KL-6011

MAINBOARD MANUAL

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Handling Precautions

Warning :

1. Static electricity may cause damage to the integrated circuits on the mainboard.
   Before handling any mainboard outside of its protective packaging, ensure that there is no static electric charge in your body.
2. There is a danger of explosion if the battery is incorrectly replaced.
   Replace only with the same or an equivalent type recommended by the manufacturer.
3. Discard used batteries according to the manufacturer's instructions.

Observe the following basic precautions when handling the mainboard or other computer components:

- Wear a static wrist strap which fits around your wrist and is connected to a natural earth ground.
- Touch a grounded or anti-static surface or a metal fixture such as a water pipe.
- Avoid contacting the components on add-on cards, boards and modules and with the "gold finger" connectors plugged into the expansion slot. It is best to handle system components by their mounting bracket.

The above methods prevent static build-up and cause it to be discharged properly.

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Chapter 1

Overview

Based on the highly-integrated Intel 440LX AGPset, the KL-6011 combines blistering Pentium® II processor performance with support for the new Accelerated Graphics Port (AGP) interface which provides a dedicated path for memory -intensive graphics applications- delivering faster system performance and arcade-quality 3D graphics. The KL-6011 also supports intelligent diagnostic and power management features like ISMP™ (Intelligent System Management & Protection) and ACPI (Advanced Configuration and Power Interface) to provide a powerful and versatile ATX-size platform for leading-edge PC '97 compliant systems.

With its switching voltage regulator, the KL-6011 runs a range of Intel Pentium® II processors. For added power and performance, the KL-6011 supports up to 512KB Burst Level II cache and up to 384MB DRAM via three DIMM sockets which accept high-speed SDRAM memory types.

The mainboard comes with a full set of I/O features conveniently integrated on the rear I/O panel, including two USB connectors and an integrated PCI Bus Master Enhanced IDE controller with support for the new Ultra DMA/33 protocol, which doubles ATA-2 Hard Disk Drive data transfer rates to 33MB/s while maintaining full backwards compatibility with existing PIO Mode 3, PIO Mode 4 and DMA Mode 2 devices.

Compliant with the Microsoft PC'97 standard at both the hardware and BIOS levels, the KL-6011 comes with support for ISMP™ which continuously checks the thermal and voltage status of your system changes where necessary and reports any discrepancies to a network administrator. The KL-6011 reduces the total cost of ownership with support for DMI (Desktop Management Interface) and Intel LANDesk® Client Manager (LDCM) software which allows for optimized system manageability across a network.

Chapter 1 of this manual gives you a brief overview of the KL-6011 mainboard, including its main components and features. Chapter 2 contains advice on how to upgrade and install key components on the mainboard. For the most up-to-date

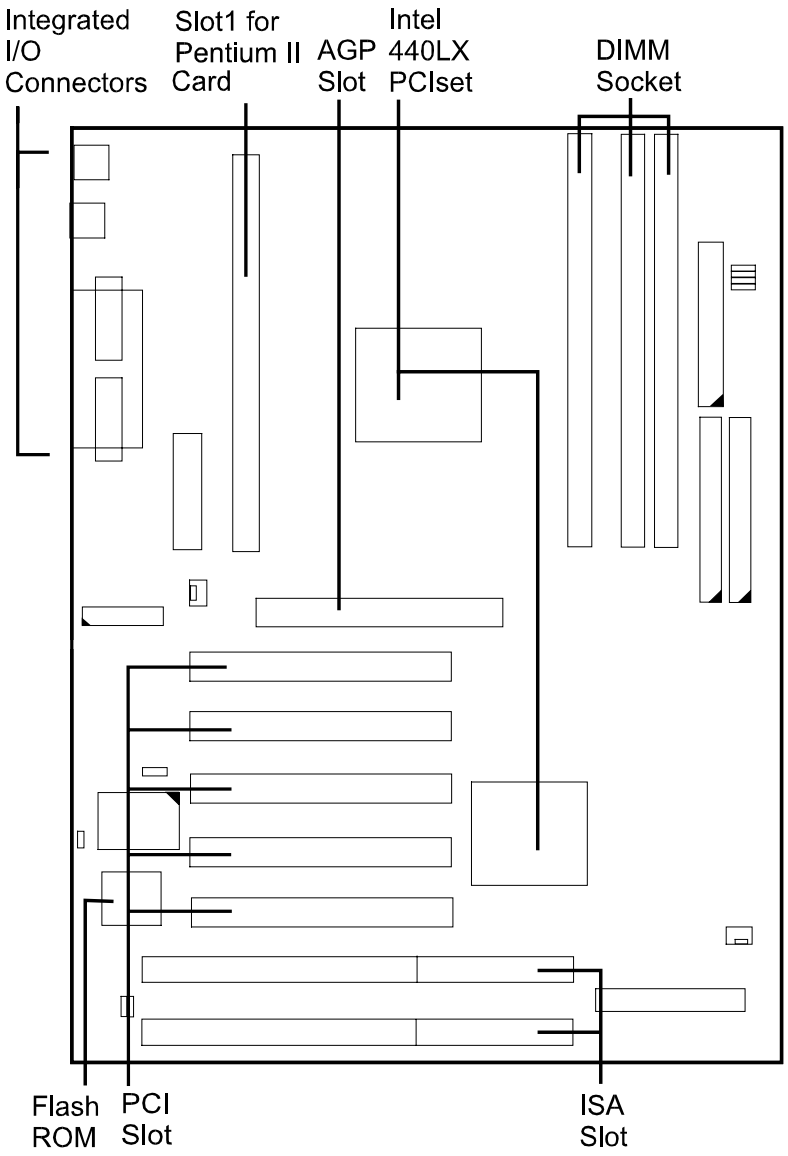
information about your mainboard and the latest FAQs and BIOS updates, visit FIC Online at www.fic.com.tw.

Package Checklist

Please check that your package contains all the items listed below. If you discover any item is damaged or missing, please contact your vendor.

- The KL-6011 mainboard
- This user manual
- One IDE device cable
- One floppy disk drive cable
- Retention Module
- Software CD-ROM
  - Desktop Management Interface (DMI) software
  - BIOS Flash software
  - PIIX bus master IDE driver
  - USB supplement software
  - Intel INF update software
  - Intel LANDesk® Client Manager (LDCM) software (optional)
  - Anti-Virus tool (optional)

The KL-6011 Mainboard



Main Features

The KL-6011 mainboard comes with the following high-performance features:

- Easy Installation
  BIOS with support for Plug and Play, auto detection of IDE hard drives, LS-120 drives, MS Windows™ 95, Windows™ NT, and OS2™.

- Flexible Processor Support
  Onboard 242-pin Slot1 supports leading-edge processors:
  Intel Pentium® II processors 233/266/300/333 MHz with MMX™ technology.

- Leading Edge Chipset
  Intel 82440LX AGPset includes a CPU interface controller, advanced cache controller, integrated SDRAM controller, synchronous ISA bus controller, integrated power management unit, concurrent PCI (PCI 2.0 and 2.1), and USB.

- Ultra-fast Level II Cache
  Supports 256/512KB L2 synchronous PBSRAM cache memory on Pentium® II card.

- Versatile Main Memory Support
  Accepts up to 384MB RAM in three banks using DIMMs of 8, 16, 32, 64, 128MB with support for SDRAM memory.

- Onboard Accelerated Graphics Port (AGP)
  One 32-bit AGP slot supports 1x/2x AGP VGA cards for superior 3D video and graphics performance with transfer speeds up to 264MB/second under 1x Transfer Mode and up to 528MB/second under 2x Transfer Mode.

- ISA & PCI Expansion Slots
  Two 16-bit ISA and five 32-bit PCI expansion slots provide all the room you need to install a full range of add-on cards.

- USB Support
  Two USB ports integrated in the rear I/O panel allow convenient, high-speed Plug and Play connections to the growing number of USB compliant external peripheral devices on the market.

- IrDA Connector
  An onboard IR connector for wireless infrared connection is available.

- Enhanced PCI Bus Master IDE Controller Support
  Integrated Enhanced PCI Bus Master IDE controller features two dual-channel connectors that accept up to four Enhanced IDE devices, including CD-ROM and Tape Backup Drives, as well as Hard Disk Drives.

- Super Multi I/O
  Integrated Winbond W83977TF-A™ Plug and Play multi-I/O chipset features two high-speed 16550A compatible serial ports, one IR port, one EPP/ECP capable parallel port, and one FDD connector.

- Remote Wake-Up Support
  One LAN Wake-up connector supports LAN cards equipped with either the AMD PCnet-ISA II™ (79C961A) or PCnet-PCI II™ (79C970A) chipsets for remote wake-up functionality.

- Intel LANDesk® Client Manager (LDCM) Software Support
  LDCM is a DMI-compliant application for local and network management of desktop client systems. The application reduces the number of help desk calls by supplying the user with self diagnostics such as a PC health meter and local alert of potential problems.

Advanced Features

The mainboard features SDRAM support, Hardware Monitoring, DMI and ACPI, that not only optimize the performance of the latest processors but also enhance the manageability, power management capabilities, and user-friendliness of your system.

1). Enhanced Performance Features

- Optimized Intel Pentium II® Processor Performance
  The mainboard utilizes the advanced features of the Intel 440LX PCIset to optimize the unrivaled performance of the Intel Pentium® II processor with MMX™ technology, allowing you to enjoy a richer video, audio, digital imaging and communications experience from the latest generation of multimedia software.

- Onboard Accelerated Graphics Port (AGP)
  The 32-bit AGP bus provides a dedicated 66Mhz/133Mhz path from the graphics card to the system memory offering much greater bandwidth than the 32-bit PCI bus does which currently operates at a speed of 33Mhz. AGP enabled 3D graphics cards can directly access main memory across this fast path instead of using local memory. This is especially important for memory-intensive 3D graphics applications so as to produce more detailed 3D textures, greater clarity and higher levels of resolution without impacting on system performance. This mainboard is fully compliant with the AGP 1.0 specification. To make use of the improved AGP performance, the mainboard should be installed with SDRAM type memory and the VGA card and drivers should also be fully AGP compliant. Using Microsoft's forthcoming versions of Microsoft Windows™ 95 and Windows™ NT which implement DirectDraw™ will allow the system to take full use of AGP's benefits without the need to install additional drivers.

- Enhanced PCI Bus Master IDE Controller with Ultra DMA/33 Support
  Integrated Enhanced PCI Bus Master IDE controller features two dual-channel connectors that accept up to four Enhanced IDE devices, including CD-ROM and Tape Backup Drives, as well as Hard Disk Drives supporting the new Ultra DMA/33 protocol which doubles data transfer rates to 33MB/sec. Standard PIO Mode

- Concurrent PCI Architecture
  The mainboard's Concurrent PCI Architecture enables more efficient operation of CPU, PCI and ISA transactions for faster and smoother multimedia performance. It also allows the use of PCI 2.1 and 2.0 compatible add-in cards for long system life, built-in scalability and the flexibility to adapt your system to future applications.

2). Intelligent Features

ISMP™ (Intelligent System Management & Protection)

This mainboard features FIC's patent-pending ISMP™ (Intelligent System Management & Protection) which intelligently monitors the system hardware, making adjustments where necessary and reporting any discrepancies to a network administrator.

- CPU Thermal Monitoring Alert
  A special heat sensor located under the CPU monitors the CPU temperature to make sure that the system is operating at a safe heat level. If the temperature is too high, the sensor automatically generates an SMI (System Management Interrupt) to turn on the system fan and slow down the CPU clock frequency. At the same time, the system warns you that the CPU is overheating. CPU utilization is restored to normal levels when the temperature returns to a safe level.

- Switching Voltage Regulator
  This mainboard features a switching voltage regulator, which significantly reduces the temperature of the CPU and regulator itself. The switching voltage regulator also ensures full upgradability to the next generation of SLOT1 processors, which will require more electrical current and generate more heat both in the processor and the system.

- System Over-Voltage Protection and Report
  This mainboard features Voltage Protect which automatically shuts down the system if system or CPU voltage increases by more than 5%. The monitored range for system voltage is +12V, +5V, +3.3V, and the CPU voltage +2.8V.

- Chassis Intrusion
  This mainboard also features a special security feature which can detect if the chassis is opened, and alert a system administrator.

PC '97 Compliant

This mainboard is fully compliant with the new PC '97 standard at both the BIOS and hardware levels. PC '97 is a set of hardware, bus and device design requirements set by Microsoft in conjunction with other industry leaders aimed at making PCs easier to use by maximizing cooperation between the operating system and hardware.

The system design requirements under PC '97 support a synergy among PC hardware, Microsoft Windows™ Operating Systems, and Windows™-based software. Key elements include support for Plug and Play compatibility and power management for configuring and managing all system components, and 32-bit device drivers and installation procedures for both Windows™ 95 and Windows™ NT.

ACPI Ready

This mainboard fully implements the new ACPI (Advanced Configuration Power Interface) standard, an open PC hardware, Operating System and peripheral device interface specification that is supported by such industry leaders as Microsoft and Intel. ACPI enables PCs to come on instantly when accessed by a user and remain available to perform certain tasks even after the PC is turned off.

Additional benefits of ACPI include improved thermal management, reduced energy consumption, and OS directed Plug and Play capabilities. ACPI is currently being implemented in forthcoming versions of Microsoft Windows™ 95, Windows™ NT, and Windows™ 98. Key ACPI features implemented on this mainboard include:

- Soft-Off Support
  The mainboard's Soft-Off feature allows you to turn off your computer using the Operating System (Windows™ 95). The feature requires a power supply with a soft-off power controller.

- RTC Alarm
  The RTC alarm feature allows you to preset the computer to wake-up at a certain time allowing you to implement a number of useful functions, such as automatically sending out a fax late at night.

- Remote Ring-On
  The Remote Ring-On function allows your computer to be turned on remotely via a modem while it is in Sleep Mode. This feature is particularly useful when, for example, you are expecting a fax late at night and leave only your modem on to minimize power consumption. As soon as the phone rings, the modem automatically turns on the system, which answers the phone and downloads the fax. Then the computer shuts off again, thereby minimizing its consumption of power. The Remote Ring-On function requires a power supply with a soft-off power controller.

Please see the AMI BIOS Setup Section for more information on how to use these features.

DMI (Desktop Management Interface)

DMI (Desktop Management Interface) is a standard for organizing system configuration information. Using DMI, computer configuration can be made much simpler, quicker, and easier. Computer system configuration information can be read and modified from remote locations, permitting remote configuration and boot up. Please read Appendix A of this manual for more information.

Intel LANDesk® Client Manager (optional)

This mainboard comes with optional Intel LANDesk® Client Manager, a Desktop Management Interface (DMI) compliant application which simplifies local and network management of desktop client systems by monitoring PC health, and by alerting local and designated remote users of potential problems. For example, the application will indicate when memory usage is high or hardware components are likely to fail. This capability provides new levels of manageability to deliver a lower cost of PC ownership by maximizing system uptime, increasing user productivity and reducing the number of help desk calls. Because it is industry-standard DMI compliant, Intel LANDesk® Client Manager can be used with other DMI-based network management tools.

The LANDesk® Client Manager, including the client interface and the administrator's console used by the network administrator or manager, has a graphical user interface for ease-of-use and understanding and can be used for monitoring PC health, configuring key files and viewing inventory. Please read Appendix A of this manual for more information.

Infrared Connections

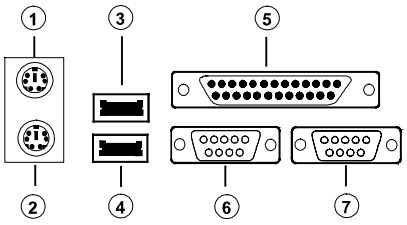
This mainboard features support for highly-sophisticated IR technology, which allows bi-directional and cordless data transactions with other IrDA compliant computers and peripheral devices using infrared as a medium. This transmission is carried out in either Full Duplex Mode or Half Duplex Mode. The former allows simultaneous data transmission and reception, while the latter disables the reception when transmission occurs.

The I/O chipset on this mainboard features onboard IR interface that is fully compliant with the IrDA standard. An IrDA device can be installed via a 9-pin D-type connector in the rear panel of the computer.

Highly Convenient Integrated I/O Connectors

This mainboard features has an integrated rear I/O panel that incorporates a full set of I/O ports to allow simple and convenient connections to a complete selection of external peripheral devices.

In addition to two 16550A UART compatible serial ports and one EPP/ECP capable parallel port, the panel features two USB connectors that provide high speed connections to the new generation of USB peripheral devices. PS/2 keyboard and PS/2 mouse connectors provide additional I/O connectivity. The photo below shows the I/O connectors: 1. *PS/2 mouse,* 2. *PS/2 keyboard,* 3. *USB1,* 4. *USB2,* 5. *Printer,* 6. *COM1,* 7. *COM2.*



Installation Procedures

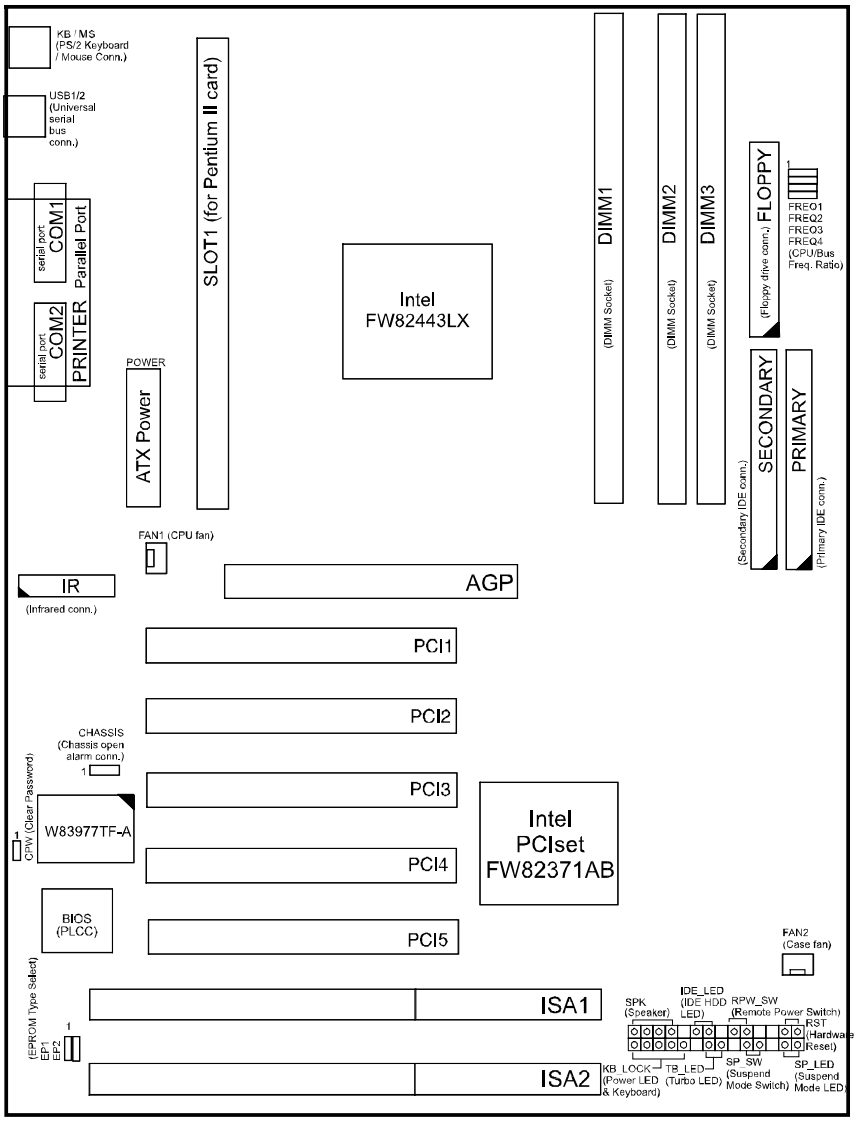
The KL-6011 has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. This chapter contains information on the various jumper settings on your mainboard.

To set up your computer, you should follow these installation steps:

- Step 1 - Set system jumpers
- Step 2 - Install System RAM modules
- Step 3 - Install the CPU
- Step 4 - Install expansion cards
- Step 5 - Connect cables and power supply
- Step 6 - Set up BIOS feature

CAUTION : If you use an electric drill to install this mainboard on your chassis, please wear a static wrist strap. The recommended electric drill torque is from 5.0 to 8.0 kg/cm to avoid damaging the chips' pins.

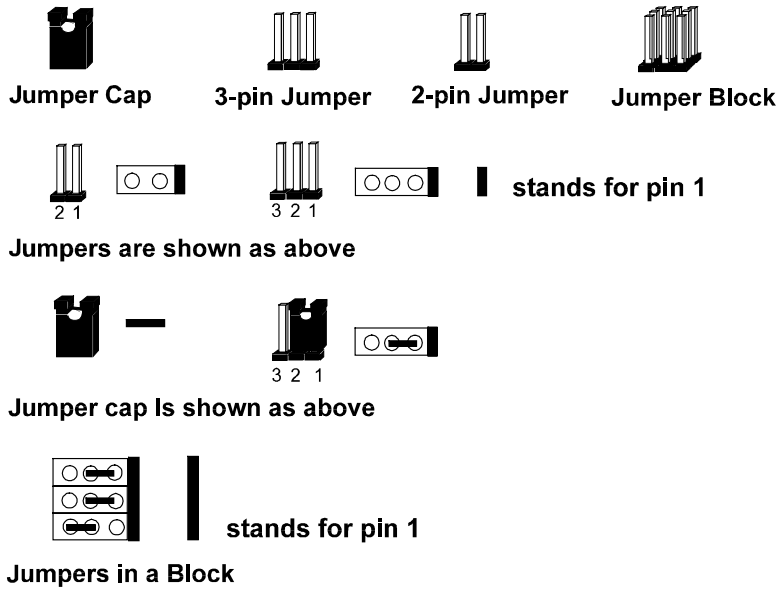
Mainboard Layout



1). Set System Jumpers

Jumpers

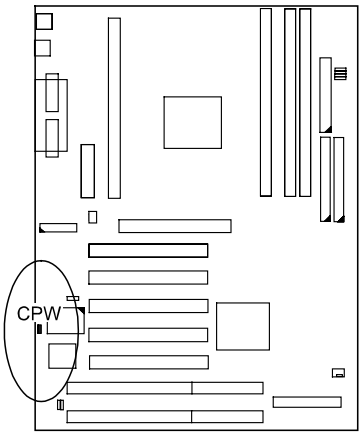
Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. To **set** a jumper, a black cap containing metal contacts is placed over the jumper pin/s according to the required configuration. A jumper is said to be **shorted** when the black cap has been placed on one or two of its pins. The types of jumpers used in this manaul are shown below:



NOTE : Users are not encouraged to change the jumper settings not listed in this manual. Changing the jumper settings improperly may adversely affect system performance.

Clear Password: CPW

This jumper allows you to set the password configuration to **Enabled** or **Disabled**. You may need to enable this jumper if you forget your password.

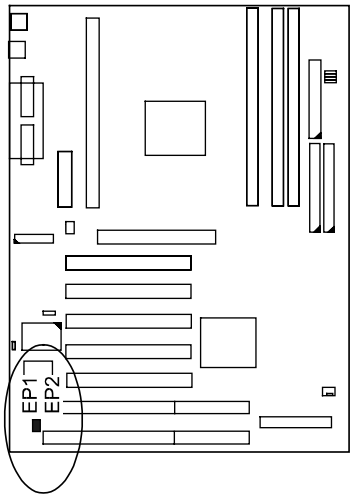


Enable

Disable
(Default)

Flash EPROM Type Selection: EP1, EP2

These two jumpers allow you to configure the Flash EPROM chip



1MB	EP1	EP2
Intel 28F001		
SST 29EE010 / ATMEL AT29C010A		

2MB	EP1	EP2
AMD AM29F002T		
SST 29EE020		
ATMEL AT29C020		
MXIC MX28F2000P		

2). Install RAM Modules

SDRAM

The working space of the computer is the Random Access Memory (RAM). The system cannot act upon data unless it is loaded into RAM. When more memory is added, the working memory of the computer is larger, thereby increasing total performance.

The mainboard RAM is comprised of three 168-pin Dual In-line Memory Modules (DIMMs). Each DIMM socket is able to support up to 128MB* standard fast EDO and lightning-fast SDRAM.

SDRAM is an advanced new memory technology that boosts overall system performance with its ability to synchronize all operations with the processor clock signal. This makes the implementation of control interfaces easier, and speeds up column access time. SDRAM features an on-chip burst counter that can be utilized to increment column addresses for very fast burst access, which means that SDRAM allows new memory access to be initiated before the preceding access has been finished.

Before making DRAM upgrades you should verify the type and speed of the RAM currently installed from your dealer. Installing mixtures of RAM types other than those described in this manual will have unpredictable results.

NOTE : * A RAM module of this size was not available for testing at press time.

DIMM

RAM Module Configuration

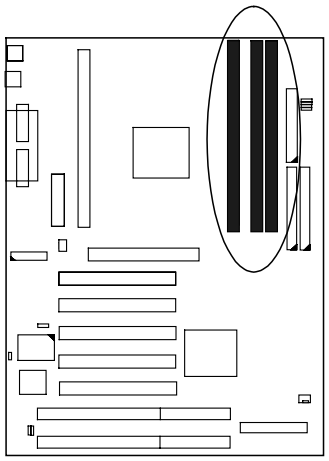
This mainboard provides three onboard DIMM sockets for allowing 3.3V (unbuffered) EDO/SDRAM DIMM modules. Either 8, 16, 32, 64, or 128MB* DIMM can be installed on these three sockets. The maximum total memory supported is up to 384MB*.

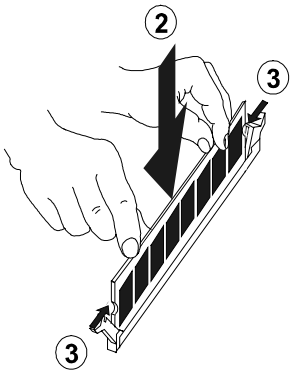
NOTE :
1. * A RAM module of this size was not available for testing at press time.
2. This mainboard supports DIMMs with latency times of 10ns, 12ns and 15ns. ECC memory and parity check is also supported.

Install DIMMs

Complete the following procedures to install DIMMs:

1. Locate the DIMM slots on the mainboard. (See figure below.)





2. Install the DIMM straight down into the DIMM slot with both hands.

3. The clips of the slot will close up to hold the DIMM in place when the DIMM touches the slot's bottom.

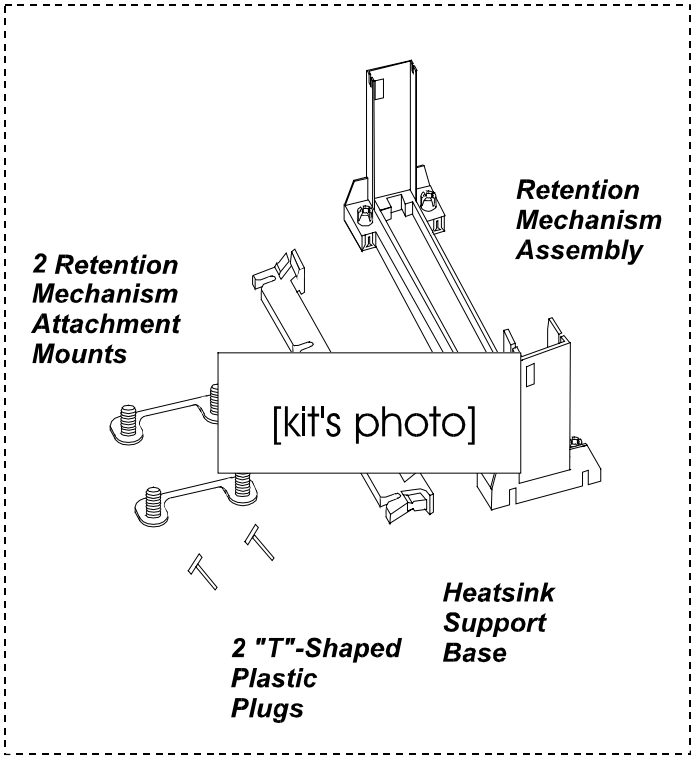
Remove DIMMs

Press the clips with both hands to remove the DIMM.

3). Install the CPU

Retention Mechanism Kit

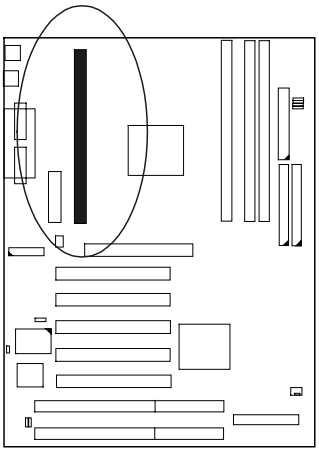
The mainboard comes with a Retention Mechanism Kit as shown below. If any piece is missing, please contact your local mainboard dealer to help you.



NOTE : If two “T”-shaped plastic plugs and heatsink support base are not in the package, they are installed onboard by manufactory.

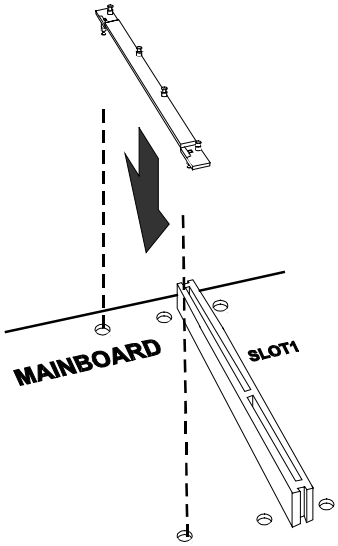
CPU Module Installation

1. Locate Slot1 on the KL-6011 mainboard.

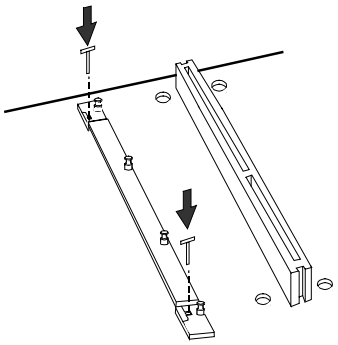


NOTE : If two “T”-shaped plastic plugs and heatsink support base are installed onboard by manufactory, please skip step 2 and 3.

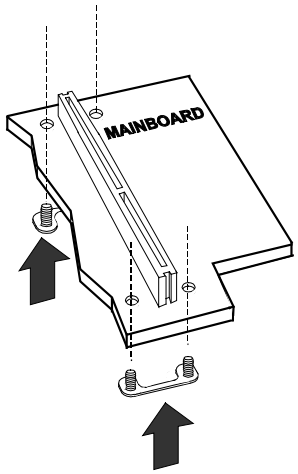
2. Place the Heatsink Support Base on the mainboard as shown.



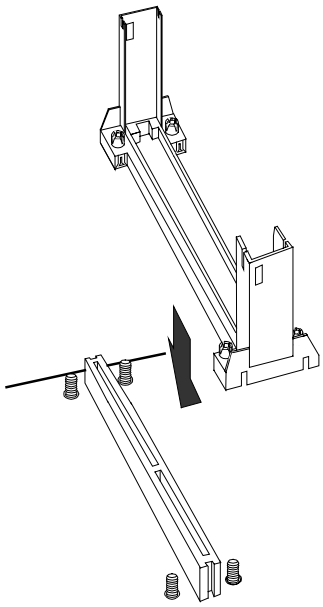
3. Affix it by inserting one "T"-shaped plastic plug into the hole on each end.



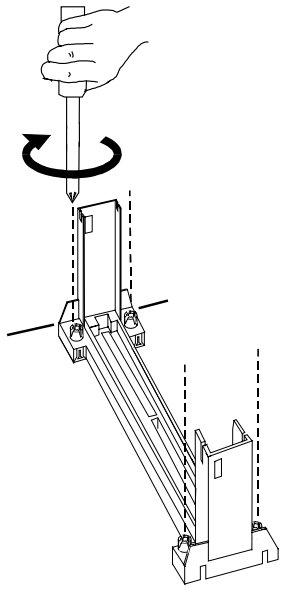
4. Install two Retention Mechanism Attachment Mounts on the board



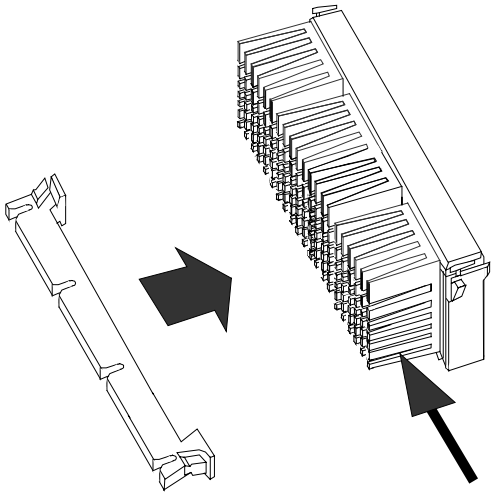
5. Place the Retention Mechanism Assembly on the board, on top of the Rentention Mechanism Attachment Mounts.



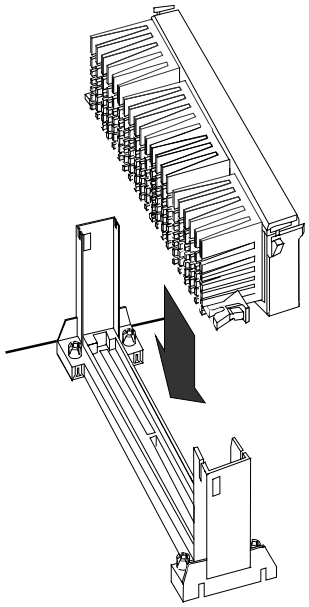
6. Affix the Retention Mechanism Assembly with four screws.



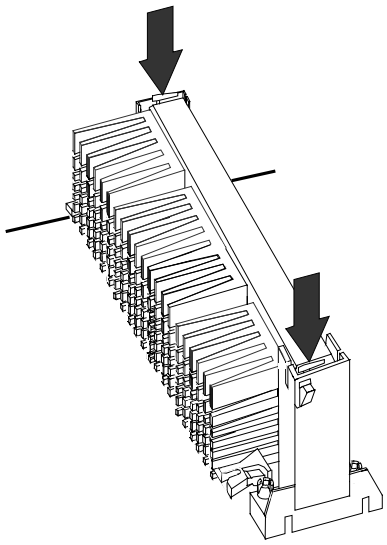
7. Horizontally slide the Heatsink Top Support into the lowest gaps on the CPU module heatsink as shown below.



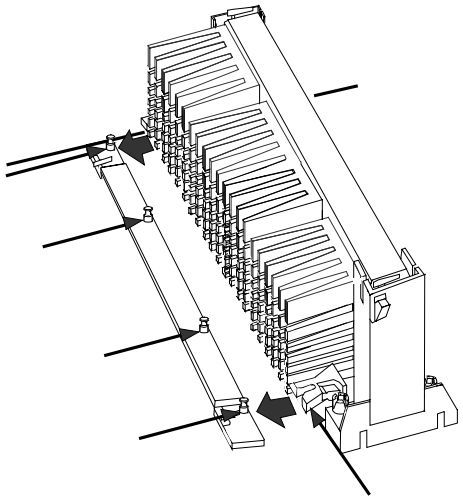
8. Slide the CPU module into the Retention Mechanism Assembly.



9. Press the buttons on either end of the CPU module.

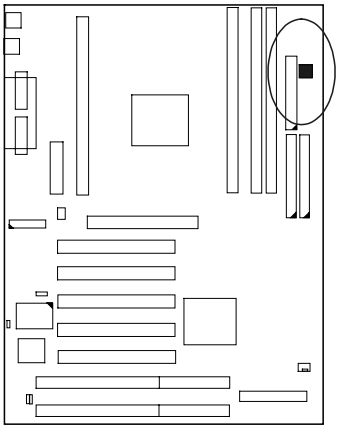


10. Hook the Heatsink Top Support to the Heatsink Support Base to affix the CPU module.



CPU to Bus Frequency Ratio: FREQ1, FREQ2, FREQ3, FREQ4

These four jumpers are used in combination to decide the ratio of the internal frequency of the CPU to the bus clock.



Ratio	FREQ1	FREQ2	FREQ3	FREQ4
3.5 X				
4 X				
4.5 X				
5 X				
5.5 X				
6 X				

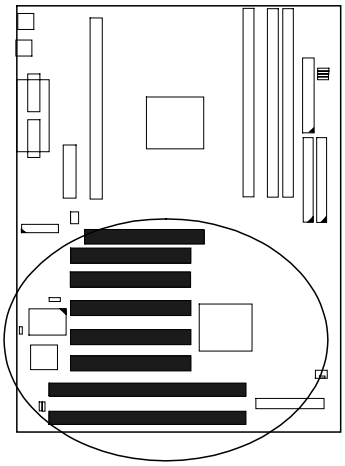
Intel Pentium II CPUs

Frequency

CPU Speed	External (CPU/CLK)	CPU/Bus Ratio	CPU Clock Rate			
			FREQ1	FREQ2	FREQ3	FREQ4
333 MHz	66 MHz	5 x				
300 MHz	66 MHz	4.5 x				
266 MHz	66 MHz	4 x				
233 MHz	66 MHz	3.5 x				

4). Install Expansion Cards

Your KL-6011 features one 64-bit AGP Bus, two ISA Bus and five PCI Bus expansion slots.



This section describes how to connect an expansion card to one of your system's expansion slots. Expansion cards are printed circuit boards that, when connected to the mainboard, increase the capabilities of your system. For example, expansion cards can provide video and sound capabilities.

CAUTION :

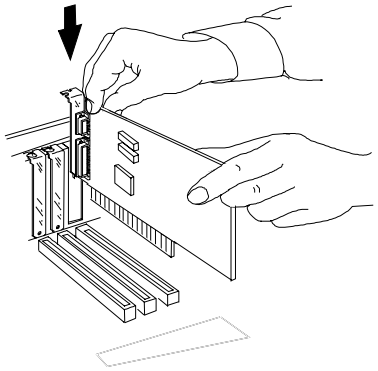
1. Always turn the system power off before installing or removing any device.

2. Always observe static electricity precautions.
See "Handling Precautions" at the start of this manual.

To install an expansion card, do the following:

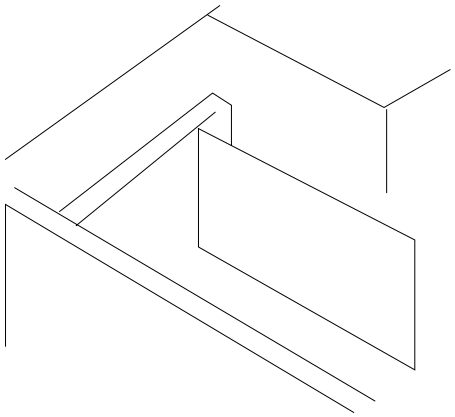
1. Remove the chassis cover and select an empty expansion slot.
2. Remove the corresponding slot cover from the chassis.
   Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the chassis. Keep the slot cover mounting screw nearby.

3. Holding the edge of the peripheral card, carefully align the edge connector with the expansion slot. (See figure below.)



4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this "rocking" motion until the add-in card is firmly seated inside the slot.
5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely into the expansion slot.

The photo below shows a VGA add-on card that was installed in a system.

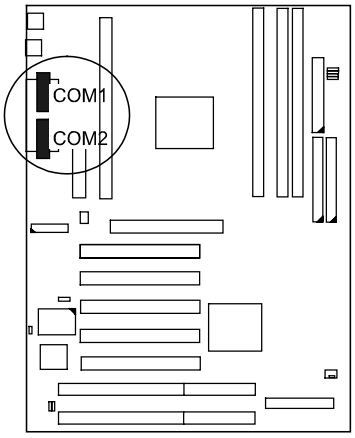


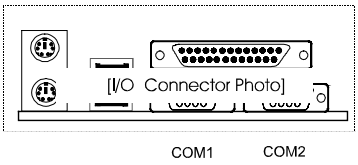
[System with an add-on card photo]

5). Connector Cables and Power Supply

Serial Port Connectors: COM1, COM2

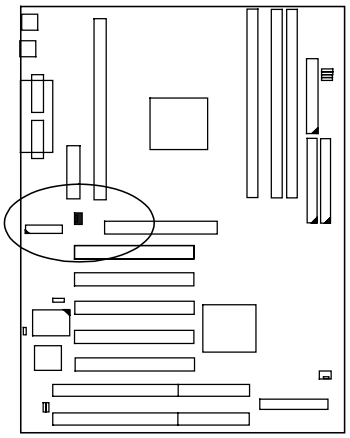
These two 9-pin D-Sub male connectors allow you to connect with your devices that use serial ports, such as a serial mouse or a modem.

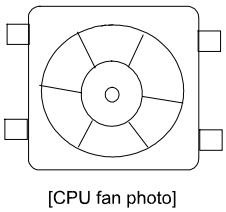


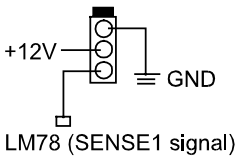


CPU Fan Connector: FAN1

This connector is linked to the CPU fan. When the system in Suspend mode, the CPU fan will turn off; when it back to full on mode, the fan will turn on.

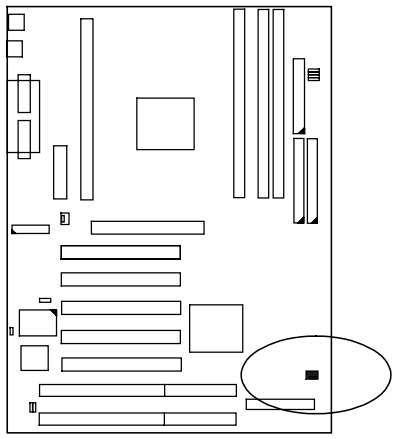


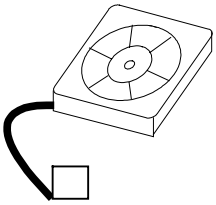

[CPU fan photo]



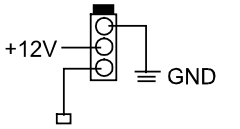
System Case Fan Connector: FAN2

This 3-pin connector links to your cooling fan on the system case to lower the system temperature.



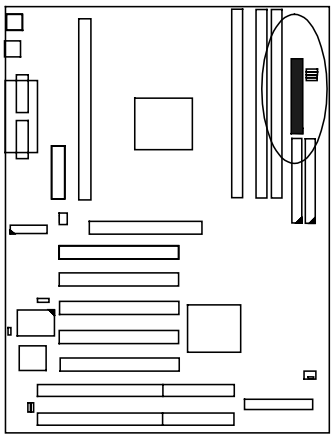


[case fan photo]



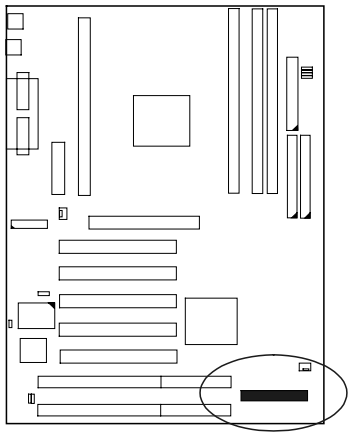
Floppy Diskette Drive Connector: FLOPPY

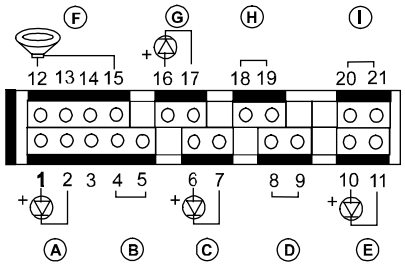
This 34-pin block connector connects to your floppy disk drive using the cable that is provided with this mainboard.



Front Panel Block Connector: F_PNL

This block connector concludes : PW_LED, KB_LOCK, TB_LED, SP_SW, SPK, SP_LED, IDE_LED, RPW_SW, and RST connectors.

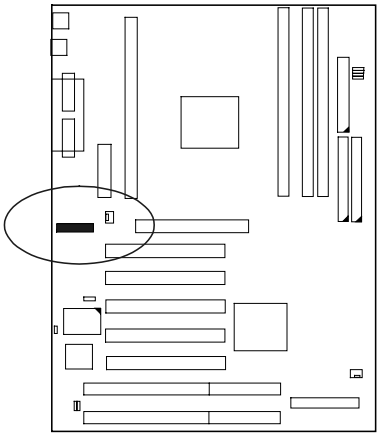




Item	Connector	Pin Type	Feature
A	PW_LED	2-pin male	indicates the system power status
B	KB_LOCK	2-pin male	allows the keyboard to access the system
C	TB_LED	2-pin male	indicates the system speed is in normal or turbo speed
D	SP_SW	2-pin male	Suspend mode switch
E	SP_LED	2-pin male	indicates the system into Suspend mode when LED lit
F	SPK	4-pin male	connects to speaker
G	IDE_LED	2-pin male	indicates the IDE HDD I/O access LED lit
H	RPW_SW	2-pin male	remote power switch
I	RST	2-pin male	allows you to reset the system

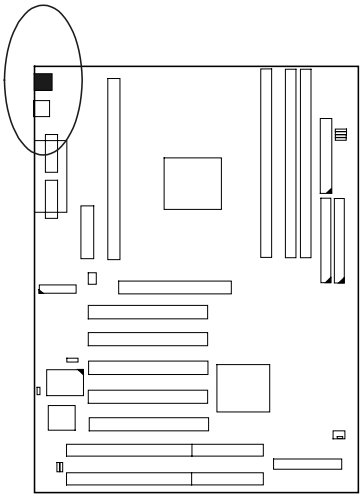
Infrared Connector: IR

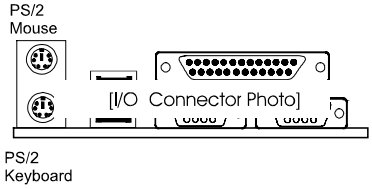
These two 5-pin male connectors are used for connecting to the infrared (SIR) ports and allow transmission of data to another systems which also support the IR feature.

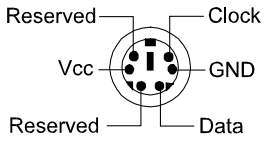


PS/2 Keyboard and Mouse Connector: KB, MS

These two 6-pin female connectors are used for your PS/2 keyboard and PS/2 mouse.

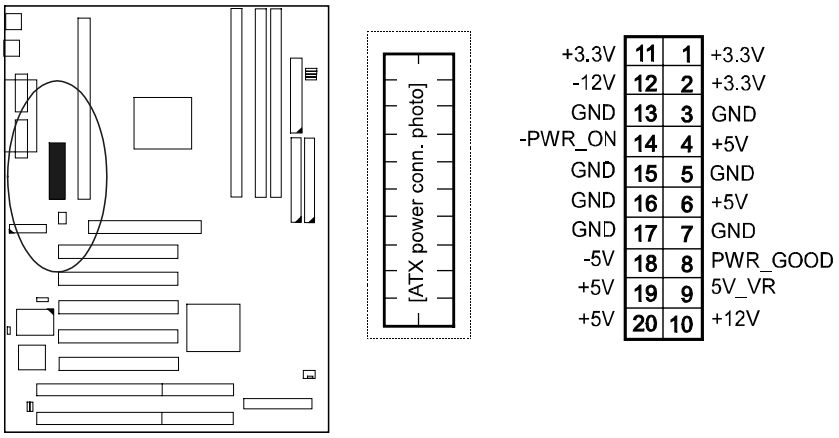






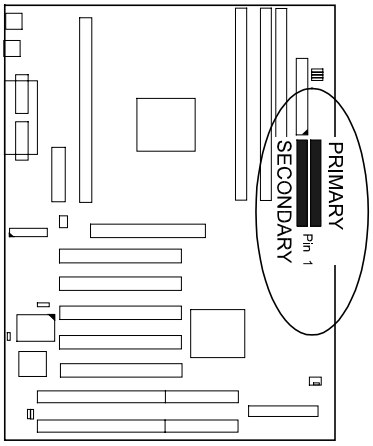
ATX Power Connector: POWER

This 20-pin male block connector is connected to the ATX power supply.



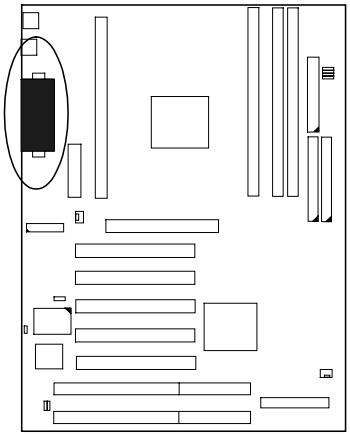
IDE HDD Device Connectors: PRIMARY, SECONDARY

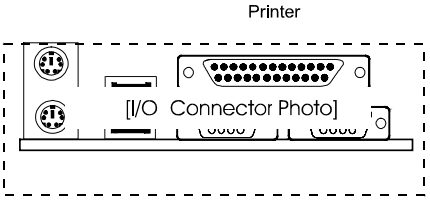
These two 40-pin block connectors are used for your IDE hard disks. If you have one IDE hard disk, connect it to the PRIMARY connector using the IDE HDD flat cable provided with the mainboard. If you want to install another IDE hard disk or CD-ROM, please use the SECONDARY connector.



Printer Connector: PRINTER

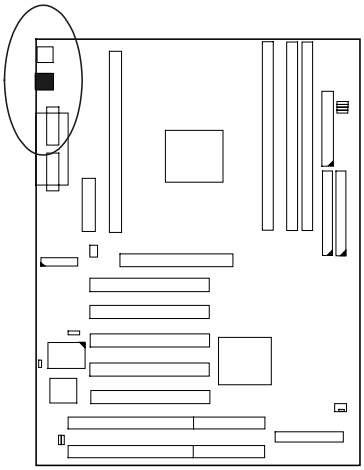
This 25-pin D-Sub female connector is attached to your printer.

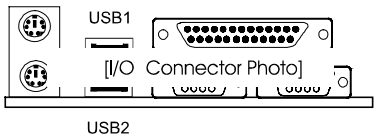




Universal Serial Bus Connectors: USB1, USB2

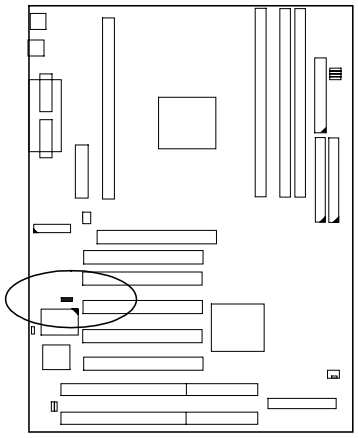
These two connectors are used for linking with USB peripheral devices.

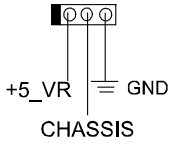




Chassis Open Alarm Connector: CHASSIS

This 3-pin pinhead connector allows the LAN server to detect if the chassis is open via LDCM.





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BIOS Setup

The mainboard comes with an AMI BIOS chip that contains the ROM Setup information of your system. This chip serves as an interface between the processor and the rest of the mainboard's components. This chapter explains the information contained in the Setup program and tells you how to modify the settings according to your system configuration.

Main Setup

The Main Setup screen is displayed above. Each item may have one or more option settings. It allows you to change the system Date and Time, IDE hard disk, floppy disk drive types for drive A: and B:.

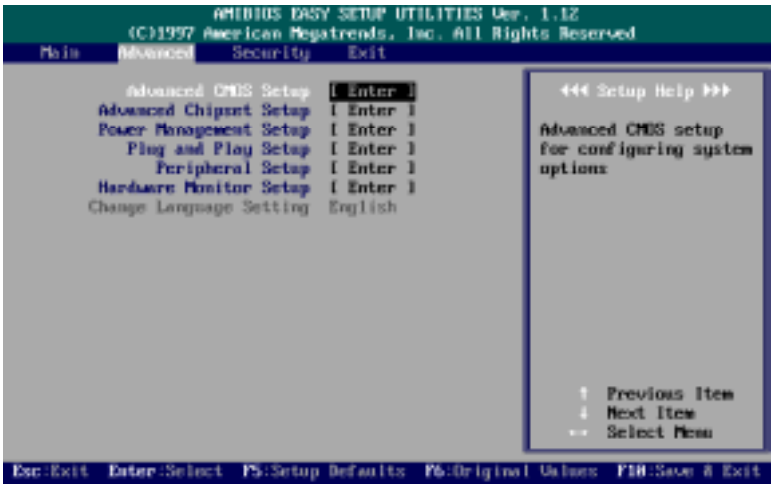
Auto-Detect Hard Disks

Allows the system BIOS to detect all hard disk parameters automatically.

Boot Sector Virus Protection

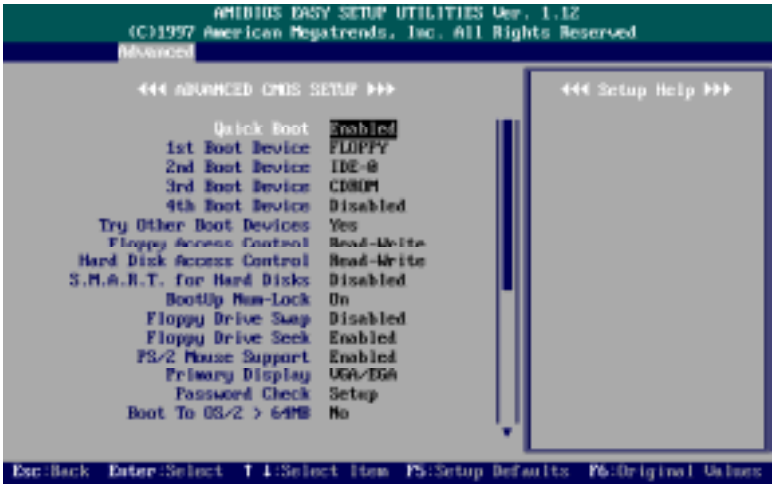
When Enabled, a warning will be giver when any program or virus sends a Disk Format command or tries to write to the boot sector of a hard disk drive.

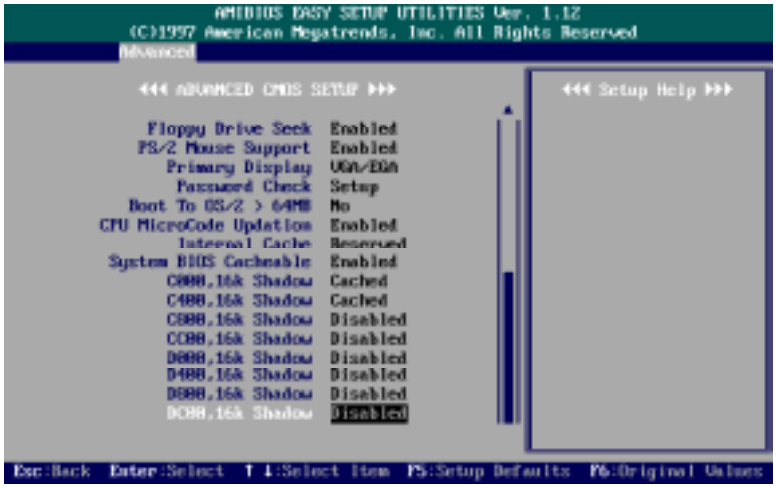
Advanced Setup



Advanced Setup options are displayed by choosing item from the AMI BIOS Setup main menu. All Advanced Setup options are described in this section.

Advanced CMOS Setup





Quick Boot

Set this option to Enabled to instruct AMI BIOS to boot quickly when the computer is powered on. This option replaces the old 1MB Memory Test Advanced Setup option.

The settings are Disabled or Enabled. The default setting is Enabled.

1st Boot Device

This item allows you to select the first drive for booting up the system.

The settings are Disabled, IDE-0, IDE-1, IDE-2, IDE-3, FLOPPY, FLOPTICAL, CDROM, SCSI, or NETWORK. The default setting is FLOPPY.

2nd Boot Device

This item allows you to select the second drive for booting up the system.

The settings are Disabled, IDE-0, or FLOPTICAL. The default setting is IDE-0.

3rd Boot Device

This item allows you to select the third drive for booting up the system.

The settings are Disabled, FLOPTICAL, CDROM. The default setting is CDROM.

4th Boot Device

This item allows you to select the fourth drive for booting up the system.

The settings are Disabled or FLOPTICAL. The default setting is Disabled.

Try Other Boot Devices

If you select Yes, the BIOS will try to boot up the system from other boot devices if all selected boot devices failed to boot. If No selected, the BIOS will try to boot up the system from only the selected devices.

The settings are Yes or No. The default setting is Yes.

Floppy Access Control

It is effective only if the floppy diskette drive is accessed through BIOS INT40H function.

The settings are Read-Write or Read-Only. The default setting is Read-Write.

HDD Access Control

It is effective only if the hard disk drive is accessed through BIOS INT40H function.

The settings are Read-Write or Read-Only. The default setting is Read-Write.

S.M.A.R.T. for Hard Disks

"S.M.A.R.T" stands for "Self-Monitoring, Analysis and Reporting Technology". To enable it will assist you in preventing some (but not all) system down time due to hard disk drive failure.

The settings are Disabled or Enabled. The default setting is Disabled.

BootUp Num-Lock

Set this option to Off to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard.

The settings are On or Off. The default setting is On.

Floppy Drive Swap

Set this option to Enabled to permit drives A: and B: to be swapped.

The settings are Disabled or Enabled. The default setting is Disabled.

Floppy Drive Seek

Set this option to Enabled to specify that floppy drive A: will perform a Seek operation at system boot.

The settings are Disabled or Enabled. The default setting is Enabled.

PS/2 Mouse Support

When this option is set to Enabled, AMI BIOS supports a PS/2-type mouse.

The settings are Enabled or Disabled. The default setting is Enabled.

Primary Display

This option specifies the type of display monitor and adapter in the computer.

The settings are Absent, VGA/EGA, CGA40x25, CGA80x25, or Mono. The default setting is VGA/EGA.

Password Check

This option enables password checking every time the computer is powered on or every time AMI BIOS Setup is executed. If Always is chosen, a user password prompt appears every time the computer is turned on.

If Setup is chosen, the password prompt appears if AMI BIOS is executed. The settings are Setup or Always. The default setting is Setup.

Boot To OS/2 > 64MB

This item allows you to enable the system BIOS to run with the IBM OS/2 operating system.

The settings are Yes or No. The default setting is No.

CPU MicroCode Updation

This feature allows technicans to update CPU MicroCode by dedicated utility set at Enabled.

The settings are Disabled or Enabled. The default setting is Enabled.

Internal Cache

This option specifies the caching algorithm used for L1 internal cache memory. If Disabled is selected, L1 is disabled. If WriteThru is selected, use the write-through caching algorithm. If WriteBack is selected, use the write-back caching algorithm.

The settings are Disabled, WriteBack, or WriteThru. The default setting is WriteBack.

System BIOS Cacheable

Enable it to allows the contents of the F0000h system memory segment to be read from or written to the L2 cache memory. The contents of the F0000h memory segment are always copied from the BIOS ROM to system RAM for faster execution.

The settings are Disabled or Enabled. The default setting is Enabled.

C000,16K Shadow; C400,16K Shadow;
C800,16K Shadow; CC00,16K Shadow;
D000,16K Shadow; D400,16K Shadow;
D800,16K Shadow; DC00,16K Shadow

These options control the location of the contents of the ROM beginning at the specified memory location. If no adapter ROM is using the named ROM area, this area is made available to the local bus.

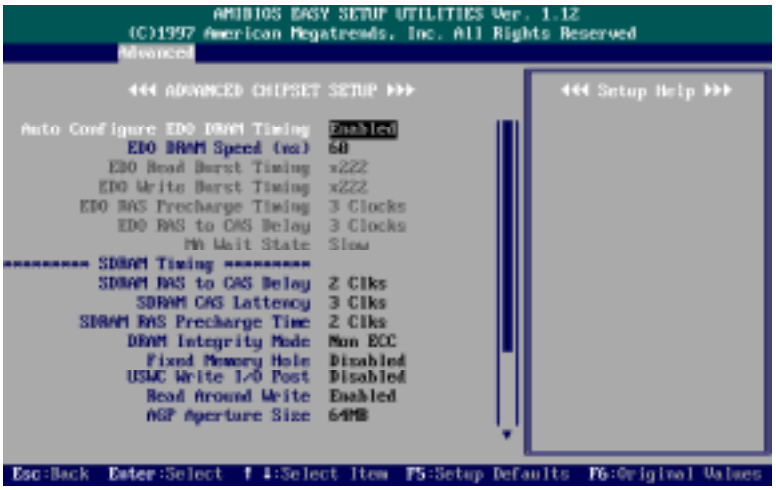
[Disabled] The video ROM is not copied to RAM. The contents of the video ROM cannot be read from or written to cache
memory.

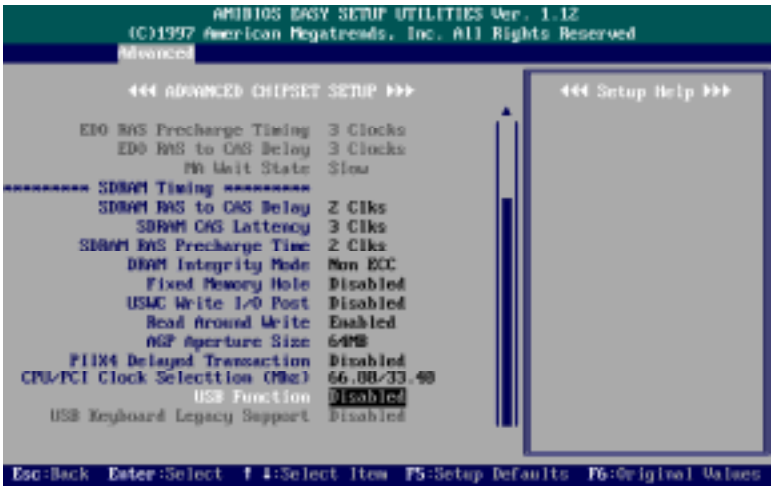
[Enabled] The contents of C0000h - DC00h are written to the same address in system memory (RAM) for faster execution.

[Cached] The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the contents of the RAM area can be read from and written to cache memory.

The settings are Disabled, Enabled, Cached. The default setting of “C000, 16K Shadow; C400, 16K Shadow” is Cached; the others are Disabled.

Advanced Chipset Setup




AMIBIOS EASY SETUP UTILITIES Ver. 1.12
(C)1997 American Megatrends, Inc. All Rights Reserved
Advanced
<<< ADVANCED CHIPSET SETUP >>>
EDO RAS Precharge Timing 3 Clocks
EDO RAS to CAS Delay 3 Clocks
MA Wait State Slow
********** SDRAM Timing **********
SDRAM RAS to CAS Delay 2 Clks
SDRAM CAS Latency 3 Clks
SDRAM RAS Precharge Time 2 Clks
DRAM Integrity Mode Non ECC
Fixed Memory Hole Disabled
USWC Write I/O Post Disabled
Read Around Write Enabled
AGP Aperture Size 64MB
PIIX4 Delayed Transaction Disabled
CPU/PCI Clock Selecttion (MHz) 66.0B/33.4B
USB Function Disabled
USB Keyboard Legacy Support Disabled
<<< Setup Help >>>
Esc:Back Enter:Select ↑ ↓:Select Item F5:Setup Defaults F6:Original Values

Auto Configure EDO DRAM Timing

When set at Disabled, it allows you to configure the features that from the second one (DRAM Read Burst Timing) to the sixth one (RAS Precharge).
The settings are Disabled, Enabled. The default setting is Enabled.

EDO DRAM Speed (ns)

This item allows you to select the DRAM speed.
The settings are 50ns, 60ns, or 70ns. The default setting is 60ns.

EDO Read Burst Timing

When Auto Configure DRAM Timing set at Disabled, allows you to define the DRAM read burst timing.
The settings are x333 or x222. The default setting is x222, depends on the CPU frequency and DRAM type.

EDO Write Burst Timing

When Auto Configure DRAM Timing set at Disabled, allows you to define the DRAM write burst timing.
The settings are x333 or x222. The default setting is x222, depends on the CPU frequency and DRAM type.

EDO RAS Precharge Timing

Allows you to select the DRAM RAS# Precharge Time.
The settings are 4 Clocks or 3 Clocks. The default setting is 3 Clocks.

EDO RAS to CAS Delay

When Auto Configure DRAM Timing set at Disabled, allows you to define the delay time that from the DRAM RAS# active to CAS# active.
The settings are 2 Clocks or 3 Clocks. The default setting is 3 Clocks, depends on the CPU frequency and DRAM type.

MA Wait State

Allows you to select the memory address wait state.
The settings are Slow or Fast. The default setting is Slow.

SDRAM RAS to CAS Delay

When Auto Configure SDRAM Timing set at Disabled, allows you to define the delay time that from the DRAM RAS# active to CAS# active.
The settings are 2 Clocks or 3 Clocks. The default setting is 2 Clocks, depends on the CPU frequency and DRAM type.

SDRAM CAS Lattency

If any DIMM is installed, this feature allows you to select the CAS Latency. The settings are 2 Clocks or 3 Clocks. The default setting is 3 Clocks.

SDRAM RAS Precharge Timing

Allows you to select the SDRAM RAS# Precharge Time.
The settings are 2 Clocks or 3 Clocks. The default setting is 2 Clocks.

DRAM Integrity Mode

This feature provides software configurablity of selecting between ECC (ECC generation and checking/correction) mode, EC-only (error checking only) mode, or non-ECC mode of operation of the DRAM interface.
The settings are Non-ECC, EC-only or ECC. The default setting is Non-ECC.

Fixed Memory Hole

When enabled, the memory hole at 15MB address will be relocated to the 15~16MB address range of the ISA cycle when the processor accesses the 15~16MB address area.
When Disabled, the memory hole at the 15MB address will be treated as a DRAM cycle when the processor accesses the 15~16MB address area.
The settings are Disabled, 512KB-640KB, or 15MB-16MB. The default setting is Disabled.

USWC Write I/O Post

This feature allows system to reduce the access times of CPU write to I/O data so that speed up the performance.
The options are Disabled or Enabled. The default setting is Disabled.

Read Around Write

This feature speeds up data read performance when it stays Enabled.
The options are Disabled or Enabled. The default setting is Enabled.

AGP Aperture Size

It allows you to select the main memory frame size fo AGP use.
The options are 4, 8, 16, 32, 64, 128, 256MB. The default setting is 64MB.

PIIX4 Delayed Transaction

Enable this feature to abort the current CPI master cycle and to accept the new PCI master request, it reaccepts the original PCI master and returns the PCI data phase to the original PCI master. It will enhance the system performance.

The options are Disabled or Enabled. The default setting is Disabled.

CPU/PCI Clcok Selection (Mhz)

This feature allows you to set the ratio of CPU external clock to PCI bus clock.

The options are 50.00/25.00, 75.00/32.00, 83.00/41.05, 68.5/34.25, 55.00/27.50, 75.00/37.50, 60.00/30.00, 66.80/33.40. The default setting is 66.80/33.40.

USB Function

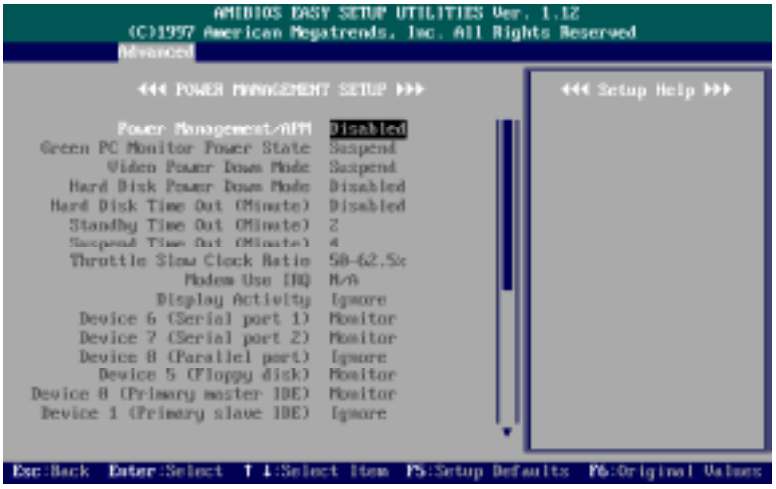
This option allows you to enable the Universal Serial Bus (USB) feature. The settings are Disabled or Enabled. The default setting is Disabled.

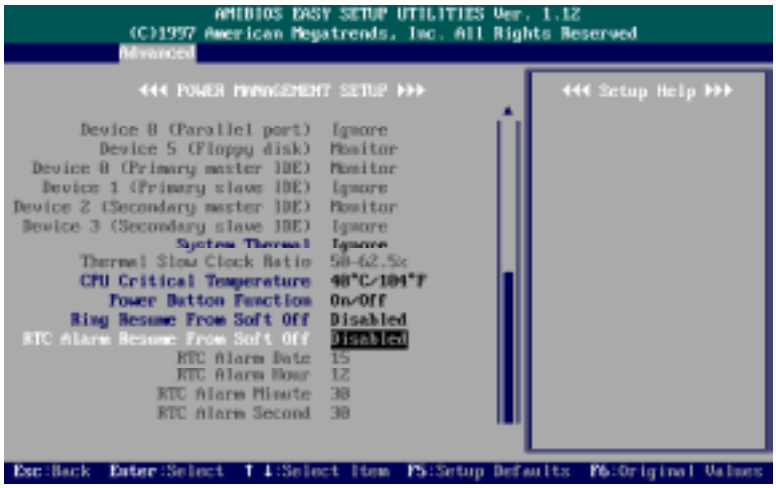
USB Keyboard/Mouse Support

If you use a USB keyboard/mouse, set at Enabled. Otherwise, keep it disabled. When enabled, allows the BIOS to detect and initiate the USB keyboard/mouse for making the keyfunctions of POST to work.

The settings are Disabled or Enabled. The default setting is Disabled.

Power Management Setup





Power Management/APM

Set this option to Enabled to enable the power management and APM (Advanced Power Management) features.

The settings are Enabled or Disabled. The default setting is Disabled.

Green PC Monitor Power State

Specifies the power management state that the Green PC-compliant video monitor enters after the specified period of system inactivity has expired. The settings are Suspend, Off, Blank, or Standby. The default setting is Suspend.

Video Power Down Mode

This option specifies the power management state that the video subsystem enters after the specified period of system inactivity has expired.

The settings are Disabled, Standby, or Suspend. The default setting is Suspend.

Hard Disk Power Down Mode

This option specifies the power management state that the hard disk drive enters after the specified period of system inactivity has expired.

The settings are Disabled, Standby, or Suspend. The default setting is Disabled.

Hard Disk Time Out (Minute)

This option specifies the length of a period of hard disk inactivity. When this period expires, the hard disk drive enters the power-conserving mode specified in the Hard Disk Power Down Mode option described above.

The settings are Disabled, 1 Min (minutes), and all one minute intervals up to and including 15 Min. The default setting is Disabled.

Standby Time Out (Minute)

This option specifies the length of the period of system inactivity when the computer is in Full-On mode before the computer is placed in Standby mode. In Standby mode, some power use is curtailed.

The settings are Disabled, 1 Min, 2 Min, and all one minute intervals up to and including 15 Min. The default setting is 2 Min.

Suspend Time Out (Minute)

This option specifies the length of the period of system inactivity when the computer is already in Standby mode before the computer is placed in Suspend mode. In Suspend mode, nearly all power use is curtailed.

The settings are Disabled, 1 Min, 2 Min, and all one minute intervals up to and including 15 Min. The default setting is 4 Min.

Throttle Slow Clock Ratio

This option specifies the speed at which the system clock runs in power saving modes. The settings are expressed as a ratio between the normal clock speed and the power down clock speed.

The settings are 0-12.5 %, 12.5 - 25 %, 25-37.5 %, 37.5-50 %, 50-62.5 %, 62.5 - 75%, 75-87.5 %. The default setting is 50-62.5 %.

Modem Use IRQ

This feature allows you to select the IRQ# of the system that is the same IRQ# as the modem use.

The options are: NA (Default), 3, 4, 5, 7, 9, 10, 11.

Display Acitivity, Device 6 (Serial port 1), Device 7 (Serial port 2), Device 8 (Parallel port), Device 5 (Floppy disk), Device 0 (Primary master IDE), Devcie 1 (Primary slave IDE), Device 2 (Secondary master IDE), Device 3 (Secondary slave IDE)

The devices that connected to the system via these channels or ports can be set at Monitor for waking up the system when the system in Suspend mode

The settings are Ignore or Monitor.

The default setting of Display Activity, Device 8, Device 1, Device 3 is Ignore. The default setting of Device 6, 7, 5, 0, 2 is Ignore.

System Thermal

When you install an ATX power supply and this feature is set at Monitor, the system fan will be started the thermal sensor located under the the processor detects the heat in the case is over 65^{o} C or 149^{o} F.

The settings are Ignore or Monitor. The default setting is Ignore.

Thermal Slow Clock Ratio

It allows you to set the percentage's range of CPU internal clock to prenvent CPU overheat. The higher percentage usually causes more easily CPU overheat.

The settings are 0-12.5 %, 12.5 - 25 %, 25-37.5 %, 37.5-50 %, 50-62.5 %, 62.5 - 75%, 75-87.5 %. The default setting is 50-62.5 %.

CPU Critical Temperature

It allows you to select the temperature that the system starts CPU overheat critical procedure, such as slowdown

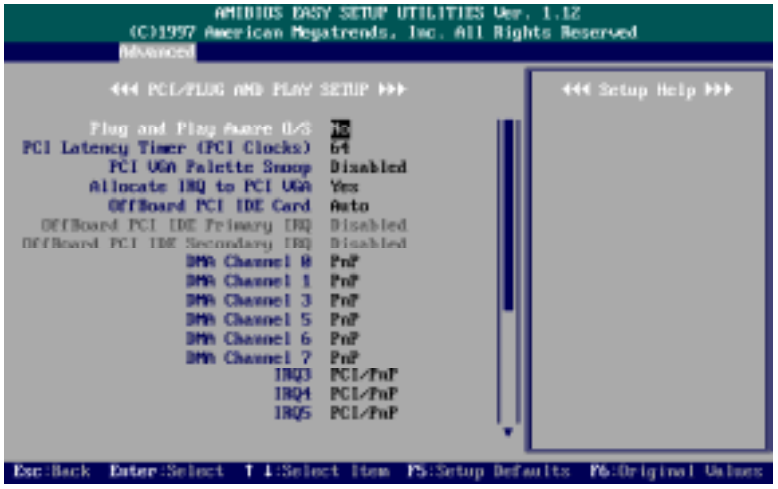
The settings are Disabled, 30°C/86°F, 35°C/95°F, 40°C/104°F, 45°C/113°F, 50°C/122°F, 55°C/131°F, 60°C/186°F. The default setting is 40°C/104°F.

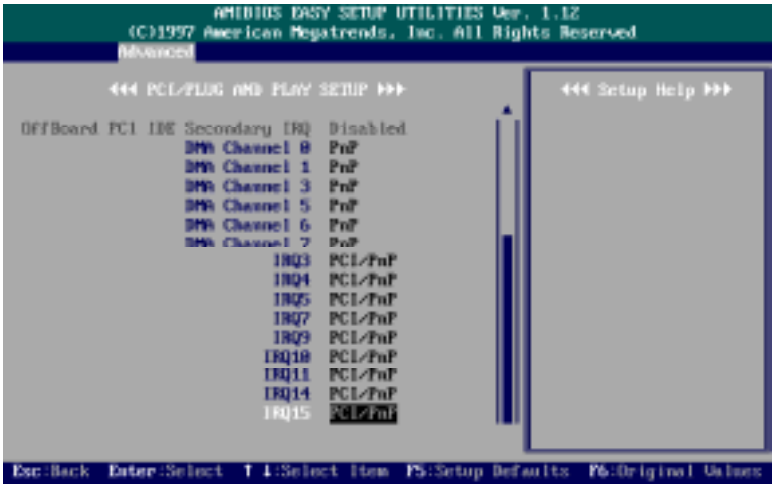
Power Button Function

This allows you to set Power Button usage. If you select ON/OFF, pressing the Power Button will turn the system power on or off. If you select Suspend, pressing the Power Button will put the system into Suspend mode. Keeping the button pressed for 4 seconds will then put the system into Power Off mode.

The settings are ON/OFF, Suspend. The default setting is ON/OFF.

Plug and Play Setup





Plug and Play Aware O/S

Set this option to Yes if the operating system installed in the computer is Plug and Play-aware. AMI BIOS only detects and enables PnP ISA adapter cards that are required for system boot. The Windows 95 operating system detects and enables all other PnP-aware adapter cards. Windows 95 is PnP-aware. Set this option to No if the operating system (such as DOS, OS/2, Windows 3.x) does not support PnP. You must set this option correctly or PnP-aware adapter cards installed in your computer will not be configured properly.

The settings are No or Yes. The default setting is No.

PCI Latency Timer (PCI Clocks)

This option sets latency of all PCI devices on the PCI bus. The settings are in units equal to PCI clocks.

The settings are 32, 64, 96, 128, 160, 192, 224, or 248. The default setting is 32.

PCI VGA Palette Snoop

This option must be set to Enabled if any ISA adapter card installed in the computer requires VGA palette snooping.

The settings are Disabled or Enabled. The default setting is Disabled.

Allocate IRQ to PCI VGA

When set at Yes, allows the system to keep the ESCD (Extended System Configuration Data).

The settings are No or Yes. The default setting is Yes.

OffBoard PCI IDE Card

The option specifies if an offboard PCI IDE controller adapter card is used. You must also specify the PCI slot where the card is installed. If an offboard PCI IDE controller is used, the onboard IDE controller is disabled. The settings are Auto (Default), Slot1, Slot2, Slot3, Slot5, Slot6. The default setting is Auto.

OffBoard PCI IDE Primary IRQ

This options allow you to select the IRQ if you use an offboard primary PCI IDE card.

The settings are Disabled, INTA, INTB, INTC, INTD, Hardwired. The default setting is Disabled.

OffBoard PCI IDE Secondary IRQ

This options allow you to select the IRQ if you use an offboard secondary PCI IDE card.

The settings are Disabled, INTA, INTB, INTC, INTD, Hardwired. The default setting is Disabled.

DMA Channel 0, 1, 3, 5, 6, 7

This option allows you to specify the bus type that the named DMA channels are used on.

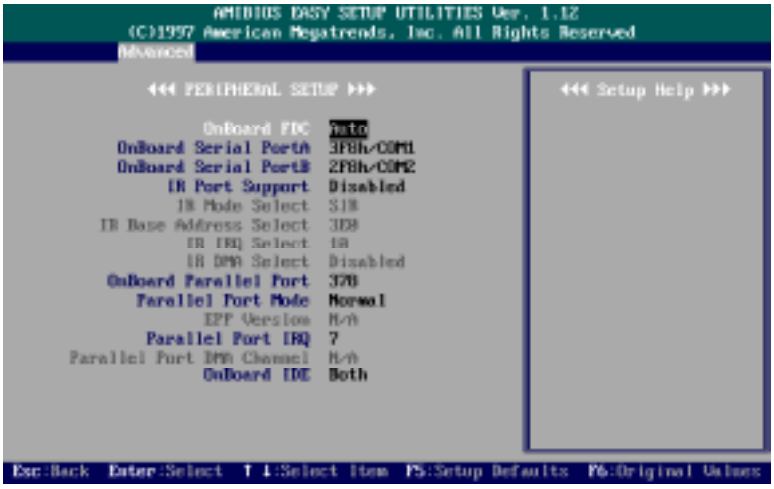
The settings are PnP or ISA/EISA . The default setting is PnP.

IRQ3, 4, 5, 7, 9, 10, 11, 14, 15

These options specify the bus that the named interrupt request lines (IRQs) are used on. These options allow you to specify IRQs for use by legacy ISA adapter cards. These options determine if AMI BIOS should remove an IRQ from the pool of available IRQs passed to BIOS configurable devices. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these PCI/PnP Setup options to remove the IRQ by assigning the option to the ISA/EISA setting. Onboard I/O is configurable by AMI BIOS. The IRQs used by onboard I/O are configured as PCI/PnP.

The settings are PCI/PnP or ISA/EISA. The default setting is PCI/PnP.

Peripheral Setup



Onboard FDC

This option enables the floppy drive controller on the mainboard.
The settings are Auto, Enabled, or Disabled. The default setting is Auto.

Onboard Serial PortA

This option enables serial port 1 on the mainboard and specifies the base I/O port address for serial port 1.
The settings are Auto, Disabled, 3F8h/COM1, 2F8h/COM2, 3E8h/COM3, 2E8h/COM4. The default setting is 3F8h/COM1.

Onboard Serial PortB

This option enables serial port 2 on the mainboard and specifies the base I/O port address for serial port 2.
The settings are Auto, Disabled, 3F8h/COM1, 2F8h/COM2, 3E8h/COM3, 2E8h/COM4. The default setting is 2F8h/COM2.

IR Mode Support

This option allows you to set the IR port that the second serial port is working in.
The settings are Disabled or Enabled. The default setting is Disabled.

IR Mode Select

This options allow you to select the IR modes.
The settings are SIR, ASKIR, FIR, or SIR. The default setting is SIR.

IR Base Address Select

This options allow you to select the IR address.
The settings are 3E0, 2E0, 3E8, or 2E8. The default setting is 3E0.

IR IRQ Select

This options allow you to select the IR IRQ.
The settings are 3, 4, 10, 11. The default setting is 10.

IR DMA Select

This options allow you to select the IR DMA.
The settings are Disabled, 0, 1, 3. The default setting is Disabled.

Onboard Parallel Port

This option enables the parallel port on the mainboard and specifies the parallel port base I/O port address.
The settings are 378h, 278h, 3BCh, Auto, or Disabled. The default setting is 378h.

Parallel Port Mode

This option allows you to select the mode of the parallel port. The settings are Normal, Bi-Dir, EPP, or ECP. The default setting is Normal.

EPP Version

This option allows you to select the EPP version.
The settings are 1.9, 1.7. The default setting is 1.9.

Parallel Port IRQ

This option allows you to select the IRQ of the parallel port. The settings are 5 or 7. The default setting is 7.

Parallel Port DMA Channel

This option allows you to select the DMA channel of the parallel port. The settings are 1 or 3. The default setting is 3.

OnBoard IDE

Set this option to Enabled to specify that the IDE controller on the PCI local bus has bus mastering capability.

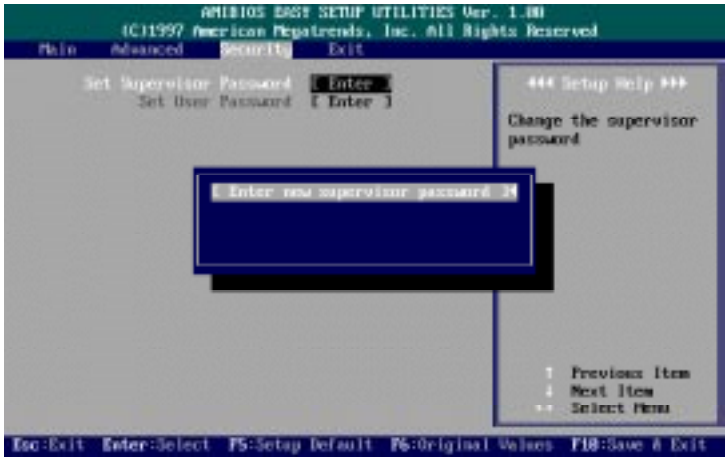
The settings are Disabled, Primary, Secondary, Both. The default setting is Both.

Hardware Monitor Setup

This feature allows end users and technicans to monitor the data provided by the LDCM fucntion of this mainboard.

NOTE : The data shown above may not be the same as yours. They depend on your system.

Security Setup



Set Supervisor and User Passwords

You can set either a Supervisor password or a User password. If you do not use a password, Just press **Enter** when the password prompt appears. The password check option is enabled in Advanced Setup by choosing either Always (the password prompt appears every time the system is powered on) or Setup (the password prompt appears only when AMI BIOS is run). You can enter a password by typing the password on the keyboard. When you select Supervisor or User, AMI BIOS prompts for a password. You must set the Supervisor password before you can set the User password. Enter a 1 to 6 character password. The password does not appear on the screen when typed.

Changing a Password

Enter the password and press **Enter**. After the new password is entered, retype the new password as prompted and press **Enter**. If the password confirmation is incorrect, an error message appears. If the new password is entered without error, press to return to the AMI BIOS Main Menu.

Clear Password

If you forget your password, turn off the system power first and remove the system unit cover. Locate Jumper CPW and cap it. Remove Jumper CPW and reset the system. At this point, you will not be asked for the password to enter Setup.

Exit Setup

Exit Saving Changes

This item allows you to write the current settings to CMOS and exit.

Exit Discarding Changes

This item allows you to exit without writing the current settings to CMOS.

Load Optimal Settings

This item is selected for settings which provide the best system performance.

Load Fail Safe Settings

This item is for settings that provide a more efficient computer. If the computer will not boot, select this option and try to diagnose the problem after the computer boots. These settings do not give optimal performance.

Load Original Values

This item recalls your last set of previous settings. This option is convenient if you change settings and decide you wish to return to the previous settings.

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Software Utilities

PIIX Bus Master IDE Driver

The mainboard package provides Intel PIIX Bus Master IDE Driver in the software utility CD-ROM for three operating systems: Windows™ 95, Windows™ NT, and OS2™. Please read the relating README files first, then execute the corresponding executable SETUP file for improving the system performance.

USB Supplement Software

The mainboard package provides USB device caution item recognition (not USB device drivers) supplement software in the software utility CD-ROM. If you install any USB device, this software will allow the caution items of the attached USB devices to be recognized by Windows™ 95. Please read the relating README files and APPENDIX.DOC file first, then execute the corresponding executable file. This software is not necessary if your operating system is Windows™ 98.

Intel INF Update Software

The mainboard package provides USB Support Software in the software utility CD-ROM. Before you run the SETUP file, please read the relating README file first. This software is necessary for the operating system to recognize Intel 440LX AGPset implemented on this mainboard. This software is not necessary if your operating system is Windows™ 98.

BIOS Flash Software

The mainboard package provides BIOS flash software in the software utility CD-ROM. This software feature offers a software tool for upgrading BIOS use when it is necessary. Please print the Readme.doc file under Microsoft Word to read before you run the corresponding executable SETUP file for improving the system performance. For the most up-to-date information about your mainboard and the latest BIOS updates, please visit FIC Online at www.fic.com.tw.

Intel LDCM® (LANDesk Client Manager) Software (optional)

The mainboard package provides optional Intel LDCM® (LANDesk Client Manager) software in the software utility CD-ROM. Before you run the SETUP file, please read the relating LDCMutil file first.

Desktop Management Interface (DMI) Software

The American Megatrends DMI Wizard is a DOS utility that works with AMIBIOS, and all DMI-enabled versions of system BIOS. It can read the system BIOS file stored on the ROM file in the computer or it can read a user-supplied .ROM file; and can update the system BIOS ROM file (if the system BIOS is installed on a Flash ROM in the computer) or it can update a user-supplied .ROM file.

The mainboard package provides Desktop Management Interface (DMI) software in the software utility CD-ROM. Before you run the SETUP.EXE (for Award BIOS) or INSTALL.EXE (for AMI BIOS) file, please read the relating DMICFG.DOC (for Award BIOS) file or DMIAMI.DOC (for AMI BIOS) first.

Anti-Virus Tool (optional)

The mainboard package provides virus scan tool (optional) software in the software utility CD-ROM. This tool allows you to perform virus scan and cure when it is necessary. Please read the relating README file first before installing the corresponding executable file.