



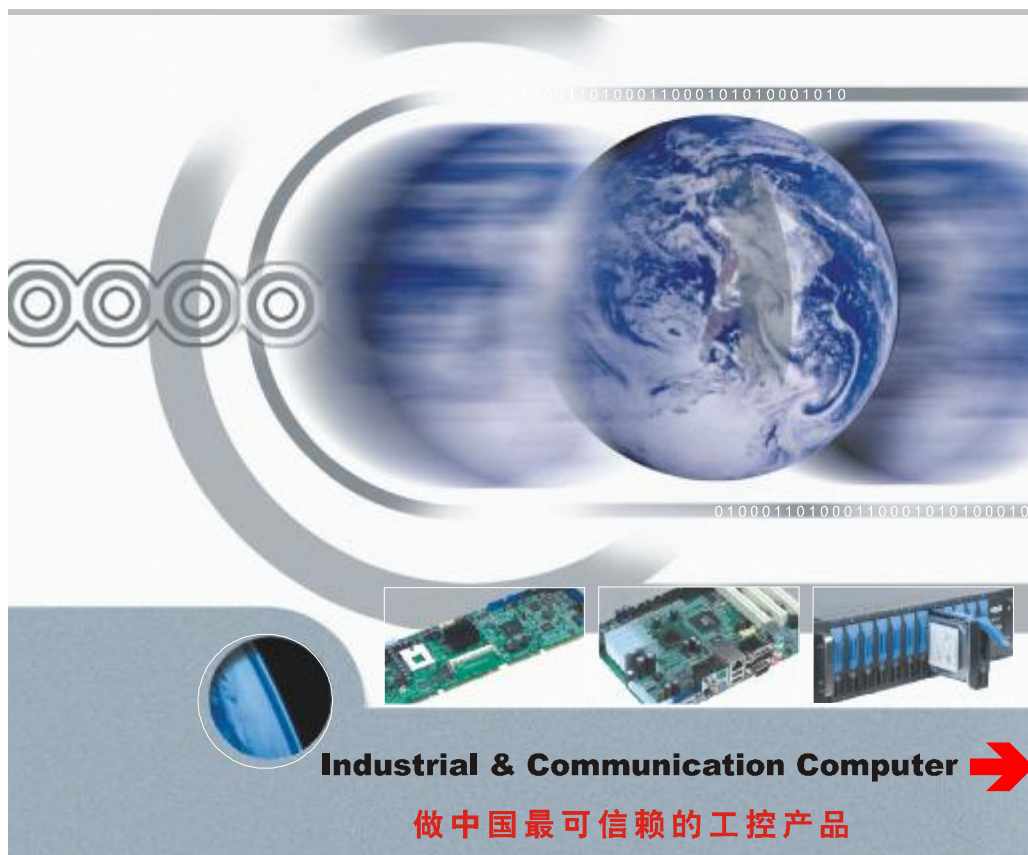
POS-7853

POS Dedicated Motherboard

USER' Manual V3.0

用户手册

USER'Manual



Industrial & Communication Computer 

做中国最可信赖的工控产品

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Chapter 1. Product Introduction

Chapter 1. Product Introduction

1.1 Overview

POS-7853 is a type of motherboard dedicated for POS applications with high speed computing and I/O operating capability. It adopts 945G/GcC+ICH7(R) chipset, supporting LGA775 Intel® Pentium 4, Pentium D, Core 2 Duo processor. For system memory, 2x 240pin dual channel memory slot, supporting DDR2 400/533/667 max. up to 2GB. For display, onboard graphic controller supports dual VGA display; For I/O, board provides 1xIDE, 1x5.1 Audio output, 1x parallel port and 10x Serial ports, 4xSATA1/SATA2 ports, 6x USB 2.0, 1 LAN port (100/1000M optional), 1*CF and it also supports other functions, such as IrDA, Watchdog Timer, Anti-virus BIOS and expansions.

1.2 Product Specifications

Structure Standards

- Motherboard dedicated for POS applications

Dimension

- 235X220 (L×W)

Processor

- Support LGA775 Pentium-4 CPU, Pentium-D and Core 2 Duo Processor
- FSB: 533MHz/800MHz/1066MHz

Chipset

- NorthBridge: Intel®945G/GC
- SouthBridge: Intel®ICH7(R)

Display

- Display Chip: Onboard Intel®945G integrated Intel® GMA 950 Graphic Controller
- 1* standard DB15 and 1* SDVO to VGA

System Memory

- 2* 240 PIN DDR2 DIMM memory slots

- Support DDR2 400/533/667 up to 2GB

Storage

- 4*Serial ATAII interfaces with transmission rate up to 300MB/s
- 1*IDE port
- 1* standard CF card socket

LAN

- Adopts Realtek 8103E/8111D chip
- Support 10/100/1000 Mbps

Audio

- Adopts Realtek ALC655 chip
- 1* 4PIN CD_INand 1*2X5PIN Header

USB

- 3*2X5Header interfaces, able to be converted to 6*standard USB ports
- Transmission rate up to 480Mb/s

I/O

- Adopts ITE-IT8712F I/O chip
- Support 2*COM with COM1 supporting RS232 and COM2 supporting RS232\422\485
- Standard PS/2 keyboard & mouse connector
- 1* IrDA

Expansions

- 1* PCI expansion

Power Supply

- ATX (20PIN dedicated power with +12V plug)

Watchdog Timer

- Support HDD reset function

BIOS

- 8MB SPI Flash BIOS
- Support ACPI function

Environment

- Operating Temperature: 0-60°C
- Operating Humidity: 5%-95%, no-condensing



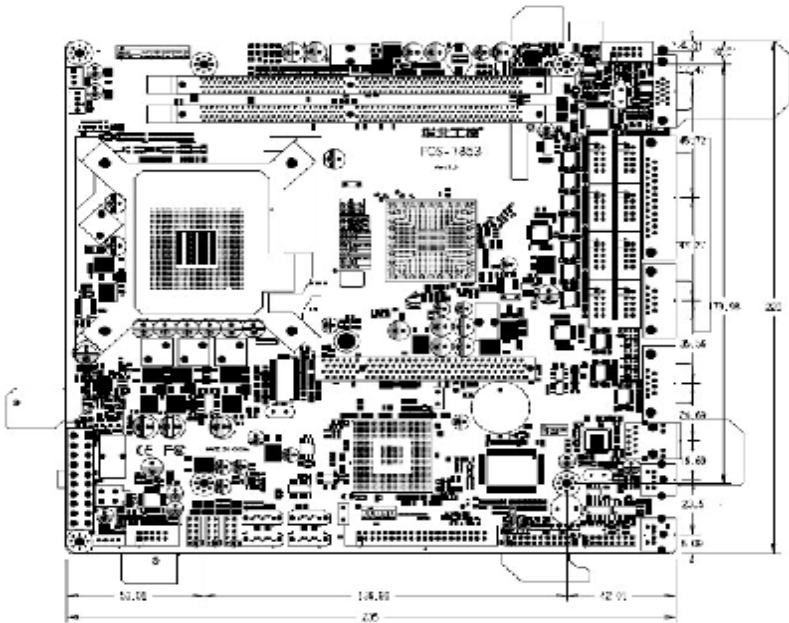
Chapter 2. Installation Instruction

Chapter 2. Installation Instruction

2.1 Interface position and Dimension Diagram

The chart below shows the dimension and interface location of POS-7853. During installation, please follow this diagram and read the instructions carefully. Any improper installation of some components will lead to system failure.

Note: When operating, please wear anti-static gloves in case that the static may cause damage to some components.



2.2 Installation Steps

Please follow the steps below to assemble your computer

1. Adjust all the jumpers on the motherboard POS-7853 according to the manual
2. Install CPU
3. Install Memory
4. Install other expansion cards
5. Connect all signal cable, power cable, panel control cable and power supply unit
6. Power on the computer and complete BIOS setup



All the key components of this board are integrated circuits, which are easy to be damaged by electrostatic influence. So, before installing motherboard, you should make the following preparation:

1. Hold the motherboard by the edge, don't touch the components or any pins on the board.
2. Use a grounded wrist strap or anti-static gloves while getting in touch with integrated circuit components(such as CPU, RAM).
3. When the integrated circuit components are uninstalled, pls put these components in antistatic tray or bags.
4. Pls make sure the power switch is off before connecting the power plug.

2.3 CPU Installation

Pls follow the steps below to intall CPU

- (1) Open the cover of CPU socket on the motherboard
- (2) Hold CPU by both sides. Make the triangle mark of its Pin1 aim at the socket notchmark and insert CPU into the socket.
- (3) Check the installation of CPU and close the socket cover.

Pls follow the steps below to install CPU FAN:

- (1) Make sure the CPU FAN heat sink aligned with the CPU surface and fix the fan on the motherboard.
- (2) Connect the fan power cord to the CPU FAN socket

2.4 RAM Installation

Board provides 2*DIMM sockets and please keep the following precautions in mind during the installation:

1. When installing the memory bank, pls align the notch with the socket and press softly to tighten the connection.
2. Pls make sure your memory bank can support the motherboard specifications.

2.5 Jumper Setting

Pls config the responding jumpers before installing the hardware:

Note: How to identify jumper and PIN1 of interface.

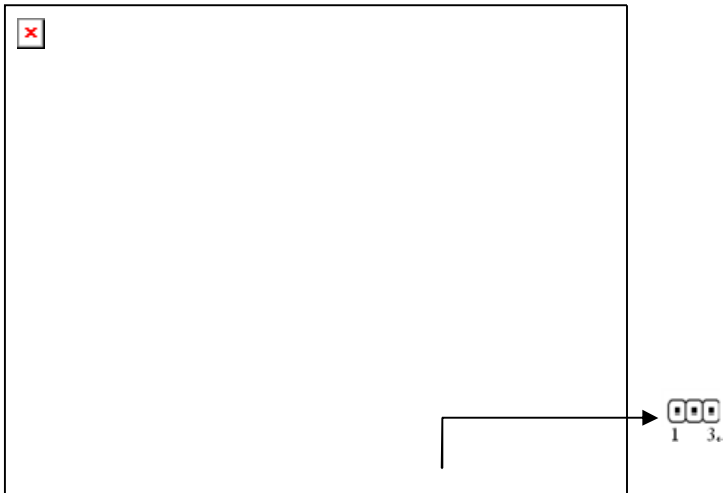
Please observe the word mark of plug socket, it will use "1" or bold line or triangular symbols;

and please look at the back of PCB, PIN 1 is with a square pad. The pin1 of all jumpers will have a white arrow.

2.5.1 CMOS Content Clearance/ Hold Setting

CMOS powered by onboard button battery. Clean CMOS will lead to a permanent elimination of the previous system setting and back to the original (default setting) system settings.

- Steps :**
- (1) Turn off the computer, disconnect the power supply
 - (2) Use jumper cap short JCC Pin 1 and Pin 2 for 5~6 sec, Then restore the default setting of Pin2 and Pin 3.:
 - (3) Turn on the computer, then press DEL key into the BIOS setting, you also can use optional load optimized defaults.
 - (4) Save and exit setting.



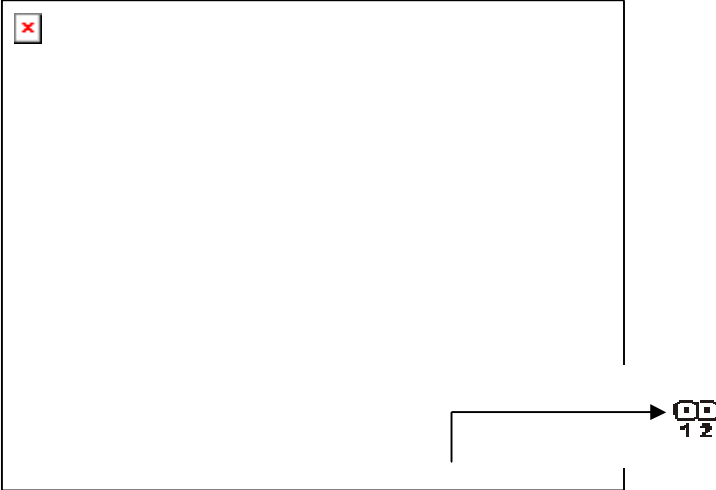
Setting	JCC
1-2	Clear CMOS (BIOS renew to initialization)
2-3	Normal Status (default)



Pls don't clear CMOS when the computer is booting, otherwise, damage will be caused to the motherboard.

2.5.2 CF card function Slave/Master Selection (JCF)

The jumper is used for setting CF card's slave or master disk. When JCF is closed, CF card is Master device. When you remove jumper, it will be slave.



Setting	JCF
Close	Set CF card as master (Default)
Open	Set CF card as slave

2.5.3 COM2 Jumper Setting (J6, J7, J13)

J6, J7, J13 are used to config COM2 transmission mode. COM2 supports RS 232/RS 422/RS 485 three transmission modes. Users can choose different configuration according to the actual requirements. Default set is RS232

COM2 RS232 (default)		COM2 RS422		COM2 RS485	
J6	3-5 4-6	J6	1-3 2-4	J6	1-3 2-4
J7	3-5 4-6	J7	1-3 2-4	J7	1-3 2-4
J13	1-2	J13	3-4	J13	5-6 7-8

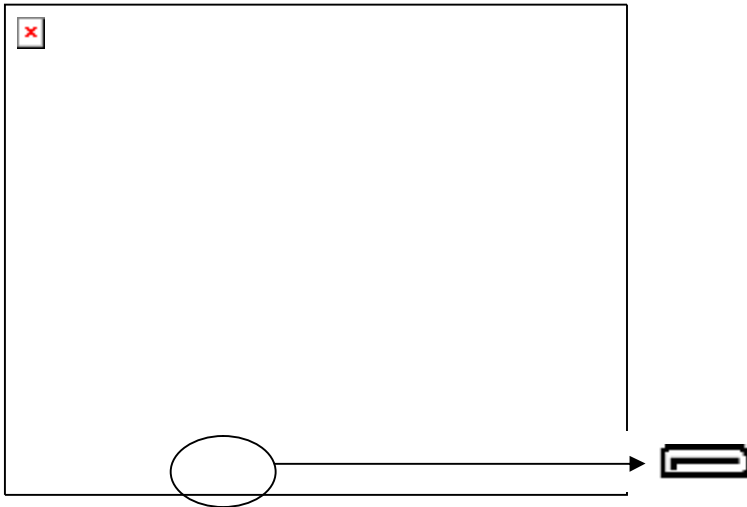
2.6 Interface Specification



Pls read this manual carefully before connecting the external connectors in case of any damage to the motherboard.

2.6.1 SATA and SATA HDD PWR Connector (SATA1—SATA4)

Board provides 4*SATA interfaces with transmission rate up to 300MB/s



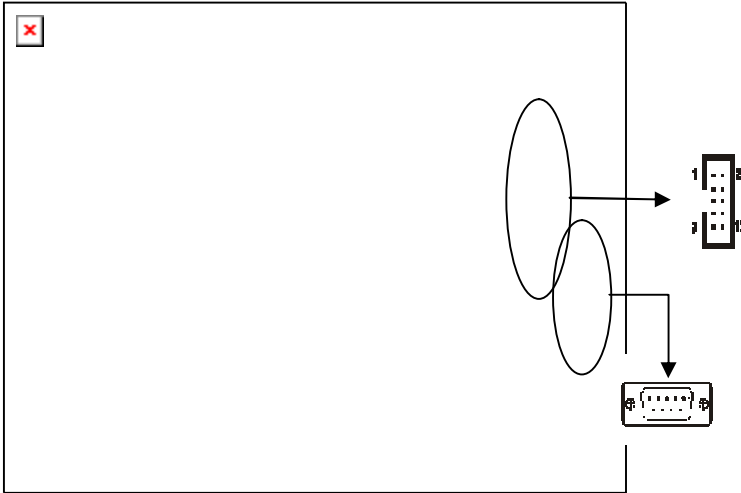
SATA:

Pin	Signal Name
1	GND
2	SATA_TXP
3	SATA_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND

2.6.2 Serial Ports (COM1, COM2, COM3—COM10, J10, J11)

Board provides 10* serial ports with COM1 and COM2 adopting the standard DB9 interface.COM3-COM10 need to be converted to standard DB9 interface with an extension cable and users can choose the IRQ and I/O address

COM1& COM2 support RS232. COM2 also supports RS422/485. Users can choose the transmission rate for COM2 via jumper setting. Details refer to Chapter2 --2.5.3 “COM2 Jumper Setting”。



COM1-COM2:

Pin	Signal Name	Description
1	DCD	Date convey detect
2	RXD	Receive data
3	TXD	Transfer data
4	DTR	Data terminal ready
5	GND	ground
6	DSR	Data setting ready
7	RTS	Requirement send
8	CTS	Clear the sending
9	RI	Ring indicate

COM3-COM10:

Signal Name	Pin		Signal Name
DCD	1	2	DSR
RX	3	4	RTS
TX	5	6	CTS
DTR	7	8	RI
GND	9	10	GND

J10 and J11 is the option for COM1 & COM2 to provide power voltage and alarm.

Jumper	Setting	Function
J10	2-4	COM1 +5V
	4-6	COM1 +12V
	1-3	COM2 +5V
	3-5	COM2 +12V
J11	2-4	COM1 VOL TAGE
	4-6	COM1 RING
	1-3	COM2 VOL TAGE
	3-5	COM2 RING

2.6.3 Parallel Port (LPT)

Standard 25Pin parallel port, able to connect parallel peripherals.



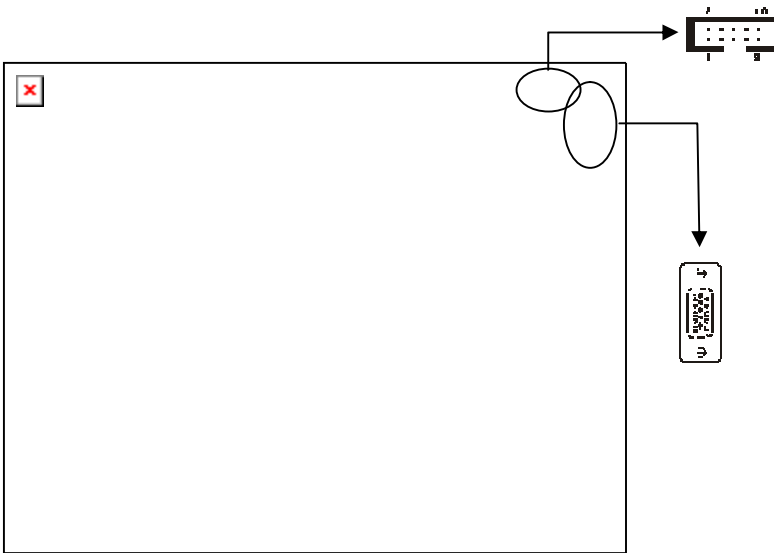
LPT:

Signal Name	Pin		Signal Name
STROBE	1	2	DATA0
DATA1	3	4	DATA2
DATA3	5	6	DATA4
DATA5	7	8	DATA6
DATA7	9	10	ACK#
BUSY	11	12	PE
SELECT	13	14	AUTO FEED#
ERR#	15	16	INIT#

SLIN#	17	18	GND
GND	19	20	GND
GND	21	22	GND
GND	23	24	GND
GND	25		

2.6.4 Display Interface (VGA1-VGA2)

Board provides one 2×5Pin VGA Header and one standard VGA



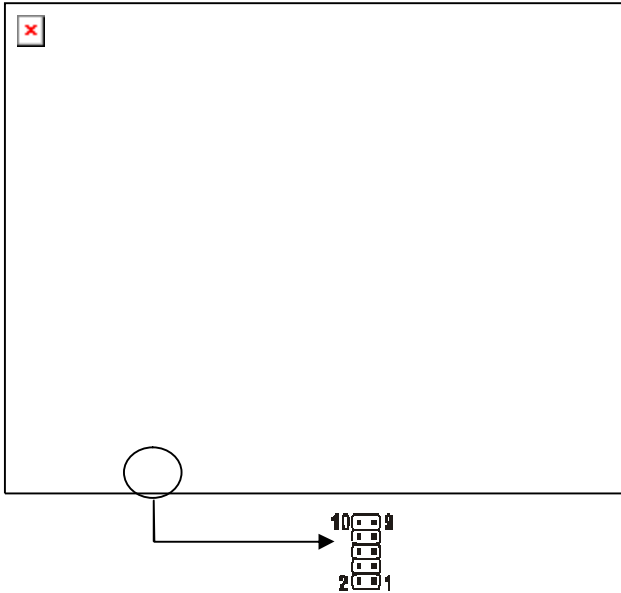
Standard VGA:

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	SDA
3	BLUE	8	GND	13	HSYNC
4	NC	9	+5V	14	VSYNC
5	GND	10	GND	15	5VDDCK

2.6.5 USB Ports (USB12, USB34, USB56)

Board provides 3* 2×5Pin USB ports and able to be converted to 6*standard USB via

3*IDC10.

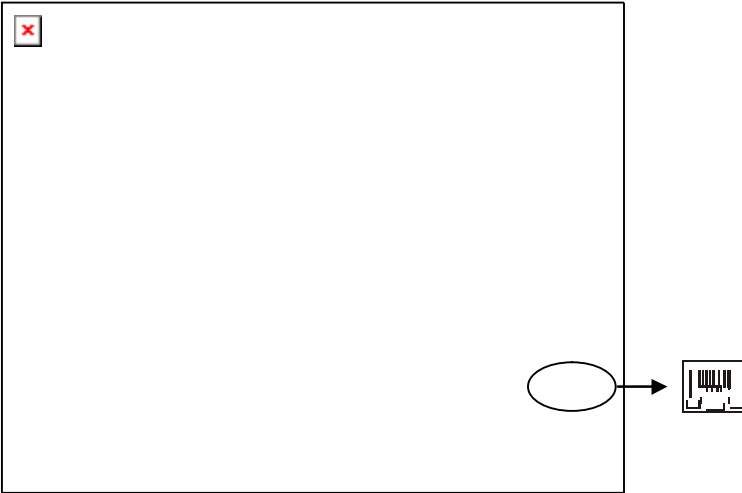


USB:

Signal Name	Pin		Signal Name
+5V	1	2	GND
USB DATA-	3	4	GND
USB DATA+	5	6	USB DATA+
GND	7	8	USB DATA-
GND	9	10	+5V

2.6.6 Network Interface (LAN)

Board provides one 10/100/1000Mb RJ45 network interface. Both sides of RJ-45 Ethernet port has one LED. Yellow LED indicates data transmission status, while green LED indicates the network connecting status.

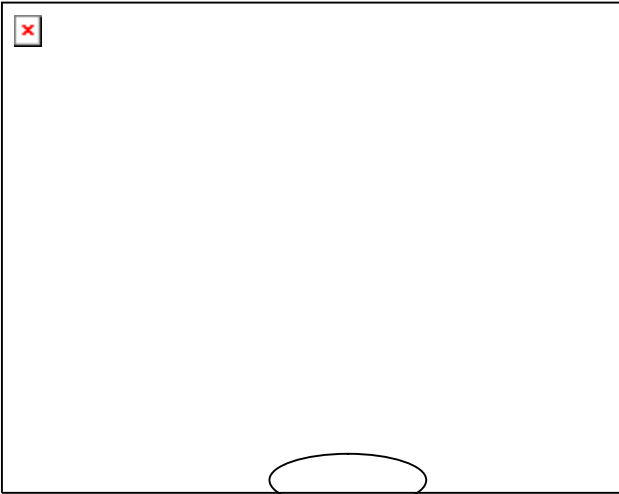


RJ45 PORT LED:

LILED(Green)	Function	ACTLED(Yellow)	Function
On	Effective Link	On	Data transferring
Off	Ineffective link/close	Off	NO Data

2.6.7 IDE Port

Board provides one 40 Pin IDE port (IDE1). When installing IDE, please pay attention to: 1*master device, 1*slave device. The connection: Master device is connected to the end of cable, while the slave device is connected to the middle of cable. When using Ultra ATA66/100 HDD, users must use the special 80pin flat cable



IDE:

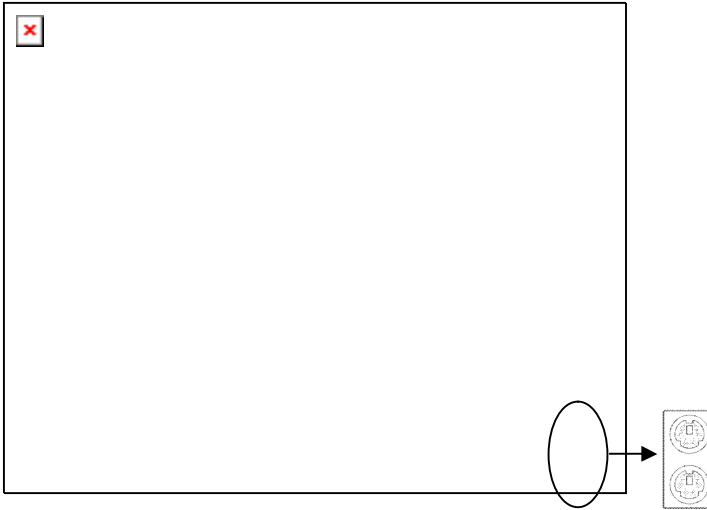


Pin	Signal Name	Pin	Signal Name
1	RESET#	21	DMARQ
2	GND	22	GND
3	DD7	23	DIOW#
4	DD8	24	GND
5	DD6	24	DIOR#
6	DD9	26	GND
7	DD5	27	IORDY
8	DD10	28	CSEL
9	DD4	29	DMACK#
10	DD11	30	GND
11	DD3	31	INTRQ
12	DD12	32	NC
13	DD2	33	DA1
14	DD13	34	PDIAG#
15	DD1	35	DA0
16	DD14	36	DA2
17	DD0	37	CS0#
18	DD15	38	CS1#
19	GND	39	DASP#

20	NC	40	GND
----	----	----	-----

2.6.8 Keyboard & Mouse Interface (PS/2)

PS/2 is the keyboard & mouse interface on the rear of the motherboard. Users can insert PS/2 into the corresponding connectors. (Green for mouse, Purple for keyboard)



Mouse:

Pin	Signal Name
1	+5V
2	GND
3	NC
4	MS_DAT A
5	MS_CLK
6	NC

Keyboard

Pin	Signal Name
1	+5V
2	GND
3	NC
4	KB_DATA

5	KB_CLK
6	NC

2.6.9 Infrared Interface (IRDA)

Board provides one infrared interface supporting infrared transmission.

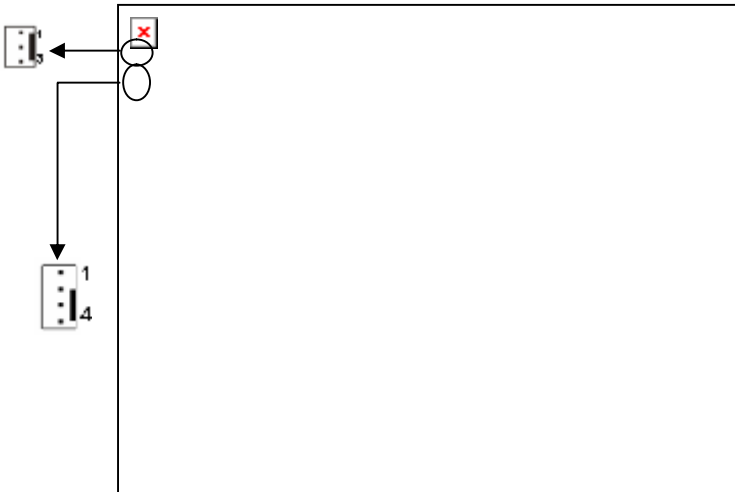
IRDA:

Pin	Signal Name
1	+5V
2	NC
3	IRRX
4	GND
5	IRTX

2.6.10 FAN Connector (GMCHFAN, CPUFAN)

Board provides one 4Pin CPUFAN connector and one 3Pin SYSFAN connector. When using the fan, pls pay attention to the following points:

- (1) Electric current for fan $\leq 350\text{mA}$ (4.2W, 12V)
- (2) Confirm the fan cable matches the fan socket



CPUFAN:

Pin	Signal Name
-----	-------------

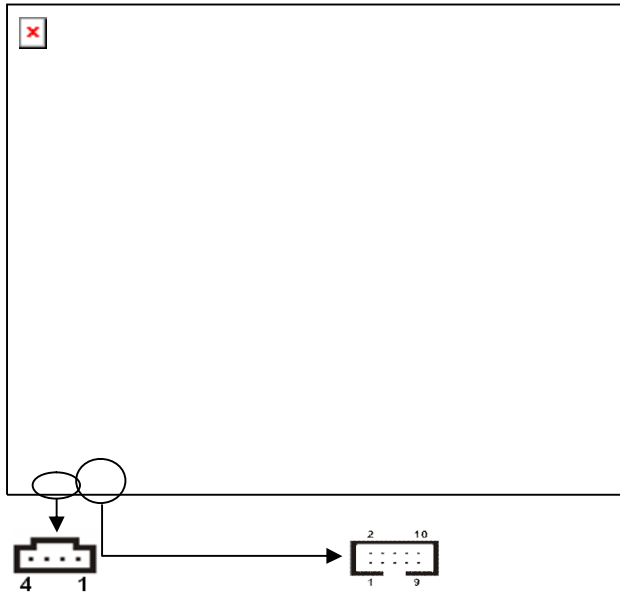
1	GND
2	+12V
3	FANIO
4	FANPWM

SYSFAN:

Pin	Signal Name
1	GND
2	+12V
3	Speed detect

2.6.11 Audio Interface (J12)

Onboard audio controller, providing one 4PinCD_IN and one 2x5Header interface.



J12:

Signal Name	Pin		Signal Name
GND	1	2	MIC_IN
SPKOUT_L	3	4	SPKOUT_R
GND	5	6	GND

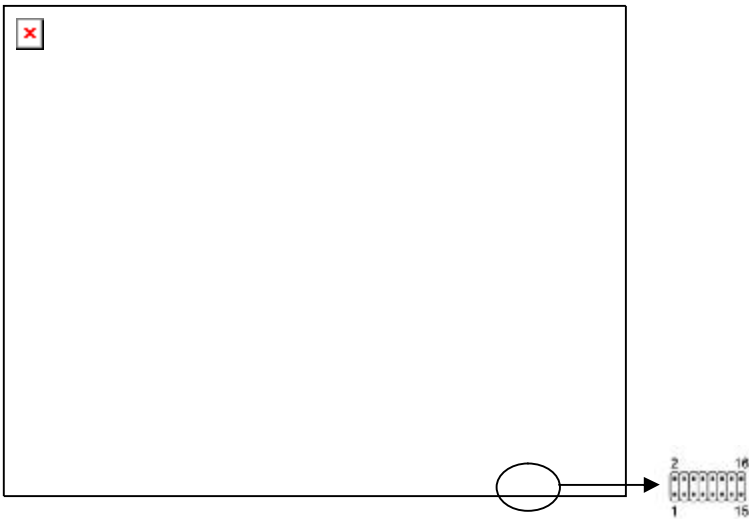
GND	7	8	NC
LINE_L	9	10	LINE_R

CD_IN:

Pin	Signal Name
1	CD_L
2	CD_GND
3	CD_GND
4	CD_R

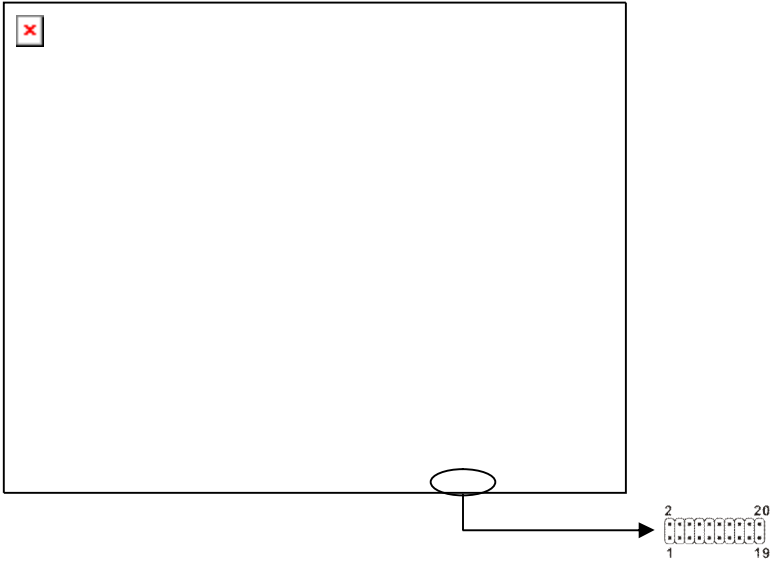
2.6.12 GPIO Interface (JGP)

Board provides expansion for I/O. When microcontroller or chipset doesn't have enough I/O, or the system needs to adopt remote serial communications or controlling, GPIO will provide extra control and monitoring function.



2.6.13 Front Panel Connector (J5)

J5 is used to connect the function buttons and indicator LED on the front panel.



J5:

Signal Name	Pin		Signal Name
PERLED	1	2	VCC
GND	3	4	NC
GND	5	6	NC
KEYLOCK#	7	8	SPK-
GND	9	10	NC
GND	11	12	NC
GND	13	14	PWRBTSW-
GRELED+	15	16	GRELED-
GND	17	18	RSTBTN-
HDLED-	19	20	VCC

Please follow the table below to connect, pay attention to the anode(+)and cathode(-), otherwise , some function can not be realized.

SPEAKER		POWER	SLEEP	RESET	IDE
POWER LED		BUTTON	LED	BUTTON	LED

1)System Power LED Pins (pin1, pin3 for PWLED)

Connect system power LED cable with these pins. (pin 1 is LED anode) When system power is switched on, power LED on; when system power is switched off, power LED off.

2) Buzzer Pins (pin2, pin8 for SPEAKER)

Offboard buzzer pins

3) ATX Power On/Off Button Pins (pin13, pin14 for Power Button)

Connect these two pin to the spring button on the chassis to connect or disconnect the ATX power supply.

4) Sleep Indicator Pins (Pin 15, Pin 16 for GREEN LED)

Connect the power indicator cable to these two pins (Pin 15 is LED anode). When the system is power on, the LED indicator will on, while the system is power off, the LED indicator will be off. When the LED indicator is flashing, the system is sleeping.

5) Reset Button Pins (Pin 17, Pin 18 for RESET Button)

Connect the reset button cable to these two pins. When system fails, reset button can make the system continue to work and no need to turn on / off the power.

6) IDE Device Status Indicator Pins (Pin 19,Pin20 for HDD LED)

Generally, the panel provides one IDE indicator LED. When IDE devices write or read, the LED indicator will flash, to show the device working normally. Connect the LED indicator cable to the pin. (Pin 19 is LED anode).

2.6.14 Memory Slot (DIMM1, DIMM2)

Board provides 2* 204PIN DIMM slots, supporting DDR2 400/533/667 (945GZ not supports DDR2 667) with capacity up to 2GB.

2.6.15 PCI Socket (PCI)

Motherboard provides one standard PCI port..

2.6.16 CF Card Socket

Standard CF Card Socket.

Note: CF card socket adopts the same channel with IDE. IDE can connect max. 2* IDE devices. When using CF card, IDE device can be used simultaneously, but can only connect one IDE device.



Chapter 3. BIOS SETUP

Chapter 3. BIOS Setup

AMI BIOS Upgrading

BIOS functions as a bridge connecting hardware and operating system. Hardware and software are upgrading all the time, so when your system goes wrong, for example, your system can not support the newest CPU, you need to upgrade BIOS to keep up with the latest technology.

AFUDOS.EXE is the FLASH IC program for BIOS to upgrade, which needs to be run in DOS mode.

Pls use a boot disk to load DOS, then run AFUDOS.EXE to upgrade BIOS (for example: write XXXX.ROM into FLASH IC)

Oder format:

A:\Afudos XXXX.rom

If you need to add other parameters, pls add <space>/? after the order format

Example: Afudos 7853i100.rom /P /B /C /N /X

Remarks:

1. BIOS upgrading is only executed when your system goes wrong.
2. Please use the upgrading program in the CD-ROM provided by us or download the latest version of the upgrading program on-line
3. Please do not power off or reboot the system when upgrading, otherwise, the BIOS maybe be damaged or system may not be able to boot again.
4. Please backup your BIOS before upgrading

AMI BIOS Description

When the computer is power on, BIOS will conduct self-diagnosis to its hardware on motherboard and configure hardware parameter, finally the operating system will take control. BIOS is the communication bridge between hardware and O/S. Correct configuration of BIOS is critical for maintaining system stability and its optimized performance.

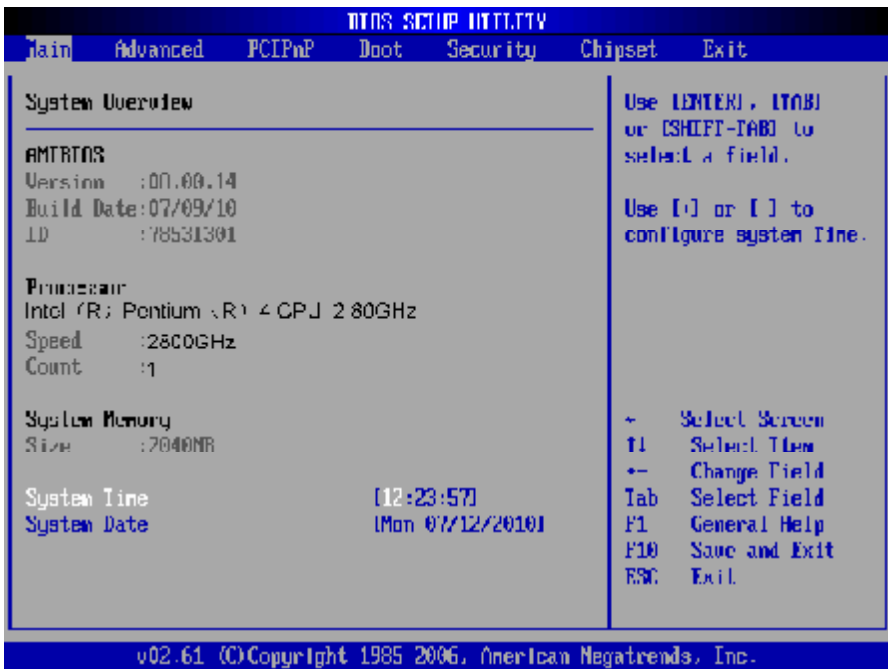
BIOS Parameter Configuration

After finishing the self-diagnosis, following message will show on the screen:

DEL->SETUP, pls press DEL, then system will enter BIOS setup interface automatically after doing the IDE detection:

1. Power on or reboot the computer, self-detection information will show:
2. When message shows as "Press to enter setup", pls press , then enter into BIOS SETUP Program.
3. Use the "←→↓↑" to choose the option which you want to modify, press <Enter> and then the sub-menu will show.
4. Use the "←→↓↑" and <Enter> to modify the value; press "Enter" to modify BIOS options that you choose
5. At any time, press <Esc> can go back to the father-menu.

3.1 Main Menu



AMI BIOS (Read Only)

BIOS information: such as BIOS version, Build date and BIOS ID.

Processor (Read Only)

CPU information, such as the processor speed.

System Memory (Read Only)

This section shows the size of the system memory

System Time

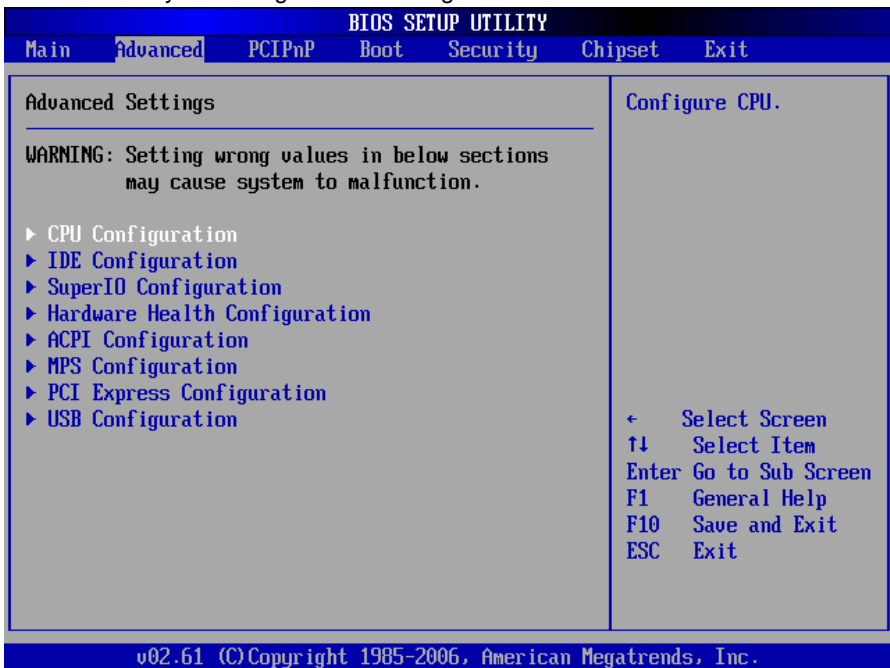
System time format: Hour/Minute/Second

System Date

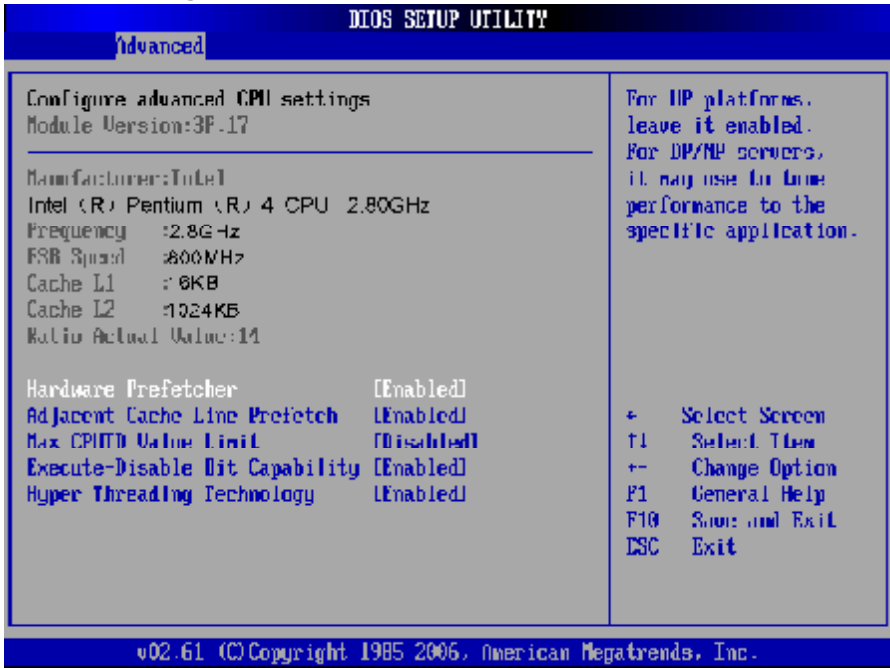
Setup system date. Format: Week/Month/Day/Year

3.2 Advanced Menu

Note: The incorrect parameter may lead to your system failure, pls set up this section carefully according to the following instructions.



3.2.1 CPU Configuration



This Read-Only option contains the detailed information of CPU, including CPU manufacturer, type, frequency, L1 cache and L2 cache, ect.

Hardware Prefetcher

[Enabled]: permit to change the speed of HDD Drive

[Disabled]: Prohibit to change the speed of HDD Drive

Adjacent Cache Line Prefetch

This configuration to allow or prohibit the use of adjacent Cache Line Prefetch mode.

Users can choose [Disabled] or [Enabled].

Max CPUID Value Limit

[Enabled]: Support this function

[Disabled]: Disable this function.

Execute-Disable Bit Capability

Execute Disable Bit (EDB) is a hardware-based security feature that introduced to its new generation CPU by Intel, which can help reduce system exposure to viruses and malicious code. EDB allows the processor to classify areas in memory where application code can or cannot execute. To use Execute Disable Bit you must have Windows XP SP2 operating system to support this function.

Hyper Threading Technology

[Enabled]: Support this function

[Disabled]: Disable this function.

3.2.2 IDE Configuration

BIOS SETUP UTILITY	
Advanced	
IDE Configuration	Options
ATA/IDE Configuration	[Enhanced]
Configure SATA as	[IDE]
Configure SATA Channels	[Before PATA]
▶ Primary IDE Master	: [Not Detected]
▶ Primary IDE Slave	: [Not Detected]
▶ Secondary IDE Master	: [Not Detected]
▶ Secondary IDE Slave	: [Not Detected]
▶ Third IDE Master	: [Not Detected]
▶ Third IDE Slave	: [Not Detected]
Hard Disk Write Protect	[Disabled]
IDE Detect Time Out (Sec)	[35]
ATA(Pi) 80Pin Cable Detection	[Host & Device]
	+ Select Screen
	↑↓ Select Item
	+ - Change Option
	F1 General Help
	F10 Save and Exit
	ESC Exit
v02.61 (C) Copyright 1985-2006, American Megatrends, Inc.	

ATA/IDE Configuration

This option is to select ATA/IDE configuration mode. Two options available: [Compatible] mode and [Enhanced] mode

Configure SATA as

SATA Configuration Mode Selection. Three options available:[RAID], [AHCI] and [IDE].

Primary/Secondary /Third IDE Master/Slave

This option is to set the IDE interface types. Recommended defaults as [Auto] to let the system automatically setup the devices.

Hard Disk Write Protect

HDD Write Protect function setting:

<Enabled> Write Protect is activated, HDD read only:

<Disabled> HDD can write or read.

IDE Detect Time Out (Sec)

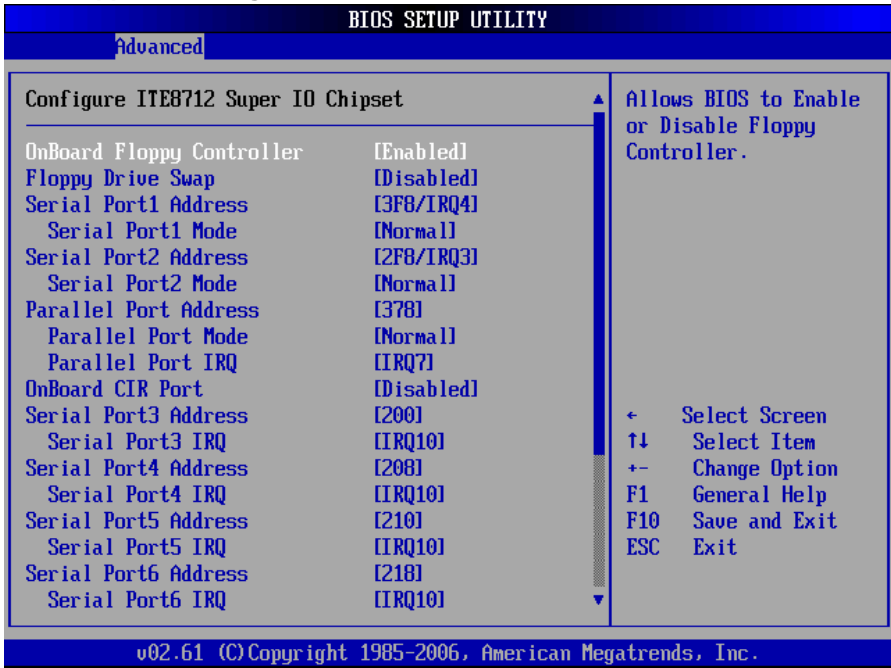
Set BIOS searching IDE device in appointed time (by seconds)

ATA (PI) 80Pin Cable Detection

Setup detecting ATA (PI) 80pin cable. There are three options available.

Select <Host & Device>: it will consult the cable type both IDE controller and IDE disk drive, which is system default; Select<Host> it will use the cable type used by IDE controller; Select <Device> it will use the cable type used by IDE disk drive.

3.2.3 Supper IO Configuration



OnBoard Floppy Controller

This option is used to open or close the onboard floppy controller.

[Enabled] for open this function

[Disabled] for close this function

Floppy Drive Swap

This option is used to adjust the floppy logic driver letter for two different floppy drives.

[Enabled] for open this function

[Disabled] for close this function

Serial Port Address

This option is used to config the interrupt and address of serial port. Default set is recommended.

Serial Port Mode

This is used to config the serial port mode.

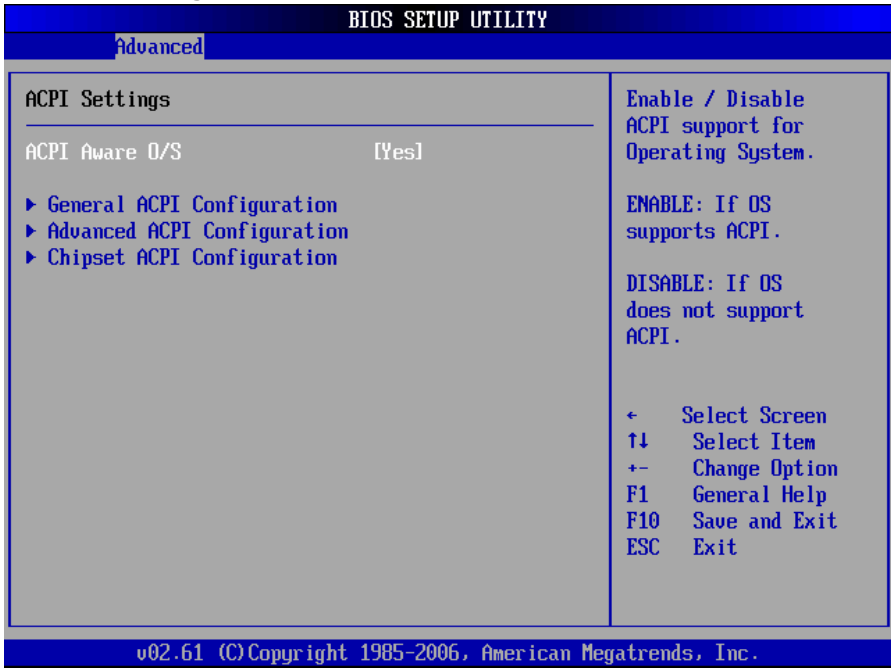
3.2.4 Hardware Health Configuration

BIOS SETUP UTILITY	
Advanced	
Hardware Health Configuration	
H/W Health Function	[Enabled]
SYS Temperature	:36°C/96°F
CPU Temperature	:52°C/125°F
CPU Core	:1.328 V
Vcc	:1.776 V
+3.30V	:3.280 V
+5.00V	:4.919 V
VTT	:0.864 V
5VSB	:4.892 V
Enables Hardware Health Monitoring Device.	
+ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
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Hardware Health Configuration

This option is for hardware security detection. BIOS will show system current temperature, CPU temperature, the rev of FAN and related voltage. All the items has a separate preset value . The system should work within this value.

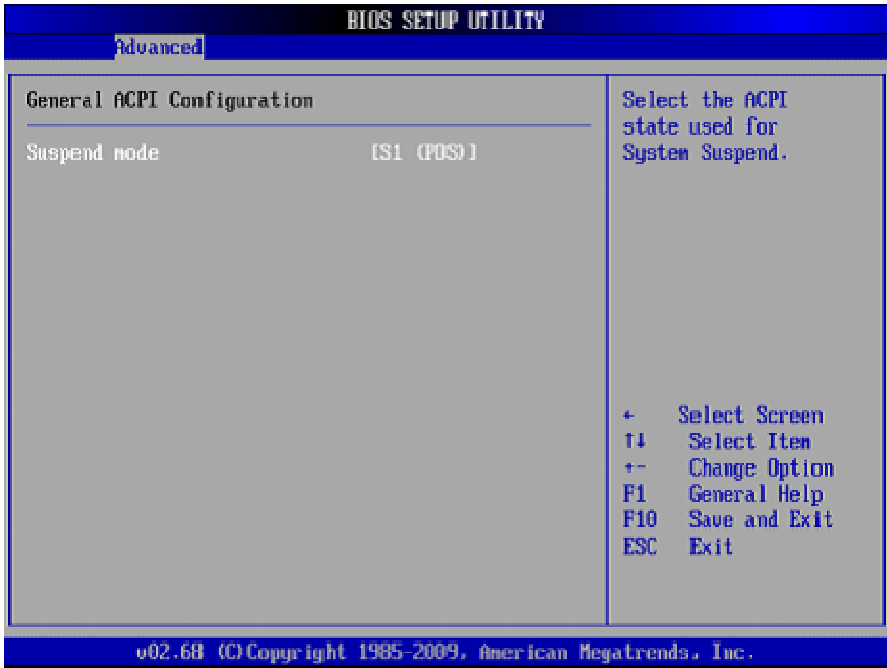
3.2.5 ACPI Configuration



ACPI Aware O/S

If choose [YES], system supports ACPI, then BIOS will allocate system resource according to ACPI specification and system will also conduct the power management according to ACPI

General ACPI Configuration



Suspend mode

Suspend mode selection. Different modes with different power consumption.

S1(pos): CPU stops working while other devices are still connected to power supply.

S3(STR): Power is only supplied to system memory.

Advanced ACPI Configuration



ACPI Version Features

ACPI Version Selection. Different versions with different features, generally with downward compatibility.

ACPI APIC support

Select to open or close the APIC, which can manage to expand the available IPQ resources.

AMI OEMB table

Disable or enable the AMI OEMB table function

Headless mode

System in this mode that no VGA output , no mouse or keyboard input.

South Bridge ACPI Configuration



Energy Lake Feature

Disable or enable the Energy Lake function.

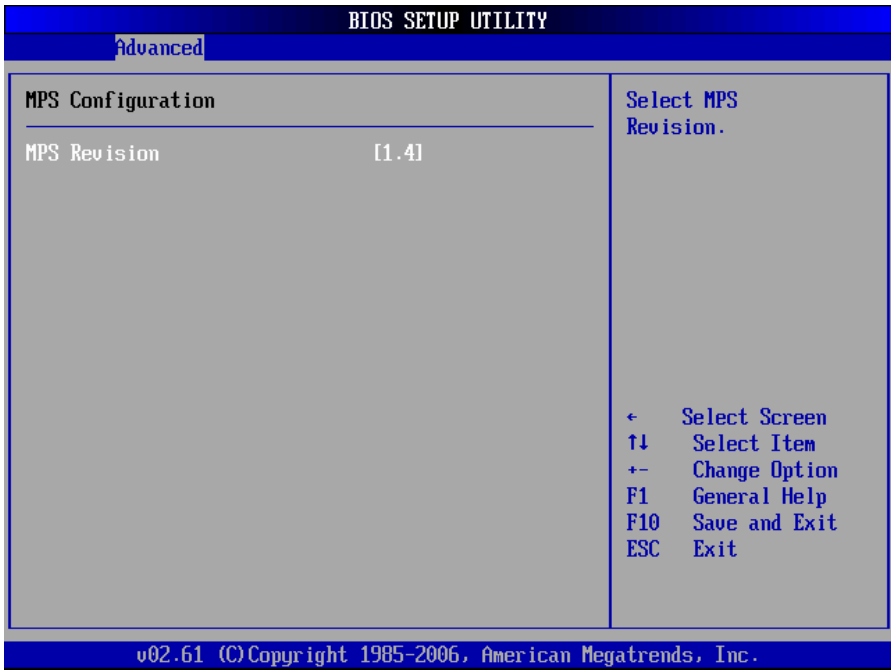
APIC ACPI SCI IRQ

Enable or disable the interior I/O APIC and multiprocessor table.

USB Device Wakeup From S3/S4

This option is used to allow or prohibit the USB device to wakeup from S3/S4.

3.2.6 MPS Configuration

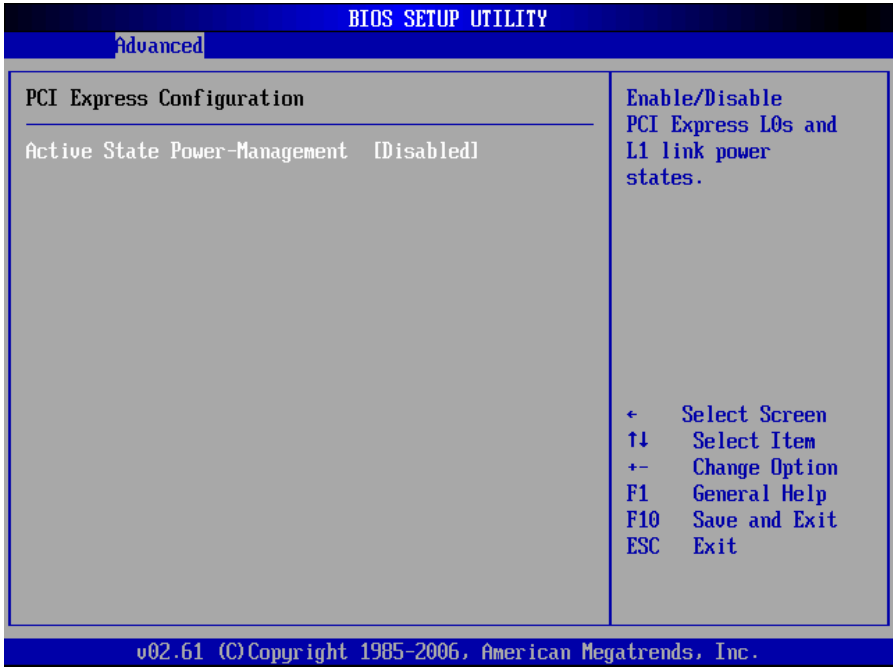


MPS Revision

This option will allow users to choose the MPS revision according to the operating system.

This option is available only when the system contains two or more physical or logic processors.

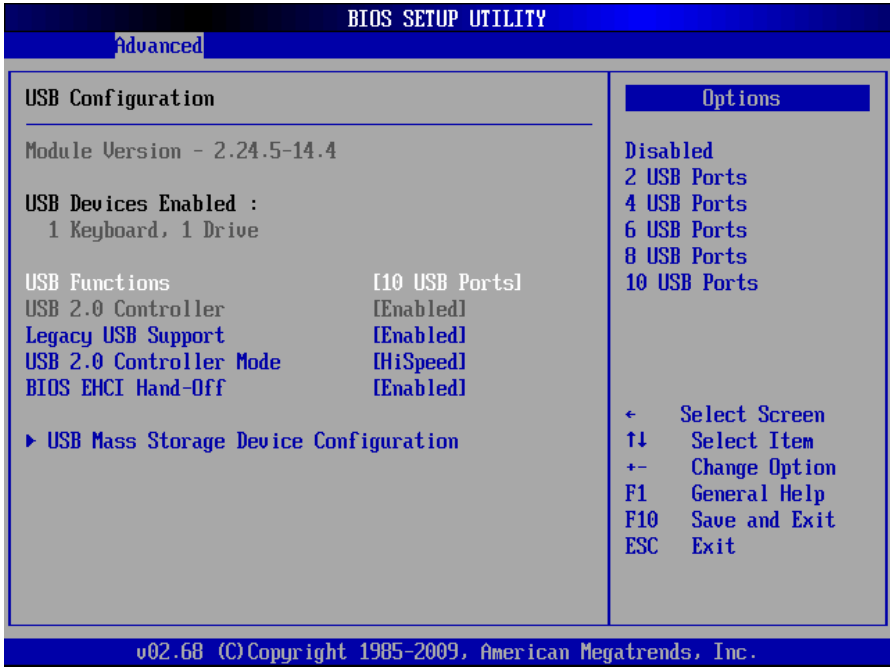
3.2.7 PCI Express Configuration



Active State Power-Management

This option is used to enable or disable the power management function under PCIE Bus inactive state.

3.2.8 USB Configuration



Module Version (Read Only)

This option shows the version of USB module.

USB Devices Enabled (Read Only)

This option shows the USB devices that are connected with motherboard.

USB Function

This option is used to config the number of USB ports.

USB2.0 Controller

[Enabled]: able to use USB2.0 port.

[Disabled]: unable to use USB2.0 port

Legacy USB Support

If need support USB device in DOS mode: such as USB Flash Disk, USB keyboard, then select <Enabled> or<Auto>. If not , pls select < Disabled>

USB2.0 Controller Mode

This option is to set the transmission speed of USB 2.0 Controller:

<FullSpeed> : USB port is 1.1 spec (12Mbps)

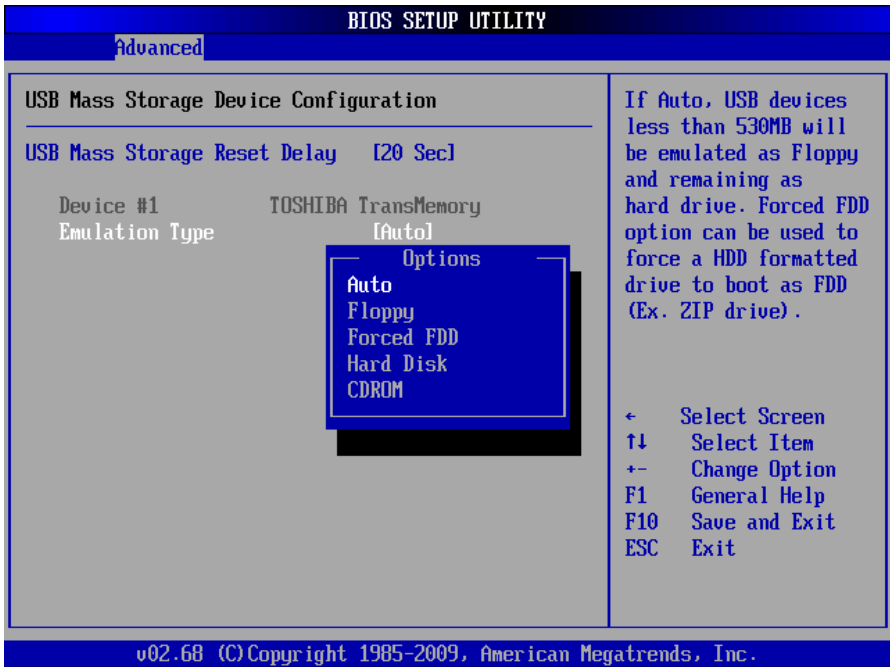
<HiSpeed>: USB port is 2.0 spec (480Mbps)

BIOS EHCI Hand-off

<Enabled>: When enter OS, BIOS auto close.

<Disabled>: When enter OS, BIOS closed by OS.

Move cursor to "USB Mass Storage Device Configuration" and press "Enter" , then the following screen will show:



USB Mass Storage Reset Delay

This option is to config the reset delay time for the pluggable USB devices. System defaults as [20Sec]

Emulation Type

This option is to set the emulation type of the USB flash disk when it is activated. There are

three emulation selections: floppy, HDD or CD-ROM. System defaults as [Auto].

3.3 PCI PnP Menu

BIOS SETUP UTILITY

Main Advanced **PCI PnP** Boot Security Chipset Exit

Advanced PCI/PnP Settings

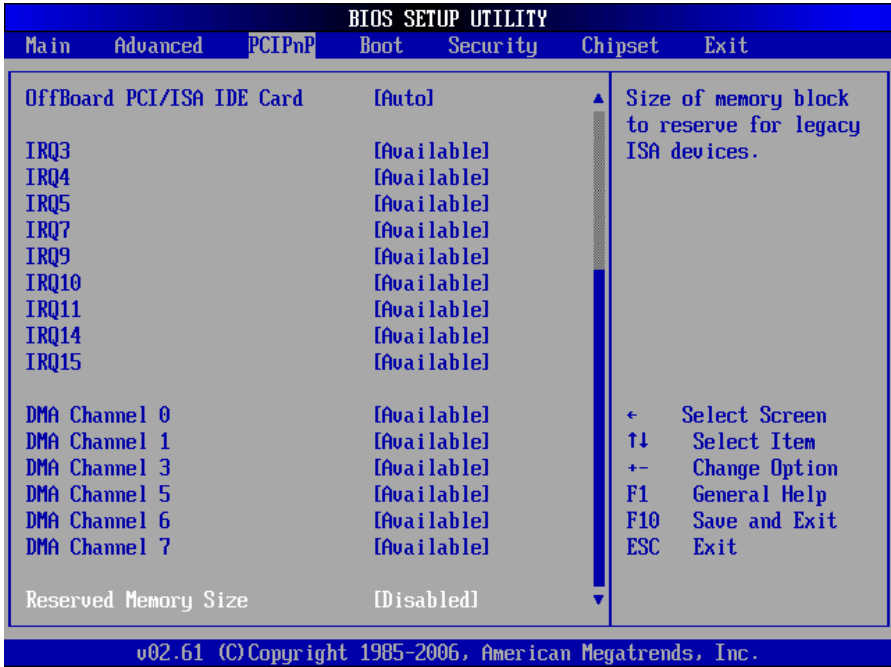
WARNING: Setting wrong values in below sections may cause system to malfunction.

Clear NURAM	[No]
Plug & Play O/S	[No]
PCI Latency Timer	[64]
Allocate IRQ to PCI VGA	[Yes]
Palette Snooping	[Disabled]
PCI IDE BusMaster	[Enabled]
OffBoard PCI/ISA IDE Card	[Auto]
IRQ3	[Available]
IRQ4	[Available]
IRQ5	[Available]
IRQ7	[Available]
IRQ9	[Available]
IRQ10	[Available]
IRQ11	[Available]

Clear NURAM during System Boot.

← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit

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Clear NVRAM

This option is for clearing NVRAM data:

[NO] for keeping the data

[YES] for clearing the data

Plug & Play O/S

This option is for selecting BIOS or PnP O/S to allocate the interrupted resource in the peripheral devices.

Choose [YES], O/S will automatically allocate the resources if O/S doesn't have the PnP function, pls set this option as [NO].

PCI Latency Timer

All PCI latency timer setting. Unit is PCI clock period. Default as 64

Allocate IRQ to PCI VGA

<Yes>: Allocate IRQ to PCI /VGA

<No>: Don't need to use the PCI /VGA card

Palette Snooping

This option will change the setting of system palette. System defaults as [Disabled]

PCI IDE BusMaster

This option is for allowing or forbidding the use of PCI IDE Bus Mastering. Bus Mastering can accelerate the speed of PCI IDE . System defaults as [Disabled]

OffBoard PCI/ISA IDE Card

This option is for configuring the offboard PCI/ISA IDE card. Choose "AUTO", system will conduct self-detect, or users can choose the specific slot for this card by themselves.

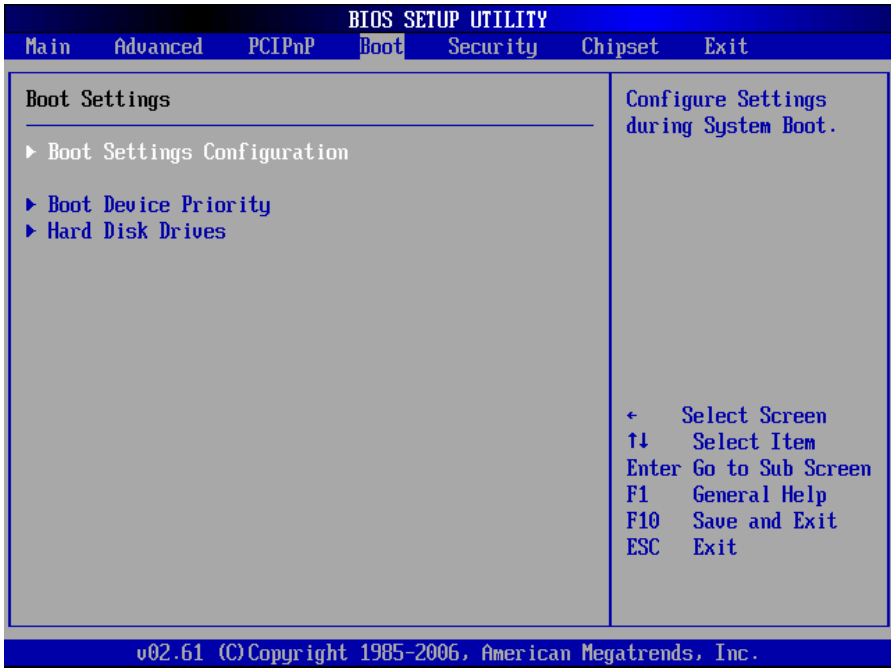
IRQ3-15

This option is to define the availability or keeping of the IRQ.

DMA Channel 0-7

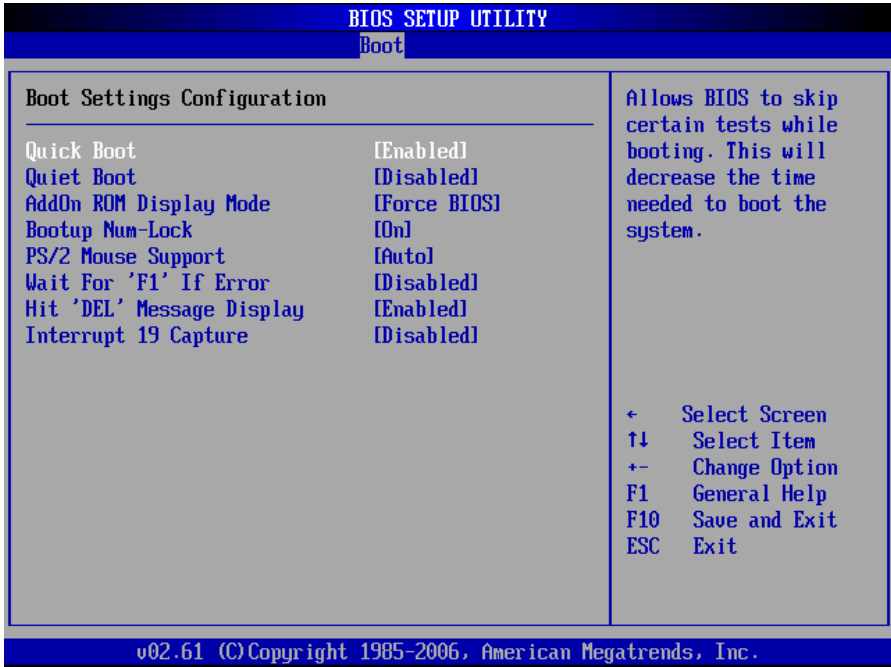
This option is to determine the availability or keeping of the DRM channel 0-7

3.4 Boot Menu



Move cursor to "Boot Settings Configuration" and press<Enter>, then following screen will show::

3.4.1 Boot Setting Configuration



Quick Boot

<Enabled>: BIOS will skip 2nd and 3rd self-detection and accelerate POST

<Disabled>: After BIOS detect load Windows O/S..

Quiet Boot

This option is for showing provider Logo on the screen picture when booting the computer.

<Disabled> for close and <Enabled> for open.

AddOn ROM Display Mode

This option is for setting the display mode of graphic card software and default as[Force BIOS]

Boot Up Num-Lock

This option is for activating the Num-lock after booting the system. <ON> for unclocking the number key and <OFF> for locking the number key..

PS/2 Mouse Support

This option is for opening or closing PS/2 Mouse Interface

Wait For “F1” If Error

If error occurs , wait for “F1”. When the error doesn't lead to power down, then following messages will show: “Press ‘F1’ to resume” or “Press‘ F1’ to Setup”, users can press F1 to make the system go on working.

Hit “DEL” Message Display

[Enabled]: when boot the system, following message will show:

Hit “DEL” if you want to run Setup

[Disabled]: No message will show, system generally defaults as [Enabled].

Interrupt 19 Capture

[Enabled]: Capture function is activated. BIOS will function according to the add-in cards ROM configurations

[Disabled]: BIOS will not be effected by add-in cards

3.4.2 Boot Device Priority



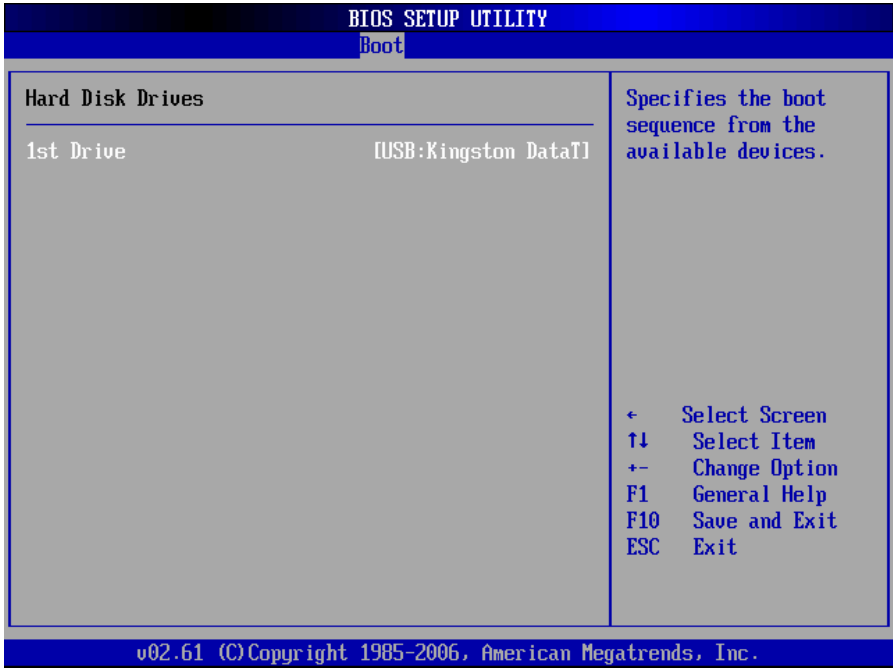
Press "Enter", then the following sub-menu will show:

1st Boot Device

System will detect devices by this priority until it finds an available boot device.

(Boot device can be the Removable Drive or the Hard Disk Drive)

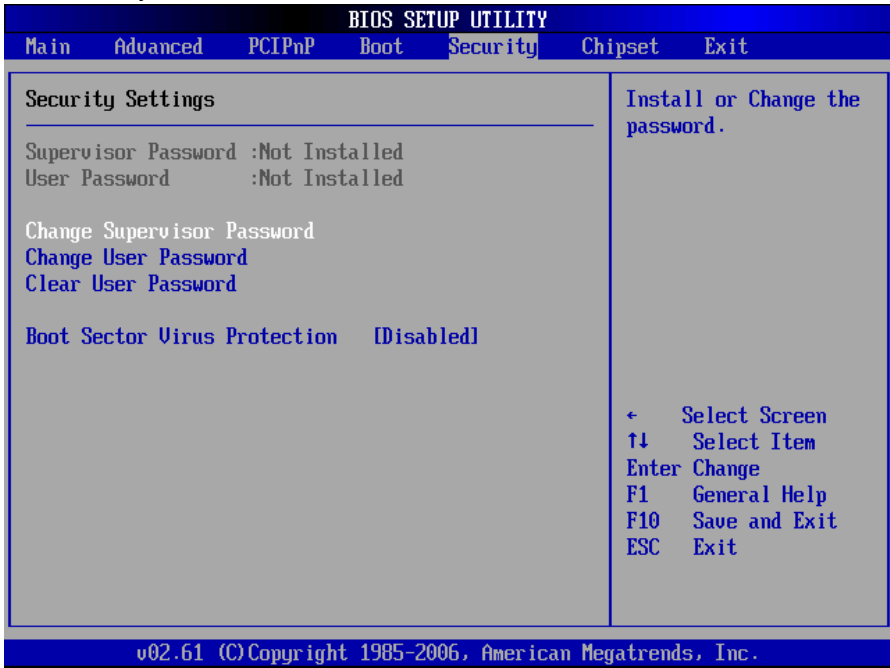
3.4.3 Hard Disk Drives



Boot device set for HDD.

If multi- HDD be connected, user must set up their priority. The HDD of the highest priority will display in "Boot Device Priority"

3.5 Security Menu



Supervisor Password

If you set up the supervisor password, it will display “Installed”

If not, it will display “Not Installed”

User Password

If you set up the user password, it will display “Installed”

If not, it will display “Not Installed”

Change Supervisor Password

Press ‘Enter ’ under this option, then enter sub-menu to change the password.

Change User Password

This option is for changing the users’ password. Press ‘Enter ’ under this option, then enter sub-menu to change the password.

Clear User Password

This option is for clearing users' password. Press 'Enter' under this option and select "yes" and press "Enter" then you can clear the password.

Boot Sector Virus Protection

<Enabled> the bootable sections protection will be available. If you execute disk format or write the bootable section instruction, BIOS will send a warning.

Example as below:

Boot Sector Write!

Possible VIRUS: Continue (Y/N)? _

(Must press much 'N' and skip up)

Format!!!

Possible VIRUS: Continue (Y/N)? _

(Must press much 'N' and skip up)

<Disabled>: close this function.

3.6 Chipset Menu

3.6.1 North Bridge Configuration

Move cursor to “NorthBridge Configuration” and press <Enter>, then following screen will show:



DRAM Frequency

Setting Dynamic RAM frequency, default as [Auto]

Configure DRAM Timing by SPD

RAM parameter configuration:

[Enabled]: system will configure the parameter by SPD value.

[Disabled]: Manual setting memory parameter by entering submenu

Memory Hole

Available options include [Enabled] and [Disabled]. Default as [Disabled]

Initate Graphic Adapter

This option for selecting it as the prior Graphic Adapter

Internal Graphics Mode Select

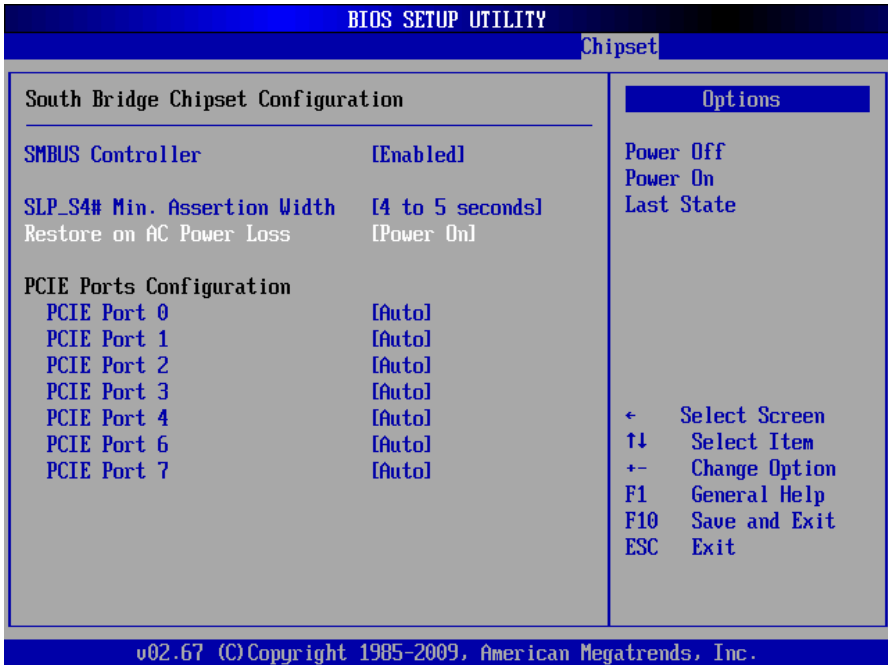
The graphic memory size setting for the motherboard graphic card. It will share the video memory before installing the drive; after installing the drive, system will allocate the memory size according to DVMT

PEG Port Configuration

Open or close the PCI Express Graphics Port

3.6.2 South Bridge Chipset Configuration

Move the cursor to "SouthBridge Configuration" and press <Enter>, Following screen will show:

**SMBUS Controller**

This option is for setting SMBUS Controller, [Enable] for open, [Disable] for close.

SLP_S4 Min.Assertion Width

This option is set as default

Restore on AC Power Loss

This option is for setting the system status while connecting the power again after the AC Power Loss

<Power Off>: System remains the status of power off

<Power On>: System will reboot automatically

<Last State>: Remain the same as the status before the power loss

PCIE Ports Configuration (PCIE Port1-7)

This option can be set as [Auto]/[Enabled]/[Disabled]. The system defaults as [Auto]

3.7 Exit Menu



Save Changes and Exit

Press <Enter> and <Enter> under this option, to save BIOS change and reboot system.

Discard Changes and Exit

Press <Enter> and <Enter> under this option, will not save BIOS change and exit the current interface.

Discard Changes

Press <Enter> and <Enter> under this option, then continue to set BIOS

Load Optimal Defaults

Recommend users first to select his option before BIOS configurations.

Load Failsafe Defaults

Recommend users to select this option in case of system failure.

NORCC

Appendix

Appendix

Appendix 1. Guide to Watchdog Programming

watchdog reference code (ASM)

Set the port under DEBUG order to realize the various functions of Watchdog Timer

Port Instruction:

2EH: Address register

2FH: Data register

Example: Set Watchdog Timer for 30 seconds, DEBUG in DOS:

```
C:\>debug
-o 2e 87
-o 2e 01
-o 2e 55
-o 2e 55 ; unlock
-o 2e 07 ; select register
-o 2f 07
-o 2e 72
-o 2f c0 ; set the timing unit as second, set minute: o 2f 40
-o 2e 73
-o 2f 1e ; set Timer Count as 30sec
-q ; exit
C:\>
```

Press "Enter" after inputing the last line of the instruction, system will reboot automatically after 48 seconds

Reference code (c++ language):

```
outputb (0x2e, 0x87)
outputb (0x2e, 0x87) //open SUPER IO register
outputb (0x2e, 0x2B)
```

```
outputb (0x2f, 0xE0) //bit4=0 ,set pin as watchdog func
outputb (0x2E, 0x07)
outputb (0x2F, 0x08) //select logical device
outputb (0x2e, 0x30)
outputb (0x2f, 0x01) //active the device
outputb (0x2e, 0xF5)
outputb (0x2f, 0x00) // set timing unit as second/ (set minute outputb (0x2f, 0x08))
outputb (0x2e, 0xF6)
outputb (0x2f, 0x30) // set Timer Count as 30h=48 sec
outputb (0x2E, 0xAA) // lock SUPER IO register
//----- code end -----
```

If the system halted, it is able to reboot automatically with the Watchdog timer function

Appendix 2. Glossary

ACPI

Advanced Configuration and Power Management. ACPI specifications allow O/S to control most power of the computer and its add-ons

BIOS

Basic input/output system. It is a kind of software including all in/out control code interface in PC. It will do hardware testing while system is booting, and then the O/S runs. BIOS provides a interface between O/S and hardware and is stored in a ROM chip.

BUS

In a computer system, it is the channel among different parts for exchanging data; it is also a set of hardware lines. BUS here refers to part lines inside CPU and the main components of system memory.

Chipset

Chipset is a Integrated set of chips for executing one or more related functions. Here it refers to a system level chipset structured by Southbridge & Northbridge; It decides the structure and main functions of motherboard.

CMOS

Complementary Metal-Oxide Semiconductor, which is a widely used semiconductor with the characteristics of high-speed and low-power. COMS here refers to part of space on-board CMOS RAM for saving date, time, system information and system parameter,ect.

COM

Computer-Output Microfilmer.A universal serial communication interface, usually adopts normative OB 9 connector.

DIMM

Dual-Inline-Memory-Modules. It is a small circuit board with memory chipset providing 64 bit memory bus width.

DRAM

Dynamic Random Access Memorizer.It’s a normal type of memory often with a transistor and a capacitance to store 1 bit. With the development of the technology, more and more types of DRAM with different specifications exist in computer applications. For example: SDRAM/DDR SDRAM/RDRAM.

I2C

Inter—Integrated Circuit , generically referred to as "two-wire interface", is a multi-master serial single-ended computer bus invented by Philips that is used to attach low-speed peripherals to a motherboard, embedded system, or cellphone.

LAN

Network interface.Network grouped by correlative computers in a small area, generally in a company or a building. Local area network is buildup by sever, workstation, some communications links. Terminals can access data and devices anywhere through cables, which enables users to share costly devices and resource.

LED

Light-Emitting Diode.A semiconductor device that shines when power supply is connected, It is often used to denote information directly, for example, to denote power on or HDD working normally.

PnP

Plug-and-Play. It is a specification that allows PC to configure its external devices automatically and can work independently without the manual operation by its user . To achieve this function, its BIOS should be able to support PnP and a PnP expansion card

POST

Self-test when power on. While the system is booting, BIOS will do an uninterrupted testing to the system, including RAM, keyboard, hard disk driver etc.to check if all the components are in normal situation and work well.

PS/2

A keyboard & mouse connective interface specification developed by IBM. PS/2 is a DIN interface with only 6PIN; it also can connect other devices, like modem

USB

It is Universal Serial Bus for short. A hardware interface adapts to low speed peripherals, and is always used to connect keyboard, mouse etc. One PC can connect maximum 127 USB devices, providing 12Mbit/s transmit bandwidth USB supports hot swap and multi- data stream, namely, you can plug USB devices while system is running, system can auto-detect and makes it work on.



敬请参阅

<http://www.norco.com.cn>

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