

MANUAL

ACHI-5VX



ACHITEC CORPORATION LTD.

USER'S MANUAL

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Chapter 1 Introduction

System Overview

The board incorporates system board, ISA I/O, PCI IDE in one board that provides all the PC solutions. The mainboard is a Pentium microprocessor base PC/AT system, supports 256KB to 512KB cache with ISA Bus and PCI Local Bus to upgrade your system performance. It is ideal for multi-tasking and fully supports MS-DOS, Windows, Windows NT, Windows 95, Novell, OS/2, UNIX, SCO UNIX etc. This manual also explains how to install the mainboard for operation, how to setup your CMOS configuration with BIOS setup program.

Specification

CPU

- Support Intel Pentium Microprocessor P54C, P55C, Cyrix 6x86 Microprocessor, AMD 5k86 Microprocessor.
- Provides 321-pin ZIF socket (socket 7).

Green Function

- Support power management operation via BIOS.
- Power down timer from 2 Mins to 30 Mins.
- Wakes up by any key pressed or mouse activity.
- Green mode selection via software or hardware.

Speed

- Support CPU bus clock from 50 MHZ to 66 MHZ.
- Support 25/30/33 MHZ PCI BUS speed.
- Speed selection via software.
- I/O clock 8MHZ for ISA bus.

Shadow RAM

- A memory controller that provides shadow RAM and supports 8-bit ROM BIOS.

DRAM memory

- Support 2 banks (4 pcs) 72-pin 2MB/ 4MB/ 8MB/ 16MB/ 32MB/64MB SIMM module socket.
- Support 2 banks (2 pcs) 168-pin 8MB/ 16MB/ 32MB/ 64MB DIMM module socket.
- Support DRAM memory 8MB to 128MB on board.
- Support EDO type DRAM, fast page mode DRAM & SDRAM.
- DRAM type : page mode, 70ns required.
- Support Symmetrical and Asymmetrical DRAM.
- Optional parity.

Cache Memory

- Support Pipeline Burst SRAM 256KB or 512KB.

BUS Slot

- Provides three 16-bit ISA Bus slot and four PCI Bus slot.

Flash Memory

- Support PnP function, for better system compatibility.
- System BIOS built-in NCR810 SCSI card BIOS.
- Support AMI BIOS. The BIOS is stored in Flash ROM form, provides better upgradeability for the system.

PCI Enhanced IDE Built-in On Board

- Support 4 IDE hard disk drives
- Support mode 4, Master Mode, high performance hard disk drives.
- Support IDE interface with CD-ROM.
- Support high capacity hard disk drives.
- Support LBA mode.

ISA I/O Built-in On Board

- Support one multi-mode parallel port
(1) Standard & Bidirection Parallel Port (SPP)
(2) Enhanced Parallel port (EPP)
(3) Extended Capabilities Port (ECP).
- Support two serial ports, 16550UART.
- Support 360KB, 720KB, 1.2MB, 1.44MB and 2 88MB floppy disk drives.
- Support PS/2 MOUSE (optional)

Universal Serial Bus

- Support two Universal Serial Bus (U.S.B.) Port.

Dimension

- 22cm x 25cm (WxL).

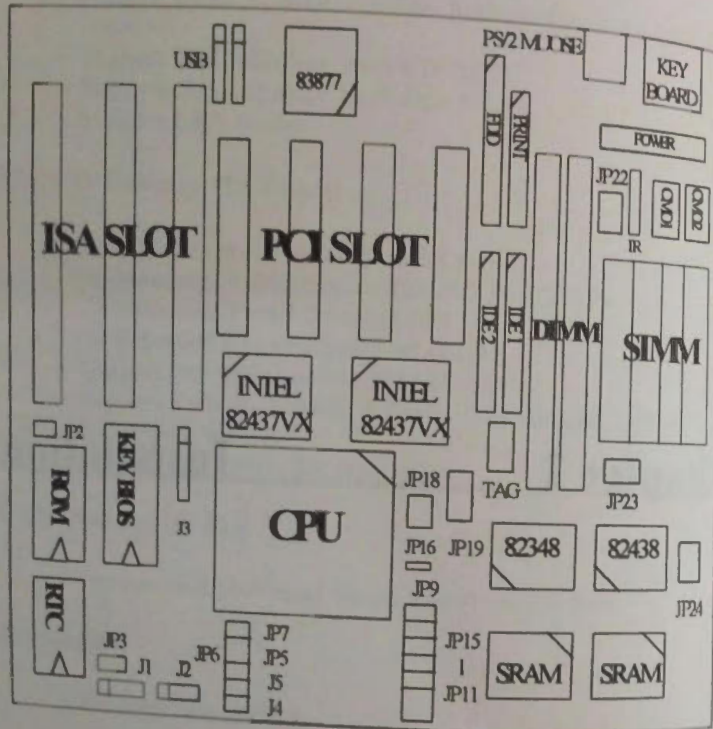
O.S.

- Offers the highest performances for MS-DOS, OS/2, Windows, Windows NT, Windows 95, Novell, UNIX, SCO UNIX etc.

Chapter 2

Installation

LAYOUT OF MAINBOARD

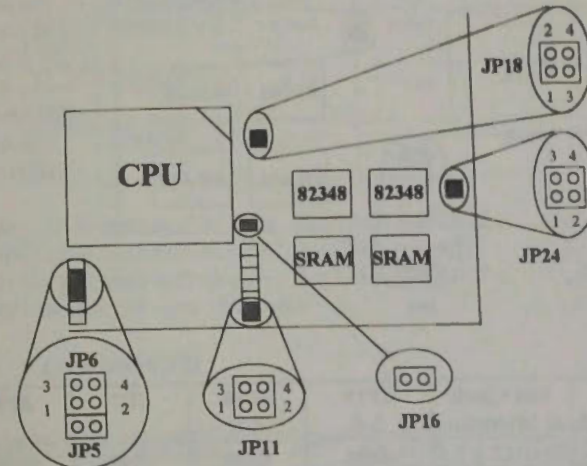


- J1: Keylock & power LED
- J2: Speaker
- J3: HDD LED
- J4: Reset SW
- J5: EX. SMI SW
- J6-J7: USB port
- J14: IR port

- JP2: MONO/COLOR
- JP3: CMOS clear
- JP5,6,11,18,16,24: P54C or P55C
- JP12-JP15: CPU power select
- JP7,JP9: Bus/Core ratio select
- JP19: Clock select
- JP22,JP23: DIMM power select

2-1 CPU Installation/Jumpers Setting

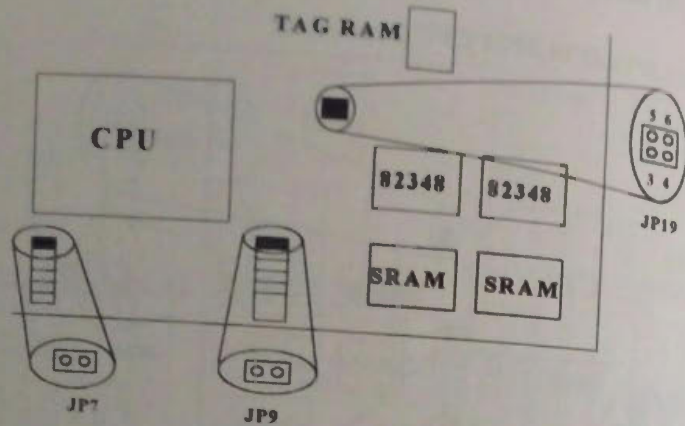
(A) JP11,JP13,JP14,JP24 CPU Type select



CPU Type	JP5	JP6	JP11	JP16	JP18	JP24	Remark
INTEL P54C AMD 5k86	Short	1-2 3-4	1-2 3-4	Open	1-3 2-4	Open	3.4V
Cyrix 6x86	Short	1-2 3-4	Open	Open	Open	1-2 3-4	3.52/3.3V
INTEL P55C	Open	1-2 3-4	Open	Short	Open	1-2 3-4	3.4V/2.8V

(B) JP5,JP9,JP19 CPU Clock select
(1) INTEL CPU

Installation



Internal CPU Clock	Bus Clock & Multiplier	JP19 3-4	JP19 5-6	JP7	JP9
75MHZ	50MHZ x 1.5	short	short	open	open
90MHZ	60MHZ x 1.5	open	short	open	open
100MHZ	66MHZ x 1.5	short	open	open	open
120MHZ	60MHZ x 2	open	short	short	open
133MHZ	66MHZ x 2	short	open	short	open
150MHZ	60MHZ x 2.5	open	short	short	short
166MHZ	66MHZ x 2.5	short	open	short	short
180MHZ	60MHZ x 3	open	short	open	short
200MHZ	66MHZ x 3	short	open	open	short

- * JP19 (3-4) short & (5-6) short : Bus Clock = 50MHZ
- * JP19 (3-4) open & (5-6) short : Bus Clock = 60MHZ
- * JP19 (3-4) short & (5-6) open : Bus Clock = 66MHZ
- * JP7 open & JP9 open : Multiplier = 1.5
- * JP7 short & JP9 open : Multiplier = 2
- * JP7 short & JP9 short : Multiplier = 2.5
- * JP7 open & JP9 short : Multiplier = 3

Installation

(2) : Cyrix 6x86 CPU

CPU Speed	Bus Clock & Multiplier	JP19 3-4	JP19 5-6	JP7	JP9
P-120 100MHZ	50MHZ x 2	short	short	short	open
P-150 120MHZ	60MHZ x 2	open	short	short	open
P-166 133MHZ	66MHZ x 2	short	open	short	open

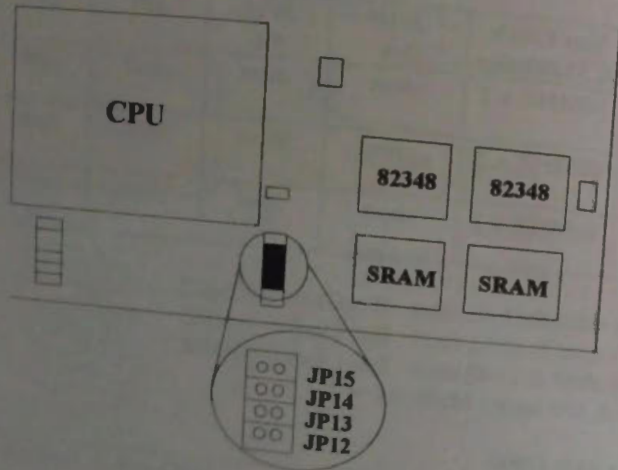
- * JP19 (3-4) short & (5-6) short : Bus Clock = 50MHZ
- * JP19 (3-4) open & (5-6) short : Bus Clock = 60MHZ
- * JP18 (3-4) short & (5-6) open : Bus Clock = 66MHZ
- * JP7 short & JP9 open : Multiplier = 2

(3) AMD CPU

CPU - ratio & Speed	Bus Clock & Multiplier	JP19 3-4	JP19 5-6	JP7	JP9
P-75 66MHZ	66MHZ x 1	short	open	short	open
P-75 75MHZ	50MHZ x 1.5	short	short	open	open
P-90 90MHZ	60MHZ x 1.5	open	short	open	open
P-100 100MHZ	66MHZ x 1.5	short	open	open	open

- * JP19 (3-4) short & (5-6) short : Bus Clock = 50MHZ
- * JP19 (3-4) open & (5-6) short : Bus Clock = 60MHZ
- * JP19 (3-4) short & (5-6) open : Bus Clock = 66MHZ
- * JP7 short & JP9 open : Multiplier = 2
- * JP7 open & JP9 open : Multiplier = 1.5

(C) CPU Voltage - Lever select

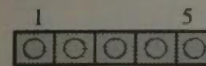


- * JP12 : Short for CPU Voltage 2.5V
 - * JP13 : Short for CPU Voltage 2.85V
 - * JP14 : Short for CPU Voltage 3.35V
 - * JP15 : Short for CPU Voltage 3.52
- | | |
|-------------------------|----------------------------|
| * Intel CPU Standard VR | Spec : 3.135V - 3.365V |
| * VRE | Spec : 3.300V - 3.465V |
| * Cyrix 6x86 | Spec : 3.450V - 3.600V |
| * AMD 5k86 | Spec : 3.150V - 3.600V |
| * please consult CPU | Spec : 3.300V - 3.600V |
| | Spec with your CPU dealer. |

2-2 Connectors and Jumper

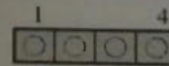
This section describes all of the connectors and jumpers equipped in the mother-board. Please refer to board layout page 1 for actual location of each connector and jumper.

(A) J1 - Keylock & Power LED connector.



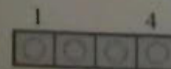
- PIN 1 : Power LED (+)
- PIN 2 : NC
- PIN 3 : GND
- PIN 4 : Keylock
- PIN 5 : GND

(B) J2 - Speaker



- PIN 1 : Speaker
- PIN 2 : NC
- PIN 3 : GND
- PIN 4 : Power (+5V)

(C) J3 - IDE H.D.D. LED



- PIN 1,4 : Power (+5V)
- PIN 2,3 : Signal

(D) J4 - Reset SW.



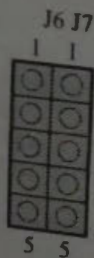
PIN 1 : Signal
PIN 2 : GND

(E) J5 - SMI SW.



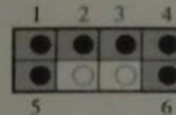
PIN 1: Signal
PIN 2: GND

(F) J6-J7 - USB port



PIN 1: Power +5v
PIN 2: DATA+
PIN 3: DATA-
PIN 4,5: GND

(G) J16 - PS/2 Mouse connector



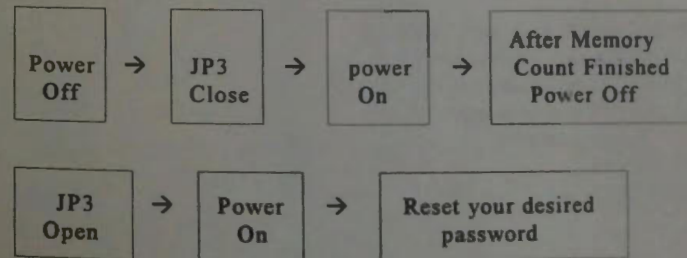
PIN 1: GND
PIN 2: MDATA
PIN 3: NC
PIN 4: Power +5V
PIN 5: MCLK
PIN 6: NC

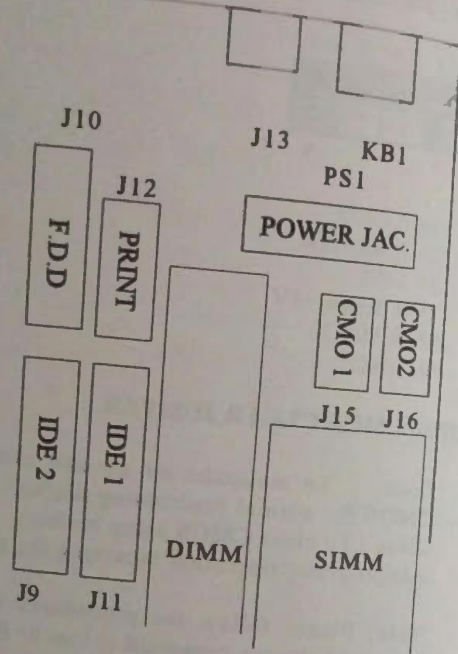
(H) JP3 - CMOS CLEAR JUMPER

Open : To maintain set up and extended setup data in CMOS for normal functioning (default)

Close : To clear CMOS setup memory. If there has been any inappropriate operation incurring the system is failure.

Note: Please follow the procedures below to clear BIOS password if your password is lost or forgotten.



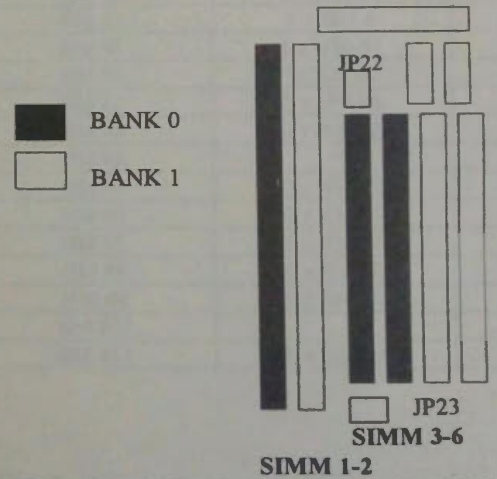


- J9 - IDE hard disk channel 2 connector
- J10 - Floppy driver connector
- J11 - IDE hard disk channel 1 connector
- J12 - PRINT port connector
- PS1 - Power connector
- J15 - COM1
- J16 - COM2

2-3 System Memory Installation

The ACHI-5VX provides FOUR 72-pin SIMM sockets and TWO 168-pin DIMM for system memory expansion from 4 MB to 128 MB. These FOUR SIMMs and TWO DIMM are arranged to two banks, Bank 0 (SIMM 1 or SIMM 3,4), Bank 1 (SIMM 2 or SIMM 5,6), please refer to next page. Each bank provides 64-bit wide data path.

This mother-board accept either Fast Page Mode or EDO Mode (Extended Data Out) and Synchronous DRAM, with a speed at least 70 nanosecond. You should plug DRAM modules into two sockets (same bank), and four sockets at one time. Each pair of modules must be the same size, type and speed, no matter single-side or double side module. This mother-board supports mixing of EDO SIMMs with Fast Page mode DRAM SIMMs and SDRAM among different banks.



- * JP22 : Short & JP23 Open for 5Voltage SDRAM,EDO RAM or FPMRAM
- * JP22 : Open & JP23 : Short for 3.3voltage SDRAM,EDORAM or FPMRAM

System Memory Combination Options

Installation

Bank 0 * (SIMM 1 or 3,4)	Bank 1 * (SIMM 2 or ,5,6)	Total Memory (SIMM 1-6)
2 MB x 2	-	4 MB
-	2 MB x 2	4 MB
2 MB x 2	2 MB x 2	8 MB
4 MB x 2	-	8 MB
-	4 MB x 2	8 MB
8 MB x 2	-	16 MB
-	8 MB x 2	16 MB
2 MB x 2	8 MB x 2	20 MB
4 MB x 2	8 MB x 2	24 MB
16 MB x 2	-	32 MB
-	16 MB x 2	32 MB
8 MB x 2	8 MB x 2	32 MB
2MB x 2	16 MB x 2	36 MB
4 MB x 2	16 MB x 2	40 MB
8 MB x 2	16 MB x 2	48 MB
16 MB x 2	16 MB x 2	64 MB
32 MB x 2	-	64 MB
-	32 MB x 2	64 MB
2 MB x 2	32 MB x 2	68 MB
4 MB x 2	32 MB x 2	72 MB
8 MB x 2	32 MB x 2	80 MB
16 MB x 2	32 MB x 2	96 MB
64 MB x 2	-	128 MB
-	64 MB x 2	128 MB

Installation

Note:

1. ACHI-5VX Supports both Fast Page DRAM and EDO DRAM SIMMs, but they can not be mixed in the same memory bank.
2. Because The SIMM1 or SIMM3,4 and SIMM2 or SIMM5,6 occupies the same memory block (same bank) So they cannot be installed at the same time
3. DIMM Module specification :
3.3V /Unbuffered SDRAM or 5V EDO RAM and FP DRAM

Chapter 3 System BIOS Setup

BIOS SETUP

BIOS setup configures system information that is stored in CMOS RAM. BIOS setup has an easy-to-use user interface that will be immediately

Starting BIOS setup

As POST executes, the following appears:

Hit if you want to run setup.

Press to run BIOS setup

Using the Keyboard with BIOS setup

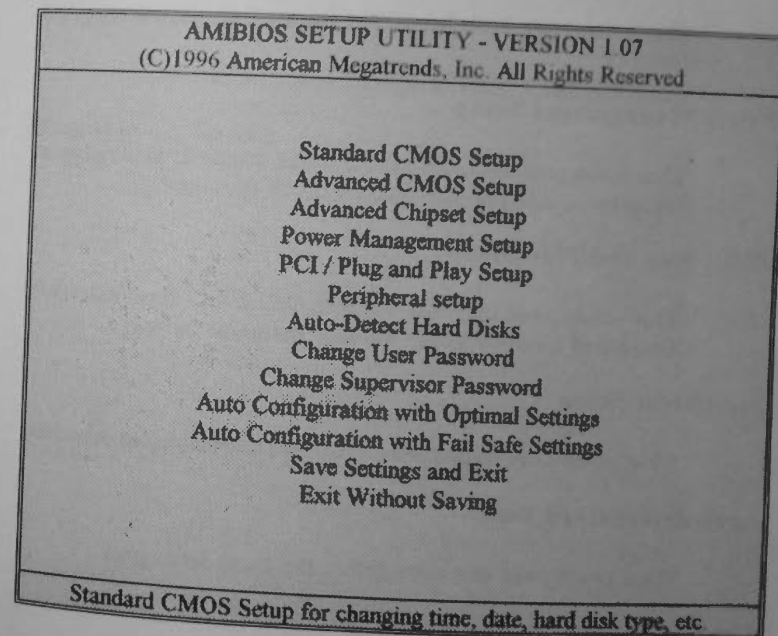
BIOS setup has a built-in keyboard driver that uses Simple keystroke combinations:

Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to previous item
Right arrow	Move to next item
Esc key	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make change
F2 key / F3 key	Change color from total 8 colors. F2 to select color forward, F3 to select color backward
F10 key	Save all CMOS changes, only for Main Menu

Main Menu

Once you enter AMI BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the item and press <Enter> to accept or enter the sub-menu

* Figure 1. Main Menu



Standard CMOS Setup

This setup page includes all the items in a standard compatible BIOS

Advanced CMOS Setup

This setup page includes all the items of BIOS special enhanced features.

Advanced Chipset Setup

This setup page includes all the items of chipset special features.

Power Management Setup

This setup page includes all the items of power management features.

PCI / Plug and Play Setup

This setup page includes the four PCI Bus Locations, IRQ Setup and Latency Timer by user define or default.

Peripheral Setup

This setup page includes all the items of peripheral features.

Auto-detect Hard Disk

This setup page can auto-detect the Hard Disk type.

Change Supervisor Password

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup

Auto Configuration with Optimal Setup

These settings provide the best performance characteristic.

Auto Configuration with Fail safe Setup

These settings more likely to configure a workable computer when something is wrong. If you cannot boot the computer successfully, select the BIOS Setup options and try to diagnose the problem after the computer boots. These settings do not provide optimal performance.

Save & Settings and Exit

Save CMOS value change to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup

Standard CMOS Setup

This item in Standard CMOS Setup Menu are divided into categories. Each category includes no, one or more then one setup item. 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.

* Figure 2. Standard CMOS Setup Menu

AMIBIOS SETUP - STANDARD CMOS SETUP						
(C) American Megatrends, Inc. All Rights Reserved						
Date (mm/dd/yyyy)	Wed Aug 07, 1996					
Time (hh/mm/ss)	06:43:15					
Floppy Driver A:	1.44 MB 3 1/2					
Floppy Driver B:	Not Installed					
	Type	Size	Cyln	Head	LBA Blk Mode	PIO 32Bit Mode
Wpcom Sec					Off	Auto
Pri Master	:Auto				Off	Auto
Pri Slave	:Auto				Off	Auto
Sec Master	:Auto				Off	Auto
Sec Slave	:Auto				Off	Auto
Boot Sector Virus Protection	Disabled					
Month	Jan - Dec				ESC Exit ↑	
Date	01 - 31					
PaUp/PaDn	Modify					
Year	1901 - 2099				F2/F3 Color	

Date

The time format is <day> <month> <date> <year>

day	The day, from Sun to Sat, determined by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	The month, Jan through Dec
year	The year, from 1901 through 2099

Time

The time Format is <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 2 p.m. is 14:00:00.

Drive A Type/Drive B Type

The category identifies the types of floppy disk drive A or drive B that have been installed in the computer.

None	No floppy drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive, 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive, 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive, 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive, 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive, 2.88 megabyte capacity

Hard Disk Type

The categories identify the type of hard disk that have been installed in the computer. There are 46 predefined type and a user definable type. Type 1 to Type 46 are predefined. Type User is user-definable. Type Auto is automatic-define by BIOS. Type CD-ROM is use for ATAPI CD-ROM drives, or press <Enter> to set all HDD parameters automatically.

Press <PgUp> or <PgDn> to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the driver table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

CYLIN	The number of cylinders in the disk drive
HEAD	The number of heads
WPCOM	The size of a sector gets progressively smaller as the track diameter diminishes. Yet each sector must still hold 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors in inner tracks.
SEC	The number of sectors per track. MFM driver have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drivers have 34 sectors per track. SCSI and IDE driver have more sectors per track.
LBA MODE	type of LBA mode

BLK MODE	type of Block mode
PIO MODE	type of Programmed I/O mode The setting are Auto, 0,,2,3,4, or 5. Click on Auto to allow BIOS to automatically choose the PIO mode that the IDE drive being configured uses. If you select 0-5 you must make absolutely certain that you are selecting the PIO mode supported by the IDE drive being configured
32BIT MODE	type of 32-bit transfer mode

If hard disk has not been installed select NOT Install and press <Enter>

Boot Sector Virus Protection

The category setting are Enabled or Disable. If Enabled, BIOS issues a warning when any program (or virus) issues a Disk Format command or attempt to write to the boot sector of the hard disk drive.

Advanced CMOS Setup

!!WARNING!! The information about BIOS defaults on manual (Figure 3.4.5.6.7) is just for reference, please refer to the BIOS installed on board, for update information

* Figure 3. Advance CMOS Setup Menu

AMIBIOS SETUP - ADVANCED CMOS SETUP (C) American Megatrends, Inc. All Rights Reserved		
Quick Boot	Disabled	Available Options:
BootUp Sequence	A..C..CDRO	Disabled
BootUp Num-lock	M	Enabled
Floppy Drive Swap	On	
PS/2 mouse Support	Disable	
Primary Display	Enabled	
Password Check	VGA/EGA	
OS/2 Compatible Mode	Setup	
Internal Cache	Disabled	
External Cache	Write back	
System BIOS Cacheable	Enabled	
C000, 16k Shadow	Enabled	
C400, 16k Shadow	Enabled	
C800, 16k Shadow	Enabled	
CC00, 16k Shadow	Disabled	
D000, 16k Shadow	Disabled	
D400, 16k Shadow	Disabled	ESC Exit ↑ ↓ Sel
D800, 16k Shadow	Disabled	PgUp/PgDn Modify
EC00, 16k Shadow	Disabled	F2/F3 Color
	Disabled	

Quick Boot

Set this option to Enable to instruct BIOS to Boot quickly when the computer is powered on. The setting are

Setting	Description
Disabled	BIOS test all system memory. BIOS waits up to 40 seconds for a READY signal from the IDE hard disk drive. BIOS waits for 5 seconds after sending a RESET signal to IDE drive to allow the IDE drive time to get ready again. BIOS checks for a key press and runs BIOS setup if the key has been pressed.
Enabled	BIOS does not test system memory above 1 MB. BIOS does not wait up to 40 seconds for a READY signal from the IDE hard disk drive. IF a READY signal is not received immediately from the IDE drive, BIOS does not configure after sending a RESET signal to the IDE drive to allow the IDE drive time to get ready again. You cannot run BIOS Setup at system boot, because there is no delay for the hit to run setup message

BootUp Sequence

This option sets the sequence of boot drivers (floppy drive A:, hard disk drive C:, or a CD-ROM drive) that the BIOS attempts to boot from after BIOS POST completes. The setting are C..A..CDROM, CDROM..C..A.. or A..C..CDROM.

BootUp Num-lock

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

Floppy Driver Swap

Set this option to Enable to permit driver A and B to be swapped.

PS/2 mouse Support

When this option is set to Enable BIOS support a PS/2 type mouse.

Primary Display

This option specified the type of display monitor and adapter in the computer. The setting are Mono, CGA40, CGA80, EGA/VGA OR Absent. The Optimal and Fail-Safe default setting are EGA/VGA.

Password Check

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

Boot to OS/2, DRAM 64MB or Above

Set this option to Enable to permit BIOS to run with IBM OS/2 when the memory is over 64MB.

Internal cache

This option specifies the caching algorithm used for L1 CPU internal cache memory.

Setting	Description
Disabled	Neither L1 internal cache memory on the CPU or L2 secondary cache memory is enabled
Write Back	Use the Write-back caching algorithm
Write Thru	Use the Write-through caching algorithm.

External Cache

This option specifies the caching algorithm used for L2 secondary (external) cache memory.

Setting	Description
Disabled	Neither L1 internal cache memory on the CPU or L2 secondary cache memory is enabled
Write Back	Use the Write-back caching algorithm
Write Thru	Use the Write-through caching algorithm.

System BIOS Cacheable

When this option is set to Enabled, the contents of the F0000h system memory segment can be read from or written to L2 cache memory. The contents of the F0000h memory segment are always copied from the BIOS ROM to system RAM for faster execution.

C000-D800 16K Shadow

This option control the location of the contents of the 16KB of ROM beginning at the specified memory location. If no adapter ROM is using the named ROM area, this area is made available to the local bus. The settings are:

Setting	Description
Shadow	The contents of C0000h-C3FFFh are written to the same address in system memory (RAM) for faster execution.
cache	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the contents of the RAM area can be read from and written to cache memory.
Disabled	The video ROM is not copied to RAM. The contents of the video ROM cannot be read from or written to cache memory.

* In the BIOS for this chipset, the E000h page is used as ROM during POST, but shadowing is disabled and the ROM CS# signal is disabled to make the E000h page available on the local bus.

Advanced Chipset Setup

The Advanced Chipset Setup option change the values of the chipset registers. These register control system options in the computer.

* Figure 4. Advanced Chipset Setup

AMIBIOS SETUP - ADVANCED CHIPSET SETUP (C)1996 American Megatrends, Inc. All Rights Reserved		
	Auto	Available Options
DRAM Timing Setting	2 clocks	Disabled
Fast MA to RAS# Delay	x444 x444	Enabled
EDO:SPM Read Burst Timing	x444	
DRAM Write Burst Timing	3 clock	
Fast RAS to CAS Delay	11~7~3	
DRAM LeadOff Timing (DLT)	4 clocks	
Refresh RAS# Assertion	Disabled	
Fast EDO Path Select	3	
SDRAM CAS# Latency	3 5:8	
SDRAM RAS# Timing	Reserved	
8Bit I/O Recovery Time (Sysclk)	Reserved	
16Bit I/O Recovery Time (Sysclk)	Disabled	
Peer concurrence	Disabled	
PCI 2.1 Passive Release Enable	Disabled	
Delayed Transaction Enable	Disabled	
USB Passive Release Enable	Disabled	
USB Keyboard support	Disabled	
		ESC Exit ↑ ↓:Sel PgUp/PgDn Modify F2/F3.Color

DRAM Timing Setting

Choose the right speed to fit your DRAM's spec. Chipset support 60 and 70ns DRAM Timing

Note:

If you have installed SIMMs with different speeds in the motherboard, select of the slowest SIMM.

You must always use SIMMs that have the same speed within a memory bank

Fast MA to RAS# Delay

Use the default setting.

DRAM Write Burst Timing

This item is support for slower rates may be required in certain system designs to support layout with longer trace lengths or slower memories. Use the default setting.

Fast RAS to CAS Delay

The slower timing may be required in certain system designs to support layout with longer trace lengths or slower memories. Use the default setting.

DRAM LeadOff Timing

The slower leadoffs may be required in certain system designs to support layout with longer trace lengths or slower memories. Use the default setting.

Refresh RAS# Assertion

This item controls the number of clocks RAS# is asserted for Refresh cycles. Use the default setting.

Fast EDO Path Select

Enable a fast path is selected for CPU to DRAM read cycles for the leadoff. This is valid for EDO DRAMs only in both a cache and a cacheless system. Use the default setting.

SDRAM CAS# Latency

When Disable CAS# latency of 2 for all SDRAM cycles. When Enable CAS# LATENCY OF 3. RAS# to CAS# delay is also controlled by this item. When programmed for 2 clock CAS# latency, a RAS# to CAS# delay of 2 HCLKs is provided. Use the default setting.

8Bit I/O Recovery Time

The I/O recovery mechanism is used to add additional recovery delay between CPU and PCI master originated 8-bit I/O cycles to the ISA Bus. The chips automatically forces a minimum delay of 3.5 SYSCLKs between back-to-back 8 bit I/O cycles to the ISA Bus. The delay is measured from the rising edge of the I/O command (IOR# or IOW#) to the falling edge of next I/O command. If a delay of greater than 3.5 SYSCLKs is required, the ISA I/O Recovery time register can be programmed to increase the delay in increments of SYSCLKs. No additional delay is inserted for back to back I/O "sub cycles" generated as a result of byte assembly or disassembly. this register defaults to 8-bit recovery enable with one SYSCLK clock added to the standard I/O recovery.

16Bit I/O Recovery Time

The I/O recovery mechanism is used to add additional recovery delay between CPU and PCI master originated 16-bit I/O cycles to the ISA Bus. The chips automatically forces a minimum delay of 3.5 SYSCLKs between back-to-back 16-bit I/O cycles to the ISA Bus. The delay is measured from the rising edge of the I/O command (IOR# or

IOW#) to the falling edge of next I/O command. If a delay of greater than 3.5 SYSCLKs is required, the ISA I/O Recovery time register can be programmed to increase the delay in increments of SYSCLKs. No additional delay is inserted for back to back I/O "sub cycles" generated as a result of byte assembly or disassembly. This register defaults to 16-bit recovery enabled with one SYSCLK clock added to the standard I/O recovery.

Peer Concurrency

Use the default setting.

PCI 2.1 Passive Release

Default is Enabled.

USB Function Enable

Default is Disabled.

If Use the USB keyboard select Enable.

Power Management Setup

* Figure 5. Power Management Setup

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C) 1996 American Megatrends, Inc. All Rights Reserved		
		Available Options
Power Management /APM	Disabled	Disabled
Instant-On Timeout (Minute)	Disabled	Enabled
Green PC Monitor Power State	Standby	Inst-ON
Video Power Down Mode	Disabled	
Hard Disk Power Down Mode	Disabled	
Hard Disk Time Out (Minute)	Disabled	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
Slow Clock Ratio	1 1	
Display Activity	Ignore	
IRQ3	Ignore	
IRQ4	Ignore	
IRQ5	Ignore	
IRQ7	Ignore	
IRQ9	Ignore	
IRQ10	Ignore	
IRQ11	Ignore	
IRQ12	Ignore	
IRQ13	Ignore	
IRQ14	Ignore	
IRQ15	Ignore	

ESC Exit ↑ ↓ Sel
PgUp/PgDn Modify
F2/F3.Color

Power Management Setup / APM

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

Instant-On Timeout (Minute)

Set this option to **Enabled** to allow the computer to go to full power on mode when leaving a power-conserving state. This option is only available if supported by the computer hardware. BIOS uses the RTC Alarm function to wake the computer at a prespecified time.

Green PC Monitor Power Setup

This option specifies the power management state that the Green PC-compliant video monitor enters after the specified period of display inactivity has expired.

Parity Check

Set this option to **Enabled** to check the parity of all system memory. The optimal and Fail-Safe default setting are **Disable**.

Video Power Down Mode

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

Hard Disk Power Down Mode

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

Hard Disk Time Out (Minute)

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

Standby Time Out (Minute)

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

Suspend Time Out (Minute)

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

Slow Clock Ratio

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

Display Activity

This option specifies if BIOS is to monitor activity on the display monitor for power conservation purposes. When this option is set to **Monitor** and there is no display activity for the length of time specified in the value in the **Full-On to standby Timeout (Minute)** option, the computer enters a power saving state.

IRQ3,4,5,7,9,10,11,12,13,14,15

There option enable event monitoring. When the computer is in a power saving mode, activity on the named interrupt request line is monitored by BIOS. When any activity occurs, the computer enters Full ON Mode

PCI / Plug and Play Setup

* Figure 6. PCI / Plug and Play Setup

AMIBIOS SETUP - PCI / PLUG AND PLAY SETUP		
(C)1996 American Megatrends, Inc. All Rights Reserved		
	No	Available Options
Plug and Play Aware O/S	Yes	No
Reset NVRAM	Yes	Yes
PCI IRQ Priority Auto Setting	IRQ 11	
1st Available IRQ	IRQ 10	
2st Available IRQ	IRQ 9	
3st Available IRQ	IRQ 12	
4st Available IRQ	32	
PCI Latency Timer (PCI Clocks)	Yes	
Assign IRQ to PCI VGA Card	Disabled	
PCI VGA Palette Snoop	Disabled	
PCI IDE Bus Master	Auto	
OffBoard PCI IDE Card	Disabled	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	PnP	
DMA Channel 0	PnP	
DMA Channel 1	PnP	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	PCI/PnP	
IRQ4	PCI/PnP	
IRQ5	PCI/PnP	
IRQ7	PCI/PnP	
IRQ9	PCI/PnP	
IRQ10	PCI/PnP	
IRQ11	PCI/PnP	
IRQ14	PCI/PnP	
IRQ15	Disabled	
Reserved Memory Size	C000	
Reserved Memory Address		

ESC Exit F1 Help
PgUp/PgDn Modify
F2/F3 Color

Plug and Play Aware O/S

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

Reset NVRAM

Yes : Every time to reboot the system will to clear the NVRAM in the Flash ROM and change the Plug & Play device data. No: no clear the NVRAM data

PCI IRQ Priority Auto Setting

Yes: BIOS Auto assigns a IRQ for PCI slot. No use assigns the IRQ for PCI slot

1st Available IRQ

1st PCI slot IRQ assigns depend on user or BIOS

2st Available IRQ

2st PCI slot IRQ assigns depend on user or BIOS

3st Available IRQ

3st PCI slot IRQ assigns depend on user or BIOS

4st Available IRQ

4st PCI slot IRQ assigns depend on user or BIOS

PCI Latency Timer (PCI Clocks)

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

PCI VGA Palette Snoop

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

PCI IDE Bus Master

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

OffBoard PCI IDE Card

This option specifies if an offboard PCI IDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the motherboard where the offboard PCI IDE controlled card is installed. if an offboard PCI IDE controller is used, the onboard IDE controller on the motherboard is automatically disabled

OffBoard PCI IDE Primary IRQ

This option specifies the PCI interrupt used by the primary IDE channel on the offboard PCI IDE controller

Offboard IDE Secondary IRQ

This option specifies the PCI interrupt used by the secondary IDE channel on the offboard PDI IDE controller

Assign IRQ to PCI VGA Card

If VGA Card none use IRQ to Select Disable

DMA Channel X

choose PnP or ISA/EISA. PnP BIOS Auto assigns DMA to the device ISA/EISA: User assign DMA to the device

IRQX

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

Reserved Memory Size

This option specifies the size of the memory area reserved for legacy ISA adapter cards.

Reserved Memory Address

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

3-5 Peripheral Setup

The Peripheral Setup option changes the values of the chipset registers. These registers control system option in the computer.

7. Peripheral Setup

AMIBIOS SETUP - PERIPHERAL SETUP (C)1996 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Auto	Available Options: Auto Disabled Enabled
Drive A, B Exchanged	No	
OnBoard Serial Port1	Auto	
OnBoard Serial Port2	Auto	
Serial Port2 Mode	Normal	
IR Duplex Mode	Full	
OnBoard Parallel Port	Auto	
Parallel Port Mode	SPP/EPP	
Parallel Port DMA Channel	None	
Parallel Port IRQ	7	
OnBoard IDE	Reserved	

ESC:Exit ↑ ↓ Sel
PgUp/PgDn:Modify
F2/F3 Color

OnBoard FDC

This option enables the floppy drive controller on the motherboard

OnBoard Serial Port1

This option enables serial port 1 on the motherboard and specifies the base I/O port address for serial port1.

OnBoard Serial Port2

This option enable serial port 2 on the motherboard and specifies the bass I/O port address for serial port2.

Serial Port2Mode

Choose Normal is COM2 Enable. Choose other is Disable COM2.

OnBoard Parallel Port

This option enables the parallel port on the motherboard and specifies the parallel port base I/O port address.

Parallel Port Mode

This option specifies the parallel port mode. ECP and EPP are both bidirectional data transfer schemes that adhere to the IEEE P1284 specifications. The settings are:

Setting	Description
Normal	The normal parallel port mode is used. This is the default setting.
Bi-Dir	Use this setting to support bidirectional transfers on the 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 transfer rates of approximately 2.5 Mbs. ECP provides symmetric bidirectional communications.

Parallel Port DMA

choose DMA3 (default) or DMA0 and DMA1. This setting only works when the Onboard print Mode is set at the ECP mode.

OnBoard IDE

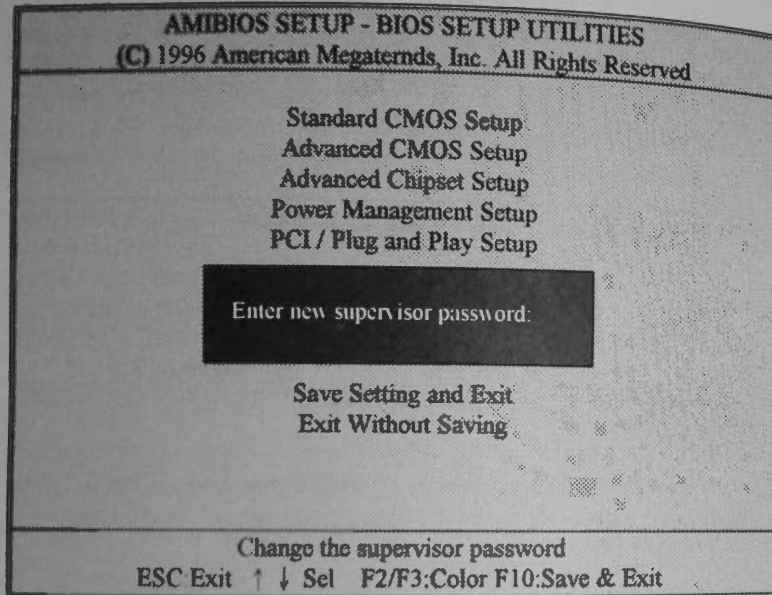
Enable : Use the on-board IDE (default)
Disable : Turn off the on-board IDE

Auto-Detect Hard Disk

This Main Menu item automatically detects the hard disk type and configures the STANDARD CMOS SETUP accordingly.
Note : This function is only valid for IDE hard disks.

Change Supervisor Password

* Figure 8. Change Supervisor Password



When you select this function, the following message will appear at the center of the screen to assist you in creating a password. BIOS Setup has an option password feature. The system can be configured so that all user must enter a password every time the system boots or when BIOS Setup is executed. The following screen appears when you select the password icon.

You can enter a password by:

- typing the password on the keyboard

pen access must be customized for each specific hardware platform.

The password check option is enable in Advanced Setup by choosing either Always (the password prompt appears every time the system is powered on) or Setup (the password prompt appears only when BIOS Setup is run) The password is stored in CMOS RAM. The item asks for a password.

Enter a 1-6 character password. The password does not appear on the screen when typed. BIOS will ask to retype the password. Make sure you write it down. If you forget it, you must drain CMOS RAM and reconfigure the system.

Select the Password icon from Security section of the BIOS Setup main menu. Enter the password and press <Enter>. The screen does not display the characters entered. After the new password is entered, retype the new password as prompted and press <Enter>.

If the password confirmation is incorrect, an error message appear. If the new password is entered without error, press <Esc> to return to the BIOS Setup Main Menu. The password is stored in CMOS RAM after BIOS Setup completes. The next time the system boots, you are prompted for the password for the password if the password function is presented and is enabled.

Remember the Password

Keep a record of the new password when the password is changed.

Auto configuration with Optimal Settings

The Optimal default setting are best-case values that should optimize system performance. If CMOS RAM is corrupted, the Optimal setting are loaded automatically.

Auto Configuration with Fail Safe Setting

The Fail-Safe setting provide far from optimal system performance., but are the most stable settings. Use this option as a diagnostic aid if the system is behaving erratically.

Save Setting and Exit

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and setup.

Chapter 4 Trouble Shooting

PROBLEM

No power to system at all. Power light does not illuminate, fan inside power supply does not turn on. Indicator light on keyboard does not turn on.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Power cable is unplugged.	Visually inspect power cable	Make sure power cable is securely plugged in
Defective power cable.	Visual inspection, try another cable.	Replace cable.
Power supply failure	Power cable and wall socket are OK, but system is still dead.	Contact technical support.
Faulty wall outlet, circuit breaker or fuse blown	Plug in device known to work in socket and test.	Use different socket, repair outlet, reset circuit breaker or replace fuse.

PROBLEM

System inoperational. Keyboard lights are on, indicator lights are lit, hard drive is spinning

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Expansion card is partially dislodged from expansion slot on the motherboard.	Turn off computer. Take cover off system unit. Check all expansion cards to ensure they are securely seated in slots.	Using even pressure on both ends of the expansion card, press down firmly on expansion card.
Defective floppy disk drive or tape drive.	Turn system off. Disconnect the cables from one of the floppy drives. Turn on the floppy drives. Turn on the system, check to see if the keyboard operates normally. Repeat until you have located defective unit.	Contact Technical Support.
Defective expansion card.	Turn computer off. Remove an expansion card.	Make sure expansion card is secure in expansion socket.

PROBLEM

System does not boot from hard disk drive, can be booted from floppy disk drive.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Connector between hard drive and system board unplugged.	When attempting to run the FDISK utility described in the HARD DISK section of this manual, you get a DRIVE SPECIFICATION.	Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the Standard CMOS Setup (see HARD DISK section of this manual).
Damaged Hard Disk or Disk Controller.	Format hard disk; if unable to do so the hard disk is defective.	Contact Technical Support.
Hard Disk directory or FAT is scrambled.	Run the FDISK program, format the hard drive (see HARD DRIVE section of manual). Copy data that was backed up onto Hard Drive.	Backing up the hard drive is extremely important. All Hard Disk are capable of breaking down at any time.

PROBLEM

System only boot from floppy Disk. Hard disk can read and applications can be used but booting from Hard Disk is impossible.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Hard Disk boot program has been destroyed.	A number of causes could be behind this.	Back up data and applications files. Reformat the Hard Drive as described in the Hard Drive section of this manual. Re-install applications and data using backup disks.

PROBLEM

Error Message reading "SECTOR NOTFOUND" or other error message not allowing certain data to be retrieved.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
A number of causes could be behind this.	Use a file by file backup instead of image backup in order to backup the Disk.	Back up any salvagable data. Then low level format, partition, and high lever format hard drive. Re-install all saved data when completed.

PROBLEM

Disk format on IBM PS/2 will not operate with this system.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
The IBM PS/2 uses a different format than other computers.	IBM PS/2 disk format will not work in an AT type computer	Format disk in the AT type computer. Insert disk into the IBM PS/2 and copy the files you wish

PROBLEM

After installing an expansion card (network card, tape drive card, etc.) The system no longer works properly.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
No power to monitor.	All or part of the system may be inoperable. The new card may work but a mouse or COM port may not work	Change the interrupt or RAM address on the new expansion card. see the documentation that came with the new card in order to change pin settings. Many expansion devices come with proprietary software that will assist you in doing this

PROBLEM

Screen message says "Invalid Configuration" or "CMOS Failure."

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Incorrect information entered into the configuration (setup) program	Check the configuration program. Replace any incorrect information	Review system's equipment. Make sure correct information is in setup

PROBLEM

Screen is blank.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
No power to monitor		Check the power connectors to monitor and to system. Make sure monitor is connected to display card, change I/O address on network card if applicable
Monitor not connected to computer		See instruction above
Network card I/O address conflict.		See instruction above

PROBLEM

Greek looking letters on screen.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Memory problem, display card jumpers not set correctly		Reboot computer. Reinstall memory, make sure that all memory modules are install in correct sockets. Check jumper and switch settings on display card. See display card section for information on settings
Computer virus		Format hard drive.

PROBLEM

Screen goes blank periodically.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Screen saver is enable		Disable screen saver.

PROBLEM

Keyboard failure.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Keyboard is disconnected		Reconnect keyboard. Check keys again, if no improvement replace Keyboard

PROBLEM

No color on screen

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Faulty Monitor		If possible, connect monitor to another system. If no color replace monitor.
CMOS incorrectly set up.		Call technical support

PROBLEM

Floppy drive light stays on.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Floppy Drive cable not connected correctly.		Reconnect floppy cable making sure PIN 1 on the floppy Drive corresponds with PIN 1 on floppy cable connector.

PROBLEM

Error reading drive A:

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Bad floppy disk.		Try new floppy disk
Floppy disk not formatted		Format floppy disk (type FORMAT A: type ENTER).

PROBLEM

C drive failure.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
SETUP program does not have information.		Boot form drive A using DOS system disk. Input correct information to SETUP program
Hard Drive cable not connected properly		Check Hard Drive cable

PROBLEM

Cannot boot system after installing second hard drive

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Master/Slave jumpers not set correctly.		Set Master/Slave jumpers correctly
Hard Drives not compatible: different manufacturers.		Run SETUP program and select correct drive types. Call Drive manufactures for compatibility with other drives.

PROBLEM

Missing operating system on hard drive.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
CMOS setup has been change		Run setup and select correct drive type.

PROBLEM

Certain Keys do not function.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Keys jammed or defective.		Replace Keyboard.

PROBLEM

Keyboard is locked, no keys function.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Keyboard locked		Unlock keyboard.

PCI
LOCAL BUS

CE

Energy
EPA POLLUTION PREVENTER

Compatible with

Microsoft
Windows 95