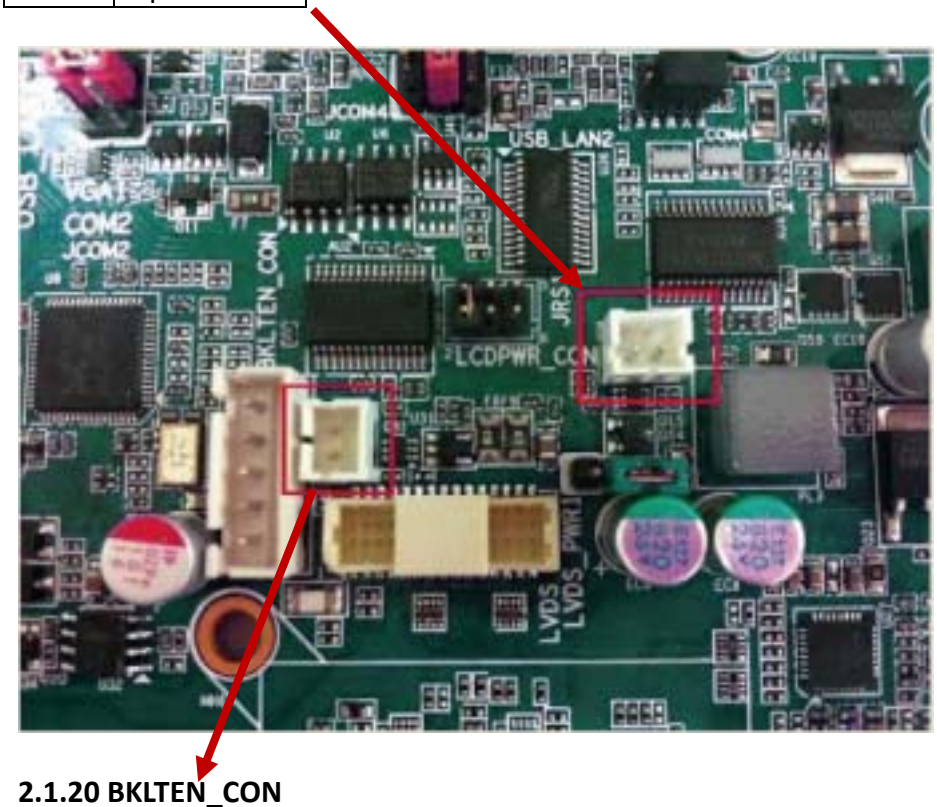
(SATA HDD Power 5V & 12V)

Pin	Definition
1	+12V
2	GND
3	GND
4	5V

2.1.19 LCDPWR_CON

(LCD Power ON/OFF)
Default 1-2 Open

ON	Short 1-2
OFF	Open 1-2



2.1.20 BKLTEN_CON

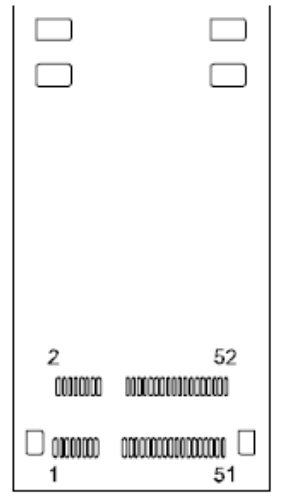
(Back light Inverter Enabled/Disabled)
Default 1-2 Open

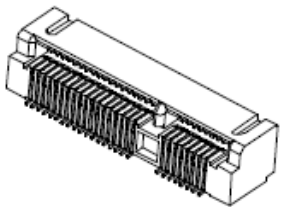
Enable	Short 1-2
Disable	Open 1-2

2.2 Onboard Connector Pin Assignment

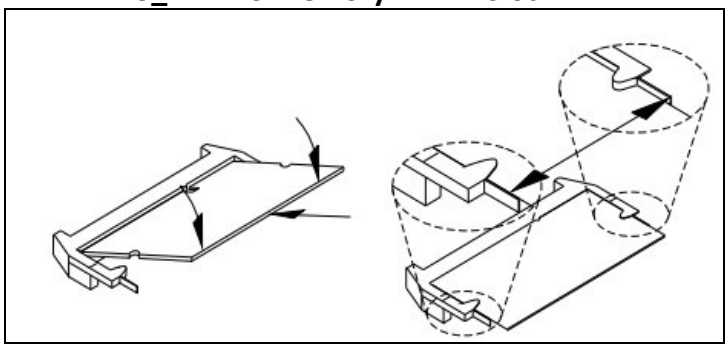
2.2.1 Mini PCIE Socket

Signal Name	Pin	Pin	Signal Name
PCIE_WAKE#	1	2	*+3.3VSB
NC	3	4	GND
NC	5	6	+1.5V
NC	7	8	UIM_PWR
GND	9	10	UIM_DATA
CLK100_MPCIE1#/2#	11	12	UIM_CLK
CLK100_MPCIE1/2	13	14	UIM_RESET
GND	15	16	UIM_VPP
NC	17	18	GND
NC	19	20	MPCIE1/2_EN
GND	21	22	RST_PCIE#
PCIE_RX2-/3-	23	24	+3.3VSB
PCIE_RX2+/3+	25	26	GND
GND	27	28	+1.5V
GND	29	30	SB_SMB_CLK
PCIE_TX2-/3-	31	32	SB_SMB_DAT
PCIE_TX2+/3+	33	34	GND
GND	35	36	USBN
GND	37	38	USBP
+3.3VSB	39	40	GND
+3.3VSB	41	42	LED_WLAN#
GND	43	44	LED_WLAN#
NC	45	46	LED_WLAN#
NC	47	48	+1.5v
NC	49	50	GND
NC	51	52	*+3.3VSB





2.2.2 DDR3_1 DDR3 Memory DIMM Slot



2.2.3 SATAI1, SATA2 connector

(Serial ATA 2.0)

Pin	Signal Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

2.2.4 SATA3 connector

(Serial ATA 2.0)

Pin #	Signal Name	Signal Description
1	V33	3.3v Power
2	V33	3.3v Power
3	V33	3.3v Power, Pre-charge, 2nd mate
4	Ground	1st Mate
5	Ground	2nd Mate
6	Ground	3rd Mate
7	V5	5v Power, pre-charge, 2nd mate
8	V5	5v Power
9	V5	5v Power
10	Ground	2nd Mate
11	Reserved	-
12	Ground	1st Mate
13	V12	12v Power, Pre-charge, 2nd mate
14	V12	12v Power
15	V12	12v Power

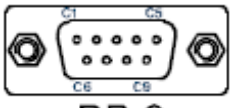
7 Pin SATA Connector

15 Pin SATA Connector

2.2.5 COM2

(RS-232/422/485 Port A DB-9 Connector)

Pin	RS-232	RS-422	Half Duplex RS-485
1	DCD	TX-	DATA-
2	RXD	RX+	NA
3	TXD	TX+	DATA+
4	DTR	RX-	NA
5	GND	GND	GND
6	DSR	NA	NA
7	RTS	NA	NA
8	CTS	NA	NA
9	+5V/+12V/RI	+5V/+12V/NA	+5V/+12V/NA

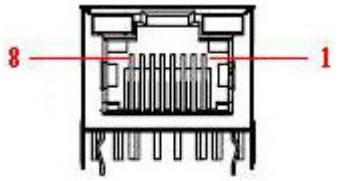


DB-9

2.2.6 LAN1, LAN2

(10/100/1000 Ethernet RJ-45 Connector)

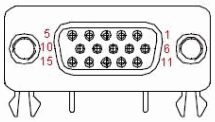
Pin	Signal
1	Tx+
2	Tx-
3	Rx+
4	NC
5	NC
6	Rx-
7	NC
8	NC



2.2.7 VGA1

(D-SUB 15 pin Connector)

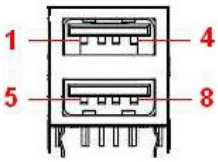
Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	NC
GND	5	6	GND
GND	7	8	GND
VCC	9	10	GND
NC	11	12	DDC data
HSYNC	13	14	VSYNC
DDC clock	15		



2.2.8 USB1

(2-Stack USB2.0 Type A Connector)

Pin	Signal Name	Pin	Signal Name
1	+5V	5	+5V
2	USB1-	6	USB0-
3	USB1+	7	USB0+
4	GND	8	GND



Chapter 3: Getting Started

This chapter provides information on how to install components to the INS8313A. Specifically, the installation of memory modules and operating system are explained.

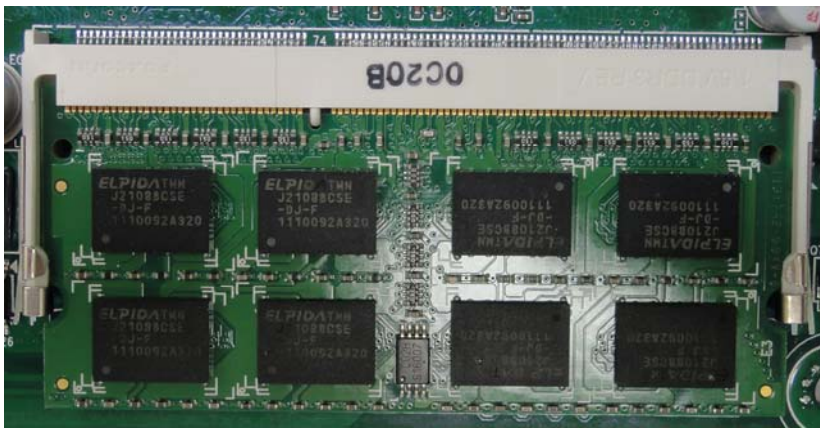
3.1 Installing System Memory

The INS8313A supports DDR3 800 SO-DIMM and the maximum memory capacity is 2GB

	Disconnect all power supplies to the board before installing a memory module to prevent damage to the board and memory module.

To install a memory module:

1. Located the memory module slots on the motherboard.
2. Push the socket retaining clips outward to unlock the slots.
3. Align the memory module with the socket to make sure the notch aligns with the slot key on the socket.
4. Insert the module firmly into the desired slot until the retaining clips lock and secure the memory module.



3.2 Mini PCIe device Installation

3.3 Driver Installation

The INS8313A drivers for Windows XP 32-bit are located in the following directories on the Driver CD or can be downloaded from the Perfectron website (http://www.perfectron.com):

Follow the instructions below to install the required INS8313A drivers:

Install the Windows operating system before installing any drivers. Most standard I/O device drivers are installed during Windows installation.

Install the chipset driver by running the program
X:\INS8313A Driver\INF\setup.exe. Follow the provided instructions and reboot the computer when instructed.

Install the display driver and utilities by running the program
X:\INS8313A Driver\VGA\WIN2KXP_32\setup.exe. Follow the provided instructions and reboot the computer when instructed.

Install the LAN driver by running the program
X:\INS8313A Driver\LAN\Windows\2000_XP_2003 Server\PRO2KXP.exe. Follow the provided instructions and reboot the computer, if is required.

Install the Audio driver by running the program
X:\INS8313A Driver\Audio\32bit\2K_XP\setup.exe. Follow the provided instructions and reboot the computer, if required.

Chipset X:\INS8313A Driver\INF

Display X:\INS8313A Driver\VGA\WIN2KXP_32

LAN X:\INS8313A driver\LAN\Windows\2000_ XP_2003 Server

Audio X:\INS8313A Driver\Audio\32bit\2K_XP

Chapter 4: AMI BIOS UTILITY

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.
With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the Setup options, and second, to make settings appropriate for the way you use the computer.

Configuring the BIOS

This program should be executed under the following conditions:

- When changing the system configuration
- When a configuration error is detected by the system and you are prompted to make changes to the Setup program
- When resetting the system clock
- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power or the system features need to be changed.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <Del> allows you to enter Setup. Another way to enter Setup is to power on the computer and waits for the following message during the POST:

TO ENTER SETUP BEFORE BOOT PRESS <CTRL-ALT-ESC> Press the <Del> key to enter Setup:

Legends

Key	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between submenus or fields.
<Esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
<F1>	Displays General Help.
<F10>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the highlighted submenu.

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

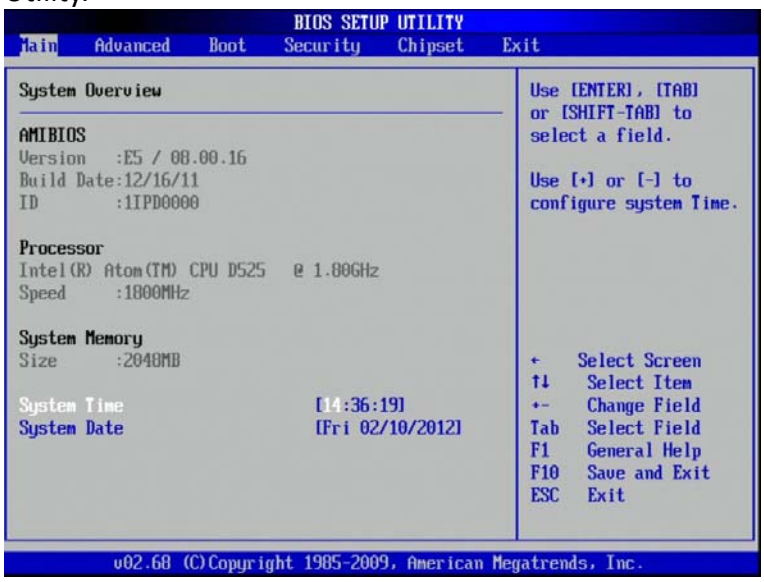
When "▶" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

BIOS Setup Utility

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

4.1 Main Menu

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

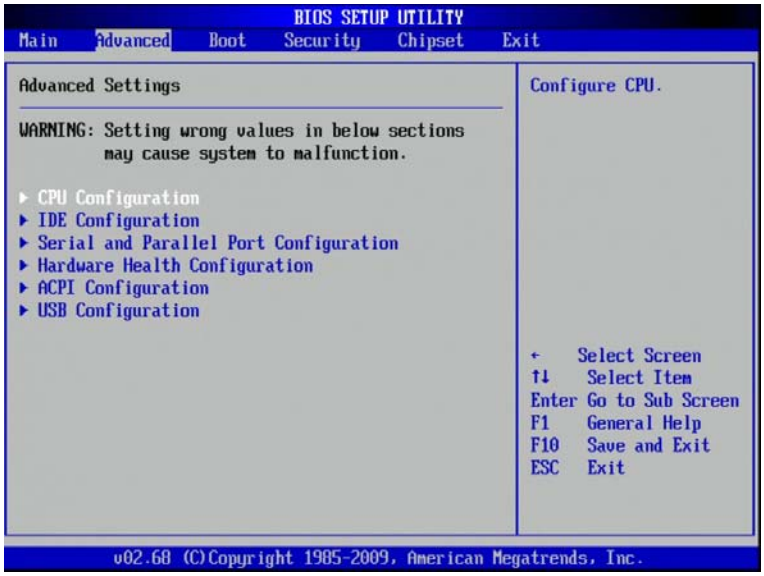


AMI BIOS: Displays the detected BIOS information.
Processor: Displays the detected processor information.
System Memory: Displays the detected system memory information.
System Time: The time format is <hour>, <minute>, <second>. The time is based on 24-hour military-time. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.
System Date: The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

4.2 Advanced Menu

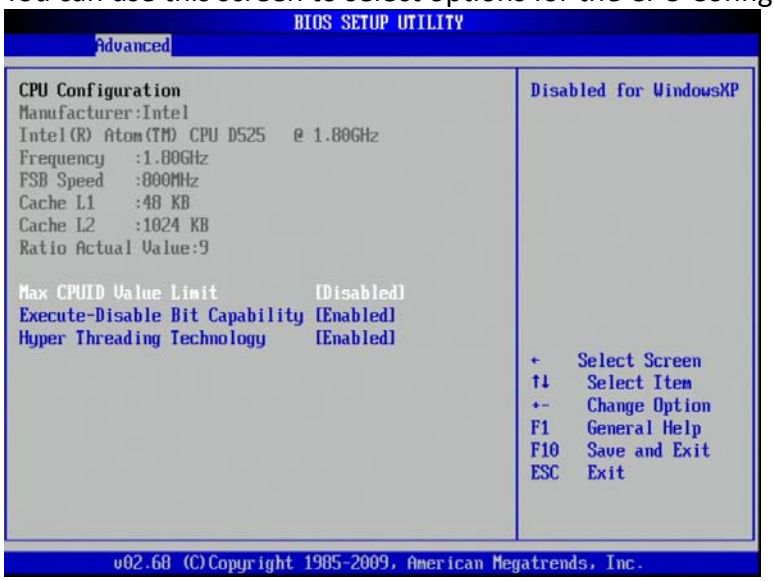
The Advanced Menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

Setting incorrect field values may cause the system to malfunction.



CPU Configuration

You can use this screen to select options for the CPU Configuration Settings.



CPU Configuration

Displays the detected CPU information.

Max CPUID Value Limit
This item allows you to limit CPUID maximum value. It is recommended to keep this feature disabled if you are running p4 HT on an OS capable of running it.

Execute-Disable Bit Capability
Execute Disable Bit (EDB) is an Intel hardware-based security feature that can help reduce system exposure to viruses and malicious code. EDB allows the processor to classify areas in memory where application code can or cannot execute. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage and worm propagation. To use EDB you must have a PC or server with a processor with EDB capability and a supporting operating system. EDB-enabled processors by Intel are indicated by a "J" after the CPU model number. Execute Disable Bit is abbreviated as EDB (by Intel) or XDB. The default setting is [Enabled].

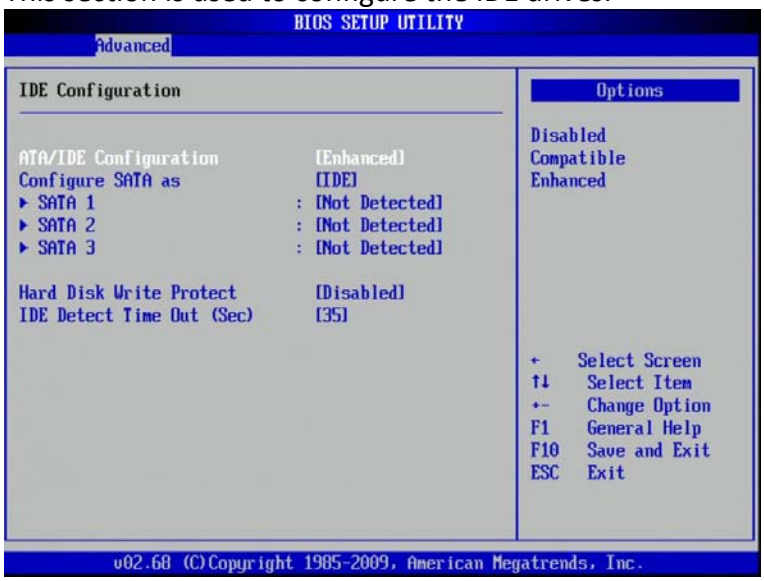
Hyper-Threading Technology
Intel® Hyper-Threading Technology (Intel® HT Technology) is available on laptop, desktop, server, and workstation systems. Look for systems with the Intel® HT Technology logo, which your system vendor has verified utilizing Intel® HT Technology.

Intel® HT Technology requires a computer system with:
- A processor that supports Intel® HT Technology
- Intel® HT Technology enabled chipset
- Intel® HT Technology enabled system BIOS
- Intel® HT Technology enabled/optimized operating system

Performance will vary depending on the specific hardware and software you use. See your system manufacturer for details on specific system configurations and performance. The default setting is [Enabled].

IDE Configuration

This section is used to configure the IDE drives.



ATA/IDE Configuration

There is a setting in BIOS called "ATA/IDE Configuration", which has three options - Disabled, Compatible and Enhanced. If you choose "Enhanced", you also get a choice for "Enhanced mode support on" and then three choices: S-ATA, P-ATA and S-ATA+P-ATA.

Configure SATA As

SATA hard drives can run in three different modes: IDE, RAID or AHCI. IDE is the old interface standard for hard disks and optical drives is compatible with a variety of platforms, including Windows XP, Windows Vista and Windows 7. AHCI includes features not accessible from IDE mode but is compatible with only Windows Vista and Windows 7. RAID mode allows a user to configure multiple disks for advanced performance or backup security

SATA 1/ SATA 2/ SATA 3

This BIOS setting could help you and double check what kind of SATA devices was installed on INS8313A.

Hard disk Write Protect

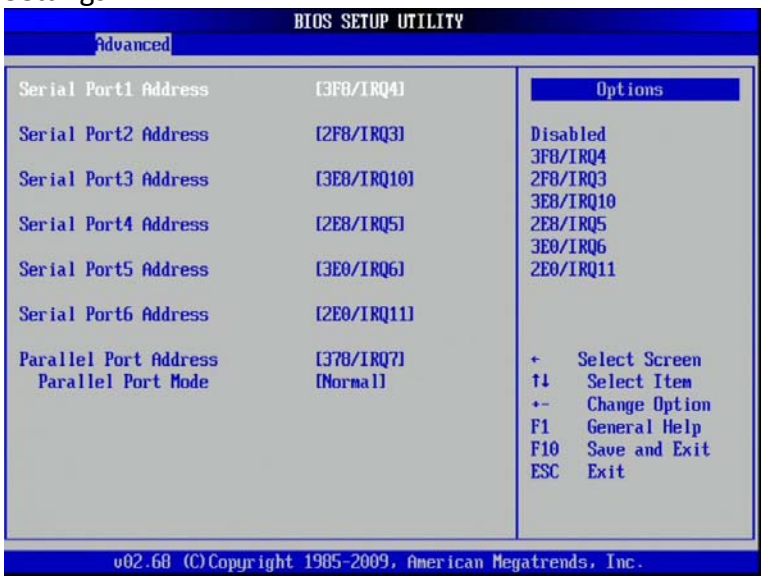
Enabling write protection on the hard drive will not allow any more writing to be performed. Navigate through the BIOS and find the write protect option.
A write-protected disk will not allow a user to create, modify or delete files on the drive.

IDE-Detected Time-out (Sec)

BIOS feature comes in. It allows you to force the BIOS to delay the initialization of IDE devices for up to 35 seconds

Serial and Parallel Port Configuration

You can use this screen to select options for the Serial and Parallel Port Configuration Settings.



The default values are:

Serial Port1 Address: 3F8/IRQ4
Serial Port2 Address: 2F8/IRQ3
Serial Port3 Address: 3E8/IRQ10
Serial Port4 Address: 2E8/IRQ5
Serial Port5 Address: 3E0/IRQ6
Serial Port6 Address: 2E0/IRQ11

Parallel Port Address and Port mode

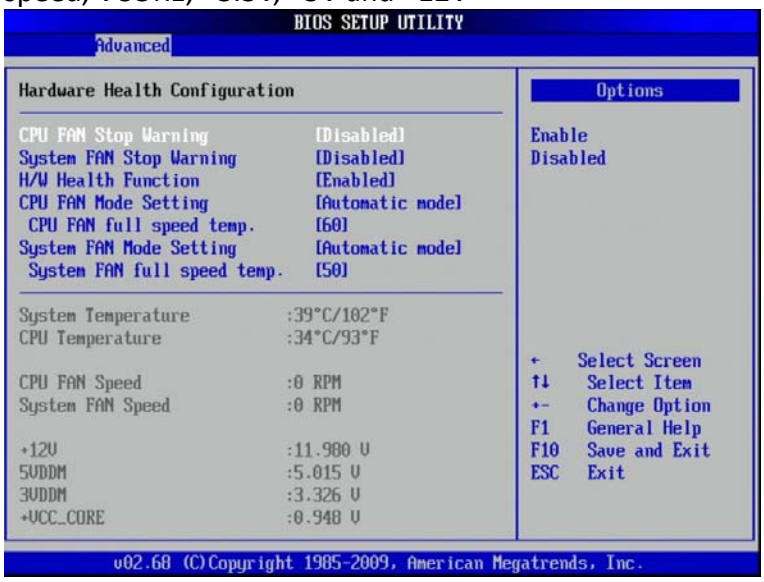
The Parallel Port is the most commonly used port for interfacing home made projects. This port will allow the input of up to 9 bits or the output of 12 bits at any one given time, thus requiring minimal external circuitry to implement many simpler tasks. The port is composed of 4 control lines, 5 status lines and 8 data lines. It's found commonly on the back of your PC as a D-Type 25 Pin female connector. There may also be a D-Type 25 pin male connector. This will be a serial RS-232 port and thus, is a totally incompatible port.

For more information on Serial RS-232 Ports See
http://www.beyondlogic.org/serial/serial.htm

Newer Parallel Port are standardized under the IEEE 1284 standard first released in 1994. This standard defines 5 modes of operation which are as follows:
1: Compatibility Mode.
2. Nibble Mode. (Protocol not Described in this Document)
3. Byte Mode. (Protocol not Described in this Document)
4. EPP Mode (Enhanced Parallel Port).
5. ECP Mode (Extended Capabilities Mode).

Hardware Health Configuration

The Hardware Health Configuration setting displays the system hardware details such as CPU Warning Temperature, CPU Temperature, System Temperature, CPU FAN speed, VCORE, +3.3V, +5V and +12V



CPU FAN/System FAN Stop Warning

You can "Enable" or "Disable" the CPU fan warning on startup from within your computer's BIOS (Basic Input/Output System) settings. You can setup the computer to give you a warning if your CPU fan is not working, or not working properly, before it fully starts up. This means that you can avoid starting up your computer and letting the CPU overheat and get damaged.

The CPU fan warning may also display if you are using a nonstandard CPU fan, which can cause your computer to detect the settings as abnormal or not detected them at all. If you find that this is the case, you may wish to disable the CPU fan warning

H/W Health Function

Select Hardware Health Configure from the CMOS Setup Utility menu and press Enter to display the settings. This will enable or disable Hardware Health Monitoring

CPU FAN/System FAN Mode Setting

This function allows change of the fan mode configuration

CPU FAN/System FAN Full Speed temp.

The fan speed control program recommended here is well-engineered and should work with 95% of fans on 95% of systems, if not better. The great benefit is that fan speeds are automatically varied according to temperature.

ACPI Configuration

This section is used to configure the ACPI function.

Suspend Mode

This field is used to select the type of Suspend mode.
S1 (POS) Enables the Power On Suspend function.

USB Configuration

This section is used to configure USB devices.

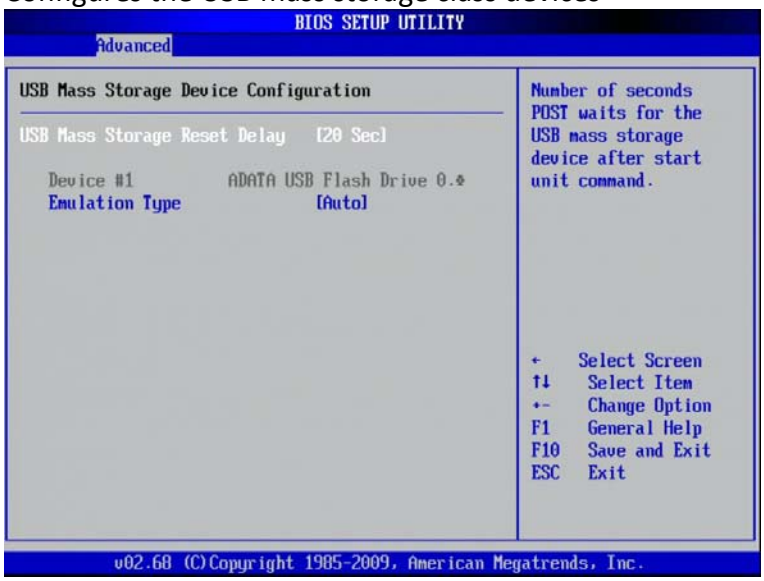
USB Configuration: Displays the detected USB devices.

Legacy USB Support

Enable	Enables Legacy USB.
Auto	Disables support for Legacy when no USB devices are connected.
Disable	Keeps USB devices available only for EFI applications.

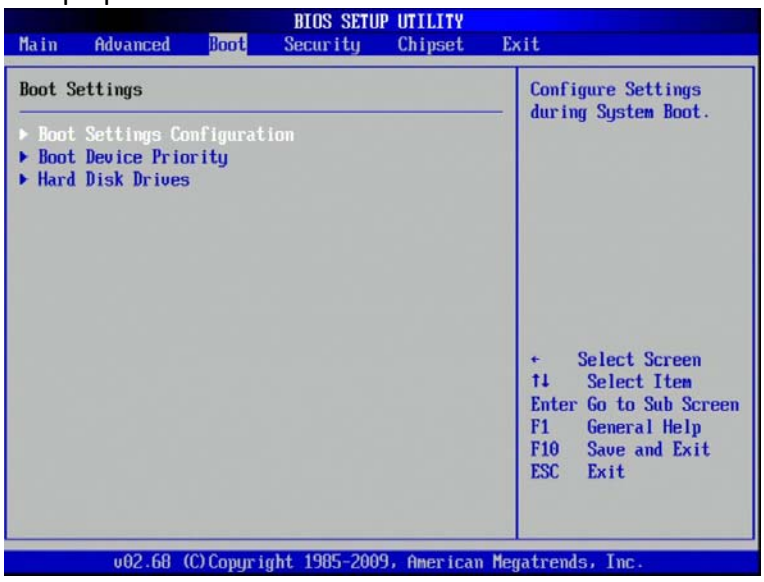
USB Mass Storage Device Configuration

Configures the USB mass storage class devices



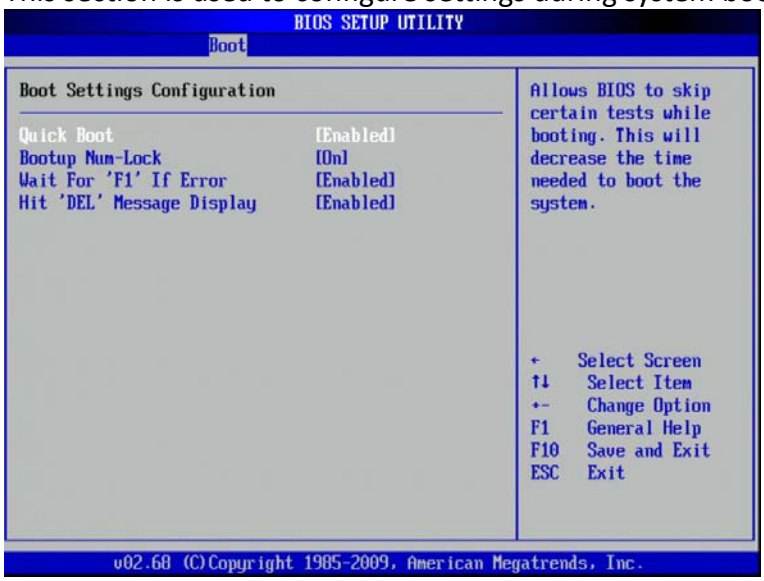
4.3 Boot Menu

Select the Boot tab from the setup screen to enter the Boot Setup screen. You can display a Boot Setup option by highlighting it using the <Arrow> keys. All Boot BIOS Setup options



Boot Settings Configuration

This section is used to configure settings during system boot.

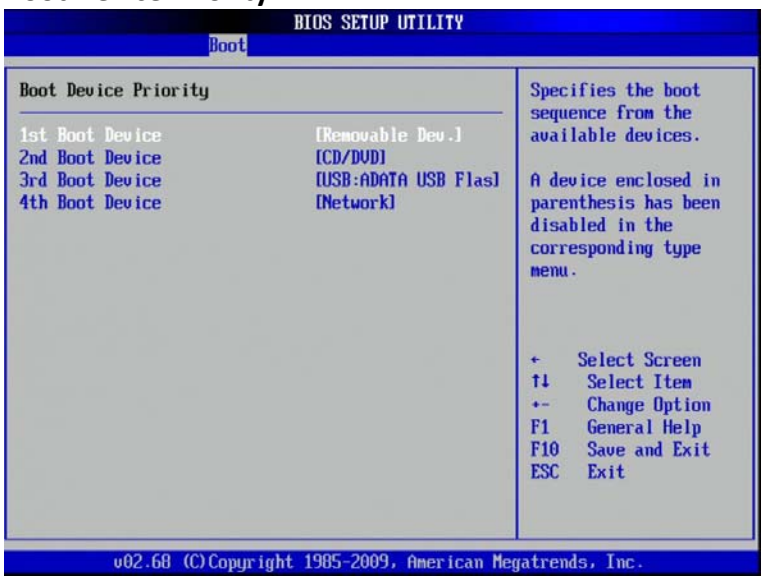


Quick Boot: This allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system. The default setting is [Enabled].

Bootup Num-Lock: This setting, when enabled, automatically turns on your NumLock key when the system is booted. Most systems default this to enabled.

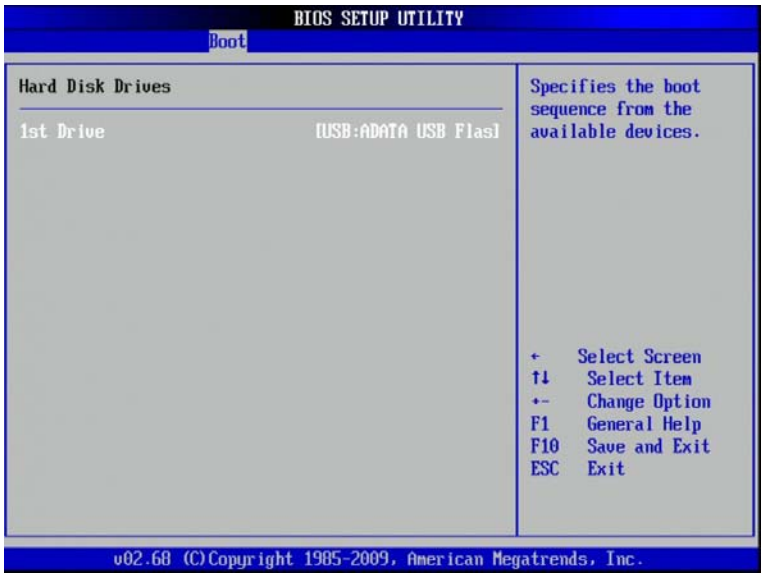
Wait For 'F1' If Error: If this option is disabled, your computer will continue to boot, even if an error is found; otherwise, you'll have to press F1 before the system will boot. Such errors include a missing keyboard, a missing video adapter, and an unexpected quantity of installed memory. The default setting is [Enabled].
Hit 'DEL' Message Display: This BIOS feature allows you to control the display of the Hit "DEL" to enter Setup message during memory initialization. When enabled, the Hit "DEL" to enter setup message will appear during memory initialization. The default setting is [Enabled].

Boot Device Priority



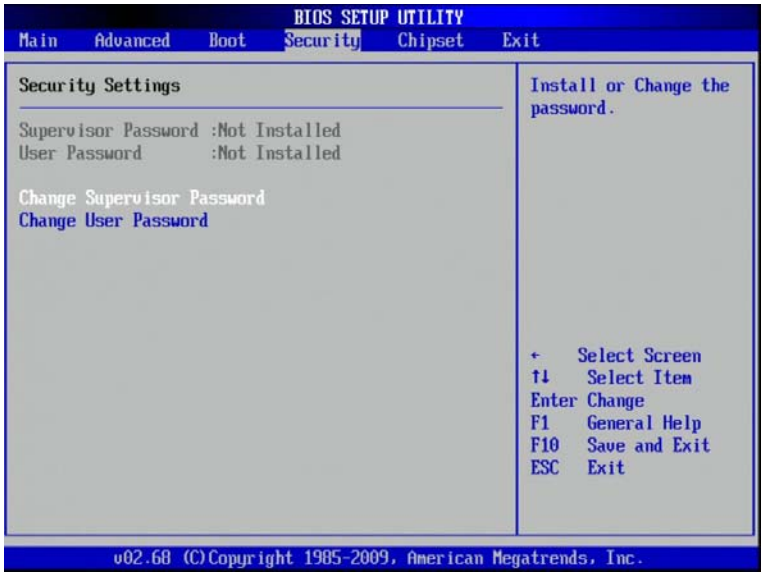
Change this boot order. Plug the flash drive in, boot the computer and enter the BIOS setup utility. Normally, this means holding down the DEL or F2 key just as the computer powers up and begins the boot process. If you read the initial startup screen on your PC carefully, it will tell you exactly what you must do to access and alter your BIOS settings. For the second variant, use the "Boot" menu to select the USB flash drive. It will show up under one of the following headings: "Hard Disk Drive", "Removable Device" or "Removable Storage Device". Next, select the USB flash drive as "1st Drive" in the first position, then hit the Esc key. That device should appear in the menu named "Boot Device Priority" which might also show up as "Boot Sequence". Inside that menu, designate the USB flash drive as the "1st Boot Device", hit the Esc key and save all changes in the "Exit" menu by selecting
"Exit and Save Changes".

Hard Disk Drives

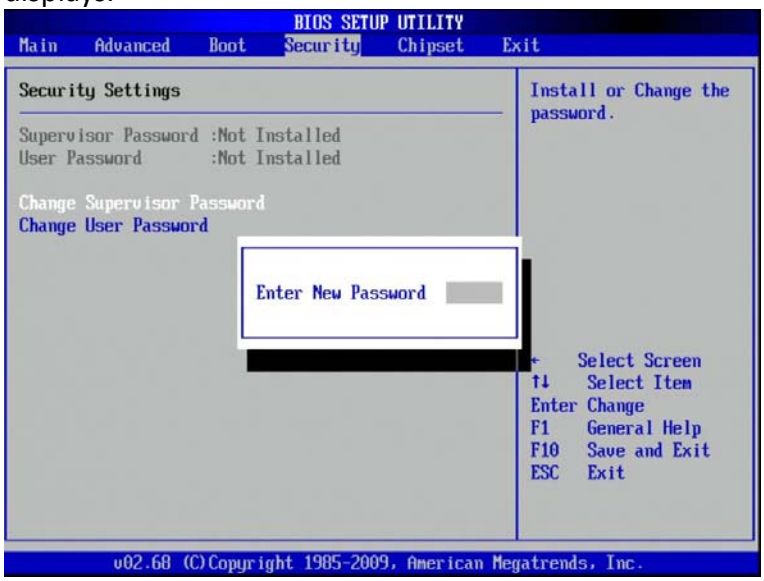


4.4 Security Menu

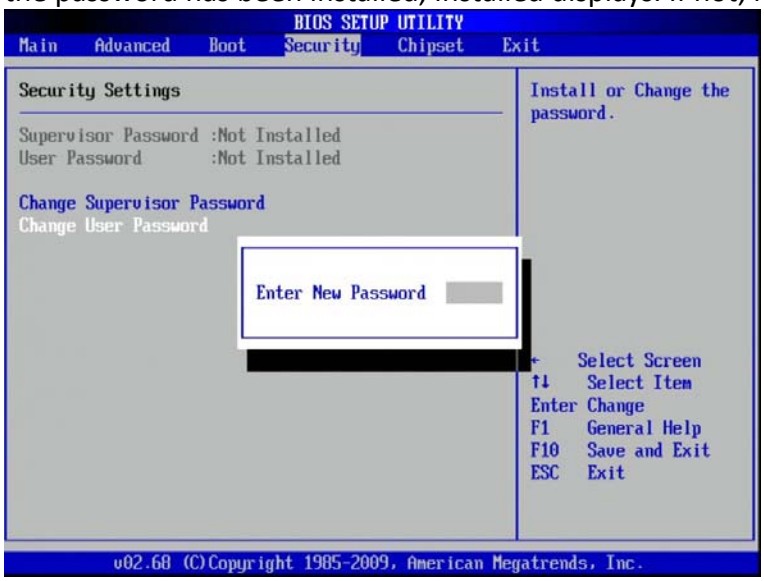
Select Security Setup from the Setup main BIOS setup menu. All Security Setup options such as password protection and virus protection are described in this section.



Change Supervisor Password: This item indicates whether a supervisor password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

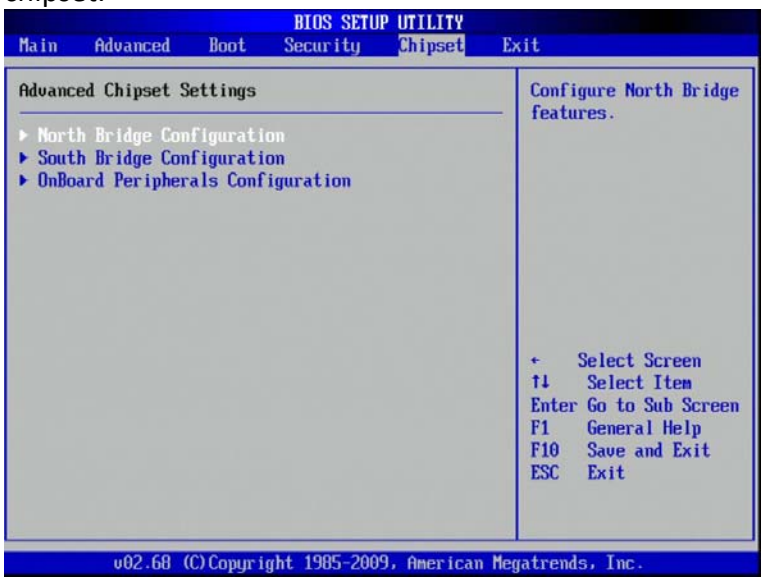


Change User Password: This item indicates whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.



4.5 Chipset Menu

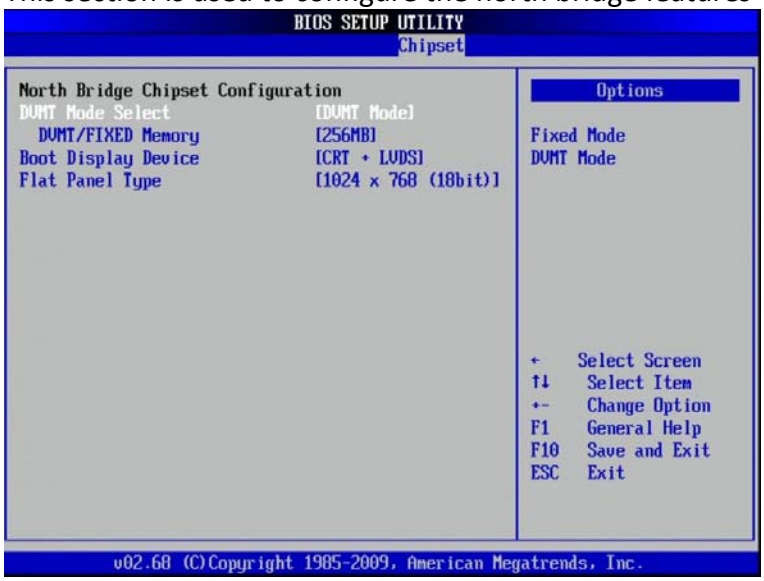
This section is used to configure the system based on the specific features of the chipset.



Note: The North Bridge Configuration setup screen varies depending on the supported North Bridge chipset.

North Bridge Chipset Configuration

This section is used to configure the north bridge features



DVMT Mode Select

It is recommended that you set this BIOS feature to DVMT Mode for maximum performance. Setting it to DVMT Mode ensures that system memory is dynamically

DVMT/Fixed Memory

This is where the DVMT/FIXED Memory BIOS feature comes in. It allows you this setting works well in systems with lots of memory (768MB or more)

Boot Display Device

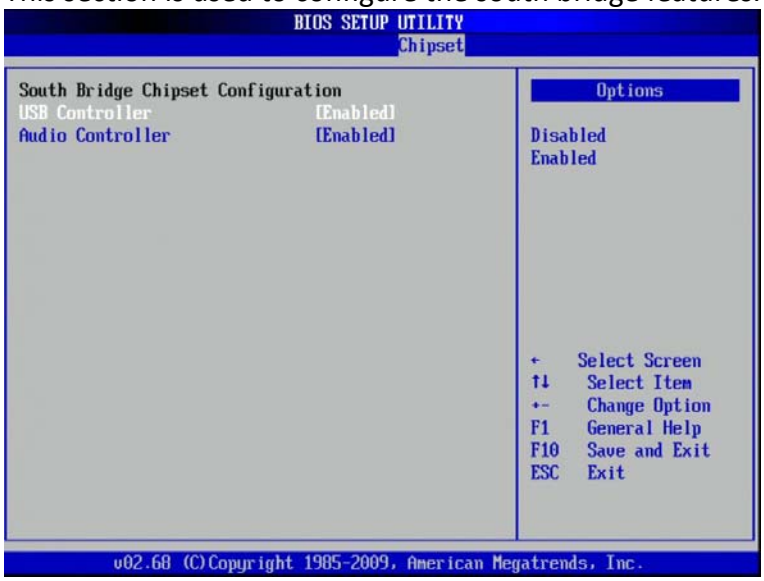
INS8313A supports VGA+LVDS

Flat Panel Type

You could setup the Flat Panel Type on this BIOS setting. This setting allows you to setup the resolution for onboard 18-bit LVDS connector

South Bridge Chipset Configuration

This section is used to configure the south bridge features.

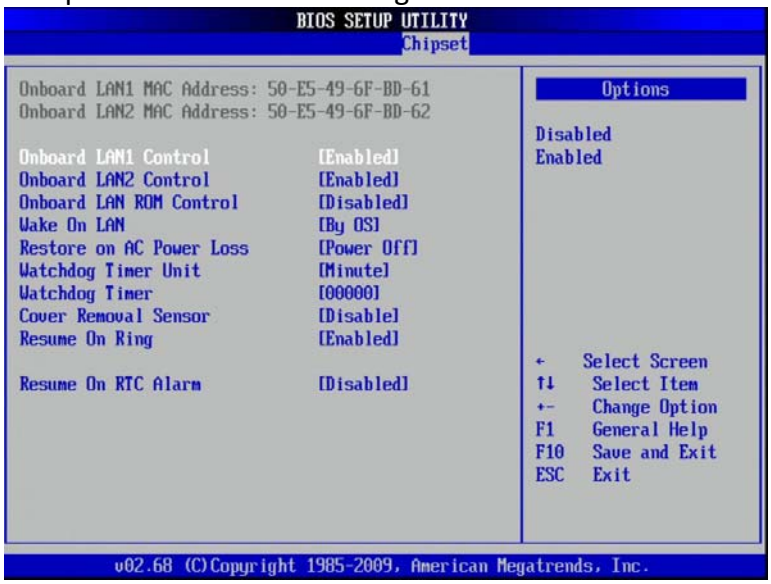


USB Controller: this field is used to enable or disable the Enhanced Host Controller Interface.

Audio Controller: Enables or disables the onboard audio

Onboard LAN1/LAN2 Control

INS8313A supports Dual LAN port onboard. You could Disabled/Enabled the onboard LAN port from this BIOS setting.

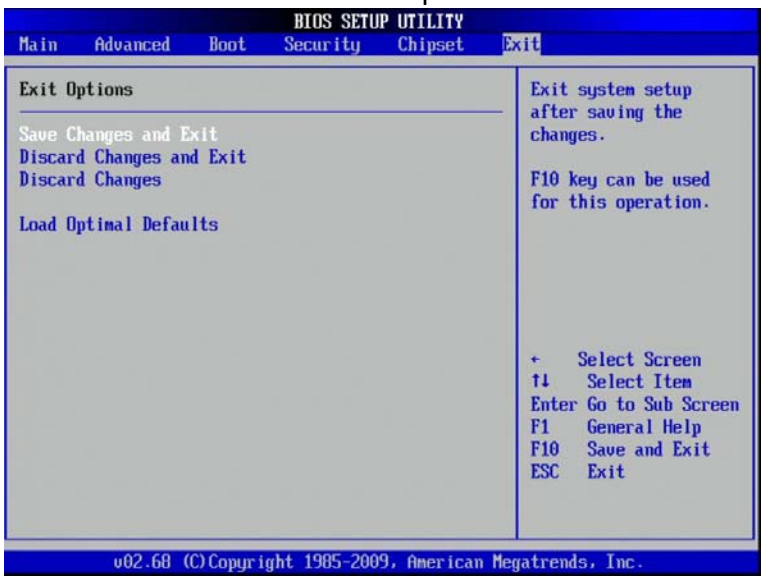


Restore on AC Power Loss

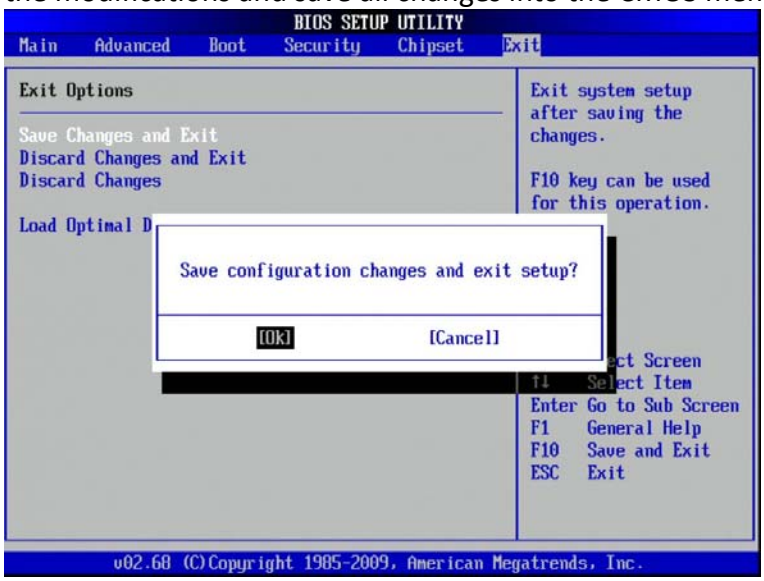
Restore the computer to power up when power is lost. You can set this by entering the computers BIOS setup and configure this setting in the Power Management Settings menu.

4.6 Exit Setting

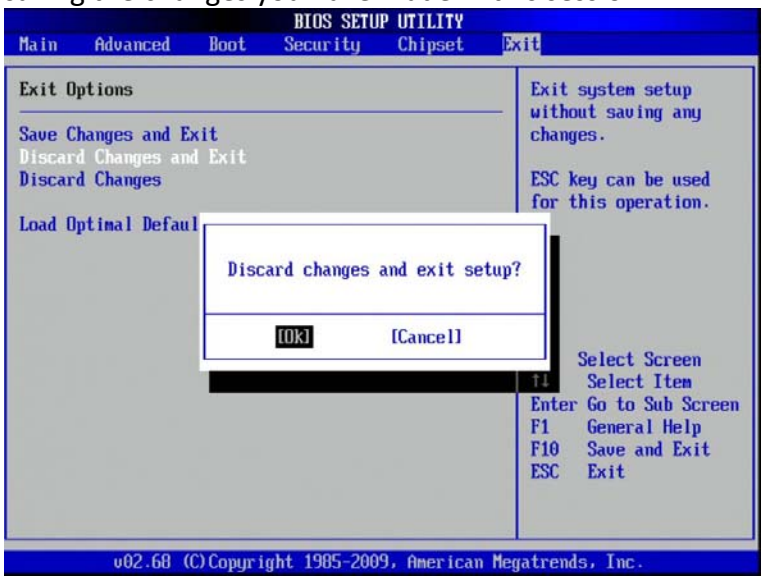
Select the Exit tab from the setup screen to enter the Exit BIOS Setup screen.



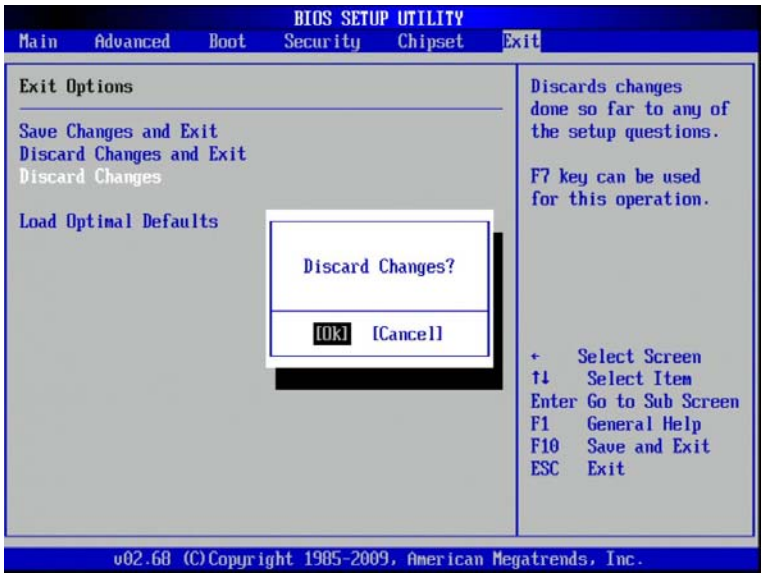
Save Changes and Exit: This option allows you to determine whether or not to accept the modifications and save all changes into the CMOS memory before exit.



Discard Changes and Exit: This option allows you to exit the Setup utility without saving the changes you have made in this session.



Discard Changes: This option allows you to discard all the changes that you have made in this session.



Load Optimal Defaults: This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.