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Version 1.0

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Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This device is in conformity with the following EC/EMC directives:

- ❑ **EN 55022** Limits and methods of mesurement of radio disturbance characteristics of information technology equipment
- ❑ **EN 61000-3-2** Disturbances in supply systems caused
- ❑ **EN 61000-3-3** Disturbances in supply systems caused by household appliances and similar electrical equipment " Voltage fluctuations"
- ❑ **EN 55024** Information technology equipment-Immunity characteristics-Limits and methods of measurement
- ❑ **EN 60950** Safety for information technology equipment including electrical business equipment
- ❑ **CE marking** CE

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

About the Manual

The manual consists of the following:

TABLE OF CONTENTS

Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the **BAT-I3** motherboard. This motherboard is a high performance, enhanced function. This motherboard has onboard Intel® Bay Trail-D J2900/J1900/J1800 (10W) SoC for high-end business or personal desktop markets.

This motherboard is based on Intel® Bay Trail-D J2900/J1900/J1800 SoC for best desktop platform solution. It supports up to 8 GB of system memory with single channel DDR3L SO-DIMM 1333 MHz. One PCI slot and one full size Mini PCI Express and one half size Mini PCI Express slots are for extending usage.

It implements an EHCI (Enhanced Host Controller Interface) compliant interface that provides five USB 2.0 ports (three USB 2.0 ports at the rear panel and one 10-pin USB 2.0 header supports two USB 2.0 ports) and one USB 3.0 port at the rear panel.

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including one PS/2 keyboard connector, one PS/2 mouse connector, two COM ports, one VGA port, one HDMI port, two RJ45 LAN connectors, three USB 2.0 ports, one USB 3.0 port and one audio jack for line-out and microphone.

In addition, this motherboard supports one SATA 3Gb/s connector for expansion.

Package Contents

Your motherboard package ships with the following items:

- ❑ BAT-I3 Motherboard
- ❑ User Manual
- ❑ DVD
- ❑ I/O Shield
- ❑ 1 SATA Cable

Accessories may vary, please refer to actual goods you purchase.

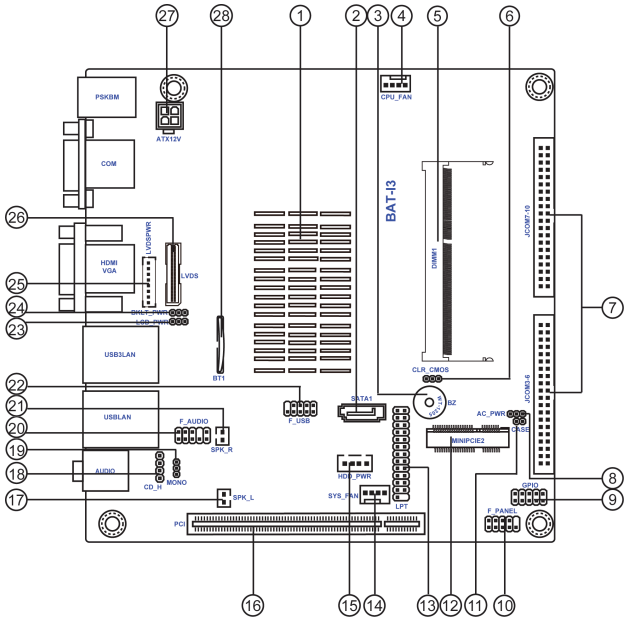
Specifications

CPU	• Onboard Intel® Bay Trail-D J2900/J1900/J1800 (10W) SoC *Note: Please go to ECS website for the latest CPU support list.*
Chipset	• Intel® Bay Trail-D J2900/J1900/J1800 SoC
Memory	• Single-channel DDR3L memory architecture • 1 x 204-pin DDR3L SO-DIMM socket supports up to 8 GB • Supports DDR3L SO-DIMM 1333 MHz *Note: Please go to ECS website for the latest Memory support list.*
Expansion Slots	• 1 x PCI slot • 1 x Full Size Mini PCIe slot (supports mSATA) • 1 x Half Size Mini PCIe slot (supports WiFi/BT)
Storage	• Supported by Intel® Bay Trail-D J2900/J1900/J1800 SoC - 1 x Serial ATA 3Gb/s devices
Audio	• Realtek ALC662-VD0-GR 48P - 2 Channel High Definition Audio Codec - Compliant with HD audio specification
LAN	• Realtek RTL8111G+Intel I211 - 10/100/1000 Fast Ethernet Controller - wake-on-LAN and remote wake-up support
Rear Panel I/O	• 1 x PS/2 Keyboard connector and PS/2 Mouse connector • 2 x COM ports • 1 x VGA port • 1 x HDMI port • 2 x RJ45 LAN connectors • 3 x USB 2.0 ports • 1 x USB 3.0 port • 1 x Audio jack for line-out and microphone
Internal I/O Connectors & Headers	• 1 x 4-pin 12V Power connector • 1 x 4-pin CPU_FAN connector • 1 x 4-pin SYS_FAN connector • 1 x 10-pin USB 2.0 header supports two USB 2.0 ports • 1 x Serial SATA 3Gb/s connector • 1 x Front Panel switch/LED header • 1 x Front Panel audio header • 1 x Clear CMOS jumper • 1 x Buzzer • 2 x JCOM connectors (supports additional eight COM ports) • 1 x LPT header • 1 x General Purpose Input/Output header • 1 x Analog audio input connector (CD_H) • 1 x HDD Power connector • 1 x SPK_L header • 1 x SPK_R header • 1 x LVDS connector (For All-In-One Specification) • 1 x LVDS Power connector (For All-In-One Specification) • 1 x LCD power jumper(For All-In-One Specification)

	•	1 x Backlight power jumper(For All-In-One Specification) • 1 x AC power jumper • 1 x MONO jumper • 1 x Case open header
System BIOS	•	AMI BIOS with 64Mb SPI Flash ROM - Supports Plug and Play - Supports ACPI & DMI - Supports STR (S3) /STD (S4) - Supports Hardware monitor - Audio, LAN, can be disabled in BIOS - F7 hot key for boot up devices option - Supports PgUp clear CMOS Hotkey (Has PS2 KB Model only)
Bundled Software Support	•	Supports Norton Anti Virus/Cyberlink Media Suite/Muzee
Form Factor	•	Mini ITX Size, 170mm x 170mm

Motherboard Components

Top View



Bottom View

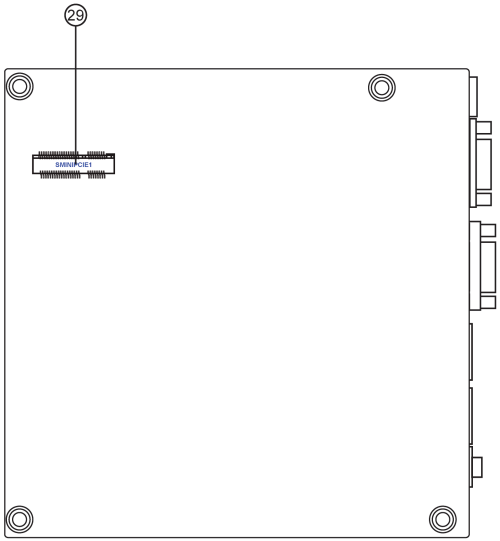
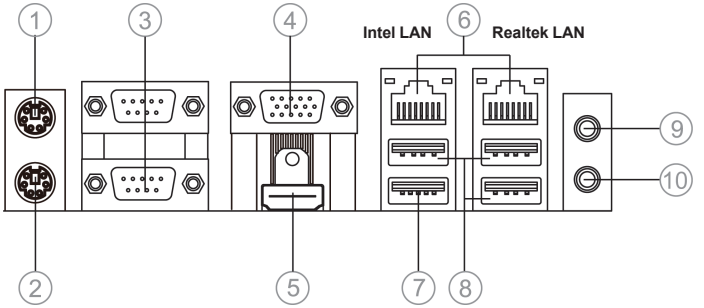


Table of Motherboard Components

LABEL	COMPONENTS
1. CPU	Onboard Intel® Bay Trail-D J2900/J1900/J1800 (10W) SoC
2. SATA1	Serial ATA 3Gb/s connector
3. BZ	Buzzer
4. CPU_FAN	4-pin CPU cooling fan connector
5. DIMM1	204-pin DDR3L SDRAM SO-DIMM
6. CLR_CMOS	Clear CMOS jumper
7. JCOM3-6 & JCOM7-10	JCOM connectors (support additional eight COM ports)
8. AC_PWR	AC power jumper
9. GPIO	General purpose Input/Output header
10. F_PANEL	Front panel switch/LED header
11. CASE	Case open header
12. MINIPCIE2	Half Size Mini PCI Express slot (supports WiFi/BT)
13. LPT	Printer header
14. SYS_FAN	4-pin system cooling fan connector
15. HDD PWR	HDD power connector
16. PCI	32-bit add-on card slot
17. SPK_L	Speaker Left header
18. CD_H	Analog audio input connector
19. MONO	MONO jumper
20. F_AUDIO	Front panel audio header
21. SPK_R	Speaker Right header
22. F_USB	10-pin USB 2.0 header supports two USB 2.0 ports
23. LCD_PWR	LCD power jumper (For All-In-One Specification)
24. BKLT_PWR	Backlight power jumper (For All-In-One Specification)
25. LVDSPWR	LVDS power connector(For All-In-One Specification)
26. LVDS	LVDS connector (For All-In-One Specification)
27. ATX12V	4-pin +12V power connector
28. BT1	Battery
29. SMINIPCIE1	Full Size Mini PCI Express slot (supports mSATA)

I/O Ports



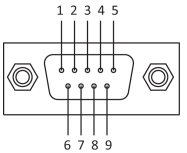
1. PS/2 Mouse (green)
Use the upper PS/2 port to connect a PS/2 mouse.

2. PS/2 Keyboard (purple)
Use the lower PS/2 port to connect a PS/2 keyboard.

3. COM Ports (blue)
Use the COM ports to connect the serial devices such as mice or fax/modems.

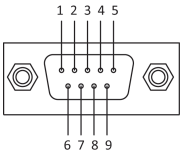
COM RS232 Pin Define

Pin	Define	Pin	Define
1	DCDN	6	DSRN
2	SINN	7	RTSN
3	SOUTN	8	CTSN
4	DTRN	9	RIN
5	GND		



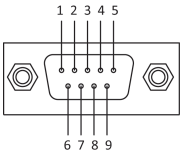
COM RS422 Pin Define

Pin	Define	Pin	Define
1	RS422 TX(B)	6	N/A
2	RS422 TX(A)	7	N/A
3	RS422 RX(A)	8	N/A
4	RS422 RX(B)	9	N/A
5	N/A		



COM RS485 Pin Define

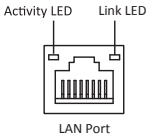
Pin	Define	Pin	Define
1	RS485 D-(B)	6	N/A
2	RS485 D+(A)	7	N/A
3	N/A	8	N/A
4	N/A	9	N/A
5	N/A		



4. VGA Port
Connect your monitor to the VGA port.

5. HDMI Port
Connect display device to the HDMI port.

6. LAN Ports
Connect an RJ-45 jack to the LAN port to connect your computer to the Network.



Intel LAN

Transmission Speed	LAN LED	Status	Description
100M	Activity LED	OFF	No data
		Green blinking	Active
	Link LED	OFF	No link
		Green	Link
Giga	Activity LED	OFF	No data
		Green blinking	Active
	Link LED	OFF	No link
		Green	Link

Realtek LAN

Transmission Speed	LAN LED	Status	Description
100M	Activity LED	OFF	No data
		Orange blinking	Active
	Link LED	OFF	No link
		Green	Link
Giga	Activity LED	OFF	No data
		Orange blinking	Active
	Link LED	OFF	No link
		Green	Link

7. USB 3.0 Ports
Use the USB 3.0 ports to connect USB 3.0 devices.

8. USB 2.0 Ports
Use the USB 2.0 ports to connect USB 2.0 devices.

9. Line-out (lime)
It is used to connect to speakers or headphones.

10. Microphone (pink)
It is used to connect to a microphone.

Memo

Chapter 2
Installing the Motherboard

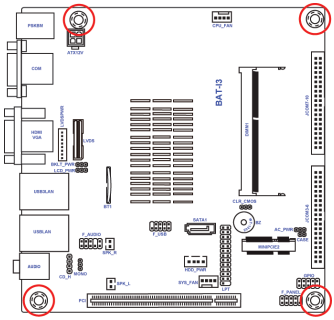
2-1. Safety Precautions

Follow these safety precautions when installing the motherboard:

- Wear a grounding strap attached to a grounded device to avoid damage from static electricity.
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard.
- Leave components in the static-proof bags.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

2-2. Installing the motherboard in a Chassis

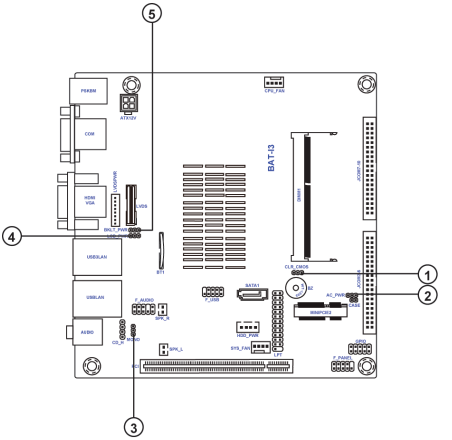
This motherboard carries a Mini ITX form factor of 170 x 170 mm. Choose a chassis that accommodates this from factor. Make sure that the I/O template in the chassis matches the I/O ports installed on the rear edge of the motherboard. Most system chassis have mounting brackets installed in the chassis, which corresponds to the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.



Do not over-tighten the screws as this can stress the motherboard.

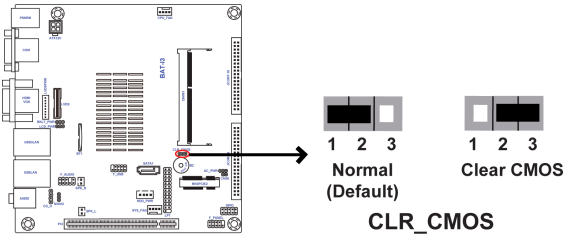
2-3. Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.



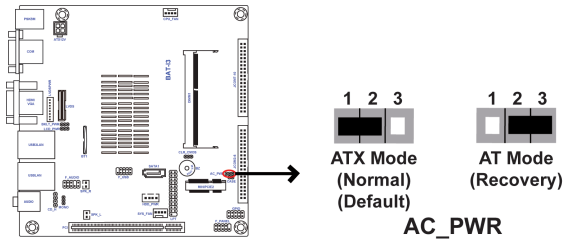
No.	Components	No.	Components
1	CLR_CMOS	4	LCD_PWR
2	AC_PWR	5	BKLT_PWR
3	MONO	~~	~~

1. CLR_CMOS: Clear CMOS jumper

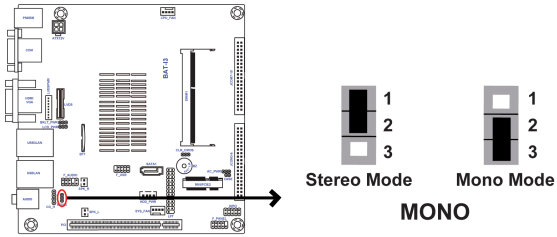


To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save and Exit Setup".

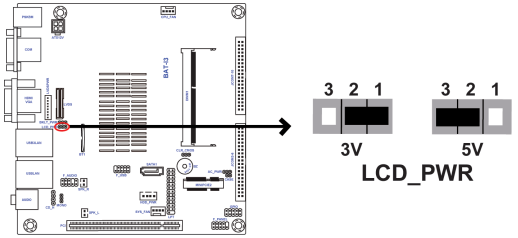
2. AC_PWR: AC power jumper



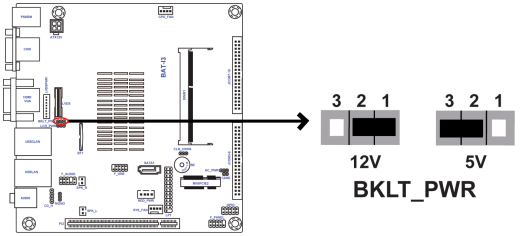
3. MONO: MONO jumper



4. LCD_PWR: LCD power jumper (For All-In-One Specification)



5. BKLT_PWR : Backlight power jumper (For All-In-One Specification)

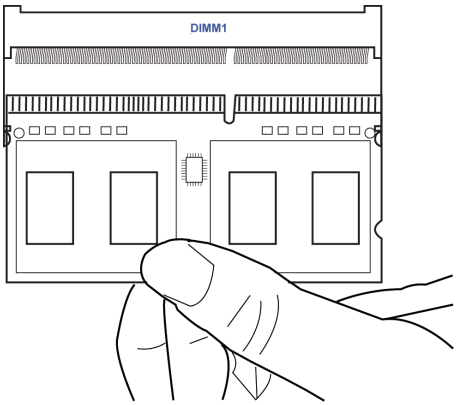


2-4. Installing Hardware

2-4-1. Installing Memory Modules

- This motherboard accommodates one memory module. It can support one 204-pin DDR3L 1333 MHz.
- Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.
- You must install one module in the slot. Total memory capacity is 8 GB.

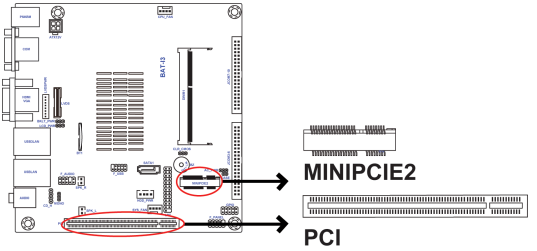
Install the DIMM module into the slot and press it firmly down until it seats correctly. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.



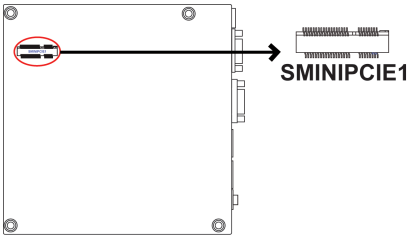
2-4-2. Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.

Top View



Bottom View



PCI Slot This motherboard is equipped with one standard PCI slot. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI V3.0.

SMINIPCIE1 Slot The mini PCIE (full-card) supports SATA signal for extending usage of mSATA card.

MINIPCIE2 Slot The mini PCIE (half-card) supports USB signal and PCIe signal for extending usage of BT and Wifi.

Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

1 Remove a blanking plate from the system case corresponding to the slot you are going to use.

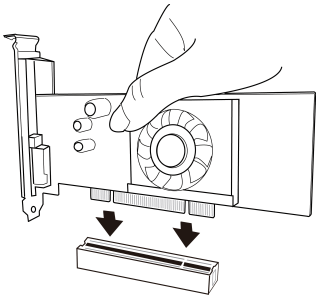
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.

3 Secure the metal bracket of the card to the system case with a screw.

1. For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

2. The onboard PCI interface does not support 64-bit SCSI cards.

Please refer the following illustrations to install the add-on card:

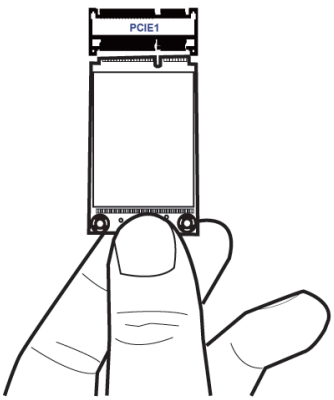


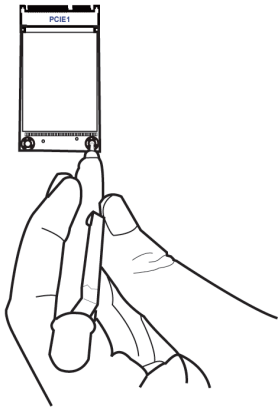
Install the VGA Card in the PCI slot

Follow these instructions to install a mSATA card :

1 Insert a Mini SATA (mSATA) card into the PCIE1 Slot.

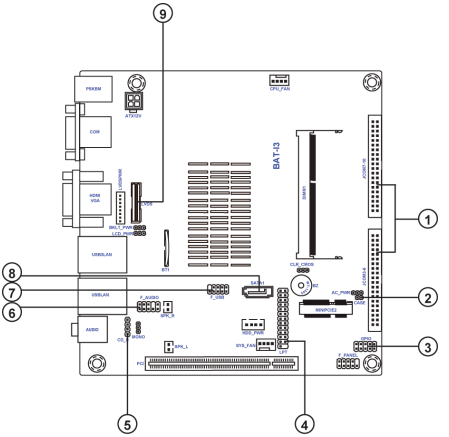
2 Lower the handle and tighten the screws.





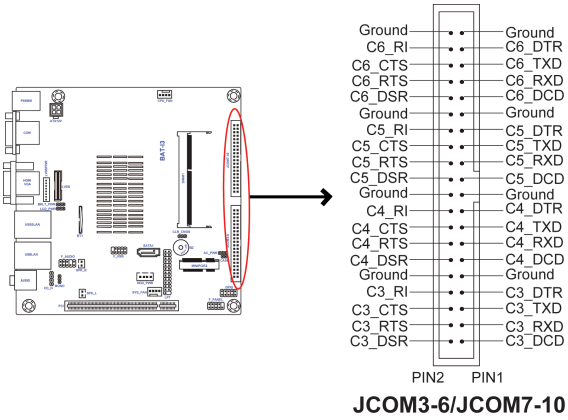
2-4-3. Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



No.	Components	No.	Components
1	JCOM3-6 & JCOM7-10	6	F_AUDIO
2	CASE	7	F_USB
3	GPIO	8	SATA1
4	LPT	9	LVDS
5	CD_H	~~	~~

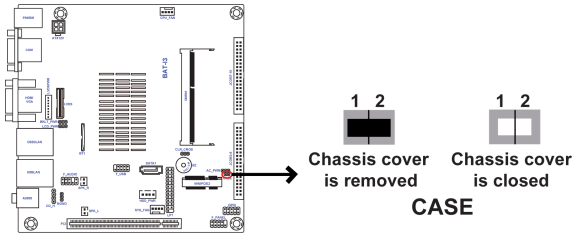
1. JCOM3-6/JCOM7-10: JCOM connectors (support additional eight COM ports)



JCOM3-6/JCOM7-10

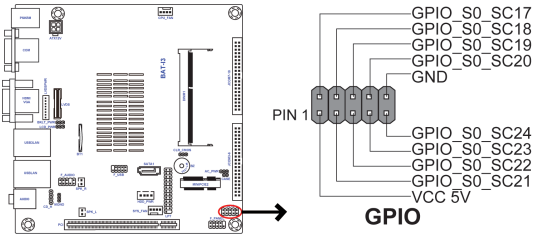
2. CASE: Case open header

This detects if the chassis cover has been removed. This function needs a chassis equipped with instrusion detection switch and needs to be enabled in BIOS.



CASE

3. GPIO: General purpose Input/Output header

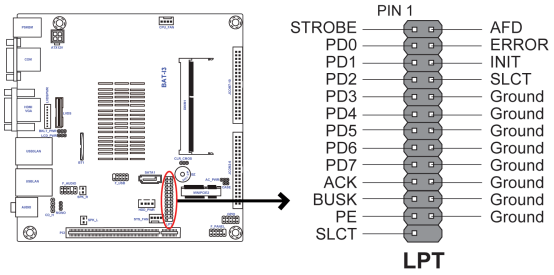


Pin	Define	Address/Bit	Pin	Define	Address/Bit
1	VCC 5V	N/A	2	GPIO_S0_SC17	GPIOBASE + 08h, Bit 17
3	GPIO_S0_SC21	GPIOBASE + 08h, Bit 21	4	GPIO_S0_SC18	GPIOBASE + 08h, Bit 18
5	GPIO_S0_SC22	GPIOBASE + 08h, Bit 22	6	GPIO_S0_SC19	GPIOBASE + 08h, Bit 19
7	GPIO_S0_SC23	GPIOBASE + 08h, Bit 23	8	GPIO_S0_SC20	GPIOBASE + 08h, Bit 20
9	GPIO_S0_SC24	GPIOBASE + 08h, Bit 24	10	GND	N/A

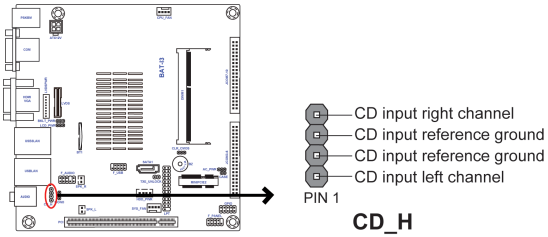
GPIOBASE: 0x500

4. LPT: Onboard parallel port header

This is a header that can be used to connect to the printer, scanner or other devices.

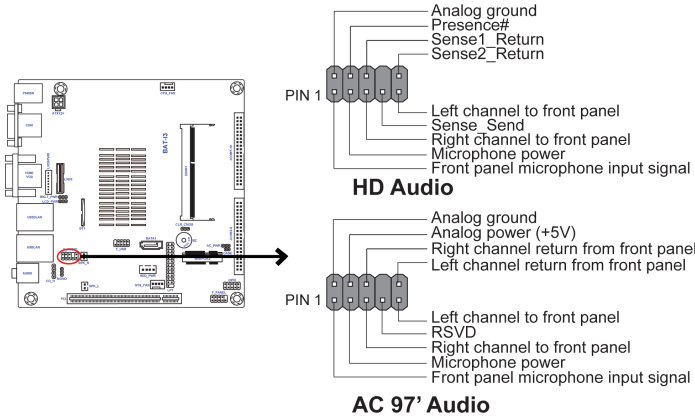


5. CD_H: Analog audio input connector



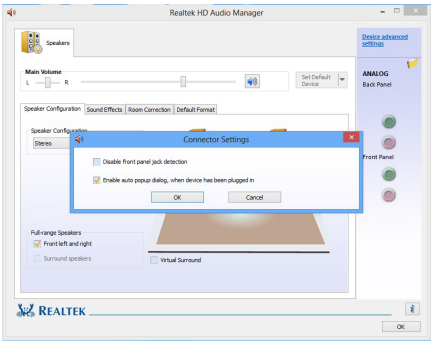
6. F_AUDIO: Front Panel Audio Header

The front panel audio header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access. This header supports HD audio by default. If you want connect an AC' 97 front panel audio to HD onboard headers, please set as below picture.



AC' 97 Audio Configuration: To enable the front panel audio connector to support AC97 Audio mode.

If you use AC' 97 Front Panel, please tick off the option of "Disabled Front Panel Detect ". If you use HD Audio Front Panel, please don' t tick off "Disabled Front Panel Detect ".



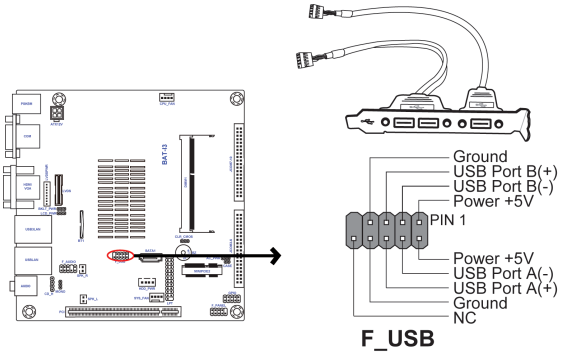
** For reference only*

If you use AC' 97 Front Panel, please don' t tick off "Using Front Jack Detect ". If you use HD Audio Front Panel, please tick off the option of "Using Front Jack Detect ".

** For reference only*

7. F_USB: Front Panel USB 2.0 header

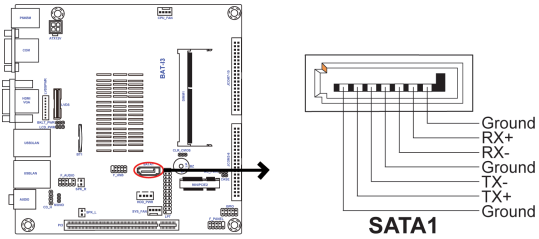
The motherboard has one USB 2.0 header supporting two USB 2.0 ports. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.



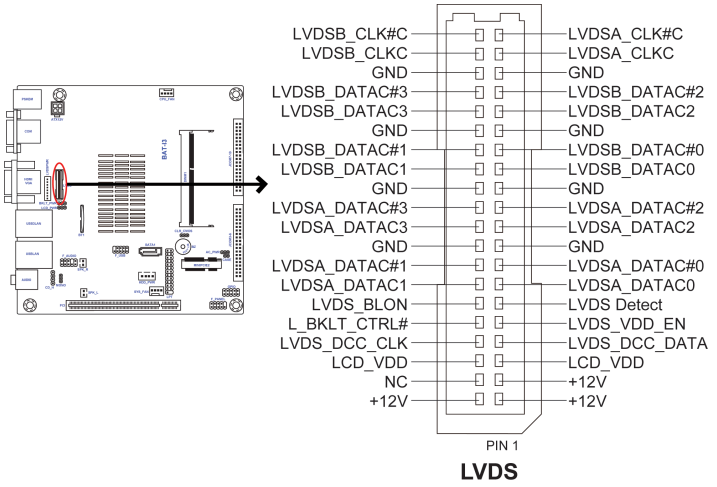
Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

8. SATA1: Serial ATA 3Gb/s connector

SATA1 connector is used to support the Serial ATA 3Gb/s device, simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.



9. LVDS: LVDS connector (For All-In-One Specification)



LVDS

2-4-4. Installing a Hard Disk Drive/SATA Hard Drive

This section describes how to install a Hard Disk Drive/SATA Hard Drive.

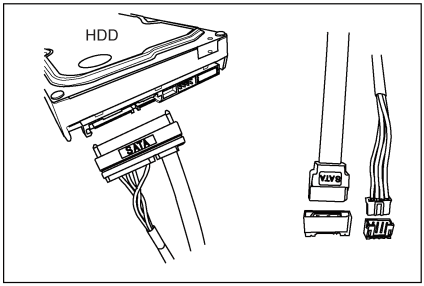
About SATA Connectors

Your motherboard features one SATA connector supporting one drive. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

To install the Hard Disk Drive (HDD)/Serial ATA (SATA) hard drives, use the HDD/SATA cable that supports the Hard Disk Drive/Serial ATA protocol. This HDD/SATA cable comes with a HDD/SATA power cable. You can connect the comb end of the HDD/SSATA cable to the Hard Disk Drive and connect the other end to the connectors on the motherboard.

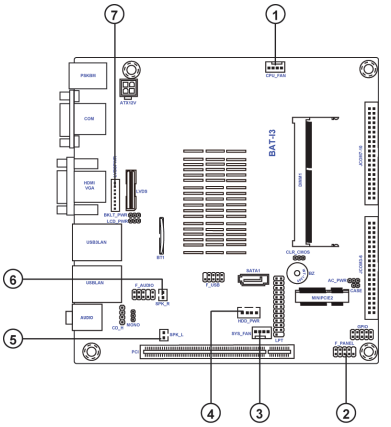
Refer to the illustration below for proper installation:

1 Attach the comb end of the HDD/SATA cable to the Hard Disk Drive.
2 Attach the other ends to the connectors on the motherboard.



2-4-5. Connecting Case Components

After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

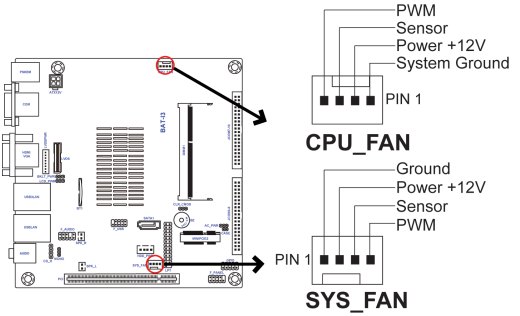


No.	Components	No.	Components
1	CPU_FAN	5	SPK_L
2	F_PANEL	6	SPK_R
3	SYS_FAN	7	LVDSPWR
4	HDD_PWR	~	~

1 & 3. CPU_FAN (CPU cooling FAN connector) & SYS_FAN (System cooling FAN connector)

Connect the CPU cooling fan cable to **CPU_FAN**.

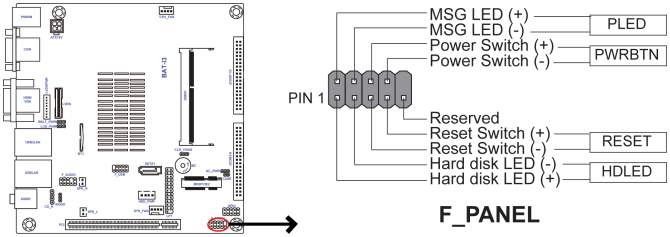
Connect the system cooling fan cable to **SYS_FAN**.



Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.

2. F_PANEL: Front Panel switch/LED header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:



Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

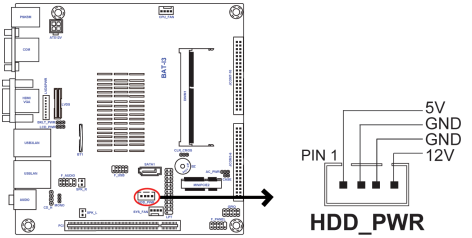
Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

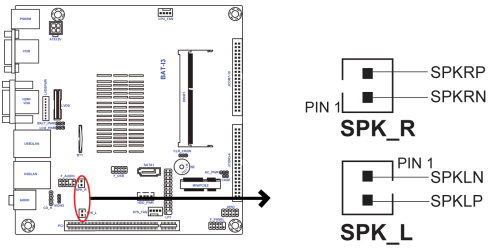
Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

4. HDD_PWR: HDD power connector

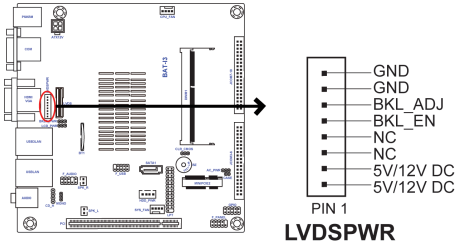


5 & 6. SPK_L & SPK_R: Speaker Left header & Speaker Right header

Connect the case speaker cable to **SPK_L & SPK_R**.



7. LVDSPWR: LVDS power (For-All-In-One Specification)



This concludes Chapter 2. The next chapter covers the BIOS.

Memo

Chapter 3
Using BIOS

About the Setup Utility

The computer uses the latest "American Megatrends Inc. " BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- 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 Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

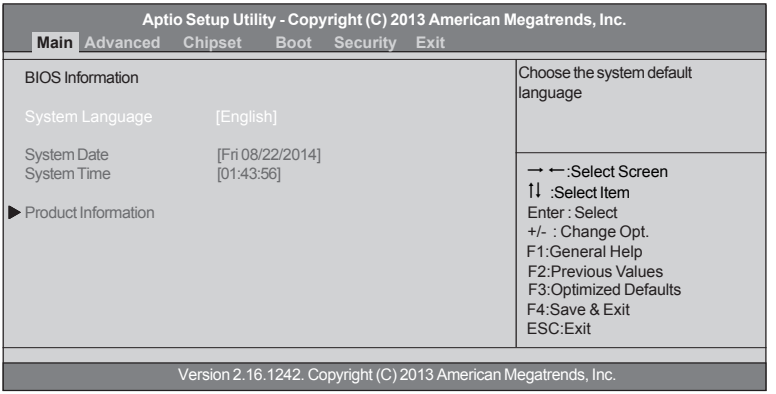
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

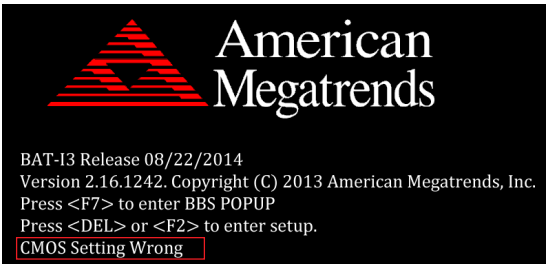
Press the delete key to access BIOS Setup Utility.



Resetting the Default CMOS Values

When powering on for the first time, the POST screen may show a "CMOS Settings Wrong" message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings and Save it to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.



Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

The default BIOS setting for this motherboard apply for most conditions with optimum performance. We do not suggest users change the default values in the BIOS setup and take no responsibility to any damage caused by changing the BIOS settings.

BIOS Navigation Keys

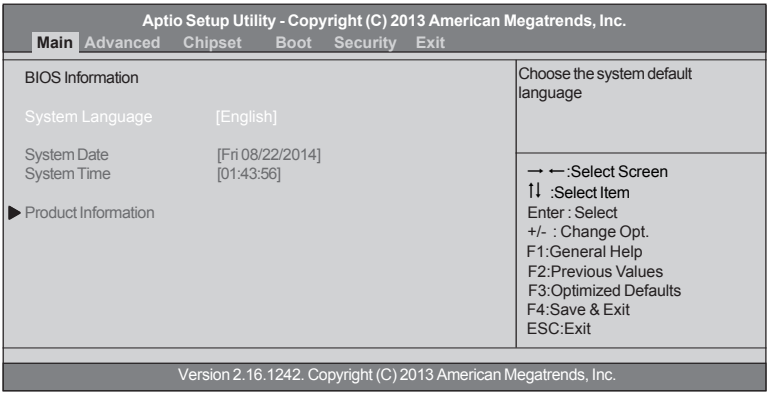
The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
↑↓→←	Scrolls through the items on a menu
+/-	Change Opt.
Enter	Select
F1	General Help
F2	Previous Value
F3	Optimized Defaults
F4	Save & Exit

For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.

Main Menu

When you enter the BIOS Setup program, the main menu appears, giving you an overview of the basic system information. Select an item and press <Enter> to display the submenu.



System Language (English)

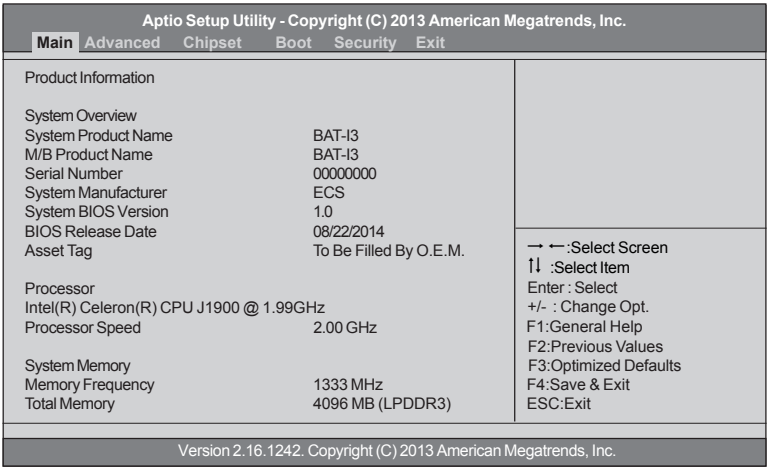
This item is used to set system language.

System Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

▶ Product Information

Scroll to this item and press <Enter> to view the following screen:



System Product Name (BAT-I3)

This item shows the information of the system product name.

M/B Product Name (BAT-I3)

This item shows the information of the system product name.

Serial Number (00000000)

This item shows the information of the serial number.

System Manufacturer (ECS)

This item shows the information of the system system manufacturer.

System BIOS Version (1.0)

This item shows the information of the system BIOS version.

BIOS Release Date (08/22/2014)

This item shows the information of the BIOS release date.

Asset Tag (To Be Filled By O.E.M.)

This item shows the information of the serial tag.

Intel(R) Celeron(R) CPU J1900 @ 1.99GHz

This is display-only field and diaplays the information of the CPU installed in your computer.

Processor Speed (2.00 GHz)

This item shows the information of the processor speed.

Memory Frequency (1333 MHz)

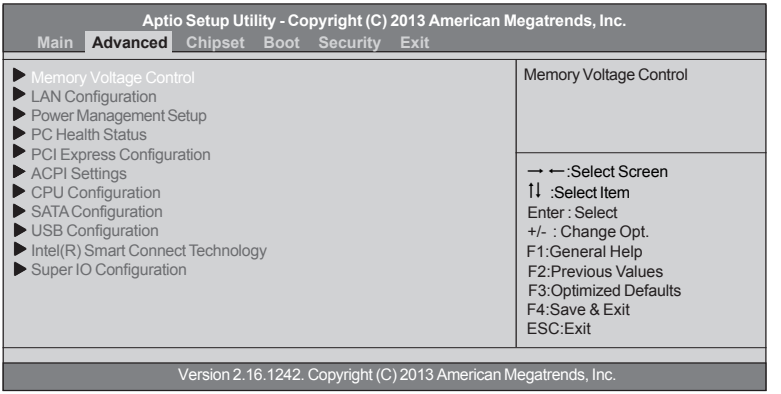
This item shows the information of the memory frequency.

Total Memory (4096 MB (LPDDR3))

This item shows the information of the total memory.

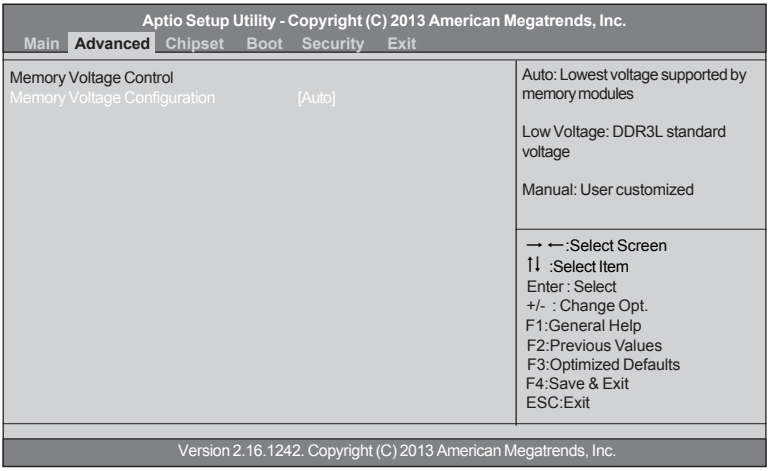
Advanced Menu

The Advanced menu items allow you to change the settings for the CPU and other system.



▶ Memory Voltage Control

Scroll to this item and press <Enter> to view the following screen:



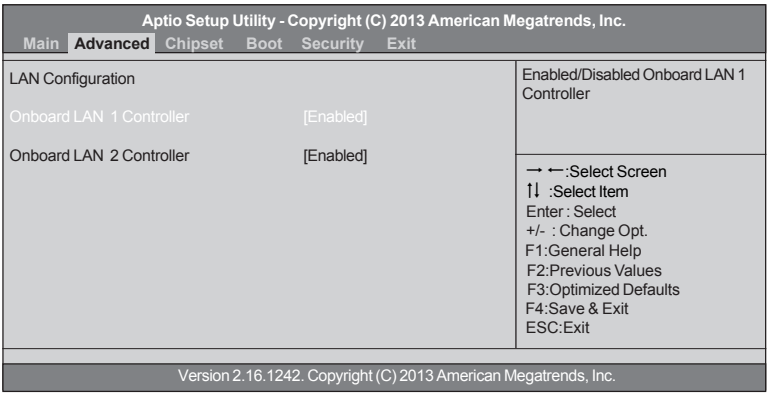
Memory Voltage Configuration (Auto)

This item provides 3 configuration modes for the voltage of memory modules. Auto:Always provide DDR3L standard voltage (1.35V). Low Voltage: Provide the lowestvoltage memory module supported. Manual: User customized (provide 1.35V or1.50V).

Press <Esc> to return to the Advanced Menu page.

▶ LAN Configuration

The item in the menu shows the LAN-related information that the BIOS automatically detects.



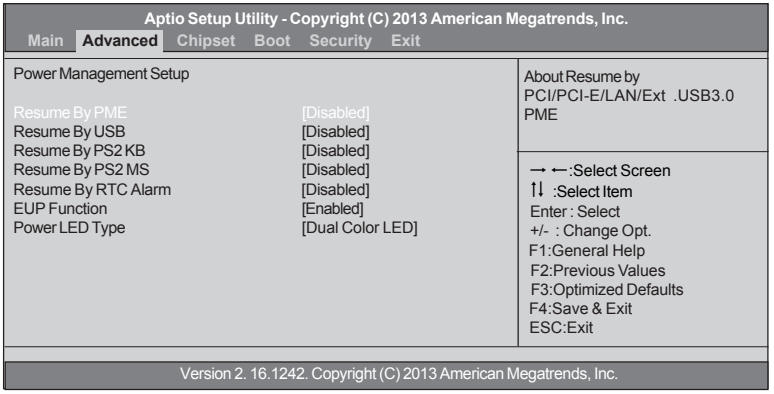
Onboard LAN 1/2 Controller (Enabled)

Use these items to enable or disable Onboard LAN 1/2 controller.

Press <Esc> to return to the Advanced Menu page.

▶Power Management Setup

This page sets up some parameters for system power management operation.



Resume By PME (Disabled)

This item specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or components is detected.

Resume By USB (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

Resume By PS2 KB (Disabled)

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

Resume By PS2 MS (Disabled)

This item enables or disables you to allow mouse activity to awaken the system from power saving mode.

Resume By RTC Alarm (Disabled)

This item can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

EUP Function (Enabled)

This item allows user to enable or disable EUP support.

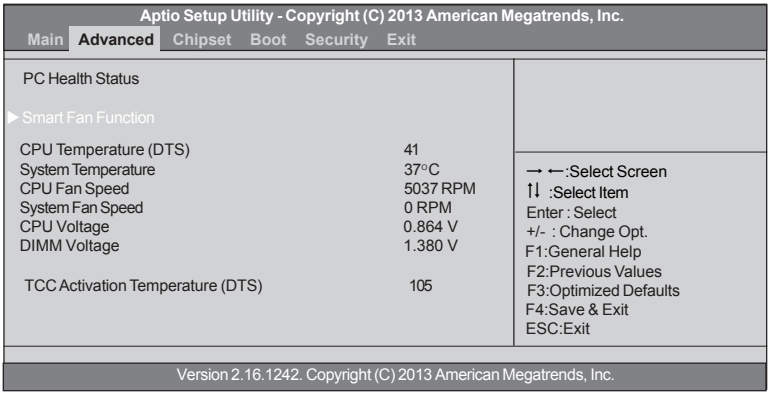
Power LED Type (Dual Color LED)

This item shows the type of the power LED.

Press <Esc> to return to the Advanced Menu page.

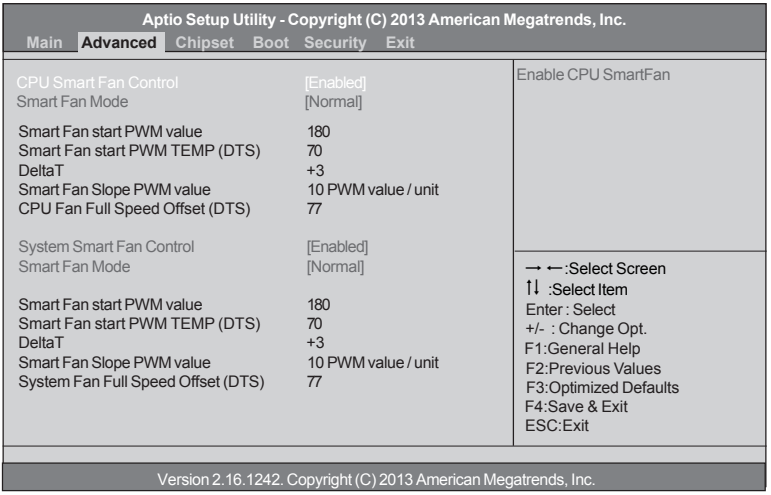
▶ PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



▶Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:



CPU/System Smart Fan Control (Enabled)

This item allows you to enable or disable the control of the CPU fan speed by changing the fan voltage.

Smart Fan Mode (Normal)

This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quiet mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.

SMART Fan start PWM value (180)

This item is used to set the start PWM value of the smart fan.

SMART Fan start TEMP (DTS) (70)

This item is used to set the start temperature of the smart fan.

DeltaT (+3)

This item specifies the range that controls CPU temperature and keeps it from going so high or so low when smart fan works.

Smart Fan Slope PWM value (10 PWM value / unite)

This item is used to set the Slope Select PWM of the smart fan.

CPU/System Fan Full Speed Offset (DTS) (77)

This item is used to set the CPU/System fan full speed offset value.

Press <Esc> to return to the PC Health Status page.

System Component Characteristics

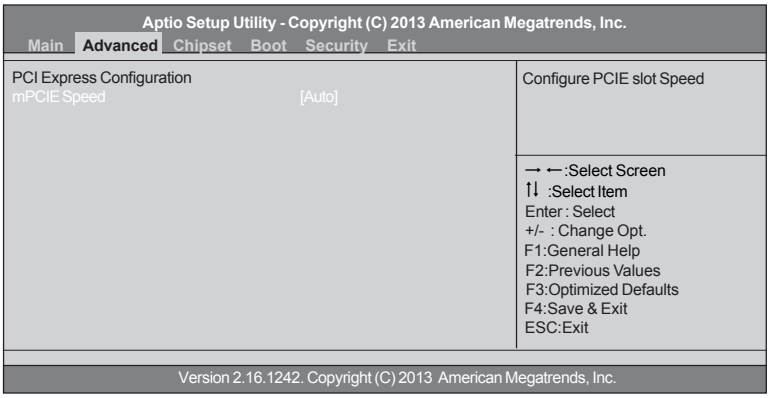
These items display the monitoring of the overall inboard hardware health events, such as System temperature, CPU & DIMM voltage, CPU & System fan speed... etc.

- CPU Temperature (DTS)
- System Temperature
- CPU Fan Speed
- System Fan Speed
- CPU Voltage
- DIMM Voltage

Press <Esc> to return to the Advanced Menu page.

▶PCI Express Configuration

The item in the menu shows the information of PCI Express Configuration.



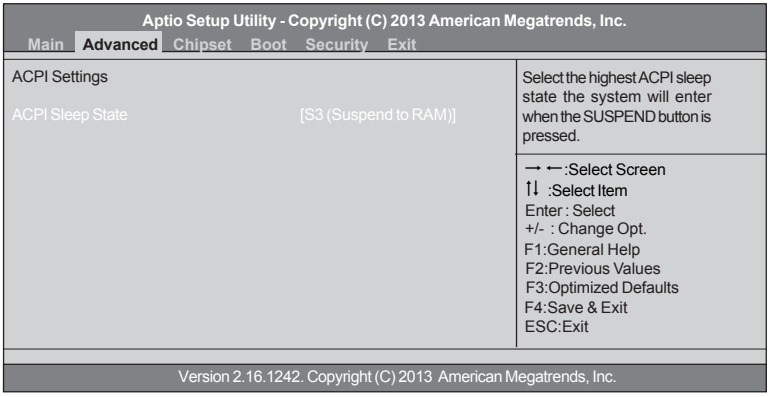
mPCIE Speed (Auto)

This item allows user to configure the mPCIE speed.

Press <Esc> to return to the Advanced Menu page.

▶ACPI Settings

The item in the menu shows the highest ACPI sleep state when the system enters suspend.



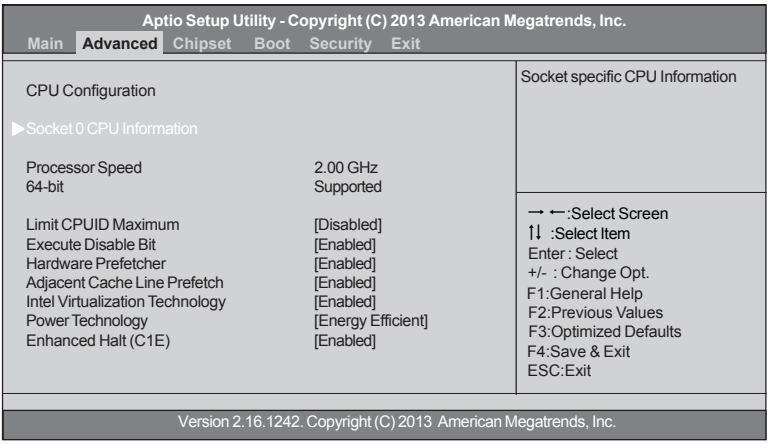
ACPI Sleep State [S3(Suspend to RAM)]

This item allows user to enter the ACPI S3 (Suspend to RAM) Sleep State (default).

Press <Esc> to return to the Advanced Menu page.

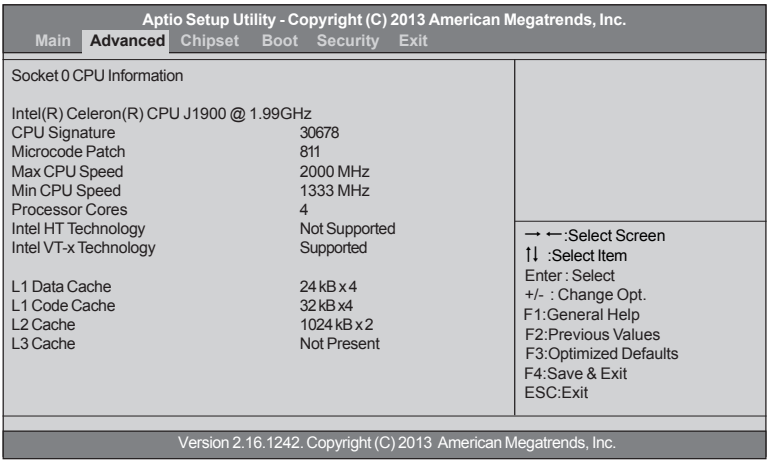
▶CPU Configuration

The item in the menu shows the CPU Configuration.



▶Socket 0 CPU Information

Scroll to this item and press <Enter> to view the following screen:



Intel(R) Celeron(R) CPU J1900 @ 1.99GHz

This is display-only field and diaplays the information of the CPU installed in your computer.

CPU Signature (30678)

This item shows the information of the CPU signature.

Microcode Patch (811)

This item shows the version of Microcode patch.

Max CPU Speed (2000 MHz)

This item shows the max speed of the CPU.

Min CPU Speed (1333 MHz)

This item shows the min speed of the CPU.

Processor Cores (4)

This item shows the number of cores of the processor.

Intel HT Technology (Not Supported)

This item shows the supports Intel HT technology or not.

Intel VT-x Technology (Supported)

This item shows the supports Intel VT-x technology or not.

L1 Data Cache (24 kB x 4)

This item shows the size of CPU L1 Data Cache memory.

L1 Code Cache (32 kB x 4)

This item shows the size of CPU L1 Code Cache memory.

L2/L3 Cache (1024 kB x 2/Not Present)

These items show the size of CPU L2/L3 Cache memory.

Press <Esc> to return to the CPU Configuration page.

Processor Speed (2.00 GHz)

This item shows the current processor speed.

64-bit (Supported)

This item shows the computer supports EMT64.

Limit CPUID Maximum (Disabled)

Use this item to enable or disable the maximum CPUID value limit, you can enable this item to prevent the system from “rebooting” when trying to install Windows NT 4.0.

Excute Disable Bit (Enabled)

This item allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation. Replacing older computers with Execute Disable Bit enabled systems can halt worm attacks, reducing the need for virus related repair.

Hardware Prefetcher (Enabled)

If you enable this item, the processor fetches data and instructions from the memoryinto the cache that are likely to be required in the near future. This reduces thelatency associated with memory reads.

Adjacent Cache Line Prefetch (Enabled)

If you enable this item, the processor fetches the currently requested cache line, aswell as the subsequent cache line. This reduces the cache latency by making thenext cache line immediately avaiable if the processor requires it as well.

Intel Virtualization Technology (Enabled)

When disabled, a VMM cannot utilize the additional hardware capabilities provided by Vandor Pool Technology.

Power Technology (Energy Efficient)

This item enables or disables the power management features.

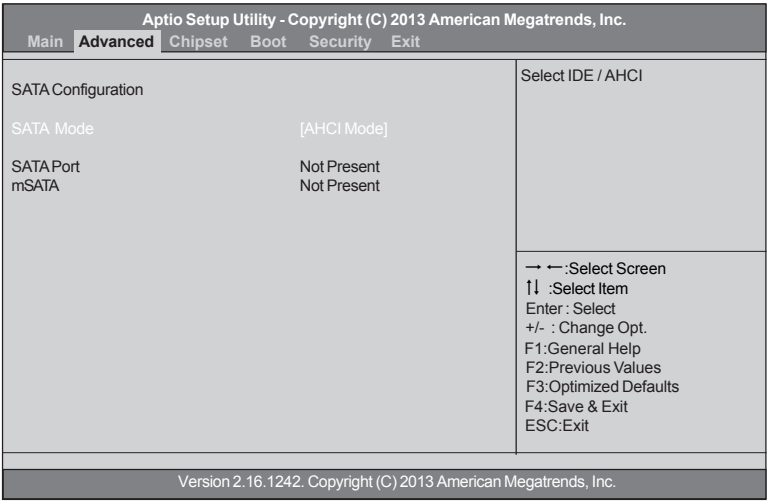
Enhanced Halt (CIE) (Enabled)

Use this item to enable the CPU energy-saving function when the system is notrunning.

Press <Esc> to return to the Advanced Menu page.

▶SATA Configuration

Use this item to show the mode of serial SATA configuration options.



SATA Mode (AHCI Mode)

Use this item to select SATA mode.

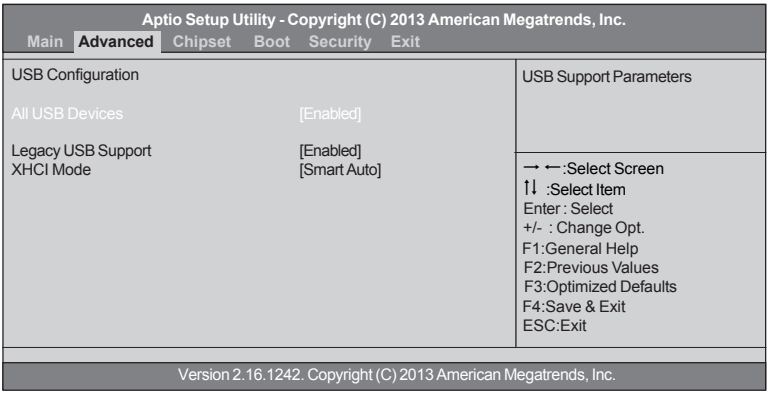
SATA Port/mSATA (Not Present)

This motherboard supports one SATA and one mSATA channels, each channel allows one SATA or mSATA device to be installed. Use these items to configure each device on the SATA/mSATA channel.

Press <Esc> to return to the Advanced Menu page.

▶USB Configuration

Use this item to show the information of USB configuration.



All USB Devices (Enabled)

Use this item to enable or disable all USB devices.

Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices.

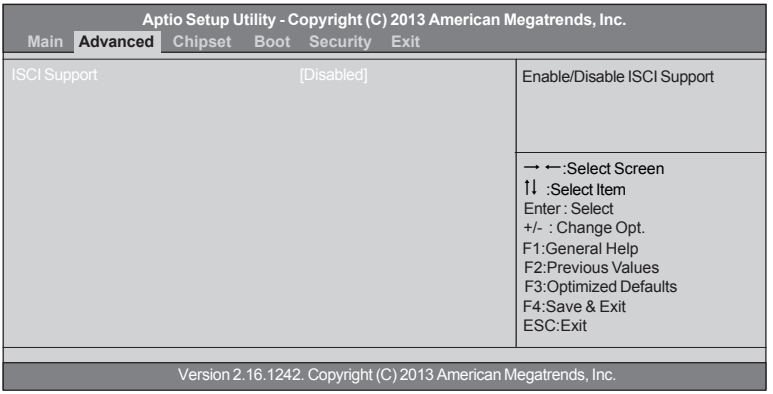
XHCI Mode (Smart Auto)

Use this item to select the mode of USB XHCI.

Press <Esc> to return to the Advanced Menu page.

▶Intel(R) Smart Connect Technology

Use this item to show the information of Intel(R) Smart connect technology.



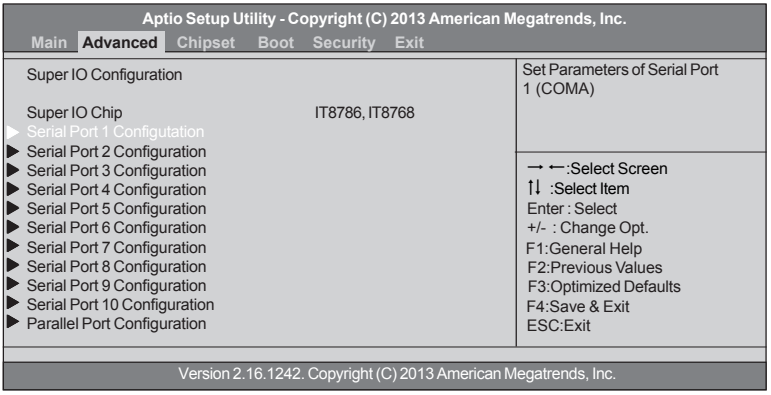
ISCT Support (Disabled)

Use this item to enable or disable ISCT Support.

Press <Esc> to return to the Advanced Menu page.

▶Super IO Configuration

Use this item to show the information of Super IO configuration.

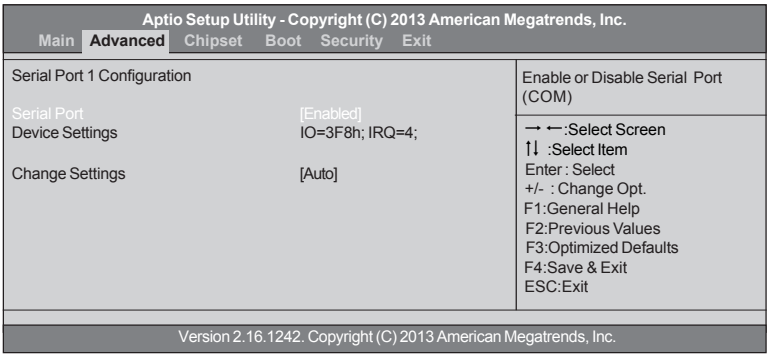


Super IO Chip (IT8786, IT8768)

This item shows the information of the super IO chip.

▶Serial Port 1 Configuration

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=3F8h; IRQ=4)

This item shows the information of the device settings.

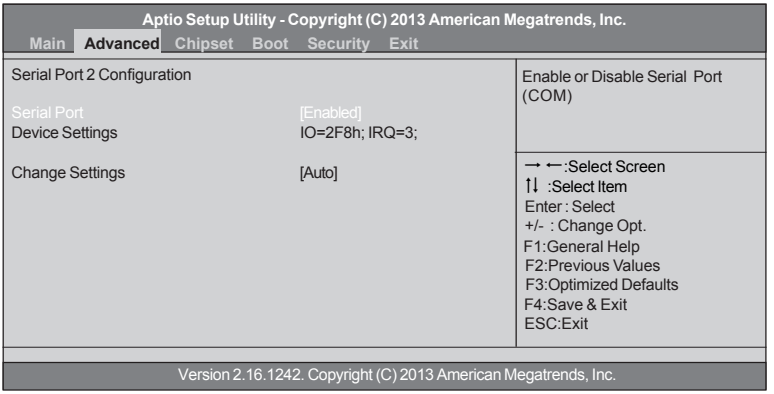
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

▶Serial Port 2 Configuration

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=2F8h; IRQ=3)

This item shows the information of the device settings.

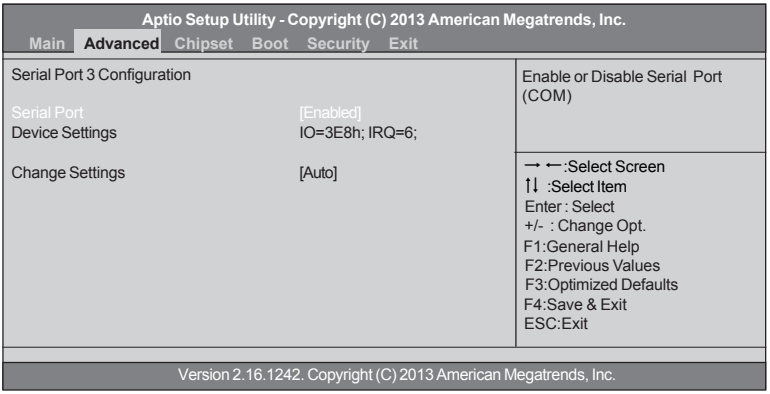
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

►**Serial Port 3 Configuration**

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=3E8h; IRQ=6)

This item shows the information of the device settings.

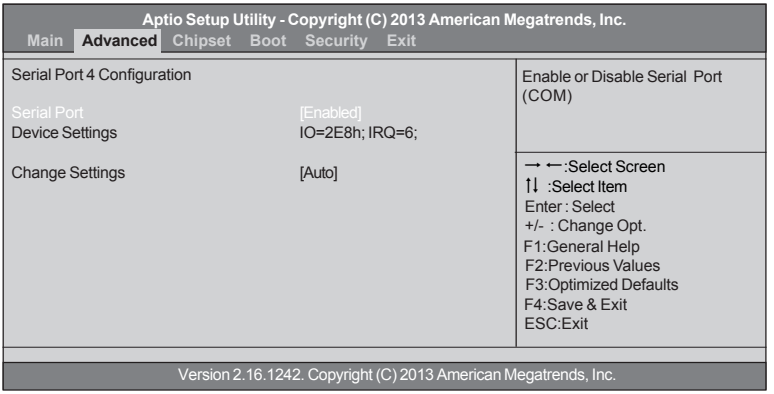
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

▶**Serial Port 4 Configuration**

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=2E8h; IRQ=6)

This item shows the information of the device settings.

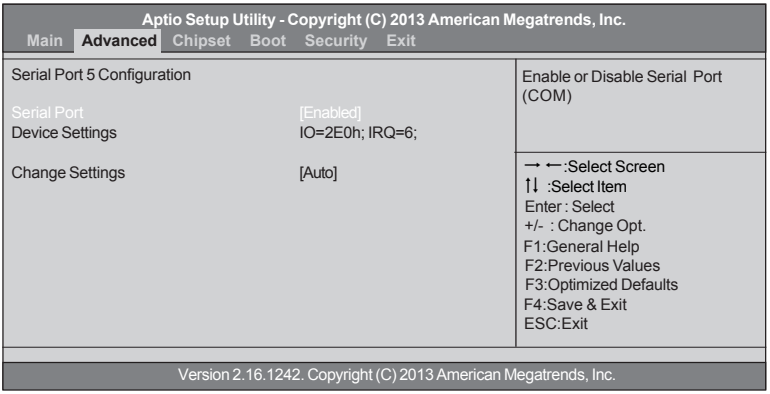
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

►**Serial Port 5 Configuration**

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=2E0h; IRQ=6)

This item shows the information of the device settings.

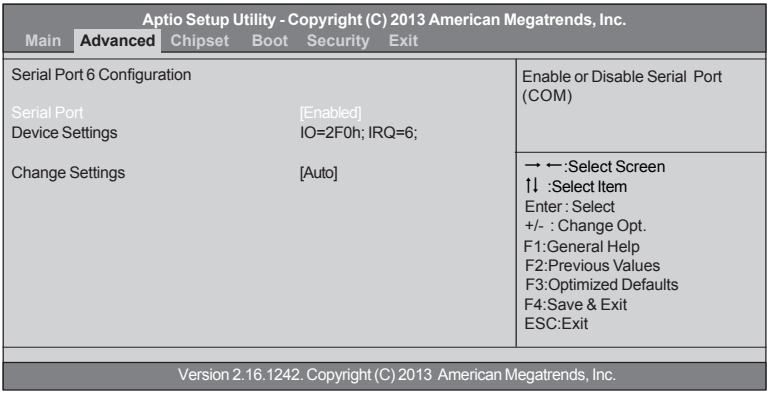
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

▶Serial Port 6 Configuration

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=2F0h; IRQ=6)

This item shows the information of the device settings.

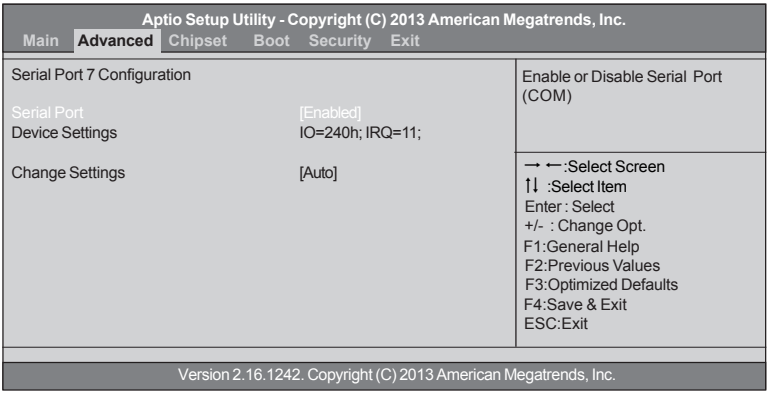
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

►**Serial Port 7 Configuration**

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=240h; IRQ=11)

This item shows the information of the device settings.

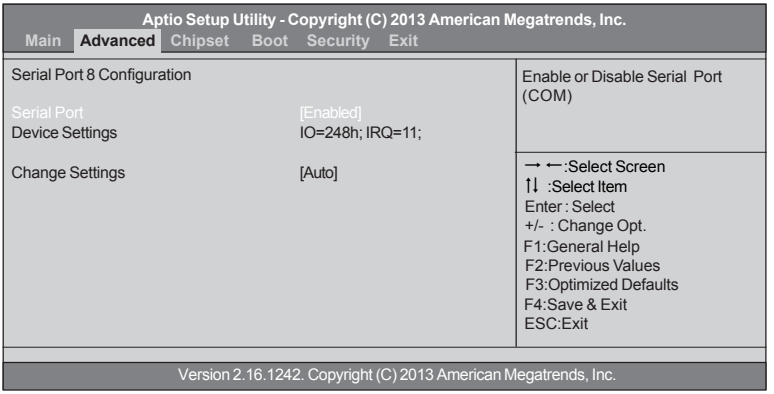
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

▶Serial Port 8 Configuration

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=248h; IRQ=11)

This item shows the information of the device settings.

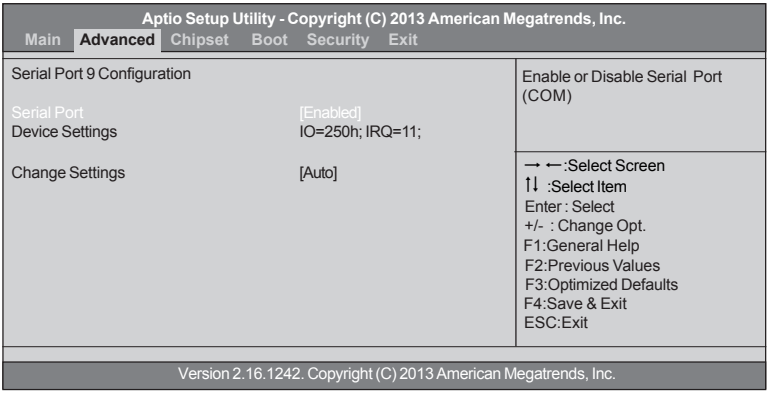
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

►**Serial Port 9 Configuration**

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=250h; IRQ=11)

This item shows the information of the device settings.

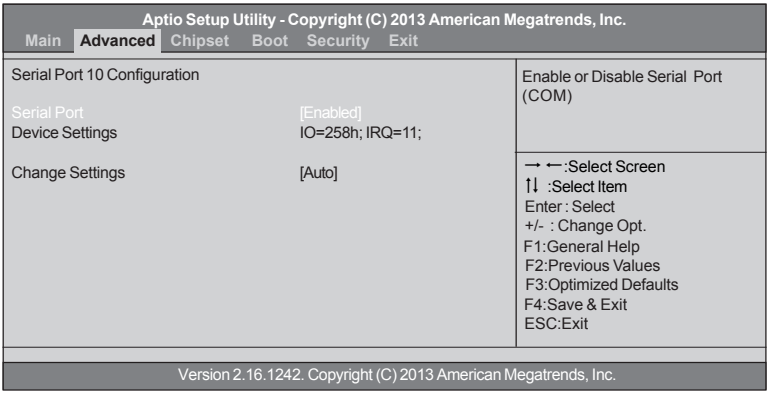
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

▶**Serial Port 10 Configuration**

Scroll to this item and press <Enter> to view the following screen:



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=258h; IRQ=11)

This item shows the information of the device settings.

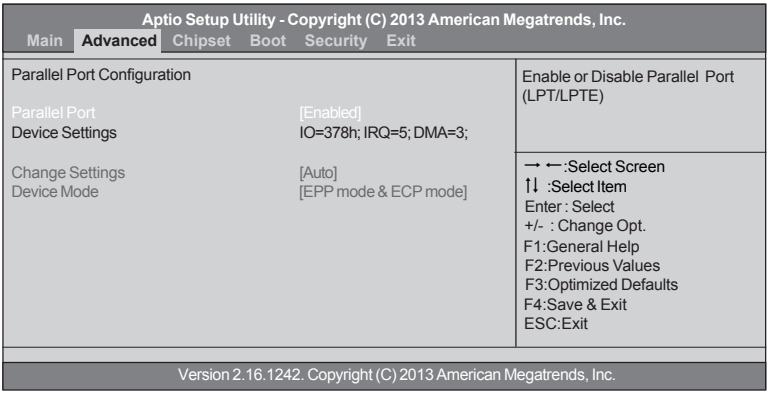
Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

▶**Parallel Port Configuration**

Scroll to this item and press <Enter> to view the following screen:



Parallel Port (Enabled)

This item allows you to enable or disable parallel port.

Device Settings (IO=378h; IRQ=5; DMA=3;)

This item shows the information of the device settings.

Change Settings (Auto)

Use this item to change device settings.

Device Mode (EPP mode & ECP mode)

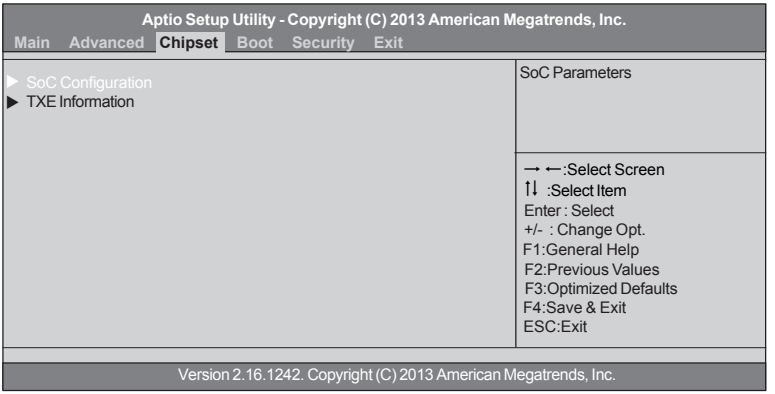
Use this item to select the parallel port mode: SPP/EPP/ECP/EPP+ECP.

Press <Esc> to return to the Super IO Configuration page.

Press <Esc> to return to the Advanced Menu page.

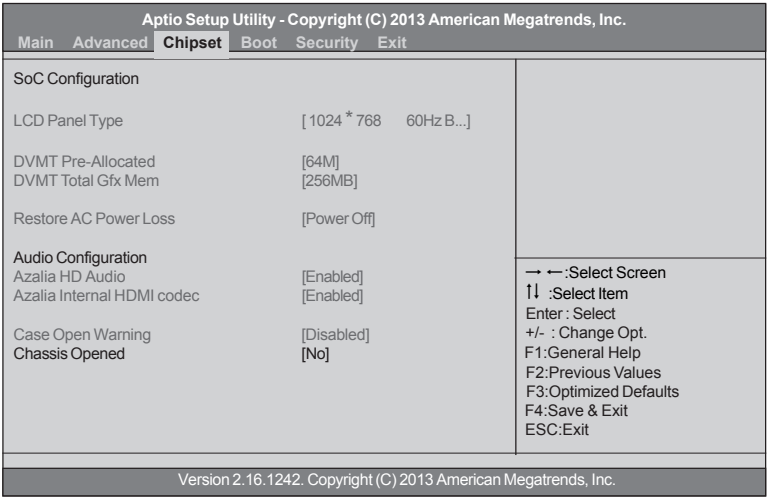
Chipset Menu

The chipset menu items allow you to change the settings for the North Bridge chipset, South Bridge chipset and other system.



▶SoC Configuration

Scroll to this item and press <Enter> and view the following screen:



LCD Panel Type (1024 * 768 60HzB...)

Use this item to select the resolution of LCD panel used by Internal Graphics Device.

DVMT Pre-Allocated (64M)

This item is used to select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

DVMT Total Gfx Mem (256MB)

This item shows the information of DVMT 5.0 and Graphic memory size used by the Internal Graphics Device.

Restore AC Power Loss (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Azalia HD Audio (Enabled)

This item enables or disables Azalia HD audio.

Azalia Internal HDMI codec (Enabled)

This item enables or disables Azalia Internal HDMI codec.

Case Open Warning (Disabled)

This item enables or disables the warning if the case is opened up, and the item below indicates the current status of the case.

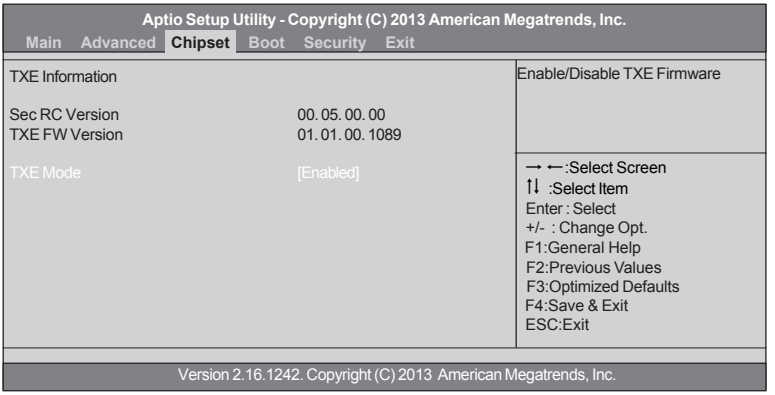
Chassis Opened (No)

This item indicates whether the case has been opened.

Press <Esc> to return to the Chipset Menu page.

▶ TXE Information

Scroll to this item and press <Enter> to view the following screen:



Sec RC Version (00. 05. 00. 00)

This item shows the Sec RC version.

TXE FW Version (01. 01. 00. 1089)

This item shows the TXE FW version.

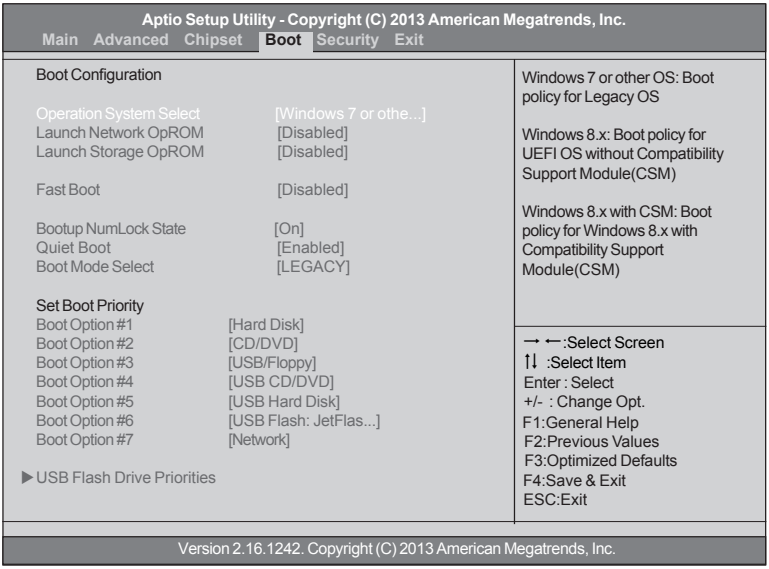
TXE Mode (Enabled)

This is TXE mode control item, it is used to enable or disable the TXE firmware.

Press <Esc> to return to the Chipset Menu page.

Boot Menu

This page enables you to set the keyboard NumLock state.



Operation System Select (Windows 7 or other OS)

This item is used to select the operation system.

Launch Network OpROM (Disabled)

The item enables or disables launch Network Option ROM.

Launch Storage OpROM (Disabled)

Use this item to enable or disable the Storage OpROM.

Fast Boot (Disabled)

Use this item to enable or disable boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

Bootup NumLock State (On)

This item enables you to select NumLock state.

Quiet Boot (Enabled)

This item enables or disable quiet boot.

Boot Mode select (LEGACY)

Use this item to select boot mode.

Set Boot Priority

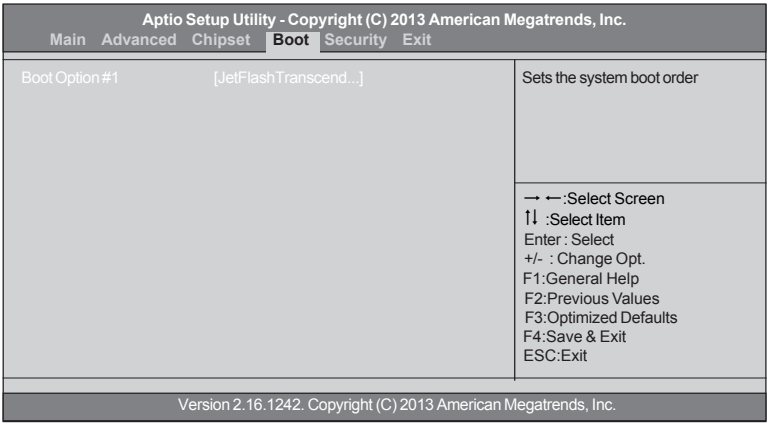
This item enables you to set boot priority for all boot devices.

Boot Option #1 /2 /3 /4 /5 /6 /7

These items show the boot priorities.

► USB Flash Drive Priorities

Scroll to this item and press <Enter> to view the following screen:

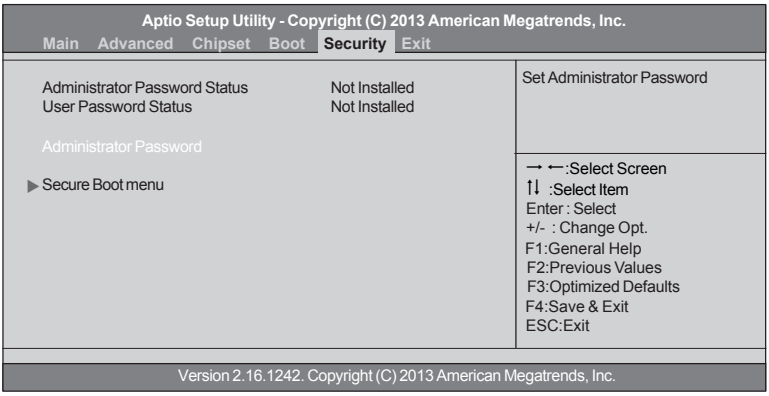


Boot Option #1 (JetFlashTranscend...)

Use this item to set the system boot order.

Security Menu

This page enables you to set setup administrator password and user password.



Administrator Password Status (Not Installed)

This item shows administrator password installed or not.

User Password Status (Not Installed)

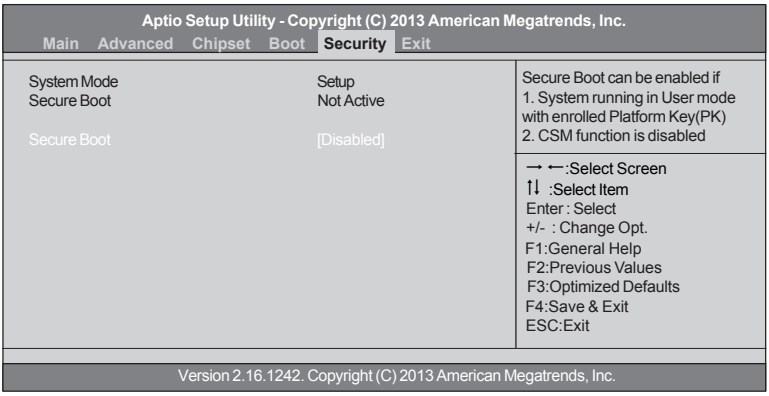
This item shows user password installed or not.

Secure Boot menu

Scroll to this item and press <Enter> to view the submenu.

▶ Secure Boot Menu

Scroll to this item and press <Enter> to view the following screen:



System Mode (Setup)

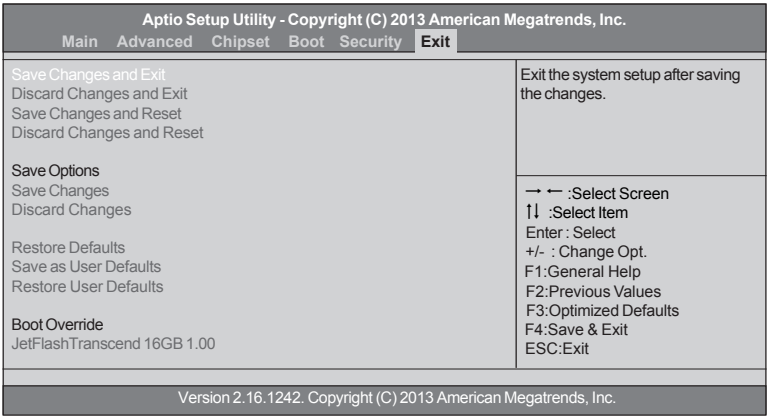
This item shows system of secure boot (can be setup or user).

Secure Boot (Not Active/Disabled)

These items show the active state of secure boot.

Exit Menu

This page enables you to exit system setup after saving or without saving the changes.



Save Changes and Exit

This item enables you to exit system setup after saving the changes.

Discard Changes and Exit

This item enables you to exit system setup without saving any changes.

Save Changes and Reset

This item enables you to reset system setup after saving the changes.

Discard Changes and Reset

This item enables you to reset system setup without saving any changes.

Save Options

This item enables you to save the options that you have made.

Save Changes

This item enables you to save the changes that you have made.

Discard Changes

This item enables you to discard any changes that you have made.

Restore Defaults

This item enables you to restore the system defaults.

Save as User Defaults

This item enables you to save the changes that you have made as user defaults.

Restore User Defaults

This item enables you to restore the user defaults.

Boot Override

Use this item to select the boot device.

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Website. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.

2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)

3 Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)

4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.

5 Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)

6 At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AFUDOS.EXE 040706.ROM

7 When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

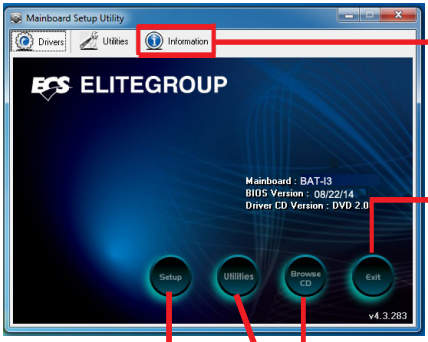
Memo

Chapter 4

Using the Motherboard Software

Auto-installing under Windows 7/8/8.1

The auto-install DVD-ROM makes it easy for you to install the drivers and software. The support software DVD-ROM disc loads automatically under Windows 7/8/8.1. When you insert the DVD-ROM disc in the DVD-ROM drive, the auto-run feature will automatically bring up the installation screen. The screen has four buttons on it: **Setup**, **Utilities**, **Browse CD** and **Exit**.



Information:
Displays the path for all software and drivers available on the disk.

Click "**Exit**" button to close the Auto-Setup window.

Browse CD:
Open Windows Explorer and show the contents of the support disk.

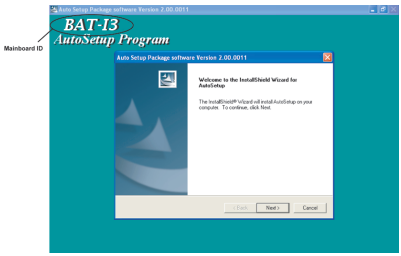
Click the "**Setup**" button to select and run the software installation program.

Click the "**Utilities**" button to select and install ECS Intelligent Utility.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

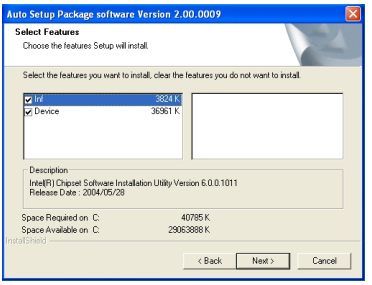
1. Click **Setup**. The installation program begins:



The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

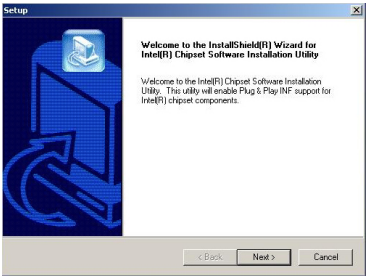
The motherboard identification is located in the upper left-hand corner.

2. Click **Next.** The following screen appears:



3. Check the box next to the items you want to install. The default options are recommended.

4. Click **Next** to run the Installation Wizard. An item installation screen appears:

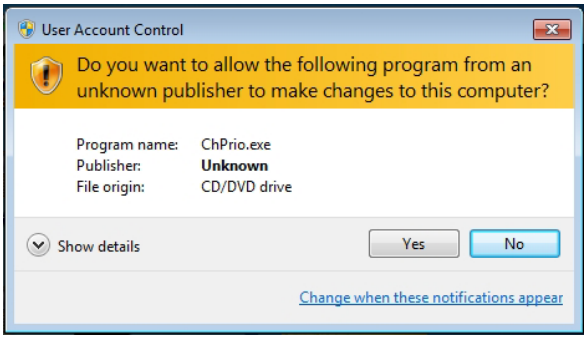


5. Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to re-start a few times to complete the installation.

Windows 8 will show the following screen after system restart, you must select "Desktop" in the bottom left to install the next driver.

Windows 7/8 will appear below UAC (User Account Control) message after the system restart. You must select "Yes" to install the next driver. Continue this process to complete the drivers installation.



Manual Installation

If the auto-install DVD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Look for the chipset and motherboard model, and then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

Memo

Chapter 5
Trouble Shooting

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips. You may also log onto our ECS website for more information: *http:// www.ecs.com.tw/ECSWebSite/Support/Support_FAQ.aspx?MenuID=49&childid=M_49&LanID=0*

a) System does not power up and the fans are not running.

1. Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Make sure the power cord is plugged into the wall socket & the switch on the Power Supply Unit (PSU) is turned " on " as well. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.

2. Check the VGA adapter card (if applicable) is inserted properly.

3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous 3 short beeps: memory not detected
   b. 1 long beep and 8 short beeps: VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Apply the thermal grease onto the CPU heatsink & ensure the CPU fan is well-connected with the CPU heatsink. Check if the CPU fan is working properly while the system is running.

2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Remove the hard drive, optical drive or DDR memory to determine which of these components may be at fault.

4. Check whether there is any bulked up electrolytic capacitor or abnormal component.

Please logo onto our ECS website: http://www.ecs.com.tw/ECSWebSite/Support/Technical_Support_List.aspx?MenuID=50&LanID=0 for more information.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.

2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.

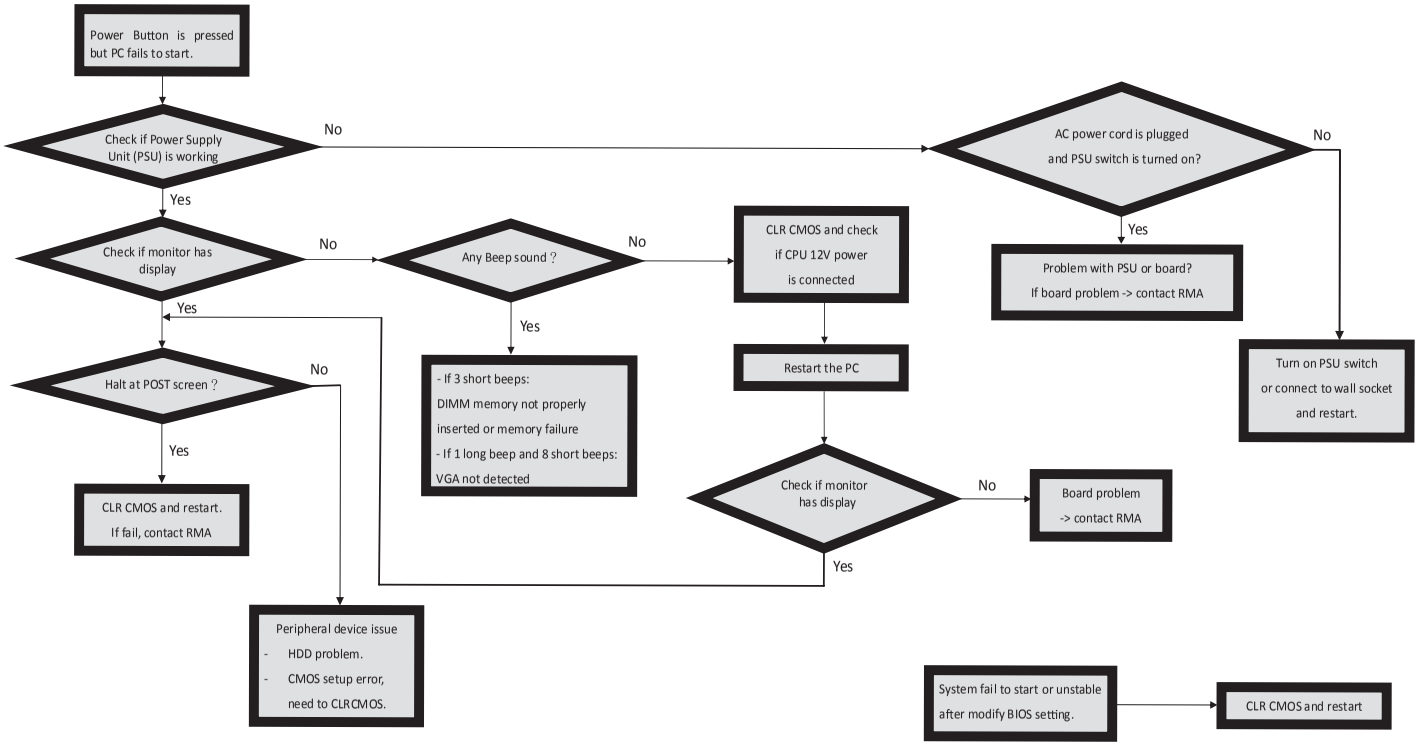
3. Routinely clean the CPU cooler fan to remove dust and hair.

4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.

5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.

6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

Basic Troubleshooting Flowchart



Memo