User Manual

SOM-6763

Trusted ePlatform Services

ADVANTECH

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Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.

4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

- SOM-6763 module x1
- Heatspreader x1

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

■ To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.

■ Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Contents

Chapter 1

General Information

This chapter gives background information on the SOM-6763 CPU System on Module.

Sections include:

- **Introduction**
- **Specification**

1.1 Introduction

SOM-6763 is an embedded COM-Micro Type 2 CPU module that fully complies with the PCI Industrial Computer Manufactures PICMG COM Express standard. The new CPU module supports Intel N450 and D510 processors with ICH8M chipset which supports Intel Embedded Gen3.5 + GFX Core, MPEG2 Decode in HW, PCI Express and SATA interfaces. In a basic form factor of 95mm x 95mm, the SOM-6763 provides a scalable high performance and easy to integrate solution for customers' applications by utilizing a plug-in CPU module on an application-specific customer solution board. The SOM-6763 with advanced I/O capacity incorporates serial differential signaling technologies such as PCI Express, Serial ATA, USB 2.0, LVDS and HD Audio interfaces. SOM-6763 offers design partners more choices for their own applications needing higher computing speeds while maintaining a compact form factor.

SOM-6763 complies with the "Green Function" standard and supports Doze, Standby and Suspend modes. The small size (95 mm x 95 mm) and use of one high capacity connector based on the proven COM-Micro form factor, allow the COM-Micro modules to be easily and securely mounted onto a customized solution board or our standard SOM-DB5700 development board.

The SOM-6763 is a highly integrated multimedia COM module that combines audio, video, and network functions. It provides excellent performance through the Intel N450 and D510 processors, single channel LVDS interface for middle size TFT LCD display, DDR2 memory up to 2 GB (N450) or 4GB (D510), high definition audio interface (AC97/Azalia). On-board devices utilize PCIe technology to achieve outstanding computing performance.

1.2 Specifications

1.2.1 Standard System On Module Functions

- **CPU:** Onboard Intel® Atom N450 processor
  Onboard Intel® Atom D510 processor
  (For detailed CPU support information please contact your sales representative)
- **BIOS:** AMI 16Mb Flash BIOS
- **Chipset:** Intel® ICH8-M Chipset
- **Cache memory:** Intel® Atom N450 processor with integrated 512KB L2 cache
  Intel® Atom D510 processor with integrated 1MB L2 cache
- **System memory:** 200-pin SODIMM supports 667MHz DDR2 memory only
  Up to 2GB memory at Intel® Atom N450 processor
  Up to 4GB memory at Intel® Atom D510 processor
- **Power management:** Supports power saving modes including Normal / Standby / Suspend modes. ACPI 2.0 compliant
- **SATA interface:** 3 SATAII Channels
- **Watchdog timer:** 256 levels timer interval, from 0 to 255 sec or min setup by software, jumper less selection, generates system reset
- **USB interface:** Supports 8 USB 2.0 ports
- **Expansion Interface:** Supports LPC, 5 PCIe x1 (1 PCIe x4 or 1 PCIe x2 option), 4 PCI masters

1.2.2 VGA/Flat Panel Interface

- **Chipset:** Intel ICH8-M, Gen 3.5 DX9, MPEG2 Decode controller
- **Display type:** Dual display supports CRT and LVDS.
  Supports 18-bit single channel LVDS interface
- **Display mode:** CRT Mode: Supports up to 1400 x 1050 (N450)
  2048 x 1536 (D510)
  LCD Mode: Supports up to 1366 x 768

1.2.3 Audio Function

- **Audio interface:** Intel high definition audio interface

1.2.4 Ethernet

- **Chipset:** 1000Mbps: Intel 82567V Gigabit Ethernet. Base on IEEE 10BASE-T, 100BASE-TX and 1000BASE-T standard.

1.2.5 Mechanical and Environmental

- **Dimensions:** COM-Micro form-factor, 95 mm x 95 mm (3.74" x 3.74")
- **Power supply voltage:** +12 V power only (+5VSB is need for ACPI and ATX power)
- **Power requirement:** SOM-6763N (1 GB DDRII 667) +12 V @ 0.89 A
  SOM-6763D (1 GB DDRII 667) +12 V @ 1.32 A
- **Operating temperature:** 0 ~ 60°C (32 ~ 140°F)
- **Operating humidity:** 0% ~ 90% relative humidity, non-condensing
- **Weight:** 0.103 Kg (weight of total package)

Chapter 2

Mechanical Information

This chapter gives mechanical and connector information on the SOM-6763 CPU System on Module.

Sections include:
- Connector Information
- Mechanical Drawing

2.1 Connectors

2.1.1 Board Connector

There are two connectors at the rear side of SOM-6763 for connecting to the carrier board
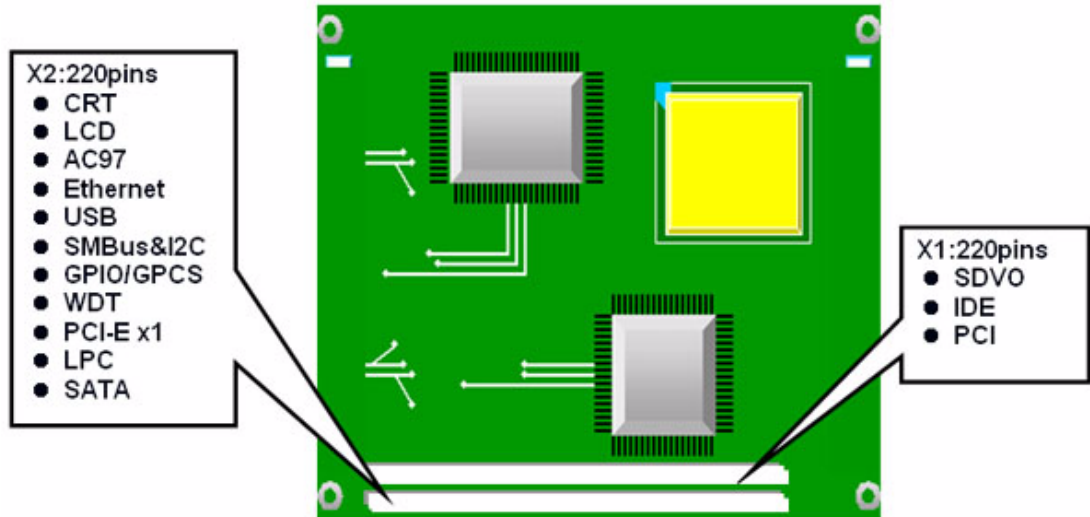
Pin Assignments for X1/X2 connector

Please refer to Advantech_COM_Express_Design Guide, Chapter 2.

You can download Advantech_COM_Express_Design Guide from http://com.advantech.com/

2.1.2 Connector List

Table 2.1: FAN1 Fan	
FAN1	**Fan**
Description	Wafer 2.0mm 3P 90D(M)DIP 2001-WR-03-LF W/Lock
Pin	**Pin Name**
1	Fan Tacho-Input
2	Fan Out
3	GND
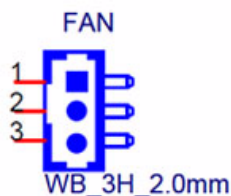
2.2 Mechanical

2.2.1 Jumper and Connector Location
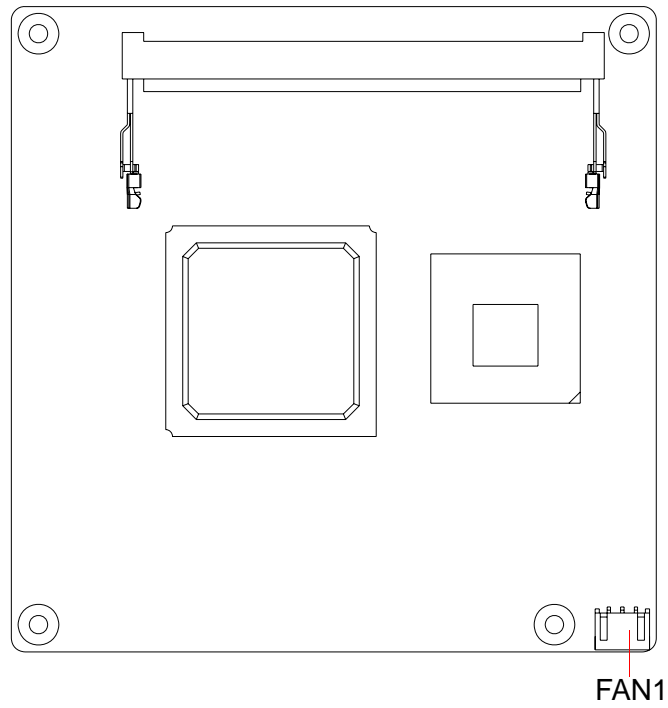
Figure 2.1 Board Layout (component side)

FAN1
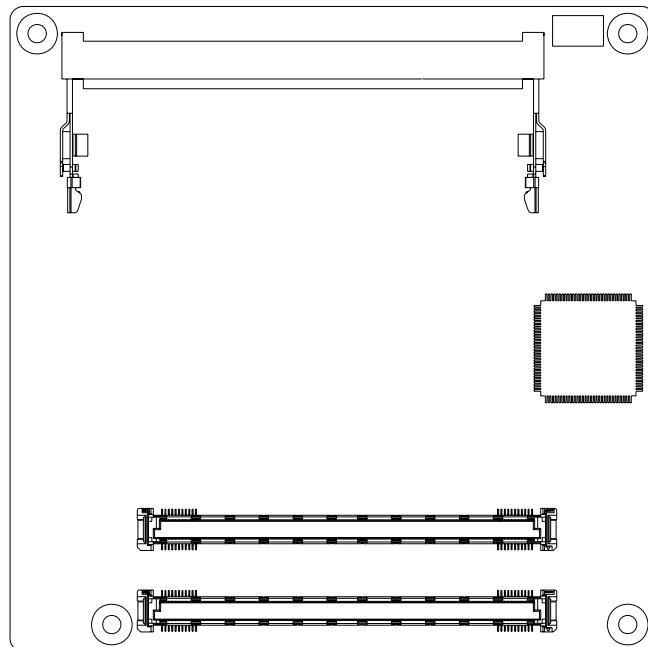
Figure 2.2 Board Layout (Solder side)

2.2.2 Board Dimension
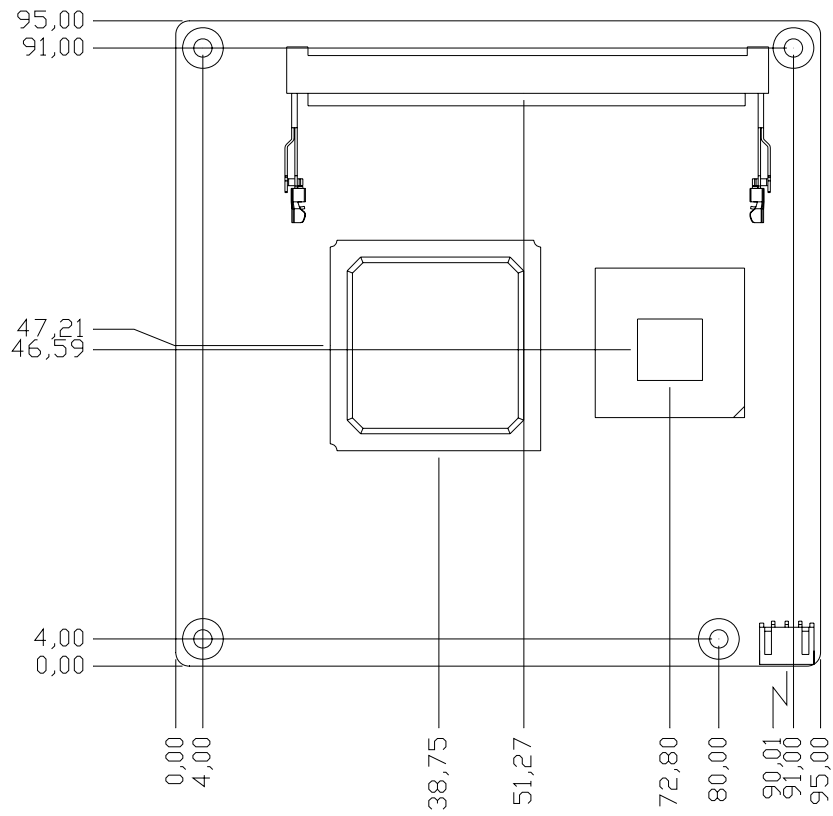
Figure 2.3 Board Dimension (Component side)
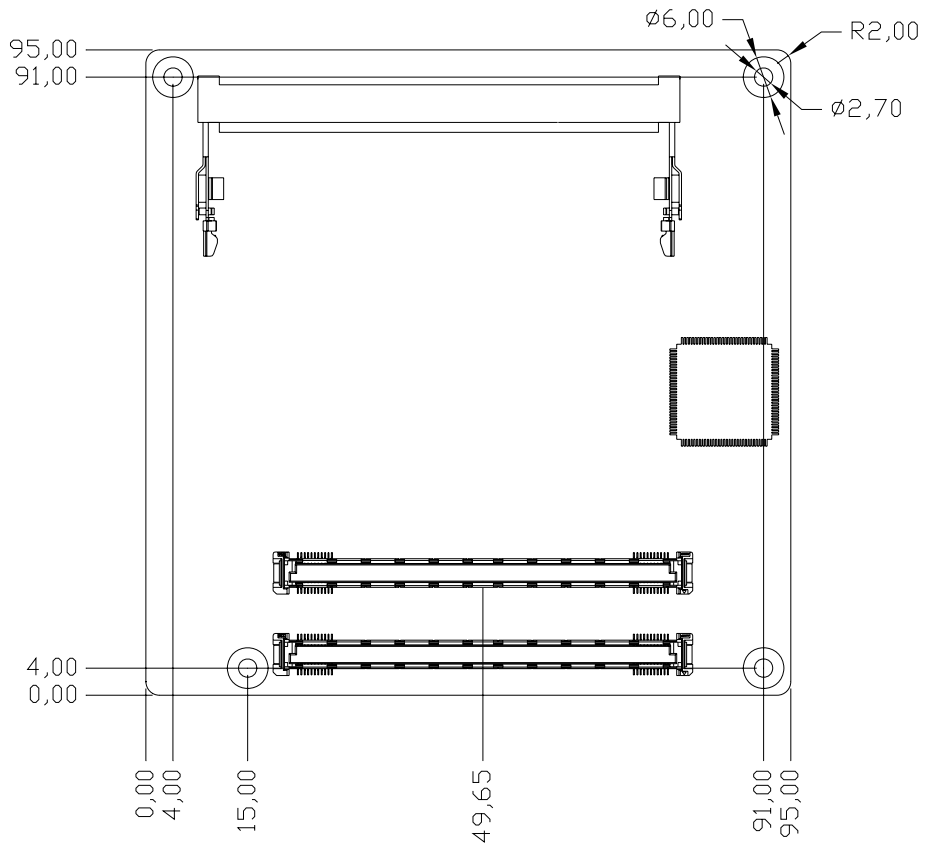
Figure 2.4 Board Dimension (Solder side)

Chapter   **3**

BIOS settings

AMIBIOS has been integrated into many motherboards for over a decade. With the AMIBIOS Setup program, users can modify BIOS settings and control various system features. This chapter describes the basic navigation of the SOM-6763 BIOS setup screens.
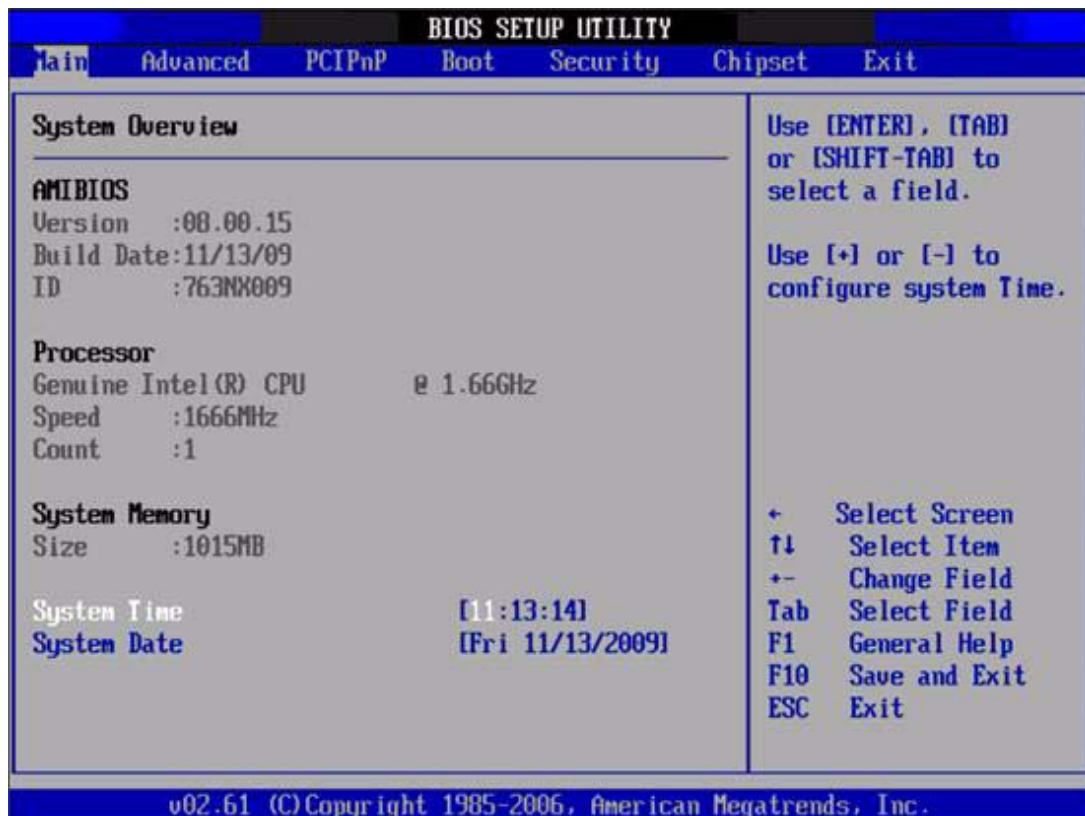
Figure 3.1 Setup program initial screen

AMI's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed CMOS so it retains the Setup information when the power is turned off.

3.1 Entering Setup

Turn on the computer and check for the "patch code". If there is a number assigned to the patch code, the onboard CPU is supported by the current BIOS. If there is no number assigned to the patch code, please contact an Advantech application engineer to obtain an up-to-date patch code file to ensure the system status of CPU is valid. Then press <DEL> to enter Setup menu.

3.2 Main Setup

When users enter the BIOS Setup Utility, they will enter the Main setup screen first. Users can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

Figure 3.2 Main setup screen

The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

3.2.1 System Time / System Date

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

3.3 Advanced BIOS Features Setup

Select the Advanced tab from the SOM-6763 setup screen to enter the Advanced BIOS Setup screen. Users can select any item in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. Users can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens are shown below. The sub menus are described on the following pages.
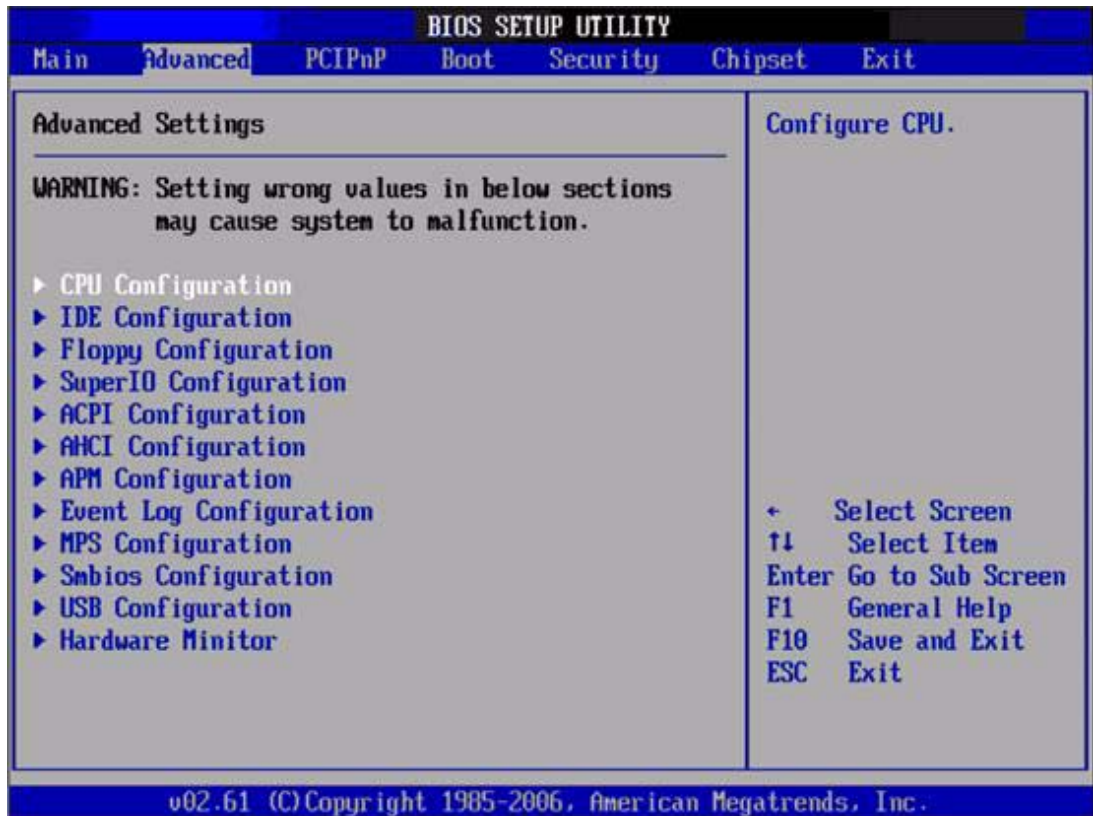
Figure 3.3 Advanced BIOS features setup screen

3.3.1 CPU Configuration
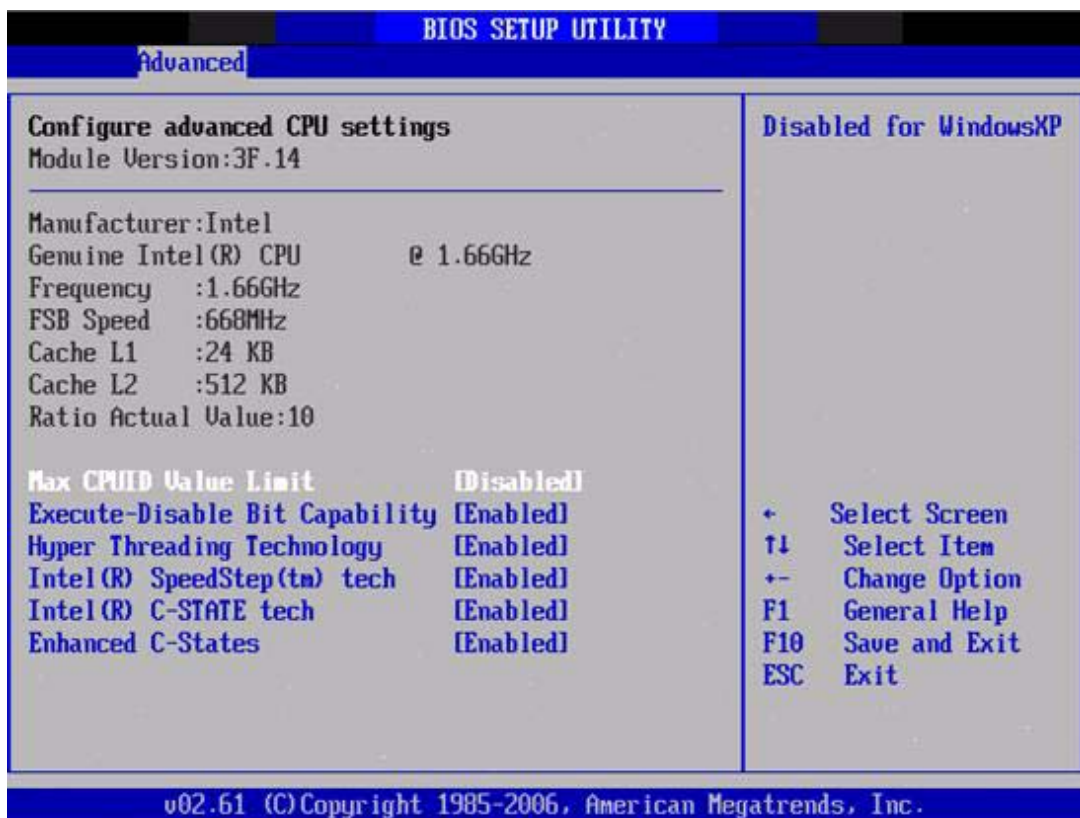
Figure 3.4 CPU Configuration Setting

Max CPUID Value Limit

This item allows users to limit the maximum value of CPUID.

Execute-Disable Bit Capability

This item allows users to enable or disable the No-Execution page protection technology.

Hyper Threading Technology

This item allows users to enable or disable Intel® Hyper Threading technology.

Intel® SpeedStep® tech

CPU runs at its default speed if disabled; CPU speed is controlled by the operating system if enabled.

Intel® C-STATE tech

This item allows the CPU to save more power in idle mode.

Enhanced C-States

Enable / Disable Intel® C-STATE technology.

3.3.2 IDE Configuration

Figure 3.5 IDE Configuration

ATA/IDE Configuration

This item allows users to select Disabled / Compatible / Enhanced.

Legacy IDE Channels

When set to Enhanced mode, users can select IDE or AHCI mode. When select Compatible mode, users can select "SATA only", "SATA Primary, PATA Secondary" or "PATA only".

Primary/Secondary/Third/Fourth IDE Master/Slave

BIOS detects the presence of IDE device automatically, and displays the status of auto detection of IDE device.

– Type: Select the type of SATA drive. [Not Installed][Auto][CD/DVD][ARMD]
– LBA/Large Mode: Enables or Disables the LBA mode.
– Block (Multi-Sector Transfer): Enables or disables data multi-sectors transfers.
– PIO Mode: Select the operating mode of PIO.
– DMA Mode: Select the operating mode of DMA.
– S.M.A.R.T.: Select the smart monitoring, analysis, and reporting technology.
– 32-Bit Data Transfer: Enables or disables 32-bit data transfer.

Hard Disk Write Protect

Disable/Enable device write protection. This will be effective only if device is accessed through BIOS.

IDE Detect Time Out (Sec)

This item allows users to select the time out value for detecting ATA/ATAPI device(s).

ATA(PI) 80Pin Cable Detection

This item allows users to select the way to detect IDE 80 pin cable.

3.3.3 Floppy Configuration

Figure 3.6 Floppy Configuration

Floppy A/B

Specify the type of floppy drive connected the system; it is recommended to select "Disabled" if no floppy drive is connected.

3.3.4 Super I/O Configuration
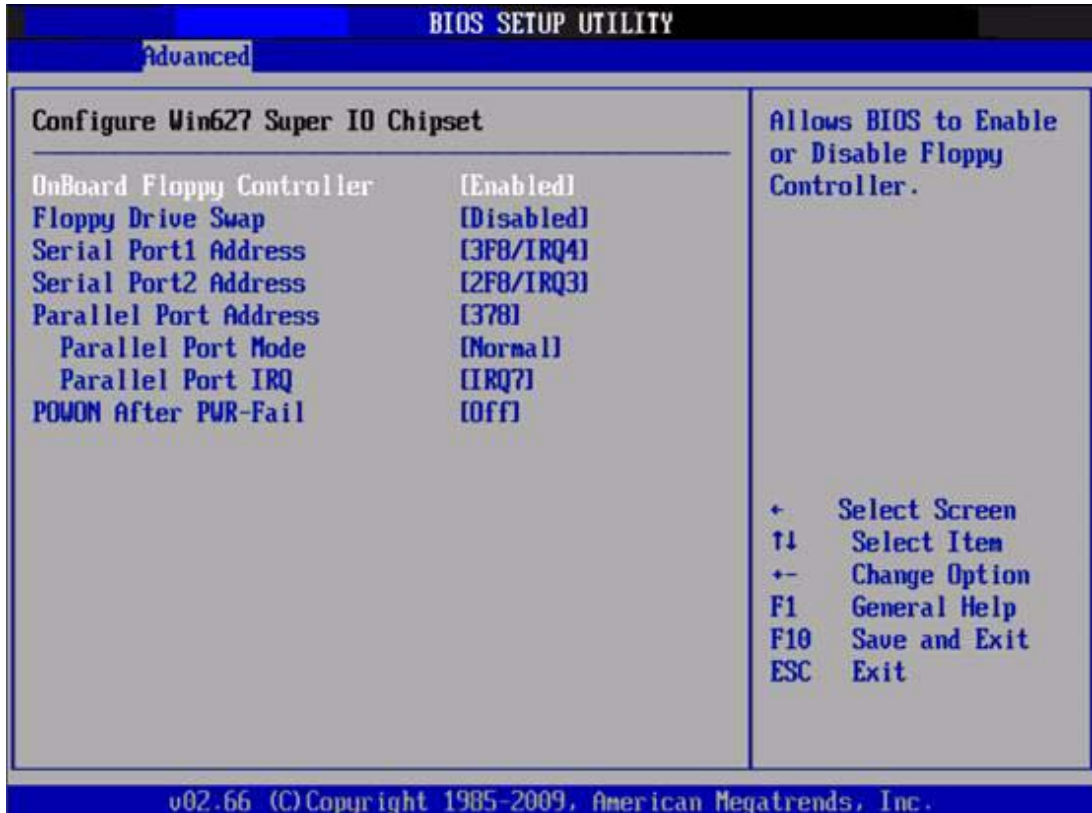
Figure 3.7 Super I/O Configuration

Onboard Floppy Controller

This item allows users to enable or disable the onboard floppy controller.

Floppy Drive Swap

This item allows users to enable or disable the floppy swap function.

Serial Port1 / Port2 address

This item allows users to select the base addresses and IRQs of serial port1 and port2.

Parallel Port Address

This item allows users to select the base address of the parallel port.

Parallel Port Mode

This item allows users to select the mode of the parallel port.

Parallel Port IRQ

This item allows users to select the IRQ of the parallel port.

POWON After PWR-Fail

This item allows users to select off, on and former status.

3.3.5 ACPI Settings
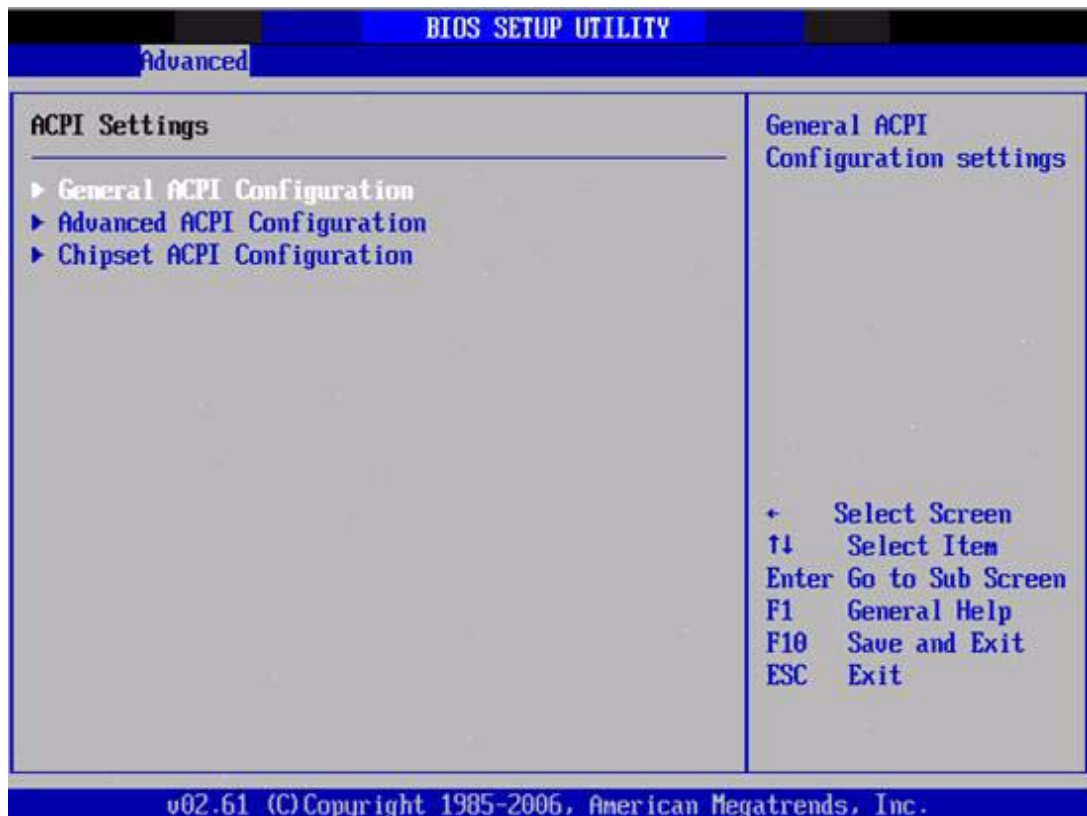
Figure 3.8 ACPI Settings

3.3.5.1 General ACPI Configuration
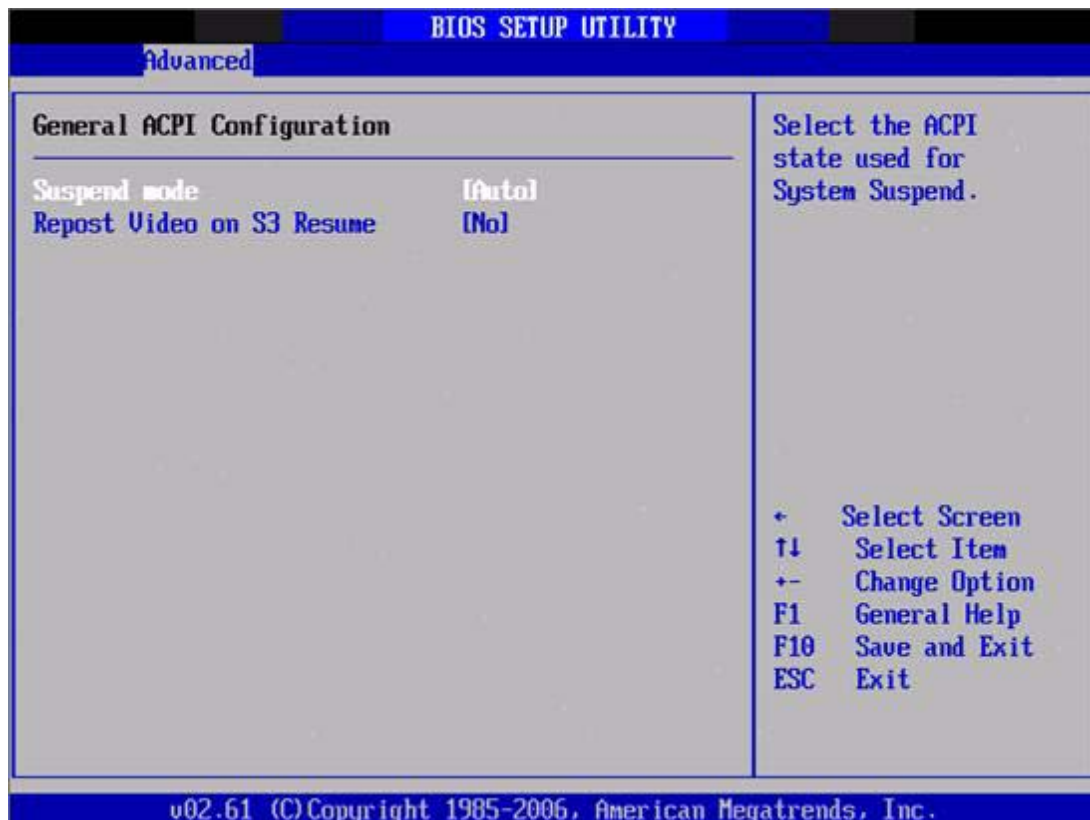
Figure 3.9 General ACPI Configuration

Suspend mode

Select the ACPI state used for system suspend.

Report Video on S3 Resume

This item allows users to invoke VGA BIOS POST on S3/STR resume.

3.3.5.2 Advanced ACPI Configuration

Figure 3.10 Advanced ACPI Configuration

ACPI version features

This item allows users to enable RSDP pointers to 64-bit fixed system description tables.

ACPI APIC support

Include APIC table pointer to RSDT pointer list.

AMI OEMB table

Include OEMB table pointer to R(x)SDT pointer lists.

Headless mode

Enable / Disable Headless operation mode through ACPI.

3.3.5.3 Chipset ACPI Configuration

Figure 3.11 Chipset ACPI Configuration

Energy Lake Feature

This item allows users to configure Intel® Energy Lake power management technology.

APIC ACPI SCI IRQ

Enable/Disable APIC ACPI SCI IRQ.

USB Device Wakeup From S3/S4

Enable/Disable USB Device Wakeup from S3/S4.

High Performance Event Timer

Enable/Disable High Performance Event Timer.

3.3.6 AHCI Configuration
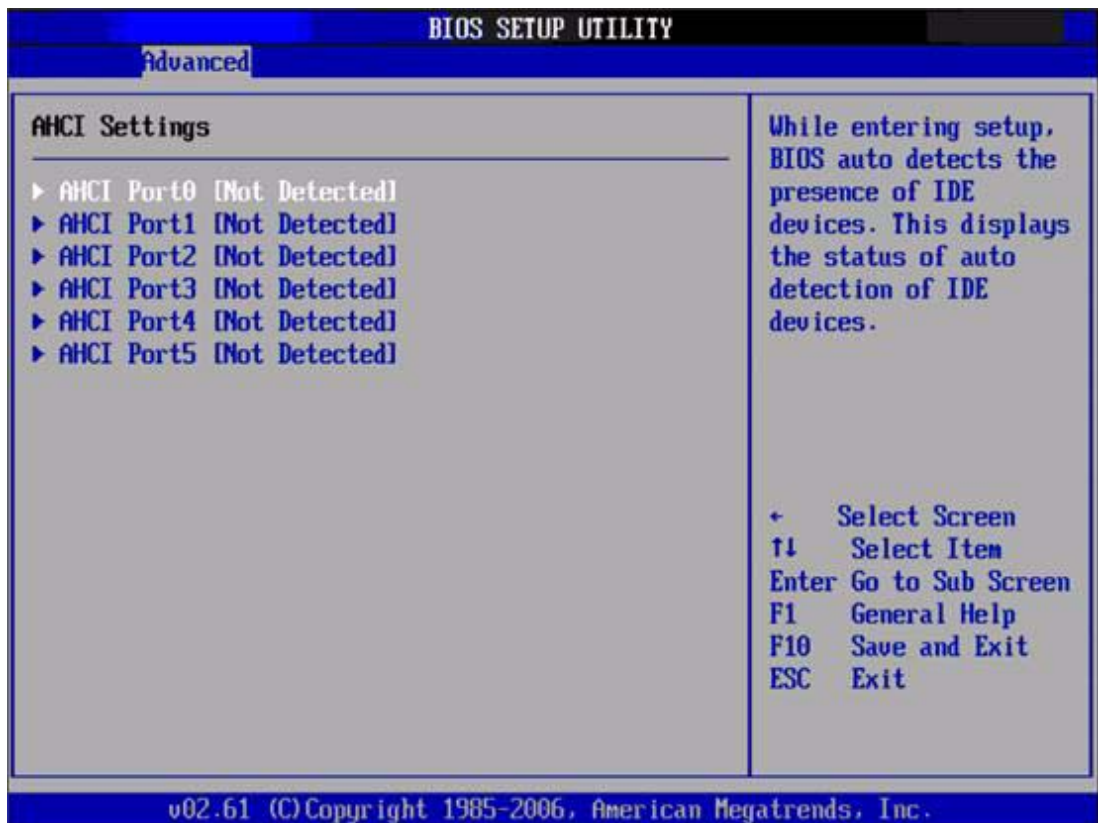
Figure 3.12 Advanced ACPI Configuration

AHCI Port0 / Port1/ Port2/ Port3/ Port4/ Port5

While entering setup, BIOS auto detects the presence of IDE devices and displays the status of auto detection of IDE device.

3.3.7 APM Configuration


```
                         BIOS SETUP UTILITY
    Advanced

 APM Configuration                                    Enable or disable
                                                      APM.
 Power Management/APM         [Enabled]
 Power Button Mode            [On/Off]

 Video Power Down Mode        [Suspend]
 Hard Disk Power Down Mode    [Suspend]

 Resume On PME#               [Disabled]
 Resume On RTC Alarm          [Disabled]

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

      v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
```

Figure 3.13 APM Configuration

Power Management/APM
Enable or disable APM.
Power Button Mode
Power on, off or enter suspend mode when the power button is pressed. The following options are also available.
Video Power Down Mode
Power down video in suspend or standby mode.
Hard Disk Power Down Mode
Power down Hard Disk in suspend or standby mode.
Resume On PME#
Enable / Disable PME to generate a wake event.
Resume On RTC Alarm
Enable / Disable RTC to generate a wake event.

3.3.8 Event Log Configuration

Figure 3.14 Event Log Configuration

View Event Log
View all unread events on the Event Log.
Mark all events as read
Mark all unread events as read.
Clear Event Log
Discard all events in the Event Log.

3.3.9 MPS Configuration

Figure 3.15 MPS Configuration

MPS Revision
This item allows users to select MPS reversion.

3.3.10 Smbios Configuration
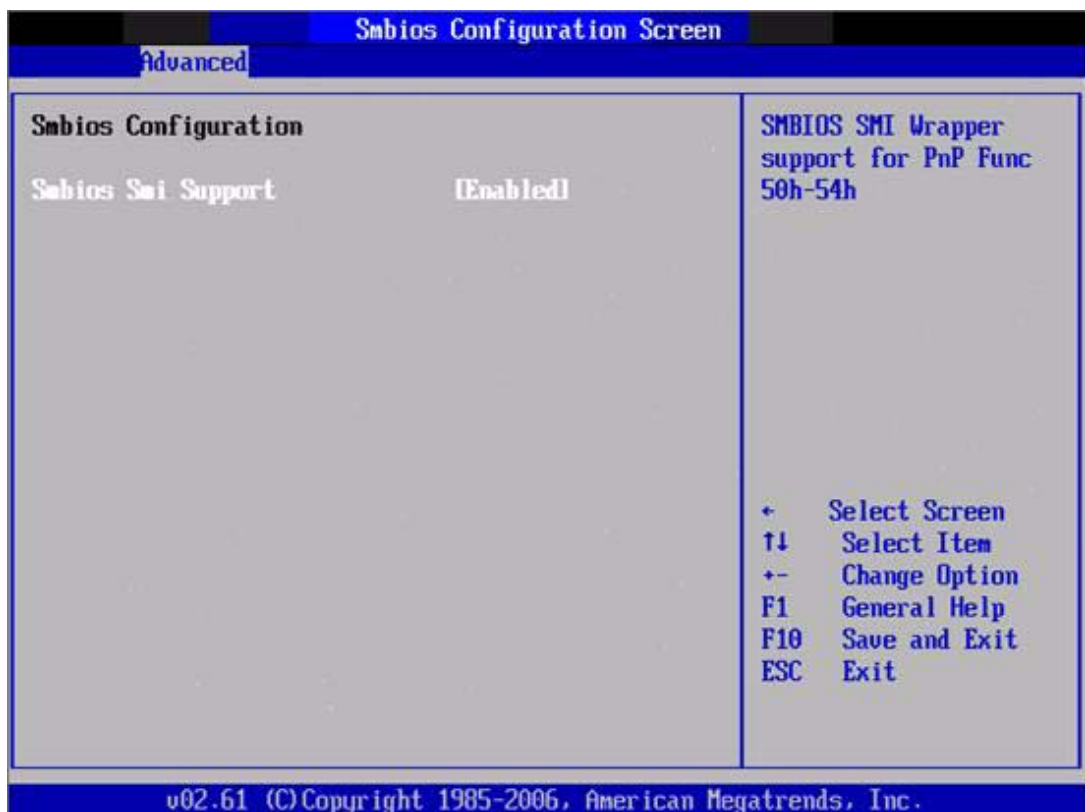
Figure 3.16 Smbios Configuration

Smbios Smi Support
SMBIOS SMI wrapper support for PnP function 50h-54h.

3.3.11 USB Configuration

Figure 3.17 South Bridge ACPI Configuration

Legacy USB Support

Enable the support for legacy USB. "Auto" option disables legacy support if no USB device is connected.

USB 2.0 Controller Mode

This item allows users to select HiSpeed (480 Mbps) or FullSpeed (12 Mpbs).

BIOS EHCI Hand-Off

This is a workaround for the OS without EHCI hand-off support. The EHCI ownership change should claim by EHCI driver.

Hotplug USB FDD Support

A dummy FDD device is created that will be associated with the hot-plugged FDD later. "Auto" option creates this dummy device only if there is no USB FDD present.

3.3.12 USB Mass Storage Device Configuration
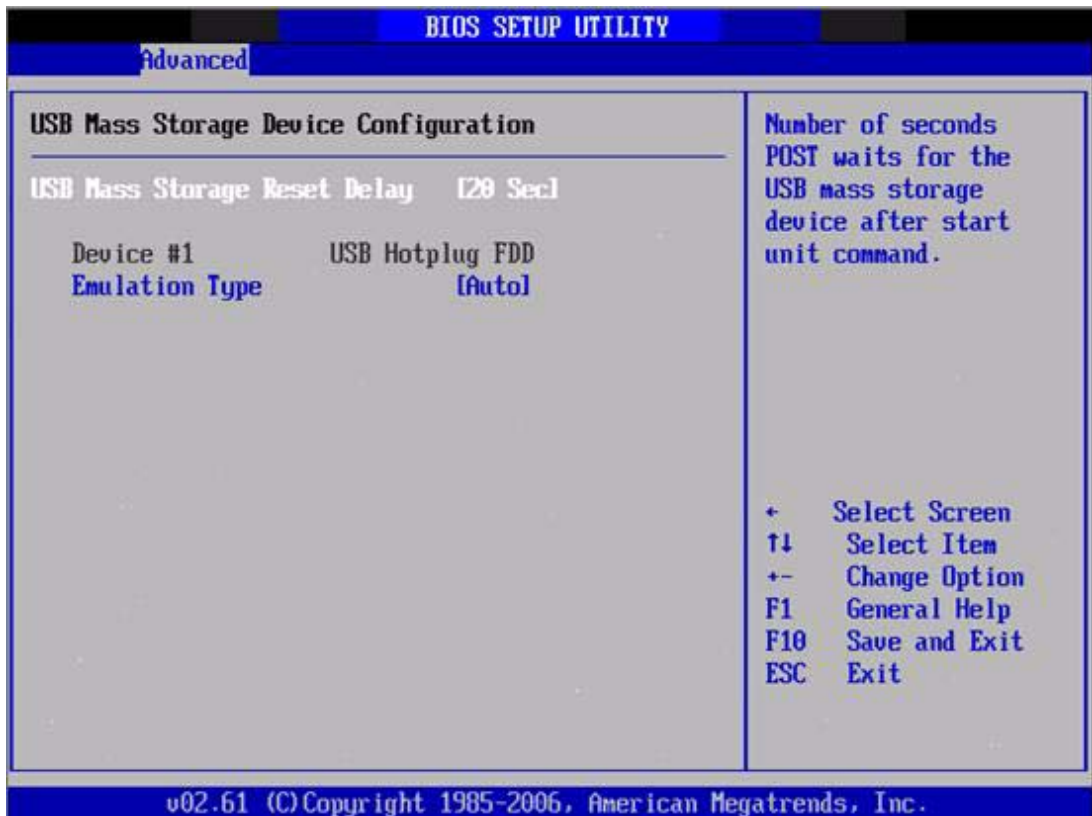
Figure 3.18 USB Mass storage Device Configuration

USB Mass Storage Reset Delay

Number of seconds POST waits for the USB mass storage device after the start unit command.

Emulation Type

If Auto, USB devices less than 530MB will be emulated as Floppy and remaining as hard drive. Force FDD option can be used to force a FDD formatted drive to boot as FDD (Ex. ZIP drive).

3.3.13 Hardware Health Configuration
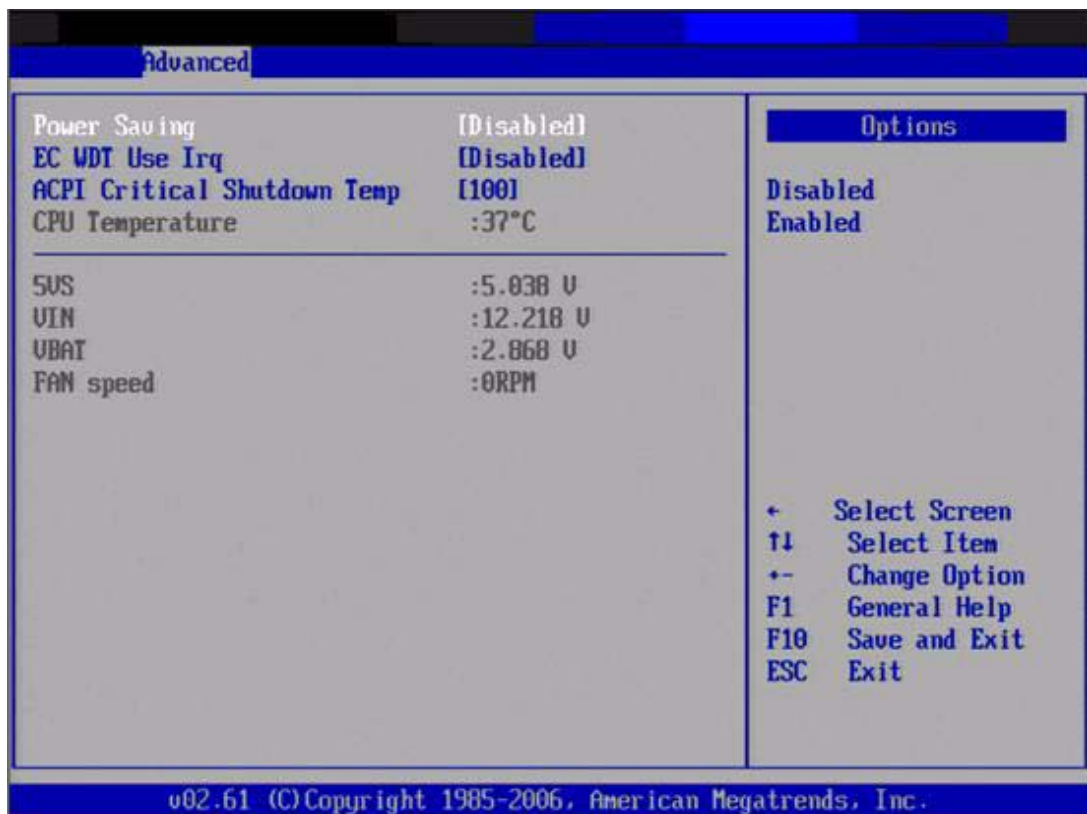
Figure 3.19 Hardware Health Configuration

ACPI critical shutdown temp

This item allows users to set the value of CPU shutdown temperature in ACPI OS.

Temperature ,voltage and FAN speed show

CPU Temperature

5V / 5VS / 12V / VBAT

FAN speed

3.4 Advanced PCI/PnP Settings

Select the PCI/PnP tab from the SOM-4463 setup screen to enter the Plug and Play BIOS Setup screen. You can display a Plug and Play BIOS Setup option by highlighting it using the <Arrow> keys. All Plug and Play BIOS Setup options are described in this section. The Plug and Play BIOS Setup screen is shown below.
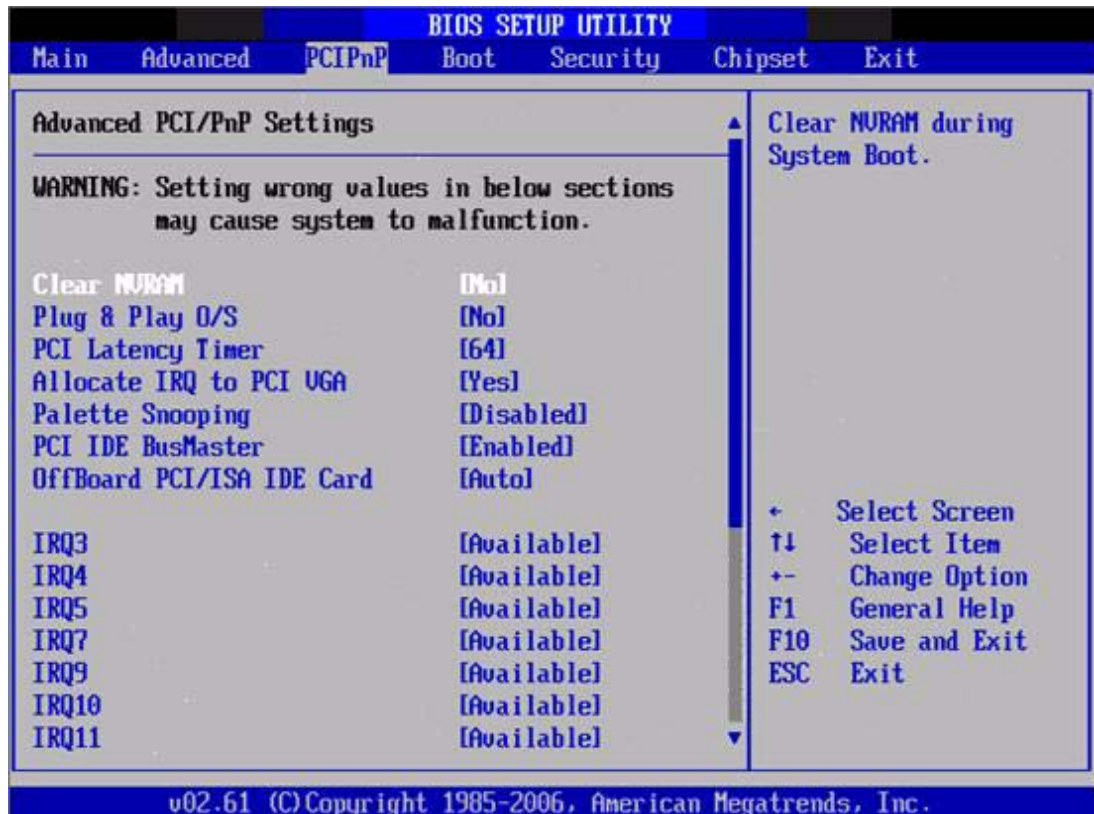
Figure 3.20 PCI/PNP Setup

Clear NVRAM

Set this value to force the BIOS to clear the Non-Volatile Random Access Memory (NVRAM).The Optimal and Fail-Safe default setting is No.

Plug & Play O/S

When set to No, the BIOS configures all devices in the system. If set to "Yes", and the OS supports Plug & Play, then rebooting the system is not required after the OS finishes configuration of the plug and play devices.

PCI Latency Timer

Value in units of PCI clocks for PCI device latency timer register

Allocate IRQ to PCI VGA

When set to Yes, it will assign IRQ to PCI VGA card if the card requests an IRQ. When set to No, the BIOS will not assign an IRQ to PCI VGA card even if the card requests it.

Palette Snooping

This item is designed to solve problems caused by some non-standard VGA cards.

PCI IDE BusMaster

When set to enable, it uses PCI bus mastering for reading/writing to IDE drives.

OffBoard PCI/ISA IDE Card

Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card. When set to Auto, it will works for most PCI IDE cards.

IRQ3 / 4 / 5 / 7 / 9 / 10 /11

This item allows users to assign an interruptive type for IRQ-3, 4, 5, 7, 9, 10, 11 respectively.

DMA Channel0 / 1 / 3 / 5 / 6 / 7

When set to Available,   specified DMA will be available for PCI/PnP devices. When set to Reserved, specified DMA will be reserved for legacy ISA

devices.

Reserved Memory Size

This item allows users to reserve the size of memory blocks for legacy ISA device.

3.5 Boot Settings
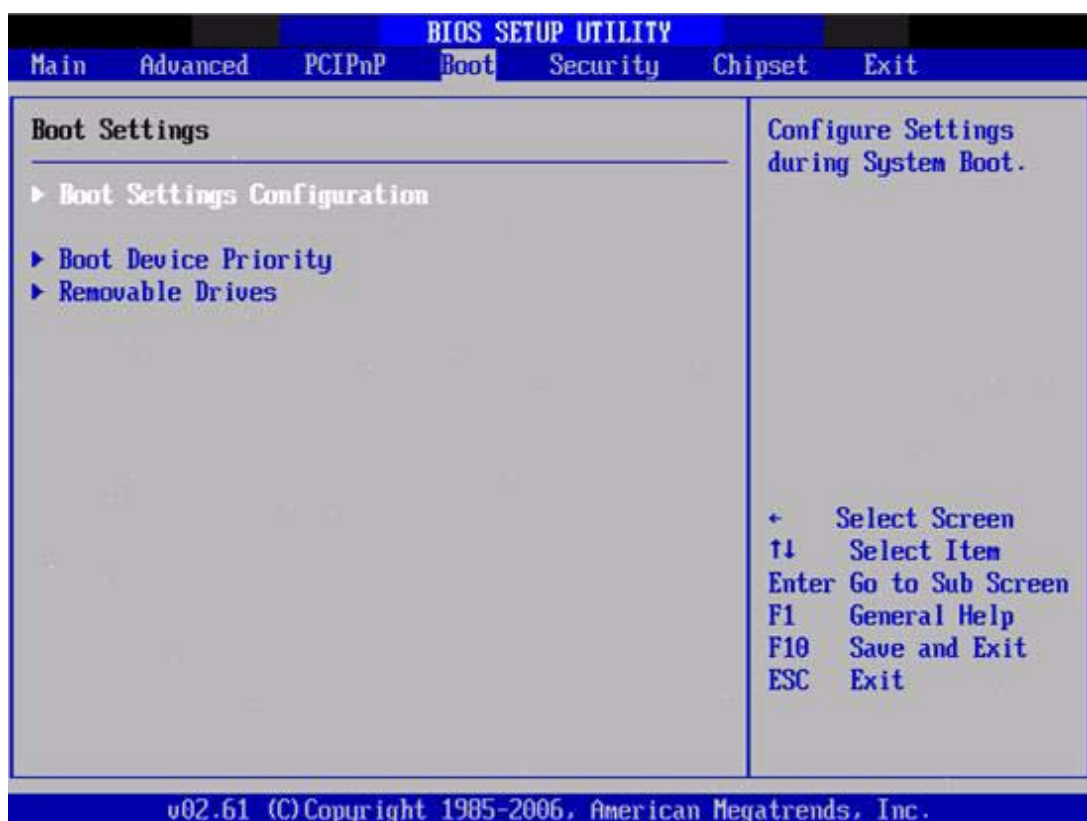
Figure 3.21 Boot Setup Utility

3.5.1 Boot settings Configuration

Figure 3.22 Boot Setting Configuration

Quick Boot

This item allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

Quiet Boot

If this option is set to Disabled, the BIOS displays normal POST messages. If Enabled, an OEM Logo is shown instead of POST messages.

AddOn ROM Display Mode

Set display mode for option ROM.

Bootup Num-Lock

Select the Power-on state for Numlock.

PS/2 Mouse Support

Select support for PS/2 Mouse.

Wait For "F1' If Error

Wait for the F1 key to be pressed if an error occurs.

Hit "DEL' Message Display

Displays - Press DEL to run Setup in POST.

Interrupt 19 Capture

This item allows option ROMs to trap interrupt 19.

3.6 Security Setup

Figure 3.23 Password Configuration

Select Security Setup from the SOM-6763 Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

Change Supervisor / User Password: Select this option and press <ENTER> to access the sub menu, then type in the password.

Boot sector Virus protection: The boot sector virus protection will warn if any program tries to write to the boot sector.

3.7 Advanced Chipset Settings

Figure 3.24 Advanced Chipset Settings

3.7.1   North Bridge Chipset Configuration

Figure 3.25 North Bridge Configuration

DRAM Frequency

This item allows users to change DRAM frequency manually.

Configure DRAM Timing by SPD

This item allows users to enable or disable detect by DRAM SPD.

Memory Hole

This item allows users to free 15 MB-16 MB of memory size for some ISA devices.

Initate Graphic Aadapter

This item allows users to select which graphics controller to be used as the primary boot device.

Internal Graphics Mode Select

Select the amount of system memory can be used by the Internal graphics device.

Figure 3.26 Video Function Configuration

DVMT Mode Select

Displays the active system memory mode.

DVMT/FIXED Memory

Specify the amount of DVMT / FIXED system memory to allocate for video memory.

Boot Display Device

Select boot display device at post stage.

Flat Panel Type

This item allows users to select panel resolution.

Spread Spectrum Clock

This item allows users to enable or disable spread spectrum clock.

3.7.2 South Bridge Chipset Configuration

Figure 3.27 South Bridge Configuration

USB Functions

Disabled, 2 USB Ports, 4 USB Ports, 6 USB Ports or 8 USB Ports.

USB 2.0 Controller

Enables or disables the USB 2.0 controller.

GbE Controller

Enables or disables the GbE controller.

GbE LAN Boot

Enables or disables GbE LAN boot.

GbE Wake Up From S5

Enables or disables GbE LAN wake up from S5 function.

HDA Controller

Enables or disables the HDA controller.

SMBUS Controller

Enables or disables the SMBUS controller.

SLP_S4# Min. Assertion Width

This item allows users to set a delay of sorts.

PCIE Port 0 / 1 / 2 / 3 / 4

This item allows users to configure PCIE port

PCIE High Priority Port

This item allows users to set the highest priority PCIE port.

PCIE Port 0 / 1 / 2 / 3 / 4 IOxAPIC

This item allows users to enable or disable PCIE port's IOxAPIC.

3.8 Exit Option

Figure 3.28 Exit Option

3.8.1 Save Changes and Exit

When users have completed system configuration, select this option to save changes, exit BIOS setup menu and reboot the computer to take effect all system configuration parameters.

1. Select Exit Saving Changes from the Exit menu and press <Enter>. The following message appears: Save Configuration Changes and Exit Now? [Ok] [Cancel]

   Select Ok or cancel.

3.8.2 Discard Changes and Exit

Select this option to quit Setup without making any permanent changes to the system configuration.

1. Select Exit Discarding Changes from the Exit menu and press <Enter>. The following message appears: Discard Changes and Exit Setup Now? [Ok] [Cancel]
2. Select Ok and press <Enter>to discard changes and exit.

3.8.3 Load Optimal Defaults

The SOM-6763 automatically configures all setup items to optimal settings when users select this option. Optimal Defaults are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Defaults if the user's computer is experiencing system configuration problems. Select Load Optimal Defaults from the Exit menu and press <Enter>.

3.8.4 Load Fail-Safe Defaults

The SOM-6763 automatically configures all setup options to fail-safe settings when users select this option. Fail-Safe Defaults are designed for maximum system stability, but not maximum performance. Select Fail-Safe Defaults if the user's computer is experiencing system configuration problems.

1. Select Load Fail-Safe Defaults from the Exit menu and press <Enter>. The following message appears: Load Fail-Safe Defaults? [OK] [Cancel]
2. Select OK to load Fail-Safe defaults.

Chapter 4

S/W Introduction & Installation

4.1 S/W Introduction

The mission of Advantech Embedded Software Services is to "Enhance quality of life with Advantech platforms and Microsoft Windows embedded technology." We enable Windows Embedded software products on Advantech platforms to more effectively support the embedded computing community. Customers are freed from the hassle of dealing with multiple vendors (Hardware suppliers, System integrators, Embedded OS distributor) for projects. Our goal is to make Windows Embedded Software solutions easily and widely available to the embedded computing community.

4.2 Driver Installation

The Intel Chipset Software Installation (CSI) utility installs the Windows INF files that outline to the operating system how the chipset components will be configured.

4.2.1 Windows XP professional

To install the drivers please just insert the CD into CD-ROM, select the drivers that you want to install, then run .exe (setup) file under each chipset folder and follow Driver Setup instructions to complete the installation.

4.2.2 Other OS

To install the drivers for Other Windows OS or Linux, please browse the CD to run the setup file under each chipset folder on the CD-ROM.

Appendix A

Watchdog Timer

This appendix gives you the information about the watchdog timer programming on the SOM-6763 CPU System on Module.

Sections include:
- Watchdog Timer Programming

A.1 Programming the Watchdog Timer

Trigger Event	Note
IRQ	IRQ7, 9, 11 (default disable) IRQ can be set in BIOS
NMI	N/A
SCI	Power button event
Power Off	Support
H/W Restart	Support
External WDT	N/A

For details, please refer to Section 6.2 *Watchdog (WDog) Functions Class* of iManager & Software API User Manual.

Appendix B

Programming GPIO

This Appendix gives the illustration of the General Purpose Input and Output pin setting.

Sections include:

■ System I/O ports

B.1 GPIO Register

GPIO Byte Mapping	H/W Pin Name
BIT0	GPO0
BIT1	GPO1
BIT2	GPO2
BIT3	GPO3
BIT4	GPI0
BIT5	GPI1
BIT6	GPI2
BIT7	GPI3

For details, please refer to Section 6.3 *GPIO (I/O) Functions* of iManager & Software API User Manual.

Appendix C

System Assignments

This appendix gives you the information about the system resource allocation on the SOM-6763 CPU System on Module

Sections include:

- System I/O ports
- DMA Channel Assignments
- Interrupt Assignments
- 1st MB Memory Map

C.1 System I/O Ports

Table C.1: System I/O ports	
Addr.range(Hex)	Device
0000 - 000F	Direct memory access controller
0000 - 0CF7	PCI bus
0010 - 001F	Motherboard resources
0020 - 0021	Programmable interrupt controller
0022 - 003F	Motherboard resources
0040 - 0043	System timer
0044 - 005F	Motherboard resources
0060 - 0060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0061 - 0061	System speaker
0062 - 0062	Microsoft ACPI-Compliant Embedded Controller
0063 - 0063	Motherboard resources
0064 - 0064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0065 - 0065	Motherboard resources
0066 - 0066	Microsoft ACPI-Compliant Embedded Controller
0067 - 006F	Motherboard resources
0070 - 0071	System CMOS/real time clock
0072 - 007F	Motherboard resources
0080 - 0080	Motherboard resources
0081 - 0083	Direct memory access controller
0084 - 0086	Motherboard resources
0087 - 0087	Direct memory access controller
0088 - 0088	Motherboard resources
0089 - 008B	Direct memory access controller
008C - 008E	Motherboard resources
008F - 008F	Direct memory access controller
0090 - 009F	Motherboard resources
00A0 - 00A1	Programmable interrupt controller
00A2 - 00BF	Motherboard resources
00C0 - 00DF	Direct memory access controller
00E0 - 00EF	Motherboard resources
00F0 - 00FF	Numeric data processor
01F0 - 01F7	Primary IDE Channel
0274 - 0277	ISAPNP Read Data Port
0279 - 0279	ISAPNP Read Data Port
02F8 - 02FF	Communications Port (COM2)
0378 - 037F	Printer Port (LPT1)
03B0 - 03BB	Intel(R) Graphic Media Accelerator 3150
03C0 - 03DF	Intel(R) Graphic Media Accelerator 3150
03F6 - 03F6	Primary IDE Channel
03F8 - 03FF	Communications Port (COM1)
0400 - 041F	Intel(R) ICH8 Family SMBus Controller - 283E
04D0 - 04D1	Motherboard resources
0500 - 053F	Motherboard resources
0800 - 087F	Motherboard resources

Table C.1: System I/O ports	
0A00 - 0A0F	Motherboard resources
0A79 - 0A79	ISAPNP Read Data Port
0D00 - FFFF	PCI bus
D080 - D087	Intel(R) Graphic Media Accelerator 3150
D400 - D41F	Intel 82567V-3 Gigabit Network Connection
D480 - D49F	Standard Universal PCI to USB Host Controller
D800 - D81F	Intel ICH8 Family USB Universal Host Controller - 2832
D880 - D89F	Intel ICH8 Family USB Universal Host Controller - 2831
DC00 - DC1F	Intel ICH8 Family USB Universal Host Controller - 2830
E080 - E08F	Intel ICH8M 3 port Serial ATA Storage Controller - 2828
E400 - E40F	Intel ICH8M 3 port Serial ATA Storage Controller - 2828
E480 - E483	Intel ICH8M 3 port Serial ATA Storage Controller - 2828
E800 - E807	Intel ICH8M 3 port Serial ATA Storage Controller - 2828
E880 - E883	Intel ICH8M 3 port Serial ATA Storage Controller - 2828
EC00 - EC07	Intel ICH8M 3 port Serial ATA Storage Controller - 2828
FFA0 - FFAF	Intel ICH8M Ultra ATA Storage Controller - 2850

C.2 DMA Channel Assignments

Table C.2: DMA channel assignments	
Channel	**Function**
0	Available
1	Available
2	Available
3	Available
4	Direct memory access controller
5	Available
6	Available
7	Available

C.3 Interrupt Assignments

Table C.3: Interrupt assignments	
Interrupt#	**Interrupt source**
NMI	Parity error detected
IRQ 0	System timer
IRQ 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
IRQ 2	Available
IRQ 3	Communications Port (COM2)
IRQ 4	Communications Port (COM1)
IRQ 5	Available
IRQ 6	Available
IRQ 7	Available
IRQ 8	System CMOS/real time clock
IRQ 9	Microsoft ACPI-Compliant System
IRQ 10	Intel ICH8 Family SMBus Controller - 283E
IRQ 11	Available
IRQ 12	PS/2 Compatible Mouse
IRQ 13	Numeric data processor
IRQ 14	Primary IDE Channel
IRQ 15	Available
IRQ 16	Intel(R) Graphic Media Accelerator 3150
IRQ 16	Standard Universal PCI to USB Host Controller
IRQ 18	Intel(R) ICH8 Family USB Universal Host Controller - 2832*
IRQ 18	Intel(R) ICH8M 3 port Serial ATA Host Controller - 2828
IRQ 19	Intel(R) ICH8 Family USB Universal Host Controller - 2831*
IRQ 21	Microsoft UAA Bus Driver for High Definition Audio
IRQ 23	Intel(R) 82567V-3 Gigabit Network Connection*
IRQ 23	Intel ICH8 Family USB Universal Host Controller - 2830*
IRQ 23	Intel ICH8 Family USB Universal Host Controller - 2836*

*USB and Ethernet IRQ is automatically set by the system

C.4 1st MB Memory Map

Table C.4: 1st MB memory map	
Addr. range (Hex)	**Device**
00000000 - 0009FFFF	System board
000A0000 - 000BFFFF	Intel(R) Graphic Media Accelerator 3150
000A0000 - 000BFFFF	PCI Bus
000C0000 - 000CFFFF	System board
000D0000 - 000DFFFF	PCI bus
000E0000 - 000FFFFF	System board
00100000 - 3F6FFFFF	System board
3F700000 - DFFFFFFF	PCI Bus
D0000000 - DFFFFFFF	Intel(R) Graphic Media Accelerator 3150
E0000000 - EFFFFFFF	Motherboard resource
F0000000 - FED8FFFF	PCI Bus
FE980000 - FE9FFFFF	Intel(R) Graphic Media Accelerator 3150
FEA00000 - FEAFFFFF	Intel(R) Graphic Media Accelerator 3150
FEB00000 - FEB7FFFF	Intel(R) Graphic Media Accelerator 3150
FEBC0000 - FEBDFFFF	Intel 82567V-3 Gigabit Network Connection
FEBF8000 - FEBFBFFF	Microsoft UAA Bus Driver for High Definition Audio
FEBFE000 - FEBFEFFF	Intel 82567V-3 Gigabit Network Connection
FEBFF800 - FEBFFBFF	Intel ICH8 Family USB2 Enhanced Host Controller - 2836
FEBFFC00 - FEBFFCFF	Intel ICH8 Family SMBus Controller - 283E
FEC00000 - FEC00FFF	Motherboard resources
FED14000 - FED19FFF	System board
FED1C000 - FED1FFFF	Motherboard resources
FED20000 - FED3FFFF	Motherboard resources
FED40000 - FED8FFFF	Motherboard resources
FED90000 - FED93FFF	System board
FED90000 - FFFFFFFF	System board
FEE00000 - FEE00FFF	Motherboard resources
FFB00000 - FFBFFFFF	Intel 82802 Firmware Hub Device
FFC00000 - FFEFFFFF	Motherboard resources
FFF00000 - FFFFFFFF	Intel 82802 Firmware Hub Device

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