



SOM-6670
Qseven Spec. System On Module
USER' Manual V1.0

用户手册

USER' Manual

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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

SOM-6670 is a type of System On Module that conforms to Qseven specifications. This system-on-module is specially designed for portable or mobile applications. Based on Intel Atom E6XX processor series with the main frequency of 0.6G/1.0G/1.3G/1.6GHz and L2 cache up to 512KB. Onboard 512MB DDRII 800MHz RAM and CPU maximum power consumption of only 3.9W. SOM-6670 supports dual display of SDVO +LVDS. The system also support rich I/O including max. 6xUSB,2xSATA,one standard SDIO(compatible with MMC), 1xgigabit Ethernet ports and HD audio output. Besides, 3 PCIE slots could provide the system more flexible peripheral expansion. By virtue of the above features, SOM-6670 is suitable for portable handheld terminals and is a perfect solution for applications in Mobile Measurement, Logistic POS and Reinforced Mobile Devices, etc.

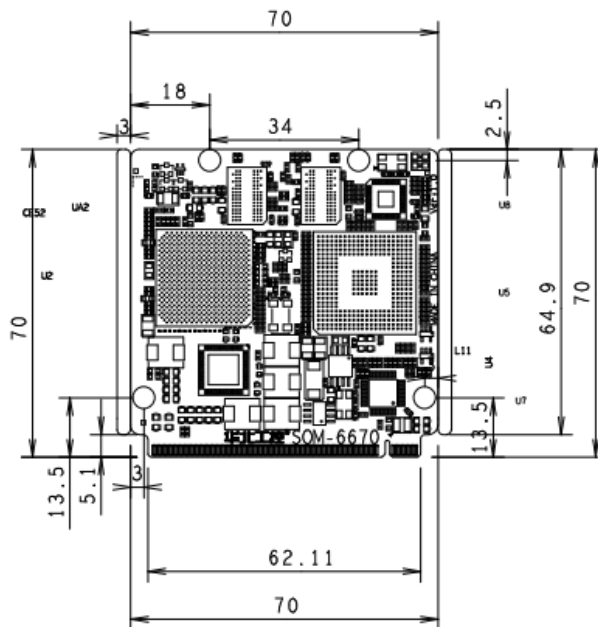
1.2 Motherboard Specification

Form factor	Qseven	
Processor	CPU	Intel Atom E620 600MHz/E640 1.0GHz/E660 1.3GHz/E680 1.6GHz
	L2 Cache	512KB
	Chipset	Intel Atom E6XX Series Integrated
	BIOS	SPI 8M bit Flash BIOS
Memory	Type	DDRII 800MHz
	Capacity	Onboard 512MB
Display	Chip	Intel Atom E6XX Series Integrated graphic controller
	LVDS	Standard LVDS signal via gold finger expansion
	SDVO	Standard SDVO Bus signal via gold finger expansion
Ethernet	Chipset	RTL8211CL
	Speed	10/100/1000Mbps
Expansion	PCIE	3*standard PCIE×1 signal via gold finger expansion,
	LPC	1*standard LPC signal via gold finger expansion
	SDIO	1*standard SDIO signal via gold finger expansion
	I2C	1*standard I2C signal via gold finger expansion

	SMBus	1*standard SMBus signal via gold finger expansion.
	SATA	2*standard SATA signal via gold finger expansion
	USB	6*standard USB Bus signal via gold finger expansion
	Audio	Standard HAD signal via gold finger expansion
Power Supply	Type	Single +5V power supply via gold finger, 5VSB
Environment	Operating Temperature	0°C ~ 60°C
	Operating Humidity	0% ~ 95% relative humidity, no-condensing
Mechanical	Dimension	70mm×70mm

1.3 Dimension Diagram

Dimension: 120mmx120mmx40mm (LxWxH)





Chapter 2. BIOS Setup

Chapter 2 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 encounters problems, for example, your system can not support the newest CPU, you need to upgrade BIOS to keep up with the latest technology.

Specific operational order : FTP/f 6670T101.bin

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. After upgrading, users need to manually optimize the Load Default
5. 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.

BIOS Parameter Configuration

1. Power on or reset the computer, then press , system will enter into BIOS Configuration.
2. Use the “←↑→↓” to choose the option which your want to modify, press <Enter> and then system will enter into the sub-menu under the chosen option.
3. Use the “←↑→↓” and <Enter> to modify the value of the chosen item and then press<Enter> again to choose BIOS options to modify.
4. At any time, press<Esc> can go back to the father-menu.

2.1 Main Menu



BIOS Information

BIOS Information: BIOS vendor, version and build date.

Total Memory

This section shows system memory size

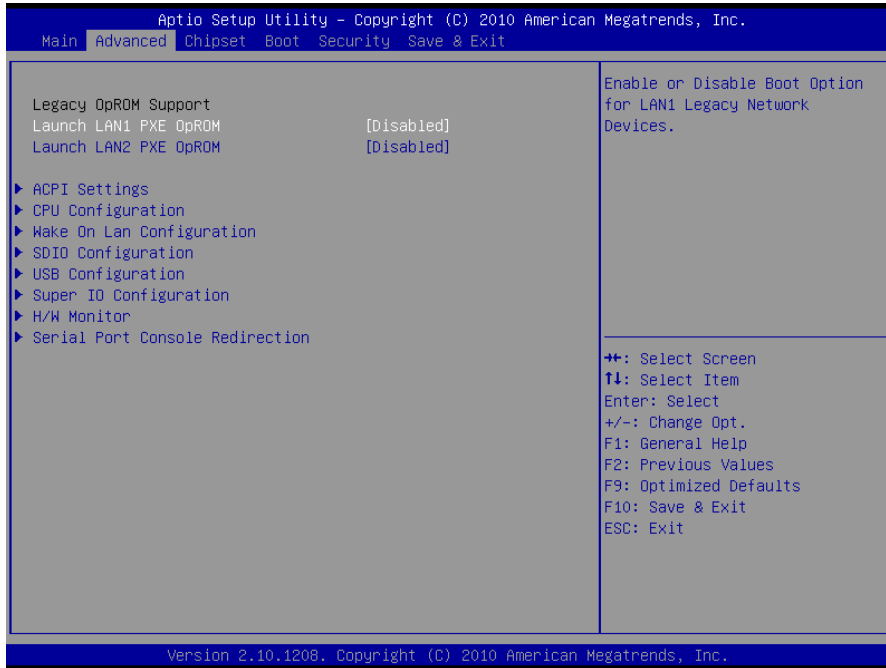
System Date

System Date Format: Week / Month / Day / Year

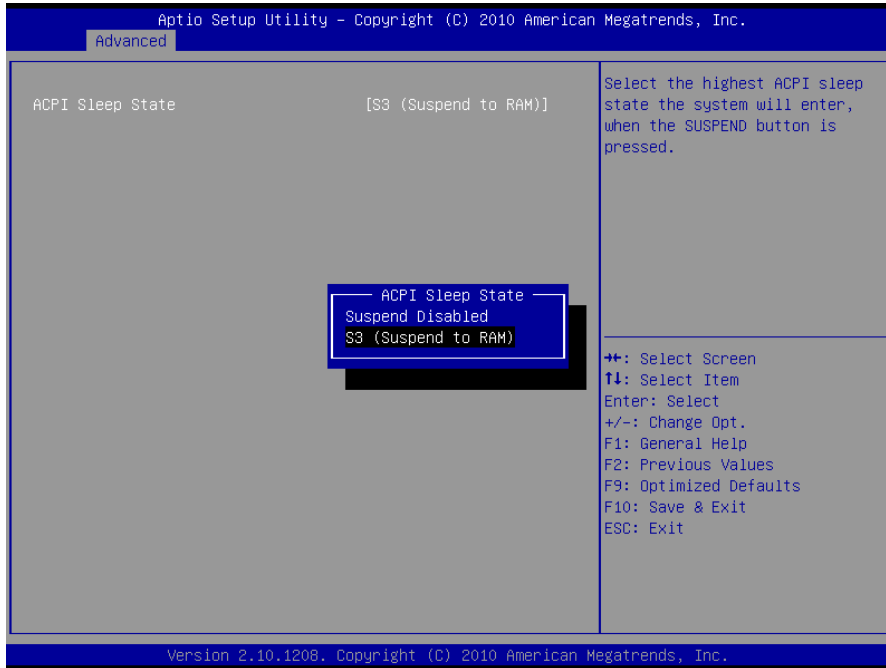
System Time

System Time Format: Hour / Minute / Second

2.2 Advanced Menu



2.2.1 ACPI Setting

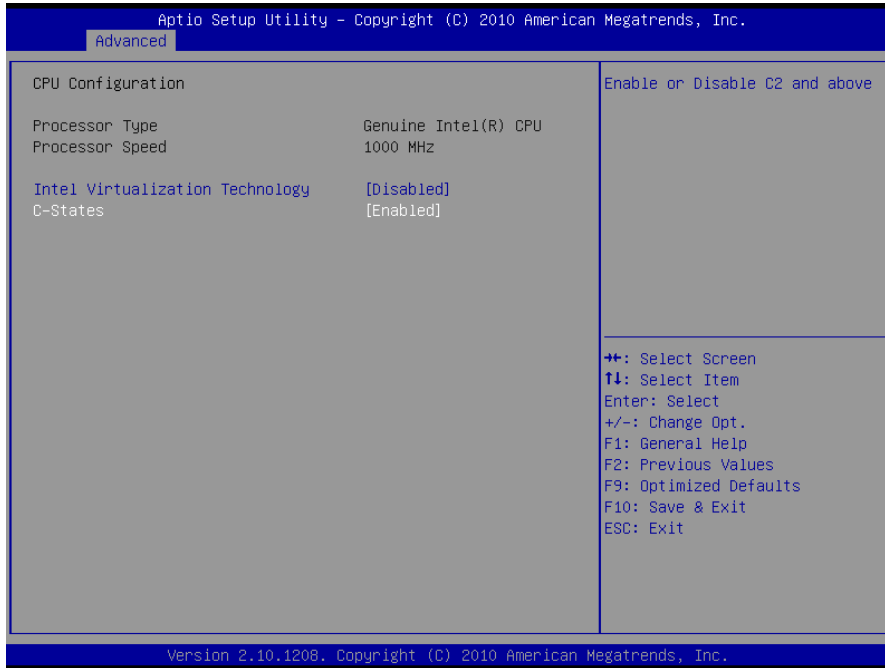


ACPI Sleep State

Sleep mode selection. Different modes with different power consumption.

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

2.2.2 CPU Configuration



The read-only option contains detailed information of CPU, including CPU Type, Frequency, etc.

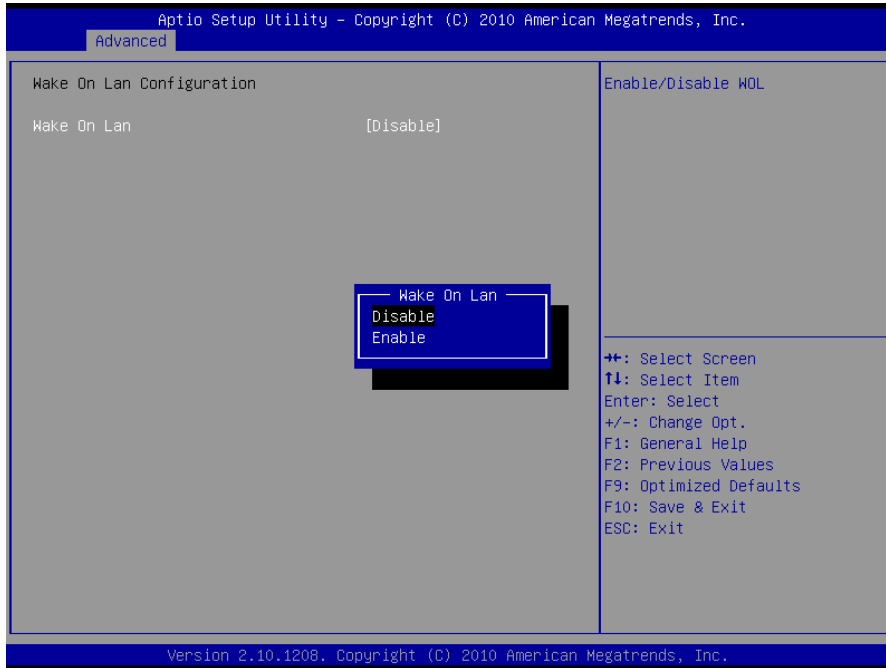
Intel Virtualization Technology

Intel Virtualization Technology (Intel VT) is a set of hardware enhancements to Intel server and client platforms that provide software-based virtualization solutions. Intel VT allows a platform to run multiple operating systems and applications in independent partitions, allowing one computer system can function as multiple virtual systems.

C-States

C-States is CPU Deep Power Down Technology. Users can choose to activate this option or not. Available options include [Enabled] and [Disabled].

2.2.3 Wake On Lan Configuration

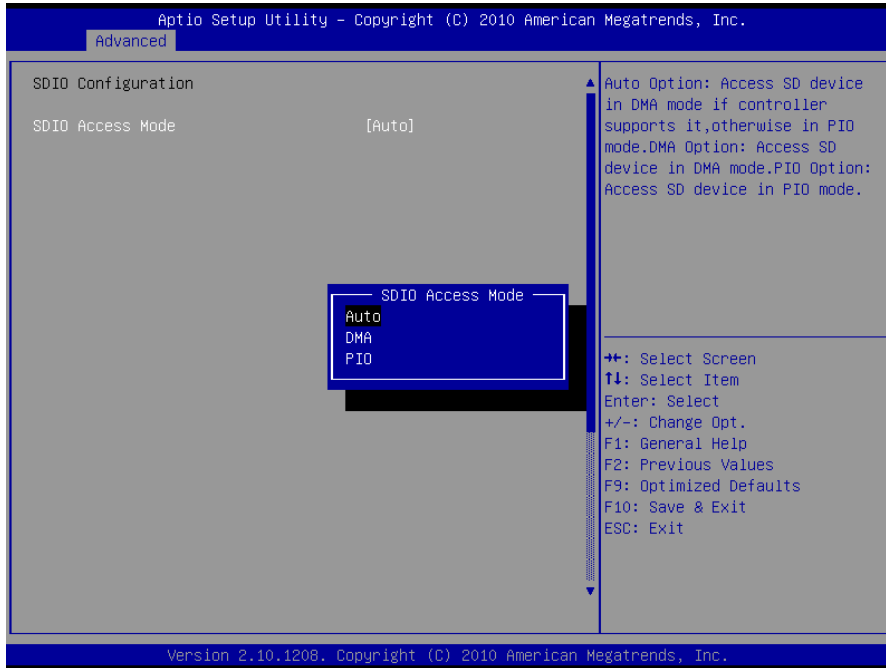


Wake On Lan

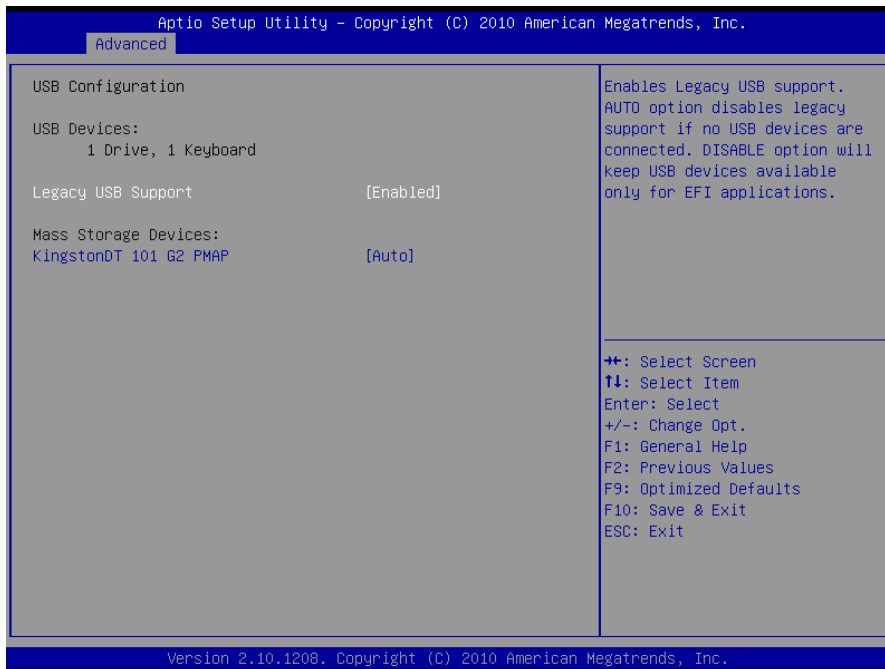
[Enable] for activating wake-on-lan function

[Disable] for closing this function

2.2.4 SDIO Configuration



2.2.5 USB Configuration



USB Devices (Read Only)

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

Legacy USB Support

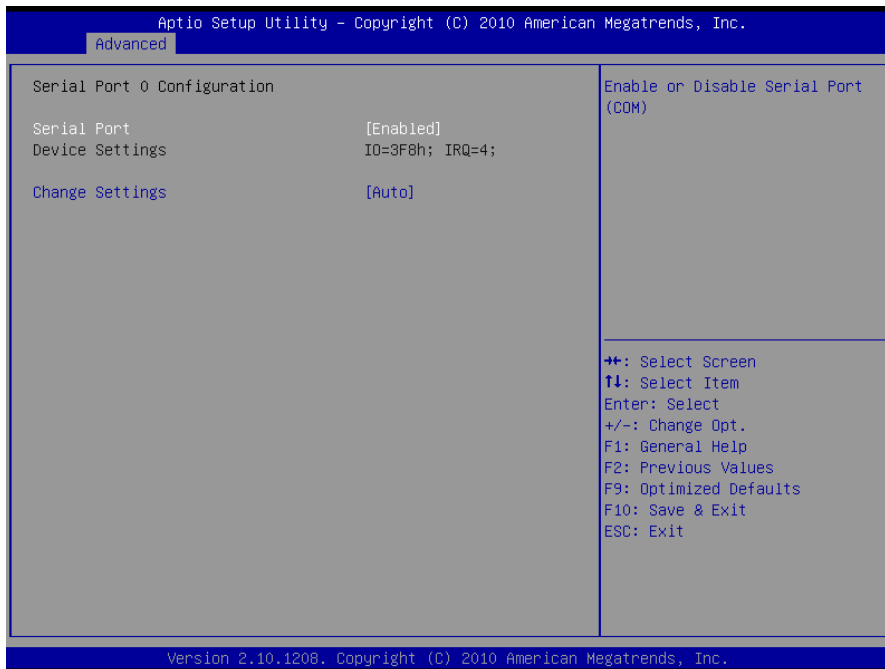
If need to support USB device in DOS mode: such as USB Flash Disk, USB keyboard, then select <Enabled>

If not , pls select < Disabled>

Mass Storage Devices

This option is to set the emulation type of the USB flash disk when it is activated. There are three selections: floppy, HDD or CD-ROM. System defaults as [Auto].

2.2.6 Super IO Configuration



Serial Port

This option is used to open or close the serial port.

[Enabled] is for open

[Disabled] is for close

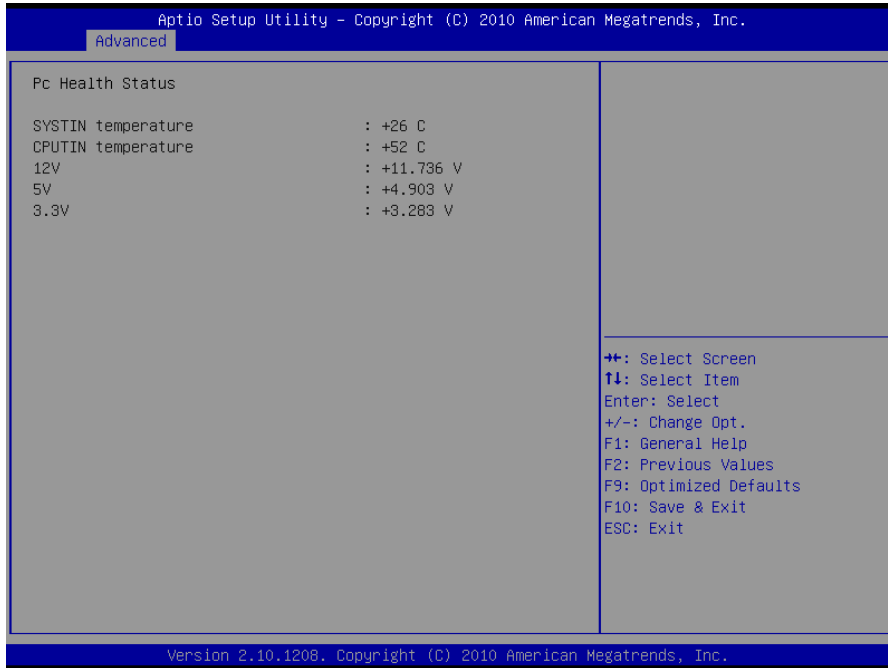
Device Setting (Read Only)

This will show the interrupt and address of serial port

Change Setting

This is used to change the serial port setting. Default set [Auto] is recommended.

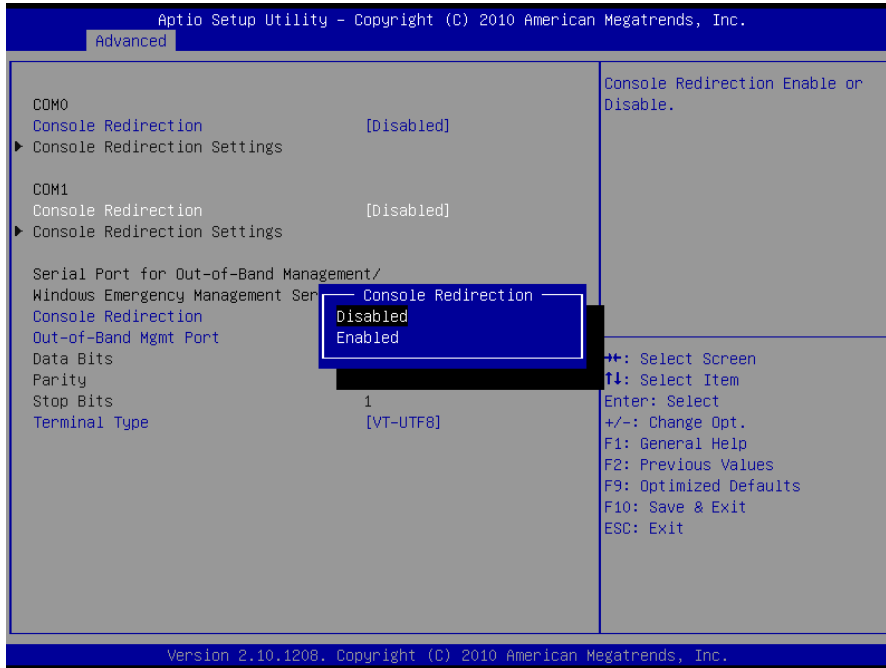
2.2.7 H/W Monitor



PC Health Status

This option is for hardware security detection. BIOS will show system current temperature, CPU temperature, the rev of FAN and related voltage. All the parameters have a defined range of value. System can not operate beyond these values.

2.2.8 Serial Port Console Redirection

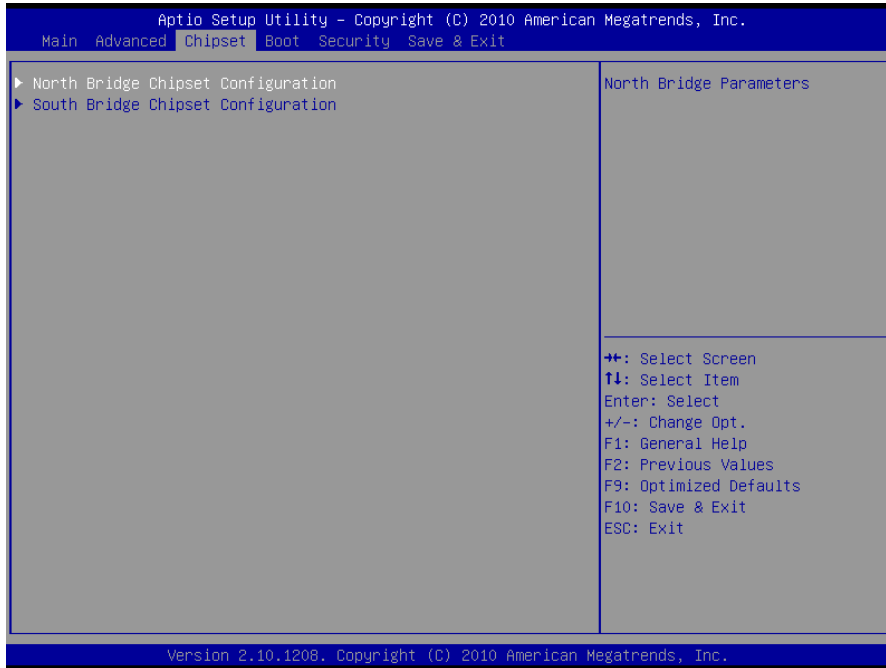


COM0/COM1 Console Redirection

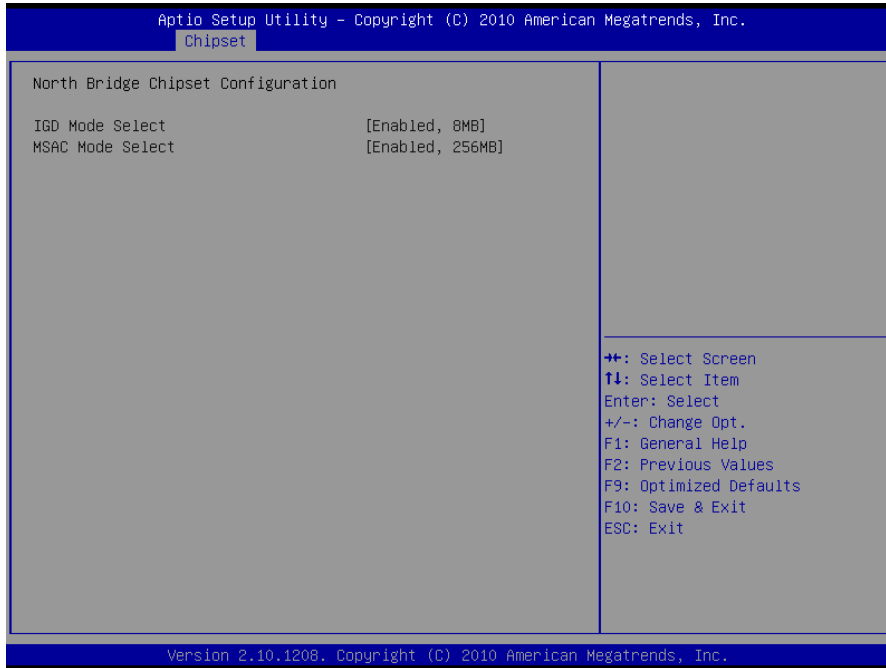
This option is used to config whether to activate COM0/COM1 Console Redirection function.

Available options include [Enabled] and [Disabled].

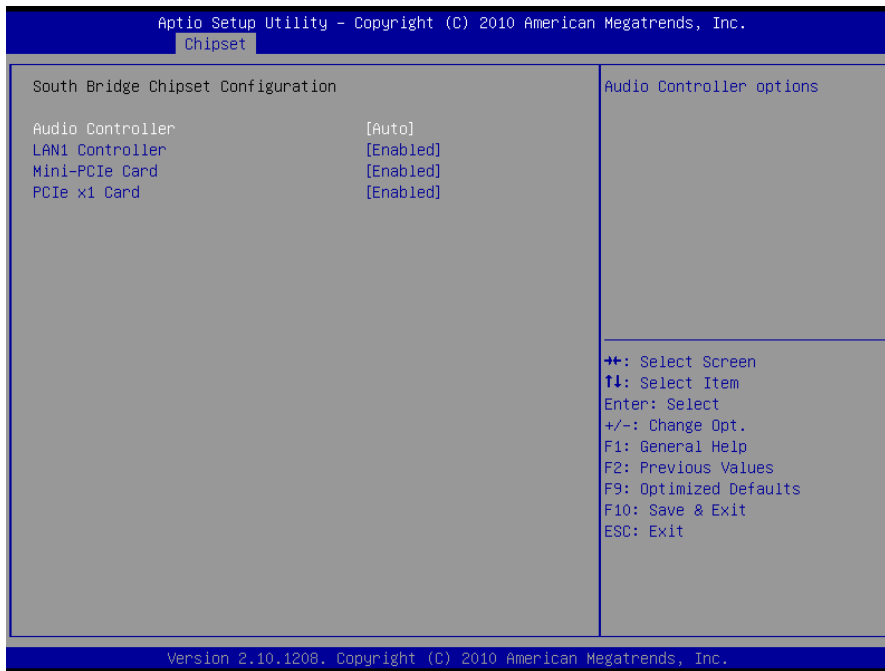
2.3 Chipset Menu



2.3.1 North Bridge Chipset Configuration



2.3.2 South Bridge Chipset Configuration



Audio Controller

This option is for Audio Controller Configuration

Recommend to choose [Auto] to let the board self-detect this function

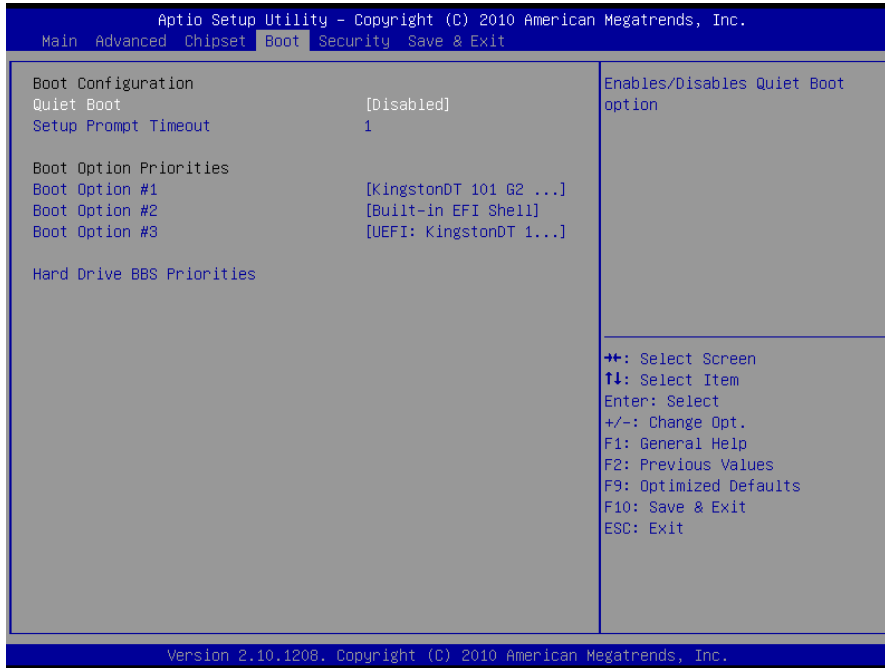
LAN1 Controller

LAN1 Controller Options. Available options include [Enabled] and [Disabled]

Mini-PCIe / PCIe x1 Card

This option is to activate the use of Mini-PCIe / PCIe x1 devices or not. Available options include [Enabled] and [Disabled]

2.4 Boot Menu

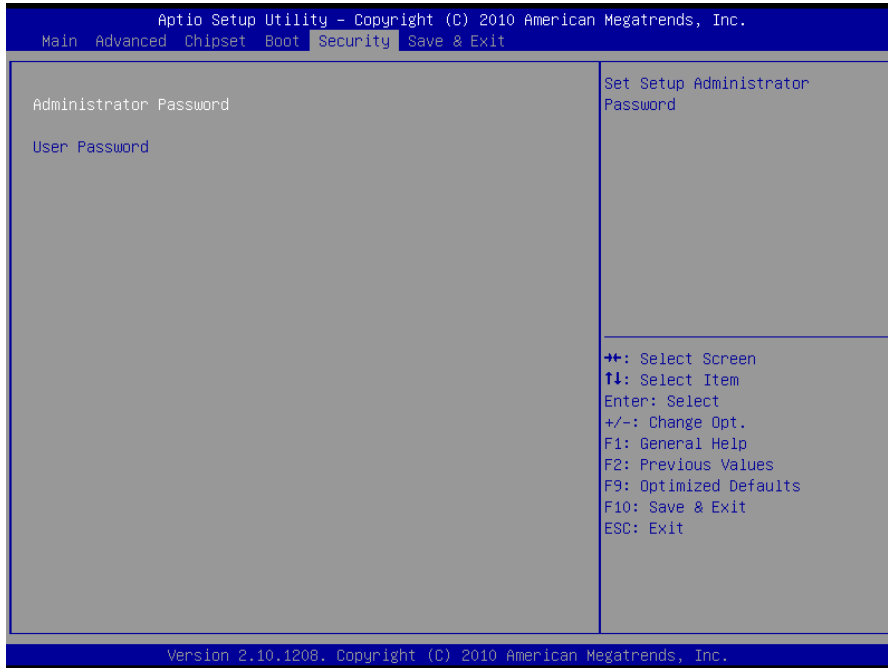


Quiet Boot

This option is for showing vendor's Logo on the screen picture when booting the computer.

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

2.5 Security Menu



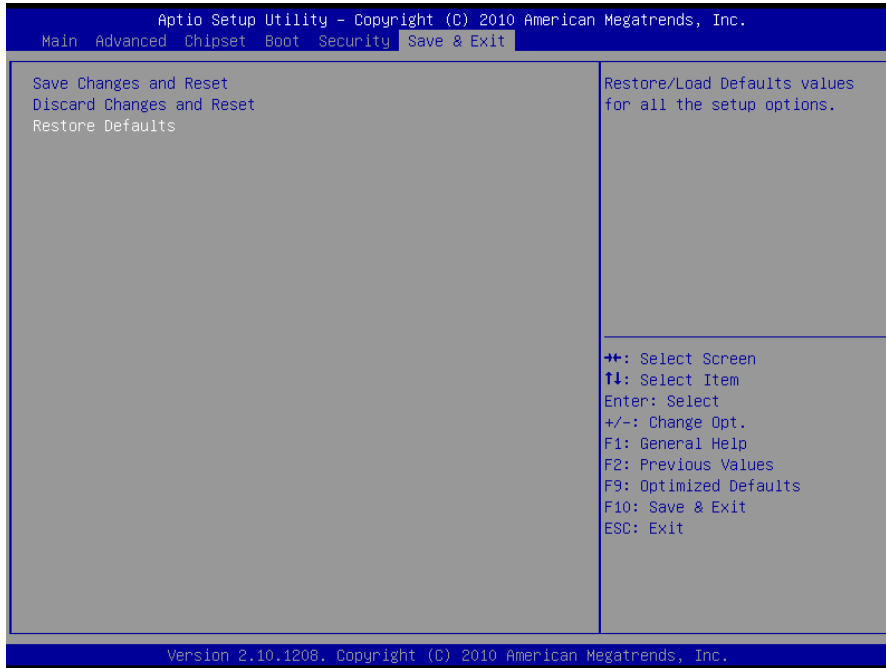
Administrator Password

This option is used to set up administrator password.

User Password

This option is used to set up general users' password

2.6 Save&Exit Menu



Save Changes and Reset

Press <Enter> and choose <Yes> or <No> under this option to save BIOS change and reboot system.

Discard Changes and Reset

Press <Enter> and choose <Yes> or <No> under this option to discard BIOS change and reboot system.

Restore Defaults

Press <Enter> and choose <Yes> or <No> under this option, to restore system defaults.

NORCO

Appendix

Appendix

Appendix 1. Watchdog Programming Guide

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 87      ;unlock
-o 2e 2d
-o 2f 20      ;bit0=0 ,set pin as watchdog func
-o 2e 07
-o 2f 08      ;select logic device
-o 2e 30
-o 2f 01      ;activate logic device
-o 2e f5
-o 2f 00      ;set timer unit as sec/ (set as min o 2f 08)
-o 2e f6
-o 2f 30      ;set Timer Count as 30h=48 sec
-o 2e aa      ;lock register
-q
C:\>
```

After input the last line of code and press"enter" key, system will self-reboot 48 seconds later.

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's a kind of software including all in/out control code interface in PC. It will do hardware testing while system is 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 lines. BUS here refers to part lines inside CPU and main components of memory.

Chipset

Integrated chips for executing one or more functions. Here "Chipset" refers to system level chipset structured by Southbridge & Northbridge; it determines motherboard's structure and main functions.

CMOS

Complementary Metal-Oxide Semiconductor, a widely used semiconductor with the characteristic of high speed but low-power-consumption. CMOS here refers to part of reserved 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 DB9 connector.

DIMM

Dual-Inline-Memory-Module. It's a small circuit board with memory chipset, providing 64bit RAM bus width.

DRAM

Dynamic Random Access Memorizer. It's a normal type of universal memory often with a transistor and a capacitance to store 1 bit. With the development of the technology, more and more types of ORAM with various specifications exist in computer application, such as SDRAM, DDR SDRAM and 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 the 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 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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