NORCO-7680 Tech Guide

Ver. 1.0

www.norco.com.cn

Oct. 2007

Announcement

1. This manual's contents are not representing the promise of NORCO.
2. Our products are being renovated everyday, so we will not inform you of the transformation in this manual.
3. Our company will not take on the responsibility of any damage or hidden trouble caused by wrongly set up or use.
4. All the brand ownership in this manual belongs to the possessor of the brand.If you want to know more about us, please scan our website: **http://www.norco.com.cn/en/** for details.

Safety Alarm

1. Please read this manual carefully and keep it well.
2. Please keep the board and cards dry and pack well when transport.
3. Please make sure that power is off before inserting or pulling out extended cards and other external equipments, especially when inserting or pulling out the memory bank, or, the mainboard and system memory will be serious damaged.
4. Please confirm the devices working in rated power voltage.
5. Please protect your power line and make it not to be trampled or meet with other suddenness which will cause power off. Don't place goods on power line.
6. The hatch of chassis is used to ventilate, so please don't envelope or jam such hatches.
7. Please don't change or modify this device. Any exceptional cases occur, please turn to professional for help.
8. Please don't place this device in the environment which degree is higher than 60 centigrade, otherwise the device will be damaged.
9. **Remark!** The main board's lithium-battery in IPC will cause danger if it is changed improperly. You'd better to use the same or equivalent battery commended by original manufacture

Table of contents

Item Checklist

Thank you very much for choosing NORCO products, completely check your package as the following item checklist first, if you find any components lost or damaged, please contact your retailer.

- ☑ **1pcs NORCO-7680 board**
- ☑ **1pcs user's manual for NORCO-7680**
- ☑ **1pcs Driver CD**
- ☑ **1pcs single serial port convert cable**
- ☑ **1pcs mini IDE ribbon cable**
- ☑ **1pcs 2×4PIN KB/MS convert cable**
- ☑ **1bag of jumper header**

Chapter 1. Product Overview

1.1Brief Introduction

NORCO-7680 is a low-power mainboard particularly designed for router, utilize AMD GX3 + CS5536 chipset, support AMD LX700/LX800, single power(+12V)+POE(WLAN). system memory support DDR 333/400, optional size: 64/128/256M；three RJ45 LAN ports, work in Realtek 8100C, support 10/100M； Three standard Mini-PCI connector and one extended pins(2×45), can extend four Mini-PCI devices. This board also provides one standard 50Pin CF card socket, two USB ports.

1.2 General Specifications

Dimension

- 220mm×160mm

Processor

- AMD LX800

Chipset

- Northbridge: AMD GX3
- Sothbridge:CS5536

Display

- CRT：Built-in upstanding DB15

System Memory

- Onboard 64MB/128MB/256MB
- Support DDR 333/400

Onboard IDE

- One MINI-IDE connector, 2×22 Header
- One standard 50Pin CF card socket

Ethernet

- Realtek 8100C 10/100Mbit/s
- Three RJ-45 ports

Supper I/O

- Winbond W83627HF
- Two USB2.0：built-in upstanding two-layer ports
- Two COMs：one inner 2×5 HEADER, one external RJ45
- KB & Mouse：2×4 Header 2.54mm

PCI

- Three standard Mini-PCI connector
- One 2×45 headers, can extend four Mini-PCI devices

Watchdog Timer

- Support hardware reboot

BIOS

- 4M bit Flash BIOS

Power Supply

- Single power(+12V)+ POE(LAN1)

Operation Environment

- Temperature：0~60℃
- Humidity：5%~95%(non-condensing)

Others

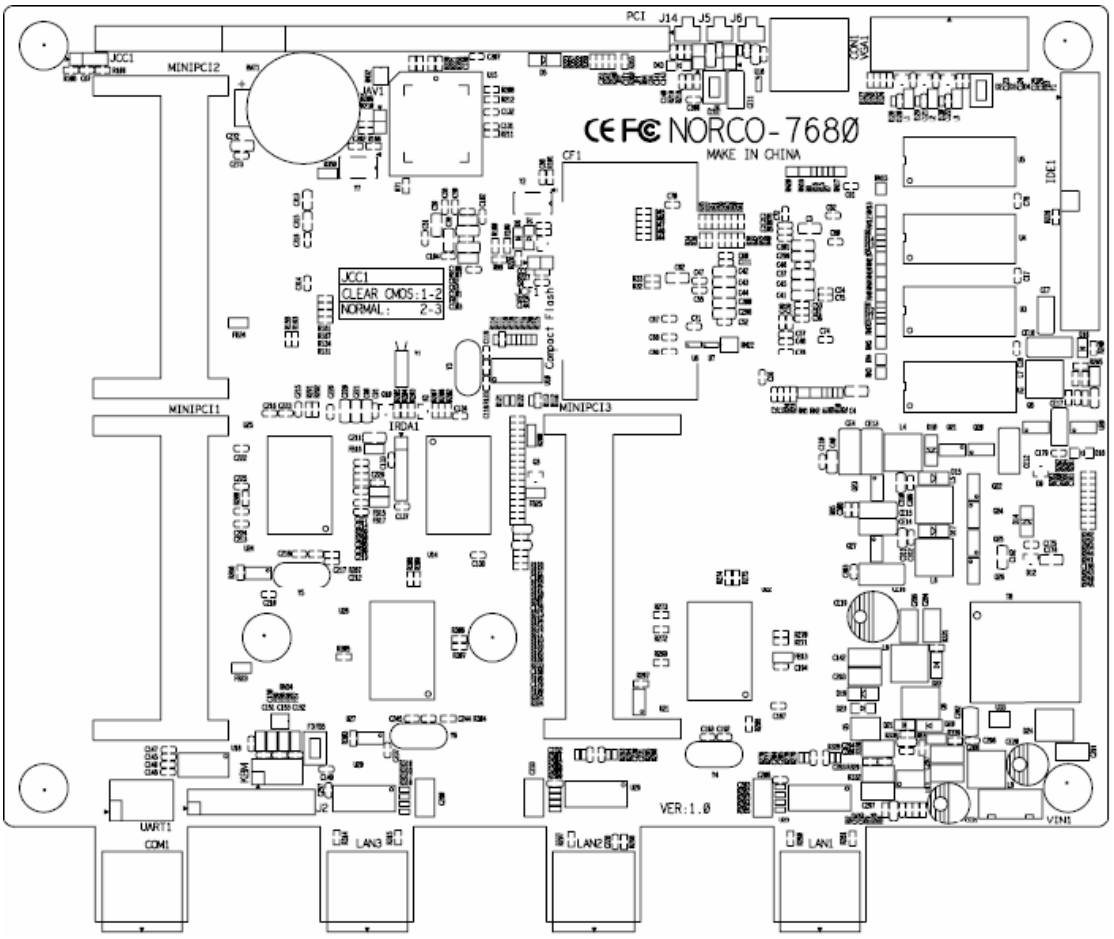
- PCB：6 layers
- One Lithium battery, 3V/210mAH

Chapter 2. Installation Instruction

2.1 Layout

The following picture is interface index for NORCO-7680. When you install your devices, please consult it and read the following guide. During installation please care for: for some devices, if incorrectly install, it will not work normally.

Remark: During installation, in order to protect the part of board, please put on antistatic gloves.



2.2 Installation Steps

Please consult the following steps to install your computer:

1. Adjust all Jumpers on the NORCO-7680 per this manual.
2. Install MINIPCI devices and other PCI devices
3. Connect all of the signal line, cable, panel-control circuitry and power supply
4. Finish BIOS setup

Remind! Key components of this mainboard are Integrated circuit, and these components will be easily damaged by electrostatic influence. So, before installing mainboard, you should always follow the following precautions:

1. Disconnect your Computer from the power supply before handling it.
2. Hold side by the edges; don't touch any component or pins on the board
3. Use a grounded wrist strap while getting in touch with integrated circuit component (like as CPU, RAM).
4. Place components on a grounded antistatic bag that came with the Single Board Computer, when these components are separated from the system.

2.4 Jumper Setting

***REMIND：**

Jumpers are located on the mainboard, they represent clear CMOS jumper JCC etc. pin1 for all jumpers are located on the side with a thick white line(pin1  .) refer to the mainboard silkscreen , jumpers with three pins will be shown as  to represent pin1&pin2 connected and  to represent pin2&pin3 connected.

2.4.1 JCC 1(Clear CMOS)

Clean CMOS: shut down the AC power supply first, close JCC1 (pin1&pin2) for several seconds, then set JCC1 back to the normal status with pin2&pin3 connected

JCC1	state
1-2	Clear CMOS
2-3	Normal(default)

***Remind：** Do not clear CMOS when power on, it harm to the mainboard.

2.4.2 JAV1 (Virus-Avoided Jumper)

The BIOS is contained inside the Flash ROM. If the jumper JAV1 is set as dosed, you can not upgrade the BIOS. However in this status, the system BIOS can avoid being attacked by virus, such as CIH virus.

JAV1	**WRITE FLASH**
close	Disabled(default)
open	Enabled

2.4.3 JCF1 (CF Card Master/Slave Selection)

This jumper for setting CF card as master or slave, close JAV1 jumper (plug JAV1 cover), CF card is set as master. When you need to set it as slave, open the cover please! **Master for default**.

JCF1	**STATE**
close	Set CF card as master(default)
open	Set CF card as slave

2.4.4 JP1/2 (Reset Switching Jumper)

This jumper for setting reset button effective or not, open for yes, close for no, JP1 for hardware reset button J6, JP2 for soft-reset button J14.details as bellow:

Setup	JP1/2 status
Close	Reset availability
Open	Reset nullification (default)

2.5 External Connectors

2.5.1 Mini IDE Connector (IDE1)

This mini IDE connector is for 2 IDE devices. If you have two IDE hard disks in system, the second disk must be set as slave disk by jumper setting.

DEFINE	PIN#		DEFINE
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground
+5v(logic)	41	42	+5v (motor)
Ground	43	44	Reserved

2.5.2 CF1 Card Socket (Compact Flash)

One standard 50pin Compact Flash Socket on board.

Remind：The CF card socket shares channels with IDE. IDE channel support only two IDE devices, when Compact Flash card was install, only one IDE device can be connected.

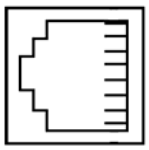
2.5.4 Serial Ports (UART1, COM1)

Two serial ports onboard：2×5Header UART1 port, DB10; COM1 is RJ_45 port.

UART1 ->RS232：

DEFINE	PIN#		DEFINE
HDCD#1	1	2	HDSR#1
HSIN1	3	4	HRTS#1
HSOUT1	5	6	HCTS#1
HDTR#1	7	8	HRI#1
GND	9	10	GND

COM1(RJ45)：



PIN#	DEFINE
1	HRTS#1
2	HDTR#1
3	HSOUT1
4	GND
5	GND
6	HSIN1
7	HDSR#1
8	HCTS#1

2.5.5 Display Export (VGA1)

One standard upstanding DB15 VGA connector can be connected with standard CRT display device.

DEFINE	PIN#		DEFINE
Red	1	2	GREEN
BLUE	3	4	NC
GND	5	6	GND
GND	7	8	GND
+5V	9	10	GND
NC	11	12	SDA
HSYNC	13	14	VSYNC
SCL	15		

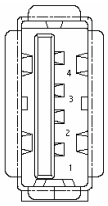
2.5.6 KB/MS Connector (KBM)

2×4header 2.54mm, need to be connected with convert cable.

DEFINE	PIN#		DEFINE
VCC	1	2	MS_CLK
GND	3	4	MS_DATA
KB_DATA	5	6	GND
KB_CLK	7	8	VCC

2.5.7 USB Ports (CON1)

This board provides two USB ports, one built-in upstanding two-layer stack, can be connected with USB devices straightly.



PIN#	DEFINE
1	+5V
2	USB Data-
3	USB Data+
4	GND

2.5.8 Ethernet (LAN1/2/3)

This board provides users three 100M RJ45 LAN port, LAN1 can do POE. Two LED besides RJ45: Green LED represent network active status, orange LED represent network link status.

LED Status Description：

LILED	connections	ACTLED	Data Transmit
light on	efficiency	light on	yes
light off	nullity	light off	no

2.3.10 Power Connector (VIN1)

4PIN AT power connector.

1	VCC	2	GND	3	GND	4	+12V

2.5.14 LAN LED (J2)

J2 is for connect with some function buttons LED on front panel, Pin3-Pin8 for LAN1-LAN3, Pin9-Pin20 for three PCI devices, pins define as follow:

DEFINE	PIN#		DEFINE
VCC3	1	2	GND
LAN1_LINK	3	4	LAN1_ACT
LAN2_LINK	5	6	LAN2_ACT
LAN3_LINK	7	8	LAN3_ACT
MINIIPC1_LED1+	9	10	MINIIPC1_LED2+
MINIIPC1_LED1-	11	12	MINIIPC1_LED2-
MINIIPC2_LED1+	13	14	MINIIPC2_LED2+
MINIIPC2_LED1-	15	16	MINIIPC2_LED2-
MINIIPC3_LED1+	17	18	MINIIPC3_LED2+
MINIIPC3_LED1-	19	20	MINIIPC3_LED2-

2.5.16 Extended Connector (MINIPCI1/2/3, PCI)

Three standard Mini-PCI sockets onboard, for insert wireless network card etc. besides there is a group of 2×45 headers, can extend four Mini-PCI devices.

2×45Header PCI：

DEFINE	PIN#		DEFINE
NC	1	31	NC
GND	2	32	VCC5
PCI_INTB	3	33	SPRST-
SPCLK5	4	34	SGNT5-

SREQ5-	5	35	SAD31
SAD30	6	36	SAD29
SAD28	7	37	SAD27
SAD26	8	38	SAD25
SAD24	9	39	SCBE3-
SAD23	10	40	SAD22
SAD20	11	41	SAD21
SAD18	12	42	SAD19
GND	13	43	+3.3V
SAD17	14	44	SAD16
SCBE2-	15	45	SFRAME-
SIRDY-	16	46	STRDY-
SDEVSEL-	17	47	SSTOP-
SLOCK-	18	48	SPERR-
SSERR-	19	49	SPAR
SCBE1-	20	50	SAD15
SAD14	21	51	SAD13
SAD12	22	52	SAD11
SAD10	23	53	SAD9
GND	24	54	+3.3V
SAD8	25	55	SCBE0-
SAD7	26	56	SAD6
SAD5	27	57	SAD4
SAD3	28	58	SAD2
SAD1	29	59	SAD0
GND	30	60	+5V
SREQ6-	61	66	SGNT6-
PCI_INTC	62	67	SPCLK6
SAD21/26	63	68	SAD22/25
GND	64	69	+5V
GND	65	70	+3.3V
SREQ7-	71	76	SGNT7-
PCI_INTD	72	77	SPCLK7
SAD23/24	73	78	PME
GND	74	79	+5V
GND	75	80	+3.3V
SREQ8-	81	86	SGNT8-
PCI_INTA	82	87	SPCLK8
SAD24/23	83	88	PME
GND	84	89	+5V

GND	85	90	VCC3SB

2.5.16 Switch button (J14, J5, J6)

J14, J5, J6is Discrimination for soft-reset, power button and power on/off, you can press them to operate your computer.

Chapter 3. AMI BIOS Setup

BIOS upgrade

Hardware and software continue upgrading, so when your IPC has something wrong, such as can not support the newest processor etc. then, you should upgrade the BIOS. To make sure upgrade succeed, set jumper JAV as open first please!

Amiflash.exe is the program for BIOS to modify and upgrade，need to be run in DOS mode. Step1: use boot disk load DOS, run Amiflash.exe and write the newest file: XXXX.ROM into the Flash IC.

Order format: A:\ Amiflash XXXX.ROM

If you need to add other character, please add <space>/? after the order format.

Remarks:

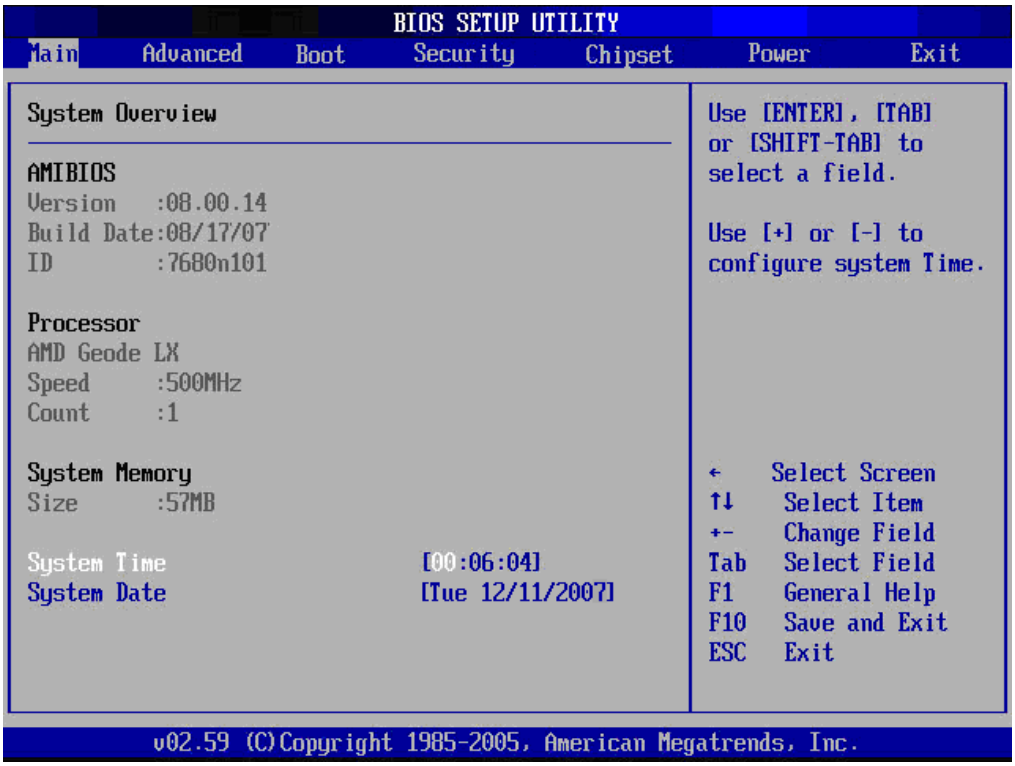
1. Upgrading BISO may cause your system crash, so please operate it carefully.
2. Please use the upgrading program in the CD-ROM provided by NORCO.
3. Please do not power off or reboot the system, otherwise, the BIOS maybe be damaged.
4. Please backup your BIOS before upgrading

AMI BIOS Setup

Power on your computer, when this information display in your screen: Del->SETUP please press "DEL", then it will enter BIOS setup interface.

1. Power on or Reset computer；
2. When "Press <Del> to enter setup" in screen, please press <Del>
3. Use the "←↑→↓"to choose the option which your want to modify, press <Enter> and show the sub-menu.
4. Use the "←↑→↓"and <Enter> to modify the value, or use Mouse do this operation..
5. At any time, press<Esc> can back to the father-menu.

3.1 Main Menu：



System Time:

Format: Hour/Minute/Second

System Date:

Format: Day/Month/Date/Year； <Day> is Read only. <Month><Date><Year> can be set by user.

AMI BIOS (Read only):

BIOS information: such as Version, BIOS ID and Manufactory Day.

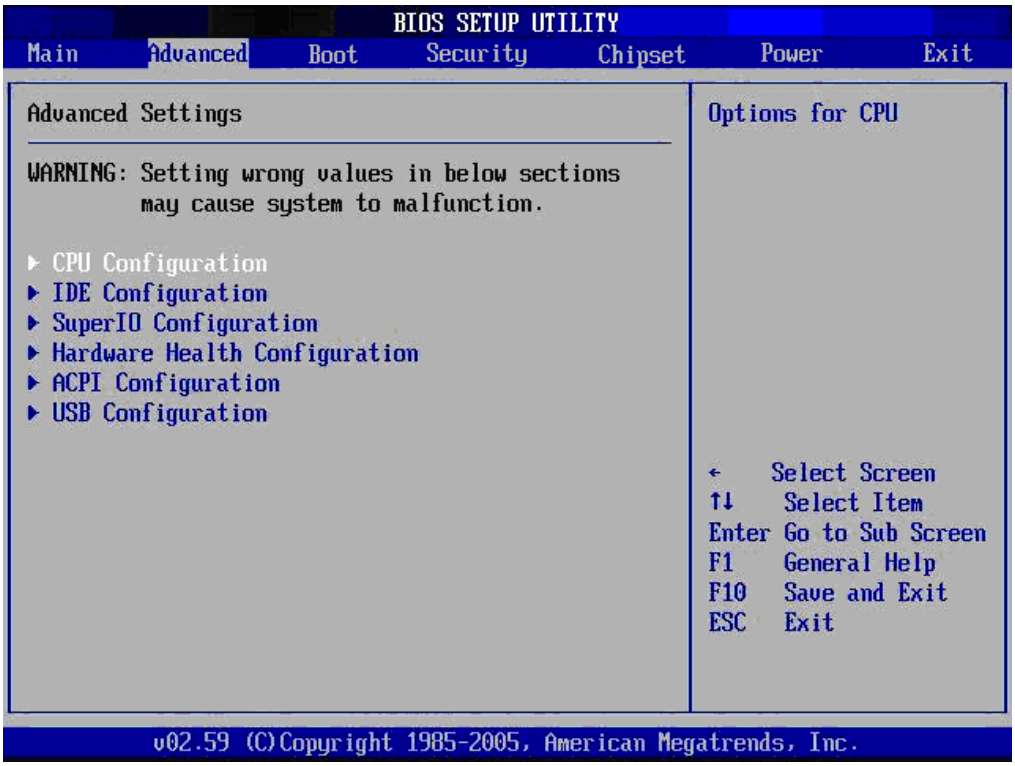
Processor (Read only):

CPU information: such as processor type and frequency.

System Memory (Read only)

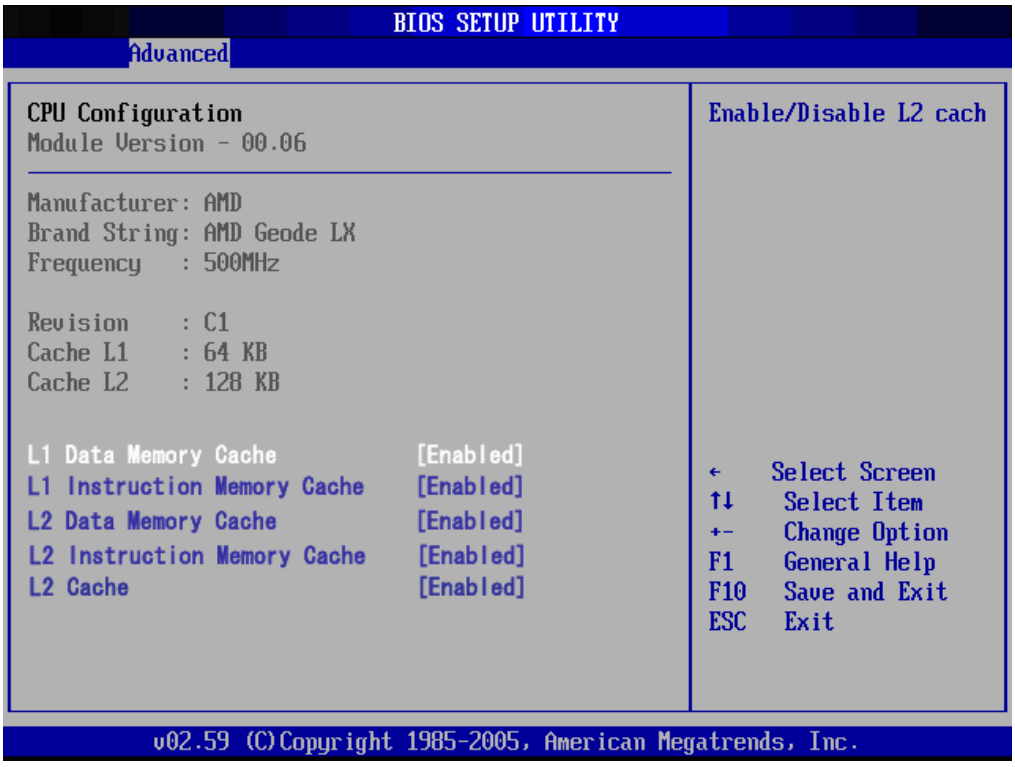
This file shows memory Size.

3.2 Advanced Menu：



Give every options the explanation and setting ways below：

3.2.1 CPU Configuration



This submenu includes CPU particular information, such as manufacturer, type, frequency, FSB

speed, cache L1, and cache L2 etc.

L1 Data Memory Cache

Enable/Disable CPU L1 data memory cache.

L1 Instruction Memory cache

Enable/Disable CPU L1 instruction memory cache.

L2 Data Memory Cache

Enable/Disable CPU L2 data memory cache.

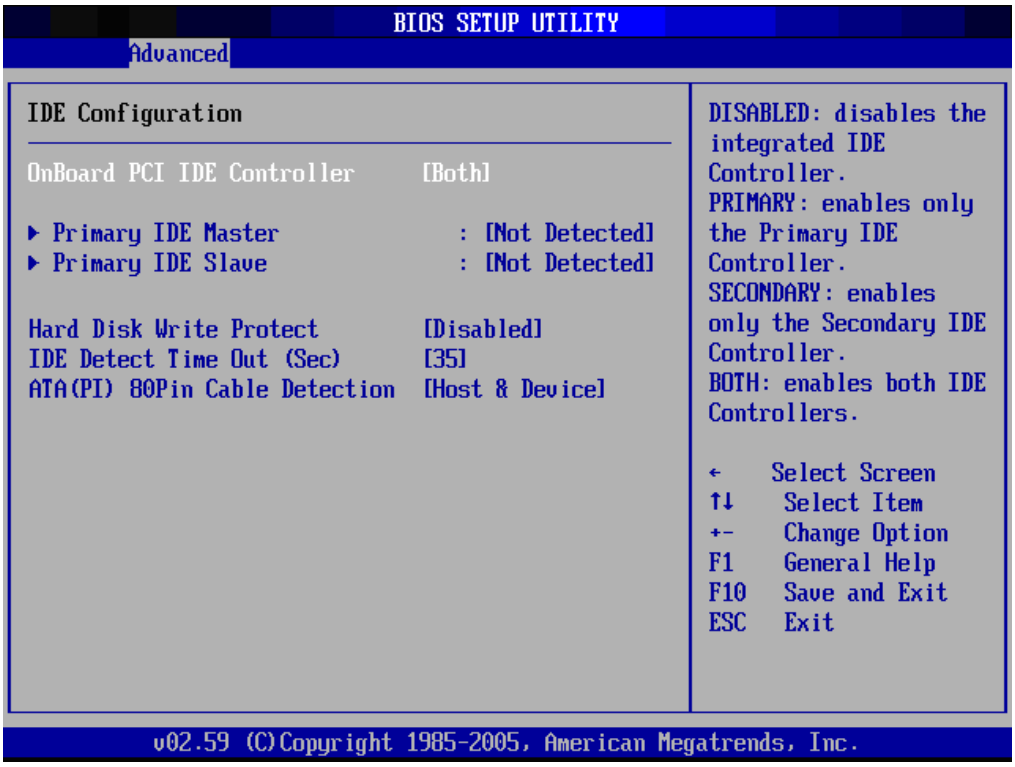
L2 Instruction Memory cache

Enable/Disable CPU L2 instruction memory cache.

L2 Cache

<Enable> enable processor L2 Cache

3.2.2 IDE Configuration



On Board PCI IDE Controller

Setup IDE port: <Disabled> close all IDE ports; <Primary> enable the First IDE port; <Secondary> enable the Second IDE port; <Both> enable all IDE ports.

Primary IDE Master/Slave

Setup IDE device work mode selection, include Type, LBA/Large Mode, Block (Multi-Sector Transfer), PIO Mode, DMA Mode, S.M.A.R.T, 32Bit Data Transfer.

Norco mightily recommends default setting: Let system auto-setup your devices; if want to config by yourself, please confirm your Hard Disk information and if it supports these work mode or not.

Hard Disk Write Protect

HDD Write Protect function setting: <Enabled> Write Protect, HDD read only: <Disabled> HDD can write or read.

IDE Detect Time Out (Sec)

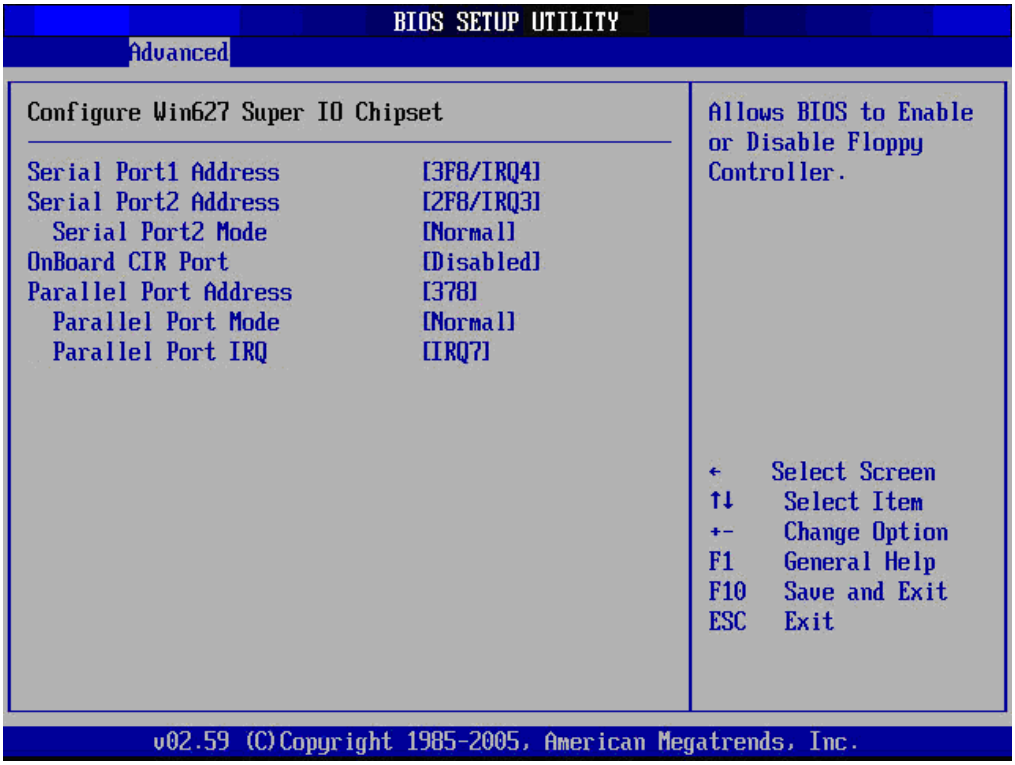
Set BIOS searching IDE device in appoint time (by seconds)

ATA (PI) 80Pin Cable Detection

Setup detecting ATA（PI）80pin cable: 80pin ATA cable is for Ultra ATA/66,Ultra ATA/100 and Ultra ATA/133. Standard cable with 40pin, can not support high transfer rate. These two cables are pin compatible.

<Host & Device>: it will consult the cable type both IDE controller and IDE device. Also it is default value. <Host> use the cable type used by IDE controller；<Device> use the cable type used by IDE device.

3.2.4 Super IO Configure



Serial Port# Address

Setup Serial Port interrupt and address. Recommend Default set.

Serial Port# Mode

Setup Serial Port device mode: If has Infrared device : <IrDA> or <ASK IR>;If not : <Normal>

On Board CIR Port

<Enabled>: Open

<Disabled>: Close.

Parallel Port Address

Recommend Default set

Parallel Port Mode

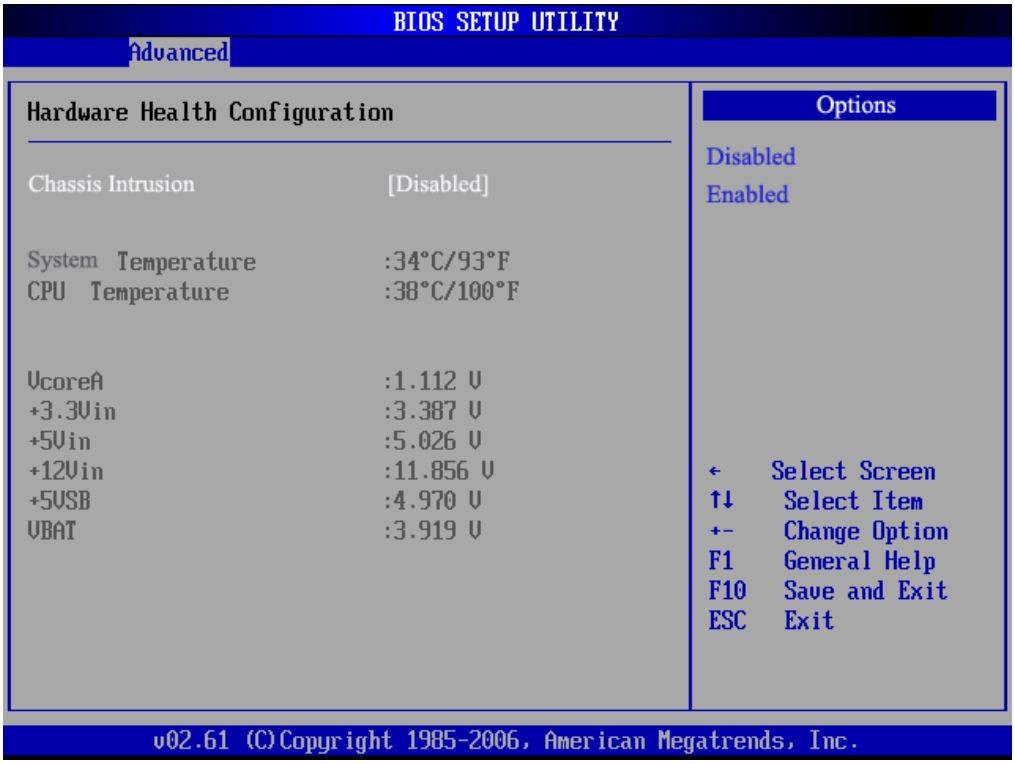
Setup transfer mode: Bi-Dir/ECP/EPP/ECP&EPP/Normal

Default: <Normal>

Parallel Port IRQ

Recommend Default set.

3.2.5 Hardware Health Configuration

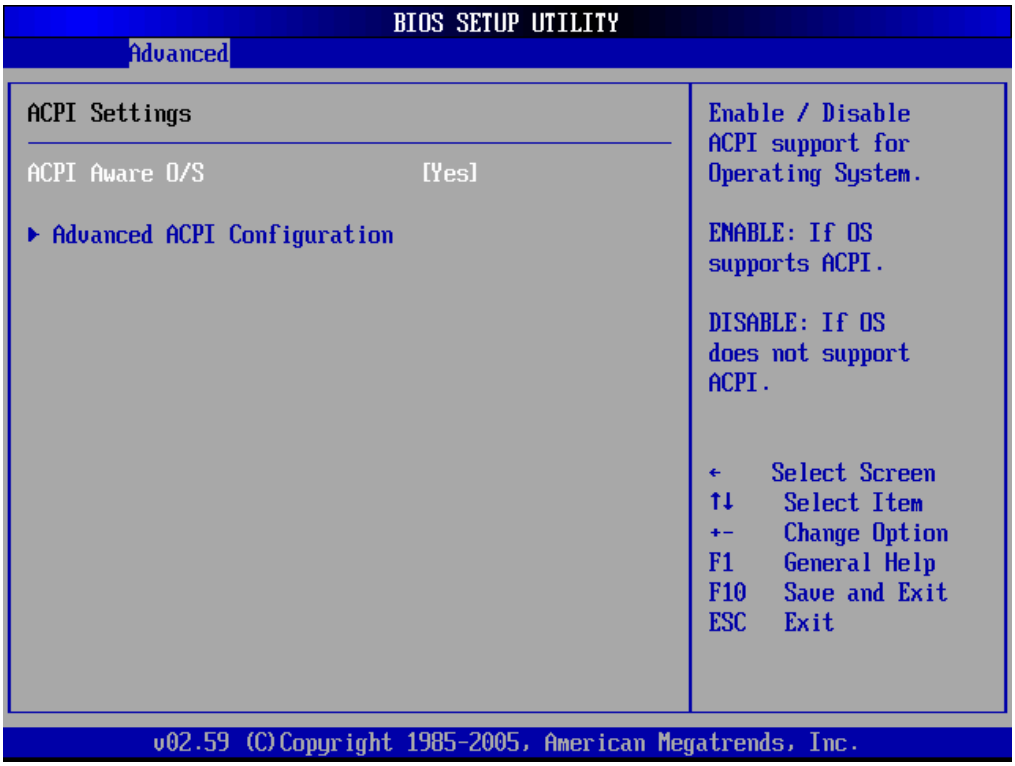


Enter this option to examine hardware health，like CPU temperature，system temperature etc.

Chassis Intrusion

Function of guard against theft.

3.2.6 ACPI Configuration



ACPI Aware O/S

Advanced power Manage

⑴Advanced ACPI Configuration

ACPI 2.0 Features

Advanced power Manage 2.0 function

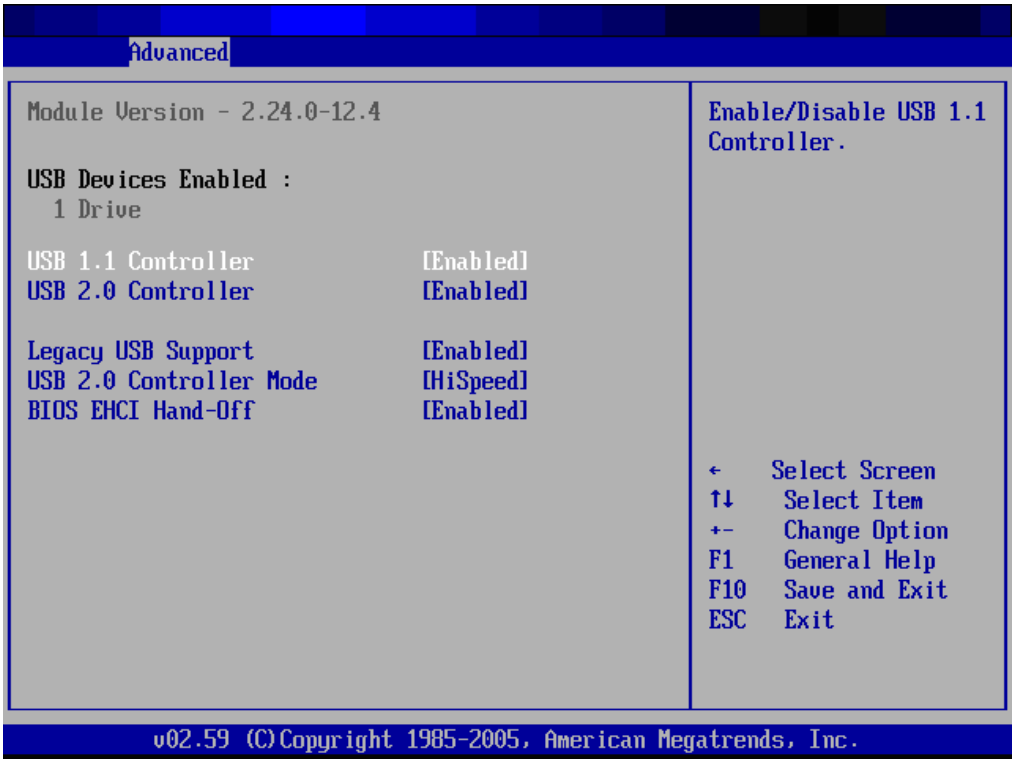
AMI OEMB table

User-defined table of ACPI

Headless mode

System in the mode that no VGA output or keyboard input

3.2.7 USB Configuration



USB Devices Enabled (read only)

This only-read file for show currently connected USB devices.

USB 1.1 Controller

<Enabled>: open

<Disabled>: close

USB2.0 Controller

<Enabled>: open

<Disabled>: close

Legacy USB Support

If need support USB device in DOS mode: such as U Disk, USB keyboard, then <Enabled> or<Auto>

If not <Disabled>

USB2.0 Controller Mode

Available after "USB2.0 Controller" -- <Enable>:

<Full Speed>: USB port is 2.0 spec.

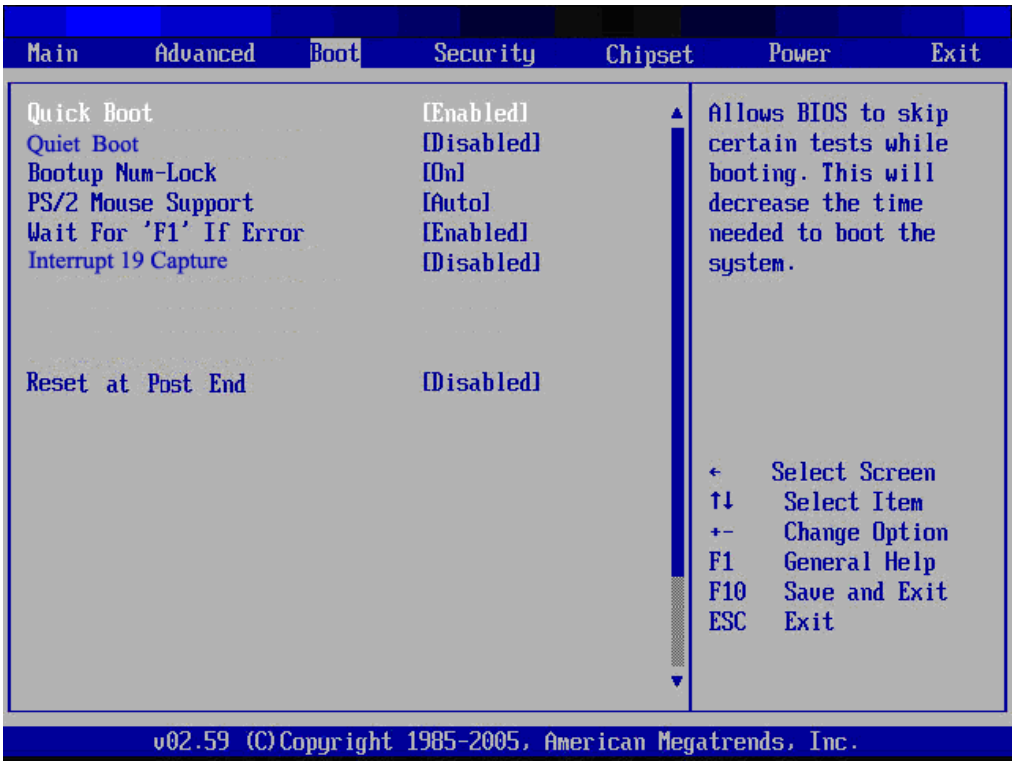
<Hi Speed>: USB port is 1.1 spec.

BIOS EHCI Hand-Off

<Enabled> When Windows O/S setup, BIOS auto close.

<Disabled>When Windows O/S setup, BIOS closed by Windows O/S

3.3 Boot Menu:



Quick Boot

<Enabled>: Load OS without BIOS self-detecting,

<Disabled>: Load OS after BIOS detected.

Quiet Boot

<Enabled>: Show user-defined welcome interface before you loading OS,

<Disabled>: Show default welcome interface before you loading OS

Bootup Num-lock

<ON>: Open "Num-lock" key when loading Windows O/S.

PS/2 Mouse Support

<Enabled>: support

<Disabled>: not support

<Auto>: Auto detect device, if has PS/2 mouse on system, will support.

Wait For "F1" If Error

<Enabled>: waiting user press "F1"

<Disabled>: directly loading Windows O/S

Interrupt 19 Capture

If BIOS start-up can be captured by special outside insert card.

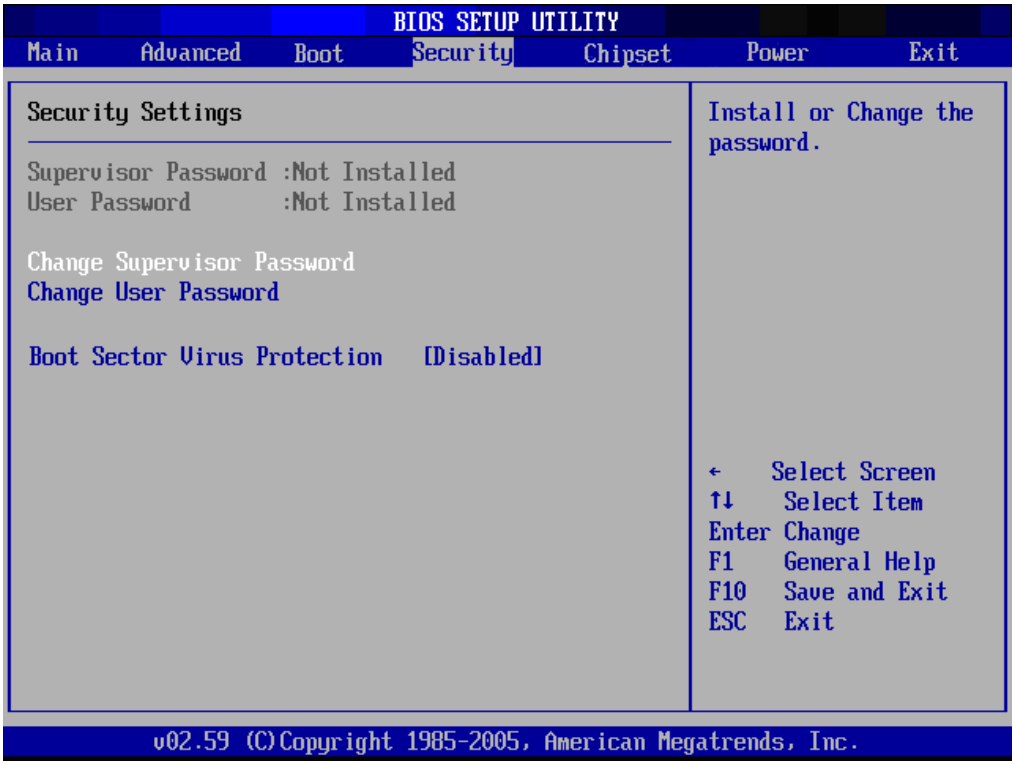
<Enabled> :Yes, here BIOS will start-up by inserted card setting in its ROM,

<Disabled>:No, here BIOS start-up by the influence of inserted card..

Reset at Post End

<Enabled>: System will reboot at Power-On Self Test end

3.4 Security Menu:



Supervisor Password (read only)

If you set up the password, it will display "Installed"

If not set up, it will display "Not Installed"

User Password (read only)

If you set up the password, it will display "Installed"

If not set up, it will display "Not Installed"

Change Supervisor Password

Press 'Enter ', then enter sub-menu and you can change the password.

Change User Password

Press 'Enter ', then enter sub-menu and you can change the password.

Boot Sector Virus Protection

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

Example as below:

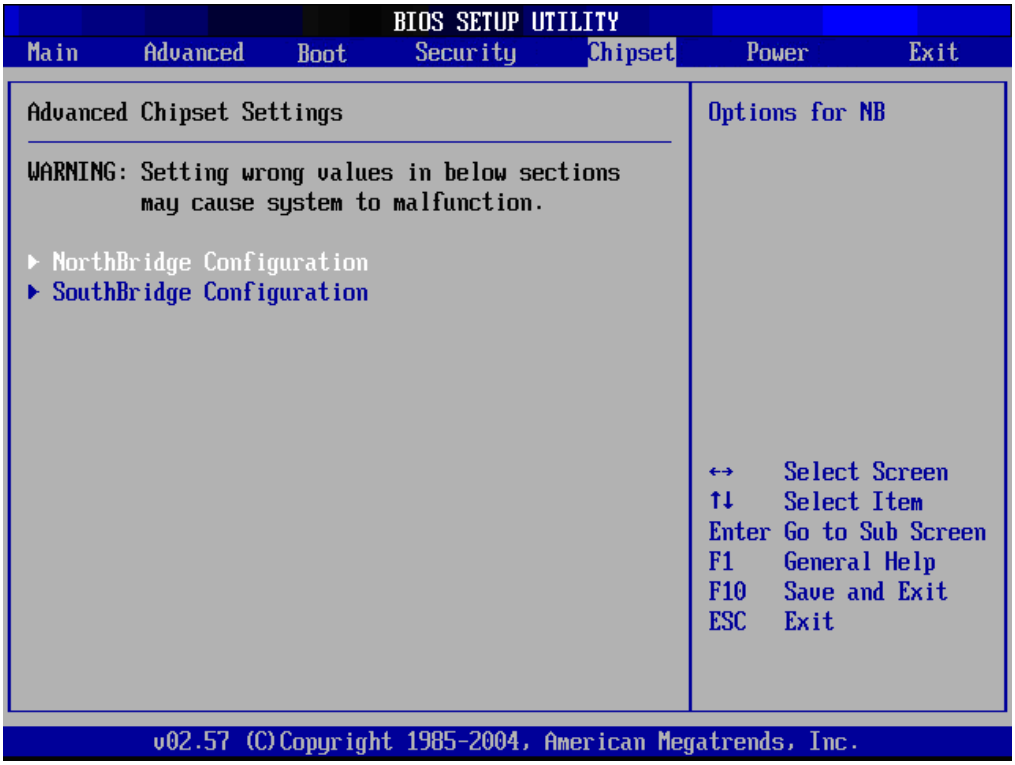
Boot Sector Write!

Possible VIRUS: Continue (Y/N)? _

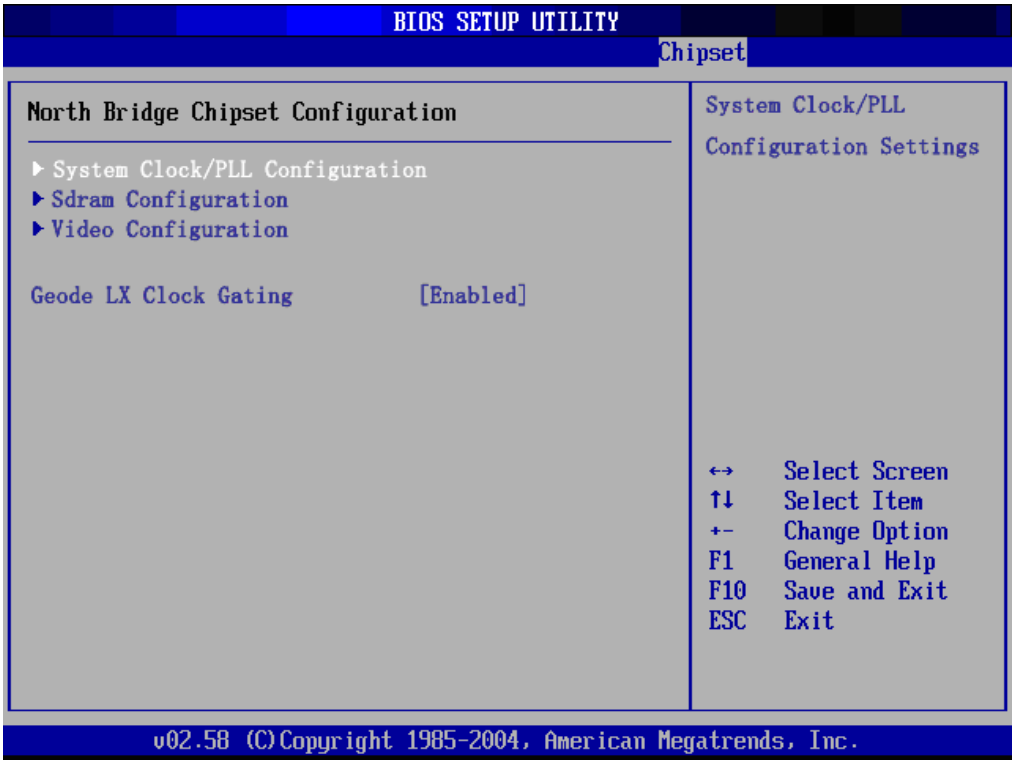
(Must press much 'N' and skip up)

Format!!!
Possible VIRUS: Continue (Y/N)? _
(Must press much 'N' and skip up)
<Disabled>: close this function.

3.5 Chipset Menu:



3.5.1 Northbridge Chipset Configuration



Geode Lx Clock Gating

Power saving automatically function

<Enabled> startup

<Disabled>close up

⑴System Clock /PLL Configuration

Clock Determined By

<H/W strapping>: BIOS auto config CPU and system memory.

<Manual Setting>: config CPU and system memory by manual (Recommend only senior engineer to use this option)

CPU Multiplier

CPU Multiplier setting, equal to the value you set times 33.

Geode link Multiplier

Geode link Multiplier setting, equal to the value you set times 33.

⑵Sdram Configuration

Configure DRAM Timing by SPD

<Enabled> system auto detect memory

<Disabled>: Manual setting. Must set up sub-menu as below:

⑶Video Configuration

Internal Graphics Mode

Set Internal and External Graphics card priority.

Internal Graphics Memory

Set Memory size for Internal Graphics Card.

Driver Controls Init

Select system driver to initialize Internal Graphics Card

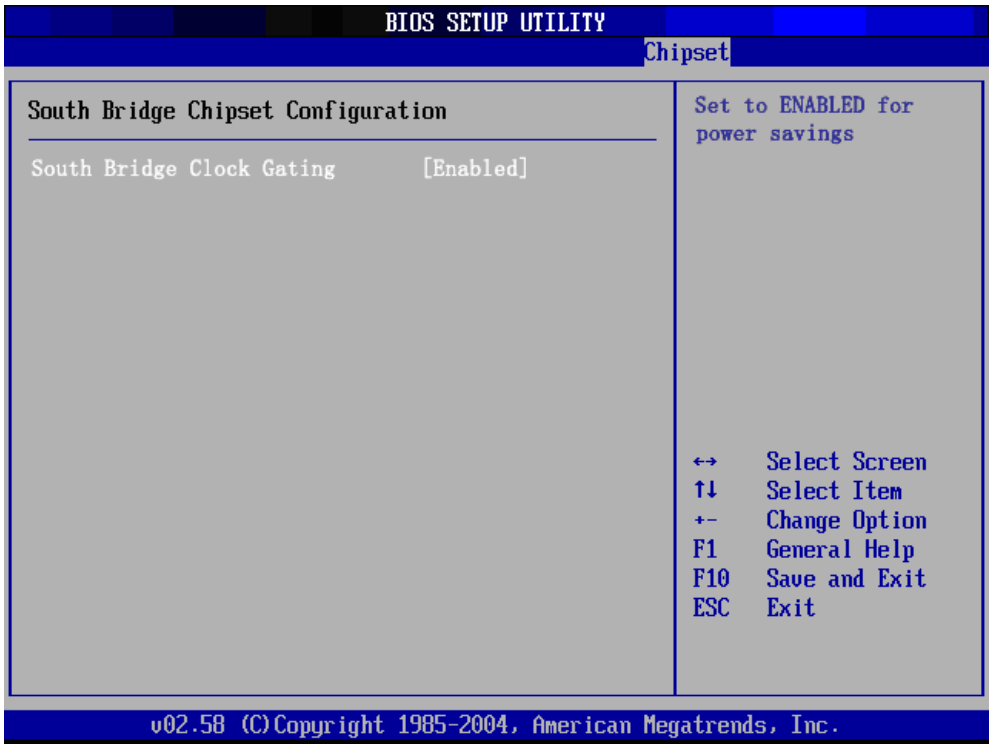
DOTPLL Bypass

Ignore DOTPLL

Boot Display Type

Set display device :< CRT>, <Flat panel>, <Panel + CRT>, <Auto>

3.5.2 South Bridge Chipset Configuration



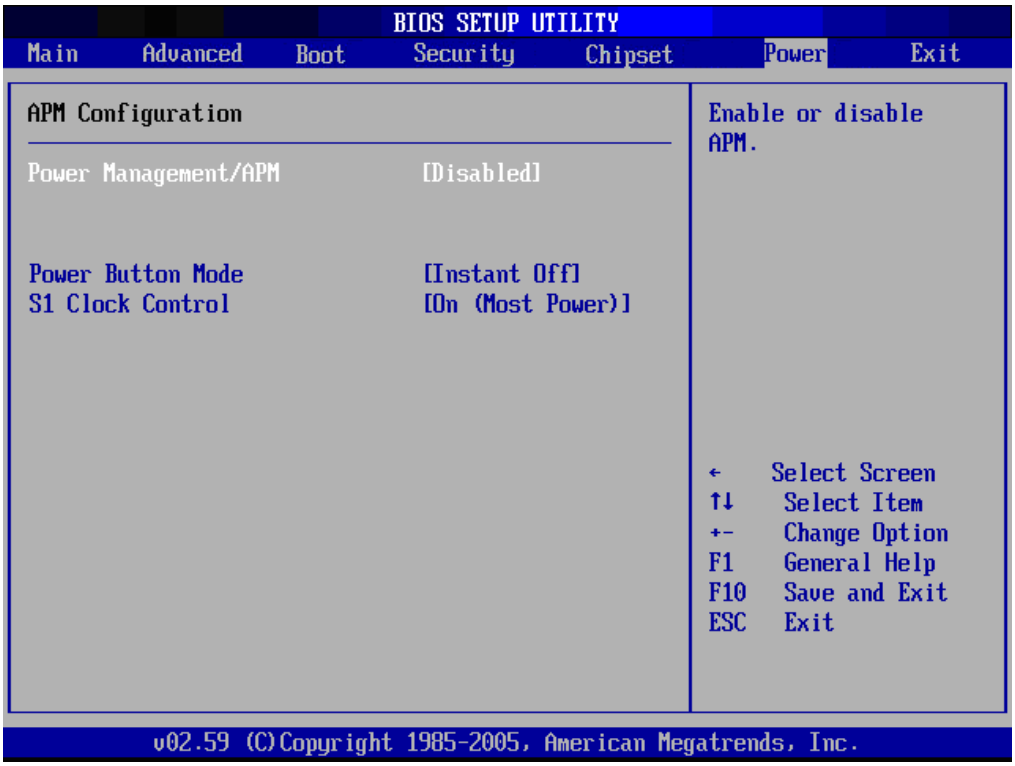
South Bridge Clock Gating

Power saving automatically function

<Enabled> startup

<Disabled>close up

3.6 Power Menu:



Power Management/APM

<Enable>: open power saving mode.

<Disable>: close power saving mode

Power Button Mode

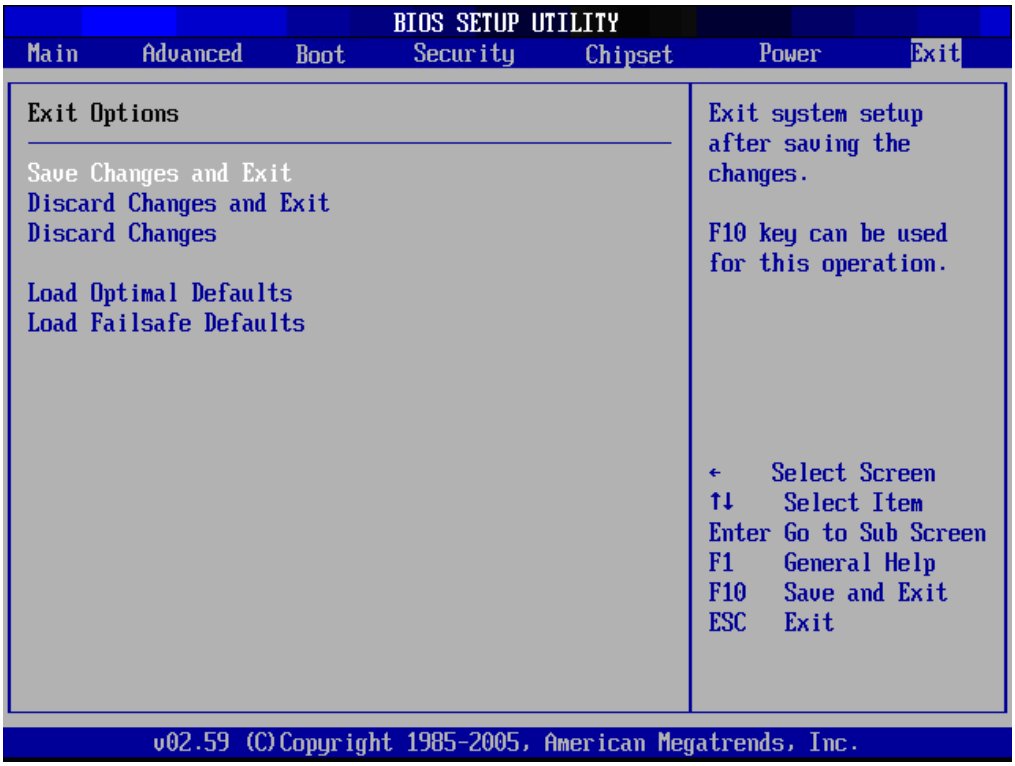
<Instant Off>: Press "Power" key , system will power on/off.

<Suspend>: Press "Self off after 4sec override" key and system will reboot 4Sec later.

S1 clock Control

Set up System enter S1 mode.

3.7 Exit Menu：



Save Changes and Exit

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

Discard Changes and Exit

Press <Enter> and <Enter>, will does not save BIOS change and reboot system.

Discard Changes

Press <Enter> and <Enter>, and continue set BIOS.

Load Optimal Defaults

Recommend user first to use this option before config BIOS.

Load Failsafe Defaults

If System fails, recommend to load this option.

Chapter 4. Driver Installation

Please install driver according as following steps：

1．Right click "my computer" on desktop, it will pop-up a menu, then select "attribute" to enter "system attribute" submenu.

2．Select "hardware"—>"equipment manager", double-click the hardware with yellow question mark or excalmatory mark and select" update drivers", log on" hardware update guide".

3．Select" install from list or appointed location (advanced)"—>"select the best driver on these positions", then tick off "search removable media……"and" include this position in search".

4．Click "browse", locate the browse position to "Driver\Geode" file on the driver disk, find the right driver, and click "yes" go to next step.

5．After installation according to the directive steps, reboot system to make the driver take effect.

6．Circularly execute the step 1-5 till finish the drivers' installing for all the hardware.

Glossary:

ACPI: Advanced Configuration and Power Management Interface for short. ACPI specification allows OS to control most power of computer and its extended devices. Windows 98/98SE, Windows 2000 and Windows ME are all support ACPI, it provide users a flexible system power management.

ATX: AT extended, a mainboard layout according with modern standard replaced Baby AT. It changes disposal of many components, and do some new high efficiency design, so it is widely used now.

BIOS: Basic in/out system. It's a kind of software including all in/out control code interface in PC. It will do hardware testing while system booting, then system runs, it provides an interface between OS and hardware. BIOS is stored in a ROM chip.

BUS: In a computer system, it's the channels among different parts for exchanging data; it's also a group of hardware line. BUS here means part lines inside CPU and main components of memory.

Chipset: Integrated chips for executing one or more function. Here "Chipset" means system level chipset structured by Southbridge & Northbridge; it decides mainboard's structure and main functions.

CMOS: Complementary Metal-Oxide Semiconductor, a widely used semiconductor with the characteristic of high speed but low power. CMOS we mention here means part of obligate space in on-board CMOS RAM, for saving date, time, system information and system parameter etc.

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

DIMM: Dual Inline Memory Module. It's a small circuit board with memory chipset, providing 64bit 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 and specification of ORAM exist in computer application. Now: SDRAM, DDR SDRAM and RDRAM are generally used.

IDE: Driver specification for integrated device electronics, for connecting HDD/CD-ROM device.

IRDA: Infrared Data Association for short here means infrared transmit interface, to connect infrared transmit devices. This sort of device transmits data by infrared light-wave without connecting any cables .It have been developed a standard now.

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, as a rule. Terminals can access data and devices anywhere through cables, so, many users can share costly device and resource.

LED: light-emitting diode, it's a semiconductor device. It will shine when power supply is connected, often use to denote info lightly, for example, to denote power on or HDD work normally.

LPT: line print terminal. The denomination reserved by DOS, is used to denote universal parallel interface, and connect printer in a general way.

POE: Power Over Ethernet for short.

POST: Self-test when power on. While booting, BIOS will do once uninterrupted testing operation to the system, including RAM, keyboard, hard disk driver etc. Check them 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's Universal Serial Bus for short. A hardware interface adapts to low speed external devices, and is always used to connect keyboard, mouse etc. One PC can connect 127 USB devices Max, 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.