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## Table of Contents

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<b>Chapter 1: Introduction</b> .....	<b>3</b>
<b>1.1 Before You Start</b> .....	3
<b>1.2 Package Checklist</b> .....	3
<b>1.3 Mainboard Specification</b> .....	4
<b>1.4 Rear Panel</b> .....	5
<b>1.5 Mainboard Layout</b> .....	6
<b>Chapter 2: Installation</b> .....	<b>7</b>
<b>2.1 CPU</b> .....	7
<b>2.2 Fan Header</b> .....	7
<b>2.3 System Memory</b> .....	9
<b>2.4 Power Supply</b> .....	10
<b>2.5 Onboard Slot/Connector/Header/Jumper</b> .....	11
<b>Chapter 3: BIOS Setup</b> .....	<b>21</b>
<b>3.1 Main Menu</b> .....	23
<b>3.2 Advanced Menu</b> .....	28
<b>3.3 PCI/PnP Menu</b> .....	39
<b>3.4 Boot Menu</b> .....	42
<b>3.5 Chipset Menu</b> .....	44
<b>3.6 Exit Menu</b> .....	50
<b>Chapter 4: Useful Help</b> .....	<b>53</b>
<b>4.1 Driver Installation Note</b> .....	53
<b>4.2 AMI BIOS Beep Code</b> .....	54
<b>4.3 Troubleshooting</b> .....	55

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## **CHAPTER 1: INTRODUCTION**

### **1.1 BEFORE YOU START**

Thank you for choosing our product. Before you start installing the mainboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the system from power outlet before operation.
- Before you take the mainboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
- Avoid touching the components on mainboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
- Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
- Keep the system from dangerous area, such as heat source, humid air, and water.
- Please switch on/off the machine normally. That is, DO NOT pull out power cord directly from the mainboard or the system may damage.

### **1.2 PACKAGE CHECKLIST**

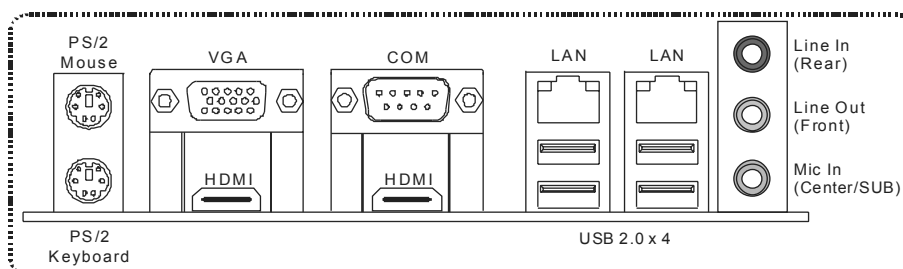
- ✚ Mini-ITX Mainboard x 1
- ✚ Fully Setup Driver CD x 1
- ✚ I/O Bracket x 1
- ✚ IDE Cable x 1 (Optional)
- ✚ SATA Cable x 1 (Optional)

### 1.3 MAINBOARD SPECIFICATION

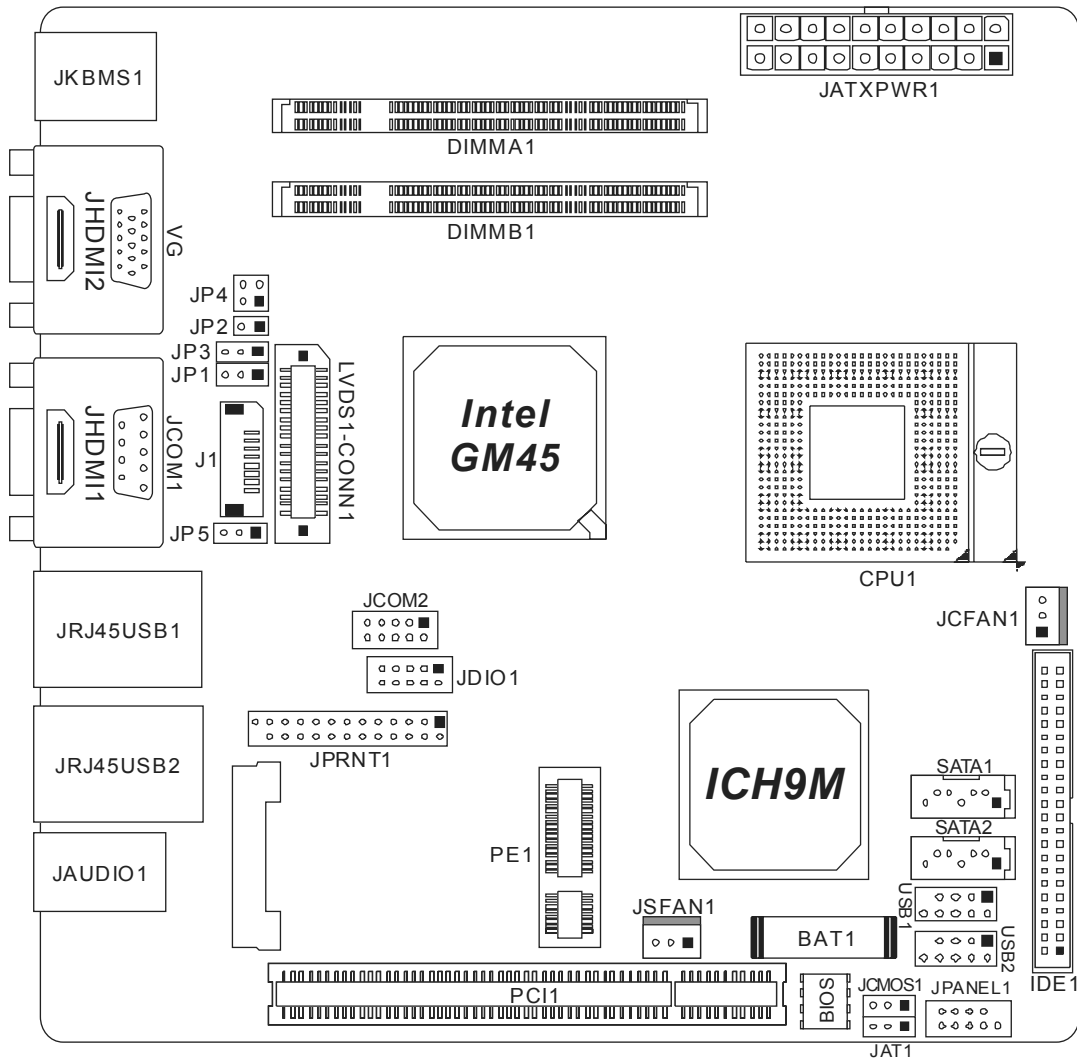
<i>Specification</i>		
CPU	Socket P Intel Core 2 Duo Mobile Penryn/Core 2 Extreme /Celeron M (575/585) CPU	
FSB	Supports up to 667 to 1066 MHz	
Chipset	Northbridge: Intel GM45 Southbridge: ICH9M	
Graphic	Intel GM45 integrated Gen 5.0 Graphics engine	Supports dual displays (Extended mode) as below: -- Integrated LVDS (24bit / dual channel) -- Integrated VGA -- Dual HDMI (Chrontel CH7318 HDMI Level Shifter x 2) (Only one of two HDMI's can support audio)
Super I/O	ITE IT8718F Provides the most commonly used legacy Super I/O functionality.	128pin type Environment Control initiatives, H/W Monitor Fan Speed Controller
Main Memory	SO-DIMM (200pin) Slot x 2 Supports DDR2 800 / 667 MHz DIMM supports 256MB / 512MB / 1GB / 2GB Max Memory Capacity 4GB	Registered DIMM or ECC DIMM is not supported
IDE	JMicron JMB368	Ultra DMA 33/66/100 Bus Master Mode Supports PIO Mode 0~4 Supports 2 IDE devices
SATA	ICH9M	SATAII Version 1.0a specification compliant Data transfer rates up to 3.0 Gbit/s
LAN	Intel 82574L x 2	10 / 100 / 1000 Mb/s auto negotiation Half / Full duplex capability
Sound Codec	Realtek ALC662	5.1 channels audio out High-Definition Audio support
Slot	PCI Slot x1 Mini PCI-E Slot x1	
On Board Connectors & Headers	IDE Connector x1 SATA Connector x2 Front Panel Header x1 Digital I/O Connector x1	

<b>Specification</b>		
	System Fan Header	x2
	Clear CMOS Header	x1
	AT/ATX Power Switch Header	x1
	Parallel Connector	x1
	Serial Connector	x1
	USB 2.0 Header	x2
	LVDS Connector	x1
	LVDS Enable/Disable Select Header	x1
	LCD Power Select Header	x1
	LCD Backlight ON/OFF Header	x1
	LCD Backlight Inverter	x1
	Backlight Power Select Header	x1
	Backlight Brightness Adjust Header	x1
	12V Power Connector (20pin)	x1
Back Panel I/O	PS/2 Keyboard	x1
	PS/2 Mouse	x1
	Serial Port	x1
	VGA Port	x1
	HDMI Port	x2
	LAN port	x2
	USB Port	x4
	Audio Jack	x3
Board Size	170 mm (W) x 170 mm (L)	Mini-ITX
OS Support	Windows XP/XPE, Linux	Biostar reserves the right to add or remove support for any OS with or without notice.

### 1.4 REAR PANEL



## 1.5 MAINBOARD LAYOUT



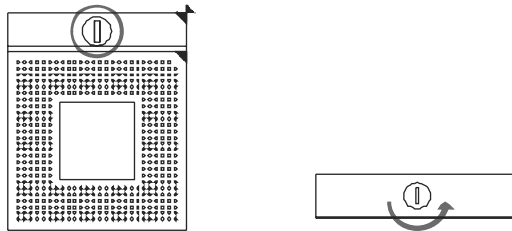
**Note:** ■ represents the 1<sup>st</sup> pin.

## CHAPTER 2: INSTALLATION

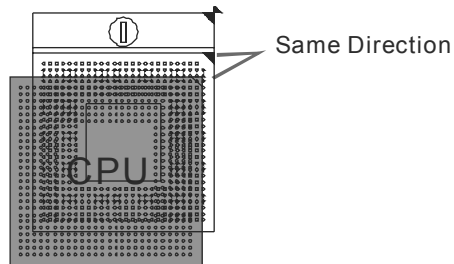
### 2.1 CPU

The mainboard comes with the Socket P for Intel Core 2 Duo Mobile Penryn/Core 2 Extreme /Celeron M (575/585) processors. Please follow the instruction to install the CPU properly.

1. Use a flat-type screw driver to clockwise unlock the socket.



2. Follow the pin direction to install the CPU on the socket.

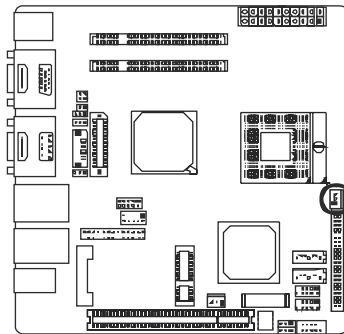


3. Use a flat-type screw driver to counter-clockwise lock the socket back again.

## 2.2 FAN HEADER

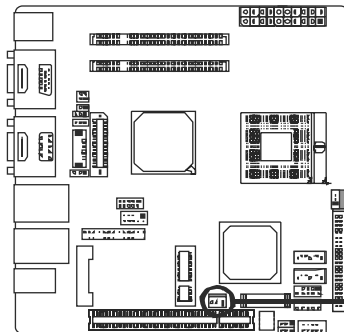
The fan header supports cooling-fans built in the system. The fan cable and connector may be different due to the fan manufacturer.

### JCFAN1: System Fan Header



Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

### JSFAN1: System Fan Header



Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

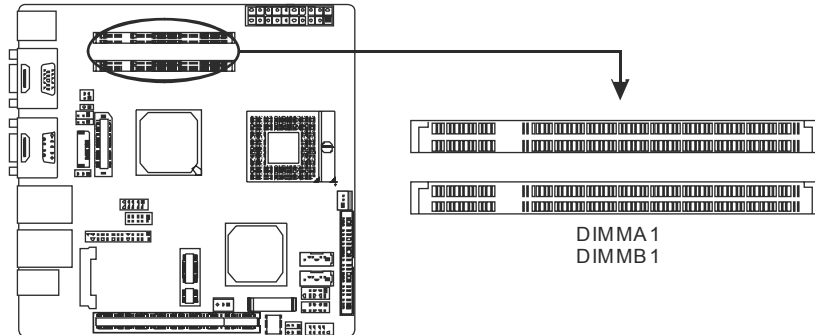
**Note:**

The CPU/System Fan Header supports 3-pin head connector. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.



## 2.3 SYSTEM MEMORY

### DIMMA1: Memory Module (200pin SO-DIMM)



- 2 Align a DIMM on the slot such that the notch on the DIMM matches the break on the Slot.
- 3 Insert the DIMM firmly into the slot until the retaining chip snap back in place and the DIMM is properly seated.

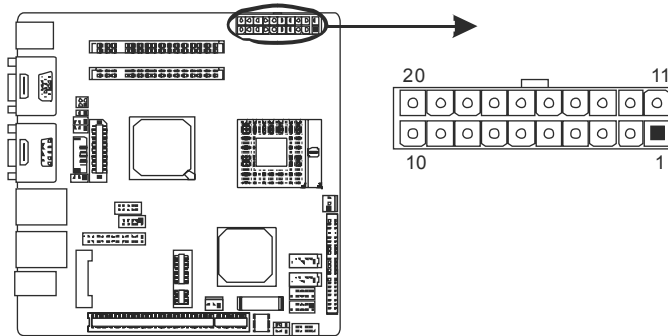
### Memory Capacity

DIMM Socket Location	DDR2 Module	Total Memory Size
DIMMA1	256MB/512MB/1GB/2GB	Max is 4GB.
DIMMAB	256MB/512MB/1GB/2GB	

## 2.4 POWER SUPPLY

### ATX Power Source Connector (20-pin)

This connector allows user to connect 20-pin power connector on the power supply.

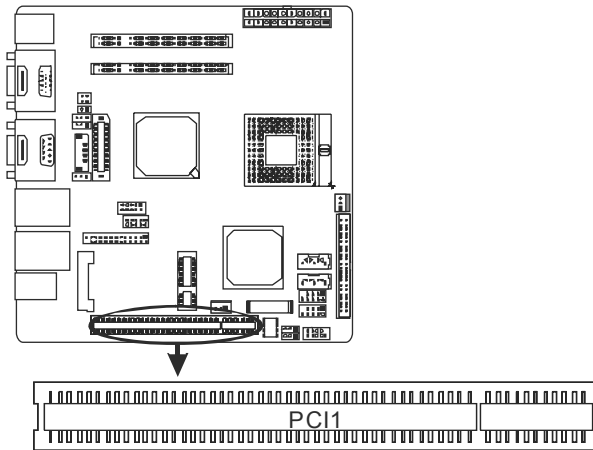


Pin	Assignment	Pin	Assignment
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	Power Supply On
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	Power Good	18	-5V
9	+5V Standby	19	+5V
10	+12V	20	+5V

## 2.5 ONBOARD SLOT/CONNECTOR/HEADER/JUMPER

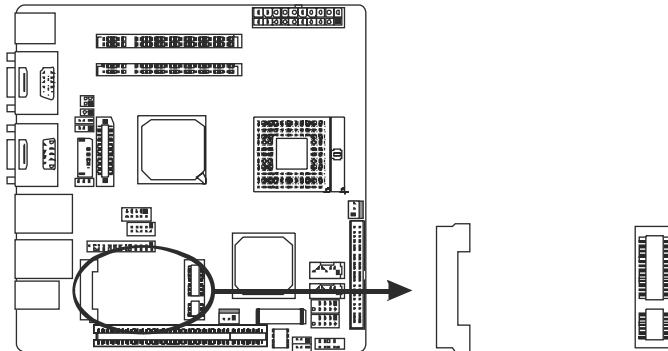
### PCI1: Peripheral Component Interconnect Slot

This mainboard is equipped with 1 standard PCI slot. PCI stands for Peripheral Component Interconnect, and it is a bus standard for expansion cards. This PCI slot is designated as 32 bits.



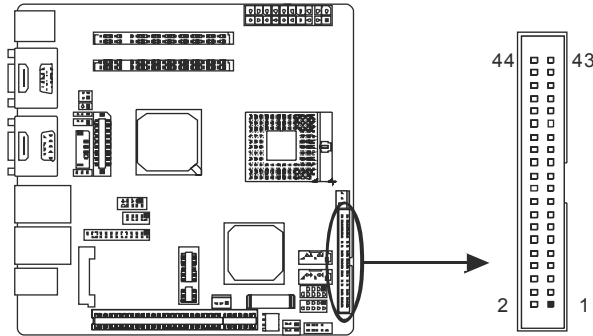
### PE1: Mini PCI-E Slot

This mainboard is equipped with 1 Mini PCI-E Slot.



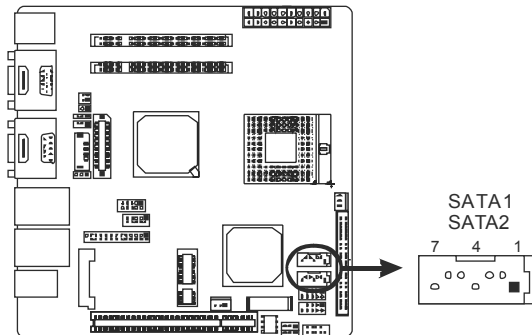
**IDE1: ATA Device Connector**

The mainboard has an integrated IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA 33/66/100 functionality. It has one IDE connector which can connect a master and a slave drive, so you can connect up to two ATA devices.



**SATA1/SATA2: Serial ATA Connectors**

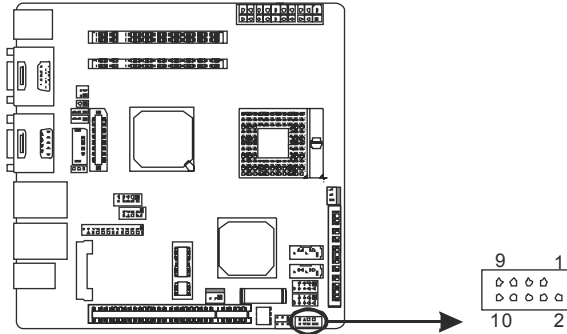
These next generation connectors support the thin Serial ATA cable for primary internal storage devices. The current Serial ATA interface allows up to 3.0 Gbit/s data transfer rate.



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

**JPANEL1: Front Panel Header**

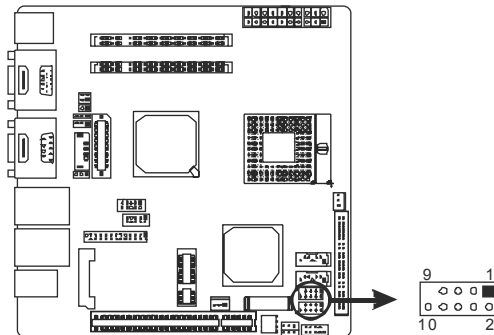
This 10-pin header includes Power-on, Reset, HDD LED, and Power LED connection. It allows user to connect the system case's front panel switch functions.



Pin	Assignment	Function	Pin	Assignment	Function
1	Key	N/A	2	Power LED+	Power LED
3	HD LED+	HDD LED	4	Power LED+	
5	HD LED-		6	Power LED-	
7	Reset GND	Reset Button	8	Power	Power Button
9	Reset		10	Power GND	

**USB1/USB2: USB 2.0 Headers**

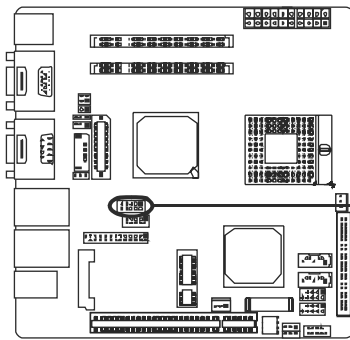
The mainboard provides 2 front USB pin headers, allowing up to 4 additional USB 2.0 ports up to maximum throughput of 480 Mbps. Connect the USB cable into the pin header for using high-speed USB interface peripherals.



Pin	Assignment	Pin	Assignment
10	NC	9	Key
8	Ground	7	Ground
6	USB7+	5	USB6+
4	USB7-	3	USB6-
2	+5V (fused)	1	+5V (fused)

### JCOM2: Serial Port Connector

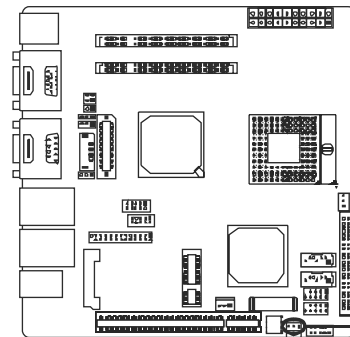
The motherboard has 2 Serial Port Connectors for connecting RS-232 Port.



Pin	Assignment
1	-PDCD
2	PSIN
3	PSOUT data
4	-PDTR
5	GND
6	-PDSR
7	-PRTS
8	-PCTS
9	-PRI
10	5V

### JCMOS1: Clear CMOS Header \*

Placing the jumper on pin2-3 allows user to restore the BIOS safe setting and the CMOS data. Please carefully follow the procedures to avoid damaging the mainboard.



**Pin 1-2 Close:** (Default)  
Normal Operation.



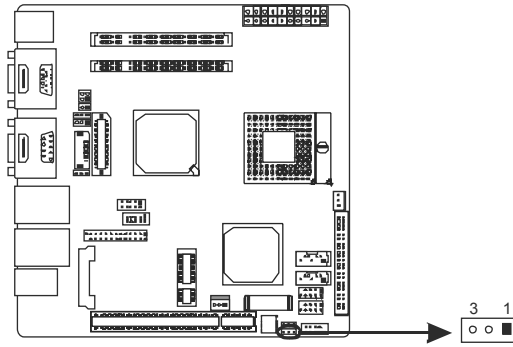
**Pin 2-3 Close:**  
Clear CMOS data.


#### ※ Clear CMOS Procedures:


1. Remove AC power line.
2. Set the jumper to "Pin 2-3 close".
3. Wait for five seconds.
4. Set the jumper to "Pin 1-2 close".
5. Power on the AC.
6. Reset your desired password or clear the CMOS data.

**JAT1: AT/ATX Power Switch Header**

The header is for switching AT and ATX Power.

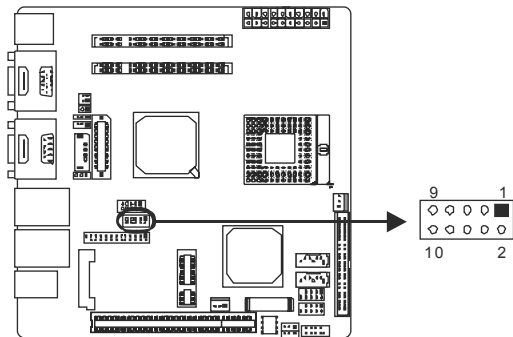


  
**Pin 2-3 Close:** (Default)  
 For ATX Mode

  
**Pin 1-2 Close:**  
 For AT Mode

**JDIO1: Digital I/O Connector**

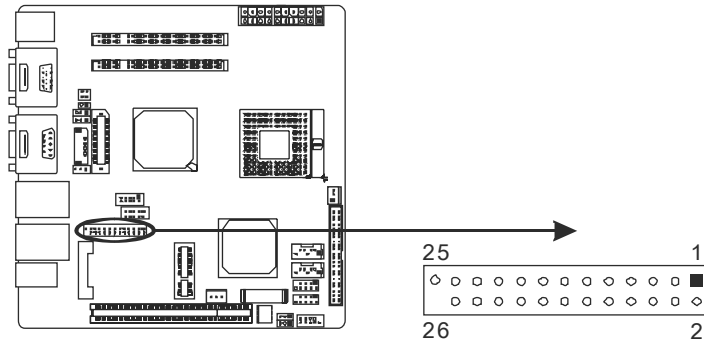
This connector offers 4-pair of digital I/O functions and address is set in BIOS. The default address is: A21H: Output bit0~3; A22H: Input bit0~3.



Pin	Assignment
1	5V
2	Digital-In-30
3	Digital-Out-20
4	Digital-In-31
5	Digital-Out-21
6	Digital-In-32
7	Digital-Out-22
8	Digital-In-33
9	Digital-Out-23
10	GND

**JPRNT1: Printer Port Connector**

This header allows you to connect printer port on the PC.

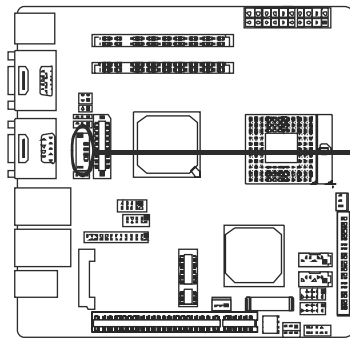


Pin	Assignment	Pin	Assignment
1	-Strobe	14	Ground
2	-ALF	15	Data 6
3	Data 0	16	Ground
4	-Error	17	Data 7
5	Data 1	18	Ground
6	-Init	19	-ACK
7	Data 2	20	Ground
8	-Scltin	21	Busy
9	Data 3	22	Ground
10	Ground	23	PE
11	Data 4	24	Ground
12	Ground	25	SCLT
13	Data 5	26	Key



**J1: LCD Backlight Inverter**

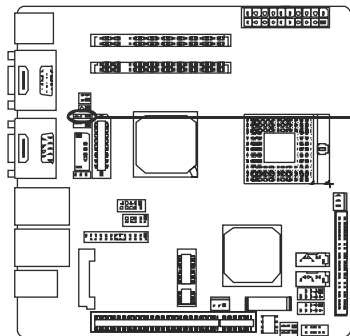
This connector is for connecting to LCD for providing backlight control function. It is strongly recommended to use the matching JOY DAY INDUSTRIAL – A1250WV-S-8P connector.



Pin	Assignment
1	5V/12V DC
2	5V/12V DC
3	NC
4	NC
5	Backlight On
6	Brightness Adjust
7	GND
8	GND

**JP3: LCD Power Select Header \***

This header allows you to select the LCD Power.



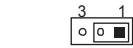
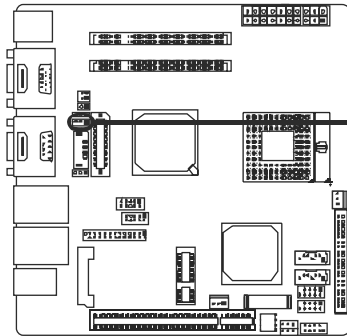
**Pin 1-2 Close:**  
PVDD=3.3V



**Pin 2-3 Close:**  
PVDD=5V (Default)

**JP1: LCD Inverter Power Select Header \***

This header is for selecting LCD backlight power.



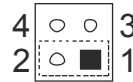
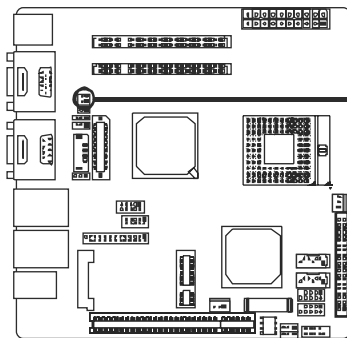
**Pin 1-2 Close:**  
Backlight Power=5V



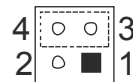
**Pin 2-3 Close:**  
Backlight Power=12V  
(Default)

**JP4: LCD Backlight Brightness Adjust Header \***

This header is for adjusting LCD backlight brightness.



**Short Pin 1-2:**  
Increase Brightness



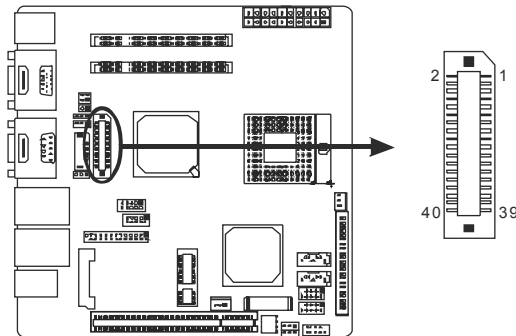
**Short Pin 3-4:**  
Decrease Brightness

### LVDS-CONN1: LVDS Connector

This connector is for devices requiring display interface such as LVDS.

This connector supports 18/24-bit dual-channel panels up to 1600 x 1200

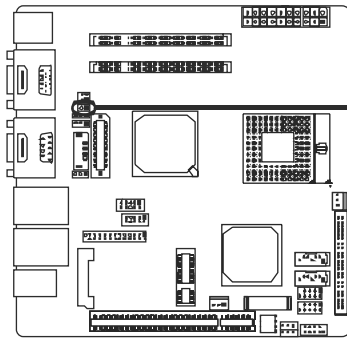
- It is strongly recommended to use the matching JOY DAY INDUSTRIAL - A1252WV-SF-2X20PD01 connector.



Pin	Assignment	Pin	Assignment
1	LVDS2_TX0- (Differential signal)	2	PVDD (+3.3V or +5V)
3	LVDS2_TX0+ (Differential signal)	4	PVDD (+3.3V or +5V)
5	GND	6	GND
7	LVDS2_TX1- (Differential signal)	8	GND
9	LVDS2_TX1+ (Differential signal)	10	LVDS1_TX0- (Differential signal)
11	GND	12	LVDS1_TX0+ (Differential signal)
13	LVDS2_TX2- (Differential signal)	14	GND
15	LVDS2_TX2+ (Differential signal)	16	LVDS1_TX1- (Differential signal)
17	GND	18	LVDS1_TX1+ (Differential signal)
19	LVDS2_CLK- (Differential signal)	20	GND
21	LVDS2_CLK+ (Differential signal)	22	LVDS1_TX2- (Differential signal)
23	GND	24	LVDS1_TX2+(Differential signal)
25	LVDS2_TX3- (Differential signal)	26	GND
27	LVDS2_TX3+ (Differential signal)	28	LVDS1_CLK- (Differential signal)
29	+5V	30	LVDS1_CLK+(Differential signal)
31	I2C_CLK	32	GND
33	+3.3V	34	LVDS1_TX3- (Differential signal)
35	NC	36	LVDS1_TX3+ (Differential signal)
37	PVDD (+3.3V or +5V)	38	NC
39	PVDD (+3.3V or +5V)	40	I2C_DATA

**JP2: LCD Backlight Power ON/OFF Header \***

This header allows you to control the LCD Backlight Power ON/OFF.

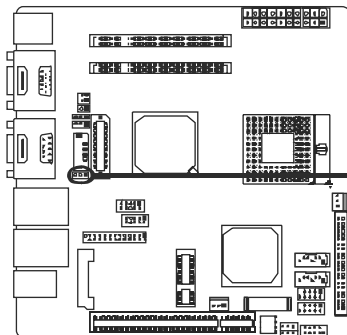


**Header Close:**  
LVDS Power OFF

**Header Open:**  
LVDS Power ON  
(Default)

**JP5: LVDS Enable/Disable Select Header \***

This header is for selecting Enable/Disable LVDS.



**Pin 1-2 Close:**  
LVDS Enabled (Default)

**Pin 2-3 Close:**  
LVDS Disabled

**\*How to Setup Jumpers**

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is “close”, if not, that means the jumper is “open”.



Pin opened



Pin closed



Pin1-2 closed

## **CHAPTER 3: BIOS SETUP**

### **Introduction**

The purpose of this chapter is to describe the settings in the AMI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to CMOS RAM. The power of CMOS RAM is supplied by a battery so that it retains the Setup information when the power is turned off.

Basic Input-Output System (BIOS) determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in BIOS.

The rest of this manual will to guide you through the options and settings in BIOS Setup.

### **Plug and Play Support**

This AMI BIOS supports the Plug and Play Version 1.0A specification.

### **EPA Green PC Support**

This AMI BIOS supports Version 1.03 of the EPA Green PC specification.

### **ACPI Support**

AMI ACPI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

## PCI Bus Support

This AMI BIOS also supports Version 2.3 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

## DRAM Support

DDR2 SDRAM (Double Data Rate II Synchronous DRAM) is supported.

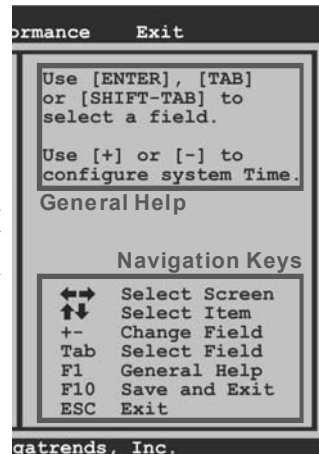
## Supported CPUs

This AMI BIOS supports the Intel CPU.

## Using Setup

When starting up the computer, press <Del> during the **Power-On Self-Test (POST)** to enter the BIOS setup utility.

In the BIOS setup utility, you will see **General Help** description at the top right corner, and this is providing a brief description of the selected item. **Navigation Keys** for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.

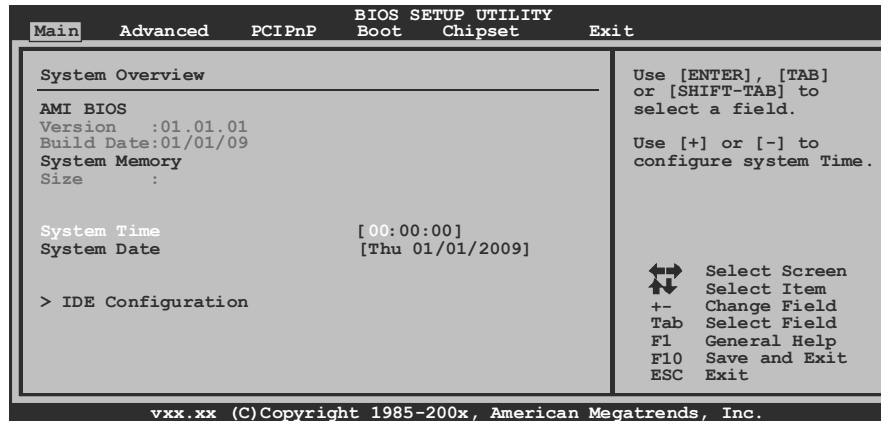


## **Notice**

- The default BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better system performance, the BIOS firmware is being continuously updated. The BIOS information described in this manual is for your reference only. The actual BIOS information and settings on board may be slightly different from this manual.
- The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.

### 3.1 MAIN MENU

Once you enter AMI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.



#### AMI BIOS

Shows system information including BIOS version, build date, etc.

#### System Memory

Shows system memory size, VGA shard memory will be excluded.

#### System Time

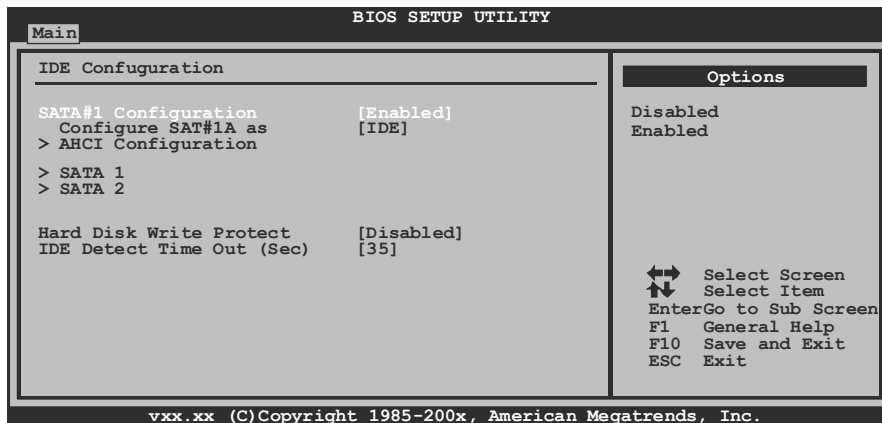
Set the system internal clock.

#### System Date

Set the system date. Note that the 'Day' automatically changes when you set the date.

## **IDE Configuration**

The BIOS will automatically detect the presence of IDE/SATA devices. There is a sub-menu for each IDE/SATA device. Select a device and press <Enter> to enter the sub-menu of detailed options.



### **SATA#1 Configuration**

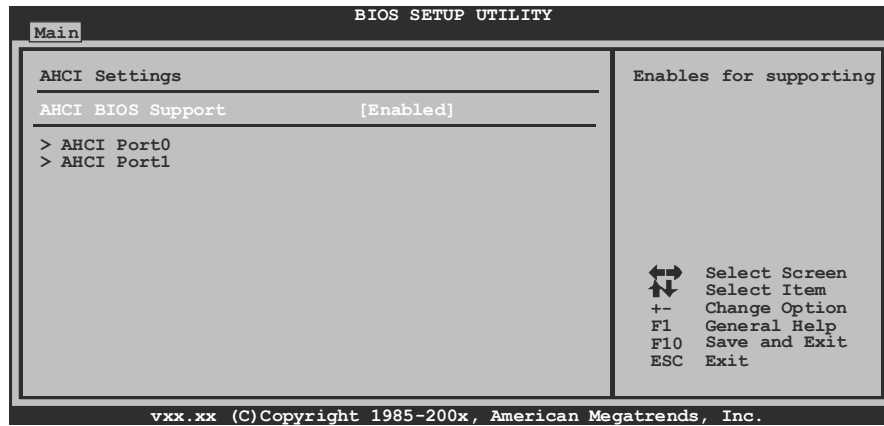
This item allows you to activate ATA/IDE function.  
Options: Enabled (Default) / Disabled

### **Configure SATA#1 as**

This item allows you to determine the control mode of SATA#1.  
Options: IDE (Default) / AHCI



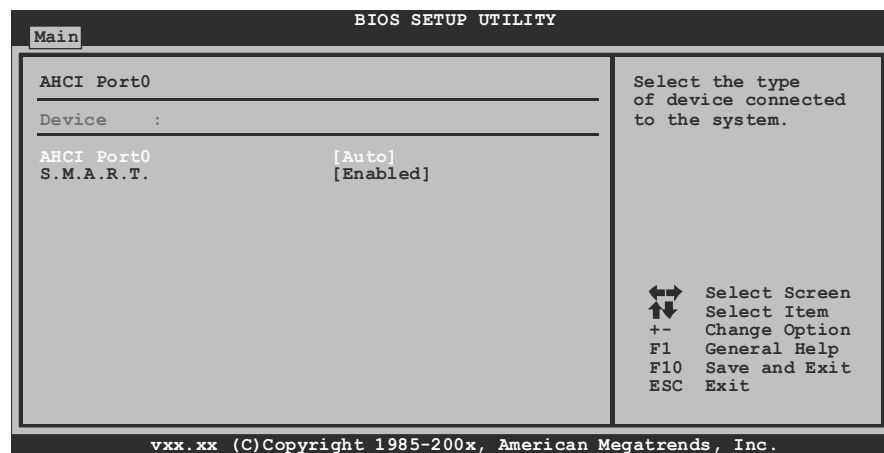
## AHCI Configuration



### AHCI BIOS Support

This BIOS feature controls the AHCI function of the SATA controller.  
Options: Enabled (Default) / Disabled

### AHCI Port0/Port1



## Mini-ITX Mainboard Manual

### **Device**

This area shows the detected connected device.

### **SATA Port0/1**

This item allows you to select the connected device type.

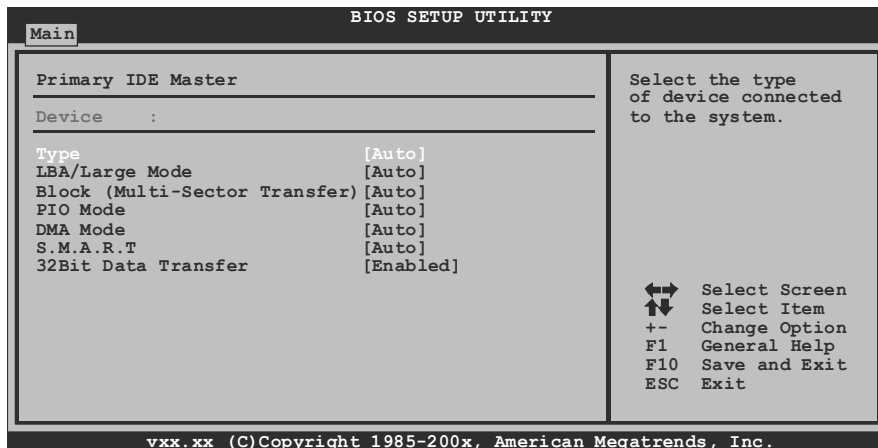
Options: Auto (Default) / Not Installed

### **S.M.A.R.T.**

This item allows you to control the device S.M.A.R.T function.

Options: Enabled (Default) / Disabled

## SATA 1/2 Devices



The BIOS detects the information and values of respective devices, and these information and values are shown below to the name of the sub-menu.

### **Type**

Select the type of the SATA drive.

Options: Auto (Default) / CD/DVD / ARMD / Not Installed

### **LBA/Large Mode**

Enable or disable the LBA mode.

Options: Auto (Default) / Disabled

### **Block (Multi-Sector Transfer)**

Enable or disable multi-sector transfer.

Options: Auto (Default) / Disabled

***PIO Mode***

Select the PIO mode.

Options: Auto (Default) / 0 / 1 / 2 / 3 / 4

***DMA Mode***

Select the DMA mode.

Options: Auto (Default) / SWDMA0 ~ SWDMA2 / MWDMA0 ~ MWDMA2 /  
UDMA0 ~ UDMA5

***S.M.A.R.T***

Set the Smart Monitoring, Analysis, and Reporting Technology.

Options: Auto (Default) / Disabled / Enabled

***32Bit Data Transfer***

Enable or disable 32-bit data transfer.

Options: Enabled (Default) / Disabled

**Hard Disk Write Protect**

Disable or enable device write protection. This will be effective only if the device is accessed through BIOS.

Options: Disabled (Default) / Enabled

**IDE Detect Time Out (Sec)**

Select the time out value for detecting IDE/SATA devices.

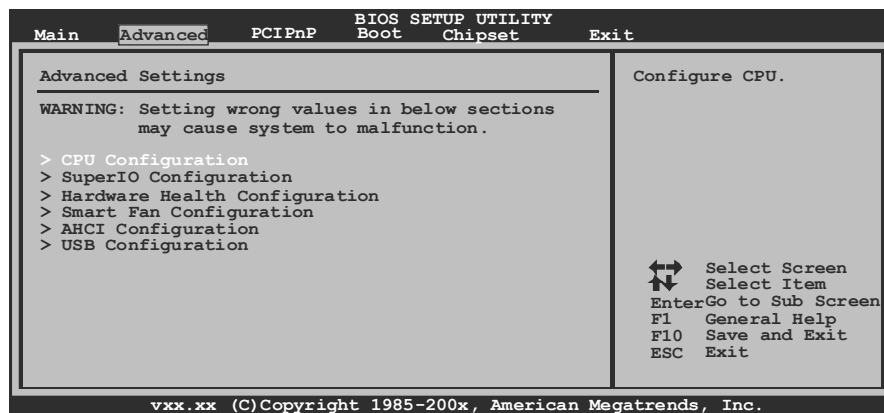
Options: 35 (Default) / 30 / 25 / 20 / 15 / 10 / 5 / 0

## 3.2 ADVANCED MENU

The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

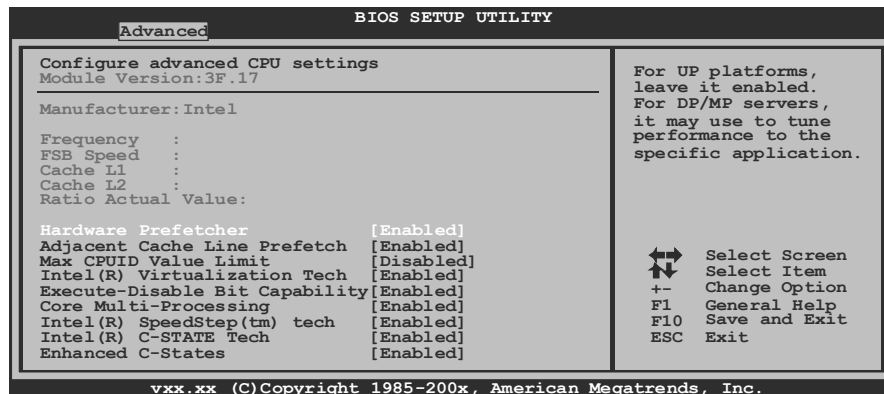
### Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



### CPU Configuration

This item shows the CPU information that the BIOS automatically detects.



**Hardware Prefetcher**

The processor has a hardware prefetcher that automatically analyzes its requirements and prefetches data and instructions from the memory into the Level 2 cache that are likely to be required in the near future. This reduces the latency associated with memory reads.

Options: Enabled (Default) / Disabled

**Adjacent Cache Line Prefetch**

The processor has a hardware adjacent cache line prefetch mechanism that automatically fetches an extra 64-byte cache line whenever the processor requests for a 64-byte cache line. This reduces cache latency by making the next cache line immediately available if the processor requires it as well.

Options: Enabled (Default) / Disabled

**Max CPUID Value Limit**

When the computer is booted up, the operating system executes the CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value CPUID recognizes. This determines the kind of basic information CPUID can provide the operating system.

Options: Disabled (Default) / Enabled

**Intel(R) Virtualization Tech**

Virtualization Technology can virtually separate your system resource into several parts, thus enhance the performance when running virtual machines or multi interface systems.

Options: Enabled (Default) / Disabled

**Execute-Disable Bit Capability**

This item allows you to configure the Execute Disabled Bit function, which protects your system from buffer overflow attacks.

Options: Enabled (Default) / Disabled

**Core Multi-Processing**

This item allows multi-processing function for multi-core processors.

Options: Enabled (Default) / Disabled

### Intel(R) SpeedStep(tm) Tech

This item allows you to enable SpeedStep technology for better power saving. SpeedStep is a technology built into some Intel processors that allows the clock speed of the processor to be dynamically changed by software.

Options: Enabled (Default) / Disabled

### Intel(R) C-STATE Tech

This item allows you to control the C-State power management functions of the processor.

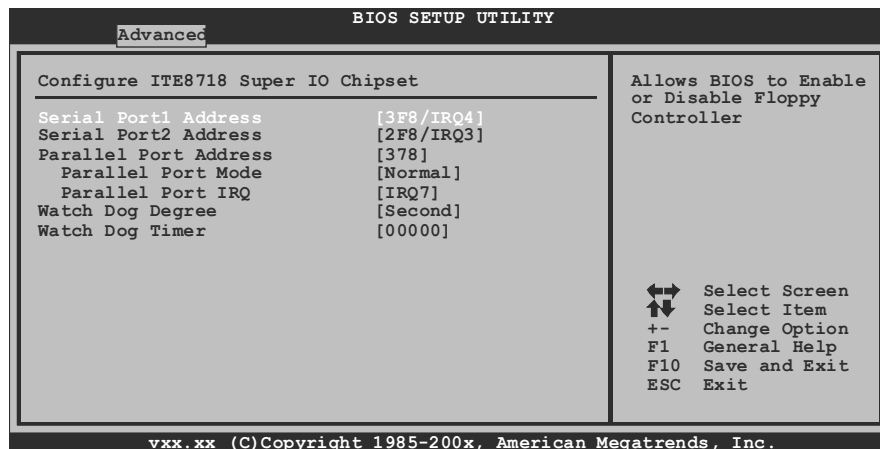
Options: Enabled (Default) / Disabled

### Enhanced C-States

This item allows you to control the enhanced C-States feature.

Option: Enabled (Default) / Disabled

## SuperIO Configuration



### Serial Port1 Address

Select an address and corresponding interrupt for Serial Port 1.

Options: 3F8/IRQ4 (Default) / 3E8/IRQ4 / 2E8/IRQ3 / Disabled

**Serial Port2 Address**

Select an address and corresponding interrupt for Serial Port 2.  
Options: 2F8/IRQ3 (Default) / 3E8/IRQ4 / 2E8/IRQ3 / Disabled

**Parallel Port Address**

This item allows you to determine access onboard parallel port controller with which I/O Address.  
Options: 378 (Default) / 278 / 3BC / Disabled

**Parallel Port Mode**

This item allows you to determine how the parallel port should function.  
Options: Normal (Default)      Using Parallel port as Standard Printer Port.  
          EPP                        Using Parallel Port as Enhanced Parallel Port.  
          ECP                        Using Parallel port as Extended Capabilities Port.  
          ECP+EPP                  Using Parallel port as ECP & EPP mode.

**ECP Mode DMA Channel**

This item allows you to select parallel port ECP DMA.  
Options: DMA3 (Default) / DMA0 / DMA1

**Parallel Port IRQ**

This item allows you to select the IRQ for the onboard parallel port.  
Options: IRQ7 (Default)

**Watch Dog Degree**

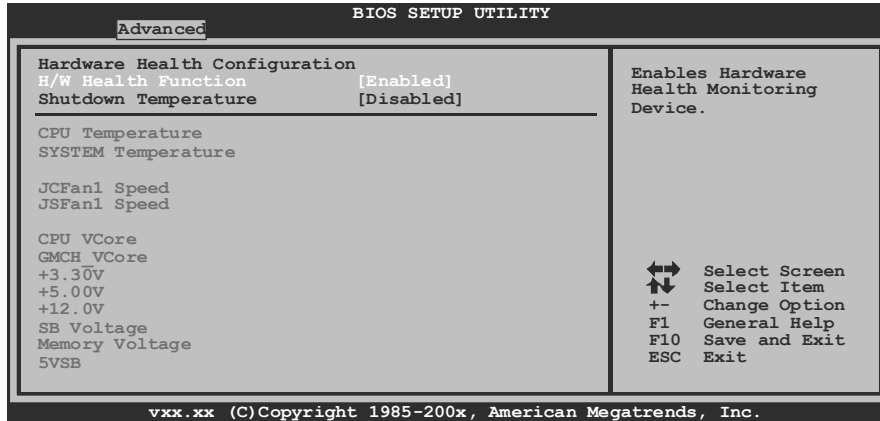
This item allows you to determine the functional degree of Watch Dog.  
Options: Second (Default) / Minute

**Watch Dog Timer**

Options: 0 for disabled (Default) / Min=1, Max=65536

## Hardware Health Configuration

This item shows the system temperature, fan speed, and voltage information.



### **H/W Health Function**

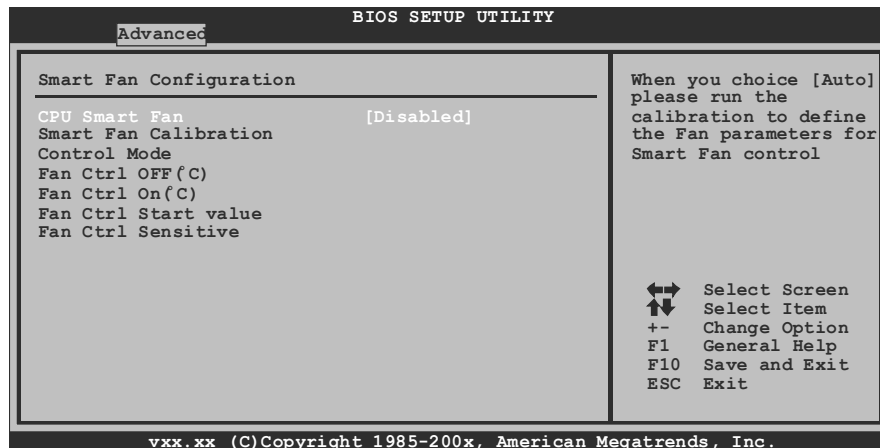
If with a monitoring system, PC will show PC health status during POST stage.  
Options: Enabled (Default) / Disabled

### **Shutdown Temperature**

This item allows you to set up the CPU shutdown Temperature. This item is only effective under Windows 98 ACPI mode.  
Options: Disabled (Default) / 60°C/140°F / 65°C/149°F / 70°C/158°F / 75°C/167°F / 80°C/176°F / 85°C/185°F / 90°C/194°F



## Smart Fan Configuration



### **CPU Smart Fan**

This item allows you to control the CPU Smart Fan function.  
Options: Disabled (default) / Auto

### **Smart Fan Calibration**

Choose this item and then the BIOS will auto test and detect the CPU fan functions and show CPU fan speed.

### **Control Mode**

This item provides several operation modes of the fan.  
Options: Manual (Default) / Quiet / Performance

### **Fan Ctrl OFF(°C)**

If the CPU Temperature is lower than the set value, the fan will turn off.  
Options: 0~127 (°C) (With an interval of 1°C)

### **Fan Ctrl On(°C)**

CPU fan starts to work when the temperature arrives this set value.  
Options: 0~127 (°C) (With an interval of 1°C)

### Fan Ctrl Start Value

When CPU temperature arrives to the set value, the CPU/System fan will work under Smart Fan Function mode.

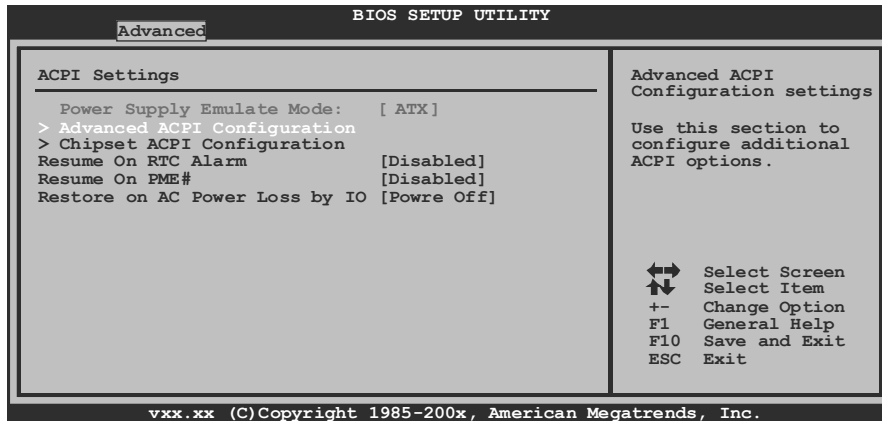
Options: 0~127 (With an interval of 1)

### Fan Ctrl Sensitive

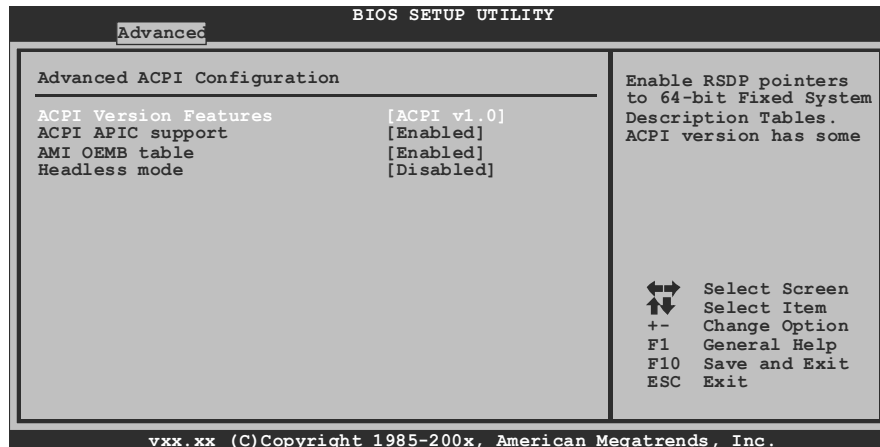
Increasing the value of slope PWM will raise the speed of CPU fan.

Options: 0~127 (With an interval of 1)

## ACPI Configuration



## Advanced ACPI Configuration



### ***ACPI Version Features***

The item allows you to select the version of ACPI.

Options: ACPI v1.0 (Default) / ACPI v2.0 / ACPI v3.0

### ***ACPI APIC support***

This item is used to enable or disable the motherboard's APIC (Advanced Programmable Interrupt Controller). The APIC provides multiprocessor support, more IRQs and faster interrupt handling.

Options: Enabled (Default) / Disabled

### ***AMI OEMB table***

Set this value to allow the ACPI BIOS to add a pointer to an OEMB table in the Root System Description Table (RSDT) table.

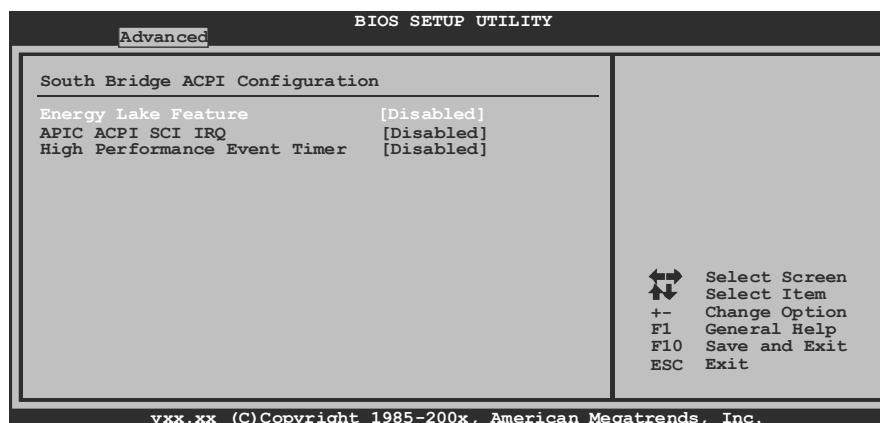
Options: Enabled (Default) / Disabled

### ***Headless mode***

This is a server-specific feature. A headless server is one that operates without a keyboard, monitor or mouse. To run in headless mode, both BIOS and operating system (e.g. Windows Server 2003) must support headless operation.

Options: Disabled (Default) / Enabled

## Chipset ACPI Configuration



### ***Energy Lake Feature***

This item allows you to enable or disable the Energy Lake technology feature.

Options: Disabled (Default) / Enabled

### ***APIC ACPI SCI IRQ support***

This item is used to set APIC ACPI SCI by IRQ.

Options: Disabled (Default) / Enabled

### ***High Performance Event Timer***

This item allows you to enable or disabled the HPET.

Options: Disabled (Default) / Enabled

### ***HPET Memory Address***

Options: FED00000h (Default) / FED01000h / FED02000h / FED03000h

## **Resume On RTC Alarm**

When “Enabled”, you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

Options: Disabled (Default) / Enabled

### **RTC Alarm Date (Days)**

You can choose which date the system will boot up.

### **RTC Alarm Time**

You can choose the system boot up time, input hour, minute and second to specify.

### Resume On PME#

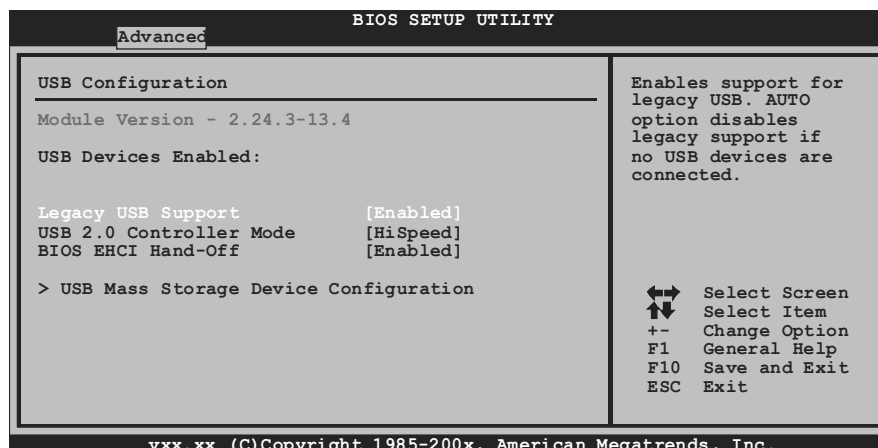
This item allows you to disable or enable PME to generate a wake event.  
Options: Disabled (Default) / Enabled

### Restore on AC Power Loss by IO

This setting specifies how your system should behave after a power fail or interrupts occurs. By choosing Disabled will leave the computer in the power off state. Choosing Enabled will restore the system to the status before power failure or interrupt occurs.  
Options: Power Off (Default) / Power ON / Last State

## USB Configuration

This item shows the USB controller and using USB device information.



### Legacy USB Support

This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This feature is useful for using USB devices with operating systems that do not natively support USB (e.g. Microsoft MS-DOS or Windows NT).  
Options: Enabled (Default) / Disabled / Auto

### USB 2.0 Controller Mode

This item allows you to select the operation mode of the USB 2.0 controller.

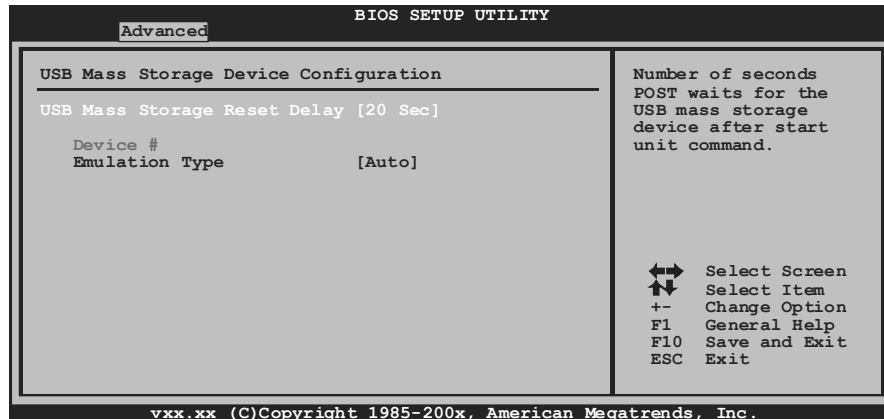
Options: HiSpeed (Default)    USB 2.0-480Mbps  
          FullSpeed            USB 1.1-12Mbps

### BIOS EHCI Hand-Off

This item allows you to enable support for operating systems without an EHCI hand-off feature.

Options: Enabled (Default) / Disabled

### USB Mass Storage Device Configuration



#### ***USB Mass Storage Reset Delay***

This item allows you to set the reset delay for USB mass storage device.

Options: 20 Sec (Default) / 10 Sec / 30 Sec / 40 Sec

#### ***Emulation Type***

This item allows you to select the emulation type of the USB mass storage device.

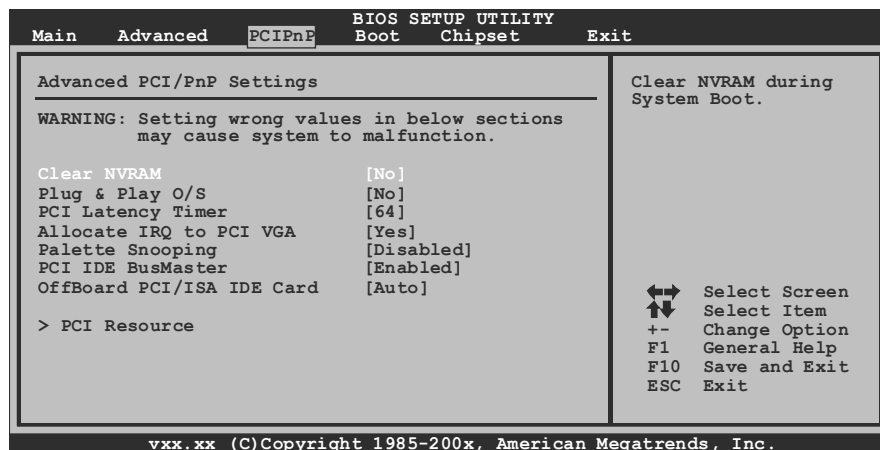
Options: Auto (Default) / Floppy / Forced FDD / Hard Disk / CDROM

### 3.3 PCI/PnP MENU

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

#### Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



#### Clear NVRAM

This item allows you to clear the data in the NVRAM (CMOS) by selecting “Yes”.  
Options: No (Default) / Yes

#### Plug & Play OS

When set to YES, BIOS will only initialize the PnP cards used for the boot sequence (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Window™ 95. When set to NO, BIOS will initialize all the PnP cards. For non-PnP operating systems (DOS, Netware™), this option must set to NO.  
Options: No (Default) / Yes

### **PCI Latency Timer**

This item controls how long a PCI device can hold the PCI bus before another takes over. The longer the latency, the longer the PCI device can retain control of the bus before handing it over to another PCI device.

Options: 64 (Default) / 32 / 96 / 128 / 160 / 192 / 224 / 248

### **Allocate IRQ to PCI VGA**

This item allows BIOS to choose a IRQ to assign for the PCI VGA card.

Options: Yes (Default) / No

### **Palette Snooping**

Some old graphic controllers need to “snoop” on the VGA palette and then map it to their display as a way to provide boot information and VGA compatibility. This item allows such snooping to take place.

Options: Disabled (Default) / Enabled

### **PCI IDE BusMaster**

This item is a toggle for the built-in driver that allows the onboard IDE controller to perform DMA (Direct Memory Access) transfers.

Options: Enabled (Default) / Disabled

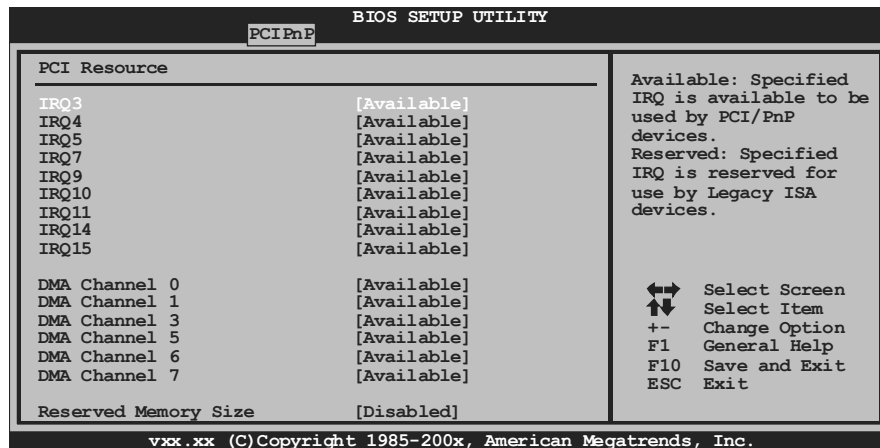
### **OffBoard PCI/ISA IDE Card**

This item is for any other non-onboard PCI/ISA IDE controller adapter.

Options: Auto (Default) / Disabled



## PCI Resource



### **IRQ3/4/5/7/9/10/11/14/15**

These items will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. The option “Available” means the IRQ is going to assign automatically.

Options: Available (Default) / Reserved

### **DMA Channel 0/1/3/5/6/7**

These items will allow you to assign each DMA channel a type, depending on the type of device using the channel. The option “Available” means the channel is going to assign automatically.

Options: Available (Default) / Reserved

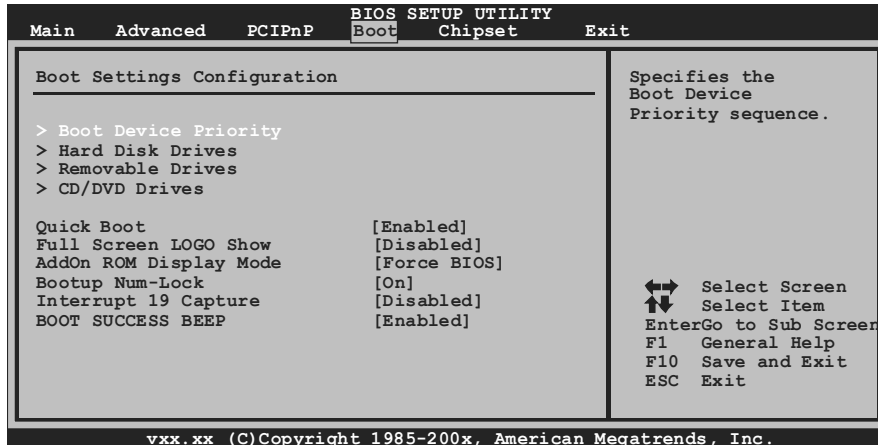
### **Reserved Memory Size**

This item allows BIOS to reserve certain memory size for specific PCI device.

Options: Disabled (Default) / 16K / 32K / 64K

### 3.4 BOOT MENU

This menu allows you to setup the system boot options.



#### Boot Device Priority

Items in this sub-menu specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

#### Hard Disk Drives

The BIOS will attempt to arrange the hard disk boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

#### Removable Drives

The BIOS will attempt to arrange the removable drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

### **CD/DVD Drives**

The BIOS will attempt to arrange the CD/DVD drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

### **Quick Boot**

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.

Options: Enabled (Default) / Disabled

### **Full Screen LOGO Display**

This item allows you to enable/disable Full Screen LOGO Show function.

Options: Disabled (Default) / Enabled

### **AddOn ROM Display Mode**

This item sets the display mode for option ROM.

Options: Force BIOS (Default) / Keep Current

### **Bootup Num-Lock**

Selects the NumLock State after the system switched on.

Options: On (Default) / Off

### **Interrupt 19 Capture**

Interrupt 19 is the software interrupt that handles the boot disk function. When set to Enabled, this item allows the option ROMs to trap interrupt 19.

Options: Disabled (Default) / Enabled

### **BOOT SUCCESS BEEP**

When this item is set to Enabled, BIOS will let user know boot success with beep.

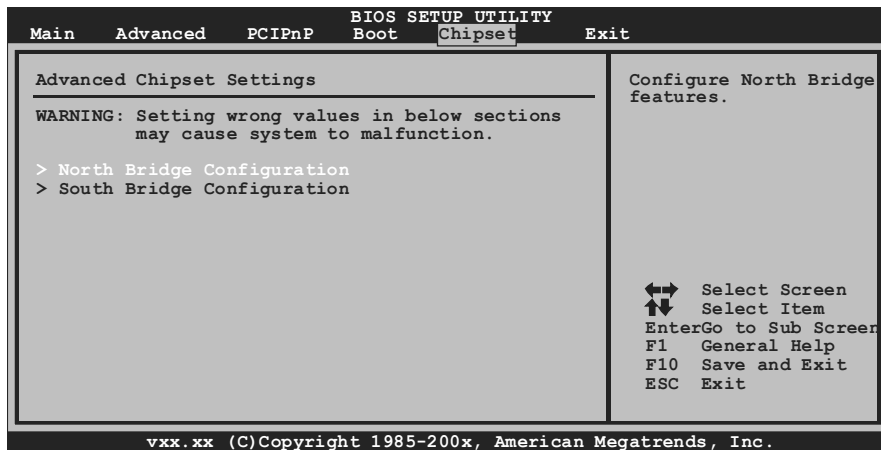
Options: Enabled (Default) / Disabled

### 3.5 CHIPSET MENU

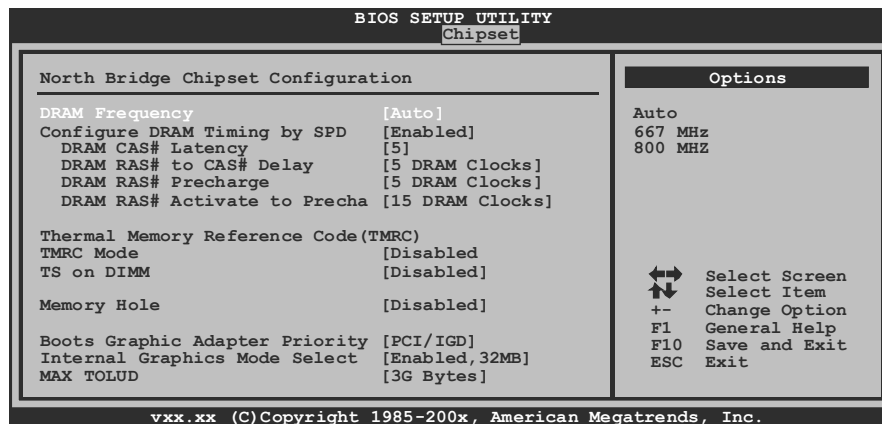
This submenu allows you to configure the specific features of the chipset installed on your system. This chipset manage bus speeds and access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus.

#### Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



## North Bridge Configuration



### DRAM Frequency

This item allows you to set the frequency of DRAM.

Options: Auto (Default) / 667 MHz / 800 MHz

### Configure DRAM timing by SPD

This item allows you to determine DRAM timing by SPD

Options: Enabled (Default) / Disabled

### DRAM CAS# Latency

Options: 5 (Default) / 3 / 4 / 6 / 7

### DRAM RAS# to CAS# Delay

Options: 5 DRAM Clocks (Default) / 2 ~ 8DRAM Clocks

### DRAM RAS# Precharge

Options: 5 DRAM Clocks (Default) / 2 ~ 8DRAM Clocks

### DRAM RAS# Activate to Precharge

Options: 15 DRAM Clocks (Default) / 4 ~ 14 DRAM Clocks

### **TMRC Mode**

This item allows you to select TMRC Mode: Disabled, TM, Catastrophic.  
Options: Disabled (Default) / Enabled

### **TM Lock**

This item allows you to enable/disable Thermal Sensor On Lock. This option is applicable only if TMRC is set Enabled.  
Options: Disabled (Default) / Enabled

### **TS on DIMM**

This item allows you to enable/disable Thermal Sensor On DIMM.  
Options: Disabled (Default) / Enabled

### **Memory Hole**

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved it cannot be cached. Check the user information of peripherals that need to use this area of system memory for the memory requirements.  
Options: Disabled (Default) / 15MB-16MB

### **Boots Graphic Adapter Priority**

This item allows you to determine the priority of graphic controller.  
Options: PCI/IGD (Default) / IGD

### **Internal Graphics Mode Select**

This item will be different as your memory modules. When the memory size is decided, this frame buffer size will also be fixed.  
Options: Enabled, 32MB (Default) / Enabled, 64MB / Enabled, 128MB / Disabled

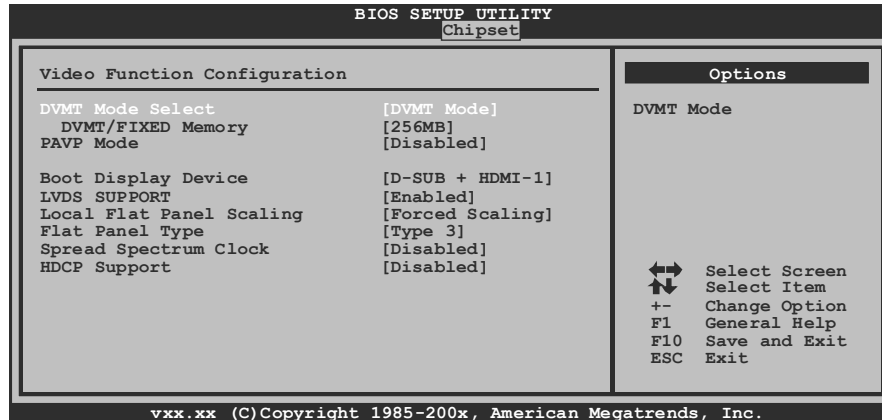
### **Max TOLUD**

This item allows you to set Maximum Value of TOLUD.  
Options: 3G Bytes (Default) / 2.5G Bytes / 2G Bytes

### **Gfx Low Power Mode**

This option is applicable for SFF only.  
Options: Enabled (Default) / Disabled

## Video Function Configuration



### ***DVMT Mode Select***

This item allows you to select the DVMT mode.

Options: DVMT Mode (Default)

### ***DVMT/FIXED Memory***

DVMT stands for "Dynamic Video Memory Technology". This is an enhancement of the unified memory architecture (UMA) concept. DVMT will set the optimum amount of memory to be allocated for a balance between graphics and system performance. DVMT dynamically respond to system requirements and applications demands, by allocating the proper amount of display, texturing and buffer memory after the operating system has booted.

Options: 256MB (Default) / 128MB / Maximum DVMT

### ***PAVP Mode***

GMCH Protected Audio Video Path (PAVP) BIOS support.

Options: Disabled (Default) / Lite / High

### ***Boot Display Device***

This item allows you to select the display device.

Options: D-SUB + HDMI-1 (Default) / D-SUB + HDMI-2 / D-SUB Only/ LVDS Only / HDMI-1 Only / HDMI-2 Only / D-SUB + LVDS

### ***LVDS SUPPORT***

Options: Enabled (Default) / Disabled

### ***Local Flat Panel Scaling***

Options: Forced Scaling (Default) / Auto / Disabled

## Mini-ITX Mainboard Manual

### *Flat Panel Type*

Options: Type 3 (Default) / Type 1 ~ Type 16

### *Spread Spectrum Clock*

Options: Disabled (Default) / Enabled

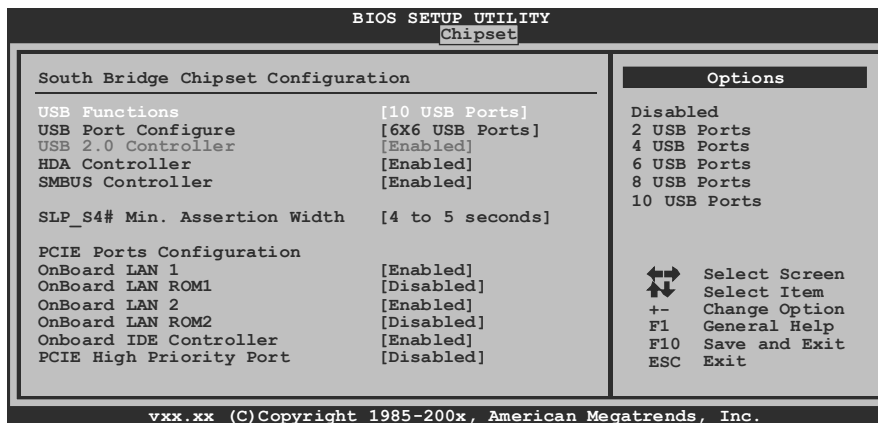
### *HDCP Support*

Options: Disabled (Default) / Enabled

### *HDCP Algorithm*

Options: Periodic (Default)

## **South Bridge Configuration**



### **USB Functions**

The item determines the activation of USB port.

Options: 10 USB Ports (Default) / 2 USB Ports / 4 USB Ports / 6 USB Ports / 8 USB Ports / Disabled

### **USB Port Configuration**

Options: 6X6 USB Ports (Default) / 8X4 USB Ports



**USB 2.0 Controller**

This entry is to enabled/ disabled EHCI controller only. This BIOS itself may/may not have high speed USB support. If the BIOS has high speed USB support, the support will be automatically turned on when high speed devices were attached.

Options: Enabled (Default) / Disabled

**HDA Controller**

This item allows you to control the Audio support.

Options: Auto (Default) / Disabled

**SMBUS Controller**

This BIOS feature controls the I/O buffers for the SMBus.

Options: Enabled (Default) / Disabled

**SLP\_S4# Min. Assertion Width**

Options: 4 to 5 seconds (Default) / 1 to 2 seconds / 3 to 4 seconds / 2 to 3 seconds

**Onboard LAN 1/2**

This item allows you to enable or disable the Onboard LAN.

Options: Enabled (Default) / Disabled

**Onboard LAN ROM 1/2**

This item allows you to select the Onboard LAN Boot ROM.

Options: Disabled (Default) / Enabled

**Onboard IDE Controller**

This item allows you to control Onboard IDE Controller.

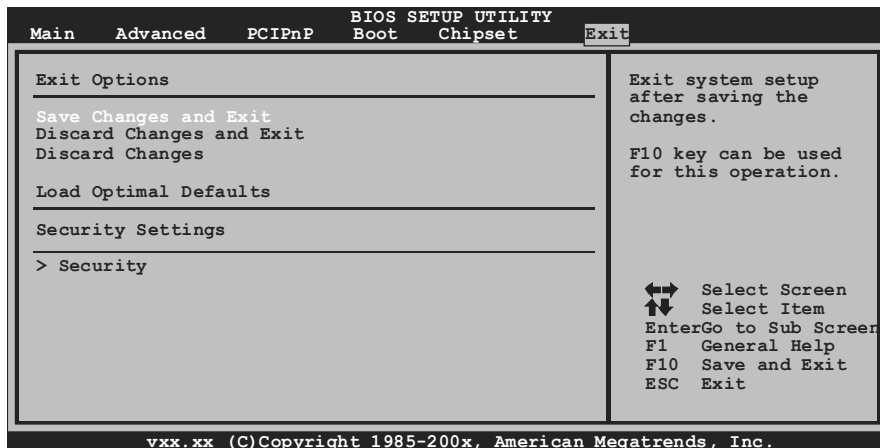
Options: Enabled (Default) / Disabled

**PCIE High Priority Port**

Options: Disabled (Default) / Port 0 ~ Port 5

### 3.6 EXIT MENU

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.



#### **Save Changes and Exit**

Save all configuration changes to CMOS RAM and exit setup.

#### **Discard Changes and Exit**

Abandon all changes made during the current session and exit setup.

#### **Discard Changes**

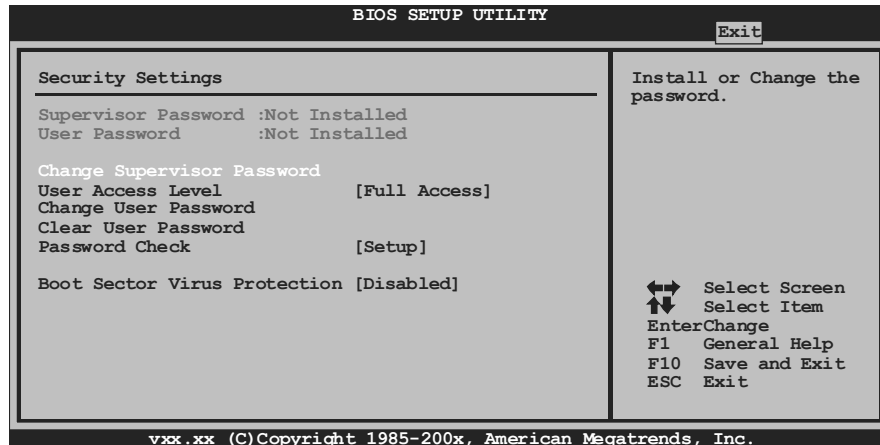
Abandon all changes made during the current session and restore the previously saved values.

#### **Load Optimal Defaults**

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

## Security

This sub-menu allows you to provide/revise supervisor and user password.



### **Change Supervisor Password**

Setting the supervisor password will prohibit everyone except the supervisor from making changes using the CMOS Setup Utility. You will be prompted with to enter a password.

### **User Access Level**

This item allows supervisor to set the user level.

Options: Full Access (Default) / No Access / View Only / Limited

### **Change User Password**

If the Supervisor Password is not set, then the User Password will function in the same way as the Supervisor Password. If the Supervisor Password is set and the User Password is set, the "User" will only be able to view configurations but will not be able to change them.

### **Clear User Password**

This item is for clearing user password.

### **Password Check**

This item is for setting the timing that checking password.

Options: Setup (Default) / Always

### **Boot Sector Virus Protection**

This option allows you to choose the VIRUS Warning feature that is used to protect the IDE Hard Disk boot sector. If this function is enabled and an attempt is made to write to the boot sector, BIOS will display a warning message on the screen and sound an alarm beep.

Options: Disabled (Default) / Enabled

## CHAPTER 4: USEFUL HELP

### 4.1 DRIVER INSTALLATION NOTE

After you installed your operating system, please insert the Fully Setup Driver CD into your optical drive and install the driver for better system performance.

You will see the following window after you insert the CD



The setup guide will auto detect your mainboard and operating system.

**Note:**

If this window didn't show up after you insert the Driver CD, please use file browser to locate and execute the file **SETUP.EXE** under your optical drive.

#### A. Driver Installation

To install the driver, please click on the Driver icon. The setup guide will list the compatible driver for your mainboard and operating system. Click on each device driver to launch the installation program.

#### B. Software Installation

To install the software, please click on the Software icon. The setup guide will list the software available for your system, click on each software title to launch the installation program.

#### C. Manual

Aside from the paperback manual, we also provide manual in the Driver CD. Click on the Manual icon to browse for available manual.

**Note:**

You will need Acrobat Reader to open the manual file. Please download the latest version of Acrobat Reader software from

<http://www.adobe.com/products/acrobat/readstep2.html>

## 4.2 AMI BIOS BEEP CODE

### Boot Block Beep Codes

Number of Beeps	Description
1	No media present. (Insert diskette in floppy drive A:)
2	"AMIBOOT.ROM" file not found in root directory of diskette in A:
3	Insert next diskette if multiple diskettes are used for recovery
4	Flash Programming successful
5	File read error
7	No Flash EPROM detected
10	Flash Erase error
11	Flash Program error
12	"AMIBOOT.ROM" file size error
13	BIOS ROM image mismatch (file layout does not match image present in flash device)

### POST BIOS Beep Codes

Number of Beeps	Description
1	Memory refresh timer error
3	Base memory read/write test error
6	Keyboard controller BAT command failed
7	General exception error (processor exception interrupt error)
8	Display memory error (system video adapter)

### Troubleshooting POST BIOS Beep Codes

Number of Beeps	Troubleshooting Action
1, 3	Reseat the memory, or replace with known good modules.
6, 7	<p>Fatal error indicating a serious problem with the system. Consult your system manufacturer. Before declaring the motherboard beyond all hope, eliminate the possibility of interference by a malfunctioning add-in card. Remove all expansion cards except the video adapter.</p> <ul style="list-style-type: none"> <li>● If beep codes are generated when all other expansion cards are absent, consult your system manufacturer's technical support.</li> <li>● If beep codes are not generated when all other expansion cards are absent, one of the add-in cards is causing the malfunction. Insert the cards back into the system one at a time until the problem happens again. This will reveal the malfunctioning card.</li> </ul>
8	If the system video adapter is an add-in card, replace or reseat the video adapter. If the video adapter is an integrated part of the system board, the board may be faulty.

### 4.3 TROUBLESHOOTING

Probable	Solution
<ol style="list-style-type: none"> <li>1. There is no power in the system. Power LED does not shine; the fan of the power supply does not work</li> <li>2. Indicator light on keyboard does not shine.</li> </ol>	<ol style="list-style-type: none"> <li>1. Make sure power cable is securely plugged in.</li> <li>2. Replace cable.</li> <li>3. Contact technical support.</li> </ol>
System is inoperative. Keyboard lights are on, power indicator lights are lit, and hard drives are running.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.
System does not boot from a hard disk drive, but can be booted from optical drive.	<ol style="list-style-type: none"> <li>1. Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup.</li> <li>2. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.</li> </ol>
System only boots from an optical drive. Hard disks can be read, applications can be used, but system fails to boot from a hard disk.	<ol style="list-style-type: none"> <li>1. Back up data and applications files.</li> <li>2. Reformat the hard drive. Re-install applications and data using backup disks.</li> </ol>
Screen message shows "Invalid Configuration" or "CMOS Failure."	Review system's equipment. Make sure correct information is in setup.
System cannot boot after user installs a second hard drive.	<ol style="list-style-type: none"> <li>1. Set master/slave jumpers correctly.</li> <li>2. Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.</li> </ol>

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