AT30

Pentium 4 Processor
Based MAIN BOARD

User's Manual

Shuttle AT30

Intel Pentium 4 based Mainboard
Manual Version 1.0

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About This Manual

1 INTRODUCTION

1.1 To Different Users

First-Time DIY System Builder

Welcome to the DIY world! Building your own computer system is not as difficult as you may think. To make your first computer DIY experience successful, right from the start, we have designed the 3 Hardware Installation section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new AT30 mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle AT30 mainboard. You will find that installing your new Shuttle AT30 mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated AT30 mainboard provides you with a total solution to build the most stable and reliable system. Refer to sections 3.2 Jumper Settings and Chapter 4 Software Utility to find out how to get the best out of your new mainboard. Chapter 5 BIOS Setup also contains the relevant information on how to tune up your system to achieve higher performance.

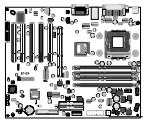
System Integrator

You have wisely chosen Shuttle AT30 to construct your system. Shuttle AT30 incorporates all the state-of-the-art technology of the Intel 82850 chipset. It integrates the most advanced functions you can find to date in a ATX board. Refer to sections 3.2 Jumper Settings and Chapter 4 Software Utility for an in-depth view of system construction.

1.2 Item Checklist

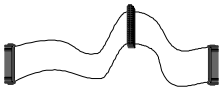
Check all items with your AT30 mainboard to make sure nothing is missing. The complete package should include:

- One Shuttle AT30 Mainboard



- One ATA 100/66 Ribbon Cable

- One Floppy Ribbon Cable



- One Chassis I/O shield

- 2 pieces of Dummy RIMM

- Retention Mechanism for Pentium 4 Cooler

- AT30 User's Manual

- One CD-ROM containing:
  - Intel 850 Chipset Driver
  - AC97 Audio Driver
  - Lan Driver
  - ATA 100 IDE Driver
  - Award Flashing Utility

2 FEATURES

AT30 mainboard is carefully designed for the demanding PC user who wants high performance and maximum intelligent features in a compact package.

2.1 Specifications

✸ CPU Support

Supports Intel Socket 423 Pentium 4 1.0 ~ 1.50GHz + with 400MHz system bus designed for Socket 423 technology.

✸ Chipset

The Intel® 850 chipset consists of three main components: Memory Control Hub (MCH), I/O Control Hub 2 (ICH2) and Firmware Hub (FWH). All these components are interconnected via an Intel® proprietary interface called hub interface. The hub interface designed into the Intel® 850 chipset to provide efficient communication between components. Additional hardware platform features include AGP 4x mode, Direct RDRAM, Ultra ATA/100, Low Pin Count (LPC) interface, integrated LAN and Universal Serial Bus (USB). The platform is also ACPI compliant and supports Full-on, Stop Grant, Suspend to RAM, Suspend to Disk and Soft-off power management states. Through the use of an appropriate LAN connect, the platform supports Wake-on-LAN for remote administration and troubleshooting.

✸ Expansion Slots

Including five 32-bit/33MHz PCI, one CNR and one AGP Pro slots. The PCI local bus throughput can be up to 132MB/s. The Communication & Networking Riser (CNR) slot provided from AT30 can support CNR interface for a LAN/Modem/Audio card. The Accelerated Graphics Port (AGP) specification provides a new level of video display sophistication and speed. The AGP video cards support data transfer rate up to 1066MB/s. As AT30 motherboard includes one AGP Pro expansion slot for a bus mastering AGP graphic card, For AD and SBA signaling, AT30 can support 133MHz 2X/4X mode.

✸ Memory Support

Provides four 184-pin DRDRAM DIMM socket that support up to 2GB of PC-600/700/800 compliant DRDRAM (Direct Rambus DRAM). You may install 64, 128, 256 or 512MB with ECC (Error Checking and Correction) RDRAM RIMM modules into each socket.

✸ Ultra DMA 100/66/33 Bus Master IDE

Comes with an on-board PCI Bus Master IDE controller with two connectors that supports four IDE devices in two channels, supports Ultra DMA 100/66/33, PIO Modes 3 and 4 and Bus Master IDE DMA Mode 4, and supports Enhanced IDE devices.

✸ On-board AC97 Sound

AX4T uses the SIGMATEL AC97 sound chip. This on-board audio includes a complete audio recording and playback system.

✸ Four USB Connectors

Provides two ports, four USB connectors for USB interface devices, such as mouse, keyboard, modem, scanner, etc.

✸ Power Management/Plug and Play

The AT30 supports the power management function that confirms to the power-saving standards of the U.S. Environmental Protection Agency (EPA) Energy Star program. It also offers Plug-and-Play, which helps save users from configuration problems, thus making to system user-friendlier.

✸ Hardware Monitoring Mangement

Supports CPU or system fans status, temperature and voltage monitoring and alert, through the on-board hardware monitor module.

✸ Enhanced ACPI

Fully implement the ACPI standard for Windows® 95/98/ME/NT/2000 series compatibility, and supports Soft-Off, STR (Suspend to RAM, S3), STD (Suspend to Disk, S4), WOM (Wake On Modem), WOL (Wake On LAN) features.

✸ Super I/O Interface:

The AT30 provides two high-speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. UART2 can also be directed from COM2 to the Infrared Module for the wireless connections.

✸ System BIOS

Provides licensed Award BIOS on 4Mb Firmware Hub.

Supports Green PC and Desktop Management Interface (DMI).

✸ ATX Form Factor

System board conforms to the Micro ATX specification.

Board dimension: 304 mm x 245 mm.

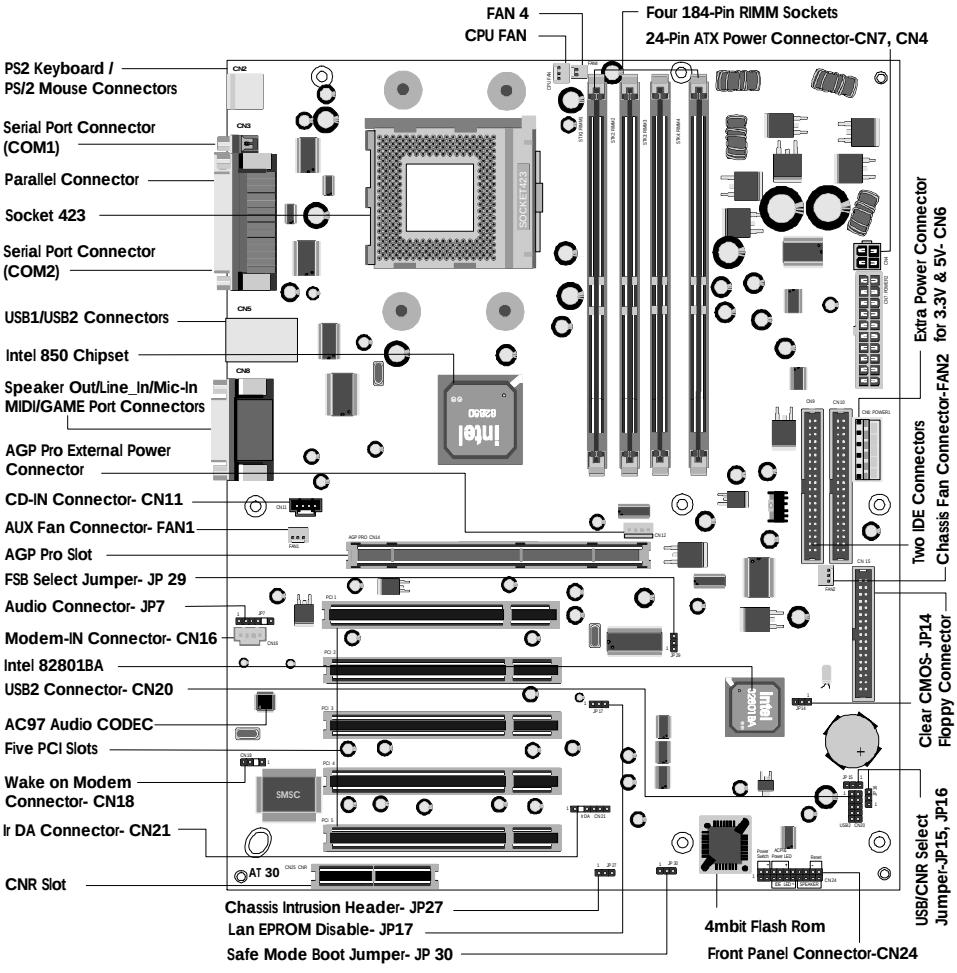
3 HARDWARE INSTALLATION

Before removing or installing any of these devices including CPU, RIMMs, Add-On Cards, Cables, please make sure to unplug the onboard power connector.

This section outlines how to install and configure your AT30 mainboard. Please refer to following mainboard layout to help you identifying various jumpers, connectors, slots, and ports. Then follow these steps designed to guide you through a quick and correct installation of your system.

3.1 Step-by-Step Installation

Accessories Of AT30

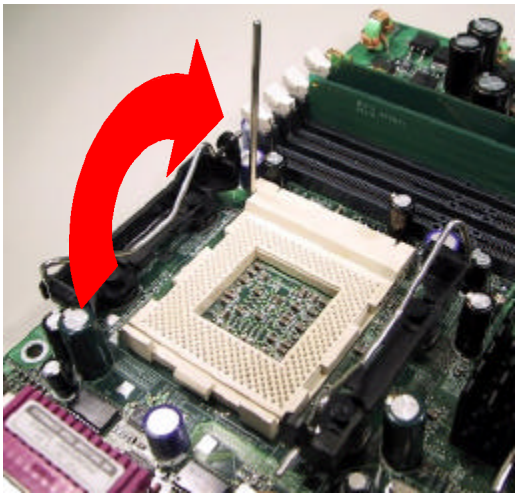


Step 1

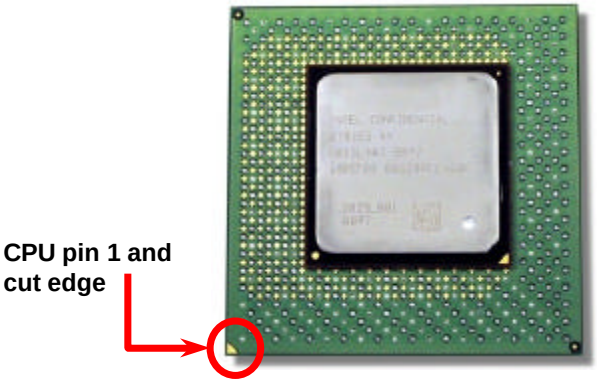
CPU Installation:

This motherboard supports Intel® Pentium® 4 1.30 ~ 1.50GHz + Socket 423 series CPU. Please follow the step as below to finish CPU installation. Be careful of CPU orientation when you plug it into CPU socket.

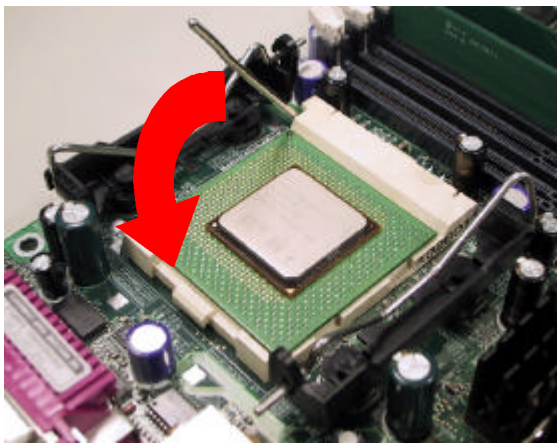
1. Pull up the CPU socket level and up to 90-degree angle.



2. Locate Pin 1 in the socket and look for a black dot or cut edge on the CPU upper interface. Match Pin 1 and cut edge, then insert the CPU into the socket.



3. Press down the CPU socket level and finish CPU installation.

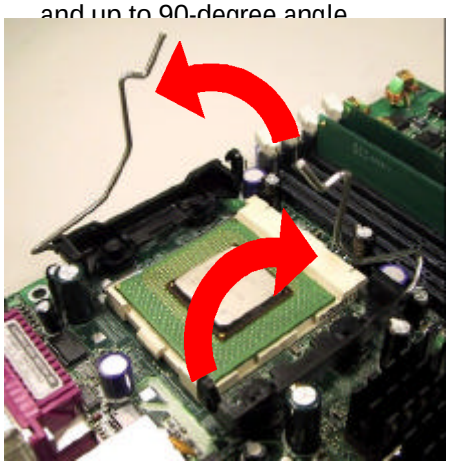


Note: If you do not match the CPU socket Pin 1 and CPU cut edge well, it may damage the CPU.

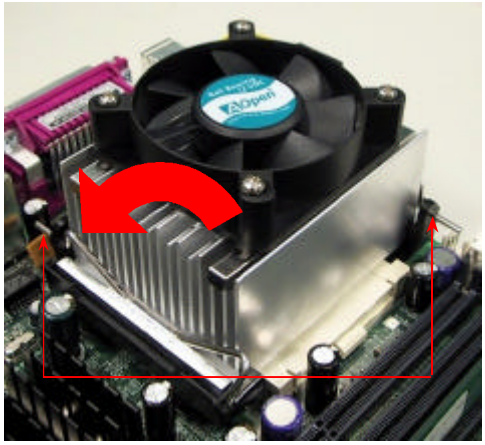
CPU Cooling Fan Installation:

Please follow the step as shown below to finish CPU heatsink and fan installation:

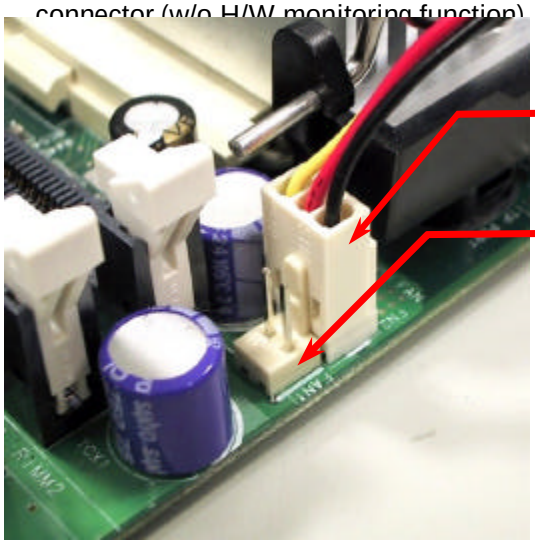
1. Pull up the both right and left side level of CPU heatsink retention module
and up to 90-degree angle



2. Put the CPU heatsink onto the top of CPU and press down both side levels
steady at the same time for fix the CPU heatsink. Please make sure the levels had been holed by hook of retention module.



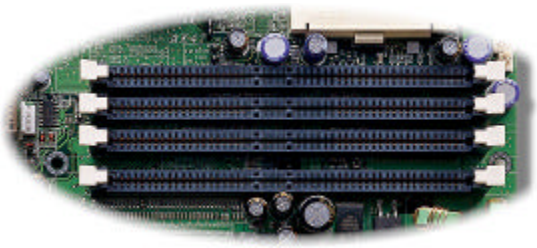
3. If your CPU fan supports H/W monitoring function (Normally, it has 3-pin
connector), please plug the fan power cable on the 3-pin CPU fan connector of motherboard, and otherwise, plug the cable on the 2-pin fan
connector (w/o H/W monitoring function).



Step 2

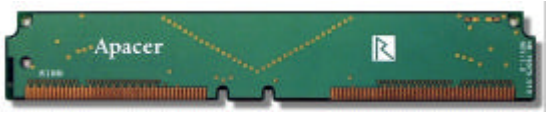
Install RIMM System Memory

This motherboard has four 184-pin RIMM sockets that allow you to install PC600, PC700 and PC800 RDRAM up to 2GB. AT30 will detect the RDRAM speed automatically while system POST, but it still allows you select the RDRAM type manually by BIOS setup program.



The pictures as below are Direct RDRAM memory module and RIMM terminator (also called C-RIMM). Please don't forget insert the RIMM terminator into the blank RIMM socket, otherwise it will cause the system can't boot.

DRDRAM RIMM Module



RIMM Terminator

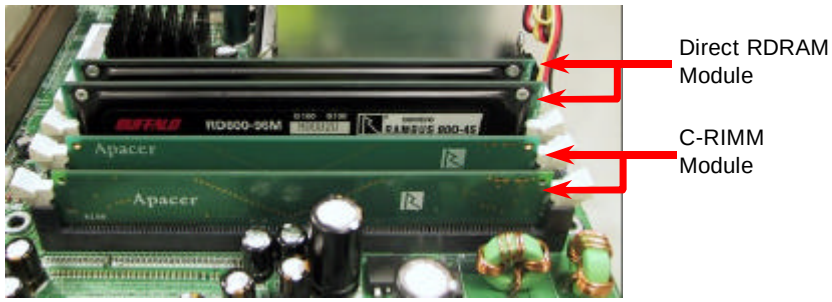
Please follow the procedure as shown below to finish memory installation.

1. Make sure the RIMM module's pin face down and match the socket's size
   as depicted below

60 Pins **88 Pins**

2. Insert the module straight down to the RIMM slot with both hands and press down firmly until the RIMM module is securely in place.

Repeat step 2 to finish additional RIMM & C-RIMM modules installation.



Step 3.

Set Jumpers

The default jumper settings have been set for the common usage standard of this mainboard. Therefore, you do not need to reset jumpers unless you require special adjustments as any of following cases:

1. Clear CMOS

2. Make BIOS write protected

For first-time DIY system builders, we recommend that you should not change the default jumper settings if you are not totally familiar with mainboard configuration procedures. The factory-set default settings are tuned for optimum system performance. For the advanced users who wish to customize their system, section 3.2 Jumper Settings will provide the detailed information on how to configure your mainboard manually.

Step 4

Install Internal Peripherals in System Case

Before you install and connect the mainboard into your system case, we recommend that you first assemble all the internal peripheral devices into the computer housing, including but not limited to the hard disk drive (IDE/ HDD), floppy disk drive (FDD), CD-ROM drive, and ATX power supply unit. This will greatly facilitate in making the connection to the mainboard described below.

To install IDE & FDD drives, follow this procedure:

1. Set the required jumpers on each device according to the instructions provided by the manufacturer. (IDE devices, HDD and CD-ROM, must have jumpers on Master or Slave mode depending on your willing to install more than one device for each kind.

2. Connect IDE cable and FDD cable to the back panel of the internal peripheral devices. Note that the cable should be oriented with its colored stripe (usually in red or magenta) connected to pin#1 both on the mainboard IDE or FDD connector and on the device as well.

3. Connect an available power cable through your system power supply unit to the back panel of each peripheral device. Note that the power cable is directional and cannot fit in if not properly positioned.

Step 5

Mount the Mainboard on the Computer Chassis

1. You may find that there are a lot of different mounting hole positions both on your computer chassis and on the mainboard. To choose a correct mounting hole, the key point is to keep the back panel of the mainboard in a close fit with your system case, as shown below.

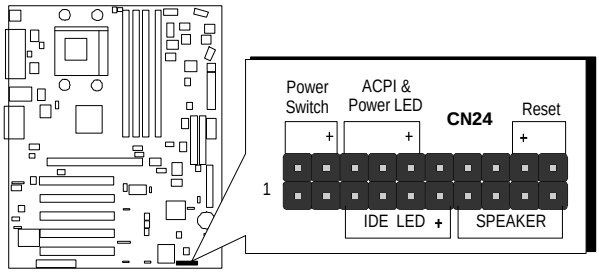
2. After deciding the proper mounting holes, position the studs between the frame of chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system chassis and the mainboard, in order to avoid any electrical short between the board and the metal frame of chassis. (If your computer case is already equipped with mounting studs, you will need to tighten screws to attach the mainboard.)

Note: In most computer housings, you will be able to find 4 or more attachment points to install mounting studs and fix the mainboard. If there aren't enough matching holes, then make sure to install at least 4 mounting studs to ensure proper attachment of the mainboard.

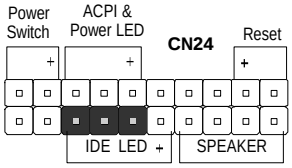
Step 6

Connect Front Panel Switches/LEDs/Speaker

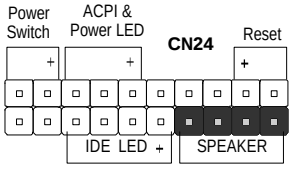
You can find there are several different cables already existing in the system case and originating from the computer's front panel devices (HDD LED, Power LED, Reset Switch, PC Speaker, etc.) These cables serve to connect the front panel switches and LEDs to the mainboard's front panel connectors group, as shown below :



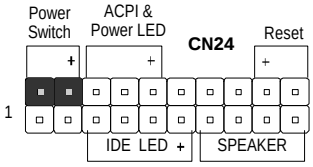
1. IDE LED



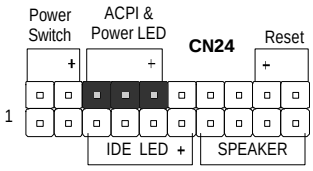
2. PC SPEAKER (SPEAKER)



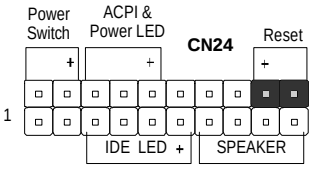
3. ATX Soft Power On/Off
   (Power Switch)



4. ACPI & Power LED



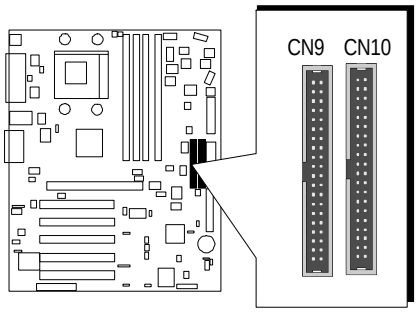
5. Hardware Reset Switch (RST)



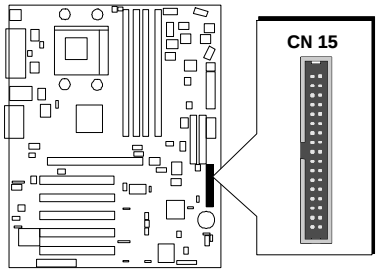
Step 7

Connect IDE & Floppy Disk Drives

1. IDE cable connector



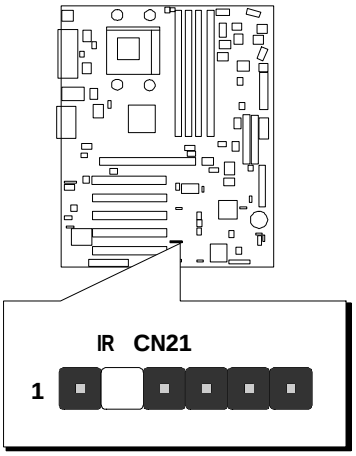
2. Floppy cable connector



Step 8

Connect Other Internal Peripherals

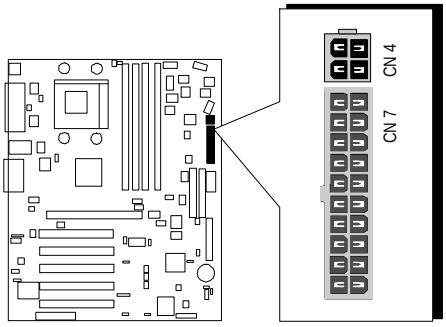
1. IR Header



Step 9

Connect the Power Supply

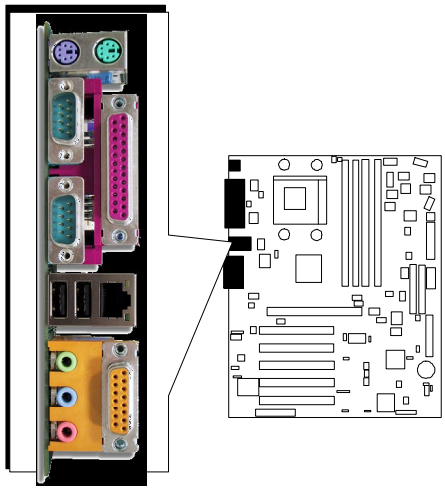
1. System power connector



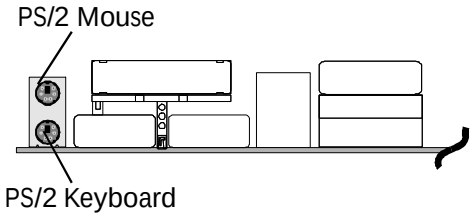
Step 10

Connect External Peripherals to Back Panel

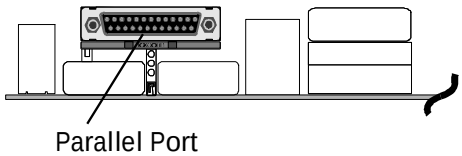
You are now ready to put the computer case back together and get on to the external peripherals connections to your system's back panel.



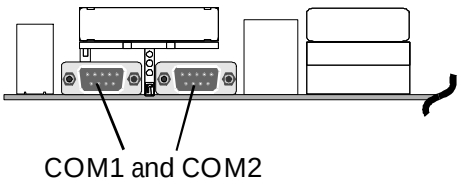
1. PS/2 Mouse and PS/2 Keyboard



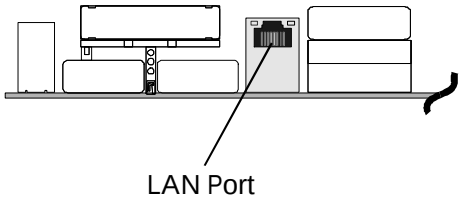
2. Parallel Port



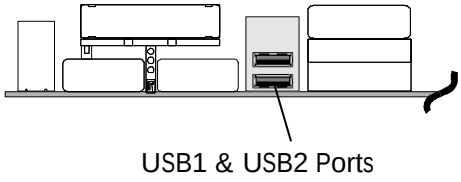
3. COM1 and COM2 Ports



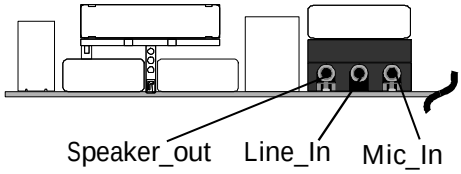
4. RJ45 10/100Mbps LAN Port



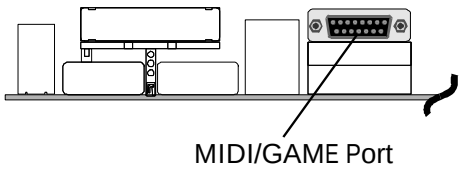
5. USB Ports



6. Speaker_out / Line_In / Mic_In Ports



7. MIDI/Game Port



Step 11

First Time System Boot-Up

To assure the completeness and correctness of your system installation, you may check the above installation steps once again before you boot up your system for the first time.

1. Insert a bootable system floppy disk (DOS 6.2x, Windows 95/98/NT, or others) which contains FDISK and FORMAT utilities into the FDD.
2. Turn on the system power.
3. First, you must use the FDISK utility to create a primary partition of the hard disk. You can also add an extended partition if your primary partition does not use all of the available hard disk space. If you choose to add an extended partition, you will have to create one or more logical partitions to occupy all the space available in the extended partition. The FDISK utility will assign a drive letter (i.e., C:, D:, E:,...) to each partition which will be shown in the FDISK program. After FDISK procedure, reboot your system by using the same system floppy disk.

> Note: DOS 6.2x and Windows 95A can only support up to 2.1GB of HDD partition. If you use the FDISK utility with one of the operating systems mentioned above, you can only install your HDD into partitions no larger than 2.1GB each.

4. Now, use the FORMAT utility to format all the partitions you've created. When formatting the primary partition (C:), make sure to use the FORMAT C: /S command.

> Note: FORMAT C: /S can transfer all the necessary system files into the primary partition of your hard disk. Then, your HDD will become a bootable drive.

5. Install all the necessary drivers for CD-ROM, Mouse, etc.
6. Set up the complete operating system according to your OS installation guide.

Step 12

Install Drivers & Software Components

Please note that all the system utilities and drivers are designed for Win 9x/ 2000/ME/NT operating systems only. Make sure your operating system is already installed before running the driver installation CD-ROM programs.

1. Insert the AT30 bundled CD-ROM into your CD-ROM drive. The auto-run program will display the driver main installation window on screen .

2. Choose " Install VGA Device Software" and complete the installation.

3. Return to the SHUTTLE MAINBOARD DRIVERS & UTILITIES screen.

4. Choose "Install Audio Device Driver" and complete the installation.

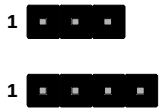
5. Return to the main installation window and exit from the auto-run drivers installation program.

3.2 Jumper Settings

Several hardware settings are made through the use of jumper caps to connect jumper pins to the mainboard. Pin #1 is located at any corner of each jumper; you just find a location with pin#1 marked. There are several types of pin1# shown as below:

3-pin and multi-pin (> 3) jumpers are shown as follows:

Pin #1 to the left:



Pin #1 on the top:

Pin #1 to the right:

Pin #1 on the bottom:

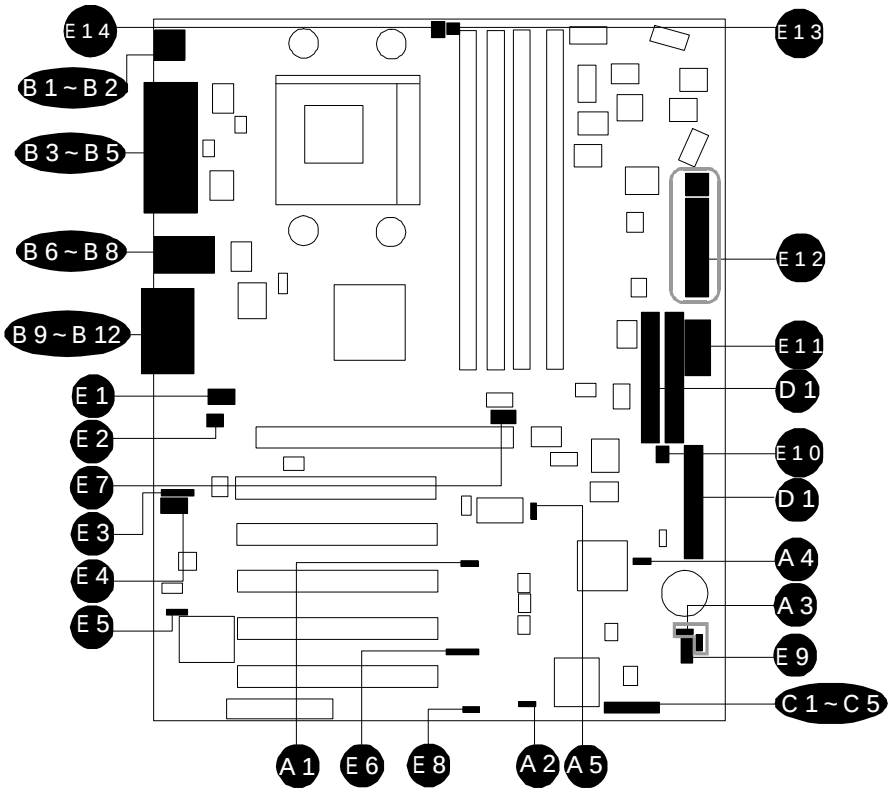
Jumpers with two pins are shown as  for Close [On] or  for Open [Off]. To Short jumper pins, simply place a plastic jumper cap over the desired pair of pins.

Caution!

1. Do not remove the mainboard from its antistatic protective packaging until you are ready to install it.
2. Carefully hold the mainboard by its edges and avoid touching its components. When putting the mainboard down, place it on the top of its original packaging film, and on an even surface, and components side up.
3. Wear an antistatic wrist strap or take other suitable measures to prevent electrostatic discharge (ESD) whenever handling this equipment.

Jumpers & Connectors Guide

Use the mainboard layout on page 11 to locate CPU socket, memory banks, expansion slots, jumpers and connectors on the mainboard during the installation. The following list will help you to identify jumpers, slots, and connectors along with their assigned functions:



CPU/Memory/Expansion Slots

Socket 423 : CPU Socket for socket 423 Intel Pentium 4 processors.

RIMM 1/2/3/4 : Four RIMM sockets for PC600, PC700 and PC800 RDRAM up to 2GB.

AGP Pro : One AGP (Accelerated Graphics Port) Pro slot

PCI : Five 32-bit PCI expansion slots

CNR : One CNR (Communications and Networking Riser) slot

Jumpers

A1 JP17 : Disable onboard lan EPROM.
A2 JP30 : Safe mode boot setting.
A3 JP15 & JP16 : USB 2 or CNR select.
A4 JP14 : Clear CMOS.
A5 JP29 : FSB speed select.

Back Panel Connectors

B1 CN2 : PS/2 Keyboard
B2 CN2 : PS/2 Mouse
B3~4 CN3 : Serial port 1 and 2 (DB9 male).
B5 CN3 : Parallel port (DB25 female).
B6~7 CN5 : 2 × USB ports (Universal Serial Bus).
B8 CN5 : RJ45 10/100Mbps lan port
B9 Speaker_out : Speaker_out port.
B10 Line_In : Line_in port.
B11 Mic_In : Mic_in port.
B12 GAME/MIDI : GAME/MIDI port.

Front Panel Connectors

C1 IDE LED : IDE drive active LED.
C2 SPEAKER : Speaker in housing.
C3 Power Switch : ATX Power On/Off Momentary Type Switch.
C4 ACPI Power LED : Green LED.
C5 Reset : Hardware reset switch.

Internal Peripherals Connectors

D1 FDD1 : Floppy Disk Drive Interface
D1 IDE1 : IDE Primary Interface (Dual-channel)
D1 IDE2 : IDE Secondary Interface (Dual-channel)

Other Connectors:

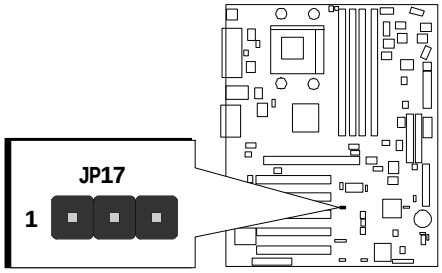
E1 CN11 : CD-in header.
E2 FN4 : Aux fan header.
E3 JP7 : Audio_in header.
E4 CN16 : Modem_in header.
E5 CN18 : Wake on modem header.
E6 CN21 : IR header.
E7 CN12 : AGP Pro external power header.
E8 JP 27 : Chassis intrusion header.
E9 CN20 : Dual USB ports header.
E10 FN3 : Chassis fan header.
E11 CN6 : Extra ATX power header for 5V and 3.3V.
E12 CN7, CN4 : ATX power header.
E13 FAN1 : CPU Fan
E14 FN2 : CPU Fan

A1 Disable On board LAN EPROM (JP17)

The CNR interface provides four kinds of solution for users: audio, modem, LAN and Home LAN. Hence, if you decide to use the LAN solution of CNR, you should power off system and short pin 1 & pin 2 of JP17 by mini jumpers, then run BIOS setup program to disable onboard LAN EPROM through option "Integrated Peripherals > Onboard/CNR LAN selection".

Pin 1-2 (Disable onboard lan)

Pin 2-3
(Default, Enable onboard lan)

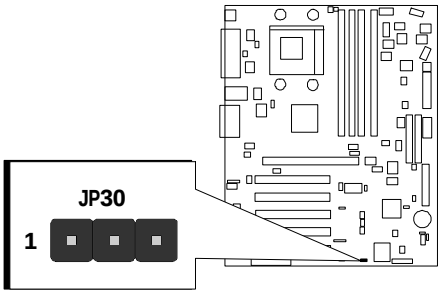


A2 Safe Mode Boot Setting (JP30)

This jumper allows you to force system boot in "Safe mode". The "Safe mode" means system will load BIOS default setting value while in POST and force CPU speed at 800MHz. You can short pin 1-2 of JP30 by mini jumpers to enable safe mode boot.

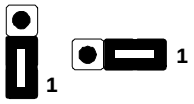
Pin 1-2 (Enable- safe mode boot)

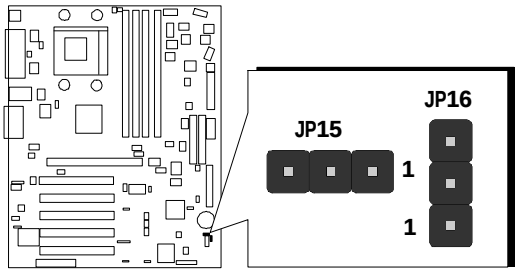
Pin 2-3 (Normal- Disable the function)



A3 USB 2 / CNR Select Jumper (JP15 & JP16)

This mainboard provides 4 USB headers to connect USB devices, such as mouse, keyboard, modem, printer etc. There are two connectors on PC99 back panel. You can use proper cable to connect others USB connectors to back panel or front panel of chassis. By the way, if you want to use the USB solution of CNR, please short pin 2 - pin 3 of JP15 / JP16.

Function	Jumper Setting
Onboard UDSB (Default)	
CNR USB	

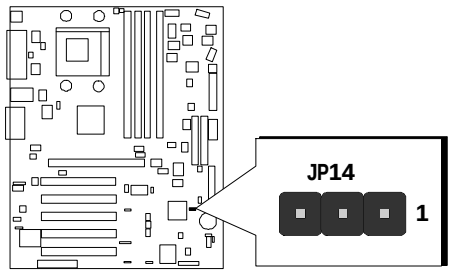


A4 Clear CMOS Setting (JP14)

You can clear CMOS to restore system default setting. Please follow below procedure to clear CMOS.

Pin 2-3 (Clear CMOS)

Pin 1-2 (Default- Normal)



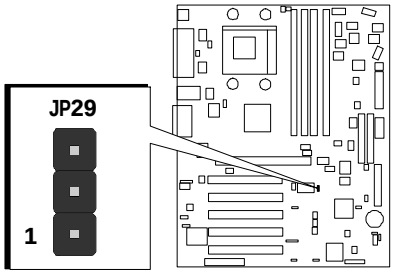
Step 1. Turn off the system and unplug the AC power.
Step 2. Remove ATX power cable from onboard power connector.
Step 3. Locate JP1 and short pins 2-3 for a few seconds.
Step 4. Return JP1 to its normal setting by shorting pins 1-2.
Step 5. Connect ATX power cable back to onboard power connector.

A5 FSB Speed Setting (JP29)

This jumper is used to select CPU FSB frequency manually. If you are not an overclocker, we recommend you to keep the jumper setting at default.

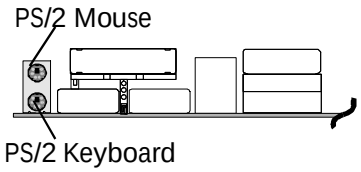
Pin 1-2 (133 MHz)

Pin 2-3 (100 MHz)



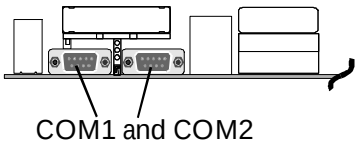
B1 B2 PS/2 Keyboard & PS/2 Mouse Connectors

Two 6-pin female PS/2 keyboard & Mouse connectors are located at the rear panel of the mainboard. Depending on the computer housing you use (desktop or tower), the PS/2 Mouse connector is situated at the top of the PS/2 Keyboard connector when the mainboard is laid into a desktop, as opposite to a tower case where the PS/2 Mouse connector is located at the right of the PS/2 Keyboard's. Plug the PS/2 keyboard and mouse jacks into their corresponding connectors.



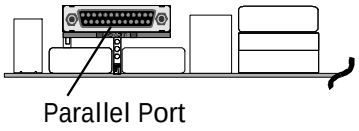
B3 B4 COM1 and COM2 Connectors

This mainboard can accommodate two serial device on COM1 and COM2. Attach a serial device cable to the DB9 serial ports COM1 and COM2 at the back panel of your computer.



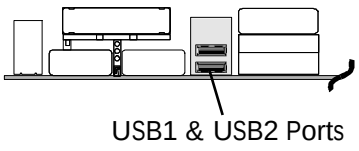
B5 Parallel Port Connector

One DB25 female parallel connector is located at the rear panel of mainboard. Plug the connection cable from your parallel device (printer, scanner, etc.) into this connector.



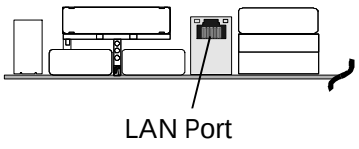
B6 B7 USB1 / USB2 Connectors

This mainboard features two USB ports on back panel. Plug each USB device jack into an available USB1 / USB2 connector.



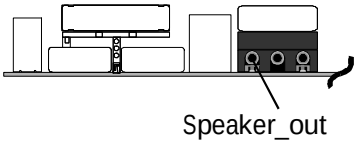
B8 LAN RJ45 Connector

This mainboard can accommodate LAN device. Attach a 10/100 base T cable to the RJ45 at back panel of computer.



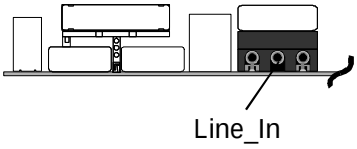
B9 Speaker_out

Speaker_out is a stereo output port through which the combined signal of all internal and external audio sources on the board is output. It can be connected to 1/8-inch TRS stereo headphones or to amplified speakers.



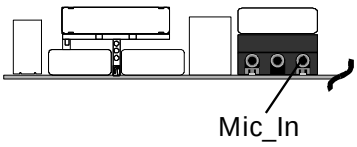
B10 Line_in

Line_in is a stereo line-level input port that accepts a 1/8-inch TRS stereo plug. It can be used as a source for digital sound recording, a source to be mixed with the output, or both.



B11 Mic_in

Microphone is a 1/8-inch jack that provides a mono input. It can use a dynamic mono or stereo microphone with a resistance of not more than 600 Ohms.

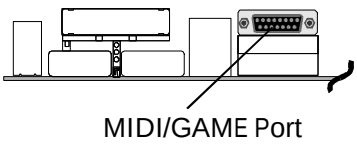


B12 MIDI/GAME Port

The MIDI/GAME port is a 15-pin female connector. This port can be connected to any IBM PC compatible game with a 15-pin D-sub connector.

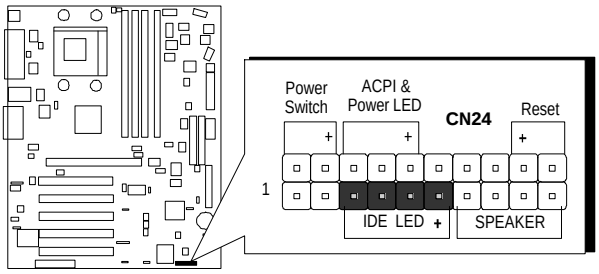
MIDI Instrument Connection

You will need a MIDI adapter to connect a MIDI compatible instrument to the sound card. The MIDI adapter can be connected to the Joystick/MIDI port. You will also need the MIDI sequencing software to run MIDI instruments with your computer.



C1 IDE LED Connector (IDE LED)

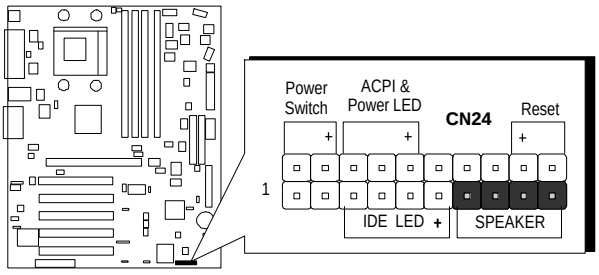
Attach connector cable from IDE device LED to the 2-pin IDE LED header. The IDE LED lights up whenever an IDE device is active.



Note : Please notice all LED connectors are directional. If any LED of CN24 does not light up during running, please simply change to the opposite direction.

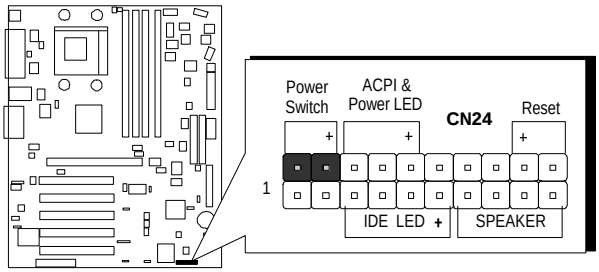
C2 Speaker Connector (SPEAKER)

Attach PC speaker cable from case to the 4-pin PC speaker connector (SPEAKER).



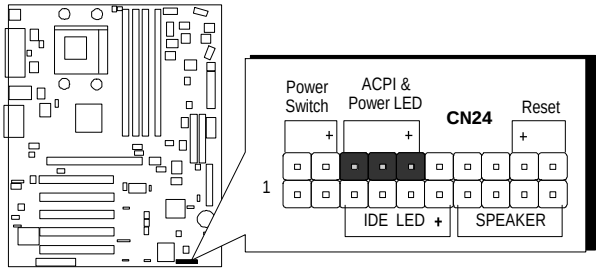
C3 ATX Power On/Off Switch Connector (Power Switch)

The Power On/Off Switch is a momentary type switch used for turning on or off system's ATX power supply. Attach connector cable from Power Switch to the 2-pin PWR SW header on the mainboard.



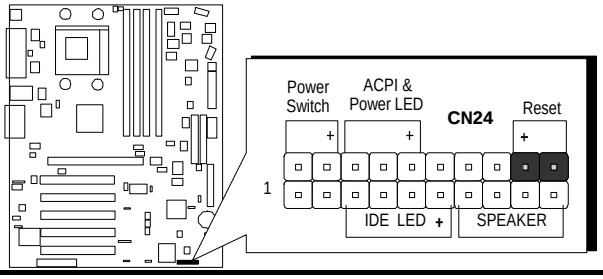
C4 ACPI & Power LED (ACPI & Power LED)

If you get a 3-pin LED in dual color connector, attach the cable from housing's front panel to the PWR LED header on board. The LED stays light while the system is running ; and it turns to another color while the system is operating from normal mode to ACPI mode.



C5 Hardware Reset Connector (Reset)

Attach 2-pin hardware reset switch cable to the RST header. Pressing reset switch causes system to restart.

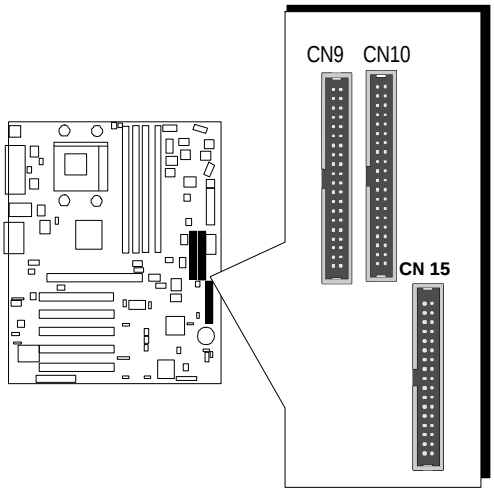


D1 Enhanced IDE and Floppy Connectors

The AT30 mainboard features two 40-pin dual-channel IDE device connectors (CN9/CN10) providing the support to up to four IDE devices, such as CD-ROM and Hard Disk Drives (H.D.D.). This mainboard also includes one 34-pin floppy disk controller (CN15) to accommodate the Floppy Disk Drive (CN15). Moreover, this mainboard comes with one 40pin ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.

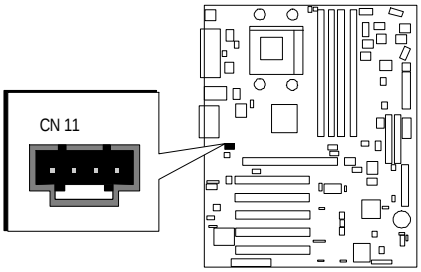
Note : Please connect your system H.D.D. to IDE 1.

Important: Ribbon cables are directional. The red stripe means pin #1. Please make sure to always have correct connection with cable and pin #1 of IDE1/IDE2 or FDD1 on the mainboard.



E1 CD_in Header (CN11)

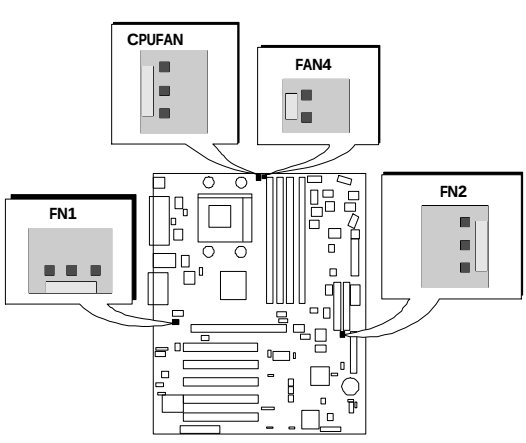
This header is used to connect CD audio cable from CDROM or DVD drive to onboard sound.

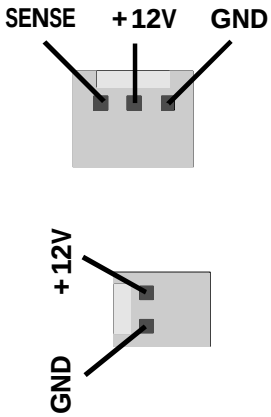


E2 Aux Fan, CPU Fan, Chassis Fan Headers (FAN1, FAN2, CPUFAN, FAN4)

Plug in the Aux Fan, CPU Fan, Chassis Fan cable to the 3-pin Fan header. Please be noted that FAN4 is 2-pin header without hardware monitor function. FAN1 and FAN2 are also without hardware monitor function.

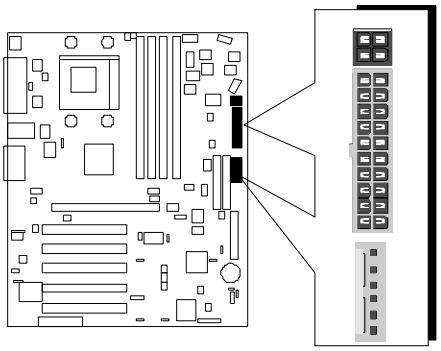
Note: Both cable wiring and type of plug may vary and they depend on fan maker. Keep in mind that the red wire should always be connected to the 12V header and the black wire to the ground (GND) header.





E11 E12 ATX Power Connector (ATX 1)

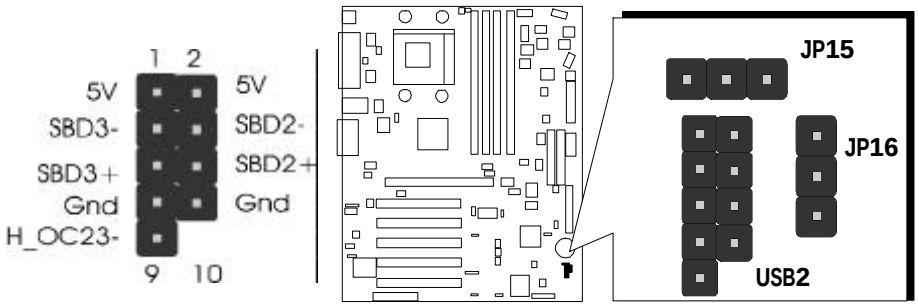
This motherboard uses 24-pin Pentium 4 standard ATX power connector and comes with an extra power connector for 5V/3.3V as shown below. Please make sure you plug in the right direction.



A traditional ATX system should remain at power off stage when AC power resumes from power failure. This design is inconvenient for a network server or workstation, without an UPS, that needs to keep power-on. This motherboard implements an AC Power Auto Recovery function to solve this problem.

E9 Dual USB ports Header (USB2)

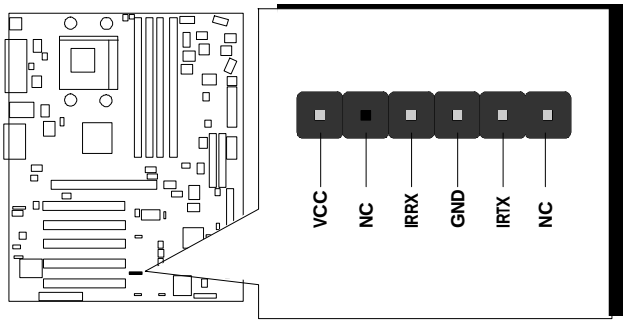
This motherboard provides 4 USB connectors to connect USB devices, such as mouse, keyboard, modem, printer, etc. There are two connectors on the PC99 back panel. You can use proper cable to connect others USB connectors to the back plane or front panel of chassis. By the way, if you want to use the USB solution of CNR, please short the pin 2 & pin 3 of JP15/JP16.



IR Connector (SIR 1)

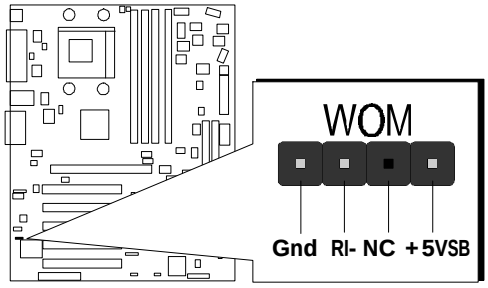
The IrDA connector can be configured to support wireless infrared module, with this module and application software such as Laplink or Windows 95 Direct Cable Connection, the user can transfer files to or from laptops, notebooks, PDA devices and printers. This connector supports HPSIR (115.2Kbps, 2 meters) and ASK-IR (56Kbps).

Install the infrared module onto the IrDA connector and enable the infrared function from BIOS Setup, UART2 Mode, make sure to have the correct orientation when you plug in the IrDA connector.



Wake-on Modem Connector (WOM)

This motherboard implements special circuit to support Wake On Modem, both Internal modem card and external box modem are supported. Since Internal modem card consumes no power when system power is off, it is recommended to use an internal modem. To use internal modem, connect 4-pin cable from RING connector of modem card to the WOM connector on the motherboard.



4 SOFTWARE UTILITY

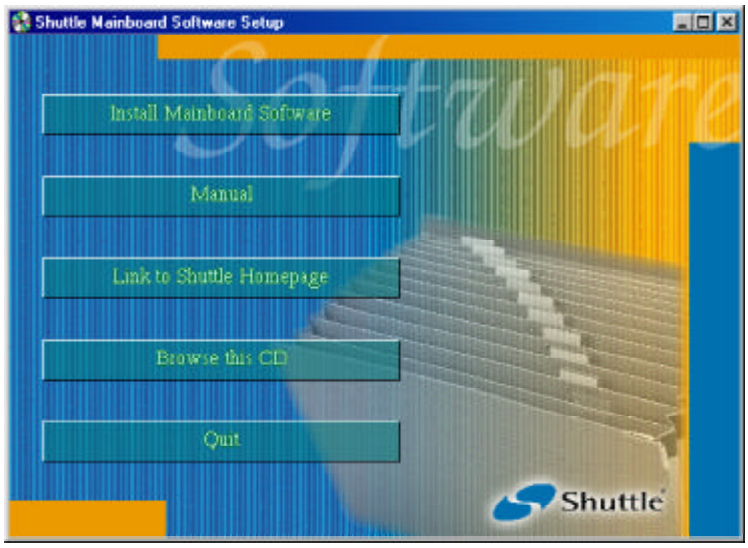
4.1 AT30 Mainboard CD Overview

Note: The CD contents attached in the AT30 mainboard are subject to change without notice.

To start your mainboard CD, just insert it into your CD-ROM drive, and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click or run D:\Autorun.exe (assuming that your CD-ROM drive is drive D:)

Navigation Bar Description:

- ☞ Install Mainboard Software - Mainboard Driver/Software Installation
- ☞ Manual - AT30 Mainboard user's manual in PDF format.
- ☞ Link to Shuttle Homepage - Link to shuttle website homepage.
- ☞ Browse this CD - Allows you to see contents of this CD.
- ☞ Quit - Close this CD.



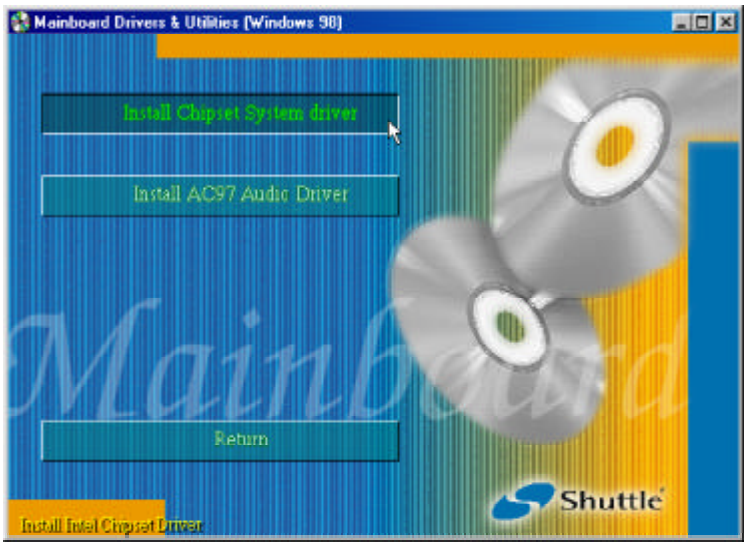
4.2 Install Mainboard Software

Insert the attached CD into your CD-ROM drive, and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Use your pointing device (e.g. mouse) to select the "Install Mainboard Software" bar to run into sub-menu.

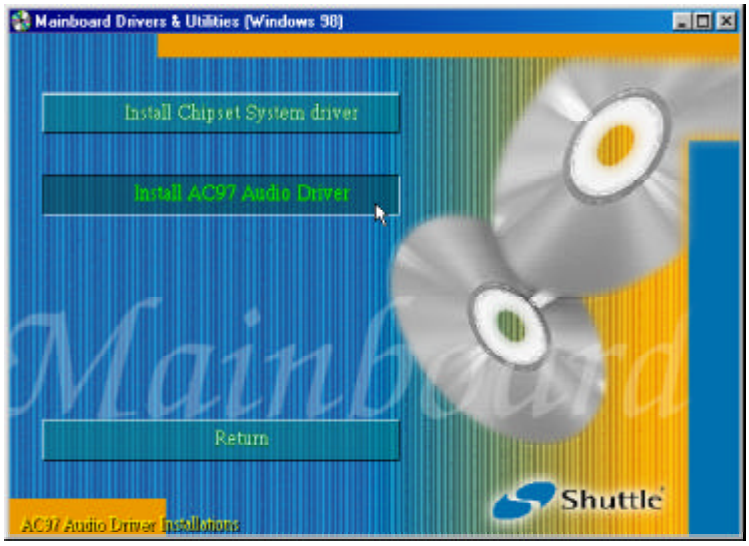
The Mainboard Software included:

4.2.A Install Chipset System Driver
4.2.B Install AC97 Audio Driver
4.2.C Install LAN Device Driver
4.2.D Install Bus Master IDE Driver



4.2.A Install Chipset System Driver

Select using your pointing device (e.g. mouse) on the "Install Chipset System driver" bar to install chipset system driver.



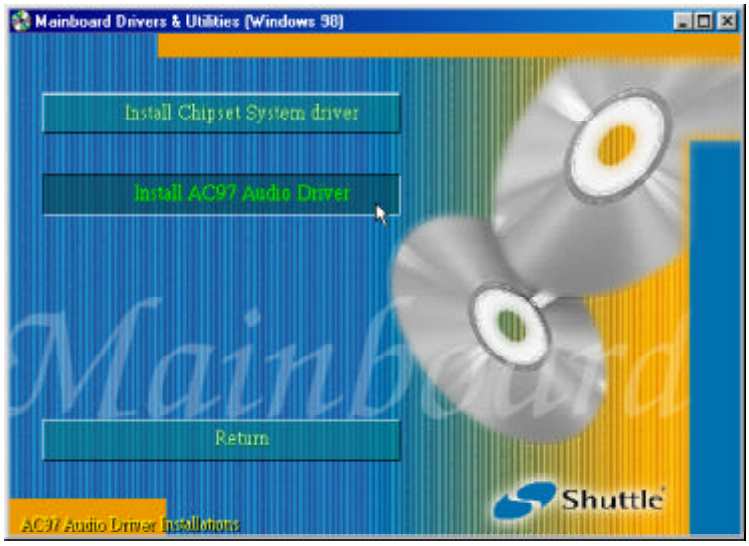
Once you made your selection, a Setup window runs the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

Note: When the Windows 98/95 first reboot after Intel Chipset System drivers installed, some new hardware devices will be found and added. For those new hardware devices, related software driver will be searched for installing. The user may find the software drivers retain on directory *C:\windows\system* if some of software drivers could not be found during searching.

A.2.B Install AC97 Audio Driver

Select using your pointing device (e.g. mouse) on the "Install AC97 Audio driver" bar to install AC97 audio driver.



Once you made your selection, a Setup window runs the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

A.2.C Install LAN Device Driver Manually

This motherboard comes with an Intel® 82562ET 10/100 LAN controller. You can find the LAN driver from the Shuttle CD disc. Please copy LAN driver with all directory \mainbrd\lan from the CD to your hard disk drive before go through installation as following:

1. Install operation system fully.
2. After installation, go the "Start" menu and choose "Setting".
3. From the "Setting" menu", choose "Control Panel".
4. In the "Control Panel" window, double-click on the "System" icon.
5. In the "System" window, choose the "Device Manager" tab.
6. In the hierarchical display under "Other Devices" is a listing for "PCI Ethernet Controller". Choose it and then press the "Properties" button.
7. Choose the "Driver" tab in the "Properties" window, choose "Update Driver", and then press "Next".
8. Choose "Search for a better driver than the one your device id using now (recommended)", and then press "Next".
9. Choose "Specify Location", and then type full path of driver location on your hard disk drive in the text box. Or you can choose "Browse" button for specify driver's location.
10. Insert the Shuttle CD into the CD-ROM.
11. Press the "Next" button. A message informing you that system has found "Intel (R) PRO/100 VE Network Connection" should appear.
12. Press the "Next", and then "Finish", and then "Yes" when asked if you want to restart your computer.

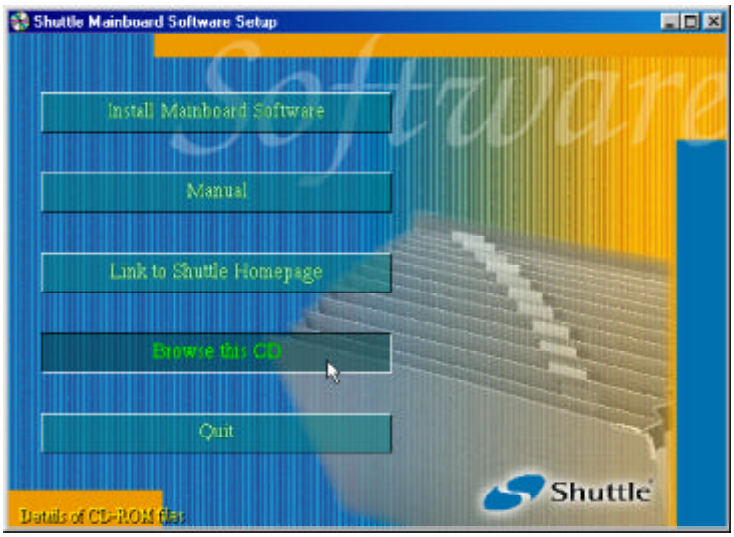
A.2.D Install Bus Master IDE Driver Manually

This driver may do bad effect on some model or brand of IDE HDD devices. Hereby, we won't suggest users to install it cause if might crash your HDD data. However, if you are very usre that the driver matches your IDE HDD, please follow below indication to complete setup.

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on AutoRun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the "Browse this CD" bar. And then find out the location: Mainboard\ata\ata100 to install the driver.

P.S.: Before doing IDE Driver installation, setup Chipset System Driver is necessary.



Once you made your selection, a Setup window runs the installation automatically.

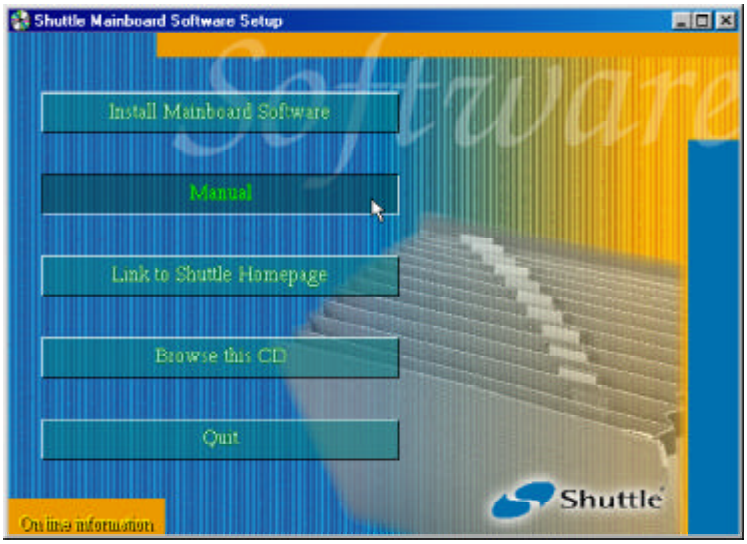
When the copying files is done, make sure you reboot the system to take the installation effect.

4.3 View the User's Manual

Insert the attached CD into your CD-ROM drive, and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Use your pointing device (e.g. mouse) to select the "Manual" bar.

Then On-line Information window will appear on your screen. Click on the "Install Acrobe Reader" bar if you need to install acrobe reader.



5 BIOS SETUP

AT30 BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

The system BIOS is managing and executing a variety of hardware related functions in the system, including:

System date and time

Hardware execution sequence

Power management functions

Allocation of system resources

5.1 Enter the BIOS

To enter the BIOS (Basic Input / Output System) utility, follow these steps:

Step 1. Power on the computer, and the system will perform its POST (Power-On Self Test) routine checks.

Step 2. Press < Del > key immediately, or at the following message:

"Press DEL to enter SETUP"

,or simultaneously press < Ctrl > , < Alt > , < Esc > keys

Note 1. If you miss trains of words mentioned in step2 (the message disappears before you can respond) and you still wish to enter BIOS Setup, restart the system and try again by turning the computer OFF and ON again or by pressing the < RESET > switch located at the computer's front-panel. You may also reboot by simultaneously pressing the < Ctrl > , < Alt > , < Del > keys.

Note 2. If you do not press the keys in time and system does not boot, the screen will prompt an error message, and you will be given the following options:

"Press F1 to Continue, DEL to Enter Setup"

Step 3. As you enter the BIOS program, the CMOS Setup Utility will prompt you the Main Menu, as shown in the next section.

5.2 The Main Menu

Once you enter the AwardBIOS(tm) CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press < Enter > to accept and enter the sub-menu.

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configuration

This entry appears if your system supports PnP / PCI.

PC Health Status

This entry shows the current system temperature, Voltage, and FAN speed.

Frequency Control

Use this menu to specify your settings for frequency control.

Load Setup Defaults

Use this menu to load the BIOS default values for the minimal/stable performance of your system to operate.

Load Turbo Defaults

Use this menu to load the BIOS default values that are factory-set for optimal performance system operation. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet users' needs.

Set Password

Use this menu to change, set, or disable supervisor/user password. It allows you to limit access to the system and Setup, or only to Setup.

Save & Exit Setup

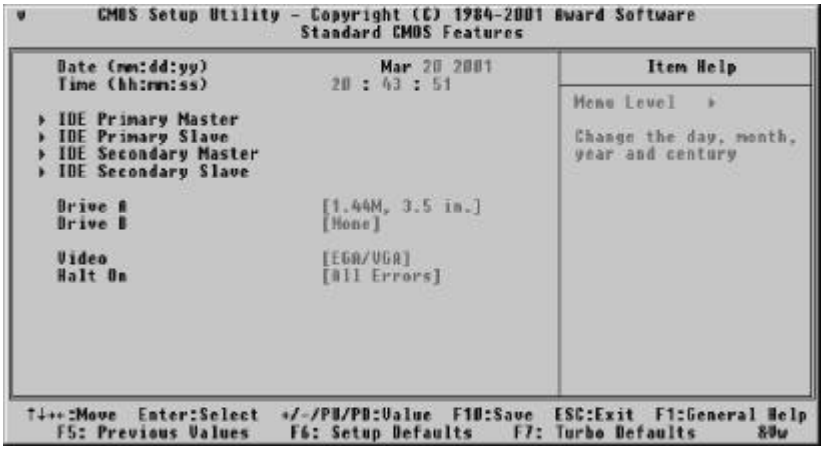
Save CMOS value changes in CMOS and exit from setup.

Exit Without Saving

Abandon all CMOS value changes and exit from setup.

Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the < PgUp > or < PgDn > keys to select the value you want in each item.



Date

< Month > < DD > < YYYY >

Set the system date. Note that the 'Day' automatically changes when you set the date.

Time

< HH : MM : SS >

The time is converted based on the 24-hour military-time clock. For example, 5 p.m. is 17:00:00.

IDE Primary Master

Options are in its sub-menu.

Press < Enter > to enter the sub-menu of detailed options.

IDE Primary Slave

Options are in its sub-menu.

Press < Enter > to enter the sub-menu of detailed options.

IDE Secondary Master

Options are in its sub-menu.

Press < Enter > to enter the sub-menu of detailed options.

IDE Secondary Slave

Options are in its sub menu.

Press < Enter > to enter the sub-menu of detailed options.

Drive A/Drive B

Select the type of floppy disk drive installed in your system.

- The choice: None, 360K, 5.25 in, 1.2M, 5.25 in, 720K, 3.5 in, 1.44M, 3.5 in, or 2.88M, 3.5 in.

Video

Select the default video device.

- The choice: EGA/VGA, CGA 40, CGA 80, or MONO.

Halt On

Select the situation in which you want the BIOS to stop the POST process and notify you.

- The choice: All Errors, No Errors, All, But Keyboard, All, But Diskette, or All, But Disk/Key.

Base Memory

Displays the amount of conventional memory detected during boot up.

- The choice: N/A.

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing, and security.

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enables and someone attempts to write data into this area, BIOS will show a warning message on screen, and an alarm beep.

Enabled Activates automatically when the system boots up, causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

➢ The choice: Enabled or Disabled.

CPU L1 & L2 Cache

This item enables CPU internal level 1 and level 2 cache to speed up memory access.

➢ The choice: Enabled or Disabled.

CPU L3 Cache

This item enables CPU level 3 cache to speed up memory access.

- The choice: Enabled or Disabled.

Compatible FPU OPCODE

Leave on default setting for optimized performance of Pentium 4 processor.

- The choice: Enabled or Disabled.

CPU Fast String

When set to enabled, the CPU has direct access to the memory. Leave on default setting for optimized performance.

- The choice: Enabled, or Disabled.

Quick Power On Self Test

This item speeds up Power-On Self Test (POST) after you power on the computer. If it is set to enabled, BIOS will shorten or skip some check items during POST.

- The choice: Enabled, or Disabled.

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

- The Choice: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, or Disabled.

Boot Other Device

Select Your Boot Device Priority.

- The choice: Enabled or Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignment.

- The choice: Enabled or Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot-up. Disabling speed boots up.

- The choice: Enabled or Disabled.

Boot Up NumLock Status

Selects power-on state for NumLock.

- The choice: Off or On.

Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used for above 1MByte of address memory. Initially, the gate A20 was handled via a pin on the keyboard. Today, while a keyboard still provides this support, it is more common and much faster in setting to Fast for the system chipset to provide support for gate A20.

- The choice: Normal, or Fast.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When this controller enabled, the typematic rate and typematic delay can be selected.

- The choice: Enabled or Disabled.

Typematic Rate (Chars/Sec)

This item sets how many times the keystroke will be repented in a second when you hold the key down.

- The choice: 6, 8, 10, 12, 15, 20, 24, or 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.

- The choice: 250, 500, 750, or 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

System The system will not boot and access to Setup will be denied if the correct password is not entered promptly.

Setup The system will boot, but access to Setup will be denied if the correct password is not entered promptly.

- The choice: System or Setup.

Note: To disabled security, select PASSWORD SETTING at Main Menu, and then you will be asked to enter password. Do not type anything and just press < Enter > ; it will disable security. Once the security is disabled, the system will boot, and you can enter Setup freely.

OS Select For DRAM > 64MB

Selects the operating system that is running with greater than 64MB of RAM in the system.

- The choice: Non-OS2 or OS2.

Report No FDD For Win 95

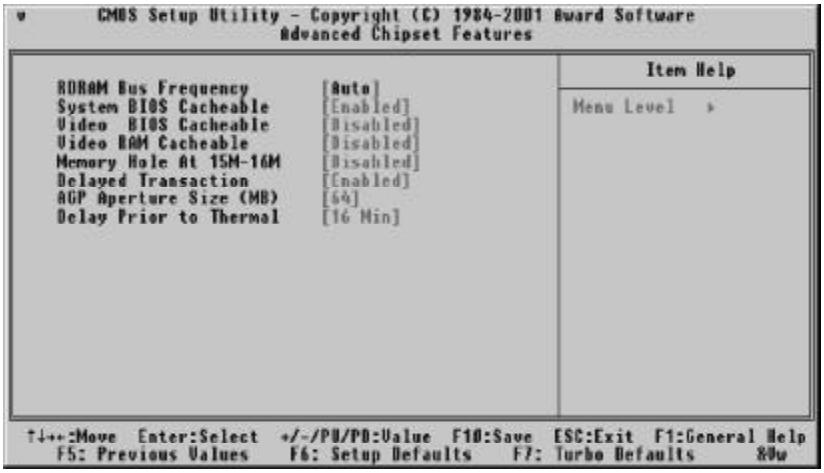
Whether report no FDD runs for Win 95 or not.

- The choice: Yes or No.

Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It states that these items should never need to be altered.

The default settings have been chosen because they provide the best operating conditions for your system. If you discovered that data was being lost while using your system, you might consider making any changes.



RDRAM Bus Frequency

This feature is used to set the clock generator what frequency to sent to the RDRAM. The default setting "Auto" seeks to balance optimal performance with stability.

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

- The choice: Enabled or Disabled.

Video BIOS Cacheable

Selecting Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program is written to this memory area, a system error may result.

- The Choice: Enabled or Disabled.

Video RAM Cacheable

This is a new cache technology for the video memory of the processor. It can improve the display speed by caching the display data. You must set this to disabled if your display card cannot support this feature; otherwise your system may not boot.

- The Choice: Enabled or Disabled.

Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

- The Choice: Enabled or Disabled.

CPU Latency Timer

This item Enable/Disable the deferrable CPU cycle being deferred when other device access memory.

- The Choice: Enabled or Disabled.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delayed transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

- The Choice: Enabled or Disabled.

AGP Graphics Aperture Size (MB)

Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

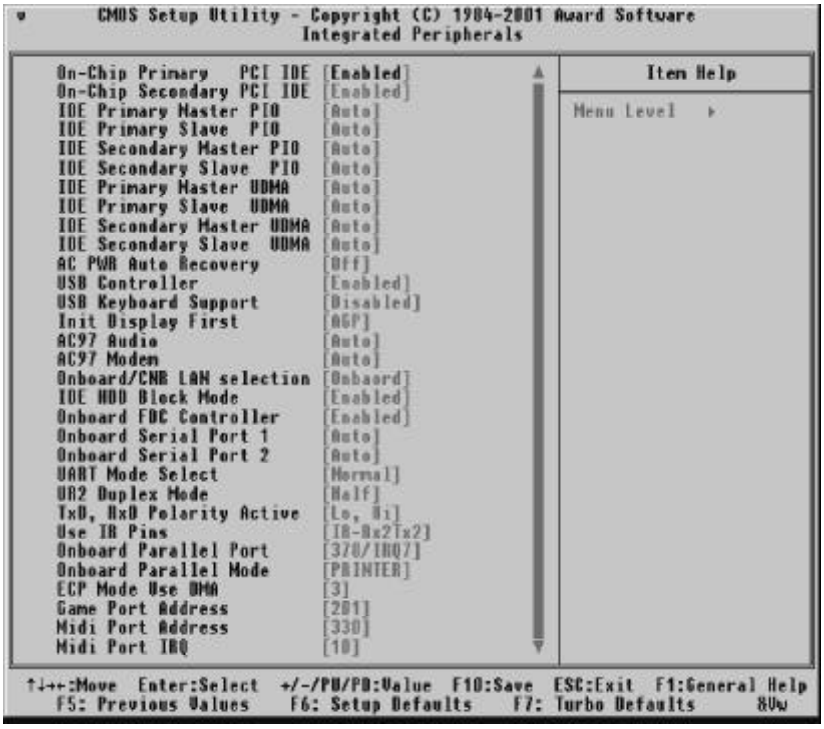
- The Choice: 64MB or 32MB.

Delay Porior to Thermal

This item allows you to select the timing of delay priority to thermal.

- The Choice: 4 Min, 8 Min, 16 Min or 32 Min.

Integrated Peripherals



On-Chip Primary/Secondary PCI IDE

The integrated peripherals controller contains an IDE interface with support to two IDE channels. Select Enabled to activate each channel separately.

- The choice: Enabled or Disabled.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

- The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, or Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA33/66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If both of your hard drive and your system software support Ultra DMA33/66/100, select Auto to enable BIOS support.

- The Choice: Auto or Disabled.

AC PWR Auto Recovery

This allows you to set whether you want your system to reboot after the power has been interrupted.

- The choice: Off or On.

USB Controller

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

- The choice: Enabled or Disabled.

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

- The choice: Enabled or Disabled.

USB Mouse Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB Mouse.

- The choice: Enabled or Disabled.

Init Display First

This item allows you to decide to activate whether PCI Slot or AGP Slot first.

- The choice: PCI Slot or AGP .

AC97 Audio

This item allows you to decide to enable/disable the 810 chipset family to support AC97 Audio.

- The choice: Auto or Disabled.

AC97 Modem

This item allows you to decide to enable/disable the 810 chipset family to support AC97 Modem.

- The choice: Auto or Disabled.

On board CNR Lan Selection

This item allows you to select Communication and Network to on-board or external device.

- The choice: Onboard, Ext.CNR or Auto.

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

- The choice: Enabled, or Disabled

Onboard FDC Controller

This item specifics onboard floppy disk drive controller. This setting allows you to connect your floppy disk drives to the onboard floppy connector. Choose the "Disabled" settings if you have a separate control card.

- The choice: Enabled Disabled.

Onboard Serial Port1/Port2

Select an address and corresponding interrupt for the first and second serial ports.

- The choice: 3E8/IRQ4, 2E8/IRQ3, 3F8/IRQ4, 2F8/IRQ3,Auto, or Disabled.

UART Mode Select

The main board support IrDA infrared through COM 2 port.

Note : FIR is not available currently.

- The choice: IrDA or Normal.

TxD, RxD Polarity Active

This item specifies the Active level for RxD & TxD signal.

- The choice: Hi,Lo, Lo,Hi, Lo,Lo, or Hi, Hi.

Use IR Pins

This item select the InfraRed module pin out.

- The choice: IR-Rx2Rx2 or RxD2, TxD2.

Onboard Parallel Port

This item allows you to determine onboard parallel port controller I/O address setting.

- The choice:: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, or Disabled.

Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

- The choice: SPPI, EPP, ECP, or ECP/EPP.

ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode.

- The choice: 1 or 3.

Game Port Address

This item select the Game Port Address.

- The choice: Disabled, 201H or 209H.

Midi Port Address

This item select the Midi Port Address.

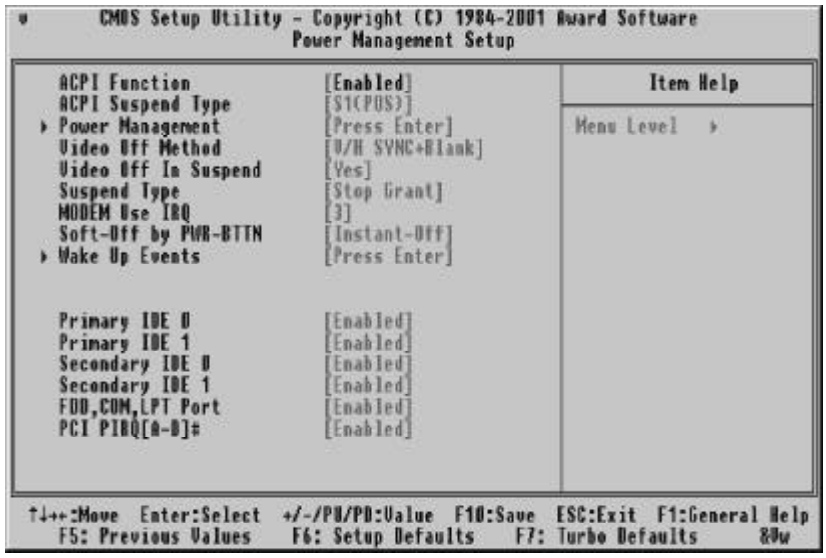
- The choice: Disabled, 330H, 300H, or 209H.

Midi Port IRQ

This item select the Midi Port IRQ.

- The choice: 5 or 10.

Power Management Setup



The Power Management Setup allows you to configure your system to most effectively saving energy while operating in a manner consistent with your own style of computer use.

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI)

- The choice: Enabled or Disabled.

ACPI Suspend Type

This item allows you to select sleep state when suspend.

- The choice: S1(POS) or S3(STR).

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. Suspend Mode
2. HDD Power Down

Min Saving Minimum power management.

Suspend Mode = Allows you to set each mode individually.

HDD Power Down = 15min.

Max Saving Maximum power management.

Suspend Mode = Allows you to set each mode individually.

HDD Power Down = 1min.

User Defined Allows you to set each mode individually. When this item not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

- The choice: User Define, Min Saving, or Max Saving.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen This option only writes blanks to the video buffer.

DPMS Initial display power management signaling.

- The choice: V/H SYNC + Blank, Blank Screen, or DPMS.

Video Off In Suspend

This item determines the manner in which the monitor is blanked.

- The choice: Yes or No.

Suspend Type

This item allows you to select the Suspend Type.

- The choice: PwrOn Suspend, Stop Grant.

MODEM Use IRQ

This item determines the IRQ in which the MODEM can use.

- The choice: 3, 4, 5, 7, 9, 10, 11, or NA.

Soft-Off by PWR-BTTN

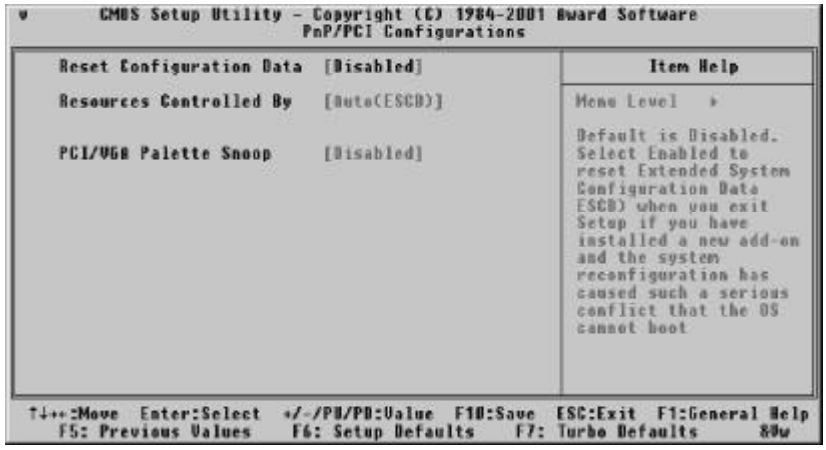
Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung.".

- The choice: Instant-Off or Delay 4 Sec.

Wake-Up Events

These items include Primary IDE0/1, Secondary IDE 0/1, Floppy Disk, Serial Port, Parallel Port, and PCI PIRQ[A-D]#. allow you to set wake up events from power management.

PnP/PCI Configurations



This section describes the configuration of PCI bus system. PCI or Personal Computer Interconnection is a system which allows I/O devices to operate at the speed CPU itself keeps when CPU communicating with its own special components.
This section covers some very technical items, and it is strongly recommended that only experienced users should make any changes to the default settings.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit from Setup
if you have installed a new device or software and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

- The choice: Enabled or Disabled .

Resource controlled By

The Award Plug-and-Play BIOS has the capacity to automatically configure all of the boot and Plug-and-Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug-and-Play operating system such as Windows 95.

If you set this field to "manual" , choose specific resources by going into each of the sub-menu that follows this field (a sub-menu is proceeded by a " > ").

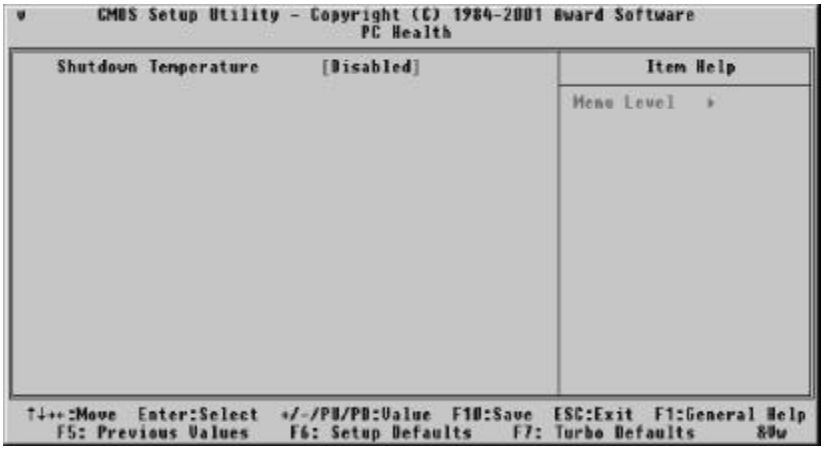
- The choice: Auto(ESCD) or Manual.

PCI/VGA Palette Snoop

Leave this field Disabled.

- The choice: Enabled or Disabled.

PC Health Status

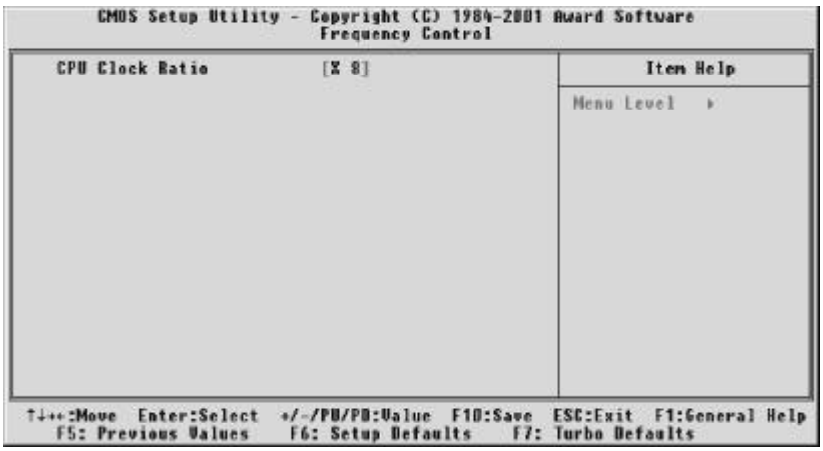


Shutdown Temperature

Select the combination of lower and upper limits for the system shut-down temperature, if your computer contains an environmental monitoring system. If the temperature extends beyond either limit, the system shuts down.

- The choice: Disabled, 60°C/140°F, 65°C/149°F, 70°C/158°F, or 75°C/167°F.

Frequency Control



CPU Clock Ratio

This item allows you to select the Pentium 4 CPU ratio.

- The choice: 8X ~ 23X.

Load Setup Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Setup Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal performance system operations.

Load Turbo Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Turbo Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory-set for optimal performance system operation.

Set Password Setting

Set Password

The options on the Password screen menu make it possible to restrict access to the Setup program by enabling you to set password.

Enter Password

Type the password up to eight characters, and press < Enter > . The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press < Enter > . You may also press < Esc > to abort the selection and not enter a password.

To disable password, just press < Enter > when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

Password Disable

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted in entering the password whenever the system is rebooted or you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

Save & Exit Setup

Pressing < Enter > on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus of CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing < Enter > on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit from Setup without storing in CMOS any change. The previous selections remain in effect. This exits from the Setup utility and restarts your computer.