TX531

CPU Auto-Voltage Detection Design

User's Manual

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TYPE OF PRODUCT : Motherboard
MODEL NO. : TX531

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive and Standards.

CE

JULY, 4, 1997
DATE OF ISSUE

SIGNATURE

VICE PRESIDENT
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INSTALLATION GUIDE

CPU - It is recommended for installation of AMD K6 MMX 233 and Cyrix M1 PR200 CPU to be installed with certified CPU Cooler (Big Cooler) from the approved suppliers. Insufficient Cooling for the CPU may render the system unstable. Our BIOS will check for the ID code of the CPU and if the CPU ID code do not match your CPU marking, then return them as it is re-marked from the original marking. Check that the CPU is firmly installed on the CPU socket and CPU Cooler secured before powering up the system.

Memory - Best Recommended for 60ns EDO DRAM on SIMMs memory. Do not mixed SDRAM (3.3V) with EDO 5V type of memory. Please check for re-marked 60ns EDO DRAM by visual inspection of the surface on the components. Most re-marked memory will shows polished surface. We do not guarantee reliability for re-marked memory. For BIOS setting for DRAM configuration, it is advisable to set the default setting for initial checking of the system. Good Performance needs all installed configuration device installed to be of excellent quality including memory, hard disk, VGA and others.

Hard Disk - For best Performance, it is best recommended to install Ultra DMA/33 mode hard disk. It works in conjunction with Ultra DMA 33 drivers on our utility disk attached.

VGA - For best compatibility, ***TX531*** has been tested with famous VGA brand like ExpertColor VGA, Diamond, ATI, Matrox series. The VGA should be 4 layers PCB type for good display reliability with certified EMI test like CE or DOC (FCC).

BIOS - Setup the system as “Optimal default Setting”.

Cables - The ***TX531*** has prevention of reverse connection with connector bracket. Check each of the cable has been connected to their respective devices before power-up.

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Static Electricity Precautions

Static electricity can easily damage your mainboard. Observing a few basic precautions can help you safeguard against damage that could result in expensive repairs. Follow the measures below to protect your equipment from static discharge:

- Keep the mainboard and other system computers in their antistatic packaging until you are ready to install them.
- Touch a grounded surface before you remove any system component from its protective anti-static packaging. A grounded surface within easy reach is the expansion slot covers at the rear of the system case. Or any other unpainted portion of the system chassis.
- During configuration and installation, touch a grounded surface frequently to discharge any static electric charge that may build up in your body. Another option is to wear a grounding wrist strap.
- When handing a mainboard or an adapter card, avoid touching its components. Handle the mainboard and

adapter cards either by the edges or by the mounting bracket that attaches to the slot opening in the case.

Unpacking the Mainboard

The mainboard comes packed in a sturdy cardboard shipping carton. The carton contains:

- The Mainboard
- This User's Manual

Note: Do not remove the mainboard from its original packing until you are ready to install it.

The mainboard is easily damaged by static electricity. Observe the following precautions while unpacking and installing the mainboard.

1. Touch an unpainted area of system chassis before handling the mainboard or any component. Doing so discharge the static charge your body may have built.
2. Remove the mainboard for appearance checking. Shipping may have lossened integrated circuits from their sockets. If any integrated circuit appears loose, press carefully to seat it firmly in its socket.

Do not apply power if the mainboard appears damaged. If there is damage to the board, or items are missing, contact your dealer immediately.

Power Precautions

Before you begin configuration, make sure you are working with an unplugged mainboard. Many components are powered by low-voltage current, but there still may be a dangerous electric current coming from the leads and power supply. You should take the following precautions:

- Turn off the power supply, and unplug the power cord before you begin.
- Unplug all canles that connect the mainboard to any external devices.

Note: Before making connections to the board, make sure that power to the system is turned off.

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CHAPTER 1 INTRODUCTION

1.1 Overview

The ***TX531*** motherboard optimized for MMX CPUs for INTEL, AMD K6-Write Allocation feature and Cyrix M2-Linear Wrap Mode incorporates the Auto-Voltage detection and DIP switches for CPU fast and easy installation. With on-board 512K L2-write-back cache, it provides workstation level computing performance at PC system level.

The ***TX531*** provides highly efficient bus transaction, highly concurrent architecture and highly integrated design with MESI tag memory built-in, USB, PS/2 KBC, 2 channel dedicated Ultra DMA/33 IDE Master, with the best power management and ACPI. Also built-in is Super I/O that supports Win95 plug-and-play function.

The ***TX531*** also supports all Pentium class CPU family and supports host frequency up to 75MHz and 83.3MHz. Its design provides Auto-banking for memory expansion with 4x SIMMs or 2x DIMMs sockets up to 256MB of DRAM.

The ***TX531*** motherboard provides outstanding I/O capabilities with 4x PCI 2.1 bus mastering slots for a high bandwidth data path for data-movement intensive functions such as graphics acceleration and all its advanced features for a cost effective, high performance, and highly expandable platform which delivers the latest CPU and I/O technologies.

1.2 System Features

The ***TX531*** has many performance and system features integrated into the motherboard, including the following:

- AT Form-Factor ACER PC'97 compliance (Intel 430TX compatible) chipset Pentium-based Motherboard with 512K Pipeline Burst SRAM Cache.
- Supports Intel Pentium Family CPU running at 90MHz~200MHz (P54C), Intel Pentium with MMX 166/200/233MHz (P55C), AMD K5 Pentium-level CPU 100/133/166, AMD K6 166/200/233 MMX CPU and Cyrix 6x86 133/150/166/200 & 6x86MX.
- Integrated Programmable 2 fast serials (16550) / 1 Parallel (Standard/ECP/EPP) / FDC controller / PS/2 Mouse Port, 2 x PCI Bus Master (Ultra DMA/33 Mode) IDE controllers.
- Provides 3 x 16-bit ISA slot & 4 x Concurrent PCI 2.1 expansion slot.
- Supports Auto-banking 8MB~256MB Memory utilizing 4 x 72 pin EDO/FPM SIMMs or 2 x 3.3V or 5V 168-pin DIMMs for SDRAM expansion.
- Support Flash BIOS for Plug & Play/DMI/Anti-virus/LS120 technology (120MB Capacity) features to provide an ease-of-use add-on cards configuration for users.
- Supports optional Universal Serial Bus Port and Infrared IR port (115.2 Kbps/Sec) pin header ready.
- Provides CPU Auto Voltage detection for fast and easy CPU installation and upgrade. Low Thermal switching voltage design for reliability.

1.3 System Specification

Multi-Processor Support:	Intel Pentium 90~200 MHz, Intel Pentium with MMX 166~233 MHz
	AMD-K5 (90-166 MHz), AMD-K6 (166~233 MHz) Cyrix 6x86 (120^{+}~200^{+} MHz) & Cyrix 6x86MX
CPU Clock Speed:	50/55/60/66/75 MHz
DRAM:	8MB to 256MB (Auto Banking)
SRAM:	512K L2 Cache
BIOS type:	AMI BIOS with built-in CPU Auto-voltage detection capabilities
Slot types:	Three 16-bit ISA slots + four 32-bit PCI 2.1 slots
Dimension:	22x25 cm (AT form factor)
Utilities Disk:	DMI for LAN management, Ultra DMA/33 Drivers, Acer Chipset ID setup

Additional Features

Miscellaneous Button:	Reset button, Turbo LED, HDD LED
Board Design:	4-layer Implementation for low noise operation

Utility Drivers

The utility disk contains drivers for the ***TX531*** motherboard, including DOS, Windows 3.x, Windows 95, Windows NT3.5x, NT4.0, Novell Netware, and IBM OS/2.

To install DOS/Windows 3.x drivers, just run the batch file named "INSTALL.BAT". To install drivers for other OSes, please refer to the readme file in certain directory.

Windows 95 Drivers Installation

1. Popup 'Control Panel' and open 'Add New Hardware'.
2. Click on "Next".
3. Click "No" - don't let Windows to search for your new hardware, then click "Next".
4. Select "Hard disk controller" and click "Next".
5. Click the button "Have Disk" (or press Alt+H).
6. Make sure the install disk is in drive A (or drive B), and then click "OK".
7. The "Select Device" dialog box will appear.
8. Select the device that you wish to install and click "Next".
9. After this install procedure is complete, you may need to restart the computer.

Attention:

1. If you have any DOS Real-mode driver on your system. It will be conflict between ACER Bus Master IDE Driver and a Real-mode ATAPI CD-ROM or IDE device driver. ALL REFERENCES TO REAL-MODE DRIVERS (IDE or ATAPI) in the AUTOEXEC.BAT and CONFIG.SYS should be removed.
2. Sometimes, the ACER IDE controller has already been installed with the standard driver provided by Microsoft. In order to use ACER IDE controller with the driver we provided, it is necessary to remove the standard driver from "Control Panel/System/Device Manager".

Ultra DMA/33 Hard Disk Protocol:

Ultra DMA is a new protocol for the ATA/IDE hard disk drive interface that doubles the current burst data transfer rate to 33 megabytes (MB) per second. The protocol is a Quantum Corporation patented technology that will be implemented in industry standard hard drive products. The ***TX531*** provides a utility disk to install the Ultra DMA/33 capability onto the system to support hard disk with Ultra DMA/33 mode.

1.4 System Performance

The following CPU benchmark programs provide a wide range of performance indexes, which do not reveal the true speed that the motherboard can provide.

This test is performed on most types of CPUs which are installed on the ***TX531*** motherboard.

SOFTWARE / CPU TYPE	LANDMARK V2.0	POWER METER V1.8 MIPS	NORTON V8.0 CPU SPEED
PENTIUM 133	771.33 MHz	67.7 MIPS	423.5
PENTIUM 150	878.06 MHz	74.8 MIPS	482.1
PENTIUM 166	964.19 MHz	83.6 MIPS	529.3
PENTIUM 200	1157.04 MHz	98.1 MIPS	635.2
PENTIUM MMX 166	1093.16 MHz	83.6 MIPS	567.2
PENTIUM MMX 200	1311.8 MHz	101.6 MIPS	680.6
PENTIUM MMX 233	1530.42 MHz	113.8 MIPS	784.0
CYRIX 6x86-133^{+}	1353.98 MHz	74.8 MIPS	761.2
CYRIX 6x86-150^{+}	1469.25 MHz	81.3 MIPS	826
CYRIX 6x86-166^{+}	1613.31 MHz	88.9 MIPS	907
CYRIX 6x86-200^{+}	1089 MHz	101.6 MIPS	1018.1
AMD K5-133	892.59 MHz	66.1 MIPS	430.5
AMD K5-166	1041.38 MHz	76.9 MIPS	502.3
AMD K6-166	1687.6 MHz	123.6 MIPS	991.9
AMD K6-200	2025.15 MHz	148.7 MIPS	1190.3
AMD K6-233	2362.67 MHz	177.7 MIPS	1388.7

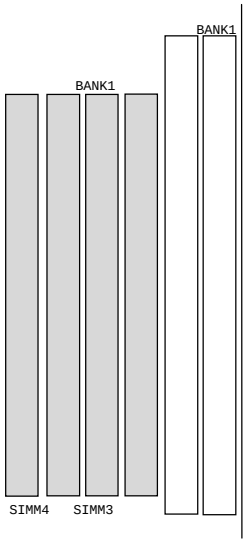
CHAPTER 2 INSTALLATION

2.1 Installing DRAM

The hardware must be set up for a variety of functions before the system is ready to operate. It is easy to set up the ***TX531*** motherboard. The user only has to adjust a few jumpers, connectors, and sockets.

The ***TX531*** motherboard can support extended memory of 8MB to 256MB.

■ The layout of the DRAM memory banks on board is shown below:



	SIMM1+SIMM	**SIMM3+SIMM**	
AND/OR			=

DIMM1 **DIMM2** **AND/OR**

=

System Memory (SIMM & DIMM)

This motherboard supports four 72-pin, 32-bit SIMMs (Single Inline Memory Modules) of 4, 8, 16, 32, or 64 MB to form a memory size from 8MB to 256MB. The SIMMs can be either 60ns or 70ns Fast Page Mode (FPM) (Asymmetric or Symmetric), or Enhanced Data Out (EDO) (BEDO & Parity are not supported). SIMMs must be installed in pairs so that each Row (see Map of Motherboard for Row locations) contains 64-bits of the same size and type of memory chips. One side (with memory chips) of the SIMM module takes up half a Row on the motherboard.

Dual Inline Memory Modules (DIMMs) can be used when the SIMM sockets are not used. Two sockets are available for 3.3 Volt (power level) Unbuffered Synchronous DRAMs (SDRAM) or EDO DRAM of either 8, 16, 32, 64, or 128MB to form a memory size between 8MB to 256MB. One side (with memory chips) of the DIMM module takes up one Row on the motherboard.

■ **Table 1 (SIMM)**

BANK 0		BANK 1		
SIMM1	**SIMM2**	**SIMM3**	**SIMM4**	**Total Memory**
4MB	4MB	None	None	8MB
4MB	4MB	4MB	4MB	16MB
8MB	8MB	None	None	16MB
4MB	4MB	8MB	8MB	24MB
8MB	8MB	4MB	4MB	24MB
8MB	8MB	8MB	8MB	32MB
16MB	16MB	None	None	32MB
4MB	4MB	16MB	16MB	40MB
16MB	16MB	4MB	4MB	40MB
8MB	8MB	16MB	16MB	48MB
16MB	16MB	8MB	8MB	48MB
16MB	16MB	16MB	16MB	64MB
32MB	32MB	None	None	64MB
4MB	4MB	32MB	32MB	72MB
32MB	32MB	4MB	4MB	72MB
8MB	8MB	32MB	32MB	80MB
32MB	32MB	8MB	8MB	80MB
16MB	16MB	32MB	32MB	96MB
32MB	32MB	16MB	16MB	96MB
32MB	32MB	32MB	32MB	128MB

■ **Table 2 (DIMM)**

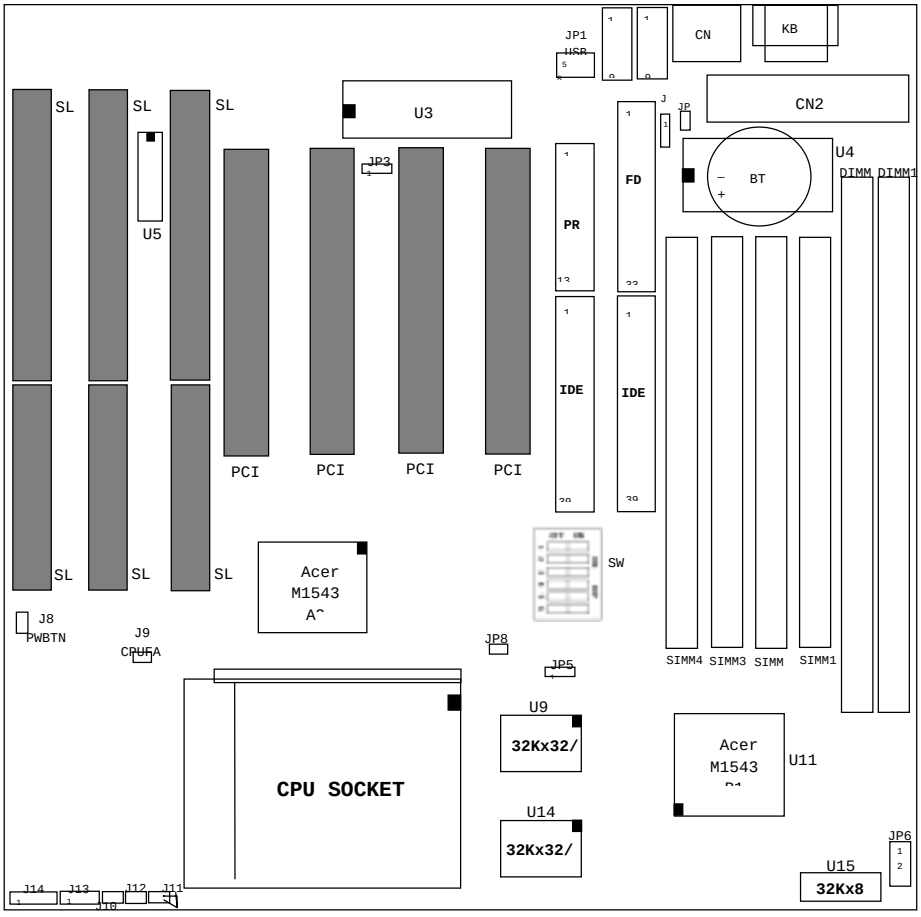
DIMM1 (BANK0)	DIMM2 (BANK1)	Total Memory
8MB	---	8MB
---	8MB	8MB
8MB	8MB	16MB
16MB	16MB	32MB
32MB	32MB	64MB

64MB	64MB	128MB

Note: DIMM and SIMM can't be installed at the same time.

2.2 TX531 Board Layout

The general layout of the ***TX531*** motherboard is shown in the following diagram:

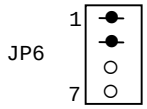
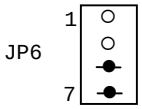


2.3 Setting Other Jumpers & Connectors

Connector Description

Connector	Pin Out	Signal Name
JP1 **USB** **CONNECTOR**	**1** **2** **3** **4**	+5V DC **(RED WIRE)** DATA OUT DATA OUT GROUND
J12 **RESET**	**1** **2**	GROUND RESET IN
J14 **KEYLOCK** **CONNECTOR**	**1** **2** **3** **4** **5**	+5V DC NC GROUND KEYBOARD INHIBITOR GROUND
J13 **SPEAKER** **CONNECTOR**	**1** **2** **3** **4**	DATA LINE NC GROUND +5V DC
J11 **HDD_LED**	**1** **2**	HARD DISK LED
J9 **CPU FAN** **HEADER**	**1** **2**	+12V GROUND
JP2 **CLEAR CMOS**	1 2	NORMAL CLEAR CMOS
J10 **SPEED LED**	**1** **2**	TURBO LED
J8 **SMI**	**1** **2**	SUSPEND SWITCH

DIMMs memory voltage selection

5V EDO type	♣ 3V SDRAM (Default)
	

♣ Default Setting

1. LED Lead (TB LED)

This indicates whether a message has been received from a fax/modem. The LED will remain lit when there is no signal and blink when there is data transfer or waiting in the inbox.

2. Reset Switch Lead (RESET)

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

3. Keyboard Lock Switch Led & System Power LED (KEYLOCK)

This 5-pin connector connects to the case-mounted keyboard lock switch for locking the keyboard and also to connect the system power LED. The system power LED lights when the system is powered on and blinks in sleep mode.

4. Speaker Connector (SPEAKER)

This 4-pin connector connects to the case-mounted speaker.

5. PS/2 Mouse, USB, Infrared Connector

If you are using a PS/2 mouse, USB, or Infrared devices, you must purchase an optional external connector set. The external connector set connects to the 18 pin block and mounts to an open slot on your computer's chassis. The system will direct IRQ12 to the PS/2 mouse if one is detected. If not

detected, expansion cards can use IRQ12. See ”PS/2 Mouse Control” in BIOS Features Setup and “USB Function” in PnP and PCI Setup of the BIOS SOFTWARE. See “Second Infrared” connector for details on the infrared connector.

6. Second Infrared (IrDA) & Fast IR-Compliant Infrared Connector (IR)

This is a second connector that supports the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure the setting through “UART2 Use Infrared” in Chipset Features Setup to select whether UART2 is directed for use with COM2 or IrDA. Use the five pins as shown on the Back View and connect a ribbon cable from the module to the motherboard according to the pin definitions.

7. SMI Suspend Switch Lead (SMI function)

This allows the user to manually place the system into a suspend mode or “Green” mode where system activity will be instantly decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector (see the figure below) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may use the “Turbo Switch” since it does not have a function. SMI is activated when it detects a Short to open moment and therefore leaving it shorted will not cause any problems. May require one or two pushes depending on the position of the switch . Wake-up can be controlled by settings in the BIOS but the keyboard will always allow wake-up (the SMI lead cannot wake-up the system). If you want to use this connector, “Suspend Switch” in the Power Management Setup of the BIOS SOFTWARE section should be on the default setting of Enable.

2.4 Setting CPU Configuration

Definition of DIP Switch SW 1

SW 1,2,3 - CPU Ratio (1.5x, 2.0x, 2.5x, 3.0x, 3.5x same as 1.5x setting).
SW 4,5,6 - CPU Frequency (50/55/60/66/75 MHz clock).

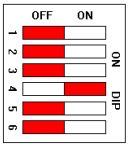
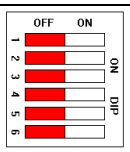
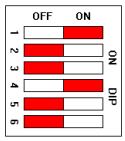
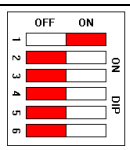
For JP8: CPU Mode type:

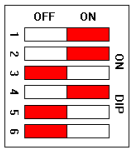
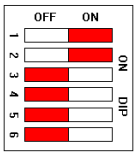
"OFF" Position: Interleave Burst (Intel/AMD CPUs including MMX).
"ON" Position: Linear Burst (Cyrix CPU including 6x86MX Processor).

- ***TX531 CPU Auto-Voltage Detection Feature***

The ***TX531*** provides Auto-detection voltage for all series of Pentium-based Processor. No setting is required to prevent wrong CPU voltage setting. All Pentium-based processor use two power supplies; one supply is for the CPU core, and the other is for the I/O interface. Some CPU vendor provide the same voltage for the core and I/O, it is called "SINGLE VOLTAGE CPU". If the core and I/O use different voltages, it is called "DUAL VOLTAGES CPU". Instead of setting the CPU as "single" or "dual" voltage by jumper, ***TX531*** Pentium-based series will automatic detect the CPU is "single" or "dual" voltage when system power-on.

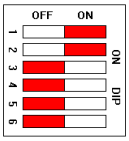
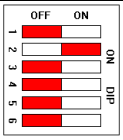
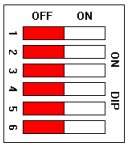
Processors Configuration

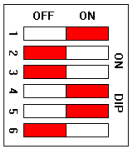
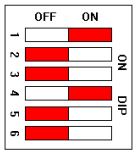
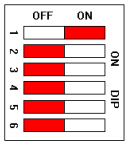
CPU Type	Jumper Setting
PENTIUM 90MHz/AMD K5-PR90/ AMD K5-PR120	SW1 
PENTIUM 100MHz/AMD K5-PR100/ AMD K5-PR133	SW1 
PENTIUM 120MHz	SW1 
PENTIUM 133MHz	SW1 

PENTIUM 150MHz	SW1 
PENTIUM 166MHz/PENTIUM MMX-166/ AMD K5-PR166/AMD K6-PR166	SW1 

(Continued)

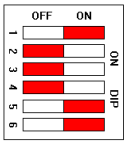
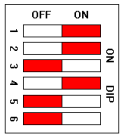
Processors Configuration

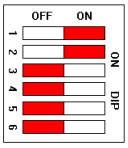
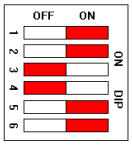
CPU Type	Jumper Setting
PENTIUM 166MHz/PENTIUM MMX-166/ AMD K5-PR166/AMD K6-PR166	SW1 
PENTIUM 200MHz/PENTIUM MMX-200/ AMD K6-PR200	SW1 
PENTIUM MMX-233MHz/ AMD K6-PR233	SW1 

CYRIX 6x86-133+	SW1	 JP 
CYRIX 6x86-150+	SW1	 JP 
CYRIX 6x86-166+	SW1	 JP 

(Continued)

Processors Configuration

CPU Type	Jumper Setting
CYRIX 6x86-200+	SW1 
CYRIX 6x86MX-PR166	SW1 

CYRIX 6x6MX-PR200	SW1 	JP
CYRIX 6x86MX-PR233	SW1 	JP

Manual Configuration for Switch CPU speed bus & CPU ratio relationships of the CPUs:

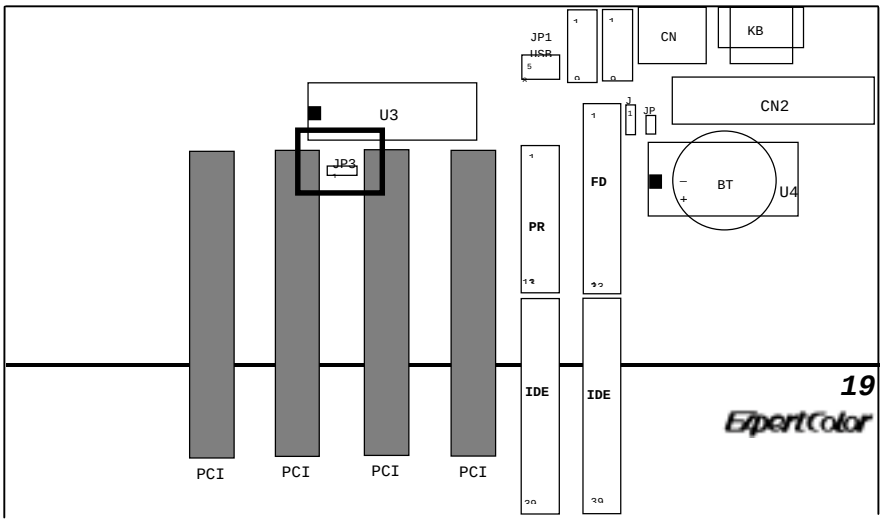
Definition of DIP Switch

DIP: 1,2,3 - CPU Ratio (1.5x,2.0x,2.5x,3.0x,3.5x same as 1.5x setting).
DIP: 4,5,6 - CPU Frequency (50/55/60/66/75 Mhz clock).

DIP1	DIP2	DIP3	Multiplier
ON	ON	OFF	2.5x
OFF	ON	OFF	3.0x
ON	OFF	OFF	2.0x
OFF	OFF	OFF	1.5/3.5x

DIP4	DIP5	DIP6	CPU Clock (MHz)
ON	ON	ON	50
ON	ON	OFF	55
ON	OFF	OFF	60
OFF	OFF	OFF	66
OFF	ON	ON	75

2.5 Installing FLASH ROM



♣ 5V FLASH ROM	12V FLASH ROM
	

♣ Default Setting

2.6 Installing Flash ROM Utility

Please check the utility software included with your motherboard. This is the Flash Memory writer utility that updates the BIOS by uploading a new BIOS file to the programmable Flash ROM chip on the motherboard.

Flash ROM Writer Utility AMIFLASH.COM

```
AMIFLASH Version 5.30 - Flash EPROM Programming Utility
Copyright (C) 1992-1996 American Megatrends Inc.
          Release Date : 05/12/96
```

```
Enter BIOS Filename:

Enter the BIOS Filename from which Flash EPROM will be
programmed.
The Format:- [Drv:\Pathname\Filename.Ext]
The Filename must end  Press <ESC>  .
```

You cannot run this utility from the Windows 95 MS-DOS box. Please run it in real mode. The method is :

1. Restart your computer.
2. Press F8 to show the multiboot menu as soon as the " Starting Windows 95..." message appears on the screen.
3. Choose 6 (Command prompt only).
4. Run " AMIFLASH" to write the updated content to your BIOS if necessary.

Another method is: Create a bootable system floppy diskette by typing "FORMAT A:/S" from the DOS environment without creating AUTOEXEC.BAT and CONFIG.SYS, then save the AMIFLASH utility and the BIOS file to the diskette. Note that you should have a BIOS file ready to update your BIOS chip if you really want to change the original content of your BIOS.

***Notice** : If the flashing of the BIOS content fails to boot-up, we recommend you to refer to your nearest Technical support site for replacement or have a qualified technician to do the updates for your system.*

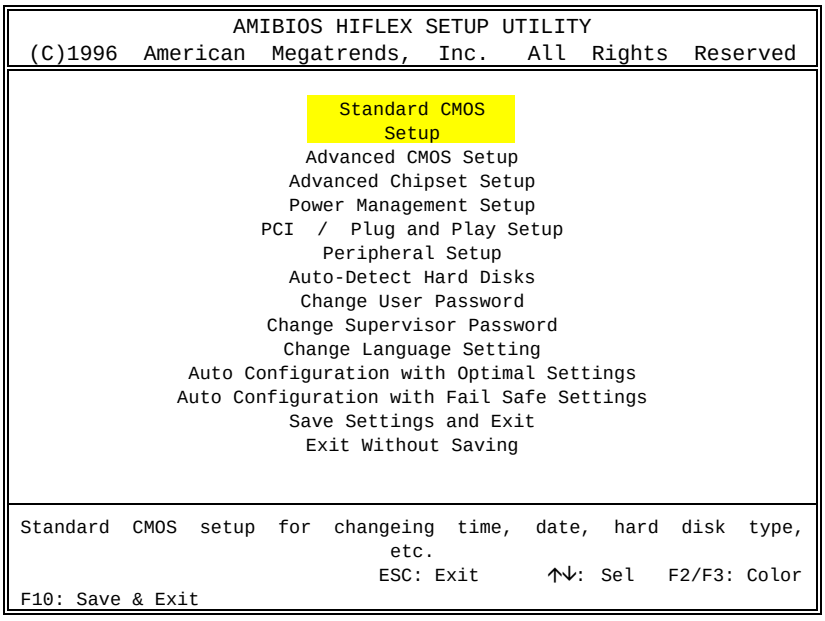
CHAPTER 3 SYSTEM BIOS SETUP

This chapter discusses AMIBIOS Setup program built into the ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored into battery-backed RAM so that it contains the Setup program when the power is turned off.

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

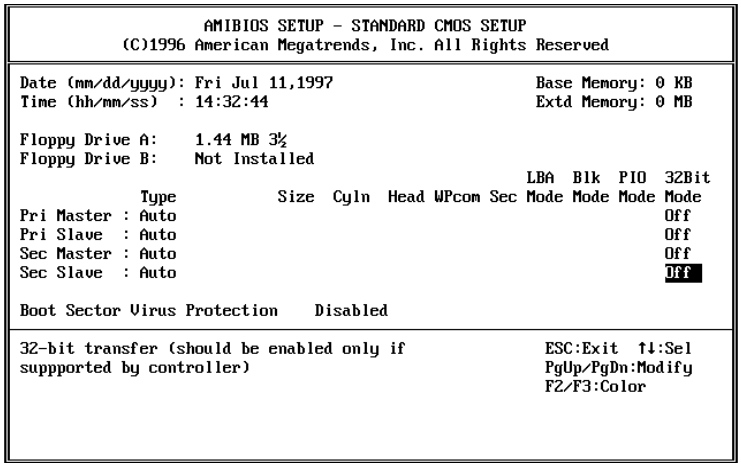
The Setup utility provided by AMIBIOS is accessed by pressing <Del> at the appropriate time during system boot. Setup configures data in CMOS RAM.

The following screen shows the types of AMIBIOS Setup:



3.1 Standard CMOS Setup

The AMIBIOS Setup options described in this section are displayed by choosing the Standard Setup icon from the Setup section on the AMIBIOS Setup main menu. All Standard Setup options are described in this section.



- ***Date/Time***

Select the Date/Time option to change the date or time. The current date and time are displayed. Enter new values through the displayed window.

- ***Floppy Drive A, B***

Choose the Floppy Drive A or B icon to specify the floppy drive type. The settings are *360 KB 5¼", 1.2 MB 5¼", 720 KB 3½", 1.44 MB 3½"*, or *2.88 MB 3½"*.

- ***IDE Device Auto-detection for Primary/Secondary Hard Disk/CD-ROM Drives/LS-120 device.***

- ***Configuring IDE Drives***

If the hard disk drive to be configured is an IDE drive, select the appropriate drive icon (Pri Master, Pri Slave, Sec Master, or Sec Slave). Choose the **Type** parameter and select Auto.

AMIBIOS automatically detects the IDE drive parameters and displays them. Click on the OK button to accept these parameters.

Click on **LBA/Large Mode** and choose On to enable support for IDE drives with capacities greater than 528 MB. Note that hard disk with LBA mode formatted on other system may not bootup and you needs to do a "sys c:" for system bootup.

Click on **Block Mode** and choose On to support IDE drives that use Block Mode.

Click on **32Bit Mode** and choose On to support IDE drives that permit 32-bit accesses.

- ***Configuring a CD-ROM Drive***

Select the appropriate drive icon (Pri Master, Pri Slave, Sec Master, or Sec Slave). Choose the **Type** parameter and select CD ROM. You can boot the computer from a CD-ROM drive.

- ***Configuring a LS-120 device***

The LS-120 device will be auto-detected by BIOS. To create LS-120 device boot able Disc, format the LS-120 disk under Windows 95 or for data storage. Do not format LS-120 disk under DOS environment.

- ***Anti-Virus Option***

Do not enable this option during operating system installation like OS/2 and Windows 95. This may render your system unable to install.

3.2 Advanced CMOS Setup

The AMIBIOS Setup options described in this section are displayed by choosing the Advanced Setup icon from the Setup section on the AMIBIOS Setup main menu. All Advanced Setup options are described in this section.

```
          AMIBIOS SETUP  — – ADVANCED CMOS SETUP
 (C)1996  American  Megatrends,  Inc.   All  Rights  Reserved
 1st  Boot Device              FLOPPY      Available Options:
 2nd Boot Device               IDE-0            Disabled
 3rd Boot Device               CDROM            FLOPTICAL
 4th Boot Device               Disabled
 S.M.A.R.T. for Hard Disks     Disabled
 Quick Boot                    Disabled
 BootUp Num-Lock               Off
 Floppy Driver Swap            Disabled
 Floppy Driver Seek            Disabled
 PS/2 Mouse Support            Disabled
 System Keyboard               Absent
 Primary Display               Absent
 Password Check                Setup
 Parity Check                  Disabled
 Boot To OS/2                  No
 Wait For " F1"  If Error      Disabled
 Hit " DEL"  Message Display   Disabled     ESC: Exit    ↑↓ : Sel
 External Cache                Disabled     PgUp/PgDn : Modify
 System BIOS Cacheable         Enabled      F2/F3 : Color
```

- ***xxx Boot Device***

Piority of Device pre-defined in-sequence for Booting.

- ***S.M.A.R.T. Feature***

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a technology developed to manage the reliability of the hard disks by predicting some (but NOT ALL) of the future device failures. This feature helps BIOS warn the user of the possible device failure thereby giving user a chance to back up the device and replace the device before actual failure happens. S.M.A.R.T. capable devices should predict an impending failure and return that information through the Return S.M.A.R.T. Status command. Note that S.M.A.R.T. can not predict all future device failures and it should be used as an warning tool, not as a tool to predict the device reliability.

- ***Quick Boot***

Set this option to *Enabled* to permit AMIBIOS to boot within 5 seconds. This option replaces the old **Above 1 MB Memory Test** option. The Optimal and Fail-Safe default settings are *Disabled.*

Setting	Description
Disabled	AMIBIOS tests all system memory. AMIBIOS wait up to 40 seconds for a READY signal from the IDE drive. AMIBIOS waits up to .5 seconds after sending a RESET signal to the IDE drive to permit the IDE drive to send a READY signal. AMIBIOS checks if the <Del> key was pressed. AMIBIOS Setup is executed if <Del> was pressed.
Enabled	AMIBIOS does not test any system memory above 1 MB. AMIBIOS does not wait for a READY signal from the IDE drive. If a READY signal is not received immediately, AMIBIOS does not configure the drive. AMIBIOS does not wait .5 seconds after sending a RESET signal to the IDE drive. AMIBIOS does not check if the <Del> key was pressed. *You cannot run AMIBIOS Setup at system boot if this setting is selected.*

- ***Boot Up Sequence***

This option sets the sequence of boot drives (floppy drive A:, hard disk drive C:, or a CD-ROM drive) that AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are *C:,A:, CDROM, A:,C:, CDROM,* or *CDROM, C:,A:*. The Optimal and Fail-Safe default settings are *C:,A:,CDROM.*

- ***Boot Up CPU Speed***

This option sets the CPU speed when the computer boots. The settings are *Low* or *High.* The Optimal and Fail-Safe default settings are *High.*

- ***Boot Up Num Lock***

When this option is set to *On,* AMIBIOS turns off the *Num Lock* key when the system is powered on so the end user can use the arrow keys on both the numeric

keypad and the keyboard. The settings are *On* or *Off*. The Optimal default and Fail-Safe default settings are *On*.

- ***Floppy Drive Swap***

Set this option to *Enabled* to specify that floppy drives A: and B: are swapped. The settings are *Enabled* or *Disabled*. The Optimal and Fail-Safe default settings are *Disabled.*

- ***Floppy Drive Seek***

When this option is set to *Enabled,* AMIBIOS performs a Seek command on floppy drive A: before booting the system. The settings are *Enabled* or *Disabled.* The Optimal default setting is *Disabled*. The Fail-Safe default setting is *Enabled.*

- ***PS/2 Mouse Support***

When this option is set to *Enabled,* AMIBIOS supports a PS/2-type mouse. The settings are *Enabled* or *Disabled*. The Optimal and Fail-Safe default settings are Disabled.

- ***System Keyboard***

This option configures the keyboard. The settings are *Present* or *Absent.* If you select *Absent,* AMIBIOS does not report keyboard errors. The Optimal and Fail-Safe default settings are *Present.*

- ***Primary Display***

This option configures the primary display subsystem in the computer. The settings are *Absent, Mono (monochrome), 40CGA, 80CGA,* or *VGA/EGA.* The Optimal and Fail-Safe default settings are *VGA/EGA.*

- ***Password Check***

This option specifies the type of AMIBIOS password protection that is implemented. The Optimal and Fail-Safe default settings are *Setup*. The settings are:

Setting	Description
Setup	The password prompt appears only when an end user attempts to run AMIBIOS Setup.
Always	A password prompt appears every time the

	computer is powered on or rebooted.

The AMIBIOS password does not have to be enabled. The end user sets the password by choosing the Password icon on the AMIBIOS Setup screen.

- ***Boot to OS/2***

Set this option to *Yes* to permit AMIBIOS to run properly if OS/2 or any other operating system that does not support Plug and Play is to be run on this computer. If running OS/2 in a computer with 64 MB or more of system memory, set this option to *Yes.* The settings are *Yes* or *No.* The Optimal and Fail-Safe default settings are *No.*

Wait for "F1" If Error

AMIBIOS POST runs system diagnostic tests that can generate a message followed by:

Press <F1> to continue

If this option is set to *Enabled,* AMIBIOS waits for the end user to press <F1> before continuing. If this option is set to *Disabled,* AMIBIOS continues the boot process without waiting for <F1> to be pressed. The settings are *Enabled* or *Disabled.* The Optimal default and Fail-Safe default settings are *Enabled.*

Hit "DEL" Message Display

Disabling this option prevents

Hit <DEL> if you want to run Setup

from appearing when the system boots. The settings are *Enabled* or *Disabled.* The Optimal and Fail-Safe default settings are *Enabled.*

- ***External Cache***

This option selects the type of caching algorithm used by AMIBIOS and the CPU to access L2 secondary (external) cache memory. The settings are:

Setting	Description
WriteBack	A write-back algorithm is used.
WriteThru	A write-through algorithm is used.

Disabled	AMIBIOS does not specify the type of caching algorithm.

The Optimal default setting is WriteBack. The Fail-Safe default setting is *Disabled.*

- ***System BIOS Cacheable***

AMIBIOS always copies the system BIOS from ROM to RAM for faster execution. Set this option to *Enabled* to permit the contents of the F0000h RAM memory segment to be written to and read from cache memory. The settings are *Enabled* or *Disabled.* The Optimal default setting is *Enabled.* The Fail-Safe default setting is *Disabled.*

C000,16K Shadow
C400,16K Shadow

These options specify how the contents of the video ROM at C0000h are handled. The settings are:

Setting	Description
Disabled	The Video ROM is not copied to RAM.
Cached	The contents of the video ROM area from C0000h - C7FFFh are not only copied from ROM to RAM, the contents of the C0000h - C7FFFh RAM area can be written to or read from cache memory.
Enabled	The contents of the video ROM area from C0000h - C7FFFh are copied (shadowed) from ROM to RAM for faster execution.

The Optimal and Fail-Safe default settings are *Cached.*

C800,16K Shadow
CC00,16K Shadow
D000,16K Shadow
D400,16K Shadow
D800,16K Shadow
DC00,16K Shadow

These options specify how the contents of the adapter ROM named in the option title are handled. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards. The settings are:

Setting	Description
Disabled	The specified ROM is not copied to RAM.
Cached	The contents of the ROM area are not only copied from ROM to RAM for faster execution, the contents of the RAM area can be written to or read from cache memory.
Enabled	The contents of the ROM area are copied from ROM to RAM for faster execution.

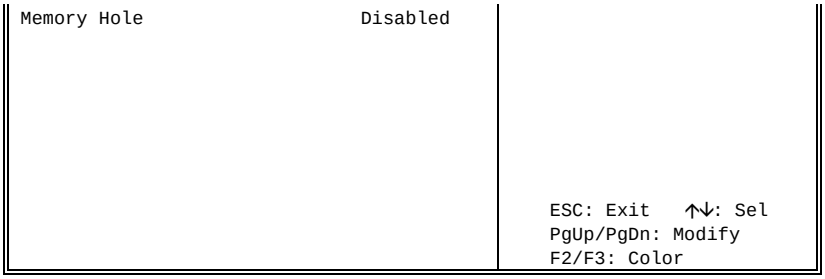
The Optimal and Fail-Safe default settings are *Cached*.

3.3 Advanced Chipset Setup

Choose the Chipset Setup icon from the Setup section on the AMIBIOS Setup main menu. All Chipset Setup options are then displayed and are described in this chapter.

```
          AMIBIOS SETUP – – ADVANCED CHIPSET SETUP
(C)1996 American Megatrends, Inc. All Rights Reserved

USB Function                    Disabled    Available Options:
USB Keyboard/Mouse Legacy       Enabled         Disabled
Support
DRAM Write Timing               4-3-3-3         Enabled
Page Mode DRAM Read Timing      X-4-4-4
EDO DRAM Read Timing            X-3-3-3
DRAM Data Integrity Mode        Parity
AT Bus Clock                    Auto
Cyrix Burst Mode                Linear
```



- ***USB Function***

Set this option to *Enabled* to enable the system BIOS USB (Universal Serial Bus) functions. The settings are *Enabled* or *Disabled.* The Optimal and Fail-Safe default settings are Disabled.

- ***USB Keyboard/Mouse Legacy Support***

Set this option to *Enabled* to provide support for older non-USB keyboard and mouses. The settings are *Enabled* or *Disabled.* The Optimal and Fail-Safe default settings are Dis*abled.*

- ***DRAM Write Timing***

This option specifies the access timings for DRAM system memory write operations. The Optimal and Fail-Safe default settings are *x4-4-4 or x-3-3-3*. Default setting as *x-4-4-4*.

- ***Page Mode DRAM Read Timing***

This option specifies the access timings for Page Mode DRAM system memory read operations. The settings are *x-4-4-4 or x-3-3-3*. The Optimal default setting as *x-4-4-4*. It is recommend that for CPU Frequency *233 MHz or CPU clock above 66MHz speed, it should be set as x-4-4-4.*

- ***EDO DRAM Read Timing***

This option specifies the access timing for Page Mode DRAM system memory read operations. The settings are *x-4-4-4-4, or x-3-3-3.* The Optimal default settings are *x-3-3-3.*

- ***DRAM Data Integrity Mode***

This option sets the Error Check and Correction feature (ECC**) (SIMMs with Parity RAM)** to provides single-error correction, double-error correction and detection of all errors confined to a single nibble for the DRAM data integrity. The settings are Parity/ECC. The Optimal and Fail-Safe default settings are Parity. If you do not install SIMMs with Parity Check RAM, then don't care or "Parity". Do not set it as "ECC" option if your SIMMs do not have parity check RAM as wrong setting may cause system unstable.

- ***AT Bus Clock***

This option set the AT Bus Clock for system I.O. Default setting set as "Auto".

- ***Cyrix Burst Mode***

This option enable the Cyrix CPU to take advantage of the Burst mode incorporated in the CPU to increase performance.

- ***Memory Hole***

This option allows the end user to specify the location of a memory hole for ISA card with firm ware ROM. The settings are *Disabled, 512-640K, 14-16 MB, or 15-16M* (from 15MB to 16 MB). The Optimal and Fail-Safe default settings re Disabled.

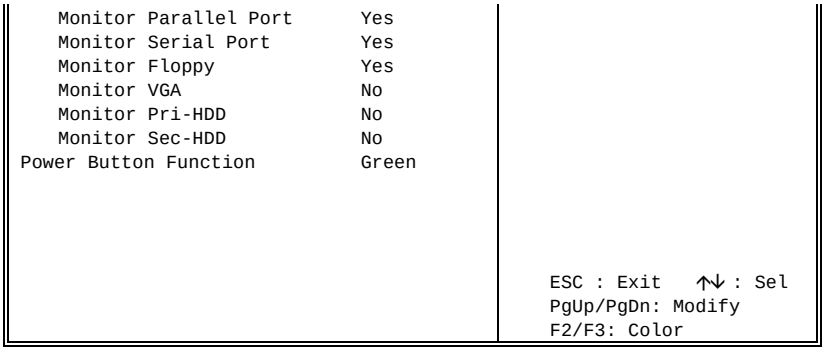
Memory Specification Notice

The problem with EDO RAM when looking in the future is that it hardly works with any bus speed higher than 66 MHz, which is already reached. As CPUs demand higher bus speeds and the Cyrix 6x86 already needing 75 MHz, it is not recommended to use EDO Memory on the ***TX531*** for system clock frequency of above 66 MHz or install SDRAM DIMMs memory which supports up to 83.3 MHz bandwidth depending on the type of the SDRAM DIMMs installed. Current Intel and AMD CPUs (100~233 MHz) require 66 MHz system clock.

3.4 Power Management Setup

The AMIBIOS Setup options described in this section are selected by choosing the Power Mgmt Setup icon from the Setup section on the AMIBIOS Setup main menu.

AMIBIOS SETUP – – POWER MANAGEMENT SETUP (C)1996 American Megatrends, Inc. All Rights Reserved		
Power Management/APM	Disabled	Available Options:
Green PC Monitor Power State	Stand By	Disabled
Video Power Down Mode	Disabled	Enabled
Hard Disk Power Down Mode	Disabled	
Standby Time out	Disabled	
Suspend Time Out	Disabled	



- ***Power Management/APM***

Set this option to *Enabled* to enable the Intel 430TX power management features and APM (Advanced Power Management). The settings are *Enabled* or *Disabled.* The Optimal and Fail-Safe default settings are *Enabled.*

- ***Green PC Monitor Power State***

This option specifies the power state that the green PC-compliant video monitor enters when AMIBIOS places it in a power savings state after the specified period of display inactivity has expired. The settings are *Off, Standby, Suspend,* or *Disabled.* The Optimal and Fail-Safe default settings are *Standby.*

- ***Video Power Down Mode***

This option specifies the power conserving state that the VESA VGA video subsystem enters after the specified period of display inactivity has expired. The settings are *Disabled, Standby,* or *Suspend.* The Optimal and Fail-Safe default settings are *Disabled.*

- ***Hard Disk Power Down Mode***

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are *Disabled, Standby,* or *Suspend.* The Optimal and Fail-Safe default settings are *Disabled.*

- ***Standby Time out***

This option specifies the length of a period of system inactivity while in Full power on state. When this length of time expires, the computer enters Standby power state. The settings are *Disabled, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9*

min, 10 min, 11 min, 12 min, 13 min, 14 min, or *15 min.* The Optimal and Fail-Safe default settings are *Disabled.*

- ***Suspend Time out***

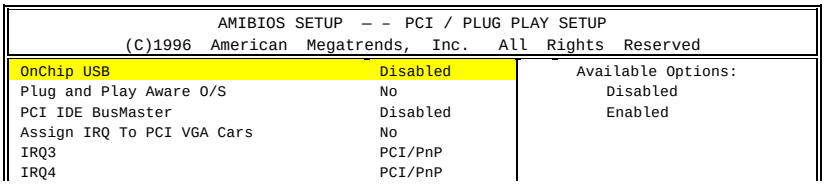
This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state. The settings are *Disabled, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 14 min,* or *15 min.* The Optimal and Fail-Safe default settings are *Disabled.*

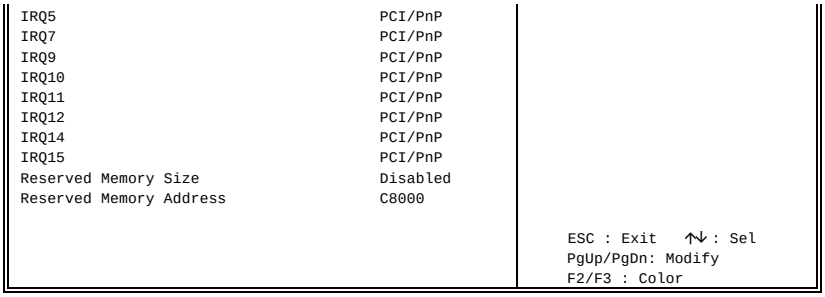
- ***Power Button Function (SMI switch)***

This option specifies the length of a period of system inactivity while in Standby.

3.5 PCI/PnP Setup

Choose the PCI/PnP Setup icon from the AMIBIOS Setup screen to display the PCI and Plug and Play Setup options, described below.





- ***OnChip USB:***

Set this option to Enabled if any USB device is installed. Default setting as Disabled.

- ***Plug and Play-Aware O/S***

Set this option to *Yes* if the operating system in this computer is aware of and follows the Plug and Play specification. Currently, only Windows 95 is PnP-aware. The settings are *Yes* or *No.* The Optimal and Fail-Safe default settings *No.*

- ***Reserved Memory Size***

This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are *Disabled, 16K, 32K,* or *64K.* The Optimal and Fail-Safe default settings are *Disabled.*

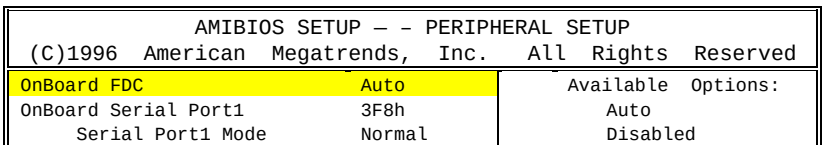
- ***Reserved Memory Address***

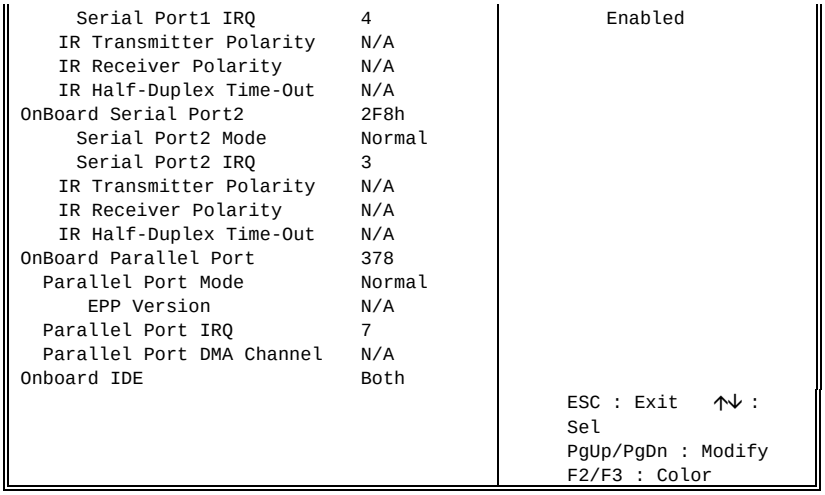
This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards.

The settings are *C0000, C4000, C8000, CC000, D0000, D4000, D8000,* or *DC000.* The Optimal and Fail-Safe default settings are *C8000.*

3.6 Peripheral Setup

Choose the Peripheral Setup icon from the AMIBIOS Setup screen to display the Peripheral Setup options, described below.





- ***Onboard FDC***

This option enables the FDC (Floppy Drive Controller) on the motherboard. The settings are *Auto (AMIBIOS automatically determines if the floppy controller should be enabled), Enabled,* or *Disabled.* The Optimal and Fail-Safe default settings are *Auto.*

- ***Onboard Serial Port1***

This option specifies the base I/O port address of serial port 1. The settings are *Auto (AMIBIOS automatically determines the correct base I/O port address), Disabled, 3F8h, 2F8h, 2E8h,* or *3E8h.* The Optimal and Fail-Safe defaults are 3F8H.

- ***Onboard Serial Port2***

This option specifies the base I/O port address of serial port 2. The settings are *Auto (AMIBIOS automatically determines the correct base I/O port address), Disabled, 3F8h, 2F8h, 2E8h,* or *3E8h.* The Optimal and Fail-Safe defaults are 2F8H.

This option works in conjunction with the Infared (IR) device option. If you can installing IR device, you needs to set this option as “Auto” for IRQ sharing for COM 2 device and IR device.

- ***Serial Port2 Mode***

This option is not available if the setting of the **Onboard Serial Port2** option is *Disabled.* This option specifies the serial port 2 mode. The settings are *Standard, IrDA,* or *ASK IR (the ASK Computer infrared specification).* The Optimal and Fail-Safe default settings are *Standard.*

- ***IR Transmission Mode***

This option specifies the type of duplex transmission used by serial port 2. This option is only valid if the **Serial Port2 Mode** option is not set to *Normal.* The settings are *Half Duplex* or *Full Duplex.* The Optimal and Fail-Safe default settings are *N/A.*

- ***Receiver Polarity***

This option specifies the manner in which the infrared receive transmission signal is active. The settings are *Active High* or *Active Low.* The Optimal and Fail-Safe default settings are *N/A.*

- ***Transmitter Polarity***

This option specifies the manner in which the infrared send transmission signal is active. The settings are *Active High* or *Active Low.* The Optimal and Fail-Safe default settings are *N/A.*

- ***Onboard Parallel Port***

This option specifies the base I/O port address of the parallel port on the motherboard. The settings are *Auto (AMIBIOS automatically determines the correct base I/O port address), Disabled, 378h, 278h,* or *3BCh.* The Optimal and Fail-Safe default settings are 378H.

- ***Parallel Port Mode***

This option specifies the parallel port mode. The Optimal and Fail-Safe default settings are *Normal.* The settings are:

Setting	Description
Normal	Specify this option to use the standard 8-bit IBM PC/AT-compatible Centronics parallel port.
EPP	The parallel port can be used with devices that

	adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.
ECP	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bidirectional communication.

The Optimal and Fail-Safe default settings are *Normal.*

- ***EPP Version***

This option is only valid if the **Parallel Port Mode** option is set to *EPP*. This option specifies the version of the Enhanced Parallel Port specification that will be used by AMIBIOS. The settings are *1.7* or *1.9.* The Optimal and Fail-Safe default settings are N/A.

- ***Parallel Port IRQ***

This option is only valid if the **Onboard Parallel Port** option is not set to *Disabled.* This option sets the IRQ used by the parallel port. The settings are *5, 7,* or *Auto (AMIBIOS automatically sets the correct parallel port IRQ).* The Optimal and Fail-Safe default settings are *Auto.*

- ***Parallel Port DMA Channel***

This option is only available if the setting of the **Parallel Port Mode** option is *ECP.* This option sets the DMA channel used by the ECP-capable parallel port. The settings are *None, 0 (DMA Channel 0), 1 (DMA Channel 1),* or *3 (DMA Channel 3).* The Optimal and Fail-Safe default settings are 3

- ***Onboard IDE***

This option specifies the channel used by the IDE controller on the motherboard. The settings are *Disabled, Primary, Secondary,* or *Both.* The Optimal and Fail-Safe default settings are *Primary.*

For Fast Configuration

- ***Optimal Defaults (Default setting)***

The Optimal default values provide optimum performance settings for all devices and system features.

- ***Fail-Safe Defaults***

The Fail-Safe default settings consist of the safest set of parameters. Use them if the system is behaving erratically. They should always work but do not provide optimal system performance characteristics.

LIMITED WARRANTY

Congratulations on your purchase of an the Motherboard . This product is engineered to give many years of trouble free performance. This limited warranty is provided for your protection.

The warrants this product to be in good working order for a period of one year from date of purchase as a new product. In the event of failure of any part(s) due to defects in material or workmanship occurring within that one year period, ***D**ata**E**xpert* will, at its option, either repair or replace the defective product or part thereof at no charge for the parts or labor.

The limited warranty described above is in addition to whatever implied warranties may be granted to purchaser by law. To the extent permitted by applicable law, ALL IMPLIED WARRANTIES INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE PERIOD FROM THE DATE OF PURCHASE FOR ONE YEAR. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

The limited warranty is non-transferable and does not apply if the product has been damaged by abuse, misuse, modification, accident, misapplication, or shipment to ***D**ata**E**xpert*. Service by anyone other than an authorized ***D**ata**E**xpert* service agent will also render this limited warranty void. It is the purchaser's responsibility to determine the suitability of this product for your purposes. ***D**ata**E**xpert* does not warrant that this product will meet your requirements.

LIABILITY DISCLAIMER

The product described in this manual is warranted in accordance with the terms of the applicable ***D**ata**E**xpert* product specifications. Product performance is affected by system configuration, software, application, customer data, operator control, and other factors.

RMA FORM

When the motherboard can not work well, please fill up this form to describe related situations. If the space is not enough to use, you can attach separate paper.

MODEL: **MODEL NO:**

HARDWARE

CPU: Brand _____, Model _____ _____, Speed _____ MHz

CD-PROCESSOR: Brand _____, Model _____ _____, Speed MHz

SIMM: Brand _____ _____ _____, Speed _____ ns, Q'ty pcs, Total MB

CACHE: Brand _____ _____ _____, Speed ns, Total K

TAG RAM: Brand _____ _____ , Speed ns

BIOS DATA CODE: _____

SYSTEM SPEED RUNNING _____ MHz

VIDEO CARD: Chip _____ _____ _____, RAM _____, VGA Mode

_____Bus (ISA, VESA or PCI)

OTHER ADD-ON CARDS:

SOFTWARE

OPERATING SYSTEM _____ _____ VERSION

SOFTWARE PROGRAM _____

BIOS SETUP: DRAM Wait State _____
CACHE Wait State

If you change BIOS SETUP, please describe the changes:

<A>ERROR

☐HANG UP ☐NO SCREEN ☐FLOPPY R/W ERROR
☐HARD DISK R/W ERROR ☐PARITY MEMORY ERROR
☐OTHER_____

<B>ERROR MESSAGES ON YOUR SCREEN (PLEASE SHOW US THE WHOLE SENTENCE)

<C>PROBLEM DESCRIPTION