IWILL® DK8-HTX

Hardware Installation Guide

FB27810500

Preface

Operation is subjected to the following two conditions

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

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Important

All product specifications are subject to change without prior notice. The actual specifications will be according to the actual product.

FCC Compliance Statement

This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna
2. Move the equipment away from the receiver
3. Plug the equipment into an outlet on a circuit different from that to which the receiver is connected
4. Consult the dealer or an experienced radio/television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules.

CE Compliance Statement

Notice for Europe (CE Mark) This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

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Chapter 1 Getting Started

Thank you for choosing the DK8-HTX high performance Server motherboard. The DK8-HTX is a dual AMD® Opteron micro-Socket 940 motherboard (M/B) based on the SSI form factor and is configured with the AMD® HyperTransport I/O Hub 8111 and PCIX Tunnel 8131 chipsets. The board features a Hyper Transport speed of 1600 MT (Mega Transfer per second).

For memory support, the DK8-HTX provides eight sockets (four + four configuration) accommodating up to 16 GB of memory using registered PC3200/2700/2100 ECC DDR memory modules.

Flexibility and expandability are provided by one 64-bit/133MHz PCI-X slot, two PCI 64-bit/100MHz PCI slots, and two 32-bit/66MHz PCI slots. This array of PCI slots enables numerous add-on cards and provides Peer PCI transaction support to increase system performance.

DK8-HTX integrates a special HTX-Pro technology. Via its HTX-PRO expansion slot, the particular adapter card could directly attaches to AMD Opteron™ through Hyper Transport.

Other optional features such as onboard Silicon Image Serial ATA RAID interfaces, dual INTEL® Gigabit Ethernet controllers, and onboard ATI® RageXL video controller with 8MB memory provide high system capabilities that meet a wide range of demanding server applications.

1-1 Operating Environmental Requirements

To ensure the reliability and performance of DK8-HTX Server System, please maintain the operating environment described below:

1. The ambient operating temperature is 0°C to 40°C
2. The relative humidity of operation is 10% to 85% non-condensing.

Leave your system in the shipping crate at its final destination for 24 hours in the environment where you will set it up. This is to prevent thermal shock and condensation. To minimize the chance of system failure, use the server board within the optimal temperature and humidity ranges as follow:

1. The optimize ambient temperature of operating is required as 21°C to 23°C
2. The optimize relative humidity of operating is 45% to 50% non-condensing.

1-2 Safe Notice

IWILL assumes the reader of this document is an experienced systems integrator. Please read our instruction while you are installing the system.

General Safety Precautions

- Keep the area around the Server clean and free of clutter.
- Servers weigh a lot. When lifting the system, two people should lift slowly from opposite ends with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.
- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.
- While working on the system, do not wear loose items such as neckties and unbuttoned shirtsleeves. They can come into contact with electrical circuits or get pulled into a cooling fan.
- Remove any jewelry or metal objects from your body, which are excellent metal conductors and can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.

ESD Precautions

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.

- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

Operating Precautions

- Check package contents
- Missing or damaging accessories

Please contact your vendor immediately

- Motherboard damage

Please contact your vendor immediately

- Prepare minimum system components

  At least one AMD Opteron™ Processor

  At least one registered DDR memory module

  At least one SATA or IDE HDD

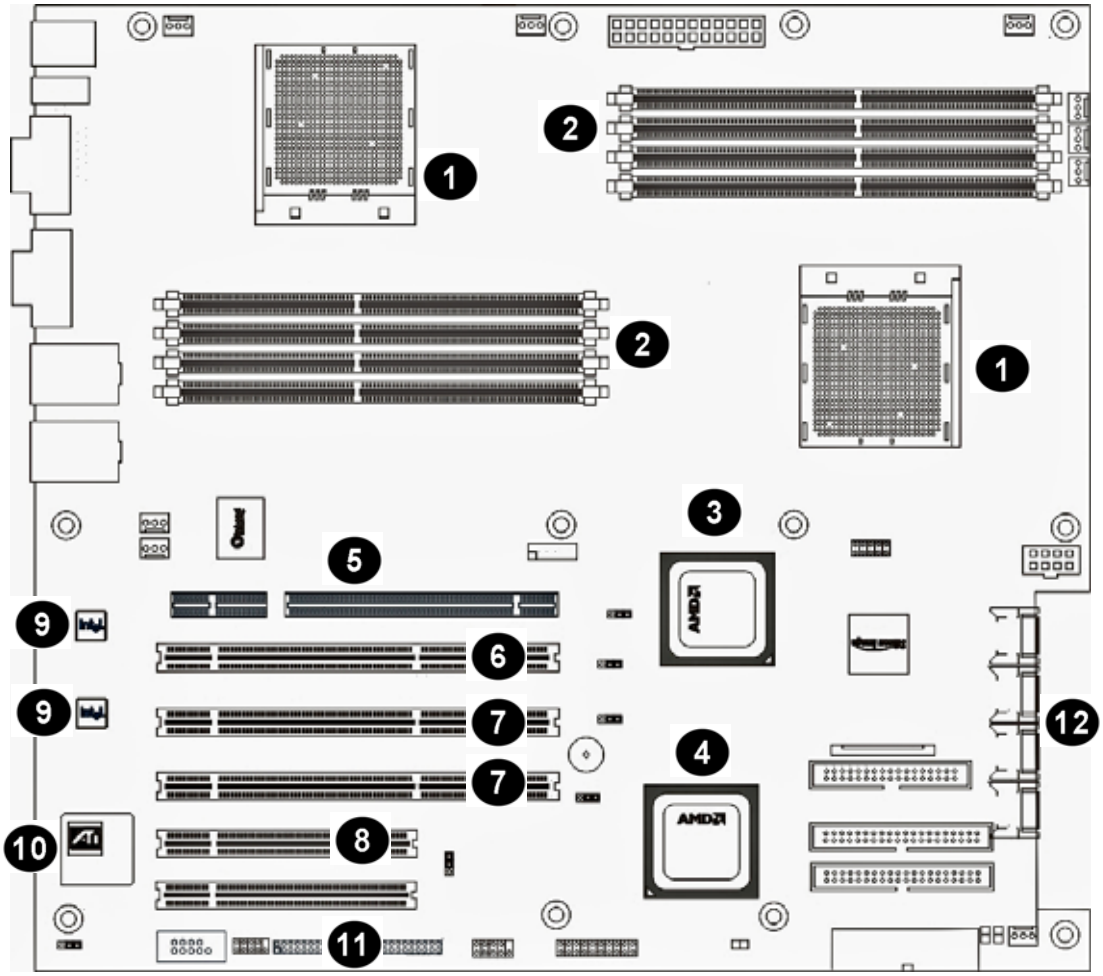
  EPS12V Power Supply

Chapter 2 Mainboard Overview

This chapter covers the below key points:

1. Mainboard layout
2. Rear IO layout
3. Internal IO connectors
    - IDE connector
    - Floppy connector
    - SATA connector
    - USB header
    - COM port

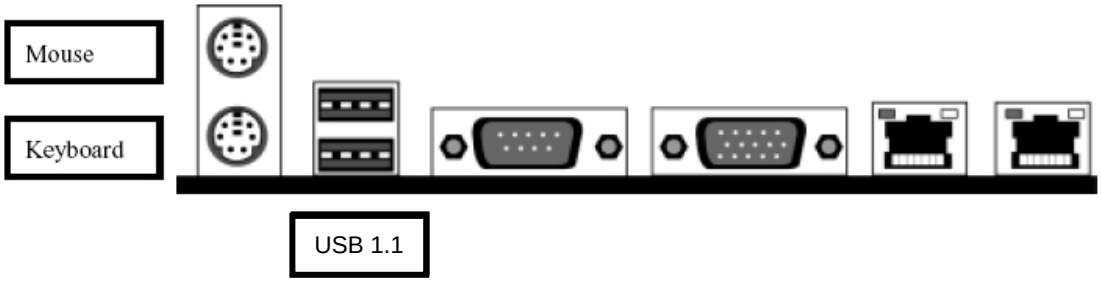
2-1 DK8-HTX Layout



1	Dual AMD Opteron™ Socket 940 Processor	**7**	PCI-X 64bit 33/66/100 MHz
2	Dual Channel 266/333/ 400 Registered Memory	**8**	PCI 32bit 33/66 MHz
3	AMD® 8131 PCI-X Tunnel	**9**	Dual Intel ® Gigabit Ethernet Controllers
4	AMD-8111™ HyperTransport™ I/O Hub	**10**	ATI® RageXL Video Controller
5	HTX Connector	**11**	IPMI 1.5 Compliant (Disable)
6	PCI-X 64bit 33/66/100/133MHz	**12**	Four SATA Ports

2-2 Rear Panel I/O Ports

This is an illustration of the Mainboard rear I/O port array



PS/2 Mouse Connector (6-pin Female)

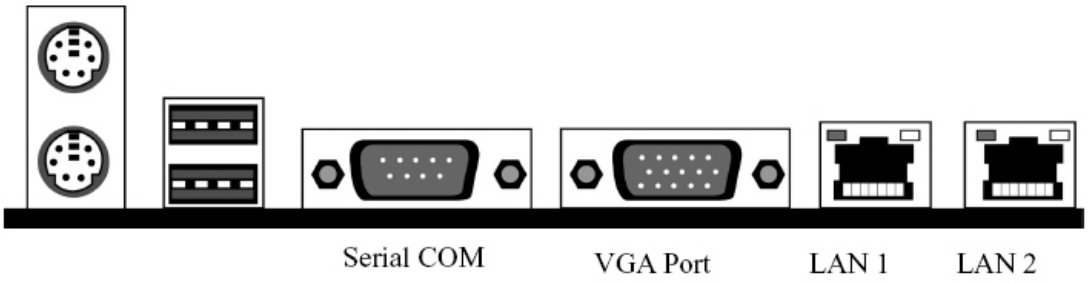
The system will direct IRQ12 to the PS/2 mouse if one is detected. If no mouse is detected, IRQ12 will be free for expansion cards to use.

PS/2 Keyboard Connector (6-pin Female)

This connection is for standard keyboards using a PS/2 (mini DIN) plug. This connector will not accept standard AT size (large DIN) keyboard plugs. You may need a DIN to mini DIN adapter for standard AT keyboards.

USB Port Function

DK8-HTX provides the two USB 1.1 ports at the rear panel. USB 1.1 supports 12Mb/second bandwidth providing a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals. You can connect or disconnect USB cables when the system is turned on.



Serial Port Function

The serial ports are RS-232C asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices. It can operate at speeds up to 115,200bps. You can configure the port's speed in the computer's Operating System.

VGA Port Function

The VGA port is for the image output. It can be used with the PC monitor devices.

LAN Port Function

The LAN port uses a CAT 5 LAN cable for connecting the motherboard to a local area network by means of a network hub. The port has 2 indicator LEDs.

Speed LED (right)

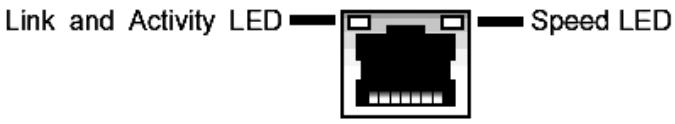
• 10Mbps - will not blink

• 100Mbps - LED is green

• 1000Mbps - LED is orange

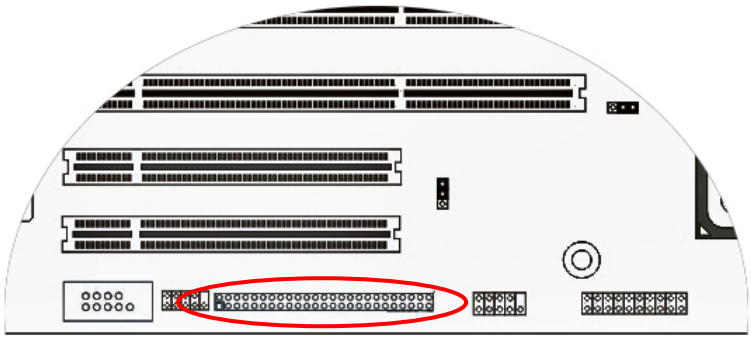
Link and Activity LED (left)

• LED is yellow when the LAN connection is linked and accessed.



2-3 Internal IO connectors

2-3.1 BMC Card connector (Disable by factory default)

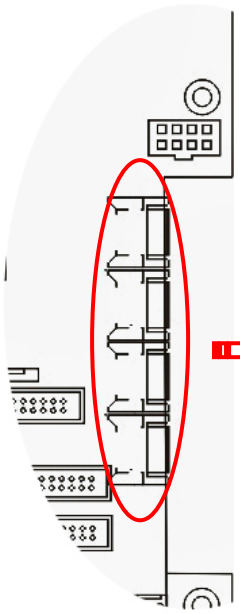


BMC Connector

Warning

DK8-HTX will **NOT** support IPMI technology. If you are interesting in this server management application, IWILL welcome you to choose other IWILL high-end server products. IWILL provides the BMC card and server management softeware for your advanced choice. For IPMI 1.5 function, please check with your local vendor for more information about IWILL BMC hareware and software.

2-3.2 Serial ATA Connector



4x SATA ports

Serial ATA Drive Connectors

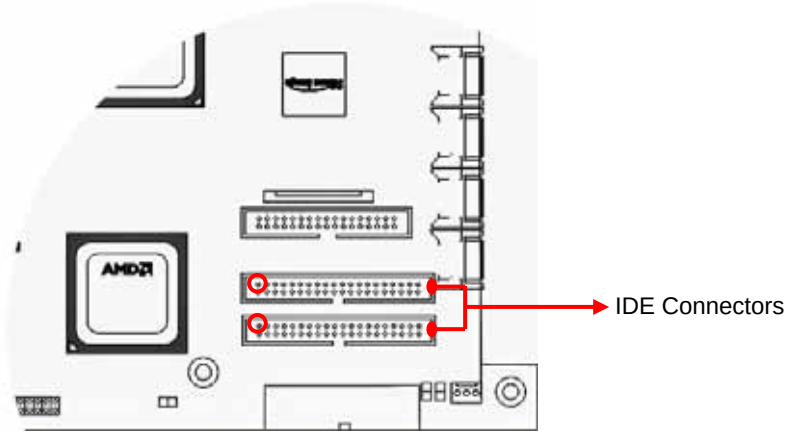
SATA Pin assignments	
Pin	Description
1	GND
2	RXP
3	RXN
4	GND
5	TXN
6	TXP
7	GND

DK8-HTX supports up to 4 SATA devices each with data transfer rates of 150 MB/s. Four Serial ATA ports are supported by SATALink 4-Port PCI Host Controller. SiI 3114 is a single-chip PCI to 4-port Serial ATA (SATA) host controller. It is compliant with SATA 1.0 specification. Based on a 32-bit/66 MHz PCI interface, this Mainboard features four Serial ATA ports for four Serial ATA devices. It supports hot swap function. Silicon Image's SATARaid™ software provides Serial ATA RAID0 (Striping), RAID1 (Mirroring) and RAID10 (Striping and Mirroring). About this software, you could check with: http://www.siliconimage.com/ for the specific guideline or you can contact with your local vendor or IWILL technicians.

RAID Type	Description
RAID 0 (Striping)	Striping arrays use multiple disks to form a larger virtual disk. While Striping is discussed as a RAID Set type, it is does not provide any fault tolerance.
RAID 1(Mirroring)	Disk mirroring creates an identical twin for a selected disk by having the data simultaneously written to two disks. This redundancy provides instantaneous protection from a single disk failure.
RAID 10	RAID 10 combines the features of both RAID 0 and RAID 1. Performance is provided through the use of Striping (RAID 0), while adding the fault tolerance of Mirroring (RAID 1). The implementation of RAID 10 requires four drives.

2-3.3 IDE and Floppy Connectors

The two 40-pin IDE connectors (primary and secondary channels) support 80-conductor IDE ribbon cables. Connect the single connector end to the Mainboard. Then, connect the two connectors at the other end to your IDE device(s). If you connect two hard disks to the same cable, you must set the second drive as a Slave through its jumper settings. Refer to the IDE device's documentation for the specific jumper settings. (Pin 20 is removed to prevent the connector from being inserted in the wrong orientation when using ribbon cables with pin 20 plugged in). The BIOS supports Ultra DMA 33/66/100.

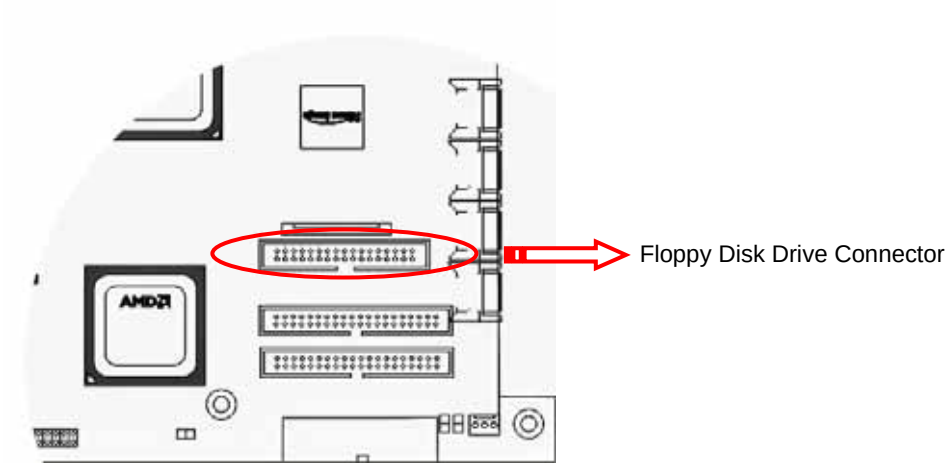


Important

Ribbon cables should always be connected with the red stripe on the Pin 1 side of the connector. IDE ribbon cables must be less than 46 cm (18 inches) long, with the second drive connector no more than 15 cm (6 inches) away from the first connector.

2-3.4 Floppy Disk Drive Connector

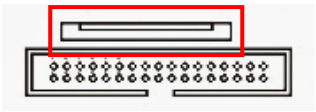
This 34-pin connector supports the standard floppy disk drive ribbon cable. Connect the single connector end to the Mainboard. Then, plug the other end of the ribbon into the floppy drive. Make sure you align the Pin 1 on the connector with the Pin 1 alignments on the Mainboard and the floppy drive.



Important

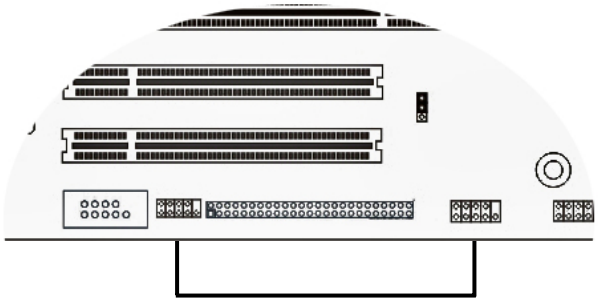
DK8-HTX also comes along with slim-type FDD connector.

It will support the slim-type Floppy drive.

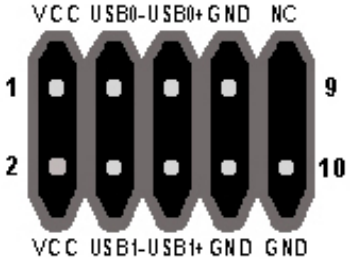


2-3.5 USB 1.0 Ports and Header – CN45, CN47

DK8-HTX provides two USB 1.1 headers and two ports at the rear panel. USB 1.1 supports transfer rates of up to 12MB/s.

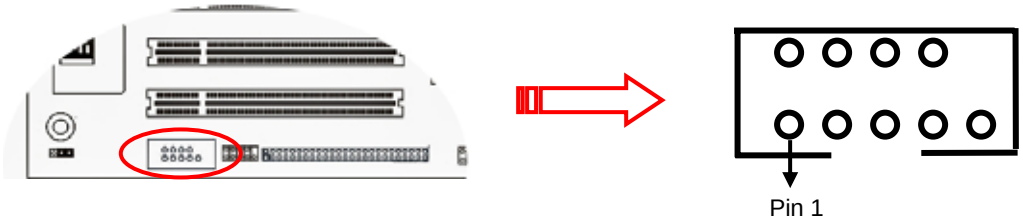


USB 1.1 headers



2-3.6 COM2 Header

The COM2 Port Bracket Connector lets you add an additional serial port, to which you can connect peripherals such as serial modems and pointing devices.



Pin1	DCD#	Pin2	RXD
Pin3	TXD	Pin4	DTR#
Pin5	CON	Pin6	DSR#
Pin7	RTS#	Pin8	CTS#
Pin9	RI#	Pin10	NC

Chapter 3 Hardware Installation

This chapter covers the below key points:

1. Mainboard installation
2. Jumper setting
3. Heatsink and CPU installation
4. Memory installation
5. EPS Power 12V
6. CPU FAN
7. Install expansion card
8. Power on your system

3-1 Mainboard Installation

This section explains the basic requirements for installing the motherboard in a system housing or “chassis”. Since housing designs vary widely, you will need to consult the housing documentation for specific information.

To install the motherboard in a system housing, you will need to do the following:

• Install a rear panel I/O shield

• Attach the board to the housing

• Connect leads from the housing’s front panel

• Connect other internal system components.

Motherboard Installation Procedure

The motherboard requires installing the supplied CPU Hat Spring to mount the heat sink retention mechanisms. Refer to the CPU Installation section in this chapter for details.

If the housing you are using normally stands vertically, place the open housing on its side before you start.

To install the motherboard, please follow the steps below.

1. Review any instructions that came with the system housing and prepare the necessary mounting hardware that came with it.

2. Identify the mounting holes on the motherboard and confirm that the housing has standoffs that match them.

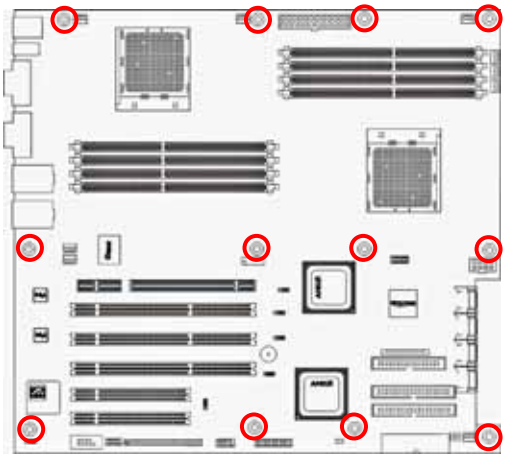
3. Install the rear panel I/O shield in the housing’s I/O panel opening.

4. Place the motherboard in the housing and align the mounting holes to the standoffs of the housing’s motherboard mounting plate. Make sure all of the rear I/O ports are properly aligned with the openings of the I/O panel.

5. Secure the motherboard to the housing by inserting mounting screws in all the holes.

3-1.1 Screw holes

Place twelve (12) screws into the holes indicated by circles to secure the motherboard to the chassis.



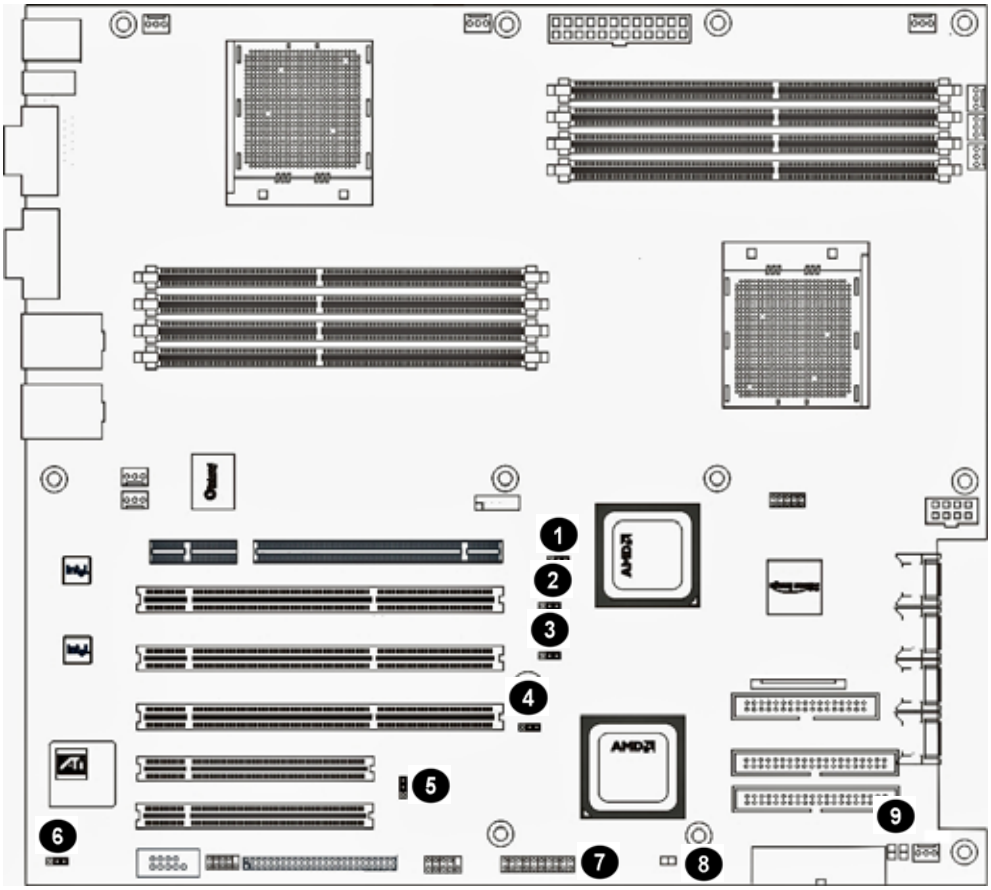
Warning

Do not overtighten the screws! Doing so can damage the motherboard.

Place this side towards the rear of the chassis

3-2 Jumper Setting for Mainboard

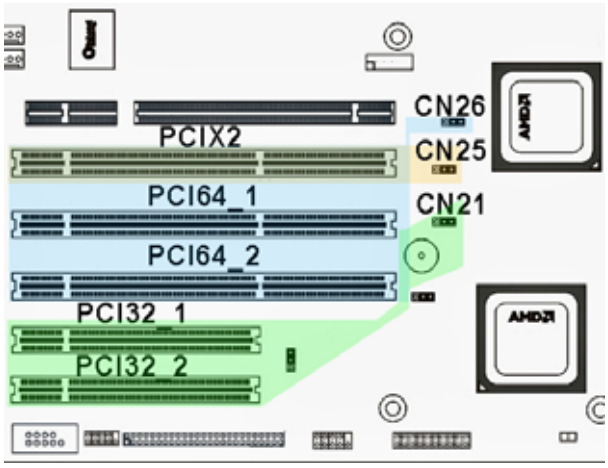
This section covers the jumper setting. Refer to the following illustration for the location of the jumpers.



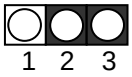
1	PCI-X switch jumper (CN26)	**6**	Enable onboard VGA header (CN42)
2	PCI-X switch jumper (CN25)	**7**	Front panel switch header (CN810)
3	PCI switch jumper (CN21)	**8**	Case intruder header (CN49)
4	Clear CMOS header (CN32)	**9**	LAN LED (CN23, CN24)
5	LPC BUS Jumper (CN809)		

3-2.1 PCI-X switch Jumper

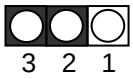
DK8-HTX provides three PCI-X slots. It could be divided into Channel A and B. **PCIX2 is the channel A; PCI64_1 and 2 is the channel B**. By the jumper setting, these slots could be up to 133 MHz or down to 66MHz.



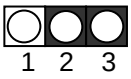
CN26:



CN25:



CN21:



CN26:

Depends on your jumper setting, PCIX2, PCI64_1, and PCI64_2 could be run as PCI-X or PCI.

1-2	2-3
PCI-X	PCI

CN25:

Depends on your jumper setting, PCIX2 could be run as 133MHz or 100MHz.

1-2	2-3
PCIX 133MHz	PCIX 100MHz

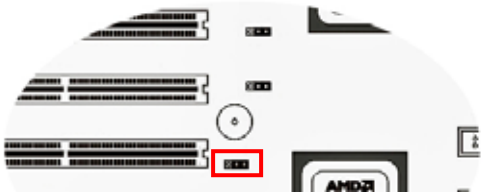
CN21:

Depends on your jumper setting, PCI32_ 1 and PCI32_2 slots could be run as 66MHz or 33MHz.

1-2	2-3
66MHz	33MHz

3-2.2 Clear CMOS Header

The onboard button cell battery powers the CMOS RAM. It contains all the BIOS setup information. Normally, it is necessary to keep the jumper connected to pin1 and pin2 (Default) to retain the RTC data as shown below.



1

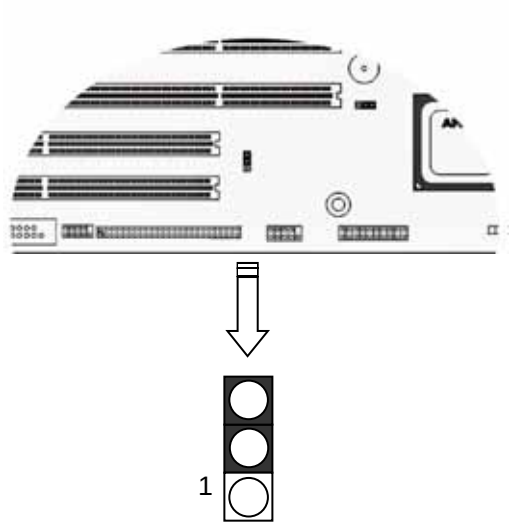
1-2	2-3
CMOS enable	Clear CMOS

Follow these instructions to clear the CMOS RTC data:

1. AC off.
2. Short pin2 and pin3 with a jumper for a few seconds.
3. Replace the jumper on pin1 and pin2.
4. Turn on your computer by pressing the power-on button.
5. Hold down <Delete> during boot and select either the <Load Optimal Defaults> or <Load Failsafe Defaults> option in the selection "Exit". Then re-enter BIOS setup to re-enter user preferences. Refer to Chapter 4 BIOS SETUP for more information.

3-2.3 LPC BUS Jumper

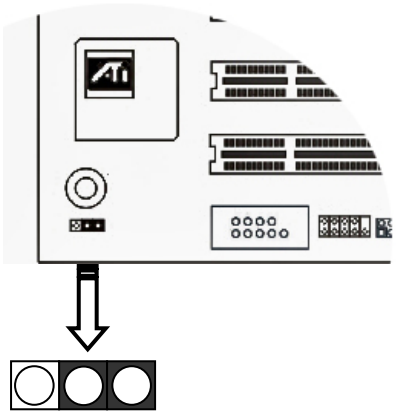
This header lets you set your LPC (Low Pin Count) interface. The LPC Interface Specification is software transparent for I/O functions and compatible with existing peripheral devices and applications. You can choose enable or disable it or not.



1-2	2-3
Disable	Enable

3-2.4 VGA Jumper

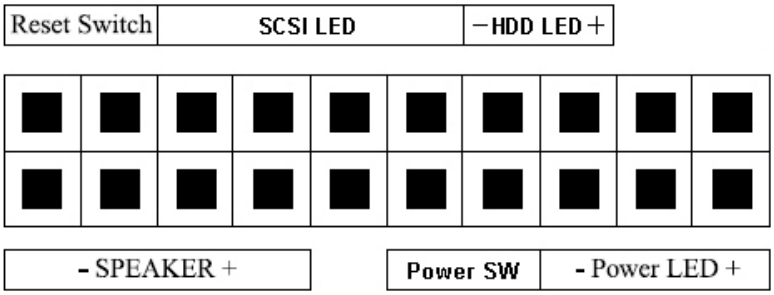
This header lets you set your VGA port function. You can choose enable or disable this function or not.



1 2 3

1-2	2-3
Enable (default)	Disable

3-2.5 Front Panel Switch Header



Reset Switch (2-pin RST)

This 2-pin connector connects to the chassis-mounted reset switch for rebooting your computer without turning your power switch off and on. This is a preferred method of rebooting your system to prolong the life of your system's power supply.

SCSI Hard Disk Activity LED (4-pin SCSI_LED)

The 4-pin connector can be connected to the 4-pin activity LED connector of SCSI card Read and write activities by devices connected to the SCSI card will cause the front panel LED to light up.

Hard Disk Activity LED (2-pin HDD_LED)

This connector supplies power to the cabinet's hard disk or IDE activity LED. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the LED to light up.

Speaker Connector (4-pin SPEAKER)

This connects to the PC speaker installed in the system chassis.

Soft Power Switch (2-pin Power_SW)

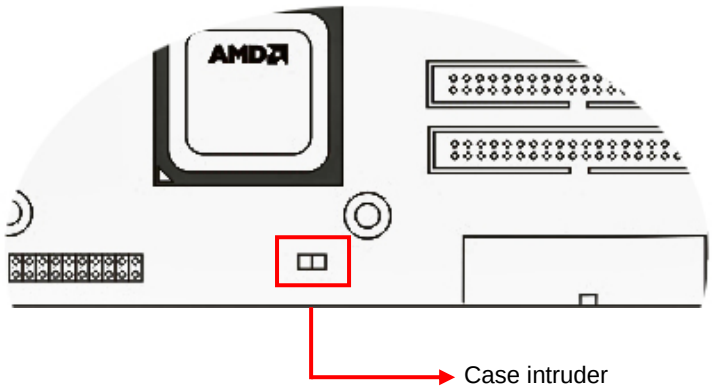
A momentary switch connected to these connector controls the system power. Pressing the button once will switch the system between ON and SLEEP. The system power LED shows the status of the system's power.

Power LED Connector

This connector connects to the system's Power LED. When the system's power is on, this LED will light.

3-2.6 Case intruder header

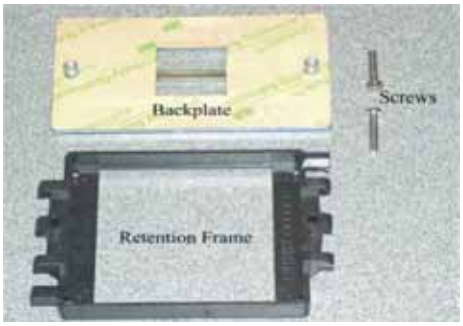
This feature uses a mechanical switch on the chassis that connects to the chassis intrusion connector on the motherboard. When the chassis cover is removed the motherboard circuitry will detect the intrusion.



`

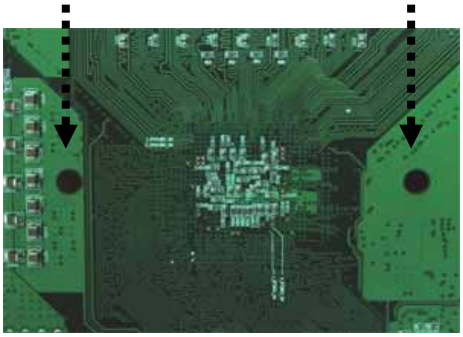
3-3 Heatsink and CPU Installation

System mainboard accommodates AMD Opteron™ micro-PGA Socket 940 processors at 1600 MT (Mega Transfer per second). You must insert a CPU into CPU socket 0 (CPU0) first before installing one in CPU socket 1 (CPU1).



Step 1

1. Take proper electrostatic discharge precautions before handling motherboard or processor.
2. The heatsink and fan assembly shown in this picture may not exactly match the one provided by IWILL.
3. The AMD Opteron™ processor heatsink requires the retention frame and the backplate to be attached to the motherboard. If the retention frame and backplate are already attached to the motherboard, proceed to step 7.



Step 2

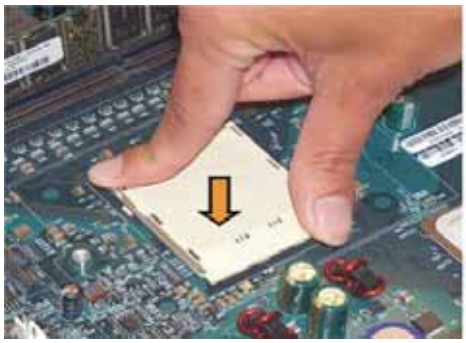
1. Gently lift the motherboard by the edges over the backplate.
2. Align the backplate's two threaded standoffs with the two mounting holes near the socket.
3. Gently lower the motherboard until the standoffs fit through the holes in the motherboard and the backplate makes complete contact with the motherboard.

Note

As with all computer equipment, the processor and motherboard components may be damaged by electrostatic discharge (ESD). Please take proper ESD precautions when handling any board.

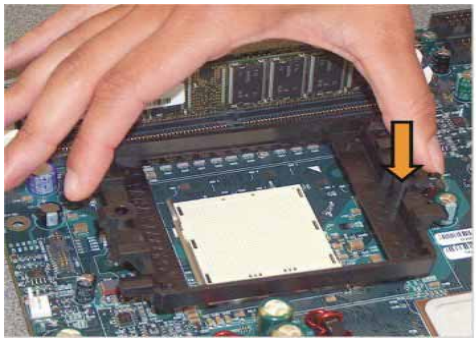
Warning

Do not apply voltage until the heatsink is fully installed. If voltage is applied before the heatsink is fully installed, the processor will overheat and failure will result. Read through the entire installation instructions completely to make sure you understand them before you begin.



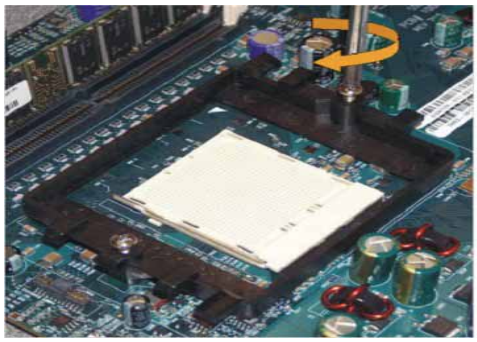
Step 3

- Press firmly on the socket to ensure proper contact of the backplate and motherboard.



Step 4

- Carefully place the retention frame on the motherboard.
- The screw holes must align with the backplate standoffs.

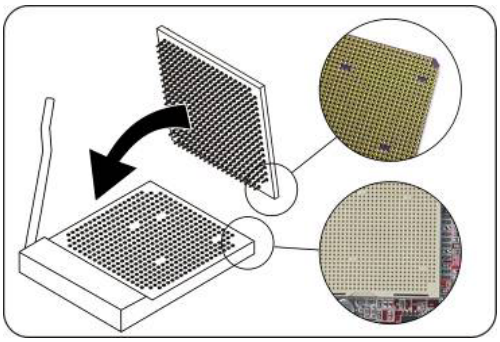


Step 5

1. Place the screws and tighten down the retention frame.
2. Do not over-tighten the screws.
3. Ensure that the retention frame is flat with the motherboard.

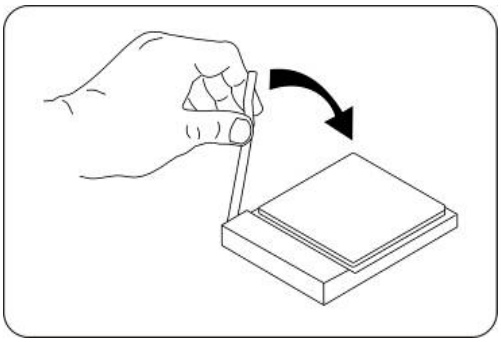
Step 6

1. The AMD Opteron™ processor will have a small triangle marking on one corner. This will correspond to the alignment on the motherboard.
2. To insert the processor, the socket locking lever must be raised (Pull out slightly, then lift up).
3. Gently place the processor into the socket. The corner with the triangle must be located near the marking on the motherboard.
4. Be careful not to bend the processor pins.



Step 7

- Gently push down on the processor while lowering the locking lever and latching it into the fully locked position.



Step 8

- Do not apply any power (voltage) to the system until the heatsink is fully installed.

Step 9

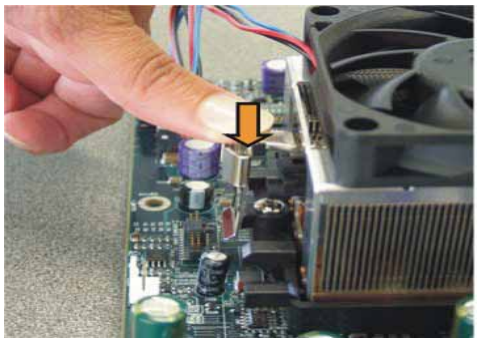
1. The heatsink has a thermal interface material pre-applied on the bottom. This material is protected by a plastic cover.
2. Inspect the thermal interface material for scratches or gaps. Do not use if thermal material has scratches or gaps. If replacement thermal interface material is needed,
3. Remove plastic cover and discard. Be careful not to touch or scratch the thermal interface material.

Step 10

1. Place the heatsink on the processor with it centered in the retention frame matching the heatsink clip with the socket mounting lug.
2. The heatsink should have full contact with the processor.

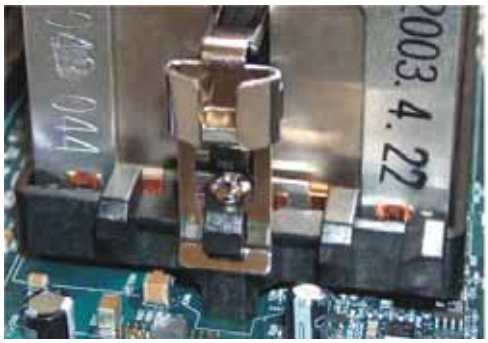
Step 11

- Hook the spring clip under the cam lever to the mounting lug on the retention frame first. Some force may need to be applied.



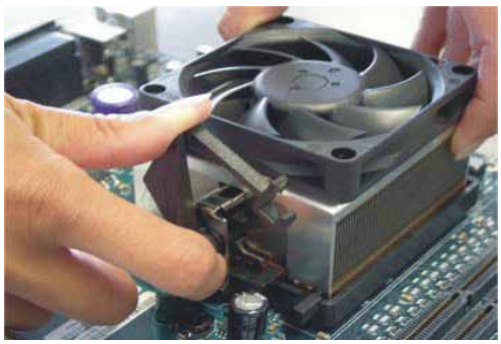
Step 12

1. Make sure the retention clip is aligned with the plastic lug on the retention frame.
2. Carefully push straight down on the clip. This may take more force than the first side



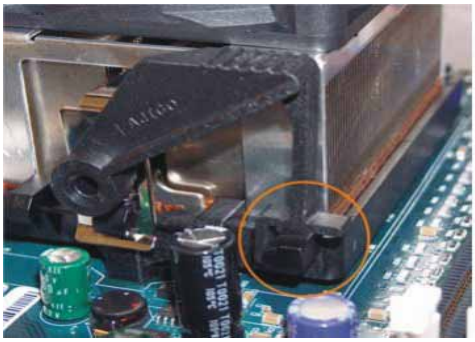
Step 13

- The spring clip must be installed as shown.



Step 14

- Carefully turn the cam lever to lock into place.



Step 15

- Ensure the cam lever is locked into the retention frame.

Tip

1. Connect the fan power lead to the proper connector to the motherboard.
2. Check the installation completely to make sure heatsink is installed correctly before starting the system. When the system is first powered-on, verify that the processor heatsink kit is turning at a rapid rate.
3. If the fan is spinning at a slow rate or not spinning at all, power-down the system immediately to avoid any thermal damage.

Important

In single CPU mode, please place CPU on the position of CPU0

3-4 Install Memory

The system mainboard uses Dual Inline Memory Modules (DIMM). Two pair's banks are available; each bank supports one CPU with Hyper Transport Technology. The memory DIMMs accommodates PC2100/2700/3200 (DDR266/DDR333/DDR400) and Double Data Rate Memory (DDR) memory modules in 128MB, 256MB, 512MB, 1GB, and 2GB combinations. Total memory size for one mainboard is between 128MB and 16GB.

IMPORTANT

The system mainboard has strict memory type and timing requirements. Before you purchase DDR (Double Data Rate) memory for using in the system mainboard, you should contact your local reseller for a recommend list of system memory that has been validated on this system.

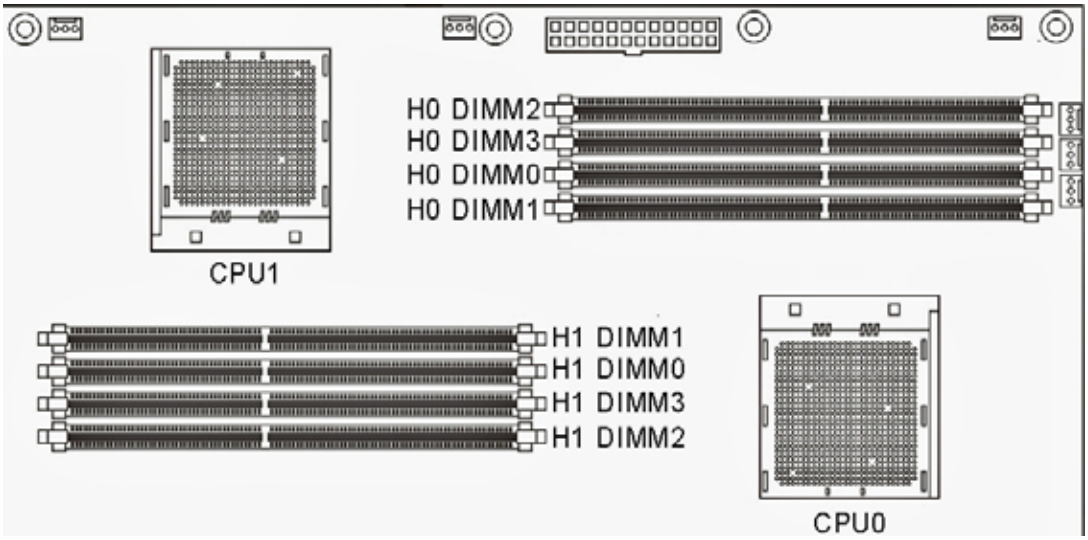
IMPORTANT

To take advantage of the 128-bit interface, you must install DIMMs in pairs of two (2). DIMM slots DIMM0 and DIMM1 are paired, and slots DIMM2 and DIMM3 are paired. If you are only installing two DIMMS into a Memory Bank, it is recommended that you install them in slots DIMM0 and DIMM1 to get the full bandwidth.

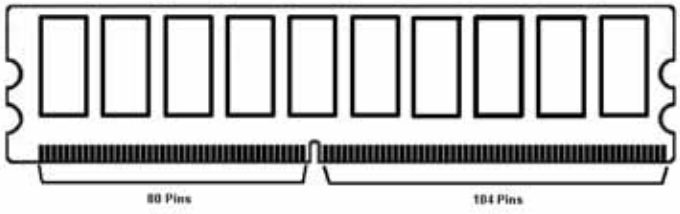
CPU0 On	Two DDR Modules	HO DIMM0, HO DIMM1
CPU0 On	Four DDR Modules	HO DIMM0, HO DIMM1, HO DIMM2, HO DIMM3
CPU1 On	Two DDR Modules	H1 DIMM0, H1 DIMM1
CPU1 On	Four DDR Modules	H1 DIMM0, H1 DIMM1, H1 DIMM2, H1 DIMM3

3-4.1 Memory Installation Procedures

1. Locate the DIMM modules



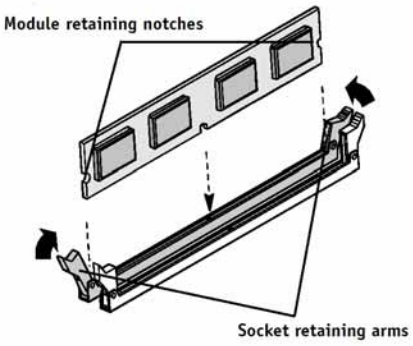
2. Make sure the DIMM's pins are facing down, and check that the pin arrangement on the memory module resembles the one pictured below.

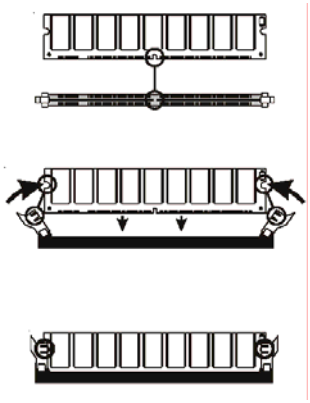


IMPORTANT

Always populate H0 DIMM socket before installing memory modules in the H1 DIMM sockets.

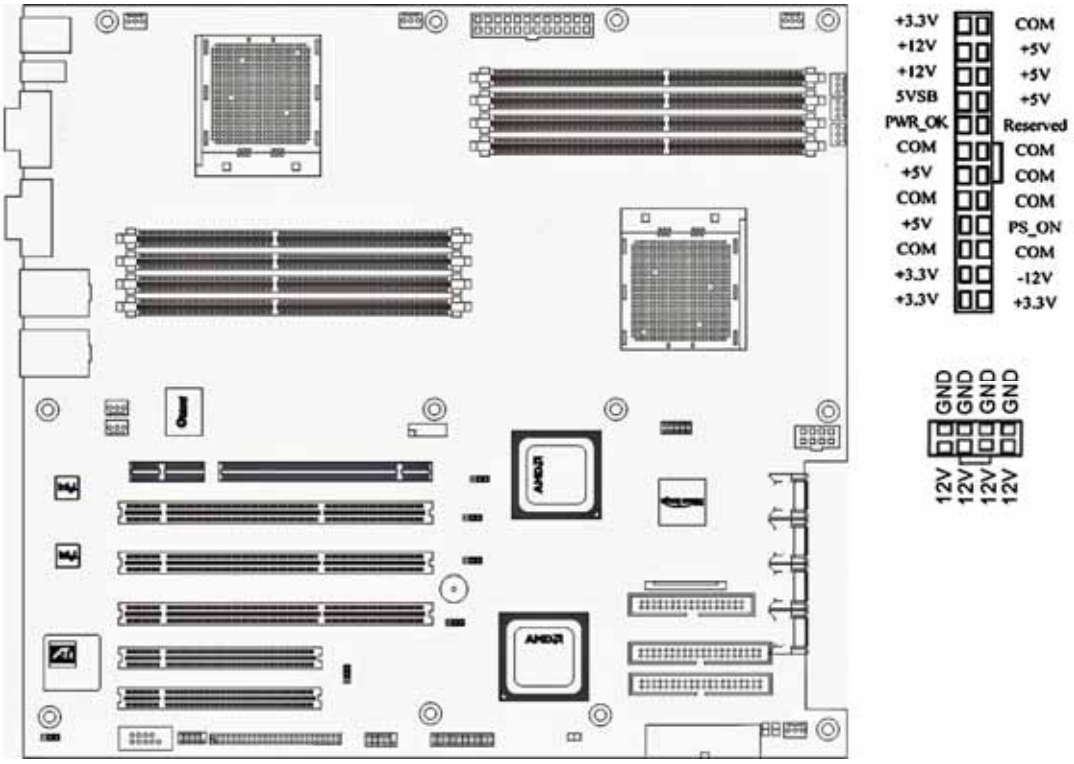
3. Insert the module into the DIMM socket and press down evenly on both ends firmly until the DIMM module is securely in place. (The tabs of the DIMM socket will close-up to hold the DIMM in place when the DIMM is properly installed into the socket.)





3-5 EPS Power Supply

These 24-pin connectors connect the server board to the EPS power supply. Find the proper orientation and push down firmly to make sure that the pins are aligned. The 8-pin connector provides a dedicated power supply for the CPUs.



IMPORTANT

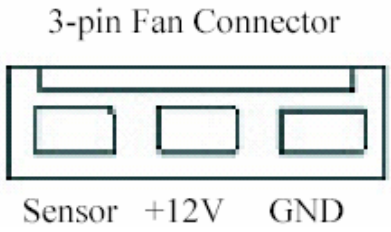
IWILL® always recommends our customers use EPS12V Power supplies. For any power damaged, please contact your retailer or IWILL® technicians.

Warning

There are two 24 pin connectors. Please choose either one to install. DON'T plug into both connectors at the same time.

3-6 CPU/ System Fan Connectors

There are night 3-pin fan connectors in the Mainboard. Two fans are used for CPU1 and CPU0; seven fans are for system and back. These connectors support cooling fans of 500mA (6W) or less. All fan drive current minimum are must over 1.5V. Depending on the fan manufacturer, the wiring and plug may be different. Connect the fan's plug to the Mainboard with respect to the polarity of the fan connector.



Warning

The CPU and motherboard will overheat if there is not enough airflow across the CPU and onboard heatsink. Damage may occur to the motherboard and/or the CPU fan if these pins are incorrectly used. These are NOT jumpers; DO NOT place jumper caps over these pins.

3-7 Install Expansion Cards

Warning

Please power off your power supply completely when adding removing any expansion card or other system components. Failure to do so may cause severe damage to both your motherboard and expansion card.

3-7.1 Expansion Card Installation Procedure

Read the documentation for your expansion card and make any necessary hardware or software setting changes such any jumper configuration.

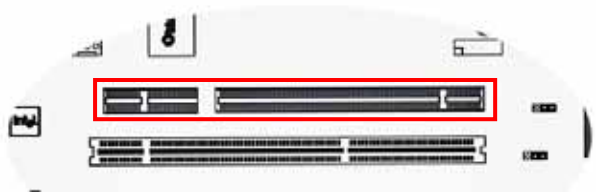
1. Remove the bracket plate on the slot you intend to use. Keep the bracket for possible future use.
2. Carefully align the card's connectors and press with the riser card firmly.
3. Secure the card on the slot with the screw you removed above.

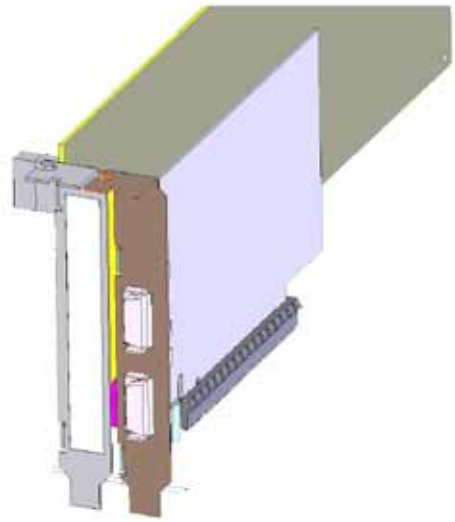
3-7.2 Assigning IRQs for PCI Expansion Cards

An IRQ number is automatically assigned to PCI expansion cards. In the PCI bus design, the BIOS automatically assigns an IRQ to a PCI slot that contains a card requiring an IRQ. To install a PCI card, you need to set the INT (interrupt) assignment. Since all the PCI slots on this motherboard use an INTA #, set the jumpers on your PCI cards to INTA.

3-7.3 HTX Pro Adapter Card

DK8-HTX equips with a HTX-PRO interface. This expansion will fully support the PathScale InfiniPath™ HTX™ Adapter Card. About the information of PathScale InfiniPath™ HTX™ Adapter Card, you could check on PathScale website: http://www.pathscale.com/. Or, you can contact with your local vendors.





3-8 Powering on your System

Follow these instructions to power on the computer after you have installed the Mainboard and all system devices.

1. Be sure that all switches are off (in some systems, Off is marked by “O”). After double-checking all jumper settings and connections, close the system chassis cover.
2. Connect the power cord to the power cord connector located on the power supply at the back of your system chassis and plug the power cord into a power outlet that is equipped with a surge protector.
3. Turn on your devices in the following order:
   - Monitor
   - System power
4. For power supplies, you need to switch On the power supply, then press the Power switch on the front of the chassis.
5. The power LED on the front panel of the system case will light up. For power supplies, the system LED will light up when the power switch is pressed. The monitor LED may light up after the system’s LED if it complies with “Green” standards or if it has a power standby feature. The system will first run its “power-on” tests. While the tests are running, additional messages will appear on the screen.
6. If you do not see anything on the screen within 30 seconds from the time you turn on the power, the system may have failed a power-on test. Re-check your jumper settings and connections. Contact your retailer/dealer for assistance if everything else fails.
7. During power-on, hold down <DEL> to enter BIOS setup. Follow the instructions in BIOS for further setup information.

Chapter 4 BIOS Setup

This chapter discusses the AMI BIOS Setup program built into the ROM BIOS. The Setup program allows users modifying the basic system configurations according to their requirements. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

The AMI BIOS installed in your computer system's ROM (Read Only Memory) is a custom version of an industry standard BIOS. The BIOS provides critical low-level support for standard devices such as disk drives and serial ports.

The AMI BIOS has been customized by adding important, but non-standard, features such as password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

The rest of this chapter is intended to guide you through the process of configuring your system using Setup.

4-1 Starting BIOS Setup

The AMI BIOS is immediately activated when you power on the computer every time. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. After finishing configuring the whole system, then BIOS will continue to seek an operating system on one of the disks, launch then turn control over to the operating system.

While the AMI BIOS is in control, the Setup program can be activated in the way:

By pressing the <DEL> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

4-2 Updating BIOS Setup

- Creating a bootable floppy disk

A、 DOS environment

Insert a 1.44 MB floppy disk into the drive.

At the DOS prompt, type:

format A:/S then press <Enter>.

B、 Microsoft® Windows® environment

Insert a 1.44 MB floppy disk into the floppy disk drive.

From your Windows desktop, click on Start, then select My Computer.

Select the 3 1/2 Floppy Drive icon.

Click File from the menu, and then select Format. A Format 3 1/2 Floppy Disk window appears.

If you are using Windows™, select “Create an MS-DOS startup disk” from the format options field, then click Start.

- Move the latest BIOS file to the bootable floppy disk.
- Using “AMIFLASH.EXE” to update the BIOS

Update the BIOS using the AMIFLASH.EXE utility in DOS environment.

1. Visit the IWILL website (http://www.iwill.net) to download the latest BIOS file for your motherboard. Save the BIOS file to a bootable floppy disk.
2. At the DOS prompt, type the command line:
   AMIFLASH / <filename>
   where “filename” means the latest (or original) BIOS file that you copied to the bootable floppy disk. The screen displays the status of the update process.

Important

The BIOS information on the screen is for reference only. What you see on your screen may not be exactly the same as shown.

Warning

DO NOT shut down or reset the system while updating the BIOS! Doing so may cause system boot failure!

3. When the BIOS update process is complete, the utility returns to the DOS prompt.

The AMI BIOS is immediately activated when you power on the computer every time. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. After finishing configuring the whole system, then BIOS will continue to seek an operating system on one of the disks, launch then turn control over to the operating system.

While the AMI BIOS is in control, the Setup program can be activated in the way:

By pressing the <DEL> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

- Press <DEL> to enter SETUP

4-3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, press <Esc> to quit. The following table provides more details about how to navigate in the Setup program using the keyboard.

Key	Function
Up Arrow(↑) Key	Move to the previous item
Down Arrow(↓) Key	Move to the next item
Left Arrow(←) Key	Move to the previous item
Right Arrow(→) Key	Move to the next item
Esc key	In the Submenu: Exit the submenu. In the BIOS main category: Quit Without saving changes.
Enter Key	Select the item. A pop-up selection will display on the screen to set the item value.
PgUp Key	Previous page on Scrollable menus or jump to the first interactive item listed
PgDn Key	Next page on Scrollable menus or jump to the last interactive item listed
F1 Key	General Help on Setup navigation keys. Press <F1> key to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <ESC> key or <F1> key again.
F2/F3 Key	Change colors
F7 Key	Discard changes
F8 Key	Load failsafe defaults
F9 Key	Load optimal defaults
F10 Key	Save and Exit
Home	Go to top of screen
End	Go to bottom of screen
Esc	Exit

IMPORTANT

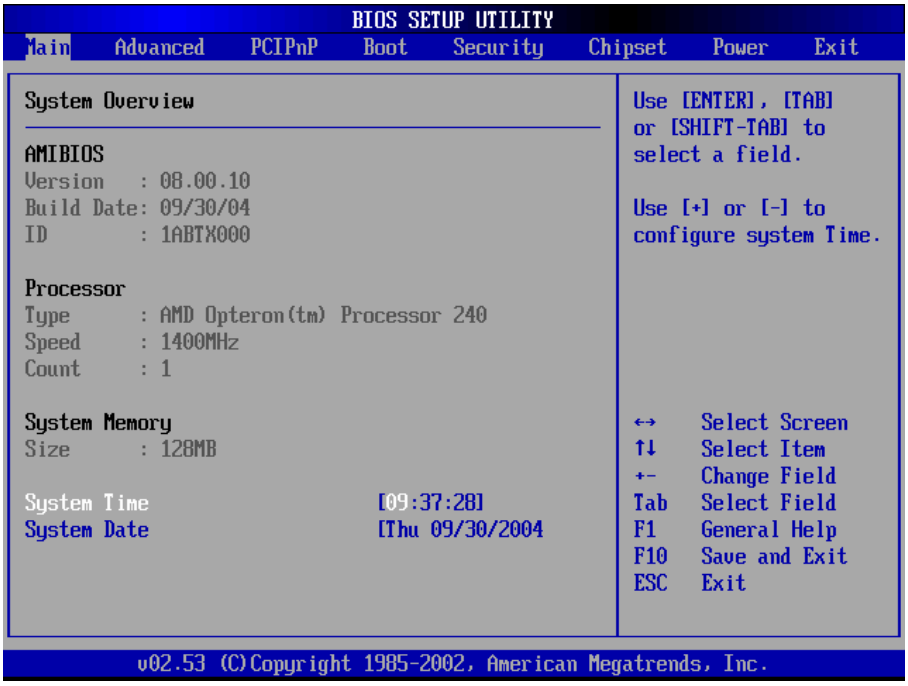
The BIOS does NOT automatically save values that you have modified. If you do not save your values before you exit the BIOS Setup Utility, all your changes will be lost.

If after making and saving system changes with the BIOS Setup Utility, you discover that your computer is no longer able to boot, the AMI BIOS supports an override, which will reset your system to the Failsafe defaults. If that fails, it is possible to manually clear the present CMOS information through the "Clear CMOS Header" on the motherboard (Refer to Jumper Settings for more information).

The best advice is to ONLY alter settings which you thoroughly understand. The default settings have been carefully chosen by AMIBIOS to provide the maximum system performance and reliability. Even a slight change to the chipset setup may cause potential and unpredictable failure to the system.

4-4 Main Menu

This is the first screen that is displayed when you enter the BIOS Setup Utility. Each tab lined on the top of the screen represents each different menu. The following picture shows the main menu. Main menu shows the information of BIOS version, date and ID; processor type, speed and count; system size. In addition, system time and date is adjustable using + / - key or number keys.

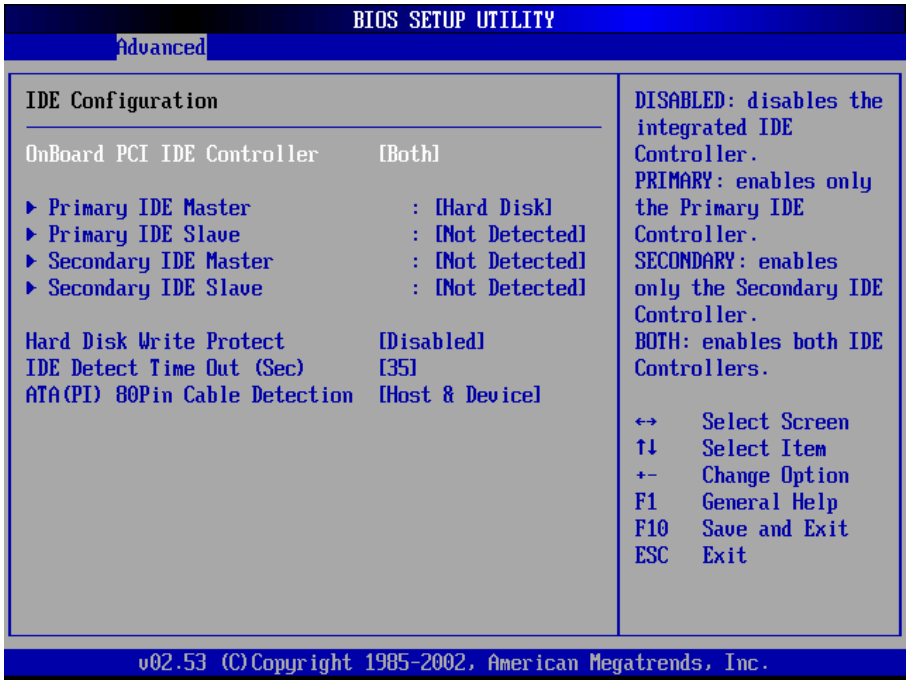


4-5 Advanced Menu

You can make these modifications on the advanced menu.

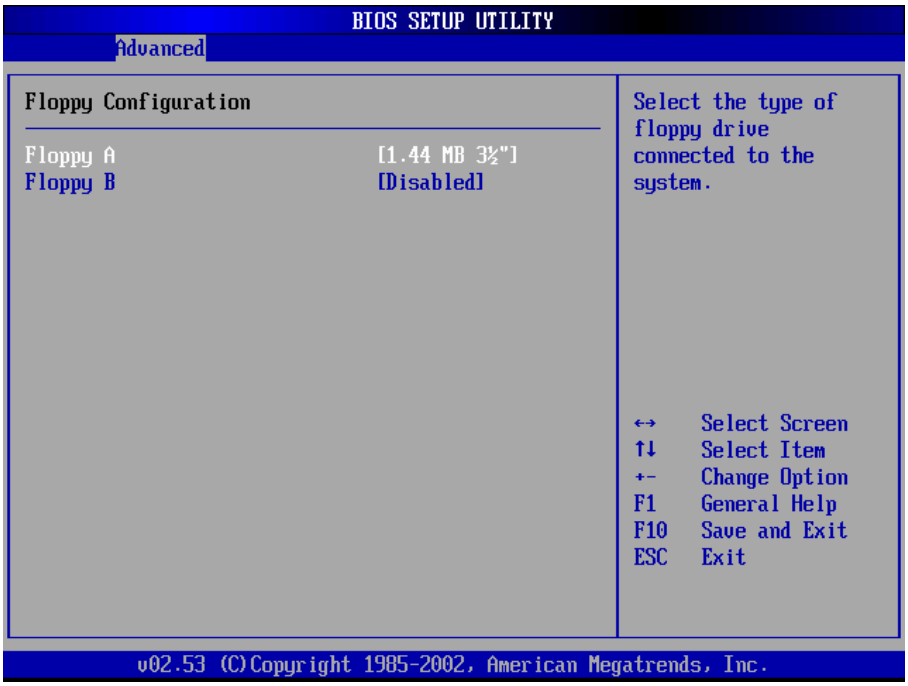
4-5.1 IDE Configuration Submenu

You can make the selections on IDE Configuration menu.

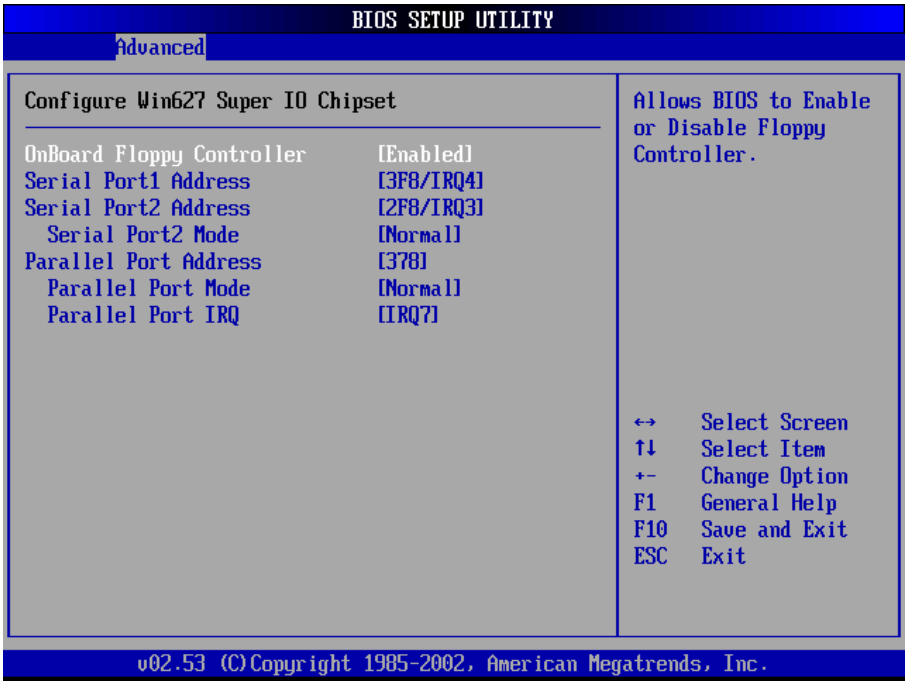


Feature	Options	Description
OnBoard PCI IDE Controller	Disable Primary Secondary Both	Disable: disable the integrated IDE controller Primary: enable only the Primary IDE controller Secondary: enable only the Secondary IDE controller Both: enable both IDE controllers
Hard Disk Write Protect	Disable Enable	Disable/Enable the hard disk write protection. This will be effective only device is accessed through BIOS
IDE Detect Time out (sec)	0, 5, 10, 15, 20, 25, 30, 35	Select the time out value for detecting ATA/ATAPI device
ATA (PI) 80Pin Cable Detection	Host & Device Host Device	Select the mechanism for detecting 80 pin cable

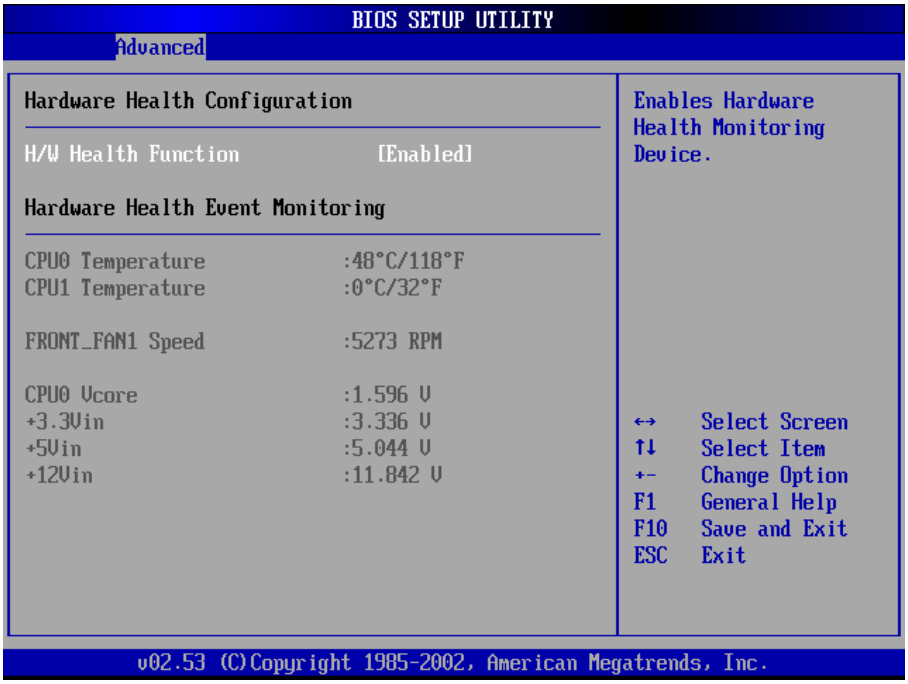
4-5.2 Floppy Configuration Submenu



4-5.3 Super I/O Configuration Submenu

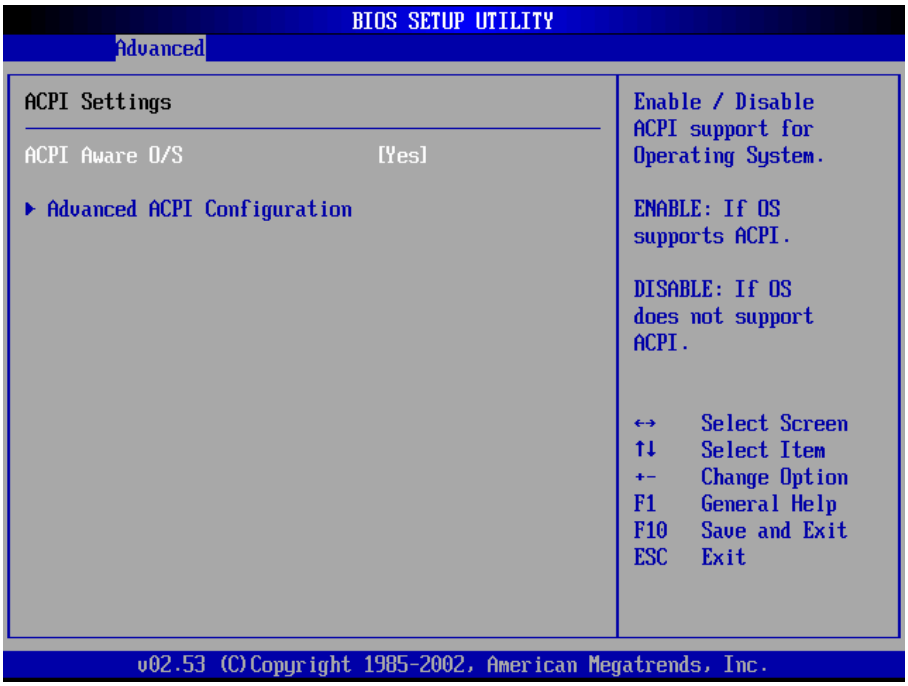


4-5.4 Hardware Health Configuration Submenu

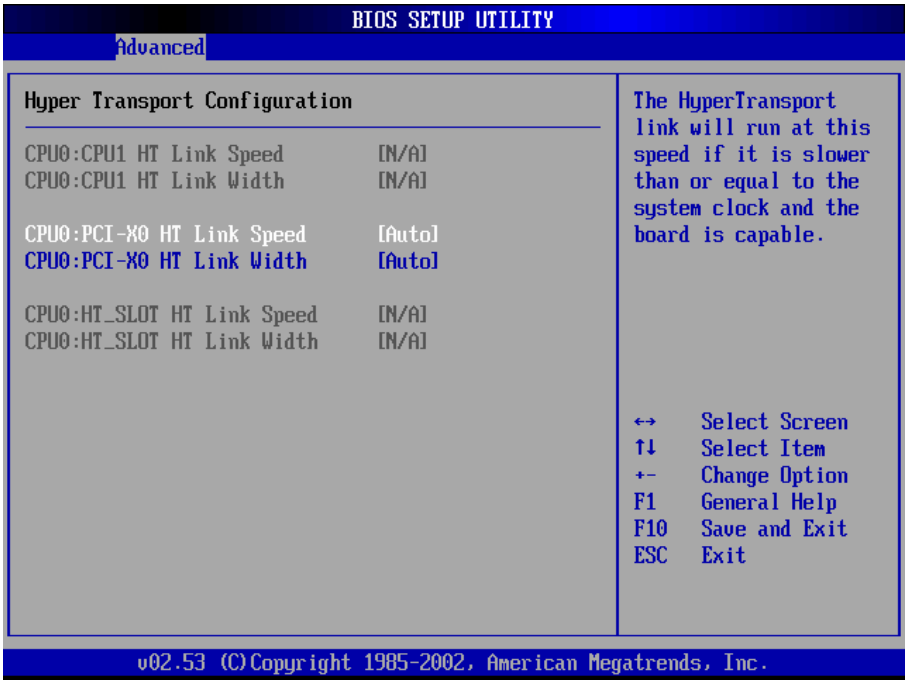


On this menu, you can monitor the system status. It would show the CPU and system temperature.

4-5.5 ACPI Setting Submenu

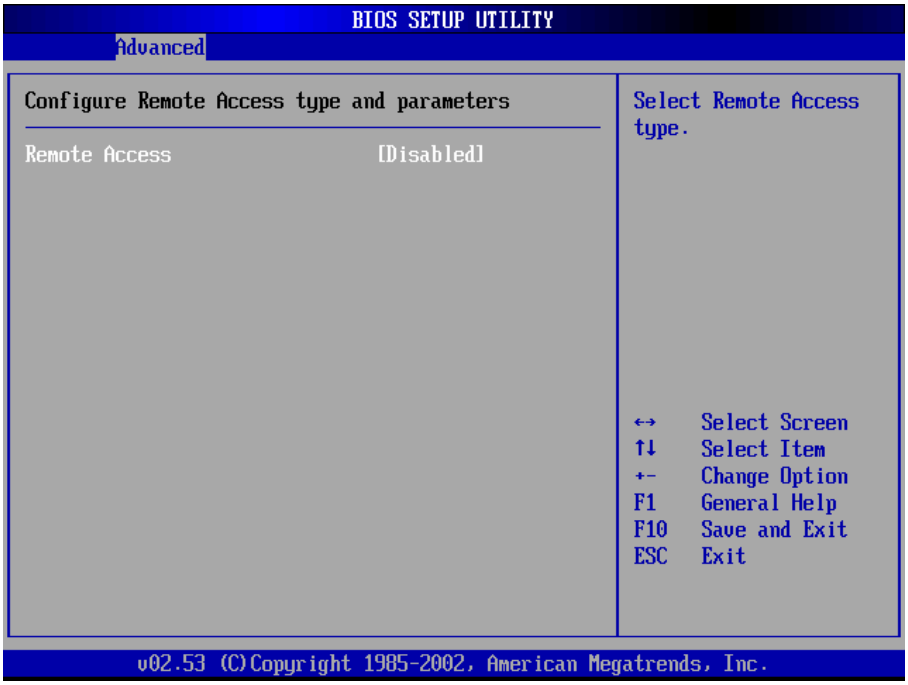


4-5.6 Hyper Transport Configuration Submenu

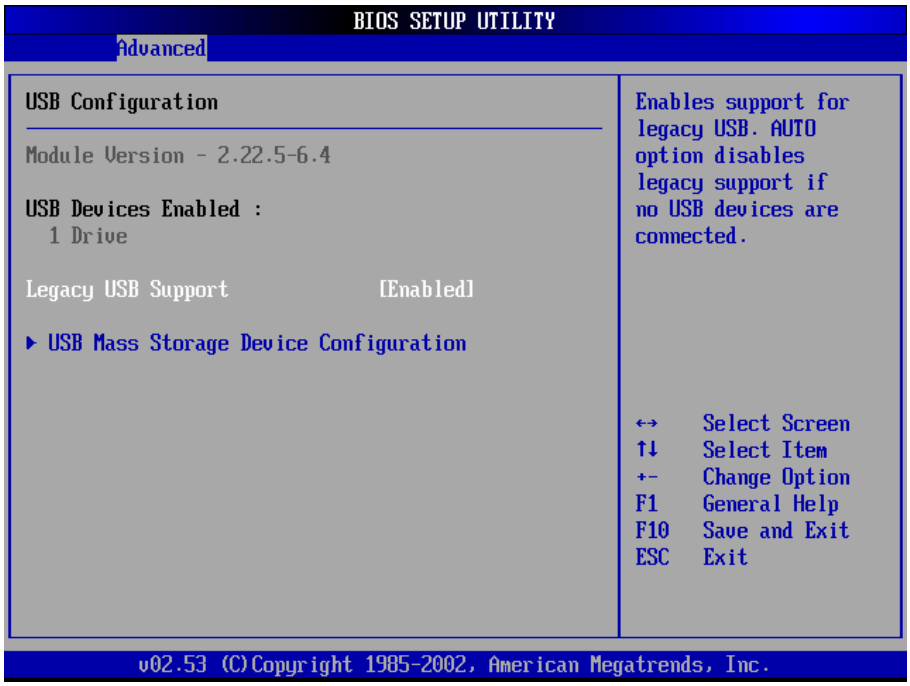


To set up the hyper transport speed and bandwidth, you can adjust over this menu. The incorrect manipulation will impede the system running.

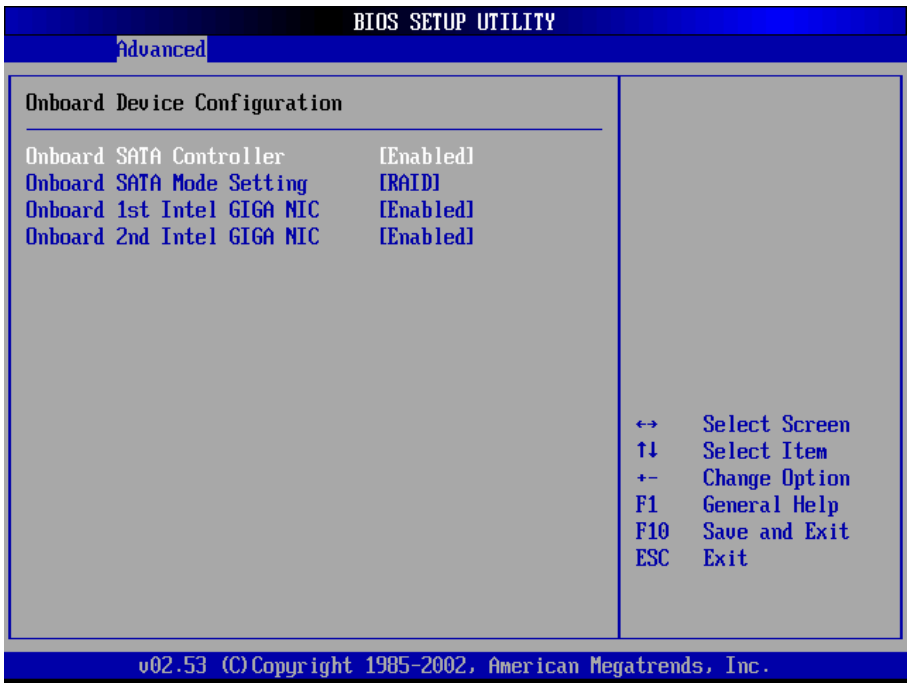
4-5.7 Remote Access Configuration Submenu



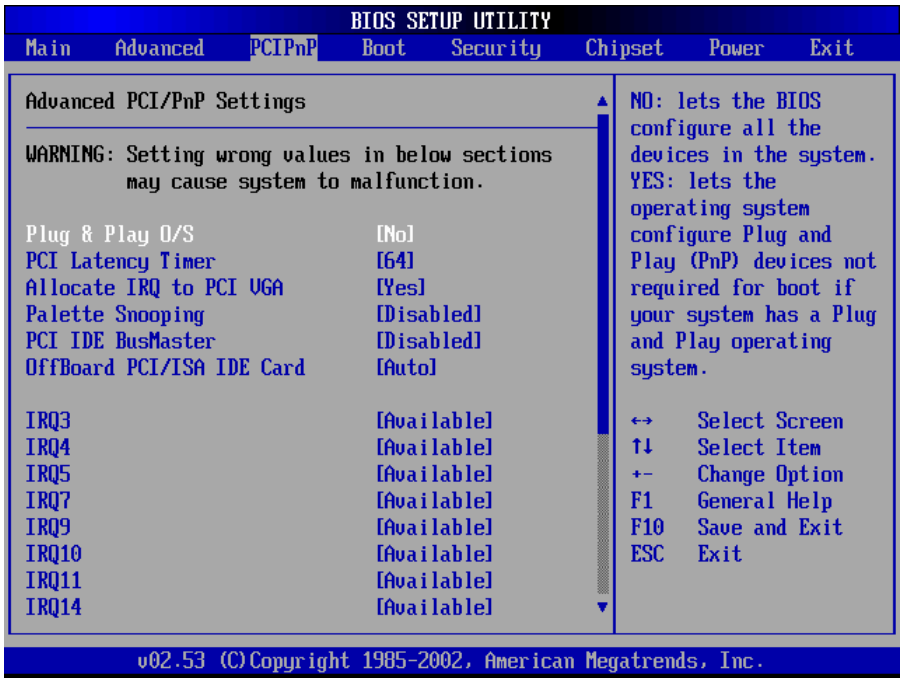
4-5.8 USB Configuration Submenu



4-5.9 Onboard Device configuration

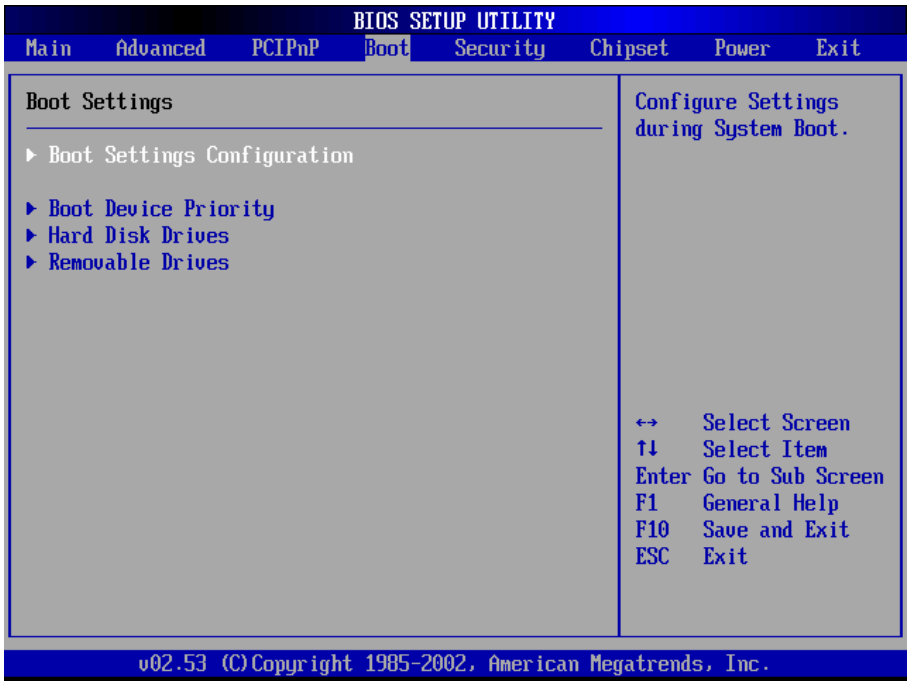


4-6 PCI PnP Menu

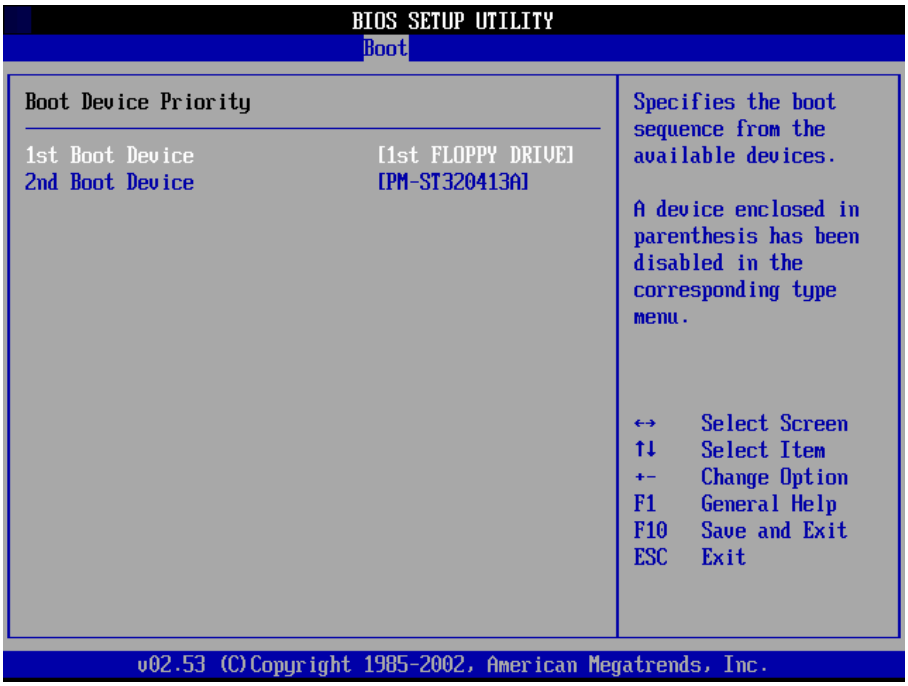


Feature	Options	Description
Plug & Play O/S	Yes No	Yes: lets the O/S configure PnP devices not required for boot if your system has a Plug and Play O/S
PCI Latency Timer	32, 64, 96, 128, 160, 192, 224, 248	Value in units of PCI clocks for PCI device latency timer register
Allocate IRQ to PCI VGA	Yes No	Yes: Assign IRQ to PCI VGA card if card requests IRQ No: Doesn't assign IRQ To PCI VGA cars even if card requests IRQ
Palette Snooping	Enabled Disabled	Enabled: informs the PCI devices that an ISA graphics device is installed in the system so the card will function correctly
PCI IDE BusMaster	Enabled Disabled	Enabled: BIOS uses PCI busmastering for reading/writing to IDE drives
Offboard PCI/ISA IDE card	Auto PCI Slot1 PCI Slot2 PCI Slot3 PCI Slot4 PCI Slot5 PCI Slot6	Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card
IRQ3~IRQ14	Available Reserved	Available: specified IRQ is available to be used by PCI/PnP devices Reserve: specified IRQ is reserved for use by legacy ISA devices

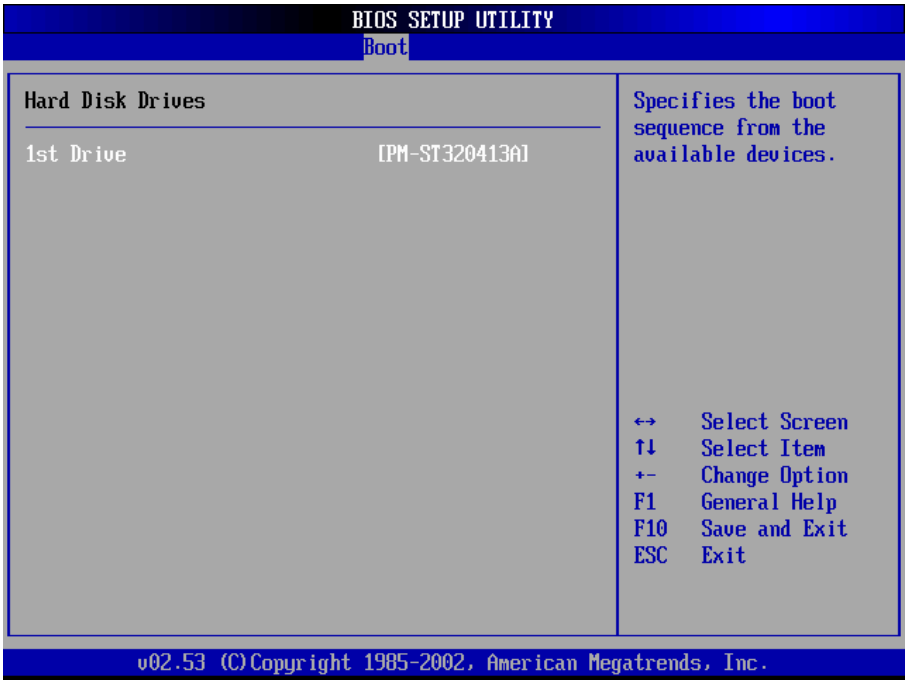
4-7 Boot Menu



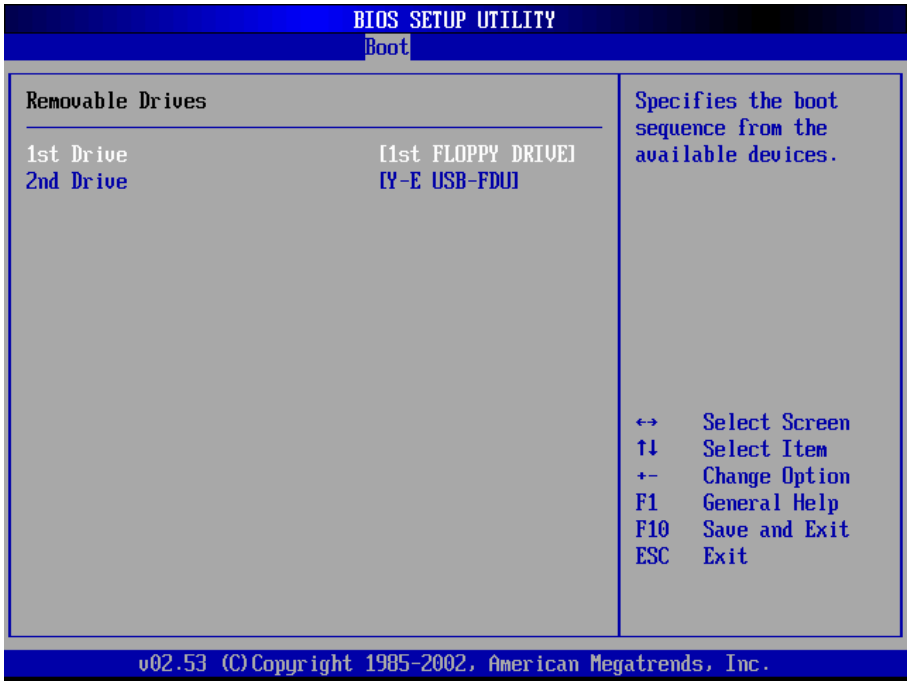
Boot Menu 1: Boot Settings



Boot Menu 2: Boot Device Priority



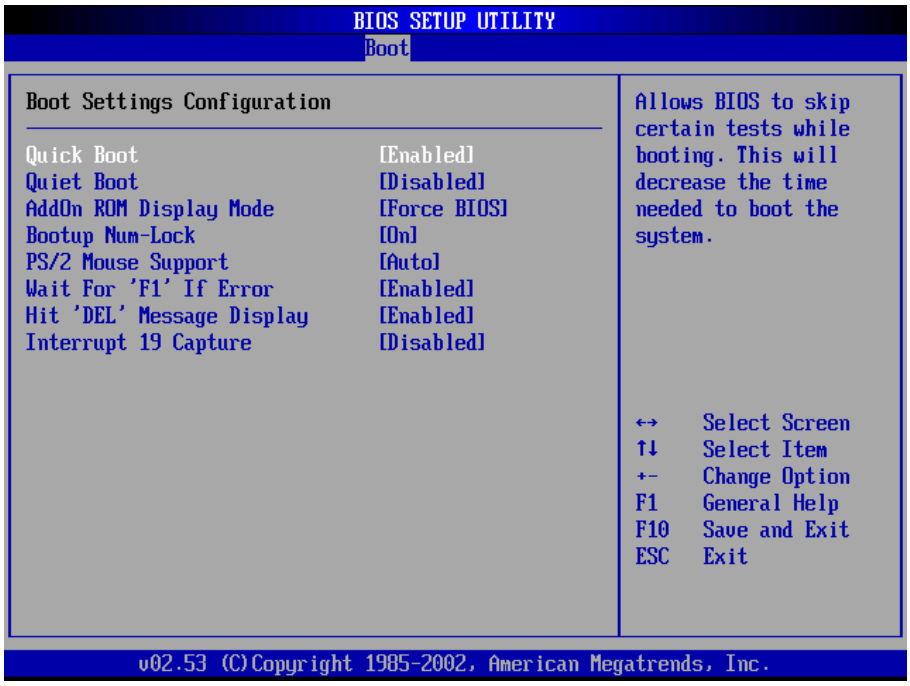
Boot Menu 3: Hard Disk Drives



Boot Menu 4: Removable Drives

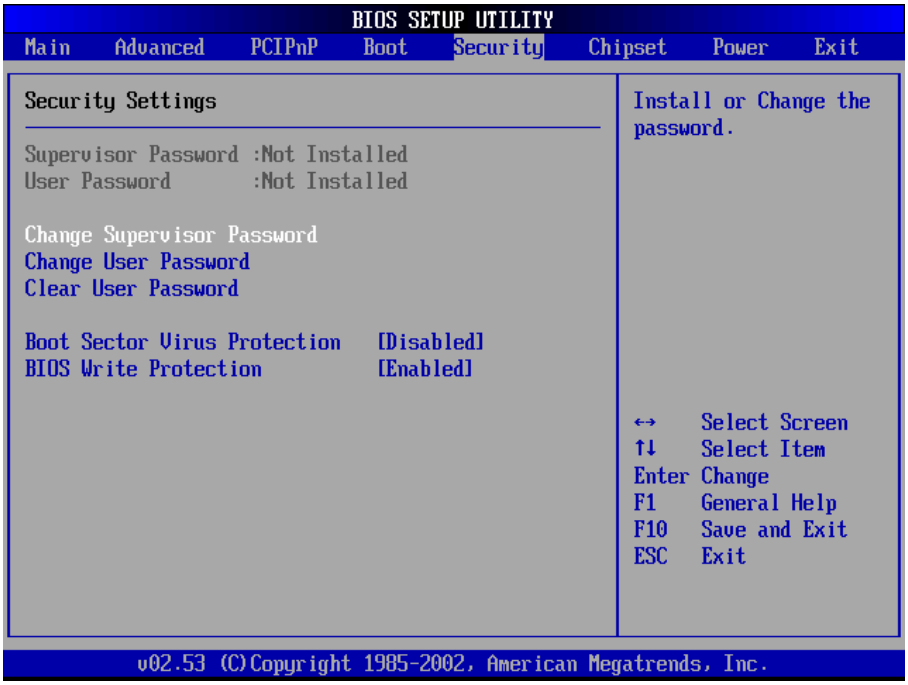
Feature	Description
Boot Device Priority	Specify the boot device priority sequence
Hard Disk Drives	Specify the boot device priority sequence from available hard drives
Removable Drives	Specify the boot device priority sequence from available removable drives

4-7.1 Boot Settings Configuration Submenu

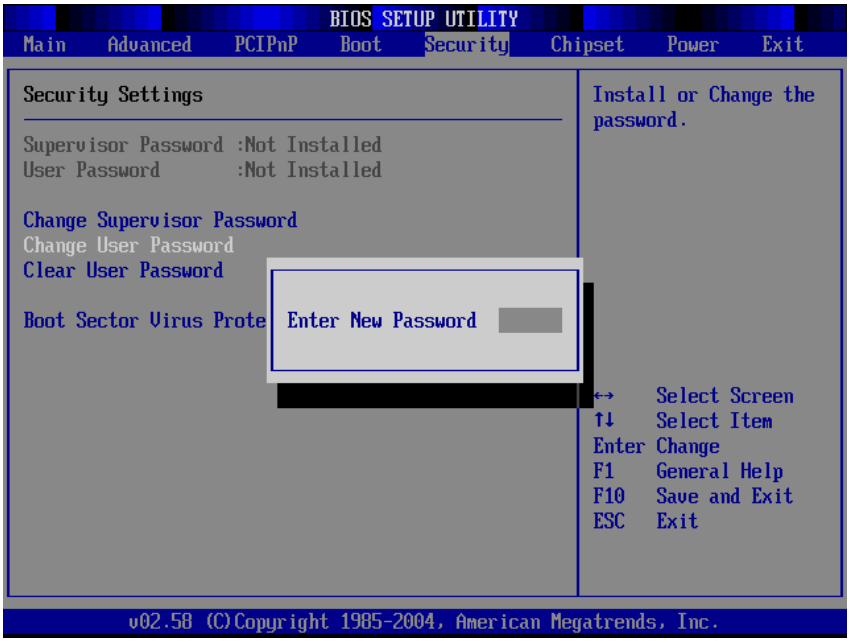


Feature	Options	Description
Quick Boot	Disabled Enabled	Allow BIOS to skip tests while booting
Quiet Boot	Disabled Enabled	Disabled: Display normal POST messages Enabled: Display OEM logo
Add-on ROM Display Mode	Force BIOS Keep Current	Set display mode for option ROM
Bootup Num-Lock	Off On	Select power on state for Num-Lock
PS/2 Mouse Support	Disabled Enabled	Select support for PS/2 mouse
Wait for " F1 " if error	Disabled Enabled	Wait for F1 key to be pressed if error occurs
Hit " DEL " Message Display	Disabled Enabled	Display " Press DEL to run Setup " in POST
Interrupt 19 Capture	Disabled Enabled	Enabled: allows option ROMs to trap interrupt 19

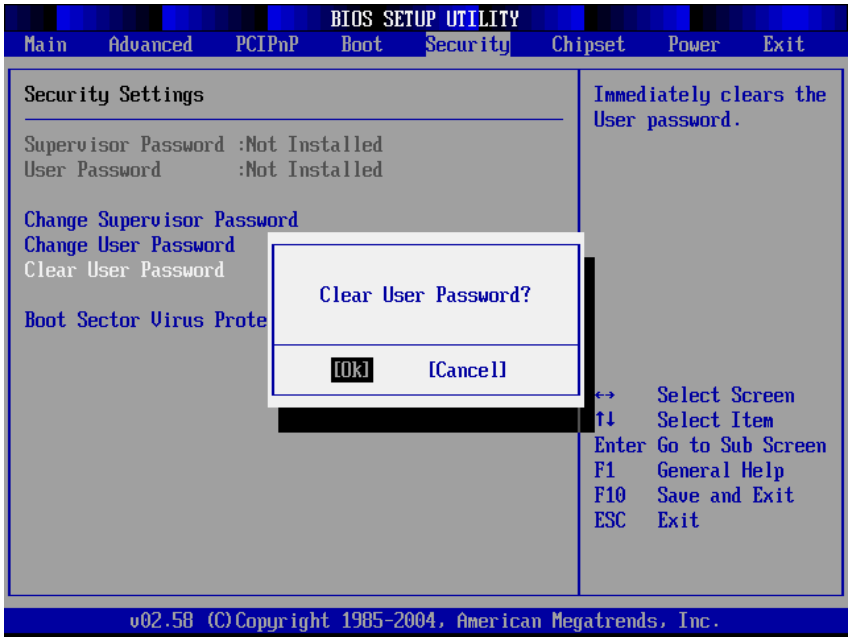
4-8 Security Menu



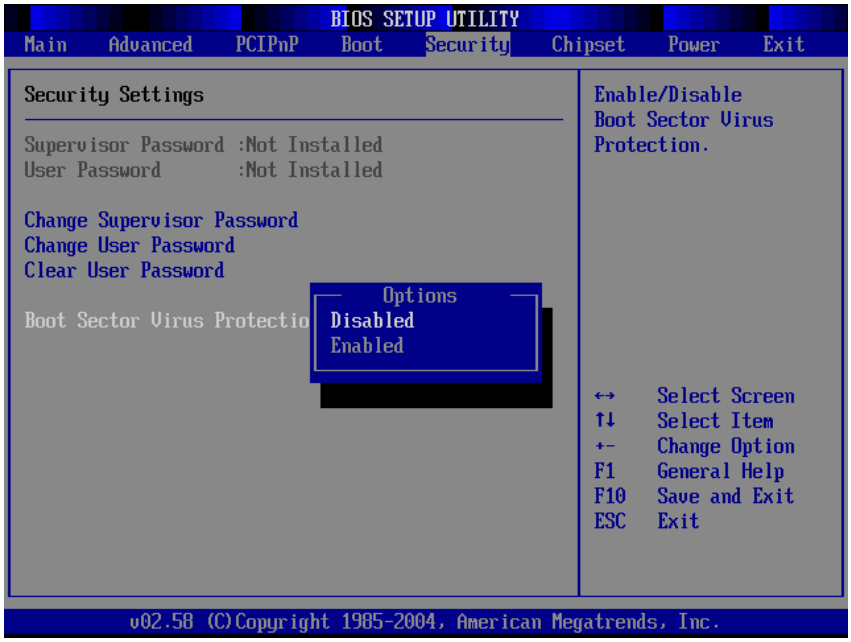
Security Menu 1: Change Supervisor Password



Security Menu 2: Change User Password



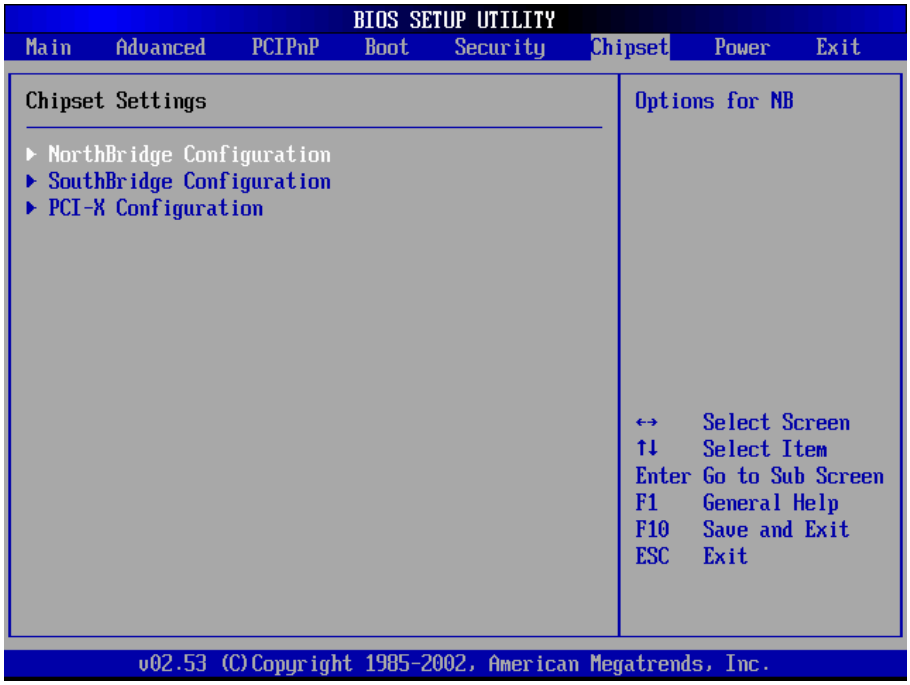
Security Menu 3: Clear User Password



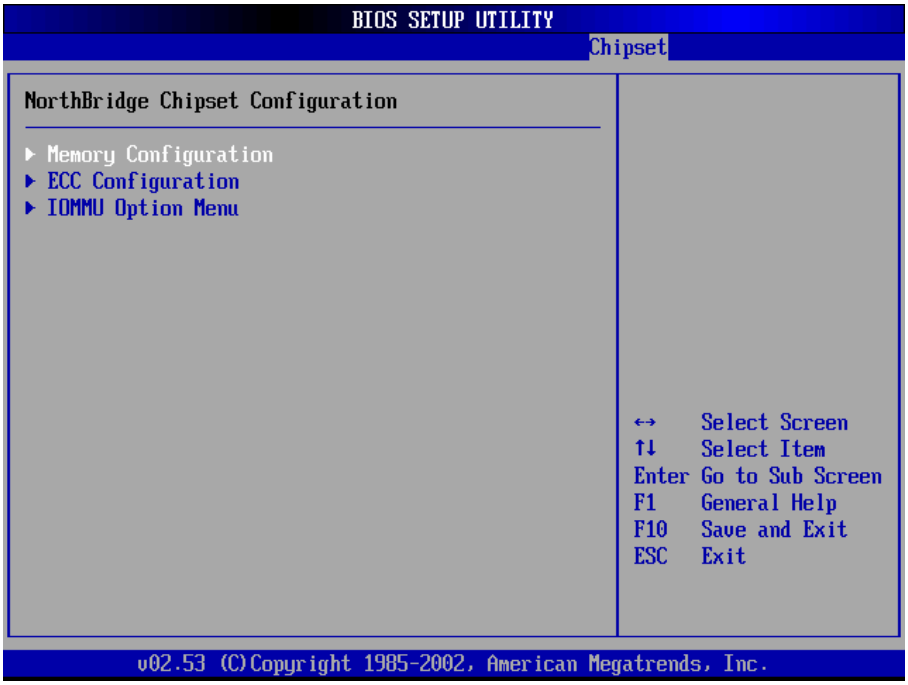
Security Menu 4: Boot Sector Virus Protection

Feature	Options	Description
Change Supervisor Password		Install or change the password
Change User Password		Install or change the password
Clear User Password		Setup: check password while invoking setup Always: check password while invoking setup as well as on each boot
Boot Sector Virus Protection	Disabled Enabled	Enable/Disable boot sector virus protection

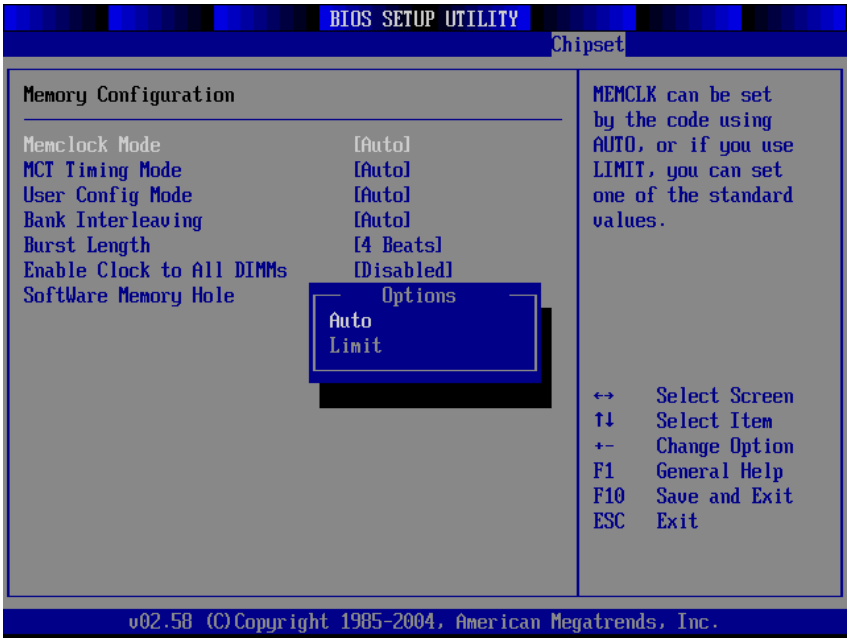
4-9 Chipset Settings Menu



4-9.1 NorthBridge Chipset Configuration Submenu

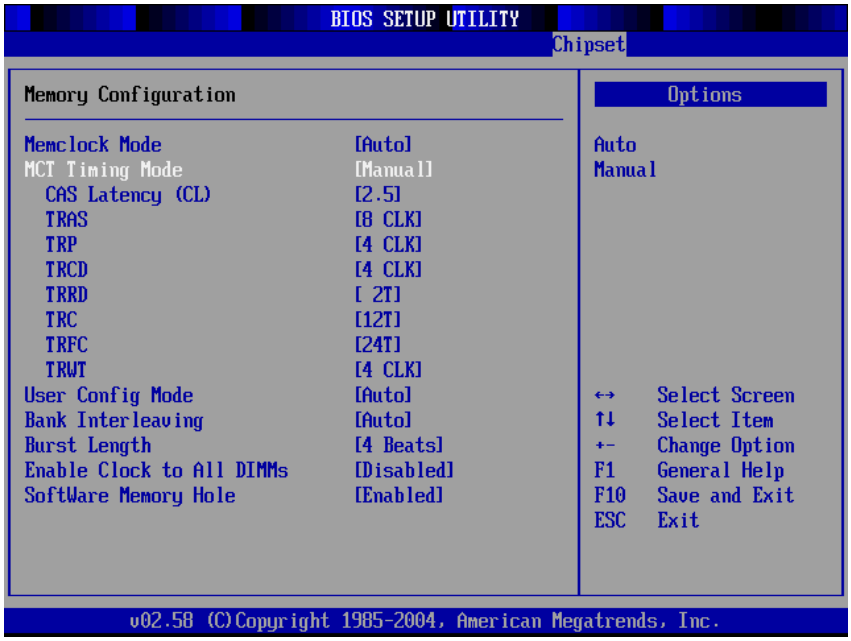


4-9.1-1 Memory Configuration Submenu

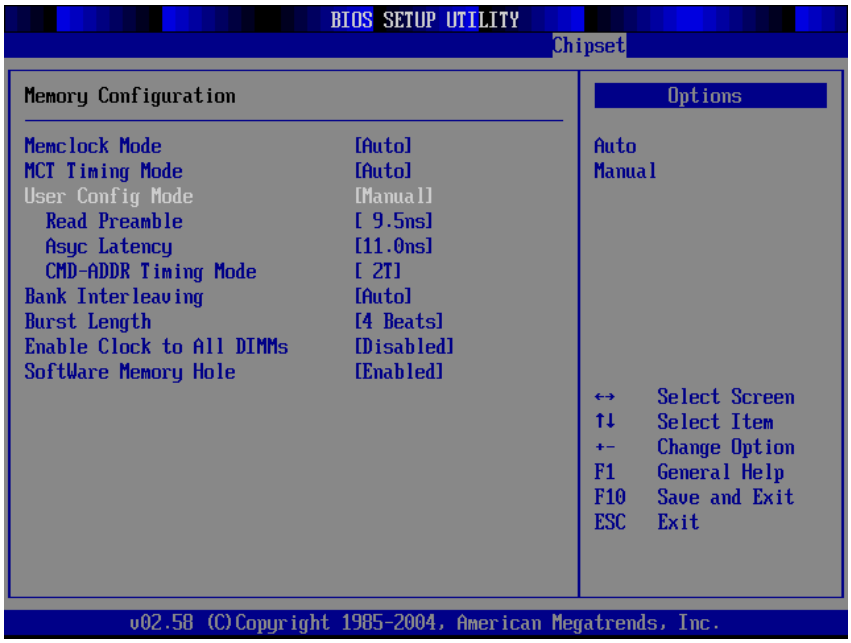


Feature	Options	Description
Memclock Mode	Auto Limit	It can be set by the code using AUTO, or if you use LIMIT, you can set one of the standards.
MCT Timing Mode		See 4-9.1.1
User Config Mode		See 4-9.1.1
Bank Interleaving	Auto Disabled	Interleaving allows memory accesses to be spread out over BANKS on the same node, or across NODES, decreasing access contention
Burst Length	8 Beats 4 Beats 2 Beats	Burst length can be set to 8 or 4 beats. 64 bit Dq must use the 4 beats
Enable Clock to All DIMMs	Disable Enable	Enable unused clocks to DIMMs even memory slots are NOT populated

4-9.1-2 MCT Timing Mode Submenu

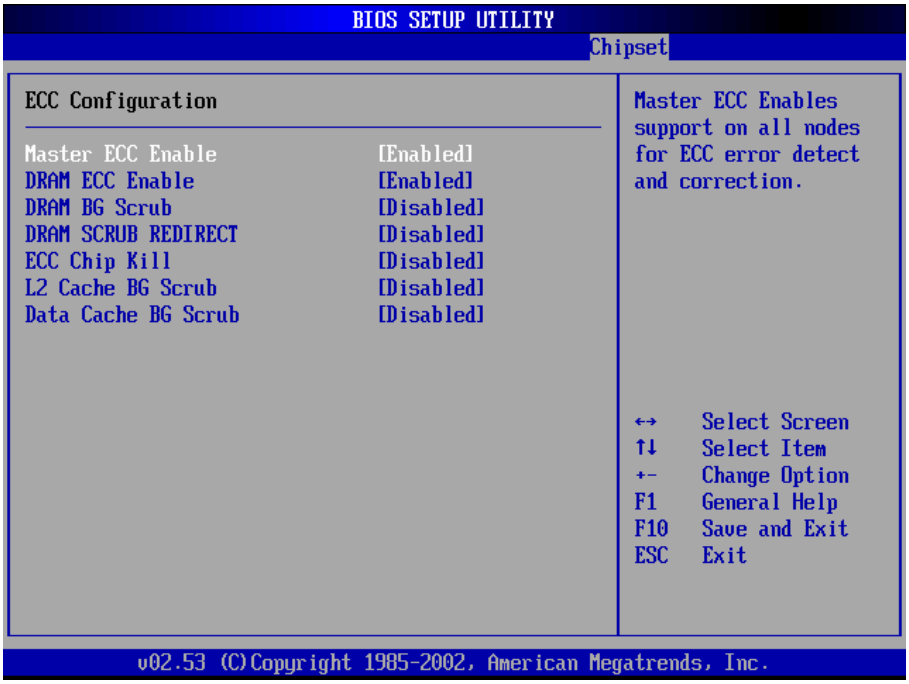


MCT Timing Mode



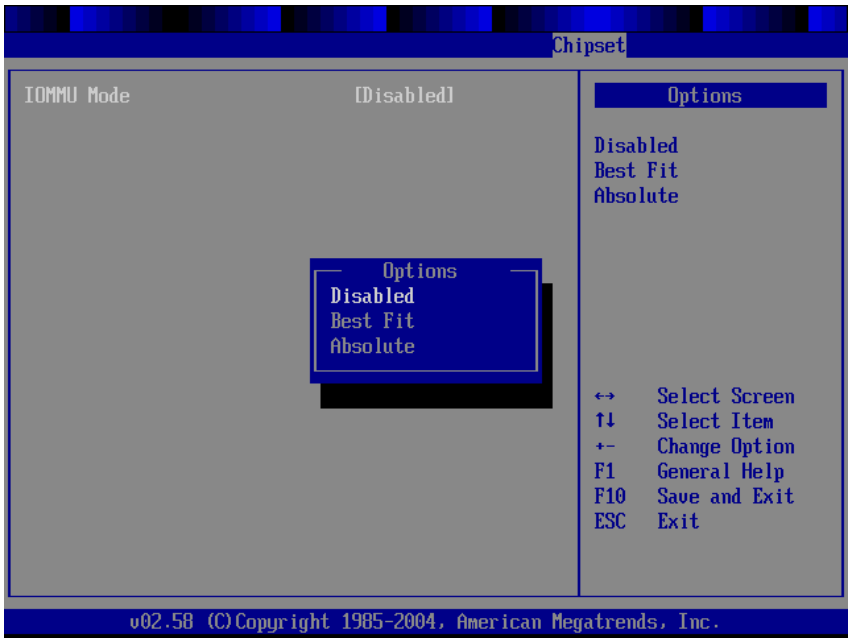
User Config Mode

4-9.1-2 ECC Configuration Submenu



Feature	Options	Description
DRAM ECC Enable	Disabled Enabled	DRAM ECC allows hardware to report and correct memory errors automatically maintaining system integrity.
L2 Cache BG Scrub	Disable 40ns 80ns 160ns 320ns 640ns 1.28us 2.56us 5.12us 10.2us 20.5us 41.0us 81.9us 163.8us 327.7us 655.4us	Allows the L2 date cache ram to be corrected while idle.
Date Cache BG Scrub	See above	Allows the L1 date cache ram to be corrected while idle.

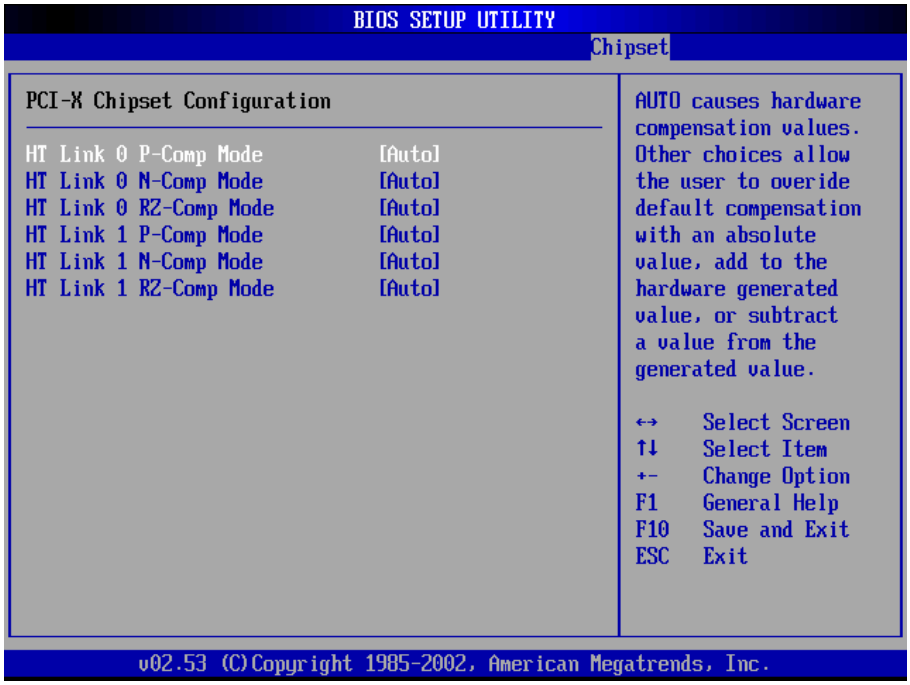
4-9.1-3 IOMMU Mode Submenu



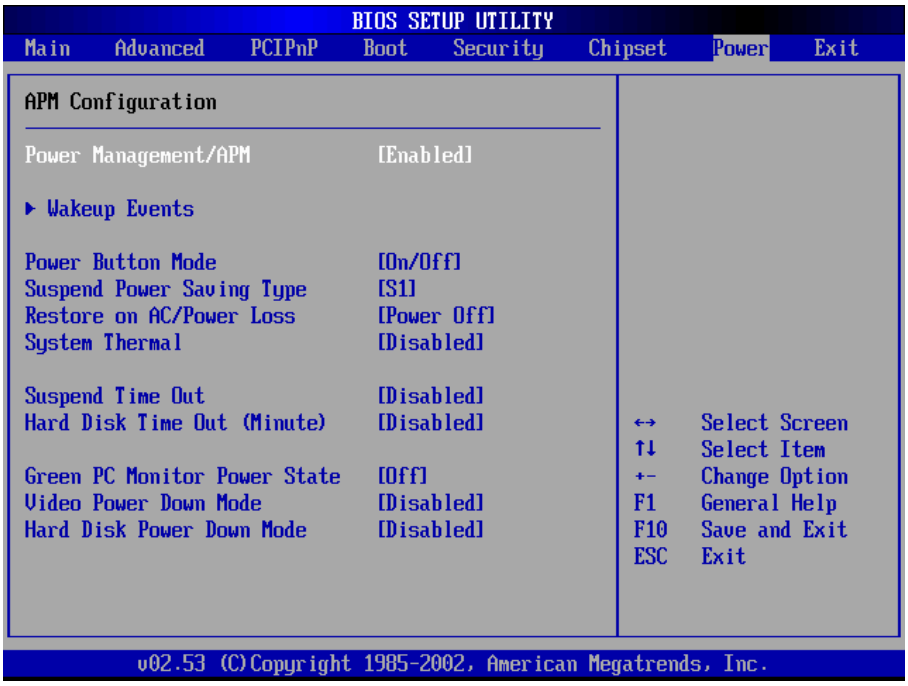
Feature	Options	Description
IOMMU Mode	Disabled	
	Best Fit	
	Absolute	

4-9.2 South Bridge Chipset Configuration Submenu

4-9.3 PCI-X Chipset Configuration Submenu

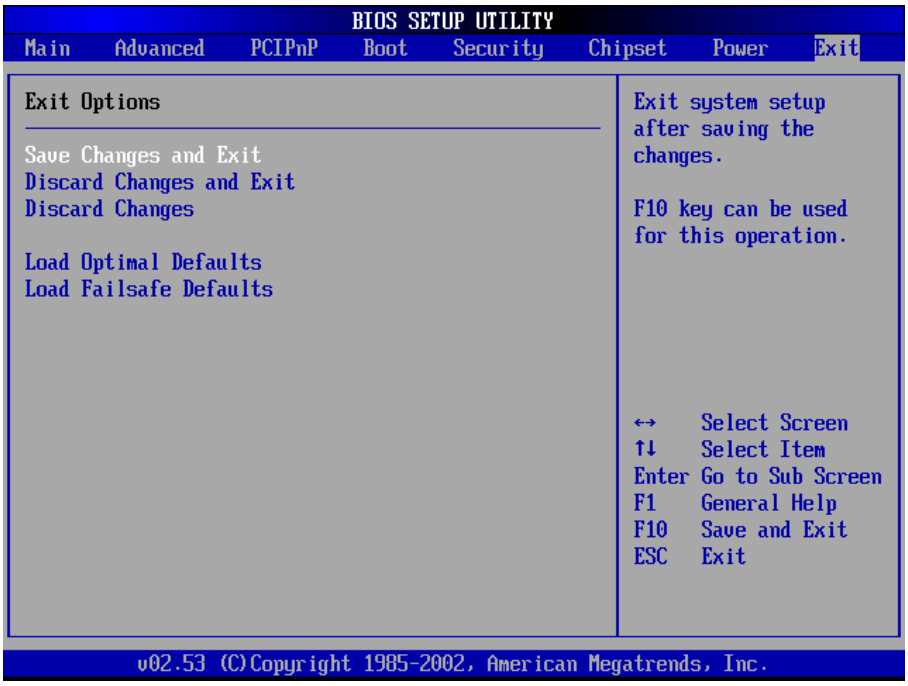


4-10 Power Menu



The Power menu items allow you to change the power management settings. Select an item then press Enter to display the configuration options.

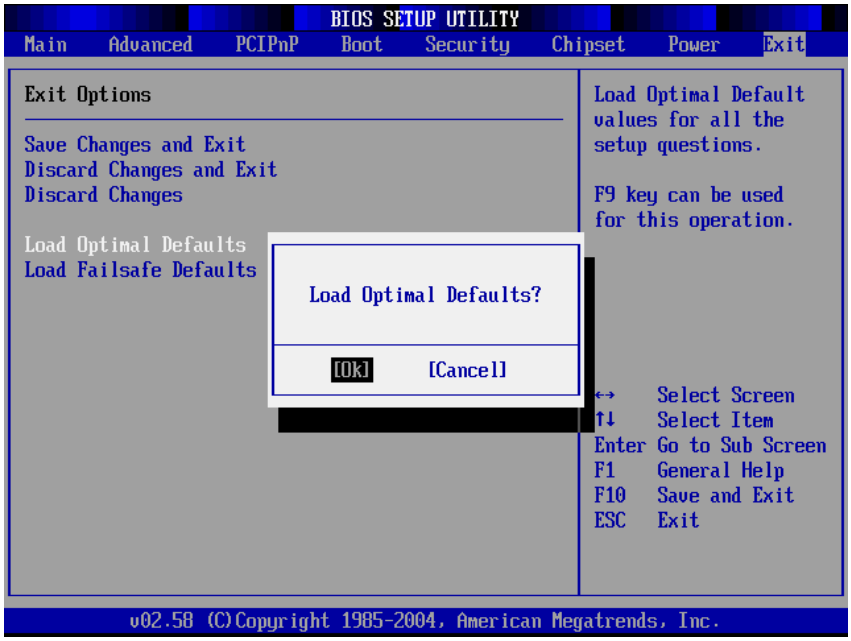
4-11 Exit Menu



Feature	Description
Save Changes and Exit	Exit system setup after saving the changes F10 key can be used for this operation
Discard Changes and Exit	Exit system setup without saving the changes ESC key can be used for this operation
Discard Changes	Discard changes done so far to any of the setup question F7 key can be used for this operation
Load Optimal Defaults	Load optimal default values for all the setup questions F9 key can be used for this operation
Load Failsafe Defaults	Load Failsafe default values for all the setup questions F8 key can be used for this operation

Important

Any wrong values setting may cause system to malfunction. Therefore, IWILL suggests loading optimal defaults while any error happens.



Chapter 5 Technology Support

If a problem arises with yours system during Installation or OS operating, you should ask your dealer for help first as your system has most likely be configured by them. They always have the best idea and quick response for your symptoms. If your dealer is near to your locations, you should bring your system to them to have it quickly serviced instead of attempting to solve the problem by yourself.

1. Go to IWILL® website at www.iwill.net and navigate to this product page which contains links to product updates such as Jumper settings or BIOS updates.
2. FAQ sections on IWILL® Website are often helpful since other user's questions are often your own.
3. Email us at: support@iwill.net, and we will try to answer your questions within 24 hours.

Three years Warranty

If any problems occur during the product's warranty period, consult your system vendor or distributor before contacting IWILL®. The warranty covers normal customer use of the product. The warranty does not cover damages sustained during shipping or failure due to alteration, misuse, abuse, or improper maintenance of the unit.

IWILL® DK8-HTX Hardware Installation Guide

Document part number: FB27810500

Mainboard Specification

Processor

- Two PGA 940 pin sockets
- Support up to two AMD Opteron™ processors

Chipset

- AMD-8111™ HyperTransport™I/O Hub
- AMD 8131 PCI-X Tunnel chip
- Winbond W83627HF Super I/O chip

System Memory

- Support ECC Registered SDRAM memory module
- 4+4 DIMMs support up to 16GB memory capacity
- Support PC3200/PC2700/2100
- Total eight 184pin 2.5V DIMM slots

BIOS

- AMI BIOS 8.0 on 4Mbit flash ROM
- Support APM 1.2 and ACPI 1.0

VGA

- ATI RageXL 8MB VGA controller

Expansion Slots

- One HTX connector
- One PCI-X 64bit 133/100/66/33 MHz expansion slot
- Two PCI-X 64bit 100/66/33 MHz expansion slots
- Two PCI 32bit 66/33MHz expansion slots

Onboard SATA

- Onboard SATA from Silicon Image 3114 SATA Chip
- Support four channel SATA ports and up to four SATA devices

- Support RAID 0, 1, 0+1

Onboard LAN

- Dual Intel 82541GI Gigabit Ethernet Controllers
- Dual RJ-45 port at the rear panel

Onboard IDE

- Support dual channel master mode IDE ports and up to four EIDE devices

Onboard IO

- One floppy connector
- One 9 pin serial port connector
- Two USB 1.0 pin headers
- Power, HDD and LAN LED pin headers

Rear Panel IO

- Two PS/2 connectors for mouse & keyboard
- Two USB 1.0 connectors
- One 9 pin serial port connector
- One 15 pin VGA connector
- Two RJ-45 Gigabit ports

Form Factor

- Extended ATX form factor
- 12” x 13” board size

Power

- Support EPS 12V power (two 24-pin connectors, and one 8-pin connector)

All product specifications are subject to change without prior notice. The actual specifications will be according to the actual product.